Zentralinstitut für
Seelische Gesundheit

Landesstiftung
des öffentlichen Rechts

2015 | 2016

ANNUAL REPORT

2015 — 2016

ANNUAL REPORT

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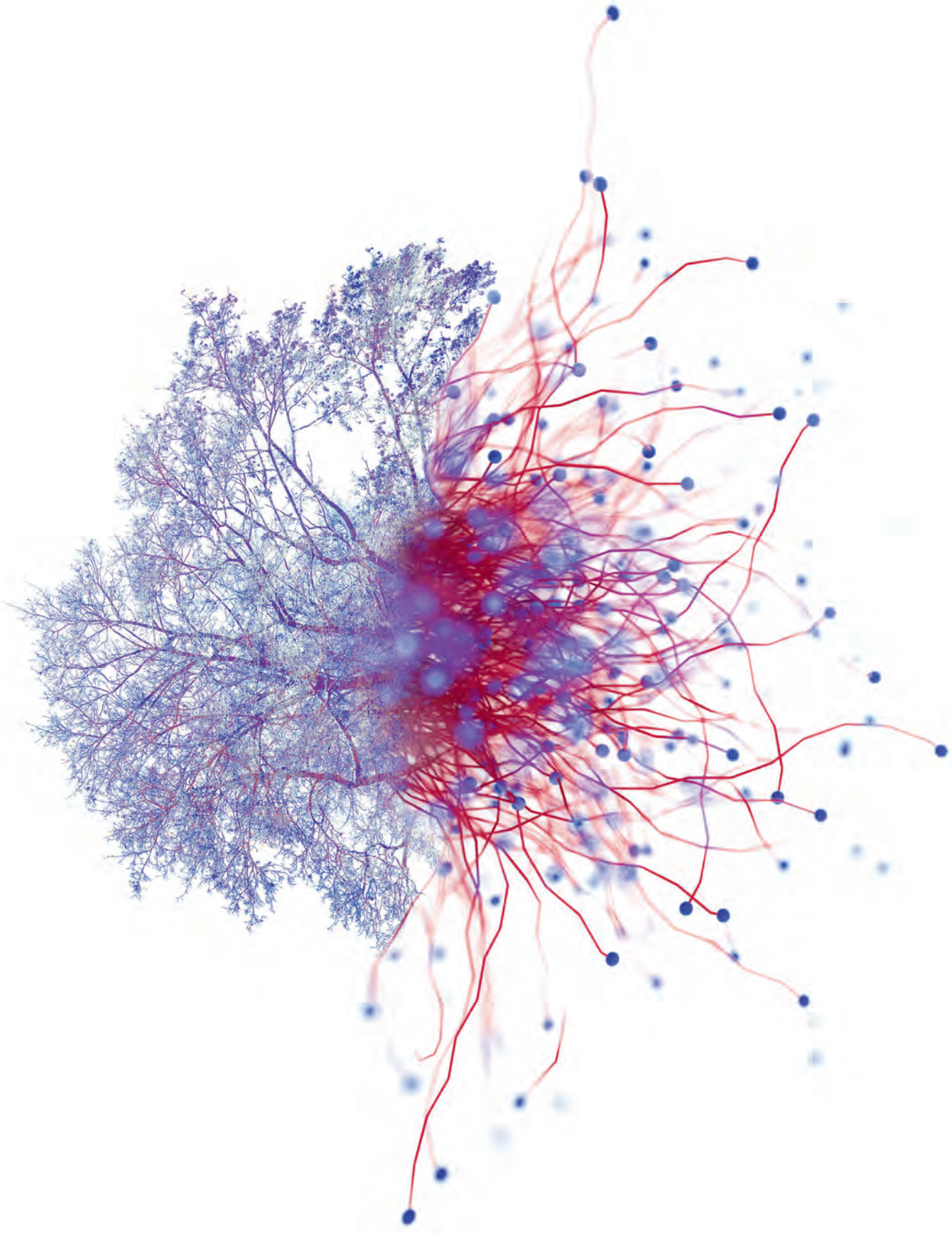

EXECUTIVE BOARD

2015 — 2016

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REPORT BY THE CHAIR OF THE EXECUTIVE BOARD

Prof. Dr. Andreas Meyer-Lindenberg

2015 and 2016 were two years with significant developments in research and health care for the Central Institute of Mental Health. Our overarching strategic objective is and remains translation, in other words the acquisition of new scientific knowledge and the rapid transfer of this into therapeutic care. We have continued to tread this path and have increased both the physical facilities and the content.

INNOVATIVE IN HEALTH CARE

The opening of the new building in K 3 in early 2016 was the first major step in our CIMH 2020 new building project. K 3 offers new space for innovative concepts, particularly the **Adolescent Center.** The Center under the joint management of the Clinic of Child and Adolescent Psychiatry and Psychotherapy, the Clinic of Psychosomatic Medicine and Psychotherapy and the Institute for Psychiatric and Psychosomatic Psychotherapy provides patients with interdisciplinary, disorder-specific and continuous treatment over the entire phase of adolescence of this type for the first time in Germany. Adolescents and young adults aged from 16 to 24 who suffer from borderline personality disorder, hyperkinetic disorders (ADHD), disorders of social behavior and emotions and/or eating disorders are treated here. In our tracking concept, outpatient, day care and inpatient treatment is fully flexibly interlinked. The treatment team supports patients through an important phase of life with challenges such as finishing school and training, their first relationships and independent living.

The new **Day Clinic of Psychiatry and Psychotherapy in Childhood and Adolescence** is also housed in K 3. Over eight rooms, it offers treatment places for ten children aged up to twelve with psychological disorders such as hyperkinetic and emotional disorders, disorders of social behavior, obsessive-compulsive disorders and severe developmental disorders (e.g. autism spectrum disorders). Like all patients in K 3, the children in the day clinic can use the green, sunny courtyard in the new building – a place of quiet in the middle of hectic Mannheim.

Another new feature is the **Psychiatric Out-patient Clinic "PIA Heim",** which is part of the Clinic of Psychiatry and Psychotherapy. Under the management of the Department of Geriatric Psychiatry, it offers a geriatric psychiatric outpatient institute for four selected old people's homes in Mannheim. Care data for the city of Mannheim show that around 60 to 80 percent of all nursing home residents have geriatric psychiatric conditions, most commonly dementia and depression. "PIA Heim" can soften the distinction between outpatient and inpatient treatment.

The psychiatric treatment provided in "PIA Heim" can often mean a stressful move to a clinic is no longer necessary.

NEW APPROACHES TO RESEARCH

A future-oriented milestone in research was the founding of the **Hector Institute for Translational Brain Research** (HITBR). The Hector-Stiftung II foundation is funding a share of this company for the next five years, to the tune of 7.5 million euros. The generous support of Hans-Werner and Josephine Hector has enabled a research collaboration program to be established in which the two large medical research facilities in the region, CIMH and the German Cancer Research Center in Heidelberg, were able to bring their expertise together. The research work is to be carried out by a **Hector Professor of Stem Cell Research in Psychiatry** to be appointed at CIMH and two junior research groups. The research on nerve cells generated from induced pluripotent stem cells is opening up new perspectives in psychiatry and neuroscience. HITBR will use this method to identify innovative possible treatments for severe psychiatric disorders by investigating nerve cells, neuronal networks and new tissue models.

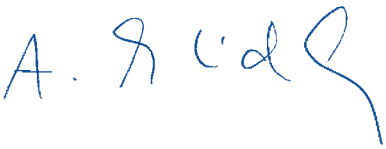
NEW LARGE PROJECTS

The years 2015 and 2016 were also very successful in terms of research promotion, as the performance figures show. By way of examples, I would like to mention the second funding period for Clinical Research Group 256 (borderline) from the German Research Foundation and the start of funding of two new networks that are part of the German Research Network for Psychiatric Disorders, ESCA-life (ADHD) and ESPRIT (schizophrenia) from the Federal Ministry of Education and Research. CIMH therefore coordinates two out of nine networks across Germany.

40-YEAR ANNIVERSARY OF CIMH

In 2015, CIMH celebrated 40 years of existence. Together with the founders, Professor Heinz Häfner and Dr. Hans Martini, the former Director Professor Fritz Henn and high-ranking guests from science and politics including the ministers of science for both the country and the state, we looked back on the success stories of the CIMH to date and celebrated the anniversary with a party and a scientific symposium.

These initiatives and successes would not be conceivable without the efforts of our employees from various different professional groups, who now number more than 1,250. They all make an important contribution, without which CIMH would not be able to continue at such a high level. I wish to thank them from the bottom of my heart. Building on two future-oriented years, we are now looking forward to taking further steps towards CIMH 2020 and beyond.



Prof. Dr. Andreas Meyer-Lindenberg
Chair of the Executive Board

REPORT BY THE COMMERCIAL MANAGING DIRECTOR

Katrin Erk

Our job and our objective is to provide comprehensive psychiatric care to the citizens of Mannheim. In addition to the efforts to create even more space for innovative research, this was and is the focus of what we do. In 2015 and 2016 we have consistently developed the Central Institute of Mental Health.

CHANGES TO FRAMEWORK CONDITIONS AND REQUIREMENTS

There is an upheaval going on in psychiatric care. Changes to the legal framework conditions have brought with them new requirements in terms of treatment processes. For one thing, this relates to the legal conditions of the acute treatment of those with mental health conditions in Baden-Württemberg, as set out by the new **Mentally Ill Patient Support Act** that entered into force on 1 January 2015. In addition to this, the content-related and economic requirements for modern, client-oriented diagnosis and treatment in psychiatry and psychotherapy have also developed.

Treating those with mental health conditions demonstrates increasingly clearly how critical a cross-sectional approach that ensures coordination between support systems is. The aim must be to enable easy access beyond the boundaries of sectors (outpatient, day care, inpatient) to the care services that are relevant to them and to organize further treatment without any disadvantages for the patients. New treatment concepts should take this challenge into account and ensure optimal care quality.

The **track concept,** in which outpatient, day care and inpatient treatment is mixed in a flexible manner, is our innovative approach to dealing with this change and enabling greater levels of flexibility in treatment, to the benefit of our patients. In particular, we are achieving this by creating new physical structures and ensuring a constant treatment team. Our **Adolescent Center** is also critical in setting the course of the development of new treatment approaches and the transfer of these into general care. We have therefore started intensive discussions with the health insurances regarding the legal possibility of funding the Adolescent Center as a model project in accordance with Section 64 b.

CONTINUING HIGH REQUIREMENT FOR TREATMENT

The requirement for therapeutic services remains high and is reflected in a **utilization level of almost 100 percent** in the outpatient setting of all four clinics at CIMH. The opening of the new building, K 3, made it possible for us to establish a day Clinic

of child and adolescent psychiatry for the first time, thereby closing a gap in care. The launch of the Adolescent Center also enabled us to **increase our capacity.** Following a brief reorganization phase, we opened the **first tracking ward in the Clinic of Psychiatry and Psychotherapy** in late 2016. As of 31 December 2016, CIMH had more than 349 beds and places. In the next few years, the capacity will gradually be expanded to around 390 planned beds by the following new construction and renovation projects. The treatment figures will also increase with the new services. The amount of time spent in an outpatient environment has decreased. As has been demonstrated across the country, against the background of high prevalence rates the case numbers are increasing. This is reflected in our treatment requirement and can ultimately also be seen in the constant increase in the numbers of outpatient cases.

CHARGING SYSTEM IN FLUX

The change in the payment system for psychiatric services has kept us very busy. Following the introduction of the flat-rate remuneration system in psychiatry and psychotherapy at CIMH (during the phase when this was still optional) in mid-2015, the framework conditions for the use of this were optimized in late 2016 with the **Law on the Development of Care and the Remuneration of Psychiatric and Psychosomatic Services.**

Regional conditions and the particular structural elements of the service provision should now be taken into account in the payment system. The previously planned average price system has been discarded in favor of a budget system, but performance-based remuneration has been retained. The Law on the Development of Care and the Remuneration of Psychiatric and Psychosomatic Services, which was passed by the Bundestag in late 2016, represents considerable changes to and interventions in the system and will continue to present us with challenges in the future.

FURTHER INTENSIVE RENOVATION AND NEW CONSTRUCTION MEASURES

The implementation of our growth strategy will continue to play a major role in the shaping of work at CIMH in the next few years. The second phase of construction - the renovation and conversion of the basement and ground floor of the main medical building - started in 2015. The gradual transfer of the reception to the second floor is a logistical challenge. With the renovation of the floor panels, the building is very literally getting new foundations while work on the upper floors continues. The facilities and structures for the **Center for Innovative Psychiatry and Psychotherapy Research** are being created in the basement, with a psychopharmaceutical research facility, the admission and intensive care ward and a new reception being constructed on the ground floor. In parallel with this work, planning for the new J 4 building to be constructed on the CIMH campus from 2018 is keeping us busy. Following completion of the new building project and the putting of the remaining beds into operation, CIMH will take on all of the psychiatric care for the citizens of Mannheim from 2020.

CIMH – EMPLOYER IN THE CENTER OF MANNHEIM

In the city of Mannheim, CIMH plays a permanent role as an important health care partner. With more than 1,250 employees in several locations in the city center, we are now **one of the largest employers in Mannheim.** In addition to providing training in the field of health care and administration and teaching, we are continuously investing in further training and have establish a project to found a **CIMH Academy.** The first step to this is re-starting and adjusting the focus of specialist training in nursing at CIMH. We are also working to an increased extent on topics of operational health management, for example as part of an employee survey in 2016, the results of which are now gradually being followed up on.

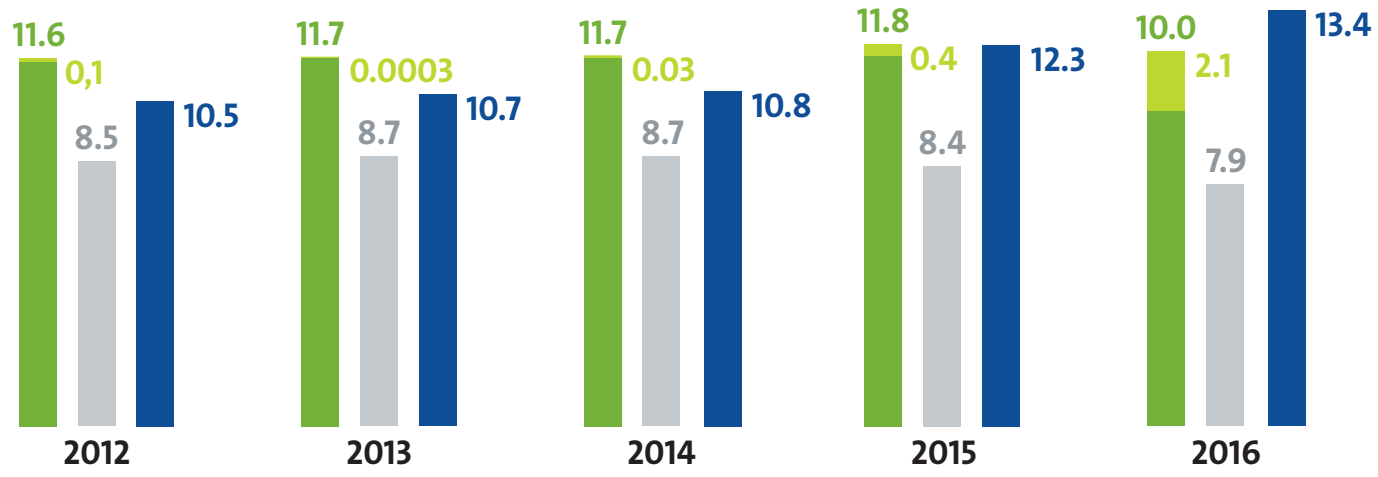
All of our employees in health care, research, teaching and services work to ensure that CIMH can offer the diagnosis and treatment of mental health conditions at a high level, that this is provided on the basis of the latest scientific research and that this is also linked to innovative national and international research.
A look back at 2015 and 2016 shows that through commitment and drive we have managed to overcome existing challenges and further promote exciting strategic and operative subjects.
My heartfelt thanks to all of those involved and all friends and supporters of CIMH for this.

Katrin Erk
Commercial Managing Director

DEVELOPMENT FIGURES

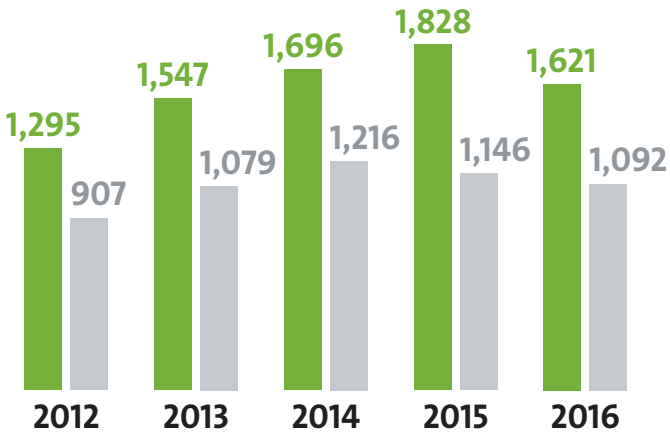
RESEARCH

THIRD-PARTY FUNDING AND OPERATING FUNDS IN MIO. EURO (ROUNDED)



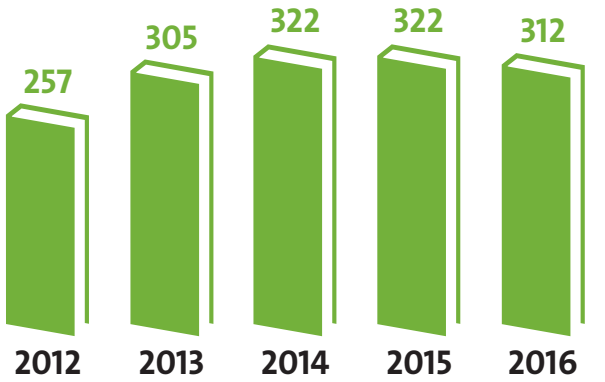
Third-party funding unweighted | thereof BMBF + DFG
DFG and state large-scale equipment + construction | operating funds of the federal state of Baden-Württemberg

IMPACT FACTORS



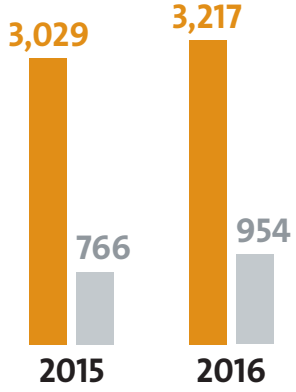
Total | corrected by co-authorships

NUMBER OF PUBLICATIONS

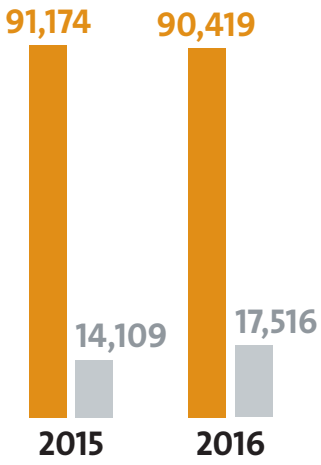


PATIENT CARE

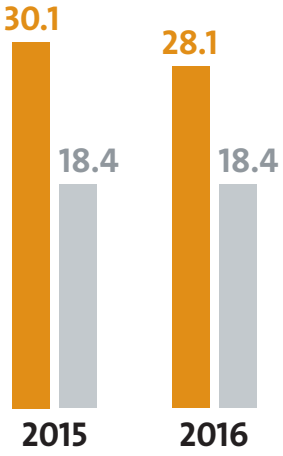
NUMBER OF PATIENTS



BILLING DAYS

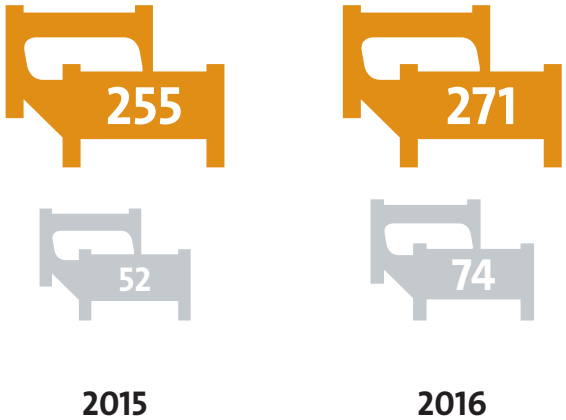


LENGTH OF STAY IN DAYS



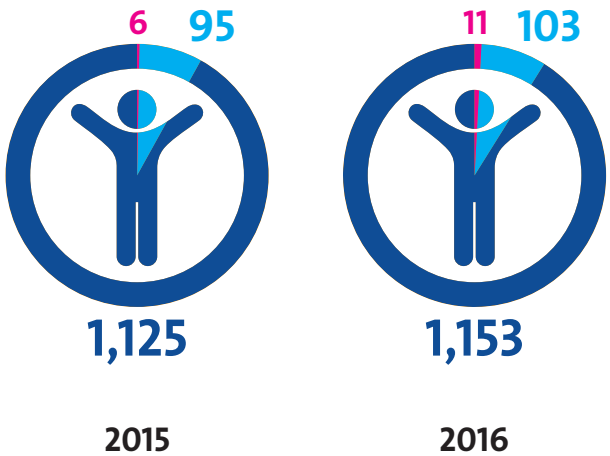
inpatient | partial-inpatient

BED CAPACITY CIMH IN TOTAL



inpatient | partial-inpatient

NUMBER OF STAFF



CIMH | CIMH Service | MVZ

PATIENT CARE

2015 — 2016

CLINCAL DEPARTMENTS
AND INSTITUTES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CLINIC OF PSYCHIATRY AND PSYCHOTHERAPY

The Clinic of Psychiatry and Psychotherapy provides care to the population of Mannheim, and in order to do so has developed a differentiated range of services. These are tailored to the patient's clinical picture, age and day-to-day skills. In addition to full inpatient treatment, the clinic also offers day care treatment and comprehensive diagnosis and treatment in special outpatient wards.

Clinical research is carried out by a range of research groups with a clinical and translation focus and by the Department of Geriatric Psychiatry, which develops concepts for new diagnosis and treatment methods and evaluates these from a clinical perspective in order to be able to use them to benefit patients as quickly as possible.

In addition to its care work, the Clinic of Psychiatry and Psychotherapy also trains students at the Medical Faculty Mannheim of the University of Heidelberg in the field of psychiatry and psychotherapy and is involved in the conceptual design of the Mannheim Reform Study Program (MaReCum) and the development and implementation of new study programs in the faculty.

Prof. Dr. Andreas Meyer-Lindenberg
Medical Director

Prof. Dr. F. Markus Leweke
Assistant Medical Director

INPATIENT TREATMENT

The Clinic of Psychiatry and Psychotherapy has three general psychiatric wards: the schizophrenia and psychosis ward, the affective disorders ward and the crisis and diagnosis ward. In addition to this, there is also a psychiatric intensive care ward, an admission ward and two geriatric psychiatric wards.

The **crisis and diagnosis ward** is available to patients who are experiencing life crises or who have mental illnesses that have yet to be diagnosed. The ward works with the screening clinic to support people who are at risk of psychotic illnesses and those who have fallen ill for the first time. This ward is the first "track ward" in the Clinic of Psychiatry and Psychotherapy, where necessary staggered treatment takes place in a protected, open, day care or outpatient setting depending on the severity of the illness. The intensity of treatment can be flexibly tailored to the severity of the illness and the patient is treated by the same multiprofessional team at all treatment levels.

The **schizophrenia and psychosis ward** offers specific care for patients suffering from psychotic syndromes.

The **affective disorders ward** primarily treats patients with affective diseases whose depressive or manic symptoms mostly require psychopharmacological and psychotherapeutic treatment. As part of treatment, specific psychotherapy procedures are offered to patients with acute depressive episodes (Interpersonal Psychotherapy – IPT), chronic depression (Cognitive Behavioral Analysis System Psychotherapy – CBASP) and anxiety (Cognitive Behavioral Therapy).

The clinic offers all necessary instrumental and non-instrumental procedures for ensuring the targeted diagnosis of psychiatric clinical pictures and concomitant diseases from other medical specialisms. The various concepts in the wards integrate psychopharmacological and psychotherapeutic approaches to the treatment of mental illnesses. Treatment groups in the wards and in the Department of Occupational Therapy aim to develop practical everyday activities and those with a focus on enjoyment. In addition to this, a trained nursing team, social workers and physiotherapists are involved in the individually tailored treatment. During treatment, value is placed on explaining the disease, practicing social skills and implementing rehabilitation measures that aim to reintegrate the patient into everyday life.

The protective **acute psychiatry ward** offers specific diagnosis and treatment services for those patients who require a protective setting due to the severity of their psychiatric illness. Patients with schizophreniform psychoses and manic or severely depressed patients are admitted to this ward. Further treatment diagnoses may be organic mental illnesses, addictions and personality disorders.

The **geriatric psychiatry** and **geriatric neuropsychiatry wards** provide comprehensive treatment tailored specifically to elderly patients with concomitant physical illnesses and dementia syndromes. The protective nature of the neuropsychiatry ward facilitates the activation of retained everyday life skills and also serves as an introduction to care following inpatient treatment. The ward is supervised by a double specialist in both psychiatry and psychotherapy and in neurology. The geriatric psychiatry ward specializes in the treatment of mood disorders in elderly patients and mild dementia. In addition to providing psychopharmacological treatment, the activation of and training in everyday skills and the adaptation of the domestic care situation are also important.

There is an **internal and psychiatric medicine-guided intensive care ward** for the treatment of psychiatric patients with significant somatic comorbidities. The intensive care ward is supervised by double specialists in psychiatry and psychotherapy and in internal medicine or neurology. There is also an admission ward for patients with acute psychiatric problems. In this ward, crisis intervention and diagnosis are carried out within the first few days in order to guide the patient to further treatment in a specialist ward where necessary. All general and geriatric psychiatric wards offer multimodal diagnosis to differentiate the condition from other central nervous disorders (psychopathology, psychometry, imaging, cerebrospinal fluid and blood tests) and the diagnosis and treatment of existing psychiatric and general medical conditions.

DAY CARE TREATMENT

Separate **day care treatment** is available for young patients (day clinic) and for patients over the age of 65 (senior center day clinic). The day care clinic is in the former Villa Hecht, an art nouveau building in L 10, 1. Treatment is provided by a multiprofessional team. Various treatment modules are available and in addition to innovative pharmacotherapy with the aim of optimizing tolerance also include individual and group psychotherapy, bifocal psychoeducation, computer-assisted cognition training, metacognitive training and occupational therapy services. Since reintegration into professional life is an important topic, patients can complete a half-day trial with an external company. Once a month, the day clinic offers what is known as a club evening for all day care patients, outpatients and former patients, with socializing and leisure activities.

The increasing number of over-65-year-olds with mental illnesses and their particular treatment needs has led to the **senior center day care** becoming increasingly important. It is a facility for the further diagnosis and treatment of acute and chronic mentally ill elderly patients in whom outpatient treatment is not sufficient from either a psychiatric or an internal medicine perspective but for whom inpatient treatment is not absolutely necessary. The maintenance of the living environment with which the patient is familiar prevents hospitalization during day care treatment and enables environmental factors that are relevant to the illness to be addressed directly. Patients with affective illnesses, primary or organic psychoses, particularly age-related depression and other mental illnesses, are treated here.

RELATIVE SERVICES

Scientific studies have shown that the provision of information and training to relatives as part of what are known as psychoeducative groups has a considerable impact when it comes to preventing relapses. In these groups, relatives are taught about causes, symptoms, treatment and relapse prevention in a manner suitable for laypeople, and methods for handling patients' specific problems are discussed. CIMH has offered groups for the relatives of outpatients for several years. They are run by doctors, social workers and psychologists and the relatives of between three and eight patients can take part in each group. Groups are currently available for the relatives of schizophrenic patients and Alzheimer's patients.

OUTPATIENT CLINICS IN THE CLINIC OF PSYCHIATRY AND PSYCHOTHERAPY

OPEN CONSULTATION HOURS

Very good use was made of the open consultation hours established as part of psychiatric and psychotherapeutic outpatient care in the period from 2015-2016. The objective of these consultation hours is to provide a brief consultation with the person either being referred to outpatient CIMH services or external facilities. The following issues are able to be addressed in the open consultation hours:

- Contact before outpatient treatment in which patients ask about specific treatment recommendations for certain symptoms.
- Information on diagnosis and treatment services and processes.
- Targeted recommendations for further treatment.

The **advantages of the open consultation hours** are the short waiting times and the ability to communicate directly, increasing patient satisfaction. No telephone calls and appointment planning are required for outpatient organization. Previous experience with the open consultation hours has been positive, and the issues addressed cover the full range of psychiatric diagnoses. Appointments in the general psychiatric outpatient clinic are kept free so patients from the open consultation hours can be offered an appointment at short notice if necessary. This does not apply for the special outpatient ADHD and autism clinics, which are organized through waiting lists.

PSYCHIATRIC INSTITUTION OUTPATIENT CLINIC

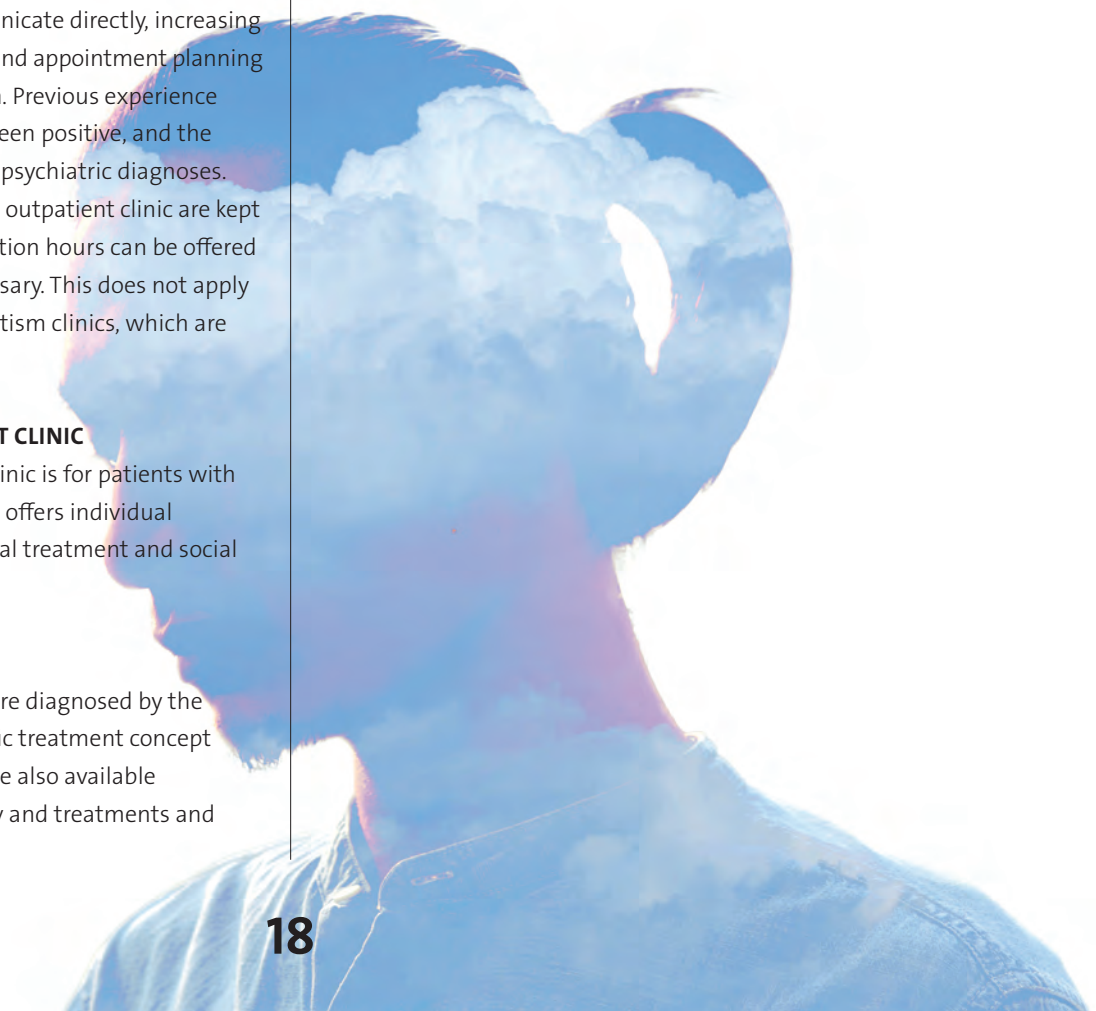
The psychiatric institution outpatient clinic is for patients with severe and chronic mental illnesses and offers individual therapeutic discussions, pharmacological treatment and social counseling.

UNIVERSITY OUTPATIENT CLINIC

Unclear psychological clinical pictures are diagnosed by the university outpatient clinic and a specific treatment concept is prepared. Special outpatient clinics are also available with disorder-specific pharmacotherapy and treatments and counseling.

PRIVATE OUTPATIENT CLINIC

This outpatient clinic offers the diagnosis and treatment of the full range of mental health conditions. The head of the clinic and various senior physicians offer consultation hours. Components of treatment include differential diagnosis, the provision of specific therapies or referral to external treatment providers. A second opinion is also more commonly sought.



SPECIAL OUTPATIENT CLINICS

OUTPATIENT CLINIC OF ANXIETY AND OBSESSIVE-COMPULSIVE DISORDERS

With a lifetime prevalence of 15 %, anxiety disorders are one of the most common mental illnesses. In this special outpatient clinic, a differential diagnosis of the various anxiety disorders (e. g. agoraphobia, panic disorder, generalized anxiety disorder, social phobias) and possible concomitant diseases are carried out and individual treatment concepts are developed. Obsessive-compulsive disorders are clinically characterized by compulsive actions or compulsive thoughts that vary considerably in severity and duration and can cause considerable impairments to various areas of patients' lives. Important aspects of the treatment of both clinical pictures include psychoeducation, including about the triggers and maintaining factors, and treatment options. We provide advice about the various treatment options depending on the duration of the disorder, previous treatments and the desire for treatment, and then offer the treatment ourselves or refer the patient to an appropriate facility. As an important part of diagnosis and treatment, we also offer advice to relatives and/or partners.

OUTPATIENT CLINIC OF ADULT ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)

ADHD is characterized by the main symptoms of inattentiveness, hyperactivity and impulsivity and by additional disorganization and disorders of regulating emotions. It starts during childhood and adolescence and, contrary to previous assumptions, continues into adulthood in 40 to 60 % of those affected.

Disorder-specific diagnosis and treatment are carried out in this special outpatient clinic. In addition to the current ADHD symptoms and the recording of symptoms during childhood, the effect on various areas of life and possible concomitant diseases are also recorded. An individual treatment concept is then developed on the basis of this diagnosis and can include treatment with pharmaceuticals and behavioral therapy in addition to psychoeducation. Services are available to patients in whom ADHD was diagnosed during childhood and who wish to have further treatment and to those in whom ADHD was not diagnosed during childhood.

OUTPATIENT ADULT HIGH-FUNCTIONING AUTISM CLINIC

Treatment is targeted at adults who are suspected of having high-functioning autism. A disorder-specific diagnosis is carried out and where necessary psychiatric and pharmacological treatment is offered, including for concomitant psychiatric symptoms such as obsessive-compulsive or depressive symptoms. Cognitive behavioral therapy-based group therapy in which special communication and social skills are learned and trained can be carried out where there is a demand for this.

OUTPATIENT BIPOLAR DISORDER CLINIC

Bipolar disorder is characterized by the episodic progression of depressive, (hypo)manic and mixed phases. It mostly occurs during adolescence or early adulthood and the frequency and severity are often underestimated, with patients often experiencing considerable impairments in quality of life and psychosocial development. Bipolar disorder is one of the ten most common illnesses that lead to lasting impairments (lifetime prevalence approximately 1 to 5 %). The special outpatient clinic services are aimed at all patients who are suspected of having bipolar disorder or have already been diagnosed with the condition who want a diagnosis, advice and further treatment. The disorder-specific diagnosis is supplemented with clinical instrument-based tests and laboratory chemical tests. Advice is provided on treatment options on the basis of this diagnosis, and where necessary an individual treatment concept is developed and established based on modern treatment standards including psychopharmacological, psychotherapeutic and psychoeducative approaches.

CONSULTATION HOURS OF MENTAL ILLNESSES IN THE TIME AROUND GIVING BIRTH

Mental illnesses in the peripartum period are often underestimated. This leads to peripartal mental illnesses often remaining unidentified, with the women affected experiencing considerable impairments and often not receiving any treatment. Early diagnosis, advice on and treatment for peripartal diseases improve quality of life and have a positive effect on the health of both the mother and the child. Our outpatient advice, diagnosis and treatment of mental illnesses services are aimed at pregnant women or those who have given birth in the last year and women who have a mental illness and/or are taking psychopharmacological medications and are planning a pregnancy.

SPORTS PSYCHIATRY CONSULTATION HOURS

The sports psychiatric consultation hours offer specific specialist diagnosis, advice or treatment to competitive athletes, their caregivers and their relatives. The time-related, physical and mental challenges of competitive sport are taken into account when planning appointments and administering treatment. Our sports psychiatry services are part of a network of university centers across Germany founded by the Sports Psychiatry and Psychotherapy Unit of the German Society for Psychiatry, Psychotherapy and Neurology (DGPPN) in collaboration with the Robert Enke Foundation.

OUTPATIENT CLINIC OF SCHIZOPHRENIC PSYCHOSES

Schizophrenic psychoses are a group of clinical pictures characterized by changes in perception, thought and feeling but also by disorders of concentration and drive, reduced capacity and changes in mood. Our services are aimed at adults who are suspected of having or already diagnosed with psychosis and comprise the following aspects:

- Diagnosis: Recording of current symptoms and the history of the progression of the illness and the treatment, where necessary supplemented by instrument-based and neuropsychological methods.
- Treatment: Development of a treatment strategy that comprises occupational and sociotherapeutic services and psychotherapeutic methods in addition to treatment with medication. Admission for day care or as a full outpatient is also possible in crisis situations.
- Research: We carry out regular tests to research the causes and the progression of the illness and to optimize treatment.

SCREENING CLINIC OF PSYCHOSES

People who are suspected of having the early stages of a schizophreniform disorder are examined and treated in the screening clinic. The diagnostic and therapeutic services in the screening clinic include extensive clinical examination, the determination of a diagnostic concept on first admission, the recording of psychometric and neuropsychological findings, the start of psychiatric and psychotherapeutic interventions and a control of the progression of the early stage of the illness. The team in the

screening clinic consists of a senior physician, two specialists in psychiatry and psychotherapy and two psychologists. Patients can participate in scientific tests of the cause and treatment of schizophrenic psychoses in the screening clinic.

OUTPATIENT MEMORY CLINIC

The outpatient memory clinic is a highly specialized facility for the differential diagnosis of brain disorders in elderly patients. Early identification of the cause of the illness is important so targeted treatment can be started. In this way, forms that are still able to regress can be identified and their causes treated, and the progression of other forms can at least be influenced in a positive way. We also use a holistic approach to treatment in the outpatient memory clinic. This approach includes both relatives and patients and comprises treatment with and without medication. An Alzheimer's relative group is linked to the outpatient memory clinic.

The tests include a blood sample, a neurological test, a computer tomography of the brain, an EEG and neuropsychological testing, as well as an extensive discussion with the relatives. Extensive support for patients and relatives can also be provided during our memory consultation hours, as we are supporting research into dementia as part of scientific studies. In this way, we can work with patients and relatives to make a long-term contribution to the improvement of diagnostic and therapeutic options.

OUTPATIENT SLEEP CLINIC

The outpatient sleep clinic looks at the medical explanation for non-restorative sleep, disorders with falling asleep and with sleeping through the night, tiredness during the day, somnolence during the day (hypersomnia and narcolepsy), restless leg syndrome, nightmares, sleepwalking and night terrors, disorders of circadian rhythm and other sleep problems. We collaborate closely with other sleep laboratories in the region on nocturnal disorders of breathing regulation. Diagnosis is gradual, and involves an extensive examination of sleep (polysomnography) being carried out where necessary over a period of two nights following an extensive discussion. The doctor who referred the patient will then receive an extensive report with treatment recommendations. We offer disorder-specific behavioral concepts for patients with primary insomnia or nightmares.

OUTPATIENT COMMUNITY PSYCHIATRY CLINIC

The outpatient community psychiatry clinic is integrated into the department of the same name at CIMH. It is primarily chronically mentally ill patients who are generally receiving treatment out-side of the clinic from one of the department's cooperation partners (residential community, home, sheltered workshop) who are treated here.

A key area of focus in outpatient work is also professional rehabilitation. The multiprofessional team in the department of community psychiatry (specialists, social workers, nurses) supports trial work days as part of the Mannheim Starthilfe project and provides information on additional services offered by other rehabilitation service providers.

OUTPATIENT OCCUPATIONAL THERAPY CLINIC

Patients of all ages with mental illnesses of all kinds including addiction are treated in the outpatient occupational therapy clinic in individual and group therapies in line with the latest occupational therapy standards. The aim of outpatient occupational therapy is the development, the restoration and the maintenance of the cognitive skills required to manage everyday life, the skills to handle everyday tasks and requirements and communicative and social and interactive skills. The aim is also to improve patients' personal responsibility and ability to make decisions, and for them to learn compensation strategies, where necessary taking into account the tools and adaptations to the living environment they have. The tasks carried out by the outpatient occupational therapy clinic also include the development and improvement of illness management and the development of self-awareness.

CLINIC OF CHILD AND ADOLESCENT PSYCHIATRY AND PSYCHOTHERAPY

Prof. Dr. Dr. Tobias Banaschewski
Medical Director

Dr. Sarah Hohmann
Assistant Medical Director

The Clinic of Child and Adolescent Psychiatry and Psychotherapy offers outpatient and inpatient care for pediatric and adolescent patients in the region of Mannheim and the northern Rhine-Neckar district. Cross-regional care can also be provided to patients with rare disorders that are difficult to treat.

Treatment and diagnosis in the Clinic covers all pediatric and adolescent clinical pictures. The treatment concept is primarily based on behavioral and systematic family therapy principles.

Curative education, physiotherapy and occupational therapy can also be used. In order to take into account the particular situation of an inpatient stay in the case of children and adolescents, the diagnosis, counselling and treatment of young patients are always carried out in close collaboration with the parents, guardians and institutions in the child or adolescent's environment. The multiprofessional teams on the wards are tailored to this approach and consist of doctors, psychologists, social workers, educators and nurses.

The Clinic of Child and Adolescent Psychiatry and Psychotherapy is involved in the training of students at the Medical Faculty Mannheim of the University of Heidelberg and also offers its doctors specialist and psychotherapeutic training events.

INPATIENT TREATMENT

The clinic has full inpatient beds spread over four wards in the core clinic in J 5 and (since January 2016) the adolescent ward in K 3. Within the wards, group care (two patient groups are supported by two nursing teams in each ward) offers an excellent opportunity to carry out therapeutic work with the young patients. The treatments are supplemented by further therapeutic services such as occupational therapy, social skill training, sports groups, strength training, an anorexia group, enjoyment training and a cooking group. The open-air area on the third floor offers numerous playing and exercise options and is supplemented by a separate fitness room and a herb garden that is tended by the young patients. There is also a barbecue area for the summer months.

A group of preschool and elementary school children and a group of older children and adolescents (aged from around 10 to 15) can be admitted to the Harbauer ward (HA-K). The Asperger's ward (AS-K) primarily treats children and adolescents between around 10 and 15. For older adolescents we have the Dührssen ward with two groups. This ward also has a partially protected intensive care area for children and adolescents experiencing an acute crisis. The Corboz protected acute ward (CO-K) is also available for the treatment of mostly adolescent patients. The two group rooms in each ward result in various options for therapeutic work both in individual contact and as part of group work.

DAY CARE TREATMENT

Day care treatment is also able to be offered integrated into the inpatient facilities. As part of this, a patient comes into the clinic during the day and spends the remainder of the time in their usual, familiar environment. Patients can also come in overnight. When this option is used depends on the clinical picture, the individual progression of treatment and the patient's environment. Day clinic places have also been available for preschool and elementary school children in the newly opened day clinic since early 2016. Regular day care treatment options are also available in the adolescent ward.

OUTPATIENT CLINICS IN THE CLINIC OF CHILD AND ADOLESCENT PSYCHIATRY AND PSYCHOTHERAPY

GENERAL OUTPATIENT WARDS IN THE CLINIC OF CHILD AND ADOLESCENT PSYCHIATRY AND PSYCHOTHERAPY

The outpatient services in the clinic also cover all pediatric and adolescent psychiatric disorders. Children and adolescents can be referred for treatment by a private family doctor or specialist. The outpatient clinic offers the diagnosis of all relevant mental health conditions in childhood and adolescence, crisis intervention as part of emergency care and group services that also include parent groups. Collaboration with support systems (e. g. teachers, school, youth welfare services and therapists providing further treatment) on the planning and preparation of inpatient treatment is also integrated. There are also special consultation hours for children and adolescents with ADHD and autism spectrum disorders and for the early detection and treatment of psychoses.

PEDIATRIC AND ADOLESCENT PSYCHIATRIC INSTITUTION OUTPATIENT CLINIC

There has been a pediatric and adolescent psychiatric institution outpatient clinic since 2008. It offers services to children and adolescents in whom long-term, continuous treatment is medically necessary, in whom an improvement in symptoms and social stabilization has not been possible as a result of other outpatient services or in whom chronic, recurrent progression can be expected. In addition to a broad range of diagnostic tools, the clinic also offers numerous groups and individual therapeutic services and help and advice services provided by the clinic social services.

SPECIAL ADHD OUTPATIENT CLINIC

Extensive diagnostic procedures are carried out in the special pediatric and adolescent ADHD outpatient clinic on children who are physically restless, inattentive and impulsive to determine the presence of attention deficit hyperactivity disorder (ADHD) and the differential diagnoses and comorbidities of this. Once the diagnostic procedure is complete, an extensive explanation (psychoeducation) of the clinical picture is provided and a recommendation on the pedagogical, psychotherapeutic and medication-based treatment options is given. Long-term pediatric and adolescent psychiatric treatment can be given where necessary. This includes treatment with medication and participation in group services, in addition to providing advice to schools, facilities and competent authorities.

SPECIAL AUTISM SPECTRUM OUTPATIENT CLINIC

Severe developmental disorders are diagnosed in patients from the age of two in the pediatric and adolescent special autism spectrum outpatient clinic. In addition to a differentiated clinical examination and a developmental diagnostic procedure, autism-specific examinations are also carried out. An extensive explanation (psychoeducation) of the clinical picture of autism is provided and a recommendation on the pedagogical and psychotherapeutic measures is given. Long-term pediatric and adolescent psychiatric treatment can also be given where necessary. This includes providing advice to schools, facilities and competent authorities and supervising psychopharmacological treatment.

OTHER FACILITIES IN THE CLINIC

THE CLINIC SCHOOL

The Patient School II is a public Mannheim school where all children and adolescents who are inpatients in the clinic are taught. The school has nine classrooms with the latest board systems, variable furniture and IT equipment, material and administrative rooms and a staff room. The pupils learn in groups of six to eight children or adolescents, with the lesson being adapted to the individual ability, the individual level of performance and the curriculum provided by their main school from both a methodological and a didactic perspective. Tests are taken and certificates issued like in a regular school. The teachers are able to teach elementary school and secondary school, both vocational schools and high school and the various special schools.

COMMUNITY PSYCHIATRY ACTIVITIES

CIMH has continuous collaboration with the Youth Welfare Office of the City of Mannheim, other youth welfare offices in the region and youth support facilities. The doctors in the child and adolescent psychiatric clinic provide specialist supervision and psychiatric training of employees in various youth welfare facilities, along with medical care for the children and adolescents. The facilities supported include a therapeutic residential group (Johann Peter Hebel Home), an intensive group (Wespinstift), two emergency admission groups (St. Joseph and St. Agnes pediatric and youth centers) and professional rehabilitation in collaboration with the professional training center at IB Mannheim, the Mannheim Labor Office and the federal state of Baden-Württemberg. Consultation support for a residential group for unaccompanied minor refugees that is run by IB as well has also been provided since mid-2016.

NETWORK OF SUPPORT ORGANIZATIONS

The association (www.foerderkreis-kjp.de), which was founded in 2001, aims to support patients in the clinic and their families by funding important elements outside of the scope of the treatment itself. The procurement of materials and devices for learning and play and for sporting and artistic activities, activities such as excursions, visits to cultural and sporting events and leisure activities have been funded to date.

CLINIC OF PSYCHOSOMATIC MEDICINE AND PSYCHOTHERAPY

Professor Dr. Christian Schmahl
Medical Director

The Clinic of Psychosomatic Medicine and Psychotherapy currently has one ward and two treatment teams. Treatments are carried out using a multimodal approach based on the concepts of Dialectic Behavioral Therapy (DBT) and Acceptance and Commitment Therapy (ACT). Individual therapies are combined with specific indication groups (e.g. skills and attention groups, creative, movement, and physical therapy groups, relaxation methods).

Our concept also includes the medical treatment of somatic diseases. In addition to this, where necessary we also carry out differentiated psychopharmacological treatment tailored to the psychotherapy.

Meditation room in the Clinic of Psychosomatic Medicine and Psychotherapy.

GENERAL PSYCHOSOMATIC TEAM

This team offers inpatient treatment places to patients with psychosomatic diseases such as affective disorders, anxiety, personality disorders and dissociative and somatoform disorders and specializes in borderline personality disorders. In a multimodal treatment setting, Dialectic Behavioral Therapy (DBT), which is currently the best evaluated treatment concept when it comes to the treatment of borderline personality disorders, is used to work on improving affect regulation, interactional disorders and identity disorders, with the inclusion of therapeutic elements of Acceptance and Commitment Therapy according to Hayes and Eifert and Compassion-Focused Therapy according to Gilbert in individual and group therapies. The basis for this is the attention training, which takes place at regular intervals. The treatment duration is 8 to 12 weeks. An individual problem and objective analysis will be carried out within the first three weeks. In the subsequent weeks, the objectives will be pursued with the support of a multiprofessional team consisting of doctors, psychologists, nursing staff, social workers, physiotherapists and occupational therapists, and in the final weeks differentiated discharge planning will be carried out.

POST-TRAUMATIC STRESS DISORDER TEAM

This treatment team has inpatient and day care treatment places for the treatment of complex post-traumatic stress disorders. Treatment generally lasts 12 weeks and is carried out in line with the guidelines on Dialectic Behavioral Therapy for Post-Traumatic Stress Disorders (DBT-PTSD). In the modular treatment program based on individual and group therapies, confrontation with stressful memories is the focus of psychotherapeutic treatment. The aim of this is to reduce the stress caused by difficult feelings, to evaluate negative core beliefs the patient holds about themselves and the world and to develop avoidance strategies to keep the disorder level stable.

CLINIC OF ADDICTIVE BEHAVIOR AND ADDICTION MEDICINE

Prof. Dr. Falk Kiefer
Medical Director

Associate Professor Dr. Derik Hermann
Assistant Medical Director

The Clinic of Addictive Behavior and Addiction Medicine treats patients suffering from alcohol dependence, drug addiction (cannabis, amphetamines, cocaine, heroin, etc.), medication dependency (benzodiazepines, opiates, etc.), gambling, internet and media addictions.

The clinic has two wards, a day clinic, an outpatient substitution clinic (opioid replacement therapy) and a general outpatient addiction Clinic of the treatment of addictions and their comorbidities.

A predominantly qualified withdrawal program is carried out on the wards and in the Day Clinic of Addictive Disorders. Treatment in the clinic is acute treatment and is covered by statutory health insurance. It mostly consists of a combination of psychotherapeutic measures and treatment with medication supplemented by social therapy counselling and occupational therapy. Accordingly, a team of doctors, psychologists, occupational therapists, specialists in psychiatry and physiotherapy and social workers are involved in the treatment.

The key element of inpatient treatment, **qualified withdrawal treatment** for alcohol, drugs or medication addicts, is carried out in close collaboration between the professional groups involved (nurses, doctors, psychologists, occupational therapists, social workers, physiotherapists) and ensures comprehensive and holistic treatment of the individual patient.

In addition to the established concomitant treatment of comorbid psychiatric conditions such as depression, anxiety disorders, adult ADHD or schizophrenia, we also have beds for the **treatment of addiction patients with comorbid borderline personality disorder.** The specific, modular treatment program Dialectic Behavioral Therapy for Addiction (DBT-A) is available for these patients. The various modules enable individual ad-justment to the problems and the objective during individual and group-based psychotherapeutic treatment. During treatment, patients are given cognitive behavioral therapy-based individual therapies and have individual discussions with a relational therapist. In the group, patients take part in skills training, attention training, a basic psychoeducative group, the five senses group, the sports group and social skills training, as well as medical addiction education and addiction skills training run by a psychologist. The DBT-A treatment is designed to be carried out over a period of 12 weeks. There is close collaboration between the Clinic of Psychosomatic Medicine and Psychotherapy at CIMH to ensure further outpatient or inpatient treatment.

Since patients who are dependent on both legal and illegal drugs often have to be admitted at short notice, treatment places are available for **crisis intervention.** After the withdrawal symptoms have been treated, patients are supported through a qualified withdrawal program to help them live addictive substance-free in the future. In order to do this, they take part in psychotherapeutic individual and group discussions, information events, skills training, relaxation exercises, sports, occupational therapy and sociotherapy. Problems caused by alcohol or drugs can also be explained and treated.

The Clinic of Addictive Behavior and Addiction Medicine provides treatment **within a network of numerous collaborations** with various facilities offering addiction support (e.g. addiction advice centers, self-help groups, specialist long-term treatment clinics), enabling even those with a severe addiction to obtain interlinked further treatment. The focus is on increasing the intensity of collaboration with the Clinic of Addiction Therapy and Withdrawal at Nordbaden Psychiatric Center in Wiesloch. In the past few years, treatment concepts have been able to be tailored as part of these joint specialist training sessions and mutual work shadowing opportunities, in order to ensure optimal care of patients in the region. The founding of a joint **Feuerlein Center for Translational Addiction Medicine** is the next step in achieving a rapid transition of innovative treatment approaches into care, aligning research towards the care needs and representing the treatments provided by both facilities jointly within the regional addiction support system.

The Addiction Center with the historic facade in J 4.

DAY CLINIC OF ADDICTIVE DISORDERS

The focus is on alcohol, cannabis, amphetamines, medication dependence, gambling addiction and internet addiction. Any mental illnesses that the patient has in addition to the addiction (such as depression or anxiety) will also be treated. The treatment program is carried out on working days from 8am to 4:30pm with psychotherapeutic individual and group therapies, occupational therapy, relaxation exercises, sociotherapeutic counselling, doctors' visits and where necessary treatment with medication. A requirement for treatment in the Day Clinic of Addictive Disorders is getting through evenings or weekends without addictive substances, after having been prepared for this during the day in our treatment sessions. Patients who are not able to undergo inpatient treatment because they have to look after children or a relative are also suitable for this. Treatment in the clinic is acute treatment and is covered by statutory health insurance.

OUTPATIENT ADDICTION CLINIC

Counselling and treatment of the full range of addictive disorders are available in the outpatient addiction clinic. A referral from a family doctor or a specialist is a requirement for this. It covers all outpatient treatments within addiction medicine, both substance-related and non-substance-related, including psychiatric comorbidities. In addition to the general outpatient addiction clinic, the services include special consultation hours for cannabis, amphetamines, ecstasy, opiate addictions and gambling and internet addictions. Regular group behavioral therapies that aim to reduce the amount of alcohol consumed are also available. The first appointment at the outpatient clinic is at short notice, low-threshold and is initially non-binding.

OUTPATIENT SUBSTITUTION CLINIC

Here, opiate-addicted patients are treated with the replacement substances methadone, Polamidon, buprenorphine or prolonged-release morphine. Many patients consume other substances such as cocaine, sedatives, alcohol and nicotine in addition to their heroin addiction and have psychological problems that are also treated by our specialists in psychiatry and psychotherapy. With constant daily care of around 150 patients per quarter and contact on an almost daily basis, the outpatient clinic is urgently needed to ensure that care is provided for drug addicts in Mannheim. Collaborative efforts have been set up with the Mannheim Communal Addiction Network, the city of Mannheim, Mannheim Drug Association, the outpatient pain clinic at Mannheim University Hospital and Nordbaden Psychiatric Center in Wiesloch.

ADOLESCENT CENTER FOR DISORDERS OF EMOTIONAL REGULATION

The newly designed Adolescent Center (AC) for disorders of emotional regulation opened in January 2016 under the joint leadership of Prof. Dr. Dr. Tobias Banaschewski, Medical Director of the Clinic of Child and Adolescent Psychiatry and Psychotherapy, Prof. Dr. Martin Bohus, Scientific Director of the Institute for Psychiatric and Psychosomatic Psychotherapy and Prof. Dr. Christian Schmahl, Medical Director of the Clinic of Psychosomatic Medicine and Psychotherapy.

CONTINUOUS TREATMENT FOR AN IMPORTANT PHASE OF LIFE

The objective of the AC is to correct the deficiencies in the care system in adolescence and early adulthood and to provide young people with severe disorders of emotional regulation such as borderline personality disorder (BPS) with disorder-specific, continuous and evidence-based treatment over the entire phase of adolescence. This means that the psychotherapeutic treatment is in the hands of a constant treatment team. Patients who are generally between the ages of 16 and 24 are guided and supported with relationships and independent living during this important phase of life when they finish school.

This "track" concept is on the one hand longitudinal, in other words it extends over a period of several years, and on the other hand the tailored treatment modules mean it can be adapted to the individual patient situation regardless of whether they are inpatients, day care patients or outpatients. This approach overcomes both the previous barriers between pediatric/adolescent psychiatry and adult psychiatry caused by the system and the division between inpatient and outpatient treatment.

The ward at the Adolescent Center has both inpatient and outpatient treatment places, and two treatment teams. Treatments are carried out using a multimodal approach based on the concepts of Dialectic Behavioral Therapy (DBT). Individual therapies are combined with specific indication groups (e.g. skills and attention groups, creative, movement, and physical therapy groups, relaxation methods). Our concept also includes the medical treatment of somatic diseases. In addition to this, where necessary we also carry out differentiated psychopharmacological treatment tailored to the psychotherapy.

The AC treats patients with the following disorders:

- Borderline personality disorders (BPD)
- Post-traumatic stress disorders
- Simple activity and attention disorders
- Disorders of social behavior
- Eating disorders, particularly bulimia
- If the criteria for BPS are met (at least five out of nine DSM criteria), this is used as the main diagnosis. If only three or four DSM criteria are met, one of the other diagnoses mentioned above has to be used as the main diagnosis.

Patients with the following disorders are not, however, treated in the Adolescent Center:

- Schizophrenia and / or
- Acute alcohol or substance addiction.

CENTRAL OUTPATIENT CLINIC

As a result of the integration of the pediatric and adolescent outpatient clinic, the organization of all of the outpatient clinics at CIMH has been summarized under the central outpatient clinic since 2016, with the exception of the Center for Psychological Psychotherapy (CPP) and the sleep laboratory.

Moving the outpatient clinics to the new K 3 building in 2016 was an important step in the direction of the physical combination of the outpatient facilities, which are now in immediate proximity to one another in the newly designed organizational area.

The move took place at the same time as the treatment and documentation facilities began being used across the various specialist outpatient clinics – which is needs-oriented and therefore more efficient and had been developed in a project group. The secretariat of the central outpatient clinic was developed to enable room planning and to support treatment providers with organizational activities.

CASE MANAGEMENT AND EMERGENCY MANAGEMENT

In collaboration with the on-call doctor, case management and emergency management coordinates and supports admission management for patients who present to the emergency outpatient ward of the Clinic of Psychiatry and Psychotherapy or for whom inpatient or day care treatment is planned.

The objective of case management and emergency management is transparency and optimization of the interfaces between outpatient and inpatient services to improve the patient care process and achieve high levels of patient satisfaction.

On working days, case management coordinates bed planning and management to prevent providing insufficient care, providing excessive care or providing incorrect care, is involved in communicating support services to patients and relatives and is the primary contact for private doctors in relation to planned treatment. The emergency outpatient clinic is staffed around the clock by an on-call doctor and the on-call nursing service.

OUTPATIENT CLINICS AT THE INSTITUTE OF COGNITIVE AND CLINICAL NEUROSCIENCE

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OUTPATIENT NEUROPSYCHOLOGY CLINIC
Treatments for various neurological and psychiatric symptoms and diseases such as chronic pain, post-traumatic stress disorder, chronic depression, hypochondria, tinnitus and bipolar disorder are available at the outpatient neuropsychology clinic.

CPP OUTPATIENT TEACHING CLINIC
The outpatient teaching clinic of the Center for Psychological Psychotherapy (CPP) Mannheim, a state-recognized training institute in sponsorship by CIMH, offers extensive outpatient treatments to patients in whom behavioral therapy is both indicated and sufficiently promising as a result of a clinically significant psychological disorder. The psychotherapies are carried out by more than 50 trainee therapists under qualified supervision. This is covered by statutory health insurance in accordance with Section 8 of the Psychotherapy Agreements and Section 117 of Volume V of the Social Insurance Code.

UNIVERSITY OUTPATIENT CLINIC OF PSYCHOLOGICAL PSYCHOTHERAPY
Only modern, evidence-based methods from the field of behavioral therapy and behavioral medicine are used in this outpatient Clinic of research and teaching. The objective is to achieve an optimal interlinking of treatment with high-level research on the development of and change in mental health conditions. Specific treatment options are available for patients with the following conditions: somatoform disorders, chronic pain, tinnitus, depression, Asperger's syndrome, psychoses, ADHD, psychological trauma.

SPECIAL OUTPATIENT PSYCHOTHERAPY CLINIC OF VICTIMS OF STALKING
The services provided in the special outpatient Clinic of victims of stalking range from an initial discussion through to in-depth psychological diagnosis and psychological crisis intervention and on to outpatient psychotherapy. During the initial discussion, positive ways to deal with harassment are discussed and tips are given for how the negative psychosocial consequences of stalking can be counteracted. Crisis intervention (max. 12 sessions) aims to help those affected to reduce their stress levels and gain greater control of their situation. If the crisis intervention is not sufficient and there is an indication for outpatient psychotherapy, we offer those affected cognitive behavioral therapy-based psychotherapy (short-term or long-term therapy).

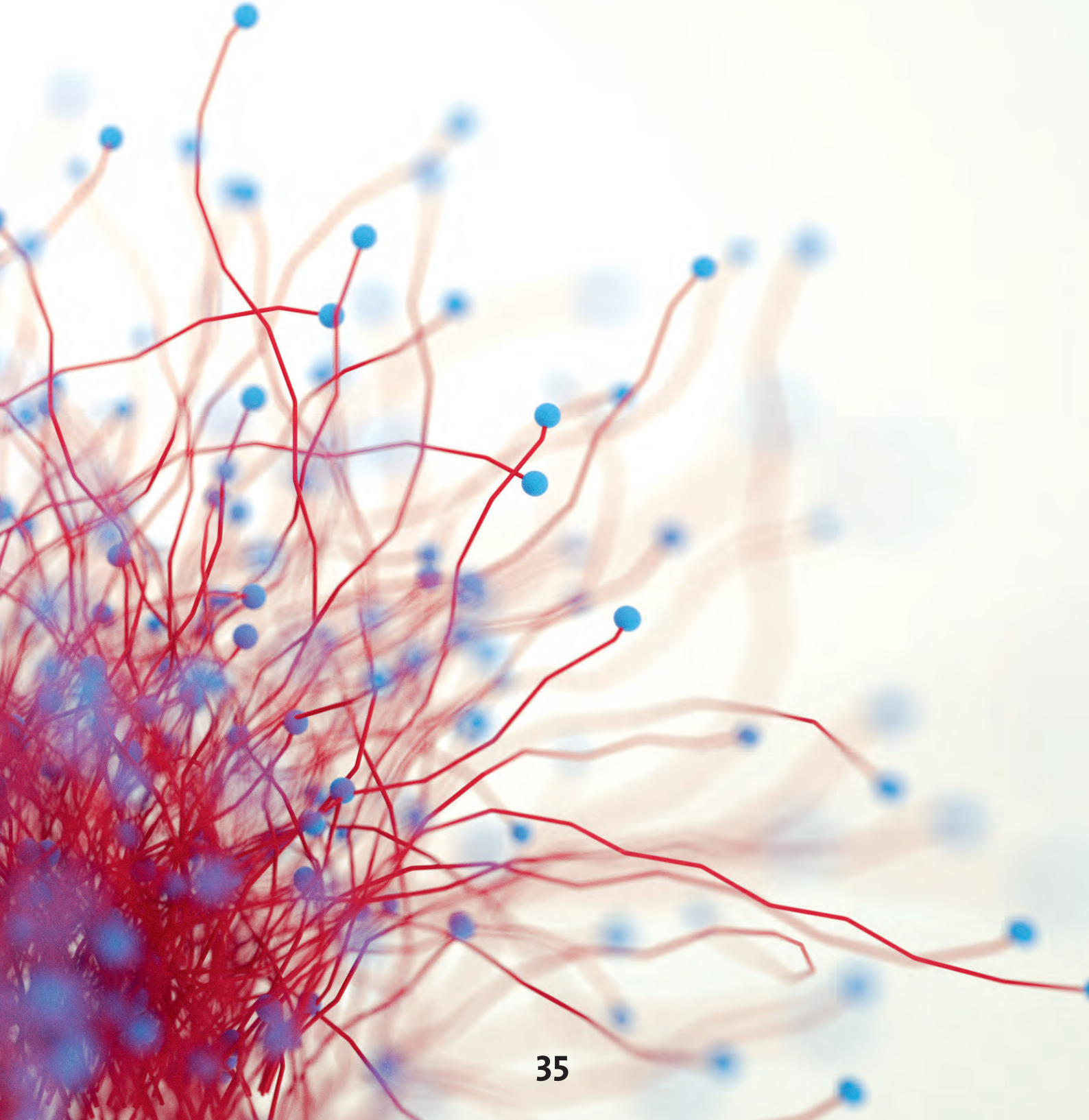
OUTPATIENT SERVICES AT THE INSTITUTE FOR PSYCHIATRIC AND PSYCHOSOMATIC PSYCHOTHERAPY (IPPP)

Prof. Dr. Martin Bohus
Head

In the outpatient clinic at IPPP, a detailed psychological and medical diagnostic procedure is initially carried out, sometimes in collaboration with other specialist outpatient clinics at CIMH. Where necessary, the patient is referred for inpatient treatment in the Clinic of Psychosomatic Medicine and Psychotherapy or to registered psychotherapists or psychiatrists.

In addition to individual services, the outpatient treatments offered include skills groups for borderline patients, trauma patients and mothers with disorders of emotion regulation, an ACT group, an eating disorders group, theater therapy and self-defense for women. There is also a specific advisory service for medical students.

CROSS-CLINIC INFORMATION



DISCHARGE MANAGEMENT

In accordance with Volume V of the Social Insurance Code, all patients have the right to support with the resolution of problems when transferring from the hospital to various care areas. Discharge management has therefore been developed at CIMH. This is the targeted planning and implementation of the transition from inpatient and day care facilities into an existing or new form of residence, work or care. In order to ensure that care is provided after hospital treatment, patients therefore receive comprehensive help and support when deciding on the suitable form of care, information about all of the important aspects of further care and advice when making a decision on further rehabilitation, treatment or care. Discharge management at CIMH is a task carried out by multiple professions working in close collaboration with patients and, where applicable, their relatives.

COMPLAINT/PATIENT FEEDBACK MANAGEMENT

Central patient feedback management ("Lob und Tadel") is implemented by the Division of Medical Quality Control, Quality and Risk Management at CIMH. The aim is to use rapid, systematic processing of complaints to achieve early de-escalation and increase the satisfaction of our patients in the long term.

The feedback can provide valuable information about potential areas of improvement, by means of which risks and deficiencies can be identified more quickly and optimization measures developed and implemented. Complaints can be submitted by telephone, via e-mail, via internet form, via letter / fax or in person. Individual solutions are developed in collaboration with the employees in the relevant departments and the complainant informed of these solutions. If negative feedback is repeatedly obtained on the same topics or processes, the relevant processes will be reviewed in detail and where necessary improvement measures will be introduced.

OCCUPATIONAL THERAPY

Head: **Marco Heser** (since December 2016),
Walter Decker-Zachmann (until November 2016)

The Occupational Therapy department provides occupational therapy care and special DBT therapies to patients from all four clinics at CIMH and the associated day clinics. Treatment is carried out in line with the latest recognized and scientifically-based standard.

The employees in the Occupational Therapy department work based on the reference occupational therapy system in multi-professional and quality-conscious treatment teams, and independently on cross-ward group and individual treatments. Occupational Therapy uses expertise to help achieve treatment objectives, thereby making an essential contribution to treatment in a multiprofessional team.

The occupational therapy measures serve to provide patients with constructive stimulation and offer them options in terms of their integration into a domestic or professional environment. Occupational therapy aims to restore or improve abilities and independence in everyday life lost as a result of disease. This includes important areas such as self-care and household management, but also economic independence and professional practice skills, or continuing training and leisure activities. A holistic approach is used in which patients are not merely trained on certain processes, but rather the person as a whole is included in the measures. The focus of treatment is the patient's individual situation.

COMMUNITY PSYCHIATRY DEPARTMENT

Head: **Dr. Jens Bullenkamp**

The Community Psychiatry Department is primarily responsible for the external care of people with mental health conditions. Its work combines the medical aspects of mental health disorders with social issues arising from the areas of family, life and profession. In this way, mentally ill adults receive the support they need to manage the effects of disease.

The activities of the department, which focuses on social psychiatry, essentially consist of three different areas. These include a number of psychosocial services that arise from various social interests and needs. Through professional support, the employees give people with mental health conditions the opportunity to develop the skills they need to lead as independent a life as possible. Community psychiatry offers various supportive measures and actions in the fields of living, leisure and work for this. The second area of activity consists of extensive collaboration with all external facilities for people with mental health conditions in the city of Mannheim. This includes not only a presence on numerous working groups and committees but also the provision of specialist medical and psychiatric advice to the individual care teams. As a result, the community psychiatry department has a very good overview of the psychiatric care situation in Mannheim and contributes significantly to its maintenance and development. These areas of work are supplemented by specialist services as part of the outpatient care at the Central Institute. The focus here is care of people who are not merely temporarily ill or who are attempting to achieve professional rehabilitation.

INTERNAL CONSULTATION SERVICE

Head: **Associate Professor Dr. Florian Lederbogen**

The requirement for an internal consultation service at CIMH arises on the one hand from the high percentage of patients with concomitant diseases in the field of general medicine / internal medicine, and from the fact that many patients are only able to be treated to a limited extent in external clinics. It is also necessary to take into account the specific situation of those with mental health conditions and where necessary to adapt the conventional diagnostic and therapeutic strategies. Internal care is tailored to all patients receiving inpatient treatment. ECGs, sonographs of the abdominal organs and the thyroid, echocardiograms, pulmonary function tests, long-term ECG, long-term blood pressure measurement and stress ECGs are carried out, among other tests. In special cases that require endoscopic or other further tests, the relevant specialist departments of Mannheim University Hospital are used.

PATIENT ADVOCATE

Monika Wolff

The patient advocate is there for any suggestions, wishes or complaints the patients or their relatives have and represents their concerns as a neutral link. She can contact the relevant areas directly at any time with the patient's consent.

Concerns that are brought to the patient advocate are treated confidentiality and clarified in collaboration with the various areas of the clinic. Both patients and relatives can contact the patient advocate if they wish to talk to her. Her consultation hours are once a week.

As a former patient at CIMH, Monika Wolff knows the patient perspective from her own experience and is very much able to understand how those affected feel during the acute stage.

PHYSIOTHERAPY AND MOVEMENT THERAPY

Head (acting): **Andreas Metz**

As a key facility at CIMH, the physiotherapy and movement therapy department is responsible for all clinics, including the intensive care ward and both day clinics. Its areas of responsibility are based on the patients' various clinical pictures and their concomitant physical symptoms, which are often associated with psychiatric or psychosomatic diseases. Once an extensive patient history has been taken, an individual treatment plan is therefore prepared for each patient which may consist of group and individual therapies or instructions for independent exercises. In order to do this, we use methods from physiotherapy and movement therapy and body massage. Special treatments are also offered tailored to the requirements of mental health conditions in children and adolescents and in elderly people. Working with the body and the perception of the body supports the patient's recovery by improving both their movement processes and their personal feelings about their body.

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NURSING DEPARTMENT

Head (acting): **Claus Staudter** (since Mai 2016),
Christine Paradies (until April 2016)

Comparable with the architectural renovation and the upcoming new building in J 4, just not quite so easy to see at first glance, a realignment of psychiatric nursing is also taking place. The diversity and variety of our nursing activities and tasks can be seen from the clear differences in the four clinics. Treatments that are just as tailored to 3-year-olds as to 99-year-olds require specialist alignment of the nursing staff (too), who traditionally focus more on an overall treatment objective in close, multiprofessional collaboration.

Employees from the fields of health, illness, geriatric and pediatric nursing and social pedagogy and education do various different jobs at CIMH. The department is also actively involved in research projects and treatments, and work in the sleep laboratory and the community psychiatry department. The nursing team is available to its inpatients 24 hours a day, 365 days a year.

All nursing processes are individually planned and implemented in a targeted manner following a detailed, specialist assessment of the patient's situation and included in the ward organization and in further training. The employees in the nursing team, around a third of whom have completed two-year further psychiatric training, work based on recognized and scientifically sound treatment standards. This evidence-based nursing can be seen in many areas of the clinic, so objective parameters can easily be compared with other clinics. We can be very proud of the results we have achieved in this, for example in the fields of prevention of falls and decubitus and in de-escalation management. There is, however, no reason to sit back and relax in any of the relevant areas, but rather this current level should be seen as an incentive to continue to expand our professional skills and continuously improve.

In the coming years, the inpatient services in the Clinic of Psychiatry and Psychotherapy will continue to switch from classic wards to track wards which can provide disorder-focused services to inpatients, day care patients and outpatients in the new facilities predominantly without interruptions in treatment.

This is the principle we want to base our nursing work on:
"The patient and their concerns are the focus of nursing care. Contact with each individual patient and individual support in the form of nursing during a patient's stage at CIMH is very important to us."

PSYCHIATRIC, PSYCHOSOMATIC AND ADDICTION MEDICINE CONSULTATION SERVICE AT MANNHEIM UNIVERSITY HOSPITAL

Head: **Associate Professor Dr. Florian Lederbogen**

The psychiatric, psychosomatic and addiction medicine consultation service at Mannheim University Hospital treats outpatients and inpatients of Mannheim University Hospital when it comes to psychiatric, psychotherapeutic, addiction medicine and psychosomatic care. Consultation can be by telephone or in emergency situations by a visit to the clinic, for example if the patient cannot present to the on-call doctor at CIMH. Care is provided by an on-call service by a senior consultant at night and at the weekend. The supportive work carried out in central emergency admissions guarantees emergency psychiatric care in the Mannheim urban area for physically ill patients with concomitant mental health conditions. The emergency psychiatric outpatient service at CIMH is responsible for psychiatric emergencies with no relevant concomitant somatic diseases.

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PASTORAL CARE

Catholic pastoral care: **Bernhard Boudgoust**
Evangelical pastoral care: **Detlef Spitzbart**
Muslim pastoral care: **on request via the wards**

The Evangelical and Catholic pastoral care workers work in

ecumenical collaboration with one another. Both of them are available for personal discussions with all patients and their relatives and those affected who are not undergoing inpatient treatment. They are of course subject to a pastoral duty of confidentiality. Joint services are celebrated every Sunday and can also be attended by external visitors. The pastoral care workers also offer singing groups and discussion groups, can get involved in ward events on request and design the religious studies classes at the Patient School II.

SELF-HELP AT CIMH

Responsible for self-help: **Dr. Jens Bullenkamp**

CIMH has been working closely with Gesundheitstreffpunkt Mannheim, the central contact and information group for self-help groups in Mannheim, since 2010. The focus is the implementation and development of the principle of the positive nature of self-help. Numerous projects have been initiated together with around 20 different psychiatric self-help groups, including a self-help day at CIMH with numerous issues on the program.

All patients at the CIMH are regularly informed about the psychiatric services provided by self-help groups through an information brochure. Some self-help groups also make use of the opportunity to present themselves directly to the wards of the various CIMH clinics or use the CIMH facilities for their group meetings. An information event also takes place on a regular basis (once a month) in the foyer of CIMH at which various self-help groups have the opportunity to present themselves.

In 2012, CIMH was the first psychiatric hospital in Baden-Württemberg to receive a "self-help-friendly hospital" award from the Self-Help-Friendliness and Patient-Focus in the Health Care Sector network, of which CIMH is also a registered member. The award was given again in 2016.

SOCIAL WORK DEPARTMENT

Head: **Jürgen Martus**

Social work in the four clinics and outpatient clinics is available to all inpatients, day care patients and outpatients at CIMH and comprises support and advice on social legislation issues, personal difficulties and questions on further outpatient and inpatient support services. Patients can obtain information in particular on the following topics:

- Social security (sickness benefit, unemployment benefit I, unemployment benefit II, basic income, pensions)
- Debts (bills that are due and reminders, debt management)
- Work (reintegration, application, training)
- Residence (rent payments, action for eviction, conflicts with landlords and neighbors)
- Forms of assisted living (assisted living in your own home or in sheltered housing, therapeutic residence, old people's home or nursing home)
- Medical and professional rehabilitation
- Care of minors and relatives who require care
- Advice and information on possible youth welfare support for the children of mentally ill parents
- Communication with counselling centers and support services
- Advice on daily structure and leisure time
- Implementation of discharge management in collaboration with other professional groups
- Organization of regular consultation hours with the social psychiatric service
- Implementation of regular parent information sessions for patients with minor children

Relatives of patients can obtain advice and support related to the following services:

- Information and discussion group for relatives of people with dementia – "understanding dementia": relatives obtain information about the clinical picture of dementia and possible support and respite services. There is also an opportunity to talk to other people who are affected.
- Psychoeducative groups for relatives of patients with psychoses: relatives obtain information about the clinical picture of psychosis, experience emotional respite and obtain support and help to help themselves.

Networking and participation in numerous working groups and committees on complementary psychiatric care in the city of Mannheim is particularly important in terms of the perception of the tasks of social work. An important ongoing project is Mannheimer Starthilfe, which was founded in 1983 to support the professional integration of people with mental health conditions. Starting or returning to work is made possible here through stress tests with work trials under realistic conditions.

RESEARCH

2015 — 2016

DEPARTMENTS, INSTITUTES
AND RESEARCH GROUPS

DEPARTMENT OF BIOSTATISTICS

Prof. Dr. Stefan Wellek has been Professor of Biostatistics at Heidelberg University and Head of the Department of Biostatistics at the CIMH since 1994. He took his PhD in mathematical and graduated in medical statistics (from the Universities of Düsseldorf and Mainz, respectively). He is the author of three research monographs on statistical equivalence testing methods and published more than 100 papers in (bio-) statistical and medical journals.

The tasks and activities undertaken by the Department of Biostatistics are subdivided into two major areas: The members of the department provide statistical services in the widest sense to researchers from the various clinical and experimental disciplines represented at the CIMH. They also run research projects of their own devoted to improving and extending the range of statistical solutions to relevant problems for medical, biological and social science applications.

STATISTICAL PLANNING AND ANALYSIS OF THE PREFERE STUDY

The PREFERE study has been rated by influential science journalists as the "most important oncological research project being run in Germany" (Frankfurter Allgemeine Zeitung, March 18th, 2015). It is in fact not a single randomized clinical trial (RCT) but a cluster of eleven different RCTs which are all being run with the objective of providing evidence in favor of the following hypothesis: there are alternative, less invasive therapeutic strategies for the treatment of the organ-confined cancer of the prostate which provide considerably improved quality of life and are non-inferior to radical prostectomy in terms of efficacy. The project is funded jointly by the German Cancer Aid (Deutsche Krebshilfe), the National Association of Statutory Health Insurance Funds (GKV), and the Association of Private Health Insurances (PKV), with a maximum sponsorship amount of 25 million euros. Although the primary research questions addressed in the PREFERE study do not relate to mental health, the head of the Department of Biostatistics of the CIMH was invited to act as the statistician responsible for the project due to his international reputation as an expert in the statistical methodology of equivalence and noninferiority trials. Based on a modified log-rank test for non-inferiority trials with survival endpoint derived from one of his publications, the total sample size required for the study was calculated to be almost 7,600. A major challenge in carrying out this calculation was to accommodate the fairly unusual and innovative feature of the study from which its name has been derived: According to the basic design of the study which can be traced back to a recommendation of the Federal Joint Committee (G-BA), each patient is permitted to opt for a restricted randomization compatible with his subjective preferences by ruling out up to two out of a total of four therapeutic strategies. The fully developed proposal of the project was accepted by the sponsors following several rounds of intensive reviewing by an international panel of experts. The planned total duration of the study is as long as 18 years, due to tumor growth typically being very slow. As it is often the case with highly complex clinical trials, the main difficulty encountered in the realization of the project is a considerable discrepancy between actual and expected speed of patient accrual. The range of clinical disciplines involved is very broad and includes urosurgery, radiotherapy, clinical psychology, and psychotherapy.

PROJECTS

Proposal Submission and Organization of the Invited Session "Two-Part Models for the Analysis of Correlated Count and Semi-Continuous Data with Excess Zeros" at the XXVIIIth International Biometric Conference 2016 in Victoria, BC.

Preparation of an Invited Discussion Paper About the Current P-Value Controversy for Publication in BIMJ (Biometrical Journal).

Generalization of the Equivalence Testing Procedure for Establishing Goodness Rather Than Lack of Fit to the Hardy-Weinberg Model to the X-Chromosomal Case.

Creating a R-Package Containing the Complete Set of Programs Made Available As Supplementary Material to the Monograph "Testing Statistical Hypotheses of Equivalence and Noninferiority" by S. Wellek.

Elaboration of a Statistical Strategy for Mediation Analyses in Multilevel Models for Use in the DFG-Funded Research Project "Experimental Studies on Rumination and Mindfulness".

Biometrical support and advice for two pilot multicenter studies on "Glutamatergic Medication in the Treatment of Obsessive Compulsive Disorder (OCD) and Autism Spectrum Disorder (ASD)" [Sub-project of the EU-funded TACTICS programme].

Two-Part Models for the Analysis of Correlated Count and Semi-Continuous Data with Excess Zeros.

Sample-Size Planning of Two-Arm Trials Generating Discrete Quantitative Data to be Analyzed by Means of the Mann-Whitney-Wilcoxon Statistic.

Planning and Analysis of Survival Studies with Noncontinuous Recording of Failure-Times.

PUBLICATIONS

Boecker-Schlier R, Holz NE, Buchmann AF, Blomeyer D, Plichta MM, Jennen-Steinmetz C, Wolf I, Baumeister S, Treutlein J, Rietschel M, Meyer-Lindenberg A, Banaschewski T, Brandeis D, Laucht M (2016). Interaction between COMT Val(158)Met 5,463 polymorphism and childhood adversity affects reward processing in adulthood. Neuroimage; 132: 556–70.

Holz N, Boecker R, Buchmann AF, Blomeyer D, Baumeister S, Hohmann S, Jennen-Steinmetz C, Wolf I, Rietschel M, Witt SH, Plichta MM, Meyer-Lindenberg A, Schmidt MH, Esser G, Banaschewski T, Brandeis D, Laucht M (2016). Evidence for a sex-dependent MAOA×childhood stress interaction in the neural circuitry of aggression. Cerebral Cortex; 26 (3): 904–14.

Koopmann A, Bez JB, Leménager T, Hermann D, Dinter C, Reinhard I, Schuster R, Wiedemann K, Winterer G, Kiefer F (2016). The effect of nicotine on HPA axis 1,889 activity in females is modulated by the FKBP5 genotype. Annals of Human Genetics 2016 May; 80 (3): 154–61.

Wellek S (2016). Testing for noninferiority of binomial distributions referring to a modified equivalence region with piecewise linear boundary. Journal of Statistical Computation and Simulation; 86, 1736–53.

Zois E, Vollstädt-Klein S, Hoffmann S, Reinhard I, Bach P, Charlet K, Beck A, Treutlein J, Frank J, Jorde A, Kirsch M, Degenhardt F, Walter H, Heinz A, Kiefer F (2016). GATA4 variant interaction with brain limbic structure and relapse risk: A voxel-based morpho-metry study. European Neuropsychopharmacology; 26 (9): 1431–7.

Holz NE, Boecker R, Hohm E, Zohsel K, Buchmann AF, Blomeyer D, Jennen-Steinmetz C, Baumeister S, Hohmann S, Wolf I, Plichta MM, Esser G, Schmidt M, Meyer-Lindenberg A, Banaschewski T, Brandeis D, Laucht M (2015). The long-term impact of early life poverty on orbitofrontal cortex volume in adulthood: Results from a prospective study over 25 years. Neuropsychopharmaco-logy; 40, 996–1004.

Reinhard I, Leménager T, Fauth-Bühler M, Hermann D, Hoffmann S, Heinz A, Kiefer F, Smolka MN, Wellek S, Mann K, Vollstädt-Klein S (2015). A comparison of region-of-interest measures for extracting whole brain data using survival analysis in alcoholism as an example. Journal of Neuroscience Methods; 242, 58–64.

Hoffelder T, Gössl R, Wellek S (2015). Multivariate equivalence tests for use in pharmaceutical development. J. Biopharm. Statist. 25, 417–437.

Wellek S (2015). Nearly exact sample size calculation for powerful nonrandomized tests for differences between binomial proportions. Statistica Neerlandica; 69, 358–373.

Pashaj S, Merz E, Wellek S (2015). Normal doppler reference values of the pericallosal artery. UiM/Eur J USound 36, 375–380.

INSTITUTE OF COGNITIVE AND CLINICAL NEUROSCIENCE

Prof. Dr. Dr. h. c. Herta Flor studied Psychology in Würzburg, Tübingen, and at Yale University. She has held academic positions at the universities of Pittsburgh, Tübingen, Bonn, Marburg, and Berlin. She has been the Scientific Director of the Department of Cognitive and Clinical Neuroscience since 2000. She has published more than 400 scholarly papers, been spokesperson of Collaborative Research Grant 636 and received both a European Council Advanced Grant and a Reinhart-Koselleck-Award.

In line with the research pillars neuronal plasticity, therapy research, mental disorders across the life span, a main focus of the research conducted by the Institute is the explanation of the role of learning and memory processes and associated neuroplastic brain changes in the development and maintenance of mental disorders. Treatment approaches using behavioral and combined pharmacological-behavioral therapy are also developed and examined.

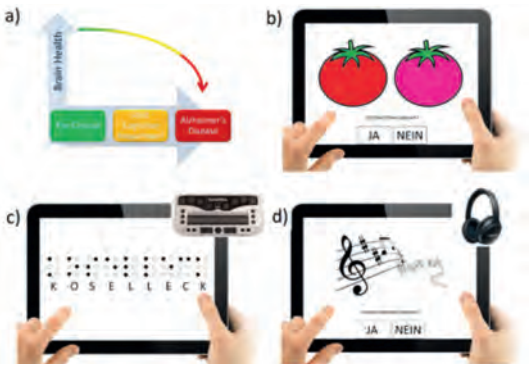


Figure on the right: Sensory training in early dementia. Mild cognitive impairments represent a transitional stage between the pre-clinical ageing processes and Alzheimer dementia (a). We will investigate how training involving visual (b), somatosensory (c), and auditory (d) discrimination tasks works against the breakdown of sensory processing and how it influences cognitive deficits.

REINHART-KOSELLECK-AWARD

Within the Reinhart-Koselleck-Award, we examine new interventions based on brain-body interaction. Brain circuits involved in pain processing and body representation are closely connected and interact more than previously thought. Somatosensory, visual, and motor processes contribute to the formation of body perception and can be combined in treatments designed to reestablish normal body representation. Based on the development of novel psychological interventions targeting body representation in phantom limb pain after amputation, we devise new virtual and augmented reality-based training procedures to reestablish normal body representation and improve sensory, motor and cognitive function. We apply these interventions in post-injury pain and motor dysfunction, where the counteracting of long-term immobility by feedback of movement should shorten recovery times and preserve muscle function. Another novel application is in chronic musculoskeletal pain, where the systematic shaping of intact body representation should reduce pain and pain behavior and change dysfunctionally altered brain circuits. We expand this approach to early dementia, where the breakdown of sensorimotor processing and immobility may be important in disease progression. These studies are the basis for mechanistic treatment approaches.

PROJECTS

Flor H. DFG – German Research Foundation FL 156/41-1: Reinhart-Koselleck-Award: "Body Representation and Sensomotoric Functions Modulate Brain Reorganisation and Behavioral Changes: From Chronic Pain to Immobility and Dementia." 10/2015-10/2020.

Flor H. BMBF – Federal Ministry of Education and Research 01EE1406C, AERIAL: Addiction: Early Recognition and Intervention Across the Lifespan. 02/2015–01/2019.

Flor H. DGM F1/1: Quality of Life, Pain and Neuropsychological Restrictions in Patients with Mitochondrial Diseases. 05/2015–04/2016.

Andoh JA, Flor H. DFG – German Research Foundation SFB 1158: B 07 – Neural circuits involved in Phantom Limb Pain. 07/2015–06/2019.

Flor H, Nees F. SFB 1158: B03 – The role of learning, stress and underlying brain circuits involving prefrontal-limbic interactions in the development of chronic back pain. 07/2015–06/2019.

Bekrater-Bodmann R, Flor H. DFG – German Research Foundation KFO 256, 2nd funding period: TP 04 Sensory-affective Interaction and Body Perception in BPD. 08/2015–07/2018.

PUBLICATIONS

Jia, Macare, Desrivieres, Gonzalez, Tao, Ruggeri, Nees, Banaschewski, Barker, Bokde, Bromberg, Büchel, Conrod, Dove, Frouin, Gallinat, Garavan, Gowland, Heinz, Ittermann, Lathrop, Lemaitre, Martinot, Paus, Pausova, Poline, Rietschel, Robbins, Smolka, Müller, Feng, Rothenfluh*, Flor*, Schumann*, & the IMAGEN Consortium (2016). Neural basis of reward anticipation and its genetic determinants. *joint last authors. Proceedings of the National Academy of Science; 113, 3879–3884.

Kamping, Andoh, Bomba, Diers, Diesch, & Flor, H. (2016). Contextual modulation of pain in masochists: involvement of the parietal operculum and insula. Pain; 157, 445–455.

Kuner R, & Flor H, (2016). Structural plasticity, connectivity and reorganisation in chronic pain. Nature Reviews Neuroscience; 18, 20–30.

Thieme K, Turk D. C., Gracely R. H., Flor H, (2016). Differential psychophysiological effects of operant and cognitive behavioral treatments in women with fibromyalgia. European Journal of Pain; 20, 1478–1489.

Wicking M, Steiger F, Nees F, Diener S. J., Grimm O, Ruttorf M, Schad L, Winkelmann T, Wirtz G, Flor H (2016). Deficient fear extinction memory in posttraumatic stress disorder. Neurobiology of Learning and Memory; 136, 116–126.

Baeuchl C, Meyer P, Hoppstaedter M, Diener C, Flor H (2015). Contextual fear conditioning in humans using feature-identical contexts. Neurobiology of learning and memory; 121, 1–11.

Bekrater-Bodmann R, Chung B. Y., Richter I, Wicking M, Foell J, Mancke F, ..., Flor H (2015). Deficits in pain perception in borderline personality disorder: results from the thermal grill illusion. Pain; 156, 2084–2092.

Laux P, Krumm B, Diers M, & Flor H (2015). Recovery-stress balance and injury risk in professional football players: a prospective study. J Sports Sci; 33, 2140–2148.

Pohlack S, Nees F, Ruttorf M, Cacciaglia R, Winkelmann T, Schad L, Witt SH, Rietschel M, Flor H (2015). Neural mechanism of a sex-specific risk variant for posttraumatic stress disorder in the type I receptor of the pituitary adenylate cyclase activating peptide. Biological Psychiatry; 78, 840–847.

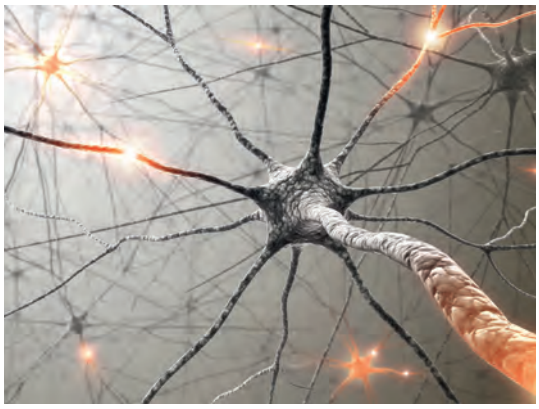
Richiardi J, Altmann A, Milazzo AC, Chang C, Chakravarty MM, Banaschewski T, Flor H, IMAGEN consortium I. (2015). BRAIN NETWORKS. Correlated gene expression supports synchronous activity in brain networks. Science; 348, 1241–1244.

RG BRAIN STIMULATION, NEUROPLASTICITY AND LEARNING

Dr. Jamila Andoh is head of the RG Brain stimulation, neuroplasticity and learning. After completing her Master's degree in Physics and Imaging in Medicine, University Paul Sabatier in Toulouse, Andoh earned her PhD in Physics at INSERM and CEA, University Paris XI. She is member of the editorial board of the journal Frontiers in Neuroscience and Psychology and a member of several specialist societies.

The research group focuses on the mechanisms underlying brain plasticity using techniques such as functional magnetic resonance imaging (fMRI), transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS).

It examines the neural mechanisms that lead to maladaptive plasticity in chronic pain patients using multimodal approaches such as psychometric measures (personality factors, behavioral variables), sensory testing, neuroimaging techniques (functional, structural MRI) and neurophysiological techniques (TMS, tDCS) as tools to promote beneficial plasticity.



It is particularly interested in individual variability, and how past experiences shape and influence new pain episodes. The RG is also investigating interactions between memory and emotions and how they lead to pain chronification.

The ultimate aim is to provide individualized treatment for chronic pain. The combination of neuroimaging and magnetic stimulation techniques should enable individual mapping and modulation of specific neural networks involved in chronic pain.

PROJECTS

Andoh JA, Flor H. DFG – German Research Foundation SFB 1158: B 07 – Neural circuits involved in Phantom Limb Pain . 07/2015–06/2019.

Becker S. DFG – German Research Foundation BE 4309/51: "Understanding the Interactions and Conflicts between Pain and Reward: Integration of Computer Models and Psychological Methods.". 02/2015–01/2016.

EFIC-Grünenthal-Grant (EGG): Circuits of pain memory in chronic pain patients.

Flor H, Nees F. SFB 1158: B03 – The role of learning, stress and underlying brain circuits involving prefrontal-limbic interactions in the development of chronic back pain. 07/2015–06/2019.

Flor H. DGM F1/1: Quality of Life, Pain and Neuropsychological Restrictions in Patients with Mitochondrial Diseases

Flor H. DFG – German Research Foundation FL 156/41-1: Reinhart-Koselleck-Award: "Body Representation and Sensomotoric Functions Modulate Brain Reorganisation and Behavioral Changes: From Chronic Pain to Immobility and Dementia." 10/2015-10/2020.

PUBLICATIONS

Kamping S, Andoh JA, Bomba IC, Diers M, Diesch E, Flor H (2016). Contextual modulation of pain in masochists: involvement of the parietal operculum and insula. Pain; 157 (2): 445–55.

Andoh JA, Matsushita R, Zatorre RJ (2015). Asymmetric interhemispheric transfer in the auditory network: evidence from TMS, resting-state fMRI, and diffusion imaging. Journal of Neuroscience; 35 (43): 14602–11.

Driver ID, Andoh JA, Blockley NP, Francis ST, Gowland PA, Paus T (2015). Hemispheric asymmetry in cerebrovascular reactivity of the human primary motor cortex: an in vivo study at 7 T. NMR Biomed; 28 (5): 538–45.

Matsushita R, Andoh JA, Zatorre RJ (2015). Polarity-specific transcranial direct current stimulation disrupts auditory pitch learning. Front Neurosci; 9: 174.

RG NEUROIMAGING OF MEMORY

The research group researches the correlations between explicit and implicit learning and memory processes particularly in normal and pathological aging processes and in patients with neuropsychiatric diseases using electroencephalography (EEG), structural and functional magnetic resonance tomography (fMRT), simultaneous EEG/fMRT tests, peripheral physiology and behavioral measures. Fundamental insights into the relationship between structure and function in the mesial temporal lobe (MTL) can be achieved as a result of the tests.

PROJECTS

DFG – German Research Foundation ME 4484/1-1: Instantaneous association-building bypassing the hippocampus. 02/2015–01/2018.

PUBLICATIONS

Enke M, Meyer P, Flor H. (2016). From Memory to Attitude: The Neurocognitive Process beyond Euthanasia Acceptance. PLoS ONE; 11 (4): e0153910.

Wessa M, King AV, Meyer P, Frölich L, Flor H, Poupon C, Hoppstädter M, Linke J. (2016). Impaired and preserved aspects of feedback learning in aMCI: contributions of structural connectivity. Brain Struct Funct;221 (5): 2831–46. Epub 2015 Jun 18.

Dr. Patric Meyer studied at and graduated from Saarland University in Saarbrücken specializing in psychology. From 2003 to 2008 he worked as a research assistant at universities in Magdeburg and Saarbrücken. Meyer has been a research assistant at the Institute of Cognitive and Clinical Neuroscience at CIMH since 2008 and a member of the Society for Neuroscience since 2010.

RG BODY PLASTICITY AND MEMORY PROCESSES

Dr. Robin Bekrater-Bodmann received the diploma in Psychology from the Braunschweig Technical University in 2007. Since 2008 he has been working as a research fellow at the CIMH's Department of Cognitive and Clinical Neuroscience where he received his doctorate in 2012 from the Heidelberg University. In 2016, he became head of the CIMH's work group Body plasticity and memory processes. Currently, he is doing a six-month research visit at the Department of Psychology, Royal Holloway, University of London.

The research group focusses on a) the neurobiological mechanisms underlying the perceived unity of body and self, b) the role of dysfunctional memory processes for body perception in psychological disorders, and c) the implications of the results for the treatment of symptoms, especially in chronic pain. The work group members often use illusion paradigms for the manipulation of body perception. The effects are assessed by psychometrics, psychophysiological and imaging methods.

PROJECTS

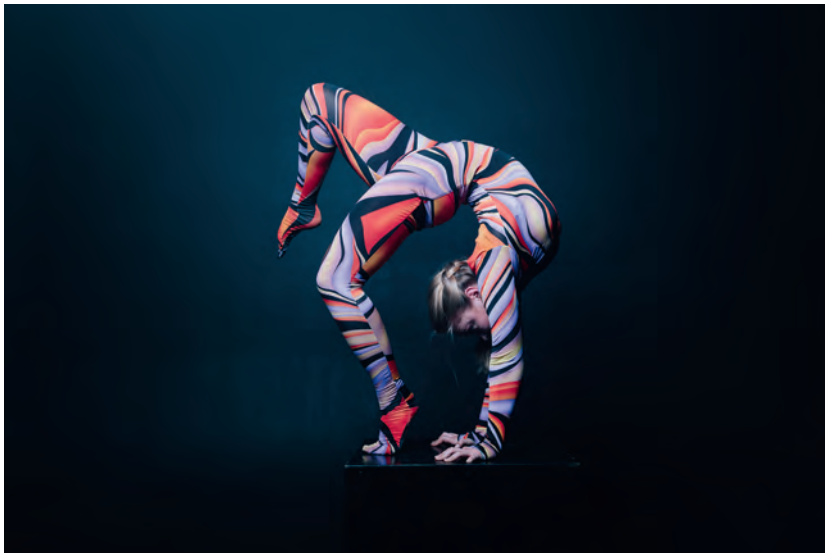
Flor H, Bekrater-Bodmann R. DFG – German Research Foundation KFO 256, 2nd funding period: TP 04 Sensory-affective Interaction and Body Perception in BPD. 08/2015-07/2018.

PUBLICATIONS

Bekrater-Bodmann R, Chung BY, Foell J, Gescher DM, Bohus M, Flor H (2016). Body plasticity in borderline personality disorder: A link to dissociation. Compr Psychiatry; 69: 36–44.

Diers M, Löffler A, Zieglgänsberger W, Trojan J (2016). Watching your pain site reduces pain intensity in chronic back pain patients. Eur J Pain; 20 (4): 581–5.

Lyu Y, Guo X, Bekrater-Bodmann R, Flor H, Tong S (2016). Phantom limb perception interferes with motor imagery after unilateral upper-limb amputation. Sci Rep; 6: 21100.



RG PSYCHOBIOLOGY OF RISK BEHAVIOR

The research group analyzes risk factors for the development of mental disorders in children and adolescents. The focus is on the interaction of different factors such as genetics, environmental factors, and life events.

PROJECTS

Heinrich A. DFG – German Research Foundation HE 7288/2-1: Mechanisms of Resilienceagainst Excessive Alcohol Abuse by Adolescents, 07/2015–06/2017.

Flor H. BMBF – Federal Ministry of Education and Research 01EE1406C, AERIAL: Addiction: Early Recognition and Intervention Across the Lifespan; 02/2015–01/2019.

PUBLICATIONS

Ewald A, Becker S, Heinrich A, Banaschewski T, Poustka L, Bokde A, Büchel C, Bromberg U, Cattrell A, Conrod P, Desrivieres S, Frouin V, Papadopoulos-Orfanos D, Gallinat J, Garavan H, Heinz A, Walter H, Ittermann B, Gowland P, Paus T, Martinot JL, Martinot MP, Smolka MN, Vetter N, Whelan R, Schumann G, Flor H, Nees F, Diesch E, Gebicke-Haerter PJ, Kiefer F, Vollstädt-Klein S, Rietschel M, Schulze TG, Spanagel R, IMAGEN consortium (2016). The role of the Cannabinoid Receptor 1 in adolescents' processing of facial expressions. Eur J Neurosci; 43 (1): 98–105.

Heinrich A, Müller KU, Banaschewski T, Barker GJ, Bokde AL, Bromberg U, Büchel C, Conrod P, Fauth-Bühler M, Papadopoulos D, Gallinat J, Garavan H, Gowland P, Heinz A, Ittermann B, Mann K, Martinot JL, Paus T, Pausova Z, Smolka M, Ströhle A, Rietschel M, Flor H, Schumann G, Nees F, IMAGEN consortium (2016). Prediction of alcohol drinking in adolescents: personality-traits, behavior, brain responses, and genetic variations in the context of reward sensitivity. Biol Psychol; 118: 79–87.

Heinrich A, Schumann G, Flor H, Nees F, Banaschewski T, Diesch E, Gebicke-Haerter PJ, Kiefer F, Vollstädt-Klein S, Rietschel M, Schulze TG, Spanagel R, IMAGEN consortium (2016). Identification of Key Items Regarding Personality, Environment, and Life Events to Assess Risk and Resilience Factors for Harmful Alcohol Drinking in Adolescents. Alcohol Alcohol. 118: 79–87.

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Nees F, Heinrich A, Flor H (2015). A mechanism-oriented approach to psychopathology: The role of Pavlovian conditioning. Int J Psychophysiol; 98 (2 Pt 2): 351–64.

Dr. Angela Heinrich completed her diploma in biology (specializing in neuroscience) in 2008 in Frankfurt am Main. Between 2009 and 2012, she worked on her dissertation at the Institute of Cognitive and Clinical Neurosciences of the CIMH in the field of neuropsychology. Since then, she has been conducting research at CIMH and took part in the Olympia Morata program run by Heidelberg University. In 2014 and 2015, she spent several months researching abroad.

RG PSYCHOBIOLOGY OF PAIN

Dr. Susanne Becker completed her studies in psychology (Diploma) in 2004 and her doctoral studies in 2009, both at the University of Mannheim. After another year as a postdoctoral fellow at the University of Mannheim, she worked as a postdoctoral fellow at McGill University in Montreal, Canada, from 2010 until 2013. In April 2013, Becker started working at the Institute of Cognitive and Clinical Neuroscience, where she became head of the research group on the psychobiology of pain in February 2016.

The scope of the work of this research group covers the investigation of central mechanisms underlying pain perception and the modulation of this. In particular, the focus is on inhibitory effects on pain of rewarding stimuli and the impact of conflicts of motivation on the perception of pain.

PROJECTS

Becker S.: Olympia-Morata-Program of the University of Heidelberg. If pain and reward clash: effects of motivational conflicts on perception and behavior and their neurophysiological mechanisms, 03/2015–02/2017.

Flor H, Becker S, Gamroth C.: German Association for Muscular Dystrophy (DGM). Quality of Life, Pain and Neuropsychological Restrictions in Patients with Mitochondrial Diseases, 05/2015–04/2017.

Becker S, Schweiker M: Heidelberg Academy of Science – WIN-College. Understanding and communicating dynamic changes in perception through the interaction of thermal comfort, 06/2017–05/2019.

PUBLICATIONS

Ewald A*, Becker S*, Heinrich A, Banaschewski T, Bokde T, Buechel C, Bromberg U, Cattrell A, Conrod P, Frouin V, Papadoulos D, Gallinat J, Garavan H, Heinz A, Walter H, Ittermann B, Gowland P, Paus T, Poustka L, Martinot J-L, Smolka MN, Whelan R, Schumann G, Flor H, Nees F, and the IMAGEN consortium (2016). The role of the cannabinoid receptor in adolescents' processing of facial expressions. European Journal of Neuroscience; 43 (1): 98–105. *contributed equally

Bräscher AK*, Becker S*, Hoeppli ME, Schweinhardt P (2016). Different brain circuitries mediating controllable and uncontrollable pain. Journal of Neuroscience; 36 (18): 5013–25. *contributed equally

Taylor AMW, Becker S, Schweinhardt P, Cahill C (2016). Mesolimbic dopamine signaling in acute and chronic pain: implications for motivation, analgesia, and addiction. Pain; 157 (6): 1194–8.

Becker S, Gandhi W, Kwan S, Ahmed AK, Schweinhardt P (2015). Doubling your pay-off: winning pain relief engages endogenous pain inhibition. eNeuro; 2 (4): 1–11.

Becker S, Kleinböhl D, Diers M, Flor H (2015). Respondent learning in chronic pain: how precise is imprecision? Pain 156 (10): 2108–9.

RG PSYCHOBIOLOGY OF EMOTIONAL LEARNING

The scientific focus is on the investigation of central mechanisms such as learning, memory, and reward processing, and environmental aspects such as stress, which may be important in the development and maintenance of mental, physical and neurological disorders. Using a multimodal approach, healthy individuals neuronal, psychological, physiological, and genetic factors are investigated across the life span and from a number of patient samples.

PROJECTS

The role of learning, stress and underlying brain circuits involving prefrontal-limbic interactions in the development of chronic back pain (Project B03; Nees, Flor), first funding period of the collaborative research project 1158: From nociception to chronic pain: Structure-function attributes of neural circuits and their reorganisation, funded by DFG.

Identification of early bio-psycho-social risks and resilience factors and etiological pathways to adolescent addictive behavior (Banaschewski, Nees), Consortium: Improving Mental Health and Reducing Addiction in Childhood and Adolescence through Mindfulness: Mechanisms, Prevention and Treatment (IMAC), Funding initiative "Healthy – For a Lifetime", funded by BMBF.

Translation of neurobehavioral risk profiles into the development of screening and prevention tools in a mechanism-based approach (Flor, Nees), Verbund: Improving Mental Health and Reducing Addiction in Childhood and Adolescence through Mindfulness: Mechanisms, Prevention and Treatment (IMAC), Funding initiative "Healthy – For a Lifetime", funded by BMBF.

Scientific network for a better understanding of the neuroplasticity and associated functions following hemispherectomy (Nees, Zentner), funded by DFG.

PUBLICATIONS

Diener SJ*, Nees F*, Wessa M, Wirtz G, Frommberger U, Penga T, Ruttorf M, Ruf M, Schmahl C, Flor H (2016). Reduced amygdala responsivity during conditioning to trauma-related stimuli in posttraumatic stress disorder. Psychophysiology; 53 (10), 1460–71. *joint first authorship

Ewald A*, Becker S*, Heinrich A, Banaschewski T, Poustka L, Bokde AU, Büchel C, Bromberg U, Cattrell A, Conrod PJ, Desrivières S, Frouin V, Papadopoulos-Orfanos D, Gallinat J, Garavan H, Heinz A, Walter H, Ittermann B, Gowland P, Paus T, Martinot JL, Smolka M, Vetter N, Whelan R, Schumann G, Flor H, Nees, F, the IMAGEN consortium (2016). The role of Cannabinoid Receptor 1 in adolescents' processing of facial expressions. European Journal of Neuroscience; 43, 98–105. *joint first authorship

Heinrich A, Müller KU, Banaschewski T, Barker GJ, Bokde ALW, Bromberg U, Büchel C, Conrod P, Fauth-Bühler M, Papadopoulos D, Gallinat J, Garavan H, Gowland P, Heinz A, Ittermann B, Mann K, Martinot JL, Paus T, Pausova Z, Smolka M, Ströhle A, Rietschel M, Flor H, Schumann G, Nees F, and the IMAGEN consortium (2016). Prediction of alcohol drinking in adolescents: personality-traits, behavior, brain responses, and genetic variations in the context of reward sensitivity. Biological Psychology; 118, 79–87.

Cacciaglia R*, Pohlack S*, Flor H, Nees F (2015). Dissociable roles for hippocampal and amygdalar volume in human fear conditioning. Brain Structure Function; 220 (5), 2575–86. *joint first authorship

Dr. Frauke Nees, Study of psychology at the University of Landau, 2005–2008 PhD scholarship at the University of Trier, 2015–2016 research trip to the Medical University of Vienna. Since 2008 she has been at the Institute of Cognitive and Clinical Neuroscience, starting as PostDoc then moving on to a position as Deputy Professor (2012–2013) and on to her current roles of Assistant Professor (2016, also at the Department of Child/Adolescent Psychiatry/Psychotherapy), work group leader (since 2013), and Permanent Deputy of the Scientific Director (since 2016) – 10 project collaborations and 6 projects as PI.

INSTITUTE FOR PSYCHOPHARMACOLOGY

Prof. Dr. Rainer Spanagel (PhD) is a European leader in the field of addiction and especially of alcoholism research. During his PhD work, he discovered the regulation of the brain reinforcement system by the endogenous opioid system. This work was critical for understanding reward processing and is often cited. In early 2000, he relocated to the CIMH as Department Head of Psychopharmacology. He has been Scientific Director of the Institute for Psychopharmacology since 2011.

The Institute focuses on addiction research conducted in the form of animal testing and has gradually implemented several translational components reflected in particular by the RG on Translational Addiction Research funded by MKW. Since addictive behavior is often associated with anxiety and affective disorders in early childhood and over the course of a lifetime, these comorbidities are also taken into account.

FOREVER YOUNG: A GAIN OF FUNCTION MUTATION IN THE CNR1 GENE LEADS TO AN ADOLESCENT PHENOTYPE IN ADULT RATS

"Oscar is 14 years old and has been driving his parents crazy for a while. Oscar is an adolescent. A wild, impulsive guy, he is always looking for new adventures, is only socially connected to his peers, and recently got into smoking marijuana. His parents have only one consolation, he will get over it when he reaches early adulthood."
We introduced a gain of function point mutation in the Cnr1 gene of the rat. These rats behave like Oscar, with the only exception being that they continue to do so when they become adults – they are "locked" into their adolescent state.

Understanding the functional consequences of point mutations is crucial for genetic research. By using an N-ethyl-N-nitrosourea-driven target selected mutagenesis screen in rats, we achieved a missense point mutation in the Cnr1 gene. Silico modelling predicted a gain of function for the encoded mutated cannabinoid receptor 1 (CB1R). The CB1R is one of the most prominent receptors in the mammalian brain. Gain of function was verified by biochemical, electrophysiological and pharmacological studies.

To our surprise, the mutation led to an adolescent phenotype in adult rats with typical high risk and novelty-seeking behavior, enhanced impulsivity, and augmented reward sensitivity with increased susceptibility towards drugs that are commonly abused. Our studies demonstrate that the CB1R activity is the critical mediator of adolescent behavior.

Schneider M, Kasanetz F, Lynch DL, Friemel CM, Lassalle O, Hurst DP, Steindel F, Monory K, Schäfer C, Miederer I, Leweke FM, Schreckenberger M, Lutz B, Reggio PH, Manzoni OJ, Spanagel R. (2015). Enhanced Functional Activity of the Cannabinoid Type-1 Receptor Mediates Adolescent Behavior. J Neurosci.; 35 (41): 13975–88.

PROJECTS

SFB 1134/1 B05: Characterization and Modulation of neuronal ensembles of the brain reward system

SFB 1134/1 C03: Calcium-induced changes of expression in coactive neurons of the ventral tegmental area during conditioned nicotine sensitization

SFB 1158 Pain TP B04: Translational studies in chronicity of pain: Neuroplasticity in corticolimbic dopamine and glutamate pathways

AERIAL DLR 01EE1406C TP6 Spanagel: Mechanisms of addiction: social exclusion, risk and resilience prediction, and adapted interventions

SP 383/10-1 KFO Borderline – Individual Project 7 (Spanagel): Neurobiological Consequences and Mechanisms of Early Social Rejection Experiences as an Animal Model

Servier Deutschland – Support of a congress, SLA/1605, LCM11092

EU HORIZON2020-668863-SyBil-AA (Subprojects Noori, Sommer and Spanagel)

SP 383/12-1 – Support of the international scientific event: "World congress on Alcohol and Alcoholism"

PUBLICATIONS

Hadar R, Vengeliene V, Barroeta Hlusicke E, Canals S, Noori HR, Wieske F, Rummel J, Harnack D, Heinz A, Spanagel R, Winter C. (2016). Paradoxical augmented relapse in alcohol-dependent rats during deep-brain stimulation in the nucleus accumbens. Transl Psychiatry; 6 (6): e840.

Hirth N, Meinhardt MW, Noori HR, Salgado H, Torres-Ramirez O, Uhrig S, Broccoli L, Vengeliene V, Roßmanith M, Perreau-Lenz S, Köhr G, Sommer WH, Spanagel R, Hansson AC. (2016). Convergent evidence from alcohol-dependent humans and rats for a hyperdopaminergic state in protracted abstinence. Proc Natl Acad Sci U S A; 113 (11): 3024–9.

Papale A, Morella IM, Indrigo MT, Bernardi RE, Marrone L, Marchisella F, Brancale A, Spanagel R, Brambilla R, Fasano S. (2016). Impairment of cocaine-mediated behaviours in mice by clinically relevant Ras-ERK inhibitors. Elife; 5. pii: e17111.

Vengeliene V, Moeller A, Meinhardt MW, Beardsley PM, Sommer WH, Spanagel R, Bespalov A. (2016). The Calpain Inhibitor A-705253 Attenuates Alcohol-Seeking and Relapse with Low Side-Effect Profile. Neuropsychopharmacology; 41 (4): 979–88.

Bilbao A, Robinson JE, Heilig M, Malanga CJ, Spanagel R, Sommer WH, Thorsell A. (2015). A pharmacogenetic determinant of mu-opioid receptor antagonist effects on alcohol reward and consumption: evidence from humanized mice. Biol Psychiatry.; 77 (10): 850–8.

Eisenhardt M, Leixner S, Luján R, Spanagel R, Bilbao A. (2015). Glutamate Receptors within the Mesolimbic Dopamine System Mediate Alcohol Relapse Behavior. J Neurosci.; 35 (47): 15523–38.

Pfarr S, Meinhardt MW, Klee ML, Hansson AC, Vengeliene V, Schönig K, Bartsch D, Hope BT, Spanagel R, Sommer WH. (2015). Losing Control: Excessive Alcohol Seeking after Selective Inactivation of Cue-Responsive Neurons in the Infralimbic Cortex. J Neurosci.; 35 (30): 10750–61.

Schneider M, Kasanetz F, Lynch DL, Friemel CM, Lassalle O, Hurst DP, Steindel F, Monory K, Schäfer C, Miederer I, Leweke FM, Schreckenberger M, Lutz B, Reggio PH, Manzoni OJ, Spanagel R. (2015). Enhanced Functional Activity of the Cannabinoid Type-1 Receptor Mediates Adolescent Behavior. J Neurosci.; 35 (41): 13975–88.

Vengeliene V, Noori HR, Spanagel R. (2015). Activation of Melatonin Receptors Reduces Relapse-Like Alcohol Consumption. Neuropsychopharmacology; 40 (13): 2897–906.

Bernardi RE, Zohsel K, Hirth N, Treutlein J, Heilig M, Laucht M, Spanagel R, Sommer WH. (2016). A gene-by-sex interaction for nicotine reward: evidence from humanized mice and epidemiology. Transl Psychiatry; 6 (7): e861.

RG IN SILICO PSYCHOPHARMACOLOGY

PD Dr. Dr. Hamid R. Noori received his PhDs in mathematics and physics from Universities of Heidelberg and Kaiserslautern and was also honored with Venia Legendi in Heidelberg University. In 2008, he moved to Princeton University and focused his research on the interface between experimental and theoretical neurosciences. He has been a group leader in the Central Institute of Mental Health since 2013. He is a Fellow of Humboldt Foundation and has received the Heidelberg Academy of Sciences Award.

The research group develops and applies converging multi-scale multi-disciplinary approaches in order to address some of the most fundamental questions in neuroscience and to contribute to drug design and discovery.

PUBLICATIONS

Hadar R, Vengeliene V, Barroeta Hlusicke E, Canals S, Noori H, Wieske F, Rummel J, Harnack D, Spanagel R, Winter C (2016). Paradoxical augmented relapse in alcohol dependent rats during deep brain stimulation in the nucleus accumbens. Transl Psych; 6 (6): e840.

Hirth* N, Meinhardt* M, Noori* H, Perreau-Lenz S, Broccoli L, Rimondini R, Harper C, Heilig M, Spanagel R, Sommer W, Hansson A (2016). Dopamine system adaptations in alcohol abstinence: Translational evidence from humans and rats. PNAS; 113 (11): 3024–9. *Geteilte Erstautorschaft

Noori H, Cosa-Linan A, Spanagel R (2015). Largely overlapping neuronal substrates of reactivity to drug, gambling, food and sexual cues: a comprehensive meta-analysis. Eur Neuropsychopharm; 26 (9): 1419–30.

Vengeliene V, Noori H, Perreu-Lenz S, Spanagel R (2015). Relapse to alcohol use is controlled by melatonin signalling. Neuropsychopharmacology; 40 (13): 2897–906.

RG BEHAVIORAL GENETICS

The group on Behavioral Genetics focuses on the neurobiological basis of reward learning processes and associated psychopathologies, identifying common and distinct mechanisms and pathways underlying the motivational and addictive properties of commonly abused drugs (psychostimulants and alcohol), natural rewards (sugar) or chronic pain.

This is achieved by testing advanced transgenic mouse models on various test systems which cover a broad spectrum of affective motivational components of behavior, including the recently established ICSS (intracranial self-stimulation) procedure in mice.

PROJECTS

SFB1158, „Translational studies in pain chronicity: neuroplasticity in corticolimbic dopamine and glutamate pathways".

PUBLICATIONS

Bilbao A, Serrano A, Cippitelli A, Pavón FJ, Giuffrida A, Suárez J,García-Marchena N, Baixeras E, Gómez de Heras R, Orio L, Alén F, Ciccocioppo R, Cravatt BF, Parsons LH, Piomelli D, Rodríguez de Fonseca F (2016). Role of the satiety factor oleoylethanolamide in alcoholism. Addict Biol; 21 (4): 859–72.

Rivera A, Gago B, Suárez-Boomgaard D, Yoshitake T, Roales-Buján R, Valderrama-Carvajal A, Bilbao A, Medina-Luque J, Díaz-Cabiale Z, Craenenbroeck KV, Borroto-Escuela DO, Kehr J, Rodríguez de Fonseca F, Santín L, de la Calle A, Fuxe K (2016). Dopamine D(4) receptor stimulation prevents nigrostriatal dopamine pathway activation by morphine: relevance for drug addiction. Addict Biol; [Epub ahead of print]

Blanco E, Galeano P, Palomino A, Pavón FJ, Rivera P, Serrano A, Alen F, Rubio L, Vargas A, Castilla-Ortega E, Decara J, Bilbao A, de Fonseca FR, Suárez J (2016). Cocaine-induced behavioral sensitization decreases the expression of endocannabinoid signaling-related proteins in the mouse hippocampus. Eur Neuropsychopharmacol; 26 (3): 477–92.

Bilbao A, Robinson J.E, Heilig M, Malanga CJ, Spanagel R, Sommer W, Thorsell A (2015). A pharmacogenetic determinant of mu-opioid receptor antagonist effects on alcohol reward and consumption: Evidence from humanized mice. Biol Psychiatry; 77 (10): 850–8.

Eisenhardt M, Hansson A, Spanagel R, Bilbao A (2015). Chronic intermittent ethanol exposure in mice leads to an up-regulation of CRH/CRHR1 signaling. ACER; 39 (4): 752–62.

Eisenhardt M, Leixner S, Luján R, Spanagel R, Bilbao A (2015). Glutamate Receptors within the Mesolimbic Dopamine System Mediate Alcohol Relapse Behavior. J Neurosci; 35 (47): 15523–38.

Dr. Ainhoa Bilbao is head of the RG Behavioral Genetics at CIMH. She studied Psychology at the University of Deusto in Spain and received her doctorate from the Complutense University of Madrid. Bilbao has authored 55 publications and is an Editorial Board member of Addiction Biology, Frontiers in Psychiatry and Journal of Psychiatry and Brain Science.

RG DEVELOPMENTAL NEUROPSYCHOPHARMACOLOGY

PD Dr. Miriam Schneider studied biology at the University of Tübingen. She received her doctorate from the University of Bremen, where she went on to as a post-doctoral student. After being a research associate at the department of psychiatry and psychotherapy at the University of Cologne, she started working at the Institute for Psychopharmacology at CIMH. From 2011 to 2016 Schneider was head of the RG Developmental Neuropsychopharmacology.

The group research topic focuses on the impact of adolescence and related neurodevelopmental processes on heightened susceptibility to mental health disorders. Adolescence and puberty are hugely important periods for postnatal brain maturation. Drastic changes in neuronal architecture and function occur during adolescence, which simultaneously leads to distinct behavioral alterations. Considering the multitude of ongoing neurodevelopmental processes in an adolescent brain, it is not surprising that most adult neuropsychiatric disorders have their roots during precisely this period. Adolescence and puberty are therefore crucial developmental periods in terms of understanding the causes and mechanisms of adult mental health illness.

Profound developmental changes have been reported in particular for the endocannabinoid (ECB) system during puberty and adolescence in rodents, and to characterize specific developmental effects of cannabinoids and other commonly abused drugs (e. g. ethanol, Ritalin) on reward processing, social skills and cognitive performance. We also began to examine the impact of maturational processes in the ECB system on the development of neuropsychiatric disorders (e. g. addiction, schizophrenia, borderline personality disorder, autism) in various animal models. To address these questions we mainly use a behavioral pharmacological approach combined with genetic models. Various molecular and immunhistological techniques have been established for investigating alterations in the ECB system.

PUBLICATIONS

Schneider P, Bindila L, Schmahl C, Bohus M, Meyer-Lindenberg A, Lutz B, Spanagel R, Schneider M (2016). Adverse Social Experiences in Adolescent Rats Result in Enduring Effects on Social Competence, Pain Sensitivity and Endocannabinoid Signaling. Front. Behav. Neurosci.; 10.

Oettl L, Ravi N, Schneider M, Scheller M, Schneider P, Mitre M, da Silva Gouveia M, Robert C, Froemke, Chao M, Young W, Meyer-Lindenberg A, Grinevich V, Shusterman R, Kelsch W (2016). Oxytocin Enhances Social Recognition by Modulating Cortical Control of Early Olfactory Processing. Neuron; 90: 609–621.

Schneider P, Patz M, Spanagel R, Schneider M (2016). Adolescent social rejection alters pain processing in a CB1 receptor dependent manner. Eur. Neuropsychopharmacol.; 26: 1201–1212.

Bacon C, Schneider M, Le Magueresse C, Froehlich H, Sticht C, Gluch C, Monyer H, Rappold G (2015). Brain-specific Foxp1 deletion impairs neuronal development and causes autistic-like behavior. Mol. Psychiatry; 20: 632–639.

RG MOLECULAR PSYCHOPHARMACOLOGY

The RG Molecular Psychopharmacology is investigating the pathological mechanisms that underlie addictive disorders. A driving question is how alcohol causes long-lasting damage to the prefrontal cortex and thus contributes to the impaired self-regulation commonly seen in addicted individuals. Using established rodent models, we use a wide array of methods ranging from behavioral pharmacology and in vivo neuroimaging to cellular and molecular approaches, including state-of-the-art omics technologies.

PROJECTS

Monitoring behaviorally relevant spatio-temporal activity patterns in prefrontal networks using in vivo wide-field microendoscopy (TP B04).

European collaborative project within the Horizon 2020 programme about Systems Biology of Alcohol Addiction (SyBil-AA): Modeling and validating disease state networks in human and animal brains for understanding pathophysiology, predicting outcomes and improving therapy.

PUBLICATIONS

Bernardi RE, Zohsel K, Hirth N, Treutlein J, Heilig M, Laucht M, Spanagel R, Sommer WH. A gene-by-sex interaction for nicotine reward: evidence from humanized mice and epidemiology. (2016). Transl Psychiatry; 6 (7): e861.

Hirth N, Meinhardt MW, Noori HR, Salgado H, Torres-Ramirez O, Uhrig S, Broccoli L, Vengeliene V, Roßmanith M, Perreau-Lenz SP, Köhr G, Sommer WH, Spanagel R, Hansson AC. (2016). Convergent evidence from alcohol-dependent humans and rats for a hyperdopaminergic state in protracted abstinence. Proc Natl Acad Sci U S A; 113 (11): 3024–9.

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Ruggeri B, Nymberg C, Vuoksimaa E, Lourdusamy A, Wong CP, Carvalho FM, Jia T, Cattrell A, Macare C, Banaschewski T, Barker GJ, Bokde AL, Bromberg U, Büchel C, Conrod PJ, Fauth-Bühler M, Flor H, Frouin V, Gallinat J, Garavan H, Gowland P, Heinz A, Ittermann B, Martinot JL, Nees F, Pausova Z, Paus T, Rietschel M, Robbins T, Smolka MN, Spanagel R, Bakalkin G, Mill J, Sommer WH, Rose RJ, Yan J, Aliev F, Dick D, Kaprio J, Desrivieres S, Schumann G, Vollstädt-Klein S, Millenet S, Grimmer Y. (2015). IMAGEN Consortium . Association of Protein Phosphatase PPM1G With Alcohol Use Disorder and Brain Activity During Behavioral Control in a Genome-Wide Methylation Analysis. Am J Psychiatry; 172(6):543-52.

Bilbao A, Robinson JE, Heilig M, Malanga CJ, Spanagel R, Sommer WH, Thorsell A. (2015). A pharmacogenetic determinant of mu-opioid receptor antagonist effects on alcohol reward and consumption: evidence from humanized mice. Biol Psychiatry; 77 (10): 850–8.

Pfarr S, Meinhardt MW, Klee ML, Hansson AC, Vengeliene V, Schönig K, Bartsch D, Hope BT, Spanagel R, Sommer WH. (2015). Losing Control: Excessive Alcohol Seeking after Selective Inactivation of Cue-Responsive Neurons in the Infralimbic Cortex. J Neurosci.; 35 (30): 10750–61.

Associate Prof. Dr. Wolfgang Sommer studied medicine at the University of Greifswald (1981–1987), then completed a doctoral degree in molecular virology at Humboldt University, Berlin (1992). He received board certification in psychiatry and was appointed Associate Professor of Experimental Psychiatry at the Karolinska Institute, Stockholm, Sweden, in 2001. He was then Unit Director of Molecular Pathophysiology at NIAAA/NIH, Bethesda, Maryland, USA (2004–2008). Since 2008, he has been Deputy Scientific Director of the Institute for Psychopharmacology at CIMH. He received Vena legendi (2010) and was appointed Professor for Psychiatry (2016) at Heidelberg University.

RG NEUROANATOMY

Dr. Anita C. Hansson studied Biology at the University of Hamburg (1983–1990), then completed a Master of Science (1990), and a PhD at the Department of Neuroscience, Karolinska Institutet, Stockholm, Sweden (1997-2002), graduating in 2002. Since 2009, she has been Senior Scientist at the Institute of Psychopharmacology of the CIMH. She has been Group Leader of the RG Neuroanatomy since 2012.

The RG aims to investigate the neuronal pathways involved in drug addiction and the neurobiology and function of neurotransmitter systems involved in the pathophysiological mechanisms that contribute to addictive behavior.

The work focuses on neuroanatomical pharmacological research using animal models of drug addiction and post-mortem brain tissue of deceased addicts. In addition to studies of the human brain, animal models are used to pharmacologically validate and examine molecular mechanisms underlying addictive behavior. Through this approach, we will fundamentally increase our knowledge about common mechanisms in addiction, which may lead eventually to the identification of novel treatment targets for medication development.

PROJECTS

Characterization and modulation of neuronal ensembles involved in reward learning (TP B05)

PUBLICATIONS

Bernardi RE, Zohsel K, Hirth N, Treutlein J, Heilig M, Laucht M, Spanagel R, Sommer WH. (2016). A gene-by-sex interaction for nicotine reward: evidence from humanized mice and epidemiology. Transl Psychiatry; 6 (7): e861.

Domi E, Uhrig S, Soverchia L, Spanagel R, Hansson AC, R. Ciccocioppo R, Ubaldi M. (2016). Genetic deletion of neuronal PPARg or pharmacological blockade of the receptor in the amygdala enhances the emotional response to stress and exacerbates anxiety, Journal of Neuroscience; 36 (50): 12611–23.

Hirth N, Meinhardt MW, Noori HR, Salgado H, Torres-Ramirez O, Uhrig S, Broccoli L, Perreau-Lenz S, Köhr G, Spanagel R, Sommer WH, Hansson AC. (2016). Convergent evidence from alcohol dependent humans and rats for a hyperdopaminergic state in protracted abstinence, Proc. Nat. Acad. Sci; 113 (11): 3024–29.

Bernardi RE, Broccoli L, Spanagel R, Hansson AC. (2015). Sex differences in dopamine binding and modafinil conditioned place preference in mice, Drug and Alcohol Dependence; 155: 37–44.

Eisenhardt M, Hansson AC, Spanagel R, Bilbao A. (2015). Chronic intermittent ethanol exposure in mice leads to an up-regulation of CRH/CRHR1 signaling, Alcoholism: Clinical and Experimental Research; 39 (4): 752–62.

Pfarr S, Meinhardt MW, Klee ML, Hansson AC, Vengeliene V, Schönig K, Bartsch D, Hope BT, Spanagel R, Sommer WH. (2015). Losing control: Excessive alcohol seeking after selective inactivation of cue-responsive neurons in the infralimbic cortex, Journal of Neuroscience; 35 (30): 10750–61.

RG PHYSIOLOGY OF NEURONAL NETWORKS

The RG uses electrophysiological techniques to examine experience-dependent changes in synaptic potentials and network properties in rodents freely behaving and in acute brain slices to gain a better understanding of the prefrontal cortex-nucleus accumbens pathway during incubation of cocaine-seeking and alcohol-seeking behavior.

Besides, the RG also investigates nerve cells generated from human pluripotent stem cells with two objectives: firstly to identify functional differences between patients with schizophrenia or alcohol use disorder and healthy controls, and secondly to design innovative therapeutic approaches to treat these diseases.

PROJECTS

DFG – German Research Foundation CRC 1134: B05: Characterization and modulation of neuronal ensembles involved in reward learning

PUBLICATIONS

Ballesteros JJ, Buschler A, Köhr G, Manahan-Vaughan D. (2016). Afferent Input Selects NMDA Receptor Subtype to Determine the Persistency of Hippocampal LTP in Freely Behaving Mice. Front Synaptic Neurosci; 8: 33.

Elagabani MN, Briševac D, Kintscher M, Pohle J, Köhr G, Schmitz D, Kornau HC. (2016). Subunit-selective N-Methyl-d-aspartate (NMDA) Receptor Signaling through Brefeldin A-resistant Arf Guanine Nucleotide Exchange Factors BRAG1 and BRAG2 during Synapse Maturation. J Biol Chem. 291 (17): 9105–18.

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Wieland S, Schindler S, Huber C, Köhr G, Oswald MJ, Kelsch W. (2015). Phasic Dopamine Modifies Sensory-Driven Output of Striatal Neurons through Synaptic Plasticity. J Neurosci.; 35 (27): 9946–56. doi: 10.1523/JNEUROSCI.0127-15.2015.

PD Dr. Georg Köhr, Head of the research group at CIMH since 2012; Faculty member at HBIGS Heidelberg since 2008 and on the Board of Directors at IZN Heidelberg; 2007–2012: research group leader, MPI for Medical Research Heidelberg; 1997–2006: project leader, MPI Heidelberg; 2001–2013: lecturer physiology; 1993–2000: lecturer pharmacology; 1996: Habilitation in Pharmacology and Toxicology; 1992–1996: postdoc at ZMBH Heidelberg; 1990–1991: postdoc at Stanford University; 1985-1989: PhD in Neurophysiology; 1980–1985: Pharmacy study

RG TRANSLATIONAL ADDICTION RESEARCH

Prof. Dr. Falk Kiefer studied medicine (1990–1996) and graduated from the University of Erlangen. Psychiatric-psychotherapeutic resident at the University Hospital Hamburg-Eppendorf (1996–2002). He achieved a postdoctoral qualification in Psychiatry (2004) and became Full Professor of Psychiatry and Psychotherapy specializing in Addiction Medicine, Heidelberg University (2005–2016), Chair of Addiction Research, Heidelberg University and Medical Director, Department of Addictive Behavior and Addiction Medicine, Central Institute of Mental Health, Mannheim (since 2016).

The RG Translational Addiction Research investigates corresponding neurobiological and genetic mechanisms of addictive disorders in patients and model organisms. One focus is on the use of non-invasive neuroimaging methods that offer relatively simple biological measures which can be compared between humans and experimental animals and may provide highly needed translational biomarkers for therapeutic development.

Prof. Falk Kiefer and Associate Professor Wolfgang Sommer are joint group leader for the RG Translational Addiction Research.

PROJECTS

EU – European Union 668863: SyBil-AA System Biology of Alcohol Addiction. 01/2016-12/2019.

DFG – German Research Foundation SFB 1134: TP B04: Investigation of behavioral relevant spatiotemporal activity patterns of neuronal networks in the prefrontal cortex of the rat with in vivo wide field microendoscopy. 01/2015–12/2018.

Kiefer F. BMBF – Federal Ministry of Education and Research 01EE1406C: Consortium AERIAL (part of theResearch Network for Mental Illnesses) – Mechanisms of addictions: social exclusion, prediction of disease risks, resilience and adapted theories, Project. 02/2015–12/2019.

PUBLICATIONS

Bernardi RE, Zohsel K, Hirth N, Treutlein J, Heilig M, Laucht M, Spanagel R, Sommer WH. (2016). A gene-by-sex interaction for nicotine reward: evidence from humanized mice and epidemiology. Transl Psychiatry; 6 (7): e861.

Hirth N, Meinhardt MW, Noori HR, Salgado H, Torres-Ramirez O, Uhrig S, Broccoli L, Vengeliene V, Roßmanith M, Perreau-Lenz SP, Köhr G, Sommer WH, Spanagel R, Hansson AC. (2016). Convergent evidence from alcohol-dependent humans and rats for a hyperdopaminergic state in protracted abstinence. Proc Natl Acad Sci U S A; 113 (11): 3024–9.

Stacey D, Lourdusamy A, Ruggeri B, Maroteaux M, Jia T, Cattrell A, Nymberg C, Banaschewski T, Bhattacharyya S, Band H, Barker G, Bokde A, Büchel C, Carvalho F, Conrod P, Desrivieres S, Easton A, Fauth-Buehler M, Fernández-Medarde A, Flor H, Frouin V, Gallinat J, Garavanh H, Heinz A, Ittermann B, Lathrop M, Lawrence C, Loth E, Mann K, Martinot JL, Nees F, Paus T, Pausova Z, Rietschel M, Rotter A, Santos E, Smolka M, Sommer W, Mameli M, Spanagel R, Girault JA, Mueller C, Schumann G, Diesch E, Gebicke-Haerter PJ, Kiefer F, Vollstädt-Klein S, Poustka L, Schulze TG, IMAGEN consortium. (2016). A translational systems biology approach in both animals and humans identifies a functionally related module of accumbal genes involved in the regulation of reward processing and binge drinking in males. J Psychiatry Neurosci.; 41: 192–202.

Bach P, Vollsta Dt-Klein S, Kirsch M, Hoffmann S, Jorde A, Frank J, Charlet K, Beck A, Heinz A, Walter H, Sommer WH, Spanagel R, Rietschel M, Kiefer F (2015). Increased mesolimbic cue-reactivity in carriers of the mu-opioid-receptor gene OPRM1 A118G polymorphism predicts drinking outcome: A functional imaging study in alcohol dependent subjects. Eur Neuropsychopharmacol; Aug; 25 (8): 1128–35.

Bilbao A, Robinson JE, Heilig M, Malanga CJ, Spanagel R, Sommer WH*, Thorsell A* (2015). A pharmacogenetic determinant of mu-opioid receptor antagonist effects on alcohol reward and consumption: evidence from humanized mice. Biol Psychiatry; May 15; 77 (10): 850–8.
*gequal contribution

Associate Prof. Dr. Wolfgang Sommer studied medicine at the University of Greifswald (1981–1987), then completed a doctoral degree in molecular virology at Humboldt University, Berlin (1992). He received board certification in psychiatry and was appointed Associate Professor of Experimental Psychiatry at the Karolinska Institute, Stockholm, Sweden, in 2001. He was then Unit Director of Molecular Pathophysiology at NIAAA/NIH, Bethesda, Maryland, USA (2004–2008). Since 2008, he has been Deputy Scientific Director of the Institute for Psychopharmacology at CIMH. He received Vena legendi (2010) and was appointed Associate Professor for Psychiatry (2016) at Heidelberg University.

INSTITUTE FOR PSYCHIATRIC AND PSYCHOSOMATIC PSYCHOTHERAPY

Prof. Dr. Martin Bohus is the Scientific Director of the Institute of Psychiatric and Psychosomatic Psychotherapy, Professor of Psychosomatics and Psychotherapeutic Medicine, Head of the Experimental Psychotherapy Research Group at the Central Institute of Mental Health and a Guest Lecturer at the University of Antwerp. The focus of his research is the explanation of mechanisms and pathomechanisms of emotional regulation and the development and evaluation of modular psychotherapy and prevention programs.

The institute's research can be broken down into several areas of focus:

I.

Psychotherapy research, particularly in patients with borderline disorders and post-traumatic stress disorders.

The entire field of psychotherapy research is used for this: needs analyses, the development of new psychotherapeutic methods, the evaluation of methods or partial components (process research, small n designs, controlled, randomized studies), cost-benefit analyses and implementation of the methods in the care structure.

II.

Prevention research on the improvement of mental health and the treatment of adjustment disorders.

III.

Neurobiological and neuropsychological principles of the disorders mentioned focusing on emotional regulation, social interaction and self-representation.

IV.

Interaction of psychotherapeutic and neurobiological processes.

METHODS

The investigative methods comprise the entire range of psychiatric/psychotherapeutic psychotherapy research: epidemiology; care research; questionnaires; experimental neuropsychology, functional and structural imaging and molecular genetics. The investigations are carried out in collaboration with the relevant research departments at CIMH.

PROJECTS

DFG – German Research Foundation KFO 256, 2nd funding period: TP Z 2 Central Project 2 – Central Recruitment and Assessment. 08/2015-07/2018.

Lis S, Bohus M. DFG – German Research Foundation KFO 256, 2nd funding period: TP 01 Neurobiological and Psychological Reaction Patterns in Response to Social Rejection in BPD. 08/2015–07/2017.

MWK – Ministry of Science, Research and Art Baden-Württemberg Ref.31-7717.2-23/1/1: start-up funding for the DFG research training group "The impact of the experience of violence during childhood and adolescence on psychiatric and somatic diseases over the course of life". 10/2016–12/2017.

Schmahl, C, Ende, G. DFG – German Research Foundation KFO 256, 2nd funding period: TP 06 Tissue Damage and Pain – Modelling Cutting Behavior in BPD. 08/2015–07/2018.

Schmahl, C. DFG – German Research Foundation KFO 256, 2nd funding period: TP Z 1 Central Project 1 – Coordination, Administration, and Public Relations. 08/2015–07/2018.

Schmahl C., University of Heidelberg: instability of explicit and implicit measures of self-worth in people with borderline personality disorder. 01/2016–10/2017.

PUBLICATIONS

Ende G, Cackowski S, van Eijk J, Sack M, Demirakca T, Kleindienst N, Bohus M, (2016) Sobanski, E., Krause-Utz, A., and Schmahl, Ch. Impulsivity and aggression in female BPD and ADHD patients: association with ACC glutamate and GABA concentrations. Neuropsychopharmacology; 41 (2).

Görg N, Priebe K, Deuschel T, Schüller M, Schriner F, Kleindienst N, Ludäscher P, Schmahl Ch, Bohus M (2016). Computer-Assisted in Sensu Exposure for Potstraumatic Stress Disorder. Development and Evaluation. JMIR Mental health; 8; 3 (2): e27. doi:10.2196/mental.5697

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Paret C, Kluetsch R, Zaehringer J, Ruf M, Demirakca T, Bohus M, Ende G, Schmahl C (2016). Alterations of amygdala-prefrontal connectivity with real-time fMRI neurofeedback in BPD patients. Soc Cogn Affect Neurosci; 11 (6): 952–60.

Thome J, Koppe G, Hauschild S, Liebke L, Schmahl C, Lis S, Bohus M (2016). Modification of Fear Memory by Pharmacological and Behavioural Interventions during Reconsolidation. PLOS ONE; 11 (8): e0161044. doi:10.1371

Ebner-Priemer U, Houben M, Santangelo Ph, Kleindienst N, Tuerlinckx F, Oracezc Z, Verleysen G, Van Deun K, Bohus M, Kuppens P (2015). Unraveling Affective Dysregulation in Borderline Personality Disorder: A Theoretical Model and Empirical Evidence. J. Abnormal Psychology; 124 (1): 186–98.

Reitz S, Kluetsch R, Niedtfeld I, Knorz T, Lis S, Paret C, Kirsch P, Meyer-Lindenberg A, Treede RD, Baumgärtner U,Bohus M, Schmahl C (2015). Incision and stress regulation in borderline personality disorder: neurobiological mechanisms of self-injurious behaviour. Br J Psychiatry;207 (2) pp 165–72.

Spanagel, R. & Bohus, M (2015). Disruption of reconsolidation processes is a balancing act – can it really account for change in psychotherapy? Commentary on Richard D. Lane et al. – Memory Reconsolidation, Emotional Arousal and the Process of Change in Psychotherapy: New Insights from Brain Science. Behav Brain Sci; vol 38 pp e25.

Winter D, Herbert C, Koplin K, Schmahl C, Bohus M, and Lis S (2015). Negative evaluation bias for positive self-referential information in borderline personality disorder. PLOS ONE; vol. 10 (1): e0117083.

Wiskemann J, Kleindienst N, Kuehl R, Dreger P, Schwerdtfeger R, Bohus M (2015). Effects of physical exercise on survival after allogenic stem cell transplantation. International Journal of Cancer; 137 (11) 2749–56.

RG EXPERIMENTAL PSYCHOLOGY

Dr. Stefanie Lis has been Head of RG Experimental Psychology, Institute for Psychiatric and Psychosomatic Psychotherapy, Central Institute of Mental Health, Heidelberg University, Medical Faculty Mannheim since 2012; She was a Research Assistant at the Center for Psychiatry, Justus-Liebig-University, Head of the Research Group 'Borderline Personality Disorder' (1995–2012); Research Assistant at the Department of Psychiatry at the Albert-Ludwigs-University of Freiburg; Head of the Laboratory for Sleep Medicine and Research (1991 - 1994); Research Assistant at the Psychological Institute, Heinrich-Heine-Universität Düsseldorf (1990). She also holds a Diploma in Psychology from Heinrich-Heine-University in Düsseldorf from 1989, a PhD at the Justus-Liebig-University Giessen (2002) and graduated Venia legendi "Experimental and Clinical Neurosciences" from the Medical Faculty Mannheim, Heidelberg University (2017).

By using experimental approaches, the research group investigates dysfunctions in social cognition in mental disorders. The focus is on the identification of factors which contribute to impairments of social belonging and the translation of our findings into psychosocial interventions.

PROJECTS

Neurobiological and Psychological Reaction Patterns in Response to Social Rejection in Borderline Personality Disorder

DFG KFO-256 – Mechanism of Disturbed Emotion Processing in Borderline Personality Disorder / Individual-Projekt 1 (LI 1649/2-2, 2015–2018)

PUBLICATIONS

Liebke L, Bungert M, Thome J, Hauschild S, Gescher DM, Schmahl C, Bohus M, Lis S (2016). Loneliness, Social Networks, and Social Functioning in Borderline Personality Disorder. Personal Disord. [Epub ahead of print]

Thome J, Koppe G, Hauschild S, Liebke L, Schmahl C, Lis S, Bohus M (2016). Modification of Fear Memory by Pharmacological and Behavioural Interventions during Reconsolidation. PLoS ONE; 11 (8): e0161044.

Thome J, Liebke L, Bungert M, Schmahl C, Domes G, Bohus M, Lis S (2016). Confidence in Facial Emotion Recognition in Borderline Personality Disorder. Personal Disord; 7 (2): 159–68. Epub 2015 Sep 21.

Bungert M, Koppe G, Niedtfeld I, Vollstadt-Klein S, Schmahl C, Lis S, Bohus M (2015). Pain Processing after Social Exclusion and Its Relation to Rejection Sensitivity in Borderline Personality Disorder. PloS one; 10, e0133693 10.1371/journal.pone.0133693.

Koppe G, Heidel A, Sammer G, Bohus M, Gallhofer B, Kirsch P, Lis S (2015). Temporal unpredictability of a stimulus sequence and the processing of neutral and emotional stimuli. NeuroImage 120, 214–224; published online EpubOct 15, 10.1016/j.neuroimage.2015.06.081.

Thome J, Liebke L, Bungert M, Schmahl C, Domes G, Bohus M, Lis S (2015). Confidence in Facial Emotion Recognition in Borderline Personality Disorder. Personality disorders; published online EpubSep 21 (10.1037/per0000142).

RG EXPERIMENTAL PSYCHOTHERAPY

The aim of RG Experimental Psychotherapy is mechanism-based development, evaluation and utilization of new psychotherapeutic interventions.

PROJECTS

M. Bohus, Evaluation of Live Balance Leadership, AOK Baden-Württemberg, 2016–2017

M. Bohus, Pathomechanisms of Emotion Dysregulation in Borderline Personality Disorder, DFG KFO 256 C2, BO 1487/12-2, 2015–2018

PUBLICATIONS

Ende G, Cackowski S, van Eijk J, Sack M, Demirakca T, Kleindienst N, Bohus M, Sobanski E, Krause-Utz A, Schmahl Ch (2016). Impulsivity and aggression in female BPD and ADHD patients: association with ACC glutamate and GABA concentrations. Neuropsychopharmacology; 41 (2): 410–8.

Krause-Utz A, Cackowski S, Daffner S, Sobanski E, Plichta MM, Bohus M, Ende G, Schmahl Ch (2016). Delay discounting and response disinhibition under acute experimental stress in woman with borderline personality disorder and adult attention deficit hyperactive disorder. Psychological Medicine 46 (15): 3137–3149.

Lyssenko, L., Müller,G., Kleindienst, N., Schmahl, Ch., Berger, M., Eifert, G., Kölle, M., Nesch, S., Ommer-Hohl, J., Wenner, M. and Bohus, M. (2016). Effectiveness of a Mindfulness-Based Mental Health Promotion Program Provided by Health Coaches: A Controlled Multisite Field Trial. Psychother Psychosom; 85 (6): 375–377.

Ebner-Priemer U, Houben M, Santangelo Ph, Kleindienst N, Tuerlinckx F, Oracezc Z, Verleysen G, Van Deun K, Bohus M, and Kuppens P (2015). Unraveling Affective Dysregulation in Borderline Personality Disorder: A Theoretical Model and Empirical Evidence. J. Abnormal Psychology; 124 (1): 186–98.

Izurieta N, Oelkers-Ax R, Nagy K, Mancke F, Bohus M, Herpertz S, Bertsch K (2015). Time Course of Facial Emotion Processing in Women with Borderline Personality Disorder – an ERP Study. Journal of Psychiatry and Neuroscience; 40 (4): 140215.

Spanagel R & Bohus M (2015). Disruption of reconsolidation processes is a balancing act – can it really account for change in psychotherapy? Commentary on Richard D. Lane et al. – Memory Reconsolidation, Emotional Arousal and the Process of Change in Psychotherapy: New Insights from Brain Science“ Behav Brain Sci; 38 pp e25.

Prof. Dr. Martin Bohus is Professor of Psychosomatic Medicine and Psychotherapy, Heidelberg University and is Scientific Director of the Institute for Psychiatric and Psychosomatic Psychotherapy at the CIMH, Mannheim and Visiting Professor at the University Antwerp, Belgium. His focus is on explanation of mechanisms and pathomechanisms of emotion regulation as well as development and evaluation of modular psychotherapy.

DEPARTMENT OF GENETIC EPIDEMIOLOGY IN PSYCHIATRY

Prof. Dr. Marcella Rietschel has been the Director of the Department of Genetic Epidemiology in Psychiatry and of the Molecular Genetic Laboratory at the CIMH in Mannheim (Heidelberg University), Germany, since 2002. Her research foci are the identification of genetic and environmental risk factors for psychiatric diseases. She has established large databases from psychiatric patients and the general population, as well as a biomaterial bank of DNA, plasma, serum, and RNA samples. Her other research interest is the ethical aspects of psychiatric genetics.

The Department of Genetic Epidemiology in Psychiatry explores the genetic basis of mental disorders which occur across the entire lifespan. The aims of this research are: firstly, to make decisive contributions to the understanding of the underlying molecular-pathogenic mechanisms; secondly, to facilitate the development of a biologically-guided classification system; and thirdly, to enhance precision medicine within the field of mental health.

The following studies exemplify the approach. In 2014, the department contributed to the identification of more than 100 risk loci for schizophrenia by the Psychiatric Genomics Consortium. The group subsequently tested whether patients with higher loads of those risk genes have worse disease progression than patients carrying fewer of these risk loci. The department's research showed that response to medication worsened with a higher risk loci burden (Frank et al. (2014) Mol Psych). They also demonstrated that this effect was not restricted to schizophrenia. In a population-based study, the department showed that an increased risk load was associated with more frequent hospitalization in patients with psychiatric diagnoses other than schizophrenia (Meier et al. 2014) Mol Psych.

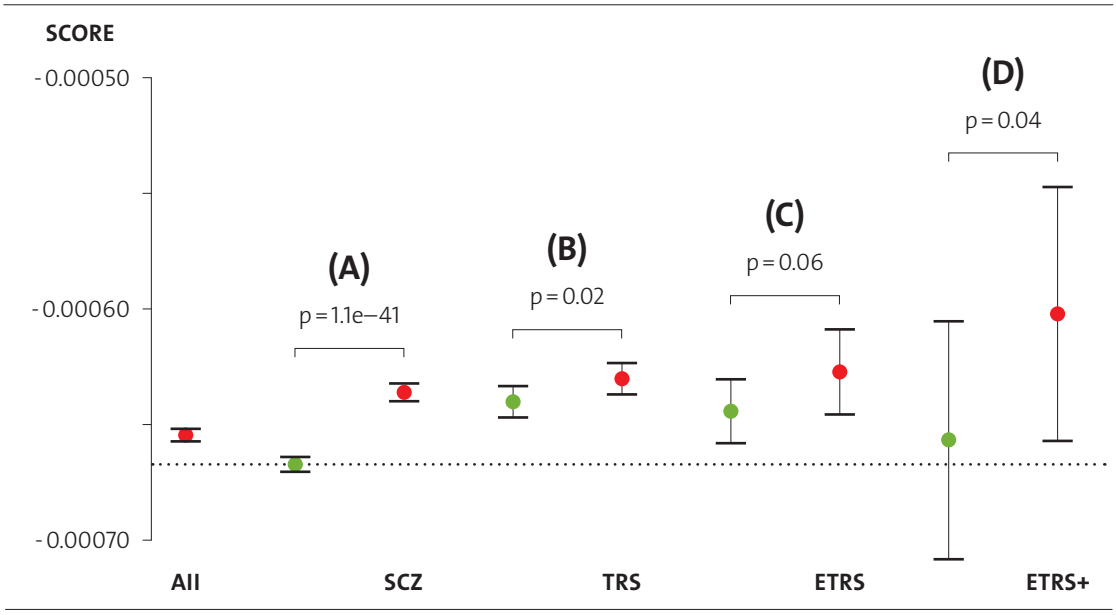

Figure on the right: Comparison of genetic strains of selected study groups (red) and corresponding comparison groups (green): SCZ = schizophrenic patients (vs. control group); TRS = treatment-resistent schizophrenia; ETRS = extreme treatment-resistence; ETRS+ = extreme treatment-resistence with additional clinical vulnerabilities.

PROJECTS

BMBF Research Networks for psychiatric diseases (participating in several projects, ESPRIT, AERIAL, ASD-Net, ...)

PUBLICATIONS

Hou L, Heilbronner U, Degenhardt F, Adli M, Akiyama K, Akula N, Ardau R, Arias B, Backlund L, Banzato CE, Benabarre A, Bengesser S, Bhattacharjee AK,Biernacka JM, Birner A, Brichant-Petitjean C, Bui ET, Cervantes P, Chen GB, Chen HC, Chillotti C, Cichon S, Clark SR, Colom F, Cousins DA, Cruceanu C,Czerski PM, Dantas CR, Dayer A, Étain B, Falkai P, Forstner AJ, Frisén L, Fullerton JM, Gard S, Garnham JS, Goes FS, Grof P, Gruber O, Hashimoto R,Hauser J, Herms S, Hoffmann P, Hofmann A, Jamain S, Jiménez E, Kahn JP, Kassem L, Kittel-Schneider S, Kliwicki S, König B, Kusumi I, Lackner N, Laje G,Landén M, Lavebratt C, Leboyer M, Leckband SG, Jaramillo CA, MacQueen G, Manchia M, Martinsson L, Mattheisen M, McCarthy MJ, McElroy SL, Mitjans M, Mondimore FM, Monteleone P, Nievergelt CM, Nöthen MM, Ösby U, Ozaki N, Perlis RH, Pfennig A, Reich-Erkelenz D, Rouleau GA, Schofield PR,Schubert KO, Schweizer BW, Seemüller F, Severino G, Shekhtman T, Shilling PD, Shimoda K, Simhandl C, Slaney CM, Smoller JW, Squassina A, Stamm T,Stopkova P, Tighe SK, Tortorella A, Turecki G, Volkert J, Witt S, Wright A, Young LT, Zandi PP, Potash JB, DePaulo JR, Bauer M, Reininghaus EZ, Novák T,Aubry JM, Maj M, Baune BT, Mitchell PB, Vieta E, Frye MA, Rybakowski JK, Kuo PH, Kato T, Grigoroiu-Serbanescu M, Reif A, Del Zompo M, Bellivier F,Schalling M, Wray NR, Kelsoe JR, Alda M, Rietschel M, McMahon FJ, Schulze TG (2016). Genetic variants associated with response to lithium treatment in bipolar disorder: a genome-wide association study. Lancet; 387 (10023): 1085–93. doi: 10.1016/S0140–6736(16)00143–4.

Meier SM, Agerbo E, Maier R, Pedersen CB, Lang M, Grove J, Hollegaard MV, Demontis D, Trabjerg BB, Hjorthøj C, Ripke S, Degenhardt F, Nöthen MM, Rujescu D, Maier W; MooDS SCZ Consortium, Werge T, Mors O, Hougaard DM, Børglum AD, Wray NR, Rietschel M, Nordentoft M, Mortensen PB, Mattheisen M (2016). High loading of polygenic risk in cases with chronic schizophrenia. Mol Psychiatry; 21 (7): 969–74. doi: 10.1038/mp.2015.130.

Buch S, Stickel F, Trépo E, Way M, Herrmann A, Nischalke HD, Brosch M, Rosendahl J, Berg T, Ridinger M, Rietschel M, McQuillin A,Frank J, Kiefer F, Schreiber S, Lieb W, Soyka M, Semmo N, Aigner E, Datz C, Schmelz R, Brückner S, Zeissig S, Stephan AM, Wodarz N, Devière J, Clumeck N, Sarrazin C, Lammert F, Gustot T, Deltenre P, Völzke H, Lerch MM, Mayerle J, Eyer F, Schafmayer C,Cichon S, Nöthen MM, Nothnagel M, Ellinghaus D, Huse K, Franke A, Zopf S, Hellerbrand C, Moreno C, Franchimont D, Morgan MY, Hampe J (2015). A genome-wide association study confirms PNPLA3 and identifies TM6SF2 and MBOAT7 as risk loci for alcohol-related cirrhosis. Nat Genet.; 47 (12): 1443–8. doi: 10.1038/ng.3417.

Frank J, Lang M, Witt SH, Strohmaier J, Rujescu D, Cichon S, Degenhardt F, Nöthen MM, Collier DA, Ripke S, Naber D, Rietschel M (2015). Identification of increased genetic risk scores for schizophrenia in treatment-resistant patients. Mol Psychiatry; 20 (2): 150–1. doi: 10.1038/mp.2014.56.

Streit F, Bekrater-Bodmann R, Diers M, Reinhard I, Frank J, Wüst S, Seltzer Z, Flor H, Rietschel M (2015). Concordance of Phantom and Residual Limb Pain Phenotypes in Double Amputees: Evidence for the Contribution of Distinct and Common Individual Factors. J Pain; 16 (12): 1377–85. doi: 10.1016/j.jpain.2015.08.013.

DEPARTMENT OF GERIATRIC PSYCHIATRY

Prof. Dr. Lutz Frölich studied medicine in Kiel and Heidelberg and at the University of Kentucky in Lexington, Kentucky, U.S.A. (where he studied medicine and psychology). His professional activities took him to Heidelberg, Würzburg and Frankfurt. He has been Head of Department of Geriatric Psychiatry at CIMH since 2003. The scientific focus of his work lies in the development and evaluation of new treatments for dementia, research into the clinical progression and neuropsychological diagnostic methods in dementia and in functional imaging methods in geriatric psychiatric disorders.

The focus of the Department of Geriatric Psychiatry is on translational therapy research in neurodegenerative dementia (primarily Alzheimer's disease) and other geriatric psychiatric diseases (depression and delirium in elderly patients) including the development of non-pharmacological treatment methods.

This also includes the validation and use of imaging-based biomarkers for neurodegenerative diseases and CSF-based biomarkers in dementia. A further focus is the development of new designs and new outcome tools for clinical studies on patients with dementia diseases. This research content is primarily monitored by national and international multicenter research projects. Work is being carried out on the development of diagnostic and treatment guidelines for dementia as part of the implementation of scientific knowledge into medical practice. Treatment studies with innovative Alzheimer's drugs are carried out in collaboration with the pharmaceutical industry. In addition to this, a biomarker platform (clinical data, blood, DNA samples and cerebrospinal fluid) is being used to develop new biomarkers for neurodegenerative diseases.

PROJECTS

Hoell A. Junior Care Research Academy, Baden-Württemberg: evaluation of the "OUTCOME" de-escalation program for the handling of aggression and violence in psychiatry. 12/2015–04/2017.

PUBLICATIONS

Cummings J, Aisen PS, Dubois B, Frölich L, Jack CR, Jones RW, Morris JC, Raskin J, Dowsett SA, Scheltens P (2016). Drug development in Alzheimer's disease: the path to 2025. Alzheimers Res Ther; 8:39.

Jekel K, Damian M, Storf H, Hausner L, Frölich L (2016). Development of a Proxy-Free Objective Assessment Tool of Instrumental Activities of Daily Living in Mild Cognitive Impairment Using Smart Home Technologies. J Alzheimers Dis; 52(2):509–17.

Koppara A, Wolfsgruber S, Kleineidam L, Schmidtke K, Frölich L, Kurz A, Schulz S, Hampel H, Heuser I, Peters O, Reischies FM, Jahn H, Luckhaus C, Hüll M, Gertz HJ, Schröder J, Pantel J, Rienhoff O, Rüther E, Henn F, Wiltfang J, Maier W, Jessen F, Kornhuber J, Wagner M (2016). The Latent Dementia Phenotype δ is Associated with Cerebrospinal Fluid Biomarkers of Alzheimer's Disease and Predicts Conversion to Dementia in Subjects with Mild Cognitive Impairment. J Alzheimers Dis;49(2):547–60. Epub 2015 Oct 17.

Peters O, Heuser I, Frölich L, Rüther E, Rienhoff O, Kornhuber J, Wiltfang J, Maier W.(2016). [Dementia Competence Network : Results and outlook]. Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz; 59(4):438–43.

Wessa M, King AV, Meyer P, Frölich L, Flor H, Poupon C, Hoppstädter M, Linke J (2016). Impaired and preserved aspects of feedback learning in aMCI: contributions of structural connectivity. Brain Struct Funct; 221(5):2831–46. Epub 2015 Jun 18.

Frölich L, Hausner L (2015). [Therapy of dementia with antipsychotics and antidepressives]. Nervenarzt; 86(4):461–7. Epub 2015 Mar 20.

Frölich L, Müller WE, Riederer P (2015). Editorial: Siegfried Hoyer's concept of Alzheimer pathophysiology. J Neural Transm; 122(4):492–7. Epub 2015 Jan 24.

Molinuevo JL, Frölich L, Grossberg GT, Galvin JE, Cummings JL, Krahnke T, Strohmaier C (2015). Responder analysis of a randomized comparison of the 13.3 mg/24 h and 9.5 mg/24 h rivastigmine patch. Alzheimers Res Ther; 7(1):9.

Morgen K, Frölich L (2015). The metabolism hypothesis of Alzheimer's disease: from the concept of central insulin resistance and associated consequences to insulin therapy. J Neural Transm;122(4):499–504: Epub 2015 Feb 12.

Vos SJ, Verhey F, Frölich L, Kornhuber J, Wiltfang J, Maier W, Peters O, Rüther E, Nobili F, Morbelli S, Frisoni GB, Drzezga A, Didic M, van Berckel BN, Simmons A, Soininen H, Kłoszewska I, Mecocci P, Tsolaki M, Vellas B, Lovestone S, Muscio C, Herukka SK, Salmon E, Bastin C, Wallin A, Nordlund A, de Mendonça A, Silva D, Santana I, Lemos R, Engelborghs S, Van der Mussele S, The Alzheimer's Disease Neuroimaging Initiative , Freund-Levi Y, Wallin AK, Hampel H, van der Flier W, Scheltens P, Visser PJ (2015). Prevalence and prognosis of Alzheimer's disease at the mild cognitive impairment stage. Brain;138(Pt 5):1327–38. Epub 2015 Feb 17.

DEPARTMENT OF CLINICAL PSYCHOLOGY

Prof. Dr. Peter Kirsch, from 1987–1992 he studied Psychology (major) and Neurology (minor) at the University of Wuppertal. In 1995 he received a Ph.D. in Biological Psychology from the University of Wuppertal. This was followed by PostDoc positions at the CIMH in Mannheim and at the University of Gießen. In 2004 he obtained a postdoctoral qualification in Psychology and certification as psychotherapist (cognitive behavioral therapy). Since 2010 he has been Professor of Clinical Psychology at the Medical Faculty Mannheim, Heidelberg University and Head of the Department of Clinical Psychology at the CIMH.

The research in the Department of Clinical Psychology focuses on the neurobiological foundations of mental disorders. These foundations are studied with respect to their role in the development of mental disorders, their variability during psychotherapeutic interventions and their predictability in terms of the effects of these interventions.

PSYCHOTHERAPY IMPACTS THE BRAIN

People traditionally distinguish between somatic or biological and psychotherapeutic treatments of mental disorders. However, such a differentiation implies to some degree that psychotherapy does not act on biological or brain systems. On the other hand, when we believe that mental disorders are disorders of the brain, treatment effects should change brain processes independent of the treatment approach. In the Department of Clinical Psychology, we are investigating the effect of psychotherapeutic interventions on brain systems that have been found to be involved in mental disorders. One approach where people are trained to control their own brain activity is a method called “neurofeedback”. In a study which was conducted in collaboration with the Department of Addictive Behavior and Addiction Medicine, we wanted to explore whether neurofeedback is suitable to modify brain processes that are associated with craving and the obsessive urge to drink alcohol. In this project, we investigated 39 individuals who were selected because of their highly risky drinking style in a magnetic resonance imaging scanner. During scanning, we presented pictures of participants’ favorite alcohol beverages to them. At the same time, they saw a display of the activation of their brain reward system, an area in the brain which has been found to be related to craving. In the experimental group, participants were instructed to downregulate the activity in the brain reward system. In one control group, the participants saw fake feedback, while in a second control group no feedback was given at all. Our results revealed that only participants in the experimental group could influence the activation of their brain reward system after the neurofeedback training, while no training effects were able to be observed for the

two control groups. We were therefore able to show that this brain system, which is highly relevant for addiction, can be affected by training or by a learning process in a way that aims to reduce the urge to drink. Interestingly, with this method we can impact the same neurobiological system which is also a main target for pharmacological interventions in alcohol addiction. We were therefore able to show that biological systems related to mental disorders can be influenced by purely psychological techniques. We are currently conducting a large EU funded study, again together with the Department of Addictive Behavior and Addiction Medicine, in which we test whether neurofeedback is also effective for treating patients with an alcohol use disorder.

Kirsch M, Gruber I, Ruf M, Kiefer F & Kirsch P (2016). Real-time functional magnetic resonance imaging neurofeedback can reduce striatal cue-reactivity to alcohol stimuli. Addiction Biology; 21 (4): 982–992.

PROJECTS

Neurobiological correlates of oxytocin supported social skill training response in autism, funded by BMBF, within the scope of the consortium project ASD-Net within the german research networks "mental disorders" (DLR 01EE1409C TP3b), 2015–2018.

From the neurobiological basis of comorbid alcohol dependence and depression to psychological treatment strategies: bridging the knowledge gap, funded by German Research Foundation (KI 576/16-1), 2016–2019.

Realtime fMRI neurofeedback in the treatment of alcohol addiction, Funding within the EU-Horizon 2020 project "System Biology in Alcohol Addiction" together with Prof. Dr. Falk Kiefer (co-applicant), 2016–2019.

Neural effects of acute and prolonged tryptophan intake on social cognition and emotional processing funded by BMBF within the scope of the EU Joint Program Initiative "A healthy diet for a healthy live (DLR 01EA1605). Subproject of the consortium "iCAse", 2016–2019.

PUBLICATIONS

Kirsch M, Gruber I, Ruf M, Kiefer F & Kirsch P (2016). Real-time functional magnetic resonance imaging neurofeedback can reduce striatal cue-reactivity to alcohol stimuli. Addict Biol; 21 (4): 982–992.

Lis S, Baer N, Franzen N, Hagenhoff M, Gerlach M, Koppe G, Sammer G, Gallhofer B & Kirsch P (2016). Social Interaction Behavior in ADHD in Adults in a Virtual Trust Game. J Atten Disord; 20 (4): 335–345.

Raab K, Kirsch P & Mier D (2016). Understanding the impact of 5-HTTLPR, antidepressants, and acute tryptophan depletion on brain activation during facial emotion processing: A review of the imaging literature. Neurosci Biobehav Rev; 71: 176–197.

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*joint senior authorship

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*joint first authorship

RG SOCIAL-AFFECTIVE NEUROSCIENCE AND EXPERIMENTAL PSYCHOLOGY

Dr. Daniela Mier studied psychology in Giessen (Grade 1.2). In 2005, she started her PhD with a scholarship at the University of Gießen. After two years, she came to the CIMH and received her PhD with summa cum laude in 2010. Afterwards, with funding from the DAAD, she spent time at Caltech in Pasadena. In 2011, she returned to the CIMH as a Postdoc and in 2013 she was awarded postdoctoral qualification funding by Heidelberg University. She has been Head of the SANE group since 2013.

The scientists in the research group on Social-Affective Neuroscience and Experimental Psychology (SANE) investigate social cognition and its neurobiological bases. To this end, new experiments that combine with functional magnetic resonance imaging, electroencephalography, transcranial magnetic stimulation, and peripheral-physiology measurements are developed.

PUBLICATIONS

Mier D, Eisenacher S, Rausch F, Englisch S, Gerchen MF, Zamoscik V, Meyer-Lindenberg A, Zink M, Kirsch P (2016). Aberrant activity and connectivity of the posterior superior temporal sulcus during social cognition in schizophrenia. Eur Arch Psychiatry Clin Neurosci; 1–14.

Mier D*, Witthoft M*, Bailer J, Ofer J, Kerstner T, Rist F, Diener C (2016). Cough Is Dangerous: Neural Correlates of Implicit Body Symptoms Associations. Front Psychol; 7, 247.

Raab K, Kirsch P, Mier D (2016). Understanding the impact of 5-HTTLPR, antidepressants, and acute tryptophan depletion on brain activation during facial emotion processing: A review of the imaging literature. Neurosci Biobehav Rev 71; 176–197.

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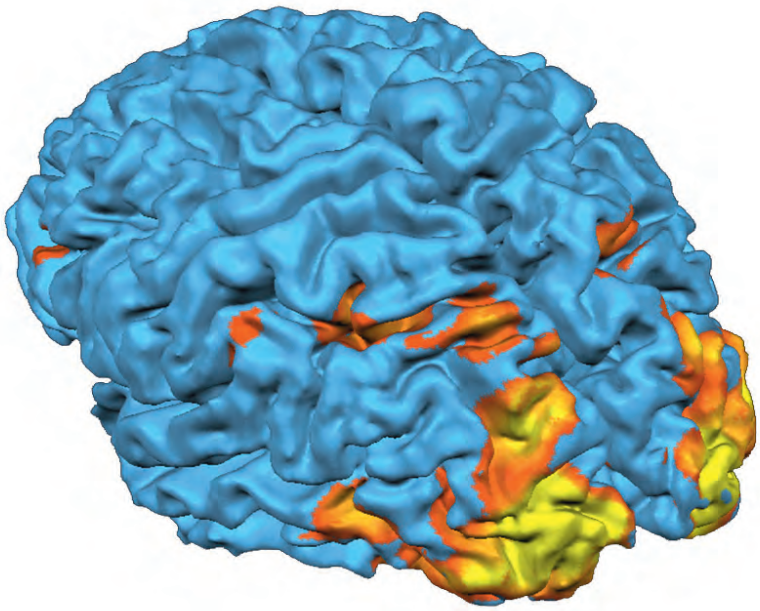
***Schirmbeck F, *Mier D, Esslinger C, Rausch F, Englisch S, Eifler S, et al. (2015).** Increased orbitofrontal cortex activation associated with „pro-obsessive“ antipsychotic treatment in patients with schizophrenia. J Psychiatry Neurosci; 40 (2), 89–99. *gemeinsame Erstautoren.

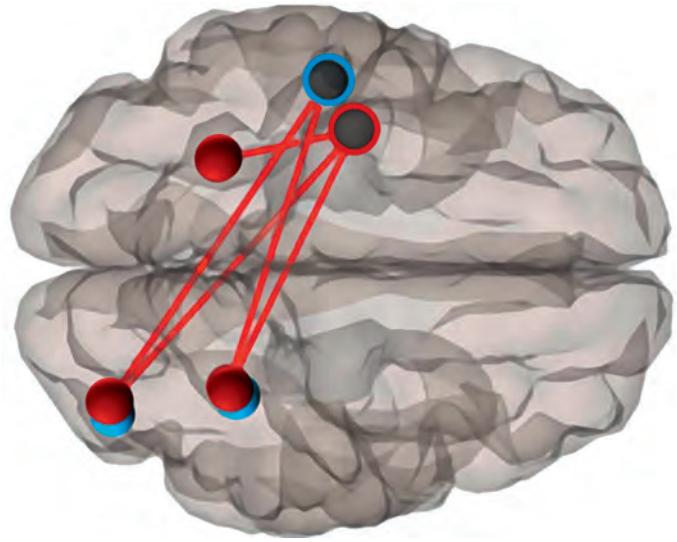
DEPARTMENT OF NEUROIMAGING



The research areas of the Department of Neuroimaging comprise methodological developments and clinic studies with psychiatric research questions in the field of functional, morphometric, perfusion- and diffusion-weighted as well as spectroscopic MR imaging. With these modern MR methods sequential and parallel elapsing, information processing procedures and biochemical changes can be assessed, enabling us to investigate the function and dysfunction of the central nervous system.

Associate Prof. Dr. Gabriele Ende is Acting Head of the Department of Neuroimaging at the Central Institute of Mental Health. She studied physics at Heidelberg University and did her postdoctoral qualification in the field of medical physics at Heidelberg University, Medical Faculty Mannheim. Her research focuses on the application of magnetic resonance research in psychiatry. Methods include MR spectroscopy/spectroscopic imaging, morphometry, functional MRI, real-time fMRI (neurofeedback), hyperscanning, diffusion tensor imaging, and arterial spin labeling. She has published 84 original papers, 7 reviews, and 4 book chapters. Within the KFO she is a PI for projects IP5 and IP6.

Image: M. Ruf



CHANGES IN NEURONAL CONNECTIVITY BY LIFE-KINETIK – A MOVEMENT SUPPORTED TRAINING OF COGNITIVE FUNCTIONS

There is growing evidence of structural and functional plasticity of the brain in response to physical or cognitive training. The most successful approaches are those which combine physical training and cognitive challenge within an enriched environment. The cognitive deficits of patients with major depressive disorder (MDD) commonly comprise executive function, memory and attention, and some cognitive deficits, particularly inhibitory control, persist in remitted states of the disease, especially in patients with late-onset depression. Physical and cognitive training approaches are also found to change brain networks by increasing the connectivity between regions of the brain.

The functional organization of the brain seems to correlate with cognitive performance and even intelligence, indicating more efficient information processing in networks with shorter characteristic path length and higher overall connectivity. Alterations in networks occur with increasing age or psychiatric diseases and are associated with lower cognitive performance. In light of these previous studies, integrated cognitive motor training seems to be a very promising training approach.

To the researcher's knowledge, evidence has yet to be provided regarding whether such a training regimen significantly impacts both areas: cognitive performance and brain network parameters such as connectivity or small-worldness. The increasing possibilities in neuroimaging, especially the analysis of brain networks, may help to explain the mechanisms of the changes in brain structure and function related to neurocognitive performance following a combined motor and cognitive training. A pilot study was conducted in which significant increases in resting-state connectivity between motor and sensory regions as well as regions involved in attentional processes as a result of the training in healthy adults were identified.

The department proposes a Life-Kinetik training study of patients with major depression and healthy adults. The performance of executive functions of all subjects will be tested and multi modal MR imaging data (MRS, DTI, rs-fMRI and structural data) will be acquired before and after completion of the training. The researchers plan to analyze the MR data in combination with neurocognitive performance, especially executive functions and the analysis of their relationships in a specific fusion model. The main hypothesis is that the Life-Kinetik training induces an improvement in executive functions in subjects with impaired cognitive performance.

MOTOR AREA
Left: somatosensory association area and visual cortex

SENSORY MOTOR AREA
Left: somatosensory association area and visual cortex

The red lines mark the intensified connectivity of the motor area and the sensory motor area after Life-Kinetik Training.

PROJECTS

KFO 256 (Mechanisms of Disturbed Emotion Processing in Borderline Personality Disorder) projects IP5 (Neural Responding) and IP6 (Tissue Damage and Pain - Modelling Cutting Behavior in BPD), SFB1158 (Pain) associated project

PUBLICATIONS

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Biedermann SV, Fuss J, Steinle J, Auer MK, Dormann C, Falfán-Melgoza C, Ende G, Gass P, Weber-Fahr W (2016). The hippocampus and exercise: histological correlates of MR-detected volume changes. Brain Struct Funct; 221 (3): 1353–63. doi: 10.1007/s00429-014-0976-5.

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Paret C, Kluetsch R, Zaehringer J, Ruf M, Demirakca T, Bohus M, Ende G, Schmahl C (2016). Alterations of amygdala-prefrontal connectivity with real-time fMRI neurofeedback in BPD patients. Soc Cogn Affect Neurosci; 11 (6): 952–60. doi: 10.1093/scan/nsw016. Epub 2016 Feb 1.

Paret C, Ruf M, Gerchen MF, Kluetsch R, Demirakca T, Jungkunz M, Bertsch K, Schmahl C, Ende G (2016). fMRI neurofeedback of amygdala response to aversive stimuli enhances prefrontal-limbic brain connectivity. Neuroimage; 125: 182–188. doi: 10.1016/j.neuroimage.2015.10.027.

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Ende G (2015). Proton Magnetic Resonance Spectroscopy: Relevance of Glutamate and GABA to Neuropsychology. Neuropsychology review; 25 (3): 315–25.

RG TRANSLATIONAL IMAGING

Dr. Wolfgang Weber-Fahr is a physicist and methodological head of the research group Translational Imaging. He studied physics at the RWTH Aachen and at Heidelberg University and received his PhD specializing in MR-Imaging and MR-Spectroscopy in 2001. After working for 6 years at the Institute of Systems Neuroscience in Hamburg, he took over the management of the new animal scanner facilities at the CIMH in Mannheim in 2008.

The research focus of the RG Translational Imaging is the development and application of emerging methods in the field of magnetic resonance imaging (MRS, fMRI, VBM, DTI, og-fMRI, FC-fMRI) in the high-field animal scanner. With the aim of improving the understanding of brain function and psychiatric diseases, imaging studies are conducted and evaluated in animal models and by means of drug challenges using cutting edge methodology that can be translated directly to human studies.

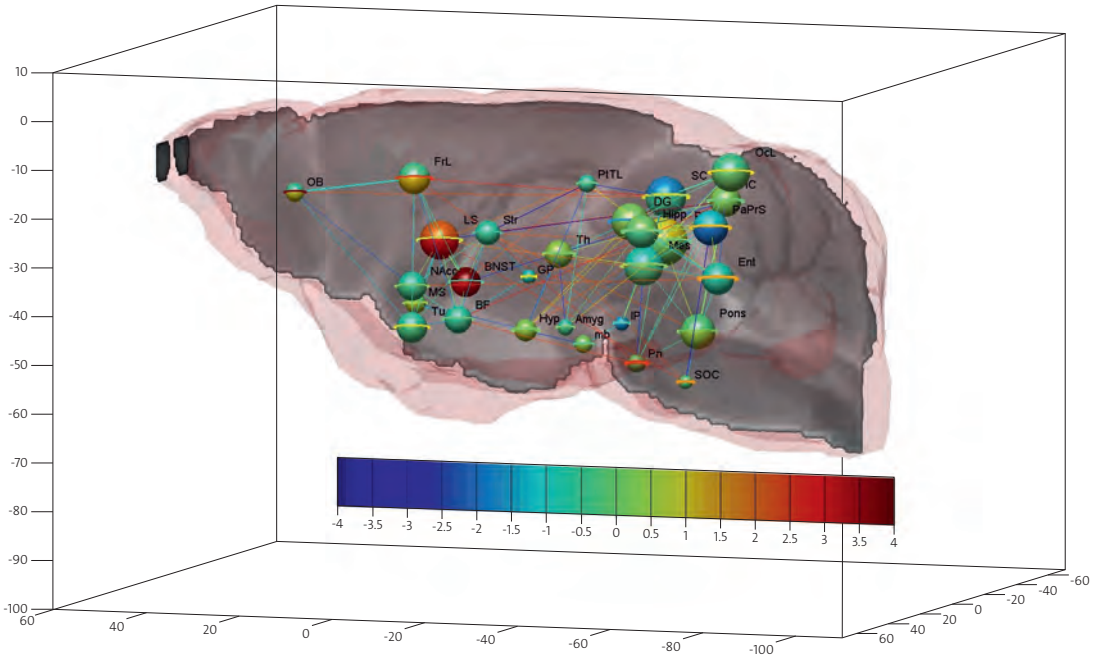

Image: W. Weber-Fahr

PROJECTS

German Research Foundation (DFG): "Designer receptors exclusively activated by designer drugs (DREADDs) used for endophenoptyping neuronal networks of depression by functional connectivity magnetic resonance imaging (fc-fMRI)"

Projects within the Collaborative Research Center (SFB) 1158:

- Z-project 01: "Deep brain stimulation in models of chronic pain"
- B04 Project: "Translational studies in pain chronicity: neuroplasticity in corticolimbic dopamine and glutamate pathways"

Project within Thyroid Trans Act – a priority program of the German Research Foundation (SPP 1629): "Influence of thyroid hormone receptors and transporters on brain structure and function"

PUBLICATIONS

Becker R, Braun U, Schwarz AJ, Gass N, Schweiger JI, Weber-Fahr W, Schenker E, Spedding M, Clemm von Hohenberg C, Risterucci C, Zang Z, Grimm O, Tost H, Sartorius A, Meyer-Lindenberg A (2016). Species-conserved reconfigurations of brain network topology induced by ketamine. Transl Psychiatry; 6: e786.

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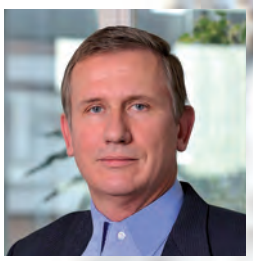
Associate Prof. Alexander Sartorius, MD, PhD is medical head of the research group Translational Imaging and senior psychiatrist at the Department of Psychiatry and Psychotherapy. He studied physics and medicine, receiving his professorship in psychiatry in 2008. In 2012, he was awarded as the supervisor of the best dissertation in psychiatry, DGPPN – Hans Heimann Prize. He is also deputy head of the DGPPN-Section "Experimental Stimulation Techniques in Psychiatry".

DEPARTMENT OF MOLECULAR BIOLOGY



Prof. Dr. Dusan Bartsch

The Department of Molecular Biology focuses on studies of normal and pathological cognitive processes in molecular terms. In particular, the department concentrates on the molecular mechanisms that underlie changes in synaptic plasticity during normal and pathologic learning and memory formation and cognitive processes affected in psychiatric disorders.

Although the basic synaptic functions can be studied in neurons in cell culture in vitro, the molecular pathways that shape cognition can be studied only in the functional brain in vivo. To interrogate these pathways, targeted and regulated genetic modifications affecting gene expression in the rodent brain are created. The genetically modified rats and mice are then studied using current methods of molecular biology, cell biology, electrophysiology, neurochemistry, pharmacology, and behavior.

PUBLICATIONS

Bertram J, Koschützke L, Pfannmöller JP, Esche J, van Diepen L, Kuss AW, Hartmann B, Bartsch D, Lotze M, von Bohlen und Halbach O (2016). Morphological and behavioral characterization of adult mice deficient for SrGAP3. Cell Tissue Res; 366 (1): 111. Epub 2016 May 17.

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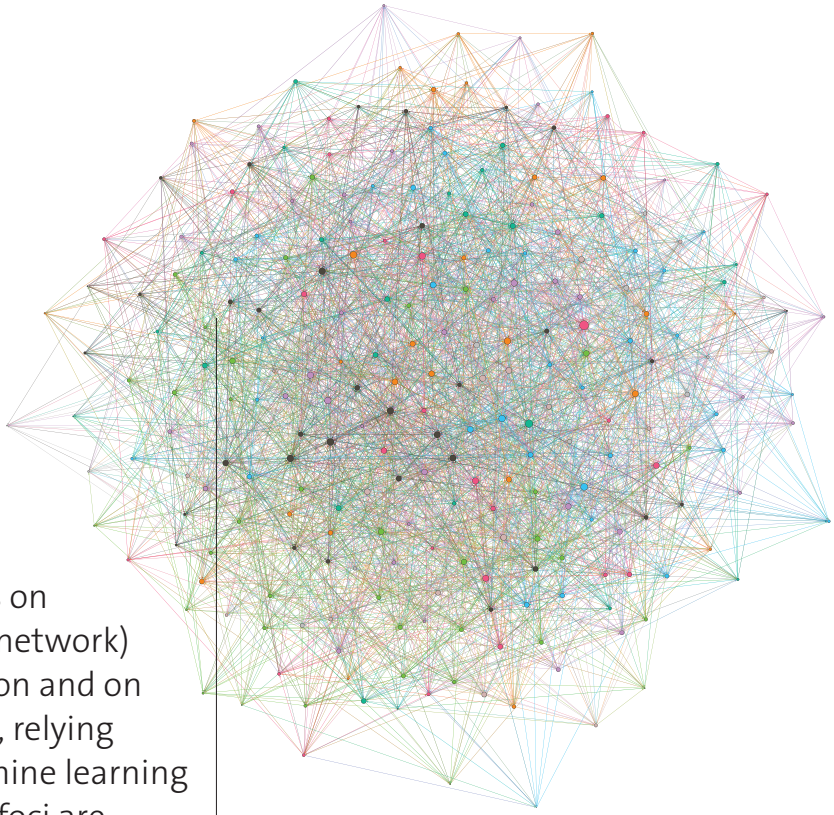
DEPARTMENT OF THEORETICAL NEUROSCIENCE



Prof. Dr. Daniel Durstewitz studied psychology and informatics at the Technical University of Berlin, specializing in statistics and neural networks (1989-1994). He did a Ph.D. at the University of Bochum in the departments of biopsychology and neuroinformatics (1994-1998) and a PostDoc at Salk Institute, La Jolla, Computational Neurobiology Lab (Sejnowski) (1998–2000). Afterwards he joined a junior group back in Bochum (2000–2004) and was a Reader for Computational Neuroscience in Plymouth, UK (2005–2008); since 2008 he has been at CIMH and Heidelberg University; since 2010 he has been coordinator of Bernstein Center for Computational Neuroscience Heidelberg-Mannheim; since 2011 he has been full professor for Theoretical Neuroscience; since 2014 he has been Head of the Department of Theoretical Neuroscience at CIMH.

The department works on mathematical (neural network) models of brain function and on data analysis methods, relying on statistical and machine learning approaches. The main foci are models of brain areas such as the prefrontal cortex, which are crucially involved in psychiatric conditions, and on analysis of high-dimensional time series as generated by modern neuroimaging or electrophysiological recording techniques.

A major new research project started in 2015 as part of the DFG-funded collaborative research center 'Functional Ensembles' (SFB1134) was on 'Statistical characterization of cellular ensembles in neuronal data' (D01, together with Prof. Hamprecht in Heidelberg). The goal of this project is to develop a novel theoretical framework and statistical and machine learning methods for the analysis of large-scale simultaneous recordings from many neurons. Perceptual information from our senses, memories and thoughts, action and motor plans, all of this is ultimately encoded in the sequences of pulse-like electrical events ('action potentials') that neurons emit and by which they communicate with each other and with the

muscles. However, the precise nature of the neural code, the language of the brain, is still not fully understood. The analysis approaches are geared toward detecting statistically significant spatio-temporal patterns of action potential activity across many neurons known as 'cell assemblies', which by their temporally coordinated activity come to represent perceptual or mental entities. In particular, the analysis methods seek to address some of the fundamental statistical and computational issues in this field, such as the combinatorial explosion of coding possibilities with the number of simultaneously recorded neurons, or the detection of stable neural coalitions despite high levels of noise and temporally strongly fluctuating influences (e.g., fluctuations in attention or alertness).

A major project that began in 2016 is the DFG-funded project 'Network dynamics and computational mechanisms of rule learning II' (together with Dr. Kelsch, Dr. Hahn, and Dr. Bähner at CIMH), within SPP-1665. This project deals with the neural mechanisms that underlie the acquisition of new behavioral rules, that is contingencies between stimulus events, animal's own actions, and subsequent rewards. Previous work in which the department was involved had found that animals do not learn such rules in a gradual manner, that is by continuously increasing their performance, but rather suddenly, within just a few trials, change their behavior in line with the new contingencies, almost like if they had a moment of 'sudden insight'. Similarly, at the neural level, representations for different behavioral rules were able to be found, between which neural activity jumps rather abruptly in tight temporal alignment with the changes in behavior. This triggered the idea of learning as an active decision-making process rather than a gradual strengthening of associative links. This new project investigates further facets of this intriguing neural and cognitive process which is so central to animal and human learning, by deriving computational models of the animals' behavior directly from the behavioral and neural data, and by studying a number of specific hypotheses about the neural implementation of these processes.

PUBLICATIONS

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Lapish CC, Balaguer-Ballester E, Seamans JK, Phillips AG, Durstewitz D (2015). Amphetamine Exerts Dose-Dependent Changes in Prefrontal Cortex Attractor Dynamics during Working Memory. J Neurosci; 35 (28): 10172–87.

RG SYSTEMS NEUROPHYSIOLOGY GROUP

Dr. Thomas Hahn studied medicine in Bonn, Strasbourg, and Heidelberg. Afterwards he joined the Max Planck Institute for Medical Research in Heidelberg, where he received his PhD and worked as a Postdoc. He has been psychiatrist at CIMH and group leader of the Research Group "Systems Neurophysiology" since 2009.

The RG focuses on experimental electrophysiological methods in brains of live mice and rats. The main interest is in the contributions of individual neurons to the network function in complex or "higher" brain function. Specifically, the RG is working on neuronal function in the formation of episodic memory, and on prefrontal working memory encoding.

PROJECTS

DFG – German Research Foundation: Network dynamics and computational mechanisms of rule learning II. 10/2016–09/2019.

PUBLICATIONS

Witsch J, Golkowski D, Hahn TT, Petrou S, Spors H (2015). Cortical alterations in a model for absence epilepsy and febrile seizures: In vivo findings in mice carrying a human GABA(A)R gamma2 subunit mutation. Neurobiol Dis; 77: 62–70. Epub 2015 Feb 27.

DEPARTMENT OF PSYCHIATRY AND PSYCHOTHERAPY

The research activities are grouped into three overlapping theme clusters:

I.

Etiology and progression of mental disorders over the course of life – "from childhood to old age".

II.

Neuronal plasticity – the inherent ability of individual nerve cells or entire brain regions to change their characteristics depending on their use.

III.

Development and evaluation of treatment methods – molecular level, animal models, studies in humans.

The Department of Psychiatry and Psychotherapy aims to integrate all three research clusters with excellent clinical practice in order to achieve a better understanding and treatment of mental disorders. This model is undergoing continuous development in close collaboration with the other medical and research departments within the CIMH, renowned research institutes in the region as well as in the context of numerous national and international research collaborations.

Prof. Dr. Andreas Meyer-Lindenberg is Director of the CIMH, Medical Director of the Department of Psychiatry and Psychotherapy and Professor of Psychiatry and Psychotherapy at Heidelberg University. He is a medical specialist in psychiatry, psychotherapy, and neurology. His research interests are developing new treatment methods for severe mental disorders, especially schizophrenia, using multimodal neuroimaging, genetics, and social neurosciences.

RG ADHD IN ADULTHOOD

Associate Prof. Dr. Esther Sobanski holds board certification in psychiatry and psychotherapy as well as adolescent psychiatry and psychotherapy. She is an Associate Professor of Child and Adolescent Psychiatry at Heidelberg University, Head of the Research Group ADHD in Adulthood at the Central Institute of Mental Health and Co-Director at the Clinic of Child and Adolescent Psychiatry and Psychotherapy, University Medical Center Mainz. She is a member of the German ADHD network and of the European Network Adult ADHD and Secretary of the "Neurodevelopmental disorders across the lifespan" section of the European Association of Psychiatry.

The Research Group, whose research priorities are clinically oriented, has conducted a BMBF-funded four-armed multicenter research project to compare an adult ADHD-specific psychotherapy program with pharmacotherapy with methylphenidate, combination therapy with psychotherapy and pharmacotherapy and a placebo. The group is investigating the neurobiological effects of different pharmacological treatments on brain activation and gene expression in collaboration with departments of basic research at the CIMH.

PROJECTS

The Research Group has started to participate in the ESCA-Late project, which is part of the ESCA-Life Consortium (Evidence-based, Stepped Care of ADHD along the life-span), a lifespan approach that evaluates treatment interventions from early intervention/prevention up to extensive multimodal interventions in a gradual care approach for the development of a clinically useful form of personalized medicine in preschool children, school children, adolescents and adults as well as assessing both biological and psychosocial predictors of treatment outcome for a translational research approach.

PUBLICATIONS

Bumb JM, Mier D, Noelte I, Schredl M, Kirsch P, Hennig O, Liebrich L, Fenske S, Alm B, Sauer C, Leweke FM, Sobanski E (2016). Associations of pineal volume, chronotype and symptom severity in adults with attention deficit hyperactivity disorder and healthy controls. Eur Neuropsychopharmacol; 26 (7): 1119–26.

Ende G, Cackowski S, van Eijk J, Sack M, Demirakca T, Kleindienst N, Bohus M, Sobanski E, Krause-Utz A, Schmahl C (2016). Impulsivity and Aggression in Female BPD and ADHD Patients: Association with ACC Glutamate and GABA concentrations. Neuropsychopharmacology; 41 (2): 410–8.

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RG SCHIZOPHRENIA RESEARCH

The main research areas of the research group are on the one hand the analytical epidemiology of schizophrenia and depression and on the other hand the history of psychiatry.

PUBLICATIONS

an der Heiden W, Leber A, Häfner H (2016). Negative symptoms and their association with depressive symptoms in the long-term course of schizophrenia. Eur Arch Psychiatry Clin Neurosci; 266 (5): 387–96. Doi: 10.1007/s00406-016-0697-2.

Häfner H (2016). Psychiatrierefom in Deutschland. Vorgeschichte, Durchführung und Nachwirkungen der Psychiatrie-Enquête. Ein Erfahrungsbericht. In: Wink M und Funke J: Stabiltität im Wandel. HDJBO 2016, Bd1, Art.8: 119–145. Doi:10.17885/heiup.hdjbo.23562.

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Prof. em. Dr. med. Dr. phil. Dr. h.c. mult. Heinz Häfner was born in 1926 in Munich, where he studied psychology, philosophy and medicine. After training in neurology and psychiatry in Tübingen, Munich and Heidelberg he became Professor and Head of Social Psychiatry at Heidelberg University and in 1968 Professor of Psychiatry at Heidelberg University Medical Faculty Mannheim. Starting in 1965. he planned the CIMH and remained Director of it from 1975 until his retirement in 1994. He currently heads the CIMH Schizophrenia research group. He authored more than 760 publications, received 9 research awards, the Service Cross 1st Class of the Federal Republic of Germany, the Great Cross of Merit of the Order of Merit of the Federal Republic of Germany, and is honorary member of a number of national and international associations.

RG DEVELOPMENTAL BIOLOGY OF PSYCHIATRIC DISORDERS

Since 2011 **Dr. Wolfgang Kelsch** has been Head of a DFG Emmy-Noether Group at the Clinic of Psychiatry and Psychotherapy of the CIMH. After having studied medicine and graduated from the Universities of Heidelberg, London and Paris he initially worked at the Max Planck Institute for Psychiatry in Munich, followed by a three-year research period at the Massachusetts Institute of Technology in Cambridge, USA. In 2008 he came to the CIMH where he acquired specialist training in psychiatry and psychotherapy in parallel to his research work. His research focus lies on developmental biology and cellular physiology of sensory networks as well as neuromodulators and neural mechanisms of schizophrenia and autism.

The RG Developmental Biology of Psychiatric Disorders is examining the development and adult function of the neuronal networks involved in the processing of sensory cues and decision making. The group focuses in particular on the actions of the two modulatory systems dopamine and oxytocin in these networks and related behaviors.

PROJECTS

Kelsch W.: CHS Short-term scholarship

Bähner F. DFG – German Research Foundation BA 5382/1-1: Processing prefrontal and phasic dopaminergic signals in the ventral striatum during a rule-switching paradigm.

Kelsch W.: DFG – German Research Foundation SFB 1134: TP C04 Functional "ensembles": Integration of cells, genesis of activity patterns and plasticity of groups of co-active neurons in local networks.

PUBLICATIONS

Lebhardt PS, v Hohenberg CC, Weber-Fahr W, Kelsch W, Sartorius A (2016). Optogenetic fMRI in the mouse hippocampus: Hemodynamic response to brief glutamatergic stimuli. J Cereb Blood Flow Metab; 36 (3): 629–38.

Oettl LL, Ravi N, Schneider M, Scheller MF, Schneider P, Mitre M, da Silva Gouveia M, Froemke RC, Chao MV, Young WS, Meyer-Lindenberg A, Grinevich V, Shusterman R, Kelsch W (2016). Oxytocin Enhances Social Recognition by Modulating Cortical Control of Early Olfactory Processing. Neuron; 90 (3): 609–21.

Bähner F, Demanuele C, Schweiger J, Gerchen MF, Zamoscik V, Ueltzhöffer K, Hahn T, Meyer P, Flor H, Durstewitz D, Tost H, Kirsch P, Plichta MM, Meyer-Lindenberg A (2015). Hippocampal-Dorsolateral Prefrontal Coupling as a Species-Conserved Cognitive Mechanism: A Human Translational Imaging Study. Neuropsychopharmacology; 40 (7): 1674–81. Epub 2015 Jan 12.

Ravi N, Li Z, Oettl LL, Bartsch D, Schönig K, Kelsch W (2015). Postnatal subventricular zone progenitors switch their fate to generate neurons with distinct synaptic input patterns. Development; 142 (2): 303–13.

Wieland S, Schindler S, Huber C, Köhr G, Oswald MJ, Kelsch W (2015). Phasic Dopamine Modifies Sensory-Driven Output of Striatal Neurons through Synaptic Plasticity. J Neurosci; 35 (27): 9946–56.

CENTER OF EXCELLENCE FOR RESEARCH ON PSYCHIATRY AND PSYCHOTHERAPY

The Center of Excellence for Research on Psychiatry and Psychotherapy is a strategic initiative for the establishment and modern implementation of translational research approaches in tangible advancement in research on psychiatry and psychotherapy. Through the work of this Center of Excellence, the diverse fundamental scientific knowledge that is obtained here and in other locations is brought into everyday clinical work and the testing of the suitability for use in the diagnosis and treatment of psychiatric disorders.

The Center, which was set up at the CIMH at the recommendation of the Medical Structural Committee (Medizinstrukturkommission, MSK) of the state of Baden-Württemberg, aims to make the development of innovative diagnostic and therapeutic strategies for the obtaining and implementation of fundamental knowledge on the neurobiological mechanisms of psychiatric disorders possible. This is achieved by means of the harmonization of examination techniques and results from fundamental scientific and clinical investigations in order to enable the results of animal tests investigating the mechanisms identified to be translated to healthy participants in clinical trials until they are understood in people with the disease.

In line with its focus on translation, the Center of Excellence is based on two pillars: translational imaging, which is represented in various research groups in the Clinic of Psychiatry and Psychotherapy and other clinics, institutes and departments at CIMH and is a key strategy in terms of the discovery of effective mechanisms that can be used to treat psychiatric disorders, and the Clinical Study Center (Klinisches Studienzentrum, EZKS) for the clinical testing of the effective mechanisms.

PUBLICATIONS

Bumb JM, Enning F, Mueller JK, van der List T, Rohleder C, Findeisen P, Noelte I, Schwarz E, Leweke FM (2016). Differential melatonin alterations in cerebrospinal fluid and serum of patients with major depressive disorder and bipolar disorder. Compr Psychiatry; 68: 34–9.

Rohleder C, Müller JK, Lange B, Leweke FM (2016). Cannabidiol as a Potential New Type of an Antipsychotic. A Critical Review of the Evidence. Front Pharmacol; 7: 422.

Bot M, Chan MK, Jansen R, Lamers F, Vogelzangs N, Steiner J, Leweke FM, Rothermundt M, Cooper J, Bahn S, Penninx BW (2015). Serum proteomic profiling of major depressive disorder. Transl Psychiatry; 5: e599.

Chan MK, Krebs MO, Cox D, Guest PC, Yolken RH, Rahmoune H, Rothermundt M, Steiner J, Leweke FM, van Beveren NJ, Niebuhr DW, Weber NS, Cowan DN, Suarez-Pinilla P, Crespo-Facorro B, Mam-Lam-Fook C, Bourgin J, Wenstrup RJ, Kaldate RR, Cooper JD, Bahn S (2015). Development of a blood-based molecular biomarker test for identification of schizophrenia before disease onset. Transl Psychiatry: 5: e601.

Jaros JA, Rahmoune H, Wesseling H, Leweke FM, Ozcan S, Guest PC, Bahn S (2015). Effects of olanzapine on serum protein phosphorylation patterns in patients with schizophrenia. Proteomics Clin Appl; 9 (9–10): 907–16. Epub 2015 Mar 27.

Prof. Dr. F. Markus Leweke studied medicine at the University of Cologne and the University of New South Wales in Sydney. After studying neurophysiology and graduating from the University of Cologne, he qualified as a university professor there in 2004. He is a specialist in both neurology and in psychiatry and psychotherapy. Since 2009 he has been Professor of Psychiatry and Psychotherapy at the University of Heidelberg, Assistant Medical Director at the Clinic of Psychiatry and Psychotherapy and Head of the Center of Excellence for Research on Psychiatry and Psychotherapy at CIMH.

RG PHYSIOLOGY OF NEURONAL NETWORKS

PD Dr. Georg Köhr, head of the research group at CIMH since 2012; Faculty member at HBIGS Heidelberg since 2008 and on the Board of Directors at IZN Heidelberg; 2007–2012: research group leader, MPI for Medical Research Heidelberg; 1997–2006: project leader, MPI Heidelberg; 2001–2013: lecturer physiology; 1993–2000: lecturer pharmacology; 1996: Habilitation in Pharmacology and Toxicology; 1992–1996: postdoc at ZMBH Heidelberg; 1990–1991: postdoc at Stanford University; 1985–1989: PhD in Neurophysiology; 1980–1985: Pharmacy study

With electrophysiological techniques the RG examines experience-dependent changes in synaptic potentials and network properties in rodents freely behaving and in acute brain slices to gain a better understanding of the prefrontal cortex-nucleus accumbens pathway during incubation of cocaine-seeking and alcohol-seeking behavior. The RG also investigates nerve cells generated from human pluripotent stem cells with two objectives: firstly to identify functional differences between patients with schizophrenia or alcohol use disorder and healthy controls, and secondly to design innovative therapeutic approaches to treat these diseases.

PROJECTS

DFG – German Research Foundation CRC 1134: B05: Characterization and modulation of neuronal ensembles involved in reward learning. 01/2015–12/2018.

PUBLICATIONS

Ballesteros JJ, Buschler A, Köhr G, Manahan-Vaughan D. (2016). Afferent Input Selects NMDA Receptor Subtype to Determine the Persistency of Hippocampal LTP in Freely Behaving Mice. Front Synaptic Neurosci; 8: 33.

Elagabani MN, Briševac D, Kintscher M, Pohle J, Köhr G, Schmitz D, Kornau HC. (2016). Subunit-selective N-Methyl-d-aspartate (NMDA) Receptor Signaling through Brefeldin A-resistant Arf Guanine Nucleotide Exchange Factors BRAG1 and BRAG2 during Synapse Maturation. J Biol Chem. 291 (17): 9105–18.

Hirth N, Meinhardt MW, Noori HR, Salgado H, Torres-Ramirez O, Uhrig S, Broccoli L, Vengeliene V, Roßmanith M, Perreau-Lenz SP, Köhr G, Sommer WH, Spanagel R, Li SB, Du D, Hasan MT, Köhr G. (2016). D4 Receptor Activation Differentially Modulates Hippocampal Basal and Apical Dendritic Synapses in Freely Moving Mice. Cereb Cortex; 26 (2): 647–55. Epub 2014 Sep 30.

Wieland S, Schindler S, Huber C, Köhr G, Oswald MJ, Kelsch W. (2015). Phasic Dopamine Modifies Sensory-Driven Output of Striatal Neurons through Synaptic Plasticity. J Neurosci.; 35 (27): 9946–56. doi: 10.1523/JNEUROSCI.0127-15.2015.

RG PSYCHIATRIC EPIDEMIOLOGY AND DEMOGRAPHIC CHANGE

The main task is the planning, coordination, and implementation of research projects in the area of descriptive and analytical epidemiology. Studies on the prevalence, course, risks, and consequences of mental disorders and functional impairment at different care levels are conducted.

PUBLICATIONS

Roehr S, Luck T, Heser K, Fuchs A, Ernst A, Wiese B, Werle J, Bickel H, Brettschneider C, Koppara A, Pentzek M, Lange C, Prokein J, Weyerer S, Mösch E, König HH, Maier W, Scherer M, Jessen F, Riedel-Heller SG; AgeCoDe Study Group (2016). Incident Subjective Cognitive Decline Does Not Predict Mortality in the Elderly – Results from the Longitudinal German Study on Ageing, Cognition, and Dementia (AgeCoDe). PLoS One; 11 (1): e0147050.

Then FS, Luck T, Heser K, Ernst A, Posselt T, Wiese B, Mamone S, Brettschneider C, König HH, Weyerer S, Werle J, Mösch E, Bickel H, Fuchs A, Pentzek M, Maier W, Scherer M, Wagner M, Riedel-Heller SG; AgeCoDe Study Group (2016). Which types of mental work demands may be associated with reduced risk of dementia? Alzheimers Dement. [Epub ahead of print].

Wolfsgruber S, Kleineidam L, Wagner M, Mösch E, Bickel H, Lühmann D, Ernst A, Wiese B, Steinmann S, König HH, Brettschneider C, Luck T, Stein J, Weyerer S, Werle J, Pentzek M, Fuchs A, Maier W, Scherer M, Riedel-Heller SG, Jessen F; AgeCoDe Study Group (2016). Differential Risk of Incident Alzheimer's Disease Dementia in Stable Versus Unstable Patterns of Subjective Cognitive Decline. J Alzheimers Dis; 54 (3): 1135–1146.

Heck A, Fastenrath M, Coynel D, Auschra B, Bickel H, Freytag V, Gschwind L, Hartmann F, Jessen F, Kaduszkiewicz H, Maier W, Milnik A, Pentzek M, Riedel-Heller SG, Spalek K, Vogler C, Wagner M, Weyerer S, Wolfsgruber S, de Quervain DJ, Papassotiropoulos A (2015). Genetic Analysis of Association Between Calcium Signaling and Hippocampal Activation, Memory Performance in the Young and Old, and Risk for Sporadic Alzheimer Disease. JAMA Psychiatry; 72 (10): 1029–36. Epub 2015 Sep 2.

Koppara A, Wagner M, Lange C, Ernst A, Wiese B, König H, Brettschneider C, Riedel-Heller SG, Luppa M,Weyerer S, Werle J, Bickel H, Mösch E, Pentzek M, Fuchs A, Wolfsgruber S, Beauducel A, Scherer M, Maier W, Jessen F (2015). Cognitive performance before and after the onset of subjective cognitive decline in old age. Alzheimer's & Dementia. Diagnosis, Assessment & Disease Monitoring; 1 (2): 194–205.

Ramirez A, Wolfsgruber S, Lange C, Kaduszkiewicz H, Weyerer S, Werle J, Pentzek M, Fuchs A, Riedel-Heller SG, Luck T, Mösch E, Bickel H, Wiese B, Prokein J, König H, Brettschneider C, Breteler MM, Maier W, Jessen F, Scherer M (2015). Elevated HbA1c is Associated with Increased Risk of Incident Dementia in Primary Care Patients. J Alzheimers Dis; 44 (4): 1203–12.

Associate Professor Dr. Siegfried Weyerer has studied at the Universities of Munich and Salzburg, received his PhD in psychology and sociology, and completed his post-doctoral studies in epidemiology at Heidelberg University. At the University of Munich and at the Central Institute of Mental Health in Mannheim he has conducted numerous national and international studies on the epidemiology of psychiatric disorders at different care levels. He is cofounder and coeditor of the book series "Gerontology" published by Kohlhammer.

RG ANIMAL MODELS IN PSYCHIATRY

Associate Professor Dr. Barbara Vollmayr is Senior Psychiatrist in patient care in the Department of Psychiatry and Psychotherapy. She studied medicine in Mainz and Göttingen. Following the PJ in Detroit, Ann Arbor and Nashville and the internship (AiP) in Göttingen, she completed her residency in psychiatry at the CIMH. She has authored more than 50 original articles in the field of neuroscience.

The research group Animal Models in Psychiatry investigates translational models for depression, schizophrenia and anxiety in rats and mice. Using genetic and behavioral models the researchers study cognition, affective states and sociability in order to better understand the pathophysiology of the disorders and to improve future treatment options. The group also analyzes environmental effects such as stress, enrichment, and voluntary exercise. In 2015, PD Dr. Inta and Prof. Gass received a DFG grant to study the role of NMDA receptors in schizophrenia in transgenic mouse models. In 2016, Prof. Gass earned a project i n the DFG-funded Research Consortium Severity Assessment in Animal Based Research which aims to develop scientifically based, generally applicable assessment tools for distress and harm in animal models.

PUBLICATIONS

Gass N, Becker R, Schwarz AJ, Weber-Fahr W, Clemm von Hohenberg C, Vollmayr B, Sartorius A (2016). Brain network reorganization differs in response to stress in rats genetically predisposed to depression and stress-resilient rats. Translational Psychiatry; 6 (12): e970.

Mallien AS, Palme R, Richetto J, Muzzillo C, Richter SH, Vogt MA, Riva MA, Vollmayr B, Gass P (2016). Daily exposure to a touchscreen-paradigm and associated food restriction evokes an increase in adrenocortical and neural activity in mice. Hormones & Behavior; 81: 97–105.

Nilsson SRO, Fejgin K, Gastambide F, Vogt MA, Kent BA, Nielsen V, Nielsen J, Gass P, Robbins TW, Saksida LM, Stensbol TB, Tricklebank MD, Didriksen M, Bussey TJ (2016). Assessing the cognitive translational potential of a mouse model of the 22q11.2 microdeletion syndrome. Cerebral Cortex; 26: 3991–4003.

Ben-Shimol E, Gass N, Vollmayr B, Sartorius A, Goelman G (2015). Reduced connectivity and inter-hemispheric symmetry of the sensory system in a rat model of vulnerability to developing depression. Neuroscience; 310:742–50.

Inta D, Cameron HA, Gass P (2015). New neurons in the adult striatum. Trends Neurosci 38: 517–23.

Fuss J, Steinle J, Bindilla L, Auer M, Lutz B, Gass P (2015). A Runner's high depends on cannabinoid receptors in mice. Proc Natl Acad Sci U.S.A; 112: 13105–108.

Associate Professor Dr. med. Peter Gass is a Senior Psychiatrist in patient care in the Department of Psychiatry and Psychotherapy. He studied medicine in Heidelberg and at Cornell University in New York. Following a residency in neuropathology and a research fellowship at the German Cancer Research Center, both in Heidelberg, he completed his residency in psychiatry at the CIMH. He has authored more than 200 original articles and 50 reviews in the field of neuroscience. In 2011 he received the Hans-Heimann-Award from the DGPPN.

RG STRESS-RELATED DISORDERS

Associate Professor Dr. Michael Deuschle is Professor of Psychiatry and Psychotherapy, Head of the Research Group on stress-related disorders and Head of the Sleep Laboratory. After studying medicine at the universities of Mainz and Munich, he worked as a research fellow at the Max Planck Institute of Psychiatry, Munich. His research focuses on stress-related disorders, depression, sleep disorders, neuroendocrinology, metabolic sequelae of stress-related disorders, and epigenetics.

Stress is an adaptive reaction that may have negative impact on health. The RG focuses on the effects of stress in early childhood, stress within the frame of psychiatric disorders and the interplay between stress reaction, psychological health and other disorders, especially cardiometabolic diseases.

PROJECTS

PsYchoTHerapy: Intergenerational Actions (PYTHIA)

STRESS, Depression and HEART left ventricular mass (STRESSD HEART)

Neural stress processing and risk of coronary heart disease (NEUSTART)

PUBLICATIONS

Deuschle M, Gilles M (2016). Hypercortisolemic Depressed Women: Lean but Viscerally Obese? Neuroendocrinology; 103 (3–4): 263–8. doi: 10.1159/000437168. Epub 2015 Jun 30.

Luoni A, Massart R, Nieratschker V, Nemoda Z, Blasi G, Gilles M, Witt SH, Suderman MJ, Suomi SJ, Porcelli A, Rizzo G, Fazio L, Torretta S, Rampino A, Berry A, Gass P, Cirulli F, Rietschel M, Bertolino A, Deuschle M, Szyf M, Riva MA (2016). Ankyrin-3 as a molecular marker of early-life stress and vulnerability to psychiatric disorders. Transl Psychiatry; 6 (11): e943. doi: 10.1038/tp.2016.211.

Schmidt M, Brandwein C, Luoni A, Sandrini P, Calzoni T, Deuschle M, Cirulli F, Riva MA, Gass P (2016). Morc1 knockout evokes a depression-like phenotype in mice. Behav Brain Res; 296: 7–14. doi: 10.1016/j.bbr.2015.08.005. Epub 2015 Aug 11.

Boehringer A, Tost H, Haddad L, Lederbogen F, Wüst S, Schwarz E, Meyer-Lindenberg A (2015). Neural Correlates of the Cortisol Awakening Response in Humans. Neuropsychopharmacology; 40 (9): 2278–85.

Haddad L, Schäfer A, Streit F, Lederbogen F, Grimm O, Wüst S, Deuschle M, Kirsch P, Tost H, Meyer-Lindenberg A (2015). Brain structure correlates of urban upbringing, an environmental risk factor for schizophrenia. Schizophr Bull; 41 (1): 115–22.

Kahl KG, Schweiger U, Pars K, Kunikowska A, Deuschle M, Gutberlet M, Lichtinghagen R, Bleich S, Hüper K, Hartung D (2015). Adrenal gland volume, intra-abdominal and pericardial adipose tissue in major depressive disorder. Psychoneuroendocrinology; 58: 1–8.

Associate Professor Dr. Florian Lederbogen is Professor of Psychiatry and Psychotherapy, co-leader of the clinical RG Stress-Related Disorders at the Central Institute of Mental Health and Head of Consultation-Liaison Psychiatry at the University Hospital Mannheim. His research focuses on the consequences of stress on cardiovascular, metabolic and hematologic systems, neural mechanisms associated with psychosocial stressors, and stress hormone secretion.

RG MOLECULAR SCHIZOPHRENIA RESEARCH

Associate Professor Dr. Mathias Zink works as a board-certified psychiatrist and research group leader at the Department of Psychiatry and Psychotherapy at the CIMH and leads the Department of Psychiatry, Psychotherapy and Psychosomatics at the district hospital in Ansbach. The research group Molecular Schizophrenia Research is dedicated to the early detection of psychosis, cognitive and metacognitive deficits, neuropsychology and functional imaging in psychosis, treatment-resistant symptoms and comorbidity with affective and obsessive-compulsive disorders.

The phenomenological aspects of schizophrenia are very diverse. Within different scientific perspectives, the neurobiological view describes dysfunctions of the central nervous system on molecular, cellular, functional, and behavioral levels. This understanding results in two main focuses of interest within the molecular schizophrenia research group:

- Pathogenetic research aims to define neurobiological alterations in patients suffering from schizophrenia.
- Treatment research aims to improve efficacy and tolerability of therapeutic interventions in schizophrenia.

PROJECTS

BMBF – Federal Ministry of Education and Research
2011-002463-20: COMBINE. 02/2014–04/2014:
A randomized controlled trial on the efficacy of combined antipsychotic treatment with olynazpine and amisulpride in acutely ill patients with schizophrenia (COMBINE)

MKT plus: Immediate and Delayed Effects of Individualized Metacognitive Training for Psychosis

(MCT+)

Longitudinal changes of metacognitive deficits from the at risk mental state to chronic course of psychosis

PUBLICATIONS

Braun U, Schäfer A, Bassett DS, Rausch F, Schweiger J, Bilek E, Erk S, Romanczuk-Seiferth N, Grimm O, Geiger L, Haddad L, Otto K, Mohnke S, Heinz A, Zink M, Walter H, Schwarz E, Meyer-Lindenberg A, Tost H (2016). Dynamic reconfiguration of brain networks: a potential schizophrenia genetic risk mechanism modulated by NMDA receptor function PNAS; 113 (44): 12568–12573.

Englisch S, Jung HS, Lewien A, Becker A , Nowak U, Braun H, Thiem J, Eisenacher S, Meyer-Lindenberg A, Zink M (2016). Agomelatine for the treatment of major depressive episodes in schizophrenia-spectrum disorders: An open-prospective proof-of-concept study. Journal of Clinical Psychopharmacology; 36 (6): 597–607.

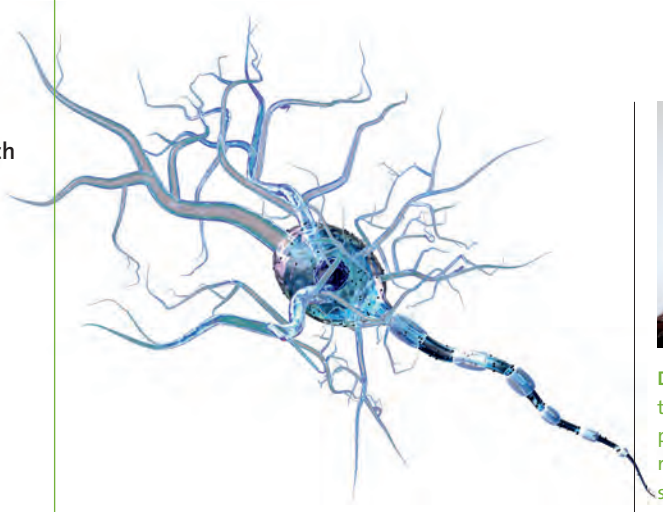
Rausch F, Eisenacher S, Elkin H, Englisch S, Kayser S, Striepens N, Lautenschlager M, Heinz A, Gudlowski Y, Janssen B, Gaebel W, Michel TM, Schneider F, Lambert M, Naber D, Juckel G, Krueger-Oezguerdal S, Wobrock T, Hasan A, Riedel M, Moritz S, Müller H, Klosterkötter J, Bechdolf A, Zink M, Wagner M (Both senior authors contributed equally.) (2016). Evaluation of the "Jumping to conclusion" bias in different subgroups of the At-Risk Mental State: from cognitive basic symptoms to UHR- criteria. Psychological Medicine; 46 (10)-2071–2081.

Eisenacher S, Rausch F, Ainser F, Mier D, Veckenstedt R, Schirmbeck F, Lewien A, Englisch S, Andreou C, Moritz S, Meyer-Lindenberg A, Kirsch P, Zink M (2015). Investigation of metamemory functioning in the at risk mental state for psychosis. Psychological Medicine; 45 (15): 3329–40. doi: 10.1017/S0033291715001373.

RG SYSTEMS NEUROSCIENCE IN PSYCHIATRY

Rausch F, Mier D, Eifler S, Fenske S, Schirmbeck F, Englisch S, Schilling C, Meyer-Lindenberg A, Kirsch P, Zink M (2015). Reduced activation in ventral striatum during probabilistic decision-making in patients in an at risk mental state. Journal of Psychiatry and Neuroscience; 40 (1): 140191. doi: 10.1503/jpn.140191

Schirmbeck F, Mier D, Esslinger C, Rausch F, Englisch S, Eifler S, Meyer-Lindenberg A, Kirsch P, Zink M (2015). Increased orbitofrontal cortex activation during treatment with 'pro-obsessive' antipsychotic drugs. Journal of Psychiatry and Neuroscience; doi: 10.1503/jpn.140021.



The research group on Systems Neuroscience in Psychiatry conducts neuroimaging projects dedicated to the examination of the genetic and environmental risk mechanisms of mental disorders in humans using magnetic resonance imaging (MRI). The group focuses on the identification of intermediate neural mechanisms of psychiatric disorders, the development and application of novel methods for the linking of neuroimaging data and genetic information, and the examination of social and environmental risk factors for mental health and their effects on the neural processing of social stress and social interactions in humans.

To conduct these studies, the group has developed sophisticated multimodal data acquisition protocols in the MRI environment, including the implementation of hyperscanning to study real-time social neural interactions, the combination of fMRI-TMS and fMRI-EEG, virtual reality environments, and the development of fMRI test batteries and analysis strategies with established statistical quality criteria for pharmacological research.

Dr. Dr. Heike Tost is a dual-trained M.D. and Ph.D.-level psychologist. Her main research interest is the systems neurobiology of severe mental disorders including schizophrenia, affective disorders and autism and the neural mechanisms of genetic and environmental risk and resilience factors. After a four-year stay at the National Institute of Mental Health in the US, she joined CIMH in 2010 and was awarded a large grant from the Ministry of Education and Research for an independent research group in neuroscience.

PROJECTS

Meyer-Lindenberg A.: BMBF – Federal Ministry of Education and Research 01EE1407A: ESPRIT within the research network for mental disorders - Clinical study on the efficacy of cannabidiol CR (Arvisol) as adjunct therapy to treatment with olanzapine or amisulpride in the eraly stages of schizophrenia. 01/2015–12/2019.

Meyer-Lindenberg A, Kirsch P.: DFG – German Research Foundation KFO 256, 2nd funding period: TP 03 Neural Mechanisms of Trust and Dyadic Interaction in BPD. 08/2015–07/2018.

Meyer-Lindenberg A., Magerl W.: DFG – German Research Foundation SFB1158: TP B09: Plasticity in neural networks, which underlie the interaction of pain and depression. 07/2015–06/2019.

Meyer-Lindenberg A.: Research Prix ROGER DE SPOELBERCH

Meyer-Lindenberg A.: Klaus Tschira Stiftung gGmbH 03.303.2016: Radiopharmacy with cyclotron. 10/2016–12/2017

Meyer-Lindenberg A.: MWK Baden Württemberg 42-04HV: MED Special line university medicine – Open funding line refugee project. 01/2016–12/2018

Meyer-Lindenberg A.: MWK Baden Württemberg 42-7731.101 Special line university medicine – Open funding line joint project – one year more. 05/2016–12/2018

PUBLICATIONS

Akdeniz C, Schäfer A, Streit F, Haller L, Wüst S, Kirsch P, Tost H, Meyer-Lindenberg A (2016). Sex-dependent association of perigenual anterior cingulate cortex volume and migration background, an environmental risk factor for schizophrenia. Schizophr Bull [Epub ahead of print].

Braun U, Schäfer A, Bassett DS, Rausch F, Schweiger JI, Bilek E, Erk S, Romanczuk-Seiferth N, Grimm O, Geiger LS, Haddad L, Otto K, Mohnke S, Heinz A, Zink M, Walter H, Schwarz E, Meyer-Lindenberg A, Tost H (2016). Dynamic brain network reconfiguration as a potential schizophrenia genetic risk mechanism modulated by NMDA receptor function. Proc Natl Acad Sci U S A; 113 (44): 12568–12573.

Cao H, Bertolino A, Walter H, Schneider M, Schäfer A, Taurisano P, Blasi G, Haddad L, Grimm O, Otto K, Dixson L, Erk S, Mohnke S, Heinz A, Romanczuk-Seiferth N, Mühleisen TW, Mattheisen M, Witt SH, Cichon S, Noethen M, Rietschel M, Tost H, Meyer-Lindenberg A (2016). Altered Functional Subnetwork During Emotional Face Processing: A Potential Intermediate Phenotype for Schizophrenia. JAMA Psychiatry; 73 (6): 598–605.

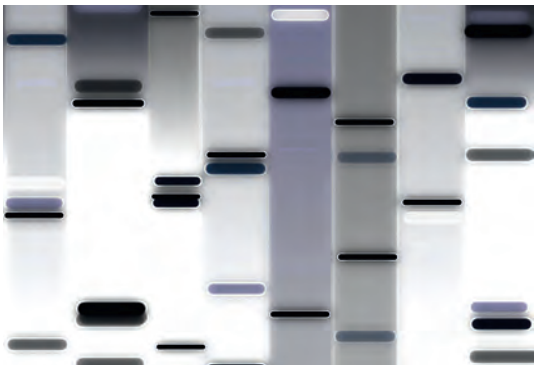
Bilek E, Ruf M, Schafer A, Akdeniz C, Calhoun VD, Schmahl C, Demanuele C, Tost H, Kirsch P, Meyer-Lindenberg A (2015). Information flow between interacting human brains: Identification, validation, and relationship to social expertise. Proc Natl Acad Sci U S A; 112: 5207–5212.

Braun U, Schafer A, Walter H, Erk S, Romanczuk-Seiferth N, Haddad L, Schweiger JI, Grimm O, Heinz A, Tost H, Meyer-Lindenberg A, Bassett DS (2015). Dynamic reconfiguration of frontal brain networks during executive cognition in humans. Proc Natl Acad Sci U S A. 2015; 112: 11678–11683.

Tost H, Champagne FA, Meyer-Lindenberg A (2015). Environmental influence in the brain, human welfare and mental health. Nat Neurosci; 18:1421–1431.

RG TRANSLATIONAL BIOINFORMATICS IN PSYCHIATRY

The research group focuses on the development and application of integrative statistical and bioinformatics methods to identify biological processes that allow a dimensional reconstruction of psychotic disorders.



Dr. Emanuel Schwarz, PhD received a BSc in molecular biotechnology from the Technical University of Munich and a PhD from Cambridge University. He was a research associate at the Cambridge Centre for Neuropsychiatric Research and at the Central Institute of Mental Health. Dr. Schwarz is currently leading a DFG-funded (Emmy-Noether) research group Translational Bioinformatics in Psychiatry which focuses on the identification of the diagnostically-relevant and treatment-relevant biological mechanisms that underlie psychiatric illnesses.

PUBLICATIONS

Braun U, Schäfer A, Bassett DS, Rausch F, Schweiger JI, Bilek E, Erk S, Romanczuk-Seiferth N, Grimm O, Geiger LS, Haddad L, Otto K, Mohnke S, Heinz A, Zink M, Walter H, Schwarz E, Meyer-Lindenberg A, Tost H (2016). Dynamic brain network reconfiguration as a potential schizophrenia genetic risk mechanism modulated by NMDA receptor function. Proc Natl Acad Sci U S A; 113 (44): 12568–12573. Epub 2016 Oct 17.

Franke B, Stein JL, Ripke S, Anttila V, Hibar DP, van Hulzen KJ, Arias-Vasquez A, Smoller JW, Nichols TE, Neale MC, McIntosh AM, Lee P, McMahon FJ, Meyer-Lindenberg A, Mattheisen M, Andreassen OA, Gruber O, Sachdev PS, Roiz-Santiañez R, Saykin AJ, Ehrlich S, Mather KA, Turner JA, Schwarz E, Thalamuthu A, Yao Y, Ho YY, Martin NG, Wright MJ; Schizophrenia Working Group of the Psychiatric Genomics Consortium.; Psychosis Endophenotypes International Consortium.; Wellcome Trust Case Control Consortium 2.; Enigma Consortium., O'Donovan MC, Thompson PM, Neale BM, Medland SE, Sullivan PF (2016). Genetic influences on schizophrenia and subcortical brain volumes: large-scale proof of concept. Nat Neurosci; 19 (3): 420–31. doi: 10.1038/nn.4228. Epub 2016 Feb 1.

Schwarz E, Izmailov R, Liò P, Meyer-Lindenberg A (2016). Protein Interaction Networks Link Schizophrenia Risk Loci to Synaptic Function. Schizophr Bull; 42 (6): 1334–1342. doi: 10.1093/schbul/sbw035. Epub 2016 Apr 7.

Boehringer A, Tost H, Haddad L, Lederbogen F, Wüst S, Schwarz, Ph.D E, Meyer-Lindenberg A (2015). Neural Correlates of the Cortisol Awakening Response in Humans. Neuropsychopharmacology; 40 (9): 2278–85. Epub 2015 Mar 17.

Severance EG, Gressitt KL, Alaedini A, Rohleder C, Enning F, Bumb JM, Müller JK, Schwarz, E, Yolken RH, Leweke FM (2015). IgG dynamics of dietary antigens point to cerebrospinal fluid barrier or flow dysfunction in first-episode schizophrenia. Brain Behav Immun; 44: 148–58.

RG TRANSLATIONAL RESEARCH IN PSYCHOSIS

Prof. Dr. F. Markus Leweke

EXPERIMENTAL RESEARCH

The experimental research approach by the research group focuses on the interface between preclinical research and clinical development in the sense of translational access to research into the principles of psychiatric disorders with a particular focus on schizophrenic and affective diseases. The translation of animal models to use in humans is a focus here. This includes laboratory methods that open up new methods of diagnosis, but also attempts to explain why a certain disease develops under certain conditions. In order to do this, interdisciplinary teams from preclinical and clinical fields work closely together.

CLINICAL RESEARCH

Clinical research approaches investigate the knowledge obtained from experimental approaches for clinical applicability and effectiveness. In addition to new diagnostic approaches for psychiatric diseases and the evaluation of these in everyday clinical work, we also focus on the development of new therapeutic approaches to psychiatric diseases. This comprises psychopharmacotherapeutic treatment approaches to schizophrenic psychoses and to affective disorders.

RG TRANSLATIONAL IMAGING

Dr. Wolfgang Weber-Fahr is a physicist and methodological head of the research group Translational Imaging. He studied physics at the RWTH Aachen and at Heidelberg University and received his PhD specializing in MR-Imaging and MR-Spectroscopy in 2001. After working for 6 years at the Institute of Systems Neuroscience in Hamburg, he took over the management of the new animal scanner facilities at the CIMH in Mannheim in 2008.

The research focus of the RG Translational Imaging is the development and application of emerging methods in the field of magnetic resonance imaging (MRS, fMRI, VBM, DTI, og-fMRI, FC-fMRI) in the high-field animal scanner. With the aim of improving the understanding of brain function and psychiatric diseases, imaging studies are conducted and evaluated in animal models and by means of drug challenges using cutting edge methodology that can be translated directly to human studies.

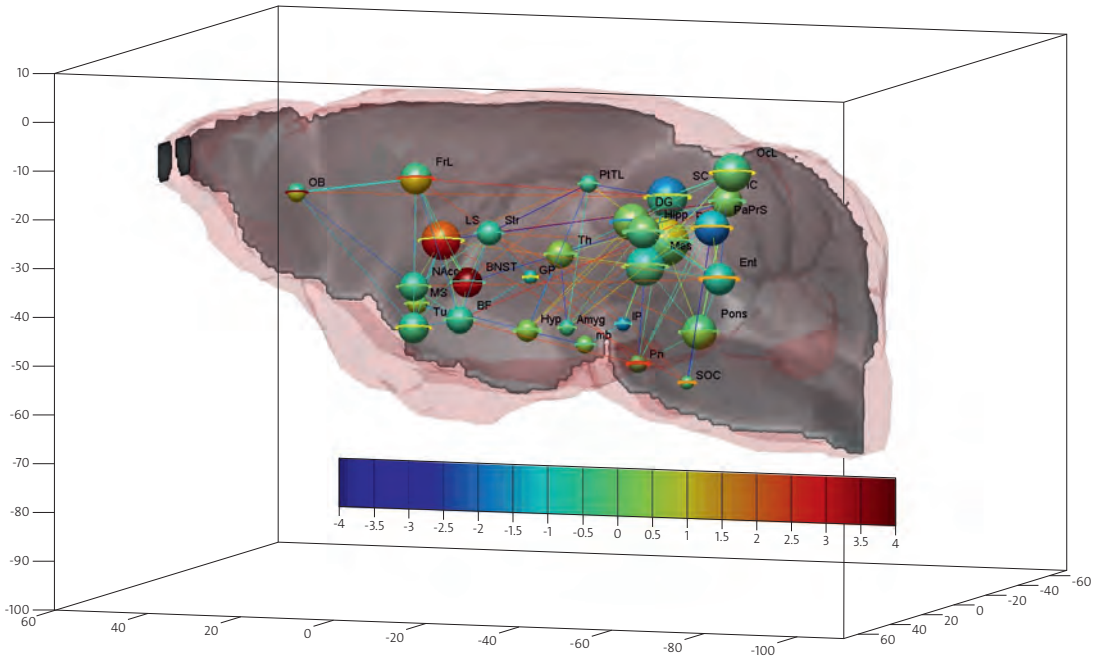
PROJECTS

DFG: Designer receptors exclusively activated by designer drugs (DREADDs) used for endophenotyping neuronal networks of depression by functional connectivity magnetic resonance imaging (fc-fMRI)

Projects within the Collaborative Research Center (SFB) 1158:

- Z-project 01: Deep brain stimulation in models of chronic pain
- B04 Project: Translational studies in pain chronicity: neuroplasticity in corticolimbic dopamine and glutamate pathways

Project within Thyroid Trans Act – a priority pro-gram of the German Research Foundation (SPP 1629): “Influence of thyroid hormone receptors and transporters on brain structure and function”



Associate Prof. Dr. Dipl-Phys. Alexander Sartorius is medical head of the research group Translational Imaging and senior psychiatrist at the Department of Psychiatry and Psychotherapy. He studied physics and medicine, receiving his professorship in psychiatry in 2008. In 2012, he was awarded as the supervisor of the best dissertation in psychiatry, DGPPN – Hans Heimann Prize. He is also deputy head of the DGPPN-Section "Experimental Stimulation Techniques in Psychiatry".

Image: W. Weber-Fahr

PUBLICATIONS

Becker R, Braun U, Schwarz AJ, Gass N, Schweiger JI, Weber-Fahr W, Schenker E, Spedding M, Clemm von Hohenberg C, Risterucci C, Zang Z, Grimm O, Tost H, Sartorius A, Meyer-Lindenberg A (2016). Species-conserved reconfigurations of brain network topology induced by ketamine. Transl Psychiatry; 6: e786.

Gass N, Weber-Fahr W, Sartorius A, Becker R, Didriksen M, Stensbøl TB, Bastlund JF, Meyer-Lindenberg A, Schwarz AJ (2016). An acetylcholine alpha7 positive allosteric modulator rescues a schizophrenia-associated brain endophenotype in the 15q13.3 microdeletion, encompassing CHRNA7. Eur Neuropsychopharmacol; 26 (7): 1150–60.

Lebhardt P, Hohenberg CC, Weber-Fahr W, Kelsch W, Sartorius A (2016). Optogenetic fMRI in the mouse hippocampus: Hemodynamic response to brief glutamatergic stimuli. J Cereb Blood Flow Metab; 36 (3): 629–38.

Grimm O, Gass N, Weber-Fahr W, Sartorius A, Schenker E, Spedding M, Risterucci C, Schweiger JI, Böhringer A, Zang Z, Tost H, Schwarz AJ, Meyer-Lindenberg A (2015). Acute ketamine challenge increases resting state prefrontal-hippocampal connectivity in both humans and rats. Psychopharmacology (Berl); 232 (21-22): 4231–41.

Auer MK, Sack M, Lenz JN, Jakovcevski M, Biedermann SV, Falfán-Melgoza C, Deussing J, Steinle J, Bielohuby M, Bidlingmaier M, Pfister F, Stalla GK, Ende G, Weber-Fahr W, Fuss J, Gass P (2015). Effects of a high-caloric diet and physical exercise on brain metabolite levels: a combined proton MRS and histologic study. J Cereb Blood Flow Metab; 35 (4): 554–64.

RG LONGITUDINAL AND INTERVENTION RESEARCH

Prof. Dr. Dipl.-Psych. Christine Kühner obtained her PhD in Psychology from Heidelberg University (1994) and holds an extraordinary professorship at the Medical Faculty Mannheim, Heidelberg University. She is a recipient of DFG-funded grants on altered learning and mechanism-based interventions in depression and on stress processing in women with PMDD. Christine Kühner is a reviewer for the DFG and for several scientific journals. In 2015, she also contributed to the update of the S3/National Disease Management Guideline on Unipolar Depression.

The research group focuses on cognitive, neurobiological and psychosocial risk factors for the onset and course of mental disorders, particularly depression, experimental psychotherapy and the development of psychodiagnostic tools. Research methods include longitudinal surveys, experimental laboratory and field studies, electronic outpatient assessment of psychological and biological processes in daily life and, in collaboration with other CIMH groups, functional magnetic resonance imaging.

PROJECTS

Diener C, Kühner C. DFG – German Research Foundation SFB 636: TP D04: Modulation of appetitive and aversive associative learning mechanisms in individuals with major depression.

Kühner C, Kirsch P. DFG – German Research Foundation KU 1464/4-2, KI 576/12-2: Experimental studies on rumination and mindfulness: A multilevel approach using fMRI and ambulatory assessment in clinical and nonclinical samples.

Kühner C. DFG – German Research Foundation KU 1464/6-1: Menstrual cycle-dependent variation of mood, pondering and cortisol in everyday life: a comparison of women with and without premenstrual dysphoric disorder.

PUBLICATIONS

Hautzinger M, Berger M, Bräunlich I, Bschor T, Gensichen J, Harfst T, Jansen A, Kühner C, Kriston L, Leucht S, Matzat J, Meister R, Nothacker M, Richter R, Schauenburg H, Schulz H, Schorr S, Schneider F, Härter M (2016). Psychotherapie bei Depressionen. Aktuelle Empfehlungen der revidierten Fassung der Nationalen Versorgungsleitlinie Depression. Zeitschrift für Klinische Psychologie und Psychotherapie; 45 (2): 85–92, doi: 10.1026/1616-3443/a000361). Erratum in: Zeitschrift für Klinische Psychologie und Psychotherapie (2016), 45, pp. 290–290. DOI: 10.1026/1616-3443/a000391.

Kühner C.(2016). [Mental disorders in pregnancy and postpartum: Prevalence, course, and clinical diagnostics]. Nervenarzt; 87 (9): 92636.

Welz A, Huffziger S, Reinhard I, Alpers GW, Ebner-Priemer U, Kuehner C (2016). Anxiety and Rumination Moderate Menstrual Cycle Effects on Mood in Daily Life. Women & Health; 56 (5): 540–60.

Haba-Rubio J, Marques-Vidal P, Tobback N, Andries D, Preisig M, Kuehner C, Vollenweider P, Waeber G, Luca G, Tafti M, Heinzer R (2015). Bad sleep? Don't blame the moon! A population-based study. Sleep Medicine; 16: 1321–1326.

Ubl B, Kuehner C, Kirsch P, Ruttorf M, Diener C, Flor H (2015). Altered neural reward and loss processing and prediction error signalling in depression. Social Cognitive and Affective Neuroscience; 10: 1102–1112.

Ubl B, Kuehner C, Kirsch P, Ruttorf M, Flor H, Diener C (2015). Neural reward processing in individuals remitted from major depression. Psychological Medicine; 45: 3549–3558.

RG MENTAL HEALTH SERVICES RESEARCH

The research fields of the group cover the manifold aspects of adequate service provision for the mentally ill of all diagnostic and age-groups, including the analyses of factors influencing the needs for mental health care, mental health service utilization, pathways to care or the overall structure of community mental health care systems. A particular focus lies on the costs and the cost-effectiveness of mental health care or innovative treatments.

PROJECTS

Coercive measures in the psychiatric help system: Registration and reduction (ZIPHER), funding by BMG, overall management: Prof. Dr. med. Tilman Steinert, ZfP Südwürttemberg, Head within CIMH: H. Dreßing and H.-J. Salize

Burdens of victims in preliminary proceedings. H.-J. Salize, H. Dressing (joint management), Project period 2015-2016, Funding: Weißer Ring Stiftung

Enhancing Schizophrenia Prevention and Recovery through Innovative Treatments ESPRIT, H.-J. Salize (management of subproject D1 health economics) Overall management: A. Meyer-Lindenberg, Mannheim, Project period 2015–2019, Funding: BMBF 149.783

Improvement of psychiatric treatment prevalence for homeless and at risk peoplebefore slipping into homelessness. Motiwohn 2. Within the scope of: Competence center for prevention of mental andpsychosomatic disorders in the world of work and training (PPAA). H.-J. Salize (management subproject 1), overall management: S. Herpertz, W. Herzog, Funding: MWK Stuttgart 83.460

PUBLICATIONS

Schützwohl M, Koch A, Koslowski N, Puschner P, Voß E, Salize HJ, Pfennig A, Vogel A (2016). Mental illness problem behaviour needs and service use in adults with intellectual disability. Soc Psychiatry Psychiatr Epidemiol; 51: 767–776.

Voß E, Salize HJ (2016). Health care utilization and cost-effectiveness analyses in prevention studies in the mental health care field. Mental Health & Prevention; 4: 19–23.

Werner A, Voß E, Salize HJ, Puschner B, Stiawa M, Koch A, Schützwohl M (2016). Das Belastungserleben naher Angehöriger von Erwachsenen mit geistiger Behinderung und komorbider psychischer Störung. Psychiatrische Praxis; 43 380–386.

Forsman A, Wahlbeck K, Aarø LE, Alonso J, Barry MM, Brunn M, Cardoso G, Cattan M, de Girolamo G, Eberhard-Gran M, Evans-Lacko S, Fiorillo A, Hansson L, Haro JM, Hazo JB, Hegerl U, Katschnig H, Knappe S, Luciano M, Miret M, Nordentoft M, Obradors-Tarrago C, Pilgrim D, Ruud T, Salize HJ, Stewart-Brown SL, Tomasson K, van der Feltz-Cornelis CM, Ventus DB, Vuori J, Varnik A also on behalf of the ROAMER Consortium (2015). Research priorities for public mental health in Europe: recommendations of the ROAMER project. European Journal of Public Health; [online first].

Salize HJ (2015). The effectiveness of public mental health policies: stressing the return on investment. World Psychiatry; 14 (1): 53–54.

Associate Professor Dr. Hans Joachim Salize was trained as a sociologist at the University of Frankfurt am Main. In 1997, he completed his Ph. D. at the Medical Faculty Mannheim, Heidelberg University, where he received the venia legendi in psychiatric epidemiology in 2002. He has been a Professor in the same faculty since 2006. Prof. Salize is an expert in the mental health services research field internationally. He has been principal investigator in many large-scale national and international research and development projects, has written many papers and has received several awards for his research.

BIOCHEMICAL LABORATORY

Associate Prof. Dr. Patrick Schloss studied Biology 1979-1985 and obtained his PhD in 1989 from Heidelberg University. After a post-doctoral fellowship at the Centre of Molecular Biology in Heidelberg, he became a group leader at the Max-Planck-Institute for Brain Research in Frankfurt in 1991. After receiving his postdoctoral qualification, he was a visiting professor at Trinity College Dublin, before coming to the CIMH as an assistant professor in 1999. He has been an associate professor at the Medical Faculty Mannheim, Heidelberg University, since 2009.

As cellular neuroscientists, the team at the Biochemical Lab studies intercellular and intracellular mechanisms induced by psychoactive drugs in pharmacologically-defined neurons, which are differentiated in vitro from the embryonic stem cells of mice and human induced pluripotent stem cells (hIPSC). Moreover hIPSC-derived neurons are used from healthy controls and patients with mental health conditions to unravel the possible developmental and functional differences between these cells.

PUBLICATIONS

Matthäus F, Schloss P, Lau T (2015). Differential uptake of fluorescent substrates in serotonergic neurons. ACS Chem Neurosci; 6 (12): 1906–1912.

Horschitz S, Matthäus F, Groß A, Rosner J, Galach M, Greffrath W, Treede RD, Utikal J, Schloss P, Meyer-Lindenberg A (2015). Impact of preconditioning with retinoic acid during early development on morphological and functional characteristics of human induced pluripotent stem cell-derived neurons. Stem Cell Res; 15 (1): 30–41.

Hummerich R, Costina V, Findeisen P, Schloss P (2015). Monoaminylation of Fibrinogen and Glia-Derived Proteins: Indication for Similar Mechanisms in Posttranslational Protein Modification in Blood and Brain. ACS Chem Neurosci; 6 (7): 1130–6.

Matthäus F, Haddjeri N, Sánchez C, Martí Y, Bahri S, Rovera R, Schloss P, Lau T (2016). The allosteric citalopram binding site differentially interferes with neuronal firing rate and SERT trafficking in serotonergic neurons. Eur Neuropsychopharmacol; 26 (11): 1806–1807, doi: 10.1016/j.euroneuro.2016.09.001. [Epub ahead of print].

Mnie-Filali O, Lau T, Matthaeus F, Abrial E, Delcourte S, El Mansari F, Pershon A, Schloss P, Sanchez C, Haddjeri N (2016). Protein Kinases Alter the Allosteric Modulation of the Serotonin Transporter In Vivo and In Vitro. CNS Neuroscience & Therapeuthics; 22 (8): 691–699.

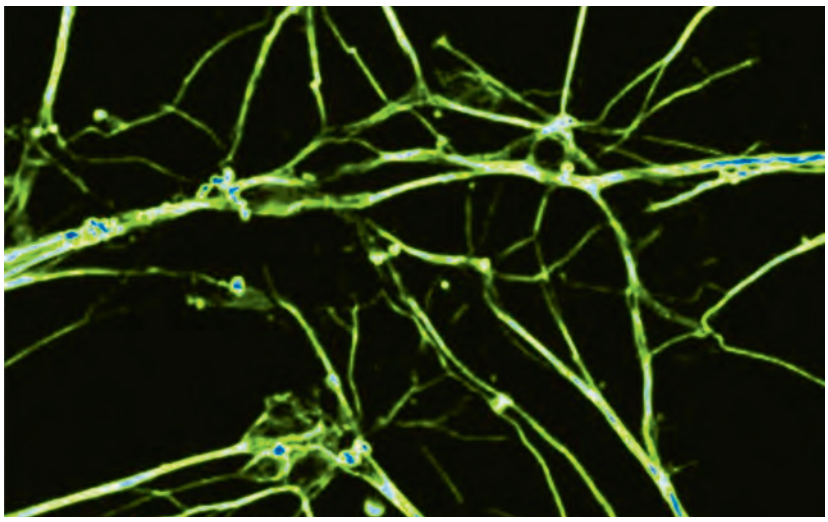


Image: Y. Marti, T. Lau

FORENSIC PSYCHIATRY

Head: **Associate Professor Dr. Harald Dressing**

The Forensic Psychiatry section has two main objectives: Firstly, providing forensic psychiatric assessment (criminal responsibility, legal prognosis, etc.) and training interns in forensic psychiatry. The second objective includes research activities.

PROJECTS

Burden of victims during the preliminary investigation (Funding: Weisser Ring)

"Coercive measures in psychiatry: detection and reduction" (together with Prof. Dr. Hans Joachim Salize. Grant: Federal Ministry of Health)

PUBLICATIONS

Dreßing H, Meyer-Lindenberg A (2016). DSM 5: Was ist neu und was ist für die Begutachtung relevant? Versicherungsmedizin; 68, 4–7.

Conrad von Heydendorff S, Dreßing H (2016). Mediale Stigmatisierung psychisch Kranker im Zuge der "Germanwings"-Katastrophe. Psychiatrische Praxis; 43, 134–140.

Conrad von Heydendorff S, Meyer-Lindenberg A, Dreßing H (2016). Stigmatization of mentally ill patients by media coverage of Germanwings disaster. International Journal of Social Psychiatry; 62, 749–750.

Dreßing H, Bannenberg B, Dölling D, Hermann D, Kruse A, Schmitt E, Voss E, Hoell A, Salize HJ (2015). Sexueller Missbrauch Minderjähriger durch katholische Priester, Diakone und männliche Ordensangehörige im Bereich der Deutschen Bischofskonferenz. Nervenheilkunde; 34: 531–535.

Bumb JM, Schredl M, Dreßing H (2015). Strafrechtliche Implikationen schlafassoziierter Verhaltensstörungen. Fortschritte der Neurologie und Psychiatrie; 83, 621–627.

Dreßing H, Foerster K (2015). Begutachtung bei posttraumatischen Belastungsstörungen. Fortschritte der Neurologie und Psychiatrie; 83, 579–591.

Associate Professor Dr. Harald Dressing is Professor of Forensic Psychiatry at Heidelberg University and Head of the Department of Forensic Psychiatry at the CIMH. His clinical activities include the assessment and treatment of mentally ill offenders and the provision of expert opinions in criminal and civil proceedings. His research activities include sexual abuse of minors, intervention strategies for stalking victims and stalkers, comparative studies on legal frameworks in forensic psychiatry, studies on compulsory admission and compulsory treatment in psychiatry, mental health in prison and stigma research. Harald Dressing has written more than 200 peer-reviewed publications and seven monographies.

SLEEP RESEARCH / SLEEP LABORATORY

Associate Professor Dr. Michael Schredl has been working in the sleep laboratory of the CIMH, since 1990. He is an Associate Professor within the Social Science department of the University of Mannheim. His publications cover various topics such as dream recall, dream content analysis, nightmares, dream and sleep disorders, as well as sleep physiology. He is editor of the peerreviewed online-journal "International Journal of Dream Research".

The research focuses on the neuroendocrine-metabolic function in sleep disorders and the role of sleep in memory consolidation and neuroplasticity in patients with schizophrenia, patients with sleep disorders, and healthy controls. In the area of dream research topics such as continuity between waking and dreaming in patients and healthy controls, motor skill improvements by lucid dream training, and nightmare treatment have been studied.

PROJECTS

Sleep spindles in patients with schizophrenia, healthy first-degree relatives and healthy controls

Effect of genotypes on sleep spindle density

Training of motor skills in lucid dreams

Stress and dream content in patients with sleep disorders

Music and dreams

Nightmares in pregnant women

PUBLICATIONS

Schredl M, Dehmlow L, Schmitt J (2016). Interest in information about nightmares in patients with sleep disorders. Journal of Clinical Sleep Medicine; 12 (7), 973–977.

Sobanski E, Alm B, Hennig O, Riemann D, Feige B, Schredl M (2016). Daytime Sleepiness in Adults With ADHD: A Pilot Trial With a Multiple Sleep Latency Test. Journal of Attention Disorders, 20, 1023–1029.

Stumbrys T, Erlacher D, Schredl M (2016). Effectiveness of motor practice in lucid dreams: a comparison with physical and mental practice. Journal of Sports Sciences; 34 (1), 27–34.

Bekrater-Bodmann R, Schredl M, Diers M, Reinhard I, Foell J, Trojan J, Fuchs X, Flor H (2015). Post-Amputation Pain Is Associated with the Recall of an Impaired Body Representation in Dreams—Results from a Nation-Wide Survey on Limb Amputees. PLoS ONE; 10 (3), e0119552.

Rak M, Beitinger P, Steiger A, Schredl M, Dresler M (2015). Increased lucid dreaming frequency in narcolepsy. Sleep; 38 (5), 787–792.

Schredl M, Göritz AS (2015). Changes in dream recall frequency, nightmare frequency, and lucid dream frequency over a 3-year period. Dreaming; 25 (2), 81–87.

DEPARTMENT OF CHILD AND ADOLESCENT PSYCHIATRY AND PSYCHOTHERAPY

Since the appointment of Professor Banaschewski as Head of Department and Chair of Child and Adolescent Psychiatry in November 2006, research has focused on ADHD and comorbid disorders, particularly disorders associated with impulse control problems and aggressive behavior. A second clinical and research focus is on Autism Spectrum Disorders.

Prospective longitudinal research continues to be another core area of research (Mannheim Study of Children at Risk). The continuity of this along with the increasingly neurobiological and genetic focus are contributing substantially to the reputation of the CIMH Child and Adolescent Psychiatry department. Besides taking part in several research consortiums which are funded by the EU, the department is currently coordinating a joint project (ESCA-Life) within the research network on mental illness, which is supported by the Federal Ministry of Education and Research (BMBF). The research activities are organized within five Research Groups.

Prof. Dr. Dr. Tobias Banaschewski is a Professor of Child and Adolescent Psychiatry, Medical Director of the Department of Child and Adolescent Psychiatry, and Deputy Director of the CIMH in Mannheim. He is currently President of the German Society of Child and Adolescent Psychiatry, Psychosomatics and Psychotherapy (DGKJP) and Chair of the European Network for Hyperkinetic Disorders (EUNETHYDIS). He received the Kramer-Pollnow Award in 2003 and the August-Homburger-Award in 2014 for his research.

RG ADHD IN CHILDHOOD AND ADOLESCENCE

Dr. Sarah Hohmann studied medicine in Marburg and completed her thesis on the molecular basis of obesity in 2006. She started working at CIMH in 2005, and since 2015 she has been Deputy Director of the Department of Child and Adolescent Psychiatry and Psychotherapy. From 2005 to 2010 she worked with Patrick Schloss at the biochemical lab, and since 2010 she has also been a member of the research group on neurophysiology in CAP (Prof. Brandeis). In 2011, she became head of the research group ADHD (together with L. Poustka, since 2015 with S. Millenet).

The group focusses on research on the neurobiological basis of attention deficit hyperactivity disorder and associated comorbidities. In this context, the researchers also evaluate treatment approaches such as neurofeedback training and the search for predictors indicating response to certain treatments. Members of the group collaborate with several other research groups at CIMH and with other institutions through national or international joint research projects.

PROJECTS

Coordination of the ESCALife network in the research network for mental diseases as well as partial studies:

- Evidence-based, gradual treatment of ADHD in preschool children from 3; 0-5; 11 years (ESCA-preschool)
- Gradual treatment of ADHD in school children aged 6 to 11 years (ESCA-school)
- Individualized short-term behavioral therapy for treatment of attention deficit / hyperactivity disorder (ADHD) in adolescents who have not stabilized sufficiently under routine treatment – a randomized-controlled therapy study within the research consortium "ESCA-life"

PUBLICATIONS

Baumeister S, Wolf I, Holz N, Boecker-Schlier R, Adamo N, Holtmann M, Ruf M, Banaschewski T, Hohmann S, Brandeis D (2016). Neurofeedback training effects on inhibitory brain activation in ADHD: A matter of learning? Neuroscience; pii: S0306–4522 (16) 30463–8.

Hohmann S, Zohsel K, Buchmann AF, Blomeyer D, Holz N, Boecker-Schlier R, Jennen-Steinmetz C, Rietschel M, Witt SH, Schmidt MH, Esser G, Meyer-Lindenberg A, Banaschewski T, Brandeis D, Hohm E, Laucht M (2016). Interacting effect of MAOA genotype and maternal prenatal smoking on aggressive behavior in young adulthood. J Neural Transm (Vienna); 123 (8): 885–94.

Holz NE, Zohsel K, Laucht M, Banaschewski T, Hohmann S, Brandeis D (2016). Gene x environment interactions in conduct disorder: Implications for future treatments. NeurosciBiobehavRev; pii: S0149–7634 (16) 30076–8.

Hohmann S, Hohm E, Treutlein J, Blomeyer D, Jennen-Steinmetz C, Schmidt MH, Esser G, Banaschewski T, Brandeis D, Laucht M (2015). Association of norepinephrine transporter (NET, SLC6A2) genotype with ADHD-related phenotypes: findings of a longitudinal study from birth to adolescence. Psychiatry Res; 226 (2-3): 425–33. doi: 10.1016/j.psychres.2014.12.029.

Holz NE, Boecker R, Hohm E, Zohsel K, Buchmann AF, Blomeyer D, Jennen-Steinmetz C, Baumeister S, Hohmann S, Wolf I, Plichta MM, Esser G, Schmidt M, Meyer-Lindenberg A, Banaschewski T, Brandeis D, Laucht M (2015). The long-term impact of early life poverty on orbitofrontal cortex volume in adulthood: results from a prospective study over 25 years. Neuropsychopharmacology; 40 (4): 996–1004. doi: 10.1038/npp.2014.277.

Jans T, Jacob C, Warnke A, Zwanzger U, Groß-Lesch S, Matthies S, Borel P, Hennighausen K, Haack-Dees B, Rösler M, Retz W, von Gontard A, Hänig S, Sobanski E, Alm B, Poustka L, Hohmann S, Colla M, Gentschow L, Jaite C, Kappel V, Becker K, Holtmann M, Freitag C, Graf E, Ihorst G, Philipsen A (2015). Does intensive multimodal treatment for maternal ADHD improve the efficacy of parent training for children with ADHD? A randomized controlled multicenter trial. J Child Psychol Psychiatry; 56 (12): 1298–313. doi: 10.1111/jcpp.12443. Epub 2015 Jun 30.

Sabina Millenet, Dipl.-Psych., completed her studies in psychology at the University of Mannheim in 2005. She successfully completed training as a psychological psychotherapist in 2010. She has been working as research assistant for the Department of Child and Adolescent Psychiatry and Psychotherapy since 2008, and became the personal assistant of Prof. Dr. Dr. Banaschewski in 2015. She is currently working as head of the research group ADHD (together with Sarah Hohmann), and her current main focus is the coordination of the ESCALife-project.

RG AUTISM

Dr. Tanja Schad-Hansjosten is a Clinical Psychologist specializing in psychotherapeutic intervention in children and adolescents with autism spectrum disorders in combination with oxytocin. She studied psychology at the University of Trier and graduated from the University of Zurich in Clinical Psychology. She is involved in national and European multicenter studies researching ASD and has been Head of the Autism Research Group at CIMH since 2010.

Autism Spectrum Disorders (ASD) are some of the most severe and complex psychiatric disorders that occur during childhood and adolescence. The research group's current research activities focus on investigating the development of the brain structure in autistic children and neuronal activation of the reward system; investigation of components of empathy and psychopathy in adolescents with ASD compared to other disorders; investigation of personality and comorbidity in autistic children and their parents and early detection by examining early interaction patterns.

PROJECTS

"Oxytocin-induced enhancement of Social Skills Training in ASD" launch in September 2015. The study is one project within the "ASD-net" (Autism Spectrum Disorder across the life span), sponsored by BMBF

PUBLICATIONS

Freitag CM, Jensen K, Elsuni L, Sachse M, Herpertz-Dahlmann B, Schulte-Rüther M, Hänig S, von Gontard A, Poustka L, Schad-Hansjosten T, Wenzl C, Sinzig J, Taurines R, Geißler J, Kieser M, Cholemkery H (2016). Group-based cognitive behavioural psychotherapy for children and adolescents with ASD: the randomized, multicentre, controlled SOSTA – net trial. J Child Psychol Psychiatry; 57 (5): 596–605. Epub 2015 Dec 30.

Müller N, Baumeister S, Dziobek I, Banaschewski T, Poustka L. (2016). Validation of the Movie for the Assessment of Social Cognition in Adolescents with ASD: Fixation Duration and Pupil Dilation as Predictors of Performance. J Autism Dev Disord; [Epub ahead of print].

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RG NEUROPSYCHOLOGY OF CHILDHOOD AND ADOLESCENCE

The expertise of the research group on Neuropsychology of Childhood and Adolescence encompasses research investigating the developmental trajectories of child and adolescent psychiatric disorders from infancy to adulthood. The research group has recently made important achievements in a broad range of research topics, such as (I) the long-term neurobiological vestiges of early developmental risks, (II) the specificity of biological correlates of child and adolescent psychiatric disorders and (III) genetic and environmental influences on the neural underpinnings of externalizing psychopathology in adolescence and young adulthood.

PUBLICATIONS

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Holz NE, Buchmann AF, Boecker R, Blomeyer D, Baumeister S, Wolf I, Rietschel M, Witt SH, Plichta M, Meyer-Lindenberg A, Banaschewski T, Brandeis D, Laucht M (2015). Role of FKBP5 in emotion processing: results on amygdala activity, connectivity and volume. Brain Structure and Function; 220, 1355–1368.

Holz NE, Boecker R, Hohm E, Zohsel K, Buchmann AF, Blomeyer D, Jennen-Steinmetz C, Baumeister S, Wolf I, Plichta M, Esser G, Schmidt MH, Meyer-Lindenberg A, Banaschewski T, Brandeis D, Laucht M (2015). The long-term impact of early life poverty on orbitofrontal cortex volume in adulthood: results from a prospective study over 25 years. Neuropsychopharmacology; 40, 996–1004.

Holz N, Boecker R, Buchmann AF, Blomeyer D, Baumeister S, Wolf I, Hohmann S, Rietschel M, Witt SH, Plichta M, Meyer-Lindenberg A, Banaschewski T, Brandeis D, Laucht M (2016). Prospective evidence for a sex-dependent MAOA x childhood stress interaction in the neural circuitry of aggression. Cerebral Cortex; 26, 904–914, doi: 10.1093/cercor/bhu249

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Prof. Dr. phil., Dipl.-Psych. Manfred Laucht, Honorary Professor at the University of Potsdam, Germany, is head of the research group on "Neuropsychology of Childhood and Adolescence", CIMH, Mannheim, Germany, and principal investigator of the "Mannheim Study of Children at Risk". His research interests include developmental psychopathology, neurobiological and genetic correlates of psychiatric disorders, addictive behavior, and environmental neuroimaging in stress-related disorders.

RG DEVELOPMENTAL CLINICAL NEUROPHYSIOLOGY IN CHILDHOOD AND ADOLESCENCE

Prof. Dr. Daniel Brandeis, completed his Diploma in Biology ETH Zürich in 1979. In 1982 he did an M.A. in Psychology at UBC Vancouver, Canada; in 1986 he did his Doctorate (Dr. sc. nat. ETH), in 1999 he became a private lecturer at the University of Zurich and in 2003 he won the Kramer-Pollnow Award. He has been a professor and research group leader in the Department of Child and Adolescent Psychiatry and Psychotherapy, University of Zurich since 2006; he has been at CIMH at Mannheim / Heidelberg University since 2009. He has authored more than 150 peer-reviewed original publications, h-index=44, Grants from SNF, DFG, EU, and University as PI and CI.

The research group focuses on multimodal brain imaging and neurophysiology like EEG-fMRI in children and adolescents during development, in psychiatric disorders or in patients who are at risk due to gene-environment interactions, and concentrates on potential neurobiological markers of disorders such as ADHD, autism, OCD, and aggression for subtyping and predicting treatment response. A translational focus of the group is research on neurofeedback and biofeedback treatment addressing clinical relevance and treatment-induced neuronal plasticity.

PROJECTS

The new study "NewroFeed" compares individualized neurofeedback training at home with medication treatment for children with ADHD (within the scope of a multicenter trial, funded by Mensia SA / EU, 1.1. 2016-31.12.2017).

Consortium ESCA-Life in the research network for mental diseases: Prediction of treatment success from brain structure and function in evidence-based, gradual supply of ADHD.

EU-AIMS (European Autism Interventions – A Multicentre Study for Developing New Medications) – European multicenter study on the comprehensive characterization of autism spectrum disorders.

PUBLICATIONS

Baumeister S, Wolf I, Holz N, Boecker R, Adamo N, Holtmann M, Ruf M, Banaschewski T, Hohmann S, Brandeis D (2016). Neurofeedback training effects on inhibitory brain activation in ADHD: a matter of learning? Neuroscience, [Epub ahead of print].

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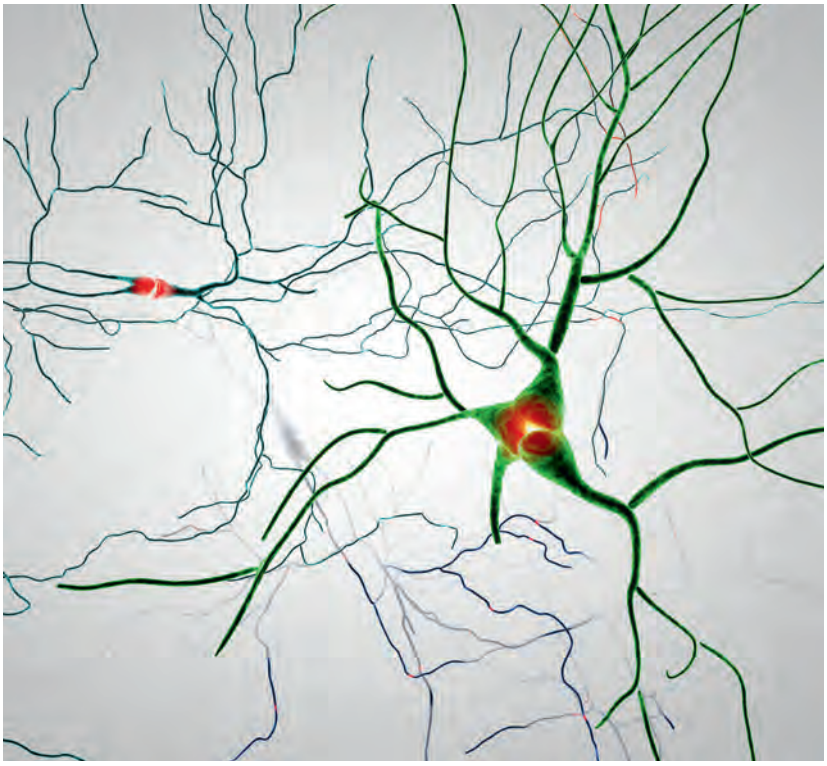
RG PEDIATRIC PSYCHOPHARMACOLOGY

Dr. Alexander Häge studied medicine at the Philipps-University of Marburg, where he received his doctorate in 2008. He completed his advanced training to become a specialist in child and adolescent psychiatry and psychotherapy at CIMH (2007-2011) and Cologne University Hospital (2011–2012). He has been a member of the research group on Pediatric Psychopharmacology since 2009, and took the lead in 2016. Häge is a consultant in the CCAP and has conducted several clinical trials and EU-projects as an investigator, PI and WP leader.

The Research Group on Pediatric Psychopharmacology is participating in several studies in EU-funded projects as well as in clinical trials sponsored by pharmaceutical companies.
The main focus is on the investigation of efficacy and safety of psychopharmacological interventions in child and adolescent psychiatric populations. Issues such as medication-adherence, pharmacovigilance and the efficacy of non-pharmacological treatments are also under investigation.



PROJECTS

Eat2beNICE (EU project) - VANTASTIC study (Vitamins and Nutrients as Supplementation Therapy for Impulsivity and Compulsivity)

ADDUCE (EU project) - ADDUCE study (Attention Deficit Hyperactivity Disorder Drugs Use Chronic Effects)

TACTICS (EU project): GOAT study (Glutamatergic medication in the treatment of Obsessive Compulsive Disorder and Autism Spectrum Disorder)

SEMA Study (Subjective experience of disease and adherence of medicine)

12709A; 12710A Study – Vortioxetin in Children and Adolescents with Major Depressive Disorder (new project 2015; Lundbeck)

PUBLICATIONS

De Bruyckere K, Bushe C, Bartel C, Berggren L, Kan CC, Dittmann RW (2016). Relationships Between Functional Outcomes and Symptomatic Improvement in Atomoxetine-Treated Adult Patients with Attention-Deficit/Hyperactivity Disorder: Post Hoc Analysis of an Integrated Database. CNS Drugs; 30 (6): 541–58. Epub 2016 May 25.

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Nagy P, Häge A, Coghill DR, Caballero B, Adeyi B, Anderson CS, Sikirica V, Cardo E (2016). Functional outcomes from a head-to-head, randomized, double-blind trial of lisdexamfetamine dimesylate and atomoxetine in children and adolescents with attention-deficit/hyperactivity disorder and an inadequate response to methylphenidate. Eur Child Adolesc Psychiatry; 25 (2): 141–9. Epub 2015 May 22.

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Mechler K, Mountford WK, Hoffmann GF, Ries M (2015). Ultra-orphan diseases: a quantitative analysis of the natural history of molybdenum cofactor deficiency. Genet Med; 17 (12): 965–70. Epub 2015 Mar 12.

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DEPARTMENT OF PSYCHOSOMATIC MEDICINE AND PSYCHOTHERAPY

Prof. Dr. Christian Schmahl is Professor of Experimental Psychopathology and Medical Director of the Department of Psychosomatic Medicine at the Central Institute of Mental Health. His research focus is on emotion regulation, self-injurious behavior and dissociation as well as the interaction of neurobiology and psychotherapy in Borderline Personality Disorder and Posttraumatic Stress Disorder. He has been the spokesperson of the Clinical Research Unit "Mechanisms of Disturbed Emotion Processing in BPD" since 2015.

The department focusses on the psychopathology of stress-related disorders (in particular Borderline Personality Disorder and Post-traumatic Stress Disorder) and psychotherapeutic interventions derived from a better understanding of the mechanisms behind psychopathology.

The goal is a better understanding of disordered emotion regulation and social interaction as well as the influence of stress on cognitive processes. For this, the department uses methods of experimental psychopathology, i.e. modelling psychopathology in behavioral experiments, and investigates them using neuroimaging, peripheral physiology, and neurochemical methods. An example of the work is the investigation of the mechanisms behind non-suicidal self-injury, where the researchers combine pain research with investigations of emotion regulation. This better understanding of disordered mechanisms helps to develop new treatment interventions such as neurofeedback based on a real-time fMRI. A further focus of the research is the influence of psychotherapy with neurobiological methods, e. g. by investigating neural correlates of emotion regulation before and after psychotherapy.

In the past few years, the department has contributed several publications to high-ranking international journals. In funding, highlights include the establishment of the DFG Clinical Research Unit (KFO 256) "Mechanisms of Disturbed Emotion Processing in Borderline Personality Disorders" (spokesperson C. Schmahl), several DFG individual grants as well as contributions to SFB 636.

Long-standing collaborations within the CIMH have been established with the Department of Psychiatry and Psychotherapy, the Institute of Cognitive and Clinical Neuroscience, the Institute for Psychopharmacology, and the Department of Neuroimaging, most of them in the context of SFB 636 and KFO 256.

RG NEUROBIOLOGY OF STRESS AND TRAUMA

PD Dr. Dagmar Köthe, Head

This RG was established in October 2014 and focuses on the investigation of neurobiological and neurochemical basic principles and pathomechanisms of stress-related disorders such as Borderline Personality Disorder (BPD) and Posttraumatic Stress Disorder (PTSD). The main focus will be the endogenous cannabinoid system (eCBs), as due to its neuromodulatory potential its role in emotion regulation and in extinction of aversive memory it may be a potential candidate system, which may affect a broad range of psychopathology in both BPD and PTSD. The core area of research is therefore the investigation of the impact of the endogenous cannabinoid and – because of its close connection – also the opioid system.

Initial research results point to the hypothesis that a dysregulation in this system is evident and may play an independent functional role in the pathophysiology of BPD and warrant further investigation of this contribution. For that reason, the group is establishing a database of patients suffering BPD and PTSD as well as of matched cases and trauma controls, collecting blood, serum, CSF and cells, and the respective psychological functioning using established rating scales.

In addition to the determination of endogenous cannabinoids and opioids and the additional use of proteomics and lipidomics as well as genetic studies and imaging data, results are to be integrated with neuropsychological and psychopathological data using modern mathematical approaches.

RG EMOTION REGULATION AND SOCIAL COGNITION

The Research Group on Emotion Regulation and Social Cognition focusses on the psychopathology behind difficulties in social interaction and unstable relationships in Borderline Personality Disorder (BPD). These difficulties seem to be caused by deficits in social information processing and decreased trust and cooperation.

PROJECTS

06/2016 – Young Researchers Award (CIMH Mannheim): Ecological momentary assessment of antecedents and consequences of non-suicidal self-injury.

PUBLICATIONS

Hepp J, Hilbig BE, Kieslich PJ, Herzog J, Lis S, Schmahl C, Niedtfeld I (2016). Borderline Personality and the Detection of Angry Faces. PLoS One; 11 (3): e0152947.

Niedtfeld I, Defiebre N, Regenbogen C, Mier D, Fenske S, Kirsch P, Lis S, Schmahl C (2016). Facing the problem: Impaired emotion recognition during multimodal social information processing in Borderline Personality Disorder. Journal of Personality Disorders; 11:1–16.

Schulze L, Schmahl C, Niedtfeld I (2016). Neural Correlates of Disturbed Emotion Processing in Borderline Personality Disorder: A Multimodal Meta-Analysis. Biological Psychiatry; 79 (2): 97–106.

Dr. Inga Niedtfeld received her diploma in psychology from the University of Bonn. Afterwards, she worked towards her PhD at CIMH, investigating the neural correlates of pain and its role in emotion recognition in Borderline Personality Disorder. She completed training as a cognitive-behavioral psychotherapist. After her parental leave in 2014, she is now heading the research group on Emotion Regulation and Social Cognition at the Department of Psychosomatic Medicine. Her research currently focuses on mechanisms of disordered social cognition in Borderline Personality Disorder, possibly causing difficulties in social interaction in BPD.

RG EXPERIMENTAL PSYCHOPATHOLOGY

Prof. Dr. Christian Schmahl is Professor of Experimental Psychopathology and Medical Director of the Department of Psychosomatic Medicine and Psychotherapy at the Central Institute of Mental Health in Mannheim. His research focus is on emotion regulation, self-injurious behavior and dissociation as well as the interaction between neurobiology and psychotherapy in Borderline Personality Disorder and Posttraumatic Stress Disorder. He received his M.D. in Germany at Mainz and Giessen Medical School and did his residency in Psychiatry at Freiburg Medical School and his residency in Psychosomatic Medicine at CIMH. He has been spokesperson of the Clinical Research Unit "Mechanisms of Disturbed Emotion Processing in BPD" since 2015. He has published more than 150 articles and book chapters as well as two books.

The research focus is emotion regulation, self-injurious behavior and dissociation as well as the interaction between neurobiology and psychotherapy in Borderline Personality Disorder and Posttraumatic Stress Disorder.

PROJECTS

KFO 256, 2nd funding period

PUBLICATIONS

Ende G, Cackowski S, van Eijk J, Sack M, Demirakca T, Kleindienst N, Bohus M, Sobanski E, Krause-Utz A, Schmahl C (2016). Impulsivity and aggression in female BPD and ADHD patients: association with ACC glutamate and GABA concentrations. Neuropsychopharmacology; 41: 410–418.

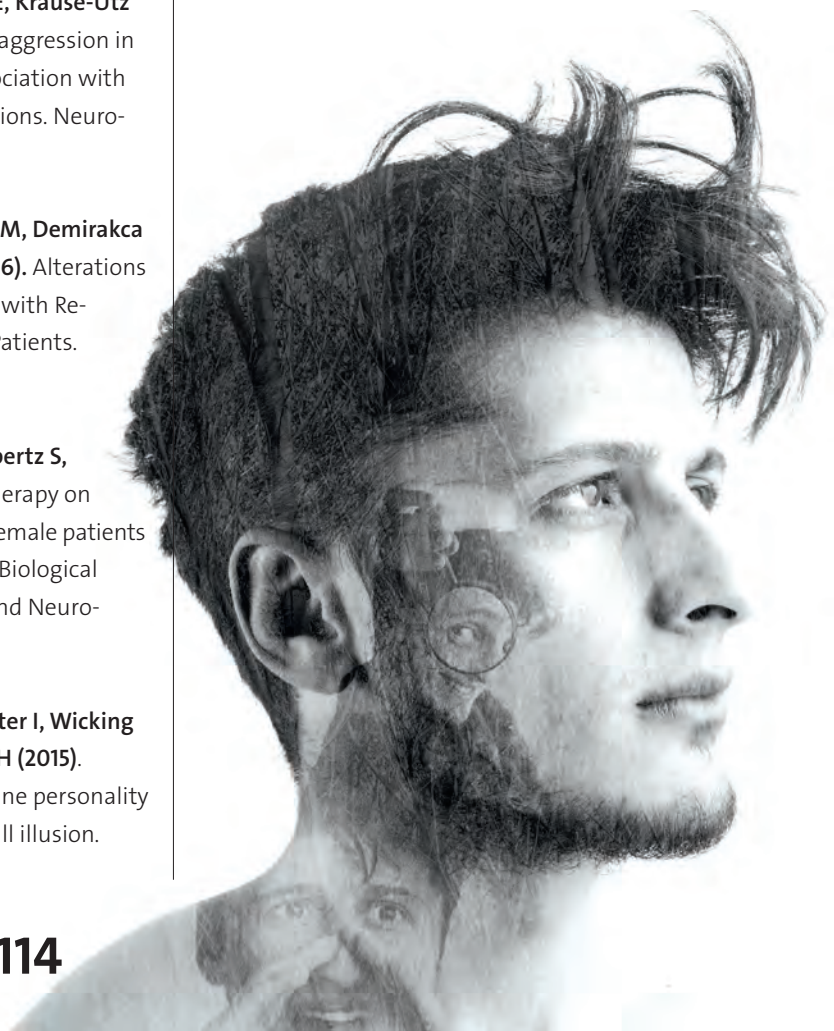
Paret C, Kluetsch R, Zaehringer J, Ruf M, Demirakca T, Bohus M, Ende G*, Schmahl C* (2016). Alterations of Amygdala-prefrontal Connectivity with Real-time fMRI Neurofeedback in BPD Patients. SCAN; 11: 952–960.

Schmitt R, Winter D, Niedtfeld I, Herpertz S, Schmahl C (2016). Effects of psychotherapy on neuronal correlates of reappraisal in female patients with borderline personality disorder. Biological Psychiatry: Cognitive Neuroscience and Neuroimaging; 1: 548–557.

Bekrater-Bodmann R, Chung BY, Richter I, Wicking M, Foell J, Mancke F, Schmahl C, Flor H (2015). Deficits in pain perception in borderline personality disorder: results from the thermal grill illusion. Pain; 156: 2084–2092.

Bilek E, Ruf M, Schaefer A, Akdeniz C, Calhoun VD, Schmahl C, Demanuele C, Tost H, Kirsch P, Meyer-Lindenberg A (2015). Information flow between interacting human brains: identification, validation, and relationship to social expertise. PNAS; 112: 5207–12.

Reitz S, Kluetsch R, Niedtfeld I, Knorz T, Lis S, Paret C, Kirsch P, Meyer-Lindenberg A, Treede RD, Baumgärtner U, Bohus M, Schmahl C (2015). Incision and stress regulation in borderline personality disorder: neurobiological mechanisms of self- injurious behavior.Br J Psychiatry; 207 (2): 165–72. Epub 2015 Apr 23.



RG STRESS AND COGNITION

The focus of the research group on Stress and Cognition is the impact of experimental stress on cognitive functions such as working memory and inhibitory control in patients with Borderline Personality Disorder (BPD). In one project, the impact of stress on different components of impulsivity and aggression in patients with BPD, patients with adult Attention Deficit Hyperactivity Disorder and healthy controls is investigated. Another project addresses the effect of stress-related dissociation on the neural correlates of emotional memory and fear conditioning in BPD. The effectiveness of Emotional Working Memory Training in BPD is also currently being evaluated in collaboration with Susanne Schweizer and Tim Dalgleish from Cambridge (UK).

PUBLICATIONS

Ende G, Cackowski S, Van Eijk J, Sack M, Demirakca T, Kleindienst N, Bohus M, Sobanski E, Krause-Utz A, Schmahl C (2016). Impulsivity and Aggression in Female BPD and ADHD Patients: Association with ACC Glutamate and GABA Concentrations. Neuropsychopharmacology; 41 (2): 410–8. doi: 10.1038/npp.2015.153.

Krause-Utz A, Cackowski S, Daffner S, Sobanski E, Plichta MM, Bohus M, Ende G, Schmahl C (2016). Delay discounting and response disinhibition under acute experimental stress in women with borderline personality disorder and adult attention deficit hyperactivity disorder. Psychol Med; 46 (15): 3137–3149.

Krause-Utz A, Schmahl C (2016). A More Global Look at Altered Neural Structure and Resting-State Function in Borderline Personality Disorder. Biol Psychiatry; 79 (2): 76–7. doi: 10.1016/j.biopsych.2015.10.011.

Krause-Utz A, Elzinga B, Oei, NY, Paret C, Niedtfeld I, Spinhoven P, Bohus M, Schmahl C (2015). Amygdala And Dorsal Anterior Cingulate Connectivity During Distraction By Interpersonal Pictures In Borderline Personality Disorder Patients With Interpersonal Trauma History. Biological Psychiatry; 77 (9S), 29 S.

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Dr. Annegret Krause-Utz studied Psychology at Mannheim University. From 2008, she worked as a research assistant at the department of Psychosomatic Medicine and Psychotherapy. In 2014, she received her PhD (Dr. sc. hum.) from the Medical Faculty of Heidelberg University (summa cum laude). In 2010, she started Postgraduate Training in Behavioral Therapy at the Center of Psychological Psychotherapy Mannheim (CPP) and training in Dialectical Behavior Therapy. In October 2014, she became head of the research group Stress and Cognition. Dr. Krause-Utz also did an external PhD at Leiden University (2010-2017) and works there part-time as an Assistant Professor in Clinical Psychology.

DEPARTMENT OF ADDICTIVE BEHAVIOR AND ADDICTION MEDICINE

Prof. Dr. Falk Kiefer studied medicine (1990–1996) and graduated from the University of Erlangen. He was a Psychiatric-psychotherapeutic resident at the University Hospital Hamburg-Eppendorf (1996–2002) and completed a postdoctoral qualification in Psychiatry (2004). He was a Full Professor of Psychiatry and Psychotherapy specializing in Addiction Medicine at Heidelberg University (2005–2016), a Full Professor for Addiction Research, Heidelberg University, and has been Medical Director of the Department of Addictive Behaviour and Addiction Medicine at the Central Institute of Mental Health in Mannheim since 2016.

The main topics of research in the department are organized into research groups. These are: Translational Addiction Research, Neuroimaging of Addictive Behavior, Neuroenhancement, Internet and Social Media Addiction, Pathological Gambling.

Research covers the biological and psychosocial conditions of the etiology, course, and treatment of substance-related and behavioral addictions. The explanation of specific gene-environment interactions over the lifespan, neuroplastic changes and new treatment options are explored in particular. As a result of the current establishment of a joint research center (Center for Translational medicine on Substance use and addiction; CTS) with the Addiction Dept. of the Psychiatric Center Nordbaden (PZN) there is an additional health care research focus. Since treatment and research are closely linked to one another, there is a guarantee that results of this research will be able to be immediately transferred into clinical care.

RG INTERNET AND SOCIAL MEDIA ADDICTION

The research group was founded in 2015 and focuses on the assessment of the psychological and neural mechanisms that underlie addictive internet and social media use. The overall aim is to contribute towards the development of an integrative explanatory model in order to identify standardized diagnostic tools and adequate therapy approaches.

The World Wide Web provides comfortable, rewarding leisure activities that are nearly always available, such as gaming, social networking, shopping, streaming, etc. However, the use of these does not only have positive effects. Prolonged, dysfunctional, excessive use can become uncontrollable, which in turn often leads to serious social and health problems. The person in question is increasingly in the virtual world until he/she is no longer able to deal with the requirements of daily life.

Internet addiction is increasingly becoming a focus of psychiatric and psychological research. The studies conducted by the research group, integrating psychometric, structural and functional Magnetic Resonance Imaging (fMRI) measures, investigate the extent to which internet addiction demonstrates differences from and similarities with substance-related and gambling disorders, and which factors and internet applications contribute to an increased risk of developing internet addiction.

Thus far, the findings have indicated a significantly higher tendency to impulsive behavior, increased social anxiety and self-concept deficits in addicted internet users. Analyses of subgroups, characterized by the addictive use of different internet applications, revealed that in particular addicted social network users (e.g. of Facebook) displayed decreased reward-associated striatal activations during the reflection and estimation of self-concept-related characteristics of the real-self compared to the ideal version. This may indicate that addicted social network users may have a stronger tendency to compensate self-concept deficits using positive social feedback followed by the presentation of a virtual ideal self-image in the internet. Online role playing game addiction, the most prevalent form, seems to be rather associated with gradually increasing identification with the own avatar in the game.

These findings provide the first indication that internet addiction therapy approaches should also focus on the improvement of those self-concept-related facets that were being compensated for by the online application the person mainly uses.
In line with previous studies, a DFG-funded project (which started in April 2016) aims to longitudinally assess the extent to which internet gaming disorders are associated with age-related structural and neural alterations in brain regions linked to emotional impulse-control and self-image in young internet gaming addicts.

Dr. Tagrid Leménager has been a research assistant in the Department of Addictive Behavior and Addiction Medicine at the Central Institute of Mental Health (Med. Dir. Prof. Dr. F. Kiefer) since 2001. Her research work in the department comprises fundamental studies and clinical trials in the field of Alcohol Addiction, Pathological Gambling and Internet Use Disorders. From 2009 to 2014, she was the co-head of the Research Group on Pathological Gambling, and since 2015 she has been the head of the Research Group on Internet and Social Media Addiction.

RG NEUROENHANCEMENT

Prof. Dr. Falk Kiefer, studied medicine (1990–1996) and graduated from the University of Erlangen. He was a Psychiatric-psychotherapeutic resident at the University Hospital Hamburg-Eppendorf (1996–2002) and completed a postdoctoral qualification in Psychiatry (2004). He was a Full Professor of Psychiatry and Psychotherapy specializing in Addiction Medicine at Heidelberg University (2005-2016), a Full Professor for Addiction Research, Heidelberg University, and has been Medical Director of the Department of Addictive Behaviour and Addiction Medicine at the Central Institute of Mental Health in Mannheim since 2016.

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Cognitive enhancement and facilitation of learning and memory aims to develop new therapeutic approaches to psychiatric disorders. Convergent pre-clinical and clinical trials have been conducted on the memory-facilitating effects of D-cycloserine as well as on pharmacological attenuation of reconsolidation. Since the modulation of functional brain structure evoked by drug or non-drug interventions is a key element of the RG's work, neuroplasticity will be explored in ongoing projects within BMBF SysMed Alcoholism and BMBF AERIAL.

PROJECTS

EU Horizon 2020 SyBil AA: Real-time fMRT Neurofeedback in treating alcohol addiction

AERIEL: Addiction: Early Recognition and Intervention Across the Lifespan; BMBF: 01EE1406C: TP 1, TP 6, TP 7 2015–2019

PUBLICATIONS

Bach P, Vollstädt-Klein S, Kirsch M, Hoffmann S, Jorde A, Frank J, Charlet K, Beck A, Heinz A, Walter H, Sommer WH, Spanagel R, Rietschel M, Kiefer F (2015). Increased mesolimbic cue-reactivity in carriers of the mu-opioid-receptor gene OPRM1 A118G polymorphism predicts drinking outcome: a functional imaging study in alcohol dependent subjects. Eur Neuropsychopharmacol; 25: 1128–35.

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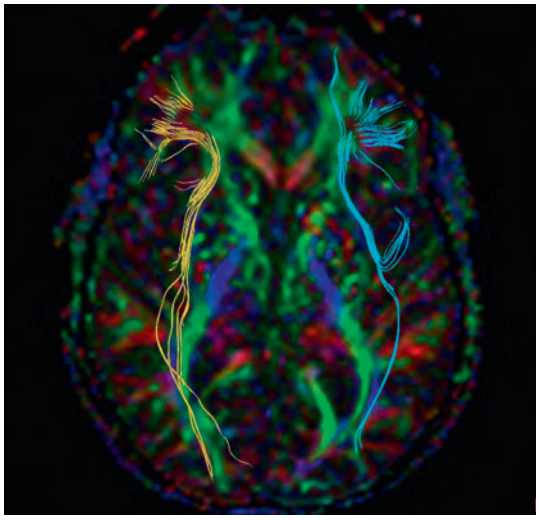
Kiefer F, Kirsch M, Bach P, Hofmann S, Reinhard I, Jorde A, von der Goltz C, Mann K, Loeber S, Vollstädt-Klein S. (2015). Effects of D-cyloserine on extinction of mesolimbic cue-reactivity: a randomized, placebo-controlled trial. Psychopharmacology; 232: 2353–62.

RG NEUROIMAGING OF ADDICTIVE BEHAVIOR

The Research Group is investigating the neurobiological underpinnings of substance use disorders and behavioral addictions.

The research group focuses on the neurobiological underpinnings of addictive behavior using multimodal imaging. The key research areas are the pathogenesis of addiction disorders, the identification of mechanisms that trigger relapse, neural addiction biomarkers and the influence of genetic variation in addiction initiation and maintenance ("Imaging Genetics").

Addictive Behavior is associated with impairments in higher cognitive functions including inhibitory control and decision-making but also incapacities relating to stress response, affective and emotional processing, sensitivity to addiction-related (or drug-related) stimuli, and irregularities in motivational and reward-seeking behaviors. The investigation of the above-mentioned domains is achieved using both a wide range of well-established experimental paradigms and the validation and implementation of newly-developed addiction-related tasks within the group. Magnetic Resonance Imaging (MRI) is the imaging method that is mainly used, with a focus on functional MRI, voxel-based morphometry (VBM), diffusion tensor imaging (DTI), and magnetic resonance spectroscopy (MRS). In addition to imaging methods, neuropsychological and psychometric methods and questionnaires are being developed and validated to examine addictive behavior.



In addition to substance-related disorders (mainly alcohol, tobacco, and opioid addiction), the RG is focusing on behavioral addictions in collaboration with the RG Internet and Social Media Addiction and the RG Pathological Gambling. The projects not only cover fundamental research, but also serve to improve and evaluate therapeutic interventions. Considering that heterogeneity is characterizing addictive behavior, a further goal of the RG is to develop and apply multivariate statistical methods (e.g. pattern recognition, cluster analysis) to identify subgroups of addicted patients with individual treatment needs.

Associate Professor Dr. Sabine Vollstädt-Klein is a Senior Researcher of the Department of Addictive Behavior and Addiction Medicine. She graduated from Kaiserslautern University of Technology with a degree in Technomathematics (1998). She earned a Ph. D. in Human Sciences (2003) and a postdoctoral qualification in Clinical and Experimental Neurosciences (2011) from the Medical Faculty Mannheim of Heidelberg University. Her research focusses on the neurobiology of addiction, particularly cue-reactivity and cognition.

PROJECTS

EU Horizon 2020 SyBil AA: Real-time fMRT Neurofeedback in treating alcohol addiction

AERIEL: Addiction: Early Recognition and Intervention Across the Lifespan; BMBF: 01EE1406C: TP 1, TP 6, TP 7 2015–2019

PUBLICATIONS

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Zois E, Kiefer F, Leménager T, Vollstädt-Klein* S, Mann* K and Fauth-Bühler* M. (2016). Frontal cortex gray matter volume alterations in pathological gambling occur independently from substance use disorder. Addiction Biology; [Epub ahead of print]. doi: 10.1111/adb.12368
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Bach P, Kirsch M, Hoffmann S, Jorde A, Mann K, Frank J, Charlet K, Beck A, Heinz A, Walter H, Rietschel M, Kiefer F and Vollstädt-Klein S. (2015). The effects of single nucleotide polymorphisms in glutamatergic neurotransmission genes on neural response to alcohol cues and craving. Addict Biol; 20: 1022–1032. doi:10.1111/adb.12291

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Kiefer F, Kirsch M, Bach P, Hoffmann S, Reinhard I, Jorde A, Goltz C v d, Spanagel R, Mann K, Loeber S and Vollstädt-Klein S. (2015). Effects of Dcycloserine on extinction of mesolimbic cue-reactivity in alcoholism: A randomized placebo-controlled trial. Psychopharmacology; 232: 2353–2362. doi: 10.1007/s00213-015-3882-5

RG PATHOLOGICAL GAMBLING

The research group on Pathological Gambling investigates the mechanisms that underlie the development and maintenance of non-substance-related addictions or behavioral addictions, with a main focus on pathological gambling. Methods used include, among others, structural and functional neuroimaging and psychometric instruments.

PUBLICATIONS

Fauth-Bühler M & Kiefer F. (2016). Alcohol and the Human Brain: a Systematic Review of Recent Functional Neuroimaging and Imaging Genetics Findings. Current Addiction Reports; 3 (1): 109–124.

Fauth-Bühler M, Mann K, Potenza MN. (2016). Pathological gambling: a review of the neurobiological evidence relevant for its classification as an addictive disorder. Addict Biol.

Mann K, Fauth-Bühler M, Higuchi S, Potenza MN, Saunders JB. (2016). Pathological gambling: a behavioral addiction. World Psychiatry; 15 (3): 297–298.

Fauth-Bühler M, Mann K. (2015). Neurobiological correlates of internet gaming disorder: Similarities to pathological gambling. Addictive Behaviors pii; S0306-4603 (15) 30055–1. doi: 10.1016/j.addbeh.2015.11.004.

Richiardi J, Altmann A, Milazzo AC, Chang C, Chakravarty MM, Banaschewski T, Barker GJ, Bokde AL, Bromberg U, Büchel C, Conrod P, Fauth-Bühler M, Flor H, Frouin V, Gallinat J, Garavan H, Gowland P, Heinz A, Lemaître H, Mann KF, Martinot JL, Nees F, Paus T, Pausova Z, Rietschel M, Robbins TW, Smolka MN, Spanagel R, Ströhle A, Schumann G, Hawrylycz M, Poline JB, Greicius MD; IMAGEN consortium. (2015). BRAIN NETWORKS. Correlated gene expression supports synchronous activity in brain networks. Science 12; 348 (6240): 1241–4.

Ruggeri B, Nymberg C, Vuoksimaa E, Lourdusamy A, Wong CP, Carvalho FM, Jia T, Cattrell A, Macare C, Banaschewski T, Barker GJ, Bokde AL, Bromberg U, Büchel C, Conrod PJ, Fauth-Bühler M, Flor H, Frouin V, Gallinat J, Garavan H, Gowland P, Heinz A, Ittermann B, Martinot JL, Nees F, Pausova Z, Paus T, Rietschel M, Robbins T, Smolka MN, Spanagel R, Bakalkin G, Mill J, Sommer WH, Rose RJ, Yan J, Aliev F, Dick D, Kaprio J, Desrivières S, Schumann G; IMAGEN Consortium. (2015). Association of Protein Phosphatase PPM1G With Alcohol Use Disorder and Brain Activity During Behavioral Control in a Genome-Wide Methylation Analysis. Am J Psychiatry 1; 172 (6): 543–52.

Dr. Mira Fauth-Bühler graduated in neural and behavioral sciences (M.Sc.) and psychology (Dipl.-Psych.) in 2003 from the Max Planck Research School, University of Tübingen. She worked as a PhD student from 2003 to 2007 in the addiction department of CIMH in Mannheim (her PhD was awarded 2008), which included a stay as visiting scientist at the UKE, Hamburg for 18 months. Dr. Fauth-Bühler continued her work at the University of Cambridge and at the Institute of Psychiatry, London for almost two years. She has been Head of the research group on Pathological Gambling since 2008.

RG TRANSLATIONAL ADDICTION RESEARCH

Associate Prof. Dr. Wolfgang Sommer studied medicine at the University of Greifswald (1981–1987), then completed a doctoral degree in molecular virology at Humboldt University, Berlin (1992). He received board certification in psychiatry and was appointed Associate Professor of Experimental Psychiatry at the Karolinska Institute, Stockholm, Sweden, in 2001. He was then Unit Director of Molecular Pathophysiology at NIAAA/NIH, Bethesda, Maryland, USA (2004–2008). Since 2008, he has been Deputy Scientific Director of the Institute for Psychopharmacology at CIMH. He received Vena legendi (2010) and was appointed Associate Professor for Psychiatry (2016) at Heidelberg University.

The RG Translational Addiction Research investigates corresponding neurobiological and genetic mechanisms of addictive disorders in patients and model organisms. One focus is on the use of non-invasive neuroimaging methods that offer relatively simple biological measures which can be compared between humans and experimental animals and may provide highly needed translational biomarkers for therapeutic development.

Prof. Falk Kiefer and Associate Professor Wolfgang Sommer are joint group leader for the RG Translational Addiction Research.

PROJECTS

EU – European Union 668863: SyBil-AA System Biology of Alcohol Addiction. 01/2016-12/2019.

DFG – German Research Foundation SFB 1134: TP B04: Investigation of behavioral relevant spatiotemporal activity patterns of neuronal networks in the prefrontal cortex of the rat with in vivo wide field microendoscopy. 01/2015–12/2018.

Kiefer F. BMBF – Federal Ministry of Education and Research 01EE1406C: Consortium AERIAL (part of theResearch Network for Mental Illnesses) – Mechanisms of addictions: social exclusion, prediction of disease risks, resilience and adapted theories, Project. 02/2015–12/2019.

PUBLICATIONS

Bernardi RE, Zohsel K, Hirth N, Treutlein J, Heilig M, Laucht M, Spanagel R, Sommer WH. (2016). A gene-by-sex interaction for nicotine reward: evidence from humanized mice and epidemiology. Transl Psychiatry; 6 (7): e861.

Hirth N, Meinhardt MW, Noori HR, Salgado H, Torres-Ramirez O, Uhrig S, Broccoli L, Vengeliene V, Roßmanith M, Perreau-Lenz SP, Köhr G, Sommer WH, Spanagel R, Hansson AC. (2016). Convergent evidence from alcohol-dependent humans and rats for a hyperdopaminergic state in protracted abstinence. Proc Natl Acad Sci U S A; 113 (11): 3024–9.

Stacey D, Lourdusamy A, Ruggeri B, Maroteaux M, Jia T, Cattrell A, Nymberg C, Banaschewski T, Bhattacharyya S, Band H, Barker G, Bokde A, Büchel C, Carvalho F, Conrod P, Desrivieres S, Easton A, Fauth-Buehler M, Fernández-Medarde A, Flor H, Frouin V, Gallinat J, Garavanh H, Heinz A, Ittermann B, Lathrop M, Lawrence C, Loth E, Mann K, Martinot JL, Nees F, Paus T, Pausova Z, Rietschel M, Rotter A, Santos E, Smolka M, Sommer W, Mameli M, Spanagel R, Girault JA, Mueller C, Schumann G, Diesch E, Gebicke-Haerter PJ, Kiefer F, Vollstädt-Klein S, Poustka L, Schulze TG, IMAGEN consortium. (2016). A translational systems biology approach in both animals and humans identifies a functionally related module of accumbal genes involved in the regulation of reward processing and binge drinking in males. J Psychiatry Neurosci.; 41: 192–202.

Bach P, Vollsta Dt-Klein S, Kirsch M, Hoffmann S, Jorde A, Frank J, Charlet K, Beck A, Heinz A, Walter H, Sommer WH, Spanagel R, Rietschel M, Kiefer F (2015). Increased mesolimbic cue-reactivity in carriers of the mu-opioid-receptor gene OPRM1 A118G polymorphism predicts drinking outcome: A functional imaging study in alcohol dependent subjects. Eur Neuropsychopharmacol; Aug; 25 (8): 1128–35.

Bilbao A, Robinson JE, Heilig M, Malanga CJ, Spanagel R, Sommer WH*, Thorsell A* (2015). A pharmacogenetic determinant of mu-opioid receptor antagonist effects on alcohol reward and consumption: evidence from humanized mice. Biol Psychiatry; May 15; 77 (10): 850–8.
*equal contribution

Prof. Dr. Falk Kiefer studied medicine (1990–1996) and graduated from the University of Erlangen. Psychiatric-psychotherapeutic resident at the University Hospital Hamburg-Eppendorf (1996–2002). He achieved a postdoctoral qualification in Psychiatry (2004) and became Full Professor of Psychiatry and Psychotherapy specializing in Addiction Medicine, Heidelberg University (2005–2016), Professor of Addiction Research, Heidelberg University and Medical Director, Department of Addictive Behavior and Addiction Medicine, Central Institute of Mental Health, Mannheim (since 2016).

ORGANIZATION

2015 — 2016

CIMH AS AN EMPLOYER,
SUBSIDARIES, EDUCATION AND FURTHER TRAINING,
STAFF, SUPERVISORY BOARD,
SCIENTIFIC ADVISORY BOARD

CIMH AS AN EMPLOYER

PERSONNEL DEVELOPMENT FOCUSING ON EXECUTIVE AND JUNIOR EXECUTIVE DEVELOPMENT

"The qualification of our employees is an important foundation in the successful work of CIMH. We therefore place a high value on encouraging employees through targeted personnel development offers and support for independent initiatives."
Code of Conduct

The main areas of personnel development at CIMH are:
- the development and professionalism of the next generation of excellent staff,
- the development of management skills, in particular relating to the initiation and control of change processes at all management levels (systematic executive development) and
- the support of change processes.

SELECTED MEASURES FOR PERSONNEL DEVELOPMENT

Cross-departmental and interprofessional project work
The central project management established at CIMH is designed as a learning system. Project work aims to develop the employees and executives who work on or manage them on a specialist, methodological and personal level. Where possible, projects are also used to develop collaboration across professional groups.

Support for organizational development processes
Managing strategic development and change processes is an important challenge of CIMH. This relates in particular to new medical, therapeutic, nursing and organizational concepts. Targeted personnel development measures are used to support the professional and methodological qualification of executives, employees and teams. This occurs both through the conception and organization of specific qualification measures and through the provision of advice to those responsible for designing change processes.

Executive development

Systematic executive development has been established at CIMH since 2012. The basic qualification of the executive development is designed to be one year. In addition to expanding their knowledge of "managing and leading", the person will reflect on their own leadership situation and their own management behavior and further increase the level of professionalism they bring to the role using the management tools presented. The basic modules are supplemented through numerous additional offers, in particular on management during change processes. In addition to this, each executive has the option to undergo further development as a leadership personality.

Support for the next generation of scientists

Support for the next generation of scientists is highly valued at CIMH. A curriculum has been developed for the qualification of heads of research groups covering areas of leadership and human resources management, organization and management of an RG and third-party funding acquisition and administration. A building block of career planning is also part of qualification. Targeted personnel development measures are available to post-docs as part of the qualification concept "Personal and Professional Development of Young Researchers at CIMH". This includes topics such as paper writing, the professional design of scientific lectures and scientific project work. The internal training program also includes soft skills for scientists.

Methodological skills of junior employees

Employees with and without management responsibilities from all professional groups and areas are given the skills to take on more complex tasks and projects and to manage them "from A to Z". The program is aimed at employees who have a particular potential and at those responsible for quality internally in all areas of CIMH. The topics include project management, managing working teams, work organization and presentation and implementation of the results developed. The first group successfully completed qualification in summer 2016.

Further training

In addition to the further training activities mentioned above, other qualification measures for internal and external participants were also developed and implemented in 2015 and 2016. The qualifications were designed to flow into the CIMH academy that is going to be established as marketable services. The newly designed training as a de-escalation trainer should be mentioned here in particular.

ZI SERVICE GMBH

CEO: **Katrin Erk**
Coordination: **Andreas Häuslpelz**

RECEPTION/SECURITY
The reception is the first point of contact for both patients and visitors. Incoming calls are forwarded and visitors directed to the relevant places. The reception is also responsible for forwarding both internal and external mail. All security-related tasks are also the responsibility of the reception.

GASTRONOMY
Gastronomy includes the cafeteria and catering. The employees in this area offer lunch and snacks to visitors of the cafeteria, provide the wards with food and prepare the food for conferences and both internal and external events. The head of the area is a contact point for patients, guests and employees, particularly nursing and ward staff, and is able to taken into account patient wishes and diet recommendation.

BUILDING CLEANING
This area includes the cleaning of the CIMH buildings including the external offices and maintenance services.

MVZ MANNHEIM MITTE GMBH

CEO: **Katrin Erk**
Coordination: **Martina Pfister**
Medical Director: **Dr. Olivera Lecei**

Medical care center for internal and family doctor medicine, psychiatry and psychotherapy and pediatric and adolescent psychiatry and psychotherapy

The medical care center is a special kind of outpatient community practice under medical supervision. Here, patients with statutory and private health insurance can be treated by doctors from various specialisms all under one roof. The objective is to enable optimal treatment pathways as a result. The medical care center has been in its new facility on Marktplatz in R 1, 1 since January 2016.

MORE DETAILED INFORMATION
Both specialists in psychiatry and pediatric and adolescent psychiatry and internal family doctors work at the medical care center. They provide their medical services independently but in close professional collaboration with the Central Institute of Mental Health. This contact with CIMH ensures constant further training of the doctors at the medical care center. The close collaboration with CIMH as the parent company and partnership with other private specialists ensure high-level medicine, good interdisciplinary and integrative collaboration and continuous further training within a university setting for employees of the medical care center.

PARTNERS
MVZ Mannheim Mitte GmbH is a facility of CIMH as a main partner. Other partners include the following private specialists in the fields of psychiatry and psychotherapy and neurology in Mannheim: Dr. med. Bernhard Bühler, Dr. med. Robert Fleischer, Dr. med. Michael Fritzinger (Center for Neurology, Downtown), Dr. med. Roland Helm, Dr. med. Eva Grips and Dr. med. Susanne Wortmann-Fleischer.

HECTOR INSTITUTE FOR TRANSLATIONAL BRAIN RESEARCH (HITBR)

CEO: **Prof. Dr. Andreas Meyer-Lindenberg**

The Hector Institute for Translational Brain Research (HITBR) was founded in December 2015 with generous funding from the foundation Hector Stiftung II. The foundation is funding a share of the charitable company for the next five years, to the tune of 7.5 million euros. The HITBR is a joint facility of the Central Institute of Mental Health, the German Cancer Research Center and the Hector Stiftung II.

It has been possible to develop stem cells from cell cultures taken from human blood, skin or hair samples for some time. In the next step, these cells, which are known as induced pluripotent stem cells (iPS), can be converted into all kinds of cells in vitro. At HITBR, it is nerve cells, also known as neurons, that are the focus of researchers' interests. They want to investigate the cellular and synaptic changes in mental health conditions in the nerve cells developed from stem cells, creating the basis for the development of new medications.

At HITBR it is mainly the mental health conditions schizophrenia, bipolar disorder, attention deficit hyperactivity disorder and autism that are being investigated. The German Cancer Research Center is providing its technology platforms such as high-throughput sequencing for the new institute to use. The research work is to be carried out by a Hector Professor of Stem Cell Research in Psychiatry to be appointed at CIMH and by two junior research groups, one based at each of the two state foundations. In this way, an institute that is unique in Europe was able to be founded with just a short preparation time.

SPECIFIC OBJECTIVES OF HITBR

- Identification of patentable new angles of therapeutic attack for severe psychiatric disorders by investigating nerve cells, neuronal networks and small, organ-like tissue cultures.
- These targets should form the basis of the development of medications by partner institutions.
- Supporting the training of a new generation of neuroscientists.

CENTER OF PSYCHOLOGICAL PSYCHOTHERAPY

The CPP Mannheim is a core facility at the Institute of Cognitive and Clinical Neuroscience sponsored by the Central Institute of Mental Health (CIMH). The development and implementation of the theoretical and outpatient program are taking place in collaboration with the Otto Selz Institute of the University of Mannheim.

CPP Mannheim serves primarily for the postgraduate scientific and professional training of psychologists as psychological psychotherapists and child and adolescent psychotherapists. The Psychological Psychotherapy with emphasis on Behavioral Therapy training courses offered by the CPP Mannheim aim to impart the current scientific knowledge, abilities and skills necessary for diagnosis and to provide psychotherapy and rehabilitation measures to patients with clinically significant emotional disorders for whom psychotherapy is indicated, including the accompanying concomitant treatments in case of physical illnesses, while taking ethical and occupational law regulations into account.

CPP Mannheim is member of the union of university courses for psychotherapy. As a non-profit organization, it has set itself the target of ensuring a close link between a state-approved training in psychotherapy and research in clinical psychology and psychotherapy which guarantees high quality and up-to-date training of psychotherapists.

NATIONALLY ACCREDITED ADVANCED TRAINING FOR PSYCHIATRIC CARE

Head: **Stephanie Amberger** (from August 2016)
Anita Schrön (until August 2015),
Christel Wagner (until March 2015)

The training facility for psychiatric care has been in existence since 1963. It was one of the first to have a two-year training course and was used as a model by other training facilities.

Psychiatric care training facilities are of particular importance to CIMH. Professional nursing places high professional and personal demands on nursing staff. Qualified training and skills development are therefore particularly important. Training sessions contribute to the quality assurance of nursing care and support the ongoing fulfilment of the social mission. High quality, innovative further specialist training makes a valuable contribution to the autonomy of the nursing profession and the transfer of nursing knowledge into nursing practice.
The team at the training facility is currently developing a new, modular curriculum that will in turn serve as a future-oriented model for further training in psychiatric care.

PERSONNEL MATTERS

2016

Two researchers at CIMH honored as "highly cited" – the most commonly cited scientists in the world

Professor Meyer-Lindenberg, Chair of the Executive Board at CIMH and Medical Director of the Clinic of Psychiatry and Psychotherapy at CIMH, was once again listed in the revised international ranking of "Highly Cited Researchers". He features in the category "neuroscience and behavior" along with 13 other researchers. Professor Marcella Rietschel, Head of the Department of Genetic Epidemiology in Psychiatry, was also included in the new version of the list of most commonly cited scientists by Clarivate Analytics. Who are the most successful and most creative scientific minds of our age? Clarivate Analytics, formerly the Intellectual Property & Science division of Thomson Reuters, looked into this question through an extensive database analysis.

Stephanie N. L. Schmidt from the Research Group on Socioaffective Neurosciences and Experimental Psychology, Department of Clinical Psychology, won a poster prize at the Robert Sommer Award Symposium 2016 for her poster entitled "The nucleus accumbens and emotion recognition".

Appointment of Emeritus Professor Karl Mann as Senior Professor at the University of Heidelberg

The appointment of Professor Mann in September 2016 makes him the first emeritus of CIMH and the Mannheim Medical Faculty to be given this honor. Until 2021 he will now undertake further research projects in the field of addiction medicine.

Lilly Neuroscience Clinical Research Award 2016 to Professor Andreas Meyer-Lindenberg

Professor Andreas Meyer-Lindenberg, Chair of the Executive Board at CIMH and Medical Director of the Clinic of Psychiatry and Psychotherapy, was awarded the Lilly Neuroscience Clinical Research Award 2016 by the International College of Neuropsychopharmacology (CINP). He was given the 10,000 dollar prize during the 30th CINP World Congress on 3 July in Seoul.

CINP is an international organization that was founded in Zurich almost 60 years ago. Its objective is to improve and promote research in the field of neuropsychopharmacology, with the ultimate aim of improving health care. The Lilly Neuroscience Clinical Research Award goes to international scientists in recognition of their excellent lifetime achievement in the field of neuropsychopharmacology. By awarding the prize, the international jury is recognizing Meyer-Lindberg's research in this field, particularly in the field of risk mechanisms for schizophrenia and depression and new therapeutic approaches to the treatment of these serious illnesses.

Professor Heinz Häfner, Founding Director of CIMH, celebrates his 90th birthday

Emeritus Professor Dr. med. Dr. phil. Dres. h.c. Heinz Häfner, Founder and Director of CIMH from its opening in 1975 until he became an emeritus professor in 1994, celebrated his 90th birthday on 20th May. Thanks to his vision of linking innovative, community-based psychiatric health care, research and teaching, the founding of the state-supported foundation became a reality in 1975 after years of preparing the way politically.

Young researcher receives North German Addiction Research Association prize

Dr. Rilana Schuster, research assistant in the Neuroenhancement working group (led by Professor Kiefer) received the 500 euros young researcher price from the North German Addiction Research Association for her paper on "Elevated methylation and decreased serum concentrations of BDNF in patients in levomethadone compared to diamorphine maintenance treatment". The Norddeutsche Suchtforschungsverbund e.V. awards a young researcher price every year with the aim of recognizing the research done by young colleagues.

Professor Andreas Meyer-Lindenberg was once again among one of the most influential scientists in the world
Professor Meyer-Lindenberg, Director and Chair of the Executive Board at CIMH and Medical Director of the Clinic of Psychiatry and Psychotherapy, was once again listed in the revised international ranking of "Highly Cited Researchers" by the Thomson Reuters Group. He features in the category "neuroscience and behavior" along with 13 other international researchers.

2015

Professor F. Markus Leweke receives the 2015 DGPPN Prize for pharmacological research
Professor Leweke (Assistant Medical Director at the Clinic of Psychiatry and Psychotherapy at CIMH) this year received the prize for pharmacological research from the German Society for Psychiatry and Psychotherapy, Psychosomatics and Neurology (DGPPN). The award ceremony took place during the DGPPN Conference on 26th November in Berlin. The prize, which is worth 14,000 euros, was handed to a CIMH scientist for the second time.

Professor Tobias Banaschewski is the new President of the Deutsche Gesellschaft für Kinder- und Jugendpsychiatrie, Psychosomatik und Psychotherapie e.V.
In November, Professor Tobias Banaschewski, Medical Director of the Clinic of Child and Adolescent Psychiatry and Psychotherapy at CIMH, was elected President of the Deutsche Gesellschaft für Kinder- und Jugendpsychiatrie, Psychosomatik und Psychotherapie e.V (German Society for Pediatric and Adolescent Psychiatry, Psychosomatics and Psychotherapy). The expert association aims to "promote research in the field of pediatric and adolescent psychiatry and psychotherapy, neurology, psychosomatics and pediatric and adolescent psychology and curative education, disseminate the results of research and make them usable to law and practice."

Dr. Robin Bekrater-Bodmann receives the 2015 promotional award for pain research
Dr. Robin Bekrater-Bodmann, Institute of Cognitive and Clinical Neuroscience, and former employees Dr. Jens Foell and Professor Martin Diers received the 2015 promotional prize for pain research in the category of clinical research (second prize) during the German Pain Conference. They were awarded second prize in the clinical research category for their work on "mirror therapy for phantom limb pain: brain changes and the role of body representation".

Professor Herta Flor receives an honorary doctorate from the Free University (VU) of Amsterdam.
Former politician Herman van Rompuy, judge Fons Orie and neuropsychologist Herta Flor were awarded in recognition of their exceptional services to science and society. In their own ways, all three of them took on social responsibility to a considerable extent and embody all of the values VU stands for. Honorary doctorates have been awarded by VU 72 times since 1930 to various personalities such as the civil rights activist Martin Luther King Jr., the architect Rem Koolhaas and the statesman Hendrik Colijn.

Professor Heinz Häfner gives the annual lecture at the Max Planck Institute for Experimental Medicine in Göttingen
At the invitation of the Max Planck Institute for Experimental Medicine in Göttingen, Professor Häfner gave the annual public lecture on "A king is dead! The deprivation of power and end of an unusual king. The background to the catastrophe of the Bavarian king in 1886" in the old town hall in Göttingen on September 17th, 2015.

Professor Herta Flor receives 1.2 million euros research funding from the German Research Foundation
As part of the well-known Reinhart Koselleck Project, the German Research Foundation (DFG) awarded funding totaling 1.2 million euros to psychologist Professor Herta Flor, Scientific Director of the Institute of Cognitive and Clinical Neuroscience at CIMH for a period of five years.

According to the German Research Foundation, Reinhart Koselleck projects provide greater scope for particularly innovative research. The funding aims to give scientists who have made proven scientific achievements the option to carry out highly innovative and positively risky projects. Professor Flor, who only recently received a prize from the German Psychological Society for her lifetime scientific achievement, will use the prize money to fund the project "body representation and sensorimotor functions modulate the reorganization of the brain and behavioral changes: from chronic pain to immobility and dementia".

HABILITATIONS

2016

Dr. med. Dusan Hirjak, Senior Physician at the Clinic of Psychiatry and Psychotherapy, graduated in October 2016 in the field of psychiatry and psychotherapy with a thesis on "structural and functional neuroanatomy of neurological soft signs"; he received the title of "Privatdozent" (Associate Professor, Priv.-Doz.).

2015

Priv.-Doz. Dr. med. Tillmann Weber, visiting scientist at CIMH, former Senior Physician at the Clinic of Dependent Behavior and Addiction Medicine, graduated with his thesis on "manipulation of the serotonin system using genetically changed mice" (subject: psychiatry and psychotherapy). The Faculty of Clinical Medicine in Mannheim gave him the title "Privatdozent".

Priv.-Doz. Dr. Martin Diers, research assistant at the Institute of Cognitive and Clinical Neuroscience at CIMH "Psychobiological mechanisms in chronic musculoskeletal pain syndromes" (subject: neuropsychology, clinical psychology and medical psychology).

Priv.-Doz. Dr. Robert Waltereit, visiting scientist at the Clinic of Psychiatry and Psychotherapy at CIMH, graduated in the field of psychiatry and psychotherapy with a thesis on "the neurobiology of cognitive disorders in psychiatric conditions"; he received the title of "Privatdozent".

ASSOCIATE PROFESSORS

2015

PD Dr. Wolfgang Sommer, Senior Physician at the Clinic of Addictive Behavior and Addiction Medicine and Head of the working group on Molecular Psychopharmacology, was made extracurricular professor in the Mannheim Medical Faculty of the University of Heidelberg in May.

APPOINTMENTS

2016

Professor F. Markus Leweke, Assistant Medical Director at the Clinic of Psychiatry and Psychotherapy accepted an offer from the University of Sydney in Australia.

2015

Professor Falk Kiefer accepted an offer to become W3 Professor of Addiction Research at the University of Heidelberg in December 2015. As part of this, as Medical Director he also took on management of the Clinic of Addictive Behavior and Addiction Medicine at CIMH, which he had been managing on a temporary basis.

SUPERVISORY BOARD

President
Hartmut Schrade
Executive Undersecretary –
Baden-Württemberg Ministry of Science,
Research and the Art

Deputy of the president
Dr. Peter Kurz
Lord Mayor of the city of Mannheim

Prof. Dr. Bernhard Eitel
Rector of Heidelberg University

Prof. Dr. Sergij Goerdt
(since October 2015)
Dean of the Medical Faculty Mannheim
of Heidelberg University

Alfred Dietenberger
Executive Undersecretary –
Baden-Württemberg Ministry of Financial
and Economic Affairs

Dr. Thilo Walker, Ministerialrat
Undersecretary – Baden-Württemberg
Ministry of Social Affairs and Integration

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