AD A138959

PHOTOGRAPH THIS SHEET

DTIC ACCESSION NUMBER

LEVEL

INVENTORY

Annual Rpt, Volume 2

DOCUMENT IDENTIFICATION

Contract DAMD17-80-C-0136 23 Oct '81

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

DISTRIBUTION STATEMENT

ACCESSION FOR	
NTIS	GRA&I
DTIC	TAB
UNANNOUNCED	
JUSTIFICATION	
BY	
DISTRIBUTION /	
AVAILABILITY CODES	
DIST	AVAIL AND/OR SPECIAL
A/1	

DISTRIBUTION STAMP

DTIC
ELECTE
MAR 1 2 1984
D

DATE ACCESSIONED

84 03 08 077

DATE RECEIVED IN DTIC

PHOTOGRAPH THIS SHEET AND RETURN TO DTIC-DDA-2

DTIC FORM OCT 79 70A

DOCUMENT PROCESSING SHEET

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Develop a Biomedical Database on the Medical Aspects of Chemical Defense		5. TYPE OF REPORT & PERIOD COVERED Annual Vol. 2 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Lawrence A. Landry		8. CONTRACT OR GRANT NUMBER(s) DAMD 17-80-C-0136
9. PERFORMING ORGANIZATION NAME AND ADDRESS Associate Consultants, Inc. 1701 K Street, N. W. Washington, D.C. 20006		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 62734A.3M162734875.AD.373
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Medical Research and Development Command Fort Detrick, Frederick, MD 21701 - ATTN: SGRD-RMS		12. REPORT DATE Oct. 1981 13. NUMBER OF PAGES 144
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

APPENDICES

CHEMICAL AGENT RETRIEVAL SYSTEM

A Comparative Analysis of Minicomputers and Large Scale Computers

Report to:

U.S. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND

DEPARTMENT OF THE ARMY

Prepared for:

ASSOCIATE CONSULTANTS, INC.

GILL ASSOCIATES, INC.

MANAGEMENT CONSULTANTS

April, 1981

TABLE OF CONTENTS

I. INTRODUCTION

This report satisfies a special request made by USAMRDC personnel for a discussion paper on the advantages and disadvantages of minicomputers versus large-scale machines. The request was made, and subsequent analysis performed, in order to help determine the best computer architecture and philosophy to be used in Phase I and Phase II implementation of the chemical agent information retrieval system.

The document addresses some of the essential differences between large machines and minicomputers as they relate to the characteristics of the applications to which they are to be applied. With this information, USAMRDC personnel (responsible for establishing information systems and computer policy) will have both justification for the use of minis in particular situations and a framework for selecting the proper data processing environment, large machine or mini, for implementing the chemical data base.

The trend toward centralization of computing was set in motion in the early 1970's when analysts found that a few large computers could do the work of several small or medium ones for less money. A perennial lack of qualified computer specialists reinforced this significant cost benefit, and the emergence of data base technology that enabled report integration on its operation further fueled the flames of centralization.

More recently, however, evidence suggests that this path is not necessarily a good one. Service levels seems to be deteriorating: users complain that data centers are lethargic and nonresponsive, and

centralization of computer facilities all too often runs against the decentralized operations preferred by many organizations. In addition, there have been difficult administrative problems in forging formal coordination and control policy for the centralized computer organization. Some of these problems could be viewed as transitional; others are more fundamental. For example, in order for centralized computing to be effective, executive management must be willing to endorse and enforce standardized data processing project development.

As a consequence of these administrative and organizational difficulties, a burdening question confronts management: Are the measurable economic benefits of centralized computing worth the side effects? Developments in minicomputer technology have dramatically changed the economic and organizational variables. Today minicomputers are available for a fraction of the cost of large computers and can be operated with less specialized support than the large ones require. This not to imply that minis are going to replace large mainframes in the near future. The implication is, however, that technology has matured to the point where the costs of using a mini for certain data processing jobs compare favorably with using a portion of the capacity of a large machine.

In order to take advantage of minicomputer technology, management must first understand its status and its potential, since it is management that must provide the initiative, the support, and the guidance for its implementation. Three areas of concern are addressed in promoting this understanding:

- Examination and assessment of the capabilities of minis as opposed to those of more familiar medium and large computers,

- Illustration of a range of options for effective use of the new technology, and
- Assimilation of mini technology into an organization outlining management action guidelines.

II. EXAMINATION AND ASSESSMENT

A minicomputer cost approximately $50,000 for a typical business application and can perform a amount of the work of computers costing $2,000,000. In Table 1, the key architecture and design characteristics of large, madium, and small computers have been outlined alongwith and assesment of the managerial significance of these differences. Data provided in this table are based upon industry averages and a representative group of computers from each category.

Two general observations can be drawn from this exhibit. First, through the minicomputer is not as "powerful" as the large or medium computer, it is suprisingly close, given the substantial price differentials. One reason for this closeness is that it has been possible to utilize new hardware technology considerably earlier in minis than in large machines because there is a smaller investment in hardware and software design for a mini. Consequently, a vendor can produce and integrate a new mini into his line much more rapidly than a large computer.

Since an important characteristic of new technology in the computer area has been rapidly decreasing cost, the price for a given amount of power in minis has been lowered consistently and quite rapidly. For example, in 1965 it cost $25,000 to purchase a machine with 4,096 16-bit words and a 2-microsecond cycle time. Because of advances made in microtechnology, by 1974 it cost only $1,990 to purchase a machine with these capabilities.

The second general observation concerns software. Large machine software is more advanced, and thus applications with substantial multiprogramming or shared multipurpose data bases require a large or medium machine. However, minicomputer manufacturers have recognized that one of their next big markets is the end-user business application, and so over the past two years they have begun to make substantial investments in software developments. As a result, it is now possible to use minicomputers as easily as it is large machines for many business applications.

In fact, it seems that the industry is now moving into an evolutionary stage where what is needed is increased investment in people for application programs and software development — not breakthrough in technology. This will become clear as the services that minis can provide, and the steps management must consider in attempting to assimilate them into the organization, are discussed.

Table 1. Technical comparison of large, medium and minicomputers

KEY COMPUTER ARCHITECTURE CHARACTERISTICS	LARGE COMPUTER	MEDIUM COMPUTER	MINICOMPUTERS	EFFECT Minicomputer vs. medium and large computers	SIGNIFICANCE Minicomputer vs. medium and large computers
HARDWARE					
Word length	32 bits (a bit is equivalent to a binary digit)	32 bits	16 bits	Size of readily addressable program or data areas is restricted. Instruction repertoire is smaller.	Efficiently implemented higher level languages are hard to provide, thus only a few exist. Large applications execute less efficiently and are harder to program.
Maximum memory size	8,400,000 bytes (a byte consists of 8 bits which provides enough binary digits to represent one numeric or alphabetic character)	524,000 bytes	262,000 bytes	Multiprogramming (the ability to execute programs simultaneously) is restricted. Substantial manipulation of large arrays of data is restricted.	The multiprogramming limitation is not significant, since minis are relatively inexpensive and can thus be dedicated to one or a few applications.
Data capacity: Memory path (width of the link between between the main memory and central processor)	64 bits	16 bits	16 bits	Execution is less efficient.	The data capacity architecture of the large computer makes it more effective for large data processing demands in a multipro-

Table 1. (cont'd)

KEY COMPUTER ARCHITECTURE CHARACTERISTICS	LARGE COMPUTER	MEDIUM COMPUTER	MINICOMPUTER	EFFECT Minicomputer vs. medium & large computers	SIGNIFICANCE Minicomputer vs. medium & large computers
Data Capacity (cont Interleaving (ability to simultaneously access more than one part of main memory)	4-way (as many as 3 input/output (I/O) channels & the central processor can be simultaneously transferring data to and from main memory)	None	None	Overlap of program execution and I/O data transfer is restricted (compared	gramming environment. The mini's power compares with the medium computer's in a dedicated data processing environment, insofar as data capacity is concerned.
Number of channels (channels operate the I/O devices)	Many	A few	One	Configuration and overlap of activity of I/O devices are restricted.	
I/O channel data (the rate that data can be transferred over all channels to main memory)	16,000,000 bytes/second	2,400,000 bytes/second	2,360,000 bytes/second	Simultaneous transfer of data from multiple I/O devices is restricted (compared with the large computer).	
Processor architecture: Central processor unit cycle time (how fast instructions can be carried out)	80 nanoseconds (1 nanosecond = 1 billionth of a second	275 nanoseconds	300 nanoseconds	Instruction execution is slower compared with large computer.	The mini is restricted to applications requiring substantial processing activity; such activity is not

Table 1. (cont'd)

KEY COMPUTER ARCHITECTURE CHARACTERISTICS	LARGE COMPUTER	MEDIUM COMPUTER	MINICOMPUTERS	EFFECT Minicomputer vs. medium and large computers	SIGNIFICANCE Minicomputer vs. medium and large computers
HARDWARE (cont'd)					
Memory cycle (how fast instructions or data can be retrieved from main memory; it should be considered together with the width of the memory path)	480 nanoseconds	800 nanoseconds	850 nanoseconds	Instruction and data transfer to memory is somewhat slower (compared with large computer).	typical of business applications.
Number of registers (an indication of more sophisticated programming)	Many	Many	Relatively few	System software development is limited.	
Number of basic instructions	Approximately 150	Approximately 140	Approximately 80	Execution is less efficient.	
SOFTWARE					
Operating systems: Batch (applications programs are submitted to computer in selfcontained units with no strict timing requirements)	Multiprogramming (batch applications are run simultaneously)	Multiprogramming	Multiprogramming (2 programs only)	Computer system resources can be sufficiently utilized	Systems software for the large and medium computer is complex and designed for multiple tasks in order to share expensive resources; this is not

Table 1. (cont'd)

KEY COMPUTER ARCHITECTURE CHARACTERISTICS	LARGE COMPUTER	MEDIUM COMPUTER	MINICOMPUTERS	EFFECT Minicomputer vs. medium and large computers	SIGNIFICANCE Minicomputer vs. medium and large computers
SOFTWARE (cont'd)					
Real time (application programs are called into operation in response to request from I/O devices	Separate telecommunications system added to other operating system	Same as for large computers	Telecommunications system is integrated with main operating system	Real time on a mini is usually dedicated to one application.	necessary for the mini since it is relatively inexpensive.
Time sharing	Supported simultaneously with other systems by addition of separate facilities	Same as for large computers	Computer must be dedicated to time sharing	Time sharing on a mini is usually dedicated to support of on-line terminals.	
Data base and file management systems	Many sophisticated systems are	Many systems are available	A few limited systems are available	Data-base systems must be largely developed in-house	Shared multipurpose data bases are hard to implement on a mini- a significant constraint if these are required.
Programming languages	All 8 major languages	All 8 major languages	Four major languages	COBOL is only gradually becoming available for some minis, which is a significant limitation for companies using COBOL as a standard language.	Language for some applications may not be perfectly appropriate, but this distinction is not critical since there are enough languages available for minis.

Table 1. (cont'd)

KEY COMPUTER ARCHITECTURE CHARACTERISTICS	LARGE COMPUTER	MEDIUM COMPUTER	MINICOMPUTERS	EFFECT Minicomputer vs. medium and large computers	SIGNIFICANCE Minicomputer vs. medium and large computers
SOFTWARE (cont'd)					
Program development aids (e.g., debugging aids, checkout compliers)	Many	Many	Limited	Programming efficiency is inhibited.	More highly skilled applications programmers are required.
Application packages (e.g., payroll, bill of materials, models)	Thousands	Thousands	Hundreds	Users must program more applications in-house.	More cost is involved in programming, if packages available for large or medium machines.
ADDITIONAL CONSIDERATIONS					
Reliability	High	High	Very high; time to fix is brief because of relative simplicity	The mini is likely to be more reliable, but the distinction is unlikely to be important for most applications.	Reliability and vendor support must be considered together.
Vendor support	Outstanding	Outstanding	Good	Caveat emptor applies to mini somewhat.	

Table 1. (cont'd)

KEY COMPUTER ARCHITECTURE CHARACTERISTICS	LARGE COMPUTER	MEDIUM COMPUTER	MINICOMPUTERS	EFFECT Minicomputer vs. medium and large computers	SIGNIFICANCE Minicomputer vs. medium and large computers
ADDITIONAL CONSIDERATION					
Purchase cost	Millions of dollars	Hundreds of thousands of dollars	Tens of thousands of dollars	Minis are substantially cheaper	Purchase and operational cost are the most significant advantages minis have over large and medium computers.
Operating requirements	Considerable amount of specially prepared space and air conditioning; operators and well-trained systems programmers required	Same as for large computers	One operator per shift, no special site preparation, good systems programmers required	Operational costs are much lower.	

Source: EDP Solutions (Datapro Research Corporation)

III. RANGE OF OPTIONS

Options for using a mini range from enhancing the service level of the data center to replacing the center entirely. Thus the options can first be thought of as being arrayed along the links between the actual user and the central computer. Second, since minis are most often devoted to just one application and are typically located near the user, this same arraying of options can also be thought of as ranging from centralized to decentralized control of the organization's EDP resources.

The relationship between these two concepts is shown in Figure 1 For disussion purposes, four basic options, ranging from using no minis to using only minis have been listed. Of course, an organization can use minis in more than one way, since these options are not mutually exclusive.

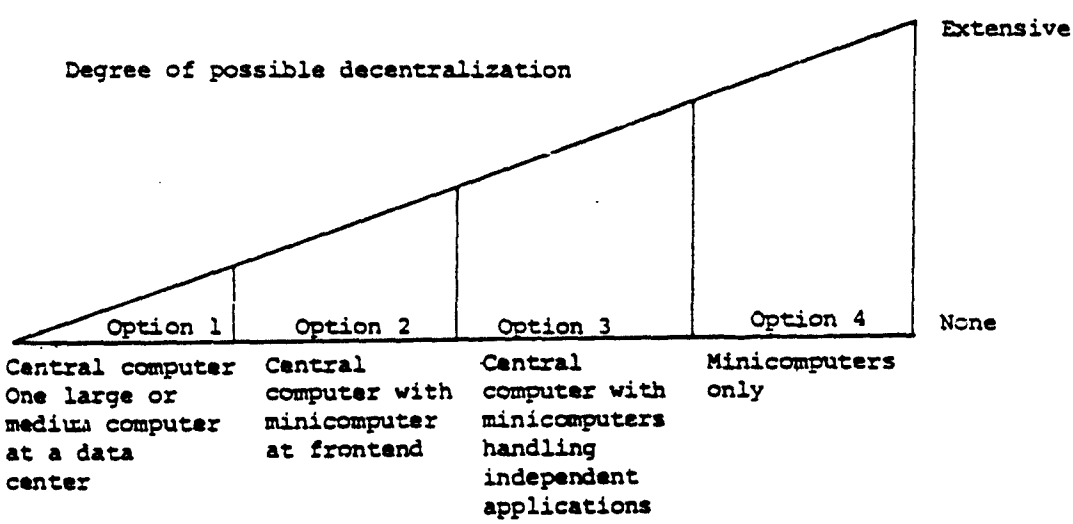

Figure 1. Computer configurations and relative degree of decentralized computing
Source: EDP Solutions (Datapro Corporation)

- Option 1 represents companies that do not use minis at all. An important issue to be raised is operational effectiveness of using one large computer for all applications. In making the decision, a company should place considerable weight on the value of separate operations for on-line and batch applications—particularly in a system that does not already have on-line applications.

- Option 2 covers not only companies that use minis as front-ends, that is, minis that handle communications between terminals and central computers, but those using other combinations of minis and large machines in computing networks as well. The idea is to use mini as the front-end of the central computer, where it can handle communications with terminals and do additional processing otherwise done on the central computer. The minicomputer could thus lower the computing load on the main machine, thereby making it available for more complex processing for which it is better suited.

- Option 3 applies to those organization in which minis handle independent applications and require no active link to the central computer. In this case, however, the mini and large machines may interchange data on a periodic basis, for instance, nightly. A distinct advantage of this option is that the performance level of mainframe suffers no deterioration as new and independent applications are added to the system. These applications can be readily absorbed by the minis.

- Option 4 represents companies using only minis. It includes those with departmental minicomputers that are tied together in networks with telephone lines to permit sharing of data and programs. This lends itself to organizations fostering a decentralized operating philosophy. The disirability of user control i promoted with this arrangement. Where applicable, some central coordination of computing may result in a degree of standardization of computer operation or software and may contribute to organizational effectiveness.

IV. ASSIMILATION OF MINICOMPUTER TECHNOLOGY

The use of minis is not necessarily an either/or proposition. Instead, management needs to determine how minis can most effectively be integrated into the overall data processing system of an organization. This determination is best made by first carrying out a high-level design for the application. Table 1 provides such a design framework to use in examining the characteristics of a mini that limit its power with respect to a large or medium machine. In particular, the primary limitations occur when the application requires either a substantial amount of processing or the establishment of a complex data base common to multiple applications.

After this analysis is completed and has shown a minicomputer to be feasible, the decision to use a mini, medium, or large computer requires a qualitative weighing of three factors:

A. Economics
B. User Control
C. Operation Effectiveness

A. Economics

Cost is perhaps the most compelling justification for using or not using a mini. There are three components of cost: software development, hardware, and operations. Software development costs for large machines and minis will generally be comparable, but the numberous commercial software packages available for large computers will often justify using a large computer for an application. In analyzing the hardware and operating costs for the large machine, the command must decide whether full costing would charge the application for all resources that it uses directly plus a proportionate share of all other resources in the system that are shared,

such as people and space. Direct costing charges the new appliacation only for the required incremental resources, such as direct use of the central processing unit and peripheral equipment. If existing computer facilities are idle because of underutilization of large machine, arguments can be made for incremental costing of a new application.

Although it may be desirable to use direct costing in some situations, it is important to recognize that there will be pressure from full-cost users to relegate direct-cost users to lower-priority computer time and to suspend them during periods of high load on the large machine. In addition, as the computer needs of a command grow, it may require a larger machine. The direct-cost user will have contributed to making the load heavy enough to justify a new machine and may then have to be charged full instead of direct costs. Thus using direct costing has some pitfalls and must be viewed cautiously.

B. USER CONTROL

The mini allows the user to be independent of other programs on the main computer. In addition, the user of the mini is free from concern about the computer center's need to keep its machine operational and upgrade its capabilities to meet increasing loads. These issues may arise when some users of the large machine have a heavy, high priority load that interferes with the needs of other users. This situation is particularly frustrating when one division is particularly frustrating when one division controls the central computer. (This same problem occurs for small or medium-sized organizations that utilize a service bureau.) The user with his own mini will not suffer from interruptions of this type. Independence is also particularly useful for a user when there are response time constraints, since response will be fully under the user's control.

C. OPERATIONAL EFFECTIVENESS

For substantially decentralized operations, today's economical mini may be more practical and far less disruptive than larger machines for in-house data processing. The mini can help relieve the complexity of the operational load on the central computer. With this simpler enviornment (particularly with on-line systems), the data processing center will require less systems programming talent, which may be shifted to serve users' needs directly.

V. GUIDELINES

Minicomputer technology has now matured to the stage where management can harness its economic and organization potential. Management's responsibility is to develop an understanding of the appropriate way to integrate minicomputers into the organization. Each should carefully assess its data processing system in terms of where it is going and how, and it should inspect the opportunities for taking advantage of minicomputers.

The data processing staff should build a good understanding of the use and programming of minis. Over a three-year horizon this understanding should evolve so that all computer designers and programmers are equally comfortable using large or small machines. Thus for the long run it is inappropriate to separate the computer staff into minicomputer and large machine programmers. However, in order to get this learning started, it will be necessary to build an understanding of minis in the computer staff, and such a separation may initially be necessary.

To provide leadership to engender an appropriate environment and policy superstructure for incorporating minicomputer technology, top management should take the following actions:

- Direct the EDP manager to acquire and build minicomputer technology capability by integrating technical systems and applications expertise into the current staff.
- Establish a policy to include minicomputer options among alternatives for all new major applications.
- Look for an opportunity to use a mini for the computing needs of a small, independent division, for instance, one that refuses to participate in the central computer utility.

This could also be an opportunity for the entire command to gain valuable experience.

- Establish a central function to study and promulgate minicomputer standards for hardware, software, applications development, and data bases. This is a very important function to keep under control when computer systems are being decentralized.

VI. SUMMARY

Although the cost of mini computers itself is low, the total computing facility is not only the CPU. The peripheral devices for the mini computers are still costly. Also, the cost of software supplied by the manufacturer and that to be developed by the user has to be considered. Hence, when the cost comparison between a minicomputer and mainframe alternative is to be done, the comparison must include the total cost The comparison should include not only the dollar figure, but non-tangibles such as dependability and "after-sales" customer service from the supplier as well. In general, customer service has been better from manufacturers of mainframes.

In conclusion the decision to use minicomputers, or mainframes or a combination of these will depend on the particular application under consideration. Certain applications will be definitely suited for minicomputers; while for others, mainframes will be the certain solution.

In light of the chemical information retrieval system the volume of data anticipated for Phase II implementation essentially dictates the use of a large machine because of the current storage limitations of peripherals (specially disk units) associated with minicomputers. In addition large machines would better allow for system expandibility. In the more likely event that new or related applications are desired, these machines could accommodate future enhancements with less regard to technical questions of space and specific programmer talent. There will be many problems or applications where whether to use mini, mainframe, or a combination of these may not be so obvious. In such situations, a thorough study of present requirements and future

requirements along with what is available and what is going to be available should be made before making the final choice.

Chemical Agent Retrieval System
Procedures for Completing the Unit Record Coding Form

FIELD NAME	PROCEDURE
Action Code	Circle the code designating the status of the form to be processed as follows: To add a new record to the date base: 1. Circle Action Code 1 2. Enter Accession Number 3. Fill in all applicable data fields To change/update a record in the database: 1. Circle Action Code 2 2. Enter Accession Number 3. Complete only the field to be changed To delete a record from the database: 1. Circle Action Code 3 2. Enter Accession Number
Accession Number	Enter the unique identifying number assigned to each unit record.
Distribution Status	Enter the code designation for the distribution of the report. L - Limited UL - Unlimited US - U.S. NUS - Non-U.S. M - Military NM - Non-military
Security Classification	Enter the letter code that designates the security classification assigned to each document. The code designation are as follows: U - Unclassified C - Confidential S - Secret R - Restricted N - NATO

FIELD NAME	PROCEDURE
Country Code	Look up the code designation for the country where the work or research was performed in Country Code Table shown in Table 1. Record the code on the coding form.
Number of Fiche	Leave field blank on forms coded for the initial creation of the database. When the system is fully operation 1, enter the figure for the total number of fiche on which the abstract is stored.
Language Code	Enter the code for the language of the article being abstracted. See Table 2 for Language Code designations.
Document Type	Enter the coding for the type of source of the document. Code designations are as follows: J - Journal B - Book R - Report P - Patent T - Translation
Number of Pages	Enter total number of pages for the source document.
Publication Year	Enter the year the document was published. For documents having a publication date of more than one year, enter the range, e.g., 1971-1972.
Volume Number	Enter the volume number of the source document, if applicable.
Issue Number	Enter the issue number of the source document, if applicable.

FIELD NAME	PROCEDURE
Number of Graphics	Count the number of graphics, illustrations and tables in the document being abstracted. Enter the number in the field.
Fiche Number	Enter the fiche number assigned to the abstract. (This will not be assigned during the initial processing for creation of the database.)
Task Number	Enter the unique number identifying the task being performed.
Project Number	Enter the unique project number for the project.
Review	Enter "R" if the article is a review. Otherwise leave blank.
Page Range	Enter the page range for the project.e.g., 1170 -1192 .
Number of References	Count the number of references in the bibliography. Enter the number in the field.
Report Number	Enter the unique report number(s) assigned to the document. A maximum of four (4) numbers can be coded.
CAS Registry Number	Enter the unique numbers assigned by the Chemical Abstract Service to a chemical compound. A maximum of 30 numbers can be coded.
Grant/Contract Number	Enter the identifying number under which the research was funded.
Custodian	Code for unpublished material only. Enter the name of the person or organization responsible for the unpublished material.

FIELD NAME	PROCEDURE
Editor	Enter the name(s) of the Editor of the document book or conference.
Author	Enter the name(s) of the author of the document in last name - first name - middle initial order. A maximum of 10 authors can be coded. Separate coding fields are provided for each author.
Location/Repository	Enter the name of the place where the unpublished material is being held. Enter the city name, state or country (State of U.S. location, Country for non-U.S. location)
Index Terms/Keywords	Code the keywords developed from the article by the Abstractors
Affiliation	Enter the name of the institution where the ~~work was performed by~~ the author(s). Enter - Name of Institution - City and State or Country
Source Title	Enter the name of the document- book, journal, etc. - in which the article was published.
Performing Organization	Enter the following for the organization where the research was conducted: - Name of Organization - Street address (if applicable) - City - State or Country
Sponsoring Organization	Enter the following data of the organization for whom the research was performed: - Name of Organization - Street address (if applicable) - City - State or Country

FIELD NAME	PROCEDURE
Title of Article or Document	Enter the title of heading of the article or document being abstracted.
Comment	Enter any special comments related to the project, such as reference to related articles.
Abstract/Digest	Type the full text of the digest or abstract to be stored in the system. A maximum of 4,500 characters are allowed.

TABLE 1

LISTING OF COUNTRY CODES

AC	ANTIGUA
AF	AFGHANISTAN
AG	ALGERIA
AL	ALBANIA
AN	ANDORRA
AO	ANGOLA
AQ	AMERICAN SAMOA
AR	ARGENTINA
AS	AUSTRALIA
AT	ASHMORE AND CARTIER ISLANDS
AU	AUSTRIA
AV	ANGUILLA
AY	ANTARCTICA
BA	BAHRAIN
BB	BARBADOS
BC	BOTSWANA
BD	BERMUDA
BE	BELGIUM
BF	BAHAMAS, THE
BG	BANGLADESH
BH	BELIZE
BL	BOLIVIA
BM	BURMA
BP	SOLOMON ISLANDS
BQ	NAVASSA ISLAND
BR	BRAZIL
BT	BHUTAN
BU	BULGARIA
BV	BOUVET ISLAND
BX	BRUNEI
BY	BURUNDI
BZ	GERMANY BERLIN
CA	CANADA
CB	KAMPUCHEA
CD	CHAD
CE	SRI LANKA
CF	CONGO
CG	ZAIRE
CH	CHINA
CI	CHILE
CJ	CAYMAN ISLANDS
CK	COCOS (KEELING) ISLANDS
CM	CAMEROON
CN	COMOROS
CO	COLOMBIA
CQ	NORTHERN MARIANA ISLANDS
CR	CORAL SEA ISLANDS
CS	COSTA RICA
CT	CENTRAL AFRICAN REPUBLIC
CU	CUBA
CV	CAPE VERDE
CW	COOK ISLANDS
CY	CYPRUS
CZ	CZECHOSLOVAKIA
DA	DENMARK
DJ	DJIBOUTI
DM	BENIN
DO	DOMINICA
DR	DOMINICAN REPUBLIC
EC	ECUADOR
EG	EGYPT
EI	IRELAND
EK	EQUATORIAL GUINEA
ES	EL SALVADOR
ET	ETHIOPIA
FA	FALKLAND ISLANDS
FG	FRENCH GUIANA
FI	FINLAND
FJ	FIJI
FO	FAROE ISLANDS
FP	FRENCH POLYNESIA
FR	FRANCE
FS	FRENCH SOUTHERN AND ANTARCTIC LANDS
GA	GAMBIA, THE
GB	GABON
GC	GERMAN DEMOCRATIC REPUBLIC
GE	GERMANY, FEDERAL REPUBLIC OF
GH	GHANA
GI	GIBRALTAR
GJ	GRENADA
GL	GREENLAND
GN	GUERNSEY
GP	GUADELOUPE
GQ	GUAM
GR	GREECE
GT	GUATEMALA
GV	GUINEA
GY	GUYANA
GZ	GAZA STRIP
HA	HAITI
HK	HONG KONG
HM	HEARD ISLAND AND MCDONALD ISLANDS
HO	HONDURAS
HU	HUNGARY
IC	ICELAND
ID	INDONESIA
IM	MAN, ISLE OF
IN	INDIA
IO	BRITISH INDIAN OCEAN TERRITORY
IQ	U.S. MISCELLANEOUS PACIFIC ISLANDS
IR	IRAN
IS	ISRAEL
IT	ITALY
IV	IVORY COAST
IY	IRAQ-SAUDI ARABIA NEUTRAL ZONE
IZ	IRAQ
JA	JAPAN
JE	JERSEY
JM	JAMAICA
JN	JAN MAYEN
JO	JORDAN
JQ	JOHNSTON ATOLL
KE	KENYA
KN	KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF
KR	KIRIBATI
KS	KOREA Republic of
KT	CHRISTMAS ISLAND
KU	KUWAIT
LA	LAOS
LE	LEBANON
LI	LIBERIA
LS	LIECHTENSTEIN
LT	LESOTHO
LU	LUXEMBOURG
LY	LIBYA
MA	MADAGASCAR
MB	MARTINIQUE
MC	MACAU
MG	MONGOLIA
MH	MONTSERRAT
MI	MALAWI
ML	MALI
MN	MONACO
MO	MOROCCO
MP	MAURITIUS
MQ	MIDWAY ISLANDS
MR	MAURITANIA
MT	MALTA
MU	OMAN
MV	MALDIVES
MX	MEXICO
MY	MALAYSIA
MZ	MOZAMBIQUE
NA	NETHERLANDS ANTILLES
NC	NEW CALEDONIA
NE	NIUE
NF	NORFOLK ISLAND
NG	NIGER
NH	VANUATU
NI	NIGERIA
NL	NETHERLANDS
NO	NORWAY
NP	NEPAL
NQ	TRUST TERRITORY OF THE PACIFIC ISLANDS
NR	NAURU
NS	SURINAME
NU	NICARAGUA
NZ	NEW ZEALAND
PA	PARAGUAY
PC	PITCAIRN ISLANDS
PE	PERU
PF	PARACEL ISLANDS
PG	SPRATLY ISLANDS
PK	PAKISTAN
PL	POLAND
PM	PANAMA
PO	PORTUGAL

PP	PAPUA NEW GUINEA
PU	GUINEA-BISSAU
QA	QATAR
RE	REUNION
RO	ROMANIA
RP	PHILIPPINES
RQ	PUERTO RICO
RW	RWANDA
SA	SAUDI ARABIA
SB	ST. PIERRE and MIQUELON
SC	SAINT CHRISTOPHER-NEVIS-ANGUILLA
SE	SEYCHELLES
SF	SOUTH AFRICA
SG	SENEGAL
SH	ST. HELENA
SL	SIERRA LEONE
SM	SAN MARINO
SN	SINGAPORE
SO	SOMALIA
SP	SPAIN
ST	ST. LUCIA
SU	SUDAN
SV	SVALBARD
SW	SWEDEN
SY	SYRIA
SZ	SWITZERLAND
TC	UNITED ARAB EMIRATES
TD	TRINIDAD and TOBAGO
TH	THAILAND
TK	TURKS and CAICOS ISLANDS
TN	TONGA
TO	TOGO
TP	SAO TOME and PRINCIPE
TS	TUNISIA
TU	TURKEY
TV	TUVALU
TW	TAIWAN
TZ	TANZANIA, UNITED REPUBLIC OF
UG	UGANDA
UK	UNITED KINGDOM
UR	UNION OF SOVIET SOCIALIST REPUBLICS
US	UNITED STATES
UV	UPPER VOLTA
UY	URUGUAY
VC	ST. VINCENT and the GRENADINES
VE	VENEZUELA
VI	BRITISH VIRGIN ISLANDS
VM	VIETNAM
VQ	VIRGIN ISLANDS
VT	VATICAN CITY
WA	NAMIBIA
WF	WALLIS AND FUTUNA
WQ	WAKE ISLAND
WZ	SWAZILAND
YE	YEMEN (SANA)
YO	YUGOSLAVIA
YS	YEMEN (ADEN)
ZA	ZAMBIA
ZI	ZIMBABWE

TABLE 2

LANGUAGE CODE TABLE - Partial Listing

ENGLISH	ENG
FRENCH	FRE
GERMAN	GER
ITALIAN	ITA
LATIN	LAT
POLISH	POL
RUSSIAN	RUS
SPANISH	SPA

NOTE: Code consists of first three letters of the name of the language of the article being abstracted.

Appendix C

Ten Sample Unit Records

ITEM 109

ACCESSION NUMBER :00000229
DISTRIBUTION STATUS :UL
SECURITY CLASS :U
COUNTRY CODE :US
NO. OF FICHE :0
LANGUAGE CODE :ENG
DOCUMENT TYPE :J
NO. OF PAGES :7
PUBLICATION YEAR :1966
VOLUME NUMBER :8
NO. OF GRAPHICS :4
FICHE LOCATOR :0
PAGE RANGE :533-539
NO. OF REFERENCES :9
AUTHORS :
LOOMIS TED A
JOHNSON DENNIS D
CAS REGISTRY NUMBERS :
96-64-0
67-68-5
76-03-9
50-06-6
55-48-1
51-84-3
INDEX TERMS :
AGING
SOMAN
NEUROMUSCULAR FUNCTION
OXIMES
DIMETHYL SULFOXIDE
PHOSPHONYLATION
ACETYLCHOLINESTERASE
RATS (SPRAGUE-DAWLEY)
PENTOBARBITAL
ANTERIOR TIBIAL MUSCLE
SCIATIC NERVE
ISOTONIC CONTRACTIONS
STIMULATION
ATROPINE SULFATE
NUCLEOPHILIC OXIMES
REACTIVATION
SOMAN-INHIBITED ACHE
TMB-4
TCIA
PI50

ENZYMES
TEMPERATURE
DMSO
POTENTIATED TWITCH RESPONSE
TETANIC RESPONSE BLOCKADE
ACETYLCHOLINE
TWITCH RESPONSE
TETANIC RESPONSE
CHOLINESTERASE
N-METHYLPYRIDINE 2-ALDOXIME TRICHLOROACETATE
AFFILIATION :
DEPARTMENT OF PHARMACOLOGY, SCHOOL OF MEDICINE, UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON 98105
SOURCE TITLE :TOXICOLOGY AND APPLIED PHARMACOLOGY
PERFORMING ORGANIZATION :
DEPARTMENT OF PHARMACOLOGY, SCHOOL OF MEDICINE, UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON 98105
SPONSORING ORGANIZATION :
DEPARTMENT OF PHARMACOLOGY, SCHOOL OF MEDICINE, UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON 98105
TITLE (DOCUMENT) :
AGING AND REVERSAL OF SOMAN-INDUCED EFFECTS ON NEUROMUSCULAR FUNCTION WITH OXIMES IN THE PRESENCE OF DIMETHYL SULFOXIDE
ABSTRACT/DIGEST :
THE CURRENT SERIES OF EXPERIMENTS STUDIED THE ROLE OF THE AGING PROCESS IN THE FAILURE OF OXIMES TO INDUCE RECOVERY OF SOMAN-INHIBITED NEUROMUSCULAR FUNCTION, AND TO REACTIVATE THE SOMAN-INDUCED PHOSPHONYLATED ACETYLCHOLINESTERASE. STUDIES WERE CONDUCTED ON 300-500 G SPRAGUE-DAWLEY RATS ANESTHETIZED WITH 30 MG/KG PENTOBARBITAL, I.P. THE ANTERIOR TIBIAL BRANCH OF THE LEFT SCIATIC NERVE WAS ARRANGED FOR STIMULATION AND FOR RECORDING OF ISOTONIC CONTRACTIONS OF THE CORRESPONDING ANTERIOR TIBIAL MUSCLE AS OBTAINED FROM A LINEAR TRANSFORMER. STIMULUS VOLTAGE WAS ALWAYS SUPRAMAXIMAL (0.6 V, 4-MSEC DURATION). EACH ANIMAL WAS PRETREATED WITH 1 MG/KG ATROPINE SULFATE I.V. TWO NUCLEOPHILIC OXIMES WERE USED FOR REACTIVATION OF SOMAN-INHIBITED ACHE: 1,1'-TRIMETHYLENEBIS (4-FORMYLPYRIDINIUM) DIOXIME DICHLORIDE (TMB-4) AND N-METHYLPYRIDINE 2-ALDOXIME TRICHLOROACETATE (TCLA). THE SOMAN PREPARATION HAD A PI50 OF 10.2, AND WHEN ADDED TO THE ENZYME IN THE PRESENCE OF THE BUFFER AND ALLOWED TO STAND AT ROOM TEMPERATURE FOR 1, 5, 10, AND 15 MIN, APPROXIMATELY 50% INHIBITION OF THE ENZYME OCCURRED. HOWEVER, WHEN TCLA WAS ADDED IN FINAL CONCENTRATION OF 1.7 X 10(EXP-5) M AT 2, 5, OR 10 MIN AFTER INCUBATION OF THE SOMAN-ENZYME MIXTURE AT ROOM TEMPERATURE, APPROXIMATELY 50% OF THE SOMAN-INHIBITED ENZYME WAS REACTIVATED

IF THE TCLA WAS ADDED IMMEDIATELY OR WITHIN 2 MIN AFTER ADDITION OF THE SOMAN INHIBITION. THE DOSE OF SOMAN, WHICH PRODUCED 90% (2.7 X 10(EXP-8) M), DID NOT REACTIVATE ENZYME. TWELVE ANIMALS EACH RECEIVED 0.09 MG/KG SOMAN, I.V., AND GROUPS OF THREE WERE GIVEN 10 MG/KG TMB-4 PLUS 0.5 ML/KG DMSO I.V., AT EACH OF FOUR DIFFERENT TIME INTERVALS (1.5, 5, 10, or 15 MIN) FOLLOWING SOMAN. WHEN TMB-4-DMSO WAS ADMINISTERED AT 1.5-5 MIN AFTER SOMAN, COMPLETE RECOVERY OF NEUROMUSCULAR FUNCTION OCCURRED. ADMINISTRATION 10 MIN AFTER SOMAN RESULTED IN PARTIAL RECOVERY, 15 MIN FOLLOWING SOMAN THE MIXTURE PRODUCED BLOCKADE OF THE POTENTIATED TWITCH RESPONSE, BUT NO RECOVERY OF TETANIC RESPONSE. DMSO ALONE HAD ONLY MINOR NEUROMUSCULAR EFFECTS. CONTROL DOSES OF ACETYLCHOLINE (ACH), 0.1 UG/KG, I.V., PRODUCED NO EFFECT ON THE TWITCH RESPONSE, WHEN A 0.06-0.09 MG/KG, I.V. DOSE OF SOMAN WAS ADMINISTERED, BLOCKADE OF TETANIC RESPONSE WAS EVIDENT, BUT 10 MG/KG I.V. TMB-4 PLUS 0.5 ML/KG DMSO INDUCED RECOVERY. THE CONTROL DOSE OF ACH WAS WITHOUT EFFECT, INDICATING REACTIVATION OF A CHOLINESTERASE MECHANISM. AFTER 60 MIN, INJECTION OF ACH RESULTED IN A PROLONGED EFFECT MANIFESTED AS IMPAIRMENT OF THE TWITCH. THE REACTIVATION OF ACHE BY TMB-4-DMSO IS TEMPORARY AND MAY INVOLVE ENHANCEMENT OF TRANSFER OF THE OXIME BY DMSO TO THE SITE OF THE SOMAN-INHIBITED ENZYME.

BASIS KEY :109
RECORD SECURITY :0

ITEM 28

ACCESSION NUMBER :00000343
DISTRIBUTION STATUS :UL
SECURITY CLASS :U
COUNTRY CODE :US
NO. OF FICHE :0
LANGUAGE CODE :ENG
DOCUMENT TYPE :R
NO. OF PAGES :12
PUBLICATION YEAR :1972
NO. OF GRAPHICS :1
FICHE LOCATOR :0
PROJECT NUMBER :1W662710AD2502
NO. OF REFERENCES :19
REPORT NUMBERS :
AD741015
EASP 1100-6
AUTHORS :
THOMAS NORMAN C
FLEISHER JOSEPH H
HARRIS LARREL W
CAS REGISTRY NUMBERS :
96-64-0
306-44-5
55-92-5
51-84-3
7558-80-7
76-03-9
INDEX TERMS :
PINACOLYL METHYLPHOSPHONATE
SOMAN-PHOSPHONYLATED ACETYLCHOLINESTERASE
RADIOACTIVITY
PHOSPHORUS
ORGANOPHOSPHATE INTOXICATION
INTOXICATION
ACETYLCHOLINESTERASE
SOMAN
METHYLPHOSPHONATE
TISSUE
DOGS
BRAIN
CAUDATE NUCLEUS
THALAMUS
MEDULLA
HIPPOCAMPUS

CEREBRAL CORTEX
CEREBELLAR CORTEX
REACTIVITY
AGING
MINA
DOZERYTHROCYTE ACHE
DEALKYLATION
ACETYL-BETA-METHYLCHOLINE
DOG BRAIN HOMOGENATES
ACETYLCHOLINE
SODIUM PHOSPHATE
ACETYLCHOLINE IODIDE
INHIBITION
RADIOPHOSPHORUS
BRAIN HOMOGENATES
ALIQUOTS
TRICHLOROACETIC ACID
BOVINE ALBUMIN
METHYL 32-P PHOSPHONATE
PINACOLYL METHYL 32-P PHOSPHONATE
PHOSPHONYLATED
AFFILIATION :
DEPARTMENT OF THE ARMY, EDGEWOOD ARSENAL, BIOMEDICAL LABORATORY, EDGEWOOD ARSENAL, MD 21010
PERFORMING ORGANIZATION :
DEPARTMENT OF THE ARMY, EDGEWOOD ARSENAL, BIOMEDICAL LABORATORY, EDGEWOOD ARSENAL, MD 21010
SPONSORING ORGANIZATION :
DEPARTMENT OF THE ARMY, EDGEWOOD ARSENAL, BIOMEDICAL LABORATORY, EDGEWOOD ARSENAL, MD 21010
TITLE (DOCUMENT) :
UTILIZATION OF [(EXP32)P] SOMAN FOR MEASUREMENT OF ACETYLCHOLINESTERASE IN BRAIN TISSUES
COMMENT :SEE ALSO ACC # 0342
ABSTRACT/DIGEST :
DTIC VERIFIED FACSIMILE OF:THOMAS, N. C., FLEISHER, J. H., AND HARRIS, L. W., UTILIZATION OF [(EXP32)P] SOMAN FOR MEASUREMENT OF ACETYLCHOLINESTERASE IN BRAIN TISSUES. BIOCHEM BIOPHYS. ACTA, 235:542-547, 1971. DTIC DATE: 1972.
BASIS KEY :28
RECORD SECURITY :0

ITEM 66

ACCESSION NUMBER :00000062
DISTRIBUTION STATUS :UL
SECURITY CLASS :U
COUNTRY CODE :NL
NO. OF FICHE :0
LANGUAGE CODE :ENG
DOCUMENT TYPE :J
NO. OF PAGES :11
PUBLICATION YEAR :1957
VOLUME NUMBER :26
NO. OF GRAPHICS :10
FICHE LOCATOR :0
PAGE RANGE :29-39
NO. OF REFERENCES :20
AUTHORS :
COHEN J A
WARRINGA M G P J
CAS REGISTRY NUMBERS :
77-81-6
107-44-6
96-64-0
55-91-4
7439-96-5
INDEX TERMS :
TABUN
SARIN
SOMAN
DFP
HOG
KIDNEY
DFP-ASE
ETHYLMETHANEFLUOROPHOSPHONATE
PROPYL-1-2-ETHANEFLUOROPHOSPHONATE
(2-2-DIMETHYL PROPYL)-1-METHANEFLUOROPHOSPHONATE
NERVE GAS
ANTICHOLINESTERASE POISONING
RATS
MANGANESE
PROTEINS
METAL IONS
COFACTORS
FLUOROPHOSPHORIC ACIDS
CYCLOHEXYL METHANEFLUOROPHOSPHONATE

PROPYL-1-METHANEFLUOROPHOSPHONATE
(2-2-DIMETHYLPROPYL)-1-METHANEFLUOROPHOSPHONATE
PROPYL-2 ETHANEFLUOROPHOSPHONATE
PROPYL-1-2-ISOPROPANE FLUOROPHOSPHONATE
PROPYL-1-2-CYCLOHEXANE FLUOROPHOSPHONATE
HYDROLYSIS
INHIBITION OF HYDROLYSIS
ELECTROPHORETIC PRODUCT
CHOLINE ESTERS

AFFILIATION :
MEDICAL BIOLOGICAL LABORATORY OF THE NATIONAL DEFENCE RESEARCH COUNCIL T.N.O., RIJSWIJK, Z.H. (THE NETHERLANDS)

SOURCE TITLE :BIOCHIM. BIOPHYS. ACTA

PERFORMING ORGANIZATION :
MEDICAL BIOLOGICAL LABORATORY OF THE NATIONAL DEFENCE RESEARCH COUNCIL T.N.O., RIJSWIJK, Z.H. (THE NETHERLANDS)
SPONSORING ORGANIZATION :
MEDICAL BIOLOGICAL LABORATORY OF THE NATIONAL DEFENCE RESEARCH COUNCIL T.N.O., RIJSWIJK, Z.H. (THE NETHERLANDS)

TITLE (DOCUMENT) :
PURIFICATION AND PROPERTIES OF DIALKYLFLUOROPHOSPHATASE

ABSTRACT/DIGEST :
INTEREST IN NERVE GASES (TABUN, SARIN AND SOMAN) AND RELATED COMPOUNDS LIKE DIISOPROPYLPHOSPHOROFLUORIDATE (DFP), TOGETHER WITH GROWING THERAPEUTIC, DIAGNOSTIC, AND AGRICULTURAL USES OF SIMILAR CHEMICALS AS INSECTICIDES, HAS FOCUSED ATTENTION ON METABOLISM IN MAN. BASED UPON FRACTIONATION OF HOG KIDNEY EXTRACTS WITH ALCOHOL, A DFP-ASE ENZYME PREPARATION B(SUB1)) WAS FOUND TO BE 100-150 TIMES MORE PURE THAN THE ORIGINAL KIDNEY HOMOGENATE AND 2 6 TIMES MORE PURE THAN FRACTION A. FLUOROPHOSPHATASE (DFP-ASE) ACTIVITY WAS ASSESSED BY THE WARBURG METHOD: ACTIVATION OF DFP-ASE. MANGANESE CHLORIDE PRODUCED MARKED ACTIVATION. INHIBITION OF DFP-ASE. P-CHLOROMECURIBENZOIC ACID (PCP) IN A CONCENTRATION OF 1.66 x 10(EXP-5) PRODUCED 50% INHIBITION ON INCUBATION AT 37 DEGREES C FOR 15 MIN. INHIBITION WAS REVERSED BY INCUBATING THE ENZYME WITH 10(EXP-3)M CYSTEINE. SPECIFICITY OF DFP-ASE WAS INVESTIGATED FOR A LARGE NUMBER OF COMPOUNDS: (1) ETHYLMETHANEFLUOROPHOSPHONATE, (2) PROPYL-1-METHANEFLUOROPHOSPHONATE, (3) SARIN, (4) (2-2-DIMETHYLPROPYL)-1-METHANEFLUOROPHOSPHONATE, (5) SOMAN, (6) CYCLOHEXYL METHANEFLUOROPHOSPHONATE, (7) PROPYL-2-ETHANEFLUOROPHONATE, (8) PROPYL-2-ISOPROPANE FLUOROPHOSPHONATE, AND (10) TABUN. HYDROLYSIS WAS STRONGLY ACTIVATED BY TABUN AND DFP, BUT NOT BY COMPOUNDS 1-9 EXCEPT COMPOUND 2. FOR ALL OTHER COMPOUNDS, MANGANESE CAUSED INHIBITION OF HYDROLYSIS. ACTIVATION WAS OBSERVED IN ALL COMPOUNDS EXCEPT SOMAN COMPOUNDS 6 AND 9 WHEN MANGANESE AND FRACTION G (AN

ELECTROPHORETIC PRODUCT WITH DFP-ASE ACTIVITY) WERE ADDED. CHOLINE ESTERS IN HIGH CONCENTRATION CAUSED INHIBITION OF DFP HYDROLYSIS BY DFP-ASE. HOMOGENEITY OF DFP-ASE IN B PREPARATIONS. IN B PREPARATIONS, ONE AND THE SAME ENZYME IS PROBABLY RESPONSIBLE FOR THE HYDROLYSIS OF THE ESTERS OF FLUOROPHOSPHONIC AND FLUORO-PHOSPHORIC ACIDS. IT IS UNCERTAIN WHETHER THE SAME ENZYME IS RESPONSIBLE FOR TABUN HYDROLYSIS. EXPERIMENTAL TREATMENT OF ANTI-CHE POISONING CONDITIONS ONLY ALLOWS CONCLUSIONS PERTAINING TO PROPYLAXIS AND NOT THERAPY. ONLY A PREPARATIONS HAVE BEEN USED. FEMALE RATS (110-160(SUBG)) RECEIVED 1 ML, I.V., DFP-ASE FOLLOWED 1-3 MIN BY LETHAL S.C. DOSE OF 4 MG/KG DFP OR 400-500 UG/KG SARIN. OF 23 TREATED ANIMALS, 18 SURVIVED. ALL 16 UNTREATED CONTROLS DIED. TREATMENT SAVED 16 OF 38 SARIN-POISONED RATS, AND KILLED 17 OUT OF 18 CONTROLS. MANGANESE HAD NO EFFECT ON SURVIVAL. IT WAS CONCLUDED THAT THE ACTIVITY CRUDE HOMOGENATES OF DFP-ASE CANNOT BE PROPERLY ASSESSED BECAUSE OF THE MULTIPLE ENZYMES OF RELATED SPECIFICITY, OTHER PROTEINS, METAL IONS, COFACTORS, AND INHIBITORS.

BASIS KEY :66
RECORD SECURITY :0

ITEM 120

ACCESSION NUMBER :00000291
DISTRIBUTION STATUS :UL
SECURITY CLASS :U
COUNTRY CODE :NL
NO. OF FICHE :0
LANGUAGE CODE :ENG
DOCUMENT TYPE :J
NO. OF PAGES :4
PUBLICATION YEAR :1966
VOLUME NUMBER :2
NO. OF GRAPHICS :2
FICHE LOCATOR :0
PAGE RANGE :989-992
NO. OF REFERENCES :9
AUTHORS :
POLAK R L
MEEKS MARIA M
CAS REGISTRY NUMBERS :
51-84-3
51-55-8
96-64-0
7782-44-7
124-38-9
55-48-1
7447-40-7
64-47-1
INDEX TERMS :
BRAIN TISSUE
ANTICHOLINESTERASE
ACETYLCHOLINE
ATROPINE
RAT BRAIN
CORTICAL SLICES
SOMAN
KREBS SOLUTION
OXYGEN
CARBON DIOXIDE
DORSAL LEECH MUSCLE
INCUBATION
ATROPINE SULFATE
POTASSIUM CHLORIDE
ESERINE SULFATE
AFFILIATION :
MEDICAL BIOLOGICAL LABORATORY OF THE NATIONAL DEFENSE RESEARCH ORGANIZATION TNO, LANGE KLEIWEG 139, RIJSWIJK (Z.H.), THE NETHERLANDS

SOURCE TITLE :BIOCHEMICAL PHARMACOLOGY

PERFORMING ORGANIZATION :

MEDICAL BIOLOGICAL LABORATORY OF THE NATIONAL DEFENSE RESEARCH ORGANIZATION TNO, LANGE KLEIWEG 139, RIJSWIJK (Z.H.), THE NETHERLANDS

SPONSORING ORGANIZATION :

MEDICAL BIOLOGICAL LABORATORY OF THE NATIONAL DEFENSE RESEARCH ORGANIZATION TNO, LANGE KLEIWEG 139, RIJSWIJK (Z.H.), THE NETHERLANDS

TITLE (DOCUMENT)

THE INFLUENCE OF ATROPINE ON THE RELEASE AND UPTAKE OF ACETYLCHOLINE BY THE ISOLATED CEREBRAL CORTEX OF THE RAT

ABSTRACT/DIGEST :

BRAIN TISSUE BROUGHT IN CONTACT WITH ANTICHOLINESTERASE AGENTS RELEASES ACETYLCHOLINE (ACH) INTO ITS SURROUNDINGS. THE PRESENT STUDY INVESTIGATED THE INFLUENCE OF ATROPINE ON THE IN VITRO RELEASE AND UPTAKE OF ACH BY RAT BRAIN. RAT CORTICAL SLICES (150 MG, 0.4 MM THICK) WERE PRETREATED WITH 0.005 MM SOMAN. INCUBATED FOR 1 HR AT 37C IN 2.5 ML OF MODIFIED KREBS SOLUTION (TO CORRECT FOR SUBSTANCES OTHER THAN ACH, WHICH MIGHT INFLUENCE SENSITIVITY OF THE ASSAY PREPARATION); THE MEDIUM WAS SATURATED WITH 95% O(SUB2) AND 5% CO(SUB2). (1.) ACH ACTIVITY OF SLICES AND INCUBATING MEDIA WAS ESTIMATED BY BIOASSAY ON THE ESERINIZED DORSAL LEECH MUSCLE. ACH WAS SET FREE INTO THE MEDIA DURING INCUBATION. FIVE TIMES AS MUCH ACH WAS RELEASED WHEN THE MEDIUM CONTAINED 25 MM KCL AS IN A 4.7 MM KCL MEDIUM. THE ACH CONTENT OF THE TISSUE DID NOT CHANGE DURING INCUBATION IN EITHER MEDIUM. ADDITION OF 1 UG/ML ATROPINE SULFATE TO THE 25 MM KCL MEDIUM RESULTED IN A THREEFOLD ENHANCEMENT OF ACH RELEASE PLUS A RISE OF THE ACH CONTENT OF THE TISSUE. ATROPINE SULFATE (0.05 UG/ML) INCREASED THE ACH OUTPUT: 10 UG/ML PRODUCED THE SAME EFFECT AS 1 UG/ML. NO SIGNIFICANT ATROPINE EFFECT WAS OBSERVED IN A MEDIUM CONTAINING 4.7 MM KCL. (2.) UPTAKE OF ADDED ACH WAS STUDIED BY TREATING CORTICAL SLICES WITH SOMAN AND INCUBATING TISSUE IN A MEDIUM CONTAINING 4.7 MM KCL, 25 MM KCL, OR 25 MM KCL PLUS 1 UG/ML ATROPINE. ACH (4 UG/ML) WAS ADDED AT START OF INCUBATION. THERE WAS SIGNIFICANT TISSUE UPTAKE OF ACH AGAINST A CONCENTRATION GRADIENT. ATROPINE DID NOT SIGNIFICANTLY INHIBIT THIS UPTAKE IN A CONCENTRATION AT WHICH IT MOST ENHANCED THE OUTPUT OF ENDOGENOUS ACH. IN THE EXPERIMENTS USING NORMAL KREBS SOLUTION WHERE ENDOGENOUS ACH PRODUCTION WAS SMALL, ACH CONCENTRATION OF THE MEDIA DECREASED. A SMALLER DECREASE OF ACH IN THE MEDIUM WAS OBSERVED WITH THE 25 MM KCL SOLUTION. SMALLEST REDUCTION OF ACH WAS NOTED IN THE 25 MM KCL MEDIUM WITH ATROPINE, WHICH ALSO PRODUCED LARGE AMOUNTS OF ENDOGENOUS ACH. THE ADDED ACH WAS DISTRIBUTED SIMILARLY BETWEEN TISSUE AND MEDIUM IN ALL THREE MEDIA; DIFFERENCES IN RESULTS WERE CAUSED BY CHANGES IN THE CONCENTRATION OF ENDOGENOUS ACH IN TISSUES AND MEDIA PRODUCED BY ADDITION OF KCL AND ATROPINE

TO THE MEDIUM. (3.) THE EFFECT OF ATROPINE SULFATE ON UPTAKE OF ACH WAS STUDIED. KEEPING THE CONCENTRATION OF ADDED ACH CONSTANT DURING INCUBATION OF 75 MG SLICES IN 5 ML OF MEDIUM WITH 25 MM KCL FOR 30 MIN. ATROPINE (10 UG/ML) INHIBITED ACH UPTAKE BY 25% AND 100 UG/ML ATROPINE INHIBITED UPTAKE BY 70%. (4.) EFFECTS OF KCL AND ATROPINE ON ACH OUTPUT WAS INVESTIGATED USING A MEDIUM CONTAINING ESERINE SULFATE (0.4 MM) AS THE CHE INHIBITOR. ACH UPTAKE WAS EXTREMELY SMALL AND ACH CONCENTRATION IN THE TISSUE FELL TO APPROXIMATELY 4 UG/ML IN TESTS WHERE THE MEDIUM CONTAINED ESERINE SULFATE PLUS 25 MM KCL WITH OR WITHOUT ATROPINE. THE AUTHORS CONCLUDED THAT ESERINE SULFATE (0.4 MM) STRONGLY INHIBITS UPTAKE OF ACH, SIMILAR TO RESULTS OBTAINED WITH SOMAN.

BASIS KEY :121

RECORD SECURITY :0

ITEM 121

ACCESSION NUMBER :00000293
DISTRIBUTION STATUS :UL
SECUFITY CLASS :U
COUNTRY CODE :CA
NO. OF FICHE :0
LANGUAGE CCDE :ENG
DOCUMENT TYPE :J
NO. OF PAGES :13
PUBLICATION YEAR :1972
VOLUME NUMBER :200
NO. OF GRAPHICS :7
FICHE LOCATOR :0
PAGE RANGE :231-244
NO. OF REFERENCES :18
AUTHORS :
PRESTON E
HEATH C
CAS REGISTRY NUMBERS :
51-55-8
107-44-6
55-91-4
96-64-0
INDEX TERMS :
RESPIRATORY FAILURE
INTOXICATION
ORGANOPHOSPHATE CHOLINESTERASE INHIBITORS
HYPOXIA
CARDIOVASCULAR SYSTEM
BLOOD PRESSURE
HYPOTENSION
BRADYCARDIA
PERIPHERAL VASCULAR RESISTANCE
CARDIOVASCULAR COLLAPSE
ATROPINE
SARIN
CARDIOVASCULAR HOMEOSTASIS
RATS
DFP
OXIME THERAPY
SOMAN
RABBIT (WHITE)
AUTOPERFUSION
VASAL VASOMOTOR TONE
VASOMOTOR PATHWAY
MYOCARDIAL TOXICITY

AFFILIATION :
DEFENCE RESEARCH ESTABLISHMENT, SUFFIELD, ALBERTA, CANADA, AND THE DEPARTMENT OF PHARMACOLOGY, UNIVERSITY OF ALBERTA, EDMONTON, ALBERTA, CANADA
SOURCE TITLE :ARCH. INT. PHARMACODYN.
PERFORMING ORGANIZATION :
DEFENCE RESEARCH ESTABLISHMENT, SUFFIELD, ALBERTA, CANADA, AND THE DEPARTMENT OF PHARMACOLOGY, UNIVERSITY OF ALBERTA, EDMONTON, ALBERTA, CANADA
SPONSORING ORGANIZATION :
DEFENCE RESEARCH ESTABLISHMENT, SUFFIELD, ALBERTA, CANADA, AND THE DEPARTMENT OF PHARMACOLOGY, UNIVERSITY OF ALBERTA, EDMONTON, ALBERTA, CANADA
TITLE (DOCUMENT)
ATROPINE-INSENSITIVE VASODILATATION AND HYPOTENSION IN THE ORGANOPHOSPHATE-POISONED RABBIT
ABSTRACT/DIGEST :
RESPIRATORY FAILURE IS THE PRIMARY CAUSE OF DEATH FROM INTOXICATION WITH THE ORGANOPHOSPHATE CHOLINESTERASE INHIBITORS. APART FROM THE EFFECT OF HYPOXIA, THESE COMPOUNDS DIRECTLY IMPAIR THE CARDIO-VASCULAR SYSTEM, WHICH MAY CONTRIBUTE TO A RAPIDLY FATAL OUTCOME. THE BLOOD PRESSURE RESPONSE IN UNTREATED LETHAL POISONING IS USUALLY HYPOTENSION, THE SEVERITY OF WHICH IS GOVERNED BY INTERACTION OF A DECREASE IN CARDIAC OUTPUT DUE TO BRADYCARDIA AND AN INCREASE IN PERIPHERAL VASCULAR RESISTANCE. LOWERED CARDIAC OUTPUT CAUSES STAGNANT HYPOXIA, WHICH ALSO PROMOTES CARDIOVASCULAR COLLAPSE. ARTIFICIALLY VENTILATED AND ATROPINIZED ANIMALS MAINTAIN A NORMAL BLOOD PRESSURE THOUGH POISONED WITH VERY LARGE DOSES OF SARIN. THIS IMPLIES THAT ATROPINE AND ARTIFICIAL VENTILATION WILL ENSURE CARDIOVASCULAR HOMEOSTASIS DESPITE SEVERE INTOXICATION. IT HAS BEEN SHOWN, HOWEVER, THAT RATS DIE OF CARDIAC FAILURE FOLLOWING A LARGE DOSE OF DIISOPROPYL PHOSPHONOFLUORIDATE (DFP) DESPITE ATROPINE, ARTIFICIAL VENTILATION, AND OXIME THERAPY. IN THE PRESENT STUDIES, LARGE DOSES OF SOMAN, SARIN, OR DFP ADMINISTERED INTRAVENOUSLY CAUSED SEVERE AND RAPID HYPOTENSION IN THE ANESTHETIZED WHITE RABBIT DESPITE BOTH ARTIFICIAL VENTILATION AND ATROPINE TREATMENT SUFFICIENT TO PREVENT BRADYCARDIA. HYPOTENSION RESULTS FROM AN ATROPINE-INSENSITIVE VASODILATATION, DEMONSTRATED IN THE AUTOPERFUSED FORELIMB. SOMAN INDUCES DEPRESSION OF BASAL VASOMOTOR TONE: HOWEVER, THIS IS ANTAGONIZED BY ATROPINE WHILE SYSTEMIC HYPOTENSION REMAINS PROFOUND. IT IS SUGGESTED THAT HYPOTENSION STEMS FROM ORGANOPHOSPHATE EFFECTS WITHIN THE NEURONAL PORTION OF THE VASOMOTOR PATHWAY. THERE IS NO INDICATION THAT SOMAN HAS A MYOCARDIAL TOXIC PROPERTY.
BASIS KEY :122
RECORD SECURITY :0

ITEM 95

ACCESSION NUMBER :00000181
DISTRIBUTION STATUS :UL
SECURITY CLASS :U
COUNTRY CODE :CA
NO. OF FICHE :0
LANGUAGE CODE :ENG
DOCUMENT TYPE :J
NO. OF PAGES :6
PUBLICATION YEAR :1975
VOLUME NUMBER :34
NO. OF GRAPHICS :2
FICHE LOCATOR :0
PAGE RANGE 127-132
NO. OF REFERENCES :22
AUTHORS :
JOHNSON DENNIS D
WILCOX WILLIAM C
CAS REGISTRY NUMBERS :
439-14-5
96-64-0
51-84-3
50-06-6
55-48-1
INDEX TERMS :
DIAZEPAM
ANTICHOLINESTERASE
SOMAN
ACETYLCHOLINE
BRADYCARDIA
RABBITS
VALIUM
RESPIRATION
PENTOBARBITAL
ATROPINE SULFATE
TACHYCARDIA
HEART RATE
HERING-BREUER REFLEX
RESPIRATORY DEPRESSION
BLOOD PRESSURE
HYPOTENSION
AFFILIATION :
DEPARTMENT OF PHARMACOLOGY, COLLEGE OF MEDICINE, UNIVERSITY OF SASKATCHEWAN, SASKATOON, CANADA S7N OWO
SOURCE TITLE :EUROPEAN JOURNAL OF PHARMACOLOGY

PERFORMING ORGANIZATION :
DEPARTMENT OF PHARMACOLOGY, COLLEGE OF MEDICINE, UNIVERSITY OF SASKATCHEWAN, SASKATOON, CANADA S7N OWO
SPONSORING ORGANIZATION :
DEPARTMENT OF PHARMACOLOGY, COLLEGE OF MEDICINE, UNIVERSITY OF SASKATCHEWAN, SASKATOON, CANADA S7N OWO
TITLE (DOCUMENT)
STUDIES ON THE MECHANISM OF THE PROTECTIVE AND ANTIDOTAL ACTIONS OF DIAZEPAM IN ORGANOPHOSPHATE POISONING
ABSTRACT/DIGEST
PREVIOUS STUDIES SUGGEST THAT DIAZEPAM PROVIDES ANTIDOTAL ACTIVITY AGAINST ANTICHOLINESTERASE AGENTS SUCH AS SOMAN BY PREVENTING SOME OF THE CENTRAL EFFECTS OF EXCESS ACETYLCHOLINE. TO MEASURE DIAZEPAM'S EFFECT ON SOMAN-INDUCED BRADYCARDIA, SIX UNANESTHETIZED RABBITS WERE ADMINISTERED 10 UG/KG I.V. SALINE-DILUTED SOMAN, SIX WERE GIVEN 1 MG/KG DIAZEPAM (VALIUM), WHILE SIX WERE GIVEN THE ABOVE DOSES OF DIAZEPAM FOLLOWED BY SOMAN. TO MEASURE DIAZEPAM'S EFFECT ON RESPIRATORY DEPRESSION, ARTIFICIALLY VENTILATED RABBITS, ANESTHETIZED WITH 35 MG/KG PENTOBARBITAL AND PRE-TREATED WITH 1.2 MG/KG ATROPINE SULFATE WERE TESTED IN THE SAME WAY: SIX WERE GIVEN DIAZEPAM, SIX SOMAN, SIX SOMAN FOLLOWED BY ATROPINE, AND TEN SOMAN FOLLOWED BY ATROPINE AND DIAZEPAM. UNANESTHETIZED RABBITS GIVEN SOMAN SHOWED SEVERE BRADYCARDIA (83% OF CONTROL) AND THOSE GIVEN DIAZEPAM SHOWED TEMPORARY TACHYCARDIA (REVERSED WITHIN 30 MIN). DIAZEPAM PRETREATMENT PREVENTED ABNORMAL HEART RATES, (103 +/- 8.5% OF CONTROL). IN ANESTHETIZED ANIMALS (RESULTS NOT PRESENTED STATISTICALLY), DIAZEPAM (1 MG/KG) PRODUCED SLIGHT DEPRESSION OF THE RESPIRATORY RATE, SOMAN (10 UG/KG) REDUCED THE DEPTH OF RESPIRATION AND/OR INHIBITED THE HERING-BREUER REFLEX DURING EXPIRATION, WITHOUT RECOVERY WITHIN 30 MIN. SIMILAR DOSAGES IN COMBINATION (DIAZEPAM AFTER SOMAN) FAILED TO REVERSE RESPIRATORY DEPRESSION AND PRODUCED FURTHER RESPIRATORY IMPAIRMENTS. PRETREATMENT WITH 1.2 MG/KG ATROPINE BLOCKED SOMAN-INDUCED BRADYCARDIA, AND REDUCED BLOOD PRESSURE MODESTLY. DIAZEPAM FOLLOWING SOMAN REDUCED BLOOD PRESSURE FURTHER, AN EFFECT WHICH ATROPINE APPEARED TO BLOCK. BOTH SOMAN-INDUCED HYPOTENSION AND ITS REVERSAL WITH SUBSEQUENT ATROPINE (1.2 MG/KG) COINCIDED WITH CHANGES IN RESPIRATORY FUNCTION. PRETREATMENT WITH ATROPINE ALONE DID NOT PREVENT RESPIRATORY DEPRESSION, THOUGH A SECOND DOSE AFTER SOMAN REVERSED IT, INDICATING A DOSE-RESPONSE RELATIONSHIP. IN SUMMARY, ADMINISTRATION OF DIAZEPAM FOLLOWING SOMAN-INDUCED RESPIRATORY DEPRESSION EXACERBATED THE DEPRESSION AND RENDERED RABBITS LESS SUSCEPTIBLE TO ATROPINE. THE ANTIDOTAL EFFECTS OF DIAZEPAM ARE THUS NOT ASCRIBED TO REVERSAL OF RESPIRATORY DEPRESSION. IN CONCLUSION, THE PROTECTIVE EFFECTS OF DIAZEPAM ARE ASCRIBED TO BOTH A NON-SPECIFIC ANTI-CONVULSANT EFFECT THAT REDUCES IMPAIRMENT TO RESPIRATORY CENTERS AND TO THE PREVENTION OF BRADYCARDIA.
BASIS KEY :95
RECORD SECURITY :0

ITEM 24

ACCESSION NUMBER :00000059
DISTRIBUTION STATUS :UL
SECURITY CLASS :U
COUNTRY CODE :NL
NO. OF FICHE :0
LANGUAGE CODE :ENG
DOCUMENT TYPE :J
NO. OF PAGES :19
PUBLICATION YEAR :1970
NO. OF GRAPHICS :8
FICHE LOCATOR :0
PAGE RANGE :113-131
NO. OF REFERENCES :23
AUTHORS :
COHEN E M
CHRISTEN P J
MOBACH MISS E
CAS REGISTRY NUMBERS :
107-44-6
57-71-6
96-64-0
INDEX TERMS :
SARIN
32-P SARIN
HYDROLYSIS
DAM
DIACETYL MONOXIME
PLASMA
RATS (ALBINO)
GUINEA PIGE (WHITE)
MICE
HEART
CAROTID ARTERY
HUMAN PLASMA
PLASMA ALTESTERASE
SOMAN
AFFILIATION :
MEDICAL BIOLOGICAL LABORATORY TNO, 139 LANGE KLEIWEG, RIJSWIJK (Z11), THE NETHERLANDS
SOURCE TITLE :MEDICINE
PERFORMING ORGANIZATION :
MEDICAL BIOLOGICAL LABORATORY TNO, 139 LANGE KLEIWEG, RIJSWIJK (Z11), THE NETHERLANDS
SPONSORING ORGANIZATION:
MEDICAL BIOLOGICAL LABORATORY TNO, 139 LANGE KLEIWEG, RIJSWIJK (Z11), THE NETHERLANDS

TITLE (DOCUMENT) :
THE INACTIVATION BY OXIMES OF SARIN AND SOMAN IN PLASMA FROM VARIOUS SPECIES I. THE INFLUENCE OF DIACETYLMONOXIME ON THE HYDROLYSIS OF SARIN

ABSTRACT/DIGEST
A METHOD IS GIVEN FOR MEASURING HYDROLYSIS OF LOW CONCENTRATIONS OF 32-P SARIN BASED UPON MEASUREMENT OF THE NON-VOLATILE HYDROLYSIS PRODUCT. DEMONSTRATION WITH 32-P SARIN PERMITTED A STUDY OF THE INFLUENCE OF DIACETYL MONOXIME (DAM) ON THE HYDROLYSIS OF: (1) HEPARINIZED PLASMA OBTAINED FROM THE HEART OR CAROTID ARTERIES OF FEMALE ALBINO RATS, WHITE GUINEA PIGS, OR INBRED FEMALE MICE; AND (2) HUMAN PLASMA FROM VOLUNTEERS. SAMPLES WERE INTOXICATED WITH 0.1 MM SARIN AND CENTRIFUGED FOR 20 MIN. IN ALL SAMPLES, HYDROLYSIS WAS AIDED BY SARINASE AND BY DIRECT INTERACTION OF DAM WITH SARIN. IN THE MOUSE AND RATS, DAM GREATLY ENHANCED THE DESTRUCTION OF SARIN; AT 1 MM DAM, SARIN IN THE RAT WAS COMPLETELY HYDROLYZED IN 2 MIN. RESULTS CONFIRMED EARLIER FINDINGS THAT DAM UNTIL SARIN IS HYDROLYZED. A SUBSEQUENT PAPER FROM THIS STUDY DEALS WITH SOMAN.

BASIS KEY :24
RECORD SECURITY :0

ITEM 7

ACCESSION NUMBER :00000024
DISTRIBUTION STATUS :UL
SECURITY CLASS :U
COUNTRY CODE :UK
NO. OF FICHE :0
LANGUAGE CODE :ENG
DOCUMENT TYPE :J
NO. OF PAGES :2
PUBLICATION YEAR :1953
VOLUME NUMBER :46
NO. OF GRAPHICS :0
FICHE LOCATOR :0
PAGE RANGE :801-802
NO. OF REFERENCES :6
AUTHORS :
BERRY W K
CAS REGISTRY NUMBERS :
107-44-6
77-81-6
96-64-0
55-91-4
59-92-7
INDEX TERMS :
BIOCHEMICAL MECHANISMS
ANTICHOLINESTERASE POISONING
CHOLINESTERASE
SARIN
TOXICITY
DOPA
3,4,DIHYDROXYPHENYLALANINE
O-DIHYDROXYBENZENE DERIVATIVES
TABUN
SOMAN
DFP
DOPA-SARIN REACTION
INHIBITION
ENZYMES
DOPA OXIDATION
AFFILIATION :
ARMY CHEMICAL DEFENCE ESTABLISHMENT PORTON DOWN, ENGLAND, AND
MINISTRY OF SUPPLY, ENGLAND
SOURCE TITLE :SECTION OF EXPERIMENTAL MEDICINE AND
THERAPEUTICS

PERFORMING ORGANIZATION :
ARMY CHEMICAL DEFENCE ESTABLISHMENT PORTON DOWN, ENGLAND, AND MINISTRY OF SUPPLY, ENGLAND
SPONSORING ORGANIZATION :
ARMY CHEMICAL DEFENCE ESTABLISHMENT PORTON DOWN, ENGLAND, AND MINISTRY OF SUPPLY, ENGLAND
TITLE (DOCUMENT)
BIOCHEMICAL MECHANISMS INVOLVED IN POISONING BY ANTICHOLINESTERASES
ABSTRACT/DIGEST
EXPERIMENTATION WAS DONE SEEKING A CHEMICAL RESEMBLING THE ACTIVE CENTER OF CHOLINESTERASE (CHE), WHICH WOULD BE NONTOXIC AND YET BE ABLE TO COMBINE WITH SARIN FAST ENOUGH TO PROTECT AN ORGANISM AGAINST SARIN'S TOXIC SIDE-EFFECTS. THE CHEMICAL, 3,4,DIHYDROXY-PHENYLALANINE (DOPA), AND OTHER 0-DIHYDROXYBENZENE DERIVATIVES WERE ABLE TO PROTECT TRUE AND PSEUDO-CHES AGAINST SARIN, TABUN, AND SOMAN AND, TO A LESSER EXTENT, DFP. A DIRECT DOPA-SARIN REACTION APPEARED TO BE INVOLVED, BUT TENTATIVE CONCLUSIONS ARE THAT THE ACTIVE CENTER OF CHE WAS NOT PHENOLIC. DOPA DID NOT REVERSE INHIBITION BY SARIN. ITS PROTECTIVE EFFECT DISAPPEARED ON DILUTION TO A DEGREE THAT WAS THERAPEUTICALLY IMPRACTICABLE. A FURTHER CONCLUSION WAS THAT DOPA MIGHT BE THE PRECURSOR OF A MORE ACTIVE SUBSTANCE. STUDY OF THE PRODUCTS OF ENZYMIC AND NON-ENZYMIC OXIDATION OF DOPA FAILED TO SHOW SUCH A SUBSTANCE.
BASIS KEY :7
RECORD SECURITY :0

ITEM 8

ACCESSION NUMBER :00000026
DISTRIBUTION STATUS :UL
SECURITY CLASS :U
COUNTRY CODE :UK
NO. OF FICHE :0
LANGUAGE CODE :ENG
DOCUMENT TYPE :J
NO. OF PAGES :2
PUBLICATION YEAR :1970
VOLUME NUMBER :20
NO. OF GRAPHICS :0
FICHE LOCATOR :0
PAGE RANGE :1333-1334
NO. OF REFERENCES :10
AUTHORS :
BERRY W K
CAS REGISTRY NUMBERS :
107-49-3
51-15-0
96-64-0
51-84-3
154-97-2
56-97-3
51-55-8
INDEX TERMS :
DIAPHRAGM
ACETYLCHOLINESTERASE
TETRAETHYL PYROPHOSPHATE
PRALIDOXIME
GUINEA PIGS
RATS
RAT DIAPHRAGM
GUINEA PIG DIAPHRAGM
TEPP
LD50
SOMAN
HYDROLYSIS
ACETYLCHOLINE
OXIMES
P2S
TMB-4
ATROPINE
REACTIVATION
AFFILIATION :
CHEMICAL DEFENCE ESTABLISHMENT, PORTON DOWN, WILTS., ENGLAND

SOURCE TITLE :BIOCHEMICAL PHARMACOLOGY
PERFORMING ORGANIZATION :
CHEMICAL DEFENCE ESTABLISHMENT, PORTON DOWN, WILTS., ENGLAND
SPONSORING ORGANIZATION :
CHEMICAL DEFENCE ESTABLISHMENT, PORTON DOWN, WILTS., ENGLAND
TITLE (DOCUMENT)
SOME SPECIES DIFFERENCES IN THE RATES OF REACTION OF DIAPHRAGM PARTICULATE ACETYLCHOLINESTERASES WITH TETRAETHYL PYROPHOSPHATE AND PRALIDOXIME
ABSTRACT/DIGEST
THE DEMONSTRATED EXISTENCE OF TWO FORMS OF ACHE IN THE GUINEA PIG AND RAT DIAPHRAGM -- SOLUBLE AND PARTICULATE FRACTIONS -- HAS BEEN PROPOSED TO EXPLAIN THE FAILURE OF TETRAETHYL PYROPHOSPHATE (TEPP) PRETREATMENT TO RAISE THE LD50 OF SOMAN FOR RATS BY THE SAME DEGREE APPLICABLE TO OTHER SPECIES. THE PRESENT STUDY EXPLORED THE KINETIC PROPERTIES OF GUINEA PIG AND RAT PARTICULATE ACHE TO EXPLAIN THIS PHENOMENON. THE VELOCITY OF HYDROLYSIS OF 5.5 MM ACETYLCHOLINE (ACH) WAS MEASURED FOLLOWED BY ADDITION OF 1 MM TEPP. RESULTS SHOWED THAT TEPP INHIBITION WAS PSEUDO-REVERSIBLE, BEING STABLE PRIOR TO ADDITION OF OXIME. TEPP INHIBITION OF GUINEA PIG DIAPHRAGMS SHOWED 15-20% INHIBITION WITHIN 40-50 MIN, WHILE SUBSEQUENT ADDITION OF 2-HYDROXYIMINOMETHYL-N-METHYL PYRIDINIUM METHANESULPHONATE (P2S) EQUIVALENT TO THE DIAPHRAGMATIC PORTION 30-60 MIN AFTER 30 MG/KG I.M. PRODUCED REACTIVATION TO 20-30% OF NORMAL AFTER 45-50 MIN. AN EQUIVALENT DOSE OF TMB-4 (1,3-DI (4-HYDROXYIMINO METHYLPYRIDINIUM) PROPANE DIHALIDE) PRODUCED REACTIVATION TOO RAPID TO PLOT. THE SAME CONCENTRATION OF TEPP INHIBITED RAT PREPARATIONS TOO RAPIDLY TO DEVELOP RATE CONSTANTS, REACHING THE LEVELS SEEN IN GUINEA PIGS. SUBSEQUENT P2S CAUSED RAPID REACTIVATION TO 25% OF NORMAL. THE AUTHOR CONCLUDES THAT THE MAJOR FACTOR IN TEPP PROTECTION IS THE SPEED OF INHIBITION AND REACTIVATION. IF GIVEN TO GUINEA PIGS 1 MIN BEFORE SOMAN, PROTECTION WAS EQUIVALENT TO THAT OF ATROPINE AND P2S ALONE, WHILE MAXIMAL PROTECTION RESULTED FROM PRETREATMENT AT 0.5-5 HR PRIOR TO SOMAN. P2S IS EFFECTIVE IN THE GUINEA PIG BECAUSE REACTIVATION LAGS BEHIND SOMAN CLEARANCE FROM THE DIAPHRAGM, WHEREAS RAPID REACTIVATION OCCURS IN THE RAT IN THE PRESENCE OF FREE SOMAN. TMB-4 IS INEFFECTIVE IN THE GUINEA PIG BECAUSE OF THE SAME PHENOMENON OF TOO-RAPID REACTIVATION.
BASIS KEY :8
RECORD SECURITY :0

ITEM 9

ACCESSION NUMBER :00000031
DISTRIBUTION STATUS :UL
SECURITY CLASS :U
COUNTRY CODE :UK
NO. OF FICHE :0
LANGUAGE CODE :ENG
DOCUMENT TYPE :J
NO. OF PAGES :8
PUBLICATION YEAR :1966
VOLUME NUMBER :15
NO. OF GRAPHICS :7
FICHE LOCATOR :0
PAGE RANGE :1259-1266
NO. OF REFERENCES :11
AUTHORS :
BERRY W K
DAVIES D R
RUTLAND J P
CAS REGISTRY NUMBERS :
96-64-0
51-55-8
107-44-6
INDEX TERMS
SOMAN
SARIN
3-METHYLBUTYL-2-METHYLPHOSPHONOFLUORIDATE
MBPF
DIAPHRAGM ACETYLCHOLINESTERASE
RATS
TUB-4
ATROPINE
OXIMES
ORGANOPHOSPHATES
AFFILIATION :
ARMY DEPT., CHEMICAL DEFENCE EXPERIMENTAL ESTABLISHMENT, PORTON DOWN, SALISBURY, WILTS.
SOURCE TITLE :BIOCHEMICAL PHARMACOLOGY
PERFORMING ORGANIZATION :
ARMY DEPT., CHEMICAL DEFENCE EXPERIMENTAL ESTABLISHMENT, PORTON DOWN, SALISBURY, WILTS.
SPONSORING ORGANIZATION :
ARMY DEPT., CHEMICAL DEFENCE EXPERIMENTAL ESTABLISHMENT, PORTON DOWN, SALISBURY, WILTS.
TITLE (DOCUMENT) :
PROBLEMS IN THE TREATMENT WITH OXIMES AND ATROPINE OF RATS POISONED BY ORGANOPHOSPHATES

ABSTRACT/DIGEST
SINCE SOMAN-INACTIVATED ACETYLCHOLINESTERASE (ACHE) CANNOT BE REACTIVATED UNDER PHYSIOLOGICAL CONDITIONS, AN ATTEMPT HAS BEEN MADE TO ASSESS THE SIGNIFICANCE OF AGING IN VIVO USING THE SOMAN HOMOLOGUE 3-METHYLBUTYL-2-METHYLPHOSPHONOFLUORIDATE (MBPF). SOMAN ITSELF WAS NOT PART OF THE EXPERIMENT, BUT PREVIOUS STUDIES USING SOMAN WERE CITED. SARIN WAS USED FOR COMPARISON WITH MBPF. THIS EXPERIMENT ATTEMPTS TO REACTIVATE DIAPHRAGM ACHE OF THE RAT IN VITRO WITH IMB-4 AND ATROPINE.
BASIS KEY :9
RECORD SECURITY :0

Appendix D

Print-Out of Sample Thesaurus

THESAURUS

Edited Edition
Prepared by:
Dr. Hilda Feinberg
Dr. Theodore C. Hines

October 21, 1981

Introductory Notes

A desirable objective in an information system is the consistent representation of subject matter in both indexing and searching operations. To this end a controlled standardized vocabulary is frequently used so that both indexing and searching can be conducted using a common language.

The thesaurus serves as an authority list for use in both information indexing and retrieval. It represents an organized, comprehensive, and structured vocabulary listing the terms that have been accepted and approved as a standard by participating members of a specialized user group, in a defined area of information. It specifies those terms that are allowed as authorized "descriptors". The thesaurus indetifies the scope of each term so that all terms are clear and discrete. Ideally, the terms in the thesaurus are sufficiently comprehensive for the identification and communication of information in the defined area covered by the information system.

One of the more important functions of the thesaurus is to display the relationships among terms in the vocabulary, thus aiding the indexer and searcher to select the most appropriate terms when indexing documents, or formulating search requests.

The thesaurus shows synonymous, hierarchical and other relationships. Such a controlled vocabulary promotes maximum consistency in the description of concepts. It serves further as a store of intellectual decisions that have been made as a result of previous indexing and searching operations.

The present thesaurus was designed for post-coordinate indexing. In such a system many terms are combined at the search stage. It was prepared to serve as a base for an open-ended microthesaurus to be used for a specialized data base, and was derived from the following sources:

(1) Actual documents in the data base
(2) MeSH (Medical Subject Headings, National Library of Medicine)
(3) Chemical Abstracts Index Guide (American Chemical Society)
(4) Merck Index
(5) Various biomedical and scientific dictionaries and encyclopedias

As new documents are added to the data base, the thesaurus will be expanded accordingly.

Cross references employed in the thesaurus are:
USE; USED FOR; RELATED TERM; BROADER TERM; and NARROWER TERM.
Scope notes are included where necessary.

(1) USE
The USE reference is intended to lead thesaurus users from a term that is not an authorized term to one that is authorized for indexing and searching.
The USE reference leads to the preferred term.

(2) USED FOR
The USED FOR (UF) reference is the reciprocal of the USE reference, and accompanies the term to which the USE reference refers. It is the reverse of a USE reference, and indicates the access points in the thesaurus referring to the term to be used.

(3) BROADER TERM
The BROADER TERM (BT) reference is employed to refer from a term representing a member of a class of concepts to the term naming that class, for example:

Mammals BT Vertebrates

For each BROADER TERM reference there must also be provided a corresponding NARROWER TERM. The broader term may be one which is higher in a hierarchical relationship than the one under which it appears.

(4) NARROWER TERM
The NARROWER TERM (NT) reference is the reciprocal of the BROADER TERM (BT). The NT is employed to identify the term as a member of the class represented by the entry, for example:

Vertebrates NT Mammals

For each NARROWER TERM reference there must be provided a corresponding BROADER TERM reference. Ther narrower term, which is the opposite of the broader term, may be used to indicate terms lower in a hierarchical relationship than the one under which it appears.

The whole-part relationship may in some cases be used with the NT/BT designation.

(5) RELATED TERM
The RELATED TERM (RT) reference is employed as a guide from a given term to other terms that are closely related in ways other than the genus-species (BT/NT) relationship. In general, any two terms bear the cross-reference RT to each other if it is believed that the user, when examining one of them, might want to be remined of the existence of the other. The RT advises the indexer or searcher to consider also the terms designated as related.

(6) SCOPE NOTES

The scope note which accompanies the term, but is not a part of it, is used to designate the scope of the term. It may be used to exclude a possible meaning from the term, and indicate the acceptable term to use for that meaning, or explicitly to include an uncommon meaning under a term. It is used to indicate any intended restrictions in the use of the term. In case of possible misunderstanding, it is used to define a term.

(7) PARENTHETICAL QUALIFIERS

Used sparingly, the parenthetical qualifier may be appended to a term to distinguish among homographs, for example.

Mercury (metal)
Mercury (planet)

The parenthetical qualifier is considered as a part of the term, in contrast to the definition given in a scope note.

Thesaurus Displays

A thesaurus may be complete with only an alphabetic display of terms with cross references. In the present thesaurus it is recommended that a numberical and alphabetical display indicating Chemical Abstracts registry numbers be included. At a later period it may be decided that other displays would be useful, for example, a tree-structure display, and a permuted display of terms in which each word of multi-word terms may be accessed alphabetically.

AATP
    U Parathion
Abate
    BT Insecticides, organothiophosphate
Abdomen
Abnormalities
    NT Deformities
Absorption, skin
    U Skin absorption
Acetic acid phenyl ester
    U Phenyl acetate
Acetone 67-64-1
Acetonitrile 75-05-8
    UF Cyanomethane
    UF Methyl cyanide
3-Acetoxyindole
    U Indoxyl acetate
7-Acetoxy-1-methylquinolinium iodide
    U 7-Ac-Q
8-Acetoxy-1-methylquinolinium iodide
    U 8-Ac-Q
2-Acetoxynaphthalene
    U Beta-Naphthyl acetate
Acetylation
Acetylcarnitine 14992-62-2
    UF Carnitine Acetyl Ester
Acetylcarnitine chloride
    U Acetylcarnitine hydrochloride
Acetylcarnitine hydrochloride 33661-41-5 4326-58-3 5080-50-2
    UF Acetylcarnitine chloride
Acetylcholine 51-84-3
    UF Ethanaminium, 2-(acetyloxy)-N, N, N-trimethyl-
Acetylcholine bromide 66-23-9
Acetylcholine chloride 60-31-1
Acetylcholine hydrolase
Acetylcholine iodide
Acetylcholine receptor

Acetylcholine release
Acetylcholinesterase
U AChE
Acetylcholinesterase inhibition
Acetylcholinesterase inhibitors
Acetylcholine uptake
Acetylcholine chloride 60-31-1
Acetylcholine perchlorate
Acetyl-beta-methylcholine
U Methacholine
Acetyl-beta-methylcholine bromide
U Methacholine bromide
Acetyl-beta-methylcholine chloride
U Methacholine chloride
O-Acetyl-beta-naphthol
U Beta-Naphthyl acetate
Acetyl phenol
U Phenyl acetate
Acetylthiocholine 4468-05-7
BT Choline
Acetylthiocholine iodide
Acetyltransferase, choline 9012-78-6
UF Choline acetylase
UF Choline acetyltransferase
Acetyltransferases
Acetyltyrosine ethyl ester
U N-Acetyl-L-tyrosine ethyl ester
Acetyl-L-tyrosine ethyl ester
U N-Acetyl-L-tyrosine ethyl ester
N-Acetyl-L-tyrosine ethyl ester 840-97-1
UF Acetyltyrosine ethyl ester
UF Acetyl-L-tyrosine ethyl ester
UF Acetyl-L-tyrosyl ethyl ester
UF ATEE
UF Ethyl N-acetyl-L-tyrosinate
UF Ethyl acetyltyrosinate

Acetyl-L-tyrosyl ethyl ester
    U Acetyl-L-tyrosine ethyl ester
AChE
    BT Cholinesterases
    UF Acetylcholinesterase
Acid-base equilibrium
    NT Buffers
Acidity
    RT pH
Acids
    RT Bases
Acocantherin
    U Ouabain
7-Ac-Q
    UF 7-Acetoxy-1-methylquinolinium iodide
8-Ac-Q
    UF 8-Acetoxy-1-methylquinolinium iodide
9-Acridinamine, 1,2,3,4-tetrahydro-
    U Tacrine
Actinomycin D 50-76-0
    UF Cosmegen
    UF Dactinomycin
    UF Meractinomycin
Acyl groups
    U Radicals, acyl
Adaptation, biological
Adenosine 58-61-7
    BT Nucleosides
Adenosine 3'5'-cyclic monophosphate 60-92-4
    UF cAMP
    UF cyclic AMP
Adenosine, N-(1-oxobutyl)-, cyclic 3', 5'-(hydrogen phosphate) 2'-butanoate
    U Dibutyryl cyclic AMP
Adenosine 5'-phosphorimidazolide 20816-58-4
Adenosine triphosphatase
    BT Phosphatases
    UF ATPase
Adenosine triphosphate 56-65-5
    UF ATP
Adenylate cyclase 9012-42-4
    UF Adenyl cyclase
    UF Adenylyl cyclase
    UF Cyclase, adenylate
Adenyl cyclase
    U Adenylate cyclase

Adenyl cyclase
U Adenylate cyclase
Adephenine hydrochloride
U Trasentine hydrochloride
Adiphenine 64-95-9
UF Benzeneacetic acid, alpha-phenyl-, 2(diethylamino)ethyl ester
Adrenal Cortex
BT Adrenal glands
Adrenal glands
BT Endocrine glands
NT Adrenal Cortex
NT Adrenal Medulla
NT Interrenal gland
Adrenaline
U Epinephrine
Adrenal Medulla
BT Adrenal glands
Aging
Aging rate
Air sacs
RT Lung
Albumins
Alcohol, ethyl
U Ethanol
Alcohol, methyl
U Methanol
Alcohols
Aldicarb 116-06-3
BT Insecticides, carbamate
Aliesterase
U Esterase, carboxyl
Alitinal
U Amobarbital sodium
Alkaloids
Alkoxy
U Radicals, alkoxy
Alkylation
Alkyl radicals
U Radicals, alkyl
Allergens
RT Hypersensitivity
Allergy
RT Hypersensitivity
Allosteric regulation
AM-1 71006-78-5
UF O-Ethyl, S-diethylaminoethyl ethylphosphonothiolate
UF 1H-Imidazole-1-ethanol, alpha-(methoxymethyl)-2-methyl-4-nitro-

Ambenonium chloride 115-79-7
BT Cholinesterase inhibitors
UF Ambestigminum
Ambestigminum
U Ambenonium chloride
Amechol
U Methacholine bromide
Amines
RT Amino compounds
gamma-Aminobutyric acid
U GABA
Amino compounds
RT Amines
RT Nitrogen
beta-Aminoethylglyoxaline
U Histamine
Aminoethylphosphonic acid
BT Organophosphorus compounds
2-Amino-3-hydroxypropionic acid
U Serine
alpha-Aminoisocaproic acid
U Leucine
2-Amino-4-methylvaleric acid
U Leucine
Aminooxyacetic acid hemihydrochloride 2921-14-4
Aminophylline 317-34-0
4-Amino-1-beta-D-ribofuranosyl-2-(1H)-pyrimidinone
U Cytidine
9-Amino-1,2,3,4-tetrahydroacridine
U Tacrine
Aminotransferase, aspartate
U Glutamic oxalacetic transaminase
Amiton 78-53-5 3734-97-2
BT Cholinesterase inhibitors
BT Insecticides
UF O,O-Diethyl S-2-diethylaminoethyl phosphorothioate
UF DSDP
UF Inferno
UF Metramac
UF Phosphorothioic acid, esters, S-2[(diethylamino)ethyl] O,O-diethyl est
UF Tetram
Ammonium fluoride 12125-01-8
Amobarbital sodium 35942-73-5 64-43-7
UF Alitinal
UF Amylobarbitone sodium
UF Amytal sodium
UF Sodium amobarbital

Amobarbital sodium (cont'd)
UF Sodium amytal
Amygdala
U Amygdaloid body
Amygdaloid body
UF Amygdala
Amylacetic ester
U Isoamyl acetate
Amylobarbitone sodium
U Amobarbital sodium
Amytal sodium
U Amobarbital sodium
Anaerobiosis
BT Metabolism
Analgesia
RT Pain
Anaphylaxis
RT Hypersensitivity
Anesthesia
Anesthesia adjuvants
Anesthesia, conduction
UF Anesthesia regional
Anesthesia, general
Anesthesia, inhalation
Anesthesia, intravenous
Anesthesia, local
Anesthesia, regional
U Anesthesia, conduction
Anesthesia, spinal
Anesthetics
Anesthetics, local
Animals
NT Laboratory animals
Animals, laboratory
U Laboratory animals
Animal testing
RT Laboratory animals
Anions
Anoxia
UF Hypoxia
UF Oxygen deficiency
Antagonism
Antagonists
Anthracenecarboxylic acid
UF Anthroic acid
Anthroic acid
U Anthracenecarboxylic acid
Anti-arrhythmia agents
UF Antifibrillatory agents
UF Cardiac depressants
UF Myocardial depressants
Antibody diversity

Antibody diversity (cont'd)
BT Immunity
Antibody formation
BT Immunity
Antibody specificity
BT Immunity
Anticholinergic agents
U Parasympatholytics

Anticholinesterase activity
U Cholinesterase inhibitors
Anticholinesterase agents
U Cholinesterase inhibitors
Anticonvulsants
Antidotes
RT Poisoning
Antifibrillatory agents
U Anti-arrhythmia agents
Antigen-antibody reactions
BT Immunity
Antimuscarinic agents
U Parasympatholytics
Antirex
U Edrophonium chloride
Apnea
RT Respiration
Apocrine glands
BT Sweat glands
Arm
NT Forearm
Armin 546-71-4
BT Organophosphorus compounds
UF Armine
UF Ethoxy-4-nitrophenyloxy-ethylphosphynoxide
UF Ethyl p-nitrophenyl ethylphosphonate
UF Phosphonic acid, ethyl-, ethyl 4-nitrophenyl ester
Armine
U Armin
Arpenal 3098-65-5
UF Benzeneacetic acid, alpha-phenyl, 3 (diethylamino)propyl ester, hydrochloride
UF N-(3-Diethylaminopropyl)-2-2 diphenylacetamide
UF Diophenylacetic acid diethylaminopropylamide
UF 1-Propanol, 3-(diethylamino)-, diphenylacetate, hydrochloride
Arterenol
U Norepinephrine
Arterial blood pressure
U Blood pressure
Arteries
Where indicated use names of specific arteries
BT Blood vessels

Artificial respiration
U Respiration, artificial
Artificial ventilation
U Respiration, artificial
Aspiration
BT Respiration
ATEE
U N-Acetyl-L-tyrosine ethyl ester
Atmosphere
ATP
U Adenosine triphosphate
ATPase
U Adenosine triphosphatase
Atrioventricular block
U Heart block
Atrioventricular node
Atropine 51-55-8
BT Parasympathomimetics
UF Hyoscyamine
Atropine methyl bromide
U Methylatropine bromide
Atropine sulfate 55-48-1
Autonimic fibers
BT Neurons
Autonomic nervous system
BT Nervous system
Autoradiography
UF Radioautography
Axons
BT Nerve fibers
BT Neurons
Axoplasm
Azinphosmethyl 86-50-0
BT Insecticides, organothiophosphate
Azinphos-methyl
U Guthion
8-Azoniabicyclo [3.2.1] octane, 3-(3-hydroxy-1-oxo-2-phenylpropoxy)-8,8-dimethyl-, endo-, nitrate
U Methylatropine nitrate
8-Azoniabicyclo [3.2.1] octane, 3-(3-hydroxy-1-oxo-2-phenylpropoxy)-8,8-dimethyl-, bromide , endo-
U Methylatropine bromide
$B4FPBOCl_2$
UF 1,3-bis(4-formylpyridinium-propane)bis-oxime dichloride
Back
Barbital 57-44-3
BT Barbiturates
UF Barbitone
UF 2,4,6 (1H, 3H, 5H)-pyrimidinetrione, 5,5-diethyl-
UF Veronal

Barbital phosphates
Barbitone
U Barbital
Barbiturates
BT Hypnotics and Sedatives
NT Barbital
Bases
RT Acids
Beak (chicken)
Benactyzine 302-40-9
BT Benzilates
BT Parasympatholytics
UF Benzeneacetic acid, alpha-hydroxy-alpha-phenyl-, esters, 2-(diethylamino ethyl ether
UF 2-Diethylaminoethylbenzylate hydrochloride
Bensylyt
U Dibenzyline
Benzalin
U Nitrazepam
Benzenaminium, 3-[(diethoxy-phosphinyl)-oxy]-N, N, N-trimethyl-, methyl sulfate
U Ro-3-0340
Benzenaminium, 3-[[(dimethylamino) carbonyl]oxy]-N, N, N-trimethyl-
U Neostigmine
Benzenaminium, N-ethyl-3-hydroxy-N, N-dimethyl-, chloride
U Tensilon
Benzeneacetic acid, alpha-hydroxy- alpha-phenyl-, esters, 1-azabicyclo [2.2.2] oct-3-yl ester
U Ro-2-3308
Benzeneacetic acid, alpha-hydroxy-alpha-phenyl-, esters, 2-(diethylamino) ethyl ether
U Benactyzine
Benzeneacetic acid, alpha-hydroxy-alpha-phenyl esters, 1-methyl-3-piperidinyl ester
U JB-336
Benzeneacetic acid, alpha-hydroxy-alpha-phenyl-, esters, 1-methyl-4-piperidinyl ester, hydrochloride
U JB-336/4
Benzeneacetic acid, alpha-hydroxy-alpha-phenyl-, esters, 1-methyl-3-piperidinyl ester, hydrochloride
U JB 336/3

Benzeneacetic acid, alpha-phenyl-, 2-(diethylamino)ethyl ester
U Adiphenine
Benzeneacetic acid, alpha-phenyl-, 2-(diethylamino) ethyl ester
U Trasentine
Benzeneacetic acid, alpha-phenyl, 3(diethylamino)propyl ester, hydrochloride
U Arpenal
Benzenaminium, N-ethyl-3-hydroxy-N, N-dimethyl-
U Edrophonium
Benzenemethanamine, N-(2-chloroethyl)-N-(1- methyl-2-phenoxyethyl)-
U Dibenzyline
Benzene, methyl-
U Toluene
Benzenesulfonyl fluoride
Benzilates
NT Benactyzine
Benzin 8030-03-06
NT Naphtha
NT Petroleum ether
Benzodiazepines
2H-1, 4-Benzodiazepin-2-one, 7-chloro-1, 3-dihydro-1-methyl-5-phenyl-
U Diazepam
2H-1, 4-Benzodiazepin-2-one, 7-chloro-1, 3-dihydro-1-methyl-5-phenyl-
U Valium
2H-1, 4-Benzodiazepin-2-one, 1, 3-dihydro-7-nitro-5-phenyl-
U Nitrazepam
Benzoic acid, 4-amino, 2-(diethylamino) ethyl ester
U Procaine
Benzoic acid, 3-chloro-2, 5, 6-trimethyl-
UF U-23223
Benzoic acid, esters
Benzoic acid, 4-(2-methylpropoxy)-3-(diethylamino)1, 2-dimethylpropyl ester hydrochloride
U Gangleron
Benzoylcholine 2208-04-0 2964-09-2
BT Choline

Benzoylcholine (cont'd)
UF Choline benzoate
UF Choline, benzoyl
UF Ethanaminium , 2-(benzoyloxy)-N,N,N-trimethyl-
Benzoylcholinesterase
U Cholinesterase
Benzylyt
U Dibenzyline
Bicyclo [2.2.1]heptan-2-amine, N,2,3,3-tetramethyl-
U Mecamylamine
Binding, competitive
UF Competitive binding
Binding sites
Bladder
BT Urinary tract
Blockage
Blood
Blood brain barrier
RT Cerebrospinal fluid
Blood cell count
BT Cell count
Blood cells
BT Cells
NT Blood platelets
NT Erythrocytes
NT Hemocytes
NT Leukocytes
Blood circulation
RT Ischemia
UF Circulation
Blood coagulation
Blood flow velocity
Blood glucose
RT Hyperglycemia
Blood levels
Blood plasma
U Plasma
Blood platelets
BT Blood cells
Blood pressure

RT Pressure

UF Arterial blood pressure
Blood pressure determination
Blood pressure, high
U Hypertension
Blood pressure, low
U Hypotension
Blood pressure, venous

U Venous pressure

Blood transfusion
    UF Transfusion
Blood vessels
    NT Arteries
    NT Veins
Body temperature
    RT Fever
    RT Temperature
    RT Thermography
    RT Thermometers
Body temperature changes
Body temperature regulation
    UF Heat loss
    UF Heat production
    UF Thermoregulation
Body weight
    RT Weight gain
    RT Weight loss

Bone and Bones
    Names of specific bones are used where indicated
Bone marrow
    UF Marrow
Bone marrow cells
    BT Cells
Borates
Botulin
    U Botulinum toxins
Botulinum toxins
    RT Botulism
    UF Botulin
Botulism
    RT Botulinum toxins
Bovine serum albumin
    U Serum albumin, bovine
Brachial plexus
Bradycardia
Brain
    UF Cerebrum
Brain stem
Breast
Breathing
    NT Inhalation
Bromine cyanide
    U Cyanogen bromide
Bromophos
    BT Insecticides, organothiophosphate
Bronchi
    BT Lung
Bronchial arteries
Bronchial spasm
    UF Bronchospasm

Bronchodilation
Bronchodilator agents
Buffers
    BT Acid-base equilibrium
Bursine
    U Choline
Butanedioic acid [(dimethoxyphosphinothioyl) thio]-, diethyl ester
    U Malathion
2,3-Butanedione, monooxime 57-71-6
    UF DAM
    UF Diacetyl monoxime
Butanoic acid, 4-amino
    U GABA
Butanoic acid, anhydrides, anhydride
    U Butyric anhydride
2-Butanol, 3,3-dimethyl-
    U Pinacolyl alcohol
2-Butenoic acid, 3-[(dimethoxy-phosphinyl)oxy]-methyl ester
    U Phosdrin
Buttocks
Butyl dihydrogen phosphate 1623-15-0
    UF Monobutylphosphoric acid
Butyl ether 142-96-1
Butyric anhydride 106-31-0
    UF Butanoic acid, anhydrides, anhydride
Butyrocholine iodide U Butyrylcholine iodide
Butyrylcholine 3922-86-9
Butrylcholine bromide 18956-84-8
Butyrylcholine chloride 2963-78-2
Butyrylcholine iodide 2494-56-6
    UF Butyrocholine iodide
Butyrylcholinesterase
    U Cholinesterase
Butyrylthiocholine
    BT Choline
Butyrylthiocholine iodide 1866-16-6
    UF (2-Merceptoethyl)trimethylammonium iodide butyrate

Caffeine 58-08-2
Calcium 7440-70-2
Callithricidae
    UF Marmosets
cAMP
    U Adenosine 3'5'-cyclic monophosphate
Cannula
Cannulation
    U Catheterization
Capillaries
Caramiphen 77-22-5
    UF Cyclopentanecarboxylic acid, 1-phenyl-2(diethylamino) ethyl ester

Caramiphen 77-22-5 (cont'd)
UF Parpanil
UF Pentaphen
Caramiphene hydrochloride
U Caramiphen hydrochloride
Caramiphen hydrochloride 125-85-9
BT Parasympatholotics
UF 2-Diethylaminoethyl-L-phenyl cyclopentane carboxylate hydrochloride
UF Caramiphene hydrochloride
UF Caramiphenium chloride
UF G 2747
UF Parpanit
UF Pentaphene hydrochloride
Caramiphenium chloride
U Caramiphen hydrochloride
Carbachol 51-83-2
BT Parasympatholytics

UF Carbacholine chloride
UF Carbaminoylcholine chloride
UF Carbamylcholine
UF Choline carbamate chloride
Carbacholine chloride
U Carbachol
Carbamates
Carbamic acid, esters
Carbamic acid, esters, ethyl ester 51-79-6

UF Ethyl carbamate
UF Urethan
UF Urethane
Carbamide
U Urea
Carbaminocholine
U Carbamoylcholine
Carbaminoylcholine
U Carbamoylcholine
Carbaminoylcholine chloride
U Carbachol
Carbamoylcholine 462-58-8
UF Carbaminocholine
UF Carbaminoylcholine
Carbamylcholine
U Carbachol
Carbaryl
U N-Methyl carbamate
Carbohydrate metabolism
Carbon 7440-44-0
Carbon dioxide 124-38-9
Carbonic acid, monosodium salt

Carbonic acid, monosodium salt (cont'd)
U Sodium bicarbonate
Carbonic dichloride
U Phosgene
Carbon tetrachloride poisoning 56-23-5
Carbonyl chloride
U Phosgene
Carbonyl compounds
Carbonyldiamide
U Urea
Carboxylic acids, esters
3-Carboxypyridine N-oxide
U Oxiniacic acid
Cardiac arrest
U Heart arrest
Cardiac depressants
U Anti-arrhythmia agents
Cardiac output
Cardiovascular agents
Cardiovascular diseases
Cardiovascular homeostasis
Cardiovascular system
Cardiovascular system physiology
Carnitine 541-15-1
Carnitine Acetyl Ester
U Acetylcarnitine
Carotid arteries
Carotid body
Catalysis
Catheterization
UF Cannulation
Cathode ray oscilloscope
U Oscilloscope
Cations
Cats
BT Laboratory animals
BT Mammals
Caudate nucleus
CDP-Choline
U Cytidine 5'-diphosphate choline

CEES
U 2-Chloroethyl ethyl sulfide
Cell count
BT Cells
NT Blood cell count
NT Cell wall

Cell division
Cell membrane

Cell membrane (cont'd)
RT Membrane potentials
RT Membranes
UF Plasma membrane
Cell membrane permeability
UF Permeability, cell membrane
Cell nucleus
BT Cells
Cells
Names of specific cells are used where indicated.
NT Blood cells
NT Bone marrow cells
NT Cell count
NT Cell nucleus
NT Cytoplasm
NT Epithelial cells
Cells, cultured
Cell wall
BT Cell count
Central nervous system
BT Nervous system
Centrum medianum
Cerebellar cortex
Cerebellum
Cerebral blood flow
Cerebral cortex
Cerebral hemorrhage
UF Hemorrhage, cerebral
Cerebrospinal fluid
RT Blood brain barrier
Cerebrum
U Brain
Cevadine 62-59-0
UF Cevane-3,4,12,14,16,17,20-heptol,4,9-epoxy-,3-(2-methyl-2-butenoate)
UF Veratrine
Cevane-3,4,12,14,16,17,20-heptol,4,9-epoxy-,3- (2 methyl-2-butenoate)
U Cevadine
cGMP
U Guanosine 3',5'-cyclic monophosphate
Chemoreceptors
Chickens
Chloralose 15879-93-3 693-07-2
Chlorfenvinphos
BT Insecticides, organophosphate
Chlorine cyanide
U Cyanogen chloride
N-Chloroacetyl-L-tyrosine ethyl ester
U Acetyl-L-tyrosine ethyl ester
2-Chloroethyl ethyl sulfide 693-07-2
UF CEES

2-Chloroethyl ethyl sulfide 693-07-2 (cont'd)
UF Ethyl 2-chloroethyl sulfide
Bis(2-chloroethyl) sulfide
U 2,2'-Dichloroethyl sulfide
Bis(beta-chloroethyl) sulfide
U 2,2'-Dichloroethyl sulfide
Chloroform 67-66-3
Chloromercuribenzoates
2-Chloropromazine
U Chlorpromazine
Chlorpromazine 50-53-3
UF 2-Chloropromazine
UF CPZ
UF Promazil
UF Thorazine
Choline 62-49-7
NT Acetylthiocholine
NT Benzoylcholine
NT Butyrylthiocholine

NT Phosphorylcholine
NT Thiocholine
NT Triethylcholine
UF Bursine
UF Ethanaminium, 2-hydroxy-N,N,N-trimethyl-
UF Vidine
*3H-Choline
Choline acetylase
U Acetyltransferase, choline
Choline acetyltransferase
U Acetyltransferase, choline
Choline benzoate
U Benzoylcholine
Choline, benzoyl
U Benzoylcholine
Choline bromide 306-41-2
Choline carbamate chloride
U Carbachol
Choline chloride 67-48-1
Choline Cytidine 5'-pyrophosphate
U Cytidine 5'-diphosphate choline

Choline phosphate chloride
U Phosphorylcholine
Choline phosphoglycerides
U Phosphatidylcholines
Cholinergic agents
U Parasympathomimetics
Cholinergic blocking agents
U Parasympatholytics
Cholinergic receptors

Cholinergic receptors (cont'd)
U Receptors, cholinergic
Cholinesterase 9001-08-5
BT Esterases
UF Benzoylcholinesterase
UF Butyrylcholinesterase
UF Esterase, choline
UF Propionylcholinesterase
UF Pseudocholinesterase
Cholinesterase activity
Cholinesterase inhibitors
NT Ambenonium chloride
NT Amiton
NT Cholinesterase inhibitors, irreversible
NT Cholinesterase inhibitors, reversible
RT Insecticides
UF Anticholinesterase activity
UF Anticholinesterase agents
Cholinesterase inhibitors, irreversible
BT Cholinesterase inhibitors
Cholinesterase inhibitors, reversible
BT Cholinesterase inhibitors
Cholinesterase Reactivators
Cholinesterases

NT AChE
Cholinoceptive sites
U Receptors, cholinergic
Cholinoceptors
U Receptors, cholinergic
Cholinolytics
U Parasympatholytics
Cholinomimetics
U Parasympathomimetics
Chondrosamine
U Galactosamine
Chondrosamine hydrochloride
U Galactosamine hydrochloride
Choroid plexus
Chromatography
Chromatography, column and liquid
Chromatography, gas
UF Gas chromatography
Chromatography, gel
UF Gel chromatography
Chromatography, paper
UF Paper chromatography
Chromatography, thin-layer
UF Thin-layer chromatography
Chymar
U Alpha-Chymotrypsin
Alpha-Chymotrypsin 8049-46-5 9004-07-3 9025-29-0

Alpha-Chymotrypsin 8049-46-5 9004-07-3 9025-29-0 (cont'd)
BT Peptide hydrolases
UF Chymar
UF Chymotrypsin-A
Chymotrypsin-A
U Alpha-Chymotrypsin
Cinchocain
U Dibucaine
Cinchocaine
U Dibucaine
Cinchocaine hydrochloride 61-12-1
Circadian rhythm
RT Periodicity
Circulation
U Blood circulation
Citicholine
U Cytidine 5'-diphosphate choline

Clonazepam 1622-61-3
Cloning
Cocaine 50-36-2
Cold
RT Hypothermia
Color
Colorimetry
Competitive binding
U Binding, competitive
Constriction
Contracture
Convulsions
Cordycepin 73-03-0
Cosmegen
U Actinomycin D
Coumaphos
BT Insecticides, organothiophosphate
CPZ
U Chlorpromazine
Creatinine 60-27-5
CRO
U Oscilloscope
Crufomate
BT Insecticides, organophosphate
Crustacea
CTP
U Cytidine 5'-triphosphate
Culture media
Curare 8063-06-7
Cyanides
Inorganic cyanides are indexed at Cyanides; organic cyanides, at Nitriles.

Cyanogen bromide 506-68-3
UF Bromine cyanide
Cyanogen chloride 506-77-4
UF Chlorine cyanide
Cyanogen iodide 506-78-5
UF Iodine monocyanide
Cyanogen fluoride 1495-50-7
UF Fluorine cyanide
Cyanomethane
U Acetonitrile
Cyanosis
Cyclase, adenylate
U Adenylate cyclase

Cyclic AMP

U Adenosine 3'5'-cyclic monophosphate
Cyclic AMP-N6,2'-O-dibutyrate
U Dibutyryl cyclic AMP
Cyclic GMP
U Guanosine 3',5'-cyclic monophosphate

Cyclic nucleotide phosphodiesterases
BT Phosphodiesterases
Cyclic nucleotides
U Nucleotides, cyclic
Cyclohexane 110-82-7
UF Hexamethylene
Cyclohexanone, 2-(2-chlorophenyl)-2-(methylamino)-
U Ketamine
5-Cyclohexenyl-3,5-dimethylbarbituric acid
U Hexobarbital
Cycloheximide 66-81-9
Cyclonal
U Hexobarbital
Cyclonal sodium
U Hexobarbital sodium
Cyclopentanecarboxylic acid, 1-phenyl-2
(diethylamino)ethyl ester
U Caramiphen
Cymography
U Kymography
Cytidine 65-46-3
UF 4-Amino-1-beta-D-ribofuranosyl-2-(1H)
pyrimidinone
UF Cytosine riboside
Cytidine choline diphosphate
U Cytidine 5'-diphosphate choline
Cytidine cyclic monophosphate
BT Cytosine nucleotides
Cytidine diphosphate

Cytidine diphosphate (cont'd)
BT Cytosine nucleotides
Cytidine diphosphate choline

U Cytidine 5'-diphosphate choline
Cytidine 5'-diphosphate choline 987-78-0
UF CDP-Choline
UF Choline Cytidine 5'-pyrophosphate
UF Citicholine
UF Cytidine choline diphosphate
UF Cytidine diphosphate choline
Cytidine 5'-diphosphate choline, monosodium salt
33818-15-4
Cytidine monophosphate
BT Cytosine nucleotides
Cytidine triphosphate
BT Cytosine nucleotides
Cytidine 5'-triphosphate 65-47-4
UF CTP
Cytidine phosphates
U Cytosine nucleotides
Cytoplasm
BT Cells
Cytosine nucleotides
NT Cytidine cyclic monophosphate
NT Cytidine diphosphate
NT Cytidine monophosphate
NT Cytidine triphosphate
UF Cytidine phosphates
Cytosine riboside
U Cytidine
Dactinomycin
U Actinomycin D
DAM
U 2,3-Butanedione, monooxime

DDVP 62-73-7
UF 2,2-Dichlorovinyl dimethyl phosphate
UF Dichlorvos
UF Dimethyl-alpha,2-dichlorovinyl phosphate
UF O,O-Dimethyl-O-(2,2-dichlorovinyl phosphate
UF Phosphoric acid, esters, 2,2-dichloroethenyl dimethyl ester

Dealkylation
Death
Death rate
U Mortality
Decamethonium 156-74-1
Defoliants, chemical
U Herbicides

Deformities
BT Abnormalities
Delacurarine
U d-Tubocurarine chloride
Demeton 8065-48-3
Dendrites
BT Neurons
Denervation
(1-(2-deoxy-beta-D-erythropentofuranosyl)-5-methyl-2, 4(1H, 3H)-pyrimidinedione)
U Thymidine
1-(2-Deoxy-beta-D-ribofuranosyl)-5-methyluracil
U Thymidine
Deoxyribonucleic acid
UF DNA
Dephosphorylation
Depolarization
Depression
Dermal absorption
U Skin absorption
Detoxification
Dextrose
U Glucose
DFF
U DFP (Pesticide)
DFP (Pesticide) 55-91-4
UF DFF
UF Difluorophate
UF Diisopropoxyphosphoryl fluoride
UF Diisopropyl fluorophosphate
UF Dyflos
UF Fluorodiisopropyl phosphate
UF Isofluorophate
UF Phosphorofluoridic acid, bis (1-methylethyl) ester
Diacetyl monoxime
U 2, 3-Butanedione, monooxime
Diamethazole hydrochloride 17140-69-1
Diamethazole dihydrochloride 136-96-9
Diaphragm
Diathermy
RT Microwaves
Diazepam 439-14-5
UF Valium
UF 2H-1, 4-Benzodiazepin-2-one, 7-chloro-1, 3-dihydro-1-methyl-5-phenyl-
Diazinon 333-41-5
BT Insecticides, organothiophosphate
UF Phosphorothioic acid, O, O-diethyl O-(2-isopropyl-6-methyl-4-pyrimidinyl) ester

Dibenyline
U Dibenzyline
Dibenzyline 59-96-1
UF Bensylyt
UF Benzenemethanamine,N-(2-chloroethyl)-N-(1-methyl 2-phenoxyethyl)-
UF Benzylyt
UF Dibenyline
UF Phenoxybenzamine
Dibenzyline hydrochloride 63-92-3
UF Dibenzyline chloride
UF Phenoxybenzamine chloride
UF Phenoxybenzamine hydrochloride
Dibucaine 85-79-0
UF Cinchocaine
UF Cinchocain
Dibucaine hydrochloride 61-12-1
Dibutyl 2,2-dichloroethenyl phosphate
U 2,2-Dichlorovinyldibutylphosphate
Dibutyl 2,2-dichlorovinyl phosphate
U 2,2-Dichlorovinyldibutylphosphate
Dibutyryl adenosine-3',5'-monophosphate
U Dibutyryl cyclic AMP
Dibutyryl cyclic adenosine monophosphate
U Dibutyryl cyclic AMP
Dibutyryl cyclic AMP 362-74-3
UF Adenosine, N-(1-oxobutyl)-,cyclic 3',5' (hydrogen phosphate) 2'-butanoate
UF Cyclic AMP-N6,2'-O-dibutyrate
UF Dibutyryl 3',5'-cyclic AMP
UF Dibutyryl adenosine-3',5'-monophosphate
UF Dibutyryl cyclic adenosine monophosphate
Dibutyryl 3',5'-cyclic AMP
U Dibutyryl cyclic AMP
2,2-Dichloroethenyl diethyl phosphate
U 2,2-dichlorovinyl diethyl phosphate
2,2-Dichloroethenyl dipropyl phosphate
U 2,2-Dichlorovinyl dipropyl phosphate
Di-2-chloroethyl sulfide
U 2,2'-Dichloroethyl sulfide
2,2'-Dichloroethyl sulfide 505-60-2
UF Mustard gas
UF Bis(2-chloroethyl) sulfide
UF Bis(beta-chloroethyl) sulfide
UF Di-2-chloroethyl sulfide
2,4-Dichlorophenyl methyl methylphosphonate
2,2-Dichlorovinyldibutylphosphate 18795-58-9
UF Dibutyl 2,2-dichloroethenyl phosphate
UF Dibutyl 2,2-dichlorovinyl phosphate
2,2-dichlorovinyl diethyl phosphate 72-00-4
UF 2,2-Dichloroethenyl diethyl phosphate
UF Ethyl DDVF

2,2-Dichlorovinyl diethyl phosphate 72-00-4 (cont'd)
UF SD 1652
2,2-Dichlorovinyl dimethyl phosphate
U DDVP
2,2-Dichlorovinyl Di-N-pentyl phosphate 20202-93-1
2,2-Dichlorovinyl diphenyl phosphate
2,2-Dichlorovinyl dipropyl phosphate 71-98-7
UF 2,2-Dichloroethenyl dipropyl phosphate
2,2-Dichlorovinyl methyl pentyl phosphate 34622-69-0
Dichlorvos
U DDVP
Diethylaminoacetyl-N-phenothiazine hydrochloride
U Difazin
2-Diethylaminoethylbenzylate hydrochloride
U Benactyzine
2-Diethylaminoethyl diphenyl acetate hydrochloride
U Trazentine
2-Diethylaminoethyl-L-phenyl cyclopentane carboxylate hydrochloride
U Caramiphen hydrochloride
N-(3-Diethylaminopropyl)-2-2-diphenylacetamide
U Arpenal
3-Diethylaminopropyl oximinoacetate 25057-76-6
UF OAB
1,4-Diethylene dioxide
U Dioxane
Diethyl-p-nitrophenyl phosphate
U Paraoxon
Diethyl p-nitrophenyl phosphorothionate
U Parathion
Diethyl p-nitrophenylthionophosphate
U Parathion
Diethyl p-nitrophenylthiophosphate
U Parathion
Diethylphosphorylfluoride
Diethyl-S-2-diethylaminoethyl phosphorothioate

O, O-Diethyl S-2-diethylaminoethyl phosphorothioate
U Amiton
Difacil hydrochloride
U Trasentine hydrochloride
Difazin 641-33-8
UF 10H-Phenothiazine, 10 [(diethylamino)-acetyl]
UF Diethylaminoacetyl-N-phenothiazine hydrochloride
Difluorophate
U DFP (Pesticide)
Difonate
BT Insecticides, organothiophosphate
Digestive system
1, 3-Dihydro-7-nitro-5-phenyl-2H-1, 4-benzodiazepin-2-one
U Nitrazepam
7'12'-Dihydroxy-6, 6'-dimethoxy-2, 2', 2'-trimethyltubocuraranium chloride
U d-Tubocurarine chloride
Dihydroxyphenylalanine
U DOPA
Diisopropoxyphosphoryl fluoride
U DFP (Pesticide)
Diisopropyl fluorophosphate
U DFP (Pesticide)
N-N'-Diisopropylphosphorodiamidic anhydride
U DPDA
N, N'-Diisopropylphosphorodiamidic fluoride
U Mipafox
Diisopropylphosphorofluoridase
U Tabunase
Diisopropyl phosphorofluoridate
U Isofluorophate
Dibenzyline chloride
U Dibenzyline hydrochloride
Dimefox 115-26-4
UF Phosphorodiamide fluoride, tetramethyl-
1, 1-Dimethyl-4-phenylpiperazinium iodide
U DMPP
Dimethoate 60-51-5
UF Phosphamide
UF Phosphorodithionic acid, esters, O, O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester
Dimethoxy p-nitrophenoxyphosphine oxide

Dimethoxy p-nitrophenoxyphosphine oxide (cont'd)
U DMPA
3,4-Dimethoxy-L-phenylalanine
U DMPA
Dimethylamidoethoxyphosphoryl cyanide
U Tabun
Dimethylamine 124-40-3
UF Methanamine, N-methyl-
3-(2-Dimethyl-aminoethyl) phenyl-N-methylcarbamate
2,3-Dimethyl-2-butanol 594-60-5
UF Isopropyldimethylcarbinol
3,3-Dimethyl-2-butyl-methyl-phosphonofluoridate
U Soman
Dimethyl carbamate 39589-98-5
1,5-Dimethyl-5-(1-cyclohexenyl) barbituric acid
U Hexobarbital

O,O-Dimethyl-O-(2,2-dichlorovinyl phosphate
U DDVP

Dimethyl-alpha,2-dichlorovinyl phosphate
U DDVP
1,2-Dimethyl-3-diethylaminopropyl p-isobutoxybenzoate
U Gangleron
N,N-Dimethylformamide 68-12-2
UF DMF
UF DMFA
UF Formamide, N,N-dimethyl-
1,1-Dimethyl-2-phenylaziridinium
UF DPA
Dimethylphenylpiperazinium
U DMPP
N-Dimethylphosphoramidocyanidate
U Tabun
Dimethylphosphoramidocyanidic acid, ethyl ester
U Tabun
Dimethylphosphorylfluoride
Dimethyl sulfoxide 67-68-5
UF DMSO
Dimethyltubocurarine
U Dimethyl-D-tubocurarine
Dimethyl-D-tubocurarine 35-67-6
UF Dimethyltubocurarine
Dimethyl-D-tubocurarine chloride 518-25-2
UF Dimethylturocurarine chloride
Dimethyl tubocurarine iodide 518-26-3 7601-55-0
UF Metocurine iodide
Dimethylturocurarine chloride
U Dimethyl-D-tubocurarine chloride
Dimetilan 644-64-4

Dimetilan 644-64-4 (cont'd)
UF Dimetilane
Dimetilane
U Dimetilan
Dimethylphenylpiperazinium iodide
U DMPP
Dina 4185-47-1
UF Ethanol,2,2'-(nitroimino)bis-,dinitrate (ester)
Dinitrogen monoxide
U Nitrous oxide
2,4-Dinitrophenol 51-28-5
Dioisopropylphosphoric acid
Diophenylacetic acid diethylaminopropylamide
U Arpenal
Dioxane 123-91-1
UF 1,4-Diethylene dioxide
Dioximes
UF Oximes, di-

Diphosphoramide, octamethyl-
U Octamethyl pyrophosphoramide
Diphosphoric acid tetreaethyl ester
U Tetraethyl pyrophosphate
Dipterex
U Trichlorfon
Disodium thiosulfate
U Sodium thiosulfate
Disulfoton
BT Insecticides, organothiophosphate
Dithionates
DMF
U N,N-Dimethylformamide
DMFA
U N,N-Dimethylformamide
DMPA 32161-30-1
UF Dimethoxy p-nitrophenoxyphosphine oxide
UF 3,4-Dimethoxy-L-phenylalanine
DMPA (herbicide) 299-85-4
UF Phosphoramidothioic acid, (1-methylethyl)-O-(2,4 dichlorophenyl)-O-methyl ester
UF Zytron
DMPP 54-77-3
BT Piperazines
UF 1,1-Dimethyl-4-phenylpiperazinium iodide
UF Dimethylphenylpiperazinium
UF Dimethylphenylpiperazinium iodide
UF Piperazinium, 1,1-dimethyl-4-phenyl-, iodide
DMSO
U Dimethyl sulfoxide
DNA
U Deoxyribonucleic acid

Dogs
BT Laboratory animals
BT Mammals
DOPA 59-92-7
UF Dihydroxyphenylalanine
Dorsal muscles
Dosage forms
Dose-response relationship
RT Immunity
Doxapram 309-29-5
DPA
U 1,1-Dimethyl-2-phenylaziridinium
DPDA 513-00-8
UF N-N'-Diisopropylphosphorodiamidic anhydride
UF Tetraisopropyl pyrophosphoramide
Drug therapy
DSDP
U Amiton
Dyes
Dyflos
U DFP (Pesticide)
Dyspnea
E-600
U Paraoxon
Ear
BT Sense organs
Eccrine glands
BT Sweat glands

Echothiophate iodide 513-10-0
UF Ecothiopate iodide
UF Phospholine iodide
Echothiophate 6736-03-4
UF Ecothiopate
UF MI-217
UF Phospholine
Ecothiopate
U Echothiophate
Ecothiopate iodide
U Echothiophate iodide
Edem
UF O-Ethyl-S-(2-diethylamiroethyl)methyl thiophosphonate
Edetic acid
U EDTA
Edrophone bromide
U Edrophonium bromide
Edrophonium 312-48-1
UF Benzenaminium, N-ethyl-3-hydroxy-N,N-dimethyl-
Edrophonium bromide 302-83-0

Edrophonium bromide 302-83-0 (cont'd)
UF Edrophone bromide
UF Ethyl(m-hydroxyphenyl)dimethylammonium bromide
UF N-Ethyl-3-hydroxy-N,N-dimethylbenzenaminium bromide
UF Tensilon bromide
Edrophonium chloride 116-38-1
UF Antirex
UF Tensilon chloride
EDTA 60-00-4 64-02-8
UF Edetic acid
UF Ethylenediaminetetraacetic acid
Eel
Electric stimulation
UF Stimulation, electric
Electrodes
Electrodes, implanted
Electrophoresis
Embryo
Enantiomerism and Enantiomers
U Isomerism and Isomers, optical
Endocid
U Endothion
Endocide
U Endothion
Endocrine glands
NT Adrenal glands
NT Islands of Langerhans
NT Parathyroid glands
NT Pineal body
NT Pituitary gland
NT Pituitary-adrenal system
NT Thyroid gland
Endocrine system
Endothion 2778-04-3
UF Endocid
UF Endocide
Endplate
Enzymatic phosphorylation
Enzyme activation
Enzyme inhibitors
Enzyme reactivators
Enzyme repression
Enzymes
Epinephrine 51-43-4
UF Adrenaline
Epithelial cells
BT Cells
Epithelium
EPN 2104-64-5
BT Insecticides, organothiophosphate
UF Phosphonothioic acid, phenyl-O-ethyl O-(4 nitrophenyl)ester
Equilibrium

Ergamine
U Histamine
Ergoline-8-carboxamide, 9,10-didehydro-N,N-diethyl-6 methyl-, (8B)-
U LSD
Ergotidine
U Histamine
Erythroblasts
BT Erythrocytes
Erythrocytes
BT Blood cells
NT Erythroblasts
RT Reticulocytes
UF Red blood cells
Erythrocyte volume, packed
U Hematocrit
Erythropoiesis
Erythropoietin 11096-26-7
BT Glycoproteins
Eserine
U Physostigmine
Esterase, carboxyl 9016-18-6
BT Esterases
UF Aliesterase

Esterase, choline
U Cholinesterase
Esterases
BT Hydrolases
NT Cholinesterase
NT Esterase, carboxyl

Esters
Ethanaminium, 2-(acetyloxy)-N,N,N-trimethyl-
U Acetylcholine
Ethanaminium, 2-(benzoyloxy)-N,N,N-trimethyl-
U Benzoylcholine

Ethanaminium, 2-hydroxy-N,N,N-trimethyl-
U Choline
Ethanaminium 2-(benzoyloxy)-N,N,N-trimethyl-
U Benzoylcholine
Ethanaminium, 2-mercapto-N,N,N-trimethyl-
U Thiocholine
Ethanol 64-17-5
UF Alcohol, ethyl
Ethanol, 2,2'-(nitroimino)bis-, dinitrate (ester)
U Dina
Ethion
BT Insecticides, organothiophosphate

Ethoxy-2-dimethylamino-ethylthiomethyl-phosphine oxide
U Medemo
Ethoxy-2-ethylthioethyl-thiomethyl-phosphine oxide
U GD-7
Ethoxy-2-ethylthioethyl-thiomethyl-phosphin oxide methylsulfomethylate
U GD-42
Ethoxy group
(2-((Ethoxymethylphosphinyl)thio)ethyl)ethylmethyl sulfonium methyl sulfate
U GD-42
Ethoxy-4-nitrophenyloxy-ethylphosphynoxide
U Armin
Ethyl acetyltyrosinate
U N-Acetyl-L-tyrosine ethyl ester
Ethyl N-acetyl-L-tyrosinate
U Acetyl-L-tyrosine ethyl ester
N-Ethyl-8-aza-3-bicyclo [3.2.1.]octyl benzhydryl ether
U Ethylbenztropine
Ethylbenztropine 524-83-4
UF N-Ethyl-8-aza-3-bicyclo [3.2.1.]octyl benzhydryl ether
UF N-Ethylbenztropine
UF N-Ethylnorthropane benzhydrine ether hydrochloride
UF Ponalid
N-Ethylbenztropine
U Ethylbenztropine
Ethyl carbamate
U Carbamic acid, esters, ethyl ester

Ethyl 2-chloroethyl sulfide
U 2-Chloroethyl ethyl sulfide
Ethyl DDVP
U 2,2-dichlorovinyl diethyl phosphate
Ethyl dimethylamidocyanophosphate
U Tabun
Ethyl dimethylphosphoramidocyanidate
U Tabun
Ethyl N,N-dimethyl phosphoramido cyanidate
U Tabun
Ethylenediaminetetraacetic acid
U EDTA
Ethyl guthion 2642-71-9
N-Ethyl-3-hydroxy-N,N-dimethylbenzenaminium bromide
U Edrophonium bromide
Ethyl methylphosphonothiothiolic acid
Ethyl(m-hydroxyphenyl)dimethylammonium bromide
U Edrophonium bromide
Ethyl p-nitrophenyl ethylphosphonate
U Armin
Ethyl 4-nitrophenyl methylphosphonate 3735-98-6

N-Ethylnorthropane benzhydrine ether hydrochloride
U Ethylbenztropine
Ethyl paraoxon
U Paraoxon
Ethyl parathion
U Parathion
Ethyl phosphoric acid
U Phosphoric acid, esters, ethyl ester
N-Ethyl-2-pyrrolidylmethyl phenylcyclopentylglycolate hydrochloride
U PMCG
O-Ethyl S-diethylaminoethyl ethylphosphonothiolate 21738-25-0
O-Ethyl, S-diethylaminoethyl-ethylphosphonothiolate
U AM-1
O-Ethyl-S-(2-diethylaminoethyl)methyl thiophosphonate
U Edem
O-Ethyl S-(2-diisopropylaminoethyl methylphosphonothioate 50782-69-9
UF O-Ethyl S-(2-diisopropylaminoethyl) methylthiophosphonate
O-Ethyl S-(2-diisopropylaminoethyl) methylthiophosphonate
U O-Ethyl S-(2-diisopropylaminoethyl methylphosphonothioate
Ethyl-S-(2-diisopropylaminoethyl) methylthiophosphonate
U VX
O-Ethyl S-(beta-ethylthioethyl) methylphosphonothioate
U GD-7

Exocrine glands
RT Pancreas

Experimental design
U Research design
Exposure, chambers, inhalation
U Inhalation chambers
Eye
BT Sense organs
Eyelids
RT Nictitating membrane

Face
Fasciculation
    Involuntary contractions,, or twitchings, of groups of muscle fibers
Fasciculus
Fatty acids
Fatty acids, unsaturated
Femoral artery
Femoral nerve
Femoral vein
Femur
Fensulfothion
    BT Insecticides, organothiophosphate
Ferric chloride 7705-08-0
Ferrohemoglobin
    U Hemoglobins
Fever
    RT Body temperature
    UF Hyperthermia
Fibrillation
Flexor
Flowmeters
Fluorescence
Fluorides
    Term used for fluorides as a class. Specific terms are used to index subclasses.
Fluorine 7782-41-4
    BT Halogens
Fluorine cyanide
    U Cyanogen fluoride
Fluorodiisopropyl phosphate
    U DFP (Pesticide)
Fluoromethyl sulfone
    U Methanesulfonic fluoride
Fluoromethyl(1,2,2-trimethylpropoxy) phosphine oxide
    U Soman
Fluorometry
Foot
Forearm
    BT Arm
Forelimb
Formaldehyde 50-00-0
Formamide, N,N-dimethyl-
    U N,N-Dimethylformamide
Formothion
    BT Insecticides, organothiophosphate
1,3-bis(4-formylpyridinium-propane)bis-oxime dichloride
    U B4FPBOCl2
Frogs
G 2747
    U Caramiphen hydrochloride
GABA 56-12-2
    UF Butanoic acid, δ-amino

GABA (cont'd)
UF gamma-aminobutyric acid
GABA-T
UF GABA transamininase
GABA transamininase
U GABA-T
GAD
UF Glutamic acid decarboxylase
Galactosamine 1948-54-5
UF Chondrosamine
UF Galactose, 2-amino-2-deoxy-
Galactosamine hydrochloride
UF Chondrosamine hydrochloride
Galactose, 2-amino-2-deoxy-
U Galactosamine
Gangleron 1510-29-8
UF 1,2-Dimethyl-3-diethylaminopropyl p-isobutoxybenzoate
UF Benzoic acid, 4-(2-methylpropoxy)-3(diethylamino)-1,2-dimethylpropyl ester hydrochloride
UF Ganglerone
Ganglerone
U Gangleron
Ganglia
Ganglia, parasympathetic
UF Parasympathetic ganglia
Ganglia, spinal
BT Spinal nerve roots
Ganglia, sympathetic
UF Sympathetic ganglia
Ganglionic blockaders
UF Ganglionic blocking agents
UF Ganglioplegic agents
Ganglionic blocking agents
U Ganglionic blockaders
Ganglionic stimulants
UF Nicotinic agents
Ganglioplegic agents
U Ganglionic blockaders
Gas chromatography
U Chromatography, gas
Gastric emptying
Gastric probe
Gastrocnemius muscle
BT Muscles
Gastrointestinal hemorrhage
UF Hemorrhage, gastrointestinal
Gastrointestinal system
NT Intestines
NT Stomach

GD-42 2562-54-1
UF (2((Ethoxymethylphosphinyl)thio)ethyl)ethylmethyl sulfonium methyl sulfate
UF Ethoxy-2-ethylthioethyl-thiomethyl-phosphin oxide methylsulfomethylate
UF Phosphonothioic acid, methyl-, O-ethyl ester
UF Sulfonium, [2-[(ethoxymethylphosphinyl)thio]ethyl]methyl-, methyl sulfate
GD-7 556-75-2
UF Ethoxy-2-ethylthioethyl-thiomethyl-phosphine oxide
UF O-Ethyl S-(beta-ethylthioethyl)methylphosphonothioate
UF Phosphonothioic acid, methyl-, O-ethyl S-[2(ethylthio)ethyl] ester
Geiger Counter
RT Radiometry
UF Geiger-Mueller Counter
Geiger-Mueller Counter
U Geiger Counter
Gel chromatography
U Chromatography, gel
Germ cells
Gills
Globus pallidus
Glucose 50-99-7
UF Dextrose
UF D-Glucose
D-Glucose
U Glucose
Glutamic acid 6899-05-4
DL-Glutamic acid 617-65-2
L-Glutamic acid 56-86-0
Glutamic acid decarboxylase
U GAD
Glutamic oxalacetic transaminase 9000-97-9
UF Aminotransferase, aspartate
UF GOT
Glycemia
Glycoproteins
NT Erythropoietin
GMP
U Guanosine monophosphate
3,5-GMP
U Guanosine 3',5'-cyclic monophosphate
GOT
U Glutamic oxalacetic transaminase
Growth
Growth inhibitors
G-Strophanthin
U Ouabain

Guanosine 3',5'-cyclic monophosphate 7665-99-8
UF 3,5-GMP
UF cGMP
UF Cyclic GMP
Guanosine monophosphate
UF GMP
Guinea pigs
BT Laboratory animals
BT Mammals
Gusathion M
U Guthion
Guthion 86-50-0
UF Azinphos-methyl
UF Gusathion M

Gyrus, frontalis superior
Gyrus, post centralis
Gyrus, precentralis
Hair
Half-life
Halogens
NT Fluorine
Hamsters
BT Mammals
Hand
Hazards
Hb
U Hemoglobins
HC-3 312-45-8
UF Morpholinium, 2,2'[1,1-biphenyl]-4,4'-diylbis [2 hydroxy-4,4-dimethyl-, dibromide-
Head
Heart
Heart arrest
UF Cardiac arrest
Heart block
UF Atrioventricular block
Heart failure, congestive
Heart function tests
Heart rate
Heart ventricle
Heat
Heating
Heat loss
U Body temperature regulation
Heat production
U Body temperature regulation
Hematocrit
UF Erythrocyte volume, packed
Hemicholinium 16478-59-4
UF Morpholinium, 2,2'-[1,1'-biphenyl] 4,4'-diylbis [2-hydroxy-4,4-dimethyl-

^{3}H
U Tritium

Hemicholinium-3 312-45-8
UF Morpholinium, 2,2' [1,1'-biphenyl]4,4'-diylbis [2-hydroxy-4,4-dimethyl-, dibromide
Hemocytes
BT Blood cells
Hemoglobins
UF Ferrohemoglobin
UF Hb
Hemolysins
UF Hemotoxins
Hemolysis
Hemorrhage
Hemorrhage, cerebral
U Cerebral hemorrhage
Hemorrhage, gastrointestinal
U Gastrointestinal hemorrhage
Hemotoxins
U Hemolysins
Hens
Heparin 9005-49-6
UF Heparinic acid
Heparinic acid
U Heparin
Herbicides
UF Defoliants, chemical
Hering-Breuer Reflex
Hexamethonium 60-26-4
UF 1,6-Hexanediaminium, N,N,N,N',N',N'-hexamethyl-
Hexamethonium bromide 55-97-0
Hexamethonium chloride 60-25-3
Hexamethonium iodide 870-62-2
UF 1,6-Hexanediaminium, N,N,N,N',N',N'-hexamethyl-, diiodide
Hexamethylene 110-82-7
U Cyclohexane
1,6-Hexanediaminium, N,N,N,N',N',N'-hexamethyl-
U Hexamethonium
1,6-Hexanediaminium, N,N,N,N',N',N'-hexamethyl-, diiodide
U Hexamethonium iodide
Hexobarbital 56-29-1 630-97-7
UF 1,5-Dimethyl-5-(1-cyclohexenyl) barbituric acid
UF 5-Cyclohexenyl-3,5-dimethylbarbituric acid
UF Cyclonal
UF Hexobarbitone

Hexobarbital sodium 50-09-9
UF Cyclonal sodium
UF Hexobarbital soluble
UF Hexobarbitone sodium
UF Sodium hexobarbital
UF Sodium hexobarbitone

Hexobarbital soluble
    U Hexobarbital sodium
Hexobarbitone
    U Hexobarbital
Hexobarbitone sodium
    U Hexobarbital sodium
Hexokinase
HI-6 34433-31-3
    UF Pyridinium, 1-[[[4
    aminocarbonylpyridinio]methoxy]methyl] -2
    [hydroxyimino)methyl]-dichloride
Hip
Hippocampus
Histamine 51-45-6
    UF 1H-Imidazole-4-ethanamine
    UF 2-(4-Imidazolyl)ethylamine
    UF 4-Imidazoleethylamine
    UF beta-Aminoethylglyoxaline
    UF Ergamine
    UF Ergotidine
    UF Theramine
Histology
    NT Histopathology
Histopathology
    BT Histology
    BT Pathology
HNB-3
    U Quinuclidinyl benzilate hydrochloride

Homeostasis
Homogenates
Hormones
    For studies of hormmones as a class. For specific
    hormones, use specific terms.
Horse serum
HS-3 25487-36-9
    UF Pyridinium,2-[hydroxyimino)methyl]-1- [[[4-
    [(hydroxyimino) methyl] pyridinio] methoxy] methyl]
    , dichloride
HS-6 22625-23-6
    UF N,N'-Oxydimethylene-bis (pyridinium-2-aldoxime-3
    carboxamido)
    UF Pyridinium,1-[[[3-(aminocarbonyl)
    pyridinio]methoxy] methyl] -2-[(hydroxyimino)
    methyl] -, dichloride
Hydrazine, phenyl
    U Phenylhydrazine
Hydrofluoric acid 7664-39-3
    UF Hydrogen fluoride
Hydrogen 1333-74-0

Hydrogen-3
U Tritium
Hydrogen fluoride
U Hydrofluoric acid
Hydrogen, isotopes of
NT Tritium
Hydrolases
NT Esterases

NT Peptide hydrolases
NT Phosphatases
Hydrolysis
Hydroxyimino compounds
U Oximes
Hydroxyimino group
2-Hydroxyiminomethyl-1-methylpyridinium methanesulfonate 154-97-2 51729-73-8
U P2S
bis(4-hydroxyiminomethyl-pyridinium- 1-methyl)- ether dichloride
U Toxogonin
Beta-Hydroxylalanine
U Serine
Hydroxyl group
alpha-(Hydroxymethyl)benzeneacetic acid
U Tropic acid
Tris (hydroxymethyl) methanamine
U Tris buffer
7-Hydroxyquinoline 580-20-1
Hydroxyquinolines
Hyoscine
U Scopolamine
Hyoscyamine 101-31-5
U Atropine
Hyperglycemia
RT Blood glucose
Hypersensitivity
RT Allergens
RT Allergy
RT Anaphylaxis
RT Immunity
RT Immunology
RT Sensitization
Hypertension
UF Blood pressure, high
Hyperthermia
U Fever
Hypnotics and Sedatives
NT Barbiturates

Hypnotics and Sedatives (cont'd)
NT Sedatives, Nonbarbiturate
RT Tranquilizing agents
UF Sedatives
Hypo
U Sodium thiosulfate
Hypotension
UF Blood pressure, low
Hypothalamus
Hypothermia
RT Cold
Hypoxia
U Anoxia
Ileum
Imidazole 288-32-4
1H-Imidazole-4-ethanamine
U Histamine
1H-Imidazole-1-ethanol, alpha-(methoxymethyl)-2-methyl 4-nitro-
U AM-1
4-Imidazoleethylamine
U Histamine
Imidazoline 28299-33-4
2-(4-Imidazolyl)ethylamine
U Histamine
Immobilization
Immunity
NT Antibody diversity
NT Antibody formation
NT Antibody specificity
NT Antigen-antibody reactions
NT Immunity, natural
NT Immunity, passive
RT Dose-response relationship
RT Hypersensitivity
RT Receptors, immunologic
Immunity, natural
BT Immunity
Immunity, passive
BT Immunity
Immunization
Immunology
RT Hypersensitivity
Incubation
1H-Indol-3-ol
U Indoxyl
Indophenol acetate
U Indophenyl acetate
Indophenyl acetate 7761-80-0
UF Indophenol acetate
Indoxyl 480-93-3
UF 1H-Indol-3-ol

Indoxyl acetate 608-08-2
UF 3-Acetoxyindole
Induction
Inferno
U Amiton

Inflammation
Infrared spectra
Infrared spectrometry
Inhalation
BT Breathing
Inhalation chambers
UF Exposure, chambers, inhalation
Inhalation tests
Inhalation toxicity
Inhibition
Inhibition, neural
U Neural inhibition
Inhibitor
Injuries

Insecticides
NT Amiton
NT Insecticides, organophosphate
NT Insecticides, organothiophosphate
NT Malathion
RT Cholinesterase inhibitors
Insecticides, carbamate
NT Aldicarb
Insecticides, organophosphate
BT Insecticides
NT Chlorfenvinphos
NT Crufomate
NT Mevinphos
NT Monocrotophos
NT Naled
NT Phosphamidon
Insecticides, Organophosphate
RT Organophosphorus compounds

Insecticides, organothiophosphate
BT Insecticides
BT Organothiophosphorus compounds
NT Abate
NT Azinphosmethyl
NT Bromophos
NT Coumaphos
NT Diazinon
NT Difonate
NT Disulfcton

Insecticides, organothiophosphate (cont'd)
NT EPN
NT Ethion
NT Fensulfothion
NT Formothion
NT Methyl mercaptophos
NT Phorate
NT Phosmet
NT Phosvel
NT Thiometon
Interneurons
BT Neurons
Interrenal gland
BT Adrenal glands
Intestines
BT Gastrointestinal system
Intoxication
Intracranial pressure
RT Skull
Iodine 7553-56-2
Iodine monocyanide
U Cyanogen iodide
Ionization
Ions
Irradiation
Irritation
RT Primary irritancy
Ischemia
RT Blood circulation
Islands of Langerhans
BT Endocrine glands
UF Pancreas, endocrine
Isoamyl acetate 123-92-2
UF Amylacetic ester
Isofluorophate
U DFP (Pesticide)
Isolan 119-38-0
Isomerism and Isomers, optical
UF Enantiomerism and Enantiomers
Isomerism and Isomers
UF Stereoisomerism and Stereoisomers
Isonitrosoacetone
U MINA
Isonitroso compounds
U Oximes

Iso-OMPA 513-00-8
Isoprenaline
U Isoproterenol
Isopropanol
U 2-Propanol
Isopropoxymethylphosphoryl fluoride
U Sarin
Isopropyl alcohol
U 2-Propanol
Isopropyldimethylcarbinol
U 2,3-Dimethyl-2-butanol

Isopropyl methyl fluorophosphonate
U Sarin
Isopropyl methyl phosphonofluoridate
U Sarin
Isoproterenol 7683-59-2
UF Isoprenaline
Isosystox 126-75-0
JB-336 3321-80-0

UF Benzeneacetic acid, alpha-hydroxy-alpha-phenyl esters, 1-methyl-3-piperidinyl ester
UF N-Methyl-3-hydroxypiperidine benzilate
UF N-Methyl-3-piperidinyl benzilate
JB-336/3 3689-80-3

UF Benzeneacetic acid, alpha-hydroxy-alpha-phenyl-, esters, 1-methyl-3-piperidinyl esters, hydrochloride
UF N-Methylpiperidylbenzilate, hydrochloride
JB-336/4 29558-43-0

UF Benzeneacetic acid, alpha-hydroxy-alpha-phenyl-, esters, 1-methyl-4-piperidinyl ester, hydrochloride
UF N-Methyl-4-piperidyl benzilate hydrochloride
UF N-Methyl-4-piperidyl diphenylglycolate hydrochloride
Joints
Jugular veins
Ketamine 6740-88-1
UF Cyclohexanone, 2-(2-chlorophenyl)-2 (methylamino)-
Kidney
BT Urinary tract
Kinetics
Knee
Kymography
UF Cymography

LA-1
U Nitrazepam
Laboratory animals
BT Animals
NT Cats
NT Dogs
NT Guinea pigs
NT Mice
NT Monkeys
NT Rabbits
NT Rats
RT Animal testing
UF Animals, laboratory
Lacunae
Lanthanum 7439-91-0
LD50
NT Lethal dose
UF Lethal dose 50
Lecithins
General term. Use name of specific lecithins where indicated.
UF Lecithol
UF Phosphatidylcholines
Lecithol
U Lecithins
Leeches
Leg
Lethal dose
BT LD50
Lethal dose 50
U LD50
Leucine 7005-03-0
UF 2-Amino-4-methylvaleric acid
UF alpha-Aminoisocaproic acid
DL-Leucine 328-39-2
L-Leucine 61-90-5
Leukocytes
BT Blood cells
UF White blood cells
Lidocaine 137-58-6
UF Lignocaine
UF Xylocaine
Ligaments
Ligands
Lignocaine
U Lidocaine

Ligroin 8032-32-4
UF Petroleum ether

Limbic system
Limbs
Lip
Lipids
    NT Membrane lipids
Liver
LSD 50-37-3
    UF Ergoline-8-carboxamide, 9,10-didehydro-N,N diethyl-6-methyl-,(8B)-
    UF Lysergic acid diethylamide
    UF Lysergide
LuH-6
    U Toxogonin
Lung
    NT Bronchi
    NT Pulmonary alveoli
    RT Air sacs
    RT Respiration
Lymph
Lymphatic system
Lymph nodes
Lysergic acid diethylamide
    U LSD
Lysergide
    U LSD
Lysocythins
    U Lysolecithins
Lysolecithins
    For lysolecithins as a class. Prefer specific lysolecithins.
    UF Lysocythins
    UF Lysophosphatidylcholines
Lysophosphatidylcholines
    U Lysolecithins
Macaca Mulatta
    U Monkey, Rhesus
Magnesium 7439-95-4
Magnesium chloride 7786-30-3
Magnesium sulfate 7487-88-9
Malaoxon
    U Malathion
Malathion 121-75-5
    BT Insecticides
    UF Butanedioic acid . [Dimethoxyphosphinothioyl) thiol-, diethyl ester
    UF Malaoxon

Mammals
    BT Vertebrates
    NT Cats
    NT Dogs

Mammals (cont'd)

NT Guinea pigs
NT Hamsters
NT Mice
NT Primates
NT Rabbits
NT Rats

Manganese 7439-96-5
Manometry
RT Pressure
Marmosets
U Callithricidae
Marrow
U Bone marrow
Mass spectra
Mass spectrometers and spectrographs
Mass spectrometry
U Mass spectroscopy
Mass spectroscopy
UF Mass spectrometry
Maximal voluntary ventilation
BT Respiratory air flow
Mecamine
U Mecamylamine
Mecamylamine 60-40-2
UF Mecamine
UF Bicyclo [2.2.1] heptan-2-amine, N,2,3,3,tetramethyl-
UF N,2,3,3-Tetramethylbicyclo 2.2.1 heptan-2-amine
UF Versamine
Mecholin
U Methacholine bromide
Mecholyl bromide
U Methacholine bromide
Medemo 51366-09-7
UF Ethoxy-2-dimethylamino-ethylthiomethyl-phosphine oxide
UF Phosphonothioic acid, methyl-, S-[2-[(dimethylamino)-thio] ethyl] O-ethyl ester
Medulla oblongata
Methylnorepinephrine
U Norepinephrine
Membrane lipids
BT Lipids
Membrane potentials
RT Cell membrane
RT Membranes
Membranes
RT Cell membrane
RT Membrane lipids
RT Membrane potentials
Mepenzolate 25990-43-6

Mepenzolate bromide 76-90-43
UF N-Methyl-3-piperidyl benzilate methyl bromide
Meractinomycin
U Actinomycin D
2-Mercaptoethyl sulfide
U TDT
(2-Merceptoethyl)trimethylammonium iodide butyrate
U Butyrylthiocholine iodide
Mestinon 101-26-8
UF Mestinon bromide
UF Pyridostigmine bromide
Mestinon bromide
U Mestinon
Mesyl fluoride
U Methanesulfonic fluoride
Metabolic detoxication, drug
Metabolic inhibitors
Metabolism
NT Anaerobiosis
Metabolites
Methacholine 55-92-5
UF 1-Propanaminium, 2-(acetyloxy)-N,N,N-trimethyl-
UF Acetyl-beta-methylcholine
Methacholine bromide 333-31-3
UF 1-Propanaminium, 2-acetyloxy)-N,N,N-trimethyl-, bromide
UF Acetyl-beta-methylcholine bromide
UF Amechol
UF Mecholin
UF Mecholyl bromide
Methacholine chloride 62-51-1
UF 1-Propanaminium, 2 (acetyloxy)-N,N,N-trimethyl chloride
UF Acetyl-beta-methylcholine chloride
Methacholine iodide 625-19-4
Methanamine, N-methyl-
U Dimethylamine
Methanesulfonic fluoride 558-25-8
UF Fluoromethyl sulfone
UF Mesyl fluoride
UF MSF
UF Methylsulfonyl fluoride
Methanol 67-56-1
UF Alcohol, methyl
Methionine 7005-18-7
DL-Methionine 59-51-8
L-Methionine 63-68-3
1-Methyl-2-aldoximinopyridinium chloride
U 2-PAM chloride
Methylatropine 287-07-15
Methylatropine bromide 2870-71-5

Methylatropine bromide 2870-71-5 (cont'd)
UF Atropine methyl bromide
UF 8-Azoniabicyclo [3.2.1] octane, 3-(3-hydroxy-1 oxo-2-phenylpropoxy)-8,8-dimethyl-, bromide, endo-
Methylatropine nitrate 52-88-0
UF 8-Azoniabicyclo [3.2.1] octane, 3-(3-hydroxy-1 oxo-2-phenylpropoxy)-8,8-dimelthyl-, endo-, nitrate
N-Methyl carbamate 63-25-2
UF 1-Naphthalenol, methylcarbamate
UF Carbaryl
UF Sevin
Methyl cyanide
U Acetonitrile

N,N'-bis (1-methylethyl)phosphorodiamidic fluoride
U Mipafox
Methyl glycol
U alpha-Propylene glycol
Methyl group

N-Methyl-3-hydroxypiperidine benzilate
U JB-336
Methyl isopropoxy phosphoryl fluoride
U Sarin
Methyl mercaptophos
BT Insecticides, organothiophosphate
Methyl parathion 298-00-0
Tris (o-methylphenyl) phosphate
U Tri-o-tolyl phosphate
Methyl phosphonate
U Phosphonic acid, dimethyl ester
Methylphosphonic acid
U Phosphonic acid, methyl-
Methylphosphonofluoridates
Methylphosphonofluoridic acid, 1-methylethyl ester
U Sarin
Methylphosphonofluoridic acid 1,2,2-trimethylpropyl ester
U Soman
Methylphosphonofluoridic acid 1,2,2-trimethyl propyl ester
U Soman
Methyl pinacolyloxy phosphoryl fluoride
U Soman
Methyl pinacolyl phosphonofluoridate
U Soman
N-Methyl-3-piperidinyl benzilate
U JB-336
N-Methylpiperidylbenzilate, hydrochloride
U JB-336/3

N-Methyl-4-piperidyl benzilate hydrochloride
U JB-336/4

N-Methyl-4-piperidyl diphenylglycolate hydrochloride
U JB-336/4
1-Methylpyridinium-2-aldoxime methanesulfonate
U P2S
N-Methylpyridinium-2-aldoxime methane sulfonate
U P2S
N-Methyl pyridinium-2-aldoxime trichloroacetate
Methylpyridinium iodide 61734-40-5 930-73-4
UF Pyridine methiodide
Methylscopolamine 13265-10-6
UF Scopolamine methyl bromide
Methylscopolamine bromide 18905-44-7
UF Scopolamine methyl bromide
Methylsulfonylfluoride
U Methanesulfonic fluoride
Metocurine iodide
U Dimethyl tubocurarine iodide
Metramac
U Amiton

Mevinphos
BT Insecticides, organophosphate
Mevinphos
U Phosdrin
MI-217
U Echothiophate
Mice
BT Laboratory animals
BT Mammals
Microcirculation
Microsomes
Microwaves
RT Diathermy
MINA 306-44-5
UF Isonitrosoacetone
UF Monoisonitrosoacetone

UF Propanol,2-oxo-1-oxime
UF Propanone 1-oxime
UF Pyruvaldehyde 1-oxime
Mipafox 371-86-8
UF N,N'-bis (1-methylethyl)phosphorodiamidic fluoride
UF N,N'-diisopropylphosphorodiamidic fluoride
UF Phosphorodiamidic fluoride, N,N-bis (1 methylethyl)-
Mitochondria

Mitosis
MMB-4 51026-61-0
UF Pyridinium, 1,1'-Methylenebis-4 [hydroxyimino)methyl]-, dichloride
Monkey, Rhesus
BT Monkeys
UF Macaca Mulatta
Monkeys
BT Laboratory animals
NT Monkey, Rhesus
Monobutylphosphoric acid
U Butyl dihydrogen phosphate
Monocrotophos
BT Insecticides, organophosphate
Monoisonitrosoacetone
U MINA
Monopotassium oxalate
U Potassium acid oxalate
Morphine 57-27-2
Morpholinium, 2,2'-[1,1'-biphenyl] 4,4'-diylbis [2 hydroxy-4,4-dimethyl-
U Hemicholinium
Morpholinium, 2,2'[1,1-biphenyl]-4,4'-diylbis [2 hydroxy-4,4-dimethyl-, dibromide-
U HC-3
Morpholinium, 2,2' [1,1'-biphenyl]4,4'-diylbis [2 hydroxy-4,4-dimethyl-, dibromide
U Hemicholinium-3
Morphothion 144-41-2
Mortality
UF Death rate
Motor activity
Motor endplate
U Neuromuscular junction
Motor neurons
BT Neurons
Mouth
MPA
U Phosphonic acid, methyl-
MSF
U Methanesulfonic fluoride

Mucus
Muscaranic action
Muscarinic agents
U Parasympathomimetics
Muscarinic receptors
U Receptors, muscarinic
Muscle contraction
RT Muscle relaxation

Muscle denervation

Muscle relaxants, central
Muscle relaxation
RT Muscle contraction

Muscle rigidity
Muscles
General term. See Table of Muscles for specific names.
NT Gastrocnemius muscle
NT Pectoralis muscles
NT Tibial muscle
Muscle, smooth
Muscle spasticity
UF Spasticity, muscle
Musculoskeletal system
Mustard
Mustard gas
U 2,2'-Dichloroethyl sulfide

Mutagens
RT Mutation
RT Teratogenic agents
Mutation
RT Mutagens
Myocardial depressants
U Anti-arrhythmia agents
Myoclonus
Myoneural junction
U Neuromuscular junction

Nails
Naled
    BT Insecticides, organophosphate
Naphtha
    BT Benzin
1-Naphthalenol, methylcarbamate
    U N-Methyl carbamate
Beta-Naphthol acetate
    U Beta-Naphthyl acetate
Naphthols
2-Naphthyl acetate
    U Beta-Naphthyl acetate
Beta-Naphthyl acetate 1523-11-1
    UF 2-Acetoxynaphthalene
    UF 2-Naphthyl acetate
    UF Beta-Naphthol acetate
    UF O-Acetyl-beta-naphthol
Neck
Neoserine methyl sulfate
    U Neostigmine methyl sulfate
Neostigmine 59-99-4
    UF Benzenaminium, 3-[[(dimethylamino) carbonyl]oxy]
     N,N,N-trimethyl-
    UF Prostigmin
    UF Prostigmine
Neostigmine bromide 114-80-7
    UF Prostigmin bromide
    UF Prostigmine bromide
Neostigmine methyl sulfate 51-60-5 59954-03-9
    UF Neoserine methyl sulfate
    UF Prostigmine methyl sulfate
Nerve block
Nerve cells
    U Neurons
Nerve degeneration
    UF Neuron degeneration
    UF Retrograde degeneration
Nerve endings
    NT Neuroeffector junction
    NT Prressorreceptors
    NT Receptors, sensory
    NT Thermoreceptors
    RT Neural transmission
Nerve endings, sensory
    U Receptors, sensory
Nerve fibers
    NT Axons
Nerve gases
Nerve-muscle preparation
    U Neuromuscular junction
Nerve net
    U Nervous system

Nerve regeneration
Nerves
    NT Tibial nerve
    NT Vagus nerve
Nerve stimulation
Nerve tissue
Nerve transmission
    U Neural transmission
Nerve transmitter substances
    U Neuroregulators
Nervous system
    NT Autonomic nervous system
    NT Central nervous system
    UF Nerve net
Nervous system diseases
    RT Neurology

Nervous system physiology
Neural conduction
    Conduction along a single nerve, as opposed to neural transmission (between neurons)
    RT Neurons
    UF Nerve conduction
Neuralgia
Neural inhibition
    UF Inhibition, neural
Neural pathways
Neural transmission
    RT Nerve endings
    Transmission between nerves, as opposed to neural conduction (along a single nerve)
    UF Nerve transmission
Neuritis
Neuroblast
Neuroblastoma
Neurochemistry
Neuroeffector junction
    BT Nerve endings

Neurofibrils
    BT Neurons
Neurohumors
    U Neuroregulators
Neuroleptics
    U Tranquilizing agents, major
Neurologic examination
Neurologic manifestations
Neurology
    RT Nervous system diseases
Neuromodulators
    U Neuroregulators
Neuromuscular blocking agents
    Neuromuscular agents
Neuromuscular diseases

Neuromuscular functions

Neuromuscular functions
Neuromuscular junction
UF Motor endplate
UF Myoneural junction
UF Nerve-muscle preparation
Neuromuscular paralysis
Neuromuscular spindles
Neuromuscular transmission
Neuromuslcular agents
Neuron degeneration
U Nerve degeneration
Neurons
NT Autonimic fibers
NT Axons
NT Dendrites
NT Interneurons
NT Motor neurons
NT Neurofibrils
NT Neurons, afferent
NT Neurons, efferent
NT Synapses
RT Neural conduction
UF Nerve cells
Neurons, afferent
BT Neurons
UF Neurons, sensory
Neurons, efferent
BT Neurons
Neurons, sensory
U Neurons, afferent
Neuropathy
Neurophysiology
RT Sensation
Neuroreceptors
U Receptors, sensory
Neuroregulators
UF Nerve transmitter substances
UF Neurohumors
UF Neuromodulators
UF Neurotransmitters
Neurosecretion
Neurosurgery
Neurotendinous spindles
Neurotoxins
Neurotransmitters
U Neuroregulators

Niacin
U Nicotinic acid

Nicotine 54-11-5
Nicotinic acid 59-67-6
UF 3-Pyridinecarboxylic acid
UF Niacin
Nicotinic acid 1-oxide
U Oxiniacic acid
Nicotinic agents
U Ganglionic stimulants
Nicotinic receptors
U Receptors, nicotinic
Nicotinohydroxamic acid 5657-61-4
UF 3-Pyridinecarboxamide, N-hydroxy-
Nictitating membrane
RT Eyelids
Niter
U Sodium nitrate
Nitrazepam 146-22-5
UF 1,3-Dihydro-7-nitro-5-phenyl-2H-1,4-benzodiazepin-2-one
UF 2H-1,4-Benzodiazepin-2-one, 1,3,dihydro-7-nitro 5-phenyl-
UF Benzalin
UF LA-1
UF Nitrodiazepam
Nitric acid, sodium salt
U Sodium nitrate
Nitrodiazepam
U Nitrazepam
Nitrogen 7727-37-9
RT Amino compounds
Nitrogen oxide
U Nitrous oxide
p-Nitrophenyl ethyl pentylphosphonate 3015-75-6
1-Nitropropane 108-03-2
Nitrostigmine
U Parathion
Nitrous oxide 10024-97-2
UF Dinitrogen monoxide
UF Nitrogen oxide
NMR
U Nuclear magnetic resonance
NMR spectra
U Nuclear magnetic resonance spectra
Noradrenaline
U Norepinephrine
Norepinephrine 51-41-2
UF Arterenol
UF Methylnorepinephrine
UF Noradrenaline
Nose

Nuclear magnetic resonance
    UF NMR
Nuclear magnetic resonance spectra
    UF NMR spectra
Nucleophiles
    Specific headings are used for specific nucleophiles.
Nucleosides
    NT Adenosine
Nucleotides
Nucleotides, cyclic
    UF Cyclic nucleotides
OAB
    U 3-Diethylaminopropyl oximinoacetate

Obidoxime
    UF Toxogonin
Obidoxime chloride
    U Toxogonin
Obidoxime hydrochloride
    U Toxogonin
Occiput
Octamethyldiphosphoramide
    U Octamethyl pyrophosphoramide
Octamethyl pyrophosphoramide 152-16-9
    UF Diphosphoramide, octamethyl-
    UF Octamethyldiphosphoramide
    UF OMPA
    UF Sytam
Oligomycin B 11050-94-5
    BT Oligomycins
Oligomycins
    NT Oligomycin B
Olive oil
OMPA
    U Octamethyl pyrophosphoramide
Optical rotation
Organophosphate poisoning
Organophosphates
    U Organophosphorus compounds
Organophosphorus compounds
    NT Aminoethylphosphonic acid
    NT Armin
    NT Phosphonoacetic acid
    NT Phosphoric acid, esters
    NT Pyrophosphoric acid, esters
    NT Sarin
    NT Soman
    RT Insecticides, Organophosphate

    UF Organophosphates
    UF Phosphates, organic

Organothiophosphorus compounds
NT Insecticides, organothiophosphate
Orthophosphoric acic
U Phosphoric Acid
Oscillometry
Oscilloscope
UF Cathode ray oscilloscope
UF CRO
Ouabain 630-60-4
UF Acocantherin
UF G-Strophanthin
Oxalates
Oximes
NT Toxogonin
UF Hydroxyimino compounds
Oximes, di-
U Dioximes
3-Oximino-2-pentanone 609-29-0
Oxiniacic acid 2398-81-4
UF 3-Carboxypyridine N-oxide
UF Nicotinic acid 1-oxide
Oxotremorine 70-22-4
UF 2-pyrrolidinone, 1-[4-(1-Pyrrolidinyl)-2-butynyl]-
N,N'-Oxydimethylene-bis (pyridinium-2-aldoxime-3-carboxamido)
U HS-6
1,1'-Oxydimethylene bis-(4-tert)-butylpyridinium chloride
U SAD-128
Oxygen 7782-44-7
Oxygenation
Oxygen consumption
Oxygen deficiency
U Anoxia
Oxyparathion
U Paraoxon
32p
A beta-emitting radioactive phosphorus isotope
UF Phosphorus-32
P2S 154-97-2 51729-73-8
UF 1-Methylpyridinium-2-aldoxime methanesulfonate
UF 2-Hydroxyiminomethyl-1-methylpyridinium methanesulfonate
UF 2-PAM methanesulfonate
UF N-Methylpyridinium-2-aldoxime methane sulfonate
UF Pralidoxime mesylate
UF Pralidoxime methanesulfonate
UF Pyridine-2-aldoxime methyl methanesulfonate
UF Pyridinium, 2-[(hydroxyimino)methyl]-1-methyl-, methanesulfonate (salt)
Pain

Pain (cont'd)
RT Analgesia
PAM 94-63-3
UF 2-PAM
UF 2-FAM iodide
UF 2-Pyridine aldoxime methyl iodide
UF 2-Pyridinium aldoxime methochloride
UF Pralidoxime iodide
UF Pralidoxime methiodide
UF Pyridinium,2-[(hydroxyimino)methyl]-1- methyl-, iodide
2-PAM
U PAM
2-PAM chloride 51-15-0 27951-78-6
UF 1-Methyl-2-aldoximinopyridinium chloride
UF 2-Pyridinealdoxime methochloride
UF Pralidoxime chloride
2-PAM iodide
U PAM
2-PAM methanesulfonate
U P2S
Pancreas
RT Exocrine glands
Pancreas, endocrine
U Islands of Langerhans
Pancreatic ducts
Paper chromatography
U Chromatography, paper
Paper electrophoresis
Paralysis
Paraoxon 311-45-5
U Parathion
UF Diethyl-p-nitrophenyl phosphate
UF E-600
UF Ethyl paraoxon
UF Oxyparathion
UF Phosphacol
UF Phosphoric acid, esters, diethyl-4-nitrophenyl ester
Parasympathetic ganglia
U Ganglia, parasympathetic
Parasympathetic nervous system
Parasympatholotics
NT Caramiphen hydrochloride
Parasympatholytics
NT Benactyzine
NT Carbachol
UF Anticholinergic agents
UF Antimuscarinic agents
UF Cholinergic blocking agents
UF Cholinolytics
Parasympathomimetics

Parasympathomimetics (cont'd)
NT Atropine

UF Cholinergic agents
UF Cholinomimetics
UF Muscarinic agents
Parathion 56-38-2
UF AATP
UF Diethyl p-nitrophenyl phosphorothionate
UF Diethyl p-nitrophenylthionophosphate
UF Diethyl p-nitrophenylthiophosphate
UF Ethyl parathion
UF Nitrostigmine
UF Paraoxon
UF Phosphorothioic acid, esters, O,O-diethyl O-(4 nitrophenyl) ester
UF Thiophos
Parathoid glands
BT Endocrine glands
Parpanil
U Caramiphen
Parpanit
U Caramiphen hydrochloride
Pathology
NT Histopathology
Pectoralis muscles
BT Muscles
Pelvis
Pentaphen
U Caramiphen
Pentaphene hydrochloride
U Caramiphen hydrochloride
Pentobarbital 76-74-4 UF Pentobarbitone
Pentobarbital sodium 57-33-0
UF Pentobarbitone sodium
UF Sodium 5-ethyl-5-(1-Methylbutyl) barbiturate
UF Sodium pentobarbital
UF Sodium pentobarbitone
Pentobarbitone sodium
U Pentobarbital sodium
Peptide hydrolases
BT Hydrolases
NT Alpha-Chymotrypsin
UF Proteolytic enzymes
Perchloric acid 7601-90-3
Percutaneous absorption
Perfusion
Perfusion, regional
Perineum
Periodicity
RT Circadian rhythm
Peripheral nerves

Permeability
Permeability, cell membrane
    U Cell membrane permeability
Pesticides
Petroleum ether
    BT Benzin
    U Ligroin
pH
    RT Acidity
Phencapton
    U Phenkapton
Phenkapton 2275-14-1
    BT Phosphorodithioic acid, esters
    UF Phencapton
    UF Phenkaptone
    UF Phosphorodithioic acid, esters, S-[[(2,5 dichlorophenyl)thio]methyl]O,O-diethyl ester
Phenkaptone
    U Phenkapton
Phenobarbital 50-06-6
10H-Phenothiazine, 10[(diethylamino)-acetyl]
    U Difazin
10H-Phenothiazine-10-propanamine,N,N-dimethyl-2-(trifluoromethyl)-
    U Triflupromazine
Phenoxybenzamine
    U Dibenzyline
Phenoxybenzamine chloride
    U Dibenzyline hydrochloride
Phenoxybenzamine hydrochloride
    U Dibenzyline hydrochloride
Phenyl acetate 122-79-2
    UF Acetic acid phenyl ester
    UF Acetyl phenol
alpha-Phenylbenzeneacetic acid 2-(diethylamino) ethyl ester
    U Trasentine hydrochloride
Phenylhydrazine 100-63-0
    UF Hydrazine, phenyl
    UF PHZ
Phenyl saligenin phosphate 4081-23-6
    UF Saligenin cyclic phenyl phosphate
Phorate 298-02-2
    BT Insecticides, organothiophosphate
    U Thimet
Phosdrin 7786-34-7
    UF Mevinphos
    UF 2-Butenoic acid, 3-[(dimethoxy-phosphinyl)oxy] methyl ester
Phosgene 75-44-5
    UF Carbonic dichloride
    UF Carbonyl chloride

Phosmet
    BT Insecticides, organothiophosphate
Phosphacol
    U Paraoxon
Phosphamide
    U Dimethoate
Phosphamidon 13171-21-6
    BT Insecticides, organophosphate
Phosphatases
    BT Hydrolases
    NT Adenosine triphosphatase
Phosphate esters
    U Phosphoric acid, esters
Phosphates
    UF Phosphates, inorganic
Phosphates, inorganic
    U Phosphates
Phosphates, organic
    U Organophosphorus compounds
Phosphatidylcholines
    U Lecithins
    UF Choline phosphoglycerides
Phosphodiesterases
    NT Cyclic nucleotide phosphodiesterases
Phospholine
    U Echothiophate
Phospholine iodide
    U Echothiophate iodide
Phospholipids
Phosphonate
    U Phosphonic acid, ion(2-)
Phosphonates
Phosphonic acid 13598-36-2
Phosphonic acid, dimethyl ester 868-85-9
    UF Methyl phosphonate
Phosphonic acid, ethyl-, ethyl 4-nitrophenyl ester
    U Armin
Phosphonic acid, ion(2-)
    UF Phosphonate
Phosphonic acid, methyl-
    UF Methylphosphonic acid
    UF MPA
Phosphonoacetic acid
    BT Organophosphorus compounds
Phosphonofluoridic acid 14939-29-8
Phosphonofluoridic acid, methyl-, 1-methylethyl ester
    U Sarin
Phosphonofluoridic acid, methyl-, 1,2,2-trimethylpropyl ester
    U Soman
Phosphonofluoridimidic acid 27682-26-4
Phosphonothioic acid, methyl-,O-ethyl ester

Phosphonothioic acid, methyl-,O-ethyl ester (cont'd)
U GT-42
Phosphonothioic acid, methyl-, O-ethyl S-[2-(ethylthio) ethyl] ester
U GD-7
Phosphonothioic acid, methyl-, S-[2 [(dimethylamino)thio]ethyl]O-ethyl ester
U Medemo
Phosphonothioic acid, phenyl-O-ethyl O-(4 nitrophenyl)ester Equilibrium
U EPN
Phosphonylation
Phosphoramidothioic acid, (1-methylethyl)-O-(2,4 dichlorophenyl)-O-methyl ester
U DMPA (herbicide)
Phosphoric acid 7664-38-2
UF Orthophosphoric acid
Phosphoric acid, esters
BT Organophosphorus compounds
UF Phosphate esters
Phosphoric acid, esters, 2,2-dichloroethenyl dimethyl ester
U DDVP
Phosphoric acid, esters, diethyl-4-nitrophenyl ester
U Paraoxon
Phosphoric acid, esters, ethyl ester
UF Ethyl phosphoric acid
Phosphoroamidocyanidic acid, dimethyl-, ethyl ester
U Tabun
Phosphorodiamide fluoride, tetramethyl-
U Dimefox
Phosphorodiamidic fluoride, N,N-bis (1-methylethyl)-
U Mipafox
Phosphorodithioic acid, esters
NT Phenkapton
Phosphorodithioic acid, esters, S-[[(2,5 dichlorophenyl)thio]methyl]O,O-diethyl ester
U Phenkapton

Phosphorodithionic acid, esters, O,O-dimethyl S-[2 (methylamino)-2-oxoethyl] ester
U Dimethoate

Phosphorofluoridic acid, bis (1-methylethyl) ester
U DFP (Pesticide)
U Isoflurophate
Phosphorothioic acid, O,O-diethyl O-(2-isopropyl-6 methyl-4-pyrimidinyl) ester
U Diazinon

Phosphorothioic acid, esters, O,O-diethyl O-(4-nitrophenyl) ester
U Parathion
Phosphorothioic acid, esters, S-[2-(diethylamino)ethyl] O,O-diethyl ester
U Amiton
Phosphorus 7723-14-0
Phosphorus-32
U ^{32}P
Phosphorylase phosphatase
Phosphorylation
Phosphorylcholine 107-73-3
BT Choline
UF Choline phosphate chloride
Phosphorylthiocholines
Phosvel
BT Insecticides, organothiophosphate
Phrenic nerve
Physical stimulation
UF Stimulation, physical
Physostigmine 50975-37-6 57-47-6
UF Eserine
Physostigmine hydrochloride 6091-12-9
Physostigmine salicylate 57-64-7
Physostigmine sulfate 64-47-1
PHZ
U Phenylhydrazine
Pinacoloxymethylphosphoryl fluoride
U Soman
Pinacolyl alcohol 464-07-3
UF 2-Butanol, 3,3-dimethyl-
Pinacolyl hydrogen methylphosphonate
U PMPA
O-Pinacolyl hydrogen methylphosphonate
U PMPA
Pinacolyl methylfluorophosphonate
U Soman
O-Pinacolyl methylphosphonate
U PMPA
Pinacolyl methylphosphonic acid
U PMPA
Pinacolyl methylphosphonofluoridate
U Soman
Pineal body
BT Endocrine glands
Piperazines
NT DMPP
Piperazinium, 1,1-dimethyl-4-phenyl-, iodide
U DMPP

Pituitary-adrenal system
    BT Endocrine glands
Pituitary gland
    BT Endocrine glands
Plasma
    UF Blood plasma
Plasma membrane
    U Cell membrane
Pleura
PMCG 2001-91-4
    UF N-Ethyl-2-pyrrolidylmethyl-phenyl cyclopentylglycolate hydrochloride
PMFP
    U Soman
PMPA 616-52-4
    UF O-Pinacolyl hydrogen methylphosphonate
    UF O-Pinacolyl methylphosphonate
    UF Pinacolyl hydrogen methylphosphonate
    UF Pinacolyl methylphosphonic acid
^{32}P-PMPA
    UF ^{32}P-Pinacolyl methylphosphonic acid
Poisoning
    RT Antidotes
    RT Poisons
    RT Toxicology
Poisons
    RT Poisoning
    RT Toxicology
Polyethyleneglycol octylphenol ether
    U Triton X-100
Ponalid
    U Ethylbenztropine
Pons
Potassium 7440-09-7
Potassium acid oxalate 127-95-7
    UF Monopotassium oxalate
    UF Potassium hydrogen oxalate
    UF Potassium oxalate
Potassium chloride 7447-40-7
Potassium fluoride 7789-23-3
Potassium hydrogen oxalate
    U Potassium acid oxalate
Potassium iodide 7681-11-0
Potassium oxalate
    U Potassium acid oxalate
Potassium persulfate 7727-21-1
Potency
Potentiation
Pralidoxime chloride

Pralidoxime chloride (cont'd)
U 2-PAM chloride
Pralidoxime iodide
U PAM
Pralidoxime mesylate
U P2S
Pralidoxime methanesulfonate
U P2S
Pralidoxime methiodide
U PAM
Pressorreceptors
BT Nerve endings
Pressure
RT Blood pressure
RT Manometry
RT Venous pressure
Prilocaine 721-50-6
UF Propitocaine
Primary irritancy
RT Irritation
Primates
BT Mammals
Procaine 59-46-1
UF Benzoic acid, 4-amino, 2-(diethylamino) ethyl ester
Promazil
U Chlorpromazine
Promethium 7440-12-2
Radioactive, metallic chemical element, formerly called florentium and illinium
1-Propanaminium, 2-(acetyloxy)-N, N, N-trimethyl-
U Methacholine
1-Propanaminium, 2-acetyloxy)-N, N, N-trimethyl-, bromide
U Methacholine bromide
1-Propanaminium, 2(acetyloxy)-N, N, N-trimethyl-, chloride
U Methacholine chloride
1, 2-Propanediol
U alpha-Propylene glycol
1, 3-Propanediol, 2-amino-2-(hydroxymethyl)-
U Tris buffer
Propanil 709-98-8
UF DPA
2-Propanol 67-63-0
UF Isopropanol
UF Isopropyl alcohol
1-Propanol, 3-(diethylamino)-, diphenylacetate, hydrochloride
U Arpenal
Propanol, 2-oxo-1-oxime
U MINA

Propanone 1-oxime
    U MINA
Propionylcholine 5072-54-8
Propionylcholine chloride 2363-13-1
Propionylcholine iodide 5072-54-8
Propionylcholinesterase
    U Cholinesterase
Propitocaine
    U Prilocaine
alpha-Propylene glycol 57-55-6
    UF 1,2-Propanediol
    UF Methyl glycol
beta-Propylene glycol 504-63-2
Prostigmin
    U Neostigmine
Prostigmin bromide
    U Neostigmine bromide
Prostigmine
    U Neostigmine
Prostigmine bromide
    U Neostigmine bromide
Prostigmine methyl sulfate
    U Neostigmine methyl sulfate
Protective doses
Protective index
Protective ratio
Proteins
    General use only. Prefer specific proteins.
Proteolytic enzymes
    U Peptide hydrolases

Pseudocholinesterase
    U Cholinesterase
Pulmonary alveoli
    BT Lung
Pulse
Purification
Pyramat 2532-49-2
Pyridine 110-86-1
    UF Pyridine ring
2-Pyridinealdoxime methochloride
    U 2-PAM chloride
2-Pyridine aldoxime methyl iodide
    U PAM
Pyridine-2-aldoxime methyl methanesulfonate
    U P2S
3-Pyridinecarboxamide, N-hydroxy-
    U Nicotinohydroxamic acid
3-Pyridinecarboxylic acid

3-Pyridinecarboxylic acid (cont'd)
U Nicotinic acid
Pyridine, compounds
Pyridine methiodide
U Methylpyridinium iodide
Pyridine ring
U Pyridine
Pyridines
Pyridinium,1-[[[3-(aminocarbonyl) pyridinio]methoxy] methyl] -2-[(hydroxyimino) methyl] -, dichloride U. HS-6
Pyridinium, 1-[[[4 aminocarbonylpyridinio]methoxy]methyl] -2 [hydroxyimino)methyl]-dichloride
U HI-6
Pyridinium, compounds
Pyridinium,3-[[(dimethylamino)carbonyl]oxy]-1-methyl-
U Pyridostigmine
Pyridinium,2-[hydroxyimino)methyl]-1- [[[4-[(hydroxyimino) methyl] pyridinio] methoxy] methyl], dichloride U HS-3
Pyridinium, 2-[(hydroxyimino)methyl]-1-methyl-, methanesulfonate (salt)
U P2S
Pyridinium,2-[(hydroxyimino)methyl]-1- methyl-, iodide
U PAM
2-Pyridinium aldoxime methochloride
U PAM
Pyridinium, 1,1'-Methylenebis-4-[hydroxyimino)methyl]-, dichloride
U MMB-4
Pyridinium, 1,1' [oxybis(methylene bis[4 [(hydroxyimino) methyl]-dichloride
U Toxogonin
Pyridinium, 1,1' [oxybis(mmethylene)]bis[4-(1,1-dimethylethyl)-, dichloride
U SAD-128
Pyridinium, 1,1'-(1,3-propanediyl)bis [4 [(hydroxyimino)methyl]-,dibromide
U TMB-4

Pyridostigmine 155-97-5
UF Pyridinium,3-[[(dimethylamino)carbonyl]oxy]-1 methyl-
Pyridostigmine bromide 101-26-8
U Mestinon
2,4,6 (1H,3H,5H)-pyrimidinetrione, 5,5-diethyl-
U Barbital
2,4,6 (1H,3H,5H)-Pyrimidinetrione,5,5 diethyl
U Barbital
Pyrolan 87-47-8

Pyrophosphoric acid, esters
    BT Organophosphorus compounds
Pyrophosphoric acid tetraethyl ester
    U Tetraethyl pyrophosphate
2-pyrrolidinone, 1-[4-(1-pyrrolidinyl)-2-butynyl]-
    U Oxotremorine
Pyruvaldehyde 1-oxime
    U MINA
Quaternary ammonium compounds
Quinine 130-95-0
Quinolinium compounds
Quinuclidines
    NT Quinuclidinyl benzilate
    NT Quinuclidinyl benzilate hydrochloride
Quinuclidinyl benzilate
    BT Quinuclidines
Quinuclidinyl benzilate hydrochloride 13004-56-3
    BT Quinuclidines
    UF HNB-3

Rabbits
    BT Laboratory animals
    BT Mammals
Radicals, acyl
    UF Acyl groups
Radicals, alkoxy
    UF Alkoxy
Radicals, alkyl
    UF Alkyl radical
Radioactivity
Radioautography
    U Autoradiography
Radioimmunoassay
Radiometry
    RT Geiger Counter
Rare earth metals
Rats
    BT Laboratory animals
    BT Mammals
Rat tail BT Tail
Reaction time
    UF Response time
Reactivation
Reactivity
Receptors
Receptors, cholinergic
    UF Cholinergic receptors
    UF Cholinoceptive sites
    UF Cholinoceptors
Receptors, immunologic
    RT Immunity
Receptors, muscarinic

Receptors, muscarinic (cont'd)
    UF Muscarinic receptors
Receptors, nicotinic
    UF Nicotinic receptors
Receptors, sensory
    BT Nerve endings
    UF Nerve endings, sensory
    UF Neuroreceptors
Red blood cells
    U Erythrocytes
Renal artery
Renal damage
Renal veins

Research design

    UF Experimental design
Resistance
Respiration
    NT Aspiration
    RT Apnea
    RT Lung
Respiration, artificial
    UF Artificial respiration
    UF Artificial ventilation
    UF Ventilation, mechanical

Respiration disorders
Respirators
    UF Ventilators, pulmonary
Respiratory air flow
    NT Maximal voluntary ventilation
Respiratory center
Respiratory depression
Respiratory failure
    U Respiratory insufficiency
Respiratory function tests
Respiratory insufficiency

    UF Respiratory failure
Respiratory paralysis
Respiratory system
Response time
    U Reaction time
Reticulocytes
    RT Erythrocytes
Retina
Retrograde degeneration
    U Nerve degeneration
Ribonucleic acids
    U RNA

RNA
    UF Ribonucleic acids
RNA, Messenger
RNA, Transfer
Ro-3-0340 5823-10-9
Ro-2-3308 6581-06-2
SAD-128 40225-02-3
    UF 1,1'-Oxydimethylene bis-(4-tert)-butylpyridinium chloride
Saligenin cyclic phenyl phosphate
    U Phenyl saligenin phosphate
Saline
    U Sodium chloride
Sarin 107-44-8
    BT Organophosphorus compounds
    UF Isopropoxymethylphosphoryl fluoride
    UF Isopropyl methyl fluorophosphonate
    UF Isopropyl methyl phosphonofluoridate
    UF Methyl isopropoxy phosphoryl fluoride
    UF Methylphosphonofluoridic acid, 1-methylethyl ester
    UF Phosphonofluoridic acid, methyl-, 1-methylethyl ester
32P-Sarin

Sciatic nerve
Scintillation counting
Scopolamine 51-34-3
    UF Hyoscine
Scopolamine hydrobromide 114-49-8
Scopolamine methyl bromide
    U Methylscopolamine
    U Methylscopolamine bromide
SD 1652
    U 2,2-dichlorovinyl diethyl phosphate
Seawater, artificial
Sebaceous glands
Secretions
Sedatives
    U Hypnotics and Sedatives
Sedatives, Nonbarbiturate
    BT Hypnotics and Sedatives
Seizures
Sensation
    RT Neurophysiology
Sense organs
    NT Ear
    NT Eye
Sensitization

Sensitization (cont'd)
RT Hypersensitivity
Serine 6898-95-9
UF 2-Amino-3-hydroxypropionic acid
UF Beta-Hydroxylalanine
L-Serine 56-45-1
Serum
Serum albumin
Serum albumin, bovine
UF Bovine serum albumin
Sevin
U N-Methyl carbamate
Sheep
Shoulder
Skin
Skin absorption
UF Absorption, skin
UF Dermal absorption
Skin, animal
Skull
RT Intracranial pressure
Soda niter
U Sodium nitrate
Sodium 7440-23-5
Sodium amobarbital
U Amobarbital sodium
Sodium amytal
U Amobarbital sodium
Sodium azile 26628-22-8
Sodium bicarbonate 144-55-8
UF Carbonic acid, monosodium salt
Sodium chloride 7647-14-5
UF Saline
Sodium 5-ethyl-5-(1-Methylbutyl) barbiturate
U Pentobarbital sodium
Sodium fluoride 7681-49-4
Sodium hexobarbital
U Hexobarbital sodium
Sodium hexobarbitone
U Hexobarbital sodium
Sodium hydroxide 1310-73-2
Sodium hyposulfite
U Sodium thiosulfate
Sodium nitrate 7631-99-4
UF Niter
UF Nitric acid, sodium salt
UF Soda niter
Sodium pentobarbital
U Pentobarbital sodium
Sodium pentobarbitone
U Pentobarbital sodium
Sodium pentothal

Sodium pentothal (cont'd)
U Thiopental sodium
Sodium pentothiobarbital
U Thiopental sodium
Sodium phosphate (dibasic) 7558-79-4
Sodium phosphate (monobasic) 7558-80-7
Sodium thiopental
U Thiopental sodium
Sodium thiopentone
U Thiopental sodium
Sodium thiosulfate 7772-98-7
UF Disodium thiosulfate
UF Hypo
UF Sodium hyposulfite
UF Thiosulfuric acid, disodium salt
Solvents
Soman 96-64-0
BT Organophosphorus compounds
UF 1,1,2-Trimethylpropoxyfluorophosphine oxide
UF 1 2,2-Trimethylpropyl-methylphosphonofluoridate
UF 3,3-Dimethyl-2-butyl-methyl-phosphonofluoridate
UF Fluoromethyl(1,2,2-trimethylpropoxy) phosphine oxide
UF Methyl pinacolyl phosphonofluoridate
UF Methyl pinacolyloxy phosphoryl flouride
UF Methylphosphonofluoridic acid 1,2,2-trimethyl propyl ester
UF Methylphosphonofluoridic acid 1,2,2-trimethylpropyl ester
UF Phosphonofluoridic acid, methyl-, 1,2,2-trimethylpropyl ester
UF Pinacoloxymethylphosphoryl fluoride
UF Pinacolyl methylfluoriphosphonate
UF Pinacolyl methylphosphonofluoridate
UF PMFP
UF Zoman
^{32}P-Soman
Soman poisoning
Sonication
Spasticity, muscle
U Muscle spasticity
Spectra
NT Ultraviolet and Visible spectra
Spectrometry
UF Spectrophotometry
Spectrophotometry
U Spectrometry
Spheroidine
U Tetrodotoxin
Sphingomyelins

Spinal cord
Spinal nerve roots
    NT Ganglia, spinal
Spinal nerves
Spine
Spleen
Squid
Stereoisomerism and Stereoisomers
    U Isomerism and Isomers
Stimulation, chemical
Stimulation, electric
    U Electric stimulation
Stimulation, physical
    U Physical stimulation
Stoichiometry
Stomach
    BT Gastrointestinal system
Stratum corneum
Substrate
Succinate dehydrogenase
    UF Succinic oxidase
Succinic oxidase
    U Succinate dehydrogenase
Sulfides
    U Thioethers
Sulfonium, [2-[(ethoxymethylphosphinyl) thio] ethyl]ethylmethyl-, methyl sulfate
    U GD-42
Sulfonyl compounds
Sulfur 7704-34-9
Sweat glands
    NT Apocrine glands
    NT Eccrine glands
Sympathetic blocking agents
    U Sympatholytics
Sympathetic ganglia
    U Ganglia, sympathetic
Sympathetic nervous system
Sympatholytics
    UF Sympathetic blocking agents
Synapses
    BT Neurons
Synaptic activity
Synaptic receptors
Synaptic vesicles
Synergism
Sytam
    U Octamethyl pyrophosphoramide

Tabun 77-81-6
UF Dimethylamidoethoxyphosphoryl cyanide
UF Dimethylphosphoramidocyanidic acid, ethyl ester
UF Ethyl dimethylamidocyanophosphate
UF Ethyl dimethylphosphoramidocyanidate
UF Ethyl N,N-dimethyl phosphoramido cyanidate
UF N-Dimethylphosphoramidocyanidate
UF Phosphoramidocyanidic acid, dimethyl-, ethyl ester
Tabunase 9032-18-2
UF Diisopropylphosphorofluoridase
Tachycardia
Tachyphylaxis
Tachypnea
Tacrine 321-64-2
UF 1,2,3,4-tetrahydro-5-aminoacridine
UF 1,2,3,4-Tetrahydro-9-acridinamine
UF 9-Acridinamine, 1,2,3,4-tetrahydro-
UF 9-Amino-1,2,3,4-tetrahydroacridine
Tail
Tail response
Tarichatoxin
U Tetrodotoxin
TCA
U Trichloroacetic acid
TDT 3570-55-6
UF 2,2'-thiodiethanethiol
UF 2-Mercaptoethyl sulfide
Temperature
RT Body temperature
RT Thermometers
Tendons
Tensilon 116-38-1
UF Benzenaminium, N-ethyl-3-hydroxy-N,N-dimethyl-, chloride
Tensilon bromide
U Edrophonium bromide
Tensilon chloride
U Edrophonium chloride
TEP
U Tetraethyl pyrophosphate
TEPP
U Tetraethyl pyrophosphate
Teratogenic agents
RT Mutagens
Tetanic activity
Tetanic blockade
Tetanic contraction
Tetanic response
Tetanic stimulation
Tetanus
Tetraethyldiphosphate
U Tetraethyl pyrophosphate
Tetraethyl pyrophosphate 107-49-3
UF Diphosphoric acid tetraethyl ester

Tetraethyl pyrophosphate (cont'd)
UF Pyrophosphoric acid tetraethyl ester
UF TEP
UF TEPP
UF Tetraethyldiphosphate
UF Tetrastigmine
UF Tetron-100
1,2,3,4-Tetrahydro-9-acridinamine
U Tacrine
1,2,3,4-tetrahydro-5-aminoacridine
U Tacrine
Tetraisopropyl pyrophosphoramide
U DPDA
Tetram
U Amiton
N,2,3,3-Tetramethylbichclo [2.2.1] heptan-2-amine
U Mecamylamine
Tetrastigmine
U Tetraethyl pyrophosphate
Tetrodontoxin
U Tetrodotoxin
Tetrodotoxin 4368-28-9
UF Speroidine
UF Tarichatoxin
UF Tetrodontoxin
UF TTX
Tetron-100
U Tetraethyl pyrophosphate
THA
U Thalactamine
Thalactamin
U Thalactamine
Thalactamine 23434-97-1
UF THA
UF Thalactamin
Thalamus
Tham
U Tris buffer
Theramine
U Histamine
Therapeutic processes
Therapy
Thermography
RT Body temperature

Thermometers
    RT Body temperature
    RT Temperature
Thermoreceptors
    BT Nerve endings
Thermoregulation
    U Body temperature regulation
Thigh
Thimet
    U Phorate
Thin-layer chromatography
    U Chromatography, thin-layer
Thiocholine 625-00-3
    BT Choline
    UF Ethanaminium, 2-mercapto-N, N, N-trimethyl-
2, 2'-thiodiethanethiol
    U TDT
Thioethers
    U Sulfides
Thiometon
    BT Insecticides, organothiophosphate
Thiopental sodium 71-73-8 7438-31-5
    UF Sodium pentothal
    UF Sodium pentothiobarbital
    UF Sodium thiopental
    UF Sodium thiopentone
    UF Thiopentone sodium
Thiopentone sodium
    U Thiopental sodium
Thiophos
    U Parathion
Thiosulfuric acid, disodium salt
    U Sodium thiosulfate
Thiourea 62-56-6
Thorax
Thorazine
    U Chlorpromazine
Thymidine 50-89-5
    UF 1-(2-Deoxy-beta-D-ribofuranosyl)-5-methyluracil
    UF Thymine-2-desoxyriboside
Thymidine, esters
Thymine-2-desoxyriboside
    U Thymidine
Thyroid gland
    BT Endocrine glands
Tibia
Tibial muscle
    BT Muscles
Tibial nerve
    BT Nerves
Tissue
TMB-4 56-97-3
    BT Oximes

TMB-4 56-97-3 (cont'd)
UF Trimedoxime bromide
UF 1,1'-Trimethylene-bis(4-formylpyridinium bromide)
TOCP
U Tri-o-tolyl phosphate
Toluene 108-88-3
UF Benzene, methyl-
TOTP
U Tri-o-tolyl phosphate
Toxicity
Toxicology
RT Poisoning
RT Poisons
Toxins
Toxogonin 114-90-0
BT Oximes
UF bis(4-hydroxyiminomethyl-pyridinium-1-methyl)-ether dichloride
UF LuH-6
UF Obidoxime chloride
UF Obidoxime hydrochloride
UF Toxogonin dichloride
UF Toxogonine
Toxogonin dichloride
U Toxogonin
Toxogonine
U Toxogonin
Toxoids
Trachea
Tracheal cannula
Tranquilizers
U Tranquilizing agents
Tranquilizing agents
RT Hypnotics and Sedatives
UF Tranquilizers
Tranquilizing agents, major
UF Neuroleptics
Tranquilizing agents, minor
Transfusion
U Blood transfusion
Trasentine 64-95-9
Trasentine hydrochloride 50-42-0
UF Adiphenine hydrochloride
UF 2-Diethylaminoethyl diphenyl acetate hydrochloride
UF Difacil hydrochloride
Trazentine 71-96-5
Tremor
Trichlorfon 52-68-6
UF Dipterex
Trichloroacetic acid 76-03-0
UF TCA

Tri-o-cresyl phosphate
U Tri-o-tolyl phosphate
Triethylcholine
BT Choline
Triflupromazine 146-54-3
Trimedoxime bromide
U TMB-4
1,1'-Trimethylene-bis(4-formylpyridinium bromide)
U TMB-4
1,1'-Trimethylene-bis(4-formylpyridinium) dioxime dibromide 56-97-2
Trimethylolaminomethane
U Tris buffer
1,1,2-Trimethylpropoxyfluorophosphine oxide
U Soman
1,2,2-Trimethylpropyl-methylphosphonofluoridate
U Soman
Tris buffer 77-86-1
UF 1,3-Propanediol, 2-amino-2-(hydroxymethyl)-
UF THAM
UF Trimethylolaminomethane
UF Tris(hydroxymethyl) methanamine
Tritium 10028-17-8
BT Hydrogen, isotopes of
UF ^{3}H
UF Hydrogen-3
Tri-o-tolyl phosphate 78-30-8
UF TOCP
UF TOTP
UF Tri-o-cresyl phosphate
UF Tris (o-methylphenyl) phosphate
Tritons
Triton X-100 39409-11-5 66057-68-9 66057-69-0 9002-93-1 9010-42-8 9010-43-9 9077-65-0
UF Polyethyleneglycol octylphenol ether
Tropaic acid
U Tropic acid
Tropic acid 529-64-6
UF alpha-(Hydroxymethyl) benzeneacetic acid
UF Tropaic acid
Trypan blue 72-57-1
Trypsin
UF Tryptar
Tryptar
U Trypsin
TTX
U Tetrodotoxin
Tubadil
U d-Tubocurarine chloride

Tubarine
U d-Tubocurarine chloride
d-Tubocurarine 57-95-4
d-Tubocurarine chloride 57-94-3
UF Delacurarine
UF Tubadil
UF Tubarine
Twitch
Twitch response
Twitch stimuli
U-23223
U Benzoic acid, 3-chloro-2, 5, 6-trimethyl-
UDP
U Uridine 5'-(trihydrogen diphosphate)
Ultraviolet and Visible spectra
BT Spectra
UF Ultraviolet spectra
Ultraviolet rays
Ultraviolet spectra
U Ultraviolet and Visible spectra
Urea 57-13-6
UF Carbamide
UF Carbonyldiamide
UF Ureaphil
Ureaphil
U Urea
Urethan
U Carbamic acid, esters, ethyl ester
Urethane
U Carbamic acid, esters, ethyl ester
Urethanes
For specific urethanes, see specific terms
Uridine 5'-pyrophosphate
U Uridine 5'-(trihydrogen diphosphate)
Uridine 5-pyrophosphoric acid
U Uridine 5'-(trihydrogen diphosphate)
Uridine 5'-(tetrahydrogen triphosphate)
U Uridine 5'-triphosphate
Uridine 5'-(trihydrogen diphosphate) 58-98-0
UF UDP
UF Uridine 5'-pyrophosphate
UF Uridine 5-pyrophosphoric acid
Uridine 5'-triphosphate 63-39-8
UF Uridine 5'-(tetrahydrogen triphosphate)
UF UTP
Urinary tract
NT Bladder
NT Kidney

Urogenital system
UTP
    U Uridine 5'-triphosphate
Vagus nerve
    BT Nerves
Valium
    U Diazepam
Vascular resistance
Vasoconstriction
Vasoconstriction agents
    UF Vasopressor agents
Vasodilation
Vasodilator agents
Vasomotor system
Vasopressor agents
    U Vasoconstriction agents
Vein
Veins
    BT Blood vessels
Venous pressure
    RT Pressure
    UF Blood pressure, venous
Ventilation
    Term is used for environment, not lungs.
Ventilation, artificial
    U Respiration, artificial
Ventilation, mechanical
    U Respiration, artificial
Ventilators, pulmonary
    U Respirators
Veratrine
    U Cevadine
Veronal
    U Barbital
Vertebrates
    NT Mammals
Vidine
    U Choline
Vinblastine 865-21-4
    UF Vincaleukoblastine
    UF VLB
Vinblastine sulfate 145-67-9
    UF Vincaleukoblastine, sulfate
Vincaleukoblastine
    U Vinblastine
Vincaleukoblastine, sulfate
    U Vinblastine sulfate

Versamine
    U Mecamylamine

VLB
    U Vinblastine
VX 51848-47-6
    UF Ethyl-S-(2-diisopropylaminoethyl) methylthiophosphonate
VX-3
Warburg technique
Weight gain
    RT Body weight
Weight loss
    RT Body weight
White blood cells
    U Leukocytes
Xylocaine
    U Lidocaine
Yttrium
Zoman
    U Soman
Zytron
    U DMPA (herbicide)