



Corporate Presentation

Vaccines improve life
We improve vaccines



Safe Harbor Statement

This presentation contains "forward-looking statements". These statements include words like "may," "expects," "believes," and "intends," and describe opinions about future events. These forward-looking statements involve known and unknown risks and uncertainties that may cause the actual results, performance or achievements of NasVax to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements.



Agenda

- ❁ Vaccine Market
- ❁ NasVax Overview
- ❁ Status of Programs
- ❁ Roadmap & Summary

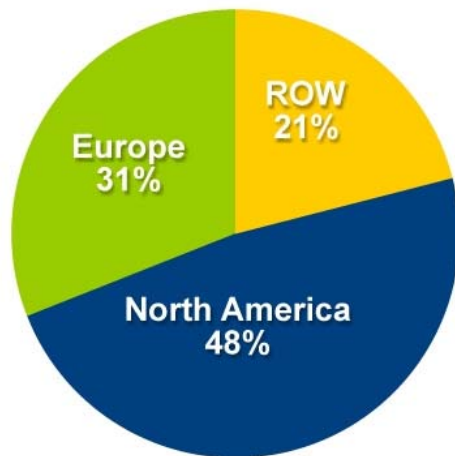
Vaccine Market

2007: \$16B

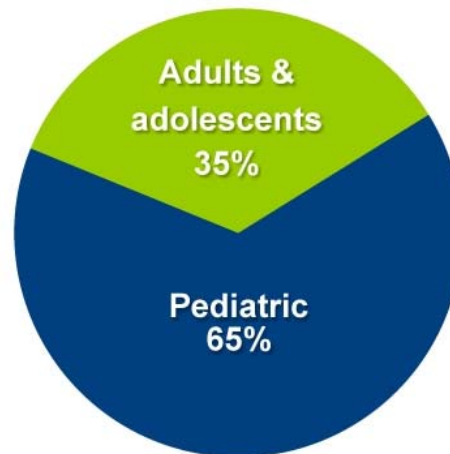
CAGR: 11%-14%

2012: \$25B-\$30B

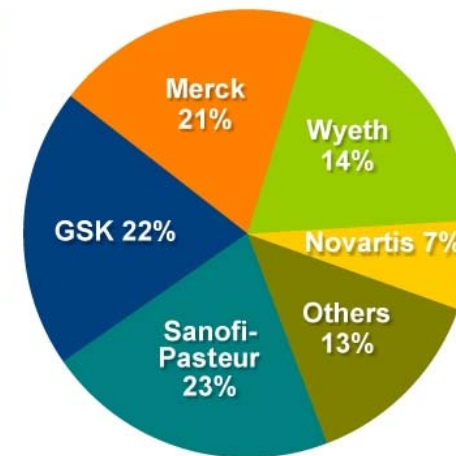
Geographical Breakdown



Product age group



Players





Vaccine Market

- ❁ Unmet needs include increased efficacy, alternative delivery
- ❁ Favorable risk–reward profile vs. most small-molecule drugs
 - Generally shorter timelines
 - Usually less expensive
 - Higher probability of success
- ❁ High margins
 - Similar to other small molecules and biologics
- ❁ Future long-term growth expected to be fueled by
 - Strong demand for existing and future prophylactic vaccines
 - Innovative future products, including immunotherapeutics (AD, cancer, etc)
- ❁ Growing investment by
 - Governments, NGOs, manufacturers, and investment community
- ❁ Big Pharma interest has been growing rapidly
 - Intensifying M&A and deal-making activity (JD, licensing)



M&A Activity

- ❁ Novartis – Chiron
 - \$5.1B, value \$8.8B (2006)
- ❁ GSK - ID Biomedical
 - \$1.4B (2005)
- ❁ Chiron – Powderject
 - \$880M (2003)
- ❁ Crucell – Berna
 - \$480M (2006)
- ❁ Novartis – Neutec
 - \$425M (2006)
- ❁ MedImmune – Aviron (phase 3)
 - \$1.5B (2001)
- ❁ Sanofi-Pasteur – Acambis
 - \$550M (2008)
- ❁ Pfizer – PowderMed
 - ~\$380M (2006)
- ❁ GSK – Corixa
 - \$300M (2005)
- ❁ Intercell – Iomai
 - \$190M (2008)
- ❁ Pfizer – Coley
 - \$160M (2007)



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NasVax – Overview

- ❁ Founded in 2004
- ❁ 13 employees
- ❁ Traded on TASE (NSVX), December 2005
 - Major shareholders: Public (44%), Meytav (28%), Prof. Barenholz (9%), Pontifax (8%)
- ❁ Core technology platform: VaxiSome Adjuvant-Delivery
- ❁ Current portfolio
 - Phase 1/2a: Influenza
 - Preclinical: Hepatitis B, Avian Flu, Anthrax
- ❁ Actively searching for novel vaccine candidates
 - Both for prophylactic vaccines & immunotherapeutics
 - Leverage technology in balanced internal & external development



Vision and Strategy

Vision

Improve global health through enhanced potency vaccines & immunotherapeutics and alternative routes of delivery.

Strategy

“NASVAX INSIDE”: platform technology is embedded in various products via internal development programs, and out-license technology for indications not pursued internally.

Portfolio

Acquire novel vaccines & immunotherapeutics to expand NasVax product portfolio.



Management & BoD

Zvika Rubinstein, Chairman

CEO Meytav Incubator, Former Managing Director
Eureka Technologies Ltd

Yechezkel Barenholz, PhD, Founder

Professor of Biochemistry Hebrew University Jerusalem
and Daniel G. Miller Professor in Cancer Research,
co-inventor of Doxil®

Erez Chimovits, CEO

Former President Compugen Inc.,
EVP Commercial Operations Compugen Ltd

Itzik Goldwasser, PhD, President

Co-Founder and former CEO, NasVax.
Former CTO and chief biologist, Sol-Gel

Ronald Ellis, PhD, SVP & CTO

Former SVP R&D AVANT, SVP R&D ID Biomedical,
Executive Director Merck Research Laboratories,
Chief-Editor of Human Vaccines Journal

Einat Zisman, PhD, Director

Chief Business Officer, Yeda

Safi Landskroner, Director

V.P. of Generic Business Development and Regulatory
Affairs, Dexxon Ltd.

Tomer Kariv, Director

CEO Pontifax, Chairman Biomedix

Ran Nussbaum, Director

Vice Chairman, Biomedix, Pontifax Managing Partner

Yehuda Zelig, Director

Managing Director, SciGen Israel

Itamar Shalit, MD, Director

Director of the Pediatric Infectious Disease Unit Schneider
Children's Medical Center. Former, Director General of
Schneider Children's Hospital and Carmel Hospital

Yechezkel Israel, Director

Vice President for Business Development in the ICL-
Industrial Products company of Israel Chemical Industries ,
Ltd.



Technology

❁ Adjuvant

- An agent that enhances the immune response to a vaccine or immunotherapeutic, thus making it more effective

❁ Core technology (CCS/C based)

- Adjuvant-Delivery system
- VaxiSome is the formulation of CCS/C and a given vaccine

❁ Benefits comparing to existing vaccines

- Adjuvant component: mixing CCS/C with a compatible product result in a more potent and effective vaccine
- Delivery component: product can be administered via nasal delivery or injection

❁ Patent protection

❁ Technology can be leveraged towards

- Internal product development for off-patent and in-licensed vaccines
- Collaboration to enhance partner's products (including IP protected)



Dual Value Proposition

Adjuvant

- ✿ Increased efficacy: Flu (elderly)
- ✿ Dose-sparing: Flu, Avian Flu
- ✿ Decrease # doses: Hep-B, Anthrax
- ✿ Enable future products: HCV
- ✿ Immunotherapy: Cancer, Alzheimer's

Nasal delivery

- ✿ Local IgA: Flu, S. pneumoniae
- ✿ Ease & Self-administration
- ✿ Bioterrorism attack (fast deployment)
- ✿ Developing countries (needle reuse)
- ✿ Convenience for multi-dose regimens

Advantages Over Marketed/P3 Competition

	<u>VaxiSome</u> <i>(Phase 1/2a)</i>	<u>Alum</u> <i>In market</i>	<u>MPL (AS)</u> <i>In market</i>	<u>MF59</u> <i>In market</i>	<u>Virosome</u> <i>In market</i>	<u>CpG</u> <i>Phase 3</i>
Th1 / Th2	✓	-	✓	✓	✓	✓
Nasal Delivery	✓	-	-	-	-	-
Synthetic Chemical	✓	✓	-	✓	✓	✓
Biocompatible Biodegradable	✓ Predicted	-	-	✓	✓	✓
Partnering	✓	✓ No patent	-	-	-	-

Advantages Over Phase 1/2 Competition for prophylactic vaccines

	<u>VaxiSome</u> (Phase 1/2a)	<u>Proteosome</u> (Phase 2)	<u>IC31</u> Phase 2	<u>ISCOM</u> Phase 2	<u>Flagellin</u> Phase 1	<u>Inulin</u> Phase 1
Th1 / Th2	✓	✓	✓	✓	✓	?
Nasal Delivery	✓	only	-	-	?	-
Synthetic Chemical	✓	-	✓	-	-	-
Biocompatible Biodegradable	✓ Predicted	-	✓	?	✓	✓
Partnering	✓	-	-	-	-	?

•combinatio



Potential Product Opportunities

Current

Influenza
Hepatitis B
Avian Flu
Anthrax

Partnerships

Pneumococcal
Respiratory Syncytial Virus
HCV
Malaria

Future

Clostridium difficile
Japanese Encephalitis
Group A Strep
West Nile Virus

New Fields

Cancer
Alzheimer's Disease
Immunotherapeutics



Business Model

Internal Product Development

- ✿ 2 -3 internal programs
- ✿ Requires IP & target access
- ✿ Relatively low initial investment
- ✿ Develop to end-Phase 2 / market
- ✿ Risk – NasVax
- ✿ Return
 - upfront – 10s MM
 - Milestones – 10s MM
 - Royalties – double digit

Technology Out-Licensing

- ✿ Multiple programs
- ✿ Partner's IP & target
- ✿ Partner investment in programs
- ✿ Leverage PoC to license platform
- ✿ Risk – Partner
- ✿ Return
 - upfront – MMs
 - Milestones – MMs per indication
 - Royalties – single digit

Combination of the two models along with Joint Development enables
i. selecting optimal internal programs; ii. diversifying risk;
iii. harnessing partners' resources; iv. maximizing value to NasVax

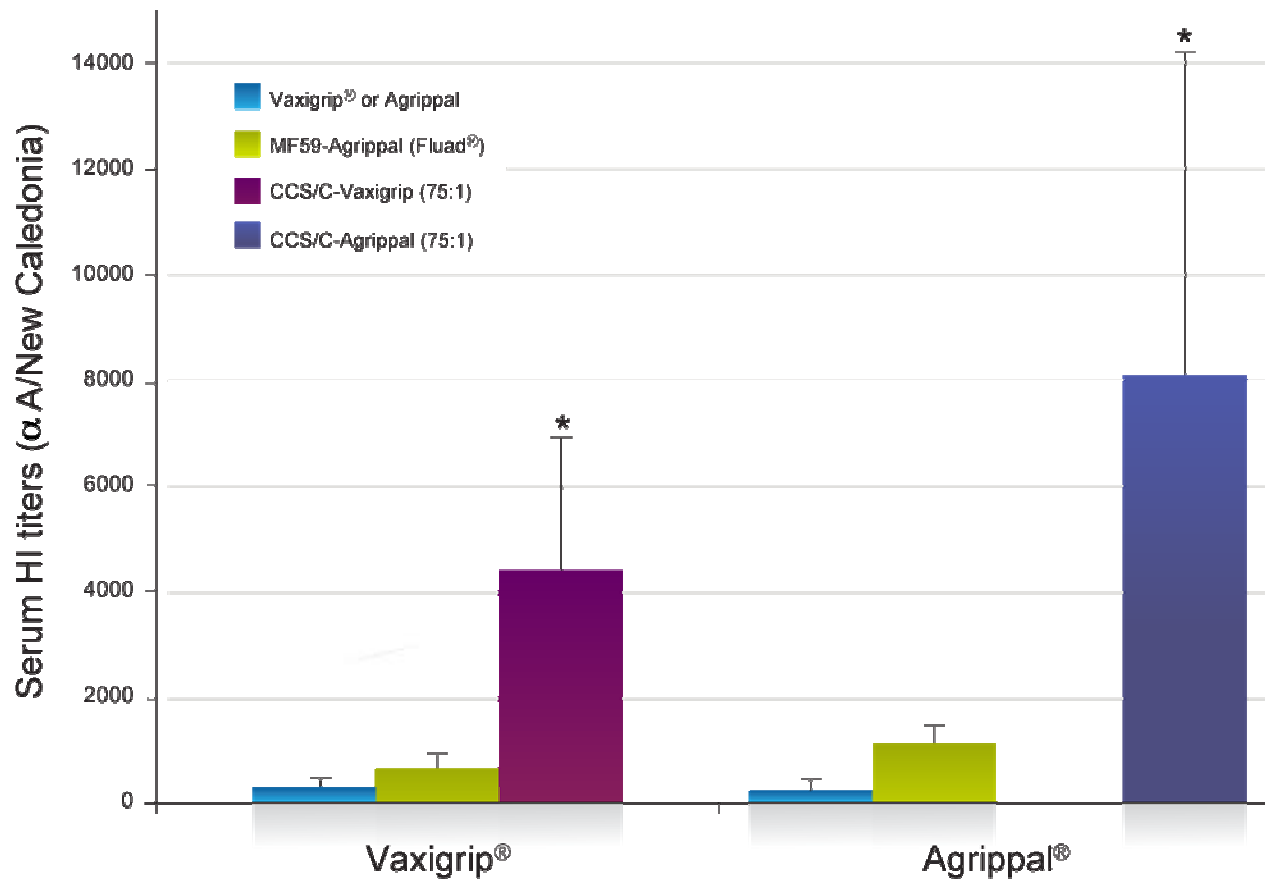


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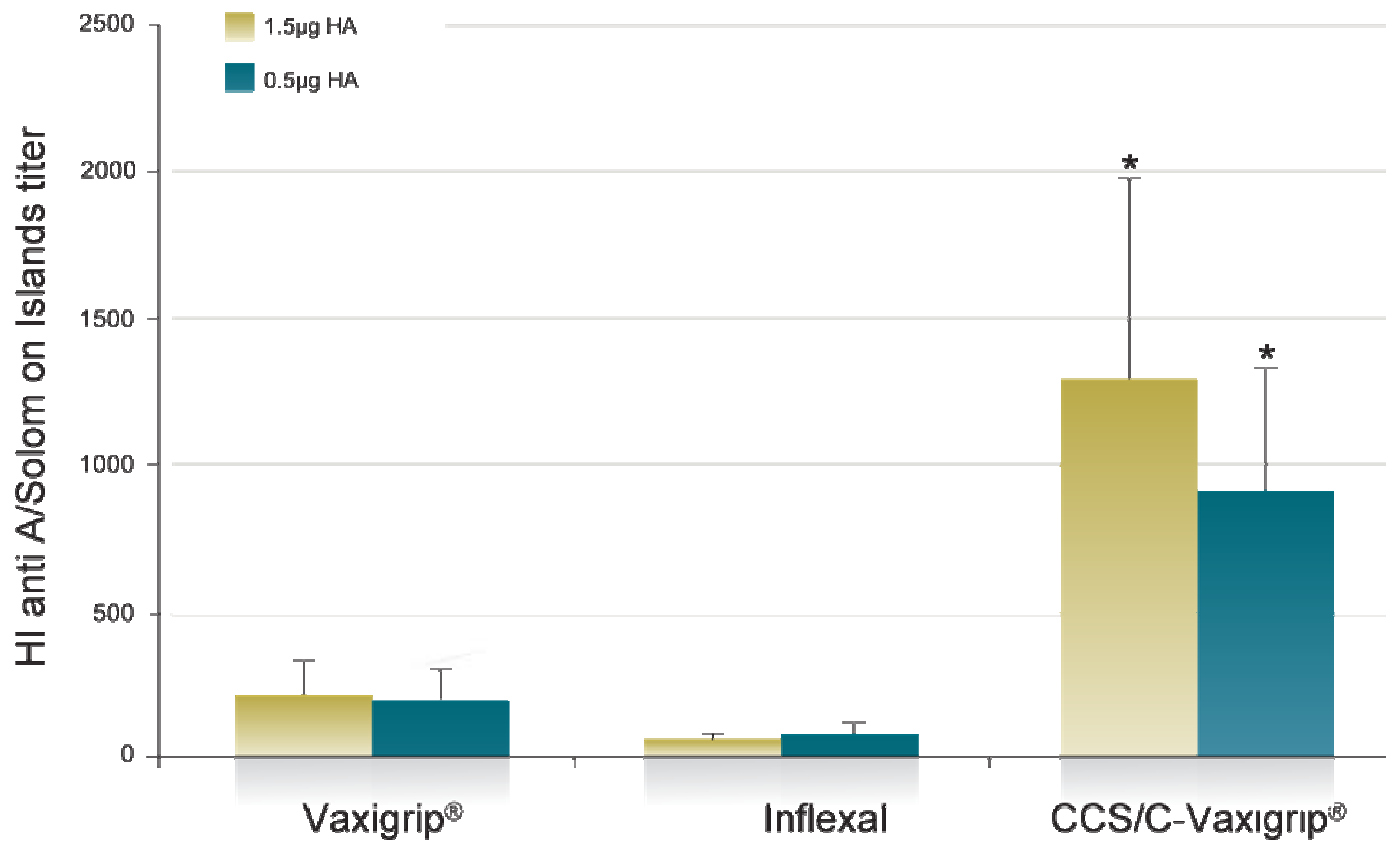
Influenza VaxiSome vs. Fluad® in Rats

VaxiSome-Influenza vaccine: more immunogenic than a commercial adjuvanted flu vaccine when tested head-to-head



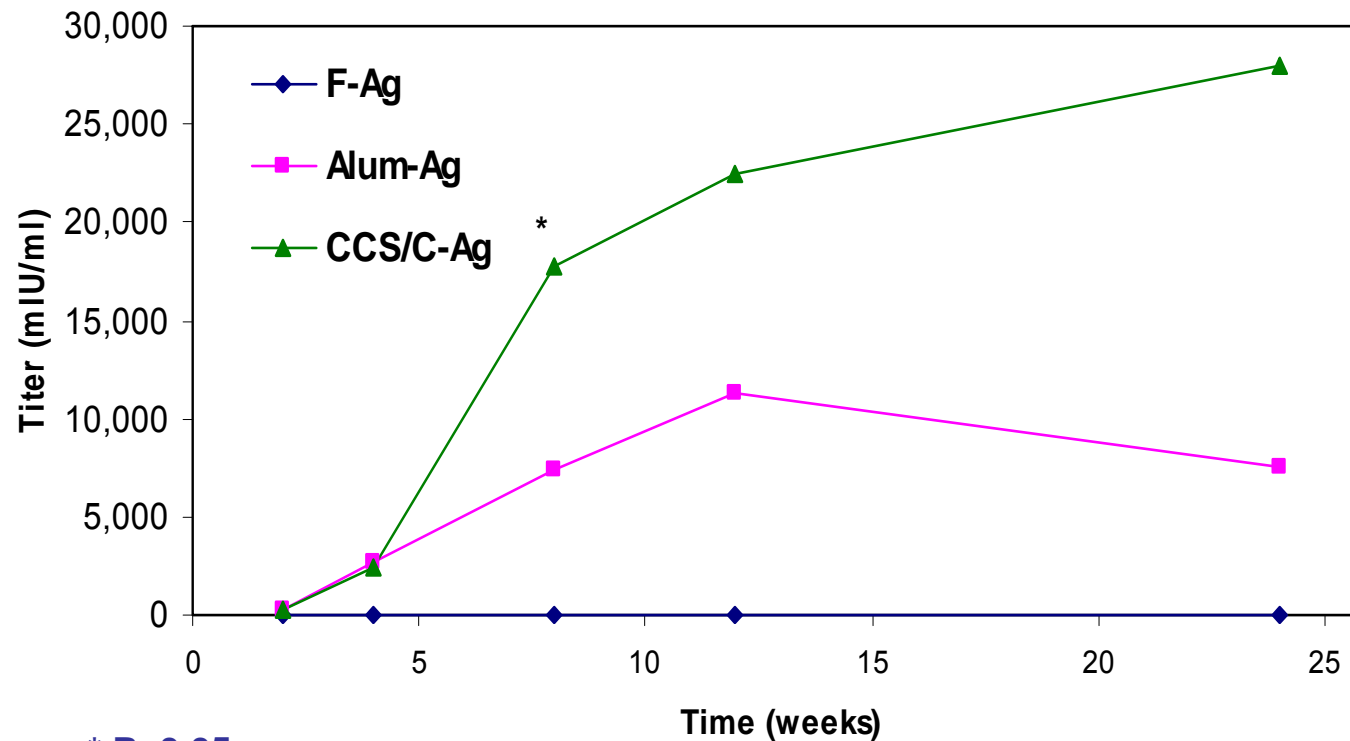
Influenza VaxiSome vs. Inflexal® in Rats

VaxiSome-Influenza vaccine: more immunogenic than a second commercial adjuvanted flu vaccine



Hepatitis B – Results in Mice

VaxiSome-HepB vaccine is more immunogenic than a commercial HepB vaccine (on alum)

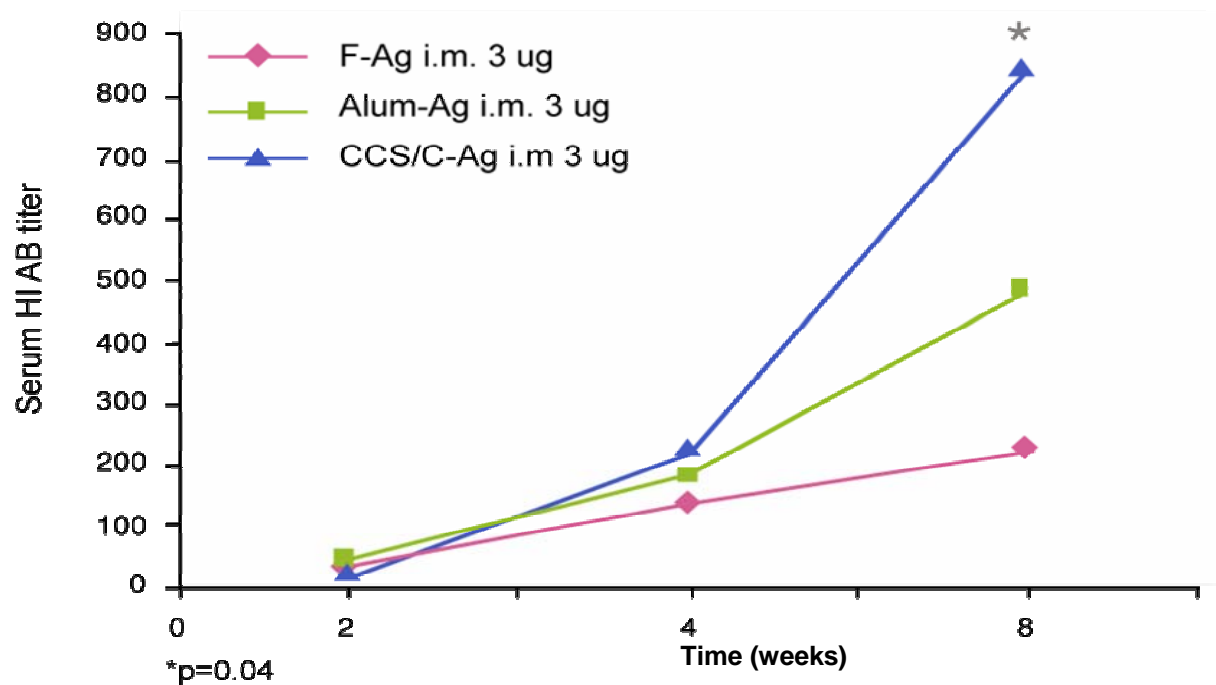


* $P < 0.05$

Avian Flu: H5N1 Virus in Mice

VaxiSome-Avian Flu vaccine is more immunogenic than Alum-Avian Flu vaccine

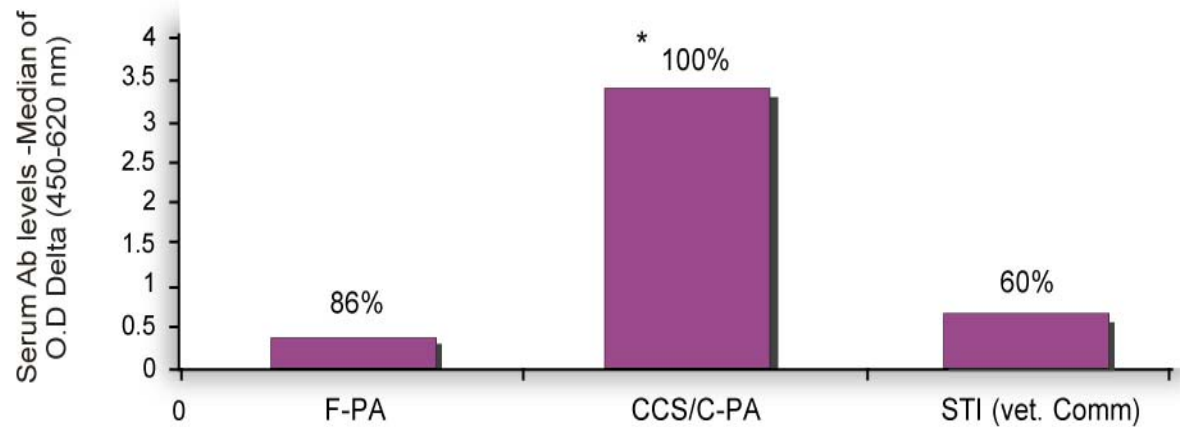
Antibody levels following a single i.m. vaccination against H5N1 virus (A/Vietnam)



Anthrax – Results in Guinea Pigs

VaxiSome-Anthrax enhances immunogenicity of Protective Antigen and more immunogenic than a licensed veterinary vaccine

Anti-PA antibodies of guinea pigs following a single vaccination





Summary of preclinical studies

- ✿ VaxiSome significantly enhances the level of specific antibodies for a range of vaccine antigens
 - Influenza split-virion and whole-virion, rHA, HBsAg, anthrax PA
 - Enhancement observed in 4 species (1-3 species tested per antigen)
 - Higher levels of protective immunity to influenza challenge in 2 species
- ✿ VaxiSome-Influenza vaccine more immunogenic than the only two licensed adjuvanted Influenza vaccines
- ✿ Other preclinical observations
 - Stimulates both antibody (Th2) & cellular (Th1) immune responses
 - Effective in aged mice
 - Dose-sparing effect
 - Improves persistence of antibody response
 - Adjuvant : antigen ratio influences magnitude of enhancement
- ✿ Toxicology studies to date have shown
 - No significant adjuvant-related systemic effects
 - Local effects consistent with those observed for other adjuvants

Current Pipeline



Influenza Intramuscular

Influenza Intranasal

Hep B (SciGen)

Avian Flu

Anthrax



Influenza IM Clinical Trial – Summary

✿ Phase 1/2a

- Design: dose-escalating double-blind
- Primary goal: safety
- Secondary goal: immunogenicity
- Compare VaxiSome-Influenza Vaccine vs. commercial Influenza Vaccine

✿ Stages

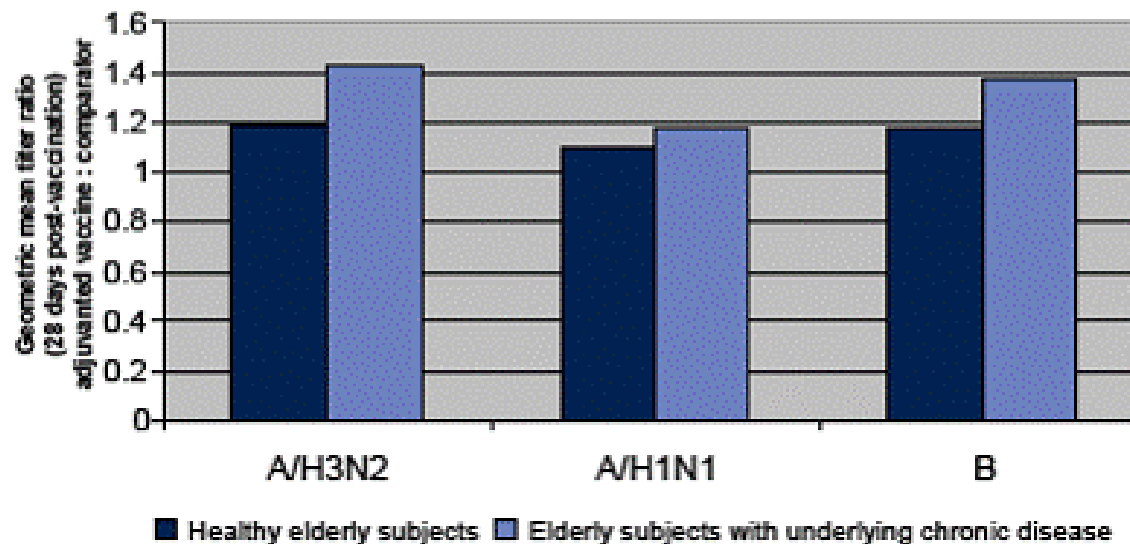
- June 2007 – Vaccinate 97 Adults
- November 2007 - Vaccinate 60 Elderly (key target group for vaccination)

✿ Observations on Safety

- Well tolerated
- No significant systemic side effects
- Local transient side effects at the injection site
 - Frequency and degree higher with increased VaxiSome dose
 - Milder in Elderly than in Adults
 - Profile typical of side effects as seen with other adjuvanted vaccines

Meta-analysis of GMT ratios – adjuvanted (FluAd®) vs. non-adjuvanted vaccine

Figure 7: Efficacy of MF59-adjuvanted influenza vaccine versus non-adjuvanted influenza vaccine in elderly with or without underlying chronic disease



Source: Banzhoff *et al.* (2003)

DATAMONITOR

•Banzhoff *et al.* (2003) conducted a meta-analysis of all available data from Fluad® clinical trials in elderly subjects (3,600 from 13 trials) to determine immunogenicity and safety in subjects with underlying chronic disease. They showed that at 28 days the adjuvanted: non-adjuvanted GMT ratios ranged from 1.10-1.18 in healthy elderly and 1.17-1.43 in elderly with chronic diseases.



Influenza IM Clinical Trial – Summary

❁ Observations on Immunogenicity (HI)

- Judged by fold \uparrow in HI from pre- to post-vaccination and by persistence post-vaccination
- Elderly receiving VaxiSome-Influenza show higher fold \uparrow HI titers at 1, 3 & 6 months compared to those receiving Influenza Vaccine
- Elderly receiving VaxiSome-Influenza show better persistence of HI titers
 - Better persistence \rightarrow better assurance of protection through the influenza season
- Similar observations in Adults

❁ Future Plans

- Performing dose-finding clinical study in Elderly in 4Q08 before Flu Season
 - Optimize VaxiSome dose
- Use data for Phase 2 controlled clinical study in Elderly in 2009
 - Up to several 100 subjects
 - Goal: demonstrate advantage over licensed Influenza Vaccine



Strategy – Present to Future

- ❁ Present: adjuvant – delivery system is being leveraged to
 - Create patent-protected superior vaccines using off-patent antigens
 - Enhance partners' proprietary products
- ❁ Future: acquire novel antigens → become an innovative vaccine franchise
 - Protea as the first such opportunity
 - In-license candidates with PoC in animals
 - Israel as one source for novel candidates
 - Small companies with antigens and complementary technologies worldwide
- ❁ Future: immunotherapy
 - Combine adjuvant technology with immunotherapy (AD, Cancer)



Protea – Improved pneumococcal vaccine

- ✿ *Streptococcus pneumoniae* one of the world's deadliest bacteria
 - Causes meningitis and acute otitis media in infants and young children
 - Causes pneumonia in young children and elderly
 - Kills >1 million people per year
 - Economic burden in US >\$4B / year
- ✿ Current market of \$2.5B / year, world's 1st / 2nd vaccine market
- ✿ Second-generation vaccine
 - Serotype-specific polysaccharides conjugated to carrier protein
 - Mix of 7-13 vaccines
 - Serotype substitution occurs in areas where vaccine is widely used
- ✿ Third-generation vaccine
 - Proteins conserved across pneumococcal strains
 - Simpler to make
 - No chance for serotype substitution'
 - **Protea candidate protein vaccine**



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Objectives for 2009

❁ Clinical trials influenza

- Complete Phase 1/2a dose-optimization study in Elderly (started Oct 2008)
- Complete Phase 1/2a two-dose intranasal (started Oct 2008)
- Conduct Phase 2 study in Europe

❁ HepB (jointly with SciGen)

- Complete preclinical and initiate IM Phase 1/2a clinical studies

❁ Partnership

- At least one program under joint development (SciGen HepB)
- At least one technology license agreement in place with pharma company

❁ New field partnership

- Enter a new field (e.g., cancer, AD) via partnership or collaboration with prominent academic investigator

❁ Initiate one new internal vaccine program



Summary

- ❁ Vaccines are a lucrative, fast-growing market with long-term growth opportunities
- ❁ Generally shorter, lower-cost development cycles relative to small-molecule drugs
- ❁ Proprietary VaxiSome technology platform with proven applicability across multiple vaccines
 - Comprehensive efficacy and initial safety demonstrated in preclinical studies
 - Initial safety and immune-response demonstrated in clinical studies
 - More studies ongoing / planned
- ❁ Real unmet needs addressed by VaxiSome
- ❁ Flexible, diversified business strategy allows varying degrees of product development, JD and out-licensing
- ❁ IP diversification via obtaining antigens for in-house development of innovative vaccines & immunotherapeutics