



*Starpharma Holdings Limited*

*ASX:SPL*

*USOTC:SPHRY*

*February 2007*

*Dr Jackie Fairley*

*CEO*

*This document contains certain forward-looking statements, relating to Starpharma's business, which can be identified by the use of forward-looking terminology such as "promising", "plans", "anticipated", "will", "project", "believe", "forecast", "expected", "estimated", "targeting", "aiming", "set to", "potential", "seeking to", "goal", "could provide", "intends", "is being developed", "could be", "on track", or similar expressions, or by express or implied discussions regarding potential filings or marketing approvals, or potential future sales of product candidates.*

*Such forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause actual results to be materially different from any future results, performance or achievements expressed or implied by such statements. There can be no assurance that any existing or future regulatory filings will satisfy the FDA's and other health authorities' requirements regarding any one or more product candidates nor can there be any assurance that such product candidates will be approved by any health authorities for sale in any market or that they will reach any particular level of sales. In particular, management's expectations regarding the approval and commercialization of the product candidates could be affected by, among other things, unexpected clinical trial results, including additional analysis of existing clinical data, and new clinical data; unexpected regulatory actions or delays, or government regulation generally; our ability to obtain or maintain patent or other proprietary intellectual property protection; competition in general; government, industry, and general public pricing pressures; and additional factors that involve significant risks and uncertainties about our products, product candidates, financial results and business prospects. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described herein as anticipated, believed, estimated or expected. Starpharma is providing this information as of the date of this presentation and does not assume any obligation to update any forward-looking statements contained in this document as a result of new information, future events or developments or otherwise.*

## *Outline*

---

- Investment Highlights and Company Overview
- VivaGel™
- Product Pipeline
- Conclusion

## *Key Investment Highlights*

### **VivaGel™: A Unique Lead Product**



- Compelling competitive advantages
- Endorsement from key health agencies:
  - Significant funding and support received from NIH (>US\$20M)
  - The only microbicide with support for genital herpes

### **Significant Commercial Opportunity**



- HIV and genital herpes at epidemic proportions
- Herpes rates Europe ~ 15-20%; 22% US adults
- No cure available; prevention is key

### **Diversified Pipeline of Opportunities**



- Near term commercial opportunities in industrial and life science applications eg. siRNA, balance risk and timeframes of pharmaceutical applications
- Supported by extensive dendrimer IP portfolio

### **Increasing US Profile**



- ~20% of stock held in US; Dow the largest SH
- US subsidiary with marketed products and extensive commercial relationships
- ex CEO/Chairman Dow Corning on the SPL Board

Starpharma represents a significant value proposition for investors

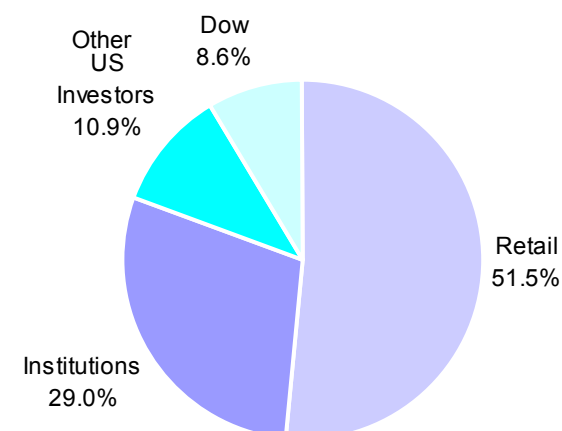
## Company Overview

- World leader in the development of dendrimer nanotechnology products for pharmaceutical and life-sciences
- Lead product VivaGel™ is being developed (under IND) as a microbicide to prevent HIV and Genital Herpes
  - US\$20.3m NIH contract to develop VivaGel™ for HIV
  - FDA Fast Track Status for HIV
  - VivaGel™ is the only microbicide with NIH funding support for Genital Herpes
- Two line extensions to VivaGel™ in development in addition to a broad portfolio of other dendrimer projects
- Wholly-owned US subsidiary (DNT Inc.)
  - Leader in the development of advanced dendrimers for life - science and industrial applications
  - Significant dendrimer IP portfolio; current revenues

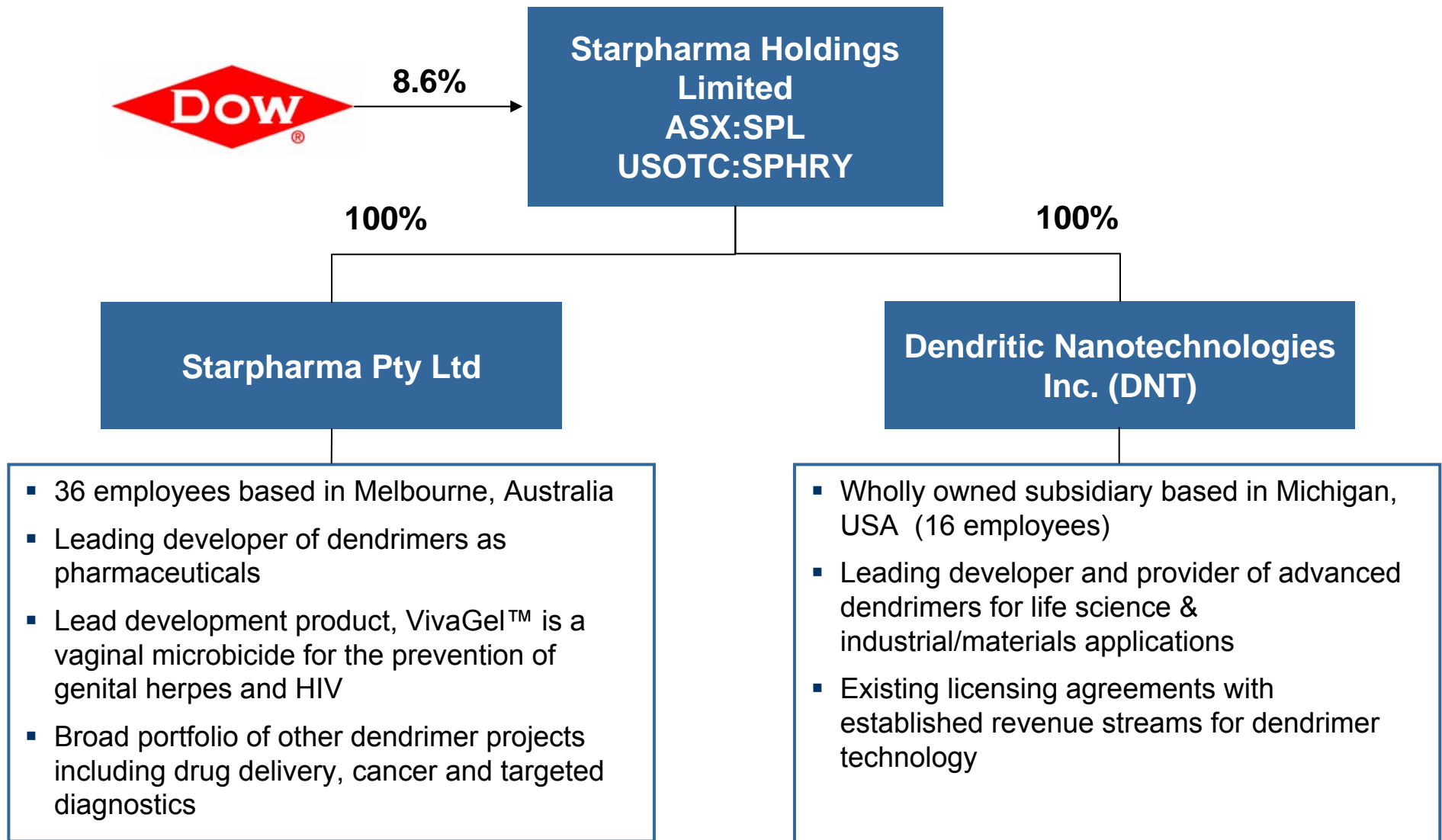
Starpharma Holdings Limited	
ASX Code	SPL
Level 1 ADR Code	SPHRY
Share Price (14/2/07) <b>AUD</b>	49c
12 Month High/Low <b>AUD</b>	64 c / 35 c
Shares on Issue	167.8M
Market Capitalisation <b>USD</b>	~ \$65M
Average Mthly Volume	4.5M shares
Cash on Hand (Dec 06) <b>AUD</b>	\$11.2M

**\$1 AUD= 0.785 USD**

### Shareholder Composition

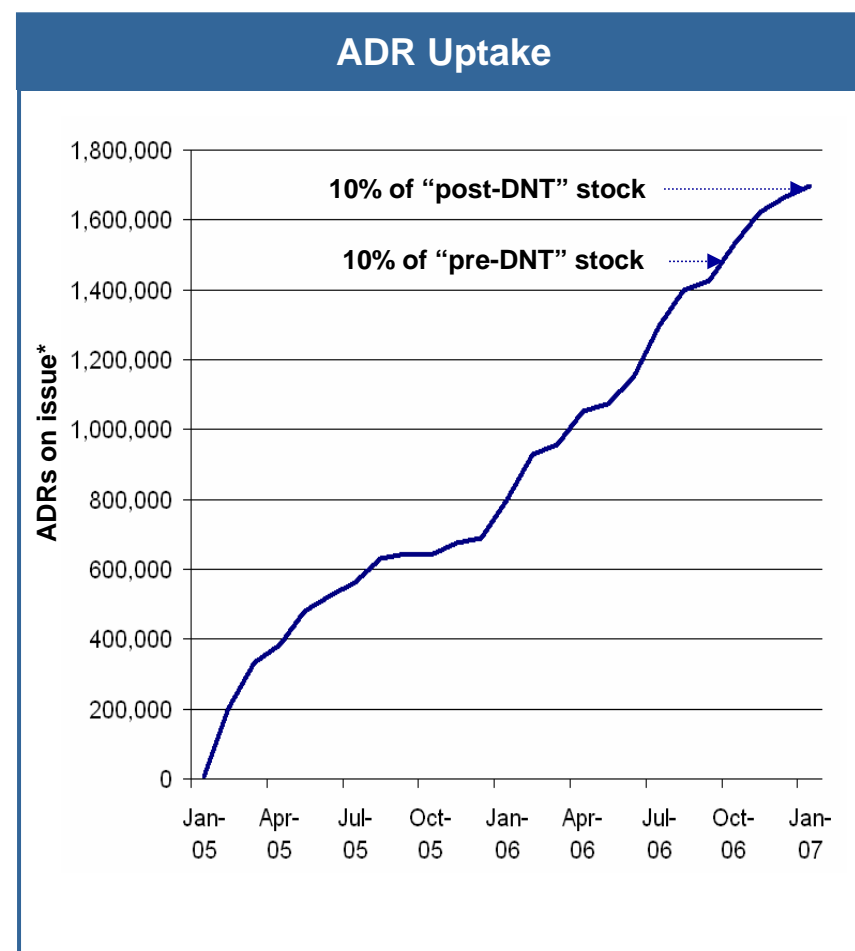


**Starpharma is the global leader in dendrimer based nanotechnology**



## ADR (SPHRY) Program and US Shareholding

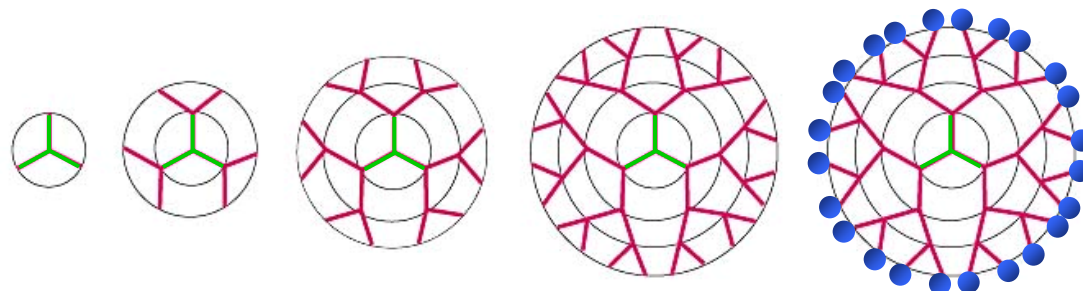
- Starparma's ADR program has been extremely successful since launch in January 2005
  - Growth of 112% in ADRs issued in the past 12 months
  - Average monthly growth of 6.4%
- Traded by major brokers including Merrill Lynch, Credit Lyonnais, Natexis Bleichroeder, and Pershing LLC
- ADR's exceeded 10% of SPL capital issued in October 2006
  - Currently at 10.2% following issue of shares for acquisition of DNT
- SPHRY compares very favourably against other Australian biotech Level-1 ADR programmes
  - Most heavily traded by volume and price
- Active program initiated to build liquidity and on US interest in SPL/SPHRY (US investors ~ 20%)
  - US Investor Relations firm appointed
  - Working towards OTCQX and Level 2 ADR



\* 1ADR = 10 SPL shares

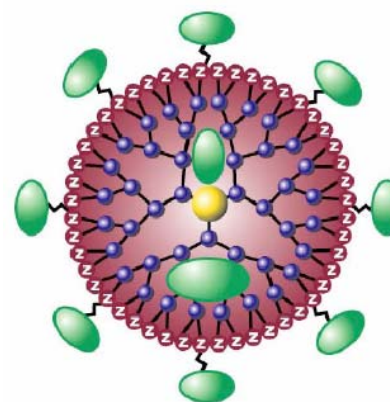
## Unique Characteristics of Dendrimers:

- Precisely defined, synthetic macromolecules (1-10nm)
- Precisely defined surface topology
- Can be designed to optimize potency, pharmacokinetics and localization; heat stable or biodegradable
- High multivalent binding affinity
  - ability to disrupt protein-protein interactions



## Commercial Advantages of Dendrimers:

- Key enabling nanoscale technology
- Diverse range of Pharma, drug delivery, diagnostic & materials applications
- In the clinic – VivaGel™ ( the first dendrimer IND)
- Scalable chemical manufacturing process with competitive COGs
- Well tolerated



e.g. drug delivery



---

*VivaGel™*



## *VivaGel™ – Lead Product for Prevention of STIs*

- VivaGel™ is a vaginal microbicide being developed to prevent sexually transmitted infections in women
  - Currently being developed under two INDs for the prevention of HIV and genital herpes
- Gel-based formulation with a nanotech active (SPL7013), delivered via an applicator
- Active ingredient inactivates HIV and HSV-2 (genital herpes) virus by binding with the virus preventing it attaching to the host
- Significant and growing recognition that microbicides offer the best alternative for prevention



### HIV

- Major health burden in both developed and developing countries
- 39 million people living with HIV; every day 7,000 women are newly infected
- No cure - more than 50 HIV vaccines have failed and estimates are that an effective vaccine is many years away

### Genital Herpes

- Recurrent, lifelong viral infection
- Estimated to infect between 15-25% of male and female adults in developed countries, growing to between 40-50% in the US by 2025
- Existing prevention methods have proven ineffective and developmental vaccines disappointing

<b>Product Offers Several Key Advantages</b>	<ul style="list-style-type: none"><li>▪ Market research indicates microbicide gels will have good uptake</li><li>▪ Female controlled, discreet and convenient</li><li>▪ Compelling competitive advantages: efficacy; non-irritant; broad activity</li><li>▪ Contraceptive activity (in animals)</li></ul>
<b>Excellent Clinical Results in Human and Primate Trials</b>	<ul style="list-style-type: none"><li>▪ Human trials (IND): VivaGel™ is non-toxic and non-irritating</li><li>▪ Potent activity in relevant HIV strains in very tough primate trials</li><li>▪ Potent activity against herpes in animal trials</li><li>▪ Viruses appear not to develop significant resistance to VivaGel™</li></ul>
<b>Excellent Drug Characteristics</b>	<ul style="list-style-type: none"><li>▪ Lower risk development – Topical gel, external to body</li><li>▪ Affordable – Low manufacturing costs</li><li>▪ Excellent IP position</li><li>▪ Passes key FDA hurdle – Well defined chemical entity</li></ul>
<b>Product Extensions</b>	<ul style="list-style-type: none"><li>▪ Condom coating</li><li>▪ Additional indications, combination product</li></ul>

# HIV and HSV-2 Prevention

HIV and AIDS (in the US): “Direct medical costs of up to \$15.5 billion per annum”

“AIDS is the number one cause of death in African-American women aged 25-34”

## EDITORIAL COMMENTARY

““HIV prevention options as of 2005 are not enough” best option...technologies like microbicides which women can initiate and control”

Source: Microbicide Development Act 2005: US Senate

## Time to Translate New Knowledge into Practice: A Call for a National Genital Herpes Control Program

Edward W. Hook<sup>1,2</sup> and Peter Leone<sup>3,4</sup>

<sup>1</sup>University of Alabama at Birmingham and <sup>2</sup>Jefferson County Department of Health, Birmingham; <sup>3</sup>University of North Carolina at Chapel Hill, Chapel Hill, and <sup>4</sup>North Carolina State Department of Public Health, Raleigh

Editorial Commentary in Journal of Infectious Disease 1 July 2006 p.194



Vaginal microbicides are recognised as a key element in the fight to slow the spread of STIs

## *VivaGel™ Summary*

---

- Compelling competitive advantages: HIV& Herpes efficacy; non-irritant; broad activity
- Contraceptive activity in animals
- 3 separate NIH funding initiatives:
  - US\$20.3m non-dilutive NIH development funding for HIV (Oct 05)
  - the only microbicide with NIH support for Genital Herpes (Apr 06)
  - Recently announced NIH/Microbicide Trials Network support (Feb 07)
- FDA Fast Track Status for HIV
- Successfully completed Phase 1 trial in humans (under IND)
- Currently in human trials under 2 INDs in Australia, USA and Kenya
- Good progress with scale-up and toxicology programs
- VivaGel™ regulatory approval expected in 2009/10
- Commercial opportunities continue to be very good and strengthening:
  - Genital Herpes prevalence in US women: 26%
  - 30-40% US female college students would buy a microbicide, increasing to 70% if contraceptive
  - US Opinion leaders calling for a national herpes prevention program
- Condom coating and contraceptive indications offer additional market opportunities





Karibu “Welcome” to the VivaGel Clinic, Kenya Medical Research Institute, Kisumu, Kenya

## Commercial Opportunity for Microbicides

- **Large, addressable markets**
  - HIV primarily in developing countries
  - HSV-2 in both developing and developed countries
- **Increasing market support for products**
  - US government firmly committed to development of safe and effective microbicides
  - US opinion leaders now calling for National Herpes Control Program
- **Several industry surveys have confirmed strong consumer demand**
  - 30-40% female US college students would buy a microbicide increasing to 70% with contraceptive properties
  - Over 20 million women in US would use a microbicide
  - Strong market demand at 5x local condom price in various countries
  - Microbicide market estimates >\$1.5Billion

**Estimated Market for microbicides in Developed Countries**

Market Penetration	Average Frequency of Use Per Annum		
	25x US\$M	50x US\$M	100x US\$M
2.5%	365	730	1,460
5.0%	725	1,450	2,900
10.0%	1,450	2,900	5,800

*Key assumptions*

- 291m women of reproductive age (15-49) in developed countries
- Unit sale price circa US\$2
- Usage rates according to published data

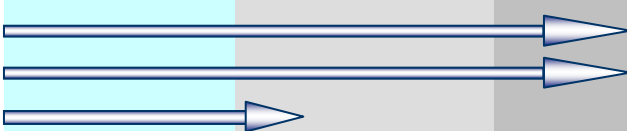






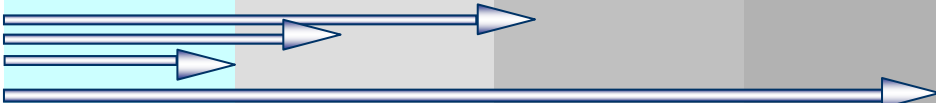
***“If I had a magic bullet to accelerate something it would be the microbicide...”.....”***  
***Bill Gates, July 2006***

---

# *Product Pipeline*



## Starpharma's Pipeline: Balanced for Risk

<i>Pharmaceutical &amp; Medical Products</i>	Proof of Concept	Lead	Clinical Trials	Sales
<b>VivaGel™</b> <ul style="list-style-type: none"> <li>▶ HSV-2 prevention</li> <li>▶ HIV prevention</li> <li>▶ condoms coating &amp; other line extensions</li> </ul>				
<b>ADME Engineering™</b> <ul style="list-style-type: none"> <li>▶ Therapeutic protein PK optimisation</li> </ul>				
<b>Drug Delivery - Small Molecules</b> <ul style="list-style-type: none"> <li>▶ Cancer therapeutic</li> </ul>				
<b>Drug Optimisation</b> <ul style="list-style-type: none"> <li>▶ Enhanced solubilitation</li> </ul>				
<b>in-vivo and in vitro Diagnostics</b> <ul style="list-style-type: none"> <li>▶ Stratus CS® (Cardiac Diagnostic)</li> <li>▶ MRI imaging (Ovarian cancer &amp; cardiovascular disease)</li> </ul>				
<i>Life-science Products</i>	Proof of Concept	Prototype	Pre-launch	Sales
<b>Gene Transfection Reagents</b> <ul style="list-style-type: none"> <li>▶ SuperFect®</li> </ul>				
<b>siRNA Transfection Reagents</b> <ul style="list-style-type: none"> <li>▶ PrioFect™</li> </ul>				
<i>Materials Sciences Products</i>	Early	Intermediate	Advanced, Partnered	Sales
<b>Specialty &amp; Fine Chemicals</b> <ul style="list-style-type: none"> <li>▶ Priostar™ Dendrimers (multiple applications)</li> <li>▶ Starburst™ Dendrimers (Catalogue of over 200 products)</li> </ul>				

	Marketed Dendrimer Products	PrioFect™ siRNA Transfection Reagents	Materials Science / Industrial Applications																												
Value Capture Horizon	Current	Transfection Reagents Licensed to EMD Biosciences*	2007 / 08																												
Product area	<p>Existing product sales and licensed dendrimer royalty agreements</p> <p><b>Stratus CS®</b> : Cardiac marker diagnostic licensed to Dade Behring</p> <p><b>SuperFect®</b> : Gene transfection technology licensed to Qiagen</p> <p><b>STARBURST®</b> dendrimers commercially available</p> <p><b>DADE BEHRING</b></p> <p><b>ALDRICH</b></p> <p><b>QIAGEN</b></p>	<p>Transfection reagent market: <b>\$200M</b></p> <p>PrioFect™ siRNA Transfection Reagents provide:</p> <p><b>Precise size control:</b> allows optimisation according to cell type</p> <p><b>Highly functionalised surface:</b> allows targeting to specific cell types i.e. cell-specific delivery</p> <p><b>Pharmaceutical Quality:</b> Low toxicity</p> <p><b>EMD</b> <b>MERCK</b></p>	<table><tr><th>Sector</th><th>Discussions with...</th><th>Application</th></tr><tr><td>Oil</td><td>"Top 5" US Oil Company</td><td>Lubricant additives</td></tr><tr><td>Plastics</td><td>Large Automotive Components Manufacturer</td><td>Plastics additive</td></tr><tr><td rowspan="3">Manufacturing</td><td>Major Technology Company</td><td>Dental resins</td></tr><tr><td>Multiple avenues of exploration</td><td>Adhesives</td></tr><tr><td>"Top 5" European electronics manufacturer</td><td>Printed circuit board manufacturing</td></tr><tr><td>Pharmaceutical</td><td>Global Healthcare Company</td><td>Solubilisation</td></tr><tr><td>Cosmetics</td><td>Cosmetic Company</td><td>Solubilisation</td></tr><tr><td>Research Reagents</td><td>Major Reagent manufacturer</td><td>Laboratory reagents</td></tr><tr><td>Resources</td><td>Water quality specialists</td><td>Water filtering/ remediation</td></tr></table>	Sector	Discussions with...	Application	Oil	"Top 5" US Oil Company	Lubricant additives	Plastics	Large Automotive Components Manufacturer	Plastics additive	Manufacturing	Major Technology Company	Dental resins	Multiple avenues of exploration	Adhesives	"Top 5" European electronics manufacturer	Printed circuit board manufacturing	Pharmaceutical	Global Healthcare Company	Solubilisation	Cosmetics	Cosmetic Company	Solubilisation	Research Reagents	Major Reagent manufacturer	Laboratory reagents	Resources	Water quality specialists	Water filtering/ remediation
	Sector	Discussions with...	Application																												
Oil	"Top 5" US Oil Company	Lubricant additives																													
Plastics	Large Automotive Components Manufacturer	Plastics additive																													
Manufacturing	Major Technology Company	Dental resins																													
	Multiple avenues of exploration	Adhesives																													
	"Top 5" European electronics manufacturer	Printed circuit board manufacturing																													
Pharmaceutical	Global Healthcare Company	Solubilisation																													
Cosmetics	Cosmetic Company	Solubilisation																													
Research Reagents	Major Reagent manufacturer	Laboratory reagents																													
Resources	Water quality specialists	Water filtering/ remediation																													

\* Announced Feb 19 2007

## Adding siRNA to a cell can “turn off” production of specific cellular proteins

*“The discovery of RNA interference (RNAi) may well be one of the transforming events in biology in the past decade”* **Nature**

### Merck buys Sirna Therapeutics

By Bioperform Web Watch  
Posted 10/31/2006 11:01:00 AM

**The Associated Press** reports that Merck & Co. has agreed to pay \$1.1 billion to buy Sirna Therapeutics Inc. Merck's \$15-per-share offer for the San Francisco-based company is almost a 102 percent premium over Sirna's closing Nasdaq Stock Market price of \$6.45, which fell 5 cents before the bid was made public after the stock markets closed. Sirna's stock surged 98 percent to \$12.74 in after-hours trading. The stock's high for the past year is \$8.52.

*The discovery of RNAi has already had an immense impact on biomedical research and will most likely lead to novel medical applications in the future.*

*The Nobel Assembly*



### The Nobel Prize in Physiology or Medicine 2006

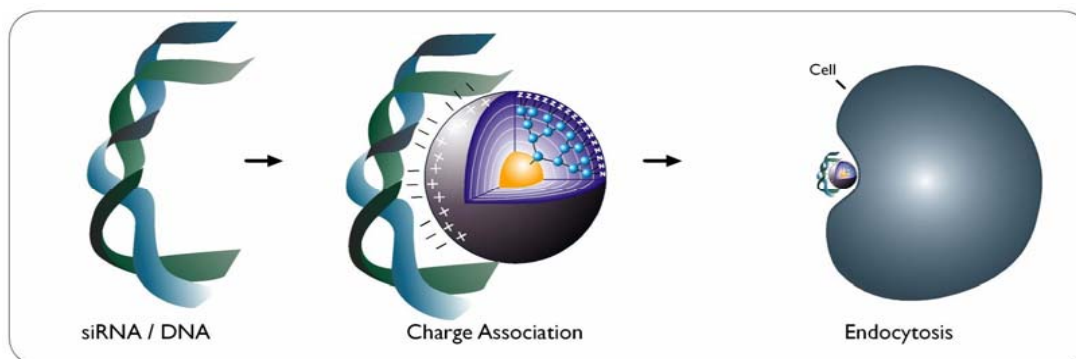
"for their discovery of RNA interference - gene silencing by double-stranded RNA"

Andrew Z. Fire

Craig C. Mello

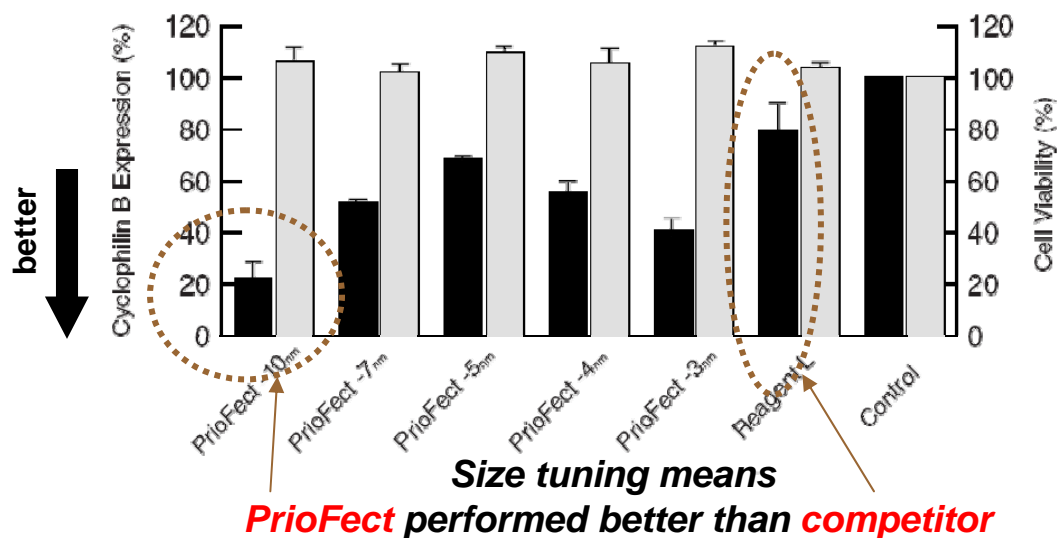
## PrioFect™ and siRNA transfection

- Enhances uptake of siRNA (and DNA) into cells
- **2 potential applications:**
  - *Research* reagent
  - *In vivo*



### Competitive Advantages

- Superior efficacy through reagent size control
- Cell-specific targeting
- Pharmaceutical quality



LOW TOXICITY • EFFECTIVE DELIVERY

***Feb. 19, 2007 – Worldwide exclusive license and supply agreement for PrioFect™ siRNA and DNA transfection reagents for research market:***

- DNT will supply EMD Biosciences with Priostar™ proprietary dendrimers for the DNA and siRNA transfection research markets.
- EMD has established worldwide sales and distribution channels
- World wide \$200 million market for research reagents
- Agreement includes royalties and milestone payments
- First products to market in 2007
- Starpharma retains full rights to all *in vivo* aspects of transfecting nucleic acids, a market segment that experienced significant deal-making activity in 2006.



***EMD Biosciences, Inc. is part of the Performance and Life Science Chemicals (PLS) division of Merck KGaA, Darmstadt, Germany. EMD markets brands including Calbiochem®, Novabiochem®, and Novagen®.***

***Merck KGaA, Darmstadt, Germany is a global pharmaceutical and chemical company with sales of EUR 6.3 billion in 2006.***

## Investment Summary

- ✓ Microbicides have been identified as the solution to the HIV/STI pandemic
- ✓ Starpharma has a leading microbicide (VivaGel™) in development for prevention of HIV and genital herpes
- ✓ VivaGel™ has achieved significant milestones and support
  - Fast track status granted to VivaGel™ for HIV
  - US\$26M\* of funding for microbicide development (plus NIH clinical trial support under 2 other programs; undisclosed \$)
  - Only microbicide with NIH funding for genital herpes
- ✓ Diversified dendrimer product and application pipeline with several near term commercial opportunities
- ✓ Existing revenues from dendrimer platform
- ✓ Significant US shareholder base and increasing profile

SPL	US\$M
Market Capitalisation	65
NIH Support	26
Cash on Hand (Dec 06)	~ 9

\* Two NIH grants: US\$20.3m contract + US\$5.4m grant (2004)

Starpharma represents a significant value proposition for investors

*Further information:*

*Jackie Fairley*

*CEO*

*+61385322704*



---

## *Supplementary Information*





# Partnerships



## Industry Collaborators



DADE BEHRING



Johnson & Johnson Research  
PTY. LIMITED

GENERAL DYNAMICS  
Land Systems



lumera

## Research/ University Collaborators



INSTITUTE FOR SOLDIER NANOTECHNOLOGIES



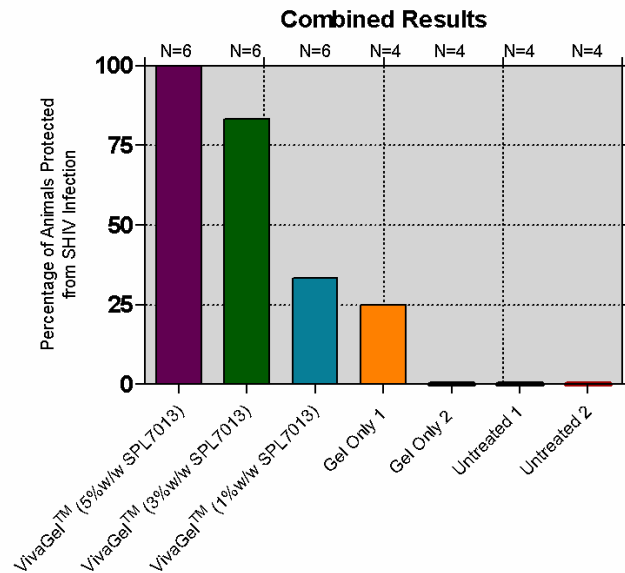
CALTECH



# VivaGel™: Animal Efficacy results



## SHIV/HIV Protection

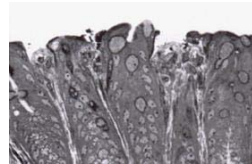


AIDS Research & Human Retroviruses, 21, pp207-213, 2005.

**Advantage: VivaGel™ is NOT a surfactant**  
Surfactants damage epithelial cells INCREASING the chance of HIV transmission. VivaGel is NOT a surfactant and has been found not to damage epithelial cells in human trials. This is not true of all microbicides



**Normal**

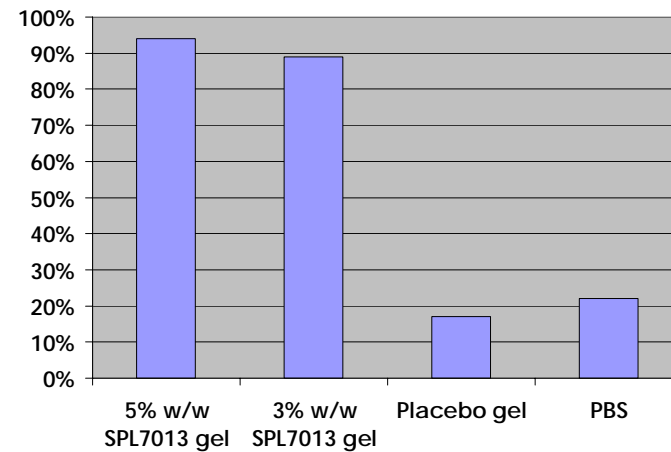


**After surfactant**

*Contraception* 1998;57:341-348

## HSV Protection

VivaGel™: animals protected from HSV-2



**Approximately 45 million Americans (26% of women and 18% of men) are infected with HSV-2, the causative agent of genital herpes.**

Epidemiology of HSV in Developed Countries, HERPES, 11 Supplement 1, 2004

**“Women in the United States also need HIV prevention tools like microbicides. AIDS is now the number 1 cause of death among African-American women between the ages of 25 and 34.”**

“The Microbicide Development Act,” in the Senate of the United States, 2005

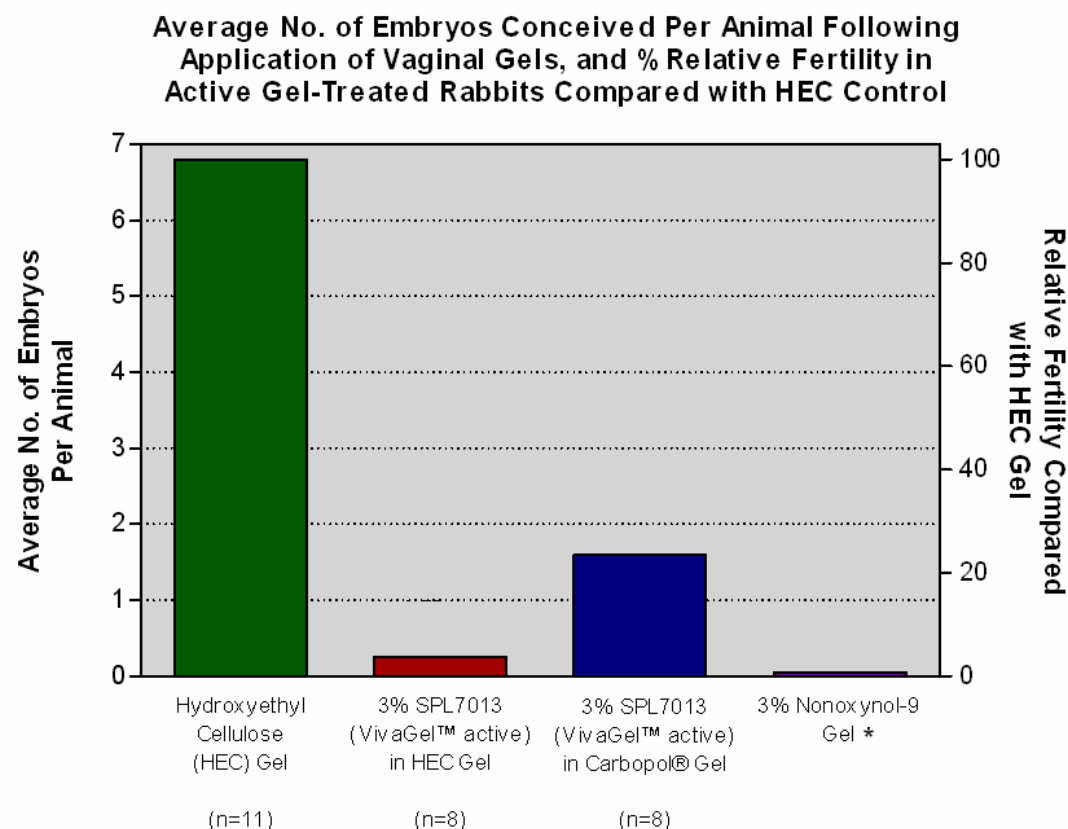
# VivaGel™ : Significant Advantages Over Competitors



	Competitor Category	Key Disadvantages	VivaGel™ Advantages
HSV-2	VivaGel™ is the only microbicide being developed to prevent genital herpes		
HIV	Surfactants/Detergents	<ul style="list-style-type: none"> <li>▪ Ulceration possible</li> <li>▪ Potential increased risk of infection</li> </ul>	<ul style="list-style-type: none"> <li>▪ No surfactant properties</li> <li>▪ Non-irritant</li> <li>▪ Does not increase infection risk</li> </ul>
	Sulphated Carbohydrates	<ul style="list-style-type: none"> <li>▪ Not active against clinical HIV strains</li> </ul>	<ul style="list-style-type: none"> <li>▪ Highly active against all HIV strains tested</li> </ul>
	Reverse Transcript Inhibitors and other anti-viral drugs	<ul style="list-style-type: none"> <li>▪ Drug resistance is an issue</li> <li>▪ Primary mode of action requires infection process to have begun</li> <li>▪ Not active against HIV</li> </ul>	<ul style="list-style-type: none"> <li>▪ Very high barrier to development of viral resistance</li> </ul>
	Sulphated Polymers	<ul style="list-style-type: none"> <li>▪ High cost of synthesis</li> <li>▪ Poor characterisation of the drug substance likely to present regulatory issues</li> </ul>	<ul style="list-style-type: none"> <li>▪ Excellent drug characteristics                             <ul style="list-style-type: none"> <li>▪ Low manufacturing costs</li> <li>▪ Stable, well defined entity</li> </ul> </li> </ul>
	Acidity Control Agents	<ul style="list-style-type: none"> <li>▪ Is acidity control sufficient protection as mono-therapy?</li> </ul>	<ul style="list-style-type: none"> <li>▪ Potent activity against HIV and HSV-2 in animal models</li> <li>▪ Non-irritant</li> </ul>
	VivaGel™ has significant competitive advantages		

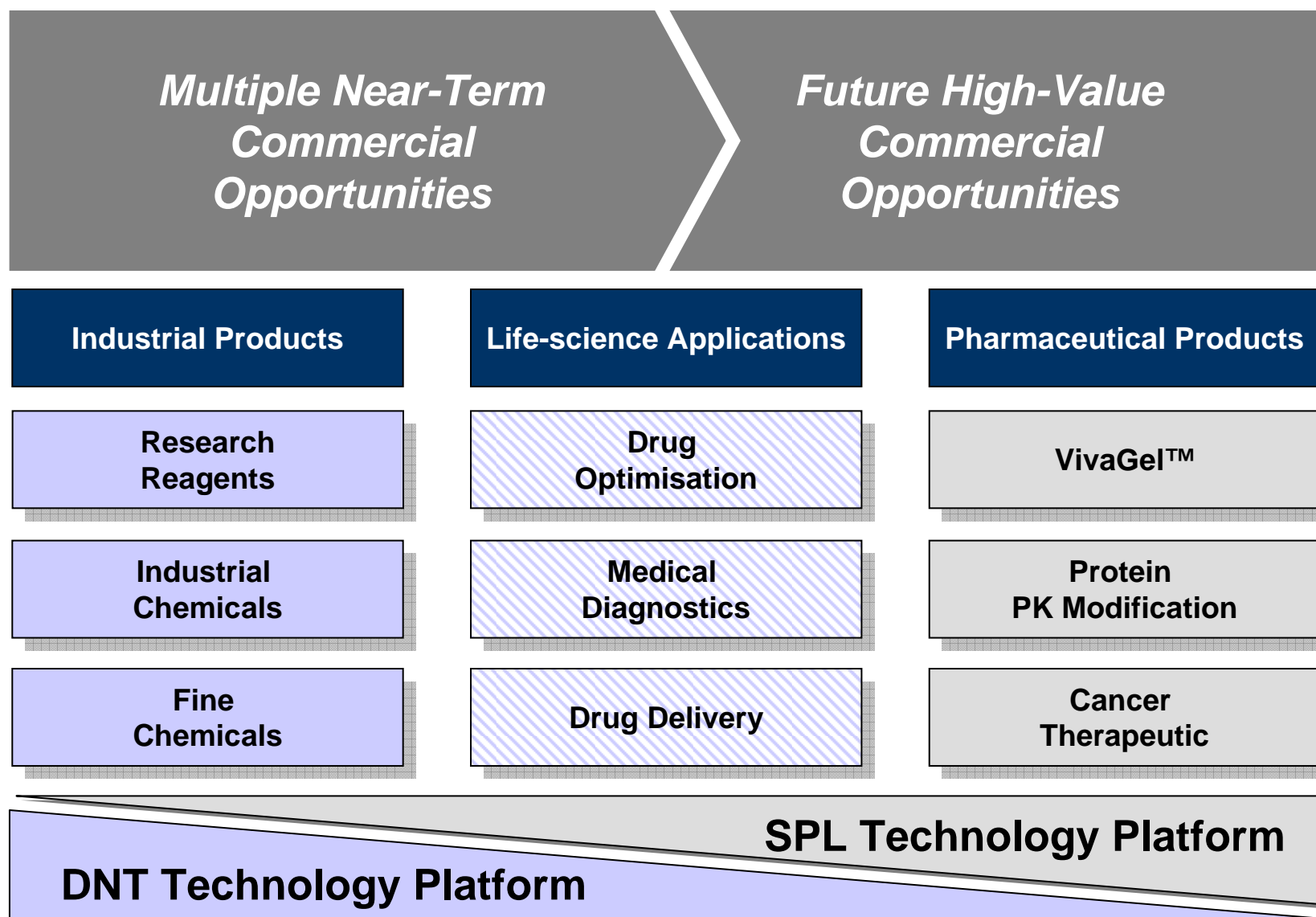
## *VivaGel™ : Potent Contraceptive Activity in Rabbits*

- Recent study has shown that SPL7013, the active ingredient in its VivaGel™, exhibits a potent contraceptive effect in rabbits
- Independent study undertaken at Johns Hopkins University under an NIH grant
- Fertility was reduced by more than 75% by SPL7013 in a VivaGel™ formulation and 95% in a HEC gel compared with an inactive gel
- If contraceptive activity is confirmed in humans it would allow for development with contraception as an additional claim
- Findings relevant to both the stand-alone gel and condom coating opportunities

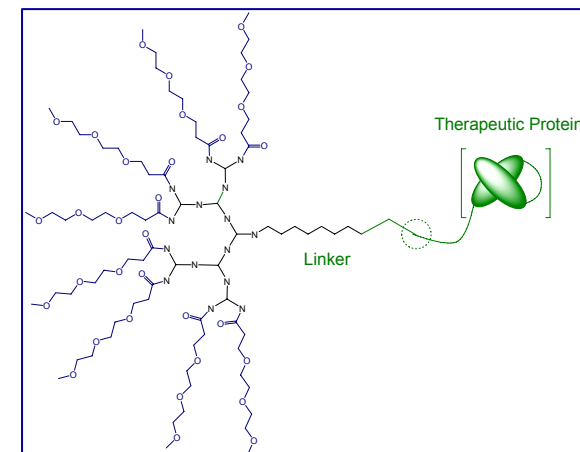
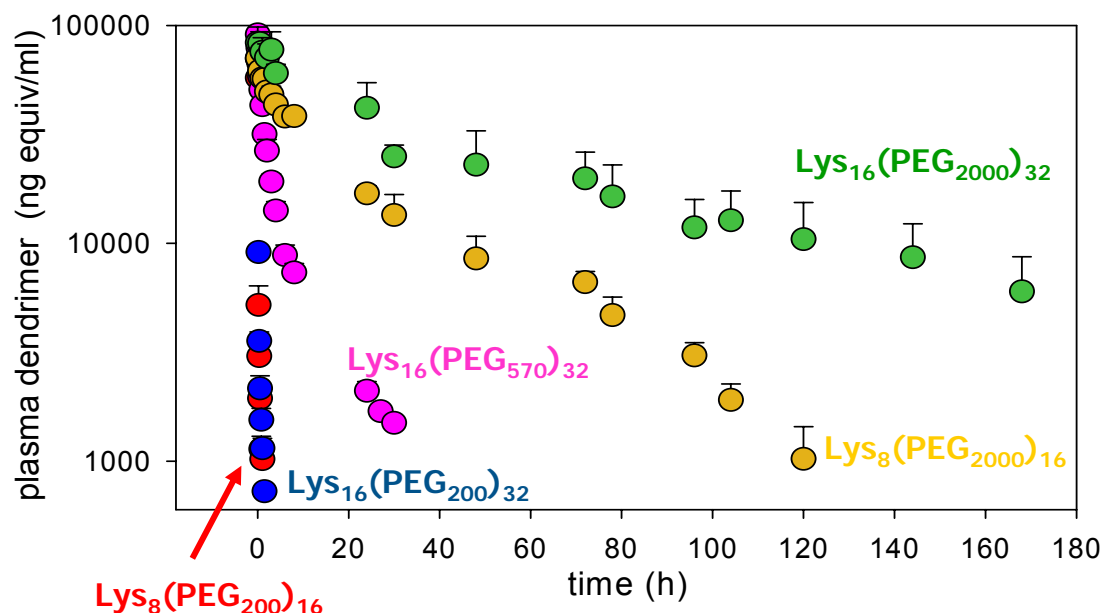


\* N-9 figure based on published historical data, Castle et al, *Contraception* 1998;58:51-60, and Zeitlin et al, *Sexually Transmitted Diseases*, 2001;28:417-23

**VivaGel™'s active ingredient is a potent contraceptive in animals**

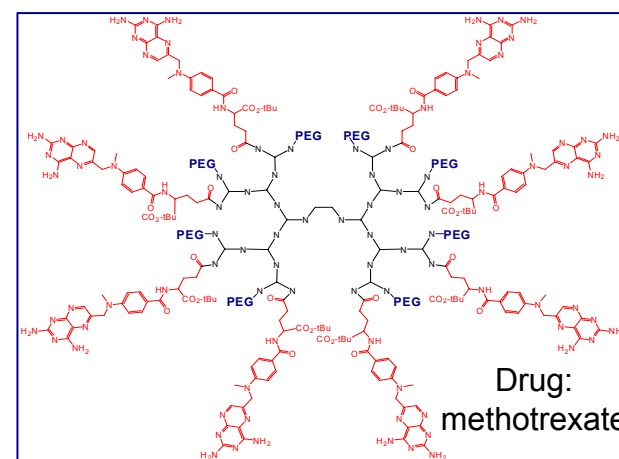


## Plasma concentration-time profile in male SD rats for PEGylated poly-L-lysine dendrimers



Starpharma's dendrimers can be designed to optimize the Pharmacokinetics (PK) of:

- Small molecule drugs
- Therapeutic proteins
- Peptides
- Plasma residence time increases with dendrimer size, but:
  - PEG MW alone not the main determinant of  $t_{1/2}$



Company	Clinical Development	Pre-clinical development
Acuity	Ph II AMD & DME	anti-inflammatories & anti-infectives
Alnylam	Ph 1 2006 (RSV)	pandemic flu, spinal cord injury, Parkinson's, cystic fibrosis, hypercholesterolemia, neuropathic pain
Sirna	Ph II AMD (w/ Allergan)	Asthma, RSV, Huntington's, viral hepatitis, diabetes, oncology, dermatology

Mainstream Pharmas are partnering up:

- Novartis/Alnylam (flu)
- Merck/Alnylam (AMD & spinal cord injury)
- GSK/Sirna (respiratory diseases)
- Abbott/Dharmacon (oncology)

or acquiring:

Merck/Sirna

For RNAi therapeutics, the ultimate goal is targeted delivery. The leaders have RNA expertise but delivery vehicles to provide the targeting capability are underdeveloped and in strong demand.