

# Starpharma Holdings Limited ASX:SPL OTCQX:SPHRY

# **BBY 2007**

# **Healthcare and Life Sciences Conference**

Dr Jackie Fairley CEO December 2007



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.



#### **Company Overview**

- World leader in nanomedicine developing dendrimer products for pharmaceutical and life-science applications
- Lead product VivaGel<sup>®</sup> is being developed under IND as a topical microbicide to prevent HIV and Genital Herpes
- Deep pipeline of programs drug delivery, siRNA delivery and drug optimisation
- Wholly-owned US subsidiary DNT (Dendritic Nanotechnologies Inc.) – a leader in the development of advanced dendrimers for life science and industrial applications

#### Starpharma Holdings Limited (22/11/07)

ASX Code	SPL
Level 1 ADR (OTCQX)	SPHRY
Share Price SPL AUD	40c
12 Month High/Low AUD	55c / 29c
Shares on Issue	179.7M
Market Capitalisation AUD	~ \$70M
Average Mthly Volume: ASX	3-4M shares
Average Mthly Volume: OTCQX	2M shares#
Cash on Hand (Sept 07) AUD	\$11.3M

# SPHRY=10 shares

Starpharma is a world leader in the development of dendrimer products for pharmaceutical, life-science and other applications



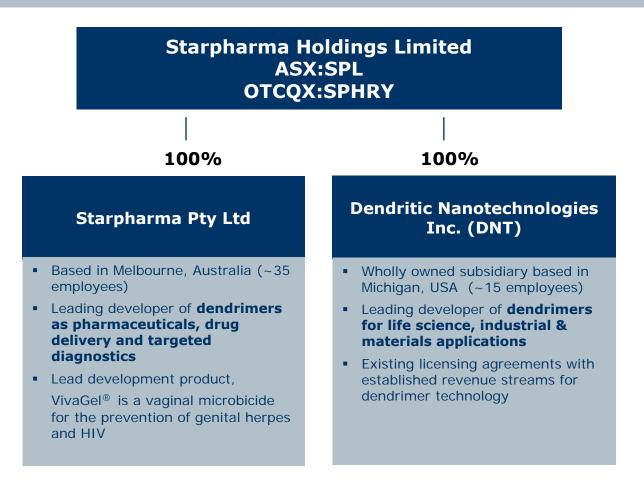
#### **Investment Summary**

- Starpharma has a leading topical microbicide (VivaGel<sup>®</sup>) in development for prevention of sexually transmitted infections (STIs), HIV and genital herpes
- Topical microbicides have strong consumer demand and funding support
- VivaGel<sup>®</sup> "first in class" for herpes prevention
- VivaGel<sup>®</sup> has already achieved significant milestones and support:
  - FDA Fast track status granted for HIV
  - >US\$26M of NIH funding for microbicide development
  - Only microbicide with NIH funding for genital herpes indication
- Commercially attractive condom coating (line extension) opportunity 2 deals in place
- Deep pipeline of drug delivery, siRNA delivery and life science programs
- Generating revenue through existing royalties with launch of further licensed products due 2007/08
- Significant US shareholder base, US operations and increasing profile

Starpharma represents a significant value proposition for investors



#### **Company Structure**





#### Shareholding and OTCQX:SPHRY

#### Major shareholders include:

- The Dow Chemical Company (NASDQ: DOW)
- Acorn Capital
- Platinum Partners LLC
- Queensland Investment Corporation
- Irrewarra/ GoldmanSachs-JBW

#### "Exceptional" Level 1 ADR program (as judged by Bank of NY)

- ~11% of issued capital
- Monthly volumes ~2M shares\*
- Most heavily traded Australian biotech Level-1 ADR

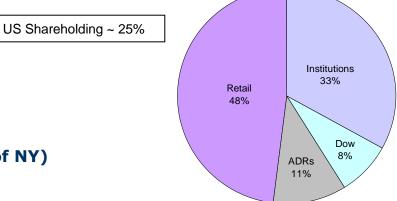
#### OTCQX launched March 2007

- Premium market tier for Level 1 ADRs
- Daily volumes increased (+~55%)
- Merriman Curhan Ford initiated coverage June 2007
- Active brokers include Merrill, Merriman, UBS, Jefferies, NITE

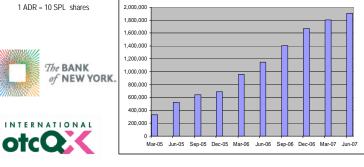
#### Ongoing program to build liquidity and US interest in SPL/SPHRY

\* 1 ADR = 10 SPL shares

### Shareholder breakdown:



# ADR (SPHRY) Uptake

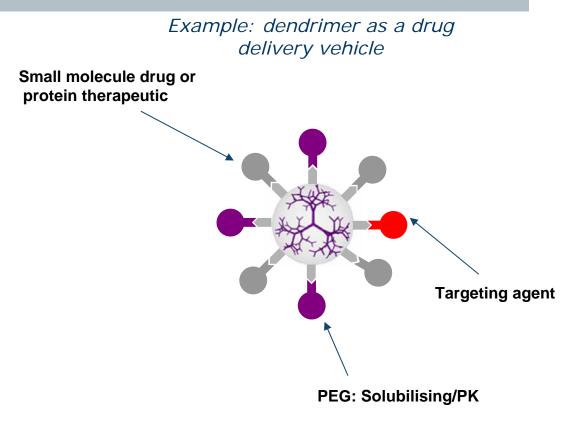




#### Technology Overview

# **Commercial Advantages of Dendrimers:**

- Key enabling nano-scale technology
- Synthetic macromolecules (1-15nm)
- Highly versatile technology:
  - drugs e.g. VivaGel<sup>®</sup> active SPL7013
  - drug delivery
  - siRNA/DNA delivery
  - diagnostics & materials applications
- Scalable chemical manufacturing process
- Can tailor features for tissue targeting
- Competitive Cost Of Goods
- Well tolerated





#### **Pipeline Pharmaceutical & Medical Products Proof of Concept Clinical Trials** Lead Sales **VivaGel**® HSV-2 prevention HIV prevention Condom coating **ADME Engineering** Therapeutic protein PK optimization **Drug Delivery – Small Molecules** Cancer therapeutic **Drug Optimization** Enhanced solublisation In-vivo and in vitro Diagnostics DADE BEHRING Stratus CS<sup>®</sup> (Cardiac Diagnostic) MRI imaging (Ovarian cancer & cardiovascular disease) **Life-science Products Proof of Concept** Prototype **Pre-launch** Sales **Gene Transfection Reagents** SuperFect<sup>®</sup> QIAGE siRNA/DNA Transfection Reagents MERCK PrioFect<sup>®</sup>



### VivaGel<sup>®</sup> - Lead Product for Prevention of Sexually Transmitted Infections (STIs)

- VivaGel<sup>®</sup> is a topical vaginal microbicide being developed to prevent STIs in women
- Being developed under two INDs for the prevention of HIV and genital herpes (HSV-2) in women
- Gel-based formulation with a nanotech dendrimer active (SPL7013), delivered via a vaginal applicator
- Dendrimer inactivates HIV and HSV-2 by binding to the virus preventing it attaching to the host
- Significant and growing recognition that microbicides offer the best alternative for prevention
- Potent contraceptive activity in animal models



# 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 adults in developed countries, growing to between 40-50% women in the US by 2025
- Existing prevention methods have proven ineffective and developmental vaccines disappointing



VivaGel<sup>®</sup> - Lead Product for Prevention of Sexually Transmitted Infections (STIs)

Herpes represents a major health issue:

- Affects 22% sexually active adults in the USA and 15-20% in Europe
- 40-50% of women in the U.S. by 2025 (estimated)
- Major risk factor for HIV: 38-69% new HIV infections in females attributable to HSV-2

Alternative prevention options are limited:

Prevention Options	Condoms	Abstinence	Vaccines	Microbicides (in development)
HIV	$\checkmark$	$\checkmark$	X	$\checkmark$
Genital Herpes	$\checkmark$	$\checkmark$	X	VivaGel <sup>®</sup>



#### **Commercial Opportunity for Microbicides**

#### Large, addressable markets

- HIV more common in developing countries
- HSV-2 common in both developing and developed countries

#### Increasing market support for products

- US government 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 - 70% with contraceptive properties
- Over 20 million women in US would use a microbicide
- Microbicide market estimates > \$1.5-3 Billion

#### Estimated Market for microbicides in <u>Developed</u> 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

Source: World Bank; UNAIDs; EC AIDS survey; BCG analysis and various microbicide publications



# VivaGel<sup>®</sup> - Clinical Trial Status

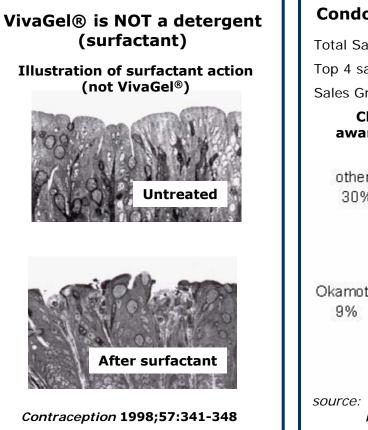
Study	No. Participants	Site(s)	IND Application	Status
Safety, tolerability and pharmacokinetic study of escalating doses of VivaGel in healthy women when administered vaginally, once daily for 7 days	37	Adelaide, Australia	Prevention of HIV	Complete
Safety and acceptability study of VivaGel when administered to the penis of healthy male volunteers once daily for 7 days	37	Melbourne, Australia	Prevention of HIV	Complete
Expanded safety and tolerability study of VivaGel in healthy young, sexually abstinent women when administered twice daily for 14 days	60	San Francisco, USA and Kisumu, Kenya	Prevention of genital herpes	Ongoing
Expanded safety and acceptability study of VivaGel in healthy young, sexually active women when administered twice daily for 14 days	40	Tampa, USA and San Juan, Puerto Rico	Prevention of HIV	Ongoing

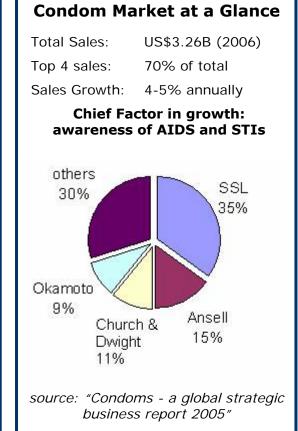


# **VivaGel® – The Condom Coating Opportunity**

#### The Reason for the Opportunity

- Condom manufacturers have long recognised a demand for premium condoms with added protection
- Historically N9 (a surfactant) has been used
- N9 has been shown to <u>increase</u> risk of HIV and HPV
- N9 is thought to disrupt the vaginal wall, allowing entry to these viruses.
- Condom manufacturers and regulators are actively seeking an N9 replacement
- VivaGel® may be the replacement of choice given it is not cytotoxic and its activity: antiviral (HSV-2/HIV) and contraceptive





Condoms represent a US\$3.26B market; VivaGel® offers a potential premium product



**VivaGel<sup>®</sup> – The Condom Coating Opportunity** 

- Co-development Agreement signed in October 2007 with SSL Plc (LSE:SSL), the makers of Durex, the market leading condom brand
- Retail branded condom sales are estimated as \$3.2Bi USD growing at 4-5% annually#
- SSL holds ~ 30% market share globally#
- Durex have an extensive range of condom types including other coated condoms and a range of lubricants marketed under the Play brand
- Agreement includes undisclosed milestone payments and sets out a co-development program for VivaGel<sup>®</sup> coated Durex condoms including regulatory and market development activities
- Another (unnamed) regional condom-coating deal announced in July 2007







*# source: Condoms - a global strategic business report 2005* 



#### Portfolio: siRNA Delivery – PrioFect®

**Concept:** Overcome the principal obstacle to the development of RNAi-based drugs ... delivery

# **Commercial opportunities for PrioFect®:**

# 1. Research reagent market(\$200 million)

- Licensed globally to EMD Biosciences\*
- Agreement includes royalties, supply and milestones
- First products to market in 2007

# 2. Therapeutic/delivery application

- Rights retained
- Significant commercial potential for an effective delivery agent
- Opportunity for multiple deals

#### Merck buys Sirna Therapeutics

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

**The Associated Press** reports that Merck & Co. ha agreed to pay \$1.1 billion to buy Sirna Therapeutics Inc. Merck's \$13-per-share offer for the San

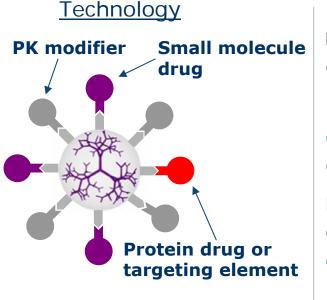


\* EMD Biosciences, Inc. is part of the Performance and Life Science Chemicals (PLS) division of Merck KGaA, a global pharmaceutical and chemical company with sales of EUR 6.3 billion in 2006.



# **Portfolio: Drug/Protein Delivery**

# **Concept:** Conjugation of drug to dendrimer to improve targeting and PK properties



**Potential surface groups:** 

- Small molecule or protein therapeutic
- Pharmacokinetic (PK) modifier
- Targeting element

# **Significance**

Potential for:

- Targeting to specific tissues, reducing offtarget effects to improve efficacy/ reduce toxicity/improve dosing.
- Improved PK and solubility of drugs.
- Product lifecycle management.

Especially applicable for protein therapeutics:

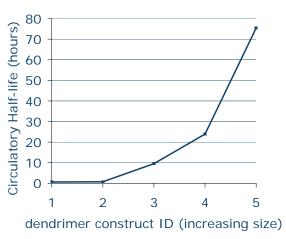
- Which have very short half life *in vivo*.
- Which are expensive, therefore desirable to reduce amount needed.

Opportunity for multiple deals.

Significant interest from potential pharmaceutical partners.

# Results

Addition of PK modifying units to the dendrimers surface significantly extends drug half life *in vivo*.



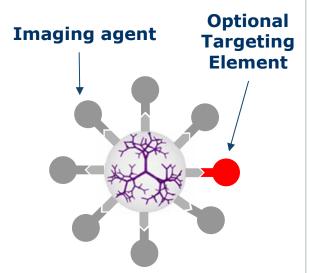
The global protein therapeutics market was valued at US\$57 billion in 2005



# Portfolio: Dendrimer-Based Targeted Imaging

**Concept:** Targeted magnetic resonance (MRI) imaging agent for detection and monitoring of diseased tissue

<u>Technology</u>



#### **Significance**

- Dendrimer loaded with MRI-contrast agent provides significantly better imaging resolution than contrast agent alone.
- Dendrimer scaffold also provides ability to link on specific targeting groups (e.g. Antibodies).

#### **Cardiovascular Application**

Improved product for the early detection of unstable atherosclerotic plaques in arterial walls.

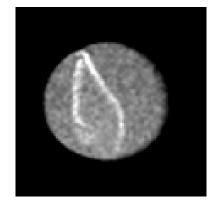
Funded by the NHMRC (\$327k) in collaboration with the Baker Heart Research Institute.

#### **Cancer Application (NCI funded)**

Improved MRI product for detection and monitoring of cancerous tissue.

#### **Results**

Dendrimer/MRI agent coupled to Thrombus (clot) Specific Antibody





# Starpharma's existing commercial agreements for dendrimers

**Stratus CS®** Cardiac marker diagnostic licensed to Dade Behring

SuperFect<sup>®</sup> Gene transfection technology licensed to Qiagen



#### **STARBURST®**

Dendrimers commercially available via Sigma Aldrich

#### Priofect®

siRNA & DNA transfection reagents

# EMD MERCK

#### VivaGel®

Co-development deal for Condom Coating

Co-development deal for Condom Coating (unnamed company)



SSL International plo

DADE BEHRING

Sector	Current Discussions with	Application	Market Size USD /Region
Research Reagents	Major Reagent manufacturers Major Reagent manufacturers	Fluorescent dye conjugate Dyes for <i>in vitro</i> diagnostics	\$100M /US \$2.5B /US
Automotive Lubricants	"Top 5" US Oil Company	Lubricant additive	\$1.7B /US
Specialty Additives	Large Construction Material Supplier	Plastics additive	\$5.5B /US
	Major Technology Company	Medical and dental adhesives and sealants	\$1.3B /US
Manufacturing	Multiple avenues of exploration	Specialty Adhesives	\$2.2B /US
	"Top 5" European electronics manufacturer	Electronics chemicals	\$3.7B /US
Pharmaceutical	Global Healthcare Company	Solublisation/Excipient	\$1.4B /Europe
Cosmetic Ingredients	Cosmetic Ingredient Suppliers	Solubilisation	\$6.2B /US
Water Treatment Chemicals	Water quality specialists	Water filtering/ remediation	\$3.1B /US



#### Priority areas of focus for 07/08

- **1.** Progress VivaGel<sup>®</sup> clinical trial program towards efficacy trials for HIV & Genital Herpes and proof of concept for contraception. Complete other NDA requirements
- 2. Support the rapid development of the condom coating product with our 2 partners
- **3.** Increasing near term revenue from dendrimer products through:
  - Deals with life science reagent suppliers for signal amplification, solubilisation, and surface coatings/biosensors.
  - Deals with corporations as additives in fields such as cosmetics, inks, household products, and plastics.

# 4. Internal development and establish commercial partnerships - Drug Delivery, MRI and siRNA delivery

#### 5. Improving market engagement and price performance

- Parallel US and Australian investor engagement.
- Utilisation of major milestones for revaluation.



#### **Investment Summary**

- VivaGel<sup>®</sup> Vaginal Microbicide ; "first in class" for herpes prevention
- VivaGel<sup>®</sup> has already achieved significant milestones and support:
  - FDA Fast track status granted for HIV
  - >US\$26M of NIH funding for microbicide development
  - Only microbicide with NIH funding for genital herpes indication
- Commercially attractive condom coating opportunity 2 deals in place
- Deep pipeline of drug delivery, siRNA delivery and life science programs
- Generating revenue through existing royalties with launch of further licensed products due 2007/08
- US operations, growing US shareholder base and increasing profile



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**Dr Jackie Fairley CEO** +613 85322704

Further information: www.starpharma.com info@starpharma.com







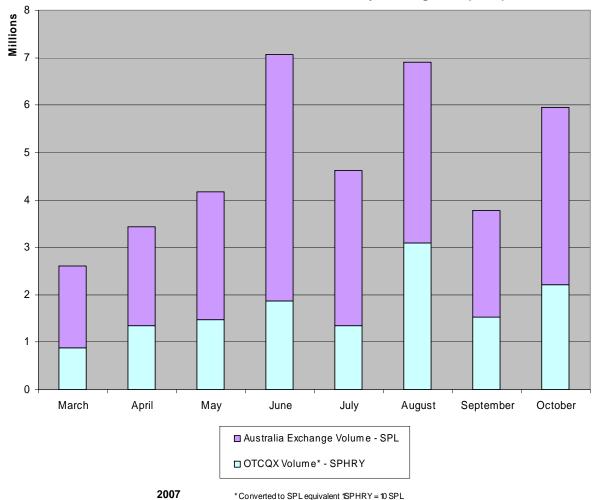
# **Supplementary Information**



Key Management	
Dr Jackie Fairley, President and CEO	<ul> <li>Over 15 years international business development and general management experience in pharmaceuticals and biotechnology</li> <li>Former senior roles with CSL and Faulding (Mayne Pharma)</li> </ul>
Dr Paul Barrett, VP Business Development	<ul> <li>Significant experience in marketing and business development in Australia and UK</li> <li>Broad life-science experience; competitive intelligence</li> </ul>
Dr David Owen, VP Research	<ul> <li>Extensive experience in medicinal chemistry and biochemistry</li> <li>Managing teams focussed on commercially directed drug discovery</li> </ul>
Dr Jeremy Paull, VP Development & Reg. Affairs	<ul> <li>Integral role to advancement of VivaGel clinical program</li> <li>Extensive NIH liaison, regulatory and product development experience</li> </ul>
Dr Robert Berry, President, DNT Inc.	<ul> <li>Founder of four technology companies and consortia</li> <li>Previously President and CEO of CMU Research Corporation</li> </ul>
Ben Rogers, Company Secretary & CFO	<ul> <li>Extensive experience in finance, corporate governance and HR management</li> <li>Member of Starpharma's start-up/IPO management team</li> </ul>
Nigel Baade, Financial Controller	<ul> <li>CPA qualified accountant</li> <li>Experience in the pharmaceutical and biotechnology industries.</li> </ul>



# Monthly Trading Data (October 2007) ASX: SPL and OTCQX : SPHRY



ASX: SPL and OTCQX : SPHRY Monthly Trading Data (2007)



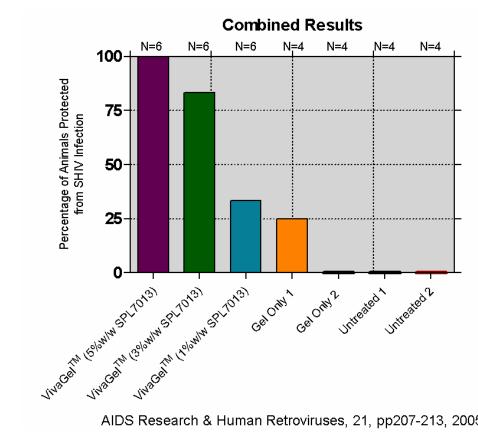
#### **VivaGel®– Product Features and Performance**

VivaGel™ Offers Several Key Advantages	<ul> <li>Market research indicates significant (international) user and payor demand for microbicide gels</li> <li>VivaGel™ : "first in class" for Herpes</li> <li>Compelling HSV-2 &amp; HIV efficacy and potent contraceptive activity in animal models</li> <li>Significant NIH support for development</li> <li>Viruses appear not to develop resistance to VivaGel™</li> </ul>
Excellent Results in Human and Animal trials	<ul> <li>Successfully trialled in both men and women under IND</li> <li>VivaGel<sup>™</sup> is currently in expanded safety human studies (PhaseI/IIa) in USA &amp; Africa</li> <li>VivaGel<sup>™</sup> shows excellent activity in relevant HIV &amp; HSV-2 strains in very stringent animal models</li> <li>Well tolerated in male and female subjects</li> </ul>
Excellent Drug Characteristics	<ul> <li>Lower development risk : Topical gel, external to body</li> <li>Full development package; well defined chemical entity, scalable</li> <li>Affordable - Low manufacturing cost</li> <li>Excellent IP position</li> </ul>

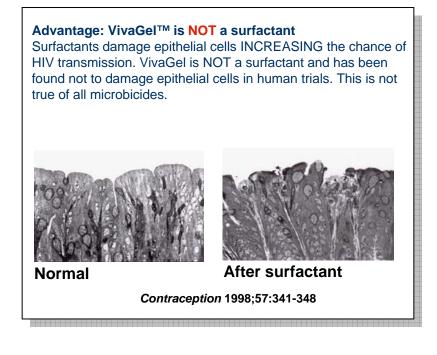


#### **VivaGel®: Animal Efficacy results**

#### **SHIV/HIV Protection**



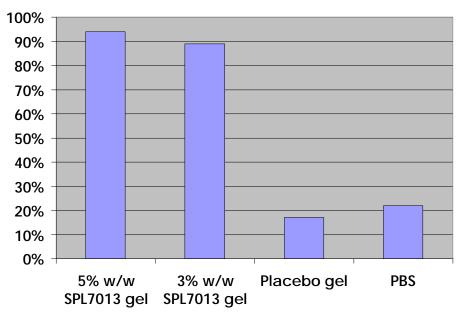
AIDS Research & Human Retroviruses, 21, pp207-213, 2005.





# VivaGel®: Animal Efficacy results (continued)

#### **HSV Protection**



VivaGel<sup>™</sup>: animals protected from HSV-2

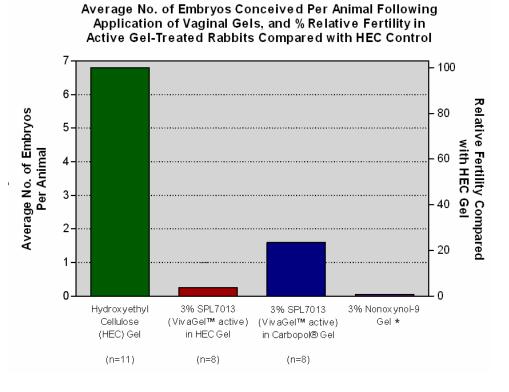
Approximately 45 million Americans (26% of women and 18% of men) are infected with HSV-2, the causative agent of genital herpes. Epidemiology of HSV in Developed Countries, HERPES, 11 Supplement 1, 2004
"Women in the United States also need HIV prevention tools like microbicides. AIDS is now the number 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®: Potent Contraceptive Activity in Rabbits**

- Recent study has shown that SPL7013, the active ingredient in its VivaGel<sup>™</sup>, 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<sup>™</sup> 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

# VivaGel<sup>™</sup>'s active ingredient is a potent contraceptive in animals



\* 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® – Development and Commercial Strategy**

VivaGel®	<ul> <li>One of the most advanced 2<sup>nd</sup> generation microbicides</li> <li>First in class for HSV-2</li> <li>Significant non-dilutive NIH support; strong ongoing support for microbicides</li> <li>Broad application; chronic-use product</li> <li>Partnering/commercial strategies likely to differ between developed (OTC/Pharma) markets and developing (NGO/Govt.) countries</li> </ul>
	Status: Expanded Safety human trials in US, Australia and Kenya In discussions with various potential commercial partners
VivaGel® Condom Coating opportunity	<ul> <li>Possible replacement to common spermicidal coatings e.g. nonxynol-9 (N-9)</li> <li>Likely less onerous regulatory path for VivaGel® as a condom coating - offering a line- extension with shorter path to market.</li> <li>Status: Two deals announced 2007</li> </ul>



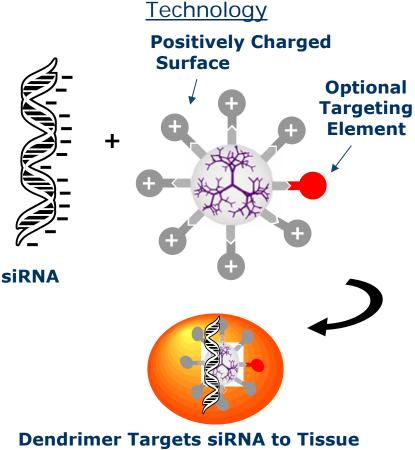
# **VivaGel<sup>®</sup> : Significant Advantages Over Competitors**

	Competitor Category	Key Disadvantages	VivaGel™ Advantages
HSV-2	VivaGel <sup>™</sup> is the only microbicide being developed to prevent genital herpes		
	Surfactants/Detergents	<ul> <li>Ulceration possible</li> <li>Potential increased risk of infection</li> </ul>	<ul> <li>No surfactant properties</li> <li>Non-irritant</li> <li>Does not increase infection risk</li> </ul>
	Sulphated Carbohydrates	<ul> <li>Not active against clinical HIV strains</li> </ul>	<ul> <li>Highly active against all HIV strains tested</li> </ul>
HIV	Reverse Transcript Inhibitors and other anti-viral drugs	<ul> <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> <li>Very high barrier to development of viral resistance</li> </ul>
	Sulphated Polymers	<ul> <li>High cost of synthesis</li> <li>Poor characterisation of the drug substance likely to present regulatory issues</li> </ul>	<ul> <li>Excellent drug characteristics</li> <li>Low manufacturing costs</li> <li>Stable, well defined entity</li> </ul>
	Acidity Control Agents	<ul> <li>Is acidity control sufficient protection as mono-therapy?</li> </ul>	<ul> <li>Potent activity against HIV and HSV-2 in animal models</li> <li>Non-irritant</li> </ul>
VivaGel <sup>™</sup> has significant competitive advantages			dvantages



# Portfolio: Dendrimer-Based Delivery of Nucleic Acids (eg. siRNA and DNA)

**Concept:** Targeted dendrimer delivers siRNA into specific tissues as a molecular therapeutic



eg Tumour

# Significance

siRNA is a powerful novel method for specific gene silencing which is revolutionizing medical therapeutics.

One of the most critical factors for a successful siRNA mediated therapeutic is the ability to deliver the siRNA specifically to the target tissue.

Advantages of Starpharma Dendrimers:

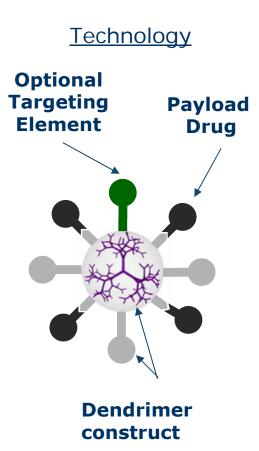
- Significant *in vitro* activity and acceptable toxicity profile.
- Non-interference with serum components.
- Ability to take advantage of passive or active targeting to specific tissues.
- Ability to produce at scale, to cGMP quality.
- Ability to control Pharmacokinetic properties.

Signed worldwide exclusive license and supply agreement for the in vitro research market with EMD Biosciences



### **Portfolio: Drug Delivery**

# Concept: Attach drugs to dendrimers to control and modify distribution



<u>De</u>	ndrimer	<u>rs can be</u>	Targeted
	Control	VASCULATURE	LYMPHATICS
Courtesy of M. Brechbiel, NIH			
	KIDNEY	LIVER	
	000		& the EPR effect

# **Significance**

#### Potential for

- Improved efficacy of drugs
- Reduced off-target effects
- Product lifecycle management
- Improved solubility of drugs
- Drug "rescue"

Proof of concept in cancer model

Opportunity for multiple deals

Also offers imaging opportunity

Dendrimers are concentrated in solid tumours via the EPR (enhanced permeability & retention effect)

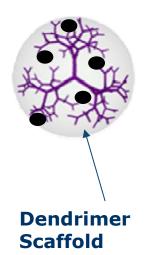


#### Portfolio: Cosmetic Ingredient Solubilizer

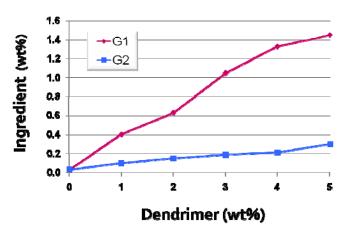
# Concept: Use dendrimers to enhance solubility, stability, processing

**Technology** 

Poorly
 Soluble
 Ingredient



# Low % = Improve Solubility



Low generation dendrimers have big impact on solubility enhancement.

# **Significance**

#### Potential for

- Increasing ingredient loading
- Stabilize ingredient
- Improved processing
- Allowing new ingredients OR
- Combination Ingredients

In evaluation with leading cosmetic ingredient suppliers

Opportunity for multiple deals

High Value-Low Volume Opportunity

US demand for cosmetic and toiletry chemicals is forecast to rise 5.4 percent per year to \$7.6 billion in 2010