

Investor Update



starpharma
leading the World in nanomedicine

Dr John W. Raff

CEO

Starpharma





Starpharma has built an internationally competitive biotechnology/nanotechnology company

- Extensive intellectual property position
- Inhouse expertise: chemistry, development, regulatory and commercialisation
- Novel, significant development products:
 - VivaGel™ – **Phase I Success**
 - Large dendrimer product pipeline
- Strategic relationship with DNT/Dow
- Recognition by local institutional investors
- Actively internationalising the shareholder base
- Strategies in place for future growth



International Biotechnology Industry

- Established model for efficient innovation.
- Biotechnology companies capitalised at over US\$300 billion.
- Approximately 50% of all new drugs derived from biotechnology companies.
- Big Pharma pipeline thin, with many drugs coming off patent in the next 3 years.
- Industry leaders predict new drug focus on “wellness” and preventative medicines.
- Demand for effective, novel new drug candidates is high.



Nanotechnology Outlook

“Revenue from nanotechnology-enabled products to equal IT and Telecom by 2014, exceed biotech by 10 times.”

“US\$2.6 trillion in products will incorporate emerging nanotechnology in 10 years (currently US\$13 billion).”

“In 2014 16% of goods in healthcare and life sciences by revenue will incorporate emerging nanotechnology.”

Lux Research, October 2004
www.luxresearchinc.com



Dendrimer Nanotechnology

Dendrimers are a basic building block of **defined** synthetic nanostructures.

Regulatory Authorities around the world are concerned about the biological impact of **non-defined** synthetic nanostructures.

Starpharma is a world leader in the synthesis and regulatory development of pharmaceutical quality **defined** synthetic nanostructures.



Recent Publicity

Forbes /
Wolfe

**Nanotech
Report**

December 2004: Top 5 Nanotech Breakthroughs of 2004

Melbourne, Australia-based Starpharma's (ASX:SPL) product VivaGel.

Forbes /
Wolfe

**Nanotech
Report**

January 2005: Top Nanotech Buys for 2005

Starpharma: "We expect great things to come from the company and its significant ownership in U.S.-based Dendritic Nanotechnologies, Inc."



DNT, Inc: Proprietary Dendrimer Nanotechnology



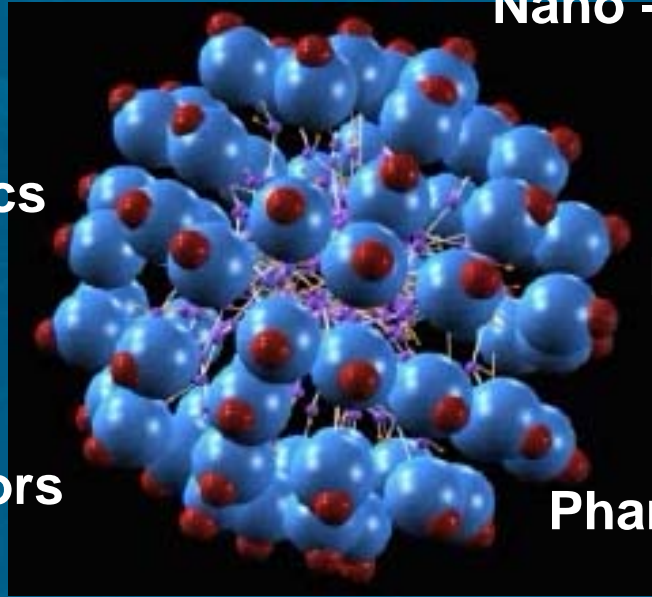
Nano - catalysts

Nano - reagents

Nano - optics

Nano - sensors

Thin Films



Military



Pharmaceutical



New technology = proprietary products (patents) = high value



Dow-DNT-Starpharma: Deal Summary



- Exclusive rights – all 'polyvalent' pharmaceutical applications of 'Dow' & DNT IP
- Right to sub-license
- 33% equity stake (previously 42%)

• US \$1 million

- Dow dendrimer IP portfolio (196 patents)
- Royalty streams from licensees

- 31% equity stake
- Board seat



[Ex-Dow senior IP & patent counsel, 20+ years dendrimers, now retained by Starpharma & DNT]

The Dow Chemical Company



Assigned Patent Portfolio: Content & Significance

- **Foundational IP position dating back to first discovery of dendrimers:**

- **compositions & processes**
- **conjugations**
- **methods & uses**

Upstream freedom to operate position – valuable licensing opportunity to support commercial applications

- **Illustrative examples of highly cited patents:**

- **US4558120: Dense star polymer'**
95 forward citations
- **US4507466: Dense star polymers having core, core branches, terminal groups**
123 forward references
- **US5338532: Starburst conjugates**
62 forward references
- **US5527524: Dense star polymer conjugates**
49 forward citations
- **US5714166: Bioactive and/or targeted dendrimer conjugates**
36 forward citations



Deal drivers

Company

Driver



- Obtain broadest possible IP portfolio in dendrimer technology
- Full freedom to operate

**The Dow
Chemical
Company**

- Unite foundational patents with new, enabling IP & skills created by DNT
- More 'nimble' business structure for out-licensing



- Further strengthens exclusive IP position in polyvalency
- Enhances value of DNT Investment

Shared vision that DNT/Starpharma offer the greatest potential to exploit the commercial opportunities of dendrimer technology



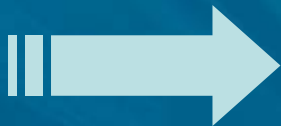
Transformation for DNT: Broad-based applications 'clearinghouse'

- Commercialisation strategy:
 - Partnership opportunities in core areas of focus:
 - ❖ Life sciences:
 - Imaging/contrast agents
 - Transfection reagents
 - Drug delivery
 - ❖ Military applications:
 - Institute for Soldier Nanotechnology
 - “Central out-licensing clearinghouse” for dendrimer technology with industrial applications:
 - ❖ Coatings and materials, optoelectronics, and photonics.
 - ❖ “Smart” textiles
 - ❖ Nanophase metals/ceramics
- Revenue stream to support business growth



Deal Significance for Starpharma: Clear 'polyvalence' leadership for partnering

- Exclusive rights to DNT & Dow IP for dendrimer-based polyvalency



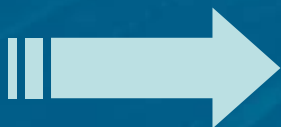
- Consolidates position as clear "partner of choice" for big pharma in field of dendrimer-based polyvalency

- Benefits of access to all relevant DNT innovations



- Enhanced attraction to commercial partners

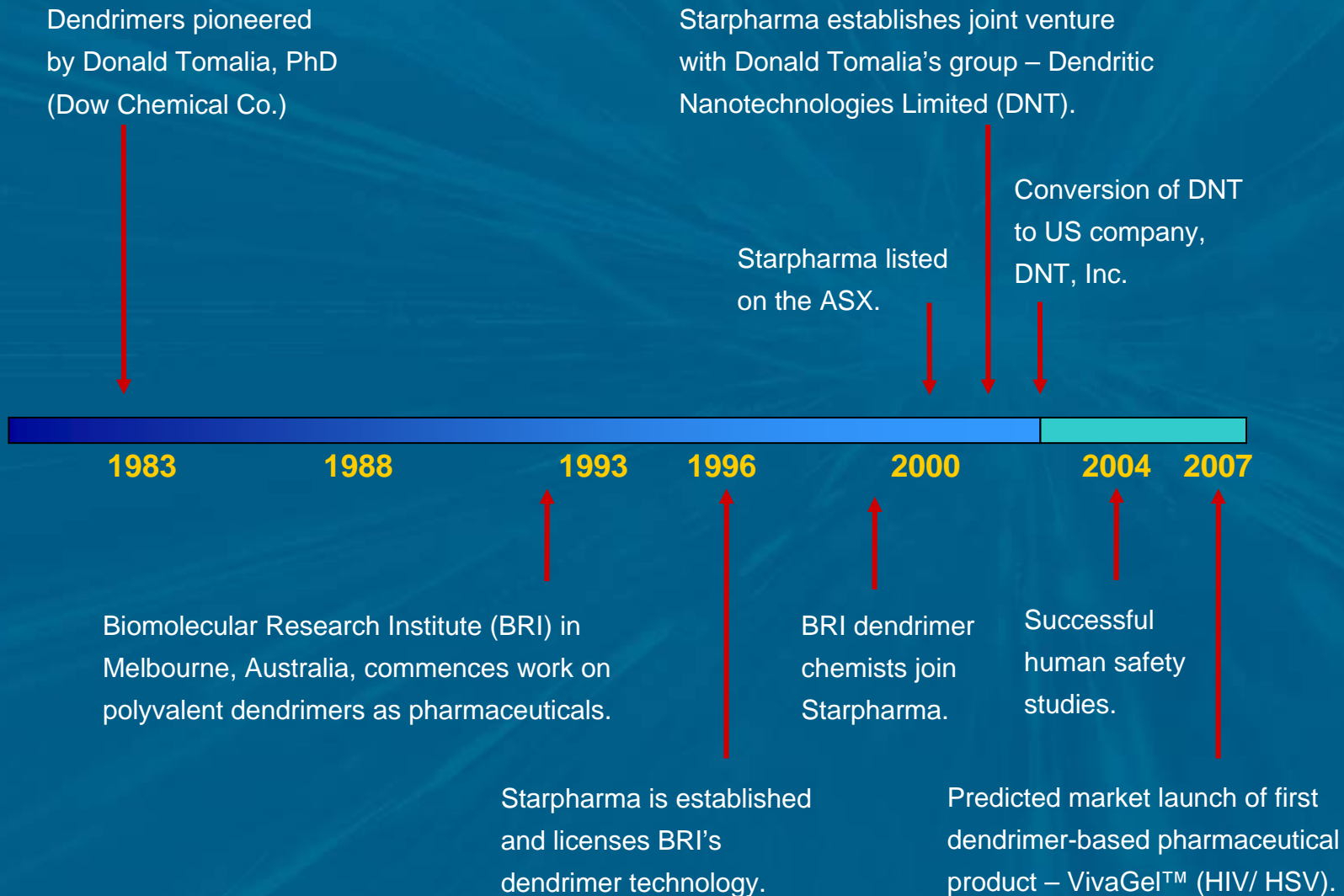
- Increased US profile
 - Dow equity stake in DNT
 - SPL ADR-1 program



- Maximize shareholder value



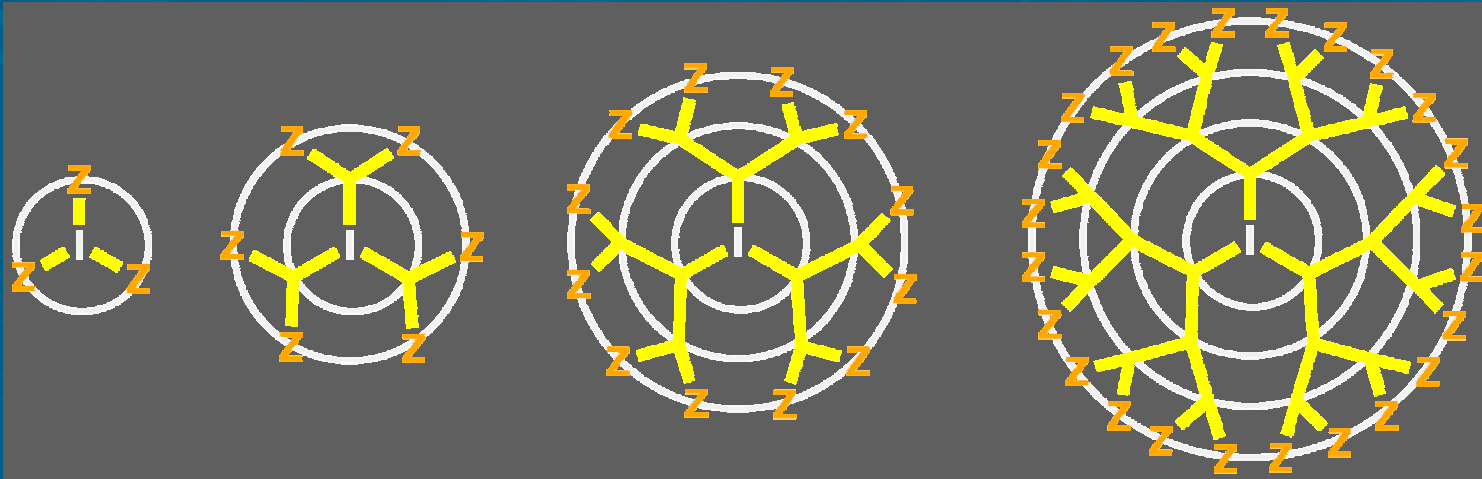
Starpharma Establishment





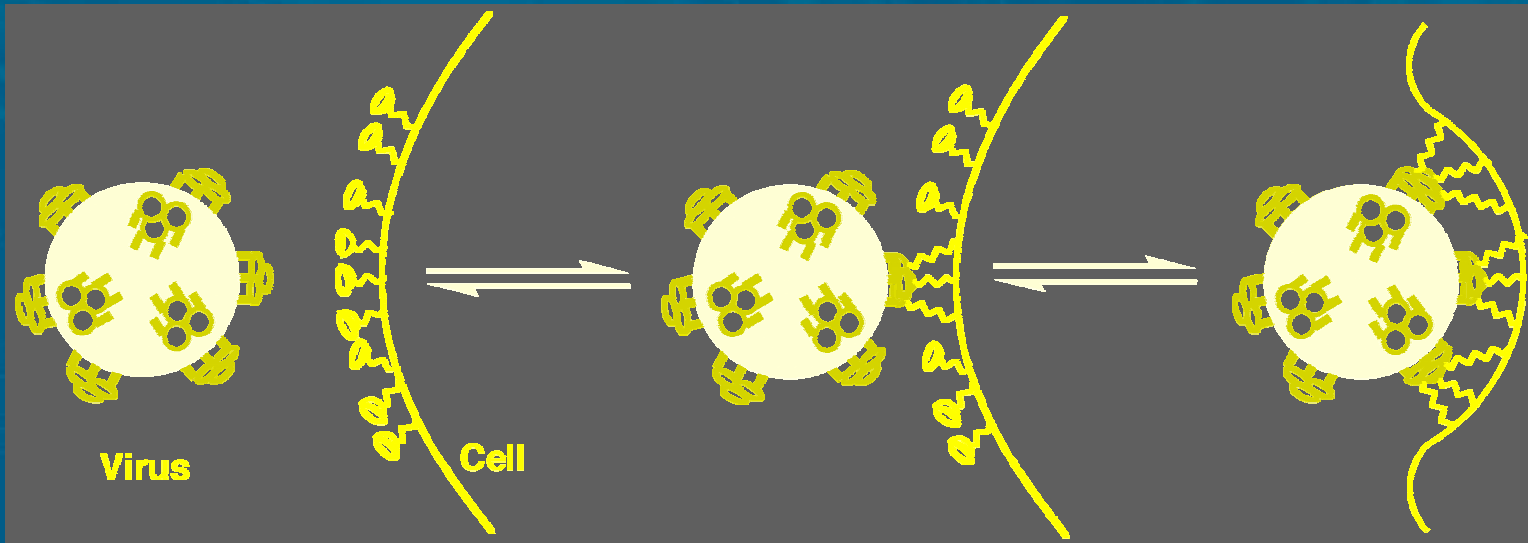
What are dendrimers?

- Dendrimers (*dendri* – tree / *mer* – branch)



- Synthetic structures with varying dimensions in the nanoscale
- Constructed generation by generation in a series of steps which increase the number of small branching molecules around a central core molecule
- Molecules added to the surface can be selected to give desired pharmacological properties

Nature's use of multivalency



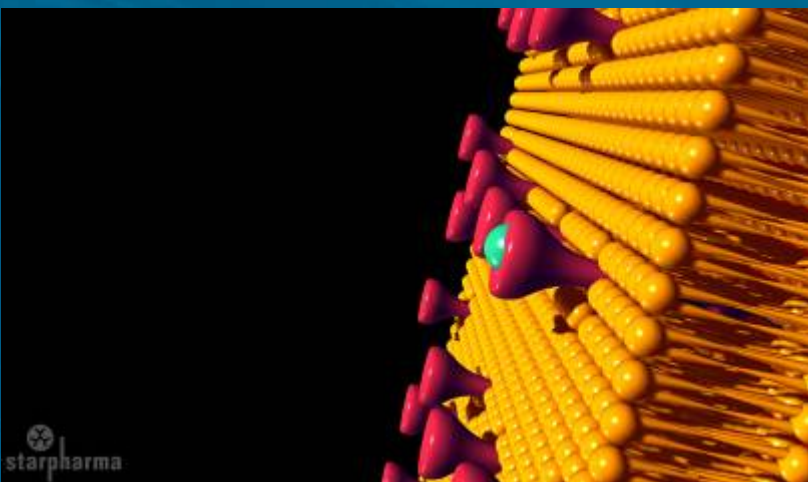
Whitesides et al, *Angew. Chem. Int. Ed.* 1998, 37(20), 2754

- Nature uses the principles of multivalency in protein-protein and protein-membrane interactions
- An overall strong binding event is made up of many “weak” interactions

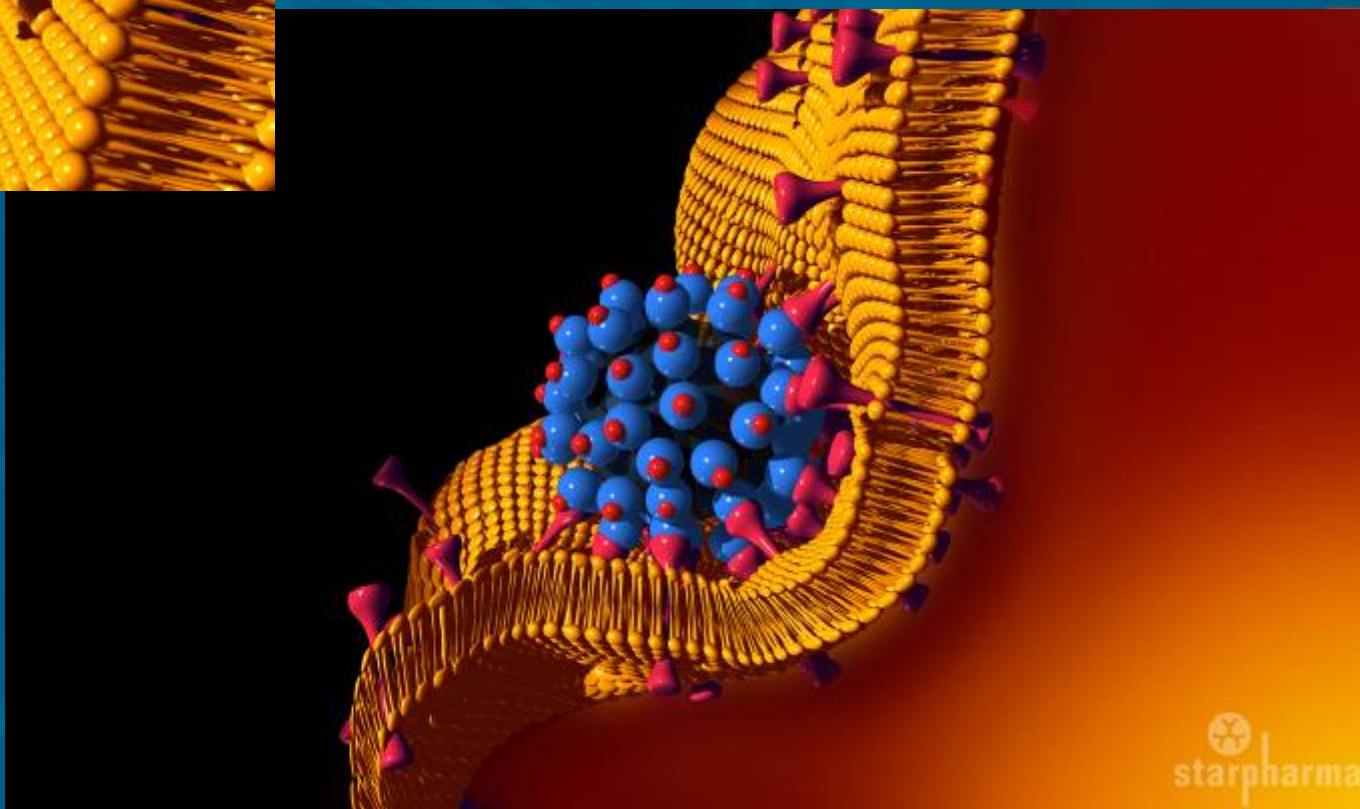


Dendrimers: Platforms for polyvalent interactions

Dendrimer nanodrug-receptor polyvalent interaction, mimics nature, and results in potentially enhanced activity compared with small molecules



Traditional monovalent
drug-receptor Interaction





Dendrimer Based Intellectual Property

Starpharma Pty Ltd

Dendrimer-based polyvalent pharmaceuticals, including:

- Microbicides – STDs
- Antivirals
- Antitoxins
- Antiparasitics
- Angiogenesis inhibitors, etc.

DNT, Inc

Broad-based dendritic technologies, including:

- Dendritic materials
- Drug delivery
- Gene transfection
- Diagnostics
- Nano sensors, etc.

Commercialisation rights to polyvalent pharmaceuticals

Starpharma has access to an extensive portfolio of dendrimer intellectual property.

In addition to in-house development of new products, our strategy is to

- consolidate intellectual property in both companies, and
- license extensively to development partners.



Core Competencies: Polyvalence & Dendrimers

Dendrimer / Medicinal Chemistry

- A core expertise
- Unique know-how
- Compound library
- 16 fume cupboards, 990m² facility

Product Development

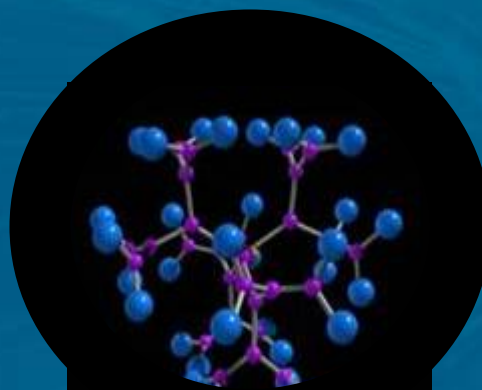
- Illustrative development projects
- Demonstrate developability of technology
- Preclinical through to clinical

IP Protection / Commercialisation

- Strong IP position for key technology platforms
- Strategic alliances

Analytical Chemistry

- Development / validation of analytical and bioanalytical methods under GLP
- Support dendrimer / medicinal chemistry program
- HPLC / MS / CE / NMR



Competencies based around developing dendrimers in pharmaceutical applications.

Biology

- In vitro antiviral assays
- In vitro / ex vivo oncology assays
- Investigative toxicology studies
- International network of collaborators

Quality Assurance / Regulatory Affairs

- Capture of quality data
- Compliance with 21 CFR parts (FDA)
- Regulatory approvability of products

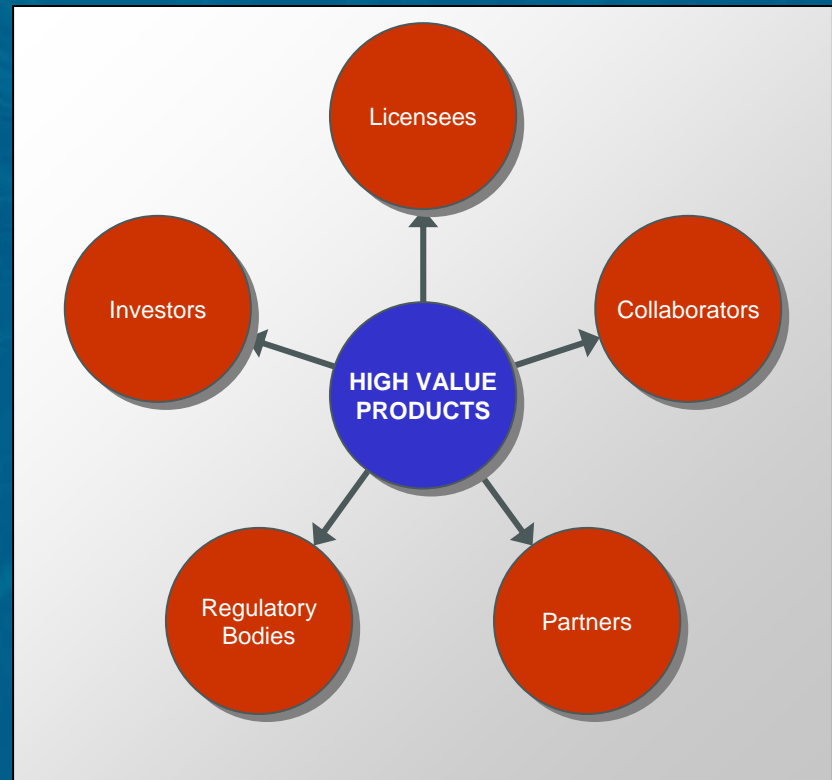


Quality Products

- Starpharma's in-house quality systems aim to ensure production of high quality products and services for a wide range of customers



IN-HOUSE QUALITY SYSTEMS



HIGH VALUE PRODUCTS



Starpharma Drug Focus

Microbicides

- VivaGel™
- Pipeline of expanded products/applications

Carbohydrate-targeting

Radiopharma

Diabetes



Anti-Virals

- RSV
- Adeno
- Influenza

Cancer

- Angiogenesis

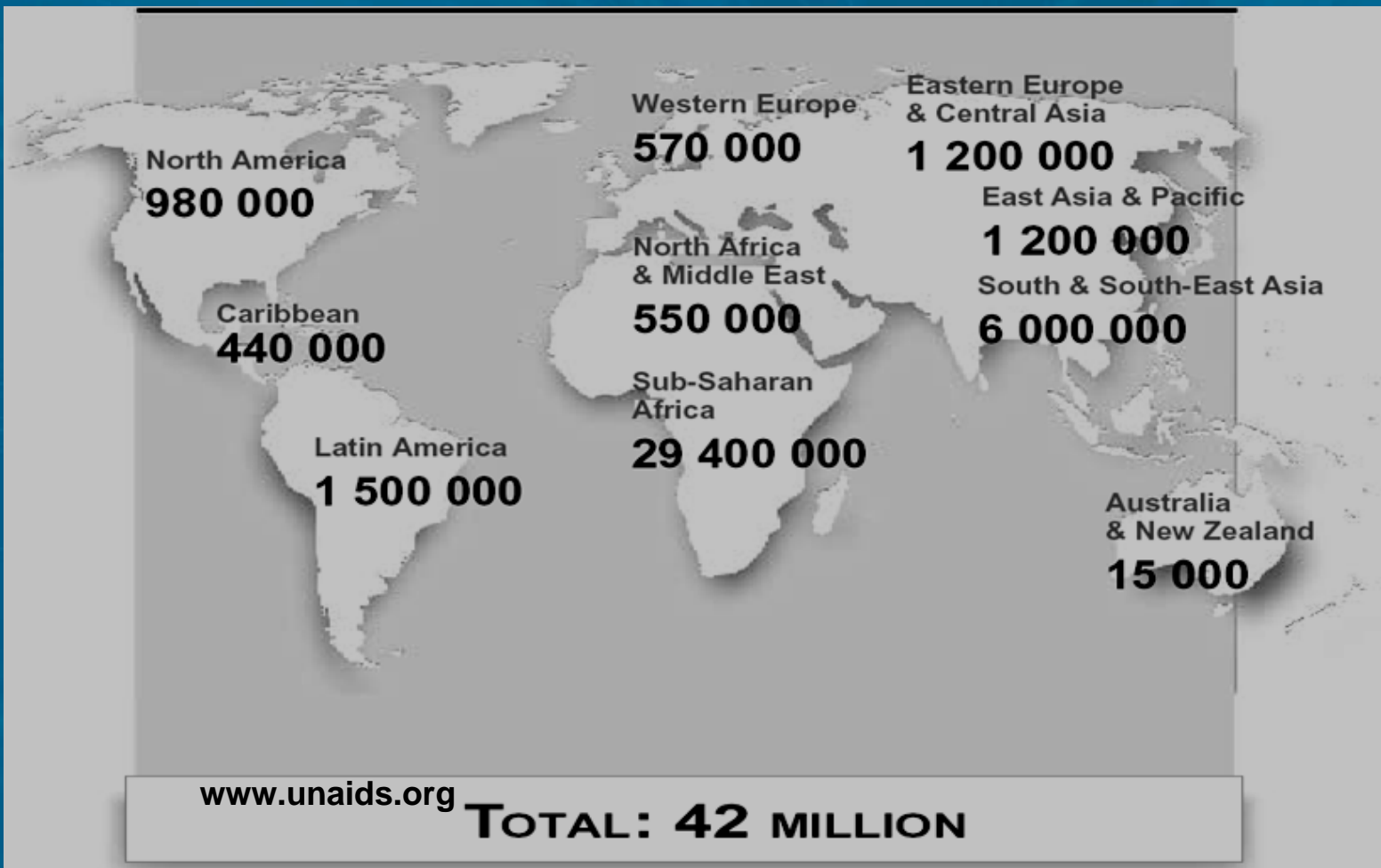
Immunology

- Vaccines

Polyvalent Antibodies



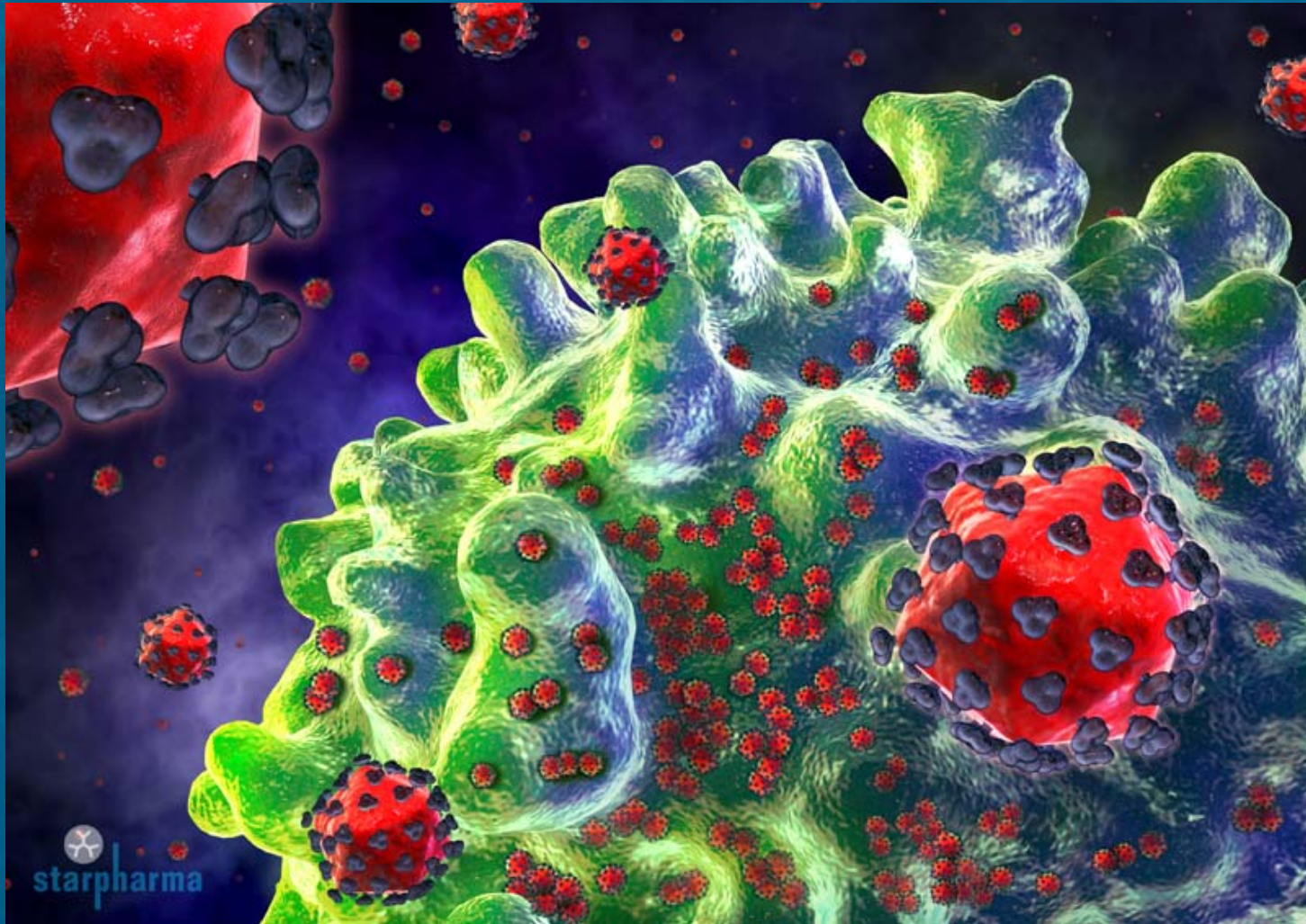
The HIV Epidemic



Starpharma is developing VivaGel for the 6 Billion uninfected... and hoping to stay that way

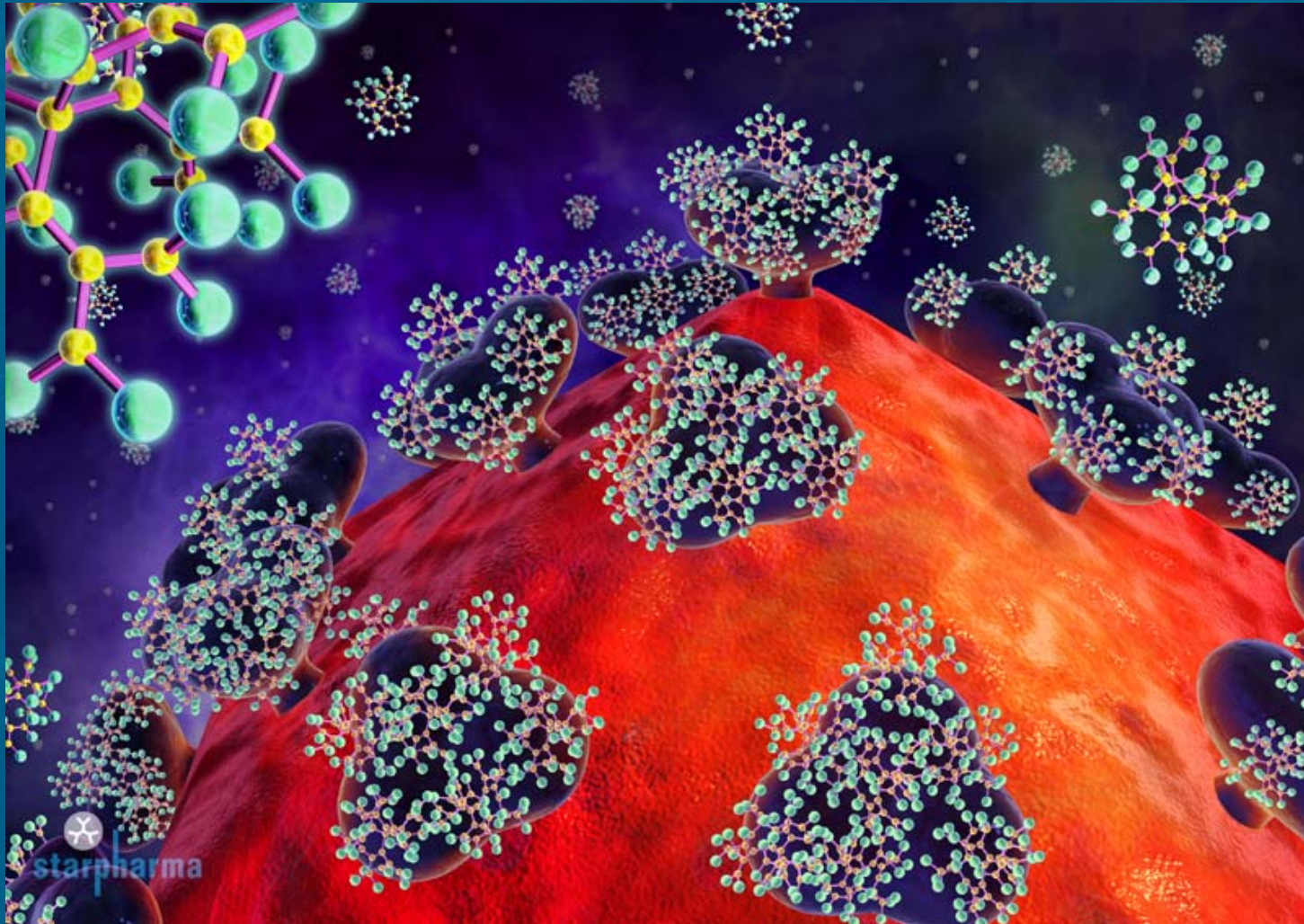


HIV virus (red)
infects human cell (green)



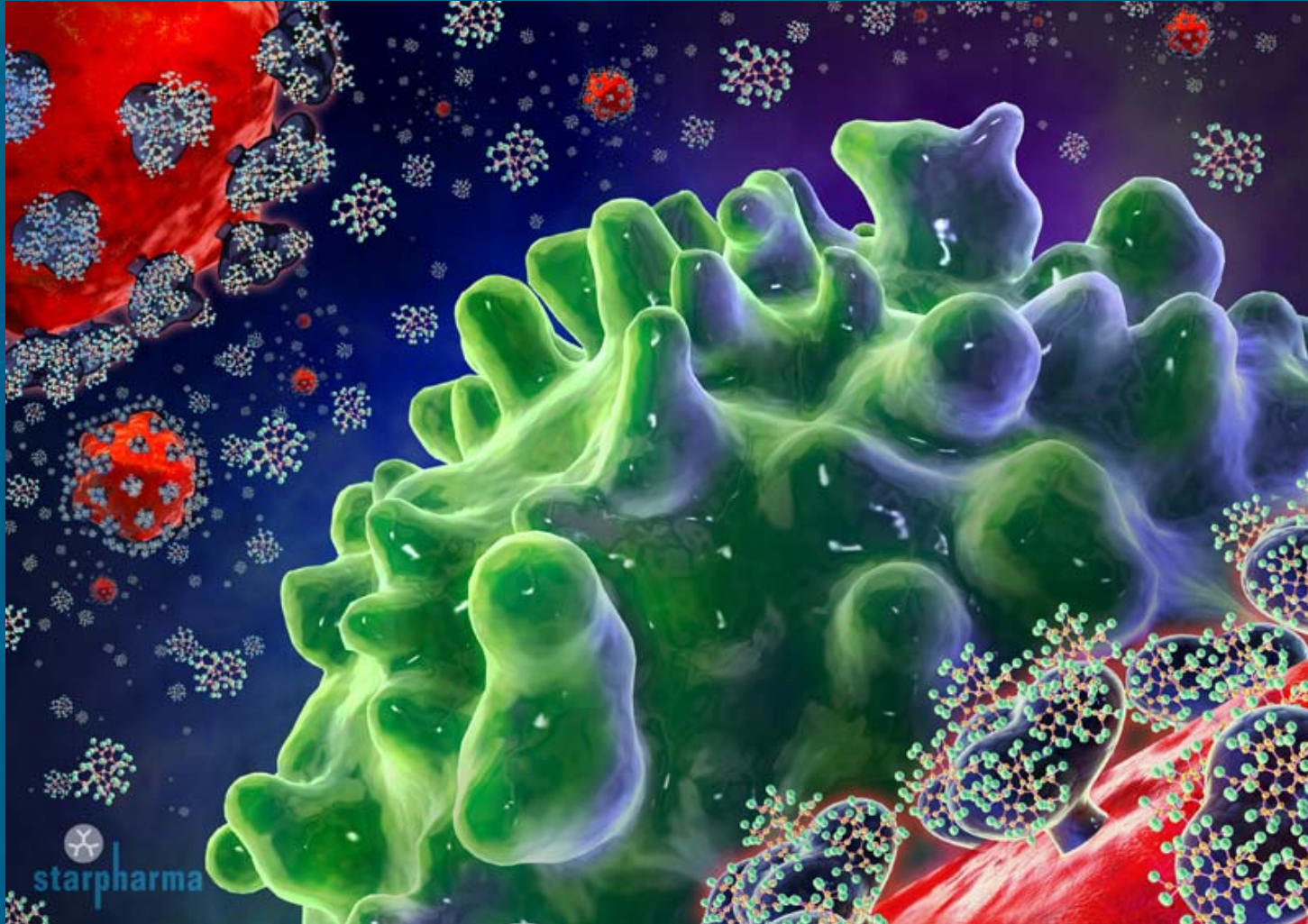


VivaGel™ (dendrimer) binding to virus surface





VivaGel™ prevents fusion between virus and human cell



VivaGel™ Development Team



- In vitro HIV studies
- Prevention of macaque studies



- Drug substance
- Drug product manufacture
- Stability trials
- Analytical method development and validation



- Project Management
- Regulatory Affairs
- GLP Analytical/Bioanalytical



- Formulation development
- Preliminary stability trials



- In-vivo HSV studies



- Phase I clinical trial facility



VivaGel™ Clinical Development Program

- In January 2004, Starpharma initiated a Phase I clinical trial of VivaGel™ for HIV – the world's first human clinical trial of a dendrimer-based nanodrug (Regulatory Authority: US FDA)
- Study design:
 - Normal, healthy women were exposed to doses up to 3% VivaGel or placebo, daily for 7 days
 - Examination by gynecologist to screen for vaginal irritation
- A key endpoint sought: Determination that VivaGel does not cause vaginal irritation in normal healthy women
- Human phase of study now complete



VivaGel™ Phase I Study

- results are positive

“Based upon our thorough review of the complete data, VivaGel™ appears to be a very safe and gentle product for intravaginal use by women. There is no evidence to indicate that VivaGel caused any irritation or inflammation whatsoever.”

– John O’Laughlin, M.D, Principal Investigator

A controlled study of the safety, tolerability and pharmacokinetics of escalating intravaginal doses of SPL7013 Microbicide Gel (VivaGel™) in healthy female volunteers when administered once daily for 7 days.

Primary endpoints:

- Safety and tolerability of VivaGel
- Extent to which SPL7013 is absorbed into the blood following administration

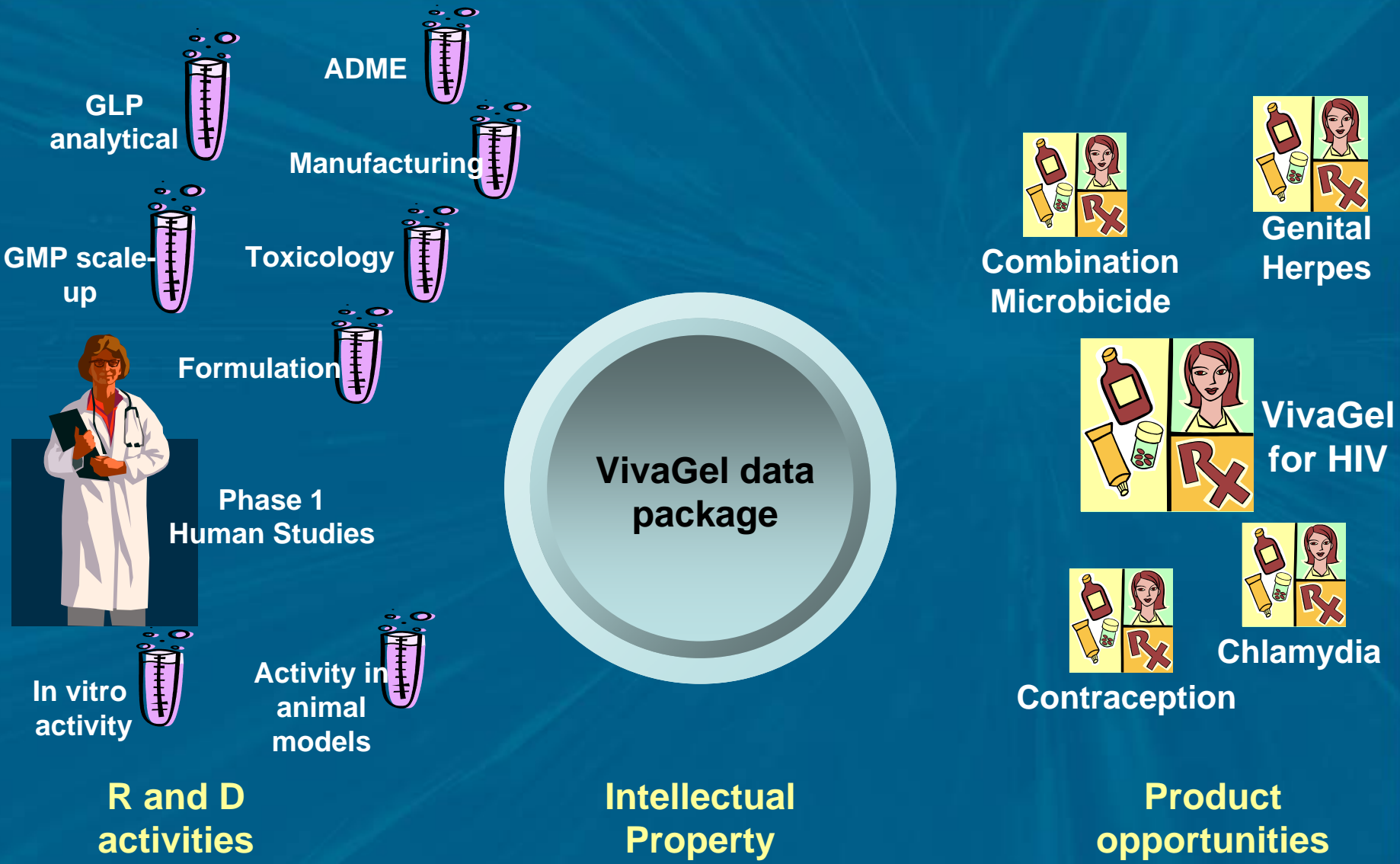
No clinically significant findings or changes in vaginal flora; no inflammation or irritation at site of administration

No SPL7013 detected in any plasma sample at or above the lower quantitation limit of the validated assay method used. Finding suggests that SPL7013 is not absorbed into the blood following vaginal administration.

Results support progression of VivaGel clinical development plan



VivaGel Product Strategy





A\$7.5 Million NIH Microbicide Grant

- Validation of Starpharma's dendrimer technology from a highly respected U.S. institution
- Significant resources to advance Starpharma's microbicide program
- Scientific collaboration with prestigious network including Johns Hopkins U., U. Texas, Burnet Institute
- Commercial partnership with ReProtect, Inc.



VivaGel™'s Dendrimer Composition Offers Competitive Advantages

**Competing Product
(Company)**

How they work

Savvy (Biosyn)

Surfactant/detergent

- Pro2000 (Indevus)
- Carraguard (Pop. Council)

**Negatively charged
polymers**

Tenofovir (Gilead)

**Inhibits virus
replication enzyme**

- BufferGel (Reprotect)
- Acidform (Instead)

**Vaginal
acidification**



Growth and Value Capture Strategies

- **In-house Development**
 - Focus on products, (ie. VivaGel) with large markets, extendable indications
- **Partnership / Outlicensing**
 - Number of collaborations in progress
 - Utilise broad IP position
- **Acquisition**
 - Identifying companies with synergistic technologies/capabilities
 - Australian and overseas
- **Dendritic Nanotechnologies, Inc.**
 - Substantial growth potential:
 - ❖ Equity value
 - ❖ IP and development collaboration
 - ❖ High profile in Nanotechnology Industry



Finances

- \$12 million cash in the Bank
- Sufficient for over two years' operation at current burn rate
- Expenditure on budget

Shareholder Base:

- | | | | |
|--------------------------------------|-------------|---|---------|
| • Shares on issue: | 111,235,000 | • Share Price (Jan 2005): | \$0.85 |
| • Non Executive Directors' Options: | Nil | • Number of Shareholders: | 2,189 |
| • Chief Executive Officer's Options: | Nil | • Issued Capital held by Australian Financial Institutions: | 30%-35% |
| | | • Issued Capital held by Directors: | 20% |



Internationalising Starpharma's Investor Base

Starpharma intends to remain an Australian listed Biotechnology Company with the majority of shares traded through the ASX.

The company is also in the process of attracting international shareholders to enable:

- increased liquidity in share trading;
- access to International funds for product development; and
- benefit from the increasing overseas profile of Starpharma and DNT.

Activities

- Starpharma ceased to be a PDF as at March 2004 thus allowing international corporate activities.
- Starpharma has established of a sponsored Level 1 American Depositary Receipts (ADR) program in the USA.
- Currently investigating the opportunity for a London Stock Exchange AIM listing.
- In the longer term (after substantial growth) considering a potential ADR-3 US Nasdaq listing.