







pharmaxis

# “Building a Healthy Future”

Annual General Meeting

October 2009

# Company Overview

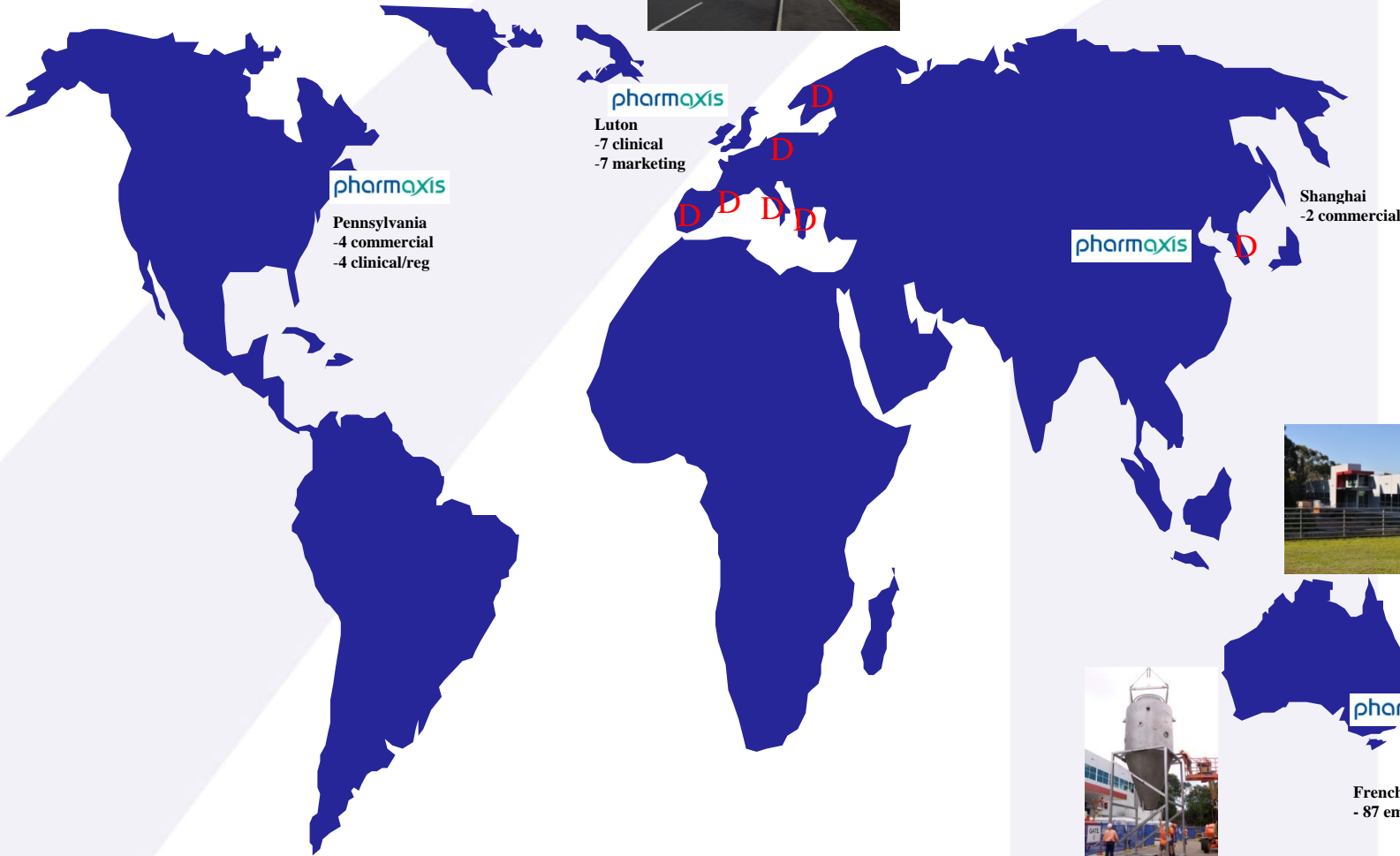
Objective	The development of products for respiratory and inflammatory diseases
Lead products	Aridol: management of asthma and COPD Bronchitol: therapeutic for cystic fibrosis and COPD
Discovery	PXS25 (M6P receptor blocker). PXS4159 (VAP1 inhibitor)
Listing	ASX (Nov 2003): PXS
Locations	Sydney, NSW, Australia // Exton, PA, USA // Luton, UK
Facility	GMP Manufacture of lead products
Employees (FTE)	108
Cash (30/09/09)	A\$113 million
Shares outstanding	218m
Options outstanding	15m
Key patents	Aridol & Bronchitol granted in USA, Australia, Asia, Canada, Japan; pending in EU, Japan.
Analyst coverage	     

# Year in review - milestones passed



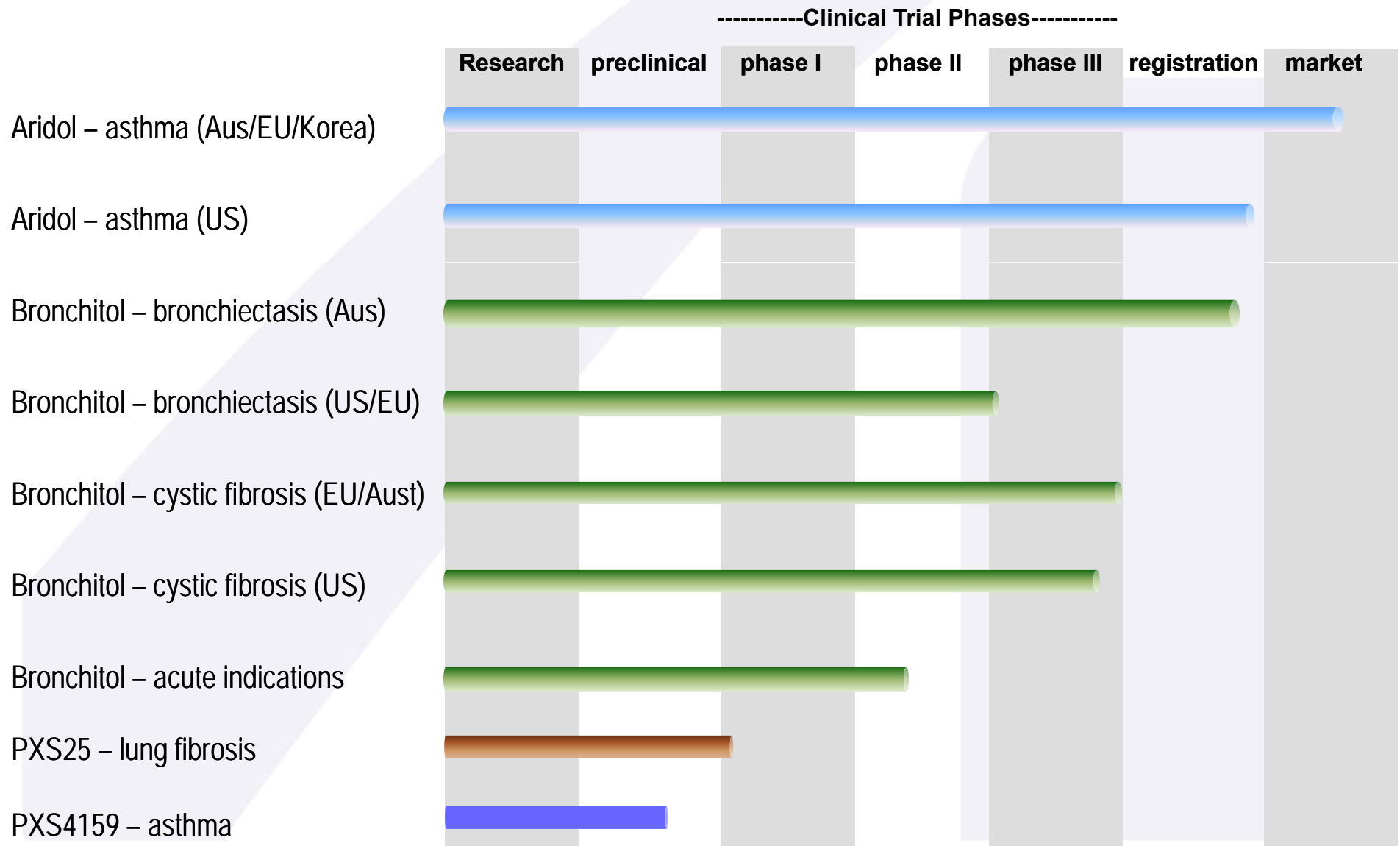
1. Phase 2 CF dose trial results positive Aug 2008
2. Phase 3 CF trial completes recruitment Aug 2008
3. 12 month Phase 3 trial finds Bronchitol safe in bronchiectasis Aug 2008
4. Second CF Phase 3 trial (under SPA) commences recruitment Sep 2008
5. Bronchiectasis marketing application filed with TGA Sep 2008
6. Aridol approved in Switzerland Oct 2008
- 7. New drug application for Aridol submitted to US FDA Feb 2009**
8. Dr Howard Fox joins senior management team Feb 2009
9. Richard van den Broek appointed director April 2009
- 10. Phase 3 CF trial demonstrates Bronchitol safe and effective May 2009**
11. PXS25 presented at 2009 American Thoracic Society meeting May 2009
- 12. New factory and headquarters completed and occupied May 2009**
13. European marketing application review timetable agreed with EU June 2009
14. Completion of \$54 million capital raising June 2009
15. Pharmaxis delists from Nasdaq July 2009
16. Second CF Phase 3 trial completes recruitment Sept 2009
- 17. Phase 1 trial of PXS25 commences recruitment Oct 2009**

# Pharmaxis Global Operations 2009

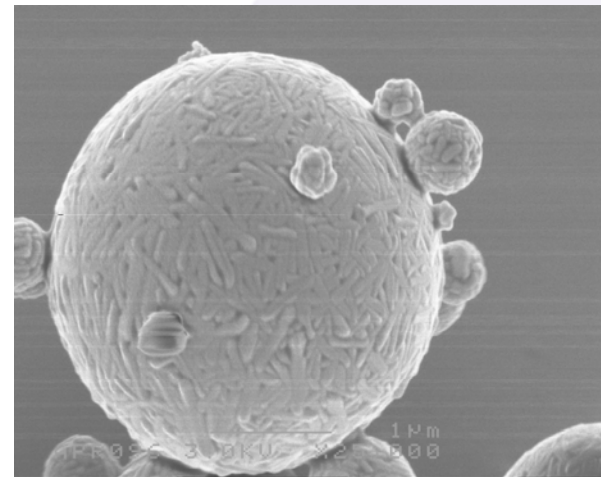


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Frenchs Forest  
- 87 employees

# Development Pipeline



# Bronchitol

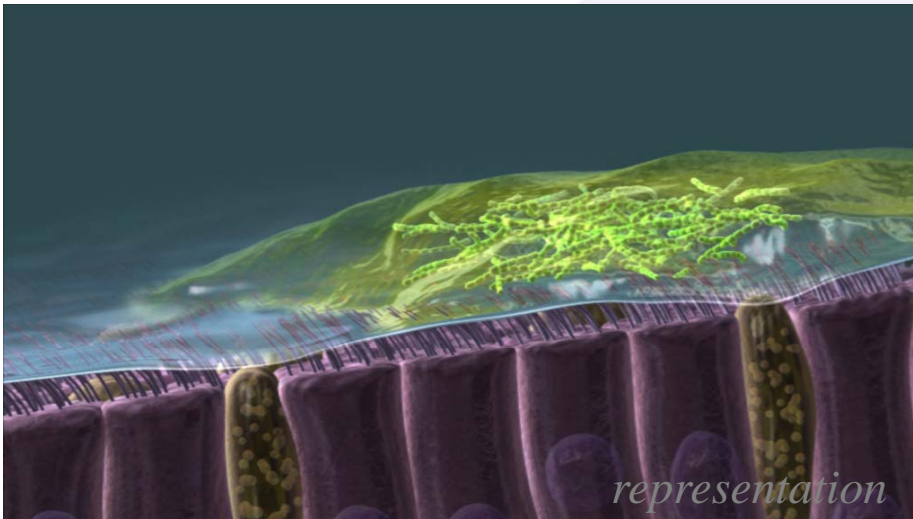


***Mucus clearance:***

***Cystic fibrosis  
Chronic Obstructive Pulmonary Disease  
Bronchiectasis***

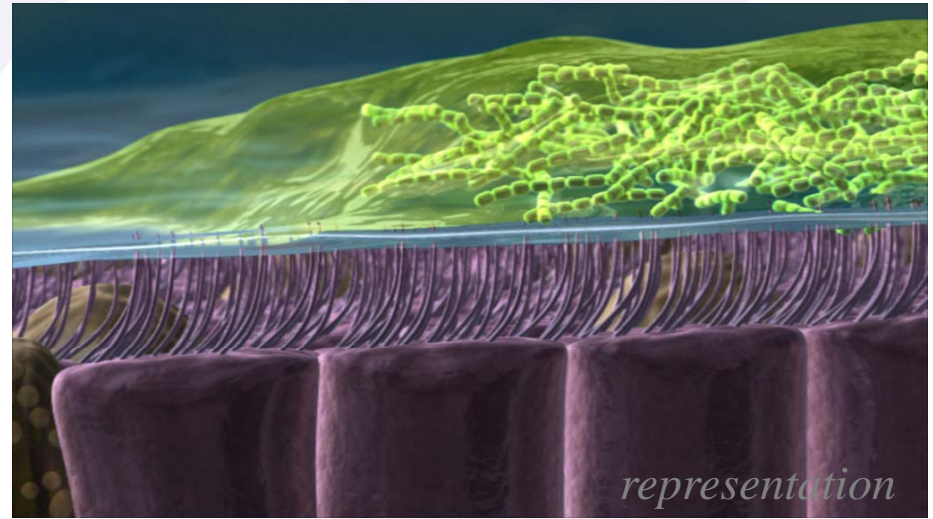
# Osmotic clearance of abnormal mucus

Before treatment



- Lung surface dehydrated
- Airway surface fluid layer impaired
- Lung defense and hygiene compromised

After Bronchitol administration



- Lung hydrated
- Airway surface liquid restored
- Normal lung clearance

# Bronchitol – cystic fibrosis



- **Background**

- Genetic disorder affecting 75,000 worldwide (30,000 in US)
- Poorly hydrated, tenacious, thick mucus
- Current life expectancy is 37 years (US)



- **Current treatments: rhDNase and tobramycin**

- Delivered by nebulizer (preparation, sterilization)
- rhDNase (pulmozyme): global sales US\$440mm (2007)
- Tobramycin: global sales US\$233mm (2007)





# Living with CF (Kate Smith)

***“My life expectancy is 31. I'm 29. So that's two years of parties, extreme sports and romance...”***

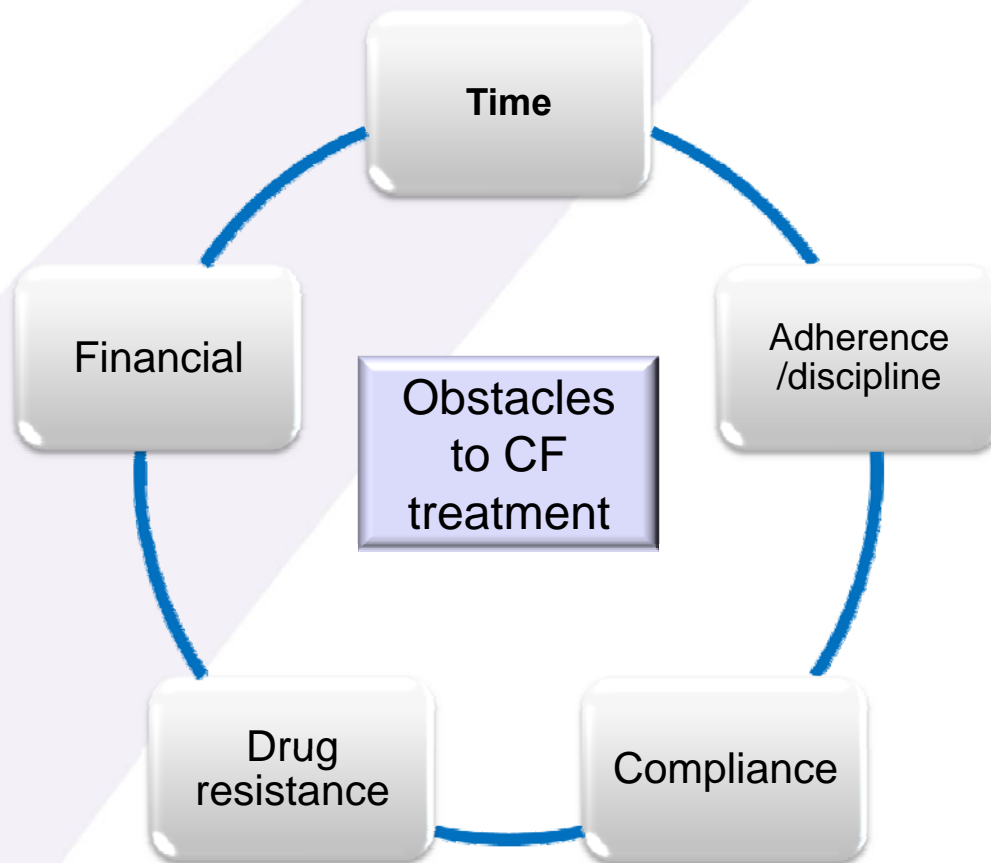


- **The worst part of her disease:**
  - “I’d have to say the exhaustion. The rigorous exercise and physiotherapy regime required to help loosen the mucus on the lungs would tire anyone.
  - It includes swimming, yoga, gym and physiotherapy where the rib cage is beaten with cupped hands. The reduced lung capacity makes it harder still to cope with everyday life let alone a full time job.
  - The effect of absorbing a cocktail of drugs – up to 50 pills per day – plus inhalers also saps the energy”

*Daily Mail (UK); 24<sup>th</sup> June 2009*

# Cystic Fibrosis market research

The time commitment to treatment is the biggest challenge to physicians and patients

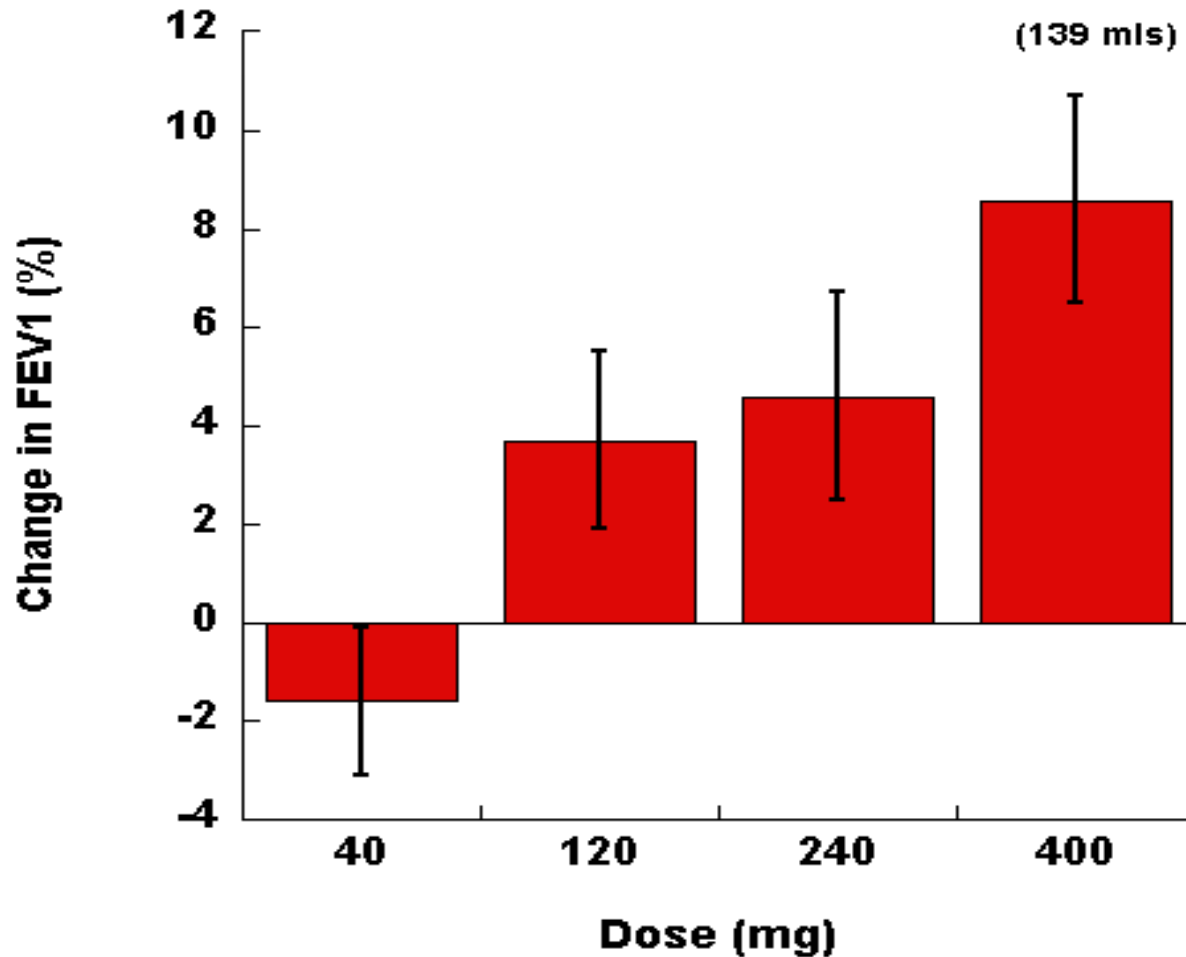


- Time requirements and adherence to therapy are pervasive challenges
  - "the treatments take time. Although the payback is longevity and QOL, at the moment the treatments can take up a large part of the day."
  - "patients feel very pressed for time."
  - "Because of the time requirement, you have to prioritise meds sometimes. Do the biggest bang for the commitment buck."
  - "The time element is the key to adherence."
  - "Therapy gets in the way of daily activities – 50 minutes two times a day!"
- Treating resistance to antibiotics is another challenge for physicians

# Bronchitol – the first CF specific dry powder

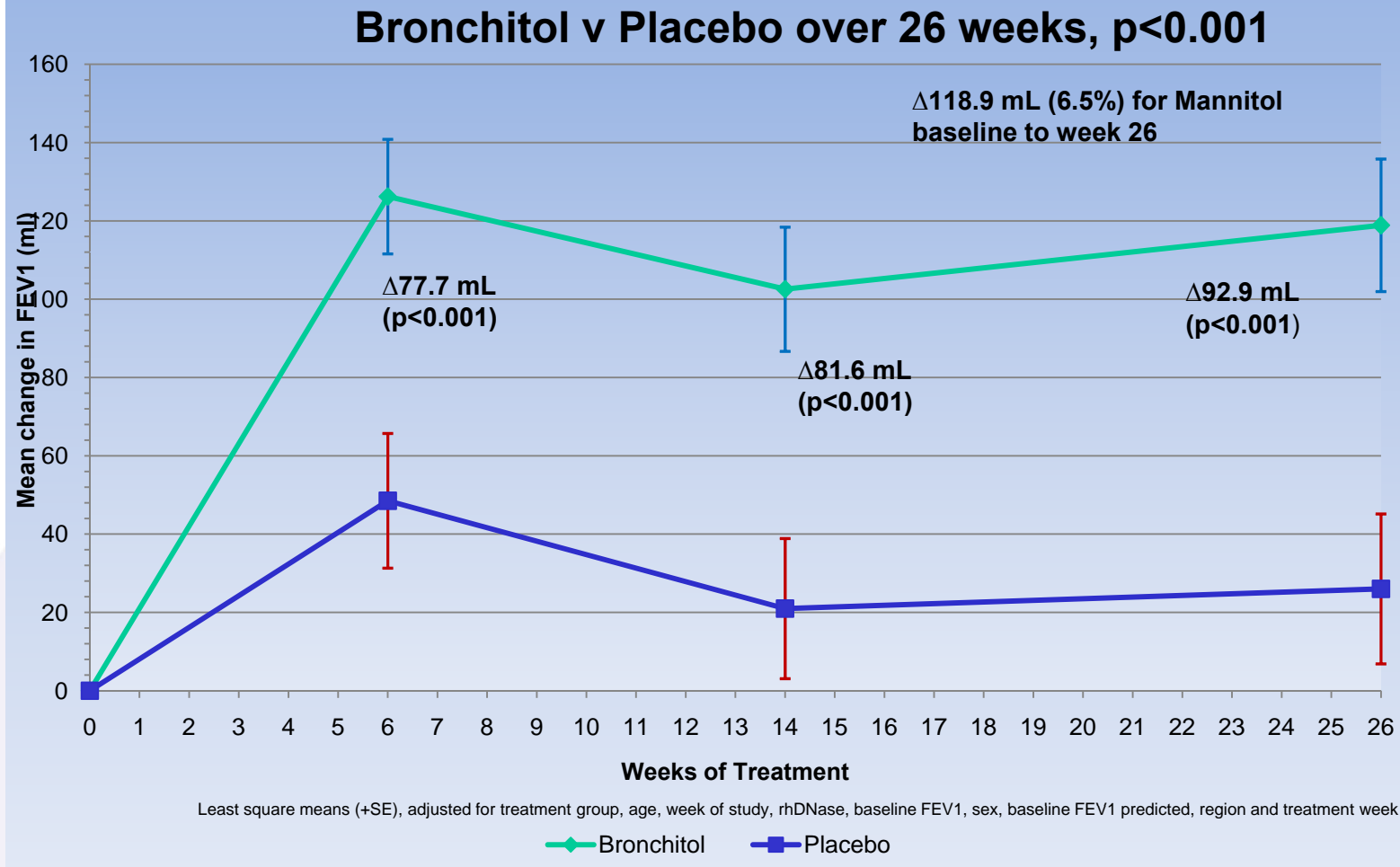


# CF-202 Dose Response 400 mg Selected



- 48 subjects
- Open label multidose study
- 400mg twice a day, then 40, 120, 240mg twice a day for 14 days in a random order
- Washout between doses

# CF-301 Absolute mean change (mL) in FEV<sub>1</sub>



# The Children's Hospital at Westmead unveil CF trial results



## Bronchitol story receives international attention



# Bronchitol: Target Product Profile



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## Bronchitol:

- An easy, quick, portable dry powder inhaled drug that won't interrupt cystic fibrosis patient's daily schedules.
- Suitable for all ages and stages of cystic fibrosis
- Acts quickly to help clear mucus, producing a lasting benefit to lung function, reducing exacerbations and improving quality of life.

## Market access Milestones:

- Phase 3 delivers Target Product Profile – May 2009
  - Presentation of clinical trial results
    - Oral presentation at EU CF meeting
    - Oral presentation at Au CF meeting
    - Oral presentation at European Respiratory Society meeting
    - Oral presentation at North American CF meeting (October)
  - EMEA submission
    - Request for accelerated review submitted – September 2009
    - Marketing application submission – October 2009



# Bronchitol: commercial reality in CF



## Market access:

- Core Pricing & Reimbursement dossier – Q4 2009 (complete)
- National Pricing & Reimbursement dossier preparation - 2010
- EU National marketing specialists recruited - 2H 2009 / 1H 2010
  - Sales team recruitment - Mid 2010
- NICE technology appraisal process complete – 2H 2010
- Scientific advisory board consultation
- Patient advocacy group consultation
- Launch in Germany and UK after approval
  - UK infrastructure in place
- Reimbursement discussion for rest of EU

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## Market

- Top 5 countries (including UK and Germany) – 27,000 CF patients
  - Addressable market is \$350 million
  - 350 CF Centres
  - Required field force: 25 sales reps
- 15,500 CF patients in Germany and UK
  - Addressable market is \$200 million (at \$13k/pt/yr)



# Bronchitol – commercialisation in the U.S.

## Clinical....



- Second pivotal Phase 3 trial closed to recruitment
  - 319 subjects recruited and data due 1H 2010
  - same end point as first pivotal Phase 3 trial reported in May 09

## Regulatory....



- trial design agreed with FDA under Special Protocol Assessment
- fast track designation allows submission of rolling NDA
- opportunity for priority review
- response from FDA on NDA expected mid 2011
- orphan drug provides 7 years market exclusivity

## Marketing....



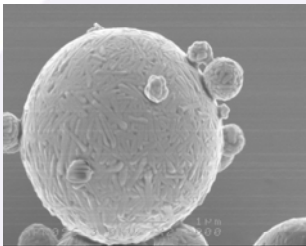
- promotion by PXS out of existing Philadelphia office
- unified approach to pricing and reimbursement
- 150 CF centres requires 15 person field force
- 30,000 people in the US with CF
- addressable market >\$400 million

# Treatment Progression – CFF Guidelines

Grade of recommendation	Mild	Moderate/Severe
A Benefit is substantial	-	rhDNase Tobi (if p.a. present)
B Benefit is moderate	rhDNase Tobi (if p.a. present) Azithromycin (if p.a. present) Hypertonic Saline Ibuprofen (FEV1>60%) Inhaled B2 agonists	Hypertonic Saline Azithromycin (if p.a. present) Ibuprofen (FEV1>60%) Inhaled B2 agonists
Insufficient evidence	Other inhaled antibiotics Oral corticosteroids (18+ yr olds) Leukotriene inhibitors / cromolyn sodium. Anticholinergic bronchodilators N-acetylcysteine	
Against	Inhaled corticosteroids (if asthma / ABPA absent) Oral corticosteroids (6-18 yr olds)	

**There remains a lack of good quality long term studies evaluating existing treatments used in CF**

# Bronchitol - bronchiectasis



- Abnormal, irreversible dilation of the lower airways
- Daily mucus production, constant coughing, breathlessness, recurrent acute bronchitis with infective exacerbations : low quality of life
- In 30-50% of cases, the cause is unknown
- Normal lung clearance impaired
- Current treatments: bronchodilators, antibiotics
- No drugs proven effective to clear mucus

# Number of bronchiectasis patients seeking treatment

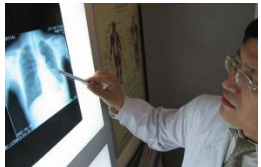
	EU	Australia	USA	Asia	Total
<b>% of pt pool seen by respiratory specialists</b>	Average 14%	9%	N/A	Average 5%	
<b>Trend</b>	Stable or increasing	Stable	Increasing	Stable or decreasing	
<b>Mod/Severe</b>	55%	70%	55%	75%	
<b>Patients seeking treatment</b>	210,000	18,000	110,000	250,000 ++	600,000+

Prevalence: Much higher. Bronchiectasis is often missed but has been measured as >10% of COPD patients in a US patient cohort ~ 800k

Note: US Data comes from Datamonitor research, other data from Frost & Sullivan research

# Bronchitol – bronchiectasis registration (I)...

- 1<sup>st</sup> Pivotal Phase III trial



- 363 patient, placebo controlled, double blind, randomised 12 week treatment (twice per day) + 12 month open label extension

- Primary endpoints

- quality of life – validated Patient Reported Outcome
- mucus clearance – 24hr sputum volume

- Primary Analysis

- quality of Life                     SGRQ,  $p < 0.001$  versus baseline  
                                                   SGRQ,  $p < 0.05$  versus placebo
- mucus clearance                      $\uparrow 30\%$ ,  $p < 0.001$  versus placebo
- antibiotic use reduction              $p < 0.05$  versus placebo
- adverse events (52 wks)             cough 9%, sore throat 5%  
                                                   no SAE attributed to treatment



- 
- First marketing application filed (Aus) in Sep 2008

# Bronchitol – bronchiectasis registration (II)....



- **2<sup>nd</sup> Pivotal Phase III trial**

- 350 patient, placebo controlled, double blind, randomised, 52 week treatment
- 400mg twice a day

- **Primary endpoint**

- Reduction in number of exacerbations
- Quality of life



- **Secondary endpoints**

- Exercise, mucus clearance, antibiotic use

- **Status**

- Special Protocol Assessment concluded with FDA
- Orphan Drug designation
- Target commencement
- Data



USA

October 2009

2011

# Bronchitol – acute clearance of lung secretions



## ICU, hospitalized patients and ventilated patients

- Currently supplied on request to patients with life threatening condition
- Feedback strong for proof of concept study
- Clinical conditions include: asthma, COPD, cystic fibrosis, secondary respiratory disease, neurogenic disorder



## Objective

- acute care pilot study (investigator led) Q4 2009
- study in ventilated patients (PXS sponsored) Q2 2010



## Market opportunity

- 60,000+ ICU beds worldwide 80 - 90% occupancy rates
  - Price \$200 per day  $\Rightarrow\Rightarrow$  \$500 million per year
- 75% patients ventilated / 75% have serious mucus problem





# Aridol™

- Identifies airway reactivity (active airway **inflammation**) which helps physicians in the diagnosis and management of **asthma**
- An **easy-to-use test kit** provides rapid results and doesn't require specialized equipment



# International regulatory status - Aridol



- **Australia**

- First market to launch
- 50% penetration in 2 years

June 2006

- **Europe**

- Approved European Union (MRP)
- Regional marketing partners appointed
- Launches underway

May 2007



- **South East Asia**

- Approved for marketing – Korea
  - Pricing approval completed Sep 09

Jan 2008

- **USA**

- NDA submitted. Complete response expected

Dec 2009



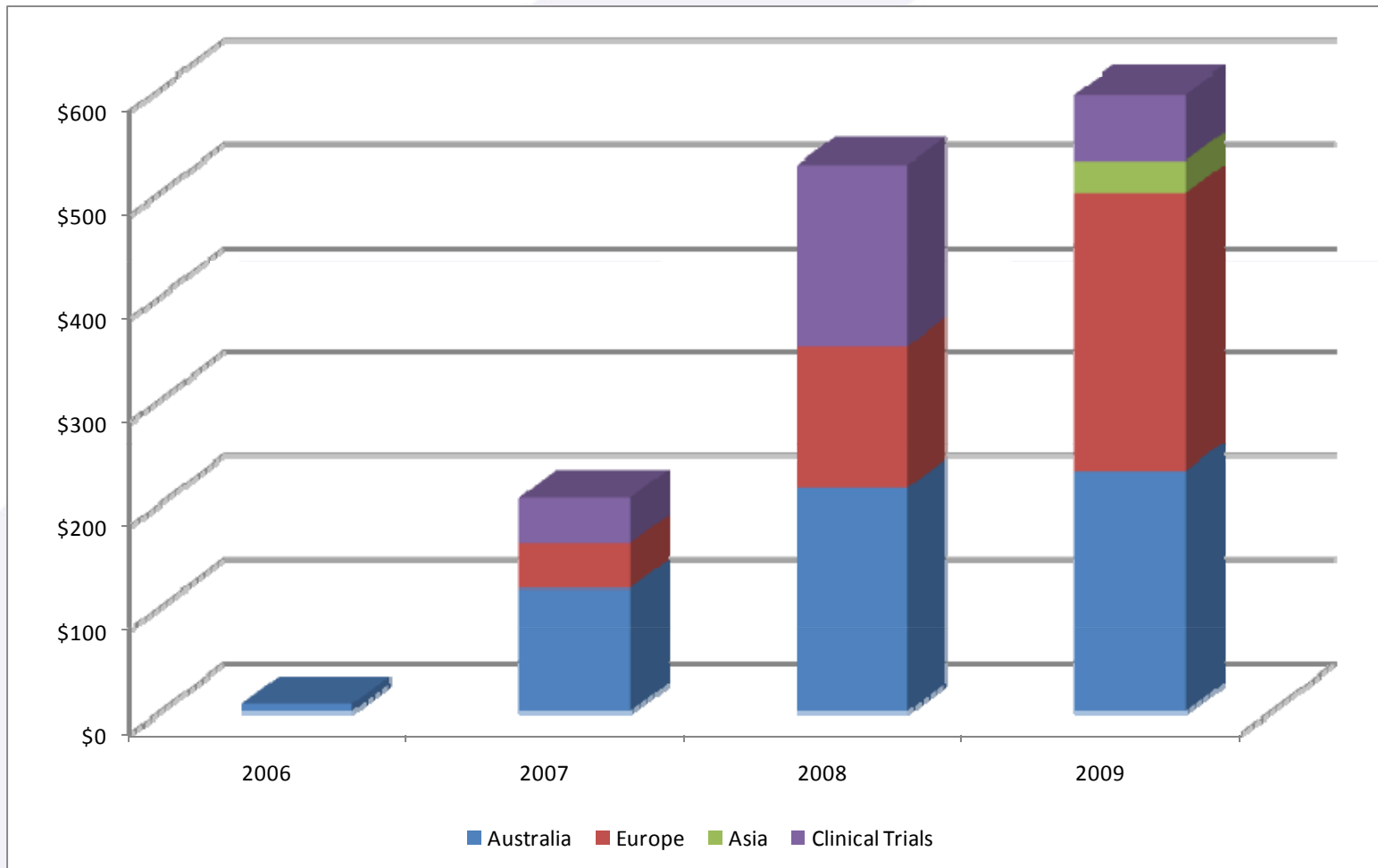
# Aridol – growth markets

	USA	KOREA	GERMANY
Existing Market size	200,000 tests p.a.	120,000 tests p.a.	660,000 tests p.a.
Pricing	+++	+	++
Market drivers	Physician reimbursement	Physician reimbursement	Physician reimbursement
	Private physician market.		Private physician market
Entry route	Pharmaxis	Distributor	Distributor

## Steroid Management

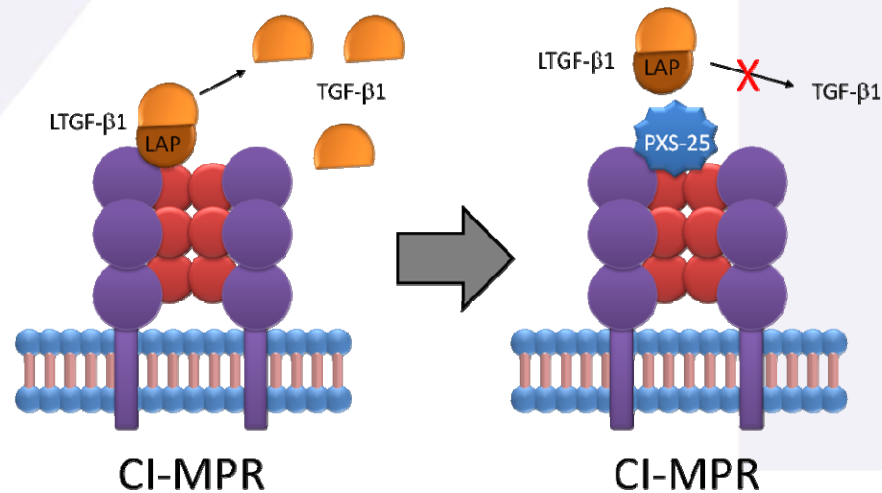
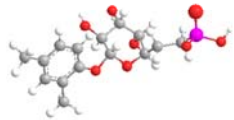
TRIAL	Data
ACRN 'BASALT' study	Q1 2009, Q1 2010
EU steroid response	1H 2010
EU steroid titration	1H 2010

# Aridol Sales



# R&D - Status (PXS-25)

- ❑ Inhibits cleavage of latent TGF $\beta$  to active TGF $\beta$ 
  - anti-fibrotic agent with anti-inflammatory properties
  - Small molecule with robust pharmaceutical profile
  - Clinical target is pulmonary fibrosis
    - *500,000 cases and no approved drugs*
- ❑ Phase 1 trial commenced October 2009
  - *data due end 2009*



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# Chief Financial Officer

David McGarvey

# Manufacturing Capacity



- Current GMP facility

- Manufactures Aridol for sale in EU, Asia & Australia
- Manufacture Bronchitol for clinical trials



- New facility

- Relocated May 2009
- Equipment installation & validation complete - Q4 2009
- Complete process validation – Q2 2010



- Capacity

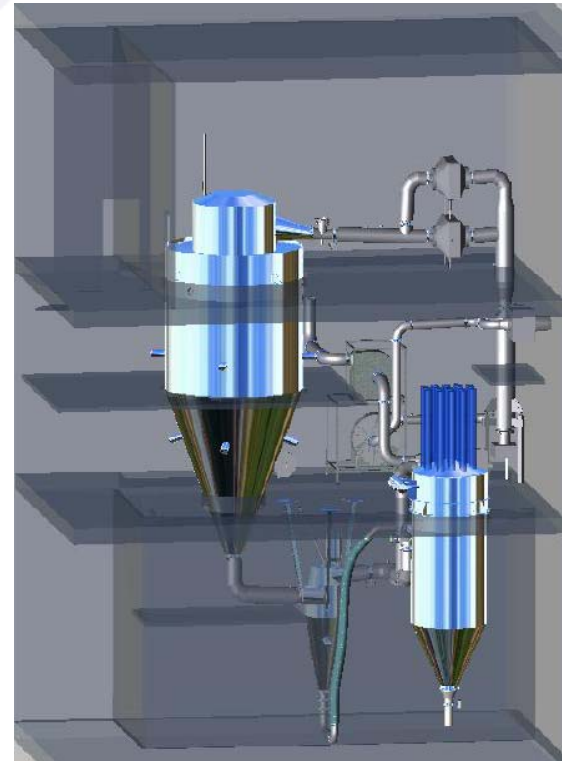
- Initial capacity - 1 spray drier: 40,000 patients p.a.
- Expanded capacity – 2nd spray drier: 80,000 patients p.a.



# Manufacturing



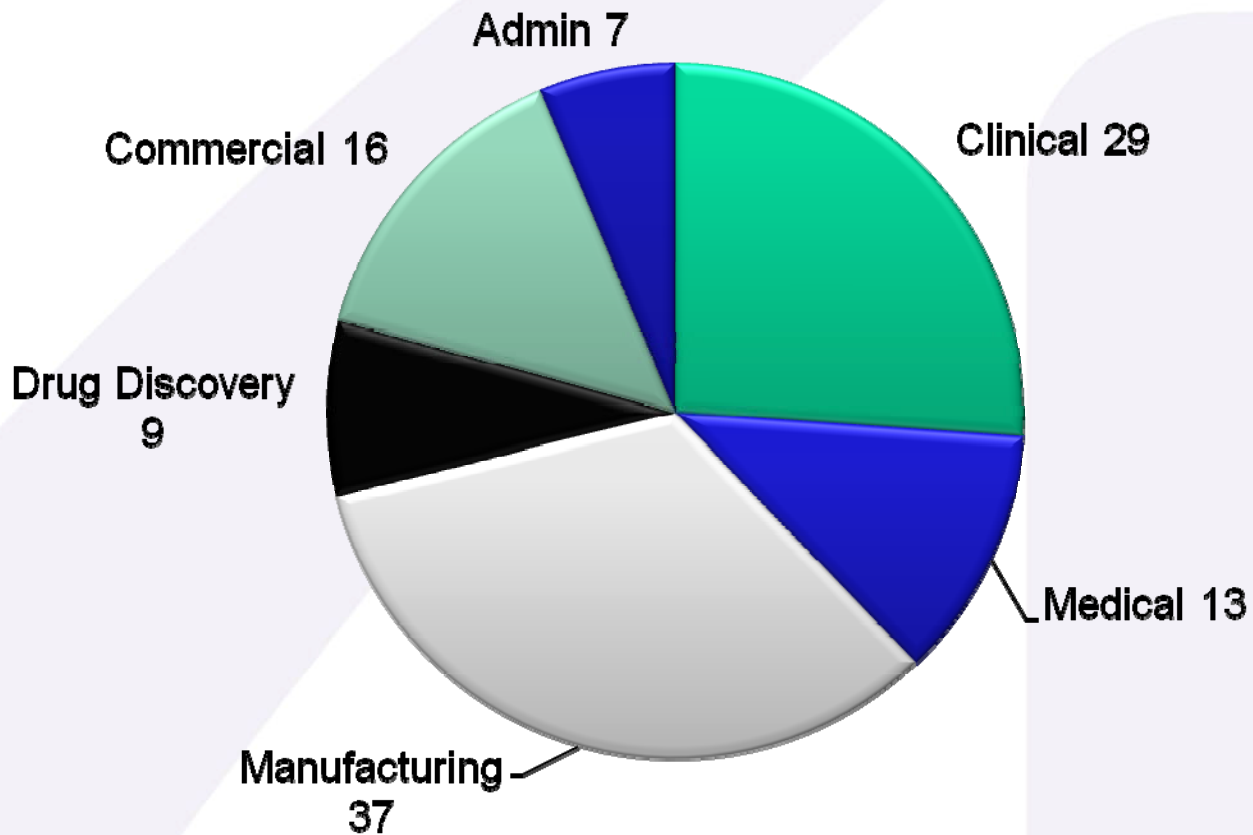
Central sections of spray drier



- Manufacturing area: 4,000 sm
- Manufacturing equipment: \$9m
- Initial capacity: 40,000 patients pa
- Double capacity ~ \$10m



# Employee Headcount at September 2009



Australia	UK	USA	China	Total
86	16	8	1	111

# Financial Statements

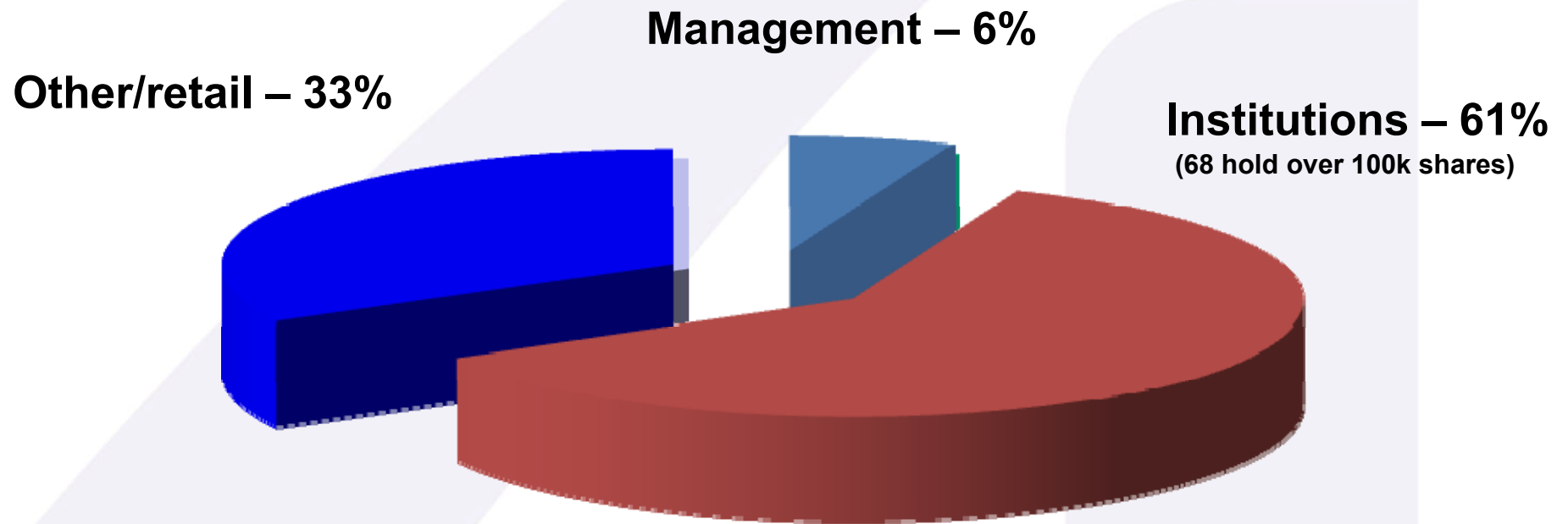
	<u>Year ended 30 June</u>				
	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>
<b>Income Statements</b>	<u>A\$'000</u>	<u>A\$'000</u>	<u>A\$'000</u>	<u>A\$'000</u>	<u>A\$'000</u>
Revenue from sale of goods	-	8	205	527	595
Cost of sales	-	(2)	(49)	(129)	(153)
Gross profit	-	6	156	398	442
Other income					
Interest	1,702	4,282	5,278	7,402	5,347
Other income	1,219	1,299	2,152	1,576	523
Expenses					
Research & development	(9,269)	(16,978)	(23,840)	(19,996)	(29,308)
Commercial	(963)	(1,946)	(3,240)	(4,557)	(6,202)
Administration	(3,134)	(4,391)	(4,666)	(5,231)	(5,800)
Finance	-	-	-	-	(122)
Total expenses	(13,366)	(23,315)	(31,746)	(29,784)	(41,432)
Net loss before tax	(10,445)	(17,728)	(24,160)	(20,408)	(35,120)
Income tax expense	-	(5)	(19)	(32)	(51)
Net loss after tax	(10,445)	(17,733)	(24,179)	(20,440)	(35,171)
Earnings (loss) per share - \$	(0.084)	(0.111)	(0.136)	(0.108)	(0.180)
Depreciation & amortisation	646	947	939	1,024	1,265
Fair value of employe options issued	260	1,488	1,488	3,434	2,432

# Financial Statements

	<u>As at</u>				
	<u>30-Jun-05</u>	<u>30-Jun-06</u>	<u>30-Jun-07</u>	<u>30-Jun-08</u>	<u>30-Jun-09</u>
<b>Balance Sheets</b>	<u>A\$'000</u>	<u>A\$'000</u>	<u>A\$'000</u>	<u>A\$'000</u>	<u>A\$'000</u>
Cash and cash equivalents	33,390	97,840	76,182	111,842	124,993
Plant & equipment	2,477	3,205	3,521	3,668	32,698
Total assets	37,937	104,267	82,648	125,049	163,997
Total liabilities	(2,470)	(5,379)	(6,089)	(5,928)	(26,306)
Contributed equity	54,716	134,745	135,108	194,680	245,958
Total shareholders' equity	35,467	98,888	76,559	119,121	137,691
<b>Share Data</b>	<u>'000</u>	<u>'000</u>	<u>'000</u>	<u>'000</u>	<u>'000</u>
Ordinary shares on issue	134,770	176,904	177,949	194,515	217,659
Options outstanding	10,914	9,692	9,836	11,536	15,075

# Share Capital

(including options)



30 September 2009: 217.9m shares; 14.7m options

END

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