pharmaxis

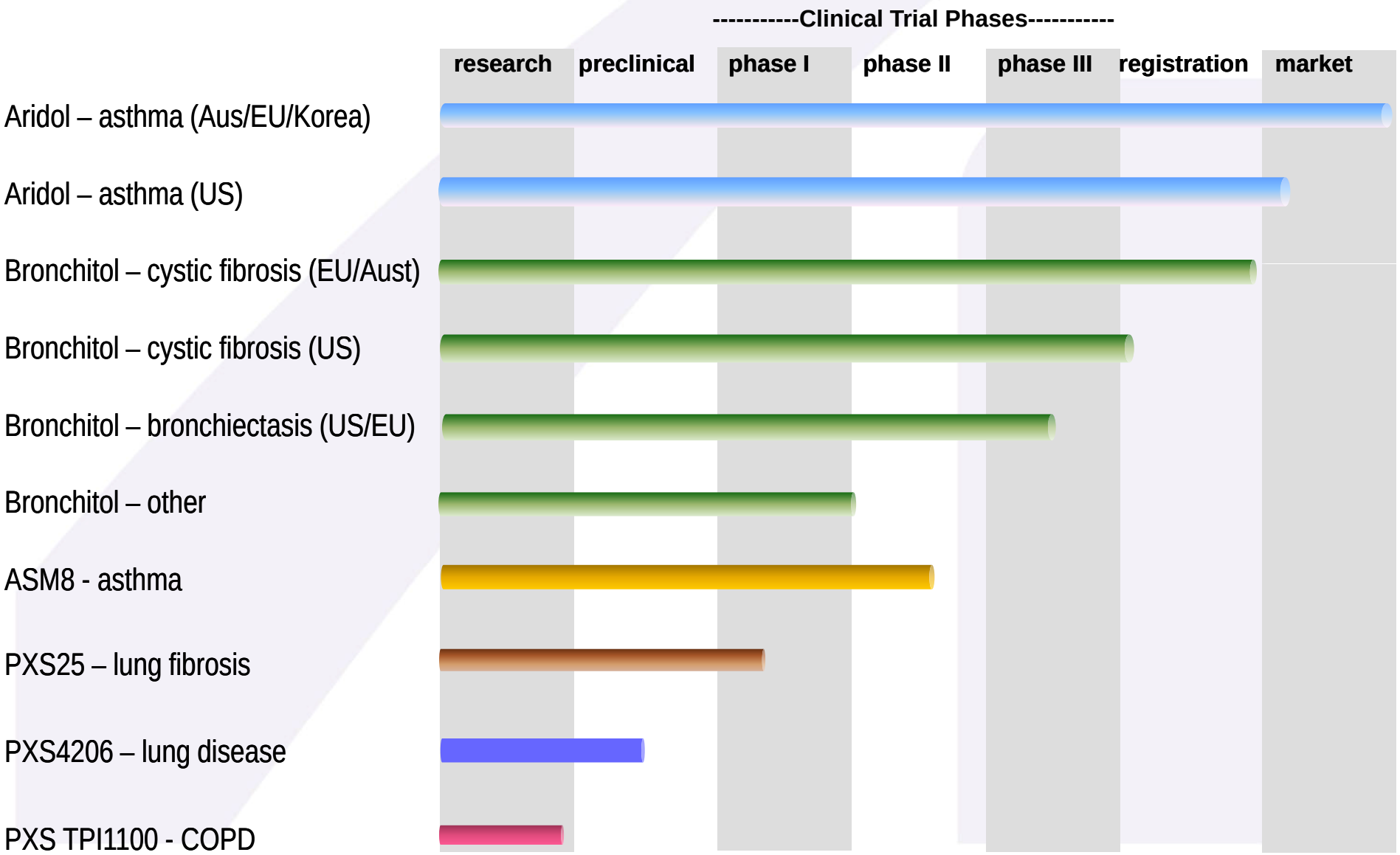
Therapeutic products for respiratory diseases

November 2010

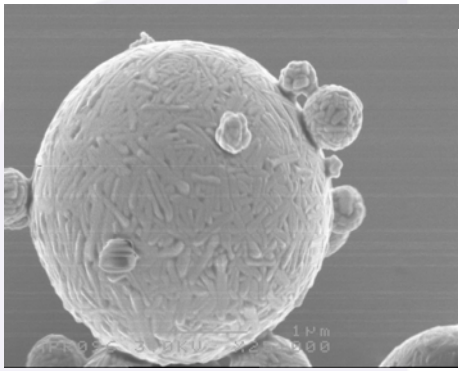
Company Overview

Objective	The development of products for respiratory and inflammatory diseases
Lead products	Aridol: assessment of asthma and COPD Bronchitol: therapeutic for cystic fibrosis and bronchiectasis ASM8: therapeutic for asthma
Discovery	PXS25 (M6P receptor blocker); PXS4206 (VAP1 inhibitor)
Listing	ASX (Nov 2003): PXS
Locations	Sydney, Australia • Exton, USA • Slough, UK • Montreal, Canada
Facility	GMP Manufacture of Aridol & Bronchitol
Employees	143
Cash (30/9/10)	A$76 million
Shares & Options	Shares outstanding: 226m; Options outstanding: 13m
Key patents	Bronchitol & Aridol: granted in USA, Australia, Asia, Canada & Europe. Aridol: granted in Japan PXS25 and ASM8: base patents granted US and Europe +
Analyst coverage	Wilson HTM INVESTMENT GROUP; CREDIT SUISSE; RBS Morgans; BBY; SHAW STOCKBROKING

Development Pipeline



Bronchitol



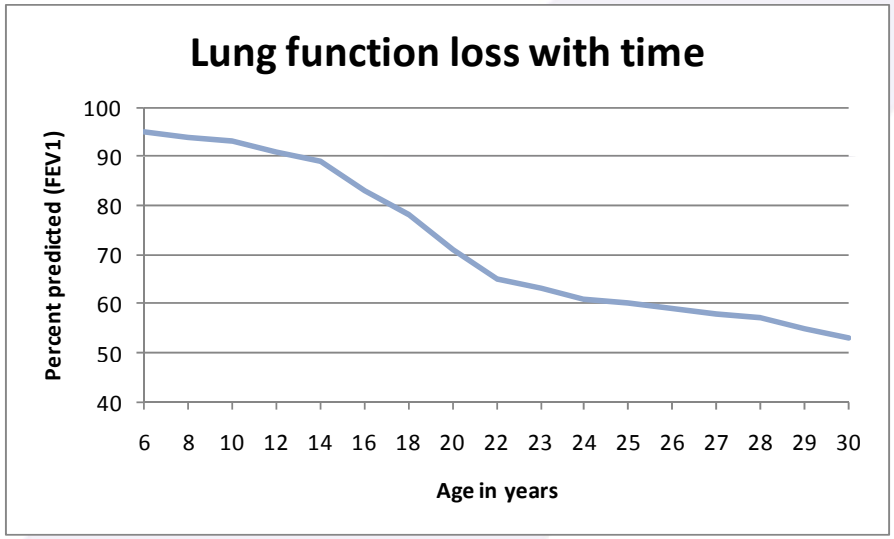
- *2 - 5 minutes delivery time*
- *Convenient and portable*
- *No power source*
- *No cleaning / maintenance/ sterilisation*
- *No additives or preservatives*
- *Precision spray dried particles*
- *Twice a day dosing*
- *400mg dose*

Bronchitol – cystic fibrosis

- **Background**
  - Genetic disorder affecting 75,000 worldwide (30,000 in US)
  - Poorly hydrated, tenacious, thick mucus
  - Life expectancy is 37 years (US)
- **Current treatments**
  - Delivered by nebulizer (preparation, sterilization)
  - rhDNase (Pulmozyme®): global sales US$460mm (2009)
  - Tobramycin (Tobi®): global sales US$300mm (2009)
  - Aztreonam (Cayston®): approved EU: 9/09; US: 02/10

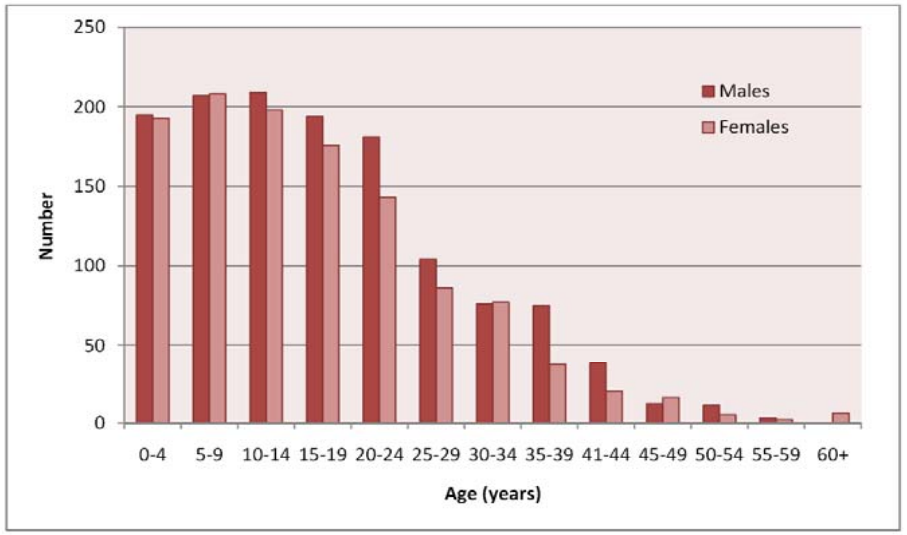
Lung function and life expectancy in CF patients

Average lung function decline in CF patients



Source: Cystic Fibrosis Foundation Patient registry, 2004

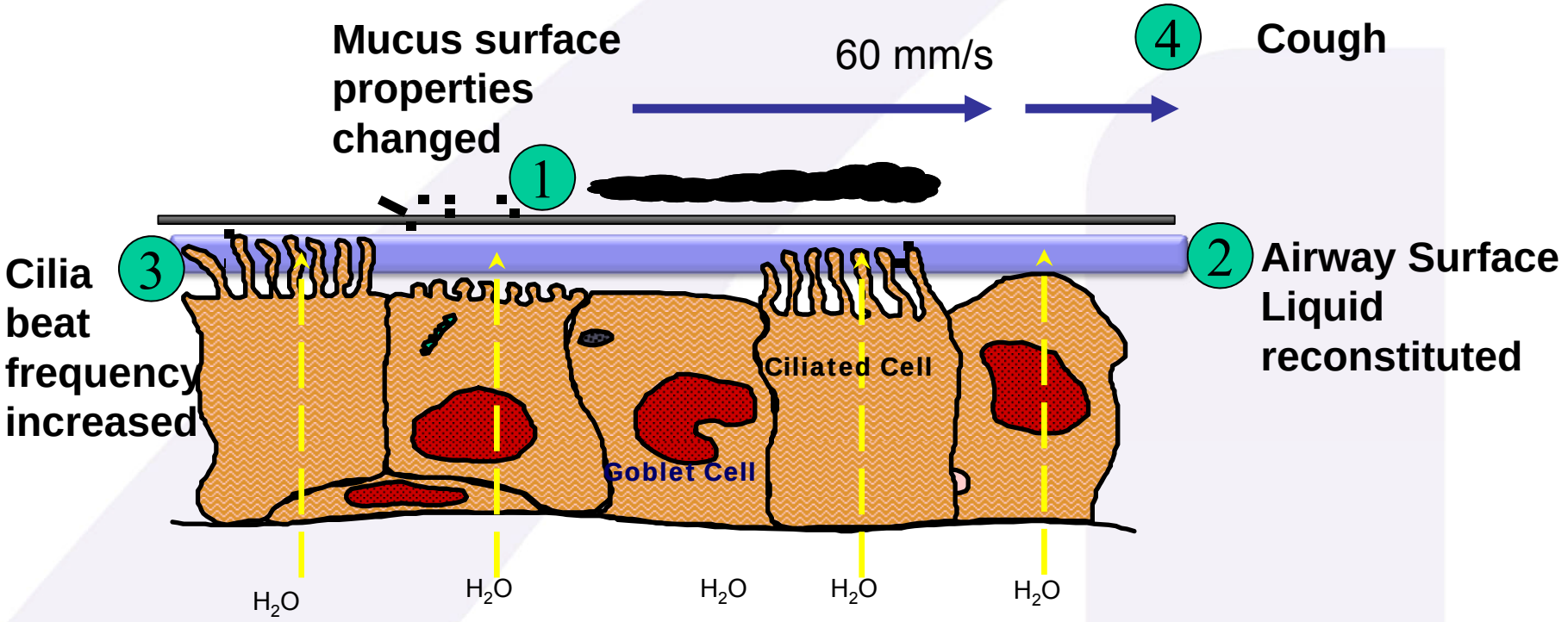
Number of CF patients



Source: Australian CF Registry 2005

Mode of action of Bronchitol

Lung defence (after Bronchitol)



Bronchitol

1. alters the rheological properties of mucus
2. increases the volume of airway surface liquid (ASL)
3. increases cilia beat frequency
4. promotes productive cough and assists in clearing mucus

Bronchitol – cystic fibrosis clinical program

Two Pivotal Phase III trials – same design

- Multicentre, double blind, controlled
- Approx 300 subjects greater than 6 years old per trial
- 6 month treatment, 400mg twice per day followed by 6 month open label
- Primary endpoint:
  - lung function (FEV_1)
- Secondary endpoints:
  - Other lung function measures
  - Lung function (FEV_1) in patients on rhDNase
  - Exacerbations
  - Antibiotic use
  - QOL and safety
- CF301: 40 centres in UK, Ireland, Australia & New Zealand
- CF302: 53 centres in US, Canada, Argentina, Germany, France, Belgium & Netherlands
- Subjects remain on existing background therapies

Clinical trial demographics

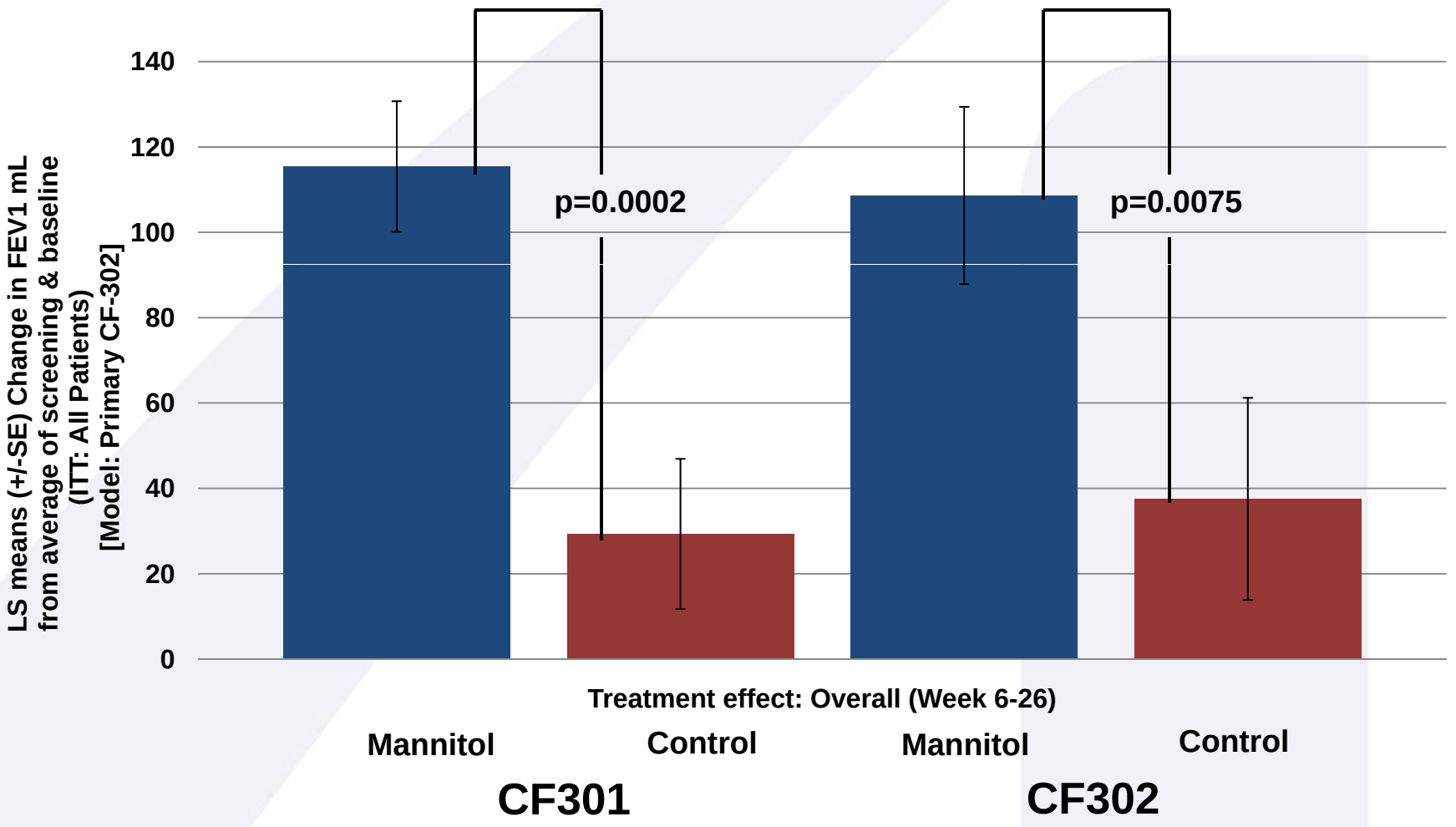
Wide range of patients on high standard of care

	CF301 N = 295	CF302 N = 305
Mean age years Range	23 6-56	20 6-53
Age Groups 6 – 11 years n (%) 12 – 17 years n (%) ≥18 years n (%)	 48 (16.3%) 57 (19.3%) 190 (64.4%)	 59 (19.3%) 95 (31.1%) 151 (49.55)
Gender Female n (%)	132 (44.7%)	148 (48.5%)
FEV_1 baseline mean (range) L % predicted	 2.02 (0.71-4.92) 62.0 (26-94)	 2.02 (0.61-4.12) 63.9 (25-105)
Regular medication n (%) rhDNase antibiotics^ drugs for obstructive airways disease (OAD)*	 163 (55%) 272 (92.2%) 249 (84.4%)	 229 (75%) 237 (77.7%) 279 (91.5%)

^ 3 most common antibiotic [301 vs 302]: Azithromcyin 53%vs.44%, Tobramycin 40%vs.42%, Colistin 44% vs.19%

* Medications classified as OAD include: ICS, LABA, β-agonists, LTA, anticholinergic bronchodilators, theophylline, aminophylline, nedocromil

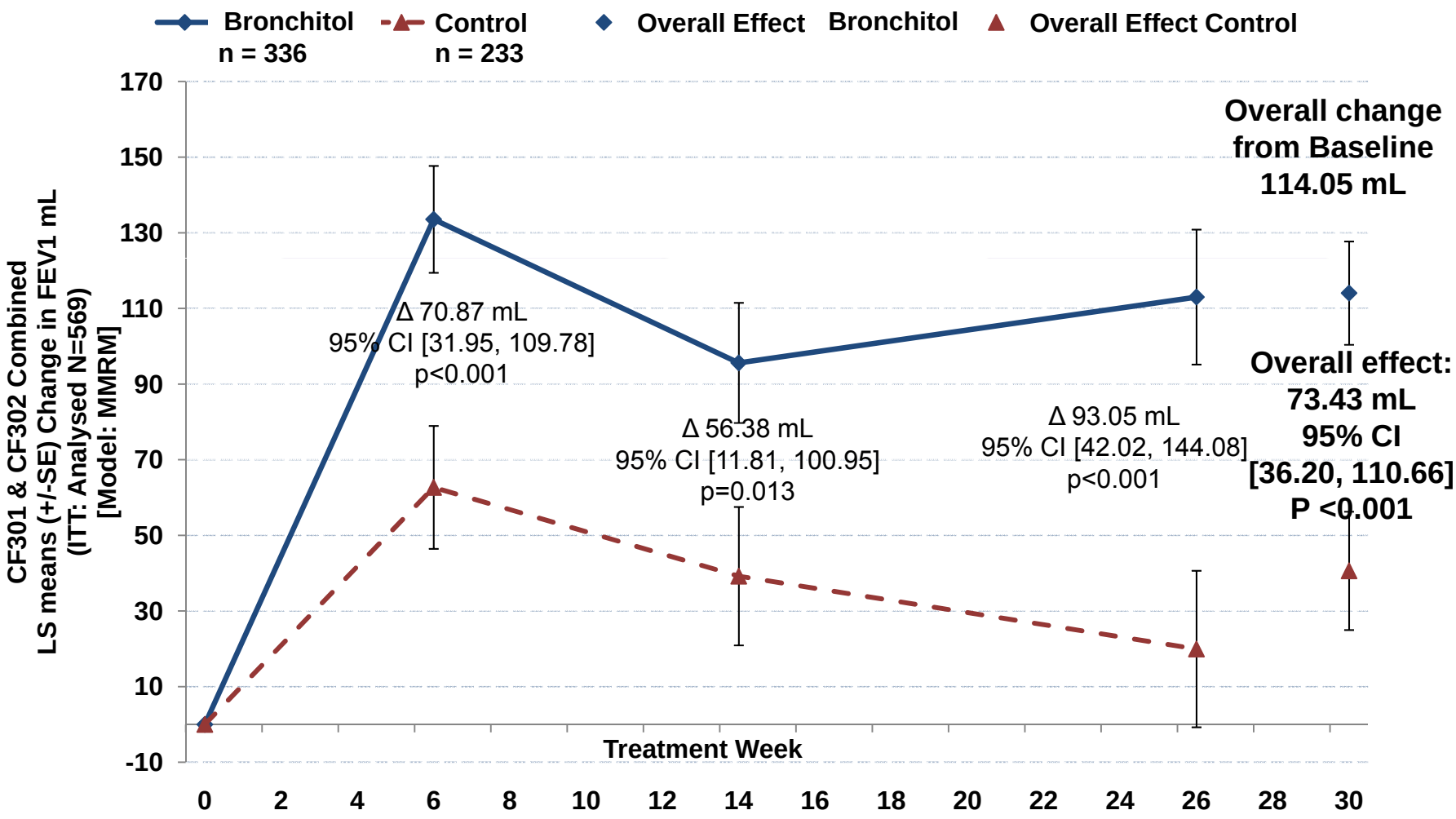
FEV_1 change from corrected baseline*
Overall effect: CF301 vs. CF302



*Post hoc analysis - average of screening and baseline FEV1 values

Pooled CF301 & CF302

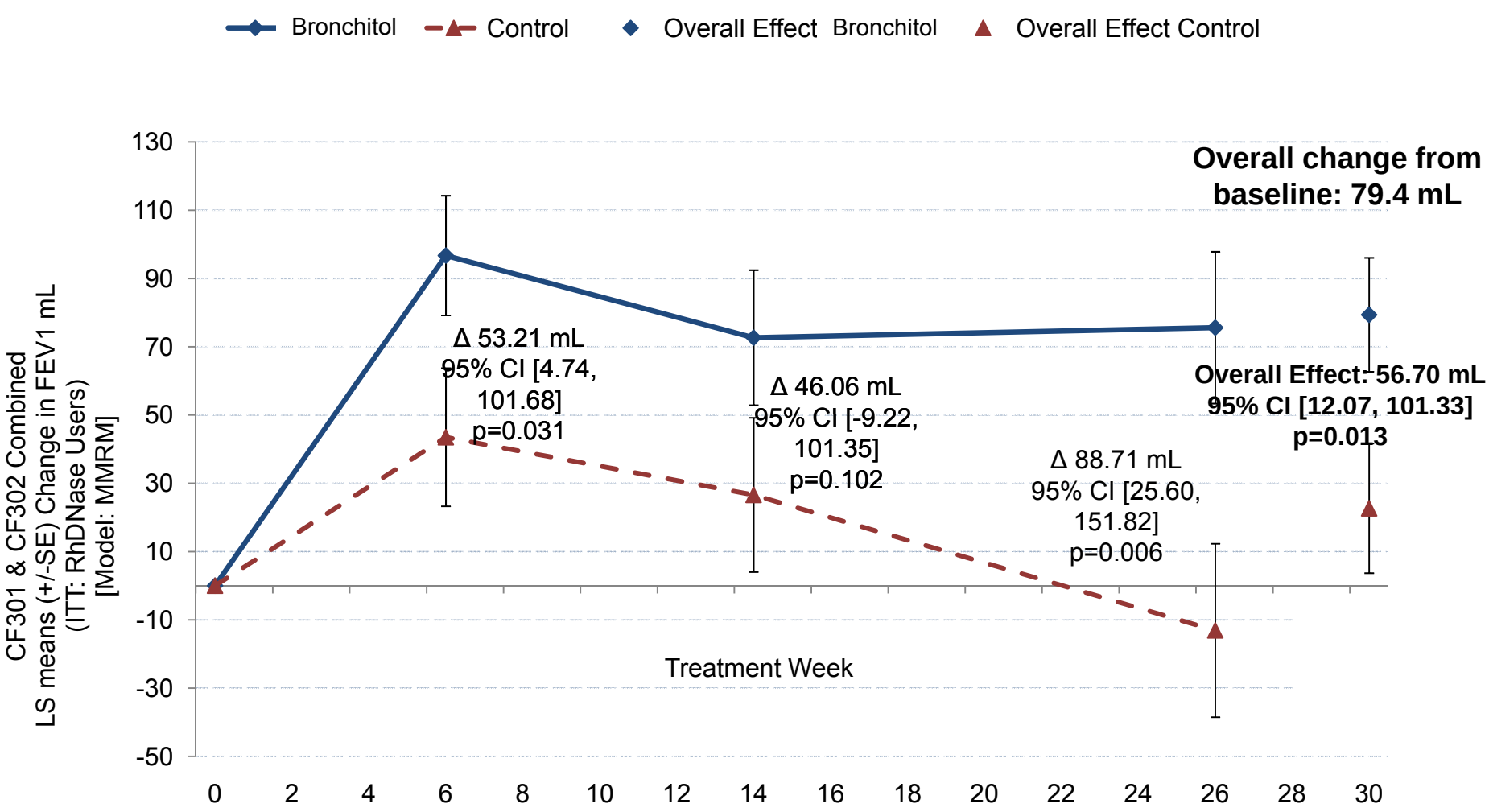
FEV_1 (mL) significantly improved at each time-point



The difference between Bronchitol and Control was significant at each timepoint ($p<0.05$)

A priori covariates: age, baseline value, randomized treatment, rhDNase at screening, country, gender, disease severity, study project. The model included an interaction term for timepoint.

rhDNase subgroup (pooled CF301 & CF302)
FEV_1 (mL) significantly improved

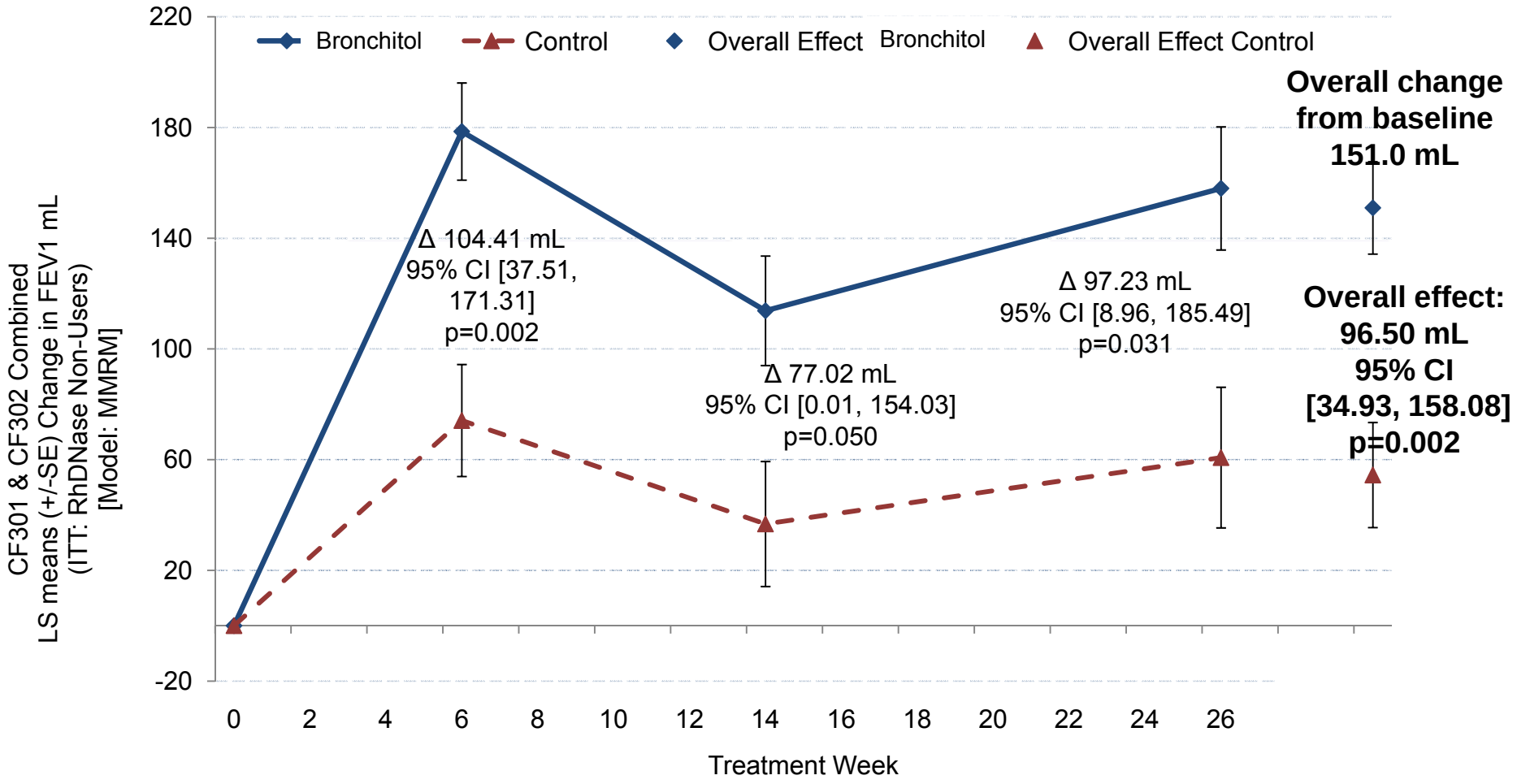


The difference between Bronchitol and Control was significant at week 6, 26 and overall ($p<0.05$)

A priori covariates: age, baseline value, randomized treatment, rhDNase at screening, country, gender, disease severity, study project. The model included an interaction term for timepoint.

rhDNase non-users subgroup (pooled CF301 & CF302)

FEV_1 (mL) significantly improved



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Bronchitol – consistent benefit seen in 5 studies

Change in FEV_1 (relative % change)

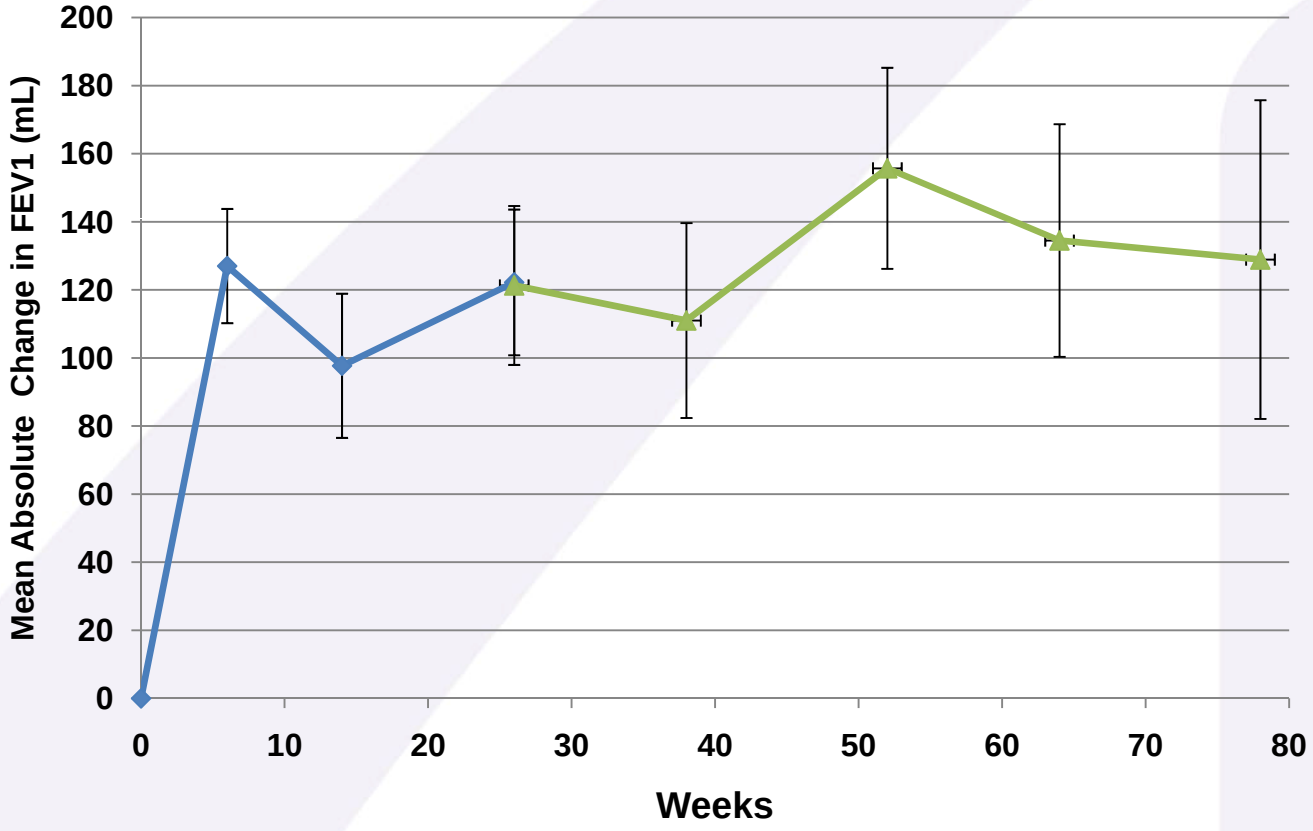
Study	Relative % Change from Baseline (± SD/SE)	p values	Relative % Difference vs Control (Effect size)	p values
CF201*	7.02 (±SD 11.61)	p < 0.001	7.02	p < 0.01
CF202*	8.75 (±SD 12.4)	p < 0.001	10.32	p < 0.001
CF203*	6.38 (±SD 16.3)	p < 0.001	n/a	n/a
CF301 (wk 6-26)#	6.32 (±SE 0.88)	p < 0.001	3.90 (±SE 1.32)	p = 0.003
CF302 (wk 6-26)+	8.22 (±SE 1.35)	p < 0.001	3.75 (±SE 1.71)	p = 0.029
Combined CF301 and CF302	7.32 (±SE 0.79)	p < 0.001	3.80 (±SE 1.10)	p < 0.001

*To study end (CF201: 2 wks, CF202: 2 wks, CF203: 12 wks)
CF301 data through CF302 model
+ Post-hoc analysis (primary effects model)

Effect sustained out to 18 months

CF301 Bronchitol arm (DB and OL for 18 months)

CF301 Change in FEV1 Summary Statistics for Bronchitol (DB patients only) over 18 months*



Week	Change	
26	6.5%	p<0.001
52	8.1%	p<0.001
78	7.9%	p<0.01

*** Patient numbers reduced over the 18 months of the study due to patient withdrawal, optional patient participation in OL weeks 27-52 and only 23 of 40 sites offered participation in OL weeks 53-78**

Clinically important reductions in exacerbations

- 29% reduction in patients having an exacerbation (Bronchitol vs control) - combined CF301 and CF302 (ns)

- 46% reduction in exacerbation rate in patients who completed the study – CF301(p=0.0552)
- 64% reduction in exacerbation rate in patients with >=100ml improvement – CF301

Improved lung function associated with reduction in exacerbation

Safety: adverse events

Incidence of adverse events similar to control in CF301 and CF302

	CF301		CF302	
Adverse Event (AE) Parameter	**Bronchitol n = 177**	**Control n = 118**	**Bronchitol n = 184**	**Control n = 121**
Subjects discontinued study due to adverse events	28 (15.8%)	10 (8.5%)	13 (7.1%)	5 (4.1%)
Subjects with wheezing, asthma or bronchospasm AEs	6 (3.4%)	7 (5.9%)	3 (1.6%)	2 (1.7%)
Most frequent respiratory treatment related AEs				
Cough	26 (14.7%)	8 (6.8%)	11 (6.0%)	4 (3.3%)
Haemoptysis	13 (7.3%)	4 (3.4%)	6 (3.3%)	0 (0.0%)
Pharyngolaryngeal pain	9 (5.1%)	0 (0.0%)	5 (2.7%)	4 (3.3%)

- % failing mannitol tolerance test = 7%
- Withdrawal rate reduced in CF302
- Study results suggest that Bronchitol does not induce bacterial growth

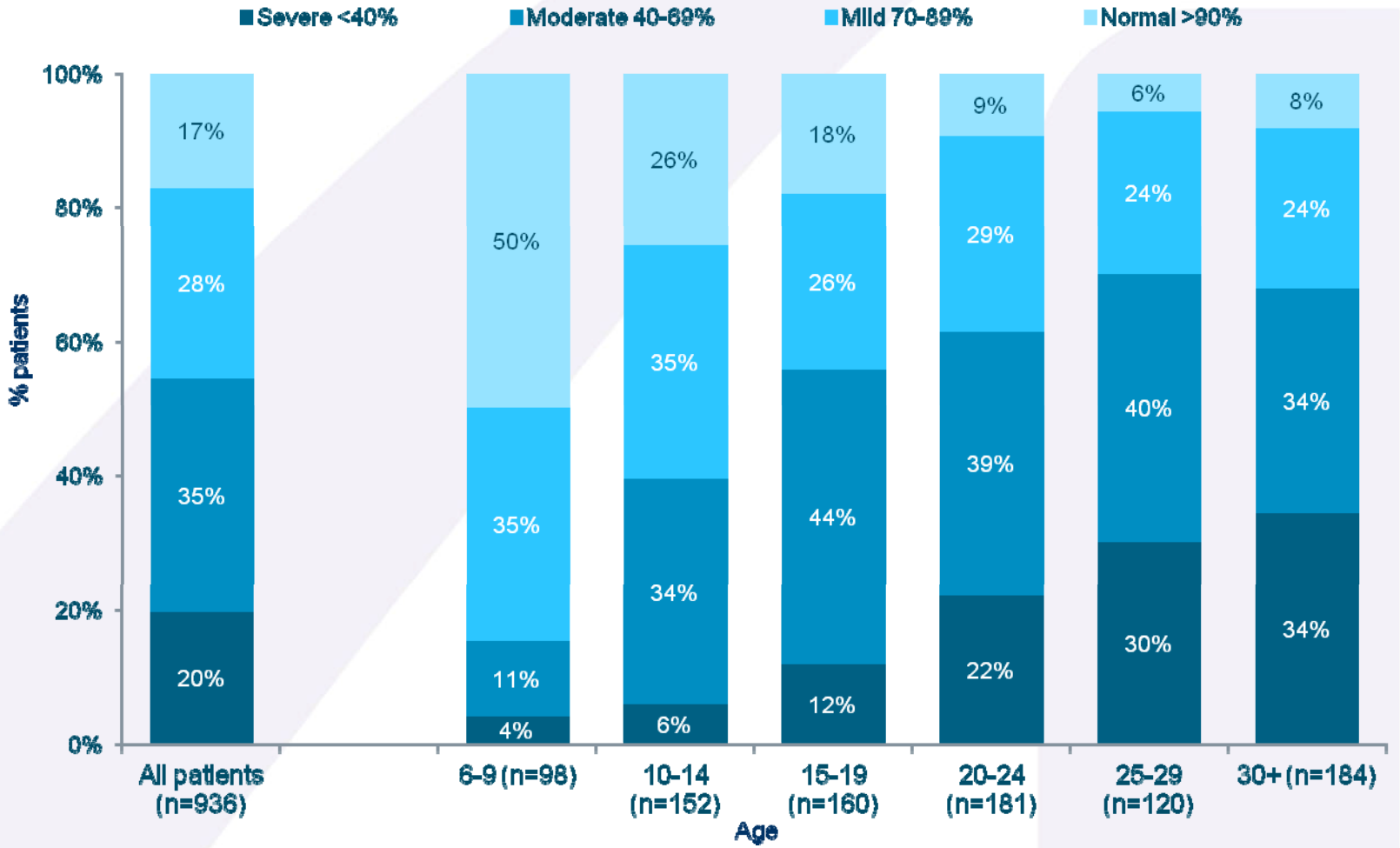
Competitor analysis

	Dornase alpha	Bronchitol	Denufosol	Hypertonic Saline
Company	Roche	Pharmaxis	Inspire	n/a
Status	Market	Phase III	Phase III	Un registered
Administration	Nebulizer	Dry inhaler	Nebulizer	Nebulizer
Dosing	1-2 x daily	2x daily	3X daily	2-4 x daily
Administration Time (per dose)	15 minutes	2-5 minutes	15 minutes	15 minutes
Year of study	1994	2009	2008	2004
Patient entry FEV1	>40%	>30%	>75%	>40%
Average FEV1	61%	65%	93%	73%
Pulmozyme usage	n/a	55-75%	77%	39%
Inhaled antibiotics	35%	>50%	37%	18%
Azithromycin	?	44-53%	40%	0%
⬆ FEV_1 ; 6 months*	6%	6-8%	2%	n/a
⬆ FEV_1 ; 12 months	n/a	8% (OL)	5% (OL)	3%

* Vs. Baseline; (OL) = Open label

Over half of patients have progressed to moderate or severe lung disease by the age of 15

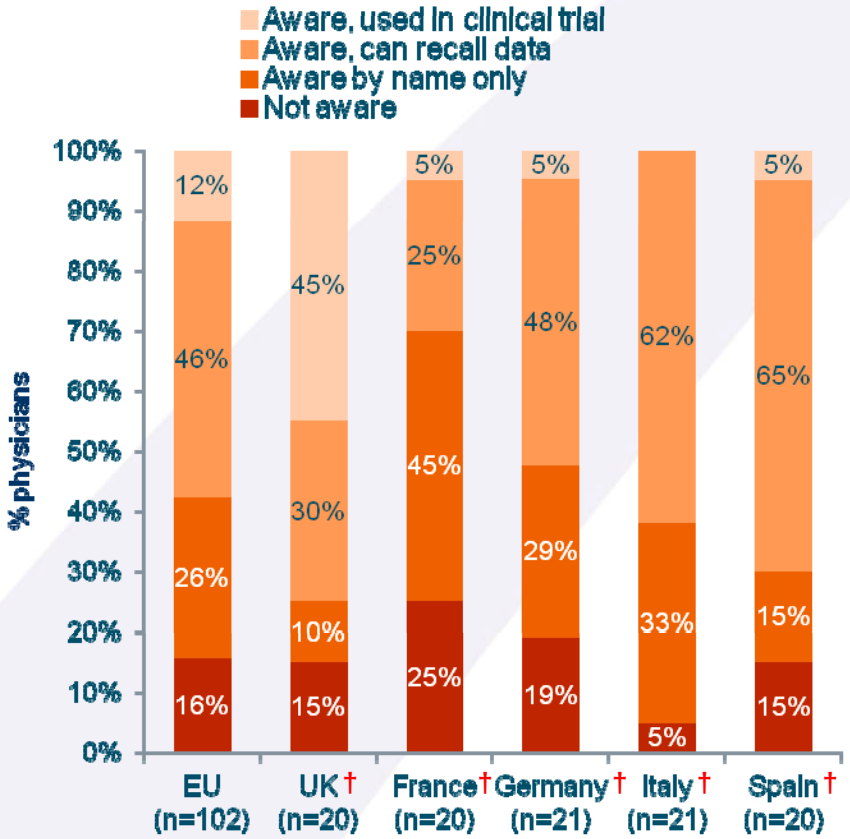
Progression of lung disease by age



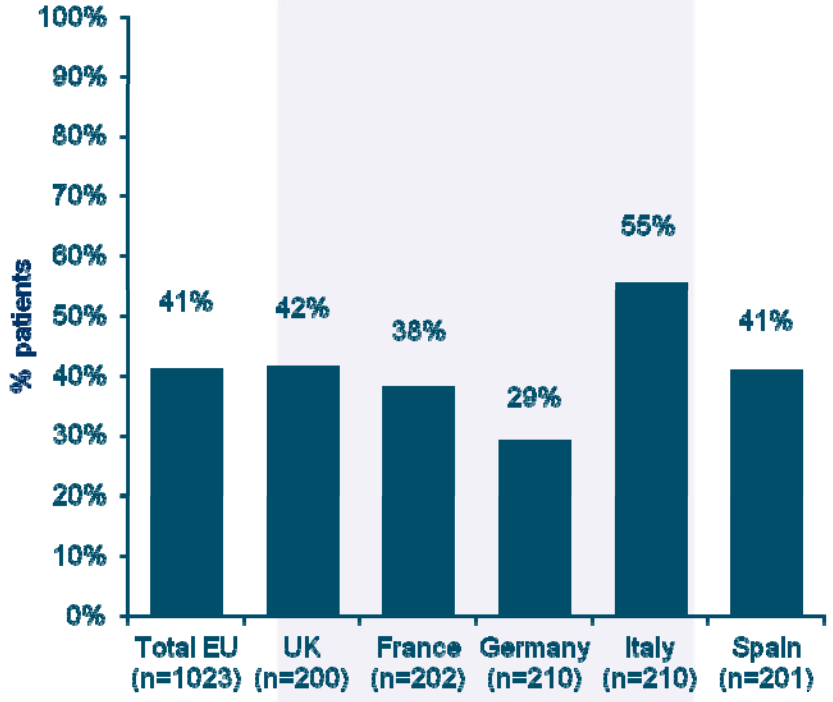
Market research by Synovate Healthcare Cystic Fibrosis Monitor 2010, October 2010. 100 physicians in UK, France, Germany, Italy & Spain currently actively involved in decisions for at least 10 CF patients and related drug treatment; minimum 3 years CF experience. 1,000 patient records.

Overall awareness of Bronchitol is 80%
Physicians are likely to use Bronchitol in 40% of patients

Awareness of Bronchitol by country



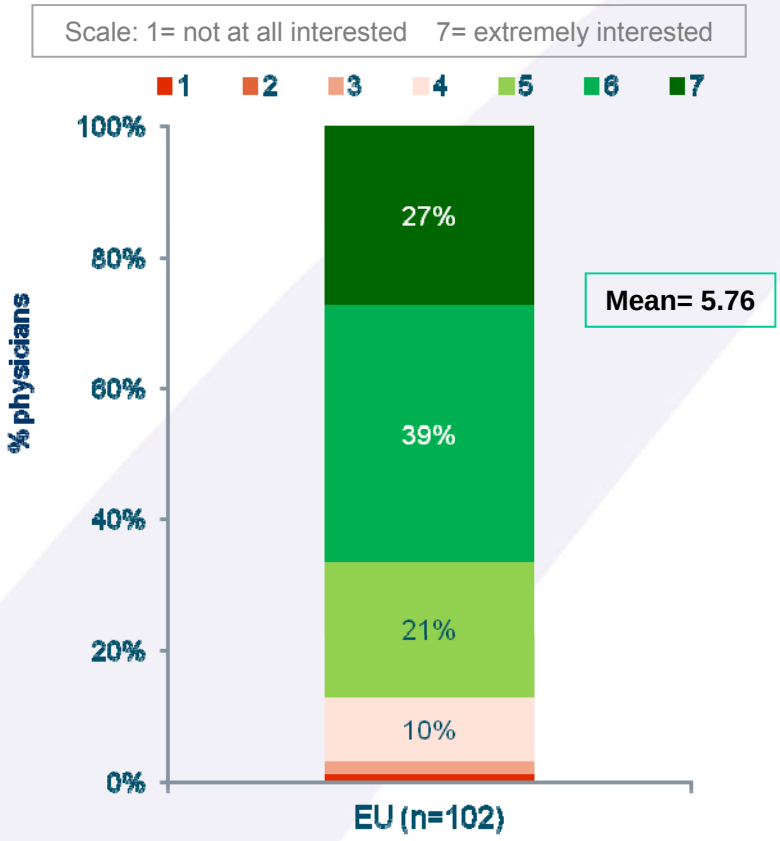
Prescription of Bronchitol by country



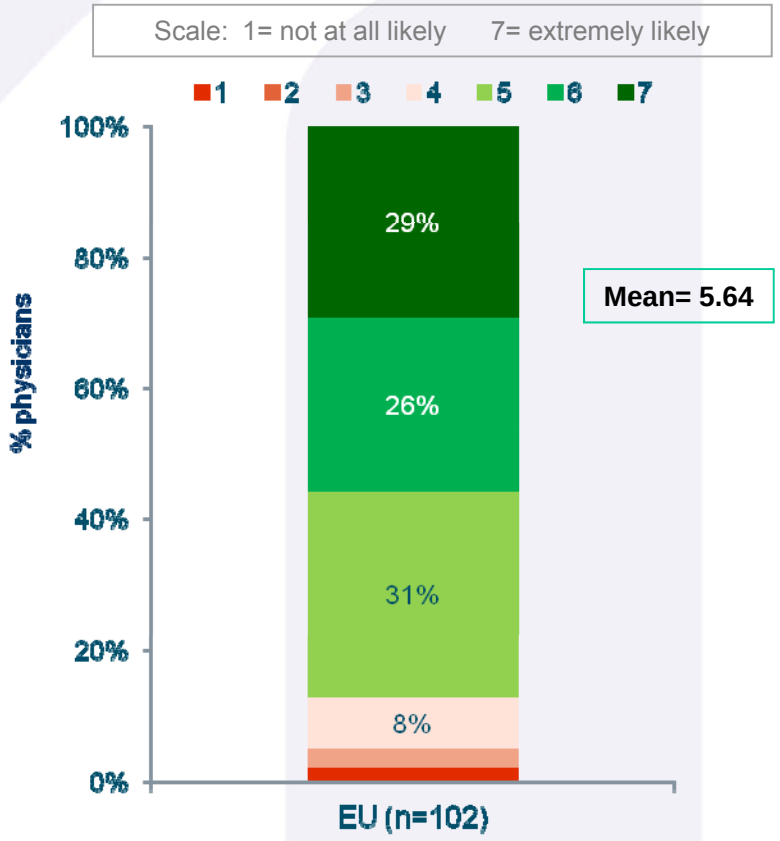
† caution – small base

Over 85% of Physicians state they are likely to prescribe

Reaction to Bronchitol product profile



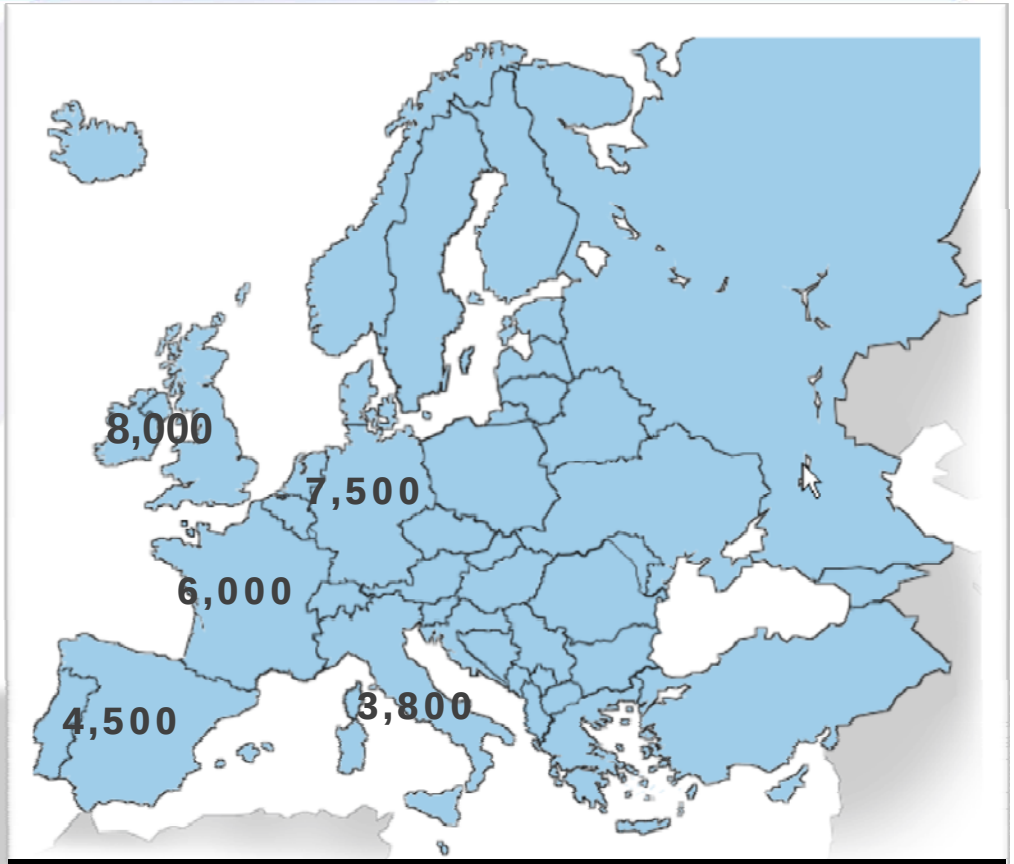
Likelihood of prescribing Bronchitol



***Q9a**: Based on your overall reaction to the product profile, how interested would you say you are about Bronchitol on a scale of 1 to 7 where 1 = not at all interested and 7 = extremely interested.*
***Q9e**: If Bronchitol was available to you today, how likely would you be to prescribe it in your practice? Please rate the likelihood of prescription on a scale of 1 to 7 where 1 = not al all likely and 7= extremely likely.*

Commercialisation plan well advanced in EU

- Orphan drug – up to 12 years exclusivity
- EMA
  - submission Oct 2009
  - response anticipated Q4 2010
- Promotion by Pharmaxis in Western Europe (14 countries)
- Distributor for Central / Eastern Europe
- Launch Top 5 – 2011
- First launch UK / Germany
  - Q1 2011
  - Immediate launch – national pricing approval not required



CF Patients	
Top 5	30,000
Western EU - other	8,000
Central / Eastern EU	8,000
Total EU	**46,000**

Bronchitol in the US – cystic fibrosis

Clinical

- Two pivotal Phase 3 trials completed in over 600 subjects

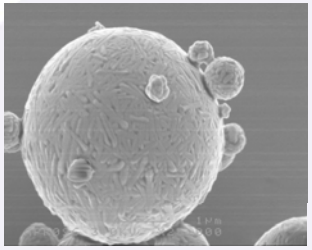
Regulatory

- NDA to be submitted following pre-NDA meeting
- FDA review expected to complete 1H 2012
- 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 require 15 - 25 person field force
- 30,000 people in the US with 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
- Affects 600,000 people worldwide

Bronchitol – bronchiectasis registration

- **1st Phase III trial**
  - 363 patient, 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 — ↑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

Bronchitol – bronchiectasis registration

- **2nd Phase III trial**
  - 475 patient, controlled, double blind, randomised, 52 week treatment, 89 sites in US, Europe, South America, Australia
  - 400mg twice a day
- **Primary endpoint**
  - Reduction in number of exacerbations
- **Secondary endpoints**
  - Exercise, mucus clearance, antibiotic use
  - Quality of life
- **Status**
  - Special Protocol Assessment concluded with U.S. FDA
  - Orphan Drug designation — USA
  - First patient enrolment — October 2009
  - Complete recruitment — H1 2011
  - Data — 2012

Aridol™

- Identifies airway hyperresponsiveness which helps physicians in the overall assessment of **asthma**

- An **easy-to-use test kit** provides rapid results and doesn't require specialized equipment

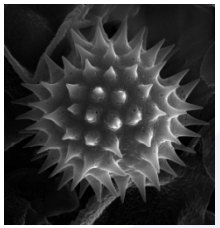
Aridol – commercialisation status

			2008	2009	2010
Sales (A$'000)					
Australia	Launched 2006	Direct	216	232	268
Europe	Staggered launch from 2007	Distributors (7); UK – direct;	137	267	398
Korea	Launched Oct 09	Distributor	-	32	162
Clinical trials		Direct	174	64	-
US	Approved Oct 2010	Direct	-	-	-
			527	595	828

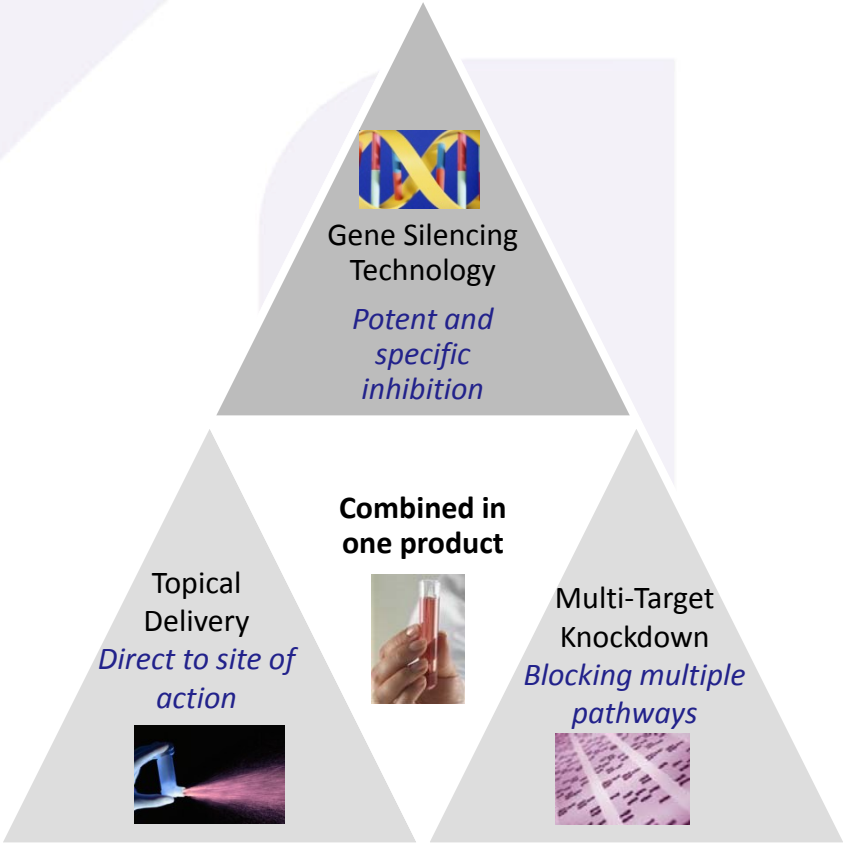
Marketing via education, key opinion leaders:

- Investigator initiated studies, > 70 peer reviewed articles
- US ACRN study: Aridol utility in asthma management - report H1 2011
- UK investigator : steroid management in asthma – report H1 2011
- Swiss investigator: steroid management in COPD – report H1 2011

ASM8 : A new approach for uncontrolled asthma



- Targeting severe asthma
  - affects ~6 million people
  - major cause of ER visits
  - limited treatment options
  - current treatment - Xolair
- Once daily by inhalation
- Improved side effect profile
  - low systemic exposure
- Improved effectiveness
  - targets multiple inflammatory proteins
- Inhibits protein synthesis

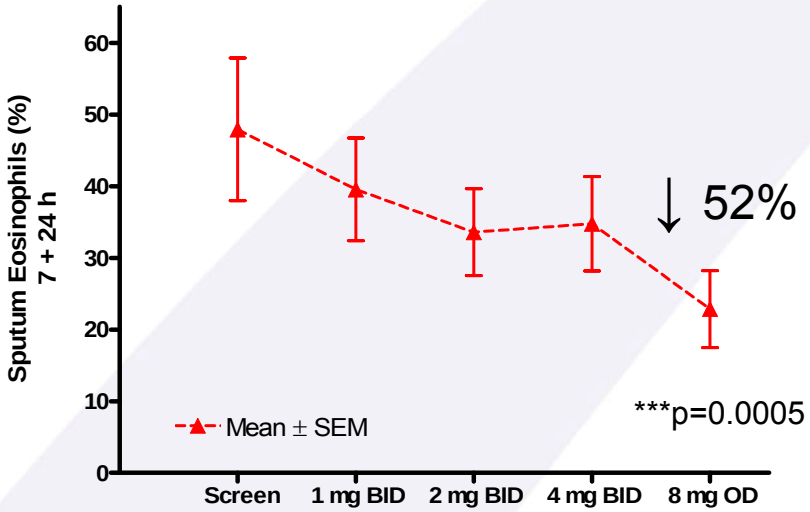


There exists an unmet medical need in patients with severe asthma

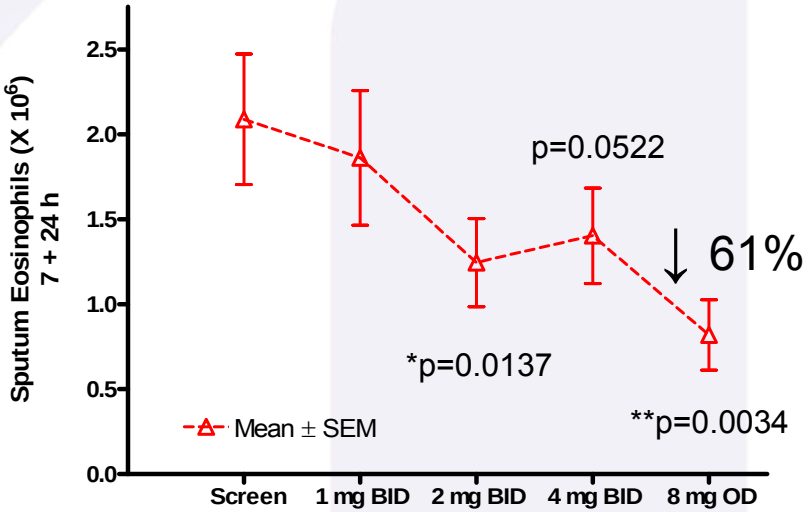
ASM8: results of Phase IIa dose profiling study

(Sputum Eosinophils (sum of 7h and 24h))

% Eosinophils



Absolute # Eosinophils

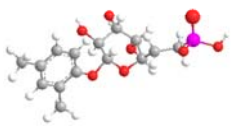


- 4 day treatment – sequential escalating dose
- 12 subjects – mild allergic asthma
- Primary endpoints – sputum eosinophils & safety
- Secondary endpoints – LAR, EAR, Target mRNA

Next study

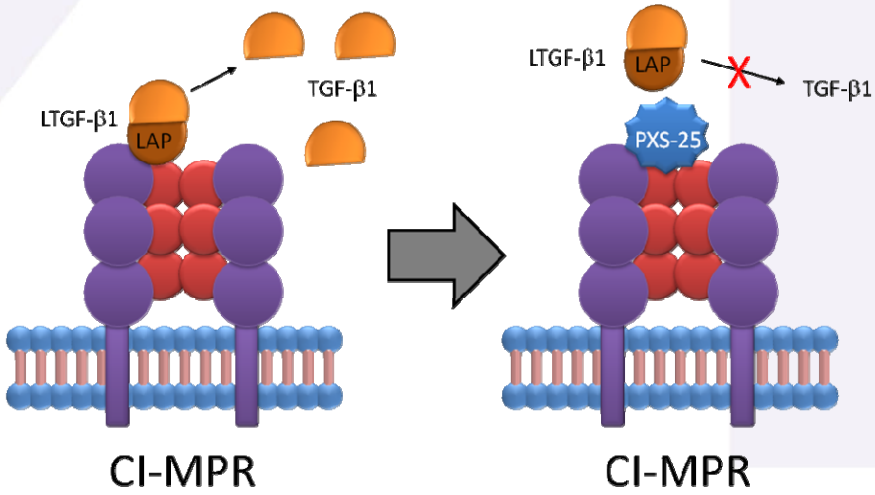
- 14 day allergen challenge
- commence Q4 2010

PXS25 for fibrosis



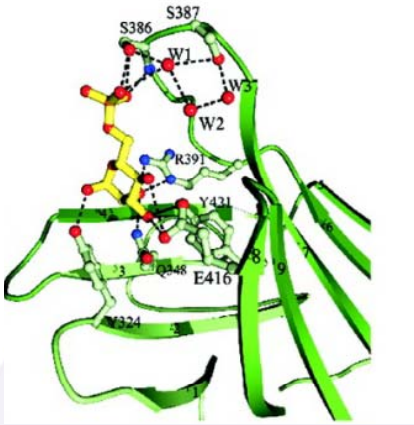
- Inhibits cleavage of latent TGFβ to active TGFβ
  - Targeting Idiopathic Pulmonary Fibrosis
    - Affects >500,000 people worldwide
  - Small molecule with robust pharmaceutical profile

- Phase I trial completed
  - Safety, pharmacokinetics in healthy subjects



PXS25: mannose 6-phosphate receptor antagonist

Acting at the mannose 6-phosphate binding site, PXS25 competes for LTGF-β binding to the CI-MPR decreasing the release of active TGF-β thereby attenuating fibrosis.



Olson, Dahms et al, JBC 2004

PXS25 is:

- ✓ An efficacious anti-fibrotic
- ✓ Safe and tolerable in humans
- ✓ Protected by 2 patent families
- ✓ Suitable for multi-kilogram scale

Manufacturing Capacity

- Facility No 1 – Frenchs Forest Australia
  - GMP manufacture of Aridol for sale in EU, Asia & Australia
  - Manufacture of Bronchitol for clinical trials and compassionate use
  - Inspected by FDA in review of Aridol NDA
- Facility No 2 - Frenchs Forest Australia
  - Construction completed May 2009
  - TGA licence for clinical trials and compassionate use
  - Equipment installation & validation complete
  - Complete process validation – 2010
  - Capacity
    - Initial capacity - 1 spray drier: 40,000 patients p.a.
    - Expanded capacity – 2nd spray drier: 80,000 patients p.a.

Financial Statements

Financial Statement Data - Unaudited		
(International Financial Reporting Standards)		
('000 except per share data)		
Income Statement Data	Three months ended	
	30-Sep-10	30-Sep-09
	A$	A$
Revenue from sale of goods	202	183
Cost of sales	(69)	(47)
Gross profit	133	136
Interest	937	952
Other income	175	88
Expenses		
Research & development	(8,768)	(8,111)
Commercial	(1,469)	(1,251)
Administration	(1,197)	(1,721)
Finance expenses	(290)	(286)
Total expenses	(11,724)	(11,369)
Loss before income tax	(10,479)	(10,193)
Income tax expense	(7)	(11)
Loss for the period	(10,486)	(10,204)
Basic and diluted earnings (loss) per share - $	(0.046)	(0.047)
Depreciation & amortisation	1,189	505
Fair value of securities issued under employee plans	440	604

Financial Statements

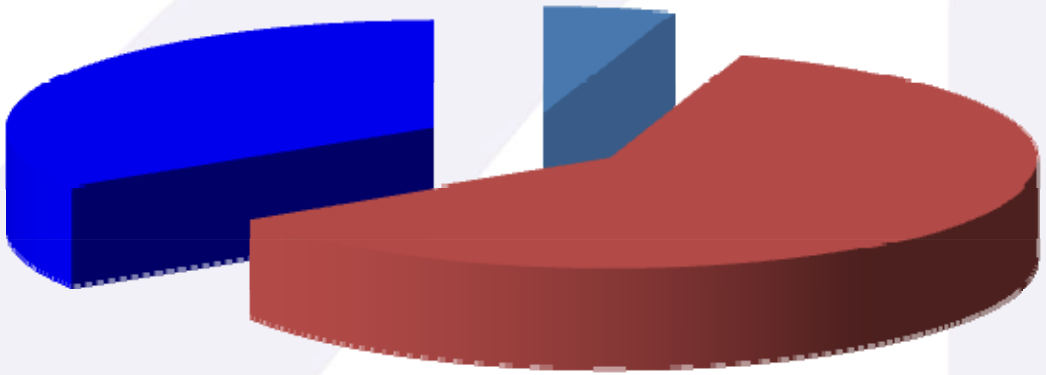
Balance Sheet Data	As at	
	30-Sep-10	30-Jun-10
	A$	A$
Cash and cash equivalents	75,831	85,787
Property, plant & equipment	32,026	32,537
Intangible assets	17,255	17,702
Total assets	129,485	140,767
Total liabilities	(24,856)	(25,751)
Net assets	104,629	115,016
Cash Flow Data	Three months ended	
	30-Sep-10	30-Sep-09
	A$	A$
Cash flows from operating activities	(8,795)	(10,007)
Cash flows from investing activities	(433)	(1,324)
Cash flows from financing activities	(288)	(189)
Impact of foreign exchange rate movements on cash	(440)	(17)
Net increase (decrease) in cash held	(9,956)	(11,537)

Share Capital
(including options)

Management – 5%

Other/retail – 34%

Institutions – 61%
(68 institutions)



30 September 2010: 226m shares; 13m options

End