



verona pharma plc

AIM: "VRP", Xetra: "I9S"

## **Realising multiple value creation opportunities with a unique respiratory product RPL554**

## Verona Pharma - Realising multiple value creation opportunities with a unique respiratory product: RPL554

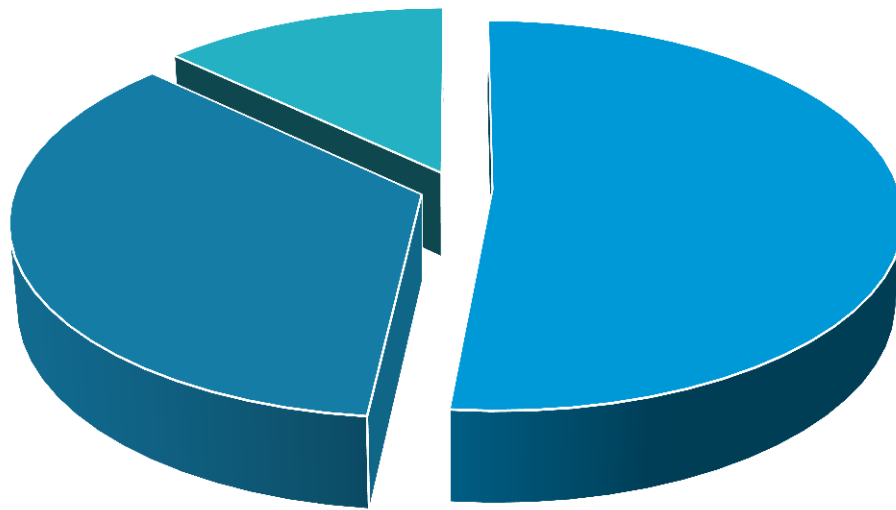
- **Initial focus on unmet medical needs in COPD, the 3<sup>rd</sup> largest killer in the world**
- **Recent clinical trials validate and reinforce the clinical potential of RPL554**
- **Proposed placing to complete first Phase 2b study in 2017/18 provides very significant value creation opportunity**
- **RPL554 has substantial commercial potential**
  - potential to become nebulized drug of choice in COPD
  - DPI/MDI in COPD – very substantial upside potential with Pharma partner
  - Cystic Fibrosis – commercial potential not yet factored in

## **Proposed financing permits achievement of key value inflection points**

- **Oversubscribed Proposed Placing £44.7 million (US\$63.3 million; net £41.9 million)**
- **Financing led by specialist healthcare focused funds Vivo Capital, OrbiMed and Edmond de Rothschild Investment Partners**
  - other new investors Abingworth, New Enterprise Associates, Novo A/S and Aisling Capital and existing including Arix Bioscience, Hargreave Hale and Polar Capital
- **Undertaking to dual list on NASDAQ within 6 months (subject to agreement)**
- **Company fully funded through first Phase 2b study**

## COPD: A large and growing market with high unmet medical need

- Worldwide, 65 million people suffer from moderate to severe COPD: WHO expects COPD to be the 3<sup>rd</sup> leading cause of death globally by 2030, after heart disease and stroke



7 major market sales \$9.1bn in 2014

- US \$4,7bn
- EU \$3,2bn
- Japan \$1,2bn

➔ COPD sales projected to grow with CAGR 2.6% to \$10.9bn in 2020

# Nebulized RPL554 as an attractive maintenance treatment for select COPD patients

- ~ 9% of US COPD patients need or prefer nebulized products for maintenance therapy
- a further 30% use nebulizers intermittently

## Verona Pharma

Maintenance treatment of COPD with nebulizer



Combined bronchodilator and anti-inflammatory

→ **RPL554 also to be studied as treatment of acute exacerbations of COPD in hospitals and for 30 days after discharge**

Acute periods of worsening symptoms (exacerbations) cause:

- **1.5 million ER visits in US - 726,000 hospitalizations - 120,000 deaths**

# RPL554 also to be developed as DPI/pMDI for maintenance treatment of COPD

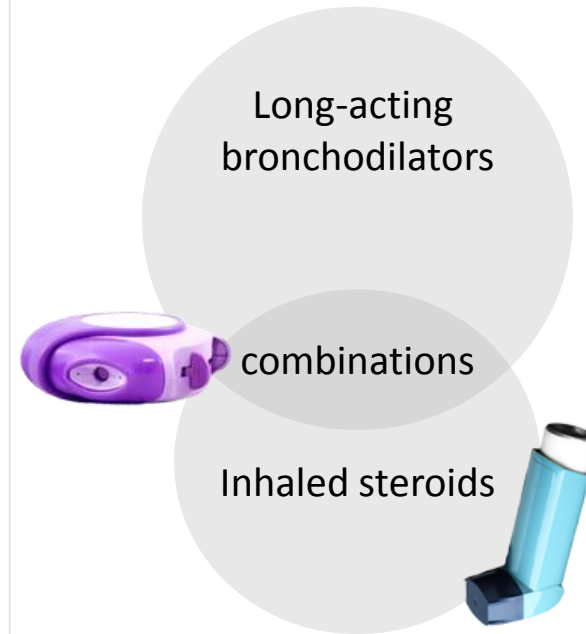
Current drugs aimed at long-term maintenance therapy: 'mass market' dominated by "Big Pharma" (GSK, AZN, BI, NOV, generics, etc)

**Bronchodilators**  
Beta2 agonists  
Anti-muscarinics

**Anti-inflammatory**  
Glucocorticoids  
(but less effective than in asthma)

## Big Pharma

Chronic, maintenance treatment  
pMDI/DPI



➔ **"Pharma partnership" for full development and commercialization**  
**= large upside potential**

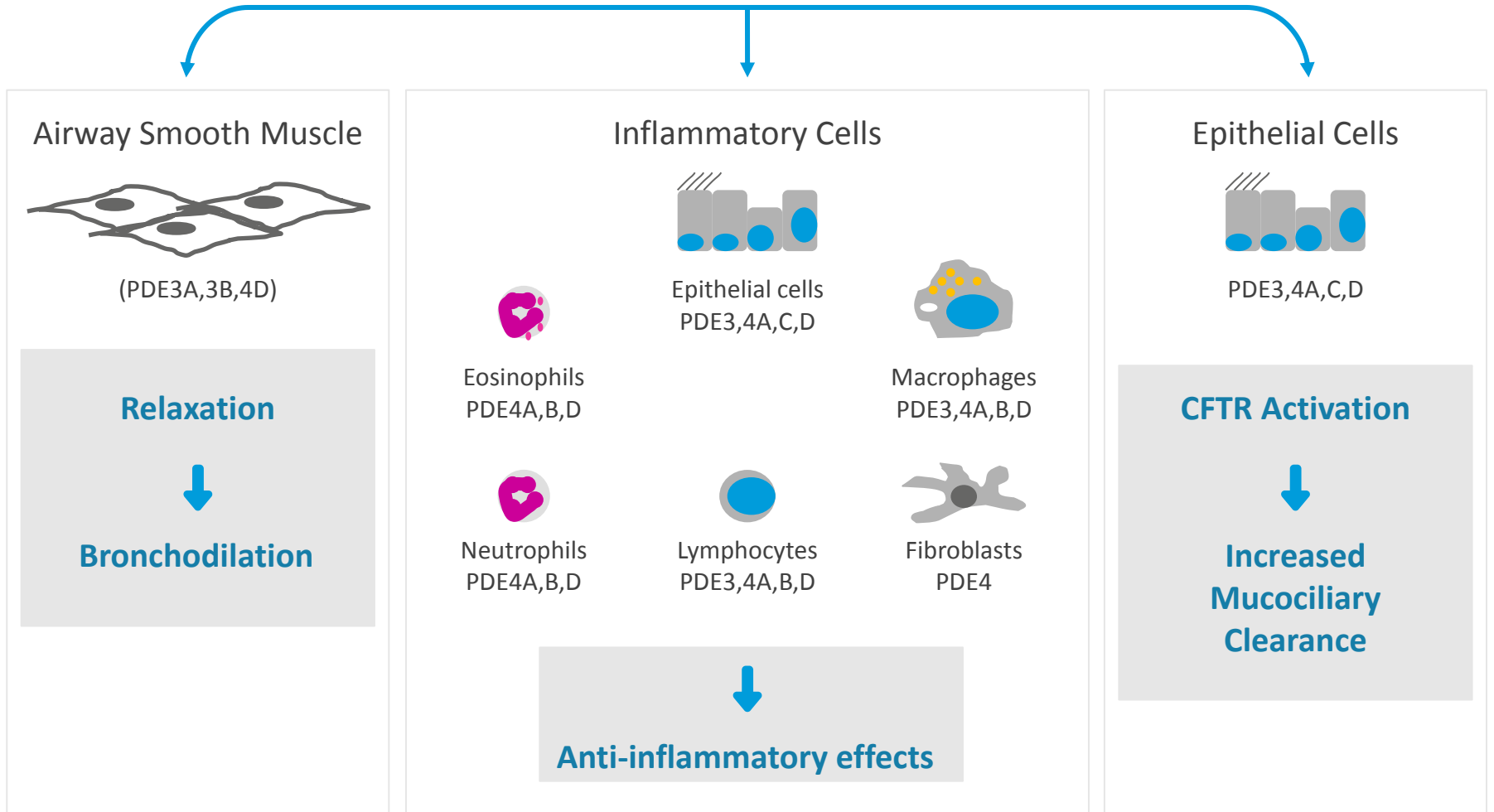
## RPL554 – Multiple value opportunities

	Indication	Phase 1	Phase 2	Phase 3	Global peak sales forecast
Nebulizer	“Treatment of acute COPD exacerbations”				>\$0.5bn
Nebulizer	“Maintenance therapy of COPD”				\$1bn
pMDI/DPI	“Maintenance therapy of COPD”				\$3bn
Nebulizer	Cystic fibrosis (orphan disease)				\$1bn

 = with new financing and IPO on NASDAQ

# RPL554 uniquely impacts three key mechanisms in respiratory diseases

## Pharmacological Effects of PDE3 and PDE4 Inhibition



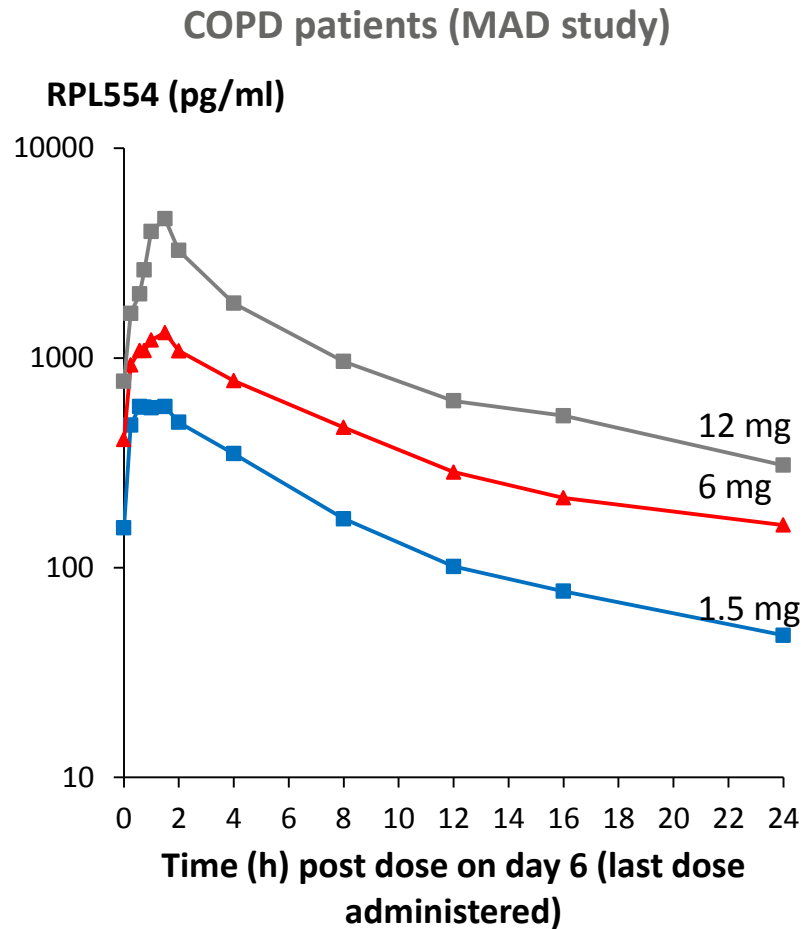


# Multiple value creation opportunities with a unique respiratory product RPL554



- **Unique mechanism of action: dual inhibition of PDE3 & PDE4 enzymes**
  - leads to additive or synergistic anti-inflammatory and bronchodilator effects
  - First new class of bronchodilator drugs for decades
- **Initial proof-of-concept formulation in clinical trials with 105 subjects**
  - demonstrated bronchodilator, bronchoprotective and unique anti-inflammatory properties
  - Results published in Lancet Respiratory Medicine in 2013
- **Novel proprietary formulation dosed in Ph 1 and Ph 2a clinical trials to over 170 subjects – 3 trials completed**
  - SAD/MAD study
  - dose-response study in asthmatics
  - “add-on study” in COPD patients

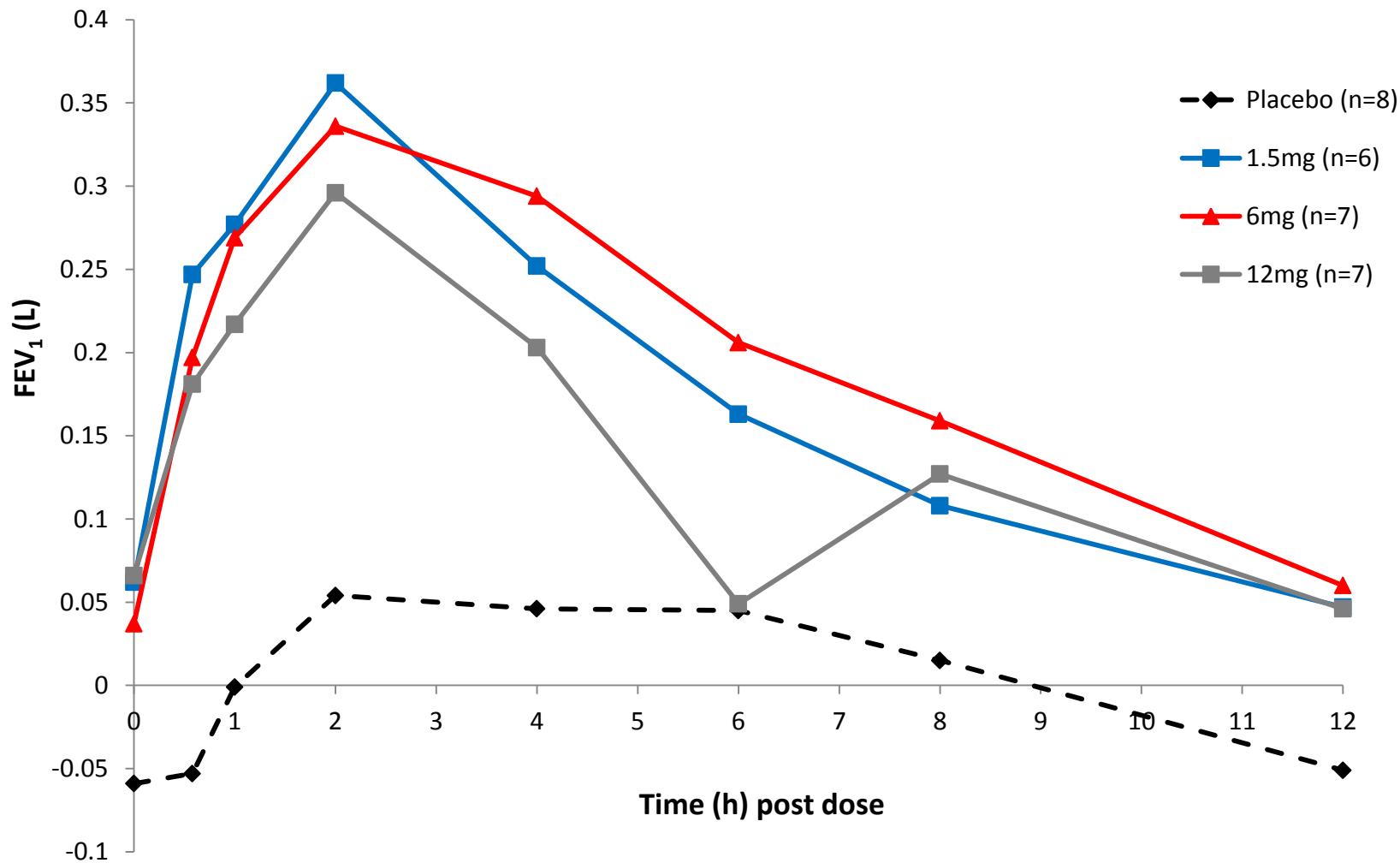
# Novel suspension formulation of RPL554 with attractive profile



## New suspension formulation with:

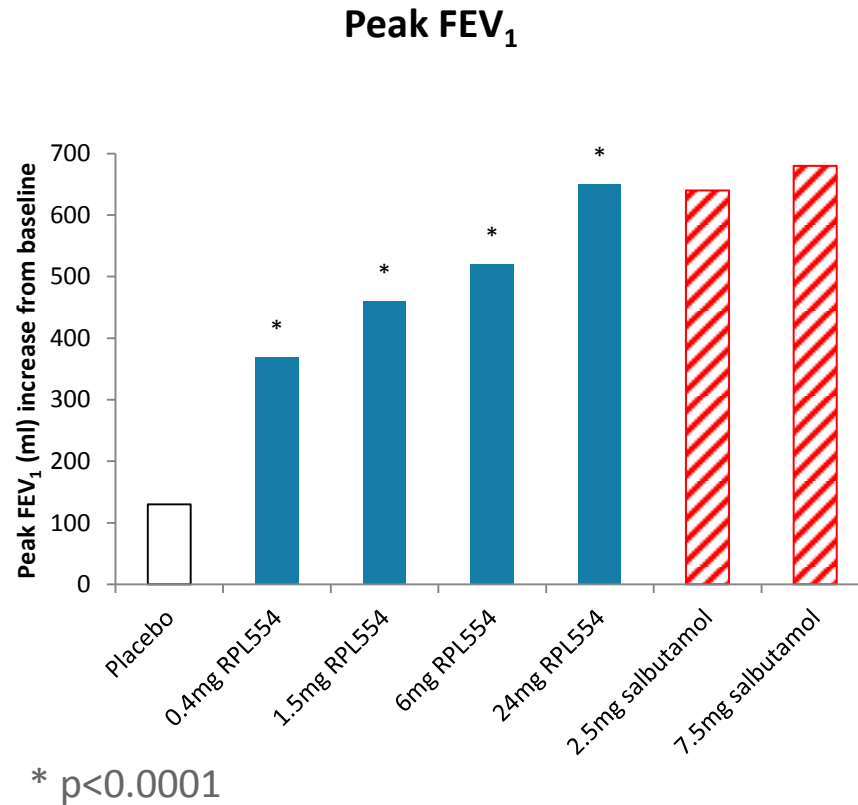
- Longer pulmonary residence time
- Suitable for twice daily dosing
- Lower peak systemic exposure – less effect on other organs

# Profound improvement in lung function (FEV<sub>1</sub>) versus placebo in COPD patients



Data from day 6 of MAD study

# RPL554 reaches the same maximum bronchodilator response as a supra-maximal dose of nebulised salbutamol



- No PDE4-like adverse events or cardiovascular effects of concern
- Seems to be better tolerated by asthmatics than nebulized salbutamol

## RPL554 provides a large additional bronchodilator response when inhaled on top of normal doses of standard bronchodilators

RPL554 produced a highly significant ( $P \leq 0.001$ ) and a clinically meaningful additional (>60%) bronchodilation on top of standard doses of commonly used bronchodilators

RPL554 caused a significant reduction in trapped air (residual volume) in the lung, suggesting that it may reduce breathlessness (dyspnea), a major debilitating symptom of COPD

RPL554 was well tolerated, both alone and in combination with other drugs

## The new financing allows Verona Pharma to perform a comprehensive Phase 2b development program

Clinical development of RPL554 for COPD in a Phase 2b study and additional clinical Phase 2 studies	£19.6 million
Pre-clinical development, including dry powder inhalation (DPI)/metered dose inhalation (MDI)	£8.6 million
General working capital	£13.7 million
<b>Total (net of estimated fees)</b>	<b>£41.9 million</b>

# Completion of a Phase 2b study in COPD patients, and additional supportive development work

## Phase 1 / 2a completed

3 studies completed

## Phase 2b

### **4 week dose ranging in COPD**

12 week add-on study to LAMA in COPD

In-hospital + 30 days treatment of acute COPD

Supportive clinical trials: Anti-inflammatory effect; Cystic Fibrosis

Commence development of DPI/pMDI

## Phase 3

With partner or VRP alone

# RPL554 – A first-in-class drug with unique properties

## Multiple Opportunities in COPD and Cystic Fibrosis

### Creating a pipeline of unique respiratory drugs

- RPL554 first novel bronchodilator in decades, and with anti-inflammatory properties
- Focus on COPD, opportunity in Cystic Fibrosis
- MDI/DPI line extension opportunities with partner
- Potential for unique combination products

### RPL554 is significantly de-risked at this stage

- Studied in almost 300 human subjects, strong data supporting unique properties
- Proposed placing to complete first Phase 2b study in 2017/18 provides very significant value creation opportunity

### RPL554 has substantial commercial potential

- Potential to become nebulized drug of choice in COPD
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## Contact

For further information please contact:

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Verona Pharma plc

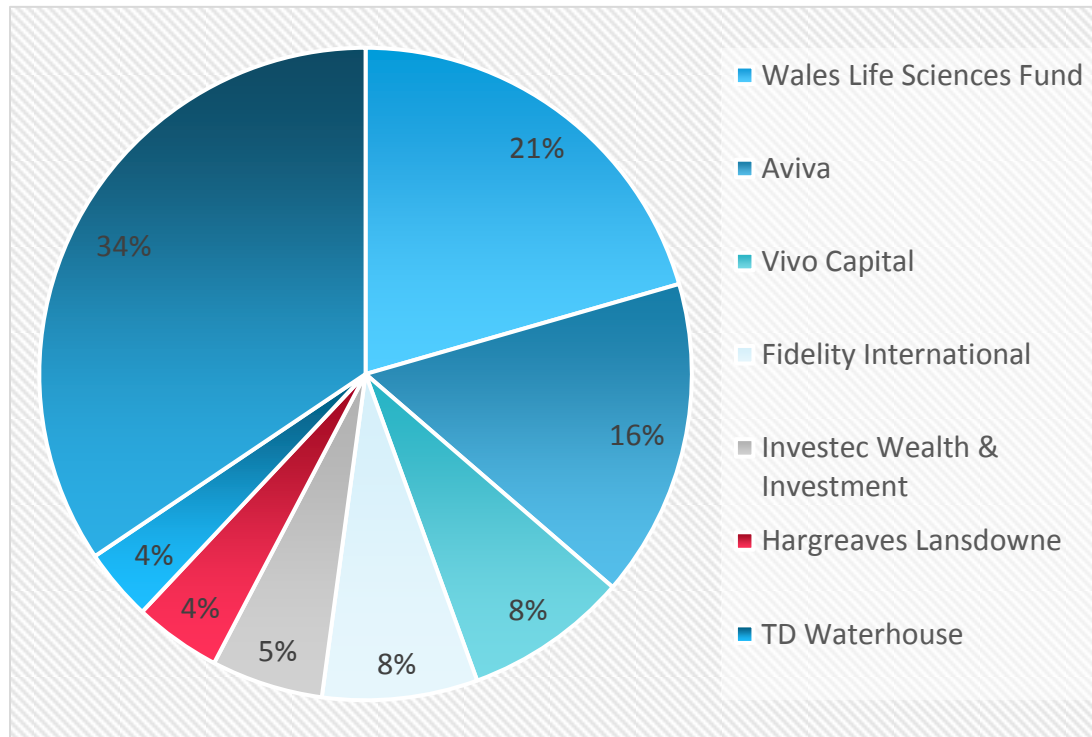
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## Financings and shareholder register at 23 May 2016

- £29.8m raised in total since 2006 (listing at AIM)
- £14.0m raised in latest round March 2014
- at 3.32p share price, 1009.9m shares outstanding, £33.5m market cap at closing 2/6/16



Others: Management and Board, Retail, Private Client & Other Institutions