

# 2<sup>nd</sup> Annual Capital Markets Day



**Professor Brian Walker**  
Co-Founder & CSO, ProAxis Ltd

New standard of care for respiratory  
disease





# ProAxis

Detect, capture and measure proteases

**Prof. Brian Walker**

Chief Scientific Officer

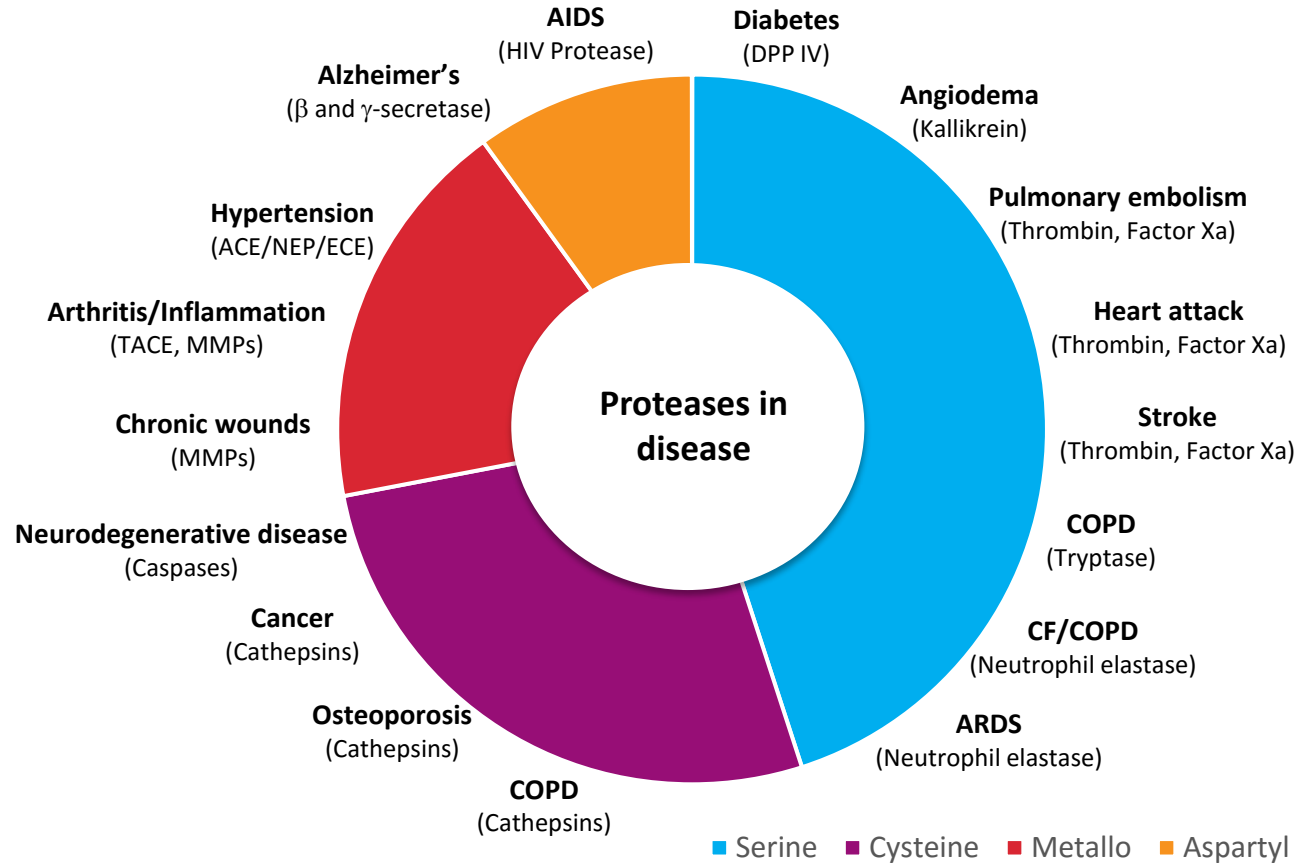
[Brian.Walker@proaxis.com](mailto:Brian.Walker@proaxis.com)

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[@ProAxis](#)

 **netscientific**

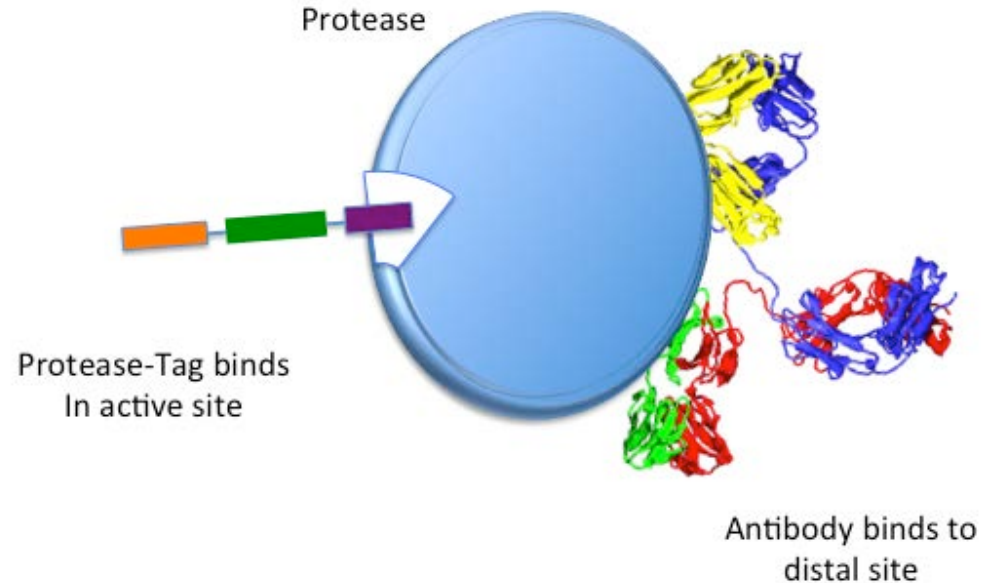
# Proteases are involved in multiple diseases



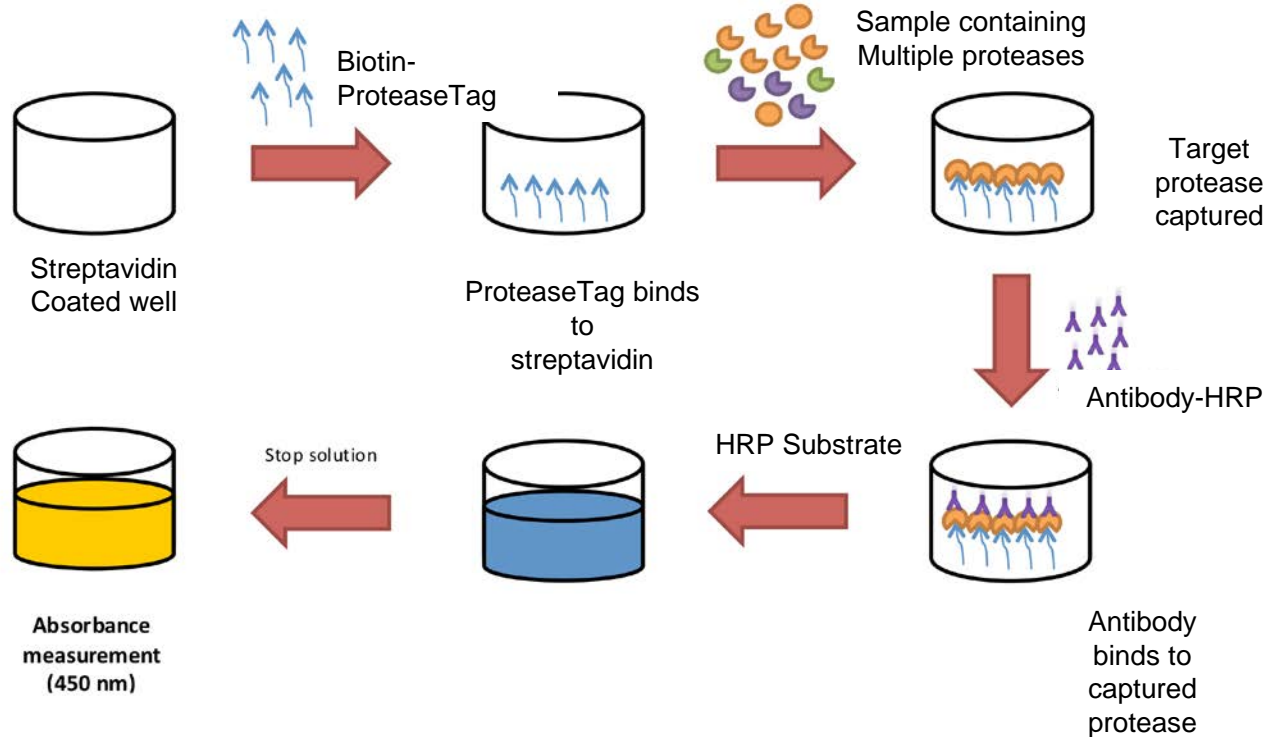
# ProteaseTags<sup>®</sup> offer a novel solution



- Small chemical probes that act as irreversible inhibitors targeting the active site of specific proteases
- Allows the capture of active proteases in multiple biological samples



# Incorporating ProteaseTags<sup>®</sup> in to an Activity Based Immunoassay



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Dr David Ribeiro  
CEO, ProAxis Ltd

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# ProAxis

Detect, capture and measure proteases

**Dr. David Ribeiro, PhD**

Chief Executive Officer

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# An experienced leadership team



## Dr. David Ribeiro – CEO

Senior management at Pfizer, Solvay Healthcare and Encysive Pharma. Most recently, at Pharmaxis, worked on a diagnostic test for assessing bronchial hyper-responsiveness in asthma, and a therapeutic product designed for the chronic treatment of patients with CF

pharmaxis



## Prof. Brian Walker – CSO

30 years of experience in the design and synthesis of “Protease-Tags”. Chair of Biomedical Chemistry – School of Pharmacy QUB. World renowned thought leader in proteases



## Sarah Gannicleft – Sales and Marketing Manager

Significant managerial sales and marketing experience in immunoassay and POC diagnostics at BD and Roche



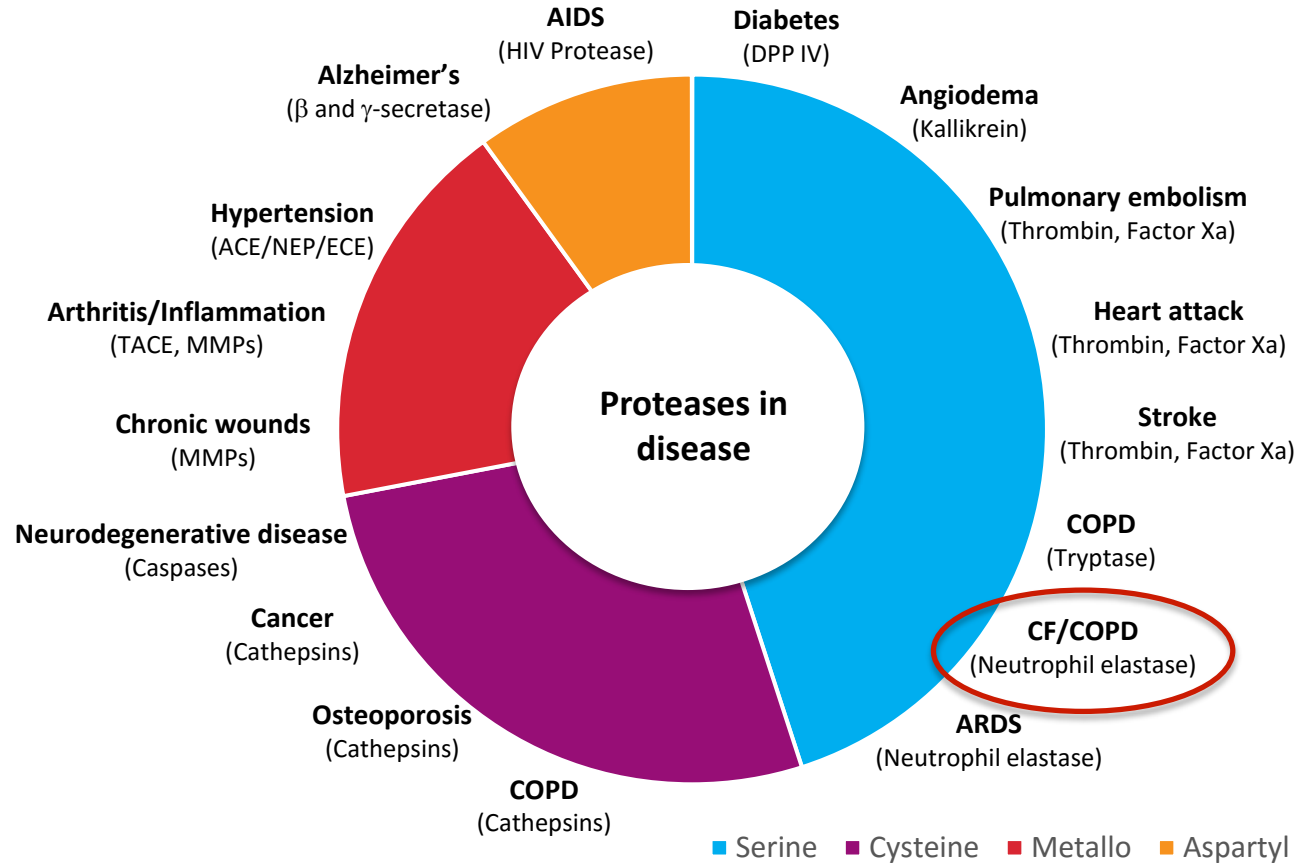


# Our Vision for ProAxis



- To become the premier company for the provision of robust, sensitive and highly specific assays for the measurement of active proteases.
- To translate this technology platform to Point-of-Care devices for protease biomarker diagnostics.

# Proteases are involved in multiple diseases





**COPD is an umbrella term used to describe progressive lung diseases**

**16.3m diagnosed in EU, 17.7m US, >75m China**

**UK hospital admission for exacerbation £5000. 9 days in hospital with IV antibiotics.**



**CF is a life-limiting inherited condition caused by a faulty gene**

**Causes mucus to gather in the lungs and digestive system and creates a range of challenging symptoms**

**40,000 EU and  
30,000 US  
Diagnosed**

# A world-renowned scientific advisory board



**Prof Stuart Elborn (Belfast) – Chairman**

Dean of the School of Medicine, Dentistry and BioMedical Sciences  
Former President of European CF Society



**Prof Marcus Mall (Heidelberg)**

Director of the Dept. of Translational  
Pulmonology



**Prof Patrick Flume (South Carolina)**

Professor of Medicine / Head of adult CF Centre



**Dr Scott Sagel (Denver)**

Director of University of Colorado  
CF Centre



**Dr Mona Bafadhel (Oxford)**

Senior Lecturer in Respiratory Medicine/Honorary  
Consultant Chest Physician



**Penny Agent (London)**

Director of Rehabilitation / Therapies  
Royal Brompton Hospital



**Dr James Chalmers (Dundee)**

Senior Clinical Lecturer/Honorary Consultant Chest  
Physician

# No suitable biomarker test...until now



- C-reactive protein (CRP) levels are sometimes measured in the clinic, but KOLs noted that this is not a reliable predictor of exacerbations as CRP levels are often normal even when the patient is having an exacerbation

***“CRP tends to lag behind the clinical picture” (KOL)\****

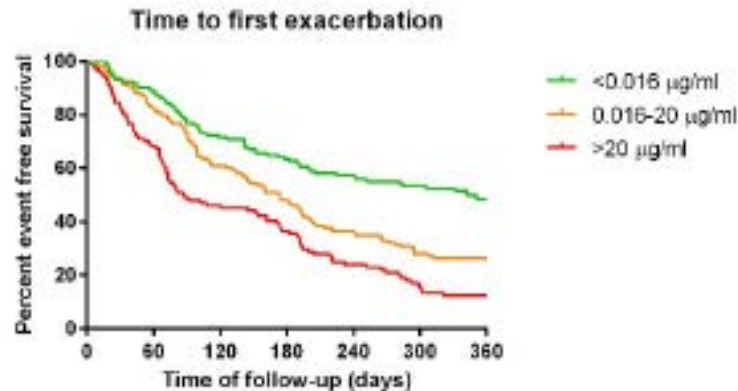
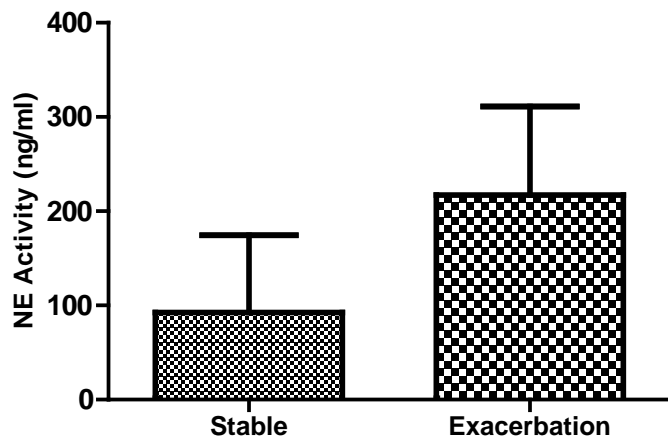


- Neutrophil Elastase (NE) is well recognised as a biomarker of lung inflammation and infection, but currently available kinetic assays are not specific or sensitive enough to be useful in the clinic setting

**ProAxis has developed the only assay which can specifically measure the active form of NE**



# Elevated NE is predictive of exacerbation



**Sputum NE is the most informative biomarker to monitor disease activity**

**Elevations in sputum NE levels predict time to next exacerbation and future hospital admissions\***

Moffitt et al, P102, British Thoracic Society, December 2015. NE measured in 20 matched sputum samples from COPD patients when stable and during exacerbation.

Sagel et al (2012) Am. J. Respir. Crit. Care Med., 186: p857-865.

\* Unpublished data

# First Activity based immunoassay kit for measuring NE now launched



- Recent kit supplies to UK, Ireland, Germany, Switzerland, Sweden and USA
- CE Mark expected in H2 2016
- Immunoassay accepted for use in a pharma company trial, and being validated by several others
- Research collaborations with a number of universities, including Dundee and Oxford
- Abstracts presented – ECFC, NACFC, BTS, ATS





# First Point of Care test due to launch in 2017



## Launch strategy

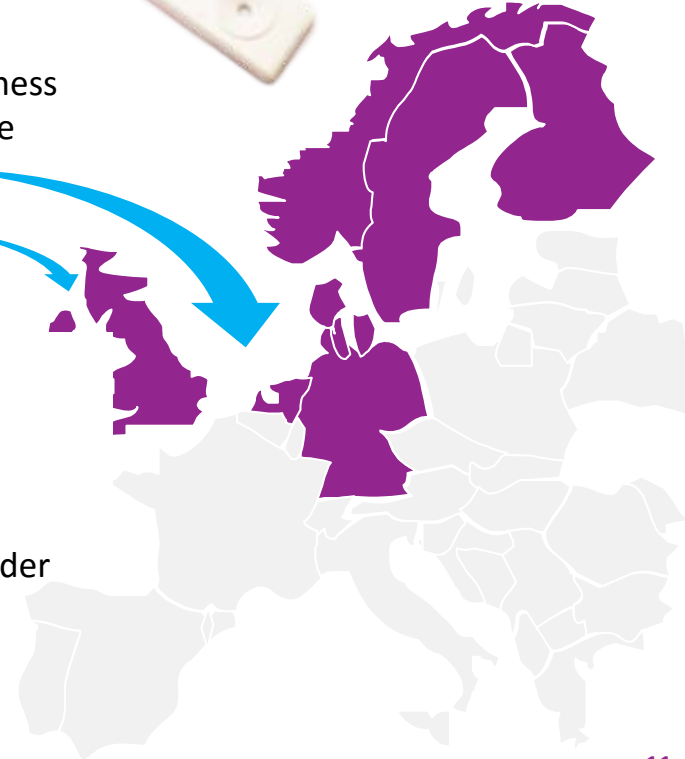
- CE mark
- Launch first as general IVD for use in clinic – elevate clinician awareness
- Follow-up launch as point-of-care IVD for use by the patient at home

## Business model

- Western/Northern Europe: Direct sales
- Rest of Europe/Asia/US: Seek commercial partners

## Reimbursement

- Health economic model prepared for launch, using third party provider

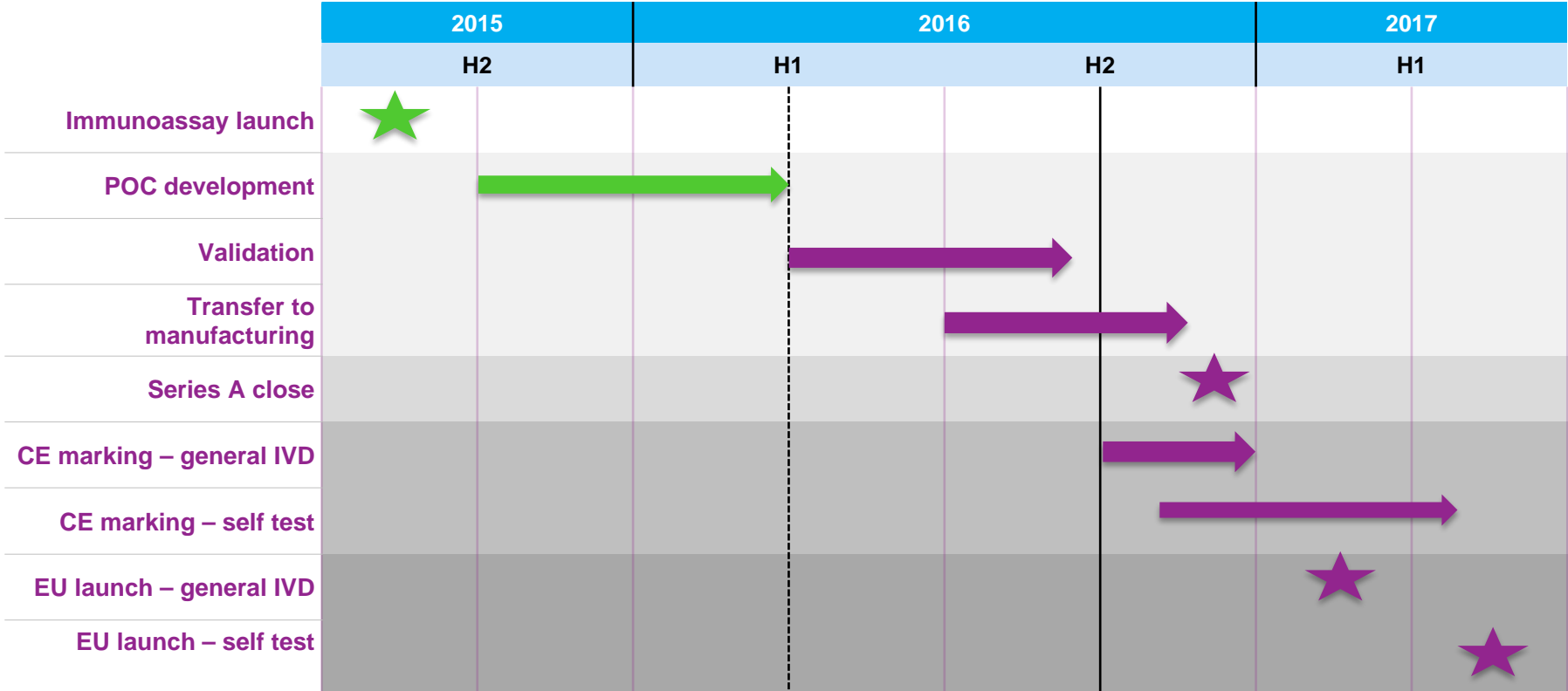


# Minimal current competition



	NEATstik™ Active NE as marker of lung disease activity	Aseptika Exotoxin A + Iron transport molecule as marker of <i>P. aeruginosa</i> infection
Test		
Sample	Sputum	Sputum
Lab-based version?	✓	✓
Detects all exacerbations?	✓	X limited to those due to PA infection
Platform of respiratory biomarkers in development?	✓	X
Anticipated launch	H1 2017	H1 2017

# Timeline for POC market entry



# Key drivers of the POC market



- Target population is moderate-severe COPD and adult CF patients (48 million)
- Greater than 85% of KOLs expected moderate-to-high usage of NEATstik POC amongst their colleagues working with CF and COPD patients
- Launch of NEATstik planned for H1 2017 in Europe and H1 2020 in US, with follow-on launches in Asia Pacific region
- Sales potential of ~£300million worldwide



# Use of proceeds to drive success



## Fundraising up to £7million

- Prospective pan-European COPD trial
- Complete NEATstik POC development programme and CE marking
- Build commercial team and launch across Europe
- Ongoing development and launch of further respiratory protease target assays

# Protease diagnostics company



- Developing and commercializing immunoassay kits and rapid, highly sensitive point-of-care (POC) tests for the capture, detection and measurement of active protease biomarkers of disease
- Launched first immunoassay kit to pharma drug development and academic research market in H2 2015
- First POC test for management of Chronic Obstructive Pulmonary Disease (COPD) and Cystic Fibrosis (CF) to launch in EU 2017
- Series A Fundraising round up to £7m



**Any Questions?**

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