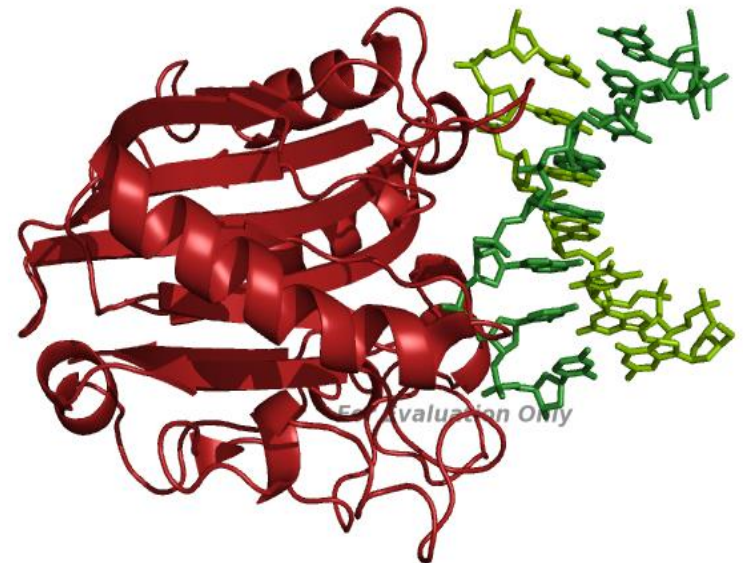


AIR DNase™: Actin Inhibition Resistant Plant Cell Recombinant Chemically Modified Deoxyribonuclease I (DNase I) for the Treatment of Cystic Fibrosis

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Note Regarding Forward-Looking Statements

This presentation contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. The forward-looking statements including, among others, statements regarding expectations as to regulatory approvals, market opportunity for, and potential sales of, the Company's product and product candidates, goals as to product candidate development and timing of the Company's clinical trials, are based on the Company's current intent, belief and expectations. These statements are not guarantees of future performance and are subject to certain risks and uncertainties that are difficult to predict. Actual results may differ materially from these forward-looking statements because of the Company's unproven business model, its dependence on new technologies, the uncertainty and timing of clinical trials, the Company's ability to develop and commercialize products, its dependence on collaborators for services and revenue, its substantial indebtedness and lease obligations, its changing requirements and costs associated with planned facilities, intense competition, the uncertainty of patent and intellectual property protection, dependence on key management and key suppliers, the uncertainty of regulation of products, the impact of future alliances or transactions and other risks described in the Company's filings with the Securities and Exchange Commission. Existing and prospective investors are cautioned not to place undue reliance on these forward-looking statements, which speak only as of today's date. The Company undertakes no obligation to update or revise the information contained in this presentation whether as a result of new information, future events or circumstances or otherwise.

ProCellEx[®] Platform: Proprietary plant cell-based protein expression system

- Expression in plant cells carrot and tobacco
- High mass production
- Inexpensive flexible bioreactors
- No need to scale up
- Can express a wide range of complex glyco-proteins



Key Advantages:

- Capabilities developed to control glycosylation of a protein
- Ability to express certain proteins that are difficult to express in other systems
- Shorter time to develop clinical material for testing versus mammalian system
- Mammalian components free system:
 - No need for viral inactivation
 - Evolutionary barrier against mammalian pathogens



Biochemical Factors Governing the Viscoelastic Properties of Sputum

■ Mucins

- A family of high molecular weight, heavily glycosylated proteins
- Secreted as massive aggregates of proteins ($\sim 1-10 \times 10^6$ Da)
- Monomers are linked to one another mostly by non-covalent interactions but also through disulfide bonds
- Mucin content and the degree of mucus hydration affect mucus rheology

■ DNA

- Secondary infections in cystic fibrosis, which cause neutrophil lysis and further increase in the DNA content directly responsible for the increase in mucus viscoelasticity associated with the disease

■ Lipids

- Higher total lipid content and compositions is correlated to increased viscoelasticity in purulent cystic fibrosis secretions

Biochemical Factors Governing the Viscoelastic Properties of Sputum- Cont.

■ Actin

- Comprises approximately 10% of the total protein in leukocytes and can form long filaments (F-actin) in CF sputum
- Entanglement between the polymeric DNA and actin maintain the viscoelasticity of CF sputum

■ Ions

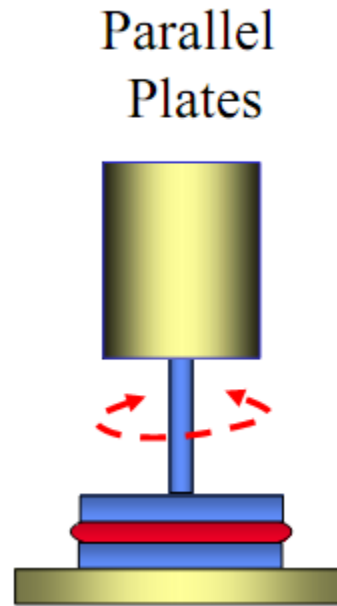
- Increase in ion concentration correlate with a decrease in the viscosity of mucus

■ Water

■ Cells and cell debris

■ Other Proteins

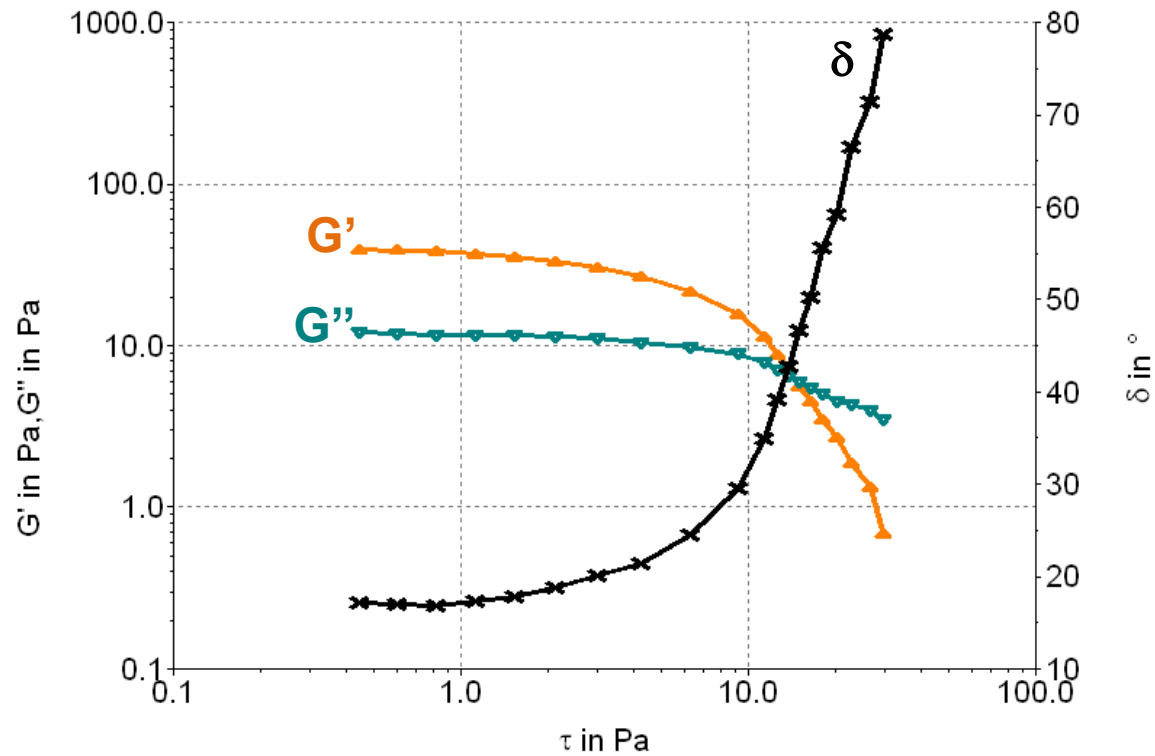
Measuring System - Rheometer



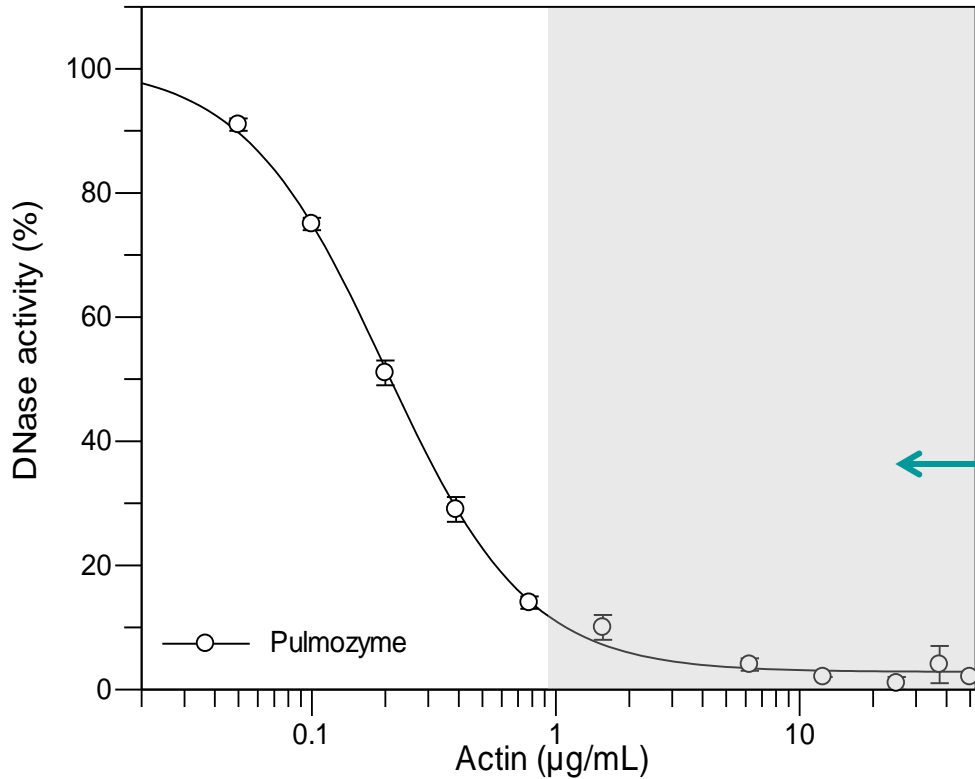
An oscillatory stress is applied to a sample ➡ The material response is measured

Rheological measurements

5 μ g DNase/gr sputum



Inhibition of DNase I Activity by Actin



Relevant concentrations of actin and DNase in human CF patients' sputa following treatment



Actin may influence the effectiveness of inhaled DNase I in CF patients' lungs

AIR DNase™ - Product Rationale

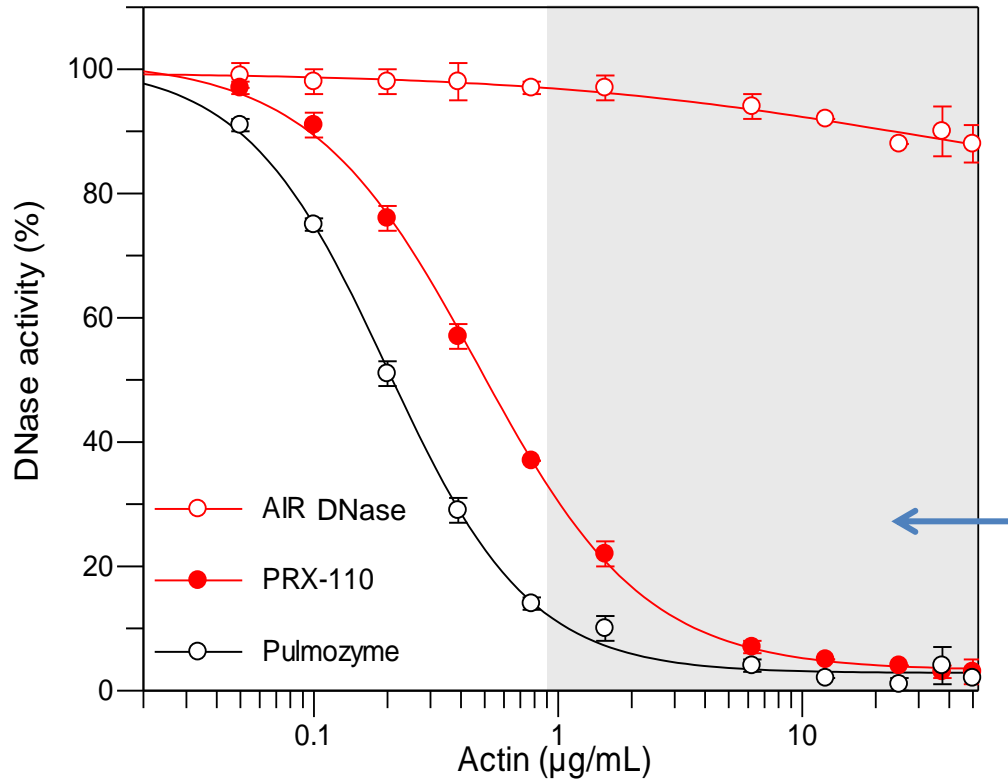
Protalix's aim:

- **To design a plant recombinant human DNase I resistant to actin inhibition, while maintaining enzymatic activity**
- **Potentially, AIR DNase will exhibit superior activity in breaking down extracellular DNA and lowering sputum viscosity**
- **Potential to improved lung function and lower incidences of infections in CF patients**

Actin Inhibition Resistance is achieved by chemical modification

DNase I Inhibition by Human Actin

Pulmozyme vs. AIR DNase™



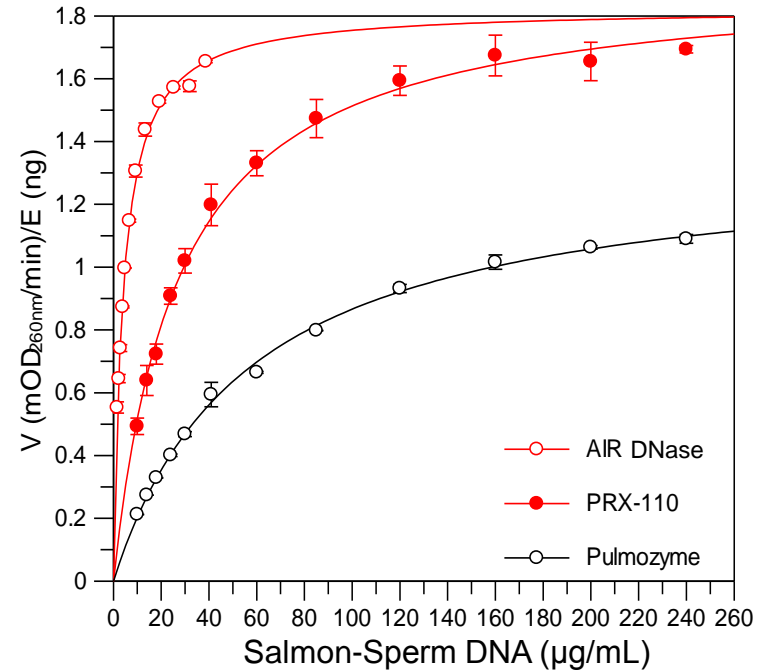
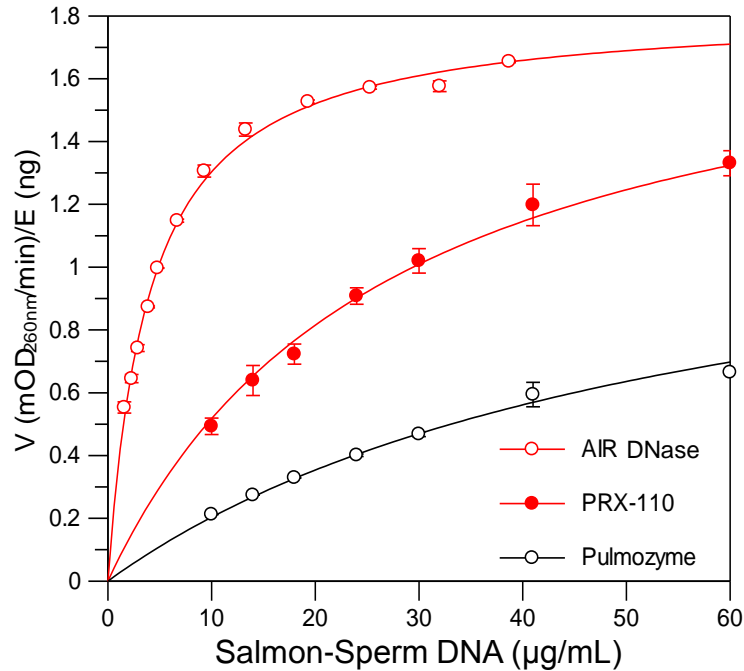
DNase I	IC ₅₀ (µg/mL)
AIR DNase	NA
PRX-110	0.47
Pulmozyme	0.2

Relevant concentrations of actin and DNase in human sputum, following treatment

AIR DNase exhibits resistance to actin inhibition compared to Pulmozyme in concentrations corresponding to those found in CF patients' sputa

Michaelis-Menten Kinetics

Pulmozyme vs. AIR DNase™

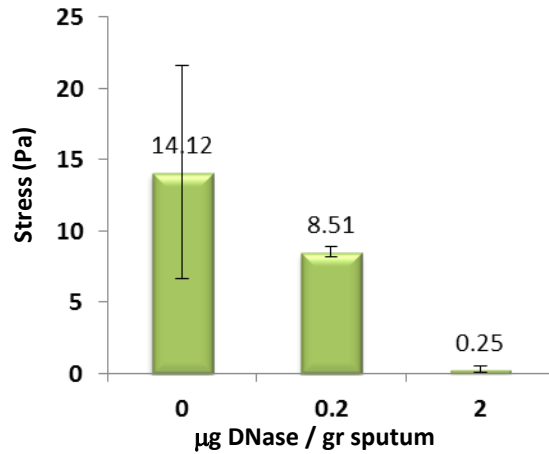


AIR DNase exhibits improved kinetic properties compared to Pulmozyme

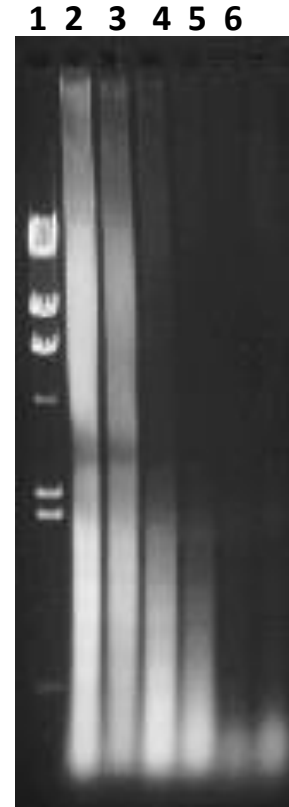
	V_{max} / E (mOD/min/ng DNase)	K_M (µg/mL)
AIR DNase	1.8	4.0
PRX-110	1.9	27.2
Pulmozyme	1.4	56.8

Dose Dependent Effect of AIR DNase™ on Sputum Rheological Properties, DNA Content and DNA Fragmentation

Sputum rheological properties

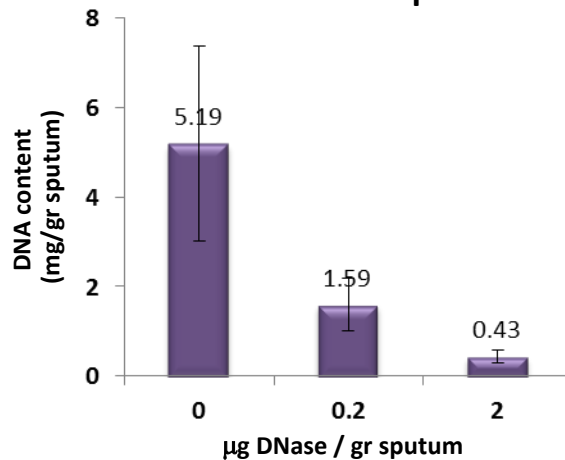


DNA fragmentation in sputum



1-2 AIR DNase formulation
3-4 AIR DNase - 0.2ug/gr sputum
5-6 AIR DNase - 2ug/gr sputum

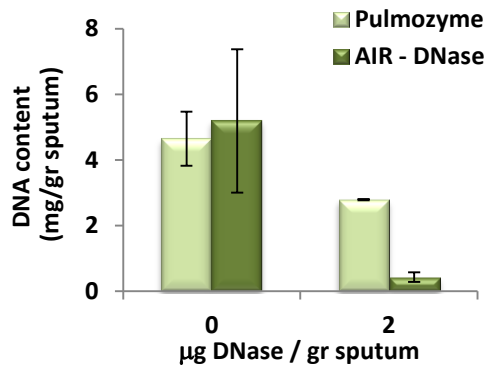
DNA content in sputum



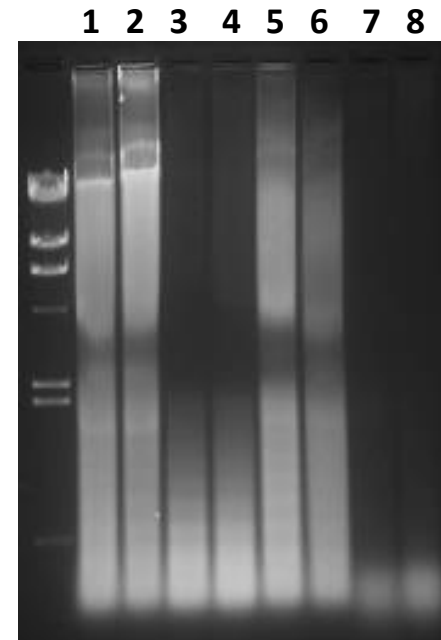
Effect of DNase I on Sputum Rheological Properties, DNA Content and DNA Fragmentation

AIR DNase™ vs. Pulmozyme

DNA content in sputum

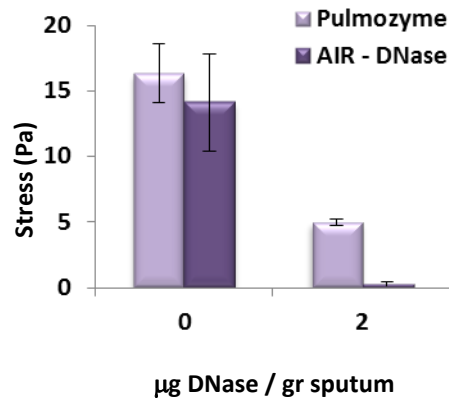


DNA fragmentation in sputum



1-2 Pulmozyme formulation
 3-4 Pulmozyme - 2 µg/gr sputum
 5-6 AIR DNase formulation
 7-8 AIR DNase - 2 µg/gr sputum

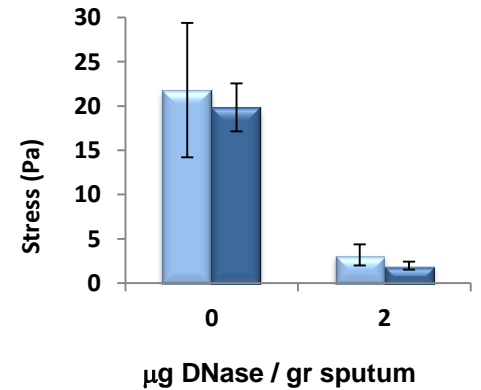
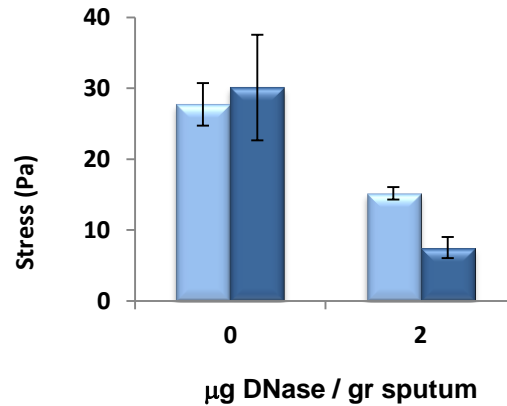
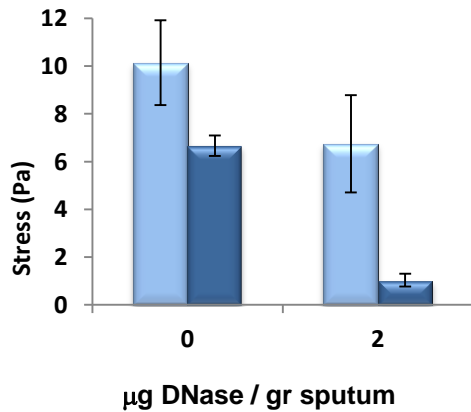
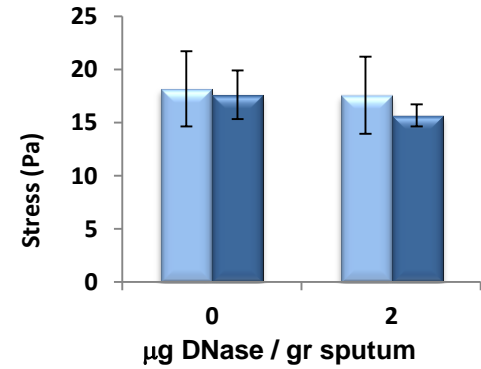
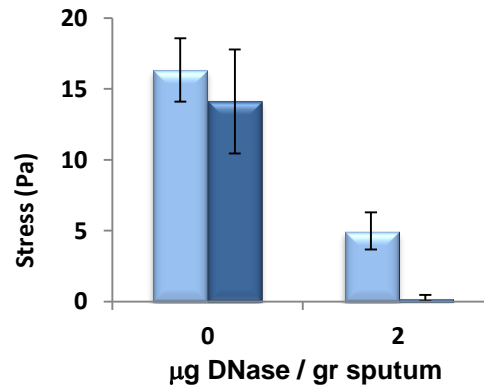
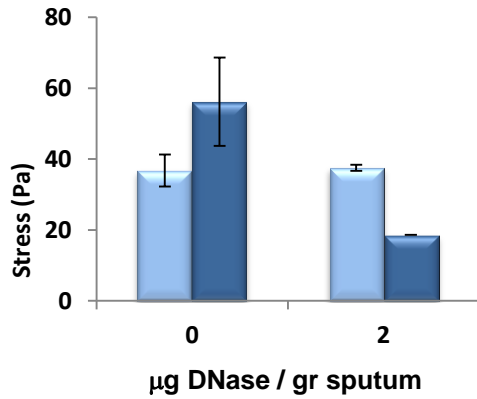
Sputum rheological properties



AIR DNase shows enhanced DNA fragmentation and enhanced disruption of sputum elastic structure compared to Pulmozyme

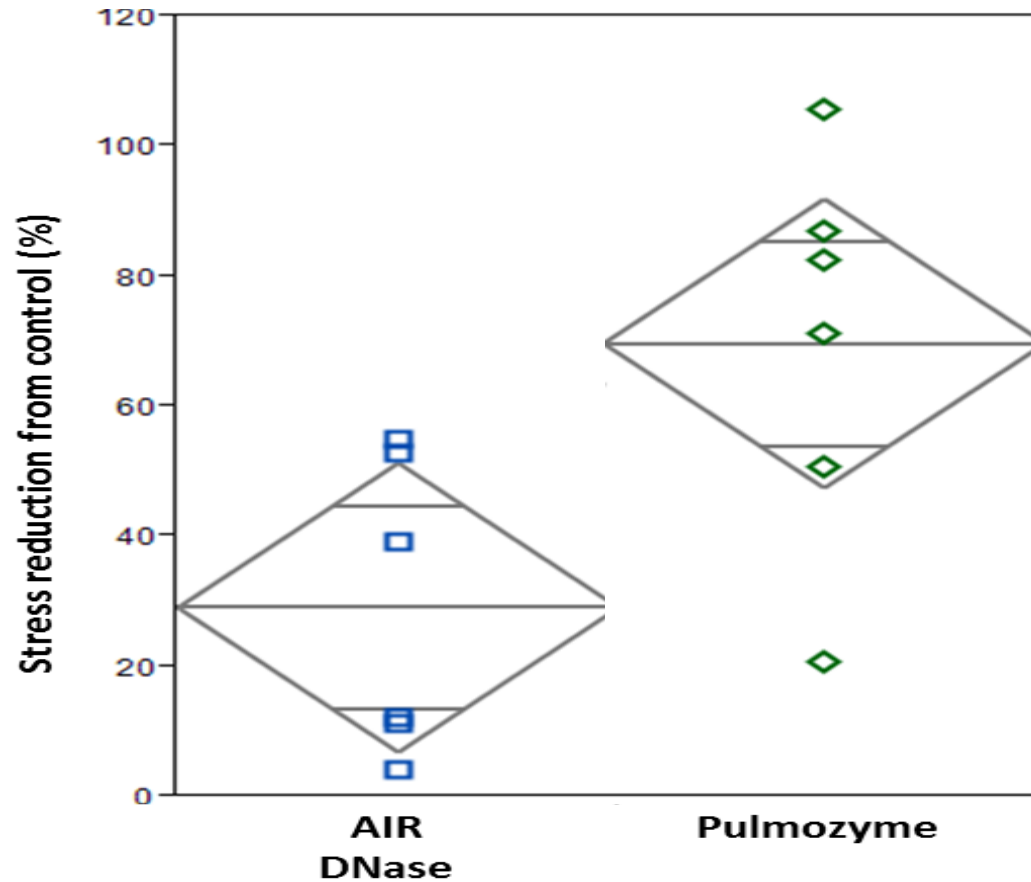
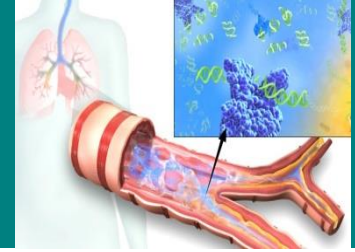
Effect of DNase I on Sputum Rheological Properties

AIR DNase™ vs. Pulmozyme



■ Pulmozyme ■ AIR DNase

Rheology Data Analysis in Human Sputum Samples



AIR-DNase™ Clinical Development Plan



- **Toxicology studies (rats & monkeys) to support initial clinical development - completed**
- **Phase I in healthy volunteers - H2/2015**
- **Proof-of-concept safety and efficacy clinical study with CF patients to commence soon after the completion of the Phase I**

Summary

- AIR DNase exhibits **resistance to actin inhibition**, compared to Pulmozyme, in concentrations corresponding to those found in CF patients' sputa
- AIR DNase exhibits **improved kinetic properties**, compared to Pulmozyme
- Ex-vivo efficacy study shows **greater efficiency of AIR DNase** compared to Pulmozyme by reducing sputum viscoelasticity and DNA content
- AIR-DNase has the potential to show superior activity for treating CF patients
- This novel treatment may result in improved lung function and lower recurrent incidences of infections in CF patients