

# **Non-Invasive LuCED<sup>®</sup> Test for Endobronchial Dysplasia, Enabling Chemoprevention Therapy with Drugs Such as Iloprost**

Meyer, Katdare, Presley, Wilbur, Steinhauer, Liang, Zulueta, Keith, Miller, Franklin, Yang, Hayenga,  
Nelson

## **VisionGate Produces the LuCED Test**

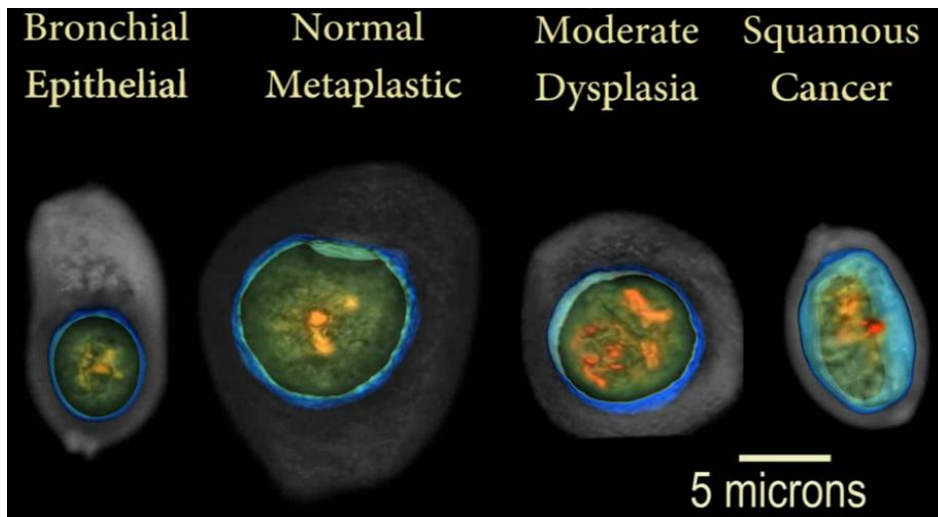
**The presenter is the CMO of VisionGate who receives compensation and owns stock**

## Chemoprevention Dilemma

- Iloprost reverses lung dysplasia to prevent precursor lesions from progressing to a malignant state<sup>1</sup>
- Endobronchial dysplasia is not detectable by LDCT
- Non-invasive triage for dysplastic lesions cannot be managed with current methods

I. Keith et. al. Oral Iloprost Improves Endobronchial Dysplasia in Former Smokers. *Cancer Prevention Research*. 2011;4(6):793-802.

# Dysplasia Detection with LuCED



Images of Cell Sections as Rendered by the Cell-CT

## Cell-Based Dysplasia Classifiers

- LuCED detects cell morphometric bio-signatures
- Cell transformation in carcinogenesis is marked in defined steps
- Hypothesis:
  - Cell classifiers may be trained to differentially detect dysplasia

# Differential Cell Classification

## Dysplasia Classifier

Dysplasia vs. Cancer/Normal

Training:

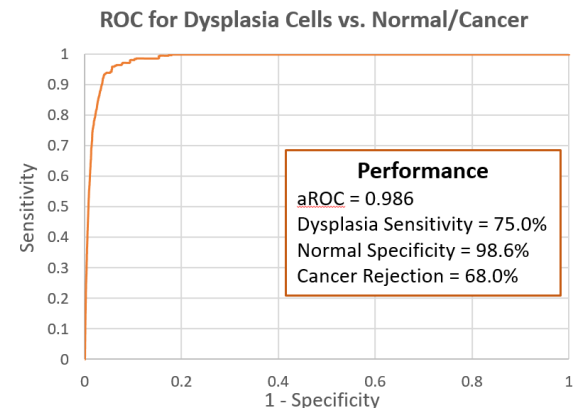
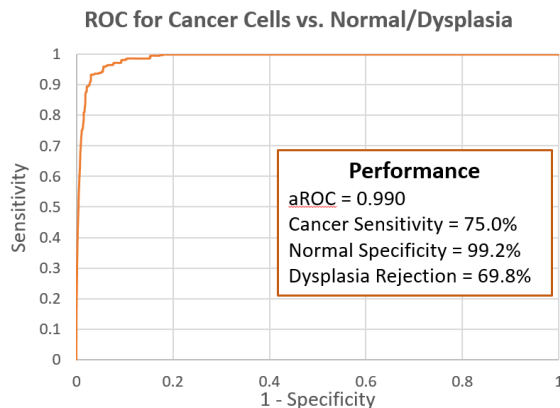
- 88,137 Normal/Cancer
- 686 Dysplasia

## Cancer Classifier

Cancer vs. Dysplasia/Normal

Training:

- 87,376 Normal/Dysplasia
- 1,399 Cancer



# Case Level Outputs

## *To Demonstrate LuCED Efficacy as a Liquid Biopsy*

←  
Degree of Histology (Snip

Cell Count	Normal Case	Dysplastic Case - Mild	Dysplastic Case - Severe	Cancer Case
Normal	H	M	M	M
Dysplasia	L	M	H	M
Cancer	L	L	M	H

**Trajectory Under Iloprost Therapy**

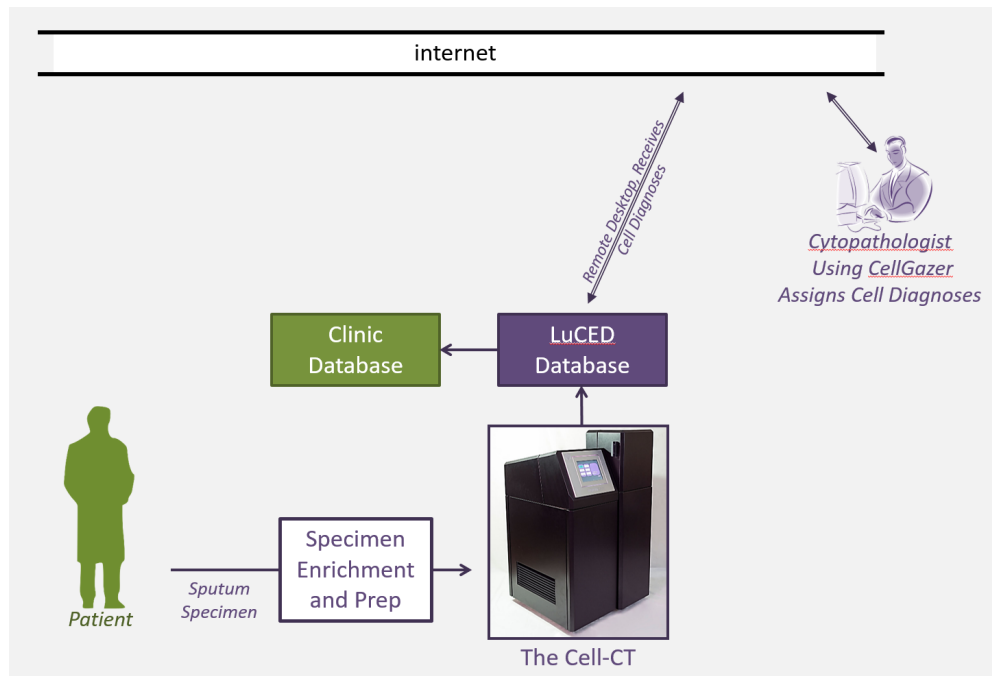
## Clinical Deployment

### Detection of Lung Cancer

- LuCED to process incidentally discovered nodules
- LuCED adjunct to LDCT to reduce false positives
- Primary screening ahead of LDCT

### Chemo-prevention Therapy

- Non-invasive detection of dysplasia
  - Differential sensitivity to:
    - Normal cells
    - Cancer precursor cells
    - Malignant cells
- Verified through comparison with biopsy



# Summary

## The Promise of Chemoprevention of Lung Cancer: Enabled Using LuCED to Detect Dysplasia Non-invasively