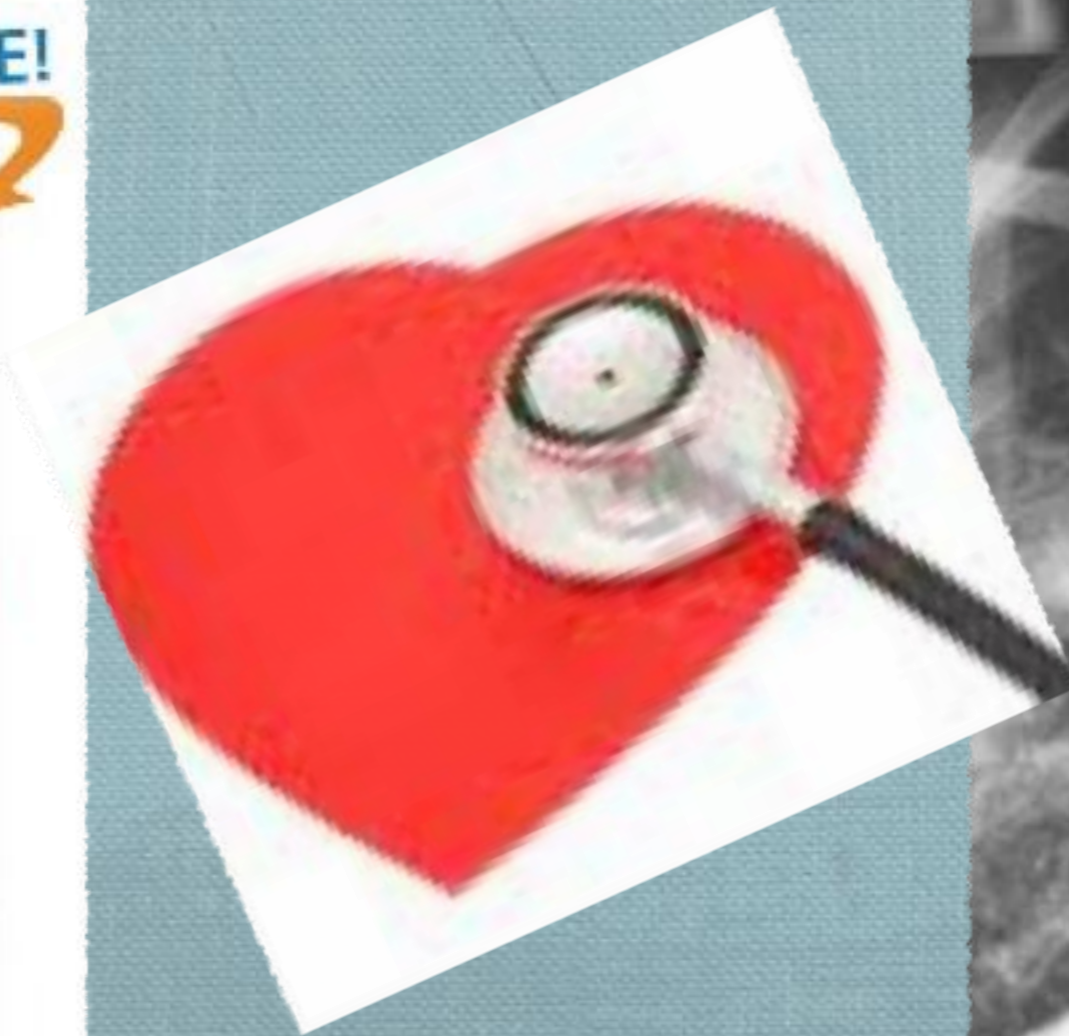
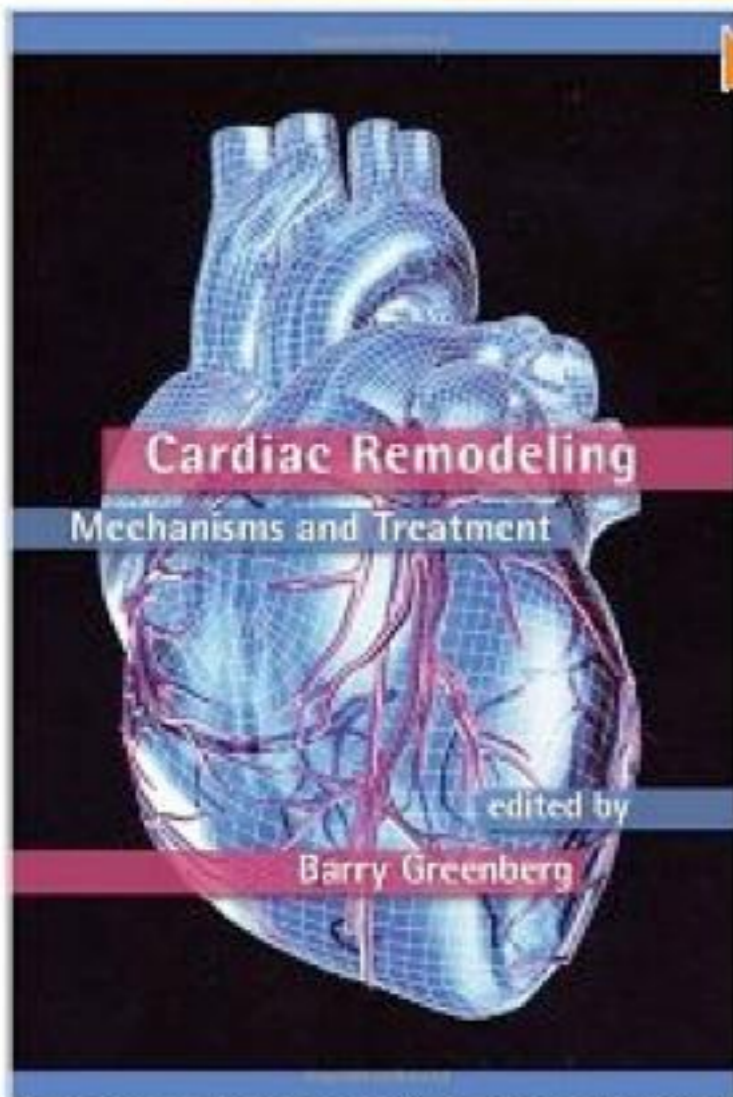


Click to **LOOK INSIDE!**



***How to understand and prevent the development of
cardiac and pulmonary fibrosis:
The Use of mouse model***

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*Assistant Professor
Medicine/Cardiology*

The Barshop Institute for Longevity and Aging Studies

Impact of cardiovascular diseases

1.2 million Americans have a heart attack every single year

Cardiovascular disease is the # 1 cause of death in the U.S.

Major risk factors are:

Lipid levels

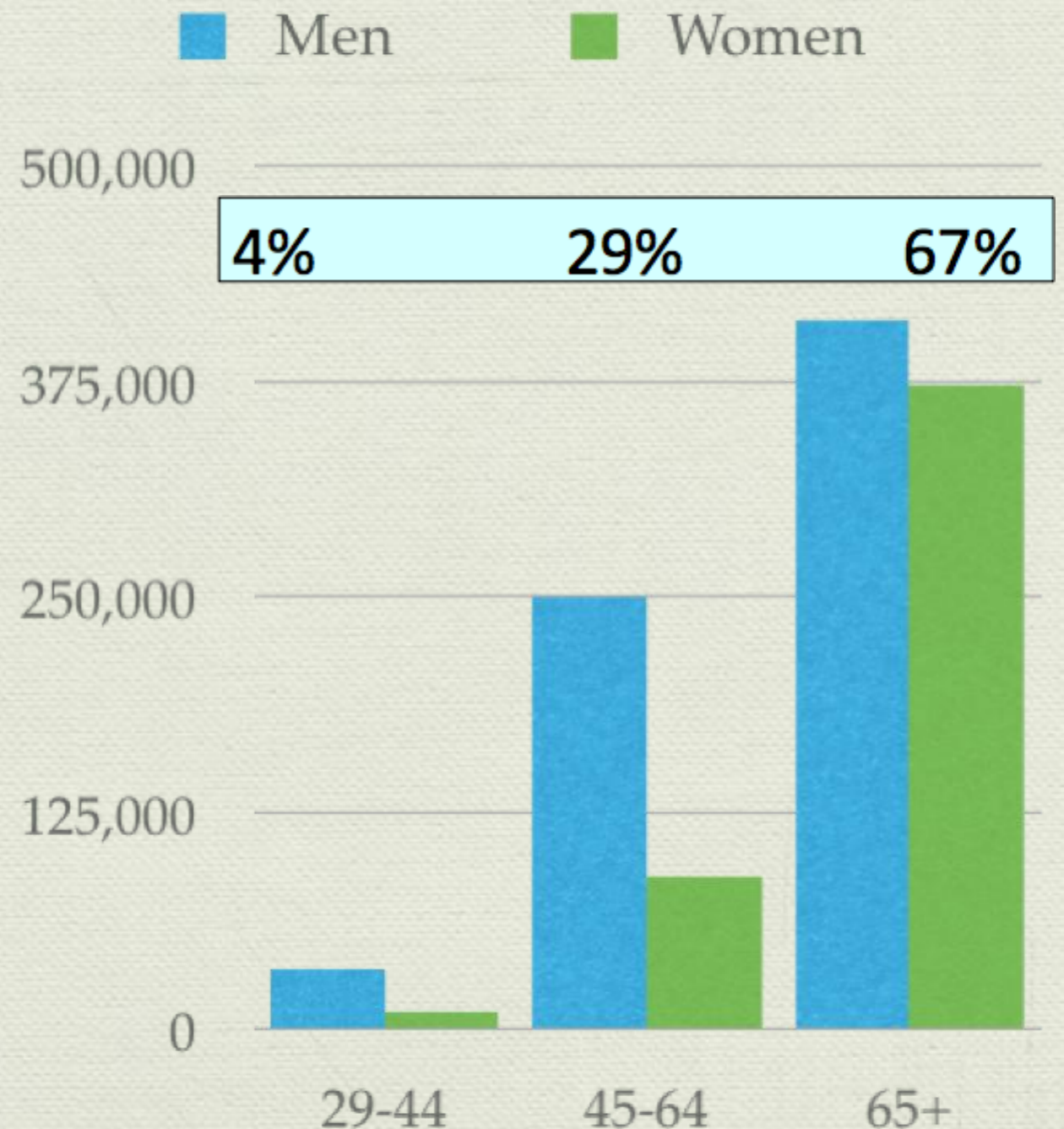
Diabetes

Sedentary lifestyle

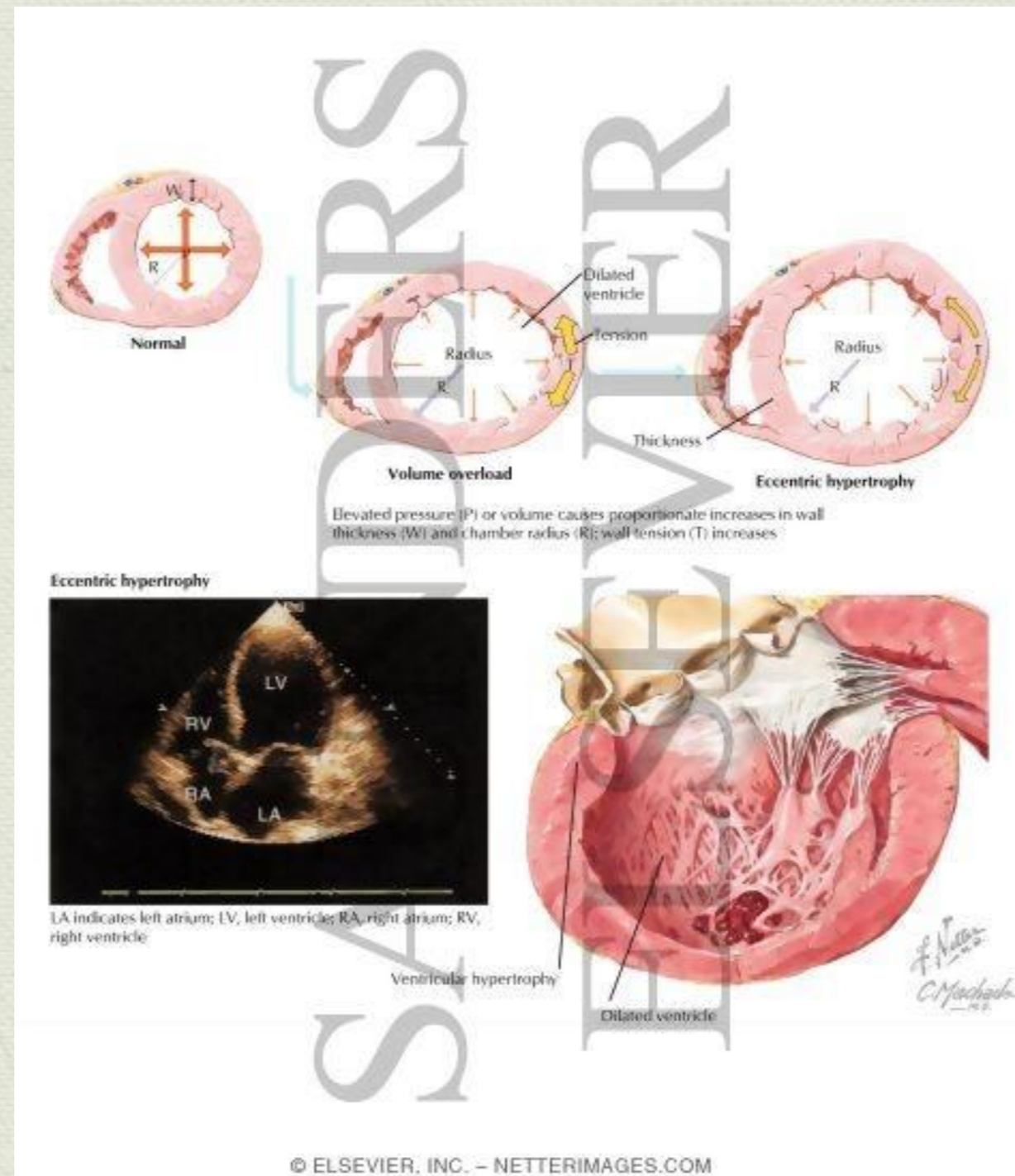
Genetic factors

Smoking

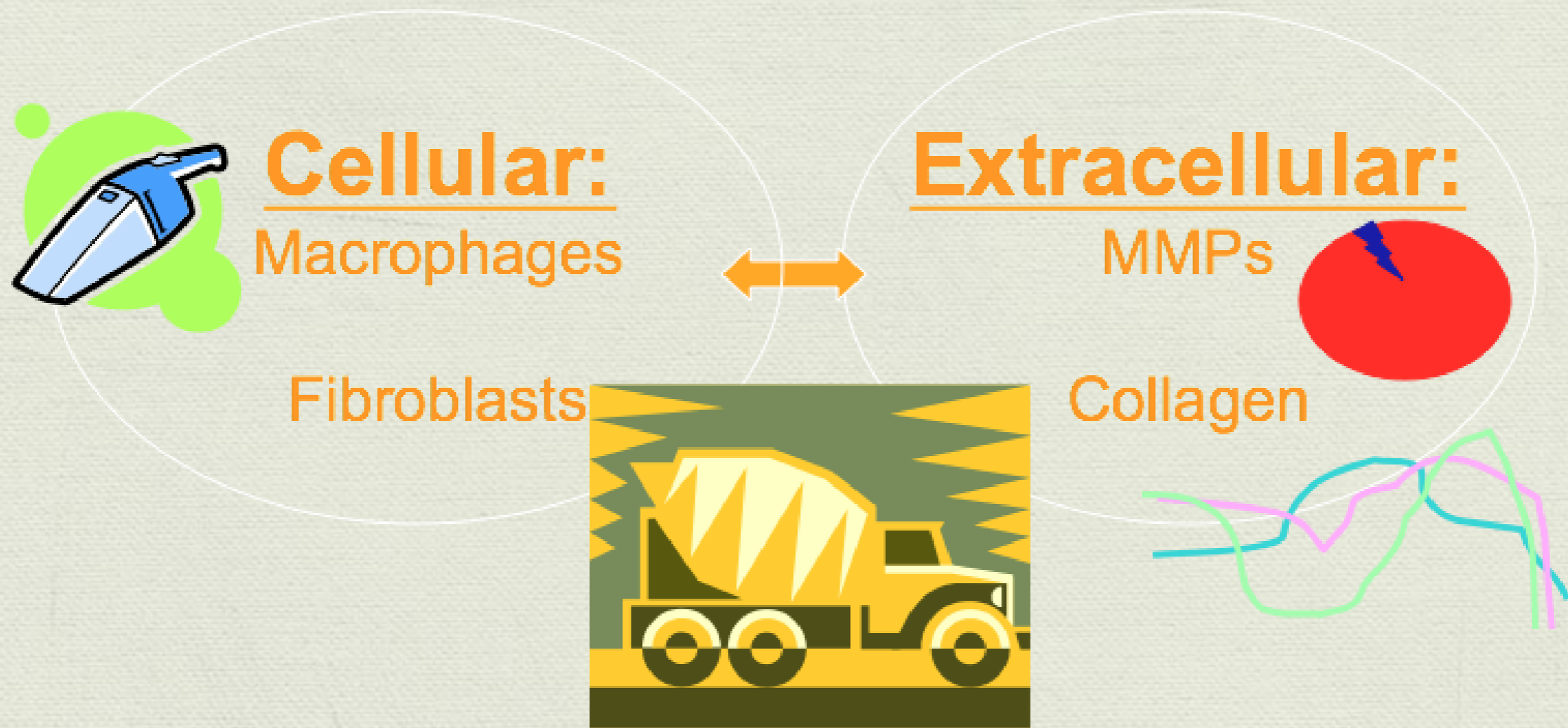
AGE



What is cardiac remodeling?



Components of LV remodeling



Can we predict cardiac remodeling?

Patients with same MI size

~75%



Reinforced infarct scar

~25%

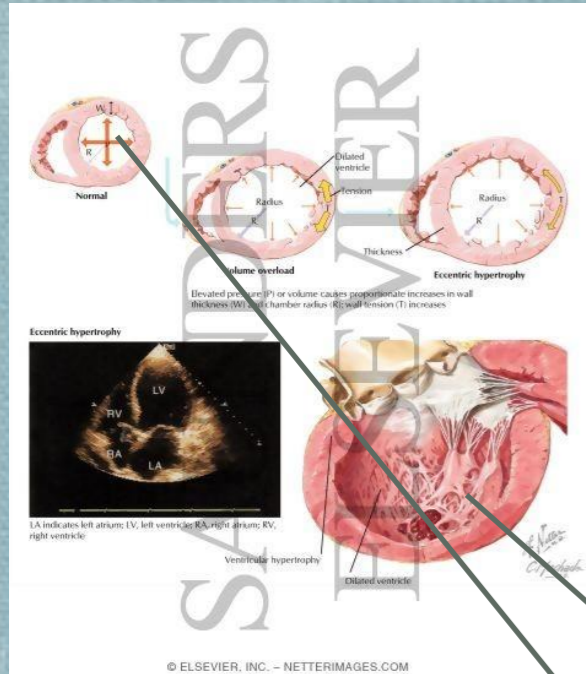


Adverse LV remodeling
Progressing to heart failure

The 5-year mortality rate for
heart failure is 50%

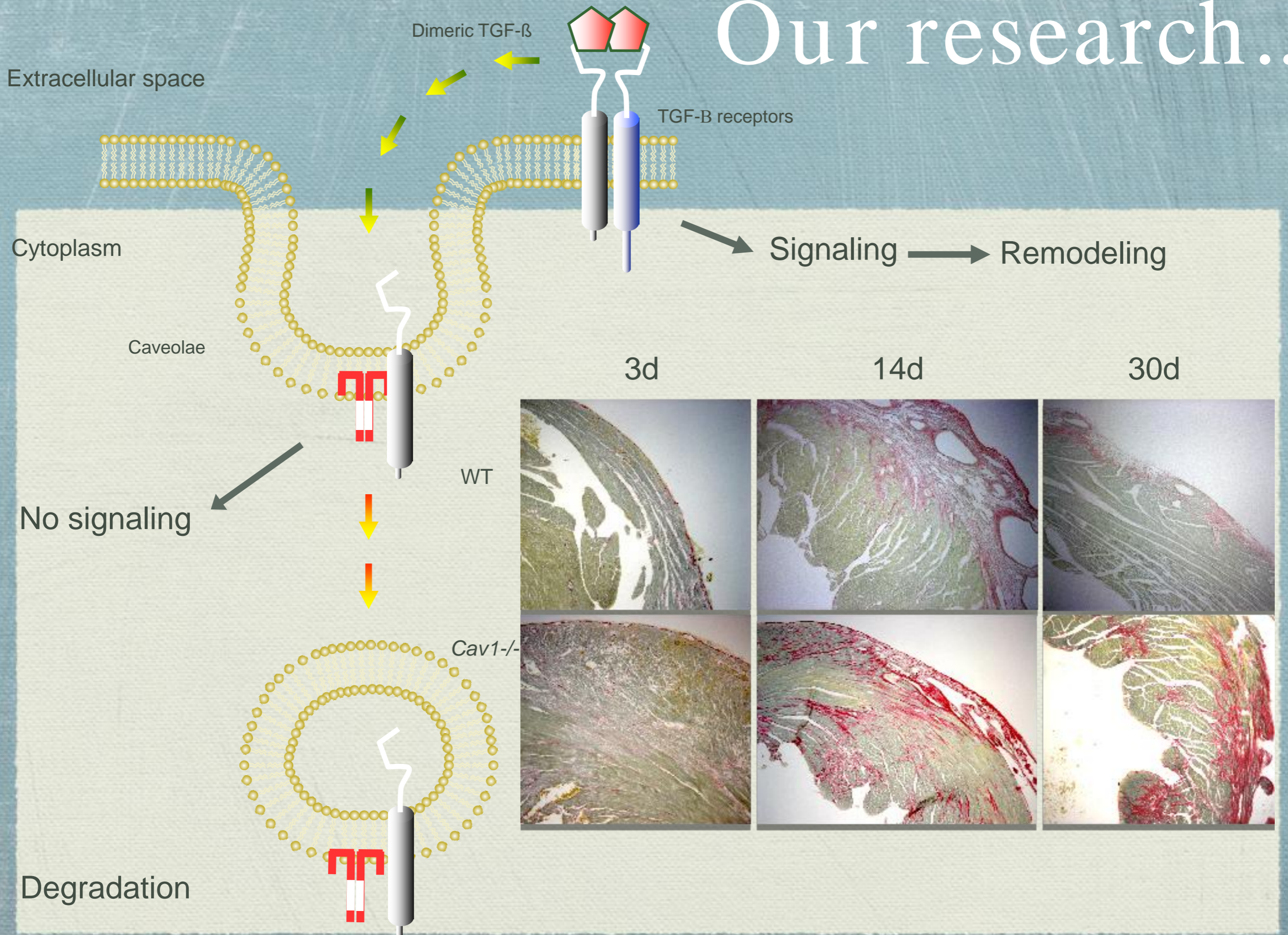


Use of mouse models to understand

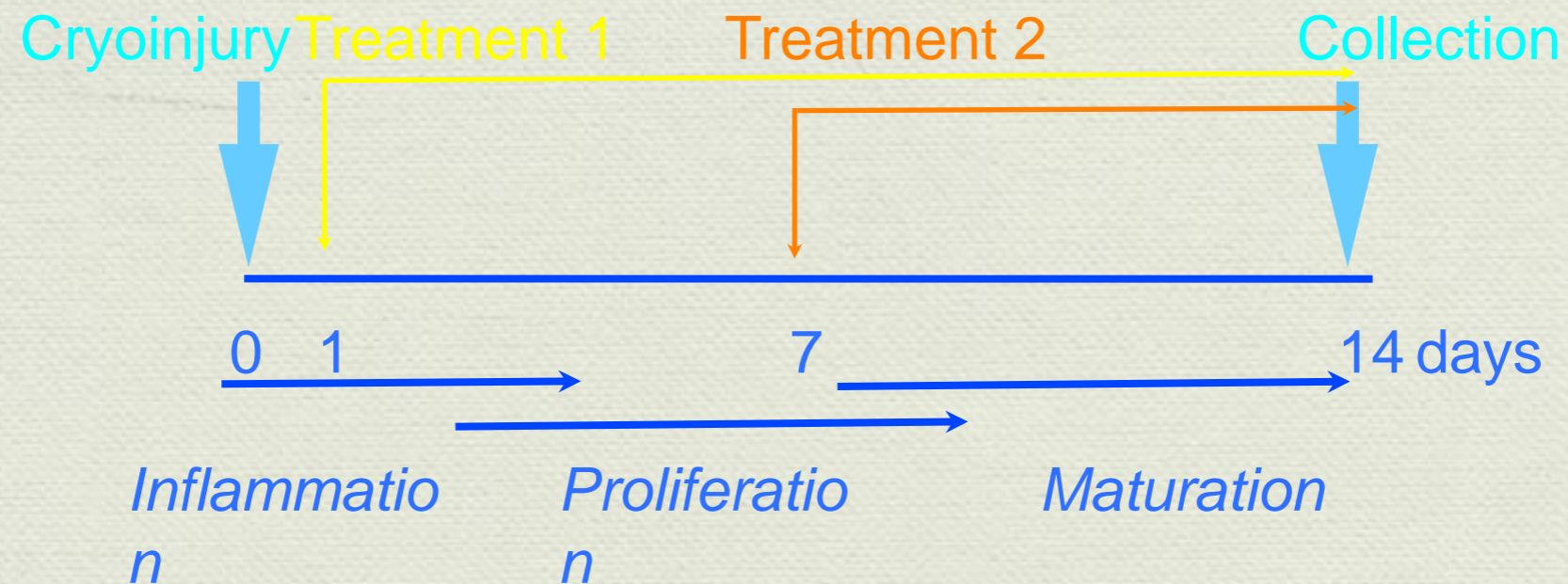


Courtesy of Dr. Merry Lindsey

Our research...



Use of mouse models to develop new therapy



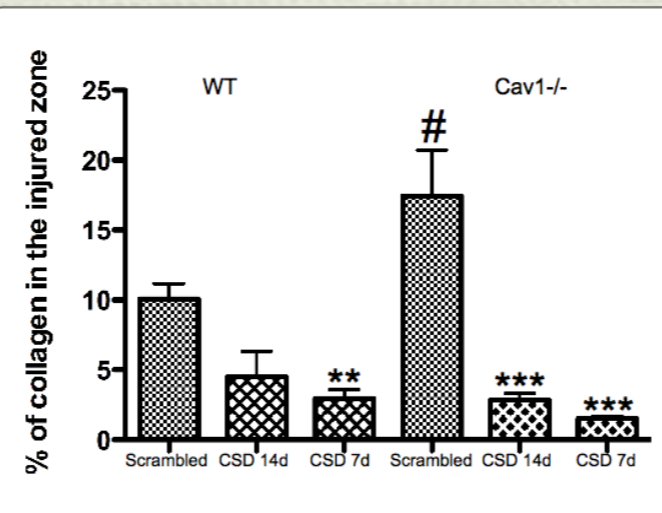
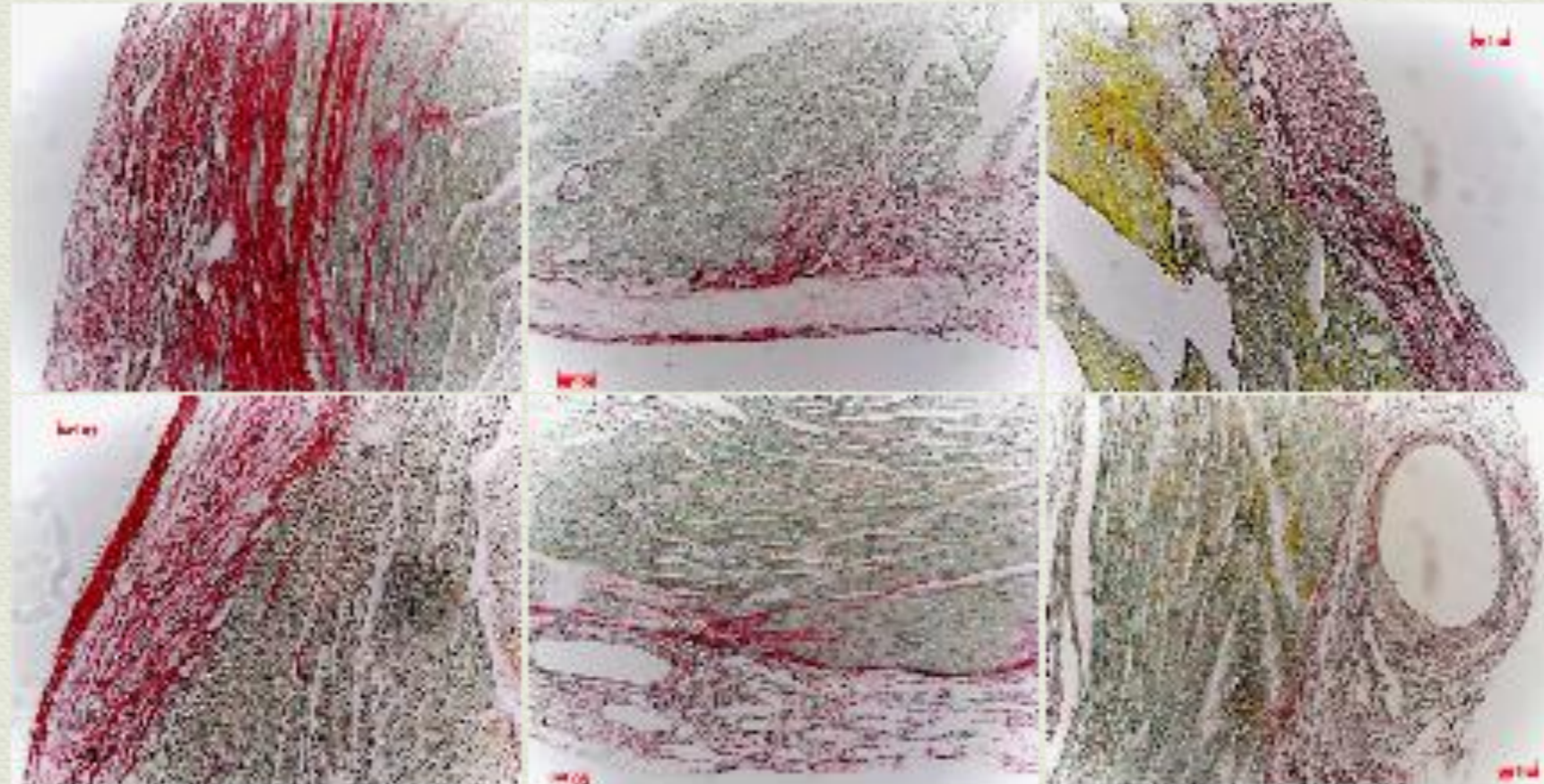
scrambled
peptide

cav1 scaffolding
domain peptide
14d long
treatment

cav1 scaffolding
domain peptide
7d long
treatment

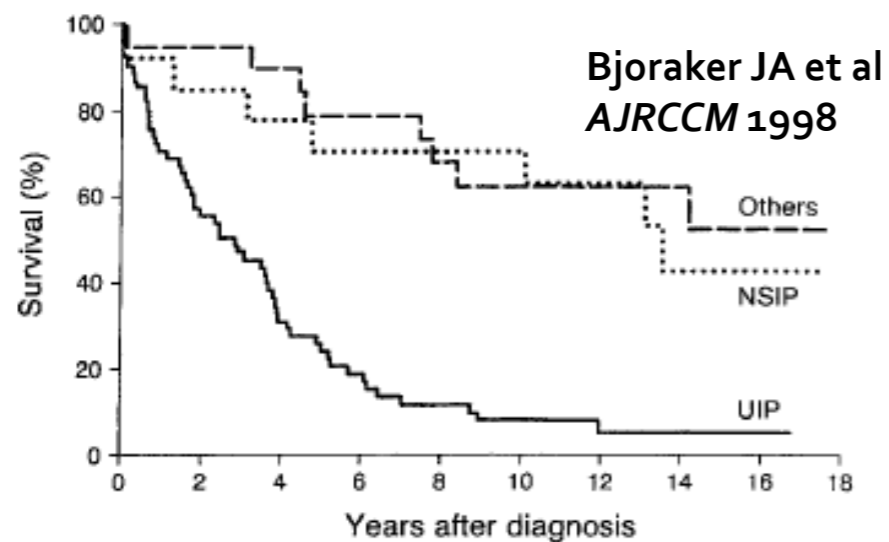
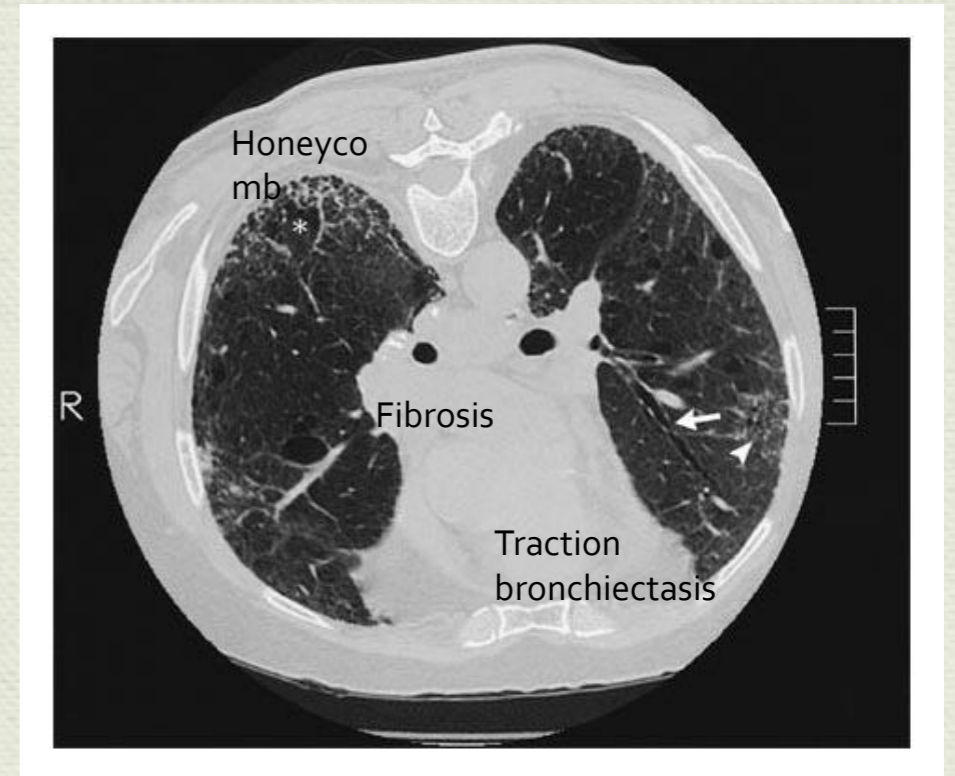
WT

Cav1^{-/-}



Lung Fibrosis

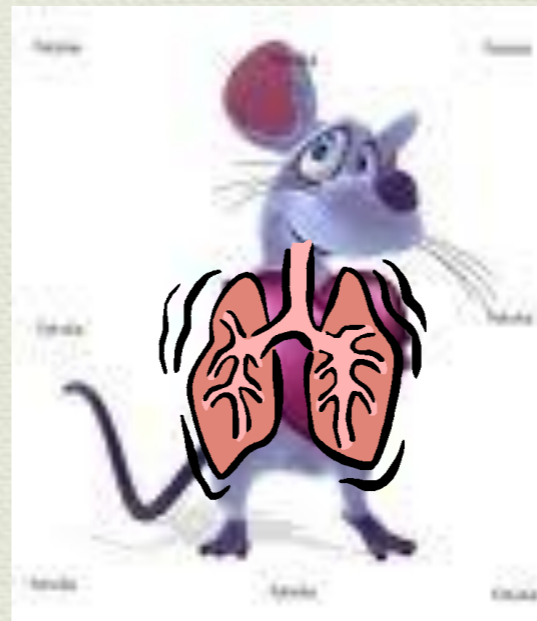
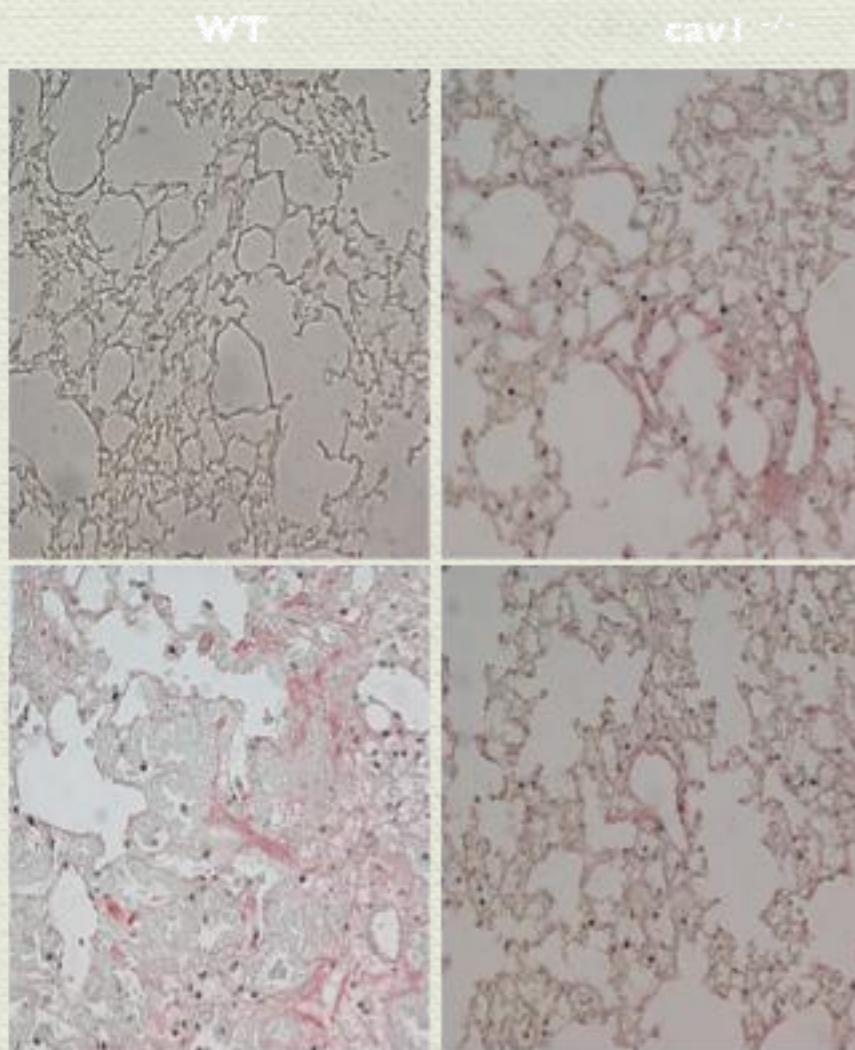
- Shortness of breath, cough
- 50-60 years old, men > women
- Infiltrates on chest x-ray
- Impaired gas exchange
- Poor prognosis (50% with 3-5 years)



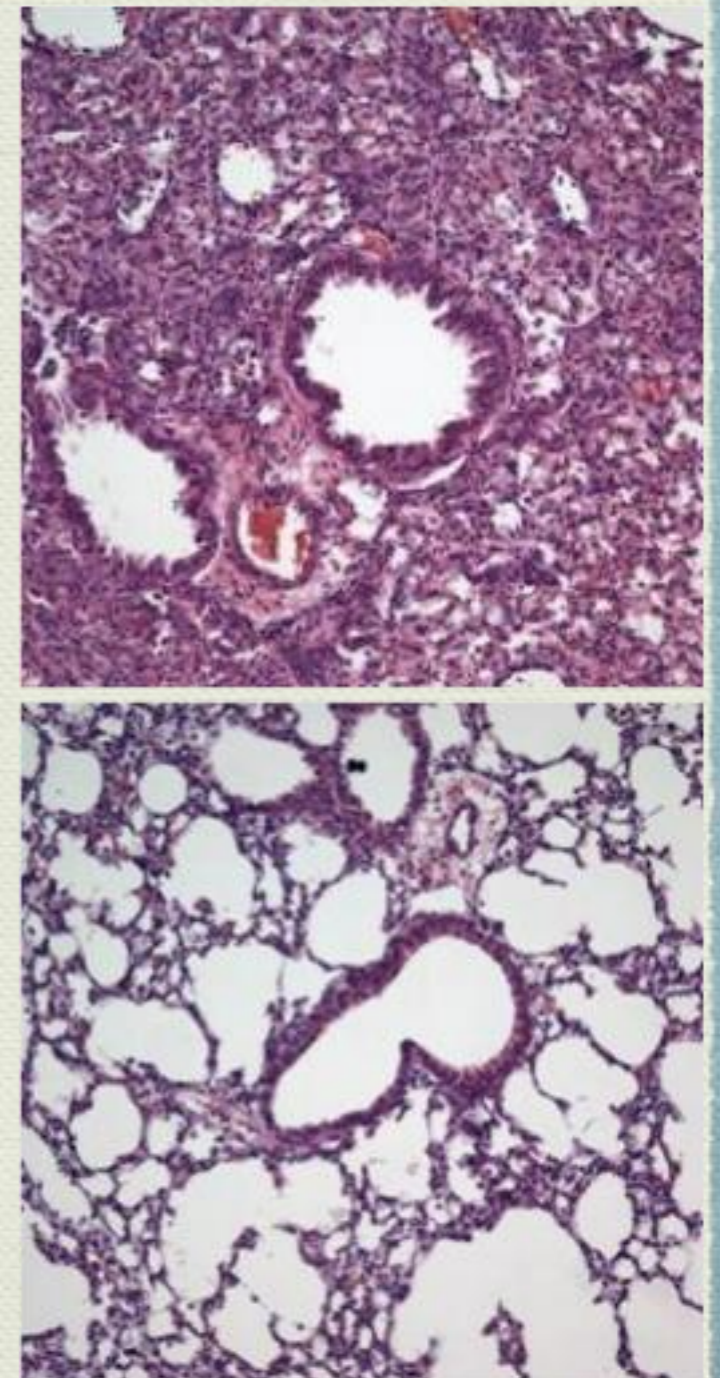
No treatment!
No biomarkers!

Development of therapeutic strategies

What is role of caveolin-1 driven senescence in lung fibrosis development. Could we use cav1 peptide as a therapeutic strategy?



Telomerase activator as potential treatment for lung fibrosis



Translational Research

◆ Cardiac Project

◆ Human specimen

◆ Cardiothoracic Surgeons

◆ Immunologists

◆ Lung Project

◆ Finding new biomarkers

◆ Collagen degradation products

◆ Screening for new treatments

◆ new compound

◆ existing drugs

Acknowledgment

◆ Cardiac Project

◆ UTHSCSA

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◆ Outside

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◆ *Dr. R. xShohet (UH)*

◆ Lung Project

◆ UTHSCSA

◆ *Dr. J. Peters*

◆ *Dr. A. Richardson*

◆ *Dr. C. Orihuela*

◆ Outside

◆ *Dr. H. Chapman (UCSF)*

◆ *Dr. Thannickal (UAB)*

◆ *Dr. Tam (UH)*