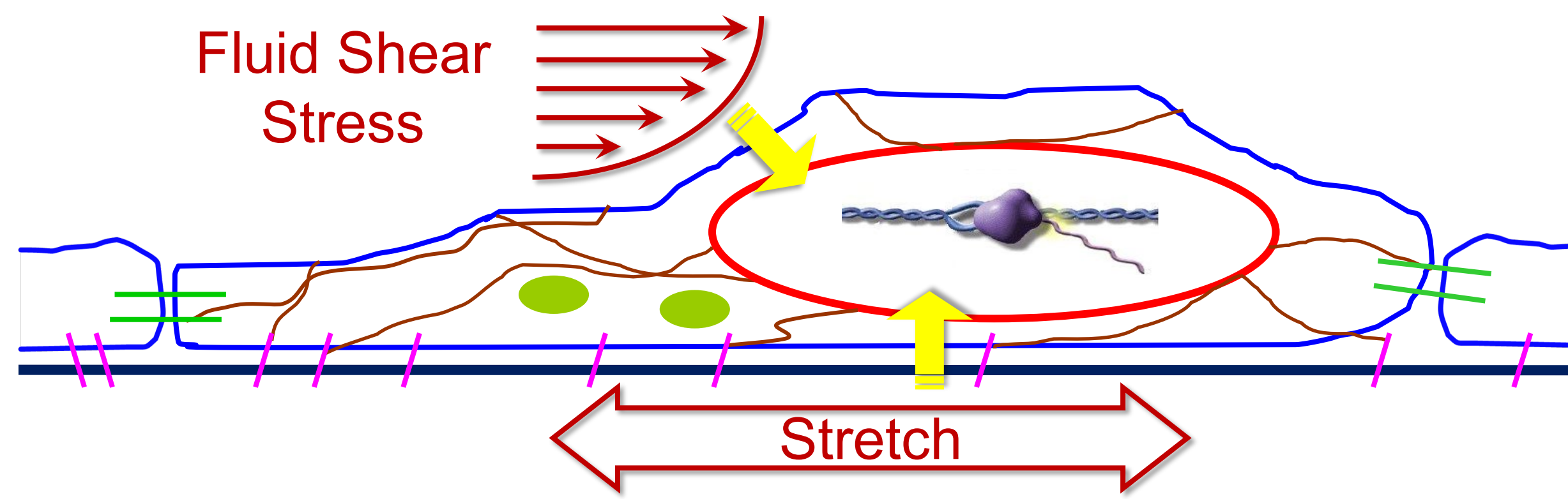




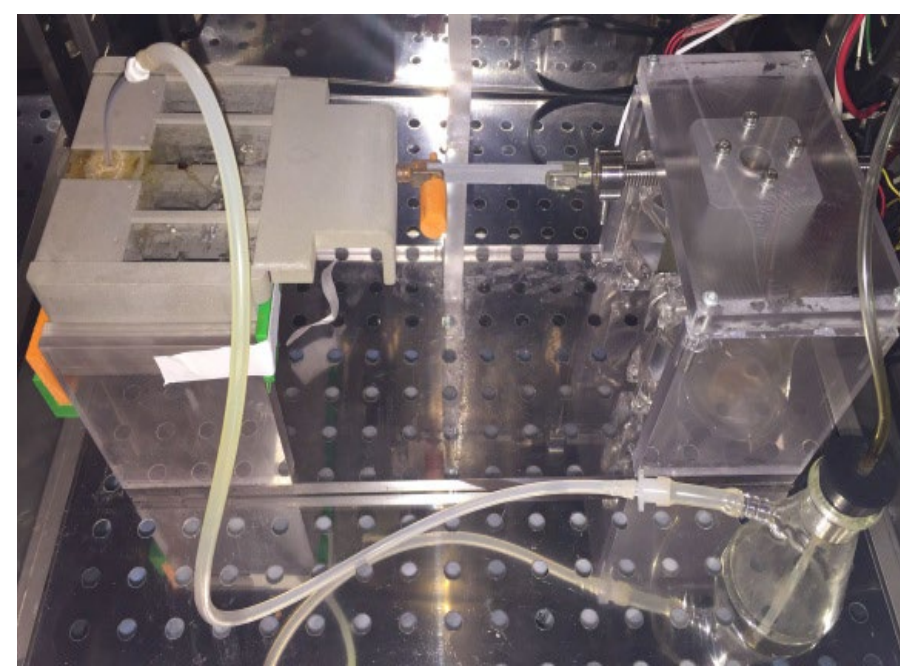
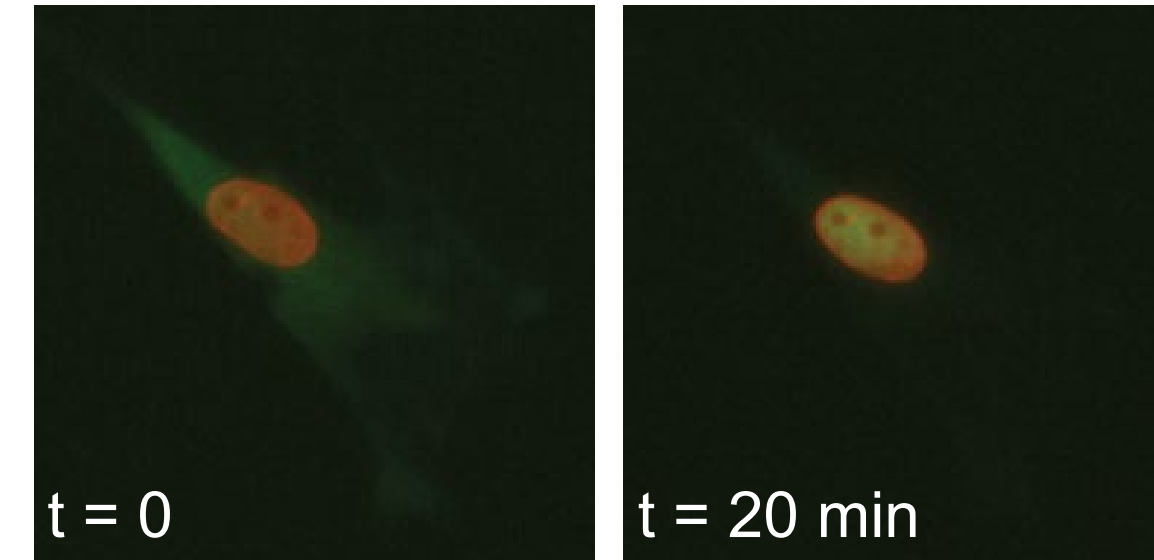
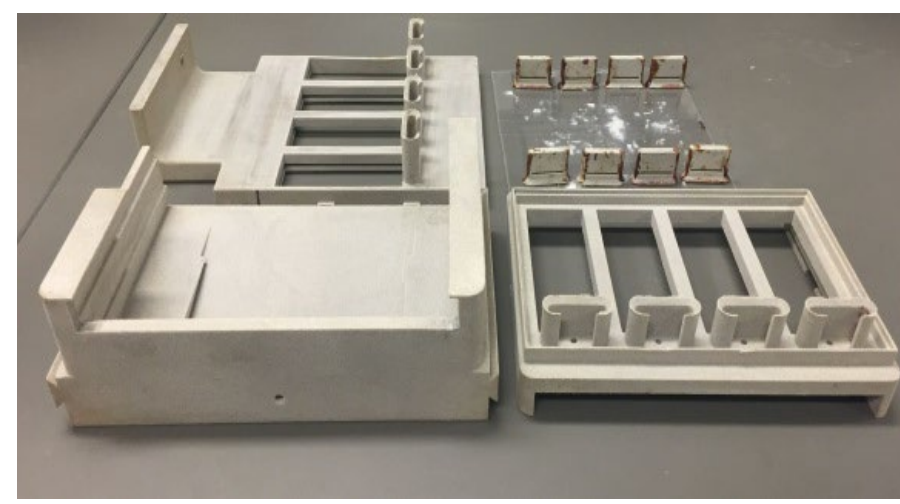
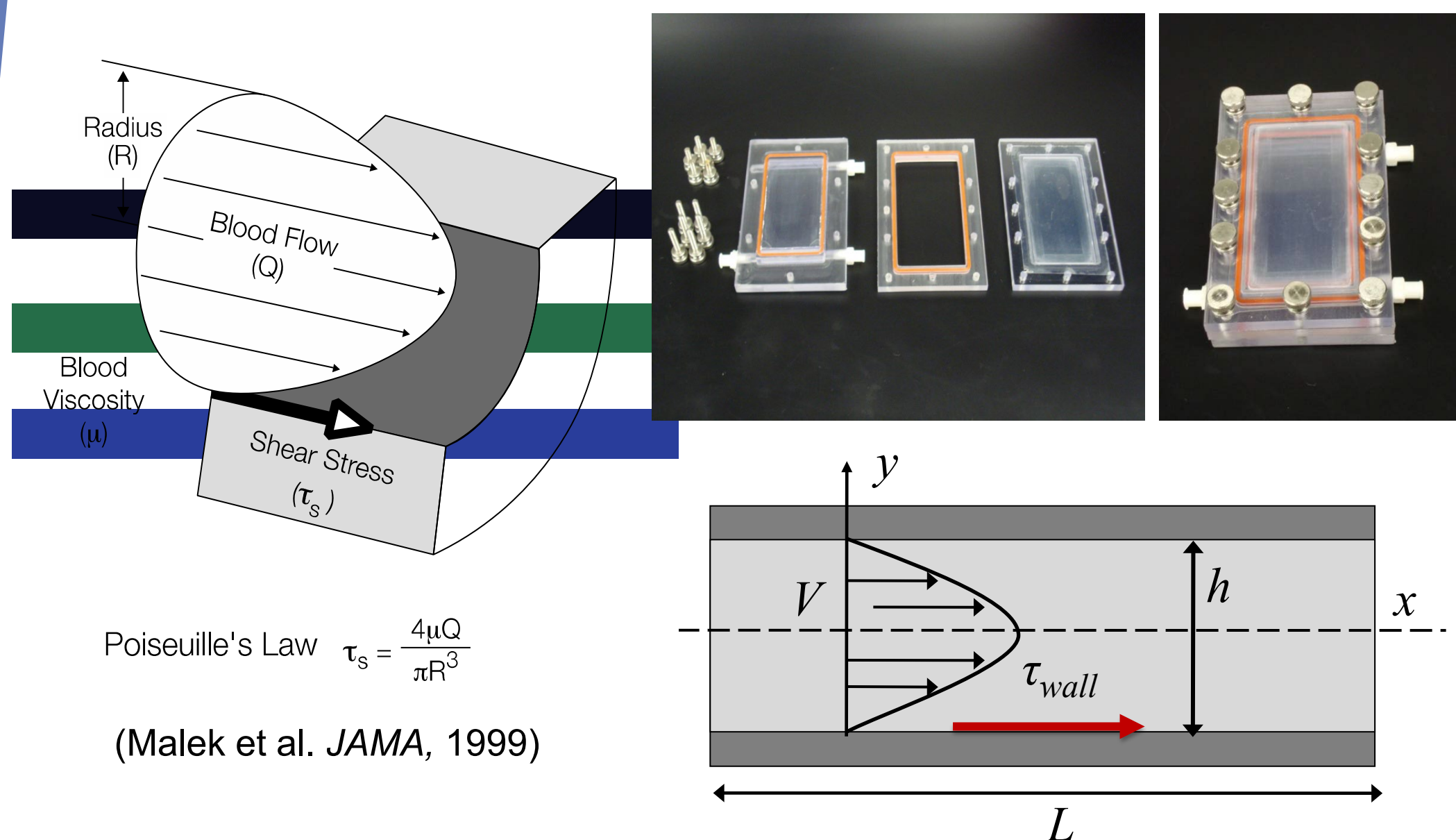
# Vascular Cellular Mechanics Lab

**Research Interests:** Cells exist in a mechanically active environment. Our group is interested in understanding how various mechanical and biochemical signals can influence cell functions.

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Associate Professor  
Director of the Graduate Program  
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## Engineering and design of devices for mechanical studies

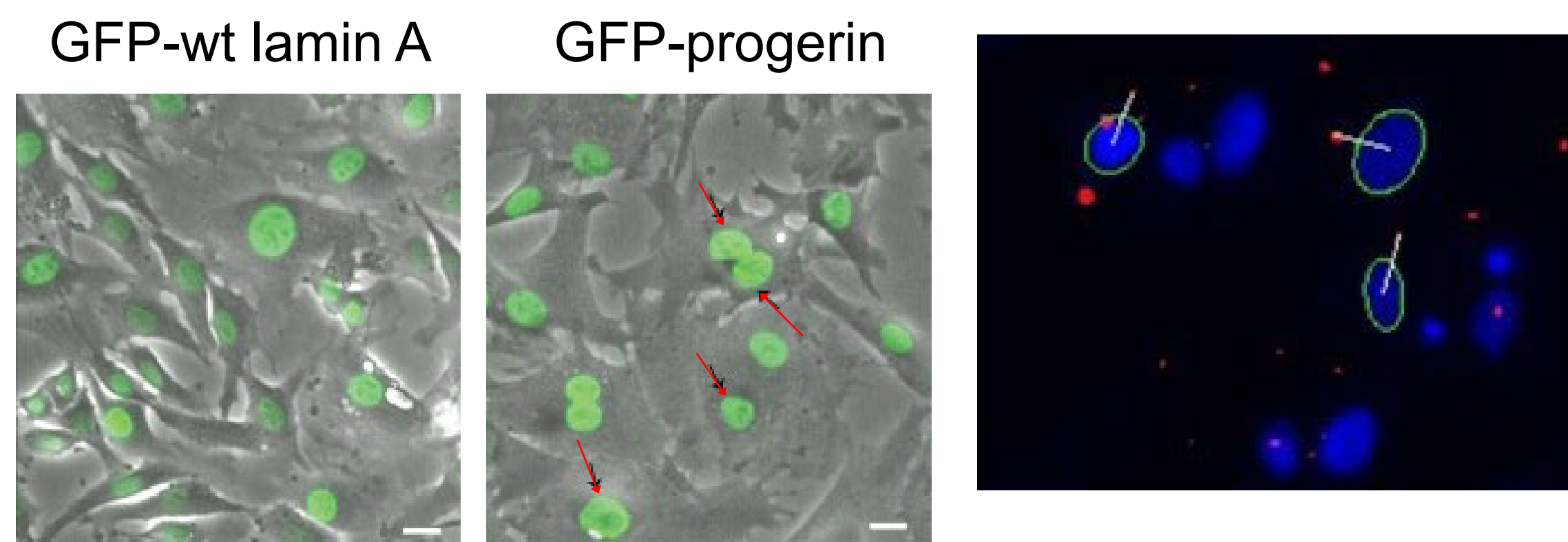


Mechanical shear stress alone on endothelial cells activate nuclear hormone receptors to nuclear localize in the absence of its natural ligand.

## The role of nuclear lamina in mechanotransduction

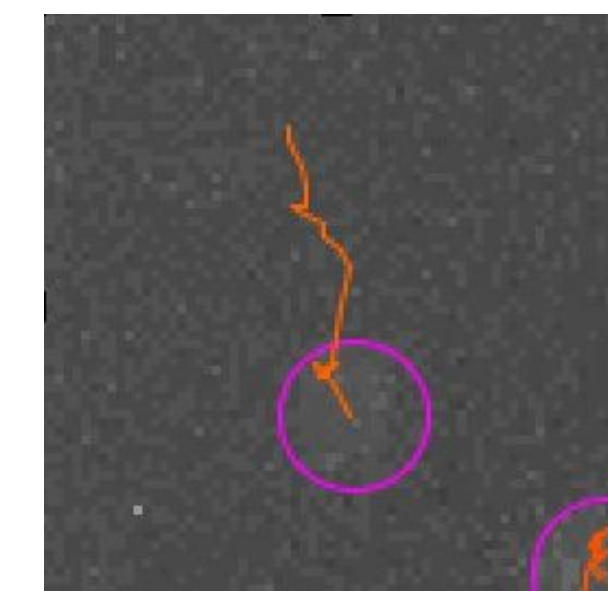
### To use bioengineering tools to understand:

- Cardiovascular disease such as atherosclerosis
- Endothelial mechano-biology
- Role of nuclear lamin in mechanotransduction and the vascular aging process



## Progerin and vascular aging: the role of nuclear lamina

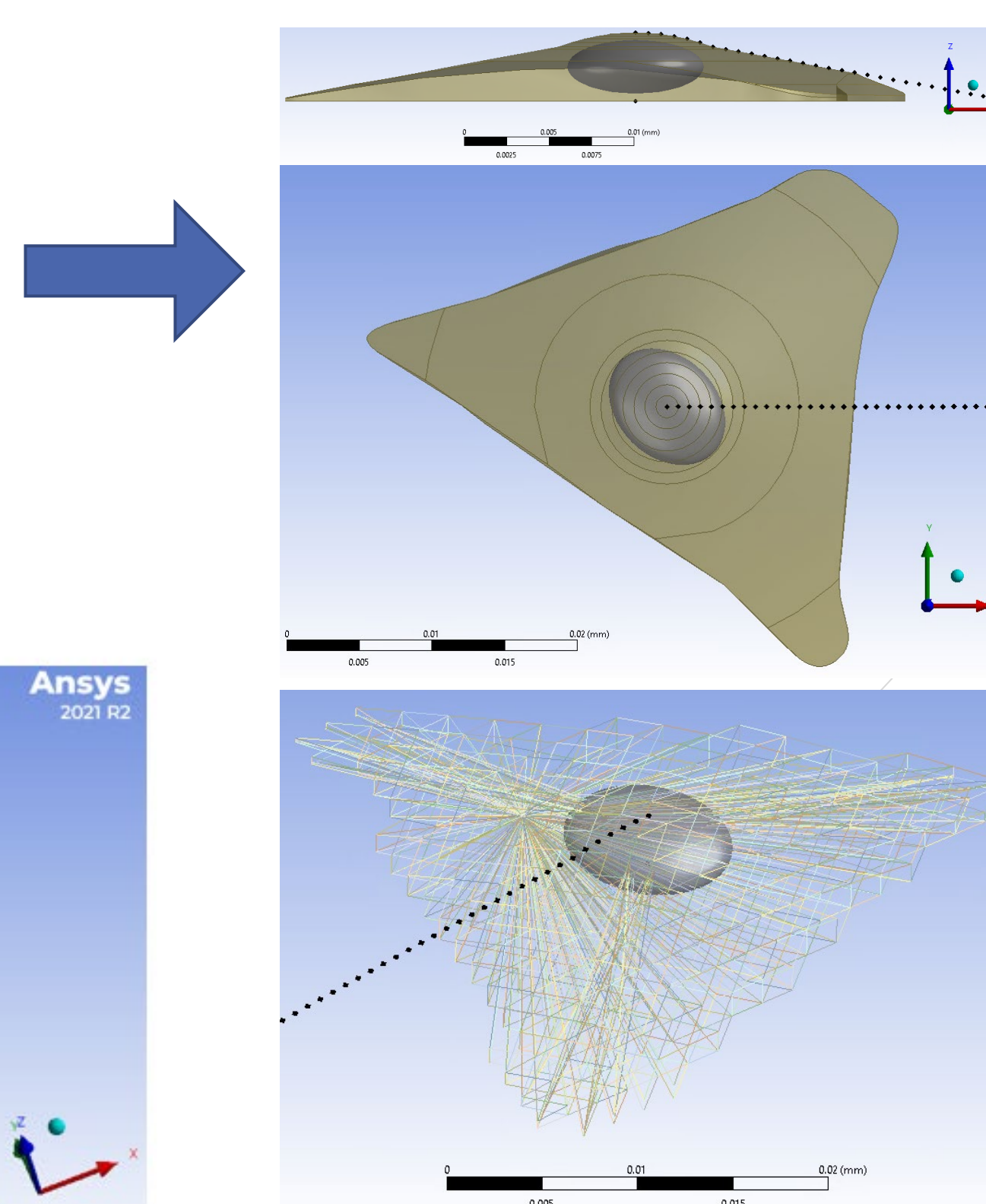
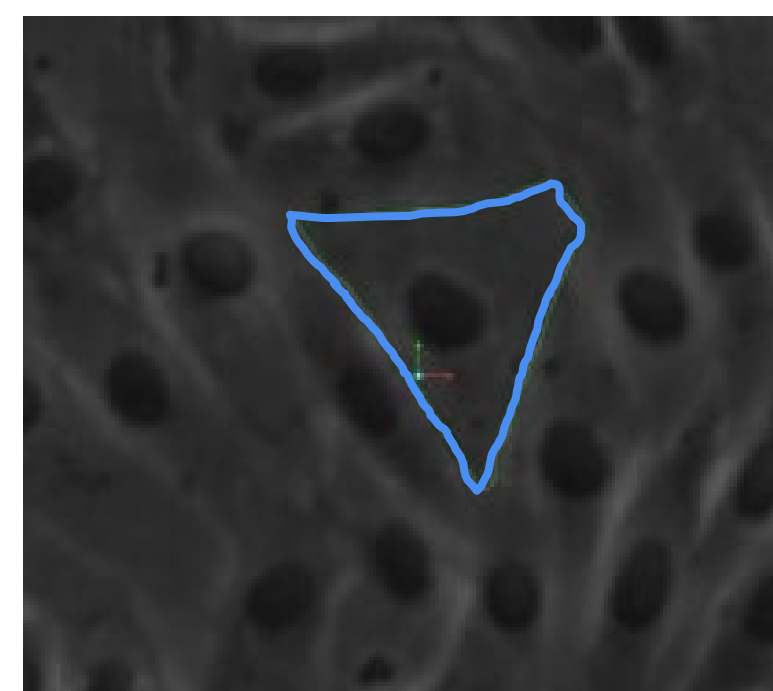
Nuclear lamina provides structural support for cell nucleus and is involved in gene regulation and transcription. Mutant nuclear lamins leads to deformed nuclear morphology and altered mechanotransduction.



### Research objectives in:

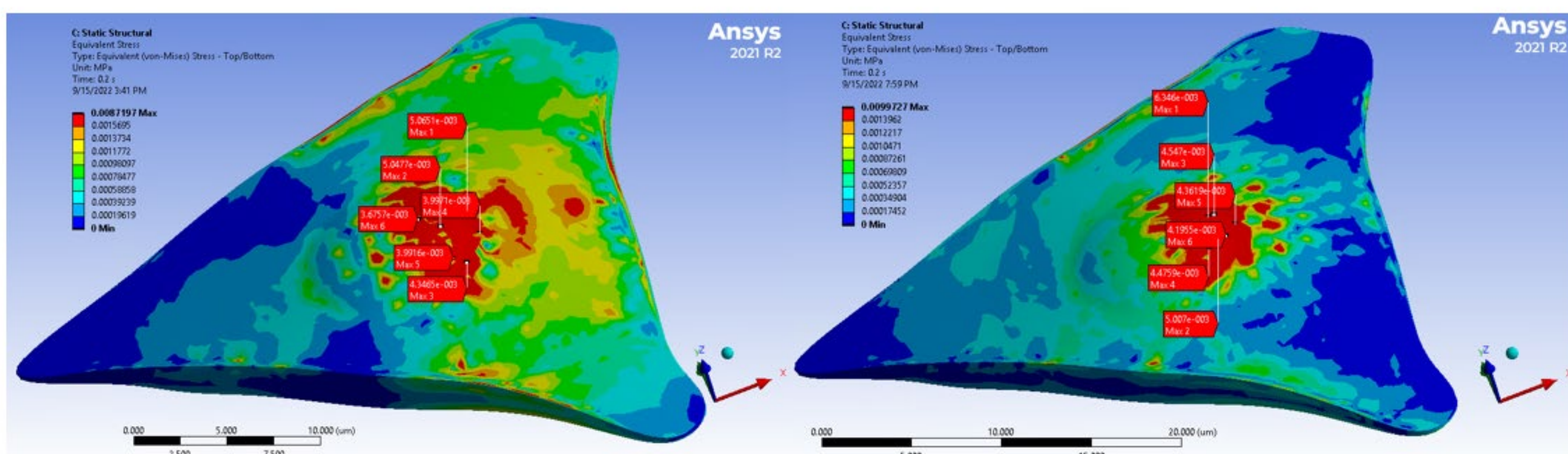
- Mechanotransduction
- Endothelial mechano-biology
- Nuclear lamin and vascular aging
- Computational modeling of cell and nuclear mechanics under flow

Modeled Cell:



UPSTREAM 0°

DOWNSTREAM 0°



Plasma Membrane