

# *Taming the immune system to stop pain crisis*



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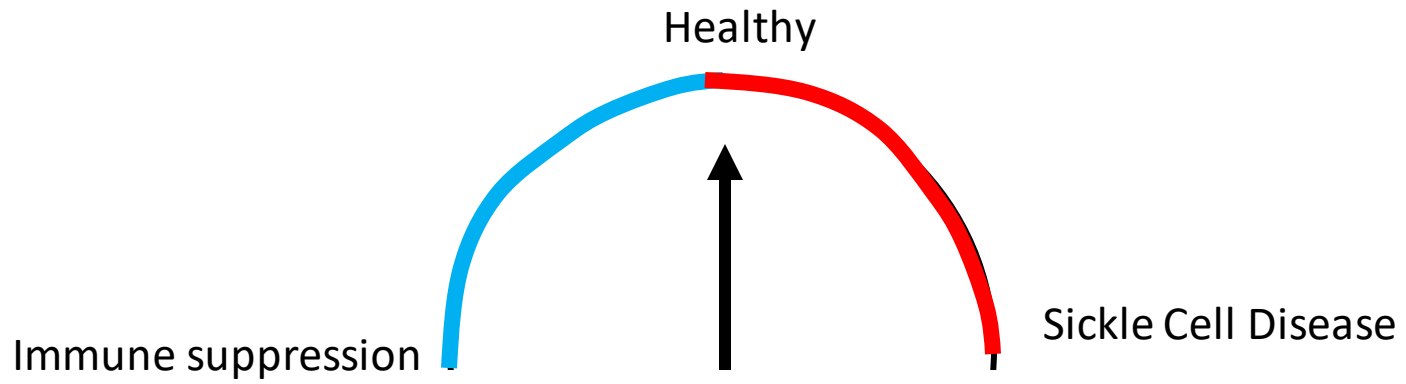
Assistant Professor of Medicine-Pulmonary Allergy and Critical Care Medicine

Assistant Professor of Bioengineering

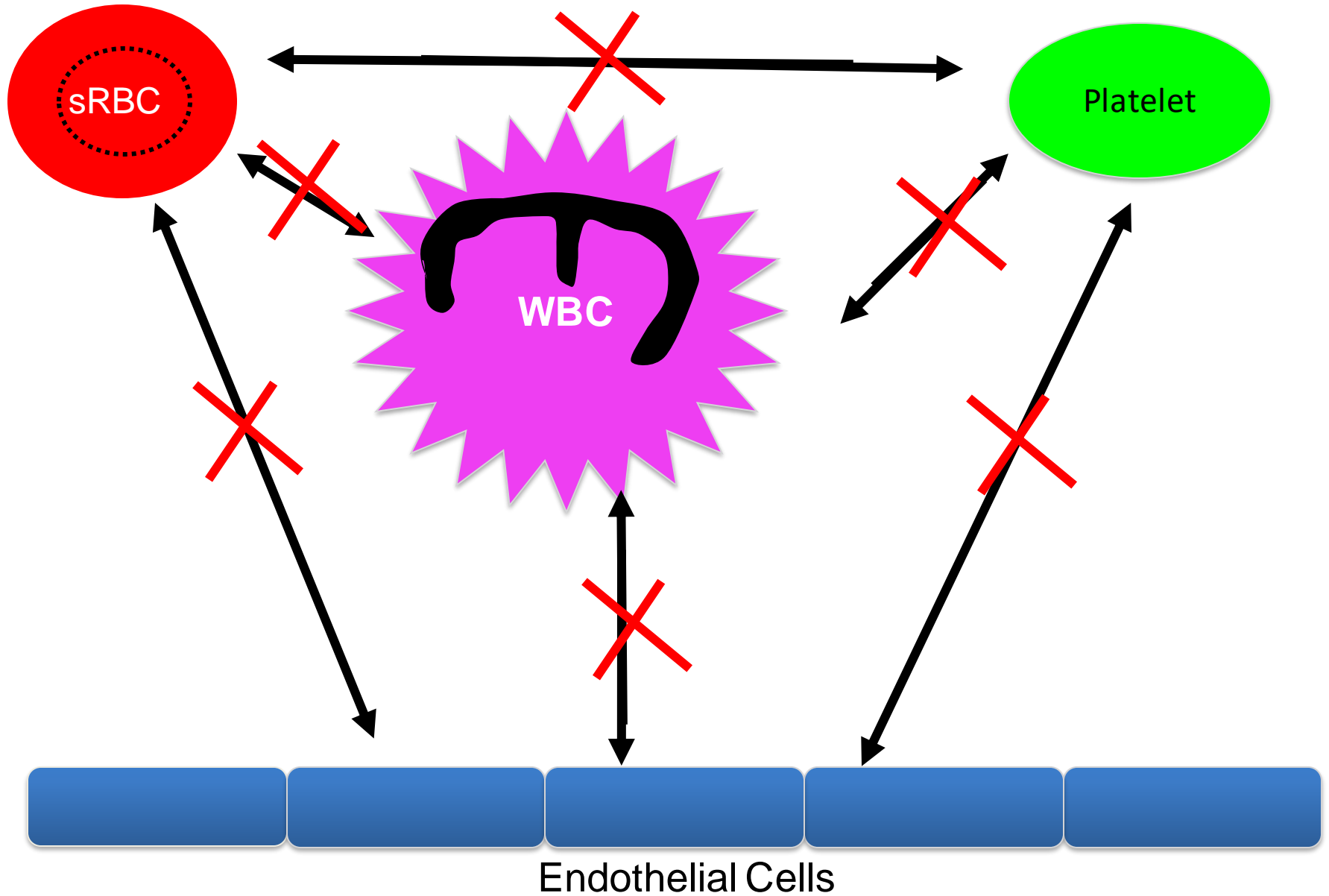
University of Pittsburgh, Pittsburgh, PA 15261



# Fine balance of immune system

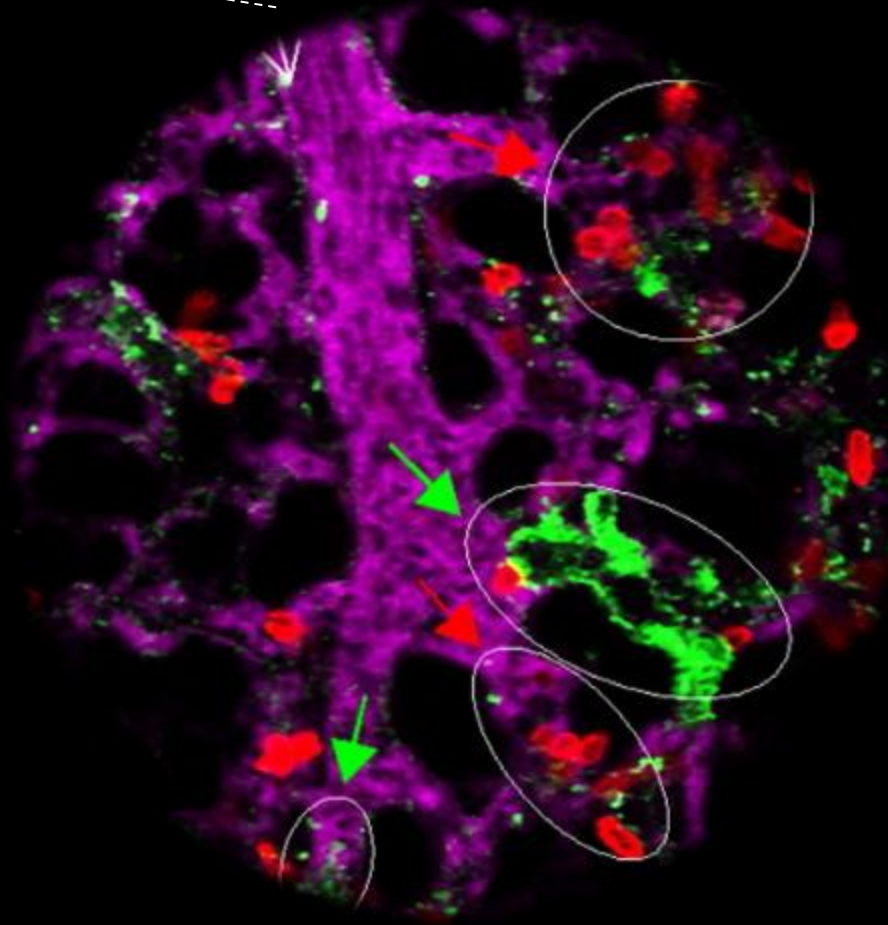
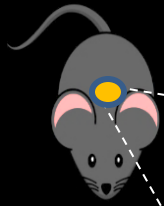


# Function of immune system





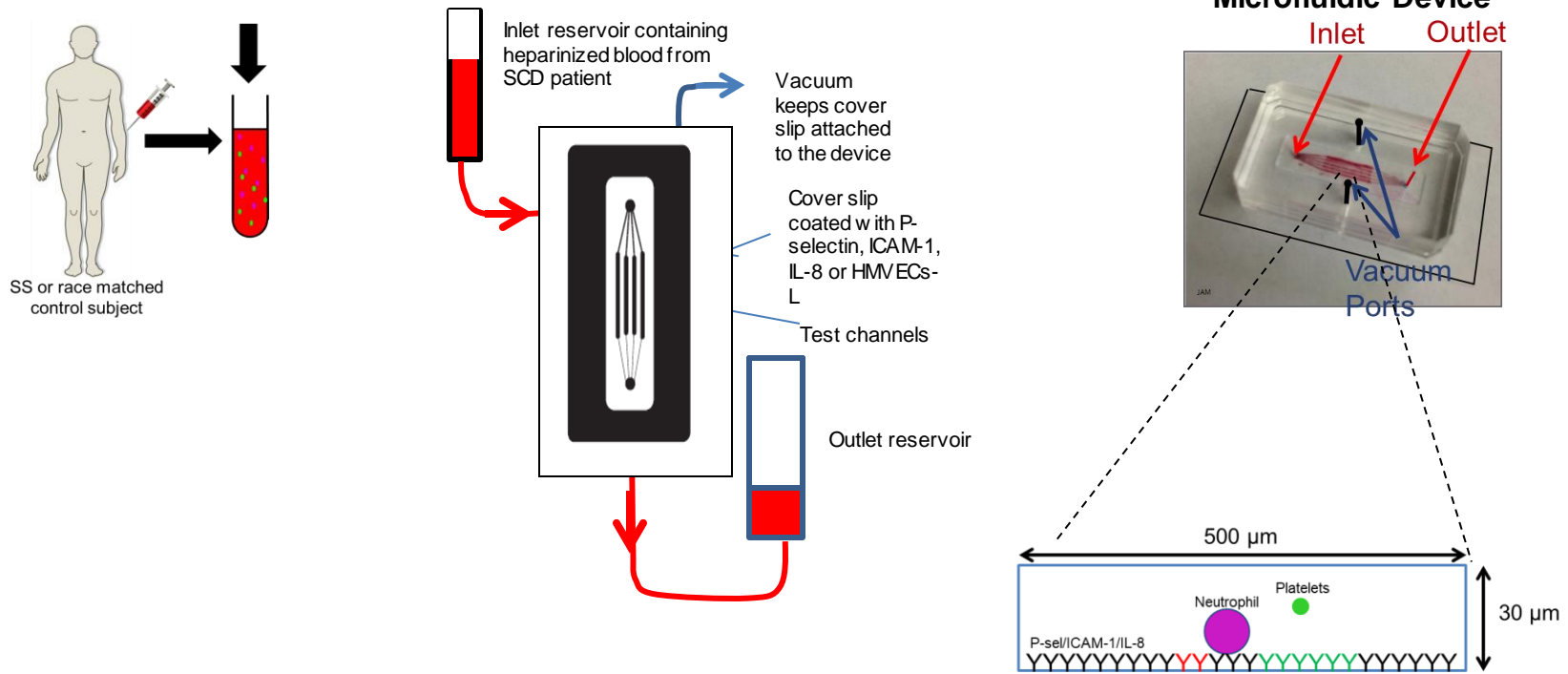
# VASO-OCLUSION IN LUNG OF SCD MICE



Platelets  
Neutrophils  
Blood vessels

*Bennewitz MB, Jimenez MA et al, JCI-Insight 2017*

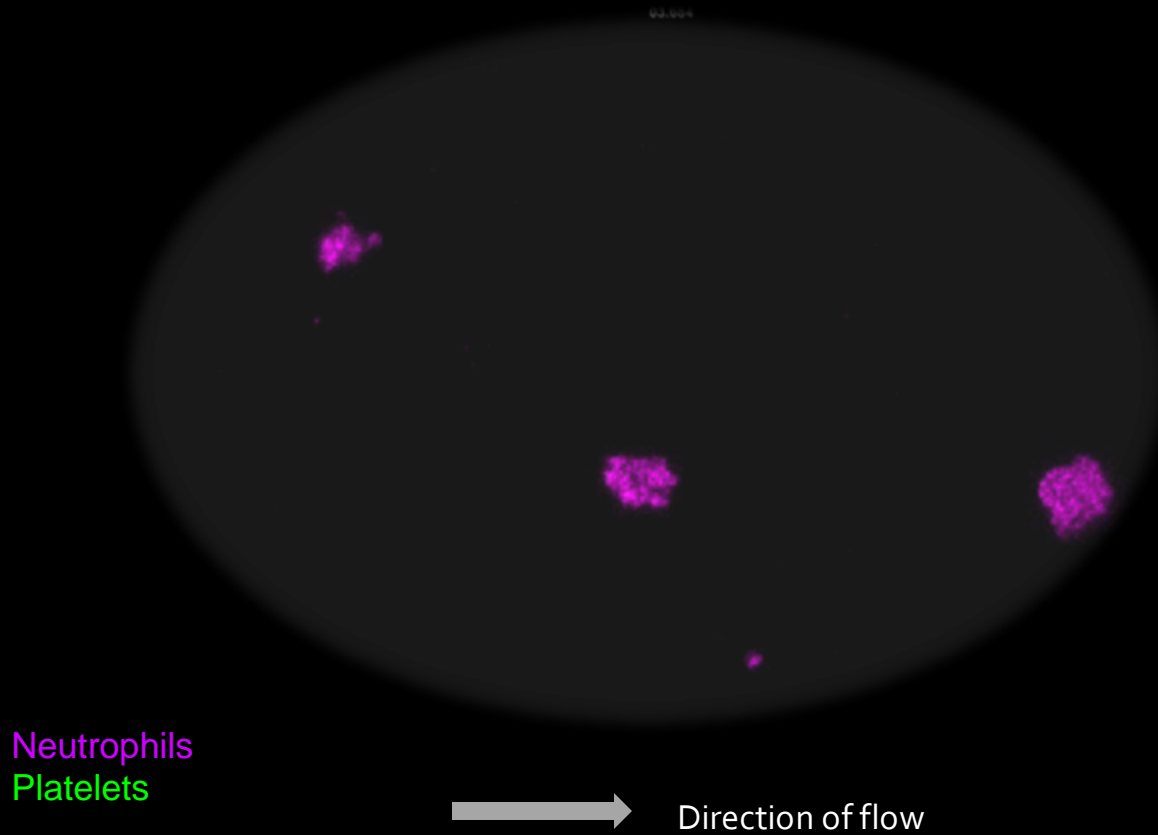
# QUANTITATIVE MICROFLUIDIC FLUORESCENCE MICROSCOPY (qMFM)



**Neutrophils in human blood stained with AlexaFluor647-anti-CD16 mAb**  
**Platelets in human blood stained with FITC-CD49b**

Jimenez, MA et al. *Haematologica*. 2015.  
Jimenez, MA et al. *Blood Advances*, 2017.

# QUANTITATIVE MICROFLUIDIC FLUORESCENCE MICROSCOPY (qMFM)



Wall shear stress 6 dyne/cm<sup>2</sup>  
Substrate P-selectin + ICAM-1 + IL-8

*Bennewitz MB, Jimenez MA et al, JCI-Insight 2017*