



Comparing the Effects of Viral and Bacterial Infection on ERG Expression in Lung Blood Vessels

By: Andrianna Buxton

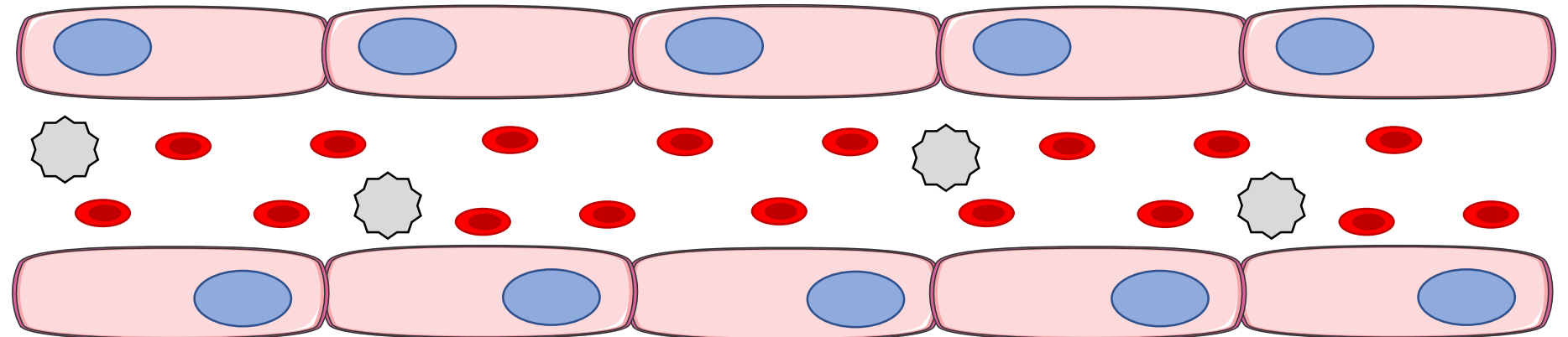
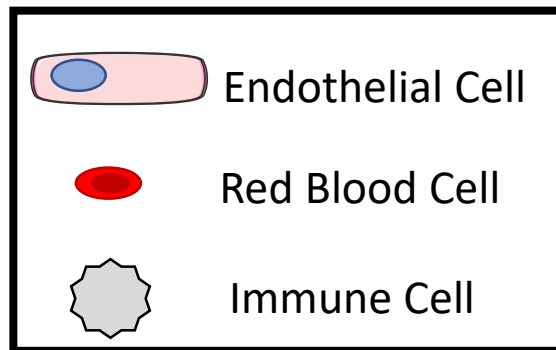
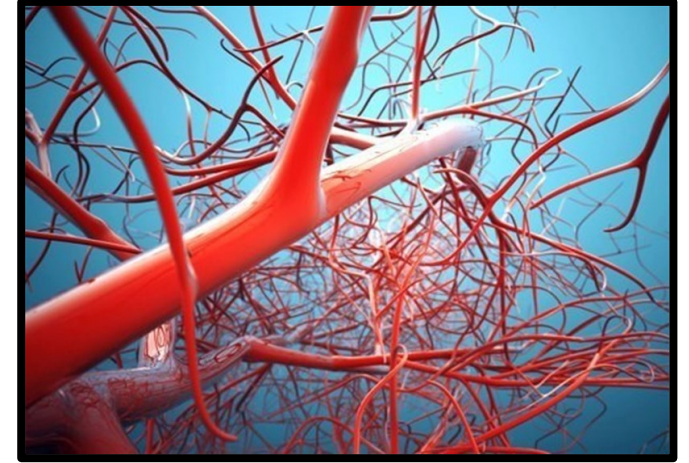
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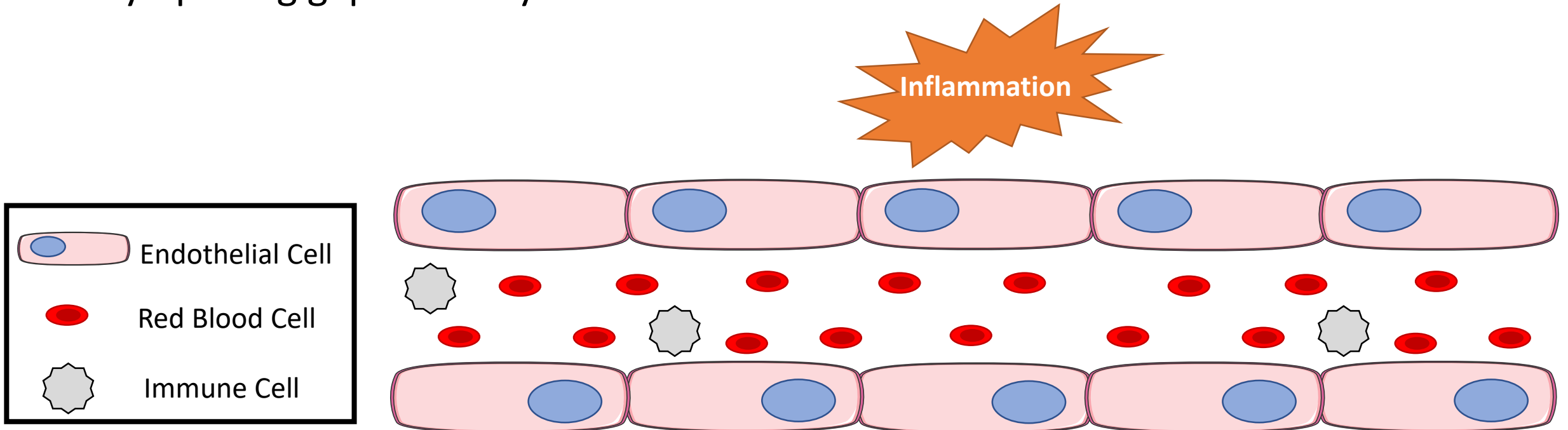
Blood Vessels in the Cardiovascular System

- The Cardiovascular System includes the heart and blood vessels throughout the body
- It's responsible for delivering blood, oxygen, nutrients, and immune cells
- Endothelial cells form the inner wall of blood vessels



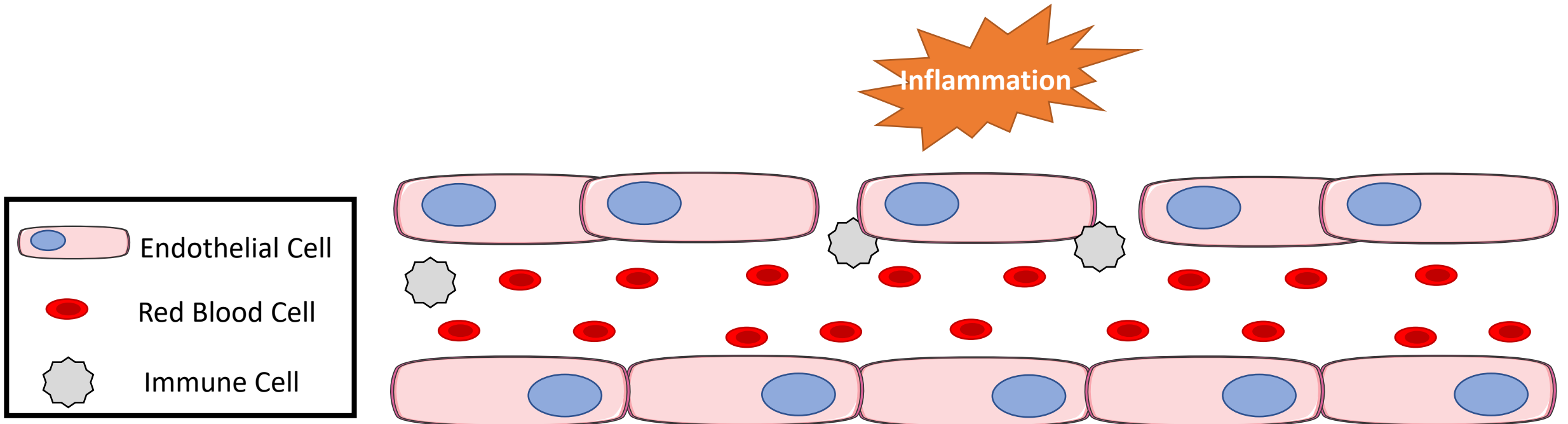
Inflammatory Diseases

- Bacterial and viral infections cause inflammation throughout the body
- Endothelial cells aid the immune system in two important ways:
 - By recruiting immune cells to vessels near inflammatory sites
 - By opening gaps used by immune cells to leave blood vessels



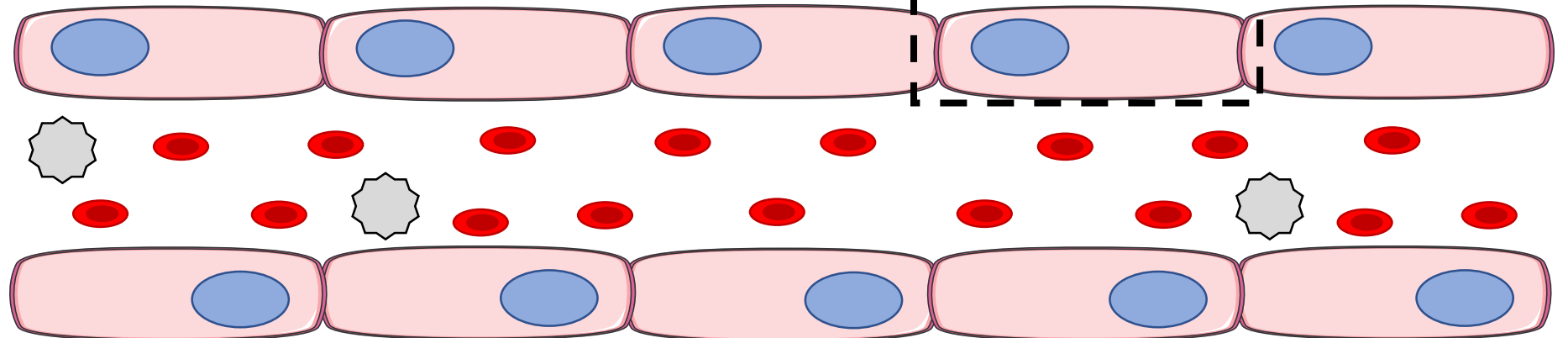
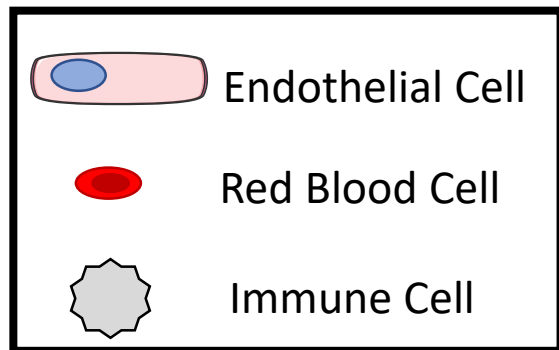
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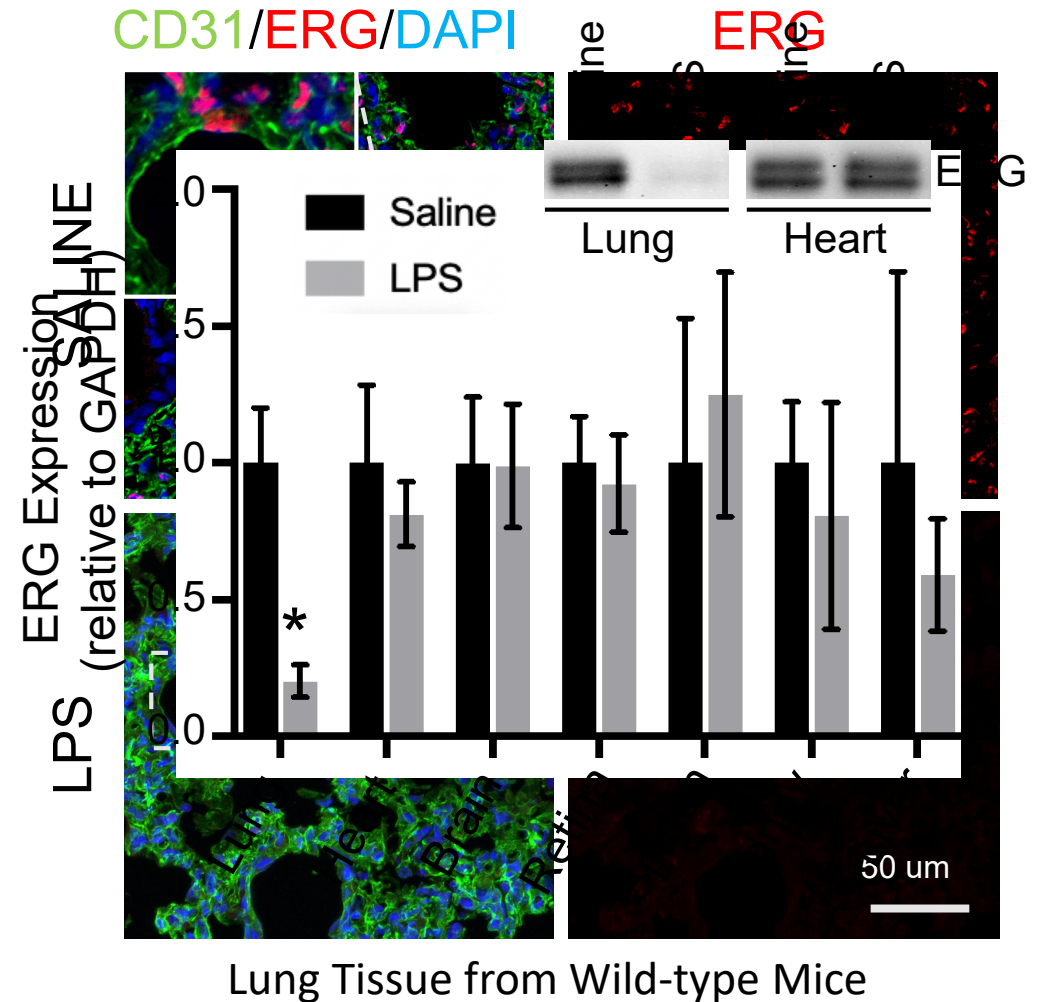
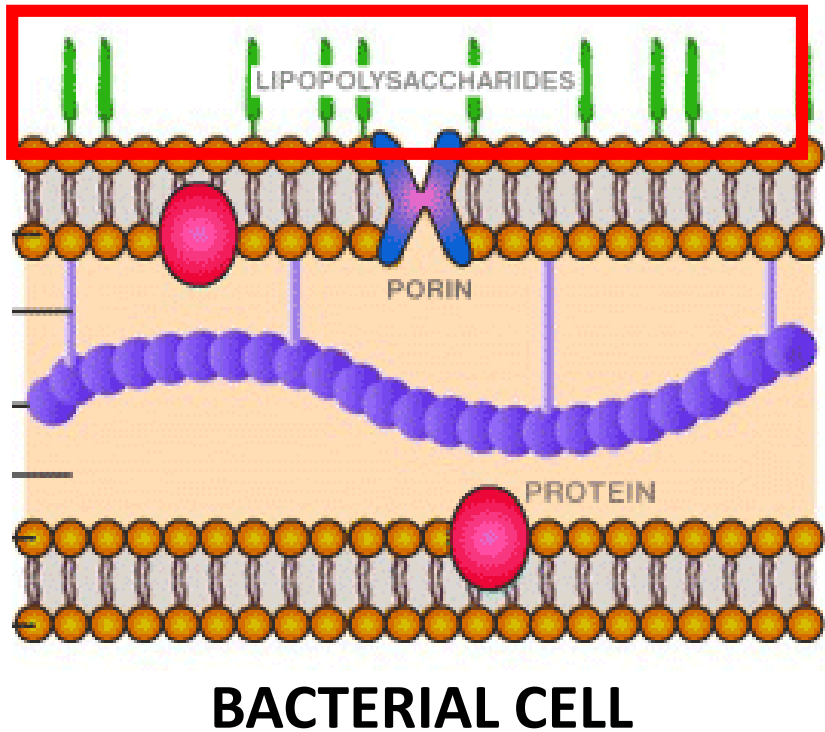


ERG is an Endothelial Cell-Specific Transcription Factor

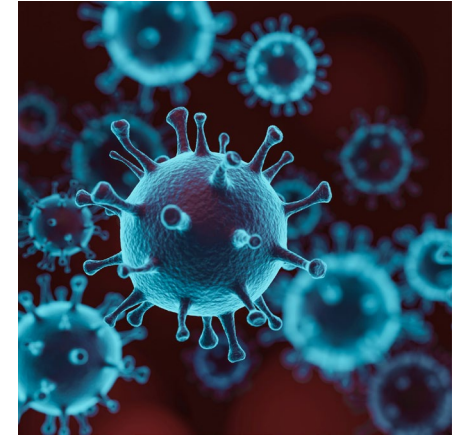
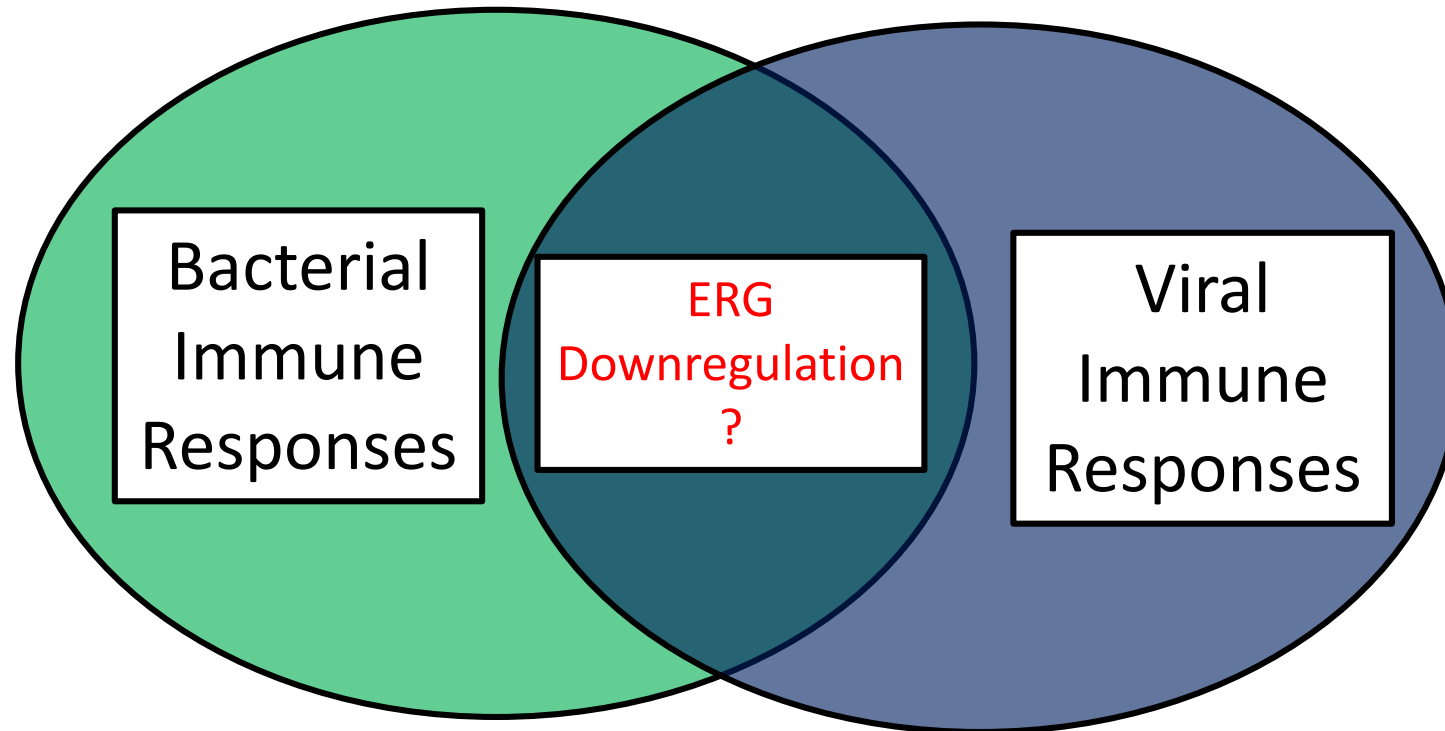
- ERG is a transcription factor specifically expressed by endothelial cell cells
- ERG is known to regulate genes important for pro- and anti-inflammatory processes



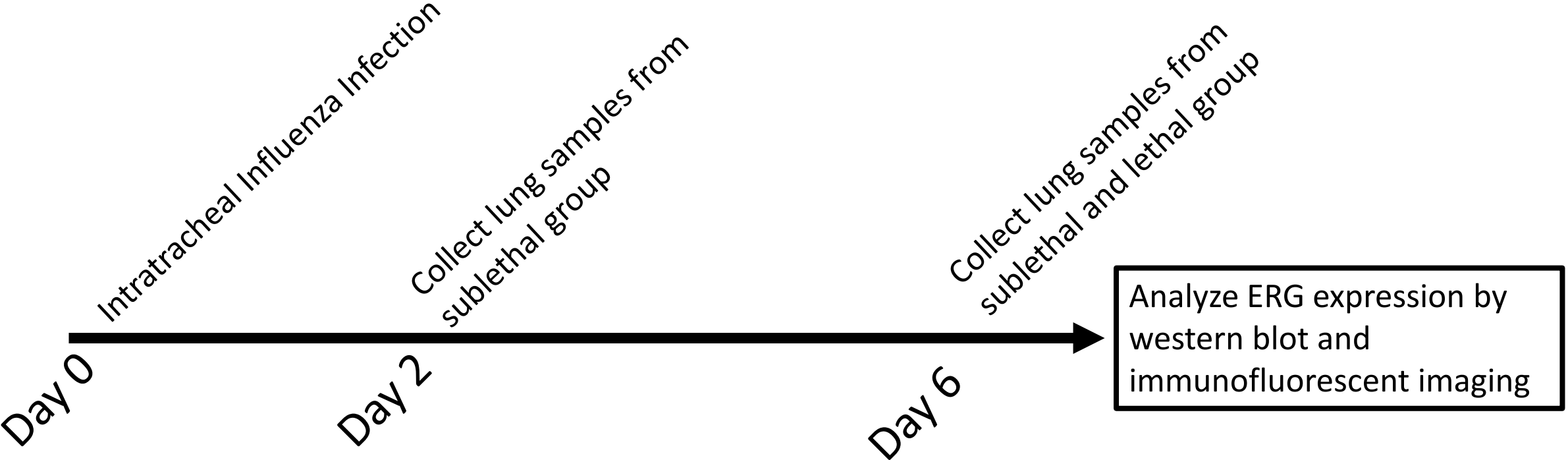
Preliminary Data: ERG is Downregulated in the Lungs During Bacterial Infection



Question: Does a viral infection cause ERG downregulation in the lung?



The Experiment: Pulmonary Influenza Infection



Susan Kovats, PhD

Sean Turner

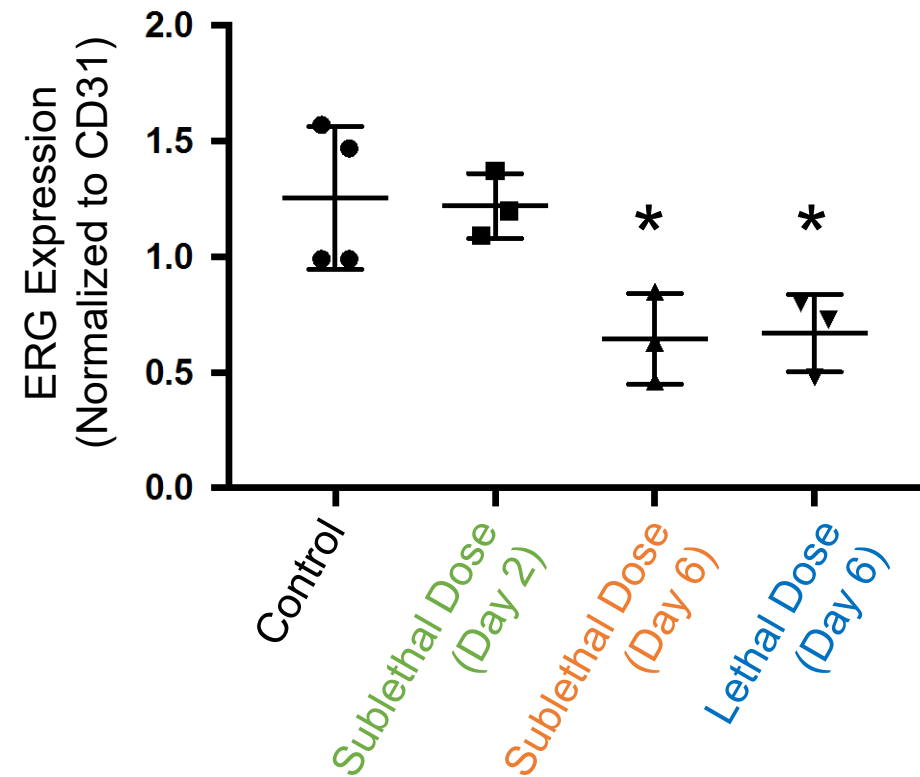
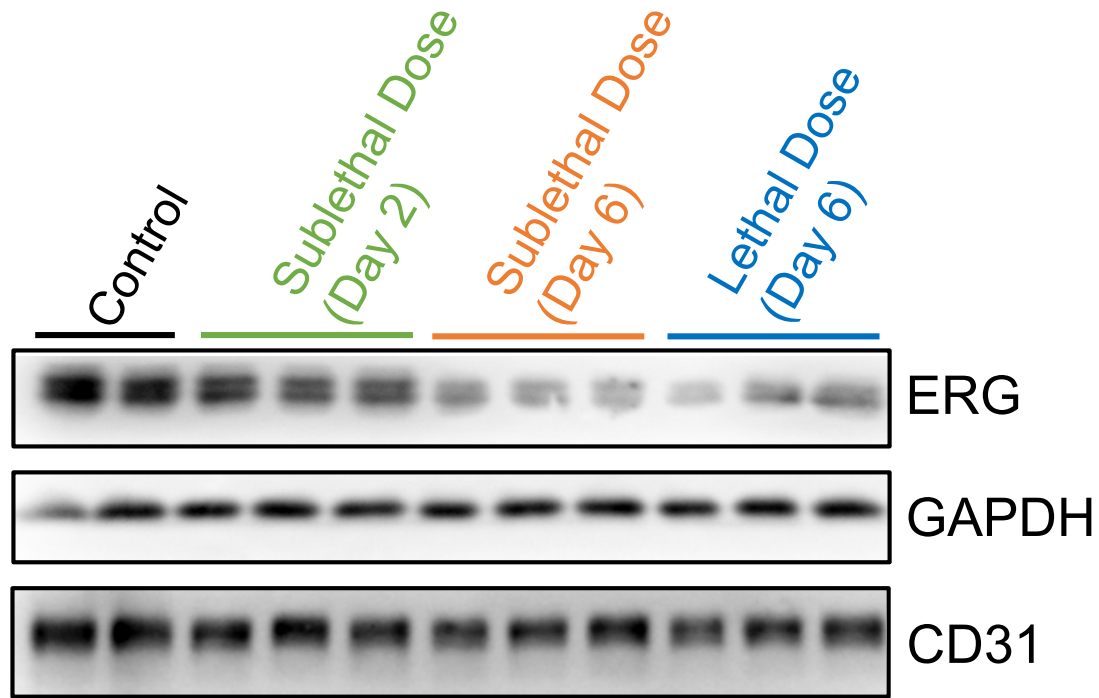
Magdalena Chlebicz

Using 3wk old C57Bl/6 (Wild-type)

Sublethal Dose = 800pfu

Lethal Dose = 1050pfu

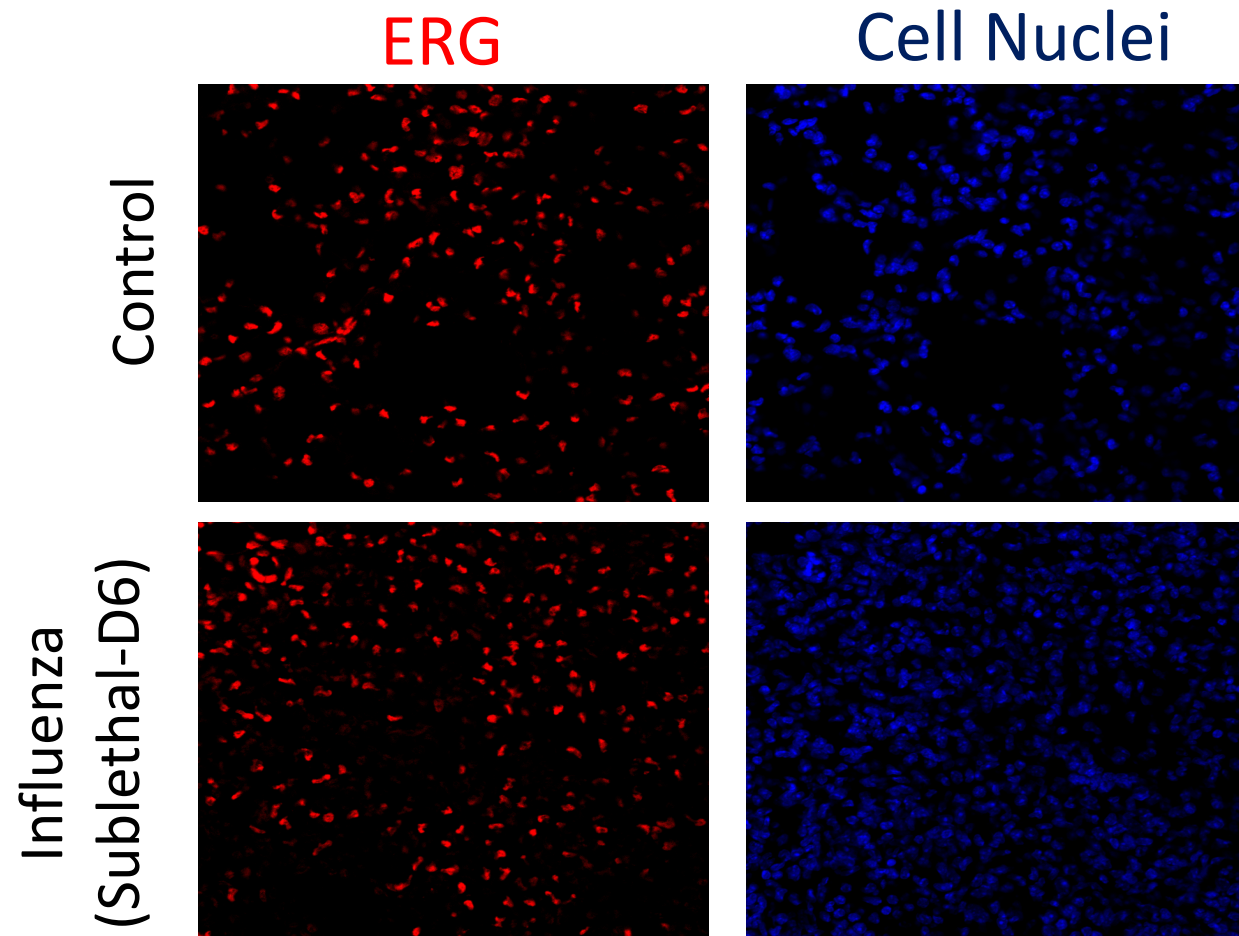
ERG Downregulation in the Lungs After Influenza Infection



GAPDH = Total Cell Loading Control

CD31 = Endothelial Cell Loading Control

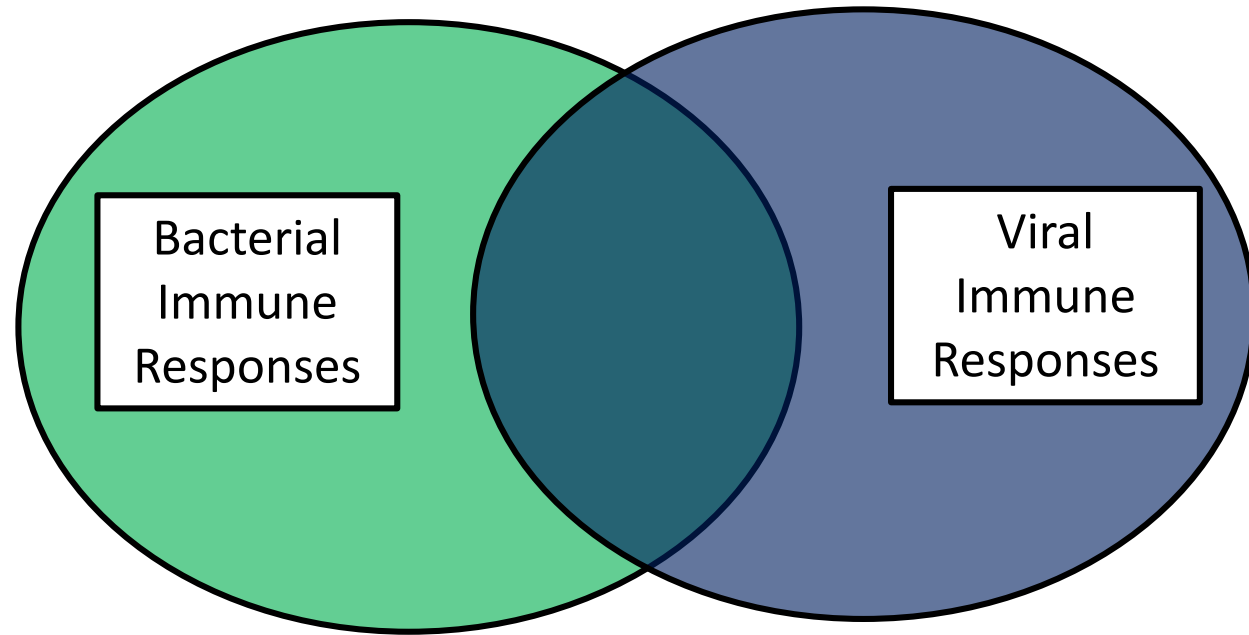
ERG Downregulation in the Lungs After Influenza Infection



Conclusions and Future Directions

- Unlike Bacterial infection, influenza did not cause ERG downregulation in the lung
- Therefore, ERG downregulation is likely due to bacteria specific pathways

Future studies may focus on inflammatory molecules found in bacterial infections (i.e. cytokines & chemokines)



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