The background is a complex marbled paper pattern with swirling veins of deep red, forest green, and black. A large, dark, semi-transparent circle is centered on the page, serving as a backdrop for the title text.

An Overworked Powerhouse: A Boolean Model of Mitochondrial Dysfunction Associated Senescence in the Context of Aging Microglia

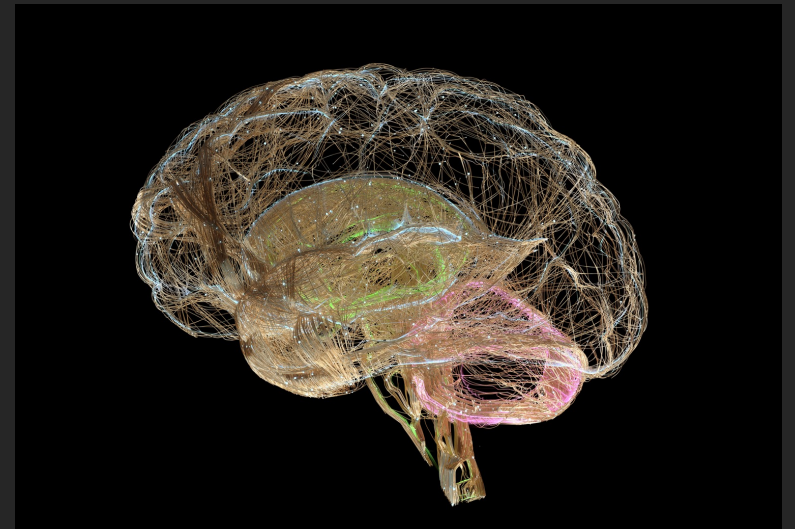
KATIE FLEIG

ADVISORS: DR. REGAN AND
DR. EDGINGTON

SECOND READER: DR. MORGAN

Who the Heck Am I and Why Am I Rambling About Microglia and Mitochondria?

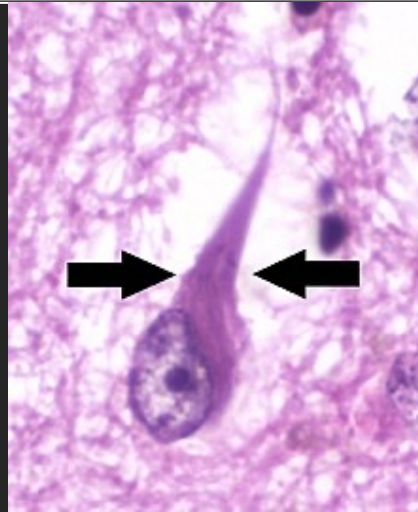
- Neurobiology major
- Knows a little about coding
- Is probably a little too interested in how our brains can malfunction
- The mitochondria is the powerhouse of the cell



Neurodegenerative Diseases

ALZHEIMER'S DISEASE

- *Tau* tangles
- *Amyloid Beta* plaques
- Neuroinflammation



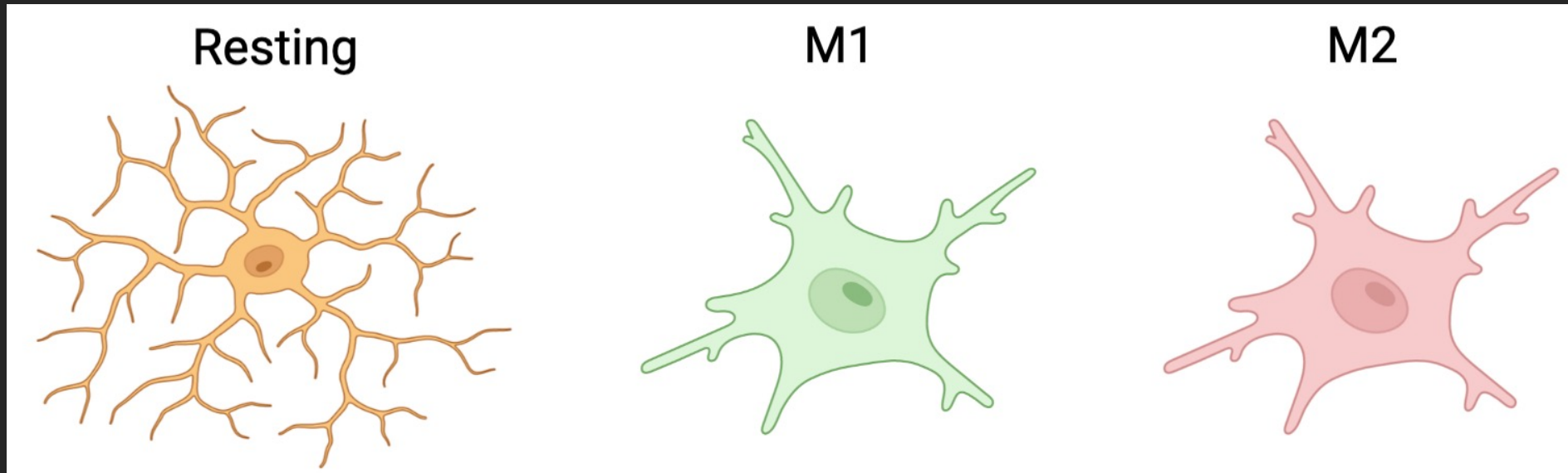
Wikipedia

PARKINSON'S DISEASE

- Degradation of Dopaminergic neurons
 - *Less control over Acetylcholine*
 - *Less control over muscles*
- Neuroinflammation

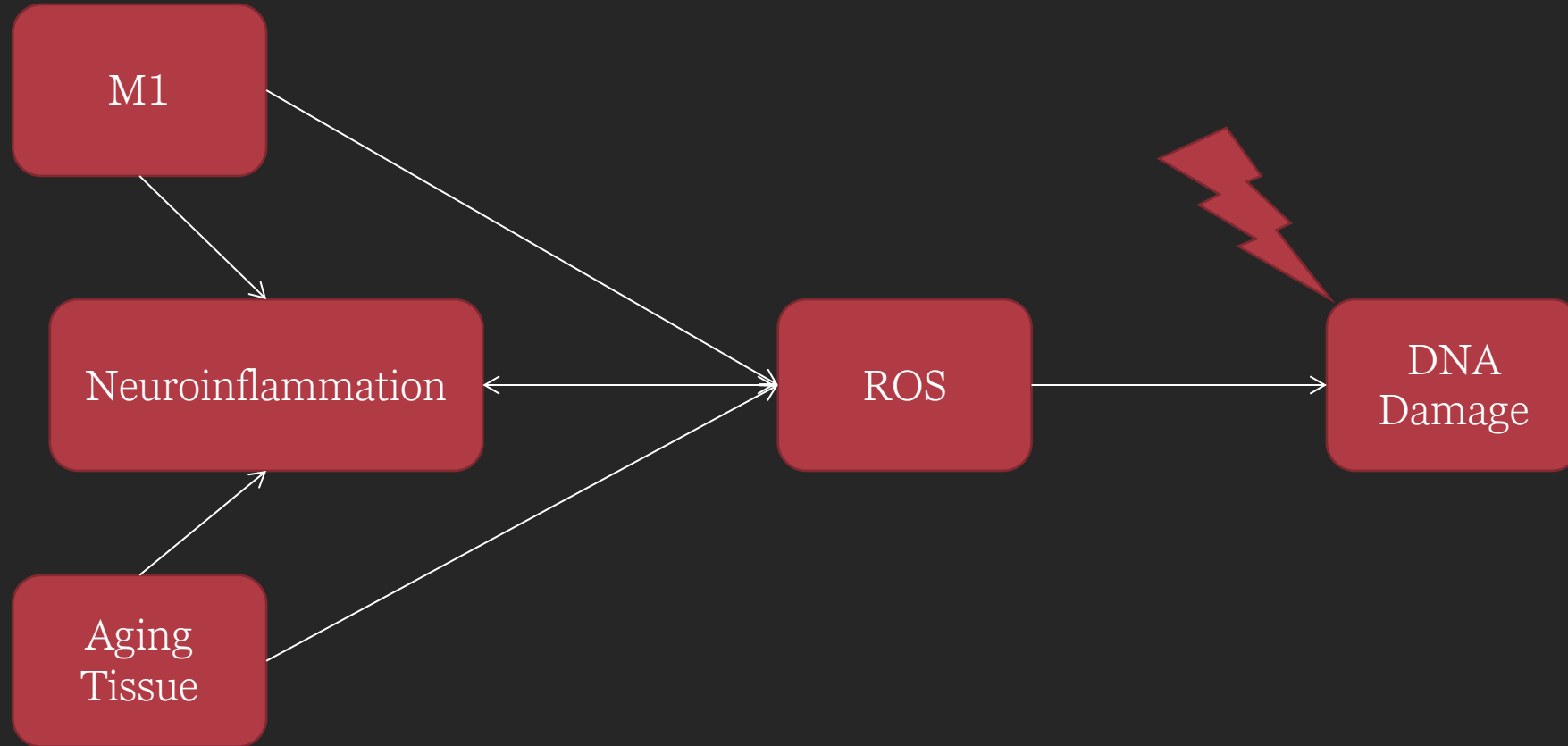
Both have neuroinflammation!

Neuroinflammation, Microglia, and Phenotypes, Oh My!

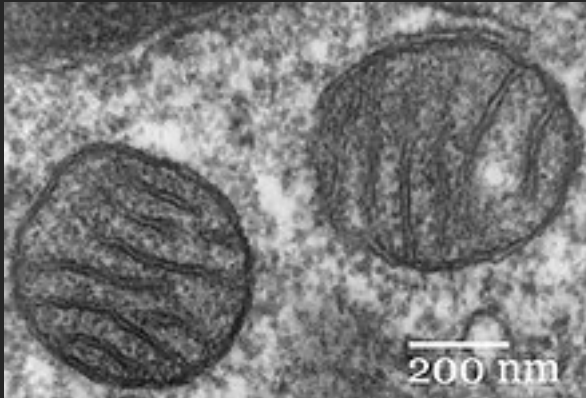


Created using BioRender

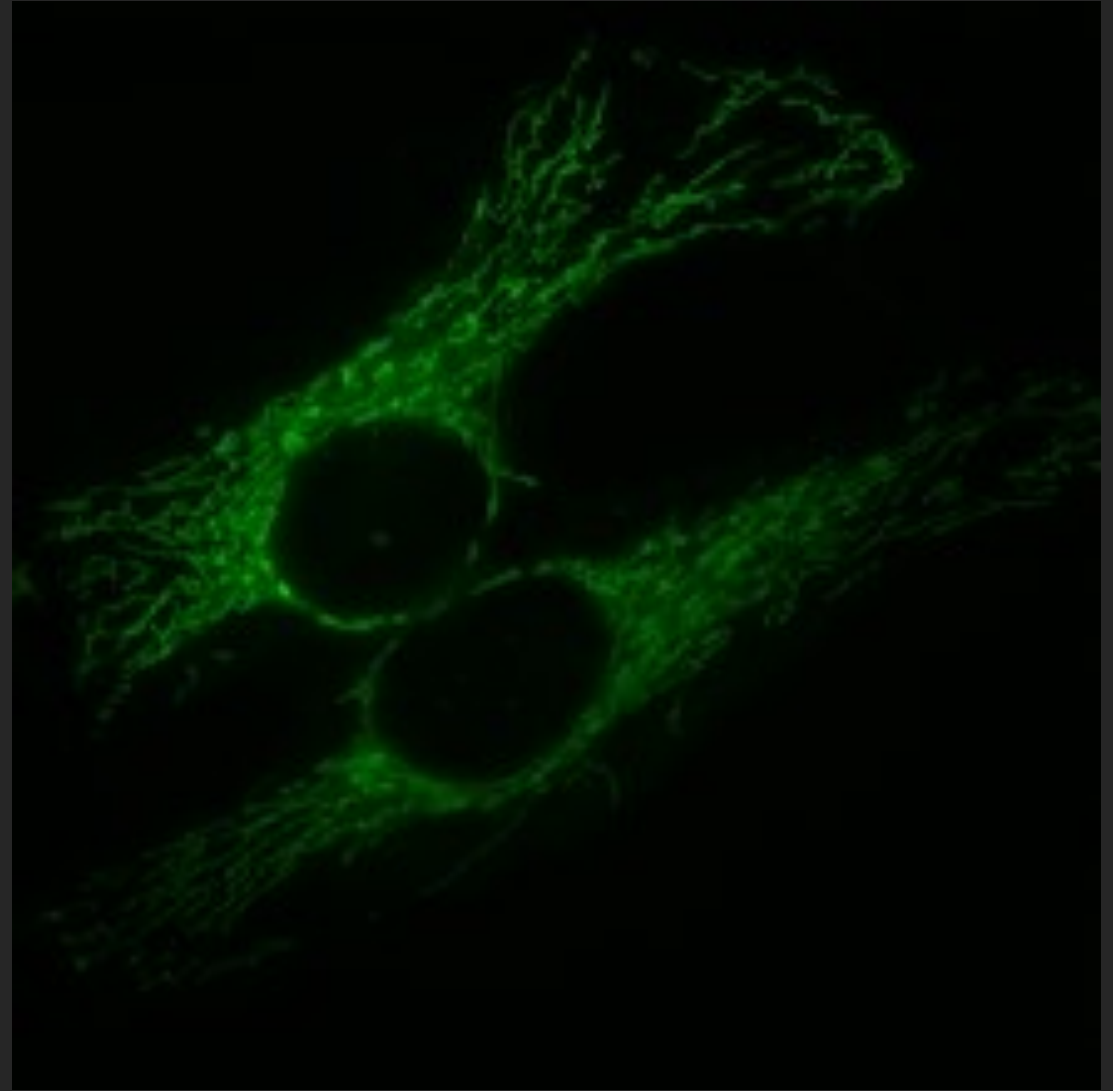
The DNA Damage Response



Cellular Senescence and MiDAS

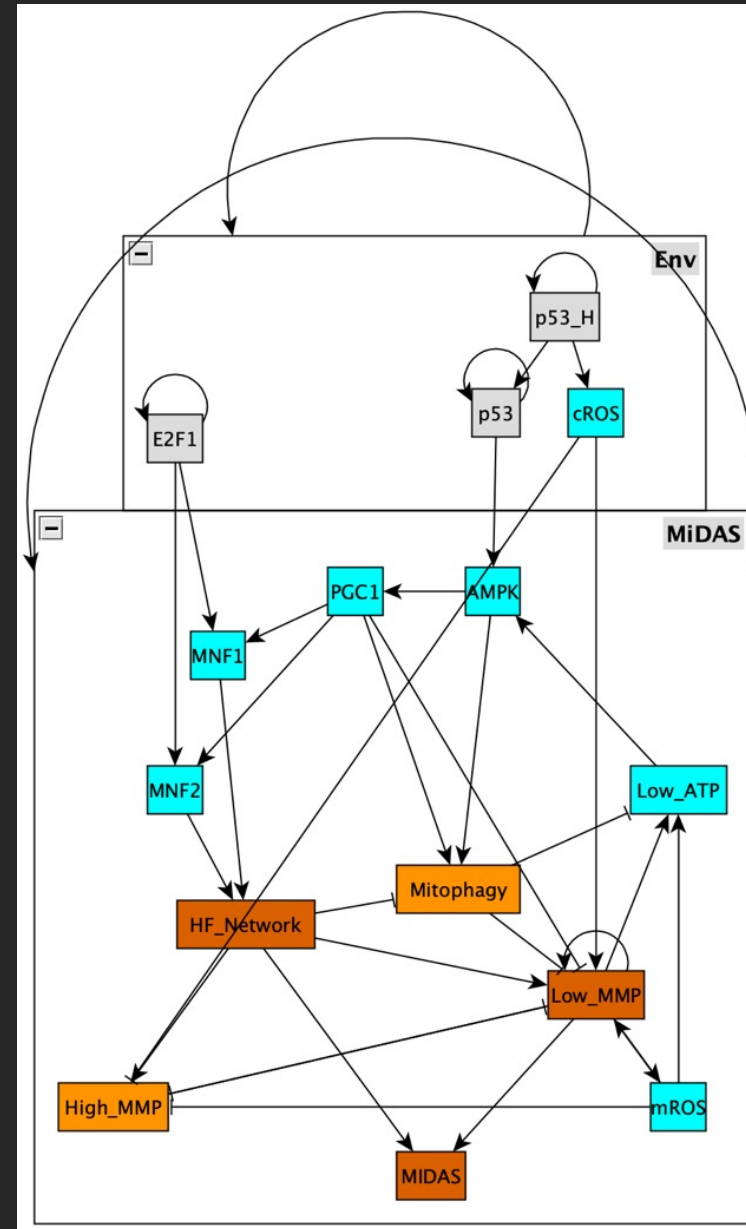


Wikipedia

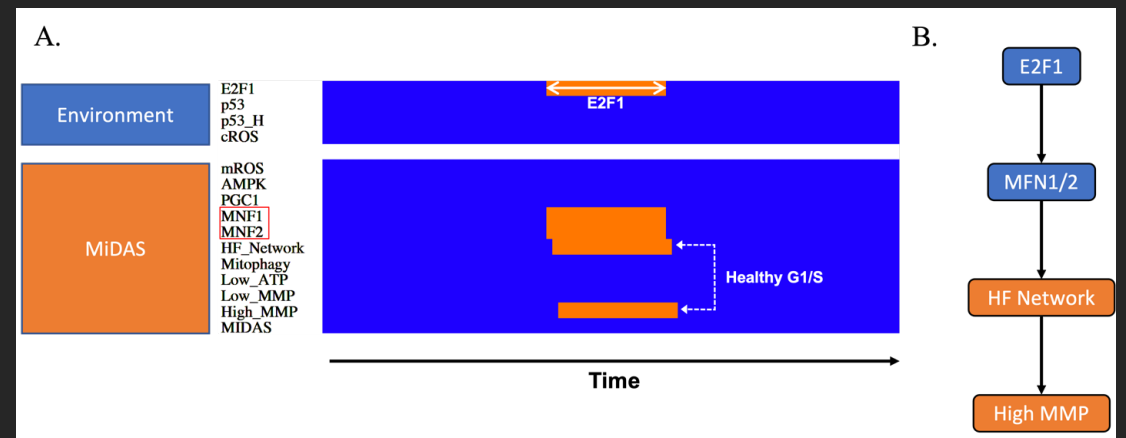
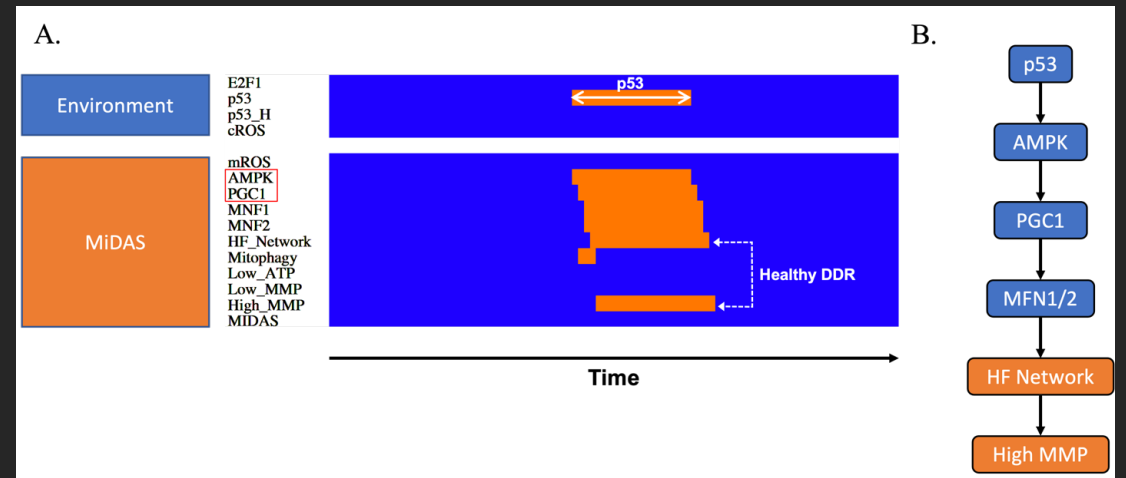
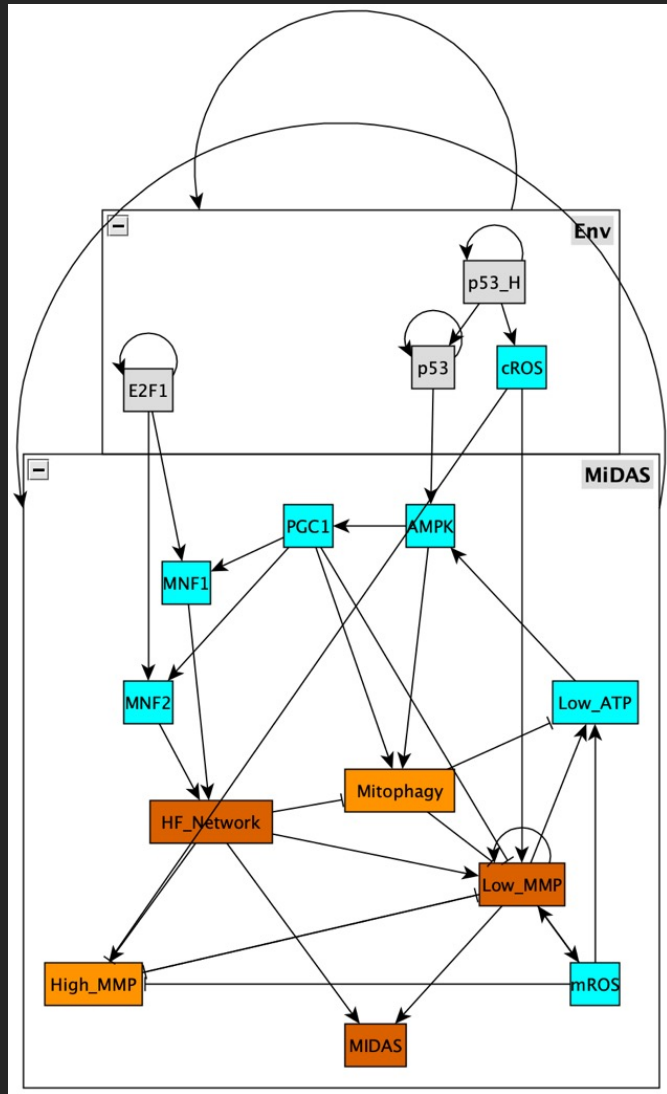


Wikipedia

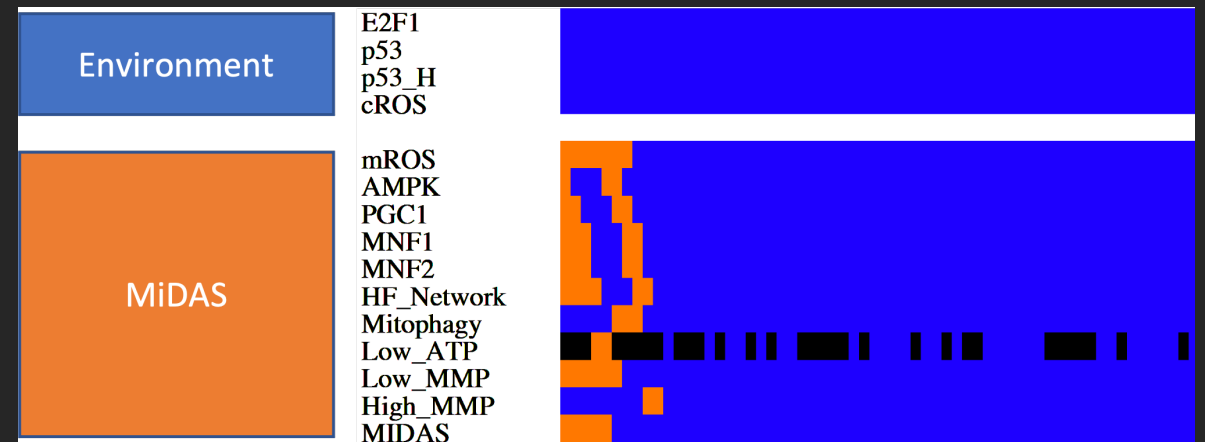
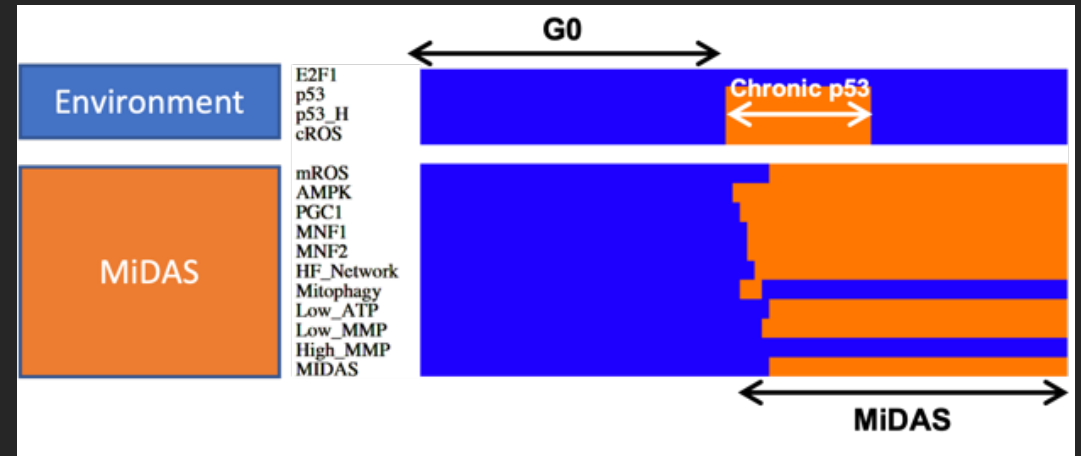
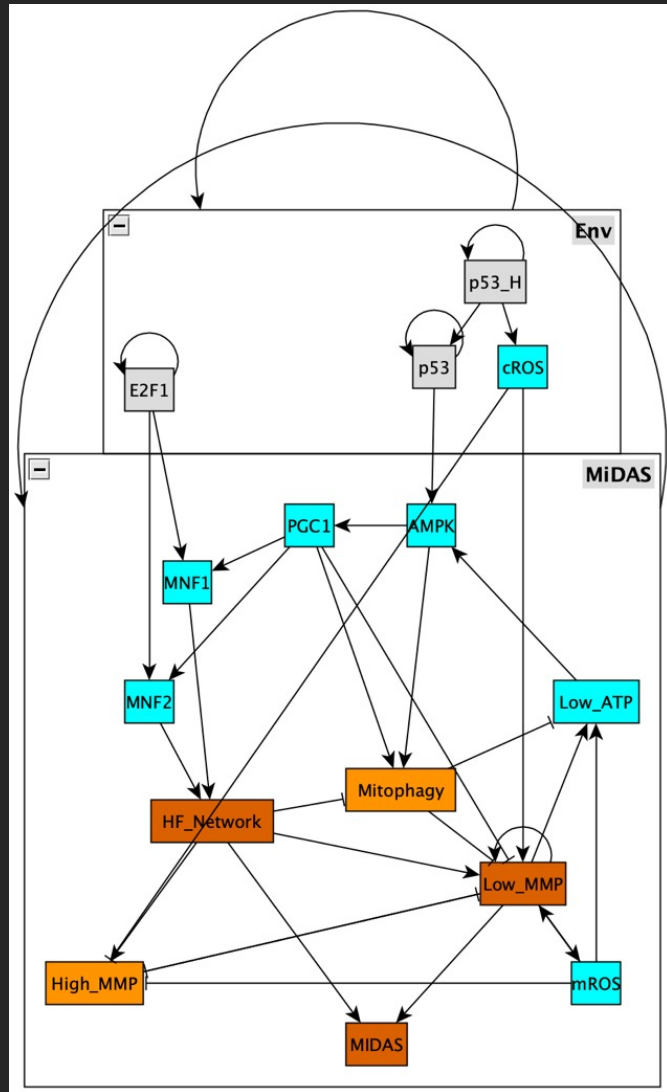
OVERVIEW OF MIDAS MODEL



Moderate p53 Does Not Result in MiDAS



Chronic p53 Results in MiDAS



Significance and Future Directions

Connect to
Microglia
Model

Investigate
Inflammatory
Profiles

Acknowledgements
