



Alicia Lane

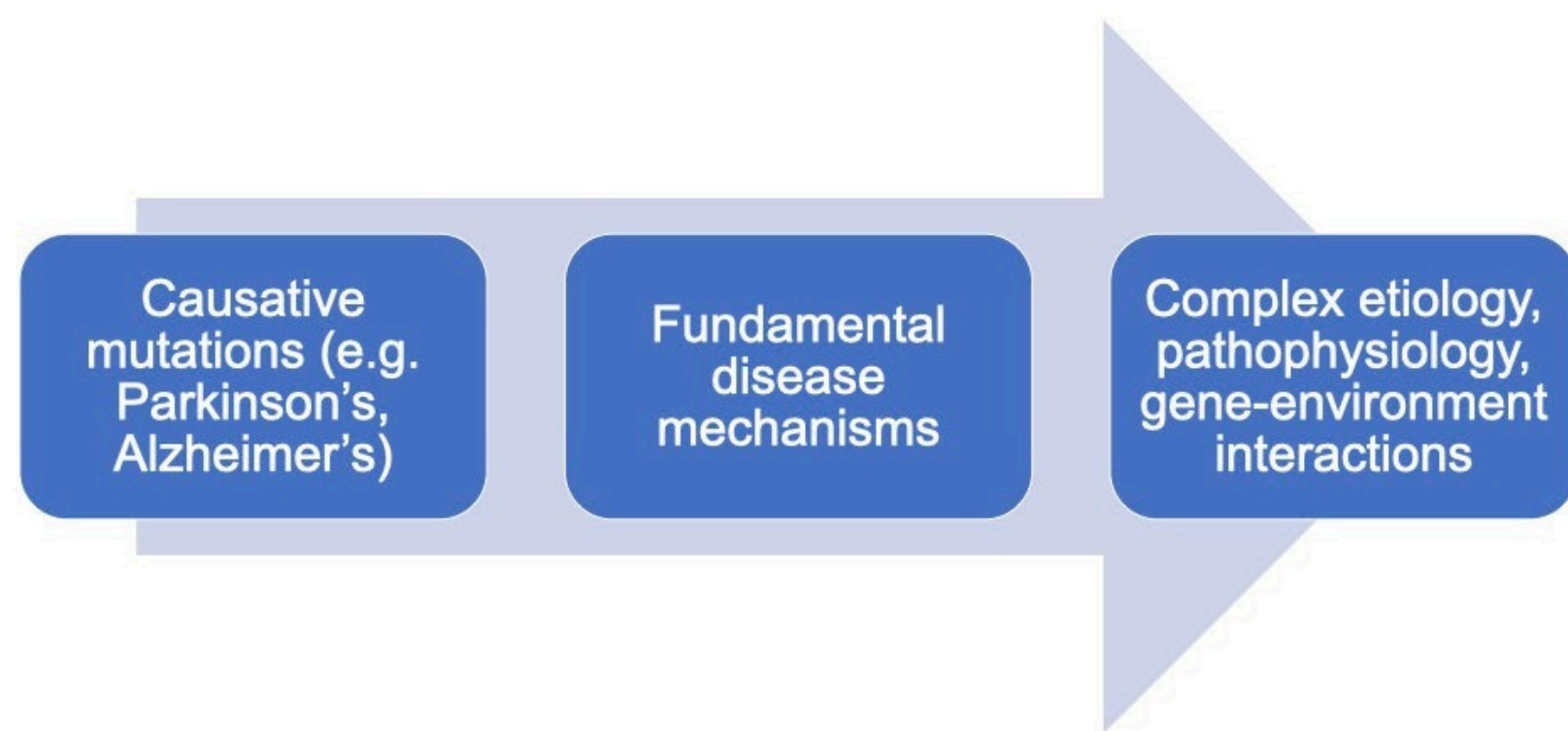
Ph.D. Student, Neuroscience
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EMORY
UNIVERSITY

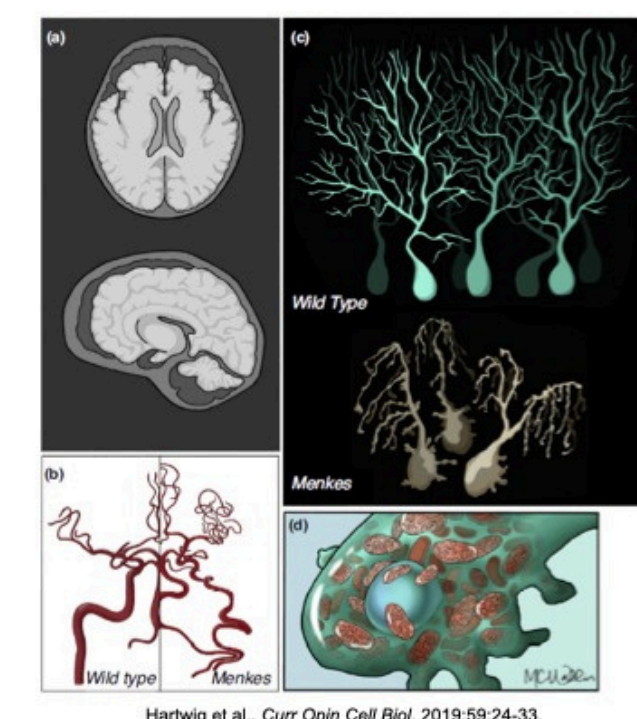
Metabolic mechanisms of copper-dependent neuronal dysfunction in Menkes disease

Framework

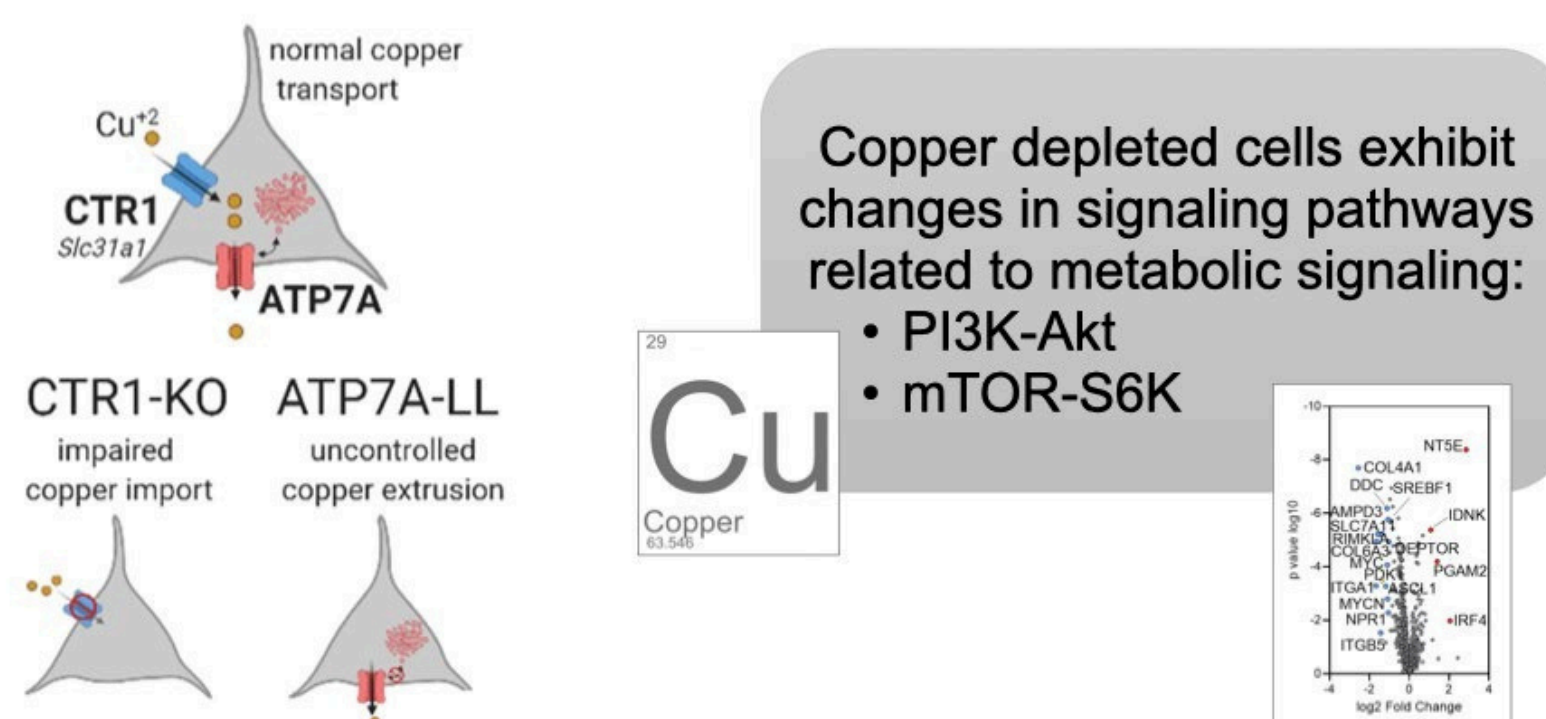


Menkes Disease

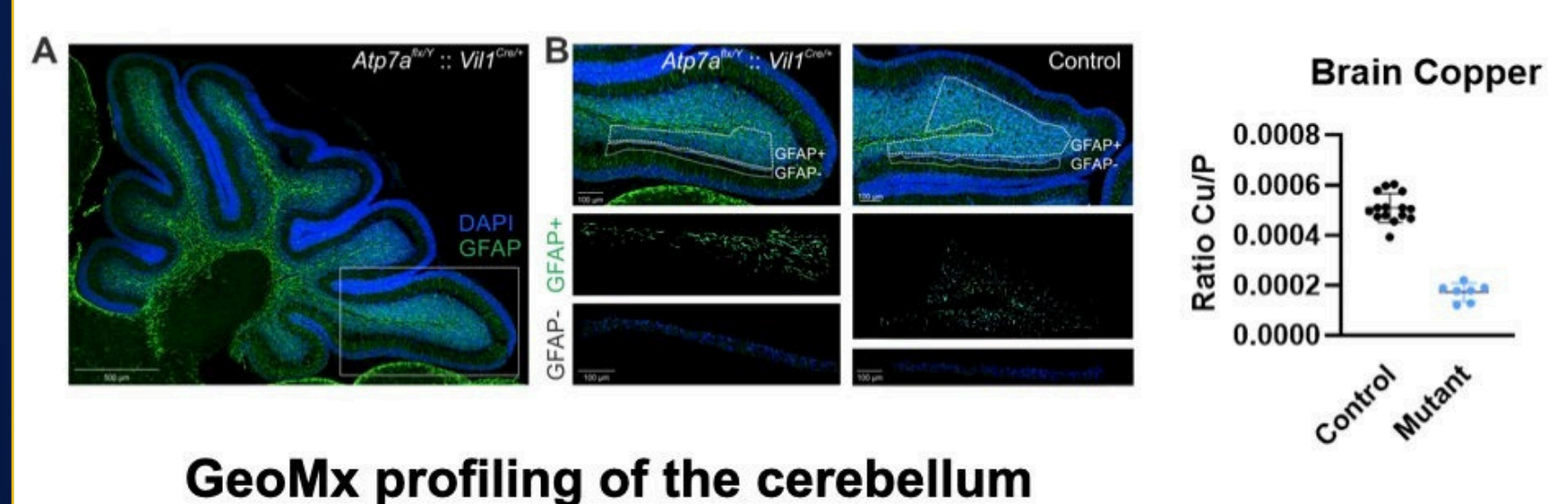
- **Cause:** Mutations in ATP7A; copper depletion in the brain
- **Symptoms:** Neurodegeneration, epileptic encephalopathy
- **Treatment:** Early diagnosis, administration of copper (*not always efficacious*)



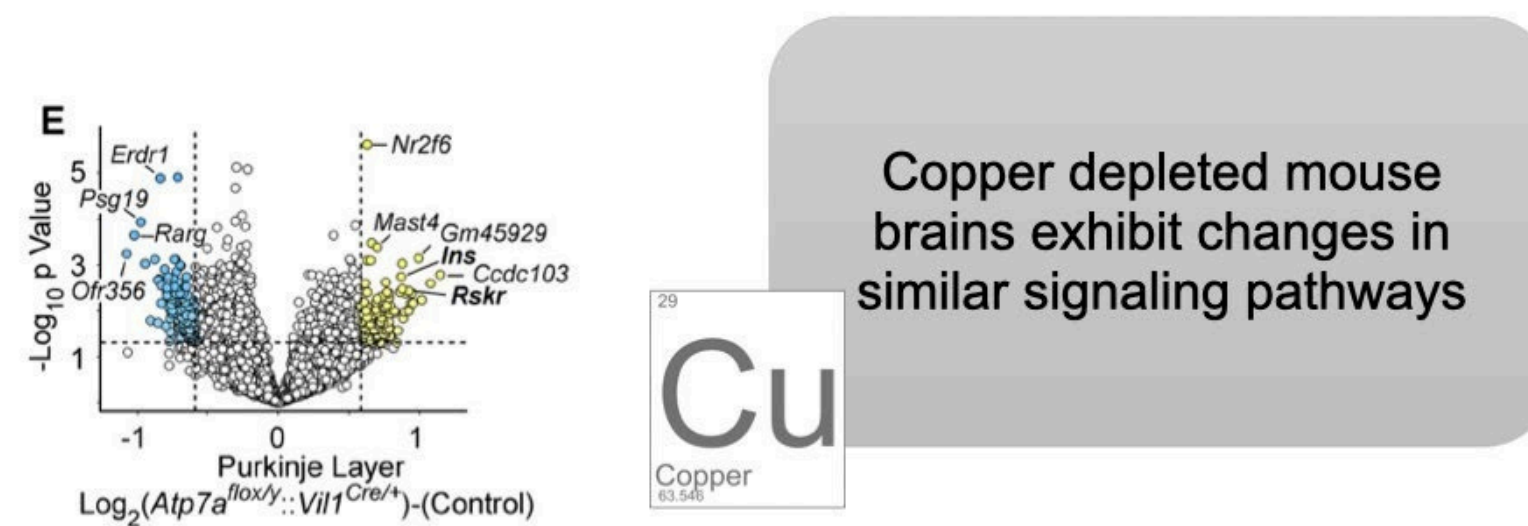
Cellular Models: ATP7A-LL + CTR1-KO



Mouse Model of Menkes Disease



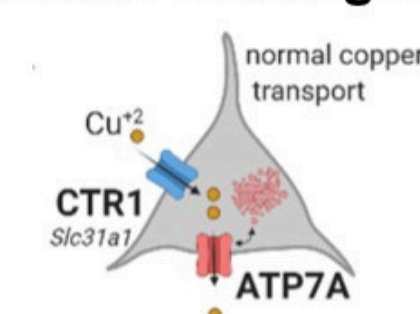
Mouse Brain Gene Expression



Summary & Conclusions

	CTR1 KO	ATP7 LL	Mouse Model
Copper	↓	↓	↓
Δ Metabolic signaling	✓	✓	✓
Δ Protein synthesis	?	?	?

Further investigation:



Ultimate Goal:

Improved understanding of the neuropathology of copper-associated diseases

ADVISOR: Victor Faundez. FUNDING ACKNOWLEDGMENTS: NIH RF1AG060285-01A1S1 to Victor Faundez; NIH F31NS127419-01 and ARCS Foundation Scholar Award to Alicia Lane

