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David, Helen and Marian Woodward Award
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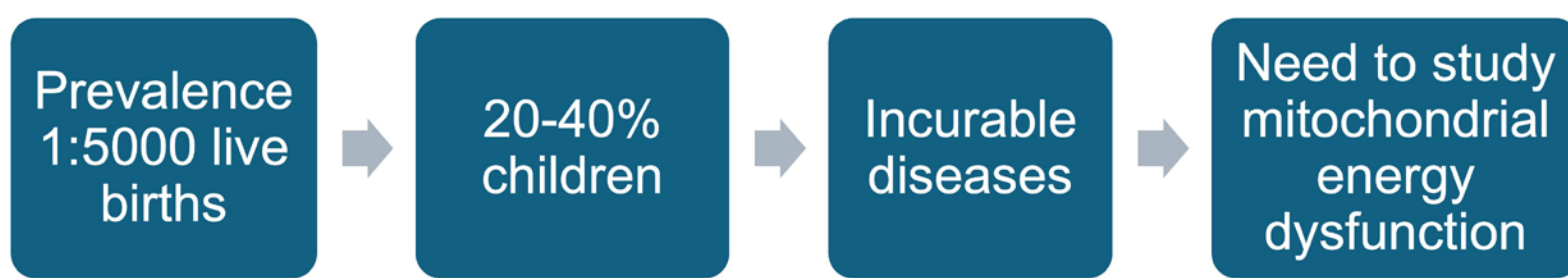
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Unlocking the Cardioprotective Power of Mitochondrial Modulation

Using Meclizine, an over the counter FDA approved drug for nausea and vertigo, I will reveal the cardioprotective pathways that are engaged in a mouse model of mitochondrial energy dysfunction induced cardiomyopathy.

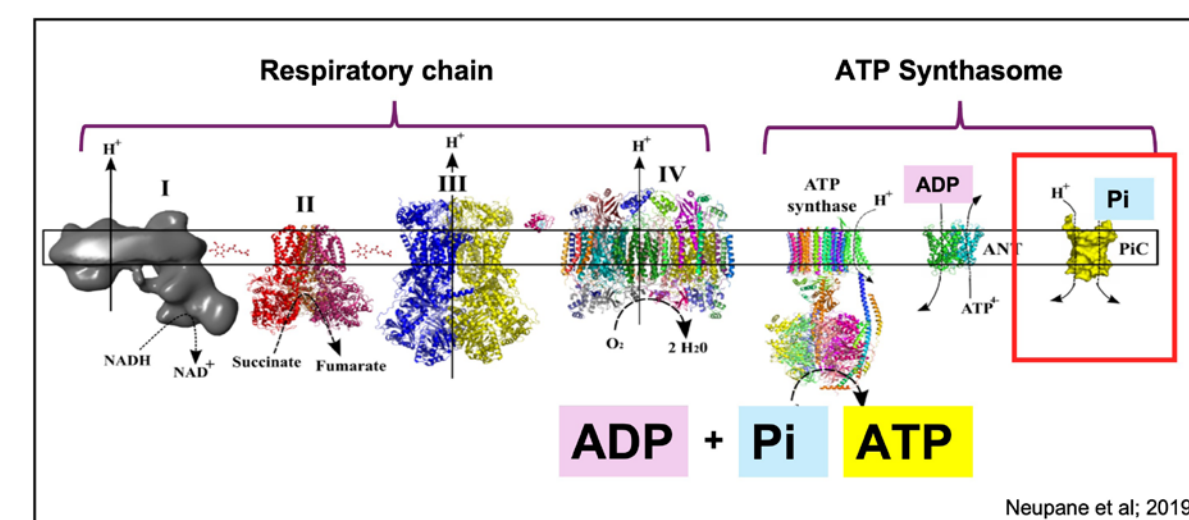
Primary Mitochondrial Cardiomyopathies

- Primary mitochondrial diseases are rare diseases but collectively affect a large population.

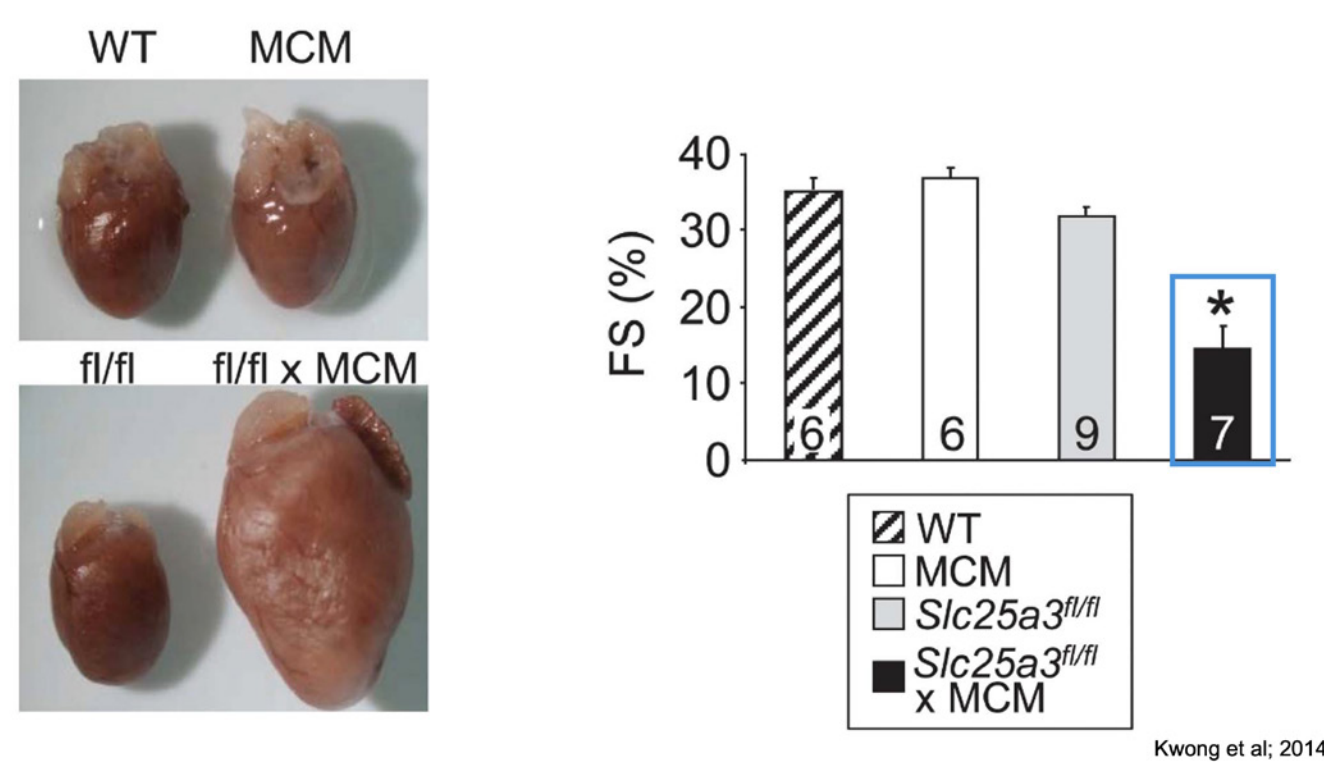


- Mouse model of cardiac energy dysfunction

Modeling mitochondrial energy dysfunction: Mitochondrial phosphate carrier (PiC) deletion

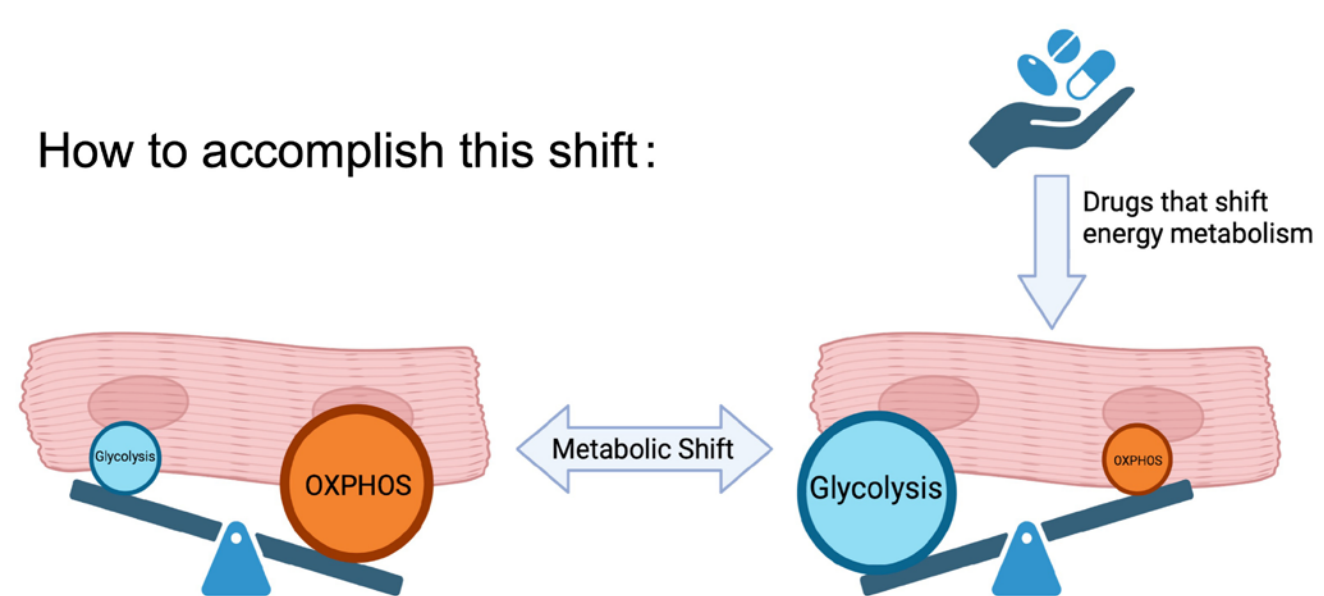


PiC deletion causes Mitochondrial Cardiomyopathy

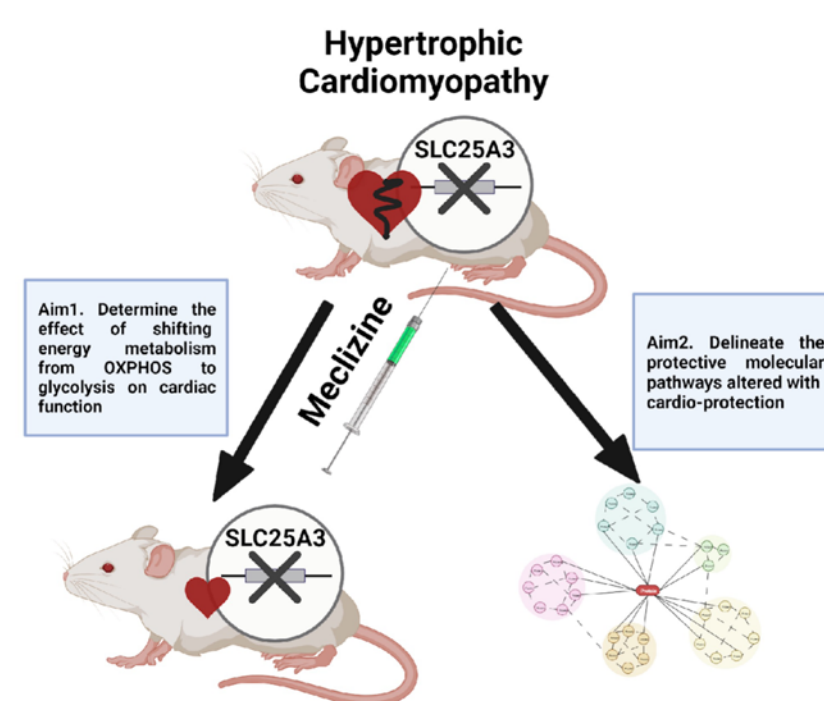


Are there strategies to circumvent mitochondrial energy dysfunction?

Is shifting energy metabolism from OXPHOS to glycolysis beneficial in a mouse model of OXPHOS dysfunction?



Hypothesis: A shift towards glycolysis is cardioprotective in the context of mitochondrial energy dysfunction.



Meclizine improves cardiac function

Aim1: Determine the effect of shifting energy metabolism from OXPHOS to glycolysis on cardiac physiology.

Aim2: Identify the cardioprotective molecular pathways engaged by meclizine.

