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Hinkle Award

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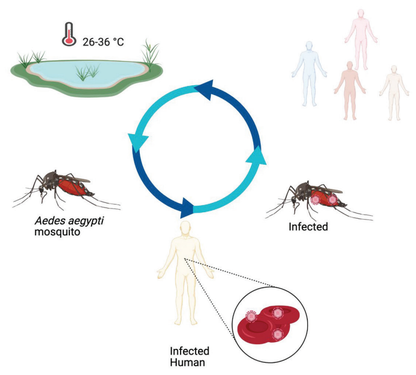
1785

Mosquito cell adaptation enables Zika virus replication across an expanded temperature range

By passaging Zika virus in mosquito cells at a low temperature, I am able to study how genetic mutations, as well as virus structural changes, allow Zika to replicate in a suboptimal temperature environment.

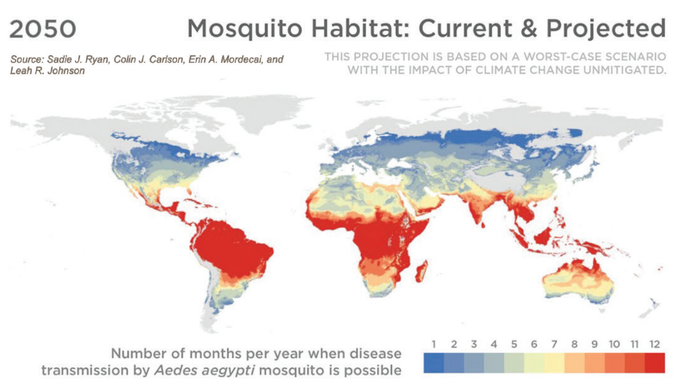
Temperature is a driving factor in Zika virus transmission



Zika infection in pregnant women can cause microcephaly in infants



Zika infections expected to increase as climate change expands the range of mosquito vectors



Increased Zika circulation

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Increased genetic diversity

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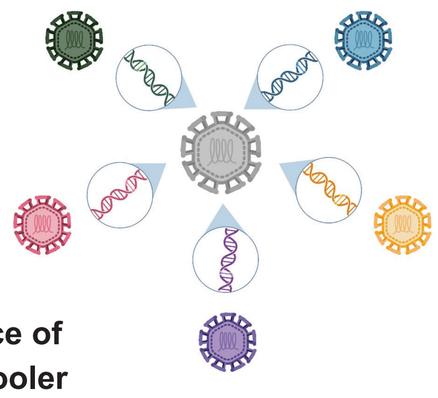
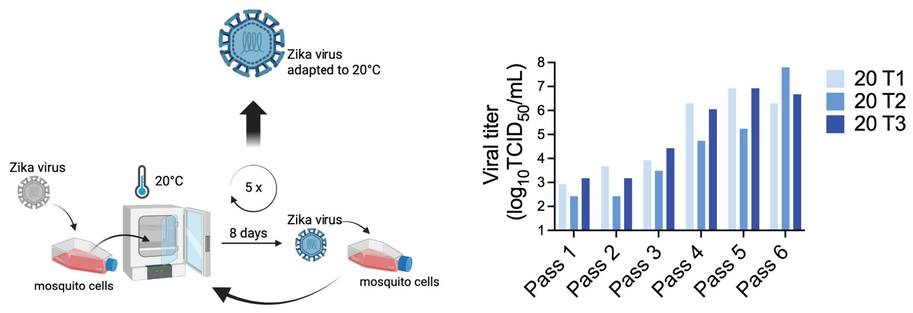
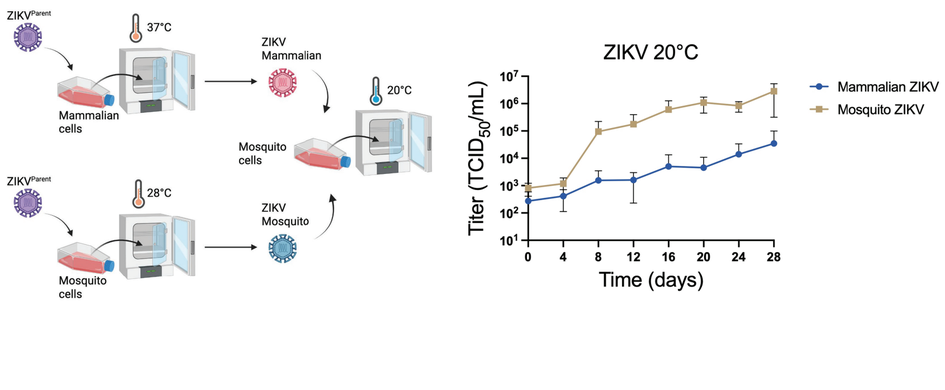
Higher potential for emergence of variants that are tolerant to cooler temperatures



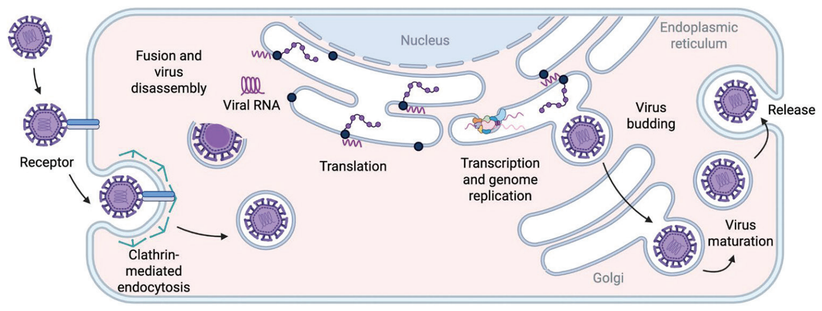
Key finding: Zika virus can adapt to replicate in suboptimal temperature environments



Key finding: Zika virus produced in mosquito cells has enhanced infectivity in 20°C compared to virus made in mammalian cells



Goal: Identify genetic mutations or structural changes in Zika that allow for enhanced infectivity in a cooler environment of 20°C



Goal: Identify which step of virus replication is altered

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