

# Evidence for mammals as amplification hosts of WNV

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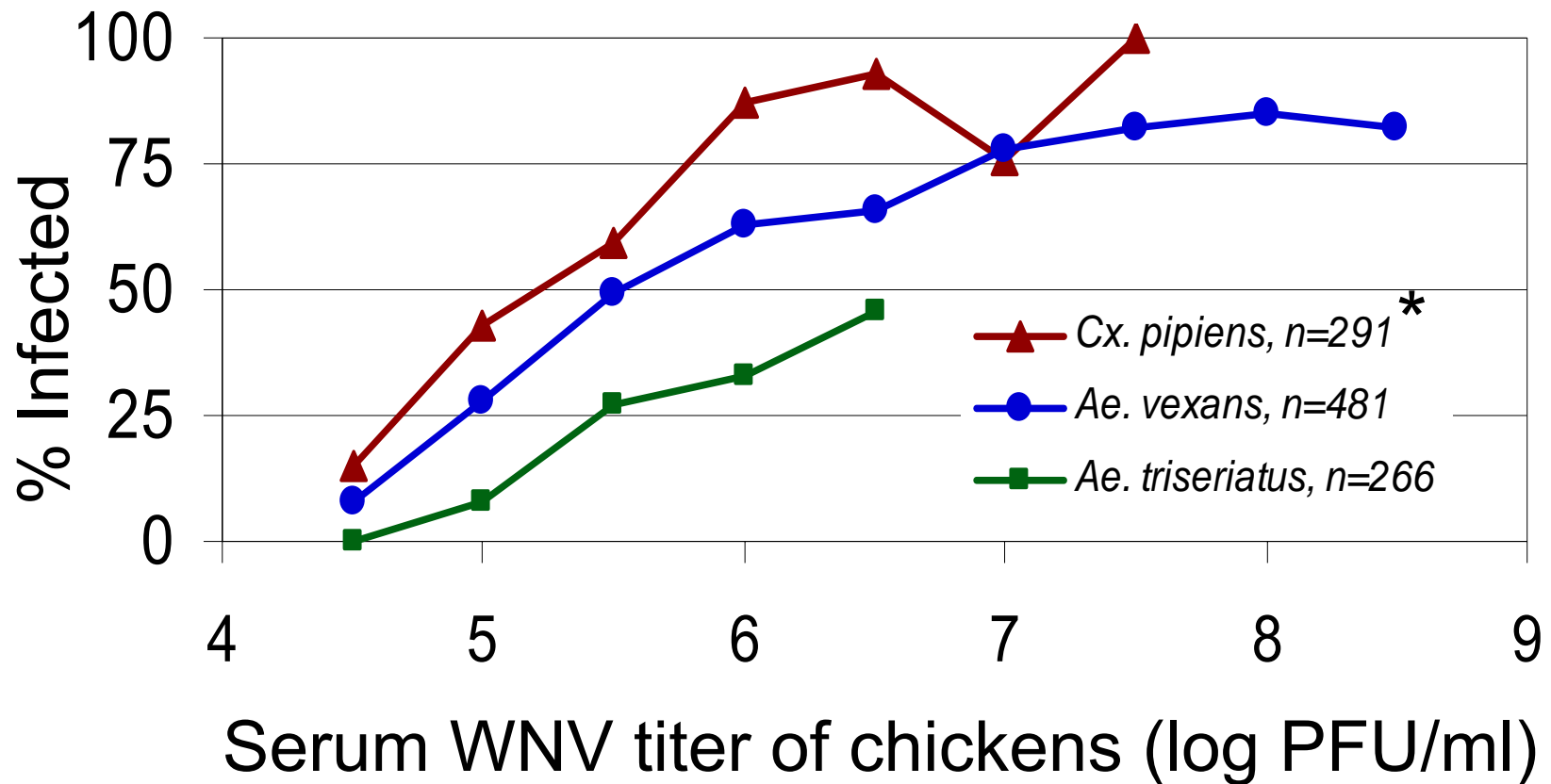
# Background

- The mosquito-bird-mosquito paradigm
- Mammals might be more important than previously believed especially those that occur in peridomestic settings

# Focus points

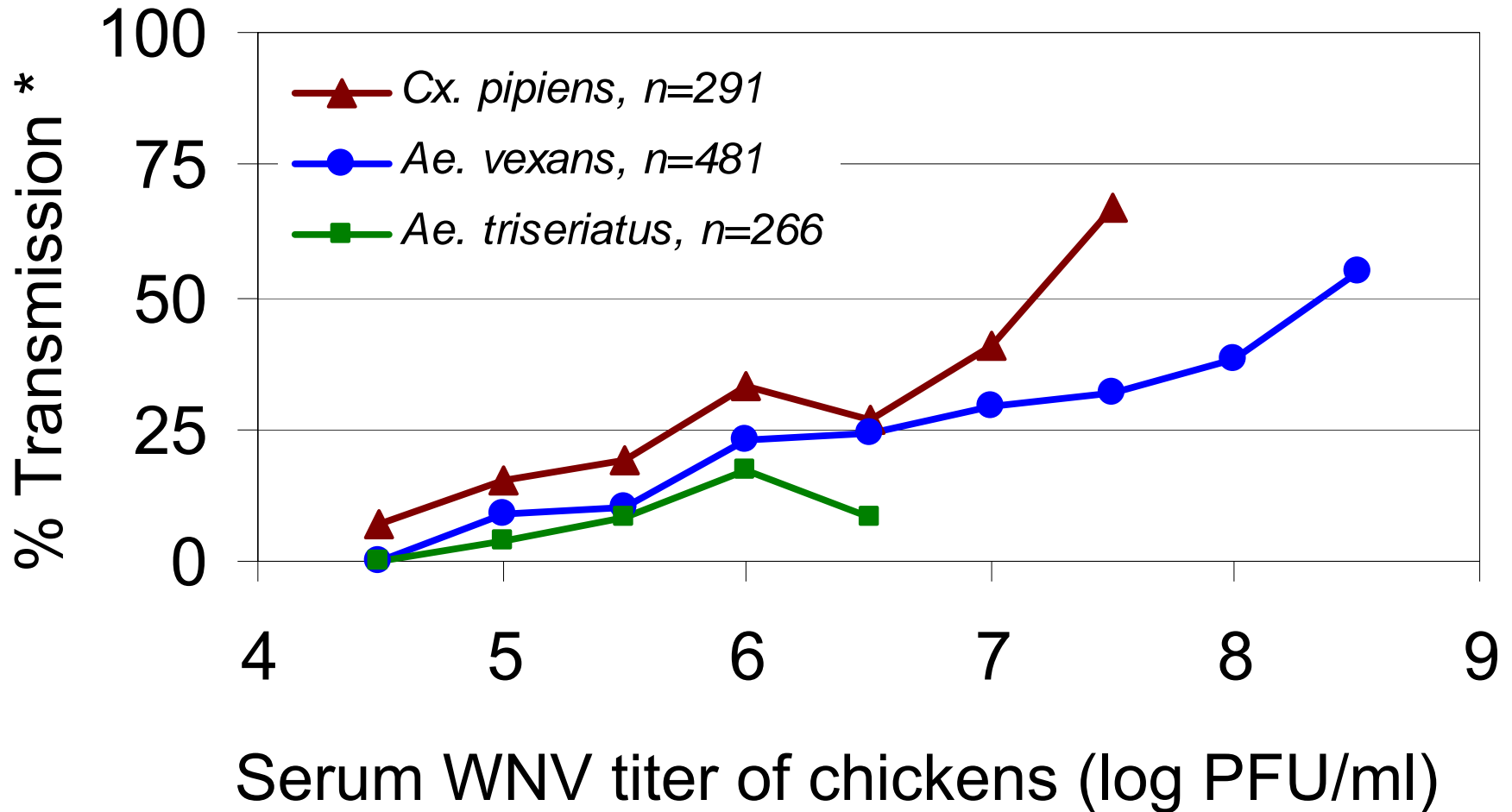
- Low levels of viremia can be infective for zoophilic and opportunistic mosquitoes.
- The cottontail rabbit, chipmunk and squirrel can be a source of WNV for mosquitoes.
- The potential for a mosquito-mammal-mosquito enzootic cycle exists.

# Susceptibility of 3 mosquito species to WNV infection



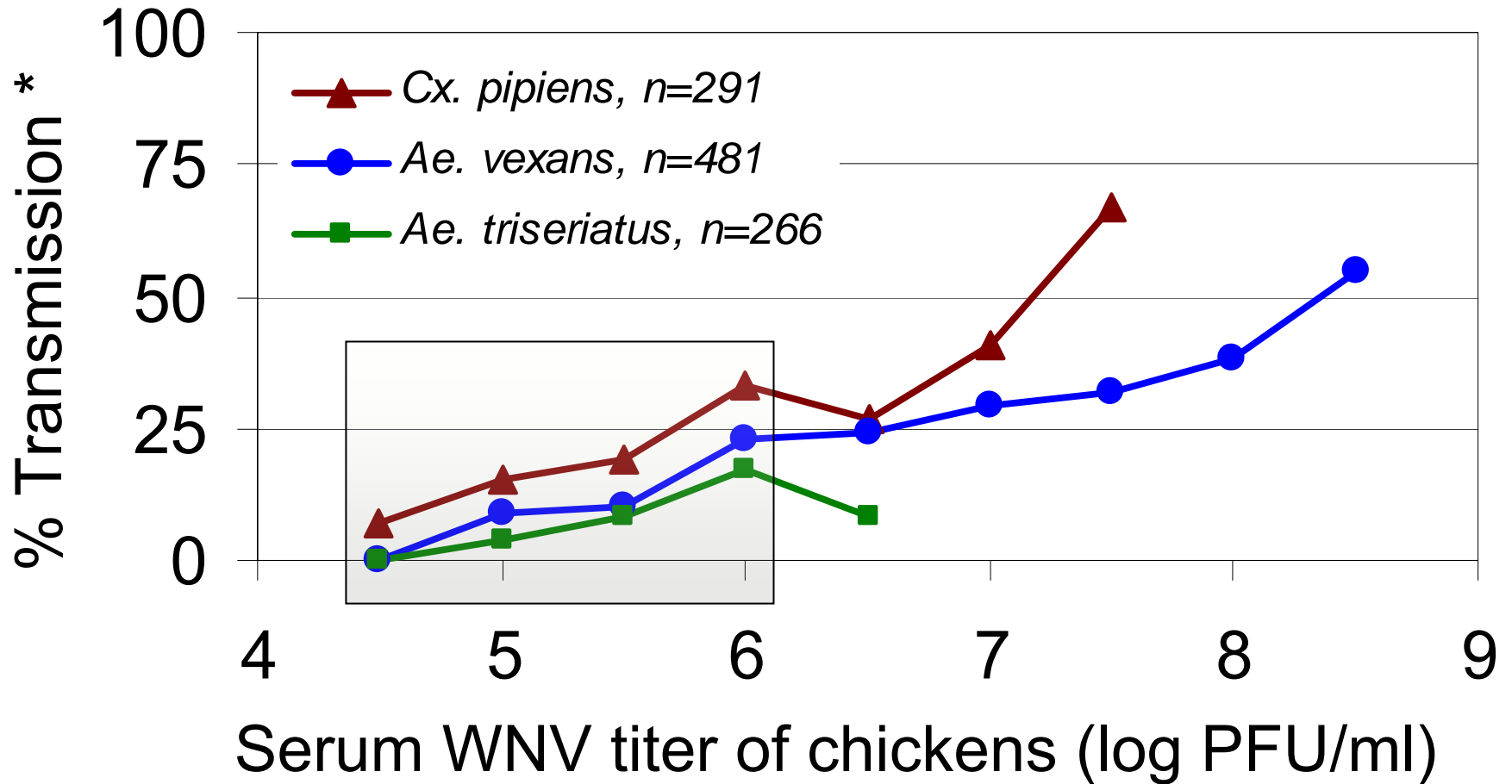
\*  
n= # blood-fed mosquitoes that subsequently refed from capillary tubes

# WNV transmission by 3 mosquito species



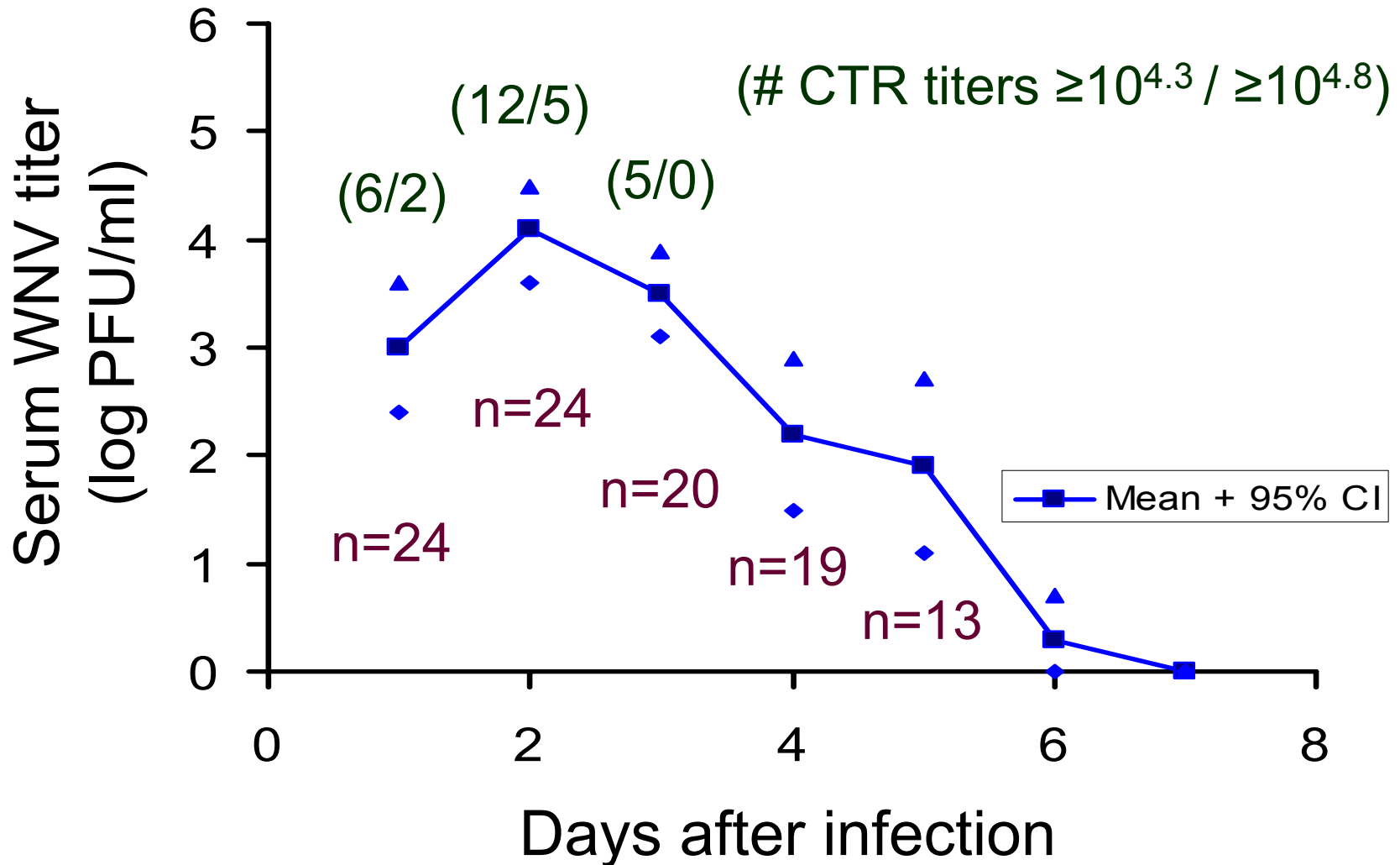
\*  
\* % Transmission = proportion of n transmitting virus

# WNV transmission by 3 mosquito species



\*  
% Transmission = proportion of n transmitting virus

# WNV viremia profile of infected cottontail rabbits (*Sylvilagus floridanus*)

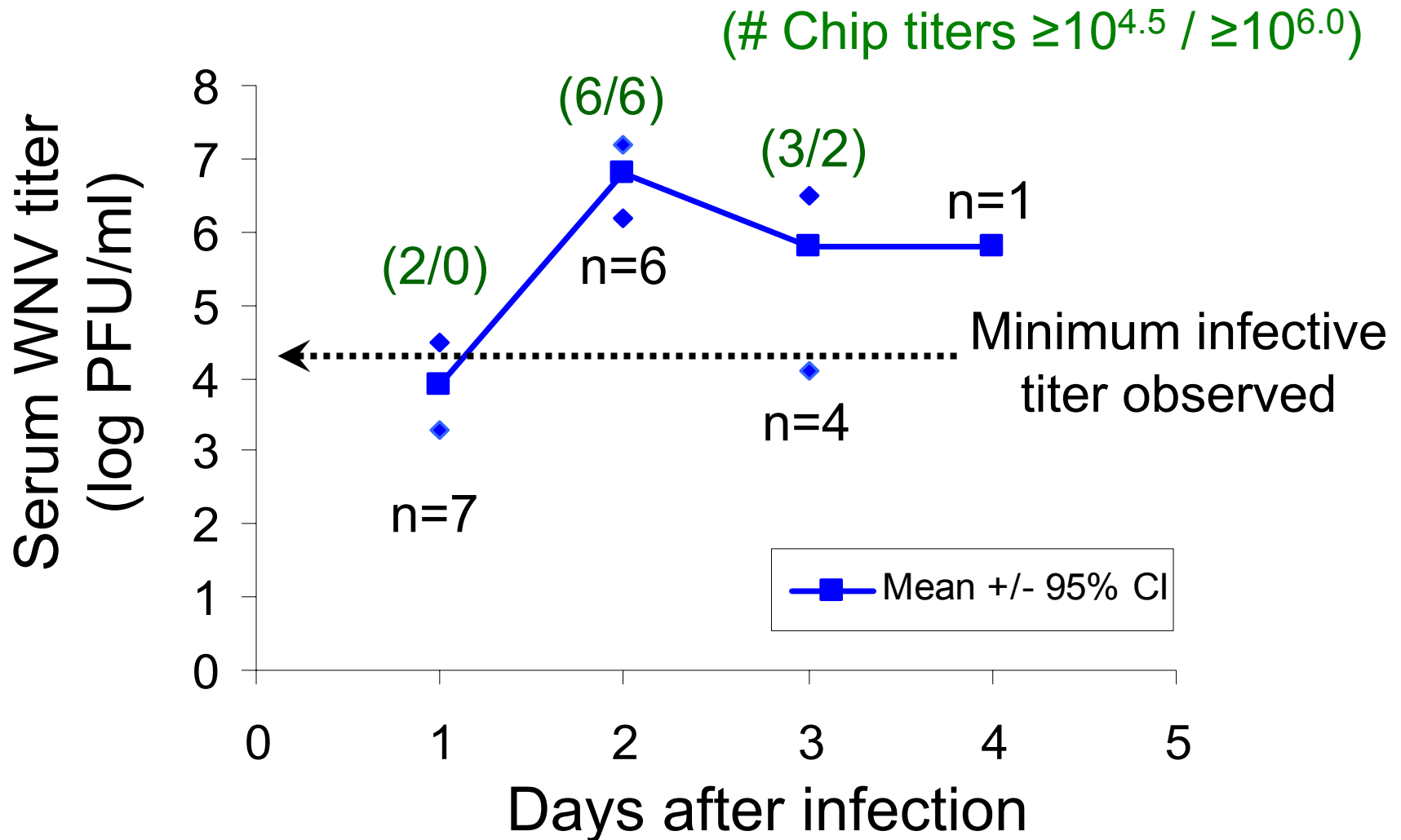


# Percent infection (#) of select mosquito species that fed on WNV-infected cottontail rabbits

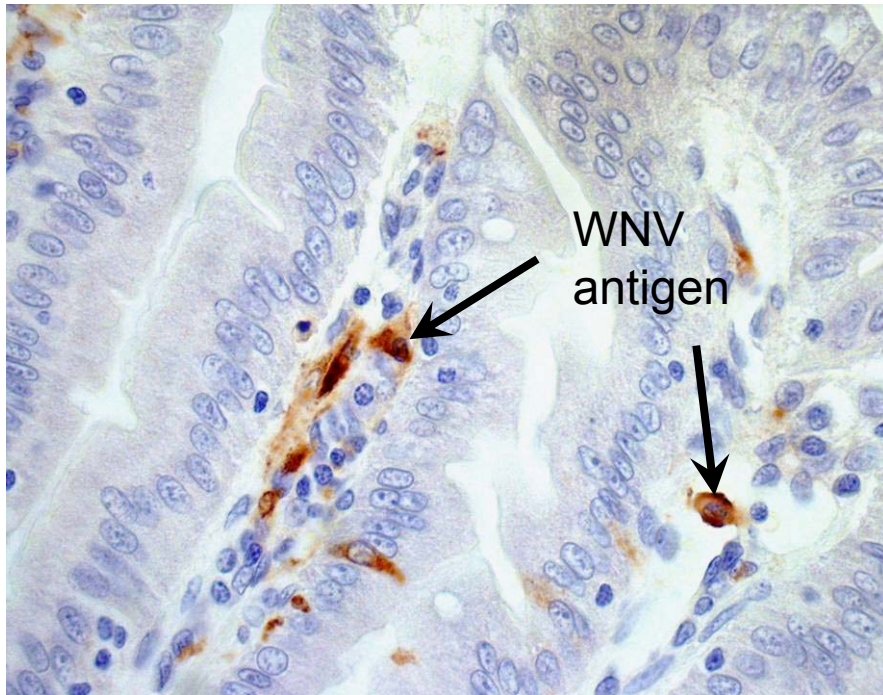
Serum WNV titer (log PFU/ml )	<i>Aedes triseriatus</i>	<i>Aedes vexans</i>	<i>Culex salinarius</i>	<i>Culex pipiens</i>
4.3 ≤ 4.4	5 (22)	—	15 (11)	17 (6)
4.5 ≤ 4.9	16 (44)	8 (38)	28 (32)	14 (44)
5.0 ≤ 5.3	—	—	22 (9)	27 (11)



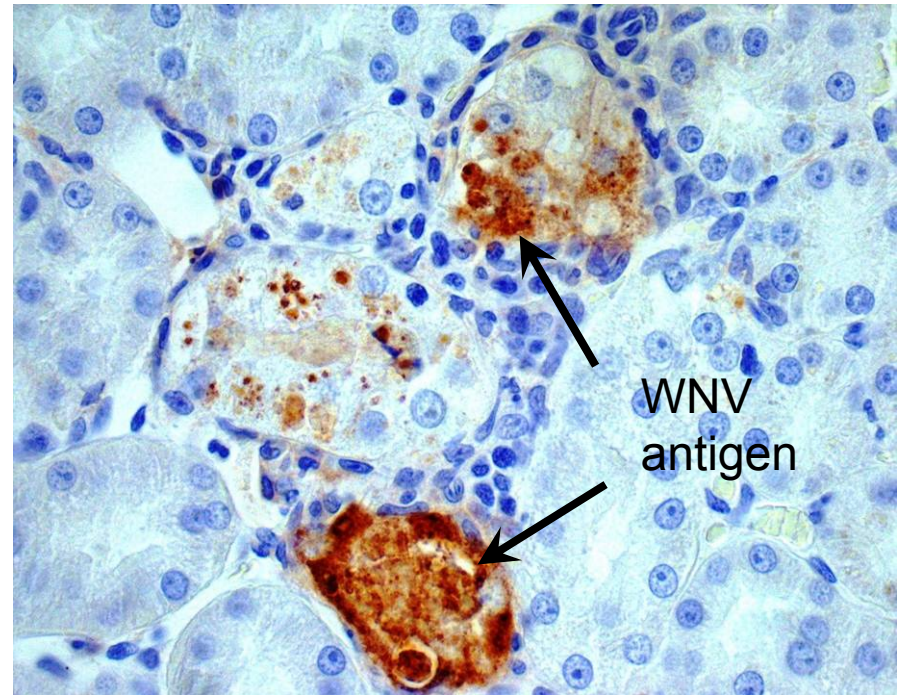
# WNV viremia profile of infected chipmunks (*Tamias striatus*)



# Immunoperoxidase staining of tissue from WNV-infected chipmunks

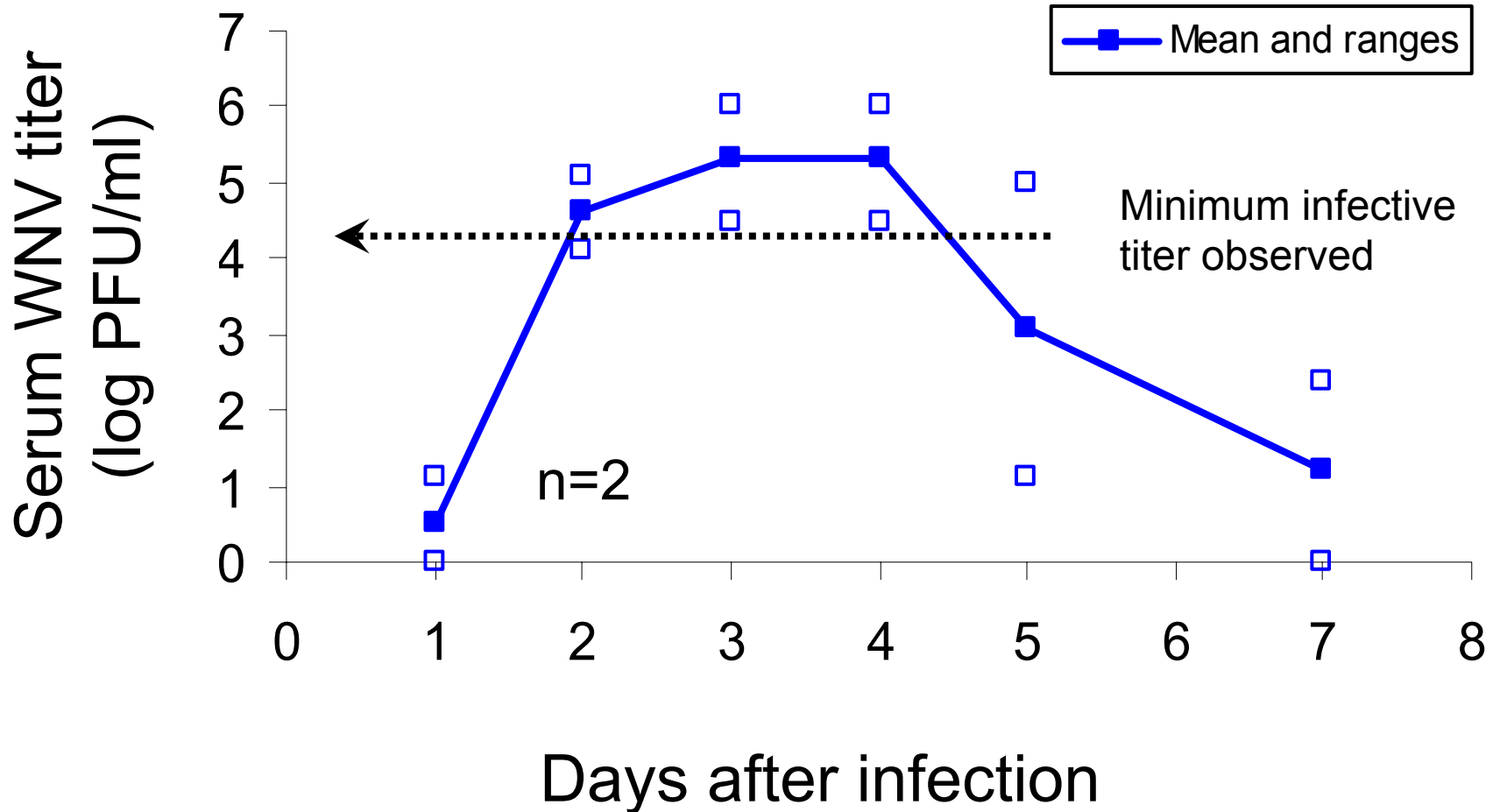


Small intestine



Kidney

# WNV viremia profile of infected fox squirrels (*Sciurus niger*)



# Summary and conclusions

- Rabbits, chipmunks and squirrels develop viremias sufficient to infect known enzootic and bridge vectors.
- Implications of a mosquito-mammal-mosquito enzootic cycle in suburban areas can not be underestimated relative to the epidemiology of WNV.

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