



# MMI 291 Seminar Series

Current Theme: Interdisciplinary Research

Spring Quarter 2021 – CRN 51367

**Friday Seminar – 12:10-1 p.m.**



*“Intermediate inhibition of PKR by the Myxoma Virus K3L Ortholog M156 Activates the NF- $\kappa$ B Pathway”*

## Microbiology Graduate Group Exit Seminar

**Summary:** Myxoma virus (MYXV) causes localized cutaneous fibromas in its natural hosts, tapeti and brush rabbits; however, in the non-native European rabbit host, it causes the lethal disease myxomatosis. Currently, the molecular mechanisms underlying this increased virulence after cross-species transmission are poorly understood. My thesis mainly aims to investigate molecular mechanism underlying the crosstalk between PKR-eIF2 $\alpha$  and NF- $\kappa$ B pathways and how MYXV-M156, a K3L ortholog, differentially affect NF- $\kappa$ B-dependent inflammatory responses through targeting PKR from brush rabbit and European rabbit species. I found that PKR-eIF2 $\alpha$  activation affects I $\kappa$ B $\alpha$  protein levels through its translational control and MYXV-M156R differentially regulate the levels of proinflammatory responses through targeting PKR-eIF2 $\alpha$  pathway. The goal of my second project was to establish a CRISPR/Cas9 gene knockout workflow. I successfully knocked out rabbit PKR in RK13 cells using CRISPR/Cas9-mediated genome editing. I found that the deficient of rabbit PKR rescued the replication of MYXV lacking two PKR inhibitors. In a collaboration, I identified MYXV/CNPV infection from clinical samples, sequenced the full-length genome of MYXV using nanopore sequencing, assembled and analyzed the data using bioinformatic tools.

## Publications

Huibin Yu, Chen Peng, Greg Brennan, Stefan Rothenburg\*. *Intermediate inhibition of PKR by the Myxoma Virus K3L Ortholog M156 Activates the NF- $\kappa$ B Pathway*.

Huibin Yu, Greg Brennan, Stefan Rothenburg\*. *Innate Recognition of Poxviruses and Viral Immune Evasion (Invited review paper)*.

Li Huang, Tao Xiong, Huibin Yu, Zhang Q., Zhang K., Li C., Hu L., Zhang Y., Zhang L., Liu Q *Encephalomyocarditis Virus 3C Protease Attenuates Type I Interferon Production through Disrupting TANK-TBK1-IKK $\epsilon$ -IRF3 Complex [J]*. *Biochemical Journal* 474 (12), 2051-2065

April  
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April 16, 2021  
12:10 – 1 p.m.  
ZOOM Meeting

Medical Microbiology  
& Immunology  
School of Medicine

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We hope to see you there!