

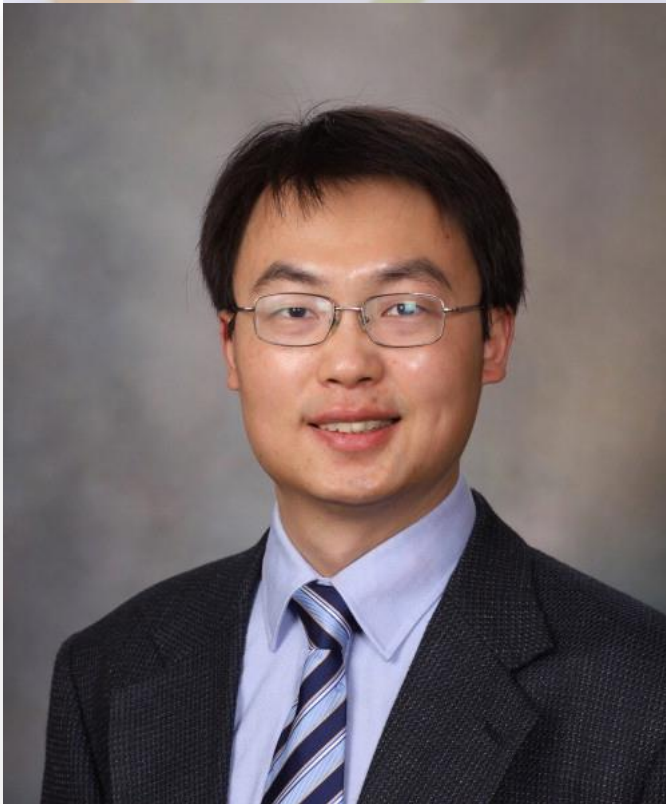
SEMINAR

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3 May 2018 (Thursday), 4pm
The Auditorium (Level 1)

Hosted by: Dr Pek Jun Wei

mRNA translational regulations in inflammatory responses



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Gene expression is precisely regulated during the inflammatory response to control infection and limit the detrimental effects of inflammation. Here, we profiled global mRNA translation dynamics in the mouse primary macrophage-mediated inflammatory response. We found that the 3'UTRs of the differentially translated mRNAs have enriched binding motifs for several RNA-binding proteins, which implies extensive translational regulatory networks. We characterized one such protein, Zfp36, as a translation repressor. We determined that the endogenous Zfp36 directly interacts with the cytoplasmic poly(A)-binding protein (Pabpc1). Importantly, this interaction is required for the translational repression of Zfp36's target mRNAs in resolving inflammation. Altogether, these results uncovered critical roles of translational regulations in controlling appropriate gene expression during the inflammatory response and revealed a new biologically relevant molecular mechanism of translational repression via modulating the Pabpc1.

Wenqian Hu got his B.S. degree and Ph.D. degree from Wuhan University, China, and Case Western Reserve University, USA, respectively. He did his postdoc training with Harvey Lodish at the Whitehead Institute and established his own lab at Mayo Clinic in 2015. Currently his lab focuses on post-transcriptional regulation in mammalian cell differentiation and responses to environment.

Recent Publications:

1. Zhang, X., Chen, X., Liu, Q., Zhang, S., and **Hu, W.** * (2017) Translation repression via modulation of the cytoplasmic poly(A) binding protein in the inflammatory response. *eLife* 2017 Jun 21;6. pii: e27786 (*correspondence author)
2. Alvarez-Dominguez, J.R., Zhang, X., and **Hu, W.*** (2017) Widespread and dynamic translational control of red blood cell development. *Blood* 129:619-629 (*correspondence author)
Commented in: Warren, A.J. (2017) Decoding erythropoiesis. *Blood* 129:544-545
3. **Hu, W.** *, Yuan, B., and Lodish, H.F. (2014) Cpeb4-mediated translational regulatory circuitry controls erythroid terminal differentiation. *Developmental Cell* 30(6):660-672 (*correspondence author)