Date / Time:
Tuesday 6 March 2012
12pm – 1pm

Venue:
CeLS Auditorium
Centre for Life Sciences,
Level 1,
28 Medical Drive
Singapore 117456

Convener:
Dr Zhang Yongliang

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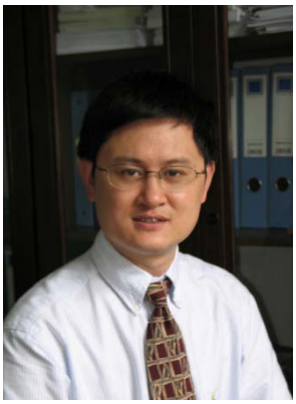

Regulations of Cellular Antiviral Response

Abstract

Viral infection results in transcriptional induction of type I IFNs, which induce a set of IFN-stimulated genes (ISGs) that have inhibitory effects on viral replication in infected cells. Transcriptional activation of the promoters of type I IFN genes requires the coordinate activation of multiple transcription factors including NF-κB and IRF-3 and their cooperative assembly into transcriptional enhancer complexes in vivo. Induction of type I IFNs are tightly regulated because excessive production of these cytokines causes autoimmune diseases. In the past years, we have identified important signaling components that are required for virus-triggered induction of type I IFNs, such as VISA, MITA, WDR5 and GSK3beta. We also identified regulatory proteins that are important for limiting virus-triggered induction of type I IFNs, such as A20, SIKE, RNF5, Otubin1/2 and SENP2. These signaling and regulatory proteins coordinate to ensure proper induction of type I IFNs after viral infection.

Selected Publications

1. Xu, L.G., Wang, Y.Y., Han, K.J., Li, L.Y., Zhai, Z., **Shu, H.B.*** (2005) VISA is an adapter protein required for virus-triggered signaling. **Molecular Cell** 19:727-740

2. Zhong, B., Yang, Y., Li, S., Wang, Y.Y., Li, Y., Diao, F., Lei, C., He, X., Zhang, L., Tien, P., **Shu, H.B.*** (2008). The Adaptor Protein MITA Links Virus-Sensing Receptors to IRF3 Transcription Factor Activation. **Immunity.** 29:538-550.

3. Zhong B., Zhang L., Lei Z., Li Y., Mao A.P., Yang Y., Wang Y.Y., Zhang X.L., Shu H.B.* (2009). RNF5 negatively regulates virus-induced IRF3 activation via ubiquitination and degradation of MITA , **Immunity** , 30 , 397-407

4. Wang, Y.Y., Liu, L.J., Zhong, B., Liu, T.T., Li, Y., Yang, Y., Ran, Yong, Li, S., Tien, P., **Shu, H.B.*** (2010) WDR5 is essential for assembly of the VISA-associated signaling complex and virus-triggered IRF3 and NF-κB activation. **Proc. Natl. Acad. Sci. USA.** 107:815-820.

5. Lei CQ, Zhong B, Zhang Y, Zhang J, Shu HB* (2010) GSK3β regulates virus-triggered IRF3 activation and cellular antiviral response by promoting TBK1 activation. **Immunity** 33:878-889.