

No.	K22-3076	
研究課題名	Elucidation of mechanisms involved in tissue specific immunity during infection and vaccination	
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IMSUT International Joint Usage/Research Center Project <International>

Joint Research Report (Annual/~~Project Completion~~)

Annual Report

Report

In this project, our aim is to investigate the underlying mechanism(s) of tissue-specific immunological responses during infection and vaccination. In FY2022, face-to-face meetings with some of the group members have been possible. In addition, Dr. Coban organized the annual Young Investigators joint meeting of the IMSUT Joint Research Center with the theme of “Infection and Immunity” on February 8th, 2023 (<https://www.ims.u-tokyo.ac.jp/imsut/en/jointresearch/index.html#a06>) at IMSUT. This symposium brought members together and allowed fruitful discussions on ongoing projects.

TBK1 is a very well-known downstream molecule for anti-viral type-I interferons. Recent studies additionally found that TBK1 has more activities in autophagy, adaptive immunity by controlling germinal center (GC) formation, and in ON-OFF controlling of inflammasome downstream pathways. Moreover, these events seem to be occurring in a tissue-specific manner. Therefore, next year, we will conduct extensive experiments to understand the role of TBK1 in different tissues, and whether there are compensatory signaling molecules involved in TBK1 phosphorylation.

References:

Lee MSJ, Inoue T, Ise W, Matsuo-Dapaah J, Wing JB, Temizoz B, Kobiyama K, Hayashi T, Patil A, Sakaguchi S, Simon AK, Bezbradica JS, Nagatoishi S, Tsumoto K, Inoue JI, Akira S, Kurosaki T, Ishii KJ, **Coban C**. B cell intrinsic TBK1 is essential for germinal center formation during infection and vaccination in mice. **Journal of Experimental Medicine**, 2022, Feb 7;219(2):e20211336. doi: 10.1084/jem.20211336.

Fischer FA, Mies LFM, Nizami S, Pantazi E, Danielli S, Demarco B, Ohlmeyer M, Lee MSJ, **Coban C**, Kagan JC, Di Daniel E, Bezbradica JS. TBK1 and IKK ϵ act like an OFF switch to limit NLRP3 inflammasome pathway activation. **Proc Natl Acad Sci U S A**. 2021, September 21, 118 (38) e2009309118. doi.org/10.1073/pnas.2009309118.