

## S57-1 **Physiological roles of STIM-dependent calcium influx on B cells**

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Intracellular Ca<sup>2+</sup> elevations in immune cells are provided from two different pathways. One is a release of Ca<sup>2+</sup> from the endoplasmic reticulum (ER) stores, the other is an influx of extracellular Ca<sup>2+</sup> across the plasma membrane through store-operated Ca<sup>2+</sup> (SOC) channels. The main source for Ca<sup>2+</sup> entry in B cells is SOC influx that is essential for maintaining a sustained Ca<sup>2+</sup> signaling. The putative ER calcium sensor STIM1 and STIM2 are critical for SOC influx activation, but how STIM1 and STIM2 activate SOC influx and what physiological functions for these molecules in B cell biology are unclear. Here, we elucidated the physiological importance of SOCE in B cells by using STIM-deficient mice. This presentation will focus on the molecular mechanism of STIM-induced SOCE activation and its *in vivo* function for B cells.