

ID No.	K3001
Project Title	Identifying subcellular compartments driving Toll-like receptor responses
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Report	<p>Toll-like receptor 9 (TLR9) is a sensor for pathogen-derived single-stranded DNA. TLR9 has been shown to activate a set of transcription factors including NF-κB and interferon regulatory factors (IRFs) to induce production of proinflammatory cytokines and type I interferons (IFNs). In addition to these responses, TLR9 is suggested to impact metabolic reprogramming, phagosomal maturation, and cell proliferation. We first tried to establish an assay system detecting these non-inflammatory responses. An IL-3-dependent Ba/F3 cells were transduced to express TLR9 and studied TLR9-dependent cell proliferation by stimulation with a TLR9 ligand. Unfortunately, we failed to detect TLR9-dependent cell proliferation in Ba/F3 cells. Considering that a molecule required for TLR9-dependent cell proliferation is missing in Ba/F3 cells, we are going to look for such a molecule. Concerning phagocytic activity, Ba/F3 cells do not have any phagocytic activity. We are now going to make Ba/F3 cells phagocytic by expressing molecules required for phagocytosis. After establishing phagocytic Ba/F3 cells, TLR9 will be expressed to see the impact of TLR9 activation on phagocytosis.</p>