Abstract Submitted
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Mechanisms of T Lymphocyte Activation Exposed by Super Resolution Microscopy[1] LEONARD CAMPANELLO, WOLFGANG LOSERT, Univ of Maryland-College Park, MARIA TRAVER, BRIAN SCHAEFER, Uniformed Services University of the Health Sciences, ANDREW YORK, HARI SCHROFF, National Institutes of Health — In order to avoid the deleterious consequences of an uncontrolled immune response, tight regulatory control of positive and negative regulators during lymphocyte activation is needed. Utilizing cutting-edge super-resolution imaging technologies in combination with quantitative image analysis we explore the interplay between positive and negative regulation in activated T lymphocytes and investigate whether intercellular signaling is possibly governed by the degradation of a complex intracellular structure called the POLKADOTS signalosome. In segmenting the POLKADOTS signalosome structure by the betweenness centrality of its 3D medial axis skeleton, it was discovered that autophagosomes, small degradative intracellular organelles, localize preferentially to the ends of the filamentous POLKADOTS signalosome. These results provide new insight into the mechanisms behind the complex regulatory process that govern T lymphocyte activation.

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