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New Insights Into Inflammasome Assembly From the Adapter Protein ASC

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ABSTRACT

The inflammasome is a multi-protein platform triggering cytokine activation as the onset of inflammation. The adapter protein ASC assembles the inflammasome by acting as a molecular "glue" between the NLR family of danger-signal receptors and pro-caspase 1. With a bipartite architecture of two Death Domains, PYD and CARD, ASC self-oligomerizes via homotypic interactions and connects the protein components of the inflammasome. Understanding how this assembly takes place is of paramount importance to unveil the earliest stages of inflammation, a cellular process involved in an increasing number of human disorders. In this seminar, I will show our recent TEM and solution NMR results on the formation of ASC and ASC-CARD ultra-structures at the molecular and atomic levels. These results will be discussed in light of the current models for inflammasome assembly.