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DOWNREGULATION OF NLRP11 ALTERS HUMAN T CELL RESPONSES IN CO-CULTURES WITH DAUDI CELLS

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The NLR family is a relatively newly discovered family of Pattern recognition receptors whose functions have been examined almost exclusively in innate immunity. There are 22 known members of the NLR family in humans, four of which form a multiprotein complex called the inflammasome complex. Besides inflammasome complex formation, the NLR family members have been demonstrated to have associations with several diseases such as atherosclerosis, type II diabetes, obesity, Alzheimer's disease, gout and bacterial, viral and parasite infections. One of the members of the NLR family, NOD-like Receptor 11 (NLRP11) is expressed only in primates; however, its cellular functions as well as the specific stimulant(s) that activate it are largely unknown. To examine whether NLRP11 forms an inflammasome complex and whether it has regulatory roles in shaping adaptive immune responses, we investigated its potential interactors including ASC and Caspase-1 by co-IP and determined T cells responses; respectively. We also determined both extracellular and intracellular IL1 β production by ELISA and western blotting, as a maker for canonical inflammasome pathway activation. High expression of NLRP11 and expression of costimulatory molecules made Daudi cells an ideal model to use in our experiments. Given that B cells are professional antigen presenting cells (APC) that interact with T cells, we co-cultured human CD4⁺ primary T cells with Daudi cells in vitro. 40% down regulation of NLRP11 by siRNA in co-cultures resulted in the significant reduction of Th1, Th17 responses and an increase in anti-inflammatory response whereas did not significantly affect Th2 responses when compared with control co-cultures. In brief, our studies of NLRP11 suggest a role in regulating adaptive immune responses.

Biography

Ceren Ciraci has completed her PhD from Iowa State University and Postdoctoral Studies from University of Iowa Inflammation Program. She is currently serving as a Junior Faculty at Istanbul Technical University.

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