

ABSTRACT

Large Vessel Vasculitis (LVV) is a family of autoimmune diseases characterized by inflammation, smooth muscle cell proliferation, and aneurysm formation in the large vessels, leading to ischemia and/or increased risk of vessel rupture. We previously reported the presence of autoantibodies to 14-3-3 ζ in the sera of LVV patients, as well as its increased expression in regions of inflamed vessel tissue in the majority of LVV patients. 14-3-3 ζ is one of seven mammalian isoforms of 14-3-3 family of proteins. Like other autoimmune disease, LVV patients have increased levels of IL-17A, therefore, we questioned the role of 14-3-3 ζ in the IL-17A signaling and the pathogenesis of LVV. Earlier results show that 14-3-3 ζ is required for IL-17A-induced IL-6 production, and that it binds to TNF Receptor Associated Factor (TRAF) 2, 6, and especially 5. Current results indicate 14-3-3 ζ role in IL-17A signaling via its influence on TRAF5, its binding partner. 14-3-3 ζ was found to promote TRAF5 degradation. We hypothesized that 14-3-3 ζ regulates TRAF5 levels in basal and cytokine-stimulated environments to influence the outcomes. Our results indicate that the expression of 14-3-3 ζ negatively correlates with TRAF5 levels in different cell types. Furthermore short-term stimulation of cells with IL-17A also resulted in degradation of TRAF5, which was found to be reversed after prolonged treatment. Our study provides mechanistic details of 14-3-3 ζ role in regulation of IL-17A signaling.



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PRESENTATIONS

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Peter, C., Chakravarti, R “The Role of 14-3-3 ζ in IL-17A Signaling” Poster Presentation at the Graduate Research Forum, Toledo, OH, March 2019

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PUBLICATIONS

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Subramanian, G., Kuzmanovic, T., Zhang, Y., **Peter, C. B.**, Veleeparambil, M., Chakravarti, R., ... Chattopadhyay, S. (2018). A new mechanism of interferon's antiviral action: Induction of autophagy, essential for paramyxovirus replication, is inhibited by the interferon stimulated gene, TDRD7. *PLoS pathogens*, 14(1), e1006877.

Coakley, C., **Peter, C.**, Fabry, S. and Chattopadhyay, S. (2017). Establishment of a Human Cell Line Persistently Infected with Sendai Virus. *Bio-protocol* 7(16): e2512.

FUTURE PLANS

Cara plans to return to her home of Seattle, WA and pursue a position in immunology research

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