Poster Presentation

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InlC of L. monocytogenes Binds Human Tuba for Bacterial Cell-Cell Spreading

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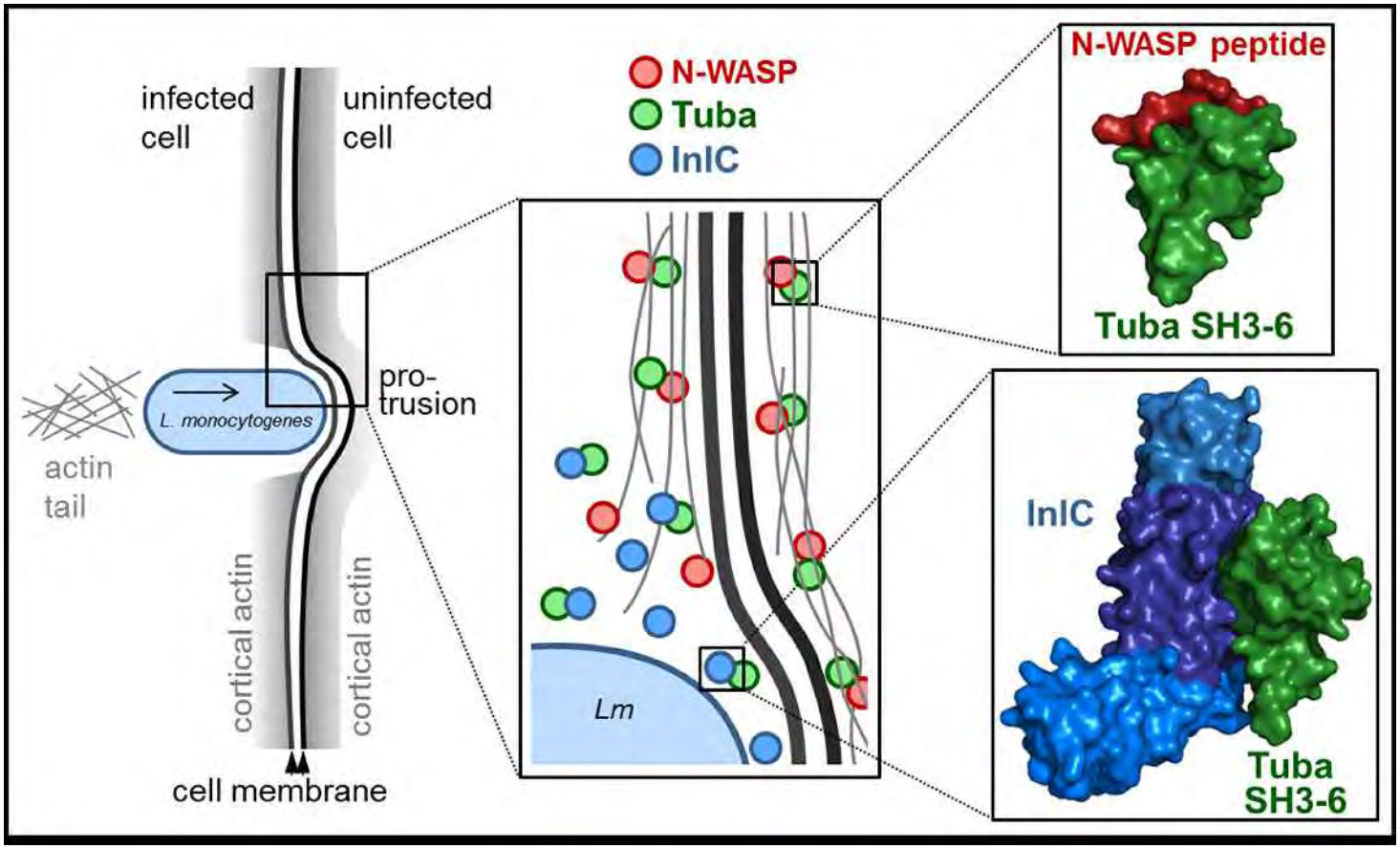
The human pathogen Listeria monocytogenes is able to directly spread to neighboring cells of host tissues, a process recently linked to the virulence factor InlC. InlC targets the sixth SH3 domain (SH3-6) of human Tuba, disrupting its physiological interaction with the cytoskeletal protein N-WASP. The resulting loss of cortical actin tension proposedly slackens the junctional membrane allowing protrusion formation by motile Listeria. Complexes of Tuba SH3-6 with physiological partners N-WASP and Mena reveal equivalent binding modes but distinct affinities. The interaction surface of the infection complex InlC/Tuba SH3-6 is centered on phenylalanine146 of InlC stacking upon asparagine1569 of Tuba. Replacing Phe146 by alanine largely abrogates molecular affinity and in vivo mimics deletion of inlC. Collectively, our findings indicate that InlC hijacks Tuba through its LRR domain, blocking the peptide binding groove to prevent recruitment of its physiological partners.

[1] *Rajbanian T, Gavicherla B, Heisig M, Müller-Altrock S, Goebel W, Gray-Owen SD, Ireton K (2009) Nature Cell Biology 10, 1212-8,* ***[2]*** *Polle L, Rigano LA, Julian R, Ireton K, Schubert W-D (2014) Structure 22, 304-314.,* ***[3]*** *Ireton K, Rigano LA, Polle L, Schubert W-D (2014) Frontiers in Microbiology (in press).*



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