

Near-atomic CryoEM Structural Analysis of the *Salmonella* Type III Injectisome Basal Body

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The type III secretion (T3S) injectisome is a specialized protein nanomachine that is critical for the pathogenicity of many Gram-negative bacteria, including purveyors of plague, typhoid fever, whooping cough, sexually transmitted infections and major nosocomial infections. This syringe-shaped 3.5-MDa macromolecular assembly spans both bacterial membranes and that of the infected host cell. The internal channel formed by the injectisome allows for the direct delivery of partially unfolded virulence effectors into the host cytoplasm. The structural foundation of the injectisome is the basal body, a molecular locknut structure composed predominantly of three proteins that form highly oligomerized concentric rings spanning the inner and outer membranes. The structure of the prototypical *Salmonella enterica* serovar Typhimurium pathogenicity island 1 basal body, determined using single-particle cryo-electron microscopy, with the inner membrane and outer membrane ring oligomers defined at 4.3 Å and 3.6 Å resolution, respectively will be presented. This work provides the first high-resolution structural characterization of the major components of the basal body in the assembled state, including that of the widespread class of outermembrane portals known as secretins.