Type III secretion machines: bacterial devices for protein delivery into eukaryotic cells

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One of the most exciting developments in the field of bacterial pathogenesis during the last two decades has been the discovery that bacterial pathogens utilize specialized nanomachines to deliver bacterial proteins into eukaryotic cells. These proteins have the capacity to modulate a variety of cellular functions for the pathogen’s benefit. This strategy is widespread in nature since the presence of this type of machines has been detected in many bacteria pathogenic or symbiotic for animals, plants, or insects. One of this type of machines is known as the Type III Secretion System. I will discuss the structure and function of this machine, its assembly pathway, with special emphasis on its most critical component, a subcellular structure known as "the needle complex"