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Structural Biology of the Type II Secretion System from *Vibrio cholerae*. J. Abendroth, P. Murphy, A. Kreger, M. Sandkvist, W.G. Hol, Howard Hughes Medical Inst. and Univ. of Washington, Seattle, WA 98195, USA.

The human pathogen *Vibrio cholerae* employs the Type II Secretion System (T2SS) for the export of its major pathogenic agent, cholera toxin, from the periplasm of *V. cholerae* through the outer membrane into the intestine of its host. The T2SS, a large protein machinery that consists of 12-15 proteins, is a highly regulated system that spans the cell envelope from the cytoplasm to the outer cell membrane. X-Ray structures of several soluble cytoplasmic and periplasmic protein domains and complexes have been solved using Se-Met anomalous diffraction techniques. Pathways how experimental problems such as disorder of anomalous scatterers, low phasing power at high and medium resolution and the selection of the crystallizable fragments were overcome will be presented along with the current set of structures, and ongoing efforts to express, purify and crystallize complexes of integral membrane proteins of the T2SS.