

## W0405

**Molecular Machines, Tropical Pathogens and Difficult Structures.** Wim Hol\*, Junpeng Deng, Jan Abendroth, Konstantin Korotkov, Marissa Yanez, Claudia Roach, Brian Krumm, Stewart Turley, Dept. of Biochemistry and HHMI, Univ. of Washington, Seattle, WA USA.

The “Type 2 Secretion System” (T2SS) from *Vibrio cholerae* and enterotoxigenic *E. coli* (ETEC) is responsible for secreting proteins like cholera toxin (CT) and heat-labile enterotoxin (LT). The T2SS consists of ~ 14 different proteins, and spans the inner and outer membrane. We have expressed many components of the T2SS including soluble proteins, integral membrane proteins and multi-protein complexes. Six crystal structures have been elucidated which gives initial insight into the architecture of the inner membrane subcomplex.

The editosome is essential for Trypanosomatids, which are causative agents of sleeping sickness, Chagas’ disease and leishmaniasis. For several mitochondrial proteins the pre-mRNA needs to be edited substantially. The editing information is encoded in numerous small “guide RNAs” which are used by the “editosome” to create a mature messenger. The editosome consists of over a dozen different proteins. High-resolution structures of editosome RNA-editing Ligase 1 and TUTase 2 provide the first three-dimensional insights into this complex machinery.

A summary will be given of the surprisingly many hurdles which needed to be overcome to solve quite a few of these structures.