His laboratory is interested in the structure and function of the ribosome, the large protein-RNA complex that synthesizes proteins using genetic instructions encoded in the mRNA template. Following the determination of the ribosomal 30S subunit and its complexes with antibiotics in 2000, his group went on to solve the structure of the entire 70S ribosome with mRNA and tRNA ligands in 2006. His laboratory has determined high-resolution structures of many functional states of the ribosome, which have shed light on the role of the ribosome in decoding of mRNA, peptidyl transfer, translocation and termination. More recently, his laboratory used single-particle electron microscopy to determine the structure of the large ribosomal subunit from human mitochondria at 3.4 Å resolution.

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