



CHRISTOPHER SCHAFER

Oregon Health & Science University

Degrees:

B.S. in Applied Physics, Michigan Technological University

Scholar Donors:

ARCS Foundation Portland Chapter

About the Scholar:

Chris is researching the interactions between the quintessential G protein-coupled receptor, (GPCR) rhodopsin, and its natural ligand, retinal. His work focuses on the seemingly basic questions of how the retinal enters and exits the receptor and how the receptor changes its conformation as a result of ligand binding and unbinding. There are many crystal structures of rhodopsin in different stages of its cycle; however, these just provide snapshots. Chris utilizes spectroscopy to observe the dynamics of the protein as it transitions from one conformation to another thereby filling in the gaps between the structures. Away from the lab, Chris is a former collegiate runner and enjoys downhill skiing and soccer.

Benefits to Society:

Rhodopsin is a member of, and model for, the G protein-coupled receptor family of proteins, a family that constitutes ~3% of the human proteome and are found in all tissue types. As a result, these proteins are a popular target for pharmaceuticals. For several of these receptors, including rhodopsin, the means of ligand entry and exit remains a matter of debate. Chris is seeking to elucidate the molecular mechanisms involved in ligand binding within this model protein. Information regarding the how rhodopsin interacts with its ligand will facilitate future drug development.

Awards and Honors:

Tartar Trust Fellowship

NIH Ruth L Kirschstein T32 PMCB training grant recipient