

**Novel Sensory Transduction Protein Domains from *Rhodobacter*:
from Genomics to Biology**

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Analysis of microbial genome sequences revealed numerous evolutionary conserved protein domains of unknown functions suggesting that significant parts of microbial physiology, metabolism and behavior remain unexplored. Many conserved domains appear to be involved in signal sensing and transduction. I will overview the progress in identification and characterization of the novel protein domains involved in sensory transduction in the phototrophic bacterium, *Rhodobacter sphaeroides*. Functions of proteins containing these domains will be described. The focus of the presentation will be on the novel blue-light sensory domain, BLUF, originally identified in the dual light- and oxygen-sensor protein AppA; and on the GGDEF and EAL domains involved in synthesis and turnover of the putative signaling molecule in bacteria, cyclic diguanylate.