Robert Schleif, Transcriptomics 2017, 5:2 (Suppl)
DOI: 10.4172/2329-8936-C1-011

Robert Schleif

Johns Hopkins University, USA

What 40-plus years of study have taught us about the DNA-looping protein AraC and its regulation of the L-arabinose operon in *Escherichia coli*

The AraC protein both positively and negatively regulates expression of the L-arabinose operon in *Escherichia coli*. More than three hundred person and years of research spread over more than four decades has revealed much about gene regulation and transcription factors. This work included the discovery of the phenomenon of DNA looping in gene regulation, and has stimulated development of many techniques used in Molecular Biology including DNA gel retardation assays and missing contact foot-printing. The talk will summarize current understanding of the mechanism by which the binding of arabinose to AraC shifts the protein from preferring to loop DNA and repressing the *pBAD* promoter by binding to two DNA sites separated by 210 base pairs to preferring to bind to two adjacent DNA sites and activating the promoter. Several recent experiments will be described including elucidation of the role of the N-terminal arm of the protein in controlling the protein's DNA binding properties and experiments demonstrating that arabinose binding to one subunit affects the N-terminal arm of only the opposite subunit.

Biography

Robert Schleif is a Professor of Biology and Biophysics at Johns Hopkins University. He has received his graduate training in Physics and Molecular Biology at the University of California, Berkeley, and Post-doctoral training at Harvard University with Drs. Gilbert and Watson. After 18 years in the Biochemistry Department at Brandeis University, he has moved to Johns Hopkins.

schleif@jhu.edu

Notes: