Colin Kleanthous, J Bacteriol Parasitol 2013, 4:4
http://dx.doi.org/10.4172/2155-9597.S1.004

OMICS Group Conferences
Accelerating Scientific Discovery

International Congress on
Bacteriology & Infectious Diseases
November 20-22, 2013 DoubleTree by Hilton Baltimore-BWI Airport, MD, USA

Antibacterial proteins signal their intention to kill

Colin Kleanthous
University of Oxford, United Kingdom

Protein-mediated transmembrane signalling typically occurs either by induced conformational changes in the receptor or through changes in the oligomeric status of the receptor. In both instances the change in the structural state of the receptor communicates to the other side of the membrane that a binding event has occurred thereby initiating an intracellular signal. The talk will describe recent work from lab that has uncovered a third transmembrane signalling mechanism in which the signal itself, in the form of an intrinsically unstructured polypeptide epitope, is delivered directly through porins such as OmpF in the outer membrane of *Escherichia coli*. This form of signal transduction enables protein antibiotics known as colicins to interact with periplasmic Tol proteins, leading to entry of the colicin into the cell. The presentation will focus on how porins are recruited to receptor-bound colicin E9 in the outer membrane, how this enables colicin epitope delivery to the bacterial periplasm, and how binding of this epitope to TolB subverts an allosteric transition that promotes contact with the inner membrane protein TolA and ultimately triggers pmf-dependent colicin translocation across the outer membrane. The discussion will describe very recent work where we have isolated and characterised the intact outer membrane translocon complex for a receptor-bound colicin.

colin.kleanthous@bioch.ox.ac.uk