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### DNA binding sites for transcriptional activators and expression and activation of resistance genes

**Maria M Tavio**

University of Las Palmas de Gran Canaria, Spain

The expression of a gene moves through many stages, each of which offers an opportunity for regulation. By far the most common type of regulation occurs at the first stage, when RNA is made. Genes that are regulated at this level are said to be transcriptionally regulated. Transcriptional regulation occurs primarily through proteins called transcriptional regulators, which usually bind to DNA often with helix-turn-helix motifs. The techniques of comparative genomics have made it possible to identify repressor and activator genes in a wide of bacteria. These transcriptional regulatory proteins belong to a limited number of known families, although they regulate operons with very different functions and respond to different effectors. There are at least 15 different families of transcriptional regulators, some of them consist only of repressors, others consist only of activators, and some consist of both repressors and activators. Here several transcriptional activators belonging to the families AraC/XylS, LuxR, LysR and TetR, involved in the development of antibiotic resistance to beta-lactams and quinolones as well as their DNA binding sites are analyzed and compared. Likewise, we will show our recent findings on the role of transcriptional regulatory proteins in the expression of beta-lactam and quinolone resistance genes.

#### Biography

Maria M Tavio M.D. completed her PhD at the age of 27 years from University of Las Palmas de Gran Canaria and Postdoctoral studies from The London Hospital Medical College, Queen Mary's University of London, UK and the Faculty of Medicine of L' Aquila University, Italy. She is titular Professor at the University of Las Palmas de Gran Canaria. She has published more than 40 papers on quinolone and beta-lactam resistance including her article on QnrS1 protein characterization derived from her recent work at Harvard Medical School, USA. She also serves as assessor for national and European research projects on antimicrobial resistance.

[mtavio@dcc.ulpgc.es](mailto:mtavio@dcc.ulpgc.es)