



**Virology** 

October 06-08, 2014 Hilton San Antonio Airport, TX, USA

## Phospho-regulation of high-risk HPV E6 PDZ/14-3-3 interactions

Lawrence Banks Italy

**P**reviousstudies have shownthat the cancer-causinghighrisk HPV E6 oncoproteins have PDZ bindingpotential, an activitywhichis important for theirability to support the viral life cycle and to cooperate in the induction of malignancy. Lowrisk, non-cancer causing HPV E6 oncoproteinslackthis motif, and itcanthereforebeconsidered as a marker of the viral oncogenicpotential. Indeed, proteomicanalysis of multiple HPV E6 oncoproteinsdefines a subset of PDZ domain-containing cellular proteins as beingcommontargets for cancer-causing HPV types. However, PDZ interactions are not constitutive, and canbenegativelyregulated by phosphorylation with PKA or AKT within the E6 PDZ binding motif (PBM). This phospohorylation in turnconfers association with 14-3-3 familymembers. This regulationishighlyconservedbetween E6 proteinsderivedfrom HPV-16, HPV-18 and HPV-58. Wealso show that HPV-18 E6 phosphorylation occursprimarilyduring the G2/M phase of the cell cycle whereas HPV-16 E6 phosphorylation occursduring S phase. This phosphorylation in turnregulates the levels of E6 expression and confersenhanced interaction with multiple 14-3-3 isoforms. One consequence of E6 interaction with 14-3-3 is an alteration in the subcellular distribution of 14-3-3, whichoccurs in an E6 PBM dependentmanner. Thesestudiesrevealunexpecteddifferences in the regulation of HPV-16 and HPV-18 E6 function and have important implications for how phosphorylation of E6 mightbeexpected to play a roleduring the respective viral life cycles and tumourdevelopment.

## Biography

Chattopadhyay after completing his Masters in Biotechnology from India moved to University of Cape Town in Cape Town, South Africa to pursue his Ph.D. in human genetics, cancer biology and infectious diseases. He completed his Ph.D. in 2010 and worked as a researcher at Stellenbosch University and University of KwaZulu-Natal (South Africa) on neurogenetics, pharmacogenetics and extremophiles. After working briefly as a faculty member in genetics at University of KwaZulu-Natal he moved to the USA. Currently he is a researcher at University of Pittsburgh in Pennsylvania, USA. His expertise is in molecular genetics. He has published several papers in reputed journals and also on the editorial board for several journals.

virukude@savba.sk