

# **Protein Citrullination: An approach to fine-tune transcription events regulation**

**Priyanka SHARMA**

Institut de Recherche en Cancérologie de Montpellier

Arginine citrullination is the post-translational modification of arginine to the non-coded amino acid citrulline, catalyzed by a family of enzymes called peptidyl arginine deiminases (PADIs). PADI2 is widely expressed among the family members and regulates several cellular processes associated with tumor progression. PADI2 is intricately involved in the progression of several tumors while the underlying functional mechanism could differ from one malignancy to another. Our work spotlights the PADI2-mediated citrullination of the arginine1810 Cit1810 of RNA polymerase II (RNAP2) as a key player in the transcription plasticity of breast cancer cells. To understand the functional implications of citrullination in the distinct stage of transcription and RNA processing, we set out to examine the possibility that PADI2 affects alternative splicing. I will discuss our unpublished data that demonstrated that the PADI2 profoundly affects alternative splicing events regulation and assigned significant connections to the functional splicing regulatory network. We are working to elucidate that protein citrullination directed bimolecular condensates could be one of the potential mechanisms by which PADI2 could contribute to the distinct stage of transcription regulation and cancer progression.