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Epitrascriptomics and IPSC

Miguel Fidalgo
University of Santiago de Compostela, Spain

Adenosine deaminases acting on RNA (ADARs) are the proteins responsible of the adenosine-to-inosine modification, critical for multiple RNA regulatory pathways. ADAR-mediated editing is associated with diseases ranging from neurological disorders to cancer. Even though ADAR1 has been recognized as an essential enzyme necessary for normal embryonic development, its function in pluripotency and reprogramming remains to be addressed. In this study we attempt to understand ADAR1 functions in somatic cell reprogramming. Here we show that, while being dispensable for self-renewal and pluripotency maintenance, ADAR1 editing activity is essential for the generation of induced pluripotent stem cells (iPSCs). Remarkably, we identified RNA editing-specific and stage-dependent functions of ADAR1 during reprogramming. Overall, our data links ADAR1 mediated A-to-I editing with the establishment of induced pluripotent stem cells and provides a better understanding of the reprogramming process.

Biography:

Dr. Miguel Fidalgo obtained his Ph.D. in Molecular Medicine (2010) from University of Santiago de Compostela in Spain. He was a postdoctoral fellow with Dr. Jianlong Wang (2011-2016) at the Icahn School of Medicine at Mount Sinai, NY. Since 2016, he is a Principal Investigator at Center for Research in Molecular Medicine and Chronic Diseases (CiMUS), Spain. His lab is interested in understanding epigenetic regulation of transcription in the mammalian genome that governs cell fate decisions during embryonic development and human diseases. They aim to develop novel therapeutic strategies for age-related disorders as well as rare diseases.