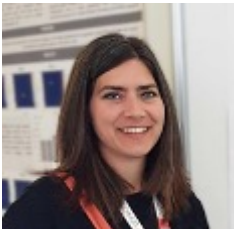


SORS/WomenInBSC: Cancer Genomics to study the origin and evolution of pediatric tumors

Abstract

Pediatric cancer is the leading cause of disease-related death in children in developed countries. However, compared to adult cancer, pediatric cancer is a rare disease. Pediatric tumors are different from their adult counterparts: they are thought to arise from developmental stages and many of them have an unknown cell of origin. Their genomes have in general a low mutational burden, affecting only a few cancer driver genes. Nonetheless, the information that can be extracted from cancer genomes is varied and rich, as somatic mutations are part of the history of cells and they can inform us about the origin of tumors. In fact, our recent work on the origin of second malignancies in children has elucidated some mechanisms of pediatric tumor evolution. Therefore, there is an opportunity to understand the origin and evolution of pediatric tumors by studying their genomes. For this, the main focus of my research is to understand pediatric cancer using genomics. By performing bioinformatic analysis such as clonality distribution and mutational signatures we can decipher when the driver event and the clonal expansion occur, and how tumors evolve with time and across different tumor lesions and in response to therapy. Learning about the origins of pediatric cancer helps understanding its biology to ultimately develop effective treatments.



Short Bio

Mònica Sánchez-Guixé is a researcher with a combined experimental, translational and computational background. She completed a biology degree in 2012 (UB, Spain) and then a first master in Molecular Genetics in Lund (Lund University, Sweden) followed by 3 years in Bergen to study the genetic basis of a congenital rare disease (Haukeland University Hospital, Norway). In 2016, Mònica started her PhD in translational breast cancer research in the lab of Dr Violeta Serra (VHIO, Spain) (Sánchez-Guixé, et. al. Clin Cancer Res 2022). After defending her PhD thesis in 2019, she performed a second master in Omics Data Analysis (UVIC, Spain), and joined as a postdoc at the prestigious Biomedical Genomics group at IRB Barcelona headed by Prof. Núria López Bigas. In a close collaboration with researchers in Sant Joan de Déu Pediatric Hospital, she gained expertise in Pediatric Cancer by studying the origin of second malignancies in children (Sánchez-Guixé et. al. Cancer Discovery 2024). She also contributed to the supervision and development of IntOGen, a bioinformatic tool for driver cancer gene discovery (intogen.org). Mònica's research focuses on studying pediatric cancer from its genomic perspective to ultimately decipher the origin of pediatric tumors.

Speakers

Speaker: Mònica Sánchez-Guixé, Post Doctoral Researcher at IRB, Barcelona.

Host: Alfonso Valencia, Life Sciences Department Director, BSC.

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