



Laudation for Dr. Adel Al Jord

Postdoctoral Research Fellow
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Finalist of the Eppendorf Award for Young European Investigators 2023

by Prof. Laura Machesky, Sir William Dunn Professor of Biochemistry
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The female oocyte represents the germ cell that when fertilised by a sperm cell can give rise to an embryo and a new organism. The unique challenges and mechanisms of oocyte function form the basis for study of human infertility problems, agricultural challenges and our understanding of reproductive biology. Adel Al Jord's work addresses how the unique mechanical forces experienced by oocytes can shape both their cytoplasmic and nuclear organisation as they prepare to become embryos.

During his postdoctoral work with Drs Marie-Helene Verlhac and Marie-Emilie Terret, he discovered that cytoplasmic forces, generated by the cytoskeleton of the oocyte, remodel the nucleus and the tiny factories of transcript processing, called condensates. These structures are liquid-like droplets inside of the nucleus packed full of the machinery that produces and processes RNA. Dr Al Jord said that his discovery grew out of one of those observations that might be called a "eureka moment" when looking down the microscope while dissecting mouse ovaries. He noticed that cytoskeletal mutants had more and smaller nucleoli, a type of condensates, than controls. He filed this observation away in the back of his head and came back to it over time to eventually realise that the cytoskeleton was having unexpected effects on the architecture of multiple types of nuclear condensates.

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He went on to show that condensate remodelling served to optimise the production and processing of transcripts to ensure proper quality during oocyte development. Al Jord's discovery that mechanical cytoplasmic forces shape what happens in these factories has opened up new areas of study around how quality control happens in the nucleus, not only of oocytes, but other cells as well, with implications for diseases such as cancer and neurodegenerative diseases and also viral infections.

Dr Al Jord attributed his initial inspiration to be a scientist in large part to the support and nurturing of his curiosity that he received from his parents as a child. He was also greatly inspired by his PhD supervisors Dr Alice Meunier and Nathalie Spassky, who fostered his passion for research and enabled him to pursue exciting questions. His advice to the future generation of early career investigators is to follow your curiosity with a mix of passion and perseverance.