OARSI TRAVEL SCHOLARSHIP

Applicant: Andrea Dell'Isola, PhD; Lund University (Sweden)

Host Institution: Hinda and Arthur Marcus Institute for Aging Research (Marcus Institute)

Host supervisors: Asst Prof Michelle Yau

OARSI Travel Scholarship report

I was one of the recipients of the 2025 OARSI travel scholarship, which enabled me to spend a month at the Marcus Institute for Aging Research, working closely with Assistant Professor Michelle Yau.

During my stay, I received training in the application of Polygenic Risk Scores (PRS) to epidemiological research. Specifically, I:

1.1) learnt key principles of human population genetics and the theory underpinning the application of PRS in epidemiological research, and

1.2) gained hands-on experience in developing and applying PRS to epidemiological studies.

This training was instrumental in helping me integrate PRS into my epidemiological research. I am currently working with a large dataset called MAP-OA, which I created by merging a general population cohort of 25,000 adults aged 45 to 75 from EpiHealth with Swedish health and socioeconomic electronic records. EpiHealth was originally designed to study the role of environmental and genetic factors in non-communicable diseases and include data from an extensive clinical examination, including genotyping, and a comprehensive questionnaire generating over 780 data points on environmental factors, lifestyle, joint function, and overall health. From the electronic records, I retrieved comprehensive healthcare and socioeconomic data for all individuals in EpiHealth creating a unique dataset covering every healthcare contact, including all inpatient and outpatient care, all in-hospital treatments, and all drugs dispensed at any pharmacy in Sweden, from the establishment of the registers up to 2042.

Despite the uniqueness of the data, our unit at Lund University lacked the expertise to integrate genotyping data into our research. The work funded by the OARSI travel scholarship enabled me to receive the necessary training to conduct such analyses and led to the development of a new PRS for my dataset, which showed promising predictive potential. The project is now continuing remotely, with the aim of combining PRS from different phenotypes to achieve even greater predictive accuracy.

The scholarship also enabled me to establish a strong collaboration with Assistant Professor Michelle Yau, with whom I am currently working on a large-scale study using the MAP-OA data.