TURAJLIC Samra EOI 2022 – ICR

Project title: Deciphering cancer evolution through post-mortem profiling

Project Summary:

While cancer evolution studies to date have brought about a much-needed understanding of the patterns of evolution in the primary tumour and their relationship to clinical behaviour (Turajlic et al, Cell 2018a&b), there is still a limited understanding of the forces that shape the emergence of metastatic potential and the bases of metastatic competence (Turajlic and Swanton, Science 2016). A major obstacle is our limited ability to comprehensively study metastases in patients. PEACE study (Posthumous Evaluation of Advanced Cancer Environment) offers an unprecedented opportunity to address this knowledge gap by facilitating sampling from a range of sites, especially those that are seldom available through diagnostic or research biopsies, including brain, liver and bone. This project will be grounded in the cohort of cases of renal cell cancer collected profiled in this study. The main aims of the project are to:

- To decipher the evolutionary dynamics of renal cancer metastases, characterizing the patterns and timing of metastatic spread from primary tumour
- To identify novel/common vulnerabilities within the metastatic process, which may inform new strategies for therapeutic targeting
- To elucidate organ-specific metastatic features

This will be achieve through a combination of genomic and transcriptomic profiling and multiplex immunohistochemistry. The candidate will have the opportunity to develop both dry lab and wet lab skills but can choose to focus on either.

The candidate will be based in the Cancer Dynamics Laboratory led by Dr Turajlic, at the Francis Crick Institute. The group are a multi-disciplinary team of cancer evolutionary biologists and translational research clinicians concerned with both basic evolutionary principles and application of evolutionary rules in the clinic. There will be an opportunity to train in both dry and wet lab aspects. We collaborate nationally and internationally and there will be ample opportunities for training at the ICR and the Crick.

Supervisory Team:

- Dr Samra Turajlic**,** Institute of Cancer Research, Royal Marsden, and Francis Crick Institute
- Dr Kevin Litchfield**,** University College London
- Prof. James Larkin, Institute of Cancer Research and Royal Marsden NHS Foundation Trust

Clinical Specialities: oncology, pathology, surgery; candidates that have not entered specialist training are welcome to apply.