

Project Title: **Role of WASP in EMT**

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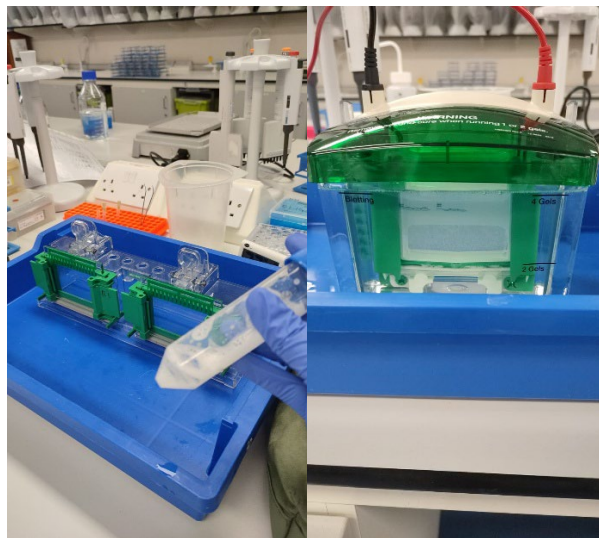
Supervisor Name: **Yolanda Calle-Patino**

Host Organisation: **University of Roehampton – Whitelands College**

The project aimed to investigate the role of WASP protein in regulating the Arp2/3 protein complex which, in turn, regulates expression of the intermediate filament Vimentin and polymerisation of F-actin, both key factors in the Epithelial-to-Mesenchymal-Transition (EMT) of cancer cells.

The idea behind it was to compare EMT-related protein levels between parental and WASP knockdown breast cancer cell lines using different methods to assess protein expression and distribution. The methods involved a variety of laboratory techniques:

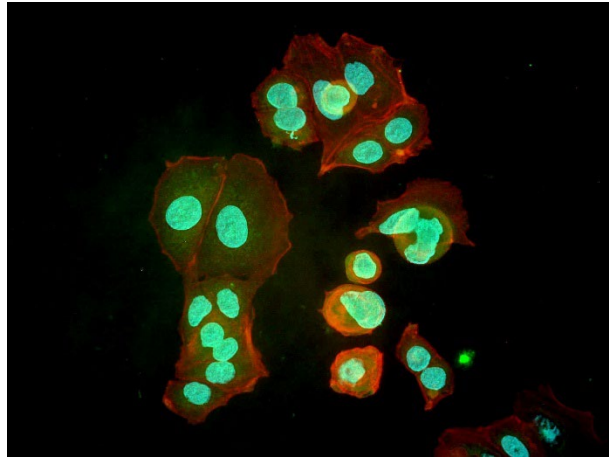
- **Western Blot**, with all the numerous steps it involves. We learned how to prepare the gels, load samples and run the gel electrophoresis. We transferred the proteins on the nitrocellulose membrane before detecting them using chemiluminescence after antibody incubation.



- **Immunostaining** of fixed epithelial and mesenchymal breast cancer cell lines to assess the difference in distribution of EMT-related proteins, such as Vimentin and F-actin. Our supervisor has constantly guided and advised us through each careful step, especially handling and incubation procedures.



- **Fluorescence Microscopy**, where we had the chance to observe the slides prepared in laboratory during immunostaining and captured images of different fields of view under different filters. The images have then been overlapped using FIJI software, to create composites that interestingly allowed us to visualize and compare the distribution of our proteins of interest in epithelial and mesenchymal phenotypes.



- **Cell culturing, cell counting and cell seeding.** We observed the process of cell culturing in containment laboratory, from cryopreservation in liquid nitrogen tanks to cell suspension in flasks. We then practiced cell counting, using a Neubauer chamber and, based on our calculations, cell seeding in sterile conditions. Each step reinforced the importance of precision and contamination control in live cell work.

This internship taught me more than just lab techniques. In addition to hands-on experience with widely used laboratory techniques, one of the most valuable aspects of this experience in my opinion has been the opportunity to work closely with an experienced researcher. Observing the importance of strict adherence to protocols has deepened my understanding of both laboratory safety and the need for precision in obtaining reliable results. Beyond the practical skills, our supervisor consistently took the time to explain the reason behind each reagent, instrument, and procedure used. Not only how to follow protocols but also why each step mattered.

This approach helped me understanding the importance of being fully aware of our actions in the lab, essential to overcome a daily part of scientific work: problem-solving.

This experience has solidified my ambition to pursue a lab-based career in biomedical science. I really enjoyed being actively involved in lab protocols, analysis and data collection. Prior to this internship, techniques like microscopy and Western Blot felt somewhat abstract, but working hands-on helped me connecting theory to practice and having a clearer idea on how research is carried out and how challenging and rewarding every single step can be. I would love to further improve the skills I've had the chance to practice during this studentship along with strengthening my critical thinking. I now feel much more confident working in a laboratory setting and excited about building a career as a biomedical scientist.