PhD in functional interrogation of both coding and non-coding mutations and their consequences on PI3K inhibitor efficacy in breast cancer treatment

Location
National Institute for Cellular Biotechnology, Dublin City University, Dublin, Ireland

Description
A fully funded 4-year PhD position is available in DCU under the supervision of Dr. Alex Eustace. This PhD will address our hypothesis that mutations in both the coding and non-coding or ‘regulatory’ regions of genes encoding members of the PI3K/AKT-pathway influence patient response to new PI3K inhibitor based treatments.

Despite recent advances in the treatment of breast cancer, the National Cancer Registry of Ireland reported in 2014 that it accounted for 30% of all diagnosed female cancers and 16% of all female cancer deaths. The application of modern technologies to the study of breast cancer has demonstrated that the PIK3CA gene is commonly mutated in breast cancer and represents a potentially good prognostic and therapeutic marker of PI3K inhibitor sensitivity. However, reports from clinical trials indicate that PIK3CA gene mutations don’t always predict response to PI3K inhibitors, and despite PIK3CA mutations being tested as biomarkers of PI3K inhibitor sensitivity, many patients without PIK3CA missense mutations also respond to PI3K inhibitors.

Whilst most studies to date have focused on the mutations that occur in the coding exons of genes, recent evidence highlights the importance of pathogenic non-coding mutations in cancer. We have identified several functional SNVs in the non-coding or ‘regulatory’ regions of genes encoding members of the PI3K/AKT pathway, including the promoters and enhancers of the PIK3CA gene.

Qualifications
Minimum educational requirements: Bachelor or Master’s degree (minimum grade of a high 2.1 or 1.1) in biological or medical related subjects.

Desirable: Prior experience of working in a research laboratory with skills in molecular biology, CRISPR transfection and cell culture an advantage.

The successful candidate should be enthusiastic, self-motivated and should be able to interact well within a large multi-disciplinary research team.

Further Details – closing date 30th September 2019
Funding includes a stipend of €18,000/annum plus university registration fees at EU rates. Informal enquiries and full application (curriculum vitae, cover letter and contact details of two referees) to: Dr. Alex Eustace, National Institute for Cellular Biotechnology, Dublin City University, Dublin 9, Ireland. Email: alex.eustace@dcu.ie; T:+353 (0)1 7007497.