EMER CASEY FOUNDATION HELPS ACQUIRE HIGH TECH EQUIPMENT IN CANCER DETECTION FIGHT

By Christy Parker

The Emer Casey Foundation has reached another important milestone on the long road towards improving early detection rates of uterine/ovarian cancer. Eighteen months ago, the Dublin-based oncology research group, DISCOVARY - headed by Trinity College Dublin's Department of Histopathology acquired Ireland's first ever SOLiD™ 2nd Generation Sequencing platform. Through the work of the Emer Casey Foundation funding became available to contribute towards the purchase of this machine.

SOLiD™ is a new technology that enables scientists to examine the precise genetic content of patients' samples and enables this complex research to be undertaken on a larger scale, faster and more cost effectively than ever before. Its acquisition will facilitate world class research, with subsequent publishing in high impact journals. The Emer Casey Foundation and all who supported this fundraising endeavour can reflect with great pride on that reality.

The Emer Casey Foundation is currently supporting three Emer Casey PhD fellows (Mairead Murphy, Lynda McEvoy and Brendan Ffrench) whose work focuses on early detection of ovarian cancer, chemoresistance and cancer stem cells. Mairead Murphy's project involves screening bloods from ovarian cancer patients in an attempt to identify novel markers, which can be used to diagnose ovarian cancer at an early stage, to discriminate between malignant and benign disease and to diagnose recurrent disease. This research programme involves profiling the antibody repertoire of ovarian cancer subjects and controls against a high content human protein array. Identified markers will then be validated in a larger cohort of samples. Lynda McEvoy is working on elucidating the genetic mechanisms involved in tumour resistance to chemotherapy. A possible cause is the microenvironment of the tumour, which is characterised by areas of poor oxygen supply known as hypoxia. The results of various experimental studies suggest that tumour hypoxia plays an important role in the development of typical features of malignancy such as invasiveness, metastatic potential, and resistance to treatment. An understanding of the key elements and control of the hypoxia pathway could reduce unnecessary chemotherapy treatment and toxicity, prolong survival and lead to more effective therapy for ovarian cancer. Brendan Ffrench is investigating cancer stem cells and their role in ovarian cancer. There is increasing evidence that a subset of cells, termed cancer stem cells (CSCs) or cancer initiating cells, (distinct from the bulk of tumour cells) are responsible for long-term maintenance of tumour growth in several cancers. These CSCs have a unique capacity for self-renewal and appear to be able to reconstitute the tumor after traditional chemotherapy or radiotherapy treatments. The SOLiD™ system will be an invaluable tool in the above projects and will significantly advance this research.

In truth of course the fight against the 'silent killers' such as ovarian/uterine cancer, is being waged through a marriage of technology and the endeavours of those who continue to answer the calls of the Casey family to support their fundraising events. Progress belongs to all. "We can never sufficiently thank everyone for the wonderful support they have given and continue to give to the foundation," says Emer's mum Juliette. "Most importantly, it is heartening to see the great strides being taken in the battle against the disease thanks to everyone's efforts."

LATEST MILESTONE ON AN INSPIRING JOURNEY

By Christy Parker

The Emer Casey Foundation was established in honour of 27 year-old Emer Casey, who lost her life to uterine/ovarian cancer in 2006. The foundation has raosed over €500,000 thus far. This money helps to fund three Phd researchers who focus specifically in the areas of chemo-resistance, cancer stem cells, circulating tumour cells and the body's immune response to cancer. The three young scientists assist the battle against the disease by contributing their findings to the Trinity College Dublin led DISCOVARY consortium, a body composed of researchers from several international institutions who undertake world-class research into ovarian and endometrial cancer. DISCOVARY's primary goal is to understand these cancers, develop new early detection methods and design novel treatment options.

DISCOVARY comprises gynaecologists, oncologists, pathologists, molecular biologists, bioinformaticians, cell biologists, surface chemists, pharmacologists and nurse specialists. Individual projects are linked through investigators from Trinity College Dublin, University College Dublin, Dublin City University and the National University of Ireland Galway. Last year DISCOVARY's leader, Professor John O'Leary of the Department of Histopathology, Trinity College Dublin, was fulsome in his praise for the foundation, the researchers it funds and all who participate or otherwise partake in the various fundraising efforts of movement at home and abroad.

See www.emercaseyfoundation.com