

PRESS RELEASE

*SEMM – European School of Molecular Medicine
University of Milan*

*IFOM – The FIRC Institute of Molecular Oncology Foundation
IEO – European Institute of Oncology*

EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT BREAST CANCER

An innovative, multidisciplinary translational research programme for breast cancer, which aims to build an integrated database collection within the next ten to twelve years. Large-scale clinical trials. These are the topics discussed yesterday at the 2nd IFOM-IEO Cancer Meeting.

Early diagnosis, patient stratification for tailored prognoses and chemoprevention. With these goals in mind, Julio Celis, director of the Institute of Cancer Biology of the Danish Cancer Society, has given the go-ahead to the Danish Centre for Translational Breast Cancer Research. The research programme aims to build an integrated database collection during the course of the next ten to twelve years, which will allow the complete characterisation of breast tumours and the development of efficient markers for early diagnosis by means of simple blood tests. The data collected come from experiments in the fields of proteomics, genomics, immunohistochemistry, transcriptome (RNA) analysis and signal transduction. The programme was presented yesterday, at the 2nd International IFOM-IEO Cancer Meeting in Milan, which draws to a close today. In the course of the same session, Carlos Caldas, of Cambridge University (UK), presented two important large-scale breast cancer research projects: the first aims to develop breast cancer markers and the second relates to neo-adjuvant (pre-operative) chemotherapy.

“We realised – Julio Celis explains – that our research groups were fragmented and almost invariably worked on basic research projects, that were not integrated with other work. As a result, in spite of the fact that our work is charity-funded (*by the Danish Cancer Society, writer’s note*), we were too far away from diagnostic and therapeutic applications, and hence from the patients’ bed-side. The only way forward was clear: we had to unite our resources and form a tight link between the laboratory and the clinic, with the aim of bettering the quality of life of cancer patients. In practice, this meant dedicating economic and organisational resources to create a research programme that would allow the analysis of every clinical sample, using all available technologies, and that would allow the results to be collected in databases accessible to all participants in the programme. We have focussed on breast cancer, because there are good clinical data and well organised biologic material available for this disease.” The programme, which has been named the Danish Centre for Translational Breast Cancer Research (DCTB) was launched two and a half years ago and has already analysed samples from 100 patients, using the criteria outlined by Celis. “Our medium-term aim – Celis explained – is to reach a target of 500 patients in the next four years, and subsequently to double the number of cases analysed.” One of the most interesting ideas of the DCTB is the use of the collected data in early diagnosis of patients. “The information we are collecting – explained the scientist – will help us to identify biomarkers that can indicate the presence of a tumour at a very early stage, with a simple blood test, well before it could be identified by mammography. For this reason, we are collecting 200 samples of blood and tumour interstitial fluid.” Within the next four years, scientists of the DCTB expect to have in hand both the biomarkers and the assays for the predictive tests. “After that, – Celis concluded – further steps will depend on the pharmaceutical industry.”

The importance of large-scale projects based on multidisciplinary results is also at the base of the work of Carlos Caldas, from the Department of Oncology of the University of Cambridge. Caldas coordinates a programme which connects the results of various completed clinical trials and will allow the identification of new prognostic and predictive markers for breast cancer. And that is not all. Together with the group of Helena Earl (also from the University of Cambridge), Caldas is conducting a multicentre trial on neoadjuvant chemotherapy (the project is named NeoTANGO). This form of chemotherapy is administered in a pre-operative phase, when tumour diameter is greater than 2.5-3 centimeters: this reduces tumour size and allows more conservative surgical procedures, as well as being a way to give early treatment for small metastases that might already be present. NeoTANGO started up a year ago, and should be completed within the next two

years; to date, 200 patient samples have been analysed, although 800 samples are expected by the end of the study. The aim of the study is to correlate patient response to drugs with gene expression profiles obtained from tumour biopsies collected before, during and after chemotherapy (*i.e.* just before surgery). “The advantage of our study – Caldas explained – is that unlike for conventional chemotherapy, for which we have to wait several years before obtaining a final result, in the case of neoadjuvant chemotherapy, we can obtain results within the few months that are necessary for this kind of treatment.

The 2nd International IFOM-IEO Cancer Meeting was promoted by the European School of Molecular Medicine (SEMM) and the University of Milan, in collaboration with IFOM (The FIRC Institute of Molecular Oncology Foundation) and IEO (European Institute of Oncology). The Meeting (May 5th - 8th 2006, IFOM-IEO Campus, Via Adamello 16, Milan, ITALY) hosts eminent cancer researchers from all over the world and offers the possibility of a “full immersion” in the field, with presentations of the latest and most relevant findings in molecular oncology. It represents a unique opportunity for scientists to exchange expertise and ideas, as well as a trigger for translational research and for the development of new diagnostic and therapeutic strategies.

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