PROTEOMIC APPROACH TO ENDOMETRIAL CARCINOMA INVASION FRONT

Marta Monge¹,4, Andreas Doll¹, Eva Colas¹, Antonio Gil-Moreno²,⁵, Josep Castellvi³,⁵, Angel Garcia³,⁵, Nuria Colome⁴, Berta Diaz², Nuria Pedrola¹, Xavier Dolcet⁶, Santiago Ramon y Cajal³,⁵, Jordi Xercavins²,⁵, Xavier Matias-Guiu⁶, Francesc Canals⁴, Jaume Reventos¹,⁵ and Miguel Abal¹

¹Biomedical Research Unit, Research Institute Vall d’Hebron University Hospital; ²Department of Gynecological Oncology, Vall d’Hebron University Hospital; ³Department of Pathology, Vall d’Hebron University Hospital; ⁴Proteomics Laboratory, Medical Oncology Research Program, Research Institute Vall d’Hebron University Hospital; ⁵University Autonoma of Barcelona, Barcelona, Spain; ⁶Department of Pathology and Molecular Genetics, Hospital Arnau de Vilanova, University of Lleida, IRBLLEIDA, Spain

Tumor invasion defines the transition between tissue-restricted carcinomas, with good outcome as optimal surgery becomes possible, and metastatic tumors associated with poor prognosis and a dramatic decreased in survival. In endometrial cancer, myometrial infiltration represents a determinant parameter highly valuable in prognosis. A profound spatio-temporal regulation from both the tumor and the surrounding stroma occurs at the invasive front. To date, the identification of proteins involved in endometrial carcinoma invasion has been essentially conducted by immunohistochemical methods, without a global perception on the invasive front.

In this work we attempted a proteomic approach to characterise specific components of the invasive front or reactive stroma by comparing, using 2D-DIGE, the invasive area of an endometrial carcinoma with the non-invasive superficial area and normal tissue from the same patients. This strategy led us to identify proteins involved in cellular morphology, assembly and movement, differentially expressed at the invasive front, as well as pathways like cell-to-cell signalling and interaction or a modulated response to oxidative stress as events related to endometrial carcinoma invasion.

In conclusion, we describe a novel proteomic approach that specifically tackles with endometrial carcinoma invasion front, allowing the identification of new players of myometrial infiltration.