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ICB PhD public presentations

ANTIGEN-ANTIBODY BINDING KINETICS FOR QUANTITATIVE MOLECULAR DIAGNOSTICS

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Project Summary: Antigen-antibody (Ab-Ag) systems are widely used in bioassays due to their availability, simplicity of use and specificity. The goal of this research was to use the properties of Ab-Ag binding while increasing the amount of information obtained from a single test. For this, we explored alternative ways of antibody characterization. Using Ab-Ag binding kinetics, we developed a method that can provide a higher degree of quantitation in a typically semi-quantitative immunohistochemistry assay while easily integrating into current pathology workflows. We further quantified biomarkers expressed in breast cancer tissues, evaluated the heterogeneity of these tumors and classified the local sub-types of tumor using bioinformatic tools. Finally, we designed a microfluidic system compatible with standardized microtiter plates that increases the range of antibody detection.

CV. Anna received her BSc in Biotechnology from the Autonomous University of Barcelona (Spain), where she worked in the laboratory of Prof. Arben Merkoci. She then did an internship in NTT Basic Research Laboratories (Japan). In 2014, Anna joined ETH to perform a MSc in Biomedical Engineering and a PhD in the frame of a collaboration with IBM Research Europe under the supervision of Prof. Andrew deMello and Dr. Govind Kaigala.