Press Release

Using DigiWest protein profiling to uncover mechanisms of cancer therapy resistance: Two publications provide new insights

Reutlingen and Berlin, Germany, November 26, 2019 – Scientists from the NMI Natural and Medical Sciences Institute at the University of Tübingen, a private research foundation dedicated to applied and translational research, and of contract research provider NMI TT Pharmaservices, announced two publications that help uncover mechanisms of resistance to specific cancer treatments, by successfully employing their proprietary DigiWest multiplex protein profiling technology.

The development of such treatment resistance represents one of the most severe limitations of certain clinical cancer therapies, resulting in the development of tolerance and therefore non-response over time to therapy regimens by some of the patients. In two recent peer-reviewed scientific publications that the researchers of NMI and NMI TT Pharmaservices contributed to, the power of NMI's DigiWest multiplex protein profiling platform was leveraged to shed light into the molecular mechanisms of two common forms of therapy resistance, to find rational ways to overcome resistance and to better treat patients.

The first article, entitled "*EZH2 loss drives resistance to carboplatin and paclitaxel in serous ovarian cancers expressing ATM*" is a collaborative work led by researchers from Heinrich Heine University of Düsseldorf and Eberhard Karls University of Tübingen, with Ludwig Maximilian University of Munich and Charité Universitätsmedizin Berlin. The study analyzed the so far poorly understood resistance development of ovarian cancer patients against chemotherapy with the standard-of-care class of platinum drugs. Detailed analyses of cellular signaling networks within tumor biopsies from treatment responders *versus* non-responders through comprehensive DigiWest based pathway activity profiling now revealed distinct protein signatures between the two groups and identified markers that correlate with therapy outcome, thus providing new therapeutic perspectives. This *Molecular Cancer Research* paper is available at https://doi.org/10.1158/1541-7786.MCR-19-0141

The second article, entitled "*Multiplex profiling identifies clinically relevant signaling proteins in an isogenic prostate cancer model of radioresistance*" comes from a collaboration led by scientists from Trinity Translational Medicine Institute Dublin (TTMI), with Trinity College Dublin, St. James's Hospital Dublin and Mount Sinai School of Medicine New York. In this study, development of resistance against radiotherapy in prostate cancer patients was investigated, employing DigiWest protein profiling of sensitive *versus* resistant prostate cancer cells. These analyses provided insights into the cellular de-regulation mechanisms that drive radioresistance, and identified a number of actionable clinically relevant proteins, which yielded a radiosensitization effect when they were subsequently targeted pharmacologically. This *Scientific Reports* paper is available at https://doi.org/10.1038/s41598-019-53799-7

"Translational oncology lies at the heart of both our research and our contract research services", commented Prof. Dr. Katja Schenke-Layland, Director of the NMI and Professor in the Department of Women´s Health, University Tübingen. "Together with clinical collaborators and industry clients we are working on advancing precision oncology projects, to overcome shortcomings of current cancer therapies, in order to eventually benefit patients. We are delighted to see that our proprietary DigiWest technology helps discover the molecular mechanisms underlying treatment resistance and identify new therapy approaches".

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