

Press Release

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German research alliance BioTag to develop new biomarker screens to measure tumour response to innovative protein kinase inhibitors

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Proteome Sciences R&D GmbH and Co. KG, Frankfurt, a subsidiary of Proteome Sciences plc, ProQinase, a research division of KTB Tumorforschungsgesellschaft mbH at the Tumor Biology Center, Freiburg, and the NMI Natural and Medical Sciences Institute at the University of Tübingen, today announced the start of BioTag, a three year grant project supported by the German Federal Ministry of Research (BMBF) as part of the KMU-Innovative-2 Program, to establish and to validate new workflows for the development and early clinical evaluation of inhibitors targeting tumour protein kinases. The project is based on the three distinct skills of its partners. ProQinase has established a comprehensive protein kinase technology platform that includes kinase specific inducible cellular and in vivo tumour models. NMI is a leading developer of siRNA tools for selected targeting of proteins in mammalian cells. Proteome Sciences has developed a fully integrated workflow for protein biomarker discovery and development based on its proprietary Tandem Mass Tag® technology.

The goal of the project is to develop biomarker tests that can support kinase target validation studies, establish proof of concept for candidate kinase inhibitors and potentially monitor treatment response in pre-clinical and early clinical studies. With approximately 500 kinases and approximately 50 inhibitors in clinical development, protein kinases represent one of the largest enzyme classes currently being pursued as drug discovery targets in the pharmaceutical industry. Development of protein kinase inhibitors nevertheless remains challenging and many compounds have shown disappointing selectivity and/or efficacy in clinical trials for reasons not fully understood. Biomarkers should provide a deeper understanding of target activity and mechanisms of action and may also facilitate efficient development of targeted cancer therapies.

The BioTag project will apply new molecular strategies for target expression and biomarker profiling to provide a seamless workflow in the early stages of kinase inhibitor development. The biomarkers discovered from the programme will support translation of early drug candidates into human trials. A key element of this new approach is the combination of functional inactivation of target protein kinases by siRNA in prostate cancer cell lines with protein biomarker discovery and validation technologies.

Targeted blocking of the expression of selected protein kinases will be achieved by constructing inducible RNA interference vector constructs produced by NMI which ProQinase will use to develop prostate cancer cell lines in which the target kinase expression can be eliminated. These cell lines will be subjected to differential protein expression profiling at Proteome Sciences using their Tandem Mass Tag technology to identify novel biomarkers corresponding to loss of kinase activity.

A key requirement for integrating biomarker and drug development is the ability to move the most viable biomarker candidates quickly forward. Proteome Sciences addresses this so-called "validation bottleneck" by the rapid development of fit-for-purpose multiplexed mass spectrometric assays. Non-invasive blood-tests will be developed by Proteome Sciences based on markers found in the cell models, and these will be tested in xenograft mouse models. This approach, unlike tissue-based tests, will allow the response to new prostate cancer therapeutics to be monitored non-invasively throughout preclinical and clinical trials.

Commenting on the BioTag project Christopher Pearce, CEO of Proteome Sciences plc said "We are pleased that our German subsidiary will be working with ProQinase and the NMI to develop novel integrated biomarker workflows for kinase inhibitor development. The need for more objective measures

Geschäftsführer Dipl.-Kfm. Arno Fritzen Dr. Christoph Schächtele



of drug safety and efficacy during pre-clinical and clinical development is widely recognised and the adoption of biomarkers for such purposes is supported by the pharmaceutical industry and regulators such as the FDA. Proteome Sciences has developed a suite of analytical technologies to improve biomarker discovery and provide rapid translation of candidates into validation studies and subsequent use at our ISO9001:2008 accredited PS Biomarker Services facility in Frankfurt, Germany".

Christoph Schächtele, Director of ProQinase, adds: "We are convinced that the three partners together have available all relevant technologies which are required for the successful identification of novel biomarkers and the development of reliable assays."

Hugo Hämmerle, Director of the NMI: We see an interesting co-operation with two highly dynamic biotech companies. The supporting BMBF grant in conjunction with the NMI financial contribution will enable us to develop a technical standard expected to extend our service portfolio.

NMI Naturwissenschaftliches und Medizinisches Institut (<u>www.nmi.de</u>) The NMI Natural and Medical Sciences Institute is a foundation (non-profit organization) established in 1985. The mission of the NMI is to transfer the results of basic research into innovative applications. We perform contract research and support our industrial clients in their product development. The NMI is focused on pharma and biotechnology, biomedical technology and material sciences. The surface- and interface-technology has an interconnecting function and provides the basis for our competence at the junction between micro-and nanotechnology and life sciences. In the area pharma/biotechnology, the NMI offers innovative technologies for drug discovery and diagnostics, such as the establishment of RNA interference-technology, protein arrays, electrophysiology, and safety pharmacology.

For more information about NMI please contact Dr. Nadja Gugeler on +49 (0) 7121-51530-0 - gugeler@nmi.de.

ProQinase GmbH is a research division of the KTB Tumorforschungsgesellschaft mbH at the Tumor Biology Center Freiburg, and provides an Integrated Protein Kinase Technology Platform for preclinical drug development of protein kinase inhibitors. ProQinase offers its products and services via the commercialisation company ProQinase GmbH (<u>www.proqinase.com</u>) to biotech and pharmaceutical companies. Currently, 169 highly active recombinant kinases are offered for sale and 256 kinases are available for in vitro testing services (HTS and selectivity profiling etc). Cellular and in vivo test systems including orthotopic tumour models allow further testing of lead compounds. A clinical biomarker analysis service supports the evaluation of clinical trials. In addition to its service business, ProQinase has several ongoing R&D programmes for the development of novel drugs for the treatment of cancer.

For more information about ProQinase please contact Dr. Sebastian Dempe, Business Development Manager on +49 (0) 761-206-1780 – <u>S.Dempe@proqinase.com</u> or visit our web site at <u>www.proqinase.com</u>.

Proteome Sciences R&D GmbH & Co. KG (<u>www.proteomics.com</u>) is a subsidiary of Proteome Sciences plc and a leading biomarker CRO providing protein biomarker discovery, validation and assay development services. The Company's MS Biomarker Assay system (MBA) uses its proprietary isobaric Tandem Mass Tags (TMT®) and reference materials combined with isotope dilution mass spectrometry. Highly multiplexed assays can be developed in weeks and are suitable for screening 10's to 100's of candidate biomarkers in validation studies. Assays for validated biomarkers can be rapidly developed using the same isotope dilution mass spectrometry format, or can be transferred for immunoassay development.

The Company's own research is focused on neurological and neurodegenerative conditions and it has discovered and patented blood biomarkers in stroke and brain damage as well as several cancers, solid organ transplant rejection and Alzheimer's disease. Proteome Sciences is based in Cobham, UK with facilities in London and Frankfurt.

For more information about Proteome Sciences please contact Dr. Ian Pike, Chief Business Officer on +44 (0)1932 865065 – <u>ian.pike@proteomics.com</u> or visit our website at <u>www.proteomics.com</u>