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MorphoSys Antibodies by Design, ProQinase and Natural and Medical Sciences Institute (NMI) receive BMBF-promotion for Kinome-project

ASK-chip shall enable targeted functional analysis of the human kinome

ProQinase, a division of KTB Tumorforschungs GmbH at the Tumor Biology Center, Freiburg, the NMI Natural and Medical Sciences Institute at the University of Tübingen, and Antibodies by Design, a division of MorphoSys AG, Munich, today announced the start of a joint project which could revolutionize the analysis of all human protein kinases – the human “kinome”. The project combines the established protein kinase platform of ProQinase with the know-how of Antibodies by Design in the field of custom-made antibody generation and the experience of NMI with siRNA and Biochip technologies. The goal of the project is to develop an adenoviral siRNA-kinome-chip (ASK chip) which enables the parallel inhibition of all human protein kinases by means of RNA interference on a miniaturized Biochip. This technology allows simultaneous determination of the function of all protein kinases, e.g. growth of tumor cells to identify starting points for new therapies. Members of the protein kinase family are considered as promising targets for therapy of different diseases. In the coming three years, the project will be supported by approximately EUR 2.0 million within the scope of the BioChancePLUS Program of the German Federal Ministry of Research (BMBF).

More than 500 protein kinases, which pass on cell signals and affect almost all biological processes, are currently known. A number of these kinases are suspected to play a central role in various diseases such as cancer, inflammation, or cardiovascular disease. “Protein kinases function as a complex network which often is altered in human diseases, but can be affected therapeutically by drugs that block individual protein kinases”, stated Dr. Michael Kubbutat, Head of Research & Development at ProQinase. “Until now, however, an overall picture and understanding of this network that would allow e.g. to determine the effects of drugs on the interaction of the protein kinase network is still missing. The expertise of ProQinase in this field will support this project to find a remedy.”

Drug research in this field requires optimized reagents. Sufficient quantities of recombinant protein kinases, methods for specific manipulation of protein expression in suitable cell lines, and kinase-specific antibodies for the entire kinome play a central role. At present, there are no antibodies available for the majority of kinases. This bottleneck in the project will be resolved by the use of MorphoSys’ HuCAL® technology. Antibodies by Design will generate recombinant antibodies against up to 250 protein kinases. “By combining Biochip, siRNA, and antibody technologies, this project represents a new scientific approach and validates the efficiency of our automation systems for high-throughput antibody generation”, stated Dieter Lingelbach, General Manager of Antibodies by Design and Senior Vice President of MorphoSys.

Targeted blocking of the expression of selected protein kinases will be achieved using short interfering RNA molecules (siRNA) in the form of short hairpin RNAs (shRNA). These shRNA vectors will be produced by NMI and MorphoSys. ProQinase will use kinase-specific antibodies from Antibodies by Design to confirm successful deactivation of the protein kinases by specific shRNA vectors. The combination of all components to create a complete analysis system in chip format will take place at the NMI, where adenoviruses expressing functionally validated shRNA sequences will be arranged on a miniaturized biochip. A patent application protecting the procedure to produce and apply ASK chips has been submitted to the German Patent Office by NMI. "A new approach enabling parallel functional analysis of all human protein kinases in living cells in combination with miniaturization via chip technology has not yet been developed", commented Dr. Enzo Müller, Director of the institute at the NMI. "We therefore predict a good potential market for the products developed out of this partnership."

About MorphoSys' Antibodies by Design:

MorphoSys develops and applies innovative technologies for the production of synthetic antibodies, which accelerate drug discovery and target characterization. Founded in 1992, the Company's proprietary Human Combinatorial Antibody Library (HuCAL®) technology is used by researchers worldwide for human antibody generation. The Company currently has licensing and research collaborations with Bayer (Berkeley, California/USA), Boehringer Ingelheim (Ingelheim, Germany), Bristol-Myers Squibb (Wilmington, Delaware/USA), Centocor Inc. (Malvern, Pennsylvania/USA), GPC Biotech AG (Munich/Germany), Hoffmann-La Roche AG (Basel/Switzerland), ImmunoGen Inc. (Cambridge, Massachusetts/USA), Novartis AG (Basel, Switzerland), Novopiant GmbH (Gatersleben/Germany), Oridis Biomed GmbH (Graz/Austria), Pfizer Inc. (Delaware/USA), ProChon Biotech Ltd. (Rehovot/Israel), Schering AG (Berlin/Germany) and Xoma Ltd. (Berkeley, California/USA). For further information, please visit the corporate website at: <http://www.morphosys.com/>; information on the Antibodies by Design Division of MorphoSys is available at www.A-by-D.com.

About ProQinase:

ProQinase is an operative unit of the KTB Tumorforschungs GmbH in Freiburg, Germany. ProQinase offers services based on its Integrated Protein Kinase Technology Platform (iProKiTe™) primarily for the pharmaceutical industry worldwide. At the same time this platform is used for internal drug development in collaboration with academic and industrial partners. iProKiTe™ covers a large part of early drug development in oncology from HTS-screening and kinase inhibitor profiling to cellular assays, *in vivo* models and biomarker assays. On top of this ProQinase has rapid access to clinical trials of in house developed drugs due to its affiliation with the Tumor Biology Center, Freiburg, Germany. Further information is available at <http://www.proqinase.com>.

About NMI:

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 recombinant cell-lines the use of siRNA-Technology for target validation, proteinchips, cellchips, electrophysiology, neurotoxicity, neuroregeneration, blood-brain-barrier. Further information is available at <http://www.nmi.de>.

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