Hunt for human genes involved in cell division under way

EMBL starts screening genome-wide siRNA library in EU project MitoCheck

Heidelberg, July 12, 2005 – A systematic search through human genes has begun at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany. Working within the MitoCheck consortium that includes 10 other institutes throughout Europe, the EMBL scientists will silence all human genes, one-by-one, to find those involved in cell division (mitosis) and to answer fundamental questions of how cell division is regulated.

The scientists will use a method called 'RNA interference (RNAi)' where chemically synthesized RNA molecules are used to target and silence each human gene. About 22,000 genes will be suppressed and their impact on cell division monitored by live cell microscopy to understand each gene's role in cell division.

"To our knowledge, we are the first group to take on this systematic search through the genome in live cells. We will use the most potent RNAi reagent for this study, which is usually out of reach for academic labs because of the enormous cost and the ever-changing annotation of the human genome. But being part of the large EU project MitoCheck allowed us to work with one of the leading suppliers of siRNAs, Ambion Europe, Ltd., to produce a genome-wide library for this project," says Dr. Jan Ellenberg, EMBL Group Leader and co-initiator of the MitoCheck project.

Undertaking such a large project required tens of thousands of siRNA molecules, as two to three molecules are targeted specifically against each human gene. EMBL chose Ambion as a supplier of the siRNA library because its library could be tailored to the most up-to-date list of human target genes – a list provided by the Wellcome Trust Sanger Institute, the MitoCheck bioinformatics partner. Also, Ambion's siRNA libraries utilize a siRNA design algorithm developed by Cenix BioScience GmbH (an EMBL spin-off company), leading to high efficacy of the siRNAs.

"We are happy to work with Ambion and Cenix BioScience on this ambitious project. This represents the first use of a genome-wide library of chemically synthesized siRNAs in academic research and these partners have provided us with the tools to carry out this search," says Ellenberg. "Thousands of genes have been tested in the initial phase of the project and the results are very promising."

The systematic search and analysis of the screen is set to be completed by the end of 2005.

About EMBL:
The European Molecular Biology Laboratory is a basic research institute funded by public research monies from 18 member states. Research at EMBL is conducted by approximately 80 independent groups covering the spectrum of molecular biology. The Laboratory has five units: the main Laboratory in Heidelberg, and Outstations in Hinxton (the European Bioinformatics Institute), Grenoble, Hamburg, and Monterotondo near Rome. The cornerstones of EMBL's mission are: to perform basic research in molecular biology; to train scientists, students and visitors at all levels; to offer vital services to scientists in the member states; and to develop new instruments and methods in the life sciences. EMBL's international PhD Programme has a student body of about 170. The Laboratory also sponsors an active Science and Society programme. Visitors from the press and public are welcome.

About Ambion (Europe) Ltd.:
Ambion (Europe) Limited, is a subsidiary of Ambion, The RNA Company. Ambion is a leader in the development and supply of innovative, RNA-based life science research and molecular diagnostic products. Ambion has taken a leadership role in developing products for handling, preserving, isolating, detecting and measuring RNA in areas such as molecular biology, cell biology, microbiology, drug discovery and genomics. Ambion has been active in RNAi research and providing RNAi related products since 2001, and recently received recognition as the leading RNAi company by The Scientist. For more information, please visit the company's website at www.ambion.com.

About Cenix BioScience:
Cenix BioScience GmbH is a pioneer and leader in high throughput (HT), genome-driven applications of RNA interference (RNAi) for the discovery and validation of new therapeutic drug targets. Founded in 1999 as the first biotechnology company specializing exclusively in HT-RNAi, Cenix has accumulated unparalleled depth and breadth of experience in this field, combining high content phenotypic analyses with proprietary genome-wide RNAi libraries for use in key experimental systems, including a wide range of human and rodent cells. Cenix is now making its unique expertise accessible to industry and academic researchers through highly customizable research services. Please contact Cenix or visit the company's web site www.cenix-bioscience.com for more information.

About The Wellcome Trust Sanger Institute:
The Wellcome Trust Sanger Institute (www.sanger.ac.uk), which receives the majority of its funding from the Wellcome Trust, was founded in 1992 as the focus for UK sequencing efforts. The Institute is responsible for the completion of the sequence of approximately one-third of the human genome as well as genomes of model organisms such as mouse and zebrafish, and more than 90 pathogen genomes. In October 2001, new funding was awarded by the Wellcome Trust to support a new range of post-genomic programmes designed to understand the biological function of genes and their relevance to our health. These programmes are built around a Faculty of more than 30 senior researchers.

About MitoCheck:
MitoCheck is the largest Integrated Project on cell cycle control within the 6th Framework Programme (FP6) of the European Union. Leading scientists from eleven research institutes, universities and industry in Austria, Germany, UK, Italy and France join forces in this scheme. They contribute a wide range of expertise in molecular and cell biology, biochemistry, modern microscopy techniques, proteomics, bio-informatics and clinical pathology to embark on a fundamental question of how mitosis is regulated.

MitoCheck is coordinated by Jan-Michael Peters at the Research Institute of Molecular Pathology (IMP), Vienna. The project will receive 8.6 million Euro from the European Union during the period of 2004 to 2008.

MitoCheck-Partners:
- Research Institute of Molecular Pathology (IMP), Vienna, Austria
- European Molecular Biology Laboratory (EMBL), Heidelberg, Germany
- Deutsches Krebsforschungszentrum (DKFZ), Heidelberg, Germany
- Leica Microsystems CMS GmbH, Mannheim, Germany
- Max Planck Institute of Molecular Cell Biology and Genetics (CBG), Dresden, Germany
- Gene Bridges GmbH (Gene Bridges), Heidelberg, Germany
- European Institute of Oncology (EIO), Milan, Italy
- Centre de Recherches de Biochimie Macromoléculaire (CNRS), Paris, France
- Clare Hall Laboratories, Cancer Research UK (CHL-CRUK), London, UK
- Department of Pathology, University College London (UCL), London, UK
- Wellcome Trust Sanger Institute (Sanger), Cambridge, UK

More Information:

Trista Dawson, Press Officer
EMBL
Meyerhofstrasse 1
69117 Heidelberg, Germany

Tel: +49 (0) 6221 387 452
Email: trista.dawson@embl.de
Web: www.embl.org

Ellen Fürst, PR Manager
Cenix BioScience GmbH
Tatzberg 47
01307 Dresden, Germany

Tel: +49 (0) 351-41730
Email: info@cenix-bioscience.com
Web: www.cenix-bioscience.com