Background information on the ZF-HEALTH project

The project is coordinated by the Karlsruhe Institute of Technology (KIT), Germany. Dr. Robert Geisler is the project’s Scientific Coordinator and Dr. Jana Maier is the Project Manager. Due to the importance of this project, the Scientific Coordinator is assisted by two Co-coordinators: Prof. Uwe Straehle, director of the Institute of Toxicology and Genetics at KIT and Dr. Laure Cuif of Centre National de la Recherche Scientifique, France. The project officially began on July, 1st 2010 and will end on December, 31st 2015. The project’s website is www.zf-health.org.

Institutions participating in the ZF-HEALTH Integrated Project:

Karlsruher Institut fuer Technologie, Germany (KIT-G)
Albert Ludwig-Universitat Freiburg, Germany (ALU-FR)
Centre National de la Recherche Scientifique, Paris, France (CNRS)
Genome Research Ltd, London, UK (GRL)
Koninklijke Nederlandse Akademie van Wetenschappen - KNAW, Amsterdam, The Netherlands (KNAW)
Institut National de la Santé et de la Recherche Medicale, Paris, France (INSERM)
King’s College, London, UK (KCL)
Universiteit Leiden, The Netherlands (UL)
Max-Planck-Gesellschaft zur Förderung der Wissenschaften e.V., München, Germany (MPG)
Technische Universität Dresden, Germany (TUD)
The University of Sheffield, UK (USFD)
Univeristita’ degli Studi di Padova, Italy (UNIPD)
Universitaet zu Koeln, Germany (UCO)
Universitaet Zuerich, Switzerland (UZH)
University College London, UK (UCL)
Uni Research AS, Bergen, Norway (URA)
The University of Birmingham, UK (BHAM)
The University of Sydney, Australia (USYD)
ZF Biolabs SL, Tres Cantos, Spain (ZFB)

For a full list of participating groups, please see the ZF-HEALTH project’s website: www.zf-health.org.

Contact information

For further information on the project’s scientific goals, planned activities and job opportunities please see the project website (www.zf-health.org) or contact:

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Job opportunities

The participating institutes will continuously provide job opportunities and training for technicians, PhD students and postdocs. To find out about current openings, please see the project web site (www.zf-health.org) or contact the heads of the labs you are interested in directly (contact details are listed on the project’s web site).

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Overview

"ZF-HEALTH - Zebrafish Regulomics for Human Health" is a Large-scale Integrating Project funded by the European Commission as part of its Seventh Framework Programme (EC Grant Agreement HEALTH-F4-2010-242048). The aim of this project is to exploit the advantages of the zebrafish as a model organism for vertebrate development and human disease. Research groups at 19 different institutions in Australia, France, Germany, Italy, the Netherlands, Norway, Spain, Switzerland, and the United Kingdom are working together to achieve this aim. The project, which will run over a period of five and a half years, is funded with € 11,380,000 - from the European Commission.

Scientific goals of the project

In recent years, the zebrafish has emerged as a new vertebrate model organism for biomedical research which offers a unique combination of traits: a short generation time, small size and efficient breeding procedures make it the best choice among vertebrates for forward genetic screening and small-molecule screens, including toxicology, while the transparent embryo and larva offers unique opportunities for imaging of cell movement and gene expression in a developing organism.

The ZF-HEALTH project builds on technologies and concepts developed in the preceding EU project ZF-MODELS. The ZF-HEALTH project aims to utilise these advances for the high-throughput phenotyping of at least a thousand regulatory genes relevant for human disease, by behavioural characterisation of the mutant fishes, 3D / 4D imaging and expression profiling by high-throughput sequencing. The groups involved in the ZF-HEALTH project further characterise regulatory elements of such genes by a combination of bioinformatics and transgenics. Furthermore by screening for small-molecules capable of rescue mutant phenotypes or disease-relevant processes, the project will identify candidate drugs and provide novel insights into gene function. The increasing knowledge on the regulators and their interactions with regulatory targets will be integrated with knowledge at cellular and organismic level. By capitalising on the virtues of the zebrafish system, this systems biology approach to the regulome will gain unique knowledge complementing ongoing work in mammalian systems, and provide important new stimuli for biomedical research.

The research effort is divided in five workpackages covering:

1. Generation and distribution of mutants for potential human disease genes
2. Phenotyping of mutants
3. Characterisation of enhancer elements of human disease genes
4. Gene expression mapping in the brain
5. Small molecule screening
### Outroach

The 2F-HEALTH project intends to share the knowledge generated during the project with the wider scientific community and the general public as a whole. This is done, for example, by sharing its large-scale resources with scientists outside the consortium and by providing an interactive element for all of European zebrafish research (please see www.2f-health.org for details on the projects and resources open to interested parties).

In addition to reaching out to groups involved in basic research, the 2F-HEALTH consortium interacts with clinical researchers and the pharmaceutical industry seeking to address human diseases. This is achieved by, for example, inviting stakeholders from these communities to participate in events (e.g. meetings, symposia, workshops) organised by the 2F-HEALTH consortium. Also, visits and placements of staff from these communities to labs of the 2F-HEALTH consortium are strongly encouraged.

The 2F-HEALTH consortium is strongly committed to furthering the understanding and acceptance of science by the general public. A particular focus of the initiatives aimed at the general public is to get young people interested in taking up a career in science. To help those already training to be scientists, the 2F-HEALTH consortium is establishing training and exchange programmes for students, young researchers as well as junior technical staff.