Molecular Mechanisms in Diabetic Embryopathy

Fact Sheet

Project Information

DIABETIC EMBRYOPATHY

Grant agreement ID: 224760

Project closed

Start date
1 September 2008

End date
31 August 2012

Funded under
Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Total cost
€ 100 000,00

EU contribution
€ 100 000,00

Coordinated by
BIOTECHNOLOGICKY USTAV AV CR VVI
Czechia

Objective

The main objectives of the proposed reintegration research grant are: 1) to investigate the molecular causes of diabetic embryopathy; 2) to transfer my knowledge and experience to the Czech and European academia and industry; and 3) to develop a network of future international research collaboration dealing with diabetes. The scientific objective is to understand how maternal diabetes affects the developing embryo and increases the risk for heart malformations. The risk for birth

defects is up to 10-fold higher in diabetic than in non-diabetic pregnancies. With increasing prevalence of diabetes in women of childbearing age, diabetes becomes a major cause of mortality and health problems in infants born to diabetic mothers. Although the teratogenic effects of maternal diabetes are well documented, the molecular causes remain elusive. Using global expression profiling, our team discovered that the exposure to maternal diabetes deregulated 126 genes in developing embryos. Many of these genes are already known to be involved in heart defects or affect heart functions. In this project I propose: 1) to define which genes can serve as predictive markers for specific abnormalities in heart development; 2) to determine cell-type specificity of diabetes-deregulated genes within the developing heart; 3) to identify specific time points, which are the most susceptible for induction of changes in the heart; and 4) to investigate the role of HIF1-controlled-hypoxia-response pathways in diabetic embryopathy. Understanding the molecular causes of diabetic embryopathy will form the basis for future strategies to prevent birth defects associated with diabetic pregnancies. The reintegration objectives will be achieved via my appointment as an independent Group Leader at the Institute of Molecular Genetics of the Academy of Sciences of the Czech Republic, where I will be responsible for team building, training, teaching, and conducting high quality collaborative research.

Fields of science (EuroSciVoc)

natural sciences > biological sciences > molecular biology > **molecular genetics**

medical and health sciences > clinical medicine > endocrinology > **diabetes**

medical and health sciences > clinical medicine > **obstetrics**

medical and health sciences > clinical medicine > **embryology**

social sciences > political sciences > **government systems**

Keywords

Diabetes | Hypoxia-inducible factor 1 pathways | congenital malformations | diabetic pregnancy | embryonic development | gene expression | heart defects | quantitative RT-PCR

Programme(s)

FP7-PEOPLE - Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Topic(s)

PEOPLE-2007-4-3.IRG - Marie Curie Action: "International Reintegration Grants"

Call for proposal

FP7-PEOPLE-2007-4-3-IRG
See other projects for this call

Funding Scheme

MC-IRG - International Re-integration Grants (IRG)

Coordinator

BIOTECHNOLOGICKY USTAV AV CR VVI

EU contribution

€ 100 000,00

Total cost

No data

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Region

Česko > Střední Čechy > Středočeský kraj

Activity type

Other

Links

Contact the organisation Website
Participation in EU R&I programmes

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Permalink: https://cordis.europa.eu/project/id/224760