



About Us

- > Governance
- > Investigators
- > Early Career Researchers
- > **Students**
- > Management Team
- > Stemformatics Platform
- > Annual Reports
- > Job Opportunities
- > Resource Library

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[Home](#) > [About Us](#) > [Students](#) > Michal Mor

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MICHAL MOR

Neuroscience [A/Prof Mirella Dottori](#)



Type 1 diabetes mellitus (T1D) is an early onset childhood disease with increasing incidence worldwide. Children and adolescents with T1D are more likely to suffer from neurocognitive deficits.

My aim is to better understand the direct effects of hyperglycemia on neuronal structure and function in the brain. I use cortical neurospheres created from hESC and iPSCs, as an in vitro model of cellular self-organisation of the forebrain cerebral cortex in the developing brain, allowing practicable manipulation of the external environment, in the absence of other complicating factors. I first established culture conditions for hESC neural induction to mimic the physiological levels of glucose and insulin within the human brain. This was followed by exposing the hESC\ iPSC -derived cortical neurospheres to a T1D-like micro-environment and investigating how altered glucose\insulin levels may impact neurogenesis and neuronal differentiation.

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- > Investigators
- > Early Career Researchers
- > Students
- > Management Team
- > Stemformatics Platform
- > Annual Reports
- > Job Opportunities
- > Resource Library
- > Regenerative Medicine
- > Disease Modelling
- > Designer Cells
- > Engagement, Ethics and Policy Program
- > Accelerated Research Program
- > Previous Research Programs
- > What Are Clinical Trials?
- > Stem Cell Clinical Trials
- > FAQ's
- > Terminology
- > Press Releases
- > What's On?

