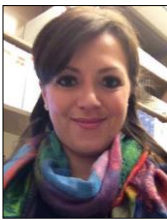


DANDRITE Topical Seminar by postdoctoral candidate **Eleonora Passeri**

Thursday 4th February 2016
From 11:00 – 12:00

Room 340, building 1170, 3rd floor
Aarhus University, Dept. Biomedicine,
Ole Worm's Allé 3, 8000 Aarhus C



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Molecular and cellular signature of neuronal cells affected by genetic and environmental factors of major mental illnesses

The novel technology of induced neuronal cells (iN cells) is promising for translational neuroscience, as it allows the direct conversion of human fibroblasts into cells with post-mitotic neuronal traits. However, a major technical barrier is the low conversion rate. To overcome this problem, we optimized the conversion media. Using our improved formulation, we studied how major mental illness-associated chromosomal abnormalities may impact the characteristics of iN cells. Specifically, we generated human iN cells from peripheral fibroblasts of healthy individuals and patients with genetically-defined brain disorders such as childhood-onset schizophrenia with disease-associated copy number variations. We demonstrated that our new iN cell culture protocol enabled us to obtain more precise measurement of neuronal cellular phenotypes than previous iN cell methods.

Furthermore, this iN cell culture provided us a unique platform to efficiently investigate *Toxoplasma gondii* infection in human neurons. *Toxoplasma gondii* is a protozoan parasite capable of establishing persistent infection within the brain. Serological studies in humans have linked exposure to *Toxoplasma* to neuropsychiatric disorders. However, serological studies have not elucidated the related molecular mechanisms within neuronal cells. Parasite infection in control and childhood-onset schizophrenia patients was characterized by differential detection of tachyzoites and tissue cysts in iN cells. This approach may aid study of molecular mechanisms underlying individual predisposition to *Toxoplasma* or other infectious agents linked to neuropathology of brain disorders.

Host:

Group Leader Mark Denham, DANDRITE, Dept. Biomedicine, Aarhus University