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PhD in Medical Sciences
2014-2015

INVITATION to the Public defence of

Ann DE SMEDT

To obtain the academic degree of **'DOCTOR IN MEDICAL SCIENCES'**

Neuroprotection in Ischemic Stroke by Systemic Insulin-like Growth Factor I.

Tuesday 30 June 2015
Auditorium **Brouwer**, 17:00
Faculty of Medicine and Pharmacy, Laarbeeklaan 103, 1090 Brussel

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Summary of the dissertation

Stroke is an important cause of death and disability worldwide, but the therapeutic options are limited. There is an urgent need for neuroprotective therapies in acute ischemic stroke, addressing multiple processes of the complex biochemical cascade involved in cell death, inflammation and oxidative stress. Insulin-like growth factor-I (IGF-I) is an endogenous pleiotropic survival factor for neurons, glial cells and endothelial cells. Its administration has been shown to be neuroprotective in rodent models of ischemic stroke. In this thesis, we will address the potential of endogenous and exogenous IGF-I for neuroprotection in ischemic stroke. We first investigated whether serum IGF-I is neuroprotective in acute ischemic stroke patients. Next, we moved from bed to bench to explore how systemically injected IGF-I exerts its neuroprotective effects in the endothelin-1 rat model for ischemic stroke. We found evidence for a central nervous system neuroprotective mechanism of action. Finally we assessed methods for elevating IGF-I levels in the ischemic brain area by investigating how to stimulate transport of IGF-I across the blood brain barrier.

Curriculum Vitae

Ann De Smedt was born on the 18th of March 1981 in Dendermonde. In 2006 she obtained her medical degree at the Vrije Universiteit Brussel, summa cum laude. She completed her training in neurology at the Universitair Ziekenhuis Brussel in 2011. During her training she developed a special interest in cerebrovascular diseases. From November 2011 until January 2014 she was granted a PhD fellowship of the Research Foundation Flanders (FWO) for a project entitled ´Insulin-like growth factor I in acute ischemic stroke`. For her work she won awards from the Belgian Stroke Council in 2009 and Vlaamse Vereniging voor Neurologie in 2011. Since January 2014 she is staff member of the department of Neurology at the Universitair Ziekenhuis Brussel focusing on cerebrovascular diseases and neurorehabilitation.