

SAMPLE ABSTRACT TEMPLATE

Lipoprotein receptors in neuronal cholesterol homeostasis and function **Dr. Maria Borrell**

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Presenter Name: Dr. Maria Borrell

Abstract: Short description of the presentation topic about 250 to 600 words.

Although the regulation of cholesterol homeostasis in the body has been extensively studied, there is little information on how this regulation takes place in the brain. Cholesterol does not cross the blood-brain barrier; therefore cholesterol metabolism in the brain is independent from that in peripheral tissues. Lipoprotein receptors from the LDL receptor family (LRPs) have key roles in lipid particle accumulation in the bloodstream. For example, activation of a specific LRP induces lipid uptake in several cells, tissues and organisms both *in vitro* and *in vivo*. However whether LRP are involved in the regulation of cholesterol levels in the brain is still not known.

To determine the role of lipoprotein receptors in the brain we analyzed the expression of different LRP and components and targets of their downstream signaling pathways in brains of *Wt* and *Lrp^{-/-}* mice and in a neuroblastoma cell line. Although several LRP expression are increased in a time dependent and dose dependent manner in lipid loaded neurons, specific LRP do not participate in lipid uptake as neurons without lipoprotein receptors accumulate intracellular lipids in a similar way as control cells. Because the activation of the canonical WNT signaling pathway induces survival processes we tested whether lipoprotein receptors were involved in apoptotic and/or autophagic processes and found that LRP has both, anti-apoptotic and anti-autophagic functions indicating a role for this receptor in neuronal survival. Furthermore, we show that LRP is indispensable for life as brains of *Lrp^{-/-}* mice show low but quantifiable LRP gene expression. Taken together, our results support a prosurvival role for LRP in brain.

Biography of Presenter about 100 words:

Dr. Borrell is a senior investigator in the Cardiovascular Program at the Hospital de la Santa Creu i Sant Pau, Barcelona. Prior appointments include a postdoctoral position in the Neurology Department of the Curie Institut, Paris, France studying Huntington's disease. She leads a project based in the role of different lipoprotein receptors in cholesterol metabolism in the vascular system. The results have been published in different journals including EHJ, BERIC or CVR and lead to the concession of projects financed by both, the government and the industry.

Details of presenting author to be mentioned in certificate:

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❖ Please to attach a recent high-resolution photograph of the presenting author.

