LES CONFÉRENCES DE L'ICM

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Hosted by Yves AGID

If you would like to meet the speaker, please use the following contact: *yves.agid@icm-institute.org*

Antoine TRILLER - 9 Mai 2011 à 11H00

"Dynamic Nanostructure of Synapses: from Regulations to Pathologies"

By combining single molecule imaging and a morphological approach, we have correlated the physical parameters of receptor diffusion and their organization in the plasma membrane. Using SPT of quantum dots, we have shown that these diffusion properties and receptor scaffold interactions are controlled by the physiological state of the neuron. This provides a mechanism for the regulations of the inhibitory glycine or GABA receptor numbers in the synapse and ultimately for the setting of the inhibitory synaptic strength in homeostatic and anti-homeostatic situations. We have revealed a new mechanism underlying the early synaptic defects in Alzheimer disease. We found that the Aß oligomers bind to a metabotropic glutamate receptor (mGluR5) and that they slow down their lateral diffusion to form aberrant clusters. This elevates intracellular calcium and causes synapse deterioration. An mGluR5 antagonist prevents these deleterious effects. These results reveal a novel mechanism for the early synaptic defects in Alzheimer disease, and provide a promising lead for a pharmacological approach.

Lundi 9 mai 2011 à 11H00
Auditorium de l'ICM
Hôpital Pitié-Salpêtrière
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