

*Faculty of Engineering and Natural Sciences
Department of Bioinformatics and Genetics Seminar
Monday, May 20, 2013, 11:00, Fener Hall*

Essentials of Neural Computations: Subcellular Targeting of Neurotransmitter Receptors Studied by Engineered GABA (A) Receptor Subtypes

**Yrd. Doç. Dr. Ayla Arslan
Uskudar University**

Abstract

Information processing in the brain is mediated by the integration of neural networks with excitatory and inhibitory signals led by several neurotransmitters. This process is dependent on the appropriate matching of neurotransmitters with their respective receptors at the sites of signal transmission, which requires a regulated process of precise, spatiotemporal localization of the neurotransmitter receptors at the cell membrane. Being primary sites for inhibition, GABA (A) receptors display a highly specific pattern in their cell membrane localization depending on the receptor subtypes. How this specificity is mediated is not well understood. In order to address this question engineered GABA(A) receptor subtypes, tagged with green fluorescent protein (GFP), are expressed in the cortical neurons and their cell membrane localization have been studied by immunocytochemistry and confocal microscopy. Our results indicate the importance of intracellular loop in the subunit of the receptor subtypes with functional significance.

Biography

Assist. Prof. Dr. Ayla Arslan currently holds faculty position at Uskudar University, Mol. Biology and Genetics department. She studied at the METU, Ankara: BS in Biology (1997) and MS in Biotechnology (2001). In 2002, awarded by a scholarship (about 55.000 Euro) from DFG (Deutsche Forschungsgemeinschaft-German Science Foundation) to pursue her Ph.D. work under the supervision of Prof. Dr. Hilmar Bading (2002-2006) at the University of Heidelberg Germany.

Apart from PhD scholarship, she is holder of several international travel and research grants as well as being the cofounder of Bio-nanotechnology Lab: located in

Istanbul (<http://binatam.fatih.edu.tr/?&language=EN>) funded by DPT (Turkish Prime Ministry State Planning Organization), (amount: **about 7,400,000 USD**). Also, since 2009, she has been working as a freelance consultant for life science business to support venture capital investments in biotechnology and pharmaceutical industry in Europe.