FAKULTÄT FÜR CHEMIE

universität wien

Einladung zum Vortrag von

Dr. Mirjana Colovic
Department of Physical Chemistry, Institute of Nuclear Sciences „Vinca“, University of Belgrade, Serbia

„Acetylcholinesterase and ATPases: targets for drugs and toxic compounds”

Acetylcholinesterase is a serine hydrolase mainly found at neuromuscular junctions and cholinergic brain synapses. Its principal biological role is the termination of impulse transmission at cholinergic synapses by rapid hydrolysis of the neurotransmitter acetylcholine. Reversible inhibitors mostly have therapeutic applications, while toxic effects are associated with irreversible acetylcholinesterase activity modulators. The inhibition of brain acetylcholinesterase is the major therapeutic target in the treatment of Alzheimer’s disease associated with loss of cholinergic neurons in the brain and the decreased level of acetylcholine. Na^+/K^+-ATPase is a heterodimeric transmembrane protein that regulates many cellular functions, including those associated with tumor cell growth. For the past ten years, published studies have suggested a role for Na^+/K^+-ATPase in regulation of cell growth and expression of particular subunits of Na^+/K^+-ATPase in some kinds of cancers. In addition, alterations in overall Na^+/K^+-ATPase activity and relative subunit abundance were observed in carcinoma cell lines obtained from a variety of tissues. As a consequence, many studies were directed towards the seeking for modulators of Na^+/K^+-ATPase, which selectively target these cellular abnormalities. Ecto-nucleoside triphosphate diphosphohydrolases, ENTPDases, which do not belong to the P-type ATPase family, represent plasma membrane bound enzymes that hydrolyse extracellular nucleotides because of the outward orientation of its active site. Since extracellular adenosine and adenine nucleotides induce various cellular responses (through activation of P1 and P2 receptors), E-NTPDases represent the major part of purinergic signaling. Moreover, inhibition of E-NTPDases may explain or contribute to some effects such as anticancer, antibiotic, and antidiabetic activities. This presentation is focused on the mode of action of some compounds exhibiting toxic and therapeutic activities toward the targeted enzymes.

Montag, 05.12.2016, 10:00 Uhr
Seminarraum 2C505
Althanstraße 14, 1090 Wien

Annette Rompel
Institut für Biophysikalische Chemie

Bernhard Keppler	Lothar Brecker	Veronika Somoza
Dekan	Vizedekan	Vizedekanin