Pharmacological strategies for the treatment of neurodegenerative disorders: from current therapies to novel targets

Organizer(s) Dr. Giuseppe Caruso, Senior researcher, Department of Drug Sciences
Viale Andrea Doria, 6, 95125, Catania, Italy

1 ECTS

Summary The aim of this course is to discuss recent evidence on the neurobiology of Alzheimer’s disease (AD) including the role of amyloid, neuroinflammation, oxidative stress, and neurotrophic factors in the pathogenesis of AD. I will then examine the pharmacology of cholinergic system, the current pharmacological treatment of AD as well as the new disease-modifying drugs developed to prevent the transition from mild cognitive impairment (MCI) to AD. I will also analyze the novel approaches in drug discovery in AD field and in particular the therapeutic potential of the natural dipeptide carnosine. Finally I will discuss the pathogenesis of Parkinson’s disease with a focus on oxidative stress and the novel pharmacological strategies in the treatment of this disease.

Course level Intermediate; Basic knowledge on Biology, Biochemistry, and Physiology needed

Course dates • September 29 – October 1, 2020
• Always 9:30-12:00 and 13:00-15:30

Content of course sessions Day 1: Neurobiology of neurodegenerative disorders: focus on Alzheimer’s disease (AD)
– Amyloid beta
– Neuroinflammation
– Oxidative stress
– Microglia activation/polarization
– Neurotrophic factors

Day 2: Pharmacological treatment of AD
– Current strategies
– Disease-modifying drugs: focus on immunotherapy
– Drug discovery in AD: the therapeutic potential of the natural dipeptide carnosine

Day 3: Parkinson’s disease (PD)
– Pathogenesis of PD: focus on oxidative stress
– Novel pharmacological strategies

The day 3 session will end with a talk of Giuseppe Caruso @ 14:30 open to the neuroscience community.
| **Course materials** | Reading and course materials are stored in the LNDS moodle system, to access:  
|                       | - go to "https://moodle2.unil.ch"  
|                       | - log in with your institutional address (unil,unige, epfl)  
|                       | - click on "Faculté de Biologie et de Médecine" > "Ecole doctorale / doctoral school" > "Lemanic Neuroscience Doctoral School"  
|                       | - course materials and papers are stored under "Pharmacological strategies for the treatment of neurodegenerative disorders" |
| **Location** | Most likely at CMU Geneva; room C07.1732.a (7th floor). The floor got restricted access; please ring the door bell “Secretariat” or dial 022-3795400 to get in. |
| **Course dates** | September 29 – October 1, 2020 |
| **Evaluation** | At the end of the course all students will be asked to write a critical report (1-2 pages) regarding the topics discussed during the course. |
| **Registration** | Register before September 5, 2020, by writing a mail to lndscourses@gmail.com (with your supervisor in copy) and stating the course title as subject. |