

CoPGr CURRICULAR CHAMBER

SUBJECTS PRESENTATION FORM

SUBJECT'S ACRONYM: **RNP5734**

SUBJECT'S NAME: Basic Mechanisms and Validity for the Neurological Clinic of Epilepsy Experimental Models

CURRICULUM/AREA: Neurology/17140

FOCAL AREA: Neurosciences

INITIAL VALIDITY (Year/Semester):

N. OF CREDITS: 04

Theoretical Classes: 06 Practical Classes, Seminars and Others: 06 Hours of Study: 03

DURATION IN WEEKS: 04

PROFESSOR(S) IN CHARGE:

1. USP Professor, n. 2783710 – Norberto Garcia Cairasco

ACTUAL COSTS OF THE SUBJECT: BRL (Presenting, if applicable, the budget foreseen for the year, as an attachment)

PROGRAM

OBJECTIVES:

Studying and discussing neurobiological experimental models of epilepsy.
Critically discussing the validity of experimental models of epilepsies for the neurological clinic.

JUSTIFICATION:

The growing advance in the knowledge of basic mechanisms of the brain function brings an accrual of information coming from different areas of knowledge with a parallel hard to find in the clinic area. Besides, the neurological diseases and especially the epilepsies, can only be understood, diagnosed and dully treated with the proper knowledge and application of these basic mechanisms. Therefore, this course will discuss the different experimental models of epilepsy which, by their meaning in the research of the area, are considered as references for the clinical neurology. Even though the application of concepts arising from the basic research is not immediate, the same establishes courses of action in the diagnosis, pharmacological treatment and even in the surgical treatment of the epilepsies in the contemporary neurological clinic.

CONTENT (SYLLABUS):

- History of the evolution of the concepts in the study of epilepsy.
- Neuronal and neurochemical substrates of the epileptic activity.
- Slice of brain tissue (cortex or hippocampus) as in vitro model of experimental study of epilepsy. Animal tissue or postsurgical human tissue.
- Genetics and epilepsy. Genetic models. Family genetics. Epilepsy genes mapping. Specific gene expression in epilepsy.
- Kindling as model of temporal-lobe epilepsy. Neurochemistry. Electrophysiology and behavior.
- Spontaneous recurrent seizures, synaptic plasticity and epilepsy.
- Epilepsy and behavior. Emotional alterations arising from epilepsy. What is ictal or interictal. Neuroethology as approach for the study of epileptic behavior.
- Hormones and epilepsy.
- Status epilepticus. Types and mechanisms.
- Limbic epilepsy induced by systemic application of pilocarpine. Electroencephalic analysis, status

epilepticus, benzodiazepines rescue.

- Audiogenic seizures and audiogenic seizures induced by electric or chemical intracerebral stimulation. Electroencephalogram, neuroethology, evoked potentials, sensorimotor integration, Kindling audiogenic..
- Amygdala or hippocampal kindling. Model of temporal-lobe epilepsy.
- Classification and evolution of the concepts in the study of epilepsy.
- Anti-epileptogenic areas of the concepts in the study of epilepsy.
- Specific gene expression at the limbic kindling.
- Changes in the behavior and behavioral assessment in experimental epilepsy.

EVALUATION CRITERIA:

At the end of the Course, the students shall elaborate a mini-monograph reflecting the integrated understanding on the different approaches discussed in the Course.

NOTES:

Note: The Theoretical classes and Seminars/Discussions will be performed at the Neurology Department Amphitheater (Annex B). The Theoretical Classes/Demonstrations will be performed at the Laboratory of Neurophysiology and Experimental Neuroethology from the FMRP-USP Physiology Department. In general, each theme will have a mandatory reading (see specific references) which will be discussed along with the responsible Professor or Graduation Student, always at the presence of the Course Coordinator. These discussions in seminars will be generally preceded from formal presentations of the concepts related with the respective theme.