

WP5 Deliverable 5.1 Preparation of course materials: preparation of slides, clinical problems, debate forums exercises, video recording, editing, proofreading, and uploading of MP4 files of the course on the project website

Recorded videos (MP4 files) and additional materials (clinical problems cases and forums exercises) from the „**University Specialist Course in the Use of Cannabis and Cannabinoid Derivatives**” are available on the UMH website under the link (specialistcannabinoids.umh.es)

Course details:

Section 0. Introduction

Introduction. Cannabis: therapeutic or recreational drug

Prof. Jorge Manzanares Robles, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Section 1. Botany, pharmacognosy, pharmacology and recreational use of the cannabis plant

Lecture 1.1. History of cannabis, from its origins to today's products

Prof. Javier Muriel Serrano, Department of Pharmacology, Pediatrics and Organic Chemistry, Universidad Miguel Hernández, Spain

Lecture 1.2. Taxonomy and botany of cannabis. Macroscopic and microscopic characteristics

Prof. Javier Muriel Serrano, Department of Pharmacology, Pediatrics and Organic Chemistry, Universidad Miguel Hernández, Spain

Lecture 1.3. Phytochemistry of cannabis: main families of compounds and their main pharmacological uses

Prof. Javier Muriel Serrano, Department of Pharmacology, Pediatrics and Organic Chemistry, Universidad Miguel Hernández, Spain

Lecture 1.4. Main analytical techniques for the characterization of cannabis compounds. Good Laboratory Practices (GLP)

Prof. Enrique Barrajón Catalán, Institute for Research, Development and Innovation in Health Biotechnology of Elche (IDiBE), Universidad Miguel Hernández, Spain

Lecture 1.5. Techniques for the extraction of active compounds from cannabis

Prof. Enrique Barrajón Catalán, Institute for Research, Development and Innovation in Health Biotechnology of Elche (IDiBE), Universidad Miguel Hernández, Spain



Lecture 1.6. Pharmacology of cannabinoids (endogenous ligands, receptors, synthesis and degradation enzymes)

Prof. Francisco Navarrete Rueda, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 1.7. Cannabinoid signaling in the brain: extracting specificity from ubiquity

Prof. Giovanni Marsicano, NeuroCentre Magendie INSERM, University of Bordeaux, France

Section 2. Alterations of the cannabinoid system in animal experimentation and clinical pathology

Lecture 2.1. Endocannabinoid System Components as potential biomarkers

Prof. Francisco Navarrete Rueda, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 2.2. Immunohistochemistry, conventional and confocal microscopy, western blots (localization, antibodies, dimerization, colocalization, etc.)

Prof. Daniela Navarro, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 2.3. Methodology for detecting changes in ECS components: gene expression, polymorphisms and epigenetics.

Prof. Francisco Navarrete Rueda, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 2.4. Methodology for detecting changes in ECS components: biochemistry

Prof. Francisco Navarrete Rueda, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 2.5. Methods for detecting changes in the endocannabinoid system: neuroimaging (PET, SPECT, fMRI)

Prof. Silvia de Santis, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 2.6. Alterations of the endocannabinoid system in gastrointestinal diseases

Prof. Ani Gasparyan Hovhannisyan, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 2.7. Alterations of the endocannabinoid system in liver diseases

Prof. Daniela Navarro, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 2.8. Alterations of the endocannabinoid system in renal diseases

Prof. María Salud García Gutiérrez, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain



Lecture 2.9. Alterations of the endocannabinoid system in endocrinology

Prof. Ani Gasparyan Hovhannisyan, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 2.10. Alterations of the endocannabinoid system in respiratory diseases

Prof. Daniela Navarro, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 2.11. Alterations of the endocannabinoid system in oncology

Prof. Ana Lucía Yuste, Oncology Department, General Hospital of Alicante, Spain

Lecture 2.12. Changes in the endocannabinoid system in pain and inflammation

Prof. Katarzyna Starowicz, Maj Institute of Pharmacology Polish Academy of Sciences, Poland

Lecture 2.13. Alterations of the endocannabinoid system in neurology

Prof. Ani Gasparyan Hovhannisyan, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 2.14. Alterations of the endocannabinoid system in psychiatry

Prof. María Salud García Gutiérrez, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Section 3. Therapeutic uses of cannabinoid derivatives I (pain, neurology and psychiatry)

Lecture 3.1. Therapeutic applications of cannabinoids in pain management

Prof. Raquel Saldaña, Anaesthesia Section at Hospital 12 De Octubre, Spain

Lecture 3.2. Therapeutic applications of cannabinoids in the management of neuropathic pain

Prof. Katarzyna Starowicz. Maj Institute of Pharmacology Polish Academy of Sciences, Poland

Lecture 3.3. Cannabinoid therapy in epilepsy and epileptic syndromes

Prof. Francisco Navarrete Rueda, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 3.4. Multiple sclerosis: role of cannabinoids in treatment and pathophysiological aspects

Prof. María Salud García Gutiérrez, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 3.5. Cannabinoids and extrapyramidal pathology: Parkinson's disease and other extrapyramidal diseases (dystonia, Gilles de Tourette syndrome, tics, etc.).

Prof. Ani Gasparyan Hovhannisyan, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain



Lecture 3.6. Role of cannabinoids in migraine

Prof. Daniela Navarro, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 3.7. Therapeutic usefulness of cannabinoids in anxiety and depressive disorders

Prof. María Salud García Gutiérrez, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 3.8. Role of cannabinoid CB2 receptor in the regulation of emotional and addictive behaviors

Prof. Jorge Manzanares Robles, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 3.9. Role of cannabidiol and sertraline in regulating behavioral and brain gene expression changes in a novel animal model of posttraumatic stress disorder

Prof. Jorge Manzanares Robles, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 3.10. Role of cannabidiol in drug dependence

Prof. Jorge Manzanares Robles, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Section 4. Therapeutic uses of cannabinoid derivatives II (oncology, endocrinology, cardiology, respiratory, digestive, ophthalmology, dermatology, skeletal system, others)

Lecture 4.1. Regulation of the immune system by cannabinoids: inflammation and infection

Prof. Esther Caparrós Cayuela, Department Clinical Medicine, Universidad Miguel Hernández, Spain

Lecture 4.2. Cannabinoid products as immunomodulators: clinical trials and animal modeling

Prof. Esther Caparrós Cayuela, Department Clinical Medicine, Universidad Miguel Hernández, Spain

Lecture 4.3. Cannabinoid system-intestinal microbiome relationship: physiology and pathology

Prof. Esther Caparrós Cayuela, Department Clinical Medicine, Universidad Miguel Hernández, Spain

Lecture 4.4. Utility of cannabinoid therapy in cardiovascular pathology

Prof. María Salud García Gutiérrez, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 4.5. Role of the endocannabinoid system in energy balance and obesity

Prof. Daniela Cota, NeuroCentre Magendie INSERM, University of Bordeaux, France



Lecture 4.6. Therapeutic potential of the use of cannabinoid compounds in the treatment of renal pathologies

Prof. Francisco Navarrete Rueda, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 4.7. Potential therapeutic utility of cannabinoid compounds in liver diseases

Prof. Ani Gasparyan Hovhannisyan, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 4.8. Potential therapeutic utility of cannabinoid compounds in respiratory pathologies

Prof. Daniela Navarro, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 4.9. Usefulness of the use of cannabinoids in traumatology

Prof. Daniela Navarro, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 4.10. Effects of cannabinoids on bone tissue

Prof. Daniela Navarro, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 4.11. Potential therapeutic utility of cannabinoid compounds in genitourinary disorders

Prof. Ani Gasparyan Hovhannisyan, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 4.12. Therapeutic potential of the use of cannabinoid compounds in the treatment of ophthalmologic pathologies

Prof. Francisco Navarrete Rueda, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Lecture 4.13. Cannabinoids in dermatology

Prof. María Salud García Gutiérrez, Institute of Neurosciences, CSIC/Universidad Miguel Hernández, Spain

Section 5. Patents and cannabinoid research seminar

Patent Seminar. Patents related to cannabinoid compounds

Prof. Ramón Soto, National Autonomous University of Mexico, Mexico

Research Seminar. Genetically modified mice in neuropsychopharmacology research

Prof. Jan Rodríguez Parkitna, Maj Institute of Pharmacology Polish Academy of Sciences, Poland