

**International online and presential course**  
**“Cannabis and Cannabinoids: chemistry, pharmacology and clinical applications”**  
**October 26 to 30, 2020**

**Overview**

“Cannabis and cannabinoids” has become a popular research topic within the Uruguayan scientific community, since a law that regulates the cannabis market was approved (Dec. 2013); and recently another law which promotes research in Cannabis and cannabinoids has been approved (Dec. 2019). This new regulation promotes and facilitates the study of the medical use of Cannabis and Cannabinoids as a national priority. In this context, we have considered of major importance to organize a postgraduate international course to improve the knowledge related to this topic.

The course will be focused on three major modules:

- Module I- Plant: genetics, chemistry and secondary metabolites**
- Module II- Endocannabinoid System and cannabinoids effects**
- Module III- Pathologies and therapeutic applications based on Cannabis and Cannabinoids**

We think that this content could be an excellent framework to include different views and theoretical frames on the effects and the mechanisms of action of cannabinoids and endocannabinoids in the pathologies of interest for specialized local and foreign scientists. In addition, it will be an excellent environment to present the local Uruguayan research focused on medicinal use of Cannabis and Cannabinoids. The course will also be an exceptional opportunity to promote scientific and social links between postgraduate students and highly-qualified guest scientists.

**Academic profile of attendees**

The course will be offered to postgraduate students of Biology, Chemistry, Biochemistry and Medical Sciences. In addition, clinicians, nurses and dentists could also benefit from it. It was approved by PEDECIBA (Programa de Desarrollo de Ciencias Básicas) from Universidad de la República.

**Organizer and Co-organizer:** Consorcio de Innovación Sur (CISUR) and CannaLatan-Cyted

**Language:** Spanish and English (non-translation)

**Modality:** Combined event (presential and online regime).

**Venue:** Sala Las orquídeas de LATU, Montevideo, Uruguay.

## Preliminary Program

### Module I: Cannabis: genetics and secondary metabolites

#### Monday 26

- 08:45-09:00** Welcome and Opening by Organizers.  
**09:00-10:15** *History of Cannabis* Prof. Lumir Hanus (Jerusalem, Israel)  
**10:30-11:30** *Chemistry of Cannabis plant.* Carlos García (Montevideo, Uruguay)  
**11:30-12:00** **Coffee break**  
**12:00-13:00** *Chemical analysis of Cannabis.* Eleuterio Umpiérrez (Montevideo, Uruguay)

#### Free time

- 14:30-15:45** *Cannabis genetics.* Daniela Vergara (Colorado, USA)  
**16:00-16:30** *Agronomical improvement of Cannabis crop.* Alfredo Albin (Montevideo, Uruguay)  
**16:30-17:00** **Coffee break**  
**17:00-17:30** *Analysis of Cannabinoids synthesis genes.* Astrid Agorio (Montevideo, Uruguay)

### Module II: Endocannabinoid System and cannabinoids effects

#### Tuesday 27

- 09:00-10:15** *Role of cannabidiol in the ethanol intake regulation: dual ethanol-TEPT paradigm in mouse.* Jorge Manzanares (Alicante, Spain)  
**10:30-11:30** *CB1 receptor and neuroprotection.* Laura Romina Caltana (Buenos Aires, Argentina)  
**11:30-12:00** **Coffee break**  
**12:00-13:00** *Molecular mechanisms behind the neuroprotective properties of cannabidiol: the case of Parkinson's disease.* José Javier Fernández Ruiz (Madrid, España).

#### Free time

- 14:30-15:45** *Pharmacological interactions with cannabinoids.* Marta Vázquez. (Montevideo, Uruguay)

**16:00-16:30** *Cannabinoids and Epilepsy.* Andrea Rey (Montevideo, Uruguay)

**16:30-17:00** **Coffee break**

**17:00-17:30** *Cannabinoids and Immune System.* Leticia Cuñetti. (Montevideo, Uruguay)

## Module III: Pathologies and therapeutic applications based on Cannabis and Cannabinoids

### Wednesday 28

**09:00-10:15** *The Endocannabinoid system in neurodegenerative diseases.* Ismael Galve-Roperh (Madrid, España)

**10:30-11:30** *Preclinical neuroimaging and Cannabis.* Eduardo Savio (Montevideo, Uruguay)

**11:30-12:00** **Coffee break**

**12:00-13:00** *Molecular imaging of brain function and neurotransmitters: clinical experience at CUDIM.* Andres Damian (Montevideo, Uruguay)

### Free time

**14:30-15:45** *Cannabis, cannabinoids in mental health.* Francisco Guimaraes (Ribeirao Preto, SP, Brazil)

**16:00-16:30** *Cannabinoids and autism.* Natalia Lago (Montevideo, Uruguay)

**16:30-17:00** **Coffee break**

**17:00-17:30** *Cannabis and C.elegans.* Inés Carrera (Montevideo, Uruguay)

### Thursday 29

**09:00-10:15** *Antidepressant effect of cannabidiol and the underlying molecular mechanisms.* Samia Joca (Ribeirao Preto, Brazil).

**10:30-11:30** *Mechanisms involved in the cognitive impairment induced by cannabinoids.* Andrés Ozaita (BCN, Spain)

**11:30-12:00** **Coffee break**

**12:00-13:00** *Medical use of Cannabis in pets.* Nadia Crosignani (Montevideo, Uruguay)

### Free time

**14:30-15:45** *Clinical research on the therapeutic potential of cannabidiol in mental health diseases.* José A. Crippa (Ribeirao Preto, SP, Brazil)

**16:00-16:30** *Cannabidiol and cannabigerol as neuroprotective agents: in vitro studies.* Carolina Echeverry (Montevideo, Uruguay)

**16:30-17:00** **Coffee break**

**17:00-17:30** *Cannabidiol in psychostimulant sensitization.* José Pedro Prieto (Montevideo, Uruguay)

### Friday 30

**09:00-10:15** *Medical grade of Cannabis: definition and concepts.* Raquel Peyraube (Montevideo, Uruguay)

**10:30-11:00** *Therapeutic potential of cannabinoids.* Cecilia Maldonado (Montevideo, Uruguay)

**11:00-11:30** **Coffee break**

**11:30-12:00** *Cannabis and sleep cycle.* Alejandra Mondino (USA)

### **Free Time**

## **Roundtable in transnational Cannabis: Research, Medicine, Society and Government**

**Moderator:** Dra. Raquel Peyraube

### **13:30-15:30**

- *Consortio de Innovación Sur (CISUR, Uruguay).* Dr. Eduardo Savio
- *Red Cyted CannaLatan.* Dr. Ismael Galve-Roperh
- *Instituto de Regulación y Control del Cannabis (IRCCA, Uruguay).* Dr. Daniel Radío
- *Sociedad de Endocannabinología del Uruguay (SUEN, Uruguay).* Dra. Julia Galzerano
- *Cámara de Empresas de Cannabis (CECAM, Uruguay).* Lic. Marco Algorta

## Local speakers

Dra. Astrid Agorio, Departamento de Biología Molecular, IIBCE, Montevideo, Uruguay.  
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Dr. Alfredo Albin. Instituto Nacional de Investigación Agropecuaria (INIA).  
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Dr. Andrés Damián. Centro Uruguayo de Imagenología Molecular.  
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Dra. Inés Carrera. Facultad de Química, Universidad de la República.  
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Dra. Nadia Crosignani, Facultad de Veterinaria, Universidad de la República.  
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Dra. Leticia Cuñetti, Instituto de Nefrología y Urología, Fac. de Facultad de Medicina.  
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Dra. Carolina Echeverry, Departamento de Neuroquímica, IIBCE. Montevideo,  
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Dr. Carlos García, Departamento de Química Orgánica, Facultad de Química,  
Universidad de la República, Montevideo, Uruguay. carlosga@fq.edu.uy

Dra. Natalia Lago, Instituto Pasteur de Montevideo. nlago@pasteur.edu.uy

Dra. Cecilia Maldonado. Departamento de Ciencias Farmacéuticas, Facultad de Química,  
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Dra. Alejandra Mondino. Departamento de Fisiología, Universidad de la República.  
Current filiation Department of Anesthesiology, University of Michigan, USA.  
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Dra. Raquel Peyraube. International Association for Cannabinoid Medicines (IACM).  
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Dr. José Pedro Prieto, Departamento de Neurofarmacología Experimental, IIBCE, Montevideo, Uruguay. jose.ppp@gmail.com

Dra. Andrea Rey, Cátedra de Neuropediatría, Facultad de Medicina, Universidad de la República, Centro Hospitalario Pereira Rossell. Montevideo, Uruguay, andrearey33@gmail.com.uy

Dr. Eduardo Savio. Centro Uruguayo de Imagenología Molecular. eduardo.savio@tudim.org

Dra. Cecilia Scorza, Departamento de Neurofarmacología Experimental, IIBCE, Montevideo, Uruguay, cscorza@iibce.edu.uy/scorzacecilia@gmail.com

Eleuterio Umpiérrez, Instituto Polo Tecnológico de Pando, Facultad de Química, Universidad de la República, Montevideo, Uruguay. eleuteriumpierrez@gmail.com

Dra. Marta Vázquez, Polo Tecnológico de Pando, Facultad de Química, Universidad de la República, Montevideo, Uruguay. mvmvm2@gmail.com

### **Foreign speakers**

Dra. Laura R. Caltana, Facultad de Medicina, Universidad de Buenos Aires, Argentina. lauracaltana@gmail.com

Prof. José A. Crippa. Department of Neurosciences and Behavior, Faculty of Medicine of Ribeirão Preto, University of São Paulo, São Paulo, Brazil. jcrippa@fmrp.usp.br

Dr. José Javier Fernández Ruiz. Departamento de Bioquímica y Biología Molecular III, Instituto Universitario de Investigación en Neuroquímica, Facultad de Medicina, Universidad Complutense, Spain. jjfr@ucm.es

Dr. Ismael Galve-Roperh. Department of Biochemistry and Molecular Biology I, School of Biology, Complutense University, Madrid, Spain. igr@quim.ucm.es

Prof. Francisco Guimaraes, Facultad de Medicina, Universidad de Sao Paulo, Ribeirao Preto, SP, Brasil. fsguimar@fmrp.usp.br

Prof. Lumir Hanus. The Hebrew University of Jerusalem, Jerusalem, Israel. lumirh@ekmd.huji.ac.il



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Dra. Samia Joca. School of Pharmaceutical Sciences of Ribeirão Preto (FCFRP), University of São Paulo (USP), Brazil; Aarhus Institute of Advanced Studies (AIAS), Aarhus University, Denmark. [sjoca@aias.au.dk](mailto:sjoca@aias.au.dk).

Prof. Jorge Manzanares, Universidad Miguel Hernández-CSIC, Alicante, España. [jmanzanares@goumh.umh.es](mailto:jmanzanares@goumh.umh.es)

Dr. Andrés Ozaita. Laboratorio de Neurofarmacología, Departamento de Ciencias Experimentales y de la Salud, Universitat Pompeu Fabra, Barcelona, Spain. [andres.ozaita@upf.edu](mailto:andres.ozaita@upf.edu)

Dra. Daniela Vergara, Ecology and Evolutionary Biology, University of Colorado, Boulder, USA. [daniela.vergara@colorado.edu](mailto:daniela.vergara@colorado.edu)

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