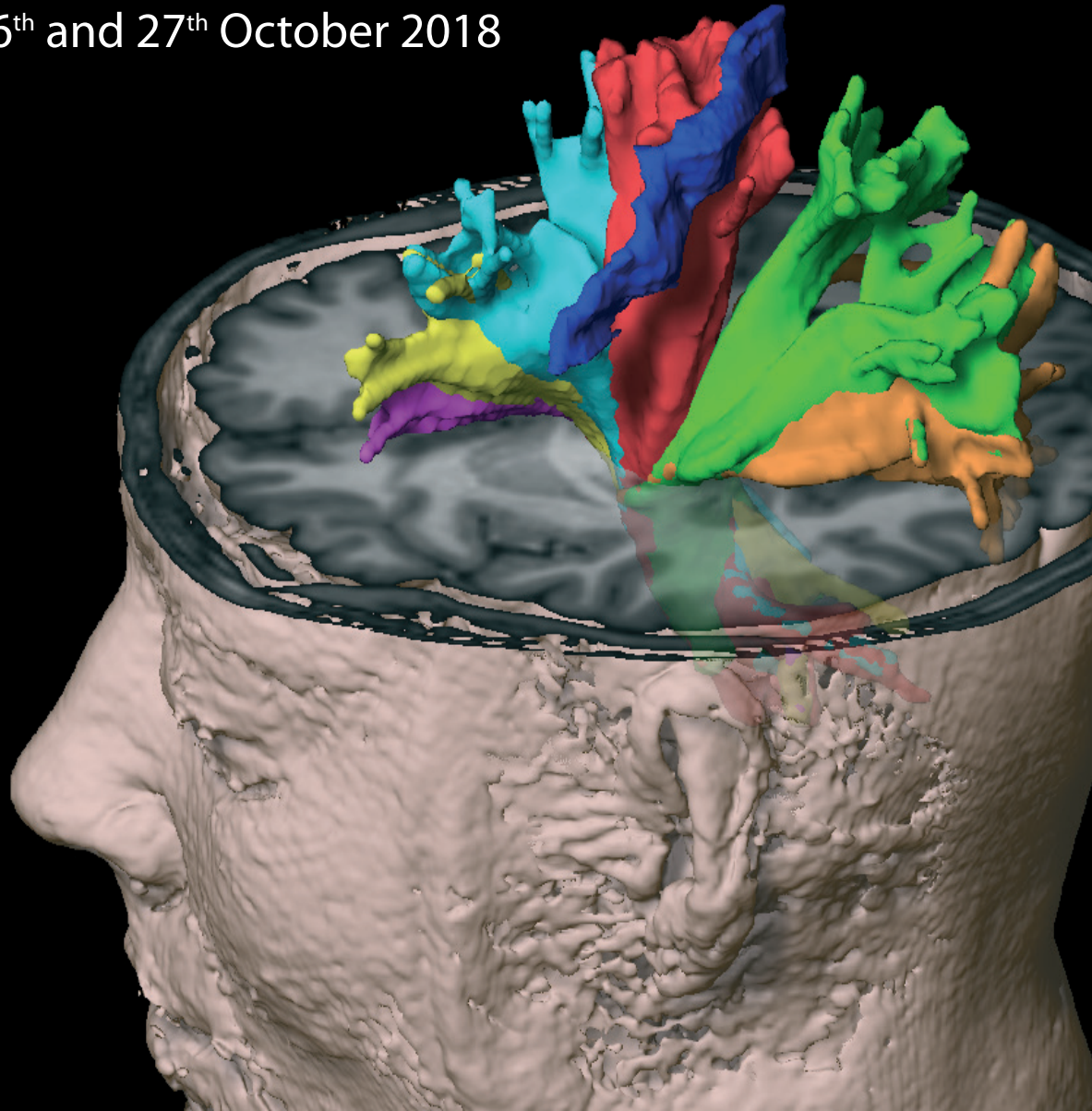


**SECOND ANNUAL 3D ADVANCED
FIBER DISSECTION COURSE:
ACQUIRING THE MENTAL IMAGERY
NECESSARY TO OPERATE THE BRAIN**

Santander, 26th and 27th October 2018





The white matter of the cerebrum underlies the outer cortex of gray matter, and is composed of densely packed axons that are organized in fascicles or fiber tracts. These tracts have a complex three-dimensional (3D) configuration within the hemispheres, the brainstem and the spinal cord. A detailed knowledge of the architectural anatomy of the white matter tracts is paramount, for strategically planning for surgical management of parenchymal brain lesions, such as gliomas. Neuroanatomical laboratory training is very valuable to study and understand the anatomy of white matter fibers. In particular, cortex-sparing fiber dissection facilitates knowledge of this complex anatomy. None of the recently developed surgical guides such as neuronavigation, intraoperative magnetic resonance imaging or ultrasonography can provide a similar comprehensive understanding of the 3D fiber pathways organization.

In the present course, the participants will learn the technique of cortex-sparing fiber dissection in order to acquire the mental imagery of the main white matter tracts. We wanted to give a practical perspective to the course; therefore, in the second day, the participants will directly apply the knowledge acquired to practice surgical approaches in the laboratory.

The congress will be held in the prestigious School of Medicine at the University of Cantabria.

We look forward to welcoming you in Santander.

Juan Martino

The Scientific Secretariat



COURSE DIRECTOR

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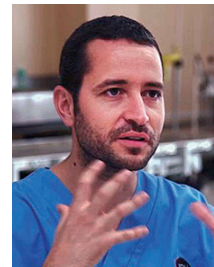
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Dr. Pablo González-López
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HONORED GUEST

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Dr. David Mato
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Dr. Cristian de Quintana Schmidt
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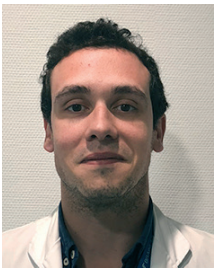
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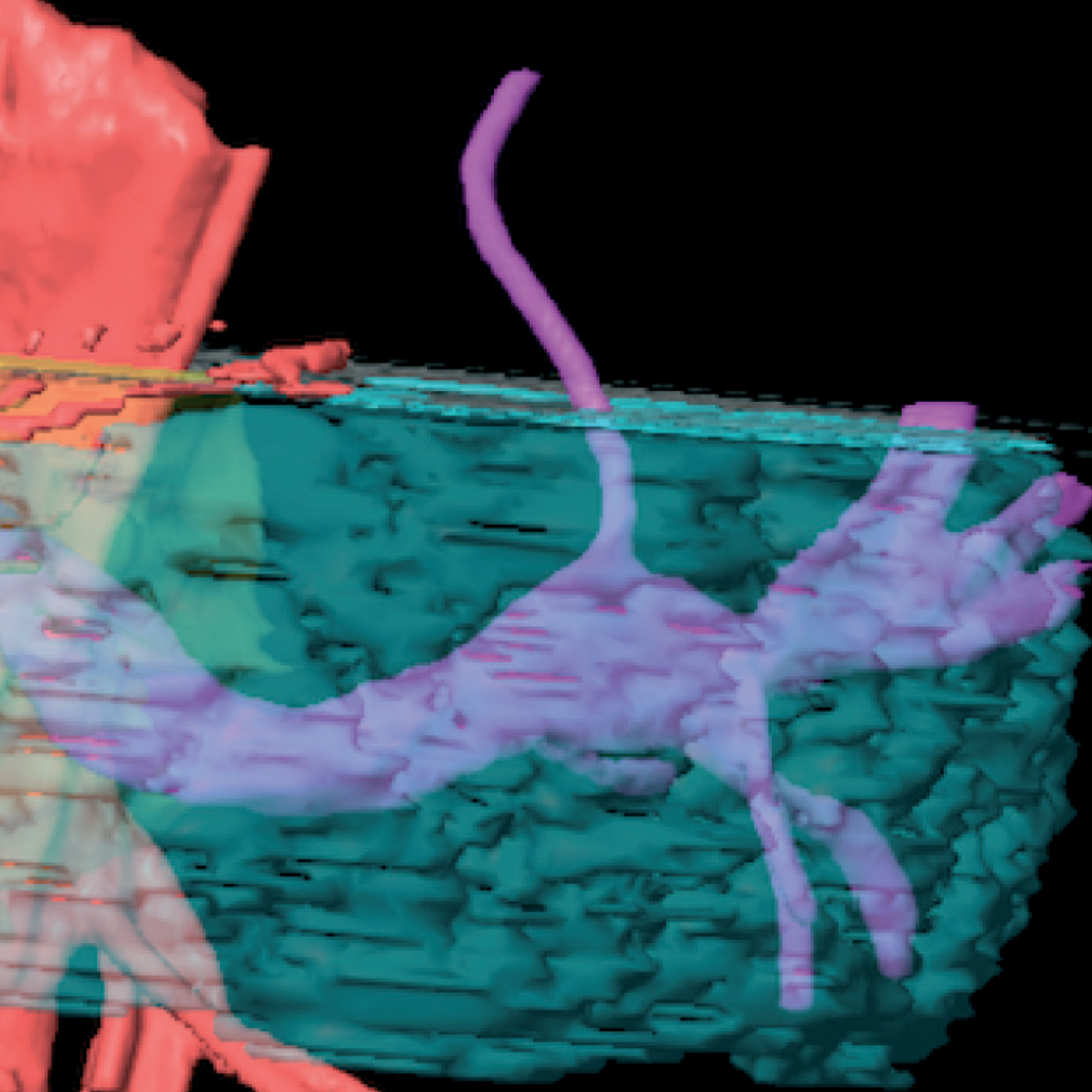
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Dr. Jesús Esteban
Neurosurgery Department.
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Maximal number of participants per course, with full hands-on registration: 8

Maximal number of participants per course, with limited registration: 20

Course dates: 26th and 27th October 2018

Course equipment and facilities:

- Anatomy laboratory at the University of Cantabria.
- Two cerebral hemispheres for each participant. The specimens were previously selected to ensure the quality for dissection. The specimen's vessels were injected with red and blue colorants for greater similarity with a real brain.
- Microscope Kinevo 900 Carl Zeiss: one for the course.
- Microscopes (techno-scopes) Carl Zeiss: one for each participant.
- Ultrasonic aspirators CUSA (Integra): one for each participant.
- 3D television (75 inches, Full HD): one for the course.
- Neuronavigation system: one for the course.
- Video camera: one for the course.
- 3D Glasses: one for each participant.
- Instruments for dissection for each participant.

Target Audience and Objectives:

This activity was designed for Neurosurgeons, Neurologists, Neuroradiologists, Residents/Fellows in these specialties, and Neuro-nurses.

After the conclusion of this activity, participants will be able to:

- Identify the anatomy of the white matter fiber tracts.
- Comprehensive understanding of the 3D anatomical relationships between the white matter connections.
- Evaluate surgical approaches to challenging areas: the dominant insular lobe and the supplementary motor area.
- Discuss surgical cases and analyze different treatment options of tumors located within eloquent areas.

Course venue:

Anatomy Laboratory.
Department of Anatomy and Cellular Biology.
School of Medicine. Cantabria University.
Av. Herrera Oria, s/n. 39011. Santander (Cantabria). Spain.

Registration fees:

- Full hands-on registration: 1.500 € + VAT. Includes lectures attendance, lunch and refreshments breaks, and course dinner on Friday. It also includes the hands-on part: dissection of cerebral hemispheres and simulation of surgical approaches.
- Limited registration: 600 € + VAT. Includes lectures attendance, lunch and refreshments breaks, and course dinner on Friday. However, it does NOT include the hands-on part: dissection of cerebral hemispheres and simulation of surgical approaches. The participants with limited registration will follow the dissections and surgical approaches performed by the professors.

Technical Secretariat:

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PROGRAM. Friday, 26th of October 2018

08:00 Registration.

08:10 Opening.

Dr. Juan A. García-Porrero, Dr. Juan Martino

08:15 How to prepare the brains for fiber dissection.

Dr. David Mato

08:30 3D LECTURE: anatomy of the dorsal associative tracts of the brain: superior longitudinal fasciculus, arcuate fasciculus, middle longitudinal fasciculus.

Dr. Juan Martino

09:00 Functional roles of the dorsal associative tracts of the brain.

Dr. Alejandro Fernández-Coello

09:15 Hands-on session: fiber dissection of the dorsal associative tracts. Each participant will have one hemisphere to dissect. The participants will learn how to remove the arachnoid membranes and the cortex without damaging the underlying white matter. The participants will dissect the dorsal associative tracts: the subcomponents of the superior longitudinal fasciculus, arcuate fasciculus, and middle longitudinal fasciculus.

Professor Hugues Duffau, Dr. Juan Martino, Dr. Alejandro Fernández-Coello, Dr. Emmanuel Mandonnet, Dr. Pablo González-López, Dr. David Mato, Dr. Carlos Velasquez, Dr. Carlos Santos, Dr. Guillermo García-Catalán, Dr. Jesús Esteban, Dra. Patricia López, Monserrat Fernández-Calderón

13:00 Lunch.

14:00 3D LECTURE: anatomy of the ventral associative tracts and the fascicles related to the insula: inferior longitudinal fasciculus, inferior fronto-occipital fasciculus and uncinata fasciculus.

Dr. Juan Martino

14:30 Functional roles of the ventral associative tracts and the fascicles related to the insula.

Dr. Alejandro Fernández-Coello

14:45 Intraoperative electrical stimulation mapping of associative fiber pathways.

Professor Hugues Duffau

15:15 3D LECTURE: limbic and paralimbic tumors. Anatomy and related surgical approaches.

Dr. Pablo González-López

15:45 Hands-on session: fiber dissection of the ventral associative tracts and the fascicles related to the insula. Each participant will have one hemisphere to dissect. The participants will dissect the ventral associative tracts and the tracts related to the insula region: inferior longitudinal fasciculus, inferior fronto-occipital fasciculus and uncinata fasciculus.

Professor Hugues Duffau, Dr. Juan Martino, Dr. Alejandro Fernández-Coello, Dr. Emmanuel Mandonnet, Dr. Pablo González-López, Dr. David Mato, Dr. Carlos Velasquez, Dr. Carlos Santos, Dr. Guillermo García-Catalán, Dr. Jesús Esteban, Dra. Patricia López, Monserrat Fernández-Calderón

21:00 Course dinner.

PROGRAM. Saturday, 27th of October 2018

08:00 Insula glioma surgery: the transopercular approach.

Professor Hugues Duffau

08:30 How to simulate a surgical approach to insular gliomas in the laboratory.

Dr. Emmanuel Mandonnet

09:00 Presentation of the insular surgical case.

Dr. Juan Martino

09:15 Hands-on session: transopercular approach to the insula. Professor Hugues Duffau will perform a step by step transopercular approach to the insula in the specimen. Simultaneously, each participant will perform the approach in the specimens. The participants will use a real magnetic resonance image (MRI) of a fronto-temporo-insular glioma to guide the resection. We will have a unique opportunity to ask Professor Duffau many questions about the challenges of this approach: how to preserve the deep functional connections (inferior fronto-occipital fasciculus, uncinata fasciculus, pyramidal pathway, etc.), and vascular structures (lenticulostriate arteries).

Professor Hugues Duffau, Dr. Emmanuel Mandonnet, Dr. Juan Martino, Dr. Alejandro Fernández-Coello, Dr. Pablo González-López, Dr. David Mato, Dr. Carlos Velasquez, Dr. Carlos Santos, Dr. Guillermo García-Catalán, Dr. Jesús Esteban, Dra. Patricia López, Monserrat Fernández-Calderón

13:00 Lunch.

14:00 Diffusion tensor imaging tractography reconstruction of the white matter tracts.

Dr. Cristian de Quintana Schmidt

14:20 Hands-on session: approach to the supplementary motor area. Professor Hugues Duffau will perform a step by step frontal approach to the supplementary motor area. Simultaneously, each participant will perform the approach in the specimens. The participant will use a real MRI of a glioma infiltrating the supplementary motor area to guide the resection. In this approach, the deep functional connections are the superior longitudinal fasciculus, subcallosal fasciculus, frontal aslant tract, and pyramidal pathway.

Professor Hugues Duffau, Dr. Emmanuel Mandonnet, Dr. Juan Martino, Dr. Alejandro Fernández-Coello, Dr. Pablo González-López, Dr. David Mato, Dr. Carlos Velasquez, Dr. Carlos Santos, Dr. Guillermo García-Catalán, Dr. Jesús Esteban, Dra. Patricia López, Monserrat Fernández-Calderón

15:45 Hands-on session: fiber dissection of the central core and the medial surface of the hemisphere. Each participant will have one hemisphere to dissect. The participants will dissect the central core (basal ganglia and internal capsule) and the tracts related to the medial surface of the hemisphere (cingulum, pyramidal pathway, and subcallosal fasciculus).

Professor Hugues Duffau, Dr. Emmanuel Mandonnet, Dr. Juan Martino, Dr. Alejandro Fernández-Coello, Dr. Pablo González-López, Dr. David Mato, Dr. Carlos Velasquez, Dr. Carlos Santos, Dr. Guillermo García-Catalán, Dr. Jesús Esteban, Dra. Patricia López, Monserrat Fernández-Calderón

16:45 Closing remarks.

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