

**33203: Techniques in experimental pharmacology (coordinator: Prof. Ana Briones [ana.briones@uam.es](mailto:ana.briones@uam.es)) Seminar IX (unless specified)**

Hour	Monday-27 January	Tuesday- 28 January	Wednesday-29 January	Thursday- 30 January	Friday-31 January	
9-10		<i>Santo Tomás de Aquino</i>	33203 - Presentation <i>Ana Briones 9.30-10 h</i>			
10-11			33203 - Tissue preparation, histological sectioning and immunostaining <i>Ana Briones</i>	33203 - Mitochondrial function and biogenesis <i>María Monsalve</i>	33203 - Proliferation/Viability (labs). <i>Elena Tortosa y Silvia Santamaría (Group 2-L3)</i> <i>Concha Peiró, Alicia Villacampa, Ana Cuadrado (Group 1-L5)</i>	
11-12			33203 - Cell cultures <i>Silvia Santamaría</i>	33203 -Transfection techniques and RNAi <i>María Cano</i>		
12-13			33203 -Gene expression by PCR (seminar) <i>Elena Tortosa</i>	33203 – Proliferation/Viability (labs). <i>Elena Tortosa y Silvia Santamaría (Group 3-L3)</i>	33203 - Behavioural studies in animals <i>Silvia Santamaría</i>	
13-14					33203 -Proteomics <i>Antonio Martínez</i>	
15-16			33203 -Protein expression by western blot (seminar) <i>Elena Tortosa</i> <b>Library of Pharmacology</b> <b>Dpt. 1<sup>st</sup> floor</b>		33203 - GraphPad Prism (seminar) <i>Elena Tortosa</i> <b>Library of Pharmacology</b> <b>Dpt. 1<sup>st</sup> floor</b>	
16-17						

Hour	Monday-3 February	Tuesday- 4 February	Wednesday-5 February	Thursday- 6 February	Friday-7 February
9-10					
10-11	Proliferation/Viability (labs). <i>Concha Peiró, Alicia Villacampa, Ana Cuadrado</i> (Only group 1-L5) 10-11 h	33203 - Measurement of vascular structure (classroom). <i>Silvia Arribas and Ana Briones</i>	CUAL. Examen 10:00-12:00 h. Seminario 4 Fac. Medicina	33203 - Techniques to measure exocytosis and neurotransmitters release <i>Almudena Albillos</i>	33203 - Measurement of vascular structure (labs) <i>Silvia Arribas (Group 2-C33)</i>
11-12	33203 - Electrophysiology techniques <i>Luis Gandía</i>	33203 - Measurement of vascular function (classroom and labs) All groups  <i>Ana Briones y Naoual Boukich (Group 2-L4)/ /Ana García-Redondo y Wilfrido Arrua (Group 3-C15; Silvia Arribas (Group 1, C33).</i>		33203 - Neuroimaging and cerebral function <i>Pilar López Larrubia</i>	33203 - Patch clamp (labs) <i>Luis Gandía y Adrian Girona (Group 3-L7)</i> 33203 - Techniques to measure intracellular calcium (labs) <i>Maria Fernández Velasco y Almudena Val-Blasco (Group 1 Confocal unit IIB-Sols-Morreale)</i>
12-13	33203 - Techniques to measure intracellular calcium <i>María Cano</i>			33203 - Neuroimaging and cerebral function (labs at IIB Sols-Morreale) <i>Pilar López Larrubia</i>	33203 - Measurement of vascular structure (labs) <i>Ana Briones y Naoual Boukich (Group 1-L4)</i>
13-14	33203 - Flow cytometry <i>Carlos del Fresno</i>				33203 - Patch clamp (labs) <i>Luis Gandía y Adrian Girona (Group 2-L7)</i> 33203 - Techniques to measure intracellular calcium (labs) <i>Maria Cano (Group 3-L8)</i>
15-16	CUAL Presentación Trabajos Farma . Seminario 4 Fac Medicina 15:00-19,00			33203 - Patch clamp (labs) <i>Luis Gandía y Adrian Girona (Group 1 -L7)</i>	
16-17				33203 - Techniques to measure intracellular calcium (labs) <i>Maria Cano (Group 2-L8)</i> 33203 - Measurement of vascular structure (labs) <i>Ana Briones y Naoual Boukich (Group 3-L4)</i>	

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Hour	Monday-10 February	Tuesday- 11- February	Wednesday-12 February	Thursday- 13 February	Friday-14 February
9-10		33203 – Data analysis and representation of vascular function (seminar) <i>Ana Briones / Ana García-Redondo</i>			
10-11	33203 - Confocal Microscopy: principles and applications in biomedical Research. Image analysis with Image J <i>Silvia Arribas and Ignacio Monedero.</i> <b>Room TBC</b>		33203 – Data analysis and representation of vascular structure (seminar) <i>Silvia Arribas/ Ana Briones</i>		<i>Students presentations</i> <i>Manuela García</i> <i>Ana Briones</i>
11-12		3203 - Isolation and characterization of extracellular vesicles <i>Fernando de la Cuesta</i>			
12-13		33203 Measurement of reactive oxygen species <i>Ana Briones</i>	33203 - Microarrays <i>Julián Nevado</i>		
13-14		3203 - Single cell omics (seminar) <i>Fernando de la Cuesta</i>	33203 - Next generation sequencing <i>Julián Nevado</i>		

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**Note.** Seminars and theoretical lessons will take place in seminar IX. Practical demonstrations will take place in specified labs in the Departments of Pharmacology and Physiology or in Instituto de Investigaciones Biomédicas Alberto Sols (in front of the animal care facility of the Faculty of Medicine).

**Students presentations for session on Tuesday 14<sup>th</sup> February:**

The students will divide in 3 groups of three students and 2 groups of four students (free election). Each group should choose one project from the ones provided below and prepare a 15 min PPT presentation that will be followed by ~15 min discussion. Alternatively, you can develop your own Master's Thesis project. The main objective of this presentation is that you propose different experimental approaches and experimental models that would allow you to address the scientific question. You will have to present at least 4 different techniques that complement each other and explain the rationale of your election. Additional experimental techniques not covered in this course are very welcome.

- Project 1. Role of microglia in cognitive decline induced by diabetes.
- Project 2. Arterioles at the hippocampus are contributors of cognitive decline in hypertension.
- Project 3. Role of the free radical oxygen producing enzyme NOX4 (NADPH-4) in neurodegeneration
- Project 4. Role of hemoxygenase-1 in aging-associated neurodegeneration
- Project 5. Role of the nicotinic receptors in vascular damage
- Project 6. Exploration of cellular and molecular mechanisms of novel compounds for the treatment of atherosclerosis
- Project 7. Free election

Student		Groups for labs demonstrations	
Yingyue	Deng	Group 1	
Alexis Antonio	Guadrón Meléndez	Group 1	
María	Mora Rodríguez	Group 1	
Oscar	Román García	Group 1	
Rebeca	VázquezMuñoz	Group 1	
Martina	Bruno	Group 2	
Emma	Downes	Group 2	
Agnes	Gaidosch	Group 2	
Berta María	García López-Cano	Group 2	
Xinyan	Lí	Group 2	

## Master's Degree in Pharmacological Research (2024-2025) 2º semester

Leah	Luna Juez	Group 2	
Elena	Mcconnachie	Group 3	
Elena	Martínez Cuevas	Group 3	
Ariadna	Pérez Pérez	Group 3	
Marta	Piñeiro Pérez	Group 3	
Alba	Porta Roca	Group 3	
Irene	Vivar García	Group 3	