

33203: Techniques in experimental pharmacology (coordinator: Prof. Ana Briones ana.briones@uam.es) Seminar XIV (unless specified)

Hour	Monday-26 January	Tuesday- 27 January	Wednesday-28 January	Thursday- 29 January	Friday-30 January
9-10		33203 - Presentation <i>Ana Briones</i> 9.30-10 h			
10-11		33203 - Tissue preparation, histological sectioning and immunostaining <i>Ana Briones</i>	33203 - Techniques to measure exocytosis and neurotransmitters release <i>Almudena Albillos</i>	33203 - Behavioural studies in animals <i>Silvia Santamaría</i>	
11-12		33203 - Cell cultures <i>Silvia Santamaría</i>	33203 -Transfection techniques and RNAi <i>María Cano</i>	33203 -Proteomics <i>Antonio Martínez</i>	
12-13 13-14		33203 -Gene expression by PCR (seminar) <i>Elena Tortosa</i>	33203 -Protein expression by western blot (seminar) <i>Elena Tortosa</i>	33203 - GraphPad Prism (seminar) <i>Elena Tortosa</i>	33203 - Measurement of vascular structure (classroom). <i>Silvia Arribas and Ana Briones</i>
15-16 16-17		3203 - Single cell omics (seminar) <i>Fernando de la Cuesta</i>	33203 – Proliferation/Viability (labs). <i>Elena Tortosa y Silvia Santamaría (Group 1-L3)</i>	33203 – Proliferation/Viability (labs). <i>Elena Tortosa y Silvia Santamaría (Group 2-L3)</i>	33203 - Proliferation/Viability (labs). <i>Concha Peiró, Alicia Villacampa, Diego Berlanas (Groups 3 and 4-L5)</i>

Hour	Monday-2 February	Tuesday- 3 February	Wednesday-4 February	Thursday- 5 February	Friday-6 February
9-10					
10-11		33203 - Techniques to measure intracellular calcium <i>Maria Cano</i>	33203 - Measurement of vascular function (labs) <i>Ana García y Naoual Boukich (Group 4-L4)/ Silvia Arribas (Group 3, C33).</i>	33203 - Measurement of vascular function (labs) <i>Ana Briones y Wilfrido Arrua (Group 1-L4)/ Silvia Arribas (Group 2, C33).</i>	33203 - Confocal Microscopy: principles and applications in biomedical Research. Image analysis with Image J <i>Silvia Arribas and Ignacio Monedero.</i> <i>Classroom TBC</i>
11-12		33203 - Electrophysiology techniques <i>Carmen P. Nanclares</i>	33203 - Patch clamp (labs) <i>Luis Gandía y Carmen P. Nanclares (Group 1 -L7)</i> 33203 - Techniques to measure intracellular calcium (labs) <i>Maria Cano (Group 2-L8)</i>	33203 - Patch clamp (labs) <i>Luis Gandía y Carmen P. Nanclares (Group 3-L7)</i> 33203 - Techniques to measure intracellular calcium (labs) <i>Maria Fernández Velasco y Almudena Val-Blasco (Group 4 Confocal unit IIB-Sols-Morreale)</i>	
12-13	Proliferation/Viability (labs). <i>Concha Peiró, Alicia Villacampa, Ana Cuadrado (Only groups 3 and 4- L5)</i> <i>12.30-14 h</i>	33203 - Measurement of vascular function <i>Ana Briones</i>	33203 - Patch clamp (labs) <i>Luis Gandía y Carmen P. Nanclares (Group 2 -L7)</i> 33203 - Techniques to measure intracellular calcium (labs) <i>Maria Cano (Group 1-L8)</i>	33203 - Patch clamp (labs) <i>Luis Gandía y Carmen P. Nanclares (Group 4-L7)</i> 33203 - Techniques to measure intracellular calcium (labs) <i>Maria Fernández Velasco y Almudena Val-Blasco (Group 3- Confocal unit IIB-Sols-Morreale)</i>	
13-14					
15-16					
16-17					

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Hour	Monday-9 February	Tuesday- 10- February	Wednesday-11 February	Thursday- 12 February	Friday-13 February
9-10		33203 – <i>Data analysis and representation of vascular function (seminar)</i> <i>Ana Briones / Ana García-Redondo</i>			
10-11	33203 - Neuroimaging and cerebral function <i>Pilar López Larrubia</i>		3203 - Isolation and characterization of extracellular vesicles <i>Fernando de la Cuesta</i>		Students presentations <i>Manuela García</i> <i>Ana Briones</i>
11-12	33203 - Neuroimaging and cerebral function (labs at IIB Sols-Morreale) <i>Pilar López Larrubia</i>	33203 - <i>Flow cytometry</i> <i>Carlos del Fresno</i>	33203 Measurement of reactive oxygen species <i>Ana Briones</i>		
12-13	<i>GROUPS 1 and 2 11.15 - 12.30 h</i>	33203 - Next generation sequencing <i>Julián Nevado</i>	33203 - Mitochondrial function and biogenesis <i>María Monsalve</i>		
13-14	<i>GROUPS 3 and 4 12.30 h- - 13.45 h</i>	33203 - Microarrays <i>Julián Nevado</i>			

33203: Techniques in experimental pharmacology (coordinator: Prof. Ana Briones ana.briones@uam.es) Seminar IX

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 13th February:

The students will divide in 5 groups of 4 students and 1 group of 3 students (free election). Each group should choose one project of their interest. As examples, you could use one from those provided below, your own Master's thesis project, or new ones (related with pharmacological research). You will need to prepare a 15 min PPT presentation that will be followed by ~15 min discussion with the teachers.

The **main objective** of this presentation is that you propose different experimental approaches and experimental models that would allow you to address a scientific question related with the project. You will have to present at least 4 different techniques that complement each other to best approach your scientific question. You will need to explain the rationale of your election in the context of the project. 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

If you have any question on this, do not hesitate to contact me.

Master's Degree in Pharmacological Research (2025-2026) 2º semester

Student		Groups for labs demonstrations	
Eva	Arroyo Casado	Group 1	
Sofía	Canellas Briones	Group 1	
María	Cruz Lavado	Group 1	
Sara	Izaquierdo González	Group 1	
Alice Clemence	Jiménez	Group 1	
Marcos	Mansilla Valero	Group 1	
Clara	Martín Fernández	Group 2	
Laura	Mena Rodríguez	Group 2	
Maite	Molina Vaquerizo	Group 2	
Patricia	Ortega Olivares	Group 2	
Emma	Parada Gordo	Group 2	
Vanessa	Promes García	Group 2	
Gabriela Victoria	Simón Becerra	Group 3	
Bruno Rafael	Soto Kufof	Group 3	
Aimar	Castilla Iglesias	Group 3	
Francisco	Espinosa de los Monteros de Matos	Group 3	
Mandana	Hazari	Group 3	
Martina	Iglesias González	Group 4	
Clara	Jurado Martínez	Group 4	
Mariña	Pena García	Group 4	
Laura	Sánchez Tojo	Group 4	
Paula	Trinidad Leo	Group 4	
Zirui	Yang	Group 4	