

Cell Death in Inflammation, Immunity and Disease						
Identification number	Workload	Credit points	Term of studying	Frequency of occurrence	Duration	
MN-B-SM (A 3)	360 h	12 CP	1 <sup>st</sup> or 2 <sup>nd</sup> term of studying	Summer term, 2 <sup>nd</sup> half	7 weeks	
<b>1</b>	<b>Type of lessons</b>		<b>Contact times</b>	<b>Self-study times</b>	<b>Intended group size*</b>	
	a) Lectures		26 h	39 h	max. 12	
	b) Practical/Lab		145 h	120 h	max. 4	
	c) Seminar		6 h	24 h	max. 2	
<b>2</b>	<b>Aims of the module and acquired skills</b>					
	Students who successfully completed this module ...					
	<ul style="list-style-type: none"> <li>• have acquired a comprehensive understanding of the mechanisms regulating different pathways of regulated cell death including apoptosis, necroptosis, pyroptosis and ferroptosis</li> <li>• have acquired detailed knowledge on important concepts concerning the functional implications of different pathways or regulated cell death in inflammation and immunity, as well as in the pathogenesis of inflammatory and degenerative diseases.</li> <li>• have acquired experimental skills in molecular, biochemical and imaging methodologies used to detect and measure cell death as well as inflammatory responses</li> <li>• have acquired experimental skills in the use of several important molecular biological methods (see contents of the module) and are able to independently design and perform small scientific projects related to topics of the module.</li> <li>• have learned how to present research results in oral and written form and to critically discuss scientific publications related to the topic of the module on a professional level.</li> <li>• are able to transfer skills acquired in this module to other fields of biology.</li> </ul>					
<b>3</b>	<b>Contents of the module</b>					
	<ul style="list-style-type: none"> <li>• Eukaryotic cell culture and transfection</li> <li>• Protein and DNA purification and analysis</li> <li>• Gel electrophoresis (agarose and PAGE)</li> <li>• Western blot</li> <li>• Immunofluorescence Staining, immunohistochemistry (confocal and fluorescent microscopy)</li> <li>• FACS</li> <li>• Assays detecting different forms of cell death (Apoptosis, Necroptosis, Pyroptosis and Ferroptosis)</li> </ul>					
<b>4</b>	<b>Teaching/Learning methods</b>					
	<ul style="list-style-type: none"> <li>• Lectures; Practical/Lab (Project work); Seminar; Guidance to independent research; Training on presentation techniques in oral and written form</li> </ul>					
<b>5</b>	<b>Requirements for participation</b>					
	Enrollment in the Master´s degree course "Biological Sciences" or in the Master´s degree course "Biochemistry".					

6	<p><b>Type of module examinations</b></p> <p>The final examination consists of two parts: Two hours written examination about topics of the lectures and the practical/lab part (70 % of the total module mark) and oral presentation (30 % of the total module mark)</p>
7	<p><b>Requisites for the allocation of credits</b></p> <p>Regular and active participation; Passed seminar paper; Each examination part at least "sufficient" (see appendix of the examination regulations for details)</p>
8	<p><b>Compatibility with other Curricula</b></p> <p>Biological subject module in the Master´s degree course "Biochemistry"</p>
9	<p><b>Significance of the module mark for the overall grade</b></p> <p>In the Master´s degree course "Biological Sciences": 15 % of the overall grade (see also appendix of the examination regulations)</p>
10	<p><b>Module coordinator</b></p> <p>Dr. Teresa Corona (Pasparakis Lab), phone 81-84362, e-mail: tcorona@uni-koeln.de</p>
11	<p><b>Additional information</b></p> <p><b>Subject module</b> of the Master´s degree course "Biological Sciences" <b>Specialization:</b> (A) Mechanisms of Aging and Aging Associated Diseases</p> <p><b>Participating faculty:</b></p> <p>Dr. T. Corona, Dr. M. Fritsch, Dr. M. Hafner, Prof.Dr. H. Kashkar, Prof. Dr. M. Pasparakis, Dr. J. Seeger, Dr. S. von Karstedt, Dr. L. Wachsmuth</p> <p><b>Literature:</b></p> <ul style="list-style-type: none"> <li>• Information about textbooks and other reading material will be given on the ILIAS representation of the course (<a href="https://www.ilias.uni-koeln.de/ilias/goto_uk_cat_2815610.html">https://www.ilias.uni-koeln.de/ilias/goto_uk_cat_2815610.html</a>)</li> </ul> <p><b>General time schedule:</b> Week 1-6 (Mon.-Fri.): Lectures, practical/lab, writing seminar paper and preparation for the seminar talk (topic and date will be arranged individually); Week 7 (Mon.-Fri): Preparation for the written examination</p> <p><b>Note:</b> The module contains hands-on laboratory work conducted by small groups of students (2 max. 4) and is taught in course rooms. The module does not contain computer-based practicals/research as a main component.</p> <p><b>Introduction to the module:</b> June 02, 2021 at 1:00 p.m., Center for Molecular Biosciences (COMB), seminar room 0.46 (ground floor) or online (in this case, further information/link will be sent to your Smail-Account); for preparation to the module before this introduction see ILIAS link under literature.</p> <p><b>Safety instruction:</b> June 07, 2021 at 9:30 am, Center for Molecular Biosciences (COMB), seminar room 0.46 (ground floor) or online (see above)</p> <p><b>Written examination:</b> July 23, 2021, second/supplementary examination August 27, 2021; the latter date may vary if students and module coordinator agree. More details will be given at the beginning of the module.</p>

\* 10 students from the Master´s degree course "Biological Sciences" and 2 students from the Master´s degree course "Biochemistry".

**Corona note!** Depending on the Corona situation during the summer term, practical work may be skipped either totally or in part. In this case, some or all practical parts will be replaced by adequate alternatives so that (i) the workload and (ii) the principle content of the modules remained unchanged.