

<b>Module Name</b> Cell Death in Inflammation, Immunity and Disease						
<b>Type of Module</b> ○ Advanced Module				<b>Module Code</b> Cell Death		
<b>Identification Number</b> MN-B-SM (A 3)	<b>Workload</b> 360 h	<b>Credit Points</b> 12 CP	<b>Term</b> 2 <sup>nd</sup> term of studying	<b>Offered Every</b> Summer term	<b>Start</b> summer term only	<b>Duration</b> 7 weeks
<b>1</b>	<b>Course Types</b> a) Lectures b) Practical/Lab c) Seminar		<b>Contact Time</b> 26 h 145 h 6 h	<b>Private Study</b> 39 h 120 h 24 h	<b>Planned Group Size*</b> max. 12 max. 4 max. 2	
<b>2</b>	<b>Module Objectives and Skills to be Acquired</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>Module Content</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> </ul> Assays detecting different forms of cell death (Apoptosis, Necroptosis, Pyroptosis and Ferroptosis)					
<b>4</b>	<b>Teaching Methods</b> Lectures; Practical/Lab (Project work); Seminar; Guidance to independent research; Training on presentation techniques in oral and written form.					

5	<p><b>Prerequisites (for the Module)</b></p> <p>Enrollment in the Master's degree course "Biological Sciences" or in the Master's degree course "Biochemistry".</p> <p><b>Additional academic requirements</b></p> <p>Previous attendance of the lecture module "Principles of Molecular Genetics, Development and Aging (A/D/G)".</p>
6	<p><b>Type of Examination</b></p> <p>The final examination consists of two parts: written examination on topics of lectures, seminars and the practical/lab part (1 hour; 50 % of the total module mark), oral presentation (20-30 min; 50 % of the total module mark)</p>
7	<p><b>Credits Awarded</b></p> <p>Regular and active participation; 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>Proportion of Final Grade</b></p> <p>In the Master's degree course "Biological Sciences": 12 % 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>Further 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> Dr. T. Corona, Dr. Alina Farid, Dr. M. Fritsch, Dr. M. Hafner, Prof.Dr. H. Kashkar, Prof. Dr. M. Pasparakis, Dr. J. Seeger, Dr. Eric Seidel, Prof. Dr. S. von Karstedt, Dr. L. Wachsmuth.</p> <p><b>Literature:</b> 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>)</p> <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> May 16th, 2023 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>Oral or written examination:</b> July 14, 2023, 10:00 a.m., Center for Molecular Biosciences (COMB), lecture hall 0.40 (ground floor). Second/supplementary examination August 25, 2023; 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".