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| Module Name Cell Death in Inflammation, Immunity and Disease | | | | | | |
| Type of Module Advanced Module | | | | Module Code Cell Death | | |
| Identification Number MN-B-SM (A 5) | Workload 360 h | Credit Points 12 CP | Term 2 nd term of studying | Offered Every Summer term, 2 nd half | Start Summer term only | Duration 7 weeks |
| 1 | Course Types a) Lectures b) Practical/Lab c) Seminar | | Contact Time 26 h 145 h 6 h | | Private Study 39 h 120 h 24 h | |
| 2 | Module Objectives and Skills to be Acquired Students who successfully completed this module <ul style="list-style-type: none"> • have acquired a comprehensive understanding of the mechanisms regulating different pathways of regulated cell death including apoptosis, necroptosis, pyroptosis and ferroptosis. • 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. • have acquired experimental skills in molecular, biochemical and imaging methodologies used to detect and measure cell death as well as inflammatory responses. • 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. • 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. • are able to transfer skills acquired in this module to other fields of biology. | | | | | |
| 3 | Module Content <ul style="list-style-type: none"> • Eukaryotic cell culture and transfection • Protein and DNA purification and analysis • Gel electrophoresis (agarose and PAGE) • Western blot • Immunofluorescence Staining, immunohistochemistry (confocal and fluorescent microscopy) • FACS • Assays detecting different forms of cell death (Apoptosis, Necroptosis, Pyroptosis and Ferroptosis) | | | | | |
| 4 | Teaching Methods <ul style="list-style-type: none"> • Lectures; Practical/Lab (Project work); Seminar; Guidance to independent research; Training on presentation techniques in oral and written form | | | | | |

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| 5 | <p>Prerequisites (for the Module)</p> <p>Enrollment in the Master's of Science degree course "Genetics and Biology of Aging and Regeneration" or in the Master's degree course "Biochemistry"</p> <p>Additional academic requirements</p> <p>Previous attendance of the lecture module Principles of Molecular Genetics, Development and Aging</p> |
| 6 | <p>Type of Examination</p> <p>The final examination consists of two parts: One hour written examination on topics of lectures, seminars and the practical/lab part (50 % of the total module mark), oral presentation (20-30 min; 50 % of the total module mark)</p> |
| 7 | <p>Credits Awarded</p> <p>Regular and active participation; Each examination part at least "sufficient" (see appendix of the examination regulations for details)</p> |
| 8 | <p>Compatibility with other Curricula*</p> <p>Optional compulsory module in the Master's degree course "Biochemistry"</p> |
| 9 | <p>Proportion of Final Grade</p> <p>12.0 %</p> |
| 10 | <p>Module Coordinator</p> <p>Dr. Teresa Corona, phone 478 84362, e-mail: tcorona@uni-koeln.de</p> |
| 11 | <p>Further Information</p> <p>Participating faculty: Dr. A. Androulidaki, Dr. C. Bebbler, Dr. T. Corona, Dr. A. Farid, Dr. M. Fritsch, Dr. R. Ganesan, Dr. M. Hafner, Dr. C. Ising, Prof. Dr. H. Kashkar, Dr. L. Körner, Dr. H. Oda, Prof. Dr. M. Pasparakis, Dr. Eric Seidel, Dr. J. Stachelscheid, Dr. N. Stair, Dr. S. Tishina, Prof. Dr. S. von Karstedt, Dr. L. Wachsmuth, Dr. I. Yapici.</p> <p>Literature:</p> <p>Information on recommended textbooks and other reading material will be given on the ILIAS representation of the course (see https://www.ilias.uni-koeln.de/ilias/goto_uk_cat_2815610.html)</p> <p>General time schedule: Week 1-6 (Mon.-Fri.): Lectures, practical/lab and preparation for the seminar talk (topic and date will be arranged individually); Week 7 (Mon.-Fri.): Preparation for the written examination</p> <p>Note: 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>Introduction to the module: May 19th, 2025 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>Written examination: July 18, 2025, 10:00 a.m., Center for Molecular Biosciences (COMB), lecture hall 0.40 (ground floor). Second/supplementary examination August 29, 2025; the latter date may vary if students and module coordinator agree. More details will be given at the beginning of the module.</p> |