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Praise for Ulm's trauma research from DFG CRC 1149 reaches 3rd funding phase

What a success for Ulm University and its medical centre! The German Research Foundation (Deutsche Forschungsgemeinschaft; DFG) extends the Collaborative Research Centre (CRC) on Trauma Medicine for the second time. The third funding phase infuses the CRC 1149 'Danger Response, Disturbance Factors and Regenerative Potential after Acute Trauma' with 11.1 million euros. 'We are overjoyed about the DFG's decision and are pleased that we are able to continue our research on how to improve the treatment of severely injured people over the next four years,' explains CRC spokesperson Professor Florian Gebhard, Medical Director of the Ulm University Clinic for Trauma, Hand, Plastic and Reconstructive Surgery.

Traffic or work accidents are most often the cause of severe multiple injuries. Natural disasters, acts of war and private firearms, however, can also lead to serious and severe injuries. Polytrauma is the technical term in medicine when several organ systems are affected. 'Massive blood loss is not the only problem for the victims. Whole-body inflammation with multiple organ failure is a frequent consequence, and those affected usually die,' says Professor Markus Huber-Lang, Director of the Institute of Clinical and Experimental Trauma Immunology and co-spokesperson of the CRC. In the Collaborative Research Centre 1149, which the DFG has now extended once again, researchers from medicine and life sciences are investigating the processes leading to such highly complex danger responses in the body following severe injuries – at the molecular, cellular, organ and organism level. The research network comprises 19 mostly interdisciplinary sub-projects. A total of 20 institutes and research institutions from Ulm are involved. Two thirds of the contributing working groups belong to the university medical centre and one third to the university.

The Trauma CRC also examines confounding factors that can affect the healing process and lead to long-term complications. How do comorbidities, for example, or an unhealthy lifestyle affect cellular regeneration processes? The CRC has expanded the spectrum of disturbance factors they are looking at in the third funding phase; it now covers the entire life span. For the first time, early childhood psychological stress is included as well as age-associated diseases such as diabetes, atherosclerosis, osteoporosis or Parkinson's disease.

The Trauma CRC focuses in particular on how to maximise the regenerative potential and how to support the healing process therapeutically. 'This requires that we understand the bodily processes of acute damage control and regeneration of tissue damage, and how these are controlled at the cellular and molecular levels,' says Professor Anita Ignatius, Director of the Institute of Orthopaedic Research and Biomechanics at the University Medical Centre Ulm and co-spokesperson of the CRC. It is also important to understand the pathomechanisms that cause the body's danger response to severe injury to become a danger to the organism itself; as is the case, for example, with whole-body inflammation (sepsis) where an overreaction of the immune system can have life-threatening consequences.

The medical focus of the Collaborative Research Centre is on particularly common injury patterns such as craniocerebral trauma, thoracic trauma or major fractures. 'The Trauma CRC embraces a translational approach. Our aim is to develop better therapies for the effective treatment of injured patients,' the principal investigators explain. Many sub-projects focus on preclinical testing of new treatment approaches. The CRC also conducts basic research.

The review confirms that the researchers of the CRC 1149 and their interdisciplinary projects involving multiple clinics are successfully rethinking and tackling trauma medicine in unprecedented thematic breadth. The reviewers were also impressed with the enormously high proportion of female researchers. Women are leading almost half (46%) of the projects. 'We are very proud of that as well,' respond Gebhard, Huber-Lang and Ignatius.

Scientific excellence that directly benefits injured patients

'In keeping with the university's motto 'Crossing borders', our Trauma CRC scientists conduct research across several clinics and disciplines. The result is scientific excellence that benefits the medical care of severely injured patients,' Professor Michael Weber, President of Ulm University, explains. 'I am very pleased that the DFG will continue to fund the Trauma CRC and would

like to thank all the researchers involved for their excellent work,' says Weber.

Trauma research is one of the firmly established research foci and most successful strategic development areas at Ulm University. The Centre for Trauma Research (Zentrum für Traumaforschung; ZTF) was founded in 2015 following the initial approval of the Trauma CRC. Another milestone is the new research building for 'Multidimensional Trauma Sciences' (Multidimensionale Traumawissenschaften; MTW), which is scheduled to be completed in two years. In 2024/25, numerous working groups of the Collaborative Research Centre 1149 will move into the specialised building.

Background of the Trauma CRC

The Collaborative Research Centre 1149 'Danger Response, Disturbance Factors and Regenerative Potential after Acute Trauma' was first approved in 2014. For the first funding phase (2015 - 2018), the Trauma CRC received 11.2 million euros from the German Research Foundation. The second funding phase (2019 - 2022) provided another 10.6 million euros. The DFG has now approved 11.1 million euros funding for the third and final phase (2023 - 2026).

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Further information

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