

Simon Sedej

Key Researcher

Division of Cardiology and University Heart Center Graz

Medical University of Graz

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SCIENTIFIC & ACADEMIC CAREER

- since 2015 Associate Professor of Physiology and Research Group Leader, Division of Cardiology, Medical University of Graz, Austria.
- 2013-2015 Tenure-Track Assistant Professor, Medical University of Graz, Austria.
- 2006-2012 Research Associate University Hospital Göttingen, Dept. of Cardiology and Pneumology, Göttingen, Germany and Division of Cardiology, Medical University of Graz, Austria.
- 2005-2006 Senior Lecturer, Institute of Physiology, University of Maribor, Slovenia.
- 2004-2005 Postdoctoral Fellow, European Neuroscience Institute Göttingen, Germany.
- 2001-2004 PhD study and degree in “Biomedicine” at the European Neuroscience Institute Göttingen, Germany; University of Ljubljana, Medical Faculty, Slovenia.

MAIN AREA OF RESEARCH

Simon Sedej focuses on the fundamental mechanisms of cardiac aging and heart insufficiency, with the aim to identify and validate molecular candidates as effective therapeutic interventions against heart failure with preserved ejection fraction (HFpEF). The Sedej research team will perform a series of whole body physiological and cell/tissue-specific molecular approaches by employing a combination of cell biology and in vivo approaches in aged mice subjected to caloric restriction mimetics (CRMs) and fasting interventions, with the aim to decipher how CRMs and interval fasting protect the aging or metabolically-stressed heart, thereby taking sex aspects into consideration.

ADDITIONAL RESEARCH ACTIVITIES (10 most important)

- 2014-present Acquisition of 8 competitive extramural research grants (€ ~2.75 Mio)
- since 2023 Deputy Speaker Doctoral School “Translational Molecular and Cellular Biosciences”
- since 2023 Austrian Representative of the Management Committee of the COST Action EU-METAHEART.
- since 2023 Deputy Speaker of the Doctoral School “Translational Molecular and Cellular Biosciences”.
- since 2021 Faculty Member of the PhD Program Molecular Medicine, Medical University of Graz, Austria.
- since 2021 Elected Member of the Executive Committee “Metabolism and Circulation”, Medical University of Graz, Austria.
- since 2023 Principal investigator of the BioTechMed-Graz Flagship cooperation project INTERACD⁺.

Selected Presentations

- 2023 iCoLA – International Congress on Lipid & Atherosclerosis | Seoul, South Korea
- 2022 Imperial College London | Online
- 2021 Washington University School of Medicine, St. Louis, USA, Online

2021 ESC Congress | The Digital Experience | Online
2020 ESC Heart Failure Winter Meeting | Les Diablerets | Switzerland

Honors & Awards

2023 Oskar Lapp Prize – German Society of Cardiology (senior author)
2021 Research Award of the WG Heart and Diabetes, German Society of Cardiology (senior author)
2020 Guido Tarone Award; ESC Heart Failure Winter Meeting, Switzerland (senior author)
2017 Austrian Cardiology Annual Award – Basic Science Category, Austrian Society of Cardiology
2017/2022 Richard Pacher Award for exceptional publications in heart failure (senior author)
2010 Finalist “State of the Art and Featured Research Session on Heart Failure”, ESC Congress

10 MOST IMPORTANT PUBLICATIONS

1. Abdellatif M, [...], Kroemer G, and Sedej S. Fine-tuning cardiac insulin-like growth factor 1 receptor signaling to promote health and longevity. **Circulation**. 2022; 145(25):1853-1866. doi: 10.1161/CIRCULATIONAHA.122.059863.
2. Abdellatif M, [...], Kroemer G, and Sedej S. Nicotinamide for the treatment of heart failure with preserved ejection fraction. **Science Translational Medicine**. 2021; Vol. 13, Issue 580, eabd7064. doi: 10.1126/scitranslmed.abd7064.
3. Eisenberg T and Abdellatif M, [...], Kroemer G[✉], Sedej S[✉], and Madeo F[✉]. Cardioprotection and lifespan extension by the natural polyamine spermidine. **Nature Medicine**. 2016; 22(12):1428-38. doi: 10.1038/nm.4222, [✉]Corresponding authors.
4. Abdellatif M, Rainer PP, Sedej S, and Kroemer G, Hallmarks of cardiovascular ageing, **Nature Reviews Cardiology**, 2023; doi: 10.1038/s41569-023-00881-3.
5. Abdellatif M, Sedej S[✉], and Kroemer G[✉], NAD⁺ metabolism in cardiac health, aging and disease, **Circulation**. 2021; 144(22):1795-1817. doi: 10.1161/CIRCULATIONAHA.121.056589, [✉]Corresponding authors.
6. Ozcan M, Abdellatif M, Javaheri A, Sedej S. Risks and benefits of intermittent fasting for the aging cardiovascular system. **Can J Cardiol**. 2024: S0828-282X(24)00092-8. doi: 10.1016/j.cjca.2024.02.004.
7. Ljubojevic-Holzer S, [...], and Sedej S. Loss of autophagy protein ATG5 impairs cardiac capacity in mice and humans through diminishing mitochondrial abundance and disrupting Ca²⁺ cycling. **Cardiovascular Research**. 2021; cvab112. doi: 10.1093/cvr/cvab112.
8. Abdellatif M* and Sedej S* *et al.* Autophagy in cardiovascular aging, **Circulation Research**. 2018; 123(7):803-824. doi: 10.1161/CIRCRESAHA.118.312208.
9. Schreiber R, [...], Sedej S, Schrauwen P, Haemmerle G, Zechner R. Cold-induced thermogenesis depends on ATGL-mediated lipolysis in cardiac muscle, but not brown adipose tissue. **Cell Metabolism**. 2017; 26(5): 753-763.e7. doi: 10.1016/j.cmet.2017.09.004.

10. Sedej S *et al.* Na⁺-dependent SR Ca²⁺ overload induces arrhythmogenic events in mouse cardiomyocytes with a human CPVT mutation. **Cardiovascular Research**. 2010; 87(1):50-9. doi: 10.1093/cvr/cvq007.