Tobias Eisenberg

Key Researcher

Institute of Molecular Biosciences
University of Graz

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SCIENTIFIC & ACADEMIC CAREER

since 2020	Assistant professor, University of Graz, Austria
2020	*Venia docendi* (lecture qualification) in Molecular Biology
2016-2020	Assistant Professor and Group Leader at University of Graz of Graz, Austria
2013-2016	APART project leader (Austrian Academy of Science) at University of Graz
2008-2013	Postdoctoral researcher at the University of Graz, Austria
2004-2008	Ph.D. thesis, University of Graz, Austria
1997-2004	Studies of Biochemistry, University of Tübingen, Germany

MAIN AREA OF RESEARCH

Tobias Eisenberg studies the interplay of metabolism and autophagy with a recent focus on lipid metabolism, applying genetic, biochemical and cell biological approaches in various model systems of aging and age-associated disease. His group uncovered Acetyl-CoA as a metabolic repressor of autophagy and demonstrated the essential role of acetyl-CoA carboxylase 1-dependent lipogenesis in autophagy regulation during aging. In MetAGE, Tobias Eisenberg's group will investigate the interplay of different lipid metabolic pathways with circadian- and feeding/fasting-regulated autophagy and discover its consequences for healthy aging. We will stress the hypothesis that control of proteostasis requires efficient lipid supply to allow autophagic flexibility during aging.

ADDITIONAL RESEARCH ACTIVITIES *(10 most important)*

2013-present	Acquisition of competitive third-party and industry-funded research grants (€ ~1.8 Mio)
2024	'Scientific Organizing Committee' Annual Meeting of the ÖGMBT Austrian Life Science Organization at University of Graz
Since 2023	Principal investigator of BioTechMed-Graz Flagship cooperation project INTERACD+

Selected Presentations

06/2023	Invited Keynote Lecture "Improving Health Span through Fasting Mimetics" – International Conference on Fasting, Berlin, Germany
06/2019	Invited Speaker at Gordon Research Conference on Polyamines "Dietary Spermidine Against Age-Associated Decline", Waterville Valley, USA
05/2021	Selected talk at the Gordon Research Conference on Autophagy in Stress, Develop. & Disease, "Lipid Metabolism in Regulation of Autophagy and Ageing in Yeast", at Tuscany Il Ciocco, Lucca (Barga), Italy

Honors & Awards

2018	Richard-Pacher-Award of the Austrian Cardiology Society (ÖKG)
2013 - 2016	APART fellowship of the Austrian Academy of Science
2011	Styria Science Award for Young Scientists (‚Förderungspreis Land Steiermark')

10 MOST IMPORTANT PUBLICATIONS

1. Hofer SJ, Simon AK, Bergmann M, **Eisenberg T**, Kroemer G, and Madeo F (2022). Mechanisms of spermidine-induced autophagy and geroprotection. Nat Aging. 2(12): 1112–1129. doi: 10.1038/s43587-022-00322-9.
2. Ring J et al., **Eisenberg T#,** Madeo F (2022). The HSP40 chaperone Ydj1 drives amyloid beta 42 toxicity. EMBO Mol Med. 14(5): e13952. doi: 10.15252/emmm.202113952.
3. Schroeder S et al., **Eisenberg T#,** Madeo F (2021). Dietary spermidine improves cognitive function. Cell Rep. 35(2): 108985. doi: 10.1016/j.celrep.2021.108985.
4. Gross AS, Zimmermann A, Pendl T, Schroeder S, Schoenlechner H, Knittelfelder O, Lamplmayr L, Santiso A, Aufschnaiter A, Waltenstorfer D, Ortonobes Lara S, Stryeck S, Kast C, Ruckenstuhl C, Hofer SJ, Michelitsch B, Woelflingseder M, Müller R, Carmona-Gutierrez D, Madl T, Büttner S, Fröhlich K-U, Shevchenko A, and **Eisenberg T#** (2019). Acetyl-CoA carboxylase 1–dependent lipogenesis promotes autophagy downstream of AMPK. J Biol Chem. 294(32): 12020–12039. doi: 10.1074/jbc.RA118.007020.
5. Madeo F, **Eisenberg T**, Pietrocola F, and Kroemer G (2018). Spermidine in health and disease. Science. 359(6374): eaan2788. doi: 10.1126/science.aan2788.
6. **Eisenberg T** et al. (2016). Cardioprotection and lifespan extension by the natural polyamine spermidine. Nat Med. 22(12): 1428–1438. doi: 10.1038/nm.4222.
7. Madeo F, Pietrocola F, **Eisenberg T**, and Kroemer G (2014). Caloric restriction mimetics: towards a molecular definition. Nat Rev Drug Discov. 13(10): 727–740. doi: 10.1038/nrd4391.
8. Mariño G, **Eisenberg T*,** et al. (2014). Regulation of autophagy by cytosolic acetyl-coenzyme a. Mol Cell. 53(5): 710–725. doi: 10.1016/j.molcel.2014.01.016.
9. **Eisenberg T** et al. (2014). Nucleocytosolic depletion of the energy metabolite acetyl-coenzyme a stimulates autophagy and prolongs lifespan. Cell Metab. 19(3): 431–444. doi: 10.1016/j.cmet.2014.02.010.
10. **Eisenberg T**, Knauer H, Schauer A, Büttner S, Ruckenstuhl C, Carmona-Gutierrez D, Ring J, Schroeder S, Magnes C, Antonacci L, Fussi H, Deszcz L, Hartl R, Schraml E, Criollo A, Megalou E, Weiskopf D, Laun P, Heeren G, Breitenbach M, Grubeck-Loebenstein B, Herker E, Fahrenkrog B, Fröhlich K-U, Sinner F, Tavernarakis N, Minois N, Kroemer G, and Madeo F (2009). Induction of autophagy by spermidine promotes longevity. Nat Cell Biol. 11(11): 1305–1314. doi: 10.1038/ncb1975.