

# Renate Schreiber

## Key Researcher

Institute of Molecular Biosciences  
University of Graz

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## SCIENTIFIC & ACADEMIC CAREER

|                |                                                                         |
|----------------|-------------------------------------------------------------------------|
| 2019 - present | Tenure-track Senior Scientist, University of Graz, Austria              |
| 2012 - 2019    | Postdoctoral researcher at the University of Graz, Austria              |
| 2011           | Visiting Scientist at the Medical University of Graz, Austria           |
| 2010 - 2011    | Visiting Scientist at the Institute of Metabolic Science, Cambridge, UK |
| 2011           | Ph.D. thesis, University of Graz, Austria                               |
| 2000 - 2007    | Studies of Chemistry and Biochemistry, University of Graz, Austria      |

## MAIN AREA OF RESEARCH

Renate Schreiber studies intracellular neutral lipid hydrolysis (lipolysis) applying biochemical, functional, and pharmacological approaches in eukaryotic cells, primarily adipocytes, and genetically modified mouse models. Mrs. Schreiber contributed seminal work to our understanding of the physiological role of lipolytic enzymes in white and brown adipose tissue during metabolic stress and cold. Lipolysis is a key metabolic pathway in cellular lipostasis and is thus tightly linked to aging associated metabolic disorders. In the course of the MetAGE project, Renate Schreiber aims to determine lipid flux using stable isotope tracers upon aging and dietary interventions. Furthermore, she will study if and how altered lipolysis promotes healthy aging, and explore the interplay between lipolysis to polyamine metabolism and autophagy.

## ADDITIONAL RESEARCH ACTIVITIES (10 most important)

|                |                                                                                                                                                     |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| 2024 - 2027    | Editorial Board Member for the Journal of Lipid Research (USA)                                                                                      |
| 2024 - 2028    | Member of the Organizing Committee of the European Lipoprotein Club (Germany)                                                                       |
| 2023 - 2026    | Principal investigator of the BioTechMed-Graz Flagship cooperation project INTERACD <sup>+</sup>                                                    |
| 2023 - 2025    | Board Member of the Austrian Atherosclerosis Society (Austria)                                                                                      |
| 2021 - 2023    | Junior Associate Editor for the Journal of Lipid Research (USA)                                                                                     |
| 2021 - 2024    | Member of the American Society for Biochemistry and Molecular Biology (USA)                                                                         |
| 2021 - present | Associate Member of BioHealth, University of Graz (Austria)                                                                                         |
| 2019 - 2023    | Co-Principal Investigator of the SFB Lipid Hydrolysis-PP02 Experimental characterization and mathematical modeling of lipolysis and its regulation  |
| 2017 - present | Associate Member of BioTechMed-Graz (Austria)                                                                                                       |
| 2011 - present | Faculty member for the Bachelor in Molecular Biology and the Master program in Biochemistry and Molecular Biomedicine, University of Graz (Austria) |

## Selected Presentations

|         |                                                                            |
|---------|----------------------------------------------------------------------------|
| 11/2024 | Invited Speaker, EndoConnect Final Symposium, Cambridge (UK)               |
| 05/2024 | Selected Speaker, Austrian Atherosclerosis Society (Austria)               |
| 05/2023 | Poster presentation, BATenergy, Hamburg (Germany)                          |
| 03/2023 | Invited Speaker, Discover BMB - Annual meeting of the ASBMB, Seattle (USA) |

|         |                                                                              |
|---------|------------------------------------------------------------------------------|
| 09/2022 | Selected Speaker, 45th European Lipoprotein Club. Tutzing (Germany)          |
| 09/2020 | Selected Speaker, 43th European Lipoprotein Club. Tutzing (Germany)          |
| 05/2018 | Invited Speaker, Young Investigators in Lipid Sciences. Düsseldorf (Germany) |
| 06/2016 | Invited Speaker, Gordon Research Conference. Waterville Valley (USA)         |
| 03/2016 | Selected Speaker, Deuel Conference on Lipids. Napa Valley (USA)              |
| 03/2015 | Selected Speaker, Deuel Conference on Lipids. Monterey (USA)                 |

### **Honors & Awards**

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|------------|-----------------------------------------------------------------------------------------------|
| 2015, 2016 | ASBMB Travel Award (USA)                                                                      |
| 2008, 2016 | Best Poster Award, International Graz Symposium on Lipid and Membrane Biology, Graz (Austria) |
| 2008, 2011 | Award for Scientific Achievements, University of Graz (Austria)                               |
| 2009       | Best Talk Award, DK Molecular Enzymology, Graz (Austria)                                      |
| 2007       | Best Poster Award, GEN-AU GOLD, Seggau, Austria                                               |

### **10 MOST IMPORTANT PUBLICATIONS**

1. Liebscher G, Vujic N, **Schreiber R**, Heine M, Krebiehl C, Duta-Mare M, Lamberti G, de Smet CH, Hess MW, Eichmann TO, Hölzl S, Scheja L, Heeren J, Kratky D, Huber LA. The lysosomal LAMTOR / Ragulator complex is essential for nutrient homeostasis in brown adipose tissue. *Mol Metab.* 2023 May;71:101705. doi: 10.1016/j.molmet.2023.101705.
2. Sveidahl JO, Ma T, Hansen JB, Markussen LK, **Schreiber R**, Reverte-Salisa L, Dong H, Christensen DP, Sun W, Gnad T, Karavaeva I, Nielsen TS, Kooijman S, Cero C, Dmytriyeva O, Shen Y, Razzoli M, O'Brien SL, Kuipers EN, Nielsen CH, Orchard W, Willemssen N, Jespersen NZ, Lundh M, Sustarsic EG, Hallgren CM, Frost M, McGonigle S, Isidor MS, Broholm C, Pedersen O, Hansen JB, Grarup N, Hansen T, Kjær A, Granneman JG, Babu MM, Calebiro D, Nielsen S, Rydén M, Soccio R, Rensen PCN, Treebak JT, Schwartz TW, Emanuelli B, Bartolomucci A, Pfeifer A, Zechner R, Scheele C, Mandrup S, Gerhart-Hines Z. Lipolysis drives expression of the constitutively active receptor GPR3 to induce adipose thermogenesis. *Cell.* 2021 Jun 24;184(13):3502-3518.e33. doi: 10.1016/j.cell.2021.04.037.
3. Pajed L, Taschler U, Tilp A, Hofer P, Kotzbeck P, Kolleritsch S, Radner FPW, Pototschnig I, Wagner C, Schratte M, Eder S, Huetter S, **Schreiber R**, Haemmerle G, Eichmann TO, Schweiger M, Hoefler G, Kershaw EE, Lass A, Schoiswohl G. Advanced lipodystrophy reverses fatty liver in mice lacking adipocyte hormone-sensitive lipase. *Commun Biol.* 2021 Mar 10;4(1):323. doi: 10.1038/s42003-021-01858-z.
4. Abdellatif M, Trummer-Herbst V, Koser F, Durand S, Adão R, Vasques-Nóvoa F, Freundt JK, Voglhuber J, Pricolo MR, Kasa M, Türk C, Aprahamian F, Herrero-Galán E, Hofer SJ, Pendl T, Rech L, Kargl J, Anto-Michel N, Ljubojevic-Holzer S, Schipke J, Brandenberger C, Auer M, **Schreiber R**, Koyani CN, Heinemann A, Zirlik A, Schmidt A, von Lewinski D, Scherr D, Rainer PP, von Maltzahn J, Mühlfeld C, Krüger M, Frank S, Madeo F, Eisenberg T, Prokesch A, Leite-Moreira AF, Lourenço AP, Alegre-Cebollada J, Kiechl S, Linke WA, Kroemer G, Sedej S. Nicotinamide for the treatment of heart failure with preserved ejection fraction. *Sci Transl Med.* 2021 Feb 10;13(580):eabd7064. doi: 10.1126/scitranslmed.abd7064.

5. Brejchova K, Radner FPW, Balas L, Paluchova V, Cajka T, Choudounska H, Kudova E, Schratte M, **Schreiber R**, Durand T, Zechner R, Kuda O. Distinct roles of adipose triglyceride lipase and hormone-sensitive lipase in the catabolism of triacylglycerol estolides. *Proc Natl Acad Sci U S A*. 2021 Jan 12;118(2):e2020999118. doi: 10.1073/pnas.2020999118.
6. **Schreiber R**<sup>#</sup>, Xie H, and Schweiger M. Of mice and men: The physiological role of adipose triglyceride lipase (ATGL). *Biochim Biophys Acta - Mol Cell Biol Lipids*. 2019 Jun; 1864(6):880-899. doi: 10.1016/j.bbalip.2018.10.008. <sup>#</sup>, corresponding author.
7. Heine M, Fischer AW, Schlein C, Jung C, Straub LG, Gottschling K, Mangels N, Yuan Y, Nilsson SK, Liebscher G, Chen O, **Schreiber R**, Zechner R, Scheja L, Heeren J. Lipolysis triggers a systemic insulin response essential for efficient energy replenishment of activated brown adipose tissue in mice. *Cell Metab*. 2018 Oct 2;28(4):644-655.e4. doi: 10.1016/j.cmet.2018.06.020.
8. **Schreiber R**<sup>\*</sup>, Diwoky C, Schoiswohl G, Feiler U, Wongsiriroj N, Abdellatif M, Kolb D, Hoeks J, Kershaw EE, 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 Metab*. 2017 Nov 7;26(5):753-763.e7. doi: 10.1016/j.cmet.2017.09.004. <sup>\*</sup>, co-corresponding author.
9. Simcox J, Geoghegan G, Maschek JA, Bensard CL, Pasquali M, Miao R, Lee S, Jiang L, Huck I, Kershaw EE, Donato AJ, Apte U, Longo N, Rutter J, **Schreiber R**, Zechner R, Cox J, Villanueva CJ. Global Analysis of Plasma Lipids Identifies Liver-Derived Acylcarnitines as a Fuel Source for Brown Fat Thermogenesis. *Cell Metab*. 2017 Sep 5;26(3):509-522.e6. doi: 10.1016/j.cmet.2017.08.006.
10. Schweiger M, Romauch M, **Schreiber R**, Grabner GF, Hütter S, Kotzbeck P, Benedikt P, Eichmann TO, Yamada S, Knittelfelder O, Diwoky C, Doler C, Mayer N, De Cecco W, Breinbauer R, Zimmermann R, Zechner R. Pharmacological inhibition of adipose triglyceride lipase corrects high-fat diet-induced insulin resistance and hepatosteatosis in mice. *Nat Commun*. 2017 Mar 22;8:14859. doi: 10.1038/ncomms14859.
11. **Schreiber R**<sup>\*</sup>, Hofer P, Taschler U, Voshol PJ, Rechberger GN, Kotzbeck P, Jaeger D, Preiss-Landl K, Lord CC, Brown JM, Haemmerle G, Zimmermann R, Vidal-Puig A, Zechner R. Hypophagia and metabolic adaptations in mice with defective ATGL-mediated lipolysis cause resistance to HFD-induced obesity. *Proc Natl Acad Sci U S A*. 2015 Nov 10;112(45):13850-5. doi: 10.1073/pnas.1516004112. <sup>\*</sup>, co-corresponding author.