

Céline Emmanuelle Riera

CURRICULUM VITAE

1-26-2023

BUSINESS ADDRESS:

Cedars-Sinai Medical Center
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EDUCATION:

1999 **French Scientific Baccalaureate**, first class Honors, Prades, Pyrenees Orientales, France
2004 **Master of Science**, Chemistry and Chemical Engineering, French National Institute
 of Applied Sciences (INSA), Rouen, France
2008 **PhD**, Faculty of Basic Sciences, Biotechnology and Bioengineering, Swiss Federal
 Institute of Technology (EPFL), Lausanne, Switzerland

PROFESSIONAL EXPERIENCE:

Present Positions:

Jan 2017- **Assistant Professor**, Department of Biomedical Sciences, Cedars-Sinai Medical Center, Los Angeles,
 USA. Secondary appointments: Department of Neurology, Board of Governors Regenerative
 Medicine Institute, Cedars-Sinai Medical Center, Los Angeles, USA.
Jul 2018- **Adjunct Assistant Professor**, David Geffen School of Medicine at University of California, Los
 Angeles, USA.

Previous Positions:

Jan 2004- Jun 2004 **Research Collaborator**, Aroma and taste impact group, Nestlé Research Center, Lausanne,
 Switzerland. Supervisor: Dr Fabien Robert
Jan 2005- Oct 2008 **PhD Student** (thesis advisors: Dr Johannes le Coutre, Prof. Horst Vogel), Nestlé
 Research Center and Swiss Federal Institute of technology (EPFL), Lausanne, Switzerland.
Feb 2009- July 2009 **Postdoctoral Collaborator** (Postdoctoral advisor: Prof. Bart Deplancke),
 Laboratory of Systems Biology & Genetics, Swiss Federal Institute of technology (EPFL),
 Lausanne, Switzerland
Oct 2009- Dec 2012 **Postdoctoral Research Associate** (Postdoctoral advisor: Prof. Andrew Dillin), Molecular and
 Cell Biology Laboratory, The Salk Institute for Biological Research, USA.
Jan 2013- Dec 2014 **Postdoctoral Research Associate** (Postdoctoral advisor: Prof. Andrew Dillin), Li Ka Shing
 Center/ Department of Molecular and Cell Biology, University of California, Berkeley, USA
Jan 2015- Oct 2016 **Postdoctoral scholar with Exceptional Principal Investigator status** (advisor: Prof.
 Andrew Dillin), Li Ka Shing Center/ Department of Molecular and Cell Biology, University of
 California, Berkeley, USA

PROFESSIONAL ACTIVITIES:

2007 Member, Association for Chemoreception Sciences (AchemS)
2015 Member, American Diabetes Association
2018 Grant reviewer, Core Program, American Diabetes Association
2018 Member, Society for Neuroscience
2019 Member, American Aging Association

2019 NIH Study section, Cellular Mechanisms in Aging and Development, ad hoc early career reviewer
2020 University of Southern California, Diabetes and Obesity Research Institute grant reviewer
2020 Grant reviewer, Covid-19 targeted RFA, American Diabetes Association
2020 Review Editor, Frontiers in Aging- Aging, Metabolism and Redox Biology
2020 Editorial Board, Advances in Applied Physiology
2020 The University of Pennsylvania, Pilot and Feasibility Study Program, Diabetes and Endocrinology Research Center grant reviewer
2021 Guest editor for JOVE “Tools to characterize energy metabolism in animal models”
2022 NIH Study section, Pathophysiology of Obesity and Metabolic Disease (POMD), ad hoc reviewer

Consulting Activities:

2015 Consultant for Mitobridge, Inc
2022 Consultant for Lipidio Pharmaceuticals

HONORS AND SPECIAL AWARDS:

1999 **French National Institute of Applied Sciences (INSA)**, Bilingual International award of excellence (France)
2004 **Nestlé Research predoctoral Fellowship** (Switzerland)
2009 **Swiss National BNF Fellowship** (Switzerland)
2009 **Prospective Postdoctoral Research Fellowship of the Swiss Science Foundation** (Switzerland)
2014 **UC Berkeley Molecular and Cell Biology**, Outstanding postdoctoral award (USA)
2015 **American Diabetes Association**, Pathway Program Initiator Award
2017 **Helmholtz Early Investigator in Diabetes (HeIDI)** Award: Finalist-Runner-Up, 5th Helmholtz/Nature Medicine Conference, Munich, Germany
2018 **Tager lecture distinguished speaker**, Academic Medical Center, Amsterdam, the Netherlands
2018 **Klingenstein-Simons Fellowship** Award in Neuroscience
2018 **Start-Up Grant from the Larry L. Hillblom Foundation** in Aging Research
2018 **Glenn Foundation for Medical Research** and American Federation for Aging Research (AFAR) Junior Faculty Award (declined)
2018 **Pilot and Feasibility Projects Award in Endocrinology & Diabetes**, UCSD/UCLA Diabetes Research Center (DRC)
2018 **Leon Fine award in Translational Science**, Cedars Sinai Medical Center (USA)

RESEARCH GRANTS RECEIVED:

July 2022-Jun 2023 **Cedars Sinai CREWHS Pilot award** (Annual funding cost \$100K, PI)
May 2022-Dec 2022 **Lipidio Pharma** (Annual funding cost, 96.5K, PI)
Aug 2018- Dec 2022 **Larry L. Hillblom Foundation in Aging Research**, Role of sensory neurons in metabolic decline and aging (Annual funding cost \$70K, PI)
Sept 2020 – Aug 2025 **NIH/NCI U54CA260591** (Co-I), *Diversity and Determinants of the Immune-Inflammatory Response to SARS-CoV-2*
Oct 2018- April 2022 **Leon Fine award in Translational Science**, Targeting brain insulin resistance in Parkinson’s disease to identify new therapeutic targets, Cedars Sinai Medical Center (Annual funding cost \$100K, PI)
Jan 2015- Dec 2021 **American Diabetes Association**, Identification of sensory neural circuits controlling metabolic disorders (Annual funding cost \$260K, PI)
Jul 2018- Jun 2021 **Klingenstein-Simons Fellowship Award in Neuroscience**, Regulation of systemic homeostasis by olfactory sensory perception (annual funding cost \$75K, PI)
Feb 2019-Feb 2020 **UCSD/UCLA Diabetes Research Center**, Nociceptor sensory neurons modulate immune responses in obesity and diabetes (Annual funding cost \$31K, PI)

INVITED LECTURES AND PRESENTATIONS:

1. My journey as a graduate student at the Nestle Research Center. **EPFL Research Day**, Switzerland, 2006.
2. Artificial Sweeteners and metal ions activate somatosensory receptors. **Keystone Symposia**, Transient Receptor Potential Ion Channel Superfamily, USA, 2007.

3. TRPV1 pain receptors regulate longevity and metabolism by neuropeptide signalling. **Cold Spring Harbor Laboratory**, Genetics of Aging, USA, 2012.
4. TRPV1 pain receptors regulate longevity and metabolism by neuropeptide signalling. **Keystone Symposia**, Diabetes, USA, 2013.
5. TRPV1 pain receptors regulate longevity and metabolism by neuropeptide signalling. **Bay Area Aging Meeting**, USA, 2013.
6. TRPV1 pain receptors regulate longevity and metabolism by neuropeptide signalling. **Gordon Conference**, Biology of Aging, Italy, 2013.
7. The sense of smell impacts metabolic health and obesity. **EMBO/EMBL Symposium**, Frontiers in Metabolism, Germany, 2014.
8. Identification of sensory circuits controlling metabolism and longevity. **University of Lausanne, Department of Physiology**, 2014.
9. Identification of sensory circuits controlling metabolism and longevity. **Department of Integrative Physiology**, UCLA, 2015.
10. Identification of sensory circuits controlling metabolism and longevity. **Salk Institute**, La Jolla, 2015.
11. Identification of sensory circuits controlling metabolism and longevity. **Rockefeller University**, New York, 2015.
12. Identification of sensory circuits controlling metabolism and longevity. **Monell Chemical Senses Center**, Philadelphia, 2015.
13. Identification of sensory circuits controlling metabolism and longevity. **Fred Hutchinson Cancer Research Center**, Seattle, 2015.
14. Identification of sensory circuits controlling metabolism and longevity. **Whitehead Institute**, Massachusetts Institute of Technology, Boston, 2015.
15. Identification of sensory circuits controlling metabolism and longevity. **Stanford University, Department of Neurobiology**, 2015.
16. Identification of sensory circuits controlling metabolism and longevity. **Pathway Symposium of the American Diabetes Association**, Boston, 2015.
17. Identification of sensory circuits controlling metabolism and longevity. **Diabetes and Obesity Center of Excellence**, University of Washington, 2015.
18. Identification of sensory circuits controlling metabolism and longevity. **Cedars-Sinai Diabetes and Obesity Research Institute**, Los Angeles, 2015.
19. Identification of sensory circuits controlling metabolism and longevity. **UCSF, Diabetes Center**, San Francisco, 2016.
20. The sense of smell impacts metabolic health and obesity. **American Diabetes Association**, New Orleans, 2016.
21. The sense of smell impacts metabolic health and obesity. **ISOT meeting**, Yokohama, 2016.
22. Chemosensory control of aging. **California State University Long Beach**, USA, 2017.
23. The sense of smell impacts metabolic health and obesity, **Keystone Symposia, Neuronal control of Metabolism**, Copenhagen, Denmark, 2017.
24. Chemosensory control of metabolism, **Helmholtz Nature Medicine**, Diabetes Conference, Munich, Germany, 2017.
25. Chemosensory control of metabolism, **Cedars-Sinai Diabetes and Obesity Research Institute**, Diabetes and Obesity Symposium, Los Angeles, USA, 2017.
26. Chemosensory control of metabolism, **UC Berkeley Molecular and Cell Biology seminar series**, Berkeley, USA, 2017.
27. Chemosensory control of metabolism, **UCLA Synapse to Circuits seminar series**, Los Angeles, USA, 2018.
28. Sensory neurons controlling metabolic flexibility, **Healthy Ageing: From Molecules to Organisms 2018**, invited speaker, Wellcome Genome Campus, Cambridge, UK, 2018.
29. Sensory neurons controlling metabolism and aging, **Tager lecture series guest speaker**, Academic Medical Center, Amsterdam, the Netherlands, 2018.
30. Nociceptor neurons in metabolic homeostasis and aging, **Cedars-Sinai Heart Institute**, Los Angeles, USA, 2018.
31. Nociceptor neurons in metabolic homeostasis and aging, **Cedars-Sinai Biomedical Sciences Seminar Series**, Los Angeles, USA, 2018.
32. Nociceptor neurons in metabolic homeostasis and aging, **Cold Spring Harbor Laboratory**, Mechanisms of Aging, CSHL, USA, 2018.

33. Unraveling the role of Spinal sensory neurons in obesity, **UCSD Diabetes Research Center Symposium**, UCSD, USA, 2019
34. Peripheral nervous system and energy metabolism, **American Aging Association Meeting**, invited speaker, San Francisco, USA, 2019.
35. Peripheral nervous system and energy metabolism, **USC Diabetes and Obesity Research Institute seminar**, University of Southern California, USA, 2020
36. Peripheral nervous system and energy metabolism, **Metabolic Physiology in Isolation Seminar Series**, Zoom, 2020
37. Sensory neurons in age-dependent metabolic regulation, **Los Angeles Mini-Symposium on Aging Biology**, Zoom, 2020
38. A mouse model to understand the contribution of Locus Coeruleus to Parkinson's Disease, **Movement disorder lecture series**, **Cedars Sinai Medical Center**, 2020
39. CGRP sensory afferents in energy metabolism, Pilot and Feasibility Presentation, **NIH/NIDDK, Diabetes Research Center Program**, 2020
40. Role of noradrenergic neurons in Parkinson's disease, **Cedars Sinai Neuroscience Summit**, **Cedars Sinai Medical Center**, 2020.
41. Sensory physiology shapes energy metabolism, **Atherosclerosis Science group**, 2020
42. Sensory perception controls energy balance, **UCLA Metabolism Interest Group**, 2021
43. The sense of smell in COVID-19, **Cedars Sinai Covid-19 Journal Club**, 2021
44. Olfactory control of energy expenditure, **Gottingen Meeting of the German Neuroscience Society** 2021.
45. Olfactory control of energy expenditure, **Klingenstein-Simons fellows meeting** 2021
46. Thermosensory control of adaptive thermogenesis, **Pathway to Stop Diabetes fellows meeting** 2021.
47. Sensory control of energy metabolism, **UCSD, Diabetes Research Center Program**, 2021
48. Sex specific regulation of energy metabolism by olfactory neurons, **CREWS science group Cedars Sinai**, 2022
49. Decoding the Neurocircuits of Cold Sensing: Can Feeling Cold Promote Weight Loss in Obesity, Cedars Sinai, Diabetes and Obesity Research Seminars, 2022.
50. Acute activation of olfactory neurons results in sex-specific modulation of energy homeostasis, **Keystone Symposia "Vertebrate Sensory Systems"**, 2022.

PUBLICATIONS

A.) Research Papers - Peer-reviewed articles

1. **Riera, C.E.**, Vogel, H., Simon, S.A., and le Coutre, J. (2007). Artificial sweeteners and salts producing a metallic taste sensation activate TRPV1 receptors. *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*. 293, R626–634.
2. **Riera, C.E.**, Vogel, H., Simon, S.A., Damak, S., and le Coutre, J. (2008). The capsaicin receptor participates in artificial sweetener aversion. *Biochemical and Biophysical Research Communications* 376, 653–657.
3. Menozzi-Smarrito*, C., **Riera, C.E.***, Munari, C., Le Coutre, J., and Robert, F. (2009). Synthesis and evaluation of new alkylamides derived from alpha-hydroxysanshool, the pungent molecule in szechuan pepper. *Journal of Agricultural Food Chemistry*. 57, 1982–1989.
**equal contribution*
4. **Riera, C.E.**, Menozzi-Smarrito, C., Affolter, M., Michlig, S., Munari, C., Robert, F., Vogel, H., Simon, S.A., and le Coutre, J. (2009). Compounds from Sichuan and Melegueta peppers activate, covalently and non-covalently, TRPA1 and TRPV1 channels. *British Journal of Pharmacology*. 157, 1398–1409.
5. **Riera, C.E.**, Vogel, H., Simon, S.A., Damak, S., and le Coutre, J. (2009). Sensory attributes of complex tasting divalent salts are mediated by TRPM5 and TRPV1 channels. *Journal of Neuroscience*. 29, 2654–2662.
6. **Riera, C.E.**, Huising, M.O., Follett, P., Leblanc, M., Halloran, J., Van Andel, R., de Magalhaes Filho, C.D., Merkwirth, C., and Dillin, A. (2014). TRPV1 Pain Receptors Regulate Longevity and Metabolism by Neuropeptide Signaling. *Cell* 157, 1023–1036.
7. Heimbucher T., Liu z., Bossard C., Carrano A.C., Riedel C.G., McCloskey R., Klammt C., Fonslow B.R., **Riera C.E.**, Lillemeier B.F., Kempfues K., Yates III J.R., O'Shea C., Hunter T, and Dillin A. (2015) Modulation of DAF-16/FOXO stability and function by a conserved deubiquitylating enzyme. *Cell Metabolism*. 22(1):151-63.
I performed key lifespan assays to determine the effects on math-33 RNAi on long-lived daf-2 mutant worms.

8. Kim H.E., Grant A.R, Simic M.S., Kohnz R., Nomura D.K., Durieux J, **Riera C.E.**, Sanchez M., Kapernick E., Wolff S. and Dillin A. (2016) Lipid biosynthesis coordinates a Mitochondrial to Cytosolic Stress Response. *Cell*. 2016 Sep 8; 166(6):1539-1552.
I developed tissue culture assays to measure mitochondrial respiration, fatty acid oxidation in cells upon knockdown of hsp-6, performed the experiments, and analysed the data.
9. **Riera, C.E.***, Tsaousidou, E.*, Halloran, J., Follett, P., Hahn, O., Pereira M.A., Engstrom Ruud L., Alber J., Tharp K., Anderson C.M., Bronneke H., Hampel B., de Magalhaes Filho, C.D., Stahl A., Bruning J.C. and Dillin, A. (2017). The sense of smell impacts metabolic health and obesity. *Cell Metabolism*. 2017 Jul 5; 26(1):198-211. **equal contribution*
10. Crupi A.N., Nunnelee J.S., Taylor D.J., Thomas A., Vit J.P., **Riera C.E.**, Gottlieb R.A., and Goodridge H.S. (2018). Oxidative muscles have better mitochondrial homeostasis than glycolytic muscles throughout life and maintain mitochondrial function during aging. *Aging* 2018 Nov 18;10(11):3327-3352.
I helped design the study and analyse the data.
11. Halloran J., Lalande A., Zeng M., Chodavarapu H. and **Riera C.E.** (2020). Monoclonal therapy against calcitonin gene-related peptide lowers hyperglycemia and obesity in type 2 diabetes mouse models. *Metabolism Open*, 2020 Oct 8;8:100060.
12. Chodavarapu H.*, Makwana K. *, Morones N., Chi J., Barr W., Novinbakht E., Nguyen P.T., Jovanovic P., Wang Y., Nguyen P.T., Jovanovic P., Cohen P. and **Riera C.E.** Sensory neurons expressing calcitonin gene-related peptide regulate adaptive thermogenesis and diet-induced obesity. *Molecular Metabolism*. 2021 Jan 5:101161.
13. Ebinger JE, Botwin GJ, Albert CM, Alotaibi M, Arditì M, Berg AH, Binek A, Botting P, Claggett B, Fert-Bober J, Figueiredo JC, Grein J, Hasan W, Henglin M, Hussain SK, Jain M, Joung S, Karin M, Kim EH, Li D, Liu Y, Luong E, McGovern DPB, Merin N, Merchant A, Miles PB, Nguyen TT, Raedschelders K, Rashid MA, **Riera C.E.**, Riggs RV, Sobhani K, Sternbach S, Sun N, Tourtellotte WG, Van Eyk JE, Braun JG, Cheng S. SARS-CoV-2 Seroprevalence in Relation to Timing of Symptoms. 2021, *BMJ Open*, 2021 Feb 12; 11(2);e043584.
14. Jovanovic P, Wang Y, Vit JP, Novinbakht E, Morones N, Hogg E, Tagliati M, **Riera C.E.** Sustained chemogenetic activation of locus coeruleus norepinephrine neurons promotes dopaminergic neuron survival in synucleinopathy. *PLoS One*. 2022 Mar 22;17(3):e0263074.
15. Dogan AE, Hamid SM, Yildirim AD, Yildirim Z, Sen G, **Riera C.E.**, Gottlieb RA, Erbay E. PACT establishes a posttranscriptional brake on mitochondrial biogenesis by promoting the maturation of miR-181c. *J Biol Chem*. 2022 Jul;298(7):102050. doi: 10.1016/j.jbc.2022.102050.
16. Jovanovic P., Morones N., Pool A-H. Wang Y., Novinbakht E., Keshishian N., Jang K., Oka Y. and **Riera C.E.** (2022). A sex-specific thermogenic neurocircuit induced by stressful olfactory inputs. ***Research Square [Preprint]. In second phase of revision at Nature Communications.***
- B) Chapters**
- Riera, C.E.** (2017). The neurobiology of TRP channels. *Thermo-TRPs: Role in Aging*. Taylor and Francis Group. October 10, 2017 by CRC Press.
- C) Reviews**
1. **Riera, C.E.** and Dillin, A. (2015). Tipping the metabolic scales towards increased longevity in mammals. *Nature Cell Biology* 2015 Feb 27;17(3):196-203.
2. **Riera, C.E.** and Dillin, A. (2015). Can aging be "drugged"? *Nature Medicine*. 2015 Dec 8;21(12):1400-5.
3. **Riera, C.E.** and Dillin, A. (2016). Emerging role of sensory perception in aging and metabolism (2015). *Trends in Endocrinology & Metabolism*. 2016 May;27(5):294-303.
4. **Riera, C.E.**, Merkwirth C., de Magalhaes Filho, C.D. and Dillin, A. (2016). Signaling Networks Determining Life Span for Volume 85 of the Annual Review of Biochemistry. *Annual Review of Biochemistry*. 2016 Jun 2;85:35-64
5. Fine L.G and **Riera C.E.**, (2019). Sense of Smell as the Central Driver of Pavlovian Appetite Behavior in Mammals. *Frontiers in Physiology*. 2019 Sep 18;10:1151.
6. **Riera C.E.**, (2020). Can Monoclonal Antibodies against CGRP Offer New Treatment Options for Type 2 Diabetes? *Journal of Diabetes and Clinical Research*, 2020, 2, 114 – 118
7. Jovanovic P, **Riera CE.** Olfactory system and energy metabolism: a two-way street. *Trends Endocrinol Metab*. 2022 Apr;33(4):281-291.