

Curriculum Vitae

Personal Data

Name Christina Neuner Boyle
(Formerly Christina M. Neuner)
Date of birth 06.12.1981
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Education

08.2003-01.2009 University of Southern California (USC) (USA); PhD in Neuroscience
Advisor: Alan G. Watts, DPhil
08.1999-05.2003 Boston College (USA); BA in Psychology, with concentration in
Psychobiology and minor in Chemistry
Senior thesis advisor: Michael Numan, PhD

Employment history

Since 02.2015 Research Associate, Institute of Veterinary Physiology, University of Zurich
(CH); Advisor: Thomas A. Lutz, Prof. Dr. med.vet
02.2009-01.2015 Postdoctoral Researcher, Institute of Veterinary Physiology, University of
Zurich (CH); Advisor: Thomas A. Lutz, Prof. Dr. med.vet
10.2003-01.2009 Doctoral Researcher, Neuroscience Graduate Program, University of
Southern California (USA); Advisor: Alan G. Watts, DPhil
05.2002-05.2003 Undergraduate Research Fellow, Department of Psychology, Boston College
(USA); Advisor: Michael Numan, PhD
05-08.2001 Research Intern, Department of Psychiatry, Harvard Medical School (USA);
Advisor: Lisa M. Najavits, PhD

Institutional responsibilities

Since 07.2015 Institute microsurgeon—specialized in rodent models of bariatric surgery
and indwelling vascular catheterizations, including continuous blood
glucose telemetry
Since 02.2009 Manage metabolic phenotyping resources at the Institute for Veterinary
Physiology for internal and external users, providing training and
consultation on experimental design
08.2006-08.2007 President, USC Neuroscience Graduate Forum
08.2006-08.2007 Student Representative, USC Neuroscience Program Executive Committee
and Curriculum Committee

08.2006-08.2007 Consultant to the Dean, USC College Graduate Student Forum
08.2004-08.2006 New Student Liaison, USC Neuroscience Graduate Forum

Approved research projects

08.2015-07.2016 University of Zurich Forschungskredit, K-51402-05, "Role of specific leptin receptor populations in amylin function" (CHF 54'096)
01.2014-07.2016 NovoNordsisk Project Funding, "Role of the specific leptin receptor populations in amylin function" (CHF 71'415)
10.2009-09.2010 Novartis Foundation Postdoctoral Research Grant, 2009, "The influence of obesity and hyperamylinemia on amylin sensitivity" (CHF 50'000)

Supervision of junior researchers (*co-authored publication; ^co-authored abstract)

02.2019-06.2019 Faith Slubowski (EuroScholar Fellow, University of Zurich [UZH])
09.2018-07.2019 Sydney Pence^ (Fulbright Scholar, UZH)
Since 05.2018 Dr. Salome Gamakharia^ (PhD Candidate in MD-PhD ImMed Program, UZH, co-supervised with Prof. Lutz)
Since 03.2018 Julia Bayer^ (Master candidate of Biomedicine, UZH)
02.2016-07.2017 Seraina S. Senn*^ (Dr. med.vet, UZH)
05.2014-04.2015 Sonya Duffy*^ (Master of Human Biology, UZH)
10.2013-02.2015 Erika Tarasco*^ (Research assistant (evtl PhD in ImMed, UZH))
04.2012-03.2016 Claudia Liberini*^ (PhD in ImMed, UZH, co-supervised with Prof. Lutz)
04.2011-12.2013 Fiona E. Braegger*^ (Dr. med.vet, UZH)
08.2011-05.2013 Annika Donauer^ (Dr. med.vet, UZH)
02.2011-01.2012 Miriam Honegger^ (Master of Human Biology, UZH)
04.2010-07.2011 Daria S. Stöcker^ (Dr. med.vet, UZH)
03.2009-07.2010 Mélanie M. Rossier*^ (Dr. med.vet, UZH)
02.2009-11.2009 Nadine Theis (Master of Human Biology, UZH)
02.2009-10.2009 Manuela Munz^ (Dr. med.vet, UZH)
10.2007-12.2008 Sarah M. Lorenzen*^ (Bachelors honors thesis in Biological Sciences, USC)

Teaching activities and trainings

08.2019-07.2020 Teaching Skills, UZH Teaching in Higher Education program
09.2019-12.2019 Lecturer and Coordinator for Master level course in Metabolism (BME317), University of Zurich (CH)
06.2017 Lecturer for Mouse Physiology and Pathophysiology Course, ImMed PhD Program, University of Zurich (CH)
10.2009 & 10.2010 Assistant for Hematology Practical for second year veterinary students, Vetsuisse Faculty, University of Zurich (CH)
02.2007-06.2007 200-hour YogaWorks Teacher Training (Los Angeles, CA, USA)
08-12.2004 Teaching Assistant for upper-level undergraduate course in Neurobiology (BISC421); USC (USA)

Peer review activities and societies

- Ad hoc Reviewer for: International Journal of Obesity, Obesity, American Journal of Physiology, Physiology & Behavior, Journal of Endocrinology
- Abstract Reviewer, Federation of European Physiological Societies 2017 Congress
- Member, Society for the Study of Ingestive Behavior (SSIB)
 - SSIB Program Committee Member (2019-2022)
- Member, Swiss Laboratory Animal Science Association (SGV)

Prizes, awards, and fellowships

08.2015-07.2016	University of Zurich Forschungskredit
07.2011	New Investigator Travel Award, SSIB
07.2008	Research Diets Travel Award
05-08.2008	Final Summer Dissertation Fellowship, USC Graduate School
11.2007	USC Women in Science and Engineering (WiSE) Travel Grant
09.2007-08.2008	Joint Initiative Graduate Fellowship, USC Graduate School
09.2006-05.2007	USC Future Professoriate Program
2005 & 2007	Outstanding Service Award, USC Neuroscience Graduate Program
09.2003-08.2004	Joint Initiative Graduate Fellowship, USC Graduate School
09.2002-05.2003	Undergraduate Research Fellowship, Boston College

Certifications

03.2014	LTK Module 2: Education for persons responsible for directing animal experiments
09.2009	LTK Module 1: Introductory Course in Laboratory Animal Science

Career Breaks

08.2017-01.2018	Maternity leave for birth of third son, Eamonn Jude Boyle
02.2015-07.2015	Maternity leave for birth of second son, Liam Thomas Boyle
10.2011-03.2012	Maternity leave for birth of first son, Seamus Eugene Boyle
03.2012-01.2018	Employed at reduced rate of 80% (at 100% since 02.2018)

Research Output List

Publications in peer-reviewed scientific journals

1. Senn, S.S., Le Foll, C., Whiting, L., Tarasco, E., Duffy, S., Lutz, T.A., & **Boyle, C.N.** (2019). Unsilencing of native leptin receptors (LepR) in hypothalamic SF1 neurons does not rescue obese phenotype in LepR-deficient mice. *American journal of physiology. Regulatory, integrative and comparative physiology*.
2. Tarasco, E., **Boyle, C.N.**, Pellegrini, G., Arnold, M., Steiner, R., Hornemann, T., Nasias, D., Kardassis, D., Whiting, L., Lutz, T.A. (2019) Body weight-dependent and independent improvement in lipid metabolism after Roux-en-Y gastric bypass in ApoE*3Leiden.CETP mice. *Int J Obes (Lond)* 2019.
3. Duffy, S., Lutz, T.A. & **Boyle, C.N.** (2018) Rodent models of leptin receptor deficiency are less sensitive to amylin. *Am J Physiol Regul Integr Comp Physiol*, **315**, R856-R865.
4. Lutz, T.A., Coester, B., Whiting, L., Dunn-Meynell, A.A., **Boyle, C.N.**, Bouret, S.G., Levin, B.E. & Le Foll, C. (2018) Amylin Selectively Signals Onto POMC Neurons in the Arcuate Nucleus of the Hypothalamus. *Diabetes*, **67**, 805-817.
5. Eugster, P.J., **Boyle, C.N.**, Prod'hom, S., Tarasco, E., Buclin, T., Lutz, T.A., Harris, A.G. & Grouzmann, E. (2018) Sensitive quantification of the somatostatin analog AP102 in plasma by ultra-high pressure liquid chromatography-tandem mass spectrometry and application to a pharmacokinetic study in rats. *Drug Test Anal*, **10**, 1448-1457.
6. **Boyle, C.N.**, Lutz, T.A. & Le Foll, C. (2018) Amylin - Its role in the homeostatic and hedonic control of eating and recent developments of amylin analogs to treat obesity. *Mol Metab*, **8**, 203-210.
7. Whiting, L., McCutcheon, J.E., **Boyle, C.N.**, Roitman, M.F. & Lutz, T.A. (2017) The area postrema (AP) and the parabrachial nucleus (PBN) are important sites for salmon calcitonin (sCT) to decrease evoked phasic dopamine release in the nucleus accumbens (NAc). *Physiol Behav*, **176**, 9-16.
8. Tarasco, E., Seebeck, P., Pfundstein, S., Daly, A.F., Eugster, P.J., Harris, A.G., Grouzmann, E., Lutz, T.A. & **Boyle, C.N.** (2017) Effect of AP102, a subtype 2 and 5 specific somatostatin analog, on glucose metabolism in rats. *Endocrine*, **58**, 124-133.
9. Abegg, K., Hermann, A., **Boyle, C.N.**, Bouret, S.G., Lutz, T.A. & Riediger, T. (2017) Involvement of Amylin and Leptin in the Development of Projections from the Area Postrema to the Nucleus of the Solitary Tract. *Front Endocrinol (Lausanne)*, **8**, 324.
10. Liberini, C.G., **Boyle, C.N.**, Cifani, C., Venniro, M., Hope, B.T. & Lutz, T.A. (2016) Amylin receptor components and the leptin receptor are co-expressed in single rat area postrema neurons. *Eur J Neurosci*, **43**, 653-661.
11. Liberini, C.G., Borner, T., **Boyle, C.N.** & Lutz, T.A. (2016) The satiating hormone amylin enhances neurogenesis in the area postrema of adult rats. *Mol Metab*, **5**, 834-843.
12. Johnson, M.D., Bouret, S.G., Dunn-Meynell, A.A., **Boyle, C.N.**, Lutz, T.A. & Levin, B.E. (2016) Early postnatal amylin treatment enhances hypothalamic leptin signaling and neural development in the selectively bred diet-induced obese rat. *Am J Physiol Regul Integr Comp Physiol*, **311**, R1032-R1044.
13. Le Foll, C., Johnson, M.D., Dunn-Meynell, A.A., **Boyle, C.N.**, Lutz, T.A. & Levin, B.E. (2015) Amylin-induced central IL-6 production enhances ventromedial hypothalamic leptin signaling. *Diabetes*, **64**, 1621-1631.

14. Wueest, S., Item, F., **Boyle, C.N.**, Jirkof, P., Cesarovic, N., Ellingsgaard, H., Boni-Schnetzler, M., Timper, K., Arras, M., Donath, M.Y., Lutz, T.A., Schoenle, E.J. & Konrad, D. (2014) Interleukin-6 contributes to early fasting-induced free fatty acid mobilization in mice. *Am J Physiol Regul Integr Comp Physiol*, **306**, R861-867.
15. Braegger, F.E., Asarian, L., Dahl, K., Lutz, T.A. & **Boyle, C.N.** (2014) The role of the area postrema in the anorectic effects of amylin and salmon calcitonin: behavioral and neuronal phenotyping. *Eur J Neurosci*, **40**, 3055-3066.
16. Jordi, J., Herzog, B., Camargo, S.M., **Boyle, C.N.**, Lutz, T.A. & Verrey, F. (2013) Specific amino acids inhibit food intake via the area postrema or vagal afferents. *J Physiol*, **591**, 5611-5621.
17. Potes, C.S., **Boyle, C.N.**, Wookey, P.J., Riediger, T. & Lutz, T.A. (2012) Involvement of the extracellular signal-regulated kinase 1/2 signaling pathway in amylin's eating inhibitory effect. *Am J Physiol Regul Integr Comp Physiol*, **302**, R340-351.
18. **Boyle, C.N.**, Rossier, M.M. & Lutz, T.A. (2011) Influence of high-fat feeding, diet-induced obesity, and hyperamylinemia on the sensitivity to acute amylin. *Physiol Behav*, **104**, 20-28.
19. **Boyle, C.N.** & Lutz, T.A. (2011) Amylinergic control of food intake in lean and obese rodents. *Physiol Behav*, **105**, 129-137.
20. **Boyle, C.N.**, Lorenzen, S.M., Compton, D. & Watts, A.G. (2012) Dehydration-anorexia derives from a reduction in meal size, but not meal number. *Physiol Behav*, **105**, 305-314.
21. Watts, A.G. & **Boyle, C.N.** (2010) The functional architecture of dehydration-anorexia. *Physiol Behav*, **100**, 472-477.
22. Watts, A.G., Salter, D.S. & **Neuner, C.M.** (2007) Neural network interactions and ingestive behavior control during anorexia. *Physiol Behav*, **91**, 389-396.
23. Watts, A.G., Khan, A.M., Sanchez-Watts, G., Salter, D. & **Neuner, C.M.** (2006) Activation in neural networks controlling ingestive behaviors: what does it mean, and how do we map and measure it? *Physiol Behav*, **89**, 501-510.
24. Numan, M., Numan, M.J., Schwarz, J.M., **Neuner, C.M.**, Flood, T.F. & Smith, C.D. (2005) Medial preoptic area interactions with the nucleus accumbens-ventral pallidum circuit and maternal behavior in rats. *Behav Brain Res*, **158**, 53-68.
25. Najavits, L.M., Runkel, R., **Neuner, C.**, Frank, A.F., Thase, M.E., Crits-Christoph, P. & Blaine, J. (2003) Rates and symptoms of PTSD among cocaine-dependent patients. *J Stud Alcohol*, **64**, 601-606.

Invited Lectures

1. Methods for analyzing metabolic health in rat models of bariatric surgery and maternal obesity. Werner Siemens Imaging Center, University Hospital Tübingen, DE, 2019
2. Use of Real-Time Glucose Monitoring in Rats to Investigate Changes in Glucose Excursions and Hypoglycemia after Bariatric Surgery. Clinical and Biochemical Colloquium Kinderspital Zürich, CH, 2017
3. Continuous glucose telemetry during clamp studies in rats. 2nd Improving Rodent Glucose Clamp Technique Seminar; Munich, Germany, DE, 2016
4. Continuous glucose monitoring as a tool to understand meal-related physiology in a rat model of gastric bypass. Institute of Physiology and Institute of Veterinary Physiology Joint Seminar; Zurich, Switzerland, CH, 2015

5. Continuous glucose telemetry during clamp studies in rats. 1st Improving Rodent Glucose Clamp Technique Seminar; Odense, DK, 2015
6. Continuous blood glucose levels and food intake after RYGB surgery in rats. 9th World Congress on Alternatives and Animal Use in the Life Sciences; Prague, CZ, 2014
7. Indwelling vascular catheters for blood sampling and glycemic clamps. 10th Swiss Experimental Surgery Symposium; Bern, CH, 2014
8. Intracellular pathways of amylin action in area postrema neurons. Nutrition, Metabolism, and the Brain; Groningen, NL, 2011

Abstracts of Research Presented at Scientific Meetings

1. **Boyle CN**, Bayer B, Lutz TA (2019) Exploring rodent models of maternal obesity and its effects on the metabolic health of the dam. Society for the Study of Ingestive Behavior Annual Meeting; Utrecht, NL
2. Gamakharia S, **Boyle CN**, Lutz TA (2019) The Role and Regulation of Amylin Synthesis in the Brain. Society for the Study of Ingestive Behavior Annual Meeting; Utrecht, NL
3. Pence S, **Boyle CN**, Lutz TA (2019) The Role of Receptor-Activity Modifying Protein 1 in Amylin's Regulation of Food Intake. Society for the Study of Ingestive Behavior Annual Meeting; Utrecht, NL
4. **Boyle CN**, Senn S, Lutz TA (2018) Use of Real-Time Glucose Monitoring in Rats to Investigate Changes in Glucose Excursions and Hypoglycemia after Bariatric Surgery. Society for the Study of Ingestive Behavior Annual Meeting; Bonita Springs, FL, USA
5. **Boyle CN**, Senn S, Le Foll C, Duffy S, Whiting L, Lutz TA (2017) Un-silencing of native leptin receptors (LepR) in VMH SF-1 neurons does not rescue obese phenotype in otherwise LepR-deficient mice. Keystone Symposium: Neuronal Control of Appetite, Metabolism and Weight (Z5); Copenhagen, DK
6. **Boyle CN**, Senn S, Duffy S, Le Foll C, Lutz TA (2016) Leptin action on SF1 neurons in the VMH promotes amylin sensitivity in mice. Society for the Study of Ingestive Behavior Annual Meeting; Porto, Portugal
7. **Boyle CN**, Corteville C, Lutz TA (2014) Continuous blood glucose levels and food intake after RYGB surgery in rats. Society for the Study of Ingestive Behavior Annual Meeting; Seattle, WA, USA
8. Braegger F, **Boyle CN**, Lutz TA (2013) The role of the AP in the anorectic effects of amylin and sCT—behavioral and neuronal phenotyping. Society for the Study of Ingestive Behavior Annual Meeting; New Orleans, LA, USA
9. **Boyle CN**, Rossier MM, Lutz TA (2013) Meal induced amylin release is higher in high fat fed DIO and DR rats than in chow controls. Keystone Symposium: Neuronal Control of Appetite, Metabolism and Weight (C6); Banff, Canada
10. **Boyle CN**, Honegger M, Lutz TA (2012) Amylin loses its satiating effect under hypoglycemic conditions. Society for the Study of Ingestive Behavior Annual Meeting; Zürich, Switzerland
11. Donauer A, **Boyle CN**, Samuel K, Lutz TA (2012) Blockade of cGMP degradation by BAY 73-6691 potentiates and extends amylin's anorectic action. Society for the Study of Ingestive Behavior Annual Meeting; Zürich, Switzerland
12. **Boyle CN**, Stöcker D, Lutz TA (2011) Involvement of the histaminergic system in amylin and leptin action. Society for the Study of Ingestive Behavior Annual Meeting; Clearwater, FL, USA

13. **Boyle CN**, Rossier MM, Munz M, Lutz TA (2011) Dynamics of amylin sensitivity in various states of energy balance. Keystone Symposium: Obesity (J2); Keystone, CO, USA
14. **Boyle CN**, Rossier MM, Lutz TA (2010) Diet-induced obesity, hyperamylinemia and amylin sensitivity. Society for the Study of Ingestive Behavior Annual Meeting; Pittsburgh, PA, USA
15. **Boyle CN**, Munz M, Wielinga PY, Stöcker D, Lutz TA (2010) Short-term, but not extended, access to palatable diet diminishes amylin responsiveness in rat. Society for the Study of Ingestive Behavior Annual Meeting; Pittsburgh, PA, USA
16. **Boyle CN**, Rossier MM, Lutz TA (2010) Meal-induced secretion patterns of amylin and insulin in diet-induced obese and diet-resistant rats. International Conference on the Intestinal Wall - "The" Regulatory Interface in Energy Homeostasis; Ascona, Switzerland
17. **Boyle CN**, Watts AG (2009) Evidence for multiple inhibitory feeding signals in dehydration anorexia. Society for the Study of Ingestive Behavior Annual Meeting; Portland, OR, USA
18. **Neuner CM**, Lorenzen SM, Comptom DS, Watts AG (2008) Dual analysis of feeding and drinking patterns during and following dehydration anorexia. Society for Neuroscience Annual Meeting; Washington, DC, USA
19. **Neuner CM**, Watts AG (2007) Analysis of microstructure of feeding patterns during and following dehydration-anorexia. Society for Neuroscience Annual Meeting; San Diego, CA, USA
20. **Neuner CM**, Watts AG. (2006) Effects of GABA in the nucleus accumbens shell on ingestive behavior after dehydration-anorexia. Society for the Study of Ingestive Behavior Annual Meeting; Naples, FL, USA

Outreach activities

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| 09.2018 | Contributed a piece entitled, "Take a Closer Look," to the exhibit <i>100 Ways of Thinking</i> at Kunsthalle Zürich, CH. A description of the piece can be found here: https://100ways.ch/en/149/event_detail/ |
| 11.2015 | Panelist, Forschung für Leben event: Wettbewerb der Hochschulen—wo steht die Schweiz?, Bern, CH |
| 07.2011 & 07.2012 | Panelist, Professional Development Symposium, Society for the Study of Ingestive Behavior Annual Meeting |
| 10.2007 | Planning committee member for 2nd Annual Alternative Careers in Neuroscience Dinner, USC Neuroscience Graduate Forum |