

CURRICULUM VITAE

Nadia Rachdaoui, Ph.D.

Assistant Research Professor
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Current and Past Positions

- 2014 - Present **Assistant Research Professor**, Department of Animal Sciences, Rutgers, the State University of New Jersey, New Brunswick, NJ
Phone: 848-932-5576, email: rachdaoui@sebs.rutgers.edu
Project 1: “Effects of hyperinsulinemia on pancreatic β -cell function and survival.”
Project 2: “Heavy water labeling combined to proteomics to study histone kinetics and epigenetic alterations in a postnatal alcohol consumption rat model, a period equivalent to the third trimester of human pregnancy.”
- 2004 - 2009 **Instructor**, Division of Clinical and Molecular Endocrinology, Department of Medicine, Case Western Reserve University School of Medicine, Cleveland, OH. Project: “The effects of hyperinsulinemia on insulin and IGF-1 signaling in pancreatic β -cells and its role in the development of Type 2 Diabetes.”
- 2003 - 2004 **Senior Research Associate**, Division of Clinical and Molecular Endocrinology, Department of Medicine, Case Western Reserve University, School of Medicine, Cleveland, OH. “The effects of hyperinsulinemia on insulin and IGF-1 signaling in pancreatic β -cells and its role in the development of Type 2 Diabetes.”
- 2000 - 2003 **Research Associate**, Department of Nutrition, Case Western Reserve University School of Medicine, Cleveland, OH “Effects of ethanol exposure on insulin and endothelin-signaling and their role in the development of Type 2 Diabetes.”

Education and Training

- 2000 **Ph.D.**, Cellular and Molecular Pathophysiology, Pierre and Marie Curie University, Paris 6, France. Thesis: “Cyclic AMP Regulation of the expression of heterotrimeric G-proteins, Gi and Go.”

1995	DEA (Diplome d'Etudes Approfondies) (M.S.) , Cellular and Molecular Pathophysiology, Pierre and Marie Curie University, Paris 6, France
1993	DU (University Diploma) , Pathophysiology related to nutritional Deficiencies, Xavier Bichat University, Paris 7, France
1992	M.S. Animal Biology, Specialty: Endocrinology University Hassan II, Rabat, Morocco
1990	B.S. Animal Biology, University of Hassan II, Rabat, Morocco

Research Support

Expired

Grant In-Aid, Diabetes Association of Greater Cleveland: "Beta-cell failure and the development of non insulin-dependent diabetes mellitus: Role of impaired insulin and IGF-1 signaling in beta-cell dysfunction", 07/2005 – 12/2007, \$47,000 direct cost, PI 100% effort.

Juvenile Diabetes Research Foundation: "Measuring insulin biosynthesis pre- and post-islet transplant", 03/2008 – 02/2009, 98,575\$ direct cost; Co-PI 50% effort (PI Stephen Previs).

NIH 1R21RR025346-01: "Enabling studies of proteome dynamics", 04/2009 - 12/2012, \$375,000 direct cost; Co-PI 25% effort. *This award was transferred (5/09) to Dr. Tahir Kasumov (Case Western Reserve University – Cleveland Clinic) because of a change in my position.*

NIH Re-entry supplement to the parent grant 5R37AA008757-19: "Role of opiates in alcohol-induced neurotoxicity", 09/2014 - 08/2016, 50% effort, PI Dr. Sarkar D.K.

Current

NIH R21AA024641: "Rates of histone turnover and functional significance in fetal alcohol syndrome", 08/2016- 07/2018, \$224,000 direct cost; Co-PI 50% effort (PI D.K. Sarkar)

Peer-Reviewed Publications

1. El Jamali, A., **Rachdaoui, N.**, Jacquemin, C., and Corrèze, C. (1996), Long-term effect of forskolin on the activation of adenylyl cyclase in astrocytes. *J Neurochem* 67, 2532-2539.
2. El Jamali A., **Rachdaoui, N.**, Dib, K., and Corrèze, C. (1998), Cyclic AMP regulation of Gia2 and Gia3 mRNAs and proteins in astroglial cells. *J Neurochem* 71, 2271-2277.
3. **Rachdaoui, N.**, El Jamali, A., Dib, K., and Corrèze, C. (1999), Cyclic AMP regulates Goa protein and mRNA levels by modulating the transcriptional rate of Goa gene. *Molecular and Cellular Endocrinology* 156, 35-43.
4. Poirier, L.A., **Rachdaoui, N.** and Nagy, L.E., (2001), GLUT4 vesicle trafficking in rat adipocytes after ethanol feeding: regulation by heterotrimeric G-proteins. *Biochem. J.* 354, 323-330.

5. **Rachdaoui, N.**, Sebastian, B.M. and Nagy, L.E., (2003), Chronic ethanol feeding decreases endothelin-stimulated glucose uptake in rat adipocytes: central role for decreased expression of Ga11. *Am. J. Physiol. Endocrinol. Metab.* 285, E303-E310.
6. **Rachdaoui, N.** and Nagy, L.E., (2003), Endothelin-1 stimulated glucose uptake is desensitized by tumor necrosis factor- α in 3T3-L1 adipocytes. *Am. J. Physiol. Endocrinol. Metab.* 285, E545-E551.
7. Dufner, D.A., Bederman, I.R., Brunengraber, D.Z., **Rachdaoui, N.**, Ismail-Beigi, F., Siegfried, B., Kimball, S.R. and Previs, S.F., (2005), Using $^2\text{H}_2\text{O}$ to study the influence of feeding on protein synthesis: Effect of isotope equilibration in vivo vs in cell culture. *Am. J. Physiol. Endocrinol. Metab.* 288, E1277-E1283.
8. Landau, BR, Spring-Robinson, CL, Muzic, RF, **Rachdaoui, N.**, Rubin, D., Berridge, M.S., Schumann, W.C., Chandramouli, V., Kern, T.S., Ismail-Beigi, F. (2007), 6-Fluoro-6-deoxy-D-glucose as a tracer of glucose transport. *Am. J. Physiol. Endocrinol. Metab.* 293: E237-245.
9. **Rachdaoui, N.**, Austin, L., Kramer, E., Previs, M.J., Anderson, V.E., Kasumov, T., Previs, S.F. (2009), Measuring proteome dynamics in vivo: as easy as adding water? *Mol Cell Proteomics* 8: 2653-63.
10. Kasumov, T., Ilchenko, S., Li, L., **Rachdaoui, N.**, Sadigov, R.G., Willard, B., McCullough, A.J. and Previs, S.F. (2011), Measuring protein synthesis using metabolic ^2H -labeling, high resolution mass spectrometry and an algorithm. *Anal Biochem* 412: 47-55.
11. Li, L., Willard, B., **Rachdaoui, N.**, Kirwan, J.P., Sadygov, R.G., Stanley, W.C., Previs, S.F., McCullough, A.J. and Kasumov, T. (2012). Plasma Proteome Dynamics: Analysis of Lipoproteins and Acute Phase Response Proteins with $^2\text{H}_2\text{O}$ -Metabolic Labeling. *Mol Cell Proteomics*: 11(7):M111.014209.
12. Ilchenko, S., Previs, S.P., **Rachdaoui, N.**, Willard, B., McCullough, A.J., Kasumov, T. (2013). An improved measurement of isotopic ratios by high-resolution mass spectrometry. *J. Am. Soc. Mass Spectrom* 2: 309-12.
13. **Rachdaoui, N.**, Li, L., Willard, B., Kasumov, T., Previs, S.F. and Sarkar, D.K. (2017) Turnover of histones and histone variants in postnatal rat brain: effects of alcohol exposure. *Clinical Epigenetics* 9:117 DOI 10.1186/s13148-017-0416-5

Manuscripts in Preparation

Rachdaoui, N., Polo-Parada, L. and Ismail-Beigi, F. Chronic exposure to insulin Induces insulin and IGF-1 signaling desensitization: role of Akt/PkB inactivation in pancreatic beta-cell failure and death by apoptosis.

Invited Book Chapters and Reviews

1. Previs SF, Gilge DA and **Rachdaoui, N.** (2007), Protein and amino acid kinetics. *In, Clinical Research in Diabetes and Metabolism: Methods and Techniques*, Ed. M Roden, John Wiley and Sons.

2. **Rachdaoui, N** and Sarkar DK. (2013), Effects of alcohol on the endocrine system. *Endocrinology and metabolism clinics of North America, Endocrine and Neuropsychiatric disorders*, Elsevier
3. **Rachdaoui, N.** and Sarkar, D.K. (2013). Effects of alcohol on the endocrine system. *Endocrinol Metab Clin North Am* 42(3):593-615.
4. **Rachdaoui, N** and Sarkar, DK. (2014). Transgenerational epigenetics and brain disorders. *Int. Rev. Neurobiol* 115: 51-73.
5. **Rachdaoui, N.** and Sarkar, D.K. (2017) Pathophysiology of the effects of alcohol abuse on the endocrine system. *Alcohol Research, Current Reviews* 28(2): E1-E22.

Abstracts Presented at Conferences/Symposia and Oral Presentations

1. **Rachdaoui, N.**, McMullen, M. and Nagy, L.E. The effects of ethanol exposure on the insulin and endothelin-stimulated glucose transport in rat adipocytes. *Keystone Symposia, Diabetes Mellitus: Molecular Mechanisms, genetics and New Therapies*. Keystone, CO, January 10-16 2002.
2. **Rachdaoui, N.**, McMullen, M. and Nagy, L.E. Role of heterotrimeric-G proteins in the effects of ethanol exposure on insulin and endothelin-stimulated glucose transport in adipocytes. *Research Society on Alcoholism, Fort Lauderdale, F.L.*, June 2003.
3. **Rachdaoui N.** and Ismail-Beigi, F. Does intra-islet hyperinsulinemia induce beta-cell dysfunction and death by apoptosis? *Diabetes Association of Greater Cleveland Retreat*, November 2004.
4. **Rachdaoui, N.**, Polo-Parada, L. and Ismail-Beigi, F. Insulin induces a desensitization of insulin and IGF-1 signaling in INS1-E beta-cells: Mechanisms and consequences on function and survival. *Diabetes Association of Greater Cleveland Retreat*, November 2005.
5. **Rachdaoui, N.**, Polo-Parada, L. and Ismail-Beigi, F. Insulin induces a desensitization of insulin and IGF-1 signaling in INS1-E beta-cells: Mechanisms and consequences on function and survival. *Experimental Biology, San Diego CA April 2-6 2005*.
6. **Rachdaoui, N.**, Polo-Parada, L. and Ismail-Beigi, F. Role of Hyperinsulinemia and insulin resistance in beta-cell failure and the development of Type 2 Diabetes. *Experimental Biology, San Fransisco CA, April 2-6 2006*
7. **Rachdaoui, N.**, Polo-Parada, L. and Ismail-Beigi, F. The effects of Hyperinsulinemia on beta-cell function and survival and its role in the development of Type 2 Diabetes. *Keystone Symposia, Islet and Beta-cell Biology: Islet and Beta-cell Development and Transplantation*. Snowbird, UT April 6-11 2008.
8. **Rachdaoui, N.**, Kasumov, T. and Sarkar, D.K. Quantifying histone turnover in the brain during fetal alcohol exposure. *7th Annual pioneer in Endocrinology, The Endocrine Program, Department of Animal Sciences, Rutgers, The State University of NJ, New Brunswick, September, 2014*.
9. **Rachdaoui, N.**, Kasumov, T. and Sarkar, D.K. The effects of alcohol exposure on histone turnover in developing rat brain. *Annual Meeting of the Research Society on Alcoholism (RSA), San Antonio, Texas, June 20-24th, 2015*.

10. **Rachdaoui, N.**, Kasumov, T. and Sarkar, D.K. The effects of postnatal alcohol exposure on the rates of histone turnover and its functional significance in fetal alcohol syndrome. 8th Annual pioneer in Endocrinology, The Endocrine Program, Department of Animal Sciences, Rutgers, The State University of NJ, New Brunswick, September, 2015.
11. **Rachdaoui, N.**, Kasumov, T. and Sarkar, D.K. The effects of postnatal alcohol exposure on the rates of histone turnover and implications in relation to brain development. Annual Meeting of the Research Society on Alcoholism (RSA), San Antonio, Texas, June 24-29th, 2016.
12. **Rachdaoui, N.**, Kasumov, T. and Sarkar, D.K. The effects of postnatal alcohol exposure on the rates of histone turnover and implications in relation to brain development. 9th Annual pioneer in Endocrinology, The Endocrine Program, Department of Animal Sciences, Rutgers, The State University of NJ, New Brunswick, September, 2016.
13. **Rachdaoui, N.**, Kasumov, T. and Sarkar, D.K. Postnatal alcohol exposure mediated cell growth arrest and decreased histone turnover: Role of DNA damage. Annual Meeting of the Research Society on Alcoholism (RSA), Denver, Colorado, June 24-28th, 2017.
14. **Rachdaoui, N.**, Stevens, C. and Sarkar, D.K. Histone variants and their turnover in developing rat brain: Effect of Postnatal alcohol exposure. Society For Neuroscience (SFN), Washington DC, November 10-15, 2017.
15. **Rachdaoui, N.** Oral presentation, "Cyclic AMP regulation of heterotrimeric G-proteins Go and Gi in primary rat astrocytes". Biomatec annual conference, Marrakech, Morocco, 1997.
16. **Nadia Rachdaoui.** Oral presentation, "Intra-islet hyperinsulinemia induces pancreatic β -cell dysfunction and death: A role of impaired insulin and IGF-1 signaling". Grand round Division of Clinical and Molecular Endocrinology, Case Western Reserve University School of Medicine, Cleveland, OH. 2004.
17. **Nadia Rachdaoui.** Oral presentation, " Insulin resistance in pancreatic β -cell: Causes and Consequences". Seminars, Department of Medicine, Case Western Reserve University School of Medicine, Cleveland, OH. 2005.

Abstracts Published in Proceedings

18. **Nadia Rachdaoui,** Luis Polo-Parada and Faramarz Ismail-Beigi. Insulin induces a desensitization of insulin and IGF-1 signaling in INS1-E beta-cells: Mechanisms and consequences on function and survival. The FASEB Journal. 2006

Related Experience and Professional Membership

Review manuscripts for: Biochemical Journal, Clinical Science, Neurotoxicity Research, PLOS ONE, Epigenetics & Chromatin, Alcohol Research: Current Reviews

2009 Stage 1 reviewer for NIH grant applications (NIH Challenge Grants in Health and Science Research).

Member New York Academy of Science
 Society For Neuroscience
 Biomatec-US, the Moroccan association of biologists
 HC-MAMBD, The High Council of Moroccan American Medical & Biology Doctors

Chair MASLS (Moroccan-American Society for Life Sciences) 6th Annual Conference, 2006, Newark, NJ (Chaired a scientific session)

Teaching Experience, Courses and lectures

Undergraduate lectures in "Endocrine Health and Disease" course, (The Byrne Seminars, #11:090:101), Rutgers, the State University of New Jersey	2017
Supervising, Courtney Stevens. Undergraduate student, Animal Biotechnology (Minor in Animal Science)	2016- 2017
Supervising, Divya Mohanraj. Undergraduate student, Art and Sciences (Dual Major in Biological Sciences and Psychology)	2016
Supervising, Ali Mosa Al-Yasari, Ph.D. Student, Endocrinology and Animal biosciences. Research project: Beta-endorphin transplant promotes pancreatic beta-cell function in streptozotocin-induced diabetic rats.	2014 - 2016
Supervising, kamil Sochacki, Undergraduate student (Honors track) Cell Biology and Neuroscience Department	2014
Mentoring, Valerie Hadam, M.D. (Endocrine Fellow) Research project: Effects of vanadate compounds on pancreatic beta-cell function, survival and regeneration	2005 – 2007
Mentoring, Jeremy Gillespie, Undergraduate student (Summer Internship). Research project: Application of stable isotopes to measure glucose metabolism in pancreatic beta-cells	06/06 - 08/06
Supervising, Chin Park, Ph.D. Rotation student of the Biochemistry Department.	09/05 - 12/05
Supervising, Michael Pavlic, High School student (Summer Internship)	06/04 - 08/04
Teaching/Tutoring High School students subjects include Mathematics, Biology, French and English (Paris, France)	01/98 - 12/98

Other

Awards.

Recipient of National Ministry of Education Fellowship (Ministere National D'education Superieur, Morocco), 09/1990 - 12/1999.

Languages.

Arabic: native language

French and English: speak fluently and read/write with high proficiency