

**“CURRICULUM VITAE”  
EDUARDO A. NILLNI, Ph.D.**

**PERSONAL INFORMATION**

**EDUCATION**

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| <i>M.Sc. 1970-1976<br/>Biological Sciences</i>                    | University of Buenos Aires, Faculty of Sciences, Argentina<br>Area of study: Physiology and Biochemistry, <i>Thesis</i> : Penetration of macromolecules into the central nervous system. <i>Honor received</i> : 1973 - 1975.  |
| <i>Ph.D. 1977-1982<br/>Biochemistry of<br/>Parasitic Protozoa</i> | The Hebrew University of Jerusalem, Hadassah Medical School, Dept. of Parasitology and S.F.Kuvin Centre for the Study of Tropical and Infection Diseases. Jerusalem, Israel. <i>Thesis</i> : Characterization of intracellular and excreted components of malaria parasites. |

**POSTGRADUATE TRAINING**

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| <i>1982-1984<br/>Post-Doctoral<br/>Fellowship<br/>Membrane Biology</i> | Tufts University/New England Medical Center, Department of Radiation Oncology, Div. of Radiobiology, Boston, MA. Topic: Membrane biology of malaria parasites and their relationship with the mammalian host cells. |
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**HONORS**

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| 1973 - 1975 | Research Student Scholarship. The National Institute of Pharmacology. Buenos Aires, Argentina.   |
| 1978 - 1978 | Research Student Scholarship. The Hebrew University of Jerusalem, Jerusalem, Israel.   |
| 1996        | Distinguished Scientist Recognition from the National Science Foundation from the work published in <i>Endocrinology</i> (vol 137, 5651-5661, 1996) and by the NSF Chief Financial Officer's Annual report that included Dr. Nillni's work to Congress in June 1997. |
| 1999        | The Board of Fellows at Brown University awarded the Master of Arts <i>ad eundem</i> . Member of the Honorary Alumni at Brown University.  |
| 2000        | Bruce Selya Award for Research Excellence. This award is given on the basis of independent scientific work, publications, research funding, and peer recognition.  |

**Personal Scientific Statement of Accomplishments**

For more than twenty-five years my laboratory has pioneered pivotal work on hypothalamic neuropeptide biosynthesis, post-translational processing and secretion under different nutritional and

hormonal conditions. These included the anorexigenic precursor polypeptides involved in energy balance regulation proTRH and POMC. This laboratory also produced seminal work on the role of the prohormone convertases 1 and 2 (PC1 and PC2) responsible for the processing of these prohormones. We described how different hormones and neurotransmitters including leptin,  $\alpha$ -MSH, Norepinephrine (NE), and thyroid hormone regulate proTRH at transcriptional, protein biosynthesis and secretion levels in the hypothalamus. The universal finding derived from these studies was that besides affecting TRH transcription and proTRH biosynthesis, leptin, NE,  $\alpha$ -MSH, and thyroid hormone also affected the maturation of PC1 and PC2, essential enzymes for the post-translational processing of most hypothalamic proneuropeptides. This tightly regulated mechanism to produce biologically active peptides turns out to be true for most peptide hormones produced in the hypothalamus. A major breakthrough study from my laboratory in the biology of leptin was that aside from regulating peptide hormone expression, leptin also controls prohormone processing by regulating PC1 and PC2. This novel concept was introduced for the first time in 2004 to the obesity field, which provided the basis for many studies conducted today in other laboratories. We demonstrated for the first time that leptin regulates the *trh* and *POMC* genes expression through activation of STAT3 signaling pathway. In recent studies we showed for the first time the role of Sirt1 in the hypothalamus as a nutrient sensor, and that endoplasmic reticulum stress alters hypothalamic POMC processing.

### **SCIENTIFIC HIGHLIGHTS** (see \*)

- 1996 In the manuscript published in *Endocrinology* (#18) an image from this publication **was selected for the journal cover, and received a distinguished Scientist Recognition from the National Science Foundation.**
- 2004 In the manuscript published in *Endocrinology* (# 29) we presented the first report in which regulation of body weight is linked to the action of a neuronal basic helix-loop-helix transcription factor on prohormone convertase mRNA levels. **This article was chosen for a News & Views Editorial of the journal.**
- 2004 In the manuscript published in the *Journal of Clinical Investigation* (#32) we demonstrated for the first time that leptin regulates prohormone processing through its action on the family of prohormone convertases. **This article was chosen for the Editorial News of the Journal.**
- 2004 In the manuscript published in *The Proceedings of the National Academy of Sciences* (#33) we demonstrated the role of leptin in the anorectic alpha-melanocyte-stimulating hormone (MSH). **This manuscript received much public attention, and was widely cited in the news media nationally and internationally.**
- 2006 In the manuscript published in *Endocrinology* (#36), Novel Regulation Mechanism of ProThyrotropin-Releasing Hormone **was quoted in the Endocrine News magazine from the Endocrine Society as one of the most relevant research accomplishments of the year.**
- 2009 In the manuscript published in *PLoS one* (#49), we showed for the first time the role of Sirt1 in the hypothalamus as a nutrient sensor. **This manuscript received much public attention, and was cited in more than 60 media outlets nationally and internationally.**

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2013 In the manuscript published in The Journal of Biological Chemistry (#61) we demonstrated that **Changes in brain chemistry sustain obesity. This study received much public attention, and was cited in more than 50 media outlets nationally and internationally.**

### **ACADEMIC APPOINTMENTS**

1976 - 1977 Teaching Instructor, Faculty of Biological Sciences. University of Buenos Aires, Buenos Aires, Argentina

1977 - 1978 Research Fellow, Department of Immunology. The National Commission of Atomic Energy, Buenos Aires, Argentina

1978 - 1981 Teaching Instructor, Department of Parasitology and S.F. Kuvim Centre for the Study of Tropical and Infection Diseases. The Hebrew University of Jerusalem, Israel

1982 - 1983 Post-Doctoral Fellow, Tufts University, New England Medical Center, Boston, MA.

1984 - 1987 Assistant Professor of Medicine, Tufts University School of Medicine, Boston MA.

1986 - 1987 Assistant Professor (joint appointment), School of Dental Medicine. Tufts University, Boston MA.

1989 - 1997 Assistant Professor of Medicine, Div. of Biology and Medicine at Brown.

1998 - 2006 Associate Professor of Medicine, Division of Biology and Medicine at Brown University.

2003 - Present Secondary Appointment: Molecular Biology, Cell Biology & Biochemistry. MCB Department. Division of Biology and Medicine, Brown University.

1996 - Present NIH Trainer in the Department of Molecular Biology, Cell Biology & Biochemistry Graduate Program. Brown University, RI.

2003 - Present NIH Trainer in the Pathobiology Graduate Program. Department of Pathobiology and Laboratory Medicine. Brown University, RI.

2006 - 2015 Professor of Medicine, Molecular Biology, Cell Biology and Biochemistry. Departments of Medicine and Molecular Biology, Cell Biology and Biochemistry. Brown University.

2015 - Present Emeritus Professor of Medicine, Molecular Biology, Cell Biology and Biochemistry. Brown University

### **HOSPITAL APPOINTMENTS**

1984 - 1987 Special and Scientific Staff, New England Medical Center, Boston.

1989 - present Senior Research Scientist, Principal Investigator. Division of Endocrinology, Department of Medicine, Rhode Island Hospital, Providence, RI

2000 - 2006 Member of the Rhode Island Hospital Institutional Animal Care and Use Committee (IACUC)

2000 - 2005 Member of the Annual Research Celebration Committee at Rhode Island Hospital

2002 - 2005 Member of the Bruce Selye Award Committee

### **OTHER APPOINTMENTS AND REVIEW COMMITTEES**

1987 - 1988 Vice President of Research and Development. Microvesicular Systems Inc., a Division of IGI. Vineland, N.J.

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1996 - 2002	Ad hoc reviewer in the Div. of Integrative Biology and Neuroscience. The National Science Foundation
2001 - 2005	Member of the Endocrinology, Metabolism, Nutrition and Reproductive Sciences Panel NIH Study Section (F06)
2001 - 2004	Member of the Canada Research Chairs Program College of Reviewers, Canada Institutes of Health.
2001	Ad hoc reviewer, Endocrinology, Reproductive, Nutritional and Metabolic Sciences Study Section (NIH, SSS-T-10).
2002 - 2004	Ad hoc reviewer of the Molecular and Developmental and Cellular Neuroscience-1 (MDCN-1) Study Section, NIH.
2004 - present	Member of the Editorial Board of Endocrinology
2005 - 2011	Member of the Integrative Physiology of Obesity and Diabetes NIH Study Section (IPOD).
2005	Chosen by the Board of Directors of the Gordon Research Conferences to be a monitor for the Hormone Action in Development & Cancer Conference, Mount Holyoke College.
2007	Managing Editor of the Frontiers in Bioscience. Issue on Neuronal Circuits in Energy Balance.
2011 - 2012	Ad hoc member, NIH Study Sections: DDK-B and MCE.
2015	Ad Hoc reviewer for the Integrative Physiology of Obesity and Diabetes NIH Study Section (IPOD).
2015 – present	Member of the Diabetes, Endocrinology and Metabolic Diseases B Subcommittee (DDK-B)

### **REVIEWER FOR THE FOLLOWING SCIENTIFIC JOURNALS**

2004 - present	Member of the Editorial Board of Endocrinology
2013 - present	Member of the Editorial Board of Molecular Metabolism
1998 - present	Ad hoc reviewer for the Journal of Neurochemistry
1999 - present	Ad hoc reviewer for the Journal of Biological chemistry
2012 - present	Ad hoc reviewer for Regulatory Peptides
2005 - present	Ad hoc reviewer for the Journal of Clinical Endocrinology and Metabolism.
2006 - present	Ad hoc reviewer for Molecular and cellular Endocrinology
2006 - present	Ad hoc reviewer for the Journal of Molecular Neuroscience
2007 - present	Ad hoc reviewer for Brain Research
2009 - present	Ad hoc reviewer for Journal of Clinical Investigation
2011 - present	Ad hoc reviewer for Nature
2010 - present	Ad hoc reviewer for American Journal of Physiology
2011 - present	Ad hoc reviewer for Endocrine Reviews
2011 - present	Ad hoc reviewer for Annals of the New York Academy of Sciences
2010 - present	Ad hoc reviewer for Annals of Medicine
2012 - present	Ad hoc reviewer for Physiological Behavior
2012 - present	Ad hoc reviewer for Cell Metabolism
2012 - present	Ad hoc reviewer for Thyroid
2014 - present	Ad hoc reviewer for Cell and Cell Reports

### **UNIVERSITY COMMITTEES**

1996 - present	Ph.D. Thesis committee for several students in the Department of Molecular Biology, Cell Biology & Biochemistry (MCB) Graduate Program. Division of Biology and Medicine, Brown University, RI
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2001 - 2004	Executive Member of the Graduate Program Admissions Committee. MCB program. Brown University, RI
2001 - 2003	Executive Member of the MD/Ph.D. Admissions Committee. Brown University, RI.
2005 - 2008	Member of the Medical Faculty Executive Committee (MFEC) at Brown Medical School.
2005 - 2008	Executive member of the Molecular Biology, Cell Biology & Biochemistry Department, Brown University

### **MEMBERSHIP IN SOCIETIES**

1984 - present	FASEB
1993 - present	The Endocrine Society
1995 - present	The American Society for the Advance of Science
2010 – present	American Physiological Society
1984 - 1994	American Chemical Society
1977 - 1986	Society of Protozoologists
1984 - 2007	The American Society for Cell Biology
1987 - 1989	Society of Complex Carbohydrates
1996 - 2003	American Neuroendocrine Society
2009 - 2011	American Thyroid Association

### **ORIGINAL PUBLICATIONS IN PEER REVIEWED JOURNALS**

- 1 **Nilni EA** (Ms. Thesis). 1976. Penetration of macromolecules into the central nervous system. University of Buenos Aires, Argentina.
- 2 **Nilni EA** and Spira DT. 1980. Plasmodium berghei: Characterization of soluble antigens. J Protozool. 27, 65-68.
- 3 **Nilni EA**, Londner MV and Spira DT. 1981. A simple method for separation of uninfected erythrocytes from those infected with Plasmodium berghei and for isolation of artificially release parasites. Parasitol Res. 64, 279-287.
- 4 **Nilni EA**. 1982 (Ph.D. thesis). Characterization of intracellular and excreted components of malaria parasites. The Hebrew University of Jerusalem, Hadassah Medical School, Jerusalem, Israel.
- 5 **Nilni EA** and Spira DT. 1982. Characterization of Plasmodium berghei antigens inducing blast transformation in immune rat lymphocytes. Parasitol. Res 68, 234-241
- 6 **Nilni EA** and Spira DT. 1982. Inhibition of blast transformation of rat lymphocytes immune to Plasmodium berghei by sugars. J Protozool. 33, 70-75.
- 7 **Nilni EA**, Schmidt-Ullrich R and Wallach DFH. 1984. In Vitro maturation and macromolecular synthesis of free Plasmodium knowlesi schizont. Federation Proc. 43, 1808.
- 8 **Nilni EA**, Schmidt-Ullrich R, Mikkelsen R and Wallach DFH. 1985. Extracellular development of Plasmodium knowlesi erythrocytic stages in an artificial intracellular medium. Mol. Biochem Parasitol. 17, 219-237.

- 9 Mikkelsen R, Wallach DFH and **Nilni EA**. 1986. Studies on the membrane potential of erythrocytic stages of Plasmodium free of the host cell membrane. Mol. Biochem. Parasitol. 21, 83-94.

**INDUSTRY. 1987-1989. Publications not permitted by the Company.** Microvesicular Systems Inc., a Division of IGI. Vineland, N.J.

- 10 **Nilni EA**, Sevarino KA, Wu P and Jackson IMD. 1991. Assays for biosynthesis of TRH. Methods in Neurosciences, 6:51-69, Academic Press.
- 11 **Nilni EA**, Sevarino KA and Jackson IMD. 1993. Identification of the TRH prohormone and its post-translational processing in a transfected AtT20 cell line. Endocrinology 132, 1260-1270.
- 12 **Nilni E A**, Sevarino KA and Jackson IMD. 1993. Processing of proTRH to its intermediate products occurs prior to the packing into secretory granules. Endocrinology 132, 1271-1277.
- 13 Jackson IMD, Bruhn TO, Rondeel JMM, **Nilni EA** and Chang-Demoranville. 1994. Regulation of TRH expression in the anterior pituitary gland. In Melmed S(Ed) Molecular and Clinical Advances in Pituitary Disorders. Proceedings of the 3rd International Pituitary Congress. pp. 311-315.
- 14 Friedman TC, Loh P , Huang SS, Jackson IMD and **Nilni EA**. 1995 Processing of proTRH by bovine intermediate lobe secretory vesicles membranes PC1 and PC2 enzymes. Endocrinology. 136, 4462-4472.
- 15 **Nilni EA**, Friedman TC, Todd RB, Nigel Birch, Loh P. and Jackson IMD. 1995. ProTRH processing by a recombinant PC1 enzyme. J. Neurochem. 65, 2462-2472.
- 16 Legradi, G, Rand WM, Hitz S, **Nilni EA**, IMD Jackson, and RM Lechan. 1996. Opiate withdrawal increases proTRH gene expression in the ventrolateral column of the midbrain periaqueductal gray. Brain Res. 729, 10-19.
- 17 Perez de la Cruz, I and **Nilni EA**. 1996. Intracellular sites of prothyrotropin-releasing hormone processing. J. Biol. Chem. 271, 22736-22745.
- 18 \* **Nilni, EA**, Luo LG , Jackson IMD and McMillan P. 1996. Identification of the TRH precursor, its processing products and its coexpression with convertase 1 (PC1) in primary cultures of hypothalamic neurons. Anatomic location of PC1 and PC2. Endocrinology. 137, 5651-5661.
- 19 Schaner, P, Todd RB, Seidah NG and **Nilni EA**. 1997. Processing of prothyrotropin releasing hormone by the family of prohormone convertases. J. Biol. Chem. 272, 19958-19968.
- 20 Bruhn, TO, Huang SS, C Vaslet and **Nilni EA**. 1998. Glucocorticoids modulate the biosynthesis and processing of prothyrotropin releasing hormone (proTRH). Endocrine 9, 143-152.

- 21 **Nilni EA**, Steinmetz R, Pescovitz OH. 1999. Posttranslational processing of progrowth hormone-releasing hormone. *Endocrinology*. 140(12):5817-27.
- 22 **Nilni EA**, Vaslet C, Harris M, Hollenberg A, Bjorbak C, Flier JS. 2000 Leptin Regulates Prothyrotropin-releasing Hormone Biosynthesis. EVIDENCE FOR DIRECT AND INDIRECT PATHWAYS. *J Biol Chem*. 275(46):36124-36133.
- 23 **Nilni EA**, Aird F, Todd, RB, Seidah NG and Koenig J. 2001. PreproTRH<sub>178-199</sub> and two novel peptides (pFQ<sub>7</sub> and pSE<sub>14</sub>) derived from its processing, which are produced in the paraventricular nucleus of the rat hypothalamus, are regulated during suckling. *Endocrinology*, 142 (2) 896-906
- 24 Harris M, Aschkenasi C, Elias CF, Chandrankunnel A, **Nilni EA**, Bjorbaek C, Elmquist JK, Flier JS, Hollenberg AN. 2001. Transcriptional regulation of the thyrotropin-releasing hormone gene by leptin and melanocortin signaling. *J Clin Invest* 107(1):111-120.
- 25 **Nilni EA**, Lee, A, Lagradi G and Lechan R. 2002. Effect of precipitated morphine withdrawal on post-translational processing of prothyrotropin releasing hormone (proTRH) in the ventrolateral column of the midbrain periaqueductal gray. *J Neurochem*. 80(5): 874-84
- 26 **Nilni EA**, Xie W, Mulcahy L, Sanchez VC, and Wetsel WC. 2002. Deficiencies in prothyrotropin-releasing hormone (proTRH) processing and abnormalities in thermoregulation in *Cpe<sup>fat</sup>* mice. *J Biol Chem*. 277, 48587-48595.
- 27 Cowley MA, Smith RG, Diano S, Tschop M, Pronchuk N, Grove KL, Strasburger CJ, Bidlingmaier M, Esterman M, Heiman ML, Garcia-Segura LM, **Nilni EA**, Mendez P, Low MJ, Sotonyi P, Friedman JM, Liu H, Pinto S, Colmers WF, Cone RD, Horvath TL. 2003. The distribution and mechanism of action of ghrelin in the CNS demonstrates a novel hypothalamic circuit regulating energy homeostasis. *Neuron*. 2003 20; 37(4): 649-61
- 28 Munzberg H, Huo L, **Nilni EA**, Hollenberg AN, Bjorbaek C. 2003. Role of signal transducer and activator of transcription 3 in regulation of hypothalamic proopiomelanocortin gene expression by leptin. *Endocrinology*. 144(5):2121-31.
- 29 \* Jing E, **Nilni EA**, Sanchez VC, Stuart R and Good DJ. 2004. Deletion of the Nhlh2 transcription factor decreases the levels of the anorexigenic peptides alpha melanocyte-stimulating hormone and thyrotropin-releasing hormone and implicates prohormone convertases I and II in obesity. *Endocrinology*. 145(4):1503-13
- 30 Posner S, Vaslet CA, Jurofcik M, Lee A, Seidah NG, and **Nilni EA**. Stepwise Post-translational Processing of ProGrowth Hormone-Releasing Hormone (proGHRH) Polypeptide by Furin and PC1. 2004. *Endocrine*, 23, 199-214.
- 31 Huo L, Munzberg H, **Nilni EA**, Bjorbaek C. Role of Signal Transducer and Activator of Transcription 3 in Regulation of Hypothalamic *trh* Gene Expression by Leptin. 2004. *Endocrinology*. 145, 2516-2523.
- 32 \* Sanchez VC, Goldstein J, Stuart RC, Hovanesian V, Huo L, Munzberg H, Friedman TC, Bjorbaek C and **Nilni EA**. 2004. Regulation of hypothalamic prohormone convertases 1 and

- 2 and effects on processing of prothyrotropin-releasing hormone. *J Clin Invest.* 2004 Aug; 114(3): 357-69.
- 33 \* Guo L, Münzberg H, Stuart RC, **Nilni EA**, and Bjørbæk C. 2004. N-acetylation of hypothalamic alpha-melanocyte-stimulating hormone and regulation by leptin. *Proc Natl Acad Sci U S A.* 2004 Aug 10;101(32):11797-802.
- 34 Mulcahy LR, Barker AJ, **Nilni EA**. 2006. Disruption of disulfide bond formation alters the trafficking of prothyrotropin releasing hormone (proTRH)-derived peptides. *Regul Pept.* 133(1-3):123-33.
- 35 Mulcahy LR, Vaslet CA and **Nilni EA**. 2005. Prohormone-Convertase 1 Processing Enhances Post-Golgi Sorting of proThyrotropin Releasing Hormone-Derived Peptides. *J Biol Chem.* 2;280(48):39818-26
- 36 \* Perello M, Friedman T, Paez-Espinoza V, Shen X, Stuart RC, **Nilni EA**. Thyroid hormones selectively regulate the posttranslational processing of prothyrotropin-releasing hormone in the paraventricular nucleus of the hypothalamus. *Endocrinology.* 2006 Jun;147(6):2705-16.
- 37 Perello M, Stuart RC, **Nilni EA**. The role of intracerebroventricular administration of leptin in the stimulation of prothyrotropin releasing hormone neurons in the hypothalamic paraventricular nucleus. *Endocrinology.* 2006 Jul;147(7):3296-306
- 38 Espinosa VP, Ferrini M, Shen X, Lutfy K, **Nilni EA**, Friedman TC. Cellular colocalization and coregulation between hypothalamic pro-TRH and prohormone convertases in hypothyroidism. *Am J Physiol Endocrinol Metab.* 2007 Jan;292(1):E175-86.
- 39 Voss-Andreae A, Murphy JG, Ellacott KL, Stuart RC, **Nilni EA**, Cone RD, Fan W. Role of the central melanocortin circuitry in adaptive thermogenesis of brown adipose tissue. *Endocrinology.* 2007 Apr;148(4):1550-60.
- 40 Perello M, Stuart RC, **Nilni EA**. Differential effects of fasting and leptin on proopiomelanocortin peptides in the arcuate nucleus and in the nucleus of the solitary tract. *Am J Physiol Endocrinol Metab.* 2007 May;292(5):E1348-57.
- 41 Enriori PJ, Evans AE, Sinnayah P, Jobst EE, Tonelli-Lemos L, Billes SK, Glavas MM, Grayson BE, Perello M, **Nilni EA**, Grove KL, Cowley MA. Diet-induced obesity causes severe but reversible leptin resistance in arcuate melanocortin neurons. *Cell Metab.* 2007 Mar;5(3):181-94.
- 42 Goldstein J, Perello M, **Nilni EA**. PreproThyrotropin-releasing hormone 178-199 affects tyrosine hydroxylase biosynthesis in hypothalamic neurons: a possible role for pituitary prolactin regulation. *J Mol Neurosci.* 2007;31(1):69-82.
- 43 Perello M, Stuart RC, Vaslet CA, Nilni EA. Cold exposure increases the biosynthesis and proteolytic processing of prothyrotropin-releasing hormone in the hypothalamic paraventricular nucleus via beta-adrenoreceptors. *Endocrinology.* 2007 Oct;148(10):4952-64.
- 44 Perello M, Stuart R, **Nilni EA**. Prothyrotropin-releasing hormone targets its processing products to different vesicles of the secretory pathway. *J Biol Chem.* 2008 Jul 18;283(29):19936-47.



- 45 Espinosa VP, Liu Y, Ferrini M, Anghel A, Nie Y, Tripathi PV, Porche R, Jansen E, Stuart RC, **Nilni EA**, Lutfy K, Friedman TC. Differential regulation of prohormone convertase 1/3, prohormone convertase 2 and phosphorylated cyclic-AMP-response element binding protein by short-term and long-term morphine treatment: Implications for understanding the "switch" to opiate addiction. *Neuroscience*. 2008 Oct 15;156(3):788-99.
- 46 Romero A, Cakir I, Vaslet CA, Stuart RC, Lansari O, Lucero HA, **Nilni EA**. Role of a pro-sequence in the secretory pathway of prothyrotropin-releasing hormone. *J Biol Chem*. 2008 Nov 14;283(46):31438-48.
- 47 Perello M, Stuart R, **Nilni EA**. Prothyrotropin-releasing hormone targets its processing products to different vesicles of the secretory pathway. *J Biol Chem*. 2008 Jul 18;283(29):19936-47. Epub 2008 May 12. PMID: 18474603 [PubMed - indexed for MEDLINE]
- 48 Bousquet-Moore D, Ma XM, **Nilni EA**, Czyzyk TA, Pintar JE, Eipper BA, Mains RE. Reversal of physiological deficits caused by diminished levels of peptidylglycine alpha-amidating monooxygenase by dietary copper. *Endocrinology*. 2009 Apr;150(4):1739-47. Epub 2008 Nov 20. PMID: 19022883
- 49 \* Cakir I, Perello M, Lansari O, Messier NJ, Vaslet CA, **Nilni EA**. Hypothalamic Sirt1 regulates food intake in a rodent model system. *PLoS One*. 2009 Dec 15;4(12):e8322. PMID: 20020036 [PubMed - indexed for MEDLINE]
- 50 Ramadori G, Fujikawa T, Fukuda M, Anderson J, Morgan DA, Mostoslavsky R, Stuart RC, Perello M, Vianna CR, **Nilni EA**, Rahmouni K, Coppari R. *Cell Metab*. 2010 Jul 4;12(1):78-87. PMID: 20620997.
- 51 Bousquet-Moore D, Prohaska JR, **Nilni EA**, Czyzyk T, Wetsel WC, Mains RE, Eipper BA. Interactions of peptide amidation and copper: novel biomarkers and mechanisms of neural dysfunction. *Neurobiol Dis*. 2010 Jan;37(1):130-40.
- 52 Perello M, Cakir I, Cyr NE, Romero A, Stuart RC, Chiappini F, Hollenberg AN, **Nilni EA**. Maintenance of the thyroid axis during diet-induced obesity in rodents is controlled at the central level. *Am J Physiol Endocrinol Metab*. 2010 Dec;299(6):E976-89.
- 53 Cantuti-Castelvetri I, Hernandez LF, Keller-McGandy CE, Kett LR, Landy A, Hollingsworth ZR, Saka E, Crittenden JR, **Nilni EA**, Young AB, Standaert DG, Graybiel AM. Levodopa-Induced Dyskinesia Is Associated with Increased Thyrotropin Releasing Hormone in the Dorsal Striatum of Hemi-Parkinsonian Rats. *PLoS One*. 2010 Nov 10;5(11):e13861. PMID: 21085660 [PubMed - as supplied by publisher].
- 54 De Jonghe BC, Hayes MR, Banno R, Skibicka KP, Zimmer DJ, Bowen KA, Lechner TM, Alhadeff AL, Kanoski SE, Cyr NE, **Nilni EA**, Grill HJ, Bence KK. Deficiency of PTP1B in POMC neurons leads to alterations in energy balance and homeostatic response to cold exposure. *Am J Physiol Endocrinol Metab*. 2011 Jun;300(6):E1002-11. PMID: PMC3118594
- 55 Cyr NE, Stuart RC, Zhu X, Steiner DF, and **Nilni EA**. Biosynthesis of proTRH-derived peptides in prohormone convertase 1 and 2 knockout mice. *Peptides*. 2012 May; 35(1):42-8. Epub 2012 Mar 6. PMID: 22421509.

- 56 Cabral A, Valdivia S, Reynaldo M, Cyr NE, **Nilni EA**, Perello M. Short-term cold exposure activates TRH neurons exclusively in the hypothalamic paraventricular nucleus and raphe pallidus. *Neurosci Lett*. 2012 May 2. PMID: 22580206.
- 57 Newton J, Vogt M, Hess S, Paeger L, **Nilni EA**, Kloppenburg P, Brüning J and Xu AW. AgRP Innervation onto POMC Neurons Increases with Age and Is Accelerated with Chronic High-Fat Feeding in Male Mice. *Endocrinology*. 2013 Jan;154(1):172-83. doi: 10.1210/en.2012-1643. Epub 2012 Nov 16. PMID:23161869.
- 58 Chiappini F, Ramadoss P, Vella KR, Cunha LL, Ye FD, Stuart RC, Nilni EA, Hollenberg AN. Family members CREB and CREM control thyrotropin-releasing hormone (TRH) expression in the hypothalamus. *Mol Cell Endocrinol*. 2013 Jan 5;365(1):84-94. doi: 10.1016/j.mce.2012.09.006. Epub 2012 Sep 20.
- 59 Cyr NE, Toorie AM, Steger JS, Sochat MM, Hyner S, Perello M, Stuart R, and **Nilni EA**. 2013. Mechanisms by which the orexigen Neuropeptide Y (NPY) regulates anorexigenic  $\alpha$ -melanocystimulating hormone ( $\alpha$ -MSH) and thyrotropin-releasing hormone (TRH). *Am J Physiol Endocrinol Metab*. 2013 Jan 15. [Epub ahead of print] PMID:23321476
- 60 Nie Y, Ferrini MG, Stuart RC, **Nilni EA**, and Friedman TC. Morphine treatment selectively regulates expression of pituitary POMC and the prohormone convertases PC1/3 and PC2: Implications for the homeostatic response to opioid exposure. *Peptides*. 2013 Sep;47:99-109. doi: 10.1016/j.peptides.2013.07.006. Epub 2013 Jul 26.
- 61 \* Cakir I, Cyr N, Perello M, Litvinov VB, Romero A, Stuart RC, and **Nilni EA**. 2013. Obesity Induces Hypothalamic Endoplasmic Reticulum Stress and Impairs Proopiomelanocortin (POMC) Post-translational Processing. *J Biol Chem*. 2013 May 2. [Epub ahead of print]. PMID: 23640886
- 62 Mercer AJ, Stuart RC, Attard CA, Otero-Corchon V, **Nilni EA**, Low MJ. 2014. Temporal changes in nutritional state affect hypothalamic POMC peptide levels independently of leptin in adult male mice. Accepted in *The American Journal of Physiology*. **Am J Physiol Endocrinol Metab**. 2014 Apr 15;306(8):E904-15. doi: 10.1152/ajpendo.00540.2013. Epub 2014 Feb 11
- 63 Cyr NE, Steger JS, Toorie AM, Yang JZ, Stuart R, **Nilni EA**. Central Sirt1 regulates body weight and energy expenditure along with the POMC-derived peptide  $\alpha$ -MSH and the processing enzyme CPE production in diet-induced Obesity male rats. **Endocrinology**. 2014 Dec 30:en20141970. [Epub ahead of print]
- 64 Toorie, AM and **Nilni EA**. 2014. Central Sirt1 regulates energy balance via the melanocortin system and alternate pathways. **Mol Endocrinol**. 2014 Sep;28(9):1423-34. doi: 10.1210/me.2014-1115. Epub 2014 Jun 20.
- 65 Faulkner L, Dowling A, Stuart R, **Nilni E**, Hill J. Reduced melanocortin production causes sexual dysfunction in male mice with POMC neuronal insulin and leptin insensitivity. **Endocrinology**. 2015 Jan 15:en20141788. [Epub ahead of print].
- 66 Toorie, AM, Cyr N, Steger JS, Beckman R, and **Nilni EA**. Hypothalamic paraventricular Sirt1 regulates the CRH axis by altering the post-translational processing of proCRH in male rats. *J Biol Chem*. 2016 Mar 11;291(11):5844-59

- 67 **Nillni EA.** The metabolic sensor Sirt1 and the hypothalamus: Interplay between peptide hormones and pro-hormone convertases. *Molecular and Cellular Endocrinology*. 2016 (in press)

### **PEER-REVIEWED REVIEWS AND BOOKS**

- 68 **Nillni EA** and Sevarino KA. 1999. The biology of proTRH-derived peptides. *Endocrine Reviews*, 20, 599-648.
- 69 **Nillni EA.** 1999. Neuroregulation of proTRH biosynthesis and processing. *Endocrine*, 10, 185-199.
- 70 Mulcahy LR, **Nillni EA.** Discovery of new peptides from old prohormones: insights for energy balance and beyond. *Front Biosci*. 2007 May 1;12:3545-53. Review. PMID: 17485320
- 71 Perello M, **Nillni EA.** The biosynthesis and processing of neuropeptides: lessons from prothyrotropin releasing hormone (proTRH). *Front Biosci*. 2007 May 1;12:3554-65. Review. PMID: 17485321
- 72 **Nillni EA.** Regulation of prohormone convertases in hypothalamic neurons: implications for prothyrotropin-releasing hormone and proopiomelanocortin. *Endocrinology*. 2007 Sep; 148(9): 4191-200. Epub 2007 Jun 21. Review. PMID: 17584972
- 73 **Nillni EA.** Regulation of the hypothalamic thyrotropin releasing hormone (TRH) neuron by neuronal and peripheral inputs. *Front Neuroendocrinol*. 2010 Apr; 31(2):134-56. Epub 2010 Jan 13. Review. PMID: 20074584.
- 74 **Book:** Per invitation: *Creating Life from Life Biotechnology and Science Fiction* Edited by Rosalyn W. Berne. The "Vicious Cycle" of Obesity by **Eduardo A. Nillni**. Pan Stanford Publishing Pte. Ltd. 2015
- 75 **Book:** Per invitation: *Textbook of Energy Balance, Neuropeptide Hormones, and Neuroendocrine Function*. Eduardo A. Nillni, *Editor*. 2018 *in press*. Springer Publishing.

### **MEETING PRESENTATIONS. ABSTRACTS**

- 1 Tradatti C, Nillni EA, Larghi E and Levin E. 1975. Penetration of protein derivatives into the central nervous system. Third Argentine Congress of Biochemistry. (Oral presentation)
- 2 Spira DT, Golenser J, Weissberger H and Nillni EA. 1979. Fractionation of biologically active components of Plasmodium berghei infected erythrocytes. International Conference of Malaria and Babesiosis. Mexico, DF. Mexico. (Poster)
- 3 Spira DT and Nillni EA. 1980. Purification of mitogenic components in Plasmodium berghei extract. Third European Multicolloquium of Parasitology. Cambridge, England. (Oral presentation)
- 4 **Nillni EA** and Spira DT. 198. Partial characterization of a blastogenic antigen and nonspecific mitogen from non altered free Plasmodium berghei. II Mediterranean Conference of Parasitology, Granada, Spain. (Oral presentation)

- 5 Schmidt-Ullrich R, **Nilni EA** and Monroe MTM. 1983. A protective Mr 74 kDa Plasmodium berghei antigen in the membrane of schizont infected Rhesus erythrocytes. 2nd International Conference on Malaria and Babesiosis, Annecy, France. (Oral presentation)
- 6 **Nilni EA**, Schmidt-Ullrich R and Wallach DFH. 1984. In vitro maturation and macromolecular synthesis of free Plasmodium knowlesi schizont. The American Association of Immunologist. June 3-7, 1984. (Oral presentation)
- 7 **Nilni EA** and Wallach DFH. 1986. Parasitophorous vacuole membrane of Plasmodium knowlesi. American Society of Biological Chemist, June 8-12, 1986. (Poster)
- 8 **Nilni EA** and Jackson IMD. 1990. Posttranslational processing of proTRH in a cDNA transfected tumor cell line. The Endocrine Society 72nd Annual Meeting, pp 331, Abst# 1225. Atlanta, Georgia. (Poster)
- 9 **Nilni EA** and Jackson IMD. 1991. Isolation of intact proTRH peptide from cDNA transfected tumor cell line and its processing to smaller peptides. The Endocrine Society 73rd Annual Meeting, Washington, D.C. (Poster)
- 10 **Nilni EA** and Jackson IMD. 1991. Determination of intracellular site(s) of ProTRH processing in the transfected AtT20 cell line. The American Society for Cell Biology, 31st Annual Meeting, J Cell Biol., pp 301a, Abst# 1745. Boston, MA. (Poster)
- 11 **Nilni EA**, Bruhn TO, Huang SS and Jackson IMD. 1992. Glucocorticoids accelerate proTRH processing in cultured anterior pituitary cells. Mol. Biol. Cell. suppl. 3, 323a. (Poster)
- 12 **Nilni EA**, Friedman TC, Todd RB, Birch NP and Loh YP. Enzymatic conversion of proTRH by secretory vesicle membranes and partially purified PC1 enzyme. 1993. 75th Annual Meeting of the Endocrine Society. pp474 Abst# 1696. Las Vegas, Nevada. (Poster)
- 13 **Nilni EA**, McMillan, and Jackson IMD. 1993. Distribution and Targeting of ProTRH in Transfected AtT20 cells Exposed to Glucocorticoids. Mol. Biol. Cell. 4, 317a. (Poster)
- 14 **Nilni EA**, Verdier P, Bruhn TO, and Jackson IMD. 1993. Differential Distribution of ProTRH processing Processing Products in Fetal Hypothalamic Primary Culture. Mol. Biol. Cell. 4, 317a. (Poster)
- 15 **Nilni EA**, Huang SS, Jackson IMD and Urrutia R. 1993. Expression of a Recombinant Rat ProTRH Polypeptide in Escherichia Coli. Mol. Biol. Cell. 4, 73a. (Poster)
- 16 **Nilni EA**, Verdier P, and Jackson IMD. 1993. Cellular Distribution of proTRH in Anterior Pituitary Long Term Culture and Effect on Processing by Glucocorticoids. Mol. Biol. Cell. 4, 317a. (Poster)
- 17 Sun AM, **Nilni EA**, Dworkin LD, Chang EB and Lytton J. 1994. Expression of NHE3 in mouse medullary thick ascending limb (MTAL). 27th Annual Meeting of the American Society of Nephrology. (Poster)

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- 18 **Nilni EA**, Luo GL and Jackson IMD. 1994. Coexpression of proTRH with prohormone convertase 1 (PC1) in primary cultures of neuroendocrine tissues. *Mol. Biol. Cell.* 5, 209a. (Poster)
- 19 **Nilni EA** and Perez de la Cruz I. 1994. Effect of temperature blockade on the processing of proTRH. *Mol. Biol. Cell.* 5, 242a. (Poster)
- 20 Perez de la Cruz I and **Nilni EA**. 1995. Intracellular Sites of ProTRH Processing. *Mol. Biol. Cell.* 6, 331a (1297). (Poster)
- 21 **Nilni EA**, Verdier P and Huang SH. 1995. Glucocorticoid Modulate the Post-Translational Processing of the Mammalian TRH Prohormone. *Mol. Biol. Cell.* 6, 331a (1296). (Poster)
- 22 **Nilni EA**, Luo LG, Jackson IMD and McMillan P. 1996. ProTRH distribution and coexpression with proconvertase 1 (PC1) in hypothalamic neurons. *Mol. Biol. Cell.* 7. 502a (2924)
- 23 Schaner P, Seidah NG and **Nilni EA**. 1996. Processing of proTRH by prohormone convertases. *Mol. Biol. Cell.* 7, 502a (2923)
- 24 **Nilni EA**, Leiter EH, and Wetsel WC. 1997. The mutation in carboxypeptidase E (CPE) in the *fat/fat* mouse is associated with a defect in processing the prohormone for thyrotropin-releasing hormone (TRH). Seventy nine Annual Meeting of the Endocrine Society, June 11-14. Minneapolis, Minnesota. P1-273, 203.
- 25 Seidah NG, Aird F and **Nilni EA**. 1997. Role of PC1 and PC2 in the formation of preproTRH<sub>178-199</sub>. Seventy nine Annual Meeting of the Endocrine Society, June 11-14. Minneapolis, Minnesota. P2-65, 301.
- 26 Bartnick A, Pescovitz OH and **E.A. Nilni**. 1998. Processing of progrowth hormone releasing hormone (proGHRH) in primary cultures of hypothalamic neurons. Eightieth Annual Meeting of the Endocrine Society, June 24-27. New Orleans, Louisiana. P2-226, 299.
- 27 Identification and processing of progrowth hormone releasing hormone (proGHRH) in primary cultures of hypothalamic neurons. A. Bartnick<sup>1</sup>, O. H. Pescovitz and **EA. Nilni**. (1998) in *The Endocrine Society's 80st Annual Meeting*, San Diego, CA
- 28 Leptin regulates proTRH biosynthesis. **Nilni EA**, Bartnick A, Harris M, Hollenberg A, Bjorbaek C, Flier JS. (1999) *The Endocrine Society's 81st Annual Meeting*, San Diego, CA. OR-36-1, p112.
- 29 Opiate withdrawal (OW) regulates proTRH post-translational processing in the ventrolateral column of the midbrain periaqueductal gray (PAG). **Nilni EA**, Legradi G, and Lechan RM. (1999) *The Endocrine Society's 81st Annual Meeting*, San Diego, CA. P1-323. P203
- 30 PreproTRH<sub>178-199</sub> and two novel peptides derived from its processing are regulated during suckling. **EA. Nilni**, JI. Koenig, F Aird, NG. Seidah and A Bartnick. (1999) *The Endocrine Society's 81st Annual Meeting*, San Diego, CA. P1-318, p202.

- 31 Creation of immortalized hypothalamic neural cell lines expressing leptin receptors and NPY. Harris M, Hollenberg A, Bjorbaek C, **Nilni EA**, Flier JS. (1999) *The Endocrine Society's 81st Annual Meeting*, San Diego, CA. P2-445, p374.
- 32 Activation of PKA pathway by novel peptides resulting from the processing of proGrowth Hormone Releasing hormone (GHRH). Steimmetz R, **Nilni EA**, Rhothrock JK, and Pescovitz OH. (1999) *The Endocrine Society's 81st Annual Meeting*, San Diego, CA. P2-359, p356.
- 33 The GH<sub>3</sub> Cell Line as a Model for preproTRH<sub>178-199</sub> (pFE<sub>22</sub>) binding and stimulation of prolactin release Fox G and **Nilni EA**. (2001). *The Endocrine Society's 83st Annual Meeting, Denver CO*.
- 34 Norepinephrine (NE) stimulates the expression of proThyrotropin Releasing Hormone (proTRH) and the prohormone convertases (PCs) 1 and 2 in primary cultures of hypothalamic neurons resulting in changes in proTRH processing and secretion. Volkstorf E, Stuart R, Azari S and **Nilni EA**. (2001) *The Endocrine Society's 83st Annual Meeting, Denver CO*.
- 35 Leptin stimulates the expression and biosynthesis of prohormone convertases 1 and 2 (PC1 and PC2) in hypothalamic neurons. (2001) **Nilni EA** Flier JS and Bjørbæk C. (2001) *The Endocrine Society's 83st Annual Meeting, Denver CO*.
- 36 **Nilni EA**, Flier JS, Bjørbæk C. Leptin stimulates the expression and biosynthesis of prohormone convertases 1 and 2 (PC1 and PC2) in hypothalamic neurons. (2001) Keystone Symposia, Taos, NM.
- 37 Transcriptional control of the POMC promoter by leptin: The role of STAT3 and cAMP. Tzamei I, **Nilni EA**, Flier JS, and Bjorbaek C. (2001) Keystone Symposia, Taos, NM.
- 38 Münzberg H, Lihong H, **Nilni EA**, Hollenberg A and Bjorbaek C. Regulation of hypothalamic proopiomelanocortin (POMC) by melanocortin and leptin. (2002) *The Endocrine Society's 84st Annual Meeting, San Francisco, CA*
- 39 Vanesa C. Sanchez, Jorge Goldstein, Ron Stuart, Heike Münzberg, Theodore C. Friedman, Yanjun Liu, Christian Bjørbæk and **Eduardo A. Nilni** Regulation of the Hypothalamic Prohormone Convertases1 and 2 Expression by Fasting and Leptin. (2003) The Endocrine Society's 85st Annual Meeting, Philadelphia, Pennsylvania
- 40 Vaslet CH, Posner S, Jurofcik M, Lee A, Seidah NG and **Nilni EA**. Stepwise Post-translational Processing of ProGrowth Hormone Releasing Hormone (proGHRH) Polypeptide by Furin and PC1. (2003) The Endocrine Society's 85st Annual Meeting, Philadelphia, Pennsylvania.
41. Mulcahy L, Sanchez V, Barker A, **Nilni E**. (2003) The Carboxy terminal disulfide bond of Pro Thyrotropin Releasing Hormone (proTRH) acts a sorting signal. 43rd Annual Meeting The American Society for Cell Biology. San Francisco, California, USA. December 13-17.
- 42 Mulcahy L.R., Sanchez V.C., Barker A., and **Nilni E.A.** (2004) The carboxy-terminal disulfide bond of proThyrotropin Releasing Hormone (proTRH) Acts as a Potential Sorting Signal. *FASEB J* Volume 18, Number 8, page C234. May 14. Poster presented at the 2004 ASBMB Annual meeting.

- 43 Mulcahy L.R., Sanchez V.C., Barker A., and **Nillni E.A.** (2004) ProTRH-derived peptides are increasingly secreted via the constitutive pathway when intramolecular disulfide bonding is prevented structurally or chemically. Poster presented at the Proprotein Processing, Trafficking, and Secretion Gordon Research Conference.
- 44 Mulcahy L.R. and **Nillni E.A.** (2004) PC1 activity enhances post-Golgi trafficking of proTRH-derived peptides. Poster presented at the Proprotein Processing, Trafficking, and Secretion Gordon Research Conference.
- 45 Mulcahy L.R. and **Nillni E.A.** (2004) Prohormone Convertase 1 activity enhances post-golgi trafficking of proThyrotropin releasing hormone-derived peptides. Poster presented at the 44<sup>th</sup> meeting of the American Society for Cell Biology.
- 46 Stuart R, Zhu X, Steiner DF, and **Nillni EA.** (2004) Biosynthesis of proTRH-derived peptides in prohormone convertase 1 and 2 null mice. The Endocrine Society's 86 Annual Meeting, New Orleans.
47. Perello M, Stuart R, and Nillni EA. (2005). The role of leptin in the stimulation of the proTRH neurons through the a direct and indirect pathways. The Endocrine Society's 87 Annual Meeting, San Diego.
48. Guo L, Nillni EA and Bjorbaek C. (2005). Leptin receptors on POMC neurons are required for N-acetylation of hypothalamic alpha-melanocyte-stimulating-hormone by leptin. The Endocrine Society's 87 Annual Meeting, San Diego.
49. Vaslet C, Perello M, Stuart R and Nillni EA. (2005). Norepinephrine (NE) Regulates the Expression of ProThyrotropin Releasing Hormone (proTRH) and the Prohormone Convertases (PCs) 1 and 2 Resulting in Changes in ProTRH Processing and Differential Rate of Secretion for ProTRH-Derived Peptides. The Endocrine Society's 87 Annual Meeting, San Diego.
50. D.S.Bousquet+, B.A.Eipper+, E.A.Nillni#, T.A.Czyzyk\*, J.E.Pintar\*, and R.E.Mains. 2006. Production of Thyrotropin Releasing Hormone Is Sensitive to Limitations in Peptide Amidation. The Endocrine Society's 88 Annual Meeting, Boston, MA.
51. Danielle S. Bousquet, Betty A. Eipper, Xin Ming Ma, Eduardo A. Nillni, and Richard E. Mains. 2006. Genetic Reduction in Peptide Amidation Results in Functional Deficits in Mice. Gordon Research Conference on Preproprotein Processing, Trafficking and Secretion. July 2006.
52. Mario Perello, Alison Barker and Eduardo A. Nillni. 2006. ProThyrotropin Releasing Hormone(proTRH)-Derived Peptides are Differentially Sorted to Secretory Granules of the Regulated Secretory Pathway. Gordon Research Conference on Preproprotein Processing, Trafficking and Secretion. July 2006.
- 53 Mario Perello, Ronald C. Stuart, and Eduardo A. Nillni. 2006. The Role of Leptin in the Stimulation of ProTRH Neurons in the Hypothalamic Paraventricular Nucleus of the Hypothalamus Through Direct and Indirect Pathways.
54. Mario Perello, Ronald C. Stuart, and Eduardo A. Nillni. 2006. The Role of Leptin in the Stimulation of ProTRH Neurons in the Hypothalamic Paraventricular Nucleus of the Hypothalamus Through Direct and Indirect Pathways. Keystone Symposia, Keystone, Colorado.

55. Mario Perello, Ronald C. Stuart and Eduardo A. Nillni. 2006. Fasting Regulates the Biosynthesis of  $\alpha$ -MSH and ACTH in the Arcuate Nucleus and in the Nucleus of the Solitary Tract. Keystone Symposia, Keystone, Colorado.
56. Mario Perello, Isin Çakir, Ronald Stuart and Eduardo A. Nillni. 2007. Leptin directly activates Pro Thyrotropin Releasing Hormone (ProTRH) neurons in the hypothalamic paraventricular nucleus (PVN) in a rat model of Diet-Induced Obesity (DIO): a potential pathway to increase the energy expenditure. Keystone Symposia, Banff, Canada.
57. Mario Perello, Isin Çakir, Maria A. Romero-Pico, Ronald Stuart and Eduardo A. Nillni. 2007. Obese rats develop hyperthyroidism due to the direct signaling of leptin on the hypophysiotropic Thyrotropin Releasing Hormone (TRH) neurons. Endocrine Society's 89 Annual Meeting, San Francisco.
58. Amparo Romero\*, Işin Çakır\*, Ron Stuart and Eduardo A. Nillni. An N-Terminal Prodomain Governs the Folding and Trafficking of proTRH to the Trans Golgi Network. 2007. Endocrine Society's 89 Annual Meeting, San Francisco.
59. D.S.Bousquet, B.A.Eipper, E.A.Nillni, T.A.Czyzyk, J.E.Pintar and R.E.Mains. 2007. Thyroid Function and Thermogenesis are Sensitive to Reductions in Peptidylglycine  $\alpha$ -Amidating Monooxygenase. Society for Neuroscience Abstract, San Diego November 2007.
60. Danielle B. Moore, Betty A. Eipper, Eduardo A. Nillni, and Richard E. Mains. 2008. Haploinsufficiency of Peptidylglycine  $\alpha$ -Amidating Monooxygenase (PAM) Results in Physiological Deficits. Gordon Research Conference on Preproprotein Processing, Trafficking, and Secretion July 2008.
61. Mario Perello, Isin Çakir, Amparo Romero, Ronald C. Stuart, Franck Chiappini, Anthony N. Hollenberg, and Eduardo A. Nillni. Hypothalamic neuropeptides controlling energy balance. Summer Neuropeptide Conference. October 2008, Tel Aviv, Israel.
62. Omar Lansari and Eduardo A. Nillni. Neuropeptide Y (NPY) downregulates the Prohormone Convertase 2 (PC2) through Early Growth Response factor (Egr-1). 2009. Endocrine Society's 90 Annual Meeting, Washington DC.
63. N E Cyr, M Perello, I Çakir, F Chiappini, AN Hollenberg, EA Nillni. Physiological response of the thyroid axis in diet-induced obesity. 2010. Endocrine Society's 91 Annual Meeting, San Diego, CA.
64. Nicole Cyr, Ross Beckman, Ronald C. Stuart, and Eduardo A. Nillni. Hypothalamic Sirt1 regulates prohormone convertase 2 in a nutrient dependent manner. 2011. Endocrine Society's 92 Annual Meeting, Boston, MA.
65. Nicole Cyr, Mathew Sochat, Mario Perello, Ronald Stuart, Eduardo Nillni. Neuronal and mechanistic pathways controlled by neuropeptide Y (NPY) on the thyrotropin releasing hormone (TRH) neuron. 2012. Endocrine Society's 93 Annual Meeting, Houston, TX.



66. Jennifer Steger, Nicole Cyr, Ronald C. Stuart, and Eduardo A. Nillni. Inhibition of Hypothalamic Sirt1 in Diet-Induced Obese Rats Significantly Increases Energy Expenditure Through FoxO1 Acetylation and Akt Signaling. 2013. Endocrine Society's 94 Annual Meeting. San Francisco.
67. Anika M. Toorie, Nicole E. Cyr, Ross Beckman, Ronald C. Stuart, and Eduardo A. Nillni. Hypothalamic Sirt1 regulates the Hypothalamic-pituitary-adrenal Axis. 2013. Endocrine Society's 94 Annual Meeting. San Francisco. Recipient of the presidential award.
68. Nicole E. Cyr, Isin Çakir, Mario Perello<sup>1</sup>, Bogdan Patedakis Litvinov, Amparo Romero, Ronald C. Stuart, and Eduardo A. Nillni. Obesity Induces Hypothalamic Endoplasmic Reticulum Stress and Impairs Proopiomelanocortin (POMC) Post-translational Processing. 2013. Endocrine Society's 94 Annual Meeting. San Francisco. Nominated for the Presidential award
69. Anika Toorie and Eduardo Nillni. Neuronal Sirt1 regulates the adrenal axis. 2014. Endocrine Society's 95 Annual Meeting. Chicago.
70. Nicole E. Cyr, Anika Toorie. Sirtuin 1 Regulates Corticotropin-Releasing Hormone (CRH) in the Pvn of Diet-Induced Obese Rats Via Post-Translational Processing of Pro-CRH. Endocrine Society's Annual Meeting. Boston.

#### **SELECTED INVITED PRESENTATIONS**

- 1 ***Gordon Research Conferences.*** August 1994. **Nillni EA**, Friedman TC, Birch NP, Jackson IMD and Loh YP. ProTRH processing by a recombinant PC1 enzyme and secretory vesicles membranes. Conference on: Hormonal and Neural Peptide Biosynthesis. Plymouth, NH.
- 2 ***Gordon Research Conferences.*** August 1995. **Nillni EA**, P Verdier and Huang SH. Glucocorticoid hormones modulate cell differentiation, peptide distribution and post-translational processing of the mammalian TRH prohormone. Conference on: Hormone action. Meriden, NH.
- 3 ***Gordon Research Conferences.*** August 1996. **Nillni EA**. The role of prohormone convertases in proTRH processing. Conference on: Hormonal and Neural Peptide Biosynthesis. New Hampton, NH.
- 4 ***Keystone Symposia on Molecular & Cellular Biology.*** March 1997. **Nillni EA**. Neuroendocrine regulation of proTRH biosynthesis. Conference on: Processing of peptide, Neurotransmitters, Growth factors and Viral proteins, Taos, NM.
- 5 ***Gordon Research Conferences.*** July 1997. Huang SS, Bruhn TO, Vaslet C and **Nillni EA**. Glucocorticoids in proTRH biosynthesis and processing. Conference on: Hormone action. Meriden, NH.
- 6 ***Gordon Research Conferences.*** August 1998. Bartnick A, Pescovitz OH and **Nillni EA**. Identification and processing of progrowth hormone releasing hormone (proGHRH) in primary cultures of hypothalamic neurons. Hormonal and Neural Peptide Biosynthesis. New England College, Henniker, NH.
- 7 ***Gordon Research Conferences.*** August 2000. Shukla I, Lee E and **Nillni EA**. The prohormone convertases 1 (PC1) and 2 (PC2) are potential candidates involved in the

processing of pro Growth Hormone-Releasing hormone (proGHRH). Hormonal and Neural Peptide Biosynthesis. New England College, Henniker, NH.

8 **Gordon Research Conferences.** August 2000. Weinberg A, Levy CC, Vaslet C and Nillni EA. The RGD (amino acids 62-64) motif in the proThyrotropin Releasing Hormone (proTRH) sequence is essential for its targeting to the regulated secretory pathway. Hormonal and Neural Peptide Biosynthesis. New England College, Henniker, NH.

9 **Gordon Research Conferences.** August 2002. Mulcahy LR, Levy C, Weinberg A, and Nillni EA. Sorting of proThyrotropin Releasing Hormone (proTRH) to the regulated secretory pathway may involve an initial cleavage by PC1 at the trans-Golgi level followed by the involvement of two structural domains, RGD and a potential disulfide loop located at the N- and C-terminal of the processed fragments respectively. Hormonal and Neural Peptide Biosynthesis. New England College, Henniker, NH.

10 **Gordon Research Conferences.** August 2002. Vaslet C, Jurofcik M, Seidah NG, Lee A and Nillni EA. Stepwise Posttranslational Processing of ProGrowth Hormone Releasing Hormone Polypeptide by Furin and PC1. Hormonal and Neural Peptide Biosynthesis. New England College, Henniker, NH.

11 **Gordon Research Conferences.** August 2002. Nillni EA, Münzberg H, Friedman TC and Bjørnbæk C. Regulation of Hypothalamic Prohormone Convertase (PC1 and PC2) Expression by Leptin. Hormonal and Neural Peptide Biosynthesis. New England College, Henniker, NH.

12 **Gordon Research Conferences.** August 2002. Nillni EA, Xie W, Mulcahy L, Sanchez VC, and Wetsel WC. 2002. Deficiencies in proTRH processing and abnormal responses to cold exposure in Cpe<sup>fat</sup> mice. Hormonal and Neural Peptide Biosynthesis. New England College, Henniker, NH.

13 **Endocrine Grand Rounds, Indiana University Invited Speaker.** Title: Processing of pro-growth hormone releasing hormone in neuronal cells. March 1999.

14 **Endocrine Grand Rounds. Tufts-New England Medical Center. Invited Speaker:** Title: The role of leptin on ProTRH biosynthesis and secretion. September 1999.

15 **Endocrine Grand Rounds. Beth Israel-Deaconess Hospital and Harvard Medical School. Invited Speaker.** Title: The biology of proThyrotropin releasing hormone. November 2001.

16 **Tufts University Medical School. Invited Speaker:** Department of Pharmacology seminar series. Title: Processing of proTRH and new biological products. April 2001.

17 **Liver Center Seminars. Rhode Island Hospital. Invited Speaker:** Title: The thyroid axis in thermoregulation. October 2001.

18 **Millennium Pharmaceuticals, Cambridge, MA. Invited Speaker:** Title: Letin action on TRH neurons. June 2001.

19 **Rhode Island Hospital. Basic Research Seminar Series. Invited Speaker:** ProTRH processing and trafficking. April 2001.

- 20 **Liver Center Seminars. Rhode Island Hospital. Invited Speaker:** Title: The CPEfat mouse, a model of cold stress. May 2002.
- 21 **University of Massachusetts, Amherst. Invited Speaker:** Molecular and Cellular Biology Department Seminar Series. Title: Obesity and ProTRH regulation. November 2002.
- 22 **Oregon Health & Science University Seminar Series. Invited Speaker:** Title: The role of the thyroid axis in energy balance: proTRH in obesity and thermal regulation. February 2003.
- 23 **University of South Florida Invited Speaker:** Title: Regulation of the Hypothalamic Prohormone Convertases 1 and 2 Expression by Fasting and Leptin. March 2003.
- 24 **Yale University. Invited Speaker.** Title: The CPEfat mouse, a model of cold stress. March 2003.
- 25 **Gordon Research Conference. Invited speaker:** Title: ProThyrotropin Releasing Hormone (proTRH) processing and trafficking. July 2004.
- 26 **Pediatric research colloquium, Women and Infants Hospital, RI. Invited Speaker:** Title: Hypothalamic peptides controlling energy expenditure. March 25, 2005.
- 28 **Chair of the session on Central Nervous System Pathways Controlling Nutrient Sensing.** 2005. The Endocrine Society's 87st Annual Meeting, San Diego, CA.
- 29 **Laboratories for Molecular Medicine Center for Genomics and Proteomics Seminar Series,** Brown University. October 2005.
30. **University of Michigan for the seminar series on Endocrinology and Metabolism.** Title: the role of leptin in the regulation of thyrotropin releasing hormone. October 2006.
31. **The ground round seminars in Endocrinology at Columbia University.** Title: role of the melanocorting system in energy balance. November 2007.
32. Invited speaker to one of the main symposia at the **Annual Meeting of the American Thyroid Association.** Title: Diet-induced obesity and the thyroid axis. September 2007. New York, NY.
33. Invited speaker at University of Pennsylvania. Title: the thyroid axis and obesity. September 2009.
34. Invited speaker at University of Toledo. Title: The role of the prohoemone convertase two in energy balance. October 2009.
35. Special guest to the seminar series at Yale University. Title: Endoplasmic reticulum stress and POMC processing. April 2010.
36. Invited Speaker Ground round seminars, Columbia University. Endoplasmic reticulum stress, obesity, and POMC processing. April 2011.
37. Invited Speaker Joslin Diabetes Center, Harvard Medical School, Boston. Title: Endoplasmic reticulum stress and obesity and leptin resistance. November 2012.

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38. Invited Speaker. Keystone Symposia: Neuronal Control of Appetite, Metabolism and Weight. March 17-22 Banff, Canada. March 2013.

39. Invite speaker to Michigan State University. August 2014

40. Invited Speaker, Albert Einstein School of Medicine. November 2014

## **INTERNATIONAL INVITATIONS**

**Keystone Symposia. Invited Speaker:** Leptin stimulates the expression and biosynthesis of prohormone convertases 1 and 2 (PC1 and PC2) in hypothalamic neurons. 2001. Taos, NM.

**International Peptide Conference. Invited Speaker:** Title: The biology of prothyrotropin releasing hormone (ProTRH), a multifunctional protein. July 2004.

**13<sup>th</sup> International Thyroid Congress. Invited Speaker:** Title: Peptide hormones controlling hypothalamic Prothyrotropin Releasing Hormone (proTRH) pathways of secretion in energy balance regulation. 2005. Buenos Aires, Argentina, October 30<sup>th</sup> – November 4<sup>th</sup>.

**Invited Lecturer to the National Academy of science of Argentina.** Title: ProTRH biology and its relation to energy expenditure. March 25, 2006.

**Invited speaker at the Institute of Metabolic Science, University of Cambridge, UK.** The External Research Seminar Series. Title: energy Balance and the thyroid axis. March 2008.

**Invited speaker at the INTERNATIONAL SYMPOSIUM ON SIGNAL TRANSDUCTION IN HEALTH AND DISEASE (STADY V).** Title: Neuropeptides controlling energy balance. October 2008. Tel Aviv, Israel.

**Invited speaker at the Institute of Endocrinology Metabolism and Hypertension,** Title: The thyroid axis and TRH regulation in obesity. December 2011. Sourasky Medical Center, Tel Aviv University, Tel Aviv, Israel.

**Invited speaker at the Diabetes Center of the Hebrew University, Hadassah Medical School. Israel.** Title: Endoplasmic reticulum stress and obesity and leptin resistance. December 2011. Hadassah Medical School, Jerusalem, Israel.

**Invited speaker at the Keystone Symposia in obesity.** March 2013, Banff, Canada. Changes in brain chemistry sustain obesity

## **GRANTS**

1. 1983-1985            *NIH RO1 AI20263* co-PI: E.A. Nillni "Synthesis and membrane insertion of plasmodial proteins". Total cost: \$1.200,000
2. 1986                 *Charlton Fund* : PI: E.A. Nillni. "Export of parasites-synthesized proteins through the vacuole membrane of *Plasmodium knowlesi*". Total cost: \$20,000

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3. 1989-1991 *NIH DK34540*: PI E.A. Nillni. "Secretion of TRH and other neural peptides". Total cost: \$800,000
4. 1991- 1992 *RI Foundation* PI: E.A. Nillni. "Determination of the intracellular ProTRH processing in the transfected AtT20 cell line". Total cost: \$5,000
5. 1995 - 1998 *National Science Foundation IBN:94170* PI: EA Nillni. "Processing and targeting of TRH prohormone" Total cost: \$700,000
6. 1995 - 1997 *National Science Foundation REUs* . PI: EA Nillni. Supplement IBN-94170. Total cost: \$20,000
7. 1997 - 2002 *NIH1RO1DA10521-01A1* Subcontract: EA Nillni "Role of proTRH-derived peptides in the periaqueductal gray during opiate withdrawal". Total cost: \$80,000
8. 1998 - 2001 *National Science Foundation IBN: 9810349*. PI: EA Nillni. **Competitive Renewal**. "Physiological Regulation of proThyrotropin Releasing Hormone Biosynthesis and Processing". Total cost: \$730,000
9. 1999 - 2000 *National Science Foundation REUs* . PI: EA Nillni. Supplement IBN: 9810349. Total cost: \$35,000
10. 1997 - 2003 *NIH 1RO1 DA 10762-01* Sub-contract: EA Nillni. "The role of preproTRH-derived peptides in cocaine action". Total cost: \$75,000
11. 2000 - 2004 *NIH 1RO1 58148-01* PI: EA Nillni. "ProTRH gene transcription and biosynthesis by leptin". Total cost: \$1,700,000
12. 2002 - 2007 *NIH 1RO1*. CoPI, Sub-contract: EA Nillni. "Regulation of hypothalamic POMC by leptin". Total cost: \$430,000
13. 2003 - 2007 *NIH RO1 NS045231-1* PI: EA Nillni  
"ProTRH sorting to the regulated secretory pathway" Total cost: \$1,340,000
14. 2003 - 2006 *NIDA 1F31 DA016875-01* EA Nillni: Mentor for Lawrence Mulcahy (Brown Graduate Student) pre-doctoral fellowship award. "Sorting of proTRH peptides"
15. 2004 - 2007 *NINDS RO1 NS045231 supplement* PI: EA Nillni  
This is a two-year supplement award for a total cost of \$90,000.00
16. 2005 - 2009 *NIH 2 RO1 58148-05* PI: EA Nillni. **Competitive Renewal**  
"ProTRH gene transcription and biosynthesis by leptin". Total cost: \$1,450,000
17. 2009 - 2010 *NIH 2R56DK058148-09* PI: EA Nillni  
"ProTRH gene transcription and biosynthesis by leptin"  
Total cost: \$180,000
18. 2010 - 2015 *NIH R01 DK085916-01* PI: EA Nillni

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"Hypothalamic SIRT1 and Energy Balance. Goal of this project is to study the role of SIRT1 in energy balance and appetite.

Total cost: \$1,700,000

19. 2012 - 2015 NIH 3R01 DK085916-03S1 PI: EA Nillni  
Hypothalamic SIRT1 and Energy Balance. Goal of this project is to determine the role of hypothalamic Sirt1 in the diet-induced obesity (DIO) condition. Total cost: \$82,528
20. 2015 - 2018 NIH R01HD081792-01A1 PI: J. Hill (University of Toledo, HO)  
Defective melanocortin signaling underlying T2D-associated erectile dysfunction
21. 2016 - 2021 NIH/ NICHD 1R01HD086487-01 PI: A. Tyrka,  
Risk Profiles and Mechanisms of Disease in Maltreated Children

### **HOSPITAL/UNIVERSITY TEACHING ROLES**

- 1976 - 1977 **Teacher. General Biology course.** Preparatory course for new applicants. University of Buenos Aires, Argentina.
- 1978 - 1981 **Teaching Assistant. Undergraduate course.** The Hebrew University of Jerusalem, Israel. Course title: Parasitic protozoa, their biochemistry and immunology.
- 1994 **Lecturer. Senior undergraduate course. BioMed 163/N.** Department of Neurosciences. Brown University. Course title: Mammalian Neuroendocrine Physiology, an advanced course in Neurosciences.
- 1989 - present **Director of independent study students as part of the requirements for graduation with honors. BioMed 195/196.** Every year since 1990, I have trained two or three undergraduate students in basic science research through the independent study course, 195/196. This course is given for two semesters plus summer activities that are generally offered through the UTRA or PLME fellowship program. This fellowship program involves bench research work during the summer for 10 weeks (40 hours a week). This independent study course done in my laboratory, under my supervision, is part of the fulfillment towards the requirements for the degree of Bachelor in Science with Honors in Biology. From 1990 to 2014 I have trained more than 40 students.
- 1995 - 2007 **Director, Graduate BI 228 course.** Department of Molecular Biology, Cell Biology & Biochemistry. Brown University. Course title: "Protein Processing and Intracellular Trafficking". In 1995 I created this new graduate course. This course is unique in its format, and provides information in an area of cell biology never covered before in our school. Even though this course was originally designed for graduate students in the cell biology, neuroscience and MD/PhD. program many undergraduates were allowed to take advantage of this class to complete their program. The aim of this course was to expose graduate students to the emerging new concepts on protein trafficking, their sorting and processing. This course was given every year with a participation of six to 10 students.

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- 1996 - 1998      **Lecturer. Science Course for Clinical Fellows in Endocrinology.** This course was part of the training of fellows in Endocrinology. Department of Medicine, Division of Endocrinology. Topic: “*Cell function and maturation of prohormones.*”
- 1996 - present      **Director of student’s thesis as part of the requirements for graduation with a Ph.D. or a Masters degree. BioMed 295/296.** Department of Molecular Biology, Cell Biology & Biochemistry. Brown University. After completion of their required courses, students spend from 2 to 4 years working on their thesis under my supervision. Since 1996 I have trained more than 11 students.
- 1998 - 1999      **Co-Director, Graduate BI 293.2 course.** Department of Molecular Biology, Cell Biology & Biochemistry. Brown University Course title: “*Topics in Cell Biology: Signal Transduction and Cell Cycle Control.*”
- 2003      **Lecturer Undergraduate course Bio30. Endocrinology.** Lectures on physiology of the neuroendocrine function, hormone biosynthesis and action.
- 2007      **Lecturer Undergraduate course Bio105.** Course title: “*Cellular Biology of the Eukaryotic Cell.*”