

Curriculum Vitae

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Education

- ◆ National Autonomous University of Mexico (UNAM),
School of Medicine, Mexico City, Mexico. M.D. 1980
- ◆ National Autonomous University of Mexico (UNAM),
School of Chemistry, Mexico City, Mexico
M.S. (Biochemistry) 1981

Teaching and Research

- ◆ Teaching Assistant, Department of Histology, UNAM
School of Medicine 1975-1976
- ◆ Teaching Assistant, Department of Biochemistry, UNAM
School of Medicine 1976-1980
- ◆ Research Fellow, Centro de Investigación en Fisiología
Celular, UNAM 1978-1981
- ◆ Lecturer, Department of Biochemistry, UNAM
School of Medicine 1980-1981
- ◆ Lecturer, Department of Physical Anthropology,
National School of Anthropology and History 1981

- ◆ Postdoctoral Fellow, Department of Biochemistry,
Roche Institute of Molecular Biology. Nutley, New Jersey 1981-1983
- ◆ Research Fellow, Department of Biochemistry,
Roche Institute of Molecular Biology 1983-1986
- ◆ Assistant Professor, Department of Molecular
Pharmacology, Albert Einstein College of Medicine 1987-1993
- ◆ Associate Professor, Department of Molecular
Pharmacology, Albert Einstein College of Medicine 1993-1998
- ◆ Professor, Department of Molecular
Pharmacology, Albert Einstein College of Medicine 1998-2011
- ◆ Professor, Department of Biochemistry
Albert Einstein College of Medicine 2008-2011
- ◆ Professor, Department of Cellular and Molecular Physiology,
Yale School of Medicine 2011-

Honors and Awards

- ◆ Fogarty International Fellowship, NIH 1981
- ◆ Gabino Barreda Award, UNAM 1984
- ◆ Pew Award in the Biomedical Sciences 1989
- ◆ Arnold and Mabel Beckman Foundation Award 1991
- ◆ Melini Award for Biomedical Excellence 1996
- ◆ Hirschl/Weill-Caulier Career Scientist Award 1996
- ◆ Maria Sibylla Merian Award (Essen, Germany) 1998
- ◆ Merck Prize, European Thyroid Association (Warsaw, Poland) 2001
- ◆ Chair of the Gordon Research Conference on "Membrane Transporters:
Physiological and Pathological Implications" 2002
- ◆ Rose Pitt-Rivers Lecturer at the British Endocrine Society Meeting
(Glasgow, Scotland) 2003
- ◆ Adelina Otero Warren Award (NY) 2005
- ◆ President of the Society of Latin American Biophysicists (SOBLA) 2006
- ◆ Coleman Fellow in Life Sciences, Ben-Gurion University, (Beer-Sheva,
Israel) 2008
- ◆ External opponent, PhD thesis defense, Göteborg University, Sweden 2008
- ◆

- ◆ Marshall S. Horwitz Faculty Award for Research Excellence (New York) 2009
- ◆ Elected Vice-chair of the 2011 Gordon Research Conference on "Mechanisms of Membrane Transport" 2009
- ◆ Peter F. Curran Lecture. Yale School of Medicine (New Haven) 2009
- ◆ Milton P. Gordon Annual Lecture. University of Washington (Seattle) 2010
- ◆ Light of Life Award (New York) 2011
- ◆ Master of Arts (Honorary), Yale University 2011
- ◆ Plenary Lecture, American Thyroid Association Meeting (Canada) 2012
- ◆ Chair of the 2013 Gordon Research Conference on "Mechanisms of Membrane Transport" (MA) 2013
- ◆ Elected to the National Academy of Sciences 2015
- ◆ The American Thyroid Association Sidney H. Ingbar Distinguished Lectureship Award 2016

Professional Activities

Reviewer (scientific proposals)

- ◆ Ad Hoc Reviewer, NIH CBY-2 Study Section 1993
- ◆ Ad Hoc Reviewer, NIH Endocrinology Study Section 1997
- ◆ Arnold and Mabel Beckman Foundation 1997-98, 2002-03
- ◆ Permanent Member, NIH Endocrinology Study Section 1997-2001
- ◆ Peer Review Meeting on Perchlorate Environmental Contamination: Toxicological Review and Risk Characterization (Sacramento, CA) 2002
- ◆ Ad Hoc Reviewer, Recombinant DNA Advisory Committee (RAC) NIH 2002
- ◆ Susan G. Komen Breast Cancer Foundation 2003
- ◆ Mary Kay Ash Foundation 2003
- ◆ American Thyroid Association (ATA) 2003-2006
- ◆ Binational Israel-US Science Foundation (BSF) 2004
- ◆ Associazione Italiana per la Ricerca sul Cancro 2004
- ◆ Drug Discovery NIH NCI PO1 Applications 2006
- ◆ Ad Hoc Reviewer, NIH BMM Study Section 2006, 2008

- ◆ NIH Cellular Biology Special Emphasis Panel 2006
- ◆ Member of the External Review Committee of the Fundación Instituto Leloir, Buenos Aires, Argentina 2007
- ◆ Ad Hoc Reviewer, NIH BMM Study Section 2008
- ◆ Latin American Pew Fellows Selection Committee 2011-
- ◆ EPA's Science Advisory Board 2012
- ◆ British Breast Cancer Organization 2015
- ◆ Committee to determine a maximum contaminant level goal (MCLG) for perchlorate in drinking water 2016-

Editorial Board

- ◆ Journal of Bioenergetics and Biomembranes 1999-
- ◆ Journal of Biological Chemistry 2005-2010
- ◆ Endocrinology 2009-

Reviewer

- ◆ American Journal of Physiology
- ◆ Biochemistry
- ◆ Breast Cancer Research and Treatment
- ◆ Brain Research
- ◆ Cancer Research
- ◆ Clinical Endocrinology
- ◆ EMBO Journal
- ◆ Endocrinology
- ◆ Endocrine-Related Cancer
- ◆ EMBO Journal
- ◆ Environmental Health Perspectives
- ◆ Journal of Biological Chemistry
- ◆ Journal of Cell Physiology
- ◆ Journal of Clinical Endocrinology and Metabolism
- ◆ Journal of Clinical Investigation
- ◆ Journal of Molecular Endocrinology
- ◆ Metabolism
- ◆ Molecular and Cellular Biology
- ◆ Molecular Endocrinology
- ◆ Nature Genetics
- ◆ PLoS One

- ◆ Proceedings of the National Academy of Sciences
- ◆ Science
- ◆ Thyroid

Consultant

- ◆ B.R.A.H.M.S Diagnostica GmbH, Berlin, Germany 1996-2002

International teaching

- ◆ ICRO-UNESCO WHO Training course on biological membranes. Mexico City, Mexico 1986
- ◆ Protein structure and function. Cartagena de las Indias, Colombia 1997
- ◆ International course on structure/function of proteins. Bogota, Colombia 2000
- ◆ Third intensive course of Diabetes, Endocrinology and Metabolic Diseases for Latin American physicians. Miami, Florida 2000
- ◆ International School of Biophysics A. Borsellino: Workshop on channels and transporters. Erice, Italy. 2008
- ◆ Tenth intensive course of Diabetes, Endocrinology and Metabolic Diseases for Latin American physicians Miami, Florida 2008
- ◆ International Course on Physiology of Membrane Ion Transport, Montevideo, Uruguay. 2009

Patents

- ◆ U.S. Patent No 7,320,863 entitled "Thyroid sodium/iodide symporter and nucleic acid encoding same." Issued Jan 22, 2008.
- ◆ U.S. Patent No 7,303,740 entitled. "Methods for the diagnosis and treatment of breast cancer." Issued Dec 4, 2007
- ◆ (Pending) European patent application based on the above (AR&E File No. 96700/483).
- ◆ (Pending) Japanese patent application (AR&E File No. 96700/482).
- ◆ U.S. Patent Application entitled "Mutant NIS proteins and uses thereof". Filed April 22, 2010 (AR&E File No. 96700/1603).

Professional Society Memberships

- ◆ Biophysical Society
- ◆ The American Thyroid Association (ATA)
- ◆ Latin American Biophysical Society (SOBLA)
- ◆ Latin American Thyroid Association (LATS)
- ◆ The Endocrine Society

Publications

- ◆ Chávez, E., Chávez, R. and Carrasco, N. (1978) "The effect of agaric acid on citrate transport in rat liver mitochondria." *Life Sciences* **23**, 1423-1430.
- ◆ Peña, A., Carrasco, N. and Mora, M.A. (1979) "Uptake and effect of several cationic dyes on yeast." *J. Memb. Biol.* **47**, 261-284.
- ◆ Peña, A., Clemente, M., Borbolla, M, Uribe, S. and Carrasco, N. (1979) "Interacción del bromuro de etidio con la levadura." *Temas selectos de Fisiología Celular* (Peña A., Drucker, R. and Tapia, R. eds.). UNAM.
- ◆ Peña, A., Clemente, M., Borbolla, M, Uribe, S. and Carrasco, N. (1979) "Interacción del bromuro de etidio con la levadura." *Temas selectos de Fisiología Celular* (Peña A., Drucker, R. and Tapia, R. eds.). UNAM.
- ◆ Peña, A., Clemente, M., Borbolla, M., Carrasco, N. and Uribe, S. (1980) "Multiple Interaction of ethidium bromide with yeast cells." *Arch. Biochem. Biophys.* **201**, 420-428.
- ◆ Brunner, A., Carrasco, N. and Peña, A. (1982) "Correlations between resistance to ethidium bromide and changes in monovalent cation uptake in yeast." *Arch. Biochem. Biophys.* **217**, 30-36.
- ◆ Carrasco, N., Tahara, M.S., Patel, L., Goldkorn, T. and Kaback, H.R. (1982) "Preparation, characterization, and properties of monoclonal antibodies against the *lac* carrier protein from *Escherichia coli*." *Proc. Natl. Acad. Sci. USA* **79**, 6894-6898.
- ◆ Carrasco, N., Viitanen, P., Herzlinger, D. and Kaback, H.R. (1984) "Monoclonal antibodies against the *lac* carrier protein from *Escherichia coli* I. Functional Studies." *Biochemistry* **23**, 3681-3687.
- ◆ Herzlinger, D., Viitanen, P., Carrasco, N. and Kaback, H.R. (1984) "Monoclonal antibodies against the *lac* carrier protein from *Escherichia coli* II. Binding

studies with membrane vesicles and proteoliposomes reconstituted with purified *lac* carrier protein." *Biochemistry* **23**, 3688-3693.

- ◆ Carrasco, N., Herzlinger, D., Mitchell, R., DeChiara, S., Danho, W., Gabriel, T.F. and Kaback, H.R. (1984). "Intramolecular dislocation of the C-terminus of the *lac* carrier protein in reconstituted proteoliposomes" *Proc. Natl. Acad. Sci. USA* **81**, 4672-4676.
- ◆ Herzlinger, D., Carrasco, N. and Kaback, H.R. (1984). "Functional and immunochemical characterization of a mutant energy-uncoupled for lactose transport" *Biochemistry* **24**, 221-229.
- ◆ Costello, J., Foster, D., Viitanen, P., Carrasco, N. and Kaback, H.R. (1984) "Morphology of the *lac* carrier proteoliposomes" *J. Biol. Chem.* **259**, 15579-15586.
- ◆ Kaback, H.R., Carrasco, N., Foster, D., García, M.L., Goldkorn, T., Patel, L. and Viitanen, P. (1984) "The *lac* carrier protein from *Escherichia coli*." In: *Electrogenic transport: Fundamental Principles and Physiological Implications.* (Blaustein, M. and Lieberman, M., eds.), *Raven Press, NY* 323-330.
- ◆ Carrasco, N., Herzlinger, D., DeChiara, S., Mitchell, R., Danho, W. and Kaback, H.R. (1985) "Topology of the *lac* carrier protein in the membrane of *Escherichia coli*." *Ann. NY Acad. Sci.* **456**, 305-306.
- ◆ Hamamoto, T., Carrasco, N., Matsushita, K., Kaback, H.R. and Montal, M. (1985). "Direct movement of the electrogenic activity of cytochrome *o* oxidase from *Escherichia coli* reconstituted in planar lipid bilayers" *Proc. Natl. Acad. Sci. USA* **82**, 2570-2573.
- ◆ Carrasco, N., Antes, L., Poonian, M. and Kaback, H. R. (1986) "*Lac* permease of *Escherichia coli*: His-322 and Glu-325 may be components of a charge-relay system." *Biochemistry* **25**, 4486-4488.
- ◆ Danho, W., Makofske, R., Humiec, F., Gabriel, T. F., Carrasco, N. and Kaback, H.R. (1986) "Use of site-directed polyclonal antibodies as immunotopological probes for the *lac* permease of *Escherichia coli*" *Proc. Amer. Peptide Symp.* p. 59-62.
- ◆ Carrasco, N., Herzlinger, D., Danho, W. and Kaback, H.R. (1986) "Use of monoclonal and site directed polyclonal antibodies as structure/function probes of the *lac* permease" *Methods in Enzymol* Vol. 125 (Fleisher, S. and Packer, L. eds.). *Academic Press New York*, pp. 453-467.

- ◆ Kaback, H.R., Carrasco, N., Lee, J. A., Menick, D. R., Patel, L., Puttner, I. B. and Sarkar, H. K. (1986). "Passage to Permease." In: *Microbial Energy Transduction*, Chapter 24 (Cold Spring Harbor Laboratories, Cold Spring Harbor, NY), pp.
- ◆ Menick, D. R., Carrasco, N., Antes, L., Patel, L. and Kaback, H. R. (1987) "Lac permease of *Escherichia coli*: Arginine-302 as a component of a postulated proton relay." *Biochemistry* **26**, 6638-6642.
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- ◆ Vilijn, F. and Carrasco, N. (1989) "Expression of the thyroid sodium/iodide symporter in *Xenopus laevis* oocytes" *J. Biol. Chem.* **264**, 11901-11903.
- ◆ Lolkema, J.S., Carrasco, N. and Kaback, H.R. (1991) "Kinetic analysis of lactose exchange in proteoliposomes reconstituted with purified lac permease." *Biochemistry*, **30**, 1284-1290.
- ◆ Cohen, D., Piekarz, R.L., Hsu, S.I., DePinho, R.A., Carrasco, N. and Horwitz, S. (1991) "Structural and functional analysis of the mouse mdr 1b gene promoter." *J. Biol. Chem.* **266**, 2239-2244.
- ◆ Kaminsky, S.M., Levy, O., Garry, M.T., and Carrasco N. (1991) "Inhibition of the Na⁺/I⁻ symporter by harmaline and TRP-P2 in thyroid cells and membrane vesicles." *Eur. J. Biochem.* **200**, 203-207.
- ◆ Kaminsky, S.M., Levy, O., Salvador, C., Dai, G. and Carrasco, N. (1993) "The Na⁺/I⁻ symporter of the thyroid gland" In: *Molecular Biology and Function of Carrier Proteins*. Society of General Physiologists Series. Edited by L. Reuss. The Rockefeller University Press, NY, NY. **48**, 251-262.
- ◆ Carrasco, N. (1993) "Iodide transport in the thyroid gland" *Biochim. Biophys. Acta. Reviews on Biomembranes* **1154**, 65-82.
- ◆ Kaminsky, S.M., Levy, O., Salvador, C., Dai, G. and Carrasco, N. (1994) "Na⁺/I⁻ symporter activity is present in membrane vesicles from thyrotropin-deprived non I⁻ transporting cultured thyroid cells." *Proc. Natl. Acad. Sci. USA* **91**, 3789-3793.
- ◆ Lim, J., Xiong, J., Carrasco, N. and Langer, J.A. (1994) "Intrinsic ligand binding properties of the human and bovine alpha interferon receptors." *FEBS Lett.* **350**, 281-286.

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- ◆ Dai, G., Levy, O., Amzel, L.M. and Carrasco, N. (1996) The mediator of thyroidal iodide accumulation: the sodium/iodide symporter. In: *Handbook of Biological Physics, Vol. II, Transport Processes in Eukaryotic and Prokaryotic Organisms* (Konings, W.N., Kaback, H.R. and Lolkema, J.S., eds.) Elsevier, Amsterdam, pp. 343-367.
- ◆ Levy, O., Dai, G., Riedel, C., Amzel, L.M. and Carrasco, N. (1996) Identification and characterization of the thyroid iodide transporter. *Thyroid and Trace Elements, 6th Thyroid Symposium Proceedings*, (Eds. Braverman, L.E., Kohrle, J., Eber, O. and Langsteger, W. CD-ROM) pp. 104-112.
- ◆ Sun, J., Li, J., Carrasco, N. and Kaback, H.R. (1997) "The last two cytoplasmic loops in the lactose permease of *Escherichia coli* comprise a discontinuous epitope for a monoclonal antibody." *Biochemistry* **36**, 274-280.
- ◆ Levy, O., Dai, G., Riedel, C., Ginter, C.S., Paul, E.M., Lebowitz, A.N. and Carrasco, N. (1997) "Characterization of the thyroid Na⁺/I⁻ symporter with an anti-COOH terminus antibody." *Proc. Natl. Acad. Sci. USA* **94**, 5568-5573.
- ◆ Uyttersprot, N., Pelgrims, N., Carrasco, N., Gervy, C., Maenhaut, C., Dumont, J.E. and Miot, F. (1997) "Moderate doses of iodide *in vivo* inhibit cell proliferation and the expression of thyroid peroxidase and the Na⁺/I⁻ symporter mRNAs in dog thyroid." *Mol. Cell. Endocrinol.* **131**, 195-203.
- ◆ Eskandari, S., Loo, D.D.F., Dai, G., Levy, O., Wright, E.W. and Carrasco, N. (1997) "Thyroid Na⁺/I⁻ symporter: mechanism, stoichiometry, and specificity." *J. Biol. Chem.* **272**, 27230-27238.
- ◆ Levy, O. and Carrasco, N. (1997) "Structure and function of the thyroid iodide transporter and its implications for thyroid disease" *Curr. Opin. Endocrin. Diab.* **4**, 364-370.

- ◆ Levy, O. De la Vieja, A. and Carrasco, N. (1998) "The Na⁺/I⁻ symporter (NIS): recent advances" *J. Bioenerg Biomem. Minireview* **30**, 195-206.
- ◆ Carrasco, N. (1998) "Minireview on Na⁺-coupled cotransporters: A brief editorial review" *J. Bioenerg Biomem. Minireview* **30**, 149-150.
- ◆ Levy, O., De La Vieja A., Levy D., Ginter, C.S. and Carrasco, N. (1998) "Identification of a structural requirement for thyroid Na⁺/I⁻ symporter (NIS) function from analysis of a mutation that causes human congenital hypothyroidism" *FEBS letters* **429**, 36-40.
- ◆ Levy, O., De la Vieja, A., Ginter, C.S., Dai, G., Riedel, C. and Carrasco, N. (1998) "N-linked glycosylation of the thyroid Na⁺/I⁻ Symporter (NIS): Implications for its secondary structure model" *J. Biol. Chem.* **273**, 22657-22663.
- ◆ Ohno, M., Zannini, M., Levy, O., Carrasco, N. and Di Lauro, R. (1999) "The paired-domain transcription factor Pax8 binds to the upstream enhancer of the rat thyroid Na⁺/I⁻ symporter gene and participates in both thyroid-specific and cyclic-AMP-dependent transcription" *Mol Cel Biol* **19**, 2051-2060.
- ◆ Eng, P.H.K., Cardona, G.R., Fang, S.-L., Previti, M., Sharon, A., Carrasco, N., Chin, W.W. and Braverman, L.E. (1999) "Escape from the acute Wolff-Chaikoff effect is associated with a decrease in thyroid sodium/iodide symporter (NIS) expression" *Endocrinology (1999)* **140**, 3404-3410.
- ◆ Caturegli, P., Hejazi, M., Suzuki, K., Dohan, O., Carrasco, N., Kohn, L.K. and Rose, N.R. (2000) Hypothyroidism in transgenic mice expressing IFN γ in the thyroid *Proc. Natl. Acad. Sci. USA* **97**, 1719-1724.
- ◆ Carrasco, N. (1999) "Recent findings on the thyroid sodium-iodide symporter (NIS)" *Thyroid today* **22**, 1-11.
- ◆ Deleu, S., Allory, Y., Radulescu, A., Pirson, I., Carrasco, N., Corvilain, B., Salmon, I., Franc, B., Dumont, J.E., Van Sande, J. and Maenhaut, M. (2000) "Characterization of autonomous thyroid adenoma: metabolism, gene expression and pathology" *Thyroid* **10**, 131-140.
- ◆ Carrasco, N (2000) "Thyroid iodide transport: the Na⁺/I⁻ symporter (NIS)" In: Werner & Ingbar's "The Thyroid" eighth ed. Edited by L.E. Braverman and R.D. Utiger. Lippincott Williams & Wilkins, Philadelphia, PA., pp. 52-61.
- ◆ Dohán, O., De la Vieja, A. and Carrasco, N. (2000) "Molecular Study of the Sodium-Iodide Symporter (NIS): a New Field in Thyroidology" *Trend in End & Met* **11**, 99-105.

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- ◆ Tazebay, U.H., Wapnir, I.L, Levy, O., Dohán, O., Zuckier, L.S., Zhao, Q.H., Deng, H.F., Amenta, P.S., Fineberg, S., Pestell, R.G. and Carrasco, N. (2000) "The Na⁺/I⁻ symporter (NIS) is expressed in mammary gland during lactation and in breast cancer" *Nature Medicine* **6**, 871-878 (cover photo);
 - Featured in *News and Views in Nature Medicine* **6**, 859-860
 - Featured in *Nature* (2000) **406**, 688-689.
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- ◆ Zuckier, L.S., Dadachova, E., Dohán, O. and Carrasco, N. (2001) "The endogenous mammary gland Na⁺/I⁻ symporter may mediate effective radioiodide therapy in breast cancer" *J Nucl Med.* **42**, 987.
- ◆ Riedel, C., Dohán, O., De la Vieja, A, Ginter, C.S., and Carrasco, N. (2001) "The journey of the iodide transporter NIS: from its molecular identification to its clinical role in cancer" *Trends Biochem Sci.* **26**, 490-496.
- ◆ Zhang, X., Riedel, C., Carrasco, N. and Arvan, P. (2002) "Polarized trafficking of thyrocyte proteins in MDCK cells" *Mol Cell Endocrinol* **88**, 27-36
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- ◆ De la Vieja, A., Dohán, A., Ginter, C.S., Paroder, V., Reed, M., Riedel, C., and Carrasco, N. (2002) "La saga del transportador de yoduro (NIS): de su identificación molecular a su papel clínico en el cáncer" in *Mensaje Bioquímico*, (Del Arenal IP, Cea A, Vázquez E, Riveros H, eds) *Universidad Nacional Autónoma de Mexico, Mexico DF 04510. Vol XXVI, pp 55-72.*
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- characterization, regulation and medical significance" *Endocrine Reviews* **24**, 48-77. PMID: 12588808.
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 - ◆ Altorjay, A., Dohán, O., Szilágyi, A., Paroder, M., Wapnir, I.L. and Carrasco, N. (2007) "Expression of the Na⁺/I⁻ symporter (NIS) is markedly decreased or absent in gastric cancer and intestinal metaplastic mucosa of Barrett esophagus." *BMC Cancer* **7**, 5-15. PMID: 17214887. PMCID: PMC1794416
 - ◆ De la Vieja, A., Reed, M., Ginter, C.S., and Carrasco, N. (2007) "Amino acid residues in transmembrane segment IX of the Na⁺/I⁻ symporter (NIS) play a role in its Na⁺ dependence and are critical for transport activity" *J Biol Chem* **282**, 25290-25298. Epub 2007 Jul 2. PMID: 17606623
- Dohán, O., Portulano, C., Basquin, C., Reyna-Neyra, A., Amzel, L.M., and Carrasco, N. (2007) "The Na⁺/I⁻ symporter (NIS) mediates electroneutral active transport of the environmental pollutant perchlorate" *Proc Natl Acad Sci USA* Dec 104, 20250-20255. Epub 2007 Dec 11. PMID: 18077370. PMCID: PMC2154417.
- Highlighted in: "*This week in PNAS.*"
 - Evaluated by "*Faculty of 1000.*"
 - Featured in *Science News*, the *Daily Telegraph*, *Science Daily*, and *HealthDay*.
- ◆ Liu YY, Morreau H, Kievit J, Romijn JA, Carrasco N, Smit JW. (2008) "Combined immunostaining with galectin-3, fibronectin-1, CITED-1, Hector Battifora mesothelial-1, cytokeratin-19, peroxisome proliferator-activated receptor- γ , and sodium/iodide symporter antibodies for the differential diagnosis of non-medullary thyroid carcinoma." *Eur J Endocrinol.* **158**, 375-384. PMID: 18299472
 - ◆ Reed-Tsur, M., De la Vieja, A., Ginter, C.S., and Carrasco, N. (2008) "Molecular characterization of V59E NIS, a Na⁺/I⁻ symporter (NIS) mutant that causes congenital I⁻ transport defect (ITD)" *Endocrinology* **149**, 3077-3184. Epub 2008 Mar 13. PMID: 18339708. PMCID: PMC2408800

- ◆ Nicola, J.P., Basquin, C., Portulano, C., Reyna-Neyra, A. Paroder, M., Carrasco, N. (2009) "The Na⁺/I⁻ symporter (NIS) mediates active iodide uptake in the intestine" *Am J Physiol Cell Physiol.* 296, C654-662. Epub 2008 Dec 3. PMID: 19052257. PMCID: PMC2670652
- ◆ Roepke, T.K., King, E.C., Reyna-Neyra, A. Paroder, M., Purtell, K., Koba, W., Fine, E., Lerner, D.J., Carrasco N., and Abbott, G.W. (2009) "*kcne2* deletion uncovers its critical role in thyroid hormone synthesis" *Nature Medicine* **15**, 1186-1194. Epub 2009 Sep 20. PMID: 19767733. PMCID: PMC2790327
- ◆ Riesco-Eizaguirre, G., Rodríguez, I., De la Vieja, A., Costamagna, E., Carrasco, N. Nistal, M., and Santisteban P. (2009) "The BRAF^{V600E} oncogene induces TGF β secretion leading to NIS repression and increased malignancy in thyroid cancer" *Cancer Research* **69**, 8317-8325. Epub 2009 Oct 27. PMID: 19861538
- ◆ Kakizaki, F., Aoki, K., Miyoshi, H., Carrasco, N. Aoki, M. and Taketo, M.M. (2010) "Cdx transcription factors positively regulate expression of solute carrier family 5, member 8 (SLC5A8)" *Gastroenterology* **138**, 627-635. Nov 10. [Epub ahead of print]. PMID: 19900445.
- ◆ Paroder-Belenitsky M, Maestas MJ, Dohán O, Nicola JP, Reyna-Neyra A, Follenzi A, Dadachova E, Eskandari S, Amzel LM, Carrasco N. (2011) "Mechanism of anion selectivity and stoichiometry of the Na⁺/I⁻ symporter (NIS)" *Proc Natl Acad Sci U S A.* **108**, 17933-17938. Epub 2011 Oct 19. PMID: 22011571 PMCID: PMC3207644
 - Evaluated by "Faculty of 1000."
- ◆ Purtell K, Paroder-Belenitsky M, Reyna-Neyra A, Nicola JP, Koba W, Fine E, Carrasco N, and Abbott GW. (2012) "The KCNQ1-KCNE2 K⁺ channel is required for adequate thyroid I⁻ uptake" *FASEB J* 26:3252-3259 May 1. [Epub ahead of print]. PMID: 22549510. PMCID: PMC3405278
- ◆ Carrasco, N. (2012) "Thyroid iodide transport: the Na⁺/I⁻ symporter (NIS)" In: Werner & Ingbar's "The Thyroid" tenth ed. Edited by L.E. Braverman and R.D. Utiger. Lippincott Williams & Wilkins, Philadelphia, PA.
- ◆ Lacoste C, Hervé J, Bou Nader M, Dos Santos A, Moniaux N, Valogne Y, Montjean R, Dorseuil O, Samuel D, Cassio D, Portulano C, Carrasco N, Bréchet C, and Faivre, J (2012) "Iodide transporter NIS regulates cancer cell motility and invasiveness by interacting with the Rho guanine nucleotide exchange factor LARG" *Cancer Res.* **72**, 5505-5515. Sep 7. [Epub ahead of print]. PMID: 22962269 [PubMed - indexed for MEDLINE]

- ◆ Nicola JP, Reyna-Neyra A, Carrasco N., and Masini-Repiso, AM (2012) ""Dietary iodide controls its own absorption through posttranscriptional regulation of the intestinal Na⁺/I⁻ symporter (NIS)" *J. Physiol* **590**, 6013-60. Sep 24. [Epub ahead of print]. PMID: 23006481. PMCID: PMC3530113.
- ◆ Paroder V, Nicola JP, Ginter CS, and Carrasco N. (2013) "The iodide transport defect-causing mutation R124H: a d-amino group at position 124 is critical for maturation and trafficking of the Na⁺/I⁻ symporter (NIS)" *J Cell Sci.* **126**, 3305-3313. May 20 [Epub ahead of print]. PMID: 23690546. PMCID: PMC3730242.
- ◆ Li W, Nicola JP, Amzel LM, and Carrasco N. (2013) "Asn441 plays a key role in folding and function of the Na⁺/I⁻ symporter (NIS)" *.FASEB J.* **27**, 3229-3238. Epub 2013 May 6. PMID: 23650190. PMCID: PMC3714583.
- ◆ Portulano C., Paroder-Belenitsky M., and Carrasco, N. (2014) "The Na⁺/I⁻ symporter (NIS): Mechanism and Medical Impact" *Endocr Rev.* **35**, 106-149 Epub 2013 Dec 4. PMID: 24311738. PMCID: PMC3895864.
- ◆ Nicola, JP., Carrasco, N*. and Amzel, LM* (2014) "Physiological Na⁺ concentrations enhance the I⁻ affinity of the Na⁺/I⁻ symporter (NIS)" *Nature Comm* **3**;5:3948. doi: 10.1038/ncomms4948.PMID: 24888603
 - *co-corresponding authors
 - Highlighted in *Science* (2014), **344**, 1355.
- ◆ Nicola JP, Carrasco N, Masini-Repiso AM. (2015) "Dietary I⁻ absorption: expression and regulation of the Na⁺/I⁻ symporter in the intestine." *Vitam Horm.* 2015;98:1-31. doi: 10.1016/bs.vh.2014.12.002. Epub 2015 Feb 27. PMID: 25817864
- ◆ Arriagada AA, Albornoz E, Opazo MC, Becerra A, Vidal G, Fardella C, Michea L, Carrasco N, Simon F, Elorza AA, Bueno SM, Kalergis AM, Riedel CA. (2015) "Excess iodide induces an acute inhibition of the sodium/iodide symporter in thyroid male rat cells by increasing reactive oxygen species." *Endocrinology.* Apr;156(4):1540-51. doi: 10.1210/en.2014-1371. Epub 2015 Jan 16. PMID: 25594695
- ◆ Ravera, S., Quick, M., Carrasco, N*., and Amzel L.M*. (2015) "Beyond the non-integer Hill coefficient: a novel approach to analyzing binding data applied to Na⁺-driven transporters" *J. Gen. Physiol.* **145**, 555-563. doi: 10.1085/ jgp. 201511365.

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- ◆ Nicola, JP., Reyna-Neyra, A., Saenger, P., Rodriguez-Butirica D.F., Gamez Godoy J.D, Muzumdar, R., Amzel, L.M., and Carrasco, N (2015) "The sodium/iodide symporter mutant V270E causes stunted growth but no cognitive deficiency" *J Clin Endocrinol Metab* **100**, E1353-E1361, Jul 23;jc20151824. [Epub ahead of print].
- ◆ Oikawa T, Wauthier E, Dinh TA, Selitsky SR, Reyna-Neyra A, Carpino G, Levine R, Cardinale V, Limstra D, Gaudio E, Alvaro D, Carrasco N, Sethupathy P, and Reid LM (2015) "Model of fibrolamellar hepatocellular carcinomas reveals striking enrichment in cancer stem cells" *Nature Communications* Oct 6;6:8070. doi: 10.1038/ncomms9070. PMID: 26437858.
- ◆ Renier C, Do J, Reyna-Neyra A, Foster D, De A, Vogel H, Jeffrey SS, Tse V, Carrasco N, and Wapnir I (2016) "Regression of Experimental NIS-expressing breast cancer brain metastases in response to radioiodide/gemcitabine dual therapy" *Oncotarget* [Epub ahead of print] Jun 23. doi: 10.18632/oncotarget.10238. PMID:27363025.
- ◆ Ferrandino, G., Nicola, JP, Sánchez YE., Echeverría, I., Liu, Y., Amzel, L.M., and Carrasco, N (2016) "Na⁺ coordination at the Na₂ site of the Na⁺/I⁻ symporter (NIS) *Proc Natl Acad Sci USA*. 13;113(37):E5379-88. doi: 10.1073/pnas.1607231113. PMID: 27562170
- ◆ Nagarajah, J., Le, M., Knauf JA, Ferrandino G., Montero-Conde C., Pillarsetty N., Bolaender A., Irwin CP., Krishnamoorthy GP., Saqcena M., Larson, S., Ho AL., Seshan V., Ishii, N., Carrasco N., Rosen N., Weber WA., and Fagin JA (2016) "Sustained ERK inhibition maximizes responses of Braf^{V600E} thyroid cancers to radioiodine *J Clin Invest* **126(11)**:4119-4124. doi:10.1172/JCI89067
- ◆ Ravera, A., Reyna-Neyra, A, Ferrandino, G, Amzel, L. M., and Carrasco, N. (2016) "The sodium/iodide symporter (NIS): Molecular physiology and preclinical and clinical applications" *Annual Review of Physiology* (submitted).

Invited speaker at international meetings

- ◆ "Proton Motive Force in Biological Systems," American Society of Biological Chemists, 74th Annual Meeting. San Francisco, California, 1983.
- ◆ "Solute Transport in Bacteria" Workshop. Dalfsen, The Netherlands, September 1985.
- ◆ "Protein Secretion and Export Retreat." Woods Hole, Massachusetts, March 1986.
- ◆ "W.H.O. Course on Biological Membranes." Mexico City, Mexico, October 1986.
- ◆ "International Symposium on Membrane Transport and Receptors." Berkeley, California, June 1987.
- ◆ "Ist Iberoamerican Biophysics Meeting." Seville, Spain, September 1989.
- ◆ "Molecular and Functional Aspects of Carrier-Mediated Transport" Forty-sixth annual meeting of the Society of General Physiologists. Woods Hole, MA, September 1992.
- ◆ "IInd Iberoamerican Biophysics Meeting." Puebla, Mexico, October 1993.
- ◆ "XI International Thyroid Meeting." Toronto, Canada, September 1995.
- ◆ "III International Symposium on Molecular Thyroidology." Yamanashi, Japan, March 1996.
- ◆ "VI International Thyroid Symposium: Thyroid and Trace Elements." Graz, Austria, May 1996.
- ◆ "International Symposium on Yeast Genetics and Molecular Biology." Mexico City, Mexico August 1996.
- ◆ "69th Meeting of the Japan Endocrine Society." Kyoto, Japan, October 1996.
- ◆ "Molecular Mechanisms of Energy Coupling in Transport Systems." Villefranche sur Mer, France, October 1996.
- ◆ "69th Annual Meeting American Thyroid Association." San Diego, California, November 1996.
- ◆ "XII Arbeitstagung Experimentelle Schilddrüsenforschung." Berlin, Germany, December 1996.
- ◆ "Die Northwest Endocrine Meeting." Essen, Germany, January 1997

- ◆ Latin American Thyroid Society Meeting. Viña del Mar, Chile, May 1997.
- ◆ Structure/Function of Proteins. Cartagena de Indias, Colombia, May 1997.
- ◆ The Endocrine Society Meeting. Minneapolis, Minnesota, June 1997.
- ◆ Gordon Research Conference on Mechanisms of Membrane Transport Proteins. New Hampshire, June 1997.
- ◆ Molecular Genetics of Thyroid Disorders. Munich, Germany, September 1997.
- ◆ IIIrd Iberoamerican Biophysics Meeting. Buenos Aires, Argentina, September 1997.
- ◆ International Union of Pure and Applied Biophysics on the Future of Iberoamerican Biophysics. La Plata, Argentina. September 1997.
- ◆ Argentinian Society of Endocrinology and Metabolism, Buenos Aires, Argentina, October 1997.
- ◆ 70th Annual Meeting, American Thyroid Association. Colorado Springs, Colorado. October 1997.
- ◆ First Maria Sibylla Merian Award Lecture. Essen, Germany. January 1998.
- ◆ Course on Structure/Function of Membrane Proteins. Genetics Institute. National University of Colombia. Bogota, Colombia. March 1998.
- ◆ Structure and Function of Ion-Coupled Transporters. Bet-Gabriel, Israel. May 1998.
- ◆ Gordon Research Conference on Membrane Transporters: Physiological and Pathological Implications. New Hampshire. July 1998.
- ◆ 71st Annual Meeting, American Thyroid Association. Portland, Oregon. September 1998.
- ◆ Biophysical Society Meeting. Baltimore, Maryland. February 1999.
- ◆ 2nd AAPS Frontier Symposium: Membrane Transporters and Drug Therapy. NIH, Bethesda, Maryland. April 1999.
- ◆ International Symposium on Molecular Basis of Biomembrane Transport. Bari, Italy. June 1999.
- ◆ FASEB Conference on Glucose transport biology. Snowmass Village, Colorado. July 1999.

- ◆ 72th Annual Meeting, American Thyroid Association. Palm Beach, Florida. September 1999.
- ◆ Bioenergetics Meeting, Tequesquitengo, Mexico. November 1999.
- ◆ Advanced Course of Endocrinology, Mondariz, Pontevedra, Spain. November 1999.
- ◆ Symposium on Structural Molecular Biology. Buenos Aires, Argentina. December 1999.
- ◆ International Course on Structure/Function of Proteins, Bogota, Colombia. February 2000.
- ◆ Experimental Biology 2000, San Diego, California. April 2000.
- ◆ Association des Medecins Endocrinologues du Quebec. Point Aupic, Canada. May 2000.
- ◆ 6th Reisenburg International Symposium. "Thyroid 2000: From bench to bedside, from gene to patient." Reisenburg, Germany. June 2000.
- ◆ Vice-chair of the Gordon Research Conference on Membrane Transporters: Physiological and Pathological Implications. Connecticut. July 2000.
- ◆ IVth Iberoamerican Biophysics Meeting. Alicante, Spain, October 2000.
- ◆ "XII International Thyroid Meeting." Kyoto, Japan. October 2000.
- ◆ 11th International Congress of Endocrinology, Sydney, Australia. November 2000.
- ◆ Thyroid Symposium on the Na⁺/I⁻ symporter (NIS). Würzburg, Germany. December 2000.
- ◆ 3rd Intensive Course of Diabetes, Endocrinology and Metabolic Diseases. Miami, Florida. December 2000.
- ◆ 9^{èmes} Journées de Médecine Nucléaire. Symporter de l'iode et utilisation de l'iode 131, Villejuif, France. March 2001.
- ◆ 43rd National Meeting of the Spanish Endocrine Society. Santiago de Compostela, Spain. May 2001
- ◆ 5th European Congress of Endocrinology, Turin, Italy. June 2001.
- ◆ The American Endocrine Society Meeting. Denver, Colorado. June 2001.

- ◆ European Thyroid Association Meeting. Warsaw, Poland. August 2001.
- ◆ 73rd Annual Meeting, American Thyroid Association. Washington, D.C. November 2001.
- ◆ Diciannovesime Giornate Italiane della Tiroide. Bolzano, Italy. December 2001.
- ◆ An Ion Channels and Transporters Odyssey. Valdivia, Chile. May 2002.
- ◆ Thyroid Revisited Nuclear Medicine Symposium. Buffalo, New York. May 2002.
- ◆ Chair of the Gordon Research Conference on Membrane Transporters: Physiological and Pathological Implications. New London, Connecticut. July 2002.
- ◆ Biochemistry Workshop. Mexico City, Mexico. August 2002.
- ◆ Thyroid cancer III. International Symposium. Styria, Austria. September 2002.
- ◆ Keystone Membrane Proteins Structure & Mechanism. Taos, New Mexico. February 2003.
- ◆ 22nd Meeting of the British Endocrine Societies. Glasgow, Scotland. March 2003.
- ◆ "Vth Iberoamerican Biophysics Meeting." Rio de Janeiro, Brazil. October 2003.
- ◆ Biophysical Society Meeting. Baltimore, Maryland. February 2004.
- ◆ "12th International Congress of Endocrinology." Lisbon, Portugal. September 2004.
- ◆ Gordon Conference on "Membrane Transport Proteins: Physiological and Pathophysiological Implications" Les Diablerets, Switzerland. October 2004.
- ◆ 45th National Meeting of the Spanish Endocrine Society. Madrid, Spain. May 2005.
- ◆ New Perspectives in Transport Biology. Saxtons River, Vermont July 2005.
- ◆ International Thyroid Symposium. Santiago de Chile, Chile. October 2005.
- ◆ 13th International Thyroid Congress. Buenos Aires, Argentina, November 2005.
- ◆ 196th Meeting of the Society for Endocrinology. Royal College of Physicians, London, England. November 2005.
- ◆ International Oncology Meeting. Mexico City, Mexico. April 2006.

- ◆ Gordon Conference on "Membrane Transport Proteins: Physiological and Pathophysiological Implications" Maine. August 2006.
- ◆ "VIth Iberoamerican Biophysics Meeting." Madrid, Spain. September 2006.
- ◆ "77th Annual Meeting of the American Thyroid Association. Phoenix, Arizona October 2006.
- ◆ 10th European Congress of Endocrinology, Berlin, Germany. May 2008.
- ◆ Gordon Research Conference on "Mechanisms of Membrane Transport." Waterville, Maine. June 2009.
- ◆ "XXXVI International Congress of Physiological Sciences". Kyoto, Japan. July 2009.
- ◆ "77th Annual Meeting of the American Thyroid Association", Palm Beach, Florida, September, 2009.
- ◆ "International Symposium on Physiology of Membrane Ion Transport", Montevideo, Uruguay. September 2009.
- ◆ VII Iberoamerican Congress of Biophysics, Búzios, Rio de Janeiro, Brazil. October 2009.
- ◆ Japan Pharmaceutical Science Congress. Okayama, Japan. March 2010.
- ◆ Thyroid disorders in the era of personalized medicine. Minneapolis, Minnesota. May 2010.
- ◆ Mexican Society of Physiological Sciences. Villahermosa, Tabasco, Mexico. September 2010.
- ◆ Third Latin American Protein Society Meeting. Salta, Argentina. October 2010.
- ◆ National Congress of the Mexican Society of Biochemistry. Tuxtla Gutiérrez, Chiapas, Mexico. November 2010.
- ◆ International Meeting of the Mexican Society of Nutrition and Endocrinology. Acapulco, Guerrero, Mexico. December 2010.
- ◆ Gordon Research Conference on "Mechanisms of Membrane Transport." Waterville, Maine. June 2011.
- ◆ 82nd Annual Meeting of the American Thyroid Association", Québec City, Canada. September 2012.

- ◆ "Research at the Cutting Edge of Cell Physiology" Instituto de Fisiología Celular, UNAM, Mexico City, Mexico. December 2012.
- ◆ Gordon Research Conference on "Mechanisms of Membrane Transport." New Hampshire. June 2013.
- ◆ FASEB SRC Summer Conference on Ion Channel Regulation." Nassau, Bahamas. June 2013.
- ◆ XXXVI Meeting of the Spaniard Society of Biochemistry and Molecular Biology, Madrid, Spain. September 2013.
- ◆ 83rd Annual Meeting of the American Thyroid Association, San Diego, CA, November 2014.
- ◆ 50th Anniversary meeting of the Argentine Society for Research in Biochemistry and Molecular Biology. Rosario, Argentina. November 2014.
- ◆ LVIIIth Meeting of the Mexican Society of Physiological Sciences, San Miguel Allende, Mexico. September 2015.
- ◆ Gordon Research Conference on Ligand Recognition and Molecular Gating, Tuscany, Italy. January 2016.
- ◆ The 25th American Association of Clinical Endocrinologists Meeting. Orlando, Florida. May 2016.
- ◆ 85th Annual Meeting of the American Thyroid Association, Denver, Colorado. September 2016.

Upcoming meetings

- ◆ Biophysical Society 61st Annual Meeting. New Orleans, Louisiana. February 2017.
- ◆ Cold Spring Harbor Asia Conference on "Membrane proteins: structure and function" Suzhou, China. May 2017.
- ◆ Biophysical Society Thematic Meeting on "Emerging Concepts in Ion Channel Biophysics". Mexico City, Mexico. October 2017.

Invited speaker (seminars) 1995-

- ◆ Weizmann Institute, Rehovot, Israel. January 1995.
- ◆ Jerusalem University, Institute of Life Sciences. Jerusalem, Israel. January 1995.
- ◆ Tel Aviv University, Dept. of Biochemistry. Tel Aviv, Israel. January 1995.
- ◆ University of Alabama at Birmingham, Dept. of Community and Public Health. Birmingham, Alabama. May 1995.
- ◆ Memorial Sloan Kettering, Dept. of Nuclear Medicine. New York, NY. October 1995.
- ◆ UMDNJ, Dept. of Surgery New Brunswick, New Jersey. January 1996.
- ◆ Mount Sinai Medical School, Division of Endocrinology and Metabolism New York, NY. January 1996.
- ◆ UCLA Medical School, Dept. of Physiology. Los Angeles, California. January 1996.
- ◆ UCSF, Endocrine-Metabolism Section VAMC, San Francisco, California. January 1996.
- ◆ Kyoto University, Department of Radiation and Nuclear Medicine. Kyoto, Japan. March 1996.
- ◆ Nagasaki University School of Medicine, Department of Cell Physiology, Atomic Disease Institute. Nagasaki, Japan. March 1996.
- ◆ UMDNJ, Dept. of Molecular Genetics and Microbiology. New Brunswick, New Jersey. April 1996.
- ◆ Johns Hopkins University Medical School, Dept. of Biological Chemistry. Baltimore, Maryland. April 1996.
- ◆ Facoltà di Medicina e Chirurgia Università Federico II, Naples, Italy. May 1996.
- ◆ Università La Sapienza, First Postgraduate School of Endocrinology. Rome, Italy. May 1996.
- ◆ B.R.A.H.M.S. Diagnostica, Berlin, Germany. May 1996.
- ◆ University of Massachusetts Medical School, Division of Endocrinology and Metabolism. Worcester, Massachusetts. September 1996.

- ◆ Cornell University Medical School, Dept. of Physiology. New York, NY. November 1996.
- ◆ Mount Sinai Medical School, Dept. of Medicine. New York, NY. February 1997.
- ◆ Yale University, Dept. of Pharmacology. New Haven, Connecticut. April 1997.
- ◆ 175th Meeting of the Interurban Clinical Club. Mount Sinai Medical School, New York, NY. April 1997.
- ◆ ICB-São Paulo University, Dept. of Physiology and Biophysics. São Paulo, Brazil. May 1997.
- ◆ Université Libre de Bruxelles, Institut de Recherche Interdisciplinaire en Biologie Humaine et Nucléaire. Brussels, Belgium. August 1997.
- ◆ Memorial Sloan Kettering, Dept. of Nuclear Medicine. New York, NY. September 1997.
- ◆ University of Buenos Aires, School of Pharmacy and Biochemistry. Buenos Aires, Argentina. September 1997.
- ◆ National Commission of Atomic Energy, Buenos Aires, Argentina. September 1997.
- ◆ B.R.A.H.M.S. Diagnostica, Berlin, Germany. January 1998.
- ◆ Universität GH Essen, Dept. of Medicine. Essen, Germany. January 1998.
- ◆ University of Pennsylvania School of Medicine. Philadelphia, Philadelphia. March 1998.
- ◆ Cornell University Medical School. Department of Pharmacology. New York, NY. March 1998.
- ◆ UMDNJ, Dept. of Molecular Genetics and Microbiology. New Brunswick, New Jersey. April 1998.
- ◆ Institute of Biomedical Sciences, School of Medicine, University of Chile. Santiago, Chile. May 1998.
- ◆ Department of Pharmacology, SUNY Health Science Center. Syracuse, New York. November 1998.
- ◆ Johns Hopkins University Medical School, Dept. of Physiology. Baltimore, Maryland. March 1999
- ◆ McGill University/Jewish General Hospital. Montreal, Canada, March 1999.

- ◆ Case Western University, Depts. of Nutrition and Biochemistry. Cleveland. Ohio April 1999.
- ◆ Johns Hopkins University Medical School, Dept. of Pathology. Baltimore, Maryland. May 1999.
- ◆ National Cancer Institute, NIH. Bethesda, Maryland. October 1999.
- ◆ Universitat di Barcelona, Barcelona, Spain. November 1999.
- ◆ Harvard Medical School, Dept. of Medicine, Boston, Massachusetts. February 2000.
- ◆ Endocrine Grand Rounds Beth Israel Deaconess Medical Center, Boston, Massachusetts. March 2000. B.R.A.H.M.S. Diagnostica
- ◆ FUHS/Chicago Medical School. Dept. of Physiology and Biophysics, Chicago, Illinois, March 2000.
- ◆ Baylor College of Medicine. Endocrine Conference., Houston, Texas. April 2000.
- ◆ University of Cincinnati. Depts. of Cell Biology and Endocrinology. Cincinnati, Ohio. November 2000.
- ◆ New York University. Dept. of Cell Biology. New York, New York. November 2000.
- ◆ Endocrine Rounds. Memorial Sloan Kettering. New York, New York. April 2001
- ◆ Dalton Cardiovascular Research Center. University of Missouri-Columbia. April 2001.
- ◆ Case Western University, Dept. of Biochemistry. Cleveland, Ohio. April 2001.
- ◆ Northwestern University. Division of Endocrinology, Metabolism and Molecular Medicine. Chicago, Illinois. December 2001.
- ◆ Instituto de Investigaciones Biomédicas de la UNAM, Mexico City, Mexico. February 2002.
- ◆ Universidad Nacional de la Patagonia San Juan Bosco, Puerto Madryn, Argentina. April 2002.
- ◆ Mayo Clinic, Division of Endocrinology, Metabolism and Nutrition, Rochester, Minnesota. June 2002.
- ◆ Memorial Sloan Kettering, Department of Endocrinology. New York, NY. November 2002.

- ◆ New York University Medical Center, New York, NY. November 2002.
- ◆ Cornell University Medical School, Dept. of Physiology. New York, NY. November 2002.
- ◆ Georgetown University, Lombardi Cancer Center. Washington D.C. March 2003.
- ◆ University of Virginia, Department of Molecular Physiology and Biological Physics. Charlottesville, VA. April 2003.
- ◆ Purdue University, Department of Biophysics. West Lafayette, IN. December 2003.
- ◆ Columbia University Medical School. Department of Pharmacology, New York, NY. March 2004.
- ◆ Instituto de Neurobiología, Universidad Nacional Autónoma de México (UNAM), Querétaro, Mexico. August 2005.
- ◆ Instituto de Investigación en Fisiología Celular, Universidad Nacional Autónoma de México (UNAM), Mexico City, Mexico. August 2005.
- ◆ Baylor College of Medicine. Guest speaker of the Postdoctoral Association. Houston, Texas. September 2005.
- ◆ Universidad Andrés Bello, Santiago de Chile, Chile. October 2005.
- ◆ Mount Sinai School of Medicine, Endocrine Grand Rounds. New York, NY. January 2006.
- ◆ Instituto de Investigaciones Biomédicas, Universidad Autónoma de Madrid. Madrid, Spain. September 2006.
- ◆ Instituto de Investigaciones Biomédicas, Universidad Nacional Autónoma de México (UNAM). March 2007.
- ◆ Sociedad de Endocrinología y Metabolismo de Córdoba (S.E.M.CO), Córdoba, Argentina. May 2007.
- ◆ Facultad de Ciencias Químicas, Universidad Nacional de Córdoba. Córdoba, Argentina. May 2007.
- ◆ University of California at Los Angeles. Department of Physiology. Los Angeles, CA. September 2007.
- ◆ University of Iowa, Department of Molecular Physiology and Biophysics. October 2007.

- ◆ St. John's Episcopal Hospital-South Shore, Far Rockaway, NY. February 2008.
- ◆ Noun Shavit Memorial Day Lecture. Ben-Gurion University of the Negev. Israel, May 2008.
- ◆ The Hebrew University of Jerusalem. Department of Life Sciences. Jerusalem, Israel. May 2008.
- ◆ Tel Aviv University. Department of Biochemistry. Tel Aviv, Israel. May 2008.
- ◆ The Weizmann Institute of Science. Department of Biochemistry. May 2008.
- ◆ Göteborg University, Sweden. December 2008.
- ◆ The National Cancer Institute. Mexico City, Mexico. February 2009.
- ◆ Weill Cornell Medical College. Department of Pharmacology. New York City. March 2009.
- ◆ Texas Tech University Health Sciences Center. Department of Cell Physiology and Molecular Biophysics. Lubbock, Texas. May 2009.
- ◆ David Owen Segal Lecture David Owen Segal Lecture. Department of Endocrinology, Mount Sinai School of Medicine. New York City. May 2009.
- ◆ Kyoto University. Department of Pharmacology. Graduate School of Medicine. Kyoto, Japan. July 2009.
- ◆ Yale University School of Medicine. Department of Cellular and Molecular Physiology. New Haven, Connecticut. October 2009.
- ◆ Johns Hopkins University School of Medicine, Department of Biophysics and Biophysical Chemistry. Baltimore, Maryland. October 2009.
- ◆ UCLA. Department of Physiology. Los Angeles, California. February 2010.
- ◆ Mayo Clinic. Departments of Endocrinology and Gene Therapy. Rochester, Minnesota. March 2010.
- ◆ Center for Biomedical Research Excellence (COBRE) at Kansas State University, Manhattan, KS. March 2010.
- ◆ Sixth Annual Milton Gordon Lecture. Department of Biochemistry, University of Washington, Seattle, Washington. May 2010.
- ◆ Yale University School of Medicine. Department of Cellular and Molecular Physiology. New Haven, Connecticut. May 2010.

- ◆ Instituto de Fisiología Celular. UNAM. Mexico City, Mexico. November 2010.
- ◆ NIH NIDDK Endocrine Grand Rounds. December 2010.
- ◆ UMDNJ-New Jersey Medical School. Department of Pharmacology & Physiology. March 2011.
- ◆ University of California at Los Angeles. Department of Physiology. Los Angeles, California. April 2012.
- ◆ University of California at Irvine. Department of Pharmacology. Irvine, California. April 2012.
- ◆ Columbia University. Department of Physiology. New York, NY. December 2012.
- ◆ Johns Hopkins University School of Medicine, Department of Biophysics and Biophysical Chemistry. Baltimore, MD. May 2013.
- ◆ Weill Cornell Medical College. Department of Physiology and Biophysics. New York City. December 2013.
- ◆ University of Chicago, Department of Biochemistry and Molecular Biology. Chicago, IL. December 2014.
- ◆ Instituto de Fisiología Celular. UNAM. Mexico City, Mexico. September 2015.
- ◆ Rensselaer Polytechnic Institute. Department of Biological Sciences. Troy, NY. October 2015.
- ◆ Molecular Medicine Research Seminars at Children's Hospital of Pittsburgh. Pittsburgh, PA. November 2015.
- ◆ University of Pisa. Department of Experimental Clinical Medicine. Pisa, Italy. January 2016.
- ◆ University of Bologna. Department of Medical Genetics. Bologna, Italy. February 2016.