CURRICULUM VITAE

Abdul B. Abou-Samra, M.D., Ph.D.

Office Address: Division of Endocrinology
UHC-4H, 4201 St. Antoine
Detroit, Michigan 48201
Telephone: (313) 745-4008
Email: asamra@med.wayne.edu

EDUCATION

1983	Ph.D., Biochemistry, Lyon I University, Lyon, France
1982	Certificate of Clinical Endocrinology and Metabolic Diseases, Lyon I University, France
1980	Certificate of Endocrine Biochemistry, Lyon I University, France
1979 -	M.D., Aleppo's University, Aleppo, Syria

TRAINING

1979 - 1984	Resident & Fellow, Endocrinology, Diabetes and Metabolic Diseases, Hospital de l'Antiquaille, Lyon France
1984- 1986	Fellow, Endocrinology and Reproduction Research Branch, National Institute of Child Health & Human Development, National Institutes of Health; Bethesda, Maryland
1986 - 1988	Fellow – Endocrinology, Massachusetts General Hospital, Boston Massachusetts

FACULTY APPOINTMENTS

2007 –	Professor of Medicine, Department of Internal Medicine; Wayne State University School of Medicine, Detroit, MI
2007 –	Chief of Endocrine Division; Wayne State University School of Medicine, Detroit, MI
1993 – 2007	Associate Professor of Medicine; Harvard Medical School, Boston, MA
1993 – 2007	Adjunct Associate Professor; Northeastern University; Boston, MA
1988 – 1993	Assistant Professor of Medicine; Harvard Medical School; Boston, MA
1986 – 1988	Instructor in Medicine; Harvard Medical School; Boston, MA
1982 – 1984	Assistant Professor; Lyon I University; Lyon, France

HOSPITAL OR OTHER PROFESSIONAL APPOINTMENTS

2007 – Chief, Endocrinology, Detroit Medical Center, Detroit, MI
1989 – 2007 Staff Physician; Massachusetts General Hospital; Boston, MA
1986 – 1989 Fellow in Medicine; Massachusetts General Hospital; Boston, MA
1982 – 1984 Assistant in Medicine; Clinique Endocrinologique; Hospital de l'Antiquaille; Lyon, France

MEMBERSHIP PROFESSIONAL SOCIETIES

Endocrine Society
American Federation for Clinical Research
American Society for Bone and Mineral Research
American Medical Association
American Association for the Advancement of Science
Massachusetts Medical Society
American Society for Clinical Investigations

MAJOR VISITING APPOINTMENTS

1984-1986 Visiting Fellow – National Institutes of Health, Bethesda, Maryland

MAJOR COMMITTEE ASSIGNMENTS

1994-2000 Subcommittee for Study of Research Proposal, Massachusetts General Hospital, Boston, MA
1994 Site Visit Committee, CRF Program Project, Salk Institute; LaJolla, California
2000 Site Visit Committee, CRF Program Project, Salk Institute; Lajolla, California
2000-2003 Endocrinology Study Section, National Institutes of Health; Bethesda, MD
2001-2004 Endocrinology Editorial Board, Endocrinology
2003 Executive Committee on Research (ECOR) Nominating Committee, Massachusetts General Hospital
2004 Site Visit Committee, CRF Program Project, Salk Institute; Lajolla, California
2007 Strategic Planning Committee for Research, Wayne State University

LICENSURE AND BOARD CERTIFICATION

1985 Federation Licensing Examination (FLEX, 1985), Certification Valid Indefinitely
1986 Massachusetts Medical License
1986 Maryland Medical License (did not renew after 1995)
1982 Licensed to Practice Medicine; Endocrinology and Metabolism in France (Certficat'd'EtudesUniversitaire; Endocrinology and Metabolic Diseases; Lyon I University) 1982
2005 American Board of Internal Medicine (ABIM), Certification in Internal Medicine
2006 American Board of Internal Medicine (ABIM), Certification in Endocrinology, Diabetes and Metabolism

AWARDS AND HONORS

1983 Research Award; "Foundation Pour la Recherche Medicale" Paris, France
1984 Honor Diploma of Higher Education; Lyon, France
1984 Maitre-Es-Science Medical; Lyon I University; Lyon France
2001 Partners-In-Excellence Award; Massachusetts General Hospital, Boston MA
2003 National Institutes of Health; Endocrine Study Section, Recognition

CLINICAL PRACTICE

1986-2007 Massachusetts General Hospital, Boston, MA, bone and mineral disorders, general endocrinology and diabetes at an outpatient clinic (one weekly session; 6-8 patients per session) and inpatient consultation service (one month per year, 20-50 patients per month).

2007- Detroit Medical Center, Detroit, MI, bone and mineral disorders, general endocrinology and diabetes at an outpatient clinic (2 weekly sessions; 6-8 patients per session) and inpatient consultation service (one month per year, 20-50 patients per month).

COMMUNITY SERVICE

Volunteer Physician at the Whittier Clinic, Boston, MA, serving the inner city African American community, one session per month, general endocrinology.

Conducted several community-based workshops on general health issues including diabetes, hypertension and travel medicine; Sharon, MA, Quincy, MA; and Cambridge, MA.

Members of school boards/committees, Sharon, Massachusetts, Quincy, Massachusetts and Mansfield, Massachusetts.

TEACHING ACTIVITIES

2007-Present Endocrine Patho Physiology, Wayne State University School of Medicine Endocrine Fellowship Program Director

1989-2007 Musculoskeletal physiology; Harvard Medical School. Tutoring sessions, Medical Students, 8-10 medical students per session 40 hours per year (10 hours preparation time and 30 hours contact time).

1994-2003 Endocrine Physiology; Northeastern University, 20 Hours per year (10 hours preparation Time and 10 hours contact time)

TRAINING AND MENTORING ACTIVITIES:

I have been involved in training and mentoring pre-doctoral students, post-doctoral research fellows and junior faculty in both basic and clinical sciences. A list of the individuals I trained or mentored is provided at the end of this document.

NARRATIVE REPORT OF ACTIVITIES:

Approximately 25% of my time is devoted for research. My major research interests are cell signaling, gene regulation and G protein coupled receptors. Since moving to Wayne State University, Detroit, MI, I have been focusing on diabetes research both in vitro and in vivo. The following projects have been the focus of study during recent years: The corticotropin-releasing factor (CRF) receptor, Mechanisms of action of parathyroid hormone (PTH) and PTH- related peptide (PTHrP) in their target organs, and the cell specific expression and regulation of expression of CRF and PTH/PTHrP receptor genes, and recently the adiponectin and its receptors.

I am Principal Investigator of an NIH- funded project (R01) focused on understanding the in-vivo physiological role of receptor internalization and phosphorylation. Using homologous recombination we have established a knock-in mouse model expressing a phosphorylation-deficient/ internalization-impaired PTH/PTHrP receptor and we are using this animal as a model to analyze the role of receptor internalization in calcium and phosphate homeostasis and in bone development and bone turnover.

I am Principal Investigator of a second NIH-funded project (R01) focused the structure, function and expression of CRF receptors. The aim of this project is to understand the structural features of the CRF receptor that are important for its functions. We will characterize receptor glycosylation, disulfide bond formation and molecular domains that are important for ligand binding and/or receptor activation.

I am the director of the Endocrinology Fellowship Program of Wayne State University School of Medicine/Detroit Medical Center and I am involved in the endocrine pathophysiology course to the 2nd year medical students of Wayne State University School of Medicine. My past teaching activities include 15 years as a tutor to medical students in the Musculoskeletal course at Harvard Medical School and 6 years as a lecturer for an Endocrine Physiology course at Northeastern University. I have contributed to the professional development of a number of students, post-doctoral fellows and junior faculties.

I see patients during 2 weekly half-day sessions per week and have 1 month per year of inpatient rounding activities. Patients have a range of general endocrine disorders.

NIH GRANT SUPPORTS

Title: Bi-molecular Interactions of the CRF Ligands and Receptors
Funding: NIH-NIDDK R01DK045020
Purpose: To charecterize the molecular requirement for the interaction between corticotropin-releasing factor (CRF), sauvagine, urocortins and the CRF receptors
Period: 6-18-2003 – 4-30-2008
Role: Principal Investigator
% Effort: 30%

Title: Role of PTH1R in Bone Biology Using a Phosphorylation-Deficient PTH1R Knock in Mouse Model
Funding: NIH-NIDDK R01DK062286
Purpose: To understand the physiological role of phosphorylation of the PTH/PTHrP receptor using a mouse model in which a phosphorylation-deficient PTH/PTHrPreceptor gene is knocked in at the locus of the normal gene.
Period: 1-15-2004 – 12-31-2008
Role: Principal Investigator
% Effort: 30%

Title: Regulation of the PTH/PTHrP Receptors (subproject II of program project: Hormonal Control of Calcium – Project Director: John Potts)
Funding: NIH-NIDDK 5P01DK011794
Purpose: This program project was funded for over 30+ year. I joined the team in 1986 and became a Principal Investigator on one subproject. The PTH/PTHrP receptor cDNA and gene were cloned and their regulation and molecular domains were characterized.
Period: 9-1-1988 to 8-31-2008 – Transferred to another P.I. after my departure from Harvard/Massachusetts General Hospital
Role: Principal Investigator of Subproject II
% Effort: 30%

Title: Structure and Regulation of the PTH/PTHRP Receptor Gene
Funding: NIH-NIDDK R01DK045485
Purpose: The PTH/PTHrP receptor gene was characterized and cloned in several vectors which provided the base for the knock out and knock in studies performed at the Massachusetts General Hospital for this important gene. The cis-acting regulatory elements, the multiple start sites and the different alternatively spliced transcripts were characterized
Period: 3-1-1995 – 2-29-2000 - completed
Role: Principal Investigator
% Effort: 30%

Title: CRF Receptors- Structure, Function Expression
Funding: NIH-NIDDK 5P01DK011794
Purpose: To clone and characterize the receptors of corticotropin releasing factor and study their property and regulation. CRF Receptors from mouse, ovine, catfish and chicken were cloned, expressed in mammalian cells and their functional properties were characterized
Period: 1-1-1990 – 12-31-1995 - completed
Role: Principal Investigator
% Effort: 30%

Title: Training Program in Endocrine and Diabetes Research
Funding: NIH-NIDDK T32DK080657
Purpose: To provide training in basic and clinical research for M.D. and/or Ph.D. who are promising future endocrine researchers at Wayne State University School of Medicine
Period: 4-1-2008 – 3-31-2013 – Pending review by study section
Role: Principal Investigator
% Effort: 5%

Title: Eliminating Disparity of Diabetes in Detroit (EDDD)
Funding: NIH-NCMHD R24MD002789
Purpose: To understand the causes of health disparity in the diagnosis and management of diabetes and its complications in the Detroit region and develop measures to eliminate the disparity
Period: 4-1-2008 – 3-31-2013 – Pending review by study section
Role: Principal Investigator
% Effort: 10%

PEER-REVIEWED PUBLICATIONS

1. Abou-Samra AB, Estour B, Bajard L, Tourniare J. Insulin a la pompe: Interet dans l'adaptation du traitement des diabetes difficiles a controler. Lyon Med. 1984; 242:393-398.
2. Abou-Samra AB, Fevre-Montange M, Pugeat M, Dechaud H, Chalendar D, Estour B, Tourniaire J. The value of beta-lipotrophin measurement during the short metyrapone test in patients with pituitary diseases and in Cushing's syndrome. Acta Endocrinol. 1984; 105:441-448.
3. Abou-Samra AB, Loras B, Pugeat M, Tourniaire J, Bertrand J. Demonstration of an antiglucocorticoid action of progesterone on the corticosterone inhibition of beta-endorphin release by rat anterior pituitary in primary culture. Endocrinology. 1984; 115: 1471-1475.
4. Abou-Samra AB, Pugeat M, Dechaud H, Nachury L, Bouchareb B, Fevre-Montange M, Tourniaire J. Increased plasma concentrations of N-terminal beta-lipotropin and unbound cortisol in pregnancy. Clin Endocrinol. 1984; 20:221-228.
5. Abou-Samra AB, Pugeat M, Dechaud H, Nachury L, Tourniaire J. Acute dopaminergic blockade by sulpiride stimulates beta-endorphin secretion in pregnant women. Clin Endocrinol. 1984; 21:583-588.
6. Fevre-Montage M, Estour B, Abou-Samra AB, Bajard L, Tourniaire J. 24 hour melatonin secretory pattern in idiopathic hemochromatosis. Psycho-Neuroendocrinol. 1983; 8:321-326.
7. Abou-Samra AB, Dechaud H, Estour B, Chalendar D, Fevre-Montange M, Pugeat M, Tourniaire J. Beta-lipotropin and cortisol responses to an intravenous infusion dexamethasone suppression test in Cushing's syndrome and obesity. J Clin Endocrinol Metab. 1985; 61:116-119.
8. Abou-Samra AB, Fevre-Montange M, Loras B, Durand A, Tourniaire J, Bertrand J. Effect of indolamines on beta-endorphin release by rat anterior pituitary cells. Neuroendocrinology. 1985; 41:490-493.
9. Tourniaire J, Fevre-Montange M, Abou-Samra AB, Dechaud H. Melatonine et fonction corticotrope. Bull Acad Natl Med. (Paris). 1986; 170: 803-809.
10. Abou-Samra AB, Catt KJ, Aguilera G. Biphasic inhibitory effect of corticosterone on stimulated ACTH release in rat anterior pituitary cell cultures. Endocrinology. 1986; 119:972-977.
11. Abou-Samra AB, Catt KJ, Aguilera G. Involvement of protein kinase C in the control of ACTH secretion in rat anterior pituitary cell cultures. Endocrinology. 1986; 118:212-217.
12. Abou-Samra AB, Catt KJ, Aguilera G. Role of arachidonic acid in the regulation of ACTH release from rat anterior pituitary cell cultures. Endocrinology. 1986; 119:1427-1431.

13. Cohen H, Sabbagh I, Abou-Samra AB, Bertrand J. Beta-endorphin in genetically hypoprolactinemic rat: IPL nude rat. Life Sci. 1986; 38:217-224.

14. Tourniaire J, Chalendar D, Rebatu B, Fevre-Montange M, Bajard L, Mazenod B, Dechaud H, Abou-Samra AB, Cauter EV. The 24 hour cortisol secretory pattern in Cushing's syndrome. A quantitative analysis. Acta Endocrinol. 1986; 112:230-237.

15. Tourniaire J, Fevre-Montange M, Abou-Samra AB, Dechaud H. Melatonin and the corticotropic function. Bull Acad Natl Med 1986; 170:803-809.

16. Abou-Samra AB, Catt KJ, Aguilera G. Atrial natriuretic factor stimulates cyclic GMP production and LH release in rat anterior pituitary cells: contamination with GnRH explains its LH releasing activity. Endocrinology. 1987; 120:18-24.

17. Abou-Samra AB, Catt KJ, Aguilera G. Calcium dependent control of ACTH secretion in rat anterior pituitary cells. Endocrinology. 1987; 121:965-971.

18. Abou-Samra AB, Harwood J, Manganellio VC, Catt KJ, Aguilera G. Phorbol 12-myristate 13-acetate and vasopressin potentiate the effect of CRF on cyclic AMP production in rat anterior pituitary cells: mechanisms of action. J Biol Chem. 1987; 262:1129-1136.

19. Milan M, Abou-Samra AB, Catt KJ, Aguilera G. Receptors and actions of CRF receptors in the primate pituitary gland. J Clin Endocrinol Metab. 1987; 64:1036-1041.

20. Aguilera G, Abou-Samra AB, Harwood JP, Catt KJ. Corticotropin-releasing factor receptors: characterization and action in the anterior pituitary gland Adv Exp Med Biol. 1988; 245:83-95.

21. Jüppner H, Abou-Samra AB, Uneno S, Gu WX, Potts JT Jr, Segre G. The parathyroid hormone-like peptide associated with humoral hypercalcemia of malignancy and parathyroid hormone bind to the same receptor on the plasma membrane of ROS 17/2.8 cells. J Biol Chem. 1988; 263:8557-8560.

22. Abou-Samra AB, Jüppner H, Potts JT Jr, Segre GV. Inactivation of pertussis toxin-sensitive guanyl nucleotide-binding proteins increase parathyroid hormone receptors and reverse agonist-induced receptor down-regulation in ROS 17/2.8 cells. Endocrinology. 1989; 125:2594-2599.

23. Abou-Samra AB, Jüppner H, Westerberg DP, Potts JT Jr, Segre GV. Parathyroid hormone causes translocation of protein kinase-C from cytosol to membranes in rat osteosarcoma cells. Endocrinology 1989; 124:1107-1113.

24. Abou-Samra AB, Uneno S, Jüppner H, Keutmann H, Potts JT Jr, Segre GV, Nussbaum SR. Non-homologous sequences of parathyroid hormone and the parathyroid hormone related peptide bind to a common receptor on ROS 17/2.8 cells. Endocrinology. 1989; 125:2215-2217.

25. Abou-Samra AB, Freeman M, Jüppner H, Uneno S, Segre GV. Characterization of fully active biotinylated parathyroid hormone analogs: Application to fluorescence-activated cell sorting of parathyroid hormone receptor bearing cells. J Biol Chem. 1990; 265:58-62.

26. Gardella TJ, Rubin D, Abou-Samra AB, Keutmann HT, Potts JT, Kronenberg HM, Nussbaum SR. Expression of human parathyroid hormone (1-84) in Escherichia coli as a factor x-cleavable fusion protein. J Biol Chem. 1990; 265:15854-15859.

27. Jüppner H, Abou-Samra AB, Uneno S, Keutmann HT, Potts JT Jr, Segre GV. Preparation and characterization of [N(4-Azido-2-nitrophenyl)Ala^{1},Tyr^{36}] parathyroid hormone related peptide (1-36) amide: A high-affinity, partial agonist having high cross-linking efficiency with its receptor on ROS 17/2.8 cells. Biochemistry. 1990; 29:6941-6946.

28. Jüppner H, Abou-Samra AB, Uneno S, Schipani E, Keutmann HT, Potts JT Jr., Segre GV. Properties of amino terminal parathyroid hormone-related peptides modified at positions 11-13. Peptide. 1990; 11:1139-1142.

29. Abou-Samra AB, Zajac J, Schiffer-Alberts D, Skurat R, Kearns A, Segre GV, Bringhurst FR. Cyclic adenosine 3',5'-monophosphate (cAMP)-dependent and cAMP-independent regulation of parathyroid hormone receptors on UMR 106-01 osteoblastic osteosarcoma cells. Endocrinology 1991; 129: 2547-2554.

30. Bergwitz C, Madoff S, Abou-Samra AB, Jüppner H. Specific, high-affinity binding sites for

angiotensin II on mycoplasma hyorhinis. Biochem Biophys Res Comm. 1991; 179: 1391-1399.

31. Jüppner H, Abou-Samra AB, Freeman M, Kong XF, Schipani E, Richards J, Kolakowski LF Jr, Hock J, Kronenberg HM, Segre GV. A G protein-linked receptor for parathyroid hormone and parathyroid hormone-related peptide. Science 1991; 245:1024-1026.

32. Abou-Samra AB, Jüppner H, Force T, Freeman MW, Kong XF, Schipani E, Urena P, Richards J, Bonventre JV, Potts JT Jr, Kronenberg HM, Segre GV. Expression cloning of a common receptor for parathyroid hormone and parathyroid hormone-related peptide from rat osteoblast-like cells: A single receptor stimulates intracellular accumulation of both cAMP and inositol trisphosphates and increases intracellular free calcium. Proc Natl Acad Sci USA. 1992; 89:2732-2736.

33. Uneno S, Yamamuro T, Jüppner H, Abou-Samra AB, Keutmann HT, Potts JT Jr, Segre, GV. Solubilization of functional receptors for parathyroid hormone and parathyroid hormone-related peptide from clonal rat osteosarcoma cells ROS 17/2.8. Calcif Tiss Int. 1992; 51:382-386.

34. Tojo K, Abou-Samra AB. Corticotropin-releasing factor (CRF) stimulates $^{45}Ca^{2+}$ uptake in the mouse corticotroph cell line AtT-20. Life Science 1992, 52:621-630.

35. Abou-Samra AB, Jüppner H, Khalifa A, Karga H, Kong XF, Schiffer-Alberts D, Xie LY, Segre GV. Parathyroid hormone (PTH) stimulates adrenocorticotropin release in AtT-20 cells stably expressing a common receptor for PTH and PTH-related peptide. Endocrinology 1993; 132:801-805.

36. deStolpe AV, Karperien M, Löwik CWGH, Jüppner H, Segre GV, Abou-Samra AB, deLaat SW, Defize LHK. Parathyroid hormone-related peptide as an endogenous inducer of parietal endoderm differentiation. J Cell Biol 1993; 120:235-243.

37. Schipani E, Karga H, Karaplis AC, Potts JT Jr, Kronenberg HM,Segre GV, Abou-Samra AB, Jüppner H. Identical cDNAs encode a human renal and bone PTH/PTHrP receptor. Endocrinology 1993; 132:2157-2165.

38. Bringhurst FB, Jüppner H, Kronenberg HMK, Abou-Samra AB, Segre GV. Cloned, stably expressed PTH/PTHrP receptors activate multiple messenger signals and biological responses in LLCPK-1 kidney cells. Endocrinology 1993; 132:2090-2098.

39. Lee K, Bond AT, Jüppner H, Abou-Samra AB, Segre GV. In situ hybridization of PTH/PTHrP receptor mRNA in the bone of fetal and young rats. Bone 1993; 14:341-345.

40. Urena P, Kong XF, Abou-Samra AB, Jüppner H, Kronenberg HK, Potts Jr JT, Segre GV. Parathyroid hormone (PTH)/PTH-related peptde receptor mRNA is widely distributed in rat tissues. Endocrinology 1993; 133:617-623.

41. Urena P, Iida-Klein A, Kong XF, Jüppner H, Kronenberg HM, Abou-Samra AB, Segre GV. Regulation of the parathyroid homrone (PTH)/PTH-related peptide receptor mRNA by glucocorticoids and PTH in ROS 17/2.8 and OK cells. Endocrinology 1994; 134:451-456.

42. Gwosdow AR, O'Connell NA, Spencer JA, Kumar MSA, Agarwal RK, Bode HH, Abou-Samra AB. Interleukin-1 induced corticosterone release occurs by an adrenergic mechanism from the rat adrenal gland. Am J Physiol.1992; 263:E461-E466.

43. Gwosdow AR, Spencer JA, O'Connell NA, Kraytsberg G, Abou-Samra AB. Interleukin-1 activates protein kinase A and stimulates adrenocorticotropic hormone release from AtT-20 cells. Endocrinology 1993; 132:710-714.

44. Gwosdow AR, O'Connell NA, Abou-Samra AB. Interleukin-1 increases protein kinase A activity by a cAMP-independent mechanism in AtT-20 cells. Am J Physiol 1994; 266: E79-E84.

45. Jüppner H, Schippani E, Bringhurst RF, McClure I, Keutmann HT, Potts Jr JT, Kronenberg HM, Abou-Samra AB, Segre GV, Gardella TJ. The extracellular amino-terminal region of the PTH/PTHrP receptor determines the binding specificity for the carboxy-terminal fragments of PTH(1-34). Endocrinology, 1994, 134:879-884.

46. Okano K, Wu S, Huang X, Pirola CJ, Jüppner H, Abou-Samra AB, Segre GV, Iwasaki K, Fagin JA, Clemens TL. Parathyroid hormone (PTH)/PTH-related protein (PTHrP) receptor and its messenger RNA in rat aortic smooth muscle cells and UMR osteoblast-like cells: cell-specific regulation by

angiotensin-II and PTHrP Endocrinology 1994, 135:1093-1099.

47. Fukayama S, Schipani E, Jüppner H, Lanske B, Kronenberg HM, Abou-Samra AB, Bringhaurst FR. Role of protein kinase-A (PKA) in homologous down-regulation of PTH/PTHrP receptor mRNA in human osteoblast-like cells. Endocrinology 1994, 134:1851-1858.

48. Urena P, Kubrusly M, Mannstadt M, Hruby M, Tan MMTT, Silve C, Lacour B, Abou-Samra AB, Segre GV, Drueke T. The renal PTH/PTHrP receptor is down-regulated in rats with chronic renal failure. Kidney International 1994, 45:605-611.

49. O'Connell NA, Kumar A, Chatzipanteli K, Mohan A, Agarwal RK, Head C, Bornstein S, Abou-Samra AB, Gwosdow AR. Interleukin-1 regulates corticosterone secretion from the rat adrenal gland through a catecholamine-dependent and prostaglandin E2-independent mechanism. Endocrinology, 1994; 135:460-467.

50. Lee CW, Gardella TJ, Abou-Samra AB, Nussbaum SR, Segre GV, Potts JTP Jr., Kronenberg HM, Juppner H. Role of the extracellular regions of the PTH/PTHrP receptor in hormone binding. Endocrinology 1994, 135:1488-1495.

51. Gardella TJ, Jüppner H, Wilson AK, Abou-Samra AB, Segre GV, Bringhaurst FR, Potts Jr. JTP, Nussbaum SR, Kronenberg HM. Determinants of [Arg^2]-PTH binding and signaling in the transmembrane region of the parathyroid hormone recetpor. Endocrinology 1994, 135:1186-1194.

52. Kong X-F., Schipani E, Lanske B,Joun H, Karperien M, Defize LHK, Jüppner H, Potts JTJr., Segre GV, Kronenberg HM and Abou-Samra AB. The rat, mouse and human genes encoding the receptor for parathyroid hormone and parathyroid hormone-related peptide are highly homologous. Biochem Biophys Res Comm 1994, 200:1290-1299.

53. Abou-Samra AB, Goldsmith P, Xie LY, Jüppner H, Spiegel A, Segre GV Regulation of the PTH/PTHrP receptor immunoreactivity and PTH binding in opossum kidney cells by PTH and dexamethasone. Endocrinology 1994, 135:2588-2594.

54. Urena P, Mannstadt M, Hruby M, Ferreira A, Schmitt F, Silve C, Ardaillou R, Lacour B, Abou-Samra AB, Segre GV, Drueke T. Parathyroidectomy does not prevent the renal PTH/PTHrP receptor down-regulation in uremic rats. Kidney International 1995; 47:1797-1805.

55. McCauley LK, Beecher CA, Melton ME, Werkmeister JR, Jüppner H, Abou-Samra AB, Segre GV,Rosol TJ. Transforming grouth factor-b1 regulates steady-state PTH/PTHrP receptor mRNA levels and PTHrP binding in ROS 17/2.8 osteosarcoma cells. Mol Cell Endocrinol 1994, 101:331-336.

56. Karperien M, Van Dijk TB, Hoeijmakers T, Cremers F, Abou-Samra AB, Boonstra J, deLaat SW, Defize LHK. Expression pattern of parathyroid hormone/parathyroid hormone related peptide receptor mRNA in mouse postimplantation embryos indicates involvement in multiple developmental processes. Mechanism of Development 1994, 47:29-42.

57. Bergwitz C, Abou-Samra AB, Hesch RD, Jüppner H. Rapid desensitization of parathyroid hormone-dependent adenylate cyclase in perifused human osteosarcoma cells (SaOS-2). Biochem Biophys Acta. 1994; 1122: 447-456.

58. Xiong Y, Xie LY, Abou-Samra AB. Signaling properties of the corticotropin-releasing factor (CRF) receptors: Decreased coupling efficiency of human type II CRF receptor. Endocrinology 1995; 136; 1828-1834.

59. Iida-Klein A, Guo J, Xie LY, Juppner H, Potts Jr JT, Kronenberg HM, Bringhaurst FR, Abou-Samra AB, Segre GV Truncation of the carboxy-terminal region of the rat parathyroid hormone (PTH)/PTH-related peptide receptor enhances PTH stimulation of adenylyl cyclase but not phospholipase C. J. Biol. Chem 1995; 270;8458-8465.

60. Schipani E, Weinstein LS, Bergwitz C, Iida-Klein A, Kong XF, Stuhrmann M, Kruse K, Whyte MP, Murray T, Schmidtke J, Van Dop C, Brickman AS, Crawford JD, Potts JT Jr, Kronenberg HM,

Abou-Samra AB, Segre GV, Jüppner H. Pseudohypoparathyroidism type Ib is not caused by mutations in the coding exons of the human parathyroid hormone (PTH)/PTH-related peptide receptor gene. J Clin Endocrinol Metab 1995; 80:1611-1621.

61. Jongen JWJM, Willemstein Van Hove EC, Van Der Meer JM, Bos MP, Jüppner H, Segre GV, Abou-Samra AB, Feyen JHM, Herrmann-Erlee MPM. Down-regulation of the receptor for parathyroid homrone and parathyroid hormone-related peptide by transfroming growth factor beta in primary fetat rat osteoblasts. Endocrinolgy 1995, 136:3260-3266.

62. Guo J, Iida-Klein A, Huang X, Abou-Samra AB, Segre GV, Bringhaurst FR. PTH/PTHrP receptor density selectively modulates activation of phospholipase C and phosphate transport in LLCPK-1 cells. Endocrinology 1995; 136:3884-3891.

63. Orloff JJ, Yulina K, Urena P, Schipani E, Vasavada R, Abou-Samra AB, Segre GV, Jüppner H. Further evidence for a novel receptor for amino-terminal parathyroid hormone-related protein on keratinocytes and squamous carcinoma cell lines. Endocrinology 1995 136:3016-3023.

64. Nabhan C, Xiong Y, Xie LY, Abou-Samra AB. The alternatively-spliced type II corticotropin-releasing factor receptor, stably expressed in LLCPK-1 cells is not well coupled to the G protein. Biochem Biophys Res Comm 1995, 212:1015-1021.

65. Yu J, Xie LY, Abou-Samra AB. Molecular cloning of a type A chicken corticotropin-releasing factor receptor with high affinity for urotensin I. Endocrinology, 1996, 137:192-197.

66. Xie LY, Leung A, Segre GV, Yamamoto I and Abou-Samra AB. Dramatic downregulation of the PTH/PTHrP receptor by 1,25(OH)2 vitamin D in the osteoblast-like ROS 17/2.8 cells. Am J Physiol 1996, 270 (Endocrinol. Metab. 33):E654-E660.

67. Lanske B, Karaplis AC, Lee K, Luz A, Vortkamp A, Pirro A, Karperien M, Defize LHK, Ho C, Mulligan RC, Abou-Samra AB, Juppner H, Segre GV, Kronenberg HK. PTH/PTHrP receptor in early development and indian hedgehog-regulated bone growth. Science 1996, 273:663-666.

68. Jongen J W, Willemstein Van Hove EC, Van Der Meer JM, Bos MP, Juppner H, Segre GV.Abou-Samra AB, Feyen JH, Herrmann Erlee MP. Down-regulation of the receptor for parathyroid hormone (PTH) and PTH- related peptide by PTH in primary fetal rat osteoblasts. J Bone Miner Res 1996, 11:1218-25.

69. Iida-Klein A, Guo J, Drake MT, Kronenberg HM, Abou-Samra AB, Bringhurst FR, Segre GV. Structural requirements of parathyroid hormone/parathyroid hormone- related peptide receptors for phospholipase C activation and regulation of phosphate uptake. Miner Electrolyte Metab 1995, 21:177-9.

70. Joun H, Lanske B, Karperien M, Defize LHK and Abou-Samra AB. Tissure-specific transcritpion start site and alternative splicing of the PTH/PTHrP receptor gene: a new alternatively-spliced receptor that lacks the signal peptide. Endocrinology 1997, 138, 1742-1749.

71. Iida-Klein A, Guo J, Takemura M, Drake MT, Potts Jr. JT, Abou-Samra AB, Bringhurst FR, Segre GV. Mutations in the second cytoplasmic loop of the rat parathyroid hormone (PTH)/PTH-related protein receptor result in selective loss of PTH-stimulated phospholipase C activity. J Biol Chem 1997, 272, 6882-6889.

72. Qi LA, Leung AT, Xiong Y, Marx KA, Abou-Samra AB. Extracellular cysteines of the corticotropin releasing factor receptor are critical for ligand interaction. Biochemistry 1997, 36, 12442-12448.

73. Qian F, Leung A, Abou-Samra AB. Agonist-dependent phosphorylation of the parathyroid hormone / parathyroid hormone-related peptide receptor. Biochemistry, 1998, 37, 6240-6246.

74. Xie LY, Abou-Samra AB. Epitope-tag mapping of the extracellular and cytoplasmic domains of the rat PTH/PTHrP receptor. 1998, Endocrinology, 1998, 139, 4563-4567.

75. Giannoukos G, Chilco PJ, Williams LJS, Abou-Samra AB. Characterization of an element within the rat parathyroid hormone / parathyroid hormone-related peptide receptor gene promoter that enhances expression in the osteoblastic osteosarcoma 17/2.8 cells. 1998, Biochem. Biophys. Res. Comm., 1999, 258, 336-340.

76. Karperien M, Farih-Lips H, Hendriks JAA, Lanske B, Papapoulos SE, Abou-Samra AB, Lowik CWGM, Defize LHK. Identification of a retinoic acid-inducible element in the murine PTH/PTHrP receptor gene. Mol Endocrinol , 1999, 13, 1183-1196.

77. Zhou A, Assil I, Abou-Samra AB. Role of Asparagine-Linked Oligosaccharides in the Function of the Rat PTH/PTHrP Receptor. Biochemistry, 2000, 39, 6514-6520.

78. Williams LJS, Abou-Samra AB. The transcription factor SP1 and MAZ regulate expression of the parathyroid/parathyroid hormone related peptide receptor gene. J. Mol. Endocrinol 2001, 25, 309-319.

79. Arai M, Assil I, Abou-Samra AB. Molecular Cloning of the Catfish Corticotropin Releasing Factor (CRF) Receptors: A third CRF receptor subtype that is prominent in pituitary and urophysis. Endocrinology, 2001, 142, 446-454.

80. Assil I, Arai M, Shomali M, Abou-Samra AB. The juxta-membrane region of the amino-terminus of the corticotropin-releasing factor receptor type 1 is important for ligand interaction. Biochemistry, 2001, 40, 1187-1195.

81. Assil I, Arai M, Shomali M, Abou-Samra AB. An oxidation-resistant radioligand for corticotropin-releasing factor receptors. Peptides, 2001, 22, 1055-1061.

82. Assil I, Abou-Samra AB. N-glycosylation of the corticotropin-releasing factor receptor type 1 is important for its ligand specific interaction. Am J Phys (Endo Metab), 2001, E1015-E1021.

83. Tawfeek H, Che J, Qian F, Abou-Samra AB. Parathyroid hormone receptor internalization is independent of protein kinase C and phospholipase c activation, Am J Phys (Endo Metab), 2001, 281, E545-E557.

84. Tawfeek H, Qian F, Abou-Samra AB. Phosphorylation of the receptor for parathyroid hormone and parathyroid hormone-related peptide is required for internalization and regulates receptor signaling. Mol Endocrinol, 2002, 16, 1-13.

85. Assil-Kishawi I and Abou-Samra AB. Sauvagine crosslinks to the second extracellular loop of the corticotropin-releasing factor type 1 receptor. J. Biol Chem 2002, 277:32558-32561.

86. De Groef B, Geris KL, Manzano J, Bernal J, Millar RP, Abou-Samra AB, Porter TE, Iwasawa A, KuhnER, Darras VM. Involvement of thyrotropin-releasing hormone receptor, somatostatin receptor subtype 2 and corticotropin-releasing hormone receptor type 1 in the control of chicken thyrotropin secretion. Molecular and Cellular Endocrinology 2003, 203: 33- 39

87. Tawfeek H, Abou-Samra AB. An important role for the V-Type (H+)-ATPase and the Golgi Apparatus in the recycling of PTH/PTHrP receptor. Am J Phys (Endo Metab), 2004, 286(5):E704-10

88. Sneddon BW, Syme CA, Bisello A, Magyar CE, Rochdi MD, Parent JL, Weinman EJ, Abou-Samra AB, Friedman PA. Activation-independent parathyroid hormone receptor internalization is regulated by NHERF1 (EBP50). J Biol Chem 43787-43796, 278, 2003

89. Zhu Q, Qi LJ, Shi A, Abou-Samra AB, Deth RC. Protein Kinase C Regulates 2A/D-Adrenoceptor Constitutive Activity. Pharmacology 71:80-90, 2004

90. Bounoutas GS, Tawfeek H, Fröhlich LF, Chung UI and Abou-Samra AB. Impact of impaired receptor internalization on calcium homeostasis in knock-in mice expressing a phosphorylation-deficient parathyroid hormone (PTH) / PTH-related peptide receptor. Endocrinology 2006, 10:4674-4679

91. Zalutskaya A, Arai M, Bounoutas GS and Abou-Samra AB. Impaired adaptation to repeated restraint and decreased response to cold in urocortin 1 knockout mice. Am J Physiol, Endo Metab 2007, 293: E259-263

SELECTED ABSTRACTS (planned manuscripts):

92. Bounoutas G; Tawfeek H, Abou-Samra. Increased PTH anabolic effects in a mouse model expressing a phosphorylation deficient PTH/PTHrP receptor (pdPTH1R). J Bone Min Res 20 (Suppl. 1); S41(Abst# 1159) , 2005
93. Tawfeek H, Abou-Samra. PTH/PTHrP receptor phosphorylation regulates PTH activation of MAP kinses and gene expression. J Bone Min Res 20 (Suppl. 1); S433 (Abst# M507), 2005
94. Assil-Kishawi IQ, Abou-Samra AB. Characterization of points of proximity in the corticotrophin releasing factor receptor type 1 (CRFR1) and its bound ligand. Endocrine society Meeting, 2004, Abstract #P3-65

REVIEW ARTICLES AND BOOK CHAPTERS

95. Abou-Samra AB, Fevre-Montange M, Borson F, Dechaud H, Tourniaire J. Circadian variation of immunoreactiveCRF in rat hypothalamus. In: Moody TW, ed. Neural and Endocrine Peptides and Receptors '85. New York: Plenum Press, 1986:149-157.
96. Abou-Samra AB, Harwood JP, Catt KJ, Aguilera G. Mechanisms of action of CRF and other regulators of ACTH release. Ann NY Acad Sci. 1987; 512:67-86.
97. Potts JT Jr, Nussbaum SR, Wiren K, Freeman M, Igarashi T, Okazaki T, Zajac J, Abou-Samra AB, Bringhurst FR, Segre GV, Kronenberg HM. Chemistry, molecular biology and mode of action of parathyroid hormone. In: Massery SG, Fujita T, eds. First International Conference on New Actions of Parathyroid Hormone, Kobe, Japan, October 26-31, 1987. New York: Plenum Press, 1989: 11-18.
98. Segre GV, Abou-Samra AB, Jüppner H, Schipani E, Force T, Urena P, Freeman M, Kong XF, Kolakowski LF Jr, Hock J, Bonventre J, Potts JT Jr, Kronenberg HM. Characterization of cloned PTH/PTHrP receptors. J. Endocrinol. Invest. 1992, 15(supplement 6 to no. 9):11-17,
99. Segre GV, Abou-Samra AB, Gardella TJ, Jüppner H, Kronenberg HM, Nussbaum SR, Potts JT Jr. Structural analysis of the PTH/PTHrP receptor's functional domains. In: Calcium Regulating Hormones and Bone Metabolism. Amsterdam: Elsevier Science Publishers BV, pp92-96.
100. Kronenberg HM, Jüppner H, Abou-Samra AB, Potts JT, Jr, Segre GV. A common receptor for parathyroid hormone and parathyroid hormone-like peptide. In: Mornex R, Jaffiol C, Leclere J, eds. Proceedings of the Ninth International Congress on Endocrinology, Nice, France, 30 August-5 September 1992. Camforth, Lancs, UK: Parthenon Publishing, 1993:357-359.
101. Abou-Samra AB, Juppner H, Kong XF, Schipani E, Iida-Klein A, Karga H, Urenea P, Gardella TF, Potts Jr JT, Kronenberg HM, Segre GV. Structure, fonction et expression de l'hormone parathyroidienne et du peptide apparenté à l'homone parathyroidienne. Actualite Nephrlogic Jean Hamburger, Hopital Necker 1993, pp185-201.
102. Kronenberg HM, Bringhurst FR, Nussbaum SR, Jüppner H, Abou-Samra AB, Segre GV, Potts JT Jr. Parathyroid hormone: biosynthesis, secretion, chemistry, and action. In: Mundy GR, Martin TJ, eds. Handbook of Experimental Pharmacology (volume 107, 1993): Physiology and Pharmacology of Bone. Heidelberg, Germany: Springer-Verlag, pp507-567.

103. Urena P, Abou-Samra AB, Juppner H, Kong XF, Lee K, Bringhaurst FR, Potts JTJr, Kronenberg HM, Segre GV. Mode d'action de l'hormone parathyroidienne (PTH) et du peptide apparenté à la PTH (PTHrP) au niveau des organs cibles. Les Annales d'Endocrinology (Paris) 1994, 55: 556-565.

104. Abou-Samra AB, Juppner H, Kong XF, Schipani E, Iida-Klein A, Karga H, Urenea P, Gardella TF, Potts Jr JT, Kronenberg HM, Segre GV. Structure, Function and expression of the parathyroid hormone/parathyroid hormone receptor. Adv Nephrol 1994, 23:247-264.

105. Juppner H, Schippanin E, Segre GV, Abou-Samra AB, Gardella T. Structure function studies with recombinant PTH/PTHrP receptors. J Bone Min Met 1994, 12 (Suppl 1): S169-S174.

106. Juppner H and Abou-Samra AB Molecular Cloning of Peptide Hormone Receptors. In Principle of Bone Biology. (Ed: JP Bilezikian, LG Raisz and GA Rodan) Academic Press, pp1149-1160.

107. Kong XF, Urena P, Schipani E, Jüppner H, Kronenberg HM, Potts JT Jr, Segre GV, Abou-Samra AB. Preliminary characterization of rat genomic clones encoding the common receptor for parathyroid hormone and parathyroid hormone related peptide. In: Calcium Regulating Hormones and Bone Metabolism. Amsterdam: Elsevier Science Publishers BV, pp97-101 (1993).

108. Jüppner H, Abou-Samra A-B. Molecular cloning of peptide hormones and their receptors. In: Bilezikian JP RL, Rodan GA, ed. Principles of Bone Biology. San Diego: Academic Press, 1996:1149-1159.

109. Kronenberg H, Abou-Samra A, Bringhurst F, Gardella T, Jüppner H, Segre G. The PTH/PTHrP receptor: One receptor for two ligands. In: Thakker R, ed. Genetics of Endocrine and Metabolic Disorders. London: Chapman & Hall, 1997:389-420.

110. Abou-Samra AB Parathyroid Hormone and Its Receptors. In Advances in Organ Biology: Molecular and cellular biology of bone. (Ed: Moniz), 1998 (Volume 5A):161-185.

111. Demay M, Jüppner H, Abou-Samra AB, Segre GV, Kronenberg HM. Parathyroid hormone biosynthesis and action: molecular analysis of the PTH gene and PTH/PTHrP receptor. In: Noda M, ed. Molecular and Cellular Biology of the Bone. San Diego, California: Academic Press,

112. Kronenberg HM, Abou-Samra AB, Jüppner H, Potts JT Jr, Segre GV. Characterization of a receptor that binds both PTH and PTHrP. In: Calcium Regulating Hormones and Bone Metabolism. Amsterdam: Elsevier Science Publishers BV, pp79-82.

ADVISORY AND SUPERVISORY RESPONSIBILITIES

2007-Present	Attending physician for Endocrine Fellows, Wayne State university School of Medicine; a total of 6 Fellows per year, 100 hours a year.
	Supervise the Endocrine Research Laboratory, which include students, post-doctoral fellows and junior faculty members
1994-2007	Attending Physician for Endocrine Fellows at Massachusetts General Hospital, 4-6 Fellows per year, 100 hours a year
1994-2002	Graduate Student Advisor; One Ph.D., graduate student, 200 hours per year.

1988-2007 Supervise post-doctoral Fellows and Junior Faculty members in Endocrine Research Activity.

SELECTED REGIONAL, NATIONAL AND INTERNATIONAL PRESENTATION (INVITED)

2007 Osteoporosis and Metabolic Bone Diseases, Medical Grand Round, Wayne State University

2004 PTH/PTHrP Receptor Update, University of Pittsburgh, Pittsburgh, PA

2003 Role of PTH/PTHrP Receptor Phosphorylation – A Knock in mouse model expressing Phophorylation-deficient PTH/PTHrP receptor; American Society for Bone and Mineral Research, Hormone Receptor Symposium, Plenary session.

2002 PTH/PTHrP receptor regulation, an update. Seminar, Endocrine Study Section, NIDDK, NIH, Bethesda, MD

2000 PTH/PTHrP receptor, cloning, functions and expression, Grand Round, Brigham and Women Hospital, Boston, MA

1999 PTH/PTHrP receptor gene and its regulation, seminar, Netherlands Genetic Institutes, Netherlands

1999 PTH/PTHrP receptor, Seminars in Nephrology, Paris, France

1998 Update on PTH and its receptor, Grand Round, Lyon I University, Lyon, France

1997 Molecular cloning of the PTH/PTHrP receptor, Grand Round, Massachusetts General Hospital, Boston, MA

TRAINING AND MENTORING ACTIVITIES

CURRENT TRAINING / MENTORING ACTIVITES

Name	Period	Degree	Year	From	Project	Current Position
Gebreselassie Nida	2007-2008	MD	1999	Addis Ababa Univ Ethiopia	Clinical Endocrinology	Endocrine Fellow
Neelima Singh	2007-2008	MD	2002	Rajendra Medical College - India	Clinical Endocrinology	Endocrine Fellow
Veena Watwe	2007-2008	MD	2001	Byramjee Pune, India	Clinical Endocrinology	Endocrine Fellow
Suzette Robinson	2007-2008	MD	1997	University of West Indies, Jamaica	Clinical Endocrinology	Endocrine Fellow
Suchitra Zambare	2007-2008	MD	1991	Gandhi Medical College, Bhopal, India	Clinical Endocrinology	Endocrine Fellow
Nabanita Datta	2007-	PhD	1982	Calcutta University, India	PTH/PTHrP signaling	Assistant Professor, WSU
AKM Sattar	2007-	PhD	1990	Nagasaki University, Japan	Insulin Signaling	Assistant Professor, WSU
Panchali Khana	2007-	MD	2000	Patil Medical College, Mumbai, India	Adiponectin Receptors	Research Fellow
Hamdee Attallah	2007-	MD	1996	Wayne State University	Insulin resistance in CKD	Assistant Professor, WSU
Berhane Seyoum	2007-	MD	1987	Ethiopia	Cytokines expression in adipocytes	Assistant Professor, WSU
Dusanka Skundric	2007-	MD, PHD	1980 1989	Belgrade University	Pathogenesis of T1DM	Assistant Professor, WSU
Simona V. Proteasa	2007	MD PhD	1992 2007	Romania WSU, Detroit, MI	AMPK and T2DM	Post-doctoral research

PAST TRAINEES

Trainee	Period	Degree	Year	Institution	Training/Mentoring project	Current Position
Anita Repp	2007	MD			Clinical Endocrinology	Endocrinologist, Canton, MI
Karen Koeing	2007	MD			Clinical Endocrinology	Endocrinologist, Troy, MI
Susan Meidlich	2006 – 2007	MD	1999	Leipzig University, Germany	Role of PTH receptor Phospophorylation in vivo	Post-Doc, Mass. General Hospital
Aleana Zalutskaya	2006-2007	MD, PhD	1994, 2001	Minsk State Medical Institute, Belarus	Role of Urocortin1 in chronic stress	Post-Doc, Mass. General Hospital
Iman Assil	2001-2004	PhD	2001	University of Mass, Lowell, MA	Ligand binding domains of the CRF receptor	Staff Scientist, Agilent Scientific
Maya Arai	1999-2002	PhD	1997	Boston University	Molecular cloning of the fish CRF receptor	Staff scientist, Weyeth Research, Cambridge
Hesham Tawfeek	1997-2002	MD	1992	El-Minia University, El-Minia, Egypt	PTH receptor internalization	Instructor, Harvard Medical School
Mansur Shormali	2000-2002	MD	1995	McGill University	Role of Vasopressin in the stress response	Assistant Professor, University of Maryland
Jian Che	2001-2002	MS	1999	University/China	Green fluorescent protein labeling of membrane receptor	Graduate student, Milwaukee, Wisconsin
Qinbing Zhu	2000-2002	PhD	2003	North Eastern University	Alpha-adrenergic receptor mutants	Assistant Professor, Yale, New Haven CT
Louise JS Williams	2000-2001	PhD	1999	University of Dundee, England	PTH receptor gene	Staff Scientist, Pharamaceutical Co
Fang Qian	1997-2000	MS	1994	University/China	PTH receptor phosphorylation	Staff Scientist, Genetic Institute, Boston
Alice Zou	1997-1998	PhD	1994	University of Melbourne, Australia	PTH receptor glycosylation	Staff Scientist, Pharmaceuticals, Australia
Georgia Giannoukos	1997-1998	PhD	1995	University of Maryland	PTH receptor gene	Staff Scientist, Genetic Institute, Boston
Marcel Karperien	1998	PhD	1999	Netherlands Genetic Institute, Netherlands	Mouse PTH receptor	Associate Professor, University of Twente, the Netherlands
Husoung	1996-	BA	1997	Tufts	PTH receptor gene	Medical School

Joun	1998					Student
Lin Y. Xie	1995-1999	MS	1994	University/China	PTH receptor mutagenesis	Research Associate, Richmond, MD
Lajun Qi	1996-1997	PhD	1998	University Massachusetts	Role of disulfide bonds in CRF receptor function	Staff Scientist, Pharmaceuticals