

CURRICULUM VITAE

Derek LeRoith, M.D., Ph.D., F.A.C.P.

ADDRESS:

Derek LeRoith MD PhD
Director of the Metabolism Institute
Chief of the Division of Endocrinology, Diabetes and Bone Diseases
Director of the Metabolism Institute
Mt.Sinai School of Medicine
1 Gustave Levy Place-Box 1055
Atran B4-36
New York NY 10029-6574

Tel 212 241 6306
Fax 212 241 4159

derek.leroith@mssm.edu

Date of Birth: January 3, 1945

Education:

Sea Point Boy's High School,
 Cape Matriculation in 1961, with distinction in mathematics

Degrees:

1967 M.B. Ch.B (M.D. equivalent) University of Cape Town
 1973 Ph.D. Thesis University of Cape Town
 1974 F.C.P. (S.A.) Fellow, College of Physicians of S. Africa
 Member of the Royal College of Physicians of the United Kingdom

Postgraduate Training and Career:

- '68 House Physician
Professorial, Medical and Surgical Units, Groote Schuur Hospital, University of Cape Town
- '69 Resident
Department of Pediatrics,
Kaplan Hospital, Rehovot, Israel (6 months)
- Family Doctor
Kibbutzim - Galil Elyon (6 months)
- '70-72 Research Fellow
Ph.D. Student in Research Laboratory of Professor B.L. Pimstone,
Department of Medicine, University of Cape Town
- '72-74 Resident and Tutor
Department of Medicine, Groote Schuur Hospital,
University of Cape Town (9 months Endocrine Fellow)
- '75 Senior Resident
The Middlesex (teaching) Hospital, London,
Departments of Medicine and Geriatrics
- '76 Attending (6 months)
Renal Unit and Endocrine Clinics,
Meir Hospital, Kfar Saba, Israel
- '76 Attending in Medicine and Endocrinology
Department of Medicine, Soroka Medical Center, Beersheva, Israel. Lecturer
in Medicine and Endocrinology, Soroka Health Science Center, Ben Gurion
University Medical School, Beersheva, Israel.
- '79 Senior Lecturer in Medicine and Endocrinology,
Ben Gurion University Health Science Center, Beersheva, Israel
- '79-83 Visiting Scientist
Diabetes Branch, National Institute of Arthritis, Diabetes, Digestive &
Kidney Diseases, National Institutes of Health, Bethesda, Maryland.
- '83 Associate Professor of Medicine
Dept. of Medicine, Division of Endocrinology/- Metabolism, University of

Cincinnati College of Medicine, Cincinnati, Ohio Director of University of Cincinnati Diabetes Outpatient Clinics, Cincinnati, Ohio

- 1983-86 Senior Investigator
Diabetes Branch, National Institute of Arthritis, Diabetes, Digestive & Kidney Diseases, National Institutes of Health, Bethesda, Maryland
- 1986-98 Chief, Section of Molecular and Cellular Physiology
Diabetes Branch, National Institutes of Diabetes, Digestive & Kidney Diseases, National Institutes of Health, Bethesda, Maryland
- 1999-2005 Chief, Diabetes Branch (known as Clinical Endocrinology Branch prior to October 2002)
National Institutes of Diabetes, Digestive and Kidney Diseases, National Institutes of Health, Bethesda, MD
- 2005- Chief of the Division of Endocrinology, Diabetes and Bone Diseases.
Mt Sinai School of Medicine New York, NY
- 2008- Director of the Metabolism Institute, Mt Sinai School of Medicine

Memberships in Professional Societies

- 1972 Society for Endocrinology, Metabolism and Diabetes of Southern Africa
- 1974 Fellow of the College of Physicians of South Africa
- 1975 Member of the Royal College of Physicians United Kingdom
- 1977 Israel Endocrine Society
- 1978 European Association for the Study of Diabetes
- 1979 American Endocrine Society
- 1982 American Diabetes Association

- 1982 The New York Academy of Sciences
- 1983 Central Society for Clinical Research
- 1983 Fellow of American College of Physicians (FACP)
- 1986 Society for Neuroscience
- 1986 American Physiological Society
- 1986 American Society for Cell Biology
- 1988 American Society of Clinical Investigation
- 1989 American Society for Biochemistry and Molecular Biology
- 1990 American Society for Microbiology
- 1996 American Academy of Physicians

Administrative Responsibilities

- 1983 Chairman of the Professional Education Committee, American Diabetes Association (Cincinnati)
- 1988 President, Montgomery Chapter - American Diabetes Association
- 1990 President, Washington, D.C. Affiliate - American Diabetes Association
- 1993-1996 Annual Meeting Screening Committee, The Endocrine Society
- 1994 Board of Directors, National American Diabetes Association
- 1996-2005 Chief of the Endocrine Consult Service, Clinical Center, NIH
- 1996 President, International Society for Insulin-like Growth Factor Research
- 1998 Chairperson, Research Grant Review Panel, National American Diabetes Association.

- 1999 Chairperson, Grant Review Committee for Endocrinology, Veterans' Administration.
- 2002-present Board of Directors, Endocrine Fellows Foundation

Honors and Awards:

- 1963 Medal for Physiology
- 1966 Medal for Obstetrics and Gynecology
- 1973 Bronte Stewart Award for Ph.D. Thesis
- 1996 British Endocrine Society Transatlantic Medal
- 1996 The Herman O. Mosenthal Memorial Lecture
- 2004 The Yogesh C. Patel Memorial Lecture
- 2008 Dell Fisher Visiting Professor, UCLA

Credentialing:

- 1979 Visa Qualifying Examination
- 1980 FLEX - New York State
- 1980 Licensed in New York State
- 1981 Licensed in Maryland
- 1981 Licensed in Virginia
- 1983 Licensed in Ohio
- 1983 Diplomate of the American Boards of Internal Medicine

1986 Boards in Endocrinology and Metabolism

Visiting Professor Lectureships

1. The Second Annual Kroc Lectureship, May 19, 1987.
2. Jack H. Mostow, M.D. Memorial Lecture Series, November 11, 1987.
3. The Warren F. Wilhelm Lectureship, 1989, Ed Bixby Research Institute, Kansas City, MO
4. 14th Michael G. Wohl Memorial Lecture, Philadelphia County Medical Society, November 8, 1989
5. 10th Annual Lind Memorial Diabetes Lecture, Bryn Mawr, PA, March, 1990
6. The John H. Moyer Visiting Professor Lectureship, January 22-24, 1991, University of Pittsburgh, PA
7. U.S.S.R. Academy of Sciences, Moscow, Kiev, and Leningrad, Sept./Oct., 1991.
8. Dozor Visiting Professor in Medicine in the Faculty of Health Sciences, Ben Gurion University of the Negev, Beer-Sheva, Israel, November, 1993
9. Meadow Brook Lecturer. OHEP Center for Medical Education, Michigan. June 6, 2000.
10. 2000 Dean's Distinguished Lecture. Wayne State University, Detroit MI June 2000 "The Future of Diabetes Treatment and Prevention".
 11. 2004 The Mackler Lecture, Montefiore NY
 12. 2004 The Yogesh Patel Memorial Lecture, Montreal
 13. 2005 The 6th Annual Nicholas T.Zervas Lecture, MGH, Boston
14. 2008 Dell Fisher Visiting professor, UCLA

Grant Support

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| 1980-1981 | American Diabetes Association Washington, D.C. Affiliate |
| 1983-1984 | Biomedical Research Support Grant |
| 1987 | American Diabetes Association, Washington, D.C. Affiliate. |
| 1987 | Diabetes Research and Education Foundation |

1993-present American Diabetes Association Mentor-Based Postdoctoral Fellowship Program

2008 NCI Grant on Diabetes and Breast Cancer 1R01CA128799-01A1

Books Edited

Purification of Fermentation Products ACS Symposium Series, 1984
Edited By: D. LeRoith, J. Shiloach and T.J. Leahy

Insulin, Insulin-like Growth Factors, and Their Receptors in the Central Nervous System. Edited by M. K. Raizada, M. I. Phillips, and D. LeRoith, 1987.

Molecular and Cellular Biology of Diabetes Mellitus, Vols. I,II, and III. Insulin Secretion. Edited by B. Draznin, S. Melmed, and D. LeRoith, 1988.

Molecular and Cellular Biology of Insulin-like Growth Factors and their Receptors. Edited by D. LeRoith, and M.K. Raizada, 1989.

Insulin-like Growth Factors: Molecular and Cellular Aspects.
Edited by D. LeRoith, 1991. C.R.C. Press, Boca Raton, Florida.

Molecular Biology and Physiology of Insulin-Like Growth Factors. Edited by Mohan K. Raizada and Derek LeRoith. Advances in Experimental Medicine and Biology, Vol. 293, 1991.

The Role of Insulin-Like Growth Factors in the Nervous System. Edited by M.K. Raizada, and D. LeRoith. Annals of the New York Academy of Sciences, Vol. 692, 1993.

Current Directions in Insulin-Like Growth Factor Research. Edited by D. LeRoith and M.K. Raizada. Advances in Experimental Medicine and Biology, Vol. 343, 1993.

Molecular Biology of Diabetes. Volumes 1 & 2. Edited by B. Draznin and D. LeRoith. Humana Press, Totowa, N.J., 1994.

Growth Factors and Cytokines in Health and Disease. Edited by C. Bondy and D. LeRoith. JAI Press, Greenwich, Conn., 1996.

Frontiers in Endocrinology. Edited by D. LeRoith. The role of insulin-like growth factors in ovarian physiology. Ares-Serono Symposia Publications, Rome, Italy, 1996.

Diabetes Mellitus. A Fundamental and Clinical Text. Edited by D. LeRoith, J.M. Olefsky, and S.I. Taylor. Lippincott-Raven Publishers, Hagerstown, MD, 1996.

Advances in Molecular and Cellular Endocrinology (Yearly series) JAI Press Inc
Editor D. LeRoith

Reviews in Endocrine and Metabolic Disorders (Quarterly Series) Kluwer Press.
Editor-in-Chief D. LeRoith 2000-

Diabetes Mellitus. A Fundamental and Clinical Text. Second Edition. Editors D. LeRoith, J.M. Olefsky and S.I. Taylor. Lippincott Publishers. Second Edition. 2000

LeRoith, D., Zumkeller, W., Baxter, R., eds. Insulin-like Growth Factors, Landes Bioscience, Georgetown, TX and Kluwer Academic, New York, NY, 2003.

Diabetes Mellitus. A Fundamental and Clinical Text. Third Edition. Editors D. LeRoith, S.I. Taylor, and J.M. Olefsky. Lippincott Publishers. Third Edition. 2004.

Controversies in Treating Diabetes: Clinical and Research Aspects Editors D. LeRoith and A.I. Vinik. Humana Press 2008.

Editorial Board

1987 Endocrinology

- 1990 Regulatory Peptides
- 1990 Biological Signals
- 1993 Receptor
- 1993 Experimental Cell Research
- 1994 The Journal of Clinical Endocrinology & Metabolism
- 1994 The Journal of Clinical Investigation
- 1995 American Journal of Physiology
- 1996 Cytokine & Growth Factor Reviews
- 1997 Journal of Biological Chemistry
- 1997 Editor of Growth Regulation
- 1998 The Aging Male
- 1998 Editor, Growth Hormone & IGF Research
- 2000 Diabetes/Metabolism Research and Reviews
- 2003 Metabolic Syndrome and Related Disorders
- 2004 Reviews in Endocrine and Metabolic Disorders
- 2005 Endocrine Clinics of North America
- 2008
Associate Editor Endocrinology

REVIEW COMMITTEES

Veterans Administration Merit Review Committee for Endocrinology
1996-2000 (Chair 1999-2000)

American Diabetes Association Research Grant Review Committee
1997-1999 (Chair 1998-1999)

PUBLICATIONS

1. LeRoith, D., and Pimstone, B.L.: Bone metabolism and composition in the protein deprived rat. *Clin. Sci.* 44:305-319, 1973.

2. LeRoith D., and Pimstone, B.L.: The use of simultaneously administered ⁴⁷Ca in the study of calcium kinetics in the rat. *Horm. and Metab. Res.* 5(2):118, 1973.

3. LeRoith, D. and Pimstone, B.L.: Bone densitometry of the femoral midshaft in the protein deprived rat.. *S. Afr. Med. J.* 47:72-74, 1973.

4. LeRoith, D. Vinik, A.I., and Jackson, W.P.U.: Recovering on rewarming after hypothermic hyperglycaemia. *S. Afr. Med. J.* 48:1617-1619, 1974.

5. LeRoith, D. Vinik, A.I., Epstein, S., Baron, P., Olkenitsky, M.N., and Pimstone, B.L.: Somatostatin and serum gastrin in normal subjects and in patients with pernicious anaemia, chronic liver and renal disease. *S. Afr. Med. J.* 49:1601-1604, 1975.

6. Pimstone, B.L. LeRoith, D., Epstein, S., and Kronheim, S.: Disappearance rates of plasma growth hormone after intravenous somatostatin in renal and liver disease. *J. Clin. Endocrinol. Metab.* 41:393-395, 1975.

7. LeRoith, D., and Keeton, F.R.: Isolated partial deficiency of adrenocorticotrophic hormone. *S. Afr. Med. J.* 49:1754-1756, 1976.

8. Epstein. S., LeRoith, D., and Rabkin, R.: The effect of different preparations of human growth hormones on plasma renin activity in normal males. *J. Clin. Endocrinol. Metab.* 42:390, 1976.

9. Pimstone, B.L., Epstein, S., Hamilton, S.M., LeRoith, D., and Hendricks, S.: Metabolic clearance and plasma half disappearance time of exogenous gonadotrophin releasing hormone in liver disease and chronic renal failure. *J. Clin. Endocrinol. Metab.* 44:356-360, 1977.

10. Botha, J.L., Vinik, A.I., LeRoith, D., Child, P.T., and Jackson, W.P.U.: The effects of somatostatin on hormonal and metabolic responses in chronic pancreatitis. *S. Afr. Med. J.* 51:872-875, 1977.

11. Epstein, S., Zylsmit, R.V, LeRoith, D., Vinik, A.I., and Pimstone,

B.L.: Effects of TRH on prolactin, plasma renin activity, water and electrolyte excretion in normal males. *Horm. and Metab. Res.* 9:495-498, 1977.

12. Bernheim, J., Shapiro, M., Spitz, I.M., Shapiro, J., and LeRoith, D.: Elevation des taux de parathormone (PTH) serique en cas d'hyperprolactinemia. *La Nouvelle Pres. Med.* 6:4143, 1977.

13. Danovitch, G.M., LeRoith, D., and Glick, S.M.: Demeclocycline in the syndrome of inappropriate ADH secretion. *Israel J. Med. Sci.* 14:852-856, 1978.

14. LeRoith, D. and Myers, B.D.: Sodium handling and the renin angiotensin -aldosterone system in adult polycystic kidney disease. *Cardiovas. Med.* 3:1215-1211, 1978.

15. Luboshitzky, R., Lavie, P., Sok, Y., Shen Orr, D., Glick, S.M., LeRoith, D., and Barzilai, D.: Antidiuretic hormone secretions and urine flow in aged catheterized patients. *T.I.T. J. of Life Sci.* 8:99-104, 1978.

16. Mahler, D., Hauben, D., LeRoith, D., and Glick, S.M.: Radioimmunoassay of ADH in burn shock period. *Burns* 5:269-273, 1979.

17. Spitz, I.M., Zylber, E., Jersky, J., and LeRoith, D.: Atropine suppression of basal and metoclopramide-induced human pancreatic polypeptide secretion in man. *Metabolism*, 28:527-530, 1979.

18. Zylber, E., LeRoith, D., Jersky, J., and Spitz, I.M.: Metoclopramide induced human pancreatic polypeptide secretion in normal subjects and maturity onset diabetics. In: *Nutrition and the Diabetic Child*. Z. Laron and M. Karp, editors. In series: *Pediatric and Adolescent Endocrinology*, pp.356-360, 1979.

19. Brenner, H., Tovi, F., Sidi, J., Zirkin, H., and LeRoith, D.: Medullary carcinoma of the thyroid. *Israel J. Med. Sci.* 15:151-155, 1979.

20. LeRoith, D., Burshell, A.C., Ilia, R., and Glick, S.M.: Short metacarpal in the patient with idiopathic hypoparathyroidism. *Israel J. Med. Sci.* 15:460-461, 1979.

21. LeRoith, D., Bark, H., and Glick, S.M.: Somatostatin and antidiuretic hormone secretion in dogs. *Horm. Metab. Res.* 11(2):177-178,

1979.

22. Spitz, I.M., Cohen, H., Almaliach, U., and LeRoith, D.: Impaired prolactin response to TRH in isolated gonadotropin deficiency and exaggerated response in seminiferous tubule failure. *J. Clin. Endocrinol. Metab.* 48:941-945, 1979.
23. LeRoith, D., Potashnik, G., and Glick, S.M.: Bromocriptine in hyperprolactinemic amenorrhea: A possible early effect on ovarian steroidogenesis. *Internat. J. of Fertil.* 24:145-147, 1979.
24. LeRoith, D., Shapiro, M.S., Gurman, A., and Spitz, I.M.: Hypothalamic pituitary dysfunction in Cushing's Disease. *J. Endocrinol. Invest.* 2:379-383, 1979.
25. Danovitz, G., LeRoith, D., Sobel, R., Sikuler, E., and Strauss, R.: Amyloid goiter in familial Mediterranean fever. *Clin. Endocrinol.* 11:595-601, 1979.
26. LeRoith, D., Shapiro, M.D., Jabotinsky, K., and Spitz, I.M.: Prolactin nonresponsiveness to arginine in diabetes mellitus. *Horm. and Metab. Res.* 11:583-584, 1979.
27. LeRoith, D., Danovitz, G., Trestian, S., and Spitz, I.M.: Dissociation of prolactin response to TRH and metoclopramide in chronic renal failure. *J. Clin. Endocrinol. Metab.* 49:815-817, 1979.
28. Spitz, I.M., Trestian, S., Cohen, H., Arnon, N., and LeRoith, D.: Failure of metoclopramide to influence LH, FSH, and TSH secretion and their responses to releasing hormones. *Acta Endocrinol.* 92:640-647, 1979.
29. Lavie, P., Luboshitzky, R., Kleinhouse, N., Shen Orr, D., Barzilai, D., Glick, S.M., LeRoith, D., and Levy, J.: Rhythms in urine flow are not correlated with rhythmic secretion of ADH in hyperhydrated normal subjects. *Horm. Metab. Res.* 12:66-70, 1980.
30. LeRoith, D., Danovitz, G., Trestian, S., and Spitz, I.M.: Dissociation of pituitary glycoproteins response to releasing hormones in chronic renal failure. *Acta Endocrinol.* 93:277-282, 1980.
31. Hauben, D.J., LeRoith, D., Glick, S.M., and Mahler, D.: Nonoliguric

vasopressin oversecretion in severely burned patients. *Israel J. Med. Sci.* 16:101-105, 1980.

32. LeRoith, D., Broitman, D., Sukenik, S., and Glick, S.M.: Isolated ACTH deficiency and primary hypothyroidism: Volume-dependent elevation of antidiuretic hormone secretion in the presence of hyponatremia. *Israel J. Med. Sci.* 16:440-443, 1980.

33. LeRoith, D., Farkash, Y., Bar Ziev, J., and Spitz, I.M.: Hypothalamic-pituitary function in the Bardet-Biedl Syndrome. *Israel J. Med. Sci.* 16: 514-518, 1980.

34. Spitz, I.M., LeRoith, D., Trestian, S., Ebert, R., and Creutzfeldt, W.: Effect of acid on GIP secretion in man. In: *Entero-Insular Axis*, Editor, Creutzfeldt, W. In: *Frontiers in Hormone Research*, volume 7, S. Karger AG (Basel), pp. 173-180, 1980.

35. LeRoith, D., Sobel, R., and Glick, S.M.: The effect of clomiphene citrate on pubertal gynecomastia. *Acta Endocrinol.* 95:177-180, 1980.

36. LeRoith, D., Shapiro, M., Luboshitzky, R., and Spitz, I.M.: The hypothalamic-pituitary axis in diabetes mellitus. *Horm. Metab. Res.* 12:608-610, 1980.

37. Spitz, I.M., LeRoith, D., Livshin, Y., Zylar-Haram E., Trestian, S., Laufer, N., Ron, M., Palti, Z., and Shenker, J.: Exaggerated Prl response to TRH and metoclopramide in primary testicular failure. *Fertil. Steril.* 34:573-580, 1980.

38. LeRoith, D., Spitz, I.M., Ebert, R., Liel, Y., Odes, S., and Creutzfeldt, W.: Acid-induced GIP secretion in man. *J. Clin. Endocrinol. Metab.* 51:1385-1389, 1980.

39. Bark, H., Le Roith, D., Nyska, M., and Glick, S.M.: Elevations in plasma ADH levels during Peep in the dog: The mechanism involved. *Am. J. Physiol.* 239:E474-E481, 1980.

40. LeRoith, D., Potashnik, G., Dunn, J., and Spitz, I.M.: The exaggerated prolactin response to TRH and metoclopramide in 1,2-dibromo-3-chloro-propane-induced Azoospermia. *J. Clin. Endocrinol. Metab.* 52:38-41, 1981.

41. Spitz, I.M., Halperin, Y., Shilo, S., LeRoith, D., Zylber-Haram, E., Laufer, N., and Schenker, J.: Clomiphene effects the exaggerated Prl response to TRH and metoclopramide occurring in primary testicular failure. *J. Clin. Endocrinol. Metab.* 52:289-293, 1981.
42. Spitz, I.M., LeRoith, D., Hirsch, H., Carayon, L.P., Pekonen, F., Liel, Y., Sobel, R., Chorier, Z., and Weintraub, B.: Dissociation of biologic and receptor binding activity in a large molecular weight human TSH. *New Engl. J. Med.* 304:278-282, 1981.
43. LeRoith, D., Liel, Y., Caine, M., and Spitz, I.M.: The prolactin response to TRH is intact in the human male castrate. *Acta Endocrinol.* 96:163-167, 1981.
44. LeRoith, D., Liel, Y., Sack, J., Livshin, Y., Laufer, N., Schenker, J., and Spitz, I.M.: The TSH response to TRH is exaggerated in primary testicular failure and intact in the male castrate. *Acta Endocrinol* 97:103-208, 1981.
45. Spitz, I.M. Halperin, Y., Zylber-Haran, E., Shilo, S., LeRoith, D., Liel, Y., Livshin, Y., Laufer, N., and Schenker, J.: Prolactin response to metoclopramide and chlorpromazine in primary testicular failure and isolated gonadotropin deficiency. *Clin. Endocrinol.* 14:375-380, 1981.
46. Le Roith, D., Bark, H., Nyska, M., and Glick, S.M.: The effect of abdominal pressure on plasma antidiuretic hormone levels in the dog. *J. Surg. Res.* 32(1):65-69, 1982.
47. Gardus, D., LeRoith, D., Karplus, M., Zmora, E., Grief, M., and Bar-Ziev, J.: Congenital hyperparathyroidism and rickets: Secondary to maternal hypoparathyroidism and vitamin D deficiency. *Israel J. of Med. Sci.* 17:705-708, 1981.
48. Spitz, I.M., Novis, B.H., Ebert, E., Trestian, S., LeRoith, D., and Creutzfeldt, W.: Betazole-Induced G.I.P. secretion is not mediated by gastric HCL. *Metabolism* 31:380-383, 1982.
49. Rabinowitz, S., Cohen, R., and LeRoith, D.: Anxiety and hirsutism. *Psychological Reports* 53:827-830, 1983.
50. LeRoith, D., Shiloach, J., Roth, J., and Lesniak, M.A.: The

evolutionary origins of vertebrate hormones: Insulin in unicellular organisms. Proc. Natl. Acad. Sci. USA 77:6184-6188, 1980.

51. LeRoith, D., Lesniak, M.A., and Roth, J.: Insulin in insects and annelids. Diabetes 30:70-76, 1981.

52. LeRoith, D., Shiloach, J., Roth, J. and Lesniak, M.A.: Insulin or a closely related molecule is native to E.coli. J. Biol. Chem. 256:6533-6536, 1981.

53. LeRoith, D., Shiloach, J., Roth, J., Liotta, A.S., Krieger, D.T., Lewis, M., and Pert, C.B.: Evolutionary origins of vertebrate hormones: Material very similar to adrenocorticotrophic hormone, beta-endorphin and dynorphin in protozoa. Trans. Assoc. Am. Phys. 94:54-60, 1981.

54. Roth, J., LeRoith, D., Shiloach, J., Rosenzweig, J.L., Lesniak, M.A., and Havrankova, J.: The evolutionary origins of hormones, neurotransmitters, and other extracellular chemical messengers: Implications for mammalian biology. N. Engl. J. Med. 306:523-527, 1982.

55. LeRoith, D., Liotta, A.S., Roth, J., Shiloach, J., Lewis, M.E., Pert, C.B. and Krieger, D.T. Corticotropin and β -endorphin-like materials are native to unicellular organisms. Proc. Natl. Acad. Sci. U.S.A., 79:2086-2090, 1982.

56. Berelowitz, M., LeRoith, D., Von Schenk, H., Newgard, C., Szabo, M., Frohman, L.A., Shiloach, J., and Roth, J. Somatostatin-like immunoreactivity and biological activity is native to tetrahymena pyriformis, a ciliated protozoan. Endocrinology 110:1939-1944, 1982.

57. LeRoith, D., Shiloach, J., and Roth, J.: Is there an earlier phylogenetic precursor that is common to both the nervous and endocrine systems?: Peptides 3:211-215, 1982.

58. LeRoith, D., Shiloach, J., Berelowitz, M., Frohman, L.A., Liotta, A.S., Krieger, D.T., and Roth, J., Are messenger molecules in microbes the ancestors of the vertebrate hormones and tissue factors? Fed. Proc. 42:2602-2607, 1983.

59. Rosenzweig, J.L., LeRoith, D., Lesniak, M.A., MacIntyre, I., Sawyer W.H., and Roth, J. Two distinct insulins in the guinea pig: the broad

relevance of these findings to evolution of peptide hormones. *Fed. Proc.* 42(9):2608-14, 1983.

60. LeRoith, D., Shiloach, J., and Roth, J.: Coexistence of multiple neuroactive substances in single neurons: Do recent evolutionary studies provide a rational interpretation In: *Coexistence of Neuroactive Substances*. Chan-Palay, V. and Palay, S.L. (Eds.). John Wiley and Sons (New York); 411-421, 1983.

61. Schwabe, C., LeRoith, D., Thompson, R.P., Shiloach, J., and Roth, J.: Relaxin extracted from protozoa (*T. Pyriformis*): Molecular and immunological properties. *J. Biol. Chem.* 258:2778-2781, 1983.

62. LeRoith, D., Hendricks, S.A., Lesniak, M.A., Rishi, S., Becker, K.L., Havrankova, J., Rosenzweig, J.L. Brownstein, M.J., and Roth, J. Insulin in Brain and Other Extrapancreatic Tissues of Vertebrates and Nonvertebrates. In: *Advances in Metabolic Disorders*, Vol. 10, Chapter 11, pp.303-340, 1983. Szabo, A.J., Luft, R., and Levine, R. (Eds.), Academic Press, Inc. N.Y.

63. Lesniak, M.A., Hendricks, S.A., LeRoith, D., Young, S., Rosenzweig, J.L., Havrankova, J., Brownstein, M.J., Rishi, S., Becker, K.L., and Roth, J.: Insulin receptors and insulin in brain and other extrapancreatic tissues of vertebrates and nonvertebrates. *Proceedings of the XIth Congress of the International Diabetes Federation Excerpta Medica* pp. 213-322, 1983.

64. Roth, J. and LeRoith, D.: Intercellular Communication: The evolution of scientific concepts and of messenger molecules. In: *Medicine, Science, and Society: Symposia Celebrating The Harvard Medical School Bicentennial*, p. 425-447, John Wiley Med. Publishers, 1984.

65. Roth, J. and LeRoith, D.: Evolutionary origins of intercellular communication: Implications for human biology. In: *Receptors and the Upper G.I. tract*, p. 1-10, Eds. B.I. Hirschowitz and J.G. Spenner, Adis Press, 1983.

66. LeRoith, D. and Roth, J. Vertebrate hormones and neuropeptides in microbes: evolutionary origins of intercellular communication. In: *Frontiers in Neuro-endocrinology*, Vol. 8:1-25, Eds. L. Martini and W.F. Ganong. Raven Press, 1984.

67. Roth, J., LeRoith, D., Shiloach, J., and Rubinovitz, C.: Intercellular communication: An attempt at a unifying hypothesis. *Clin. Res* 31:354-363, 1983.
68. Deftos, L., LeRoith, D., Shiloach, J., and Roth, J.: Salmon calcitonin-like immunoactivity in extracts of *Tetrahymena pyriformis*. *Horm. Metab. Res.* 17:82-85, 1985.
69. Shiloach, J., Rubinovitz, C., and LeRoith, D. Extraction of insulin-related material and other peptide hormones from *Tetrahymena pyriformis*. In: *Recovery and Purification Processes for Fermentation Products*. Amer. Chem. Society Symposium Series 271, pp. 175-192, Eds. D. LeRoith, J. Shiloach, and T. Leahy, 1985.
70. LeRoith, D. Phylogenetic conservation of hormone-related peptides: immunocytochemical and physicochemical studies in non-vertebrates and unicellular organisms. In: *Immunolabelling for Electron Microscopy*, pp. 305-332, Eds. J.M. Polak and I.M. Varndell, Elsevier Press, 1984.
71. LeRoith, D., and Roth, J. Evolutionary Origins of Messenger Peptides: Materials in Microbes that Resemble Vertebrate Hormones. In: *Evolution and Tumour Pathology of the Neuroendocrine System*. pp. 147-164, Eds. S. Falkmer, R. Hakanson and F. Sundler. Elsevier Press, 1984.
72. LeRoith, D., Pickens, W., Crosby, L.K., Berelowitz, M., Holtgreffe, M., and Shiloach, J. Evidence for multiple molecular weight forms of somatostatin-like material in *E. coli*. *Bioch. Bioph. Acta* 838:335-342, 1985.
73. DePablo, F. Lesniak, M.A., Hernandez, E.R., LeRoith, D., Shiloach, J., Roth, J.: Extracts of protozoa contain materials that react specifically in the immunoassay for guinea pig insulin. *Horm. Metab. Res.* 18:82-87, 1986.
74. Rosenzweig, D., LeRoith, D., Lesniak, M.A., Yip, C.C., Orth, D.N., Nankin, H.R., Muroso, E.P., Berelowitz, M., Frohman, L.A., Liotta, A.S., Krieger, D.T., and Roth, J. Two distinct insulin-related molecules in the guinea pig: immunological and biochemical characterization of insulin-like immunoactivity from extrapancreatic tissues of the guinea pig. *Diabetologia* 28:237-243, 1985.

75. Roth, J., LeRoith, D., Shiloach, J., and Rabinowitz, C. Hormones and Other Messenger Molecules: An Approach to Unity. In: *Hormonal Control of the Hypothalamo-Pituitary-Gonadal Axis*. Eds. Kenneth W. McKerns and Zvi Naor, Plenum Press, 1984, pp 71-88.
76. LeRoith, D., Shiloach, J., Heffron, R., Rubinovitz, C., Tanenbaum, R., and Roth, J. Insulin-related material in microbes: Similarities and differences from mammalian insulins. *Can. J. Biochem. Cell Biol.* 63:839-849, 1985.
77. LeRoith, D., Pickens, W., Vinik, A.I., and Shiloach, J. *Bacillus subtilis* contains multiple forms of somatostatin-like material. *Bioch. Biophys. Res. Comm* 127:713-719, 1985.
78. Roth, J., LeRoith, D., Collier, E.S., Weaver, N.R., Watkinson, A., Cleland, C.F. and Glick, S.M. Evolutionary origins of neuropeptides, hormones, and receptors: Possible applications to immunology. *Journal of Immunology* 135:816-819, 1985.
79. LeRoith, D., Pickens, W., Wilson, G.L., Miller, Berelowitz, M., Vinik, A.I., Collier, E. and Cleland, C.F. Somatostatin-like material is present in flowering plants. *Endocrinology* 117:2093-2097, 1985.
80. LeRoith, D., and Roth, J. Are messenger-like molecules in unicellular microbes the common phylogenetic ancestors of vertebrate hormones, tissue factors and neurotransmitters. In: *Frontiers in Physiological Research*, Ed: Garlick D.G., Korner P.I. Australian Acad. Science, Canberra 1984, pp 87-98.
81. LeRoith, D., and Roth, J. Vertebrate receptors for hormones and neuropeptides: did they arise evolutionarily in unicellular organisms? In: *The Role of Receptors in Biology and Medicine*. Eds: A.M. Gotto, Jr. and B.W. O'Malley. Raven Press, New York, Chapter 11, pp 127-135, 1985.
82. LeRoith, D. and Roth, J. Syndromes associated with inappropriate hormone synthesis by tumors: an evolutionary interpretation. In: *Recent Results in Cancer Research*, Vol. 99. Springer-Verlag Berlin-Heidelberg, 1985.
83. Lowe, W.L., Jr. and LeRoith, D. Tyrosine Kinase activity of brain insulin and IGF-I receptors. *Biochem. Biophys. Res. Comm.* Vol.

134:532-538, 1986.

84. Lowe, W.L., Jr. and LeRoith, D. Insulin receptors from guinea pig liver and brain: structural and functional studies. *Endocrinology*, 118:1669-1677, 1986.

85. Lowe, W.L., Jr., Boyd, F.T., Clarke, D.W., Raizada, M.K., Hart, C. and LeRoith, D. Development of brain insulin receptors: structural and functional studies of insulin receptors from whole brain and primary cell cultures. *Endocrinology*, 119:25-35, 1986.

86. Shemer, J., Penhos, J.C. and LeRoith, D. Insulin receptors in lizard brain and liver: structural and functional studies of α - and β -subunits demonstrate evolutionary conservation. *Diabetologia*, 29:321-329, 1986.

87. Simon, J. and LeRoith, D. Insulin receptors of chicken liver and brain: characterization of α - and β - subunit properties. *European J. of Biochem.* Vol. 158, pp 125-132, 1986.

88. Roth, J., LeRoith, D., Lesniak, M.A., DePablo, F., Bassas, L. and Collier, E. Molecules of intercellular communication in vertebrates, invertebrates and microbes: Do they share common origins? In: *Progress in Brain Research*, Vol. 68, Chap. 5, pp 71-79, 1986.

89. LeRoith, D., Delahunty, G., Wilson, G-L., Roberts, C., Jr., Shemer, J., Hart, C., Lesniak, M.A., Shiloach, J. and Roth, J. Evolutionary Aspects of the Endocrine and Nervous Systems. In: *Recent Progress Hormone Research*, Ed. R.O. Greep (1986) 42:549-588.

90. LeRoith, D., Roberts, C., Jr., Lesniak, M.A. and Roth, J. Receptors for intercellular messenger molecules in microbes: Similarities to vertebrate receptors and possible implications for diseases in man. *Experientia* 42:782-788, 1986.

91. Waldbillig, R.J., and LeRoith, D. Insulin receptors in the peripheral nervous system: A structural and functional analysis. *Brain Research* (1987) 409:215-220.

92. Shemer, J., and LeRoith, D. The interaction of brain insulin receptors with wheat germ agglutinin. *Neuropeptides* 9:1, pp 1-8, 1987.

93. Simon, J., Rosebrough, R.W., McMurtry, J.P., Steele, N.C., Roth, J., Adamo, M. and LeRoith, D. Fasting and refeeding alter the insulin receptors tyrosine kinase in chicken liver, but fail to affect brain insulin receptors. *J. Biol. Chem.* Vol. 261, pp 17081-17088, 1986.
94. Shemer, J., Raizada, M., and LeRoith, D. Structural and functional studies on insulin receptors from alligator brain and liver. *Comp. Biochem. and Physiology* Vol. 86B, pp 55-61, 1987.
95. Lowe, W.L., Jr., Schaffner, A.I., Roberts, C.T., Jr., and LeRoith, D., Developmental regulation of somatostatin gene expression in the brain is region specific. *Molecular Endo.* 1:181-187, 1987.
96. Shemer, J., Perotti, N., Roth, J. and LeRoith, D. Characterization of an endogenous substrate related to insulin-like growth factor-I receptors in lizard brain. *J. Biol. Chem.* 262:3436-3439, 1987.
97. Roberts, C.T., Jr., Lasky, S.R., Lowe, W.L., Jr., Seaman, W.T. and LeRoith, D. Molecular cloning of rat insulin-like growth factor I cDNA's; differential mRNA processing and regulation by growth hormone in extra-hepatic tissues. *Molec. Endocr.* 1:243-248, 1987.
98. LeRoith, D., Shemer, J., Hart, C., Collier, E., Lesniak, M.A., and Roth, J. Evolutionary origins of insulin. In: *Proceedings of the 12th Congress of the International Diabetes Federation, Madrid, 23-28, Sept. 1985.* Ed. M. Seranno-Rios and P.J. Lefebvre. Elsevier Science Pub., B.V. Diabetes, 1985, pp 1097-1100.
99. Masters, B.A., Shemer, J., Judkins, J.H., Clarke, D.W., LeRoith, D. and Raizada, M.D. Insulin receptors and insulin action in dissociated brain cells. *Brain Res.* 1987, 417, 247-256.
100. Clarke, D., Lowe, W.L., LeRoith, D., and Raizada, M.D. Insulin receptors on cultured glial cells from the brain. In: *Receptors in glial cells.* Ed. H. Kimelberg, Raven Press, 1987, pp 131-140.
101. LeRoith, D., Lowe, W.L., Waldbillig, R.J., Hart, C., Simon, J., Shemer, J., Penhos, J.C., and Lesniak, M.A. Insulin receptors in the brain. In: *Neural and Endocrine Peptides and Receptors.* Ed. Terry W. Moody, Plenum Press, 1986, pp 289-297.

102. Waldbillig, R.J., Fletcher, R.T., Chader, G.J., Rajogopalan, S., Rodriguez, M. and LeRoith, D. Retinal insulin receptors. I. Structural Heterogeneity and functional characterization. *Exper. Eye Res.* 45:823-835, 1987.
103. Waldbillig, R.J., Fletcher, R.T., Chader, G.J., Rajogopalan, S., Rodrigues, M. and LeRoith, D. Retinal insulin receptors 2. Characterization and insulin-induced tyrosine kinase activity in bovine retinal rod outer segments. *Exper. Eye Res.* 45:837-844, 1987.
104. Shemer, J., Raizada, M.K., Masters, B.A., Ota, A. and LeRoith, D. Insulin-like growth factor-I receptors in neuronal and glial cells: Characterization and biological effects in primary culture. *J. Biol. Chem.* 262:7693-7699, 1987.
105. Hart, C., Shemer, J., Penhos, J.C., Lesniak, M.A., Roth, J. and LeRoith, D. Frog brain and liver show evolutionary conservation of tissue specific differences among insulin receptors. *Gen. and Comp. Endocrinol.*, 68:170-178, 1987.
106. LeRoith, D., Roberts, Jr., C.T., Lesniak, M.A. and Roth, J. Receptors for intercellular messenger molecules in microbes: similarities to vertebrate receptors and possible implications for diseases in man. In: *Development of Hormone Receptors.* G.Csaba (ed) 1987, pp 167-180.
107. LeRoith, D., Lowe, Jr., W.L., Shemer, J. Raizada, M.D. and Ota, A. Development of brain insulin receptors. *Inter. J. Biochem.* 20:3;225-230, 1988.
108. Raizada, M.K., Shemer, J., Judkins, J.H., Clarke, D.W., Masters, B.A. and LeRoith, D. Insulin receptors in the brain: Structural and physiological characterization. *Neurochem. Res.* 13:297-303, 1988.
109. Roberts, C.T., Jr., Lasky, S.R., Lowe, W.L., Jr., and LeRoith, D. Rat IGF-I cDNA's contain multiple 5'-untranslated regions. *Bioch. Biophys. Res. Comm.*, 1987, 146:1154-1159.
110. Ota, A., Shemer, J., Pruss, R.M., Lowe, Jr., W.L., and LeRoith, D. Characterization of the altered oligosaccharide composition of the insulin receptor on neural-derived cells. *Brain Res.* 443:1-11, 1987.

111. Adamo, M., Simon, J., Rosebrough, R.W., McMurtry, J.P., Steele, N.C. and LeRoith, D. Characterization of the chicken muscle insulin receptor. *Gen Comp. Endocrinol.* 68:456-465, 1987.
112. Lowe, W.L., Jr., Roberts, C.T., Jr., Lasky, S.R. and LeRoith, D. Differential expression of alternative 5'-untranslated regions in mRNAs encoding rat insulin-like growth factor I. *Proc. Natl. Acad. Sci. USA* 84:8946-8950, 1987.
113. Shemer, J., Adamo, M., Wilson, G.-L., Heffez, D., Zick, Y., and LeRoith, D. Insulin and IGF-I stimulate a common endogenous phosphoprotein substrate (pp 185) in intact neuroblastoma cells. *J. Biol. Chem.* 262:15476-15482, 1987.
114. Ota, A., Wilson, G.-L., Pruss, R., and LeRoith, D. Functional IGF-I receptors are expressed by neural-derived continuous cell lines. *Endocrinol.* 122:145-152, 1988.
115. LeRoith, D., Lowe, Jr., William L. and Roberts, Jr., Charles T. Evolution of Insulin and Insulin Receptors, pp 107-120. In: *Insulin, Insulin-like Growth Factors and Their Receptors in the Central Nervous System.* Mohan K. Raizada and M. Ian Phillips, and Derek LeRoith (eds), Plenum Press, New York, 1987
116. Raizada, Mohan K., Boyd, F.T., Clarke, D.W. and LeRoith, D. Physiologically Unique Insulin Receptors on Neuronal Cells, pp 191-200. In: *Insulin, Insulin-like Growth Factors and Their Receptors in the Central Nervous System.* Mohan K. Raizada and M. Ian Phillips and Derek LeRoith, (eds), Plenum Press, New York, 1987.
117. Rodrigues, M., Waldbillig, R.J., Rajagopalan, S., Hackett, J., LeRoith, D. and Chader, G.J. Retinal insulin receptors: Localization using a polyclonal anti-insulin receptor antibody. *Brain Res.* 443:389-394, 1988.
118. Ota, A., Wilson, G.L., and LeRoith, D. Insulin-like growth factor-I receptors on mouse neuroblastoma cells: β subunits are derived from differences in glycosylation. *European J. Biochem.* 174:521-530, 1988.
119. Shemer, J. Ota, A., and LeRoith, D. Insulin sensitive tyrosine kinase is increased in livers of adult obese Zucker rats: Correction with

prolonged fasting. *Endocr.* 123:140-148, 1988.

120. Lowe, W.L., Jr., Lasky, S.R., LeRoith, D., and Roberts, Jr. C.T. Distribution and regulation of rat insulin-like growth factor I mRNA's encoding alternative carboxyterminal E-peptides: Evidence for differential processing and regulation in liver. *Molec. Endocr.* 2:528-535, 1988.

121. Adamo, M., LeRoith, D., Simon, J., and Roth, J. Effect of altered nutritional states on insulin receptors. *Ann. Rev. Nutr.* 8:149-166, 1988.

122. LeRoith, D., Rojeski and Roth, J. Insulin receptors in brain and other tissues: similarities and differences. *Neurochem. Int.* 12:419-423, 1988.

123. Roth, J. and LeRoith, D. Chemical cross talk. Why human cells understand the molecular messages of plants. *The Sciences*, May/June, pp50-54, 1988.

124. Shemer, J., Adamo, M., Raizada, M.K., Heffez, D., Zick, Y. and LeRoith, D. Insulin and IGF-I stimulate phosphorylation of their respective receptors in intact neuronal and glial cells in primary culture. *J. of Molec. Neurosci.* 1:3-8, 1989.

125. Roth, J., Lesniak, M.A., de Pablo, F., Bassas, L., Girbau, M., Shiloach, J. and LeRoith, D. How cells communicate: A broad perspective. *To Nyo Byo Vol.* 30, No. 12, pp 1067-1076, 1987.

126. Adamo, M., Werner, H., Farnsworth, W., Roberts, C.T., Jr., Raizada, M., and LeRoith, D. Dexamethasone reduces steady-state IGF-I mRNA levels in rat neuronal and glial cells in primary culture. *Endocrinology*, 123:2565-2570, 1988.

127. Roth, J. and LeRoith, D. Insulin and Brain. *Encyclopedia of Neuroscience*, Ed: George Adelman, Vol. 1:537-538, 1987. Birkhauser, Boston.

128. Fagin, J.A., Roberts, C.T., Jr., LeRoith, D., and Brown, A. Coordinate decrease of tissue insulin-like growth factor I post-transcriptional alternative mRNA transcripts in diabetes mellitus. *Diabetes*, 38:428-434, 1989.

129. Adamo, M., Shemer, J., Aridor, M., Dixon, J., Carswell, N., Bhatena, S.J., Michaelis, O.E., IV, and LeRoith, D. Liver insulin receptor tyrosine kinase activity in a rat model of type II diabetes mellitus and obesity. *J. Nutr.* 119:484-489, 1989.
130. LeRoith, D., Adamo, M., Shemer, J., Waldbillig, R., Lesniak, M.A., dePablo, F., Hart, C. and Roth, J. Insulin-related materials in the nervous system of vertebrates and non-vertebrates: possible extrapancreatic production. *Hor. Metabol. Res.* 20:411-420, 1988.
131. LeRoith, D., Delahunty, G. Wilson, G.L., Roberts, Jr., C.T., and Roth J. Evolutionary origins of the endocrine and nervous systems: Implications for the coexistence of multiple messenger molecules in neurons. In: *Progress in Catecholamine Research, Part A; Basic Aspects and Peripheral Mechanisms*, Alan R. Liss, Inc. A. Dahlstrom, R.H. Belmaker, and M. Sandler, eds. pp 221-226, 1988.
132. Werner, H., Adamo, M., Lowe, Jr., W.L., Roberts, Jr., C.T., and LeRoith, D. Developmental regulation of rat brain/Hep G2 glucose transporter gene expression. *Molec. Endocr.* 3:273-279, 1989.
133. LeRoith, D., Roberts, Jr., C.T., Wilson, G.-L., Delahunty, G. and Roth, J. Evolutionary origins of intercellular communication: implications for mammalian endocrinology. In: *Cell to Cell Communication in Endocrinology*, Vol. 49, Raven Press, Inc., F. Piva, C.W. Bardin, G. Forti, and M. Motta, eds. pp 1-10, 1989.
134. Shuldiner, A.R., Phillips, S., Roberts, Jr., C.T., LeRoith, D. and Roth, J. *Xenopus laevis* contains two non-allelic pre-pro-insulin genes:cDNA cloning and evolutionary perspective. *J.B.C.* 264:16;9428-9432, 1989.
135. Lowe, Jr., W.L., Arnold, D., Rojascki, M.T., Merimee, T., Fui, S.T., Keen, H., Mersey, J., Gluzman, S., Spratt, D., Eastman, R., Roberts, Jr., C.T., LeRoith, D., and Roth, J. Insulin-like growth factor II in non-islet cell tumors associated with hypoglycemia: Increased levels of mRNA and peptide. *J.Clin. Endocrinol. Metab.* 69:1153-1159, 1989.
136. Adamo, M., Lowe, W.L., Jr., LeRoith, D., and Roberts, C.T., Jr. IGF-I mRNAs with alternative 5'-untranslated regions are differentially expressed during development of the rat. *Endocrinol.* 124:2737-2744, 1989.

137. Lowe, Jr., W.L., Roberts, Jr., C.T., and LeRoith, D. Characterization and Expression of Alternative Messenger RNAs Encoding Rat Insulin-like Factor I. In: *Horizons in Endocrinology*, Vol. 52, pp. 107-117, 1988. Maggi, M, and Johnston, C.A. (Eds.). Raven Press, N.Y.
138. Ota, A., Shen-Orr, Z., Roberts, Jr., C.T., and LeRoith, D. TPA-induced neurite formation in a neuroblastoma cell line (SH-SY5Y) is associated with increased IGF-I receptor mRNA and binding. *Mol. Brain Res.* 6:69-76, 1989.
139. LeRoith, D., Lowe, Jr., W.L., and Roberts, Jr., C.T. Evolution of Insulin and the Insulin Receptor. In: *Molecular and Cellular Biology of Diabetes Mellitus*, Vol. II; *Insulin Action*, Chapter 1, pp. 1-10, 1989. Draznin, B., Melmed, S., and LeRoith, D. (Eds.). Alan R. Liss, Inc. NY.
140. Werner, H., Raizada, M.K., Mudd, L.M., Foyt, H.L., Simpson, I.A., Roberts, Jr., C.T., and LeRoith, D. Regulation of rat brain/Hep G2 glucose transporter gene expression by insulin and insulin-like growth factor I in primary cultures of neuronal and glial cells. *Endocrinology*, 125:314-320, 1989.
141. Lowe, Jr., W.L., Adamo, M. Werner, H., Roberts, Jr., C.T., and LeRoith, D. Regulation by fasting of rat insulin-like growth factor-I and its receptor: Effects on gene expression and binding. *JCI*, 84:619-626, 1989.
142. Hernandez, E.R., Roberts, C.T., Jr., LeRoith, D., and Adashi, E.Y. Rat ovarian insulin-like growth factor I (IGF-I) gene expression is granulosa cell-selective: 5'-untranslated mRNA variant representation and hormonal regulation. *Endocrinology*, 125:572-574, 1989.
143. Ota, A., Shen-Orr, Z., LeRoith, D. Insulin and IGF-I receptor in neuroblastoma cells: Increases in mRNA and binding produced by glyburide. *Neuropeptides*, 14:171-175, 1989.
144. Zilberstein, M., Chou, J.Y., Lowe, Jr., W.L., Shen-Orr, Z., Roberts, Jr., C.T., LeRoith, D., and Catt, K.J. Expression of IGF-I and its receptor by SV40-transformed rat granulosa cells. *Molec. Endocr.* 3:9;1488-1497, 1989.
145. Lowe, Jr. W.L., Adamo, M., LeRoith, D., and Roberts, Jr., C.T. Expression and stability of insulin-like growth factor I (IGF-I) mRNA splicing variants in the GH3 rat pituitary cell line. BBRC,

162:3;1174-1179, 1989.

146. Werner, H., Woloschak, M., Adamo, M., Shen-Orr, Z., Roberts, Jr., C.T., and LeRoith, D. Developmental regulation of the rat insulin-like growth factor I receptor gene. *Proc. Natl. Acad. Sci., U.S.A.*, 86:7451-7455, 1989.

147. Draznin, B., Lewis, D., Houlder, N., Sherman, N., Adamo, M., Garvey, W.T., LeRoith, D., and Sussman, C. Mechanism of insulin resistance induced by sustained levels of cytosolic free calcium in rat adipocytes. *Endocrinology*, 125:2341-2349, 1989.

148. Adashi, E.Y., Resnick, C.E., Hernandez, E.R., Hurwitz, A., Roberts, C.T., LeRoith, D., Rosenfeld, R., Svoboda, M.E., Van Wyk, J.J. The ovarian IGF-I system as a paradigm for putative intraovarian regulators. In: Yen, S.S.C. and Vale, W.W. (Eds.), *Serono Symposium on Advances in Neuroendocrine Regulation of Reproduction: Basic and Clinical Aspects*, Longwater Mass. pp 165-175, 1991.

149. Adamo, M., Raizada, M.K., LeRoith, D. Insulin and insulin-like growth factor receptors in the nervous system. *Molecular Neurobiology* 3:71-100, 1989.

150. Roberts, Jr., C.T., Lowe, Jr., W.L., and LeRoith, D. Transcriptional diversity in rat insulin-like growth factor I gene expression. In: LeRoith, D. and Raizada, M.K. (Eds.), *Molecular and Cellular Biology of Insulin-like Growth Factors and their Receptors*, Plenum Press, 1989, 107-116.

151. Adamo, M., Shemer, J. and LeRoith, D. Insulin and Insulin-like Growth Factor I Mediated Phosphorylations in Mouse Neuroblastoma N18 Cells: A Model for Studying Insulin and IGF-I Action on Neural Tissue. In: LeRoith, D. and Raizada, M.K. (Eds.) *Molecular and Cellular Biology of Insulin-like Growth Factors and their Receptors*. Plenum Press, 1989, 327-340.

152. Masters, B., Shemer, J. LeRoith, D., and Raizada, M.K. Insulin-like Growth Factor Receptors in the Central Nervous System: Phosphorylation Events and Cellular Mediators of Biological Function. In: LeRoith, D. and Raizada, M.K. (Eds.), *Molecular and Cellular Biology of Insulin-like Growth Factors and their Receptors*. Plenum Press, 1989, 341-358.

153. Magri, K.A., M. Adamo, D. LeRoith and T.D. Etherton. The inhibitory effects of porcine growth hormone on insulin action, glucose metabolism and lipogenic enzyme activity in porcine adipocytes are not associated with any decrease in insulin binding or insulin receptor kinase activity. *Biochem. J.*, 266:107-113, 1990.
154. Jansson, J.-O., L. Carlsson, S. Ekberg, J. Isgaard, B. Carlsson, H. Billig. D. LeRoith, C.T. Roberts, Jr., M. Adamo and M. Woloschak. Pulsatile GH secretory pattern: its autofeedback regulation and effects on growth factors. *Acta Paediatr. Scand.* 367:98-102, 1990.
155. Mudd, L.M., Werner, H., Shen-Orr, Z., Roberts, C.T., Jr., LeRoith, D., Haspel, H.C., and Raizada, M.K. Regulation of rat brain/Hep G2 glucose transporter gene expression by phorbol esters in primary cultures of neuronal and astrocytic glial cells. *Endocrinol.* 126:545-549, 1990.
156. Bach, M.A., Roberts, Jr., C.T., Smith, E.P., and LeRoith, D. Alternative splicing produces mRNAs encoding IGF-I prohormones which are differentially glycosylated in vitro. *Molec. Endocrinol.* 4:899-904, 1990.
157. LeRoith, D., Evolutionary origins of hormones and tissue growth factors: possible applications to oncology. In: Jon J. Kabara (ed.) *The pharmacological effects of lipids III.* The American Oil Chemists Society, Champaign, IL, 1989, pp 26-30.
158. LeRoith, D. Part I; General principles of Endocrinology. Are all cells "Endocrine" In: K.L. Becker ed., *Principles and Practice of Endocrinology and Metabolism*, pp. 10-14. J.B. Lippincott Company, Philadelphia, 1990.
159. LeRoith, D., Adamo, M., C.T. Roberts, Jr., Regulation of insulin-like growth factor I gene expression. In: V.R. Sara, K. Hall, H. Low (eds.) *Growth factors: From genes to clinical application*, Raven Press, 1990, pp. 11-24.
160. Werner, H., Stannard, B., Bach, M.A., LeRoith, D. and Roberts, C.T., Jr. Cloning and characterization of the proximal promoter region of the rat insulin-like growth factor I (IGF-I) receptor gene. *B.B.R.C.* 169:1021-1027, 1990.

161. Serrano, J., Shuldiner, A.R., Roberts, Jr., C.T., LeRoith, D., and de Pablo, F. The insulin-like growth factor I (IGF-I) gene is expressed in chick embryos during early organogenesis. *Endocrinol.*, 127:1547-1549, 1990.
162. Bondy, C.A., Werner, H., Roberts, C.T., Jr., and LeRoith, D. Cellular pattern of IGF-I and Type I IGF receptor gene expression organogenesis: comparison with IGF-II gene expression. *Mol. Endo.* 4:1386-1398, 1990.
163. Burguera, B., Werner, H., Sklar, M., Shen-Orr, Z., Stannard, B., Roberts, C.T., Jr., Nissley, P., Vore, S.J., Caro, J.F., and LeRoith, D. Liver regeneration is associated with increased expression of the insulin-like growth factor II/mannose 6-phosphate receptor. *Mol. Endo.* 4:1539-1545, 1990.
164. Werner, H., Shen-Orr, Z., Stannard, B., Burguera, B., Roberts, Jr., C.T., and LeRoith, D. Experimental diabetes increases insulin-like growth factor I and II receptor concentration and gene expression in the kidney. *Diabetes*, 39:1490-1497, 1990.
165. Hernandez, E.R., Roberts, Jr., C.T., Hurwitz, A., LeRoith, D., and Adashi, E.Y. Rat ovarian insulin-like growth factor II gene expression is theca-interstitial cell-exclusive: Hormonal regulation and receptor distribution. *Endocrinol.* 127: 3219-3249, 1990.
166. Werner, H., Woloschak, M., Stannard, B., Shen-Orr, Z., Roberts, C.T., Jr., and LeRoith, D. The insulin-like growth factor I receptor: Molecular biology, heterogeneity and regulation. In: *Insulin-like growth factors: Molecular and cellular aspects*. LeRoith, D., ed. C.R.C. Press, 1991, pp. 17-48.
167. Adamo, M.L., Bach, M.A., Roberts, C.T., Jr. and LeRoith, D. Regulation of insulin, IGF-I and IGF-II gene expression. In: *Insulin-like growth factors: Molecular and cellular aspects*. LeRoith, D., ed. C.R.C. Press, 1991, pp 271-304.
168. Adashi, E.Y., Resnick, C.E., Hernandez, E.R., Hurwitz, A., Roberts, C.T., Jr., LeRoith, D., Rosenfeld, R.G., Svoboda, M.E. and Van Wyk, J.J. The ovarian IGF system as a paradigm for putative intraovarian regulators. In: *Fertility and Sterility*. Cosesa Edizioni, Cittadini, E., DeCecco, L. and Massi, G.B. eds. 1:209-213 (1990).

169. Wood, T.L., Berelowitz, M., Gelato, M.C., Roberts, C.T., Jr., LeRoith, D., Millard, W.S., and McKelvy, J.F. Hormonal regulation of rat hypothalamic neuropeptide mRNAs; effect of hypophysectomy and hormone replacement of GRF, SRIF and the insulin-like growth factors. *Neuroendocrinol.* 153:298-305, 1991.
170. LeRoith, D., Adamo, M.L., Werner, H., and Roberts, C.T., Jr. Insulin-like growth factors and their receptors as growth regulators in normal physiology and in pathological states. *Trends in Endocrinol. and Metabol.*, 2:134-139, 1991.
171. Adashi, E.Y., Resnick, C.E., Hernandez, E.R., Hurwitz, A., Roberts, C.T., Jr., LeRoith, D. and Rosenfeld, R.G. The (Eds.). *The polycystic ovary syndrome*, Blackwell Scientific Publications, Boston, MA pp 213-222, 1992.
172. Adashi, E.Y., Resnick, C.E., Hernandez, E.R., Hurwitz, A., Roberts, C.T., Jr., LeRoith, D., VanWyk, J.J. and Rosenfeld, R.G. Insulin-like growth factor I as an intraovarian regulator: Basic and Clinical implications. In: Seppala, M. and Hamberger L. (eds.) *Frontiers in human reproduction*, Ann.New York Acad. Sci. 626:161-169, 1991.
173. Adashi, E.R., Resnick, C.E., Hernandez, E.R., Hurwitz, A., Roberts, C.T., Jr., LeRoith, D. and Rosenfeld, R.G., *The intraovarian insulin-like growth factor I system*. In: Schomberg, D.W.(ed.) *Growth Factors in Reproduction*, Springer Verlag, New York, pp 91-103, 1991.
174. Fontana, J.A., Burrows-Mezu, A., Clemmons, D.R., and LeRoith, D. Retinoid modulation of insulin-like growth factor binding proteins and inhibition of breast carcinoma proliferation. *Endocrinol.* 128:1115-1122, 1991.
175. Bach, M.A., Shen-Orr, Z., Lowe, Jr., W.L., Roberts, Jr., C.T., and LeRoith, D. Insulin-like growth factor I mRNA levels are developmentally regulated in specific regions of the rat brain. *Molec. Brain Res.* 10:43-48, 1991.
176. Masters, B.A., Werner, H., Roberts, Jr., C.T., LeRoith, D. and Raizada, M.K. Insulin-like growth factor I (IGF-I) receptors and IGF-I action in ologodendrocytes from rat brains. *Endocrinology*, 128:2548-2557, 1991.

177. Masters, B.A, Werner, H., Roberts, Jr., C.T., LeRoith, D. and Raizada, M.K. Developmental regulation of insulin-like growth factor I stimulated-glucose transporter in rat brain astrocytes. *Regulatory Peptides*, 33:117-131, 1991.
178. Foyt, H.L., LeRoith, D., and Roberts, Jr., C.T. Differential Association of insulin-like growth factor I mRNA variants with polysomes in vivo. *J.B.C.* 266:7300-7305, 1991.
179. LeRoith, D., Roberts, C.T., Jr. Insulin-like growth factor I (IGF-I): a molecular basis for endocrine versus local action? *Molec. Cell. Endocrinol.* 77:C57-C61, 1991.
180. Jansen, E., Steenbergh, P.H., LeRoith, D., Roberts, C.T., Jr., and Sussenbach, J.S. Identification of multiple transcription start sites in the human IGF-I gene. *Molec. and Cell. Endocrinol.* 78:115-125, 1991.
181. Hernandez, E.R., Hurwitz, A., Pellicer, A., Adashi, E.R., LeRoith, D., and Roberts, C.T., Jr. Expression of the insulin-like growth factor receptor gene families in the human ovary. *J. Clin. Endocrinol. Metab.* 74:419-425, 1992.
182. Mulrone, S.E., Haramati, A., Roberts, C.T., Jr., and LeRoith, D. Renal IGF-I mRNA levels are enhanced following unilateral nephrectomy in immature but not adult rats. *Endocrinology*, 128:2660-2662, 1991.
183. Adashi, E.R., Resnick, C.E., Hurwitz, A., Ricciarelli, E., Hernandez, E.R., Rosenfeld, R.G., Roberts, C.T., and LeRoith, D. The potential relevance of IGFs to ovarian physiology: recent developments. *Contracept. Fertil. Sex.* 19:29-34, 1991.
184. Adamo, M., Ben-Hur, H., LeRoith, D., and Roberts, C.T., Jr. Transcription initiation in the two leader exons of the rat IGF-I gene occurs from disperse versus localized sites. *B.B.R.C.* 176:887-893, 1991.
185. Waldbillig, R.J., Pfeiffer, B., Schoen, T.J., Adler, A.A., Shen-Orr, Z., Scavo, L., LeRoith, D. and Chader, G.J. Evidence for an IGF autocrine-paracrine system in the retinal photoreceptor-pigment epithelial cell complex. *J. Neurochem.* 57:1522-1533, 1991.
186. Roberts, Jr., C.T., and LeRoith, D. Molecular aspects of insulin-like

growth factors, their binding proteins and receptors. In: Bailliere's Clinical Endocrinology and Metabolism. International Practice and Research. 1988, pp 1069-1085.

187. Bondy, C., Werner, Roberts, Jr., C.T. and LeRoith, D. Cellular pattern of type I Insulin-like growth factor receptor gene expression during maturation of the rat brain: comparison with insulin-like growth factors I and II. *J. Neurosci.* Vol 46, 909-923, 1992.

188. Parmer, T.G., Roberts, C.T., Jr., LeRoith, D., Adashi, E.Y., Khan, I., Solan, N., Nelson, S., Zilberstein, M., and Gibori, G. Expression, action and steroidal regulation of IGF-I and IGF-I receptor in the rat corpus luteum: Their differential role in the two cell populations forming the corpus luteum. *Endocrinology*, 129:2924-2932, 1991.

189. Adashi, E.Y., Resnick, C.E., Hernandez, E.R., Hurwitz, A., Roberts, C.T., Jr., LeRoith, D., and Rosenfeld, R. The intraovarian IGF-I system. In: *Modern Concepts of Insulin-like Growth Factors*, E. Martin Spencer (ed.) Elsevier, pp 267-274, 1991.

190. Bach, M.A., Werner, H., Bondy, C., LeRoith, D. and Roberts, C.T., Jr. Regulation of type I IGF receptor gene expression. In: *Modern Concepts of Insulin-like Growth Factors*, E. Martin Spencer (ed.) Elsevier, pp 671-680, 1991.

191. Adamo, M.L., Ben-Hur, H., Roberts, C.T., Jr., and LeRoith, D. The rat IGF-I gene structure, expression and regulation. In: *Modern Concepts of Insulin-like Growth Factors*, E. Martin Spencer (ed.) Elsevier, pp 681-688, 1991.

192. Hernandez, E.R., Roberts, Jr., C.T., Hurwitz, A., Ricciarelli, E., LeRoith, D., and Adashi, E.Y. (1991). Rat Ovarian Insulin-like growth factor-I and II gene expression: Hormonal regulation and cellular localization. In: *Proceedings of the IInd Sapporo International Symposium on Ovarian Function*, T. Tanaka (Ed.), Raven Press.

193. Adashi, E.Y., Resnick, C.E., Hurwitz, A., Ricciarelli, E., Hernandez, E.R., Roberts, Jr., C.T., LeRoith, D., and Rosenfeld, R.G. (1991). Insulin-like growth factors: The ovarian connection. *Human Reprod.* 6:1213-1219, 1991.

194. Cooke, D.W., Bankert, L.A., LeRoith, D., Roberts, C.T., Jr., and Casella, S.J. Analysis of the human type insulin-like growth factor receptor promoter region. *Biochem. Biophys. Res. Comm.* 177:1113-1120, 1991.
195. Adamo, M.L., Ben-Hur, H., Roberts, C.T., Jr., and LeRoith, D. Regulation of start site usage in the leader exons of the rat IGF-I gene by development, fasting and diabetes. *Mol. Endocrinol.* 5:1677-1686. 1991.
196. LeRoith, D., Shemer, J., Pickens, W., Leslie, N., Sperling, M. and Berelowitz, M. Counterregulatory hormone response to semisynthetic human insulin compared to purified porcine insulin in normal subjects and type I diabetic patients. *Clinical Therapeutics*, 13:613-626, 1991.
197. Werner, H., Stannard, B., Bach, M.A., Roberts, C.T., Jr., and D. LeRoith. Regulation of insulin-like growth factor I receptor gene expression in normal and pathological states. pp 263-272, 1991. In: *Molecular biology and physiology of insulin-like growth factors*. Ed. M.K. Raizada and D. LeRoith. *Advances in Experimental Medicine and Biology*, Vol. 293, 1991.
198. Adashi, E.Y., Resnick, C.E., Hernandez, E.R., Svoboda, M.E., and Van Wyk, J.J. Ovarian insulin-like growth factor I: Basic concepts leading to potential clinical outlets. In: *Molecular and Cellular Biology of Insulin-like Growth Factors and Their Receptors*, D. LeRoith and M.K. Raizada (eds.) Plenum Publishing Corp., New York, p. 141-152, 1990.
199. Adashi, E.Y., Resnick, C.E., Hernandez, E.R., Hurwitz, A., Roberts, C.T., LeRoith, D., Rosenfeld, R.G., Svoboda, M.E., and Van Wyk, J.J. Growth factors and Follicle function. In: E.Y. Adashi and S. Mancuso (eds.), *Major Advances in Human Female Reproduction*. Serono Symposia Publication from Raven Press, Vol. 73, New York, New York, pp 111-117, 1990.
200. Adashi, E.Y., Resnick, C.E., Hurwitz, A., Ricciarelli, E., Hernandez, E.R., Roberts, C.T., LeRoith, D., and Rosenfeld, R. The intra-ovarian IGF system. *Growth Reg.*, 2:10-15, 1992.
201. Holthuizen, E., LeRoith, D., Lund, P.K. Roberts, C.T., Jr., Rotwein, P., Spencer, E.M. and Sussenbach, J.S. Revised nomenclature for the insulin-like growth factor genes and transcripts. In: *Modern concepts of insulin-like growth factors*. E.M. Spencer, ed. Elsevier, pp 733-736, 1991.

202. Adamo, M., Roberts, C.T., Jr., and LeRoith, D. How distinct are the insulin and insulin-like growth factor signaling systems? *Biofactors* 3:151-157, 1992.
203. Mulrone, S.E., Haramati, A., Werner, H., Bondy, C., Roberts, C.T., Jr., and LeRoith, D. Altered expression of the insulin-like growth factor (IGF)-I and IGF receptor gene following unilateral nephrectomy in immature rats. *Endocrinology*, 130:249-256, 1992.
204. Hernandez, E.R., Hurwitz, A., Botero, L., Ricciarelli, E., Werner, H., Roberts, C.T., Jr., LeRoith, D., and Adashi, E.Y. Insulin-like growth factor gene expression in the rat ovary :Divergent regulation of distinct receptor species. *Mol. Endocrinol*, 5:1799-1805, 1991.
205. Mulrone, S.E., Lumpkin, M.D., Roberts, C.T., Jr., LeRoith, D, and Haramati, A. Effect of a GRF-antagonist on compensatory renal growth, IGF-I receptor gene expression following unilateral nephrectomy in immature rats. *Endocrinology*, 130:2697-2702, 1992.
206. LeRoith, D., Adamo, M. Bondy, C., Stannard, B., Bach, M., Werner, H. and Roberts, Jr., C.T. Insulin-like growth factors in the central nervous system. In: Eds. H. Rifkin, J.A. Colwell, S.I. Taylor Diabetes, Proceedings of the 14th International Diabetes Federation Congress, Washington, D.C. Elsevier Science Publishers, B.V. 1991, p. 200-203.
207. Sklar, M.M., Thomas, C.L., Municchi, G., Roberts, Jr., C.T., LeRoith, D., Kiess, W., and Nissley, P. Development Expression of Rat Insulin-like Growth Factor-II/Mannose 6-Phosphate Receptor mRNA. *Endocrinology*, 130:3484-3491, 1992.
208. Levy, M.J., Hernandez, E.R., Adashi, E.Y., Stillman, R.J., Roberts, C.T., Jr., and LeRoith, D. Expression of the insulin-like growth factor (IGF)-I and II and the IGF-I and II receptor genes during postnatal development of the rat ovary. *Endocrinology*, 131:1202-1206,1992.
209. LeRoith, D., Clemmons, D., Nissley, P. and Rechler, M.M. Insulin-like growth factors in health and disease. *Annals of Int. Med.* 116:854-862, 1992.
210. Eastman, R.C., Carson, R.E., Orloff, D., Cochran, C.S., Purdue, J.F.,

Lanau, F., Roberts, Jr., C.T., Shapiro, J., Roth, J., LeRoith, D. Assessment of tumor glucose utilization by positron emission tomography in a patient with hepatoma, hypoglycemia, and IGF-II production. *J. Clin. Invest.* 89:1958-1963, 1992.

211. Burguera, B., Werner, H., Couce, M., Roberts, C.T., Jr., LeRoith, D., and Caro, J.F. Physiology of the insulin-like growth factor I and insulin-like growth factor II/mannose-6-phosphate receptors. In: *International Symposium on human growth and somatic growth*, de la Cruz, Palomino, ed., Elsevier, pp 271-294, 1992.

212. Sheikh, M.S., Shao, Z.-M., Clemmons, D.M., LeRoith, D., Roberts, C.T., Jr., and Fontana, J.A. Identification of insulin-like growth factor binding proteins 5 and 6 (IGFBP-5 and 6) in human breast cancer cells. *Biochem. Biophys. Res. Comm.*, 183:1003-1010, 1992.

213. Roberts, C.T., Jr., and LeRoith, D. Interactions in the insulin-like growth factor signaling system. *News in Physiol. Sci.* 7:69-72, 1992.

214. Adamo, M.L., Shao, Z.-M., Lanau, F., Chen, J.C., Clemmons, D., Roberts, Jr., C.T., LeRoith, D. and Fontana, J.A. Insulin-like growth factor-I (IGF-I) and retinoic acid modulation of IGF binding proteins (IGFBPs). IGFBP-2, 3 and 4 gene expression and protein secretion in a breast cancer cell line. *Endocrinology*, 131:1858-1866, 1992.

215. LeRoith, D., Roberts, Jr., C.T., Werner, H., Bondy, C., Raizada, M. and Adamo, M. Insulin-like growth factor in the brain. In: *Neurotrophic Factors*. S.E. Loughlin and James H.Fallon eds., Academic Press, pp 391-414, 1992.

216. Phillip, M., Palese, T., Hernandez, E.R., Roberts, Jr., C.T., LeRoith, D. and Kowarski, A.A. Effect of testosterone on insulin-like growth factor-I (IGF-I) and IGF-I receptor gene expression in the hypophysectomized rat. *Endocrinology*, 130: 2865-2870, 1992.

217. Raizada, M.K., Rydzewski, B.Z., Werner, H., Masters, B.A., Roberts, Jr., C.T., and LeRoith, D. Rat Brain/Hep G2 Glucose Transporter Gene Expression in Brain. In: *Methods in Neurosciences*, P.M. Conn, ed., Academic Press, Vol. 9, 79-89, 1992.

218. Werner, H., Bach, M.A., Stannard, B., Roberts, Jr., C.T., and

LeRoith, D. Structural and functional analysis of the insulin-like growth factor-I receptor gene promoter. *Mol. Endocrinol.* 6:1545-1558, 1992.

219. Hadari, Y.R., Tzahar, E., Nadiv, O., Rothenberg, P., Roberts, Jr., C.T., LeRoith, D., Yarden, Y. and Zick, Y. Insulin and insulinomimetic agents induce activation of phosphatidyl- inositol 3'-kinase upon its association with pp185 (IRS-1) in intact rat livers. *J. Biol. Chem.*, 267:17483-17486, 1992.

220. Shemer, J., M.L. Adamo., Roberts, C.T., Jr., and LeRoith, D. Tissue specific transcription start site usage in the leader exons of the rat IGF-I gene: Evidence for differential regulation in the developing kidney. *Endocrinology* 131:2793, 1992.

221. Porcu, P., Ferber, A., Pietrzkowski, Z., Roberts, C.T., Jr. Adamo, M., LeRoith, D., and Baserga, R. The growth-stimulatory effect of SV40 T antigen requires the IGF1/IGF1 receptor interaction. *Mol. Cell. Biol.* 12:5069-5077, 1992.

222. Foyt, H.L., Lanau, F., Woloschak, M., LeRoith, D. and Roberts, C.T., Jr. Effect of growth hormone on levels of differentially processed IGF-I mRNAs in total and polysomal mRNA populations. *Molec. Endo.* 6:1881-1888, 1992.

223. Kato, H., Faria, T.N., Stannard, B., Roberts, C.T., Jr., and LeRoith, D. Role of the tyrosine kinase domain in signal transduction by the insulin-like growth factor (IGF-I) receptor. Characterization of kinase-deficient IGF-I receptors and the action of an IGF-I-mimetic antibody (IR-3). *J.B.C.*, 268:2655-2661, 1993.

224. Shao, Z-M., Sheikh, M.S., Ordonez, J.V., Feng, P., Kute, T., Chen, J-C., Aisner, S., Schnaper, L., LeRoith, D., Roberts, C.T., Jr., and Fontana, J. IGFBP-3 Gene Expression and Estrogen Receptor Status in Human Breast Carcinoma. *Cancer Res.*, 52:5100-5103, 1992.

225. Sheikh, M.S., Shao, Z-M, Chen, J-C, Clemmons, D.R., Roberts, C.T., Jr., LeRoith, D., and Fontana, J.A. Insulin-like growth factor binding protein-5 gene expression is differentially regulated at a post-transcriptional level in retinoic acid-sensitive and resistant MCF-7 human breast carcinoma cells. *BBRC*, 188:1122-1130, 1992.

226. Eshet, R., Werner, H., Klinger, B., Silbergeld, A., Laron, Z., LeRoith, D. and Roberts, C.T., Jr. Upregulation of insulin-like growth factor-I (IGF-I) receptor gene expression in patients with reduced serum IGF-I levels. *J. Molec. Endocrinol.* 10: 115-120, 1992.
227. LeRoith, D., McGuinness, M., Shemer, J., Stannard, B., Lanau, F., Faria, T.N., Kato, H., Werner, H., Adamo, M. and C.T. Roberts, Jr. Insulin-Like Growth Factors. *Biol. Signals*, 1:173-181, 1992.
228. Adamo, M.L., Lanau, F., Neuenschwander, S., Werner, H., LeRoith, D. and Roberts, Jr., C.T. Distinct promoters in the rat insulin-like growth factor-I (IGF-I) gene are active in CHO cells. *Endocrinology*, 132: 935-937, 1992.
229. Werner, H., Roberts, Jr., C.T., Raizada, M.K., Bondy, C.A., Adamo M. and LeRoith, D. Developmental regulation of the insulin and insulin-like growth factor receptors in the central nervous system. In: *Receptors in the Developing Nervous System*, I.S. Zagon and P.J. McLaughlin eds., Chapman & Hall, pp 109-127, 1992.
230. Sheikh, M.S., Shao, Z-M., Hussain, A., Clemmons, D.R., Chen, J-C., Roberts, Jr., C.T., LeRoith, D., and Fontana, J.A. Regulation of insulin-like growth factor-binding-protein- 1,2,3,4,5 and 6: Synthesis, secretion and gene expression in estrogen receptor-negative human breast carcinoma. *J. Cell. Physiology*, 155:556-567, 1993.
231. LeRoith, D., Werner, W. Burguera, B., Roberts, Jr., C.T., Mulrone, S., Haramati, A. The insulin-like growth factor family of peptides, binding proteins and receptors: Their potential role in tissue regeneration. In: *Pancreatic islet cell regeneration and growth*, A.I. Vinik, ed., Plenum Press, New York, pp 21-30, 1992.
232. Adamo, M.D., Raizada, M.K., Shemer, J., Ota, A., Summers, C., Olson, J., and LeRoith, D. Analysis of insulin and insulin-like growth factor-I receptors in neural tissues. In: *Methods in Molecular Biology*, Vol. 13: *Protocols in Molecular Neurobiology*, Longstaff, A., and Revest, P. eds., Humana Press, Totowa, NJ, 227-260, 1992.
233. Woloschak, M., Shen-Orr, Z., LeRoith, D., and Roberts, Jr. C.T. Nutritional regulation of insulin-sensitive glucose transporter (GLUT 4) gene expression in rat cardiac muscle. *Proceedings of the Society for Experimental*

Biology and Medicine, 202:172-174, 1993.

234. Kavsan, V.M., Koval, A., Petrenko, O., Roberts, C.T., Jr. and LeRoith, D. Two insulin genes are present in the salmon genome. *BBRC*, 191:1373-1378, 1993.

235. Kavsan, V.M., Koval, A., Grebenjuk, V.A., Chan, S.J., Steiner, D.F., Roberts, C.T., Jr., and LeRoith, D. Structure of the chum salmon insulin-like growth factor-I gene. *DNA and Cell Biology*, 12:729-737, 1993.

236. Kato, H., Faria, T.N., Stannard, B., Levy-Toledano, R., Taylor, S.I., Roberts, Jr., C.T., and LeRoith, D. Paradoxical biological effects of overexpressed insulin-like growth factor-1 receptors in Chinese hamster ovary cells. *J. Cell Physiol.*, 156:145-152, 1993.

237. LeRoith, D., Shemer, J., Roberts, Jr., C.T. Evolutionary origins of intercellular communication systems: Implications for mammalian biology. *Horm. Res.* 38:1-6, 1993.

238. LeRoith, D., Adamo, M.L., Shemer, J., Lanau, F., Shen-Orr, Z., Yaron, A., Roberts, Jr., C.T., Clemmons, D.R., Sheikh, M.S., Shao, Z.M., Chen, J.-C. and Fontana, J. Retinoic acid inhibits growth of breast cancer cell lines: the role of insulin-like growth factor binding proteins. *Growth Regulation* 3:1-112, 1993.

239. Kleinman, D., Roberts, Jr., C.T., LeRoith, D., Schally, A.V., Levy, J., and Sharoni, Y. Regulation of endometrial cancer cell growth by insulin-like growth factors and the luteinizing hormone-releasing hormone antagonist SB-75. *Regulatory Peptides*, 48:91-98, 1993.

240. Werner, H., Re G.G., Drummond, I.A., Sukhatme, V.P., Rauscher, F.J., III, Sens, D.A., Garvin, A.J., LeRoith, D., and Roberts, Jr., C.T. Increased expression of the insulin-like growth factor I receptor (IGF-I-R) gene in Wilms' tumor is correlated with modulation of IGF-I-R promoter activity by the WT1 Wilms' tumor gene product. *PNAS*, 90:5828-5832, 1993.

241. Domene, H., Krishnamurthi, K., Eshet, R., Gilad, I., Laron, Z., Koch, I., Stannard, B., Cassorla, F., Roberts, Jr., C.T., and LeRoith, D. Growth hormone stimulates insulin-like growth factor-I and insulin-like growth factor binding protein-3 but not growth hormone receptor gene expression in livers of juvenile rats. *Endocrinology*, 133:675-682, 1993.

242. HersHKovitz, E., Marbach, M., Bosin, E., Levy, J., Roberts, Jr., C.T., LeRoith, D., Schally, A.V. and Sharoni, Y. Luteinizing hormone-releasing hormone antagonists interfere with autocrine and paracrine growth stimulation of MCF-7 mammary cancer cells by insulin-like growth factors. *J. Clin. Endocrinol. & Metab.*, 77:963-968, 1993.
243. Sheikh, M.S., Shao, Z.-M., Hussain, A., Chen, J.-C., Roberts, Jr., C.T., LeRoith, D., and Fontana, J.A. Retinoic acid and estrogen modulation of insulin-like growth factor binding protein-4 gene expression and the estrogen receptor status of human breast carcinoma cells. *B.B.R.C.*, 193:1232-1238, 1993.
244. Botero, L.F., Roberts, Jr., C.T., LeRoith, D., Adashi, and Hernandez, E.R. Insulin-like growth factor I gene expression by primary cultures of ovarian cells: Insulin and dexamethasone dependence. *Endocrinology* 132: 2703-2708, 1993.
245. LeRoith, D., Adamo, M., Kato, H., Roberts, Jr., C.T. Divergence of insulin and insulin growth factor-I signalling pathways. In: Zvi Laron, ed., *Lessons from Laron Syndrome (LS), 1966-1992; A Model of GH and IGF-1 Action and Interaction, Pediatric and Adolescent Endocrinology*, Karger, pp 192-201, 1993.
246. Adamo, M.L., Stannard, B., LeRoith, D., and Charles T. Roberts, Jr. Approaches for the purification, quantitation and analysis of hormone and receptor mRNAs. In: F. de Pablo, C. Scanes, B. Weintraub, eds., *Molecular Techniques and Specific Model Systems (Part IV)*. Academic Press, Inc. pp. 421-455, 1993.
247. Hadari, Y.R., Geiger, B., Nadiv, O., Sabanay, I., Roberts, Jr., C.T., LeRoith, D. and Zick, Y. Identification and localization of hepatic tyrosine-phosphorylated proteins following in vivo inhibition of protein tyrosine phosphatases. *Mol. Cell. Endocr.*, 97:9-17, 1993.
248. Shemer, J., Yaron, A., Werner, H., Shao, Z-M., Sheikh, M.S., Fontana, J.A., LeRoith, D. and Roberts, Jr., C.T. Regulation of insulin-like growth factor binding protein-5 in the T47D human breast carcinoma cell line by insulin-like growth factor-I and retinoic acid. *J.C.E.M.*, 77:1246-1250, 1993.

249. El-Roeiy, A., Chen, X., Roberts, V.J., LeRoith, D., Roberts, Jr., C.T. and Yen, S.S.C. Expression of the insulin-like growth factor (IGF)-I and IGF-II and the IGF-I, IGF-II and insulin receptor genes and localization of the gene products in the human ovary. *J.C.E.M.*, 77:1411-1418, 1993.
250. LeRoith, D., Werner, H., Bondy, C., and Roberts, Jr., C.T. Ontogeny of the insulin-like growth factor receptors. In: *Lessons from Laron Syndrome (LS) 1966-1992*, vol. 24, pp 192- 201. Laron, Z, Parks, J.S. (eds.) *Pediatr. Adoles. Endocrinol.* Basel, Karger, 1993.
251. LeRoith, D. and Roberts, Jr., C.T. Insulin-like growth factors. In: *The role of insulin-like growth factors in the nervous system.* M.K. Raizada, D. LeRoith (Eds.) *Annals of the New York Academy of Sciences*, 692:1-10, 1993.
252. LeRoith, D., Werner, H., Faria, T.N., Kato, H., Adamo, M. and Roberts, Jr., C.T. Insulin-like growth factor receptors: implications for nervous system function. In: *The role of insulin-like growth factors in the nervous system.* Raizada, M.K., LeRoith, D. (eds.) *Annals of the New York Academy of Sciences*, vol. 692:22-32, 1993.
253. Adamo, M.L., Shemer, J., Roberts, Jr., C.T., and LeRoith, D. Insulin and insulin-like growth factor-I induced phosphorylation in neurally derived cells. In: *The role of insulin-like growth factors in the nervous system.* Raizada, M.K., LeRoith, D. (eds.) *Annals of the New York Academy of Sciences*, vol. 692:113-125, 1993.
254. Adamo, M.L., LeRoith, D., and Roberts, Jr., C.T. Molecular biology of the somatomedins. In: *Growth Hormone and Somatomedins During Lifespan.* Muller, E.E., Cocchi, D., Locatelli, V. (eds.). Springer-Verlag Publications, USA, pp 55-64, 1993.
255. Ferber, A., Chang, C., Sell, C., Ptasznik, A., Cristofalo, V.J., Hubbard-Smith, K., Ozer, H.L., Adamo, M., Roberts, Jr., C.T., LeRoith, D., and Baserga, R. Failure of senescent human fibroblasts to express the IGF-I gene. *JBC*, 268:17883-17888, 1993.
256. Eastman, R.C., Barbetti, F., Roberts, Jr., C.T., and LeRoith, D. Hypoglycemia due to production of hypoglycemic factors by nonislet-cell tumors. In: *Endocrine Tumors.* Mazzaferri, E.L. and Samaan, N.A. (eds.). Blackwell Scientific Publications, Inc. Cambridge, Mass., pp 687-699, 1993.

257. LeRoith, D., Kavsan, V.M., Koval, A.P. and Roberts, Jr., C.T. Phylogeny of the insulin-like growth factors (IGFs) and receptors: A molecular approach. *Mol. Repro. and Develop.*, 35:332-338, 1993.
258. Kato, H., Faria, T.N., Stannard, B., Roberts, Jr., C.T., and LeRoith, D. Essential role of tyrosine residues 1131, 1135 and 1136 of the insulin-like growth factor-I (IGF-I) receptor in IGF-I action. *Molec. Endo.*, 8:40-50, 1994.
259. LeRoith, D., Werner, H., Phillip, M. and Roberts, Jr., C.T. The role of insulin-like growth factors in diabetic kidney disease. *American Journal of Kidney Diseases*, vol. 22:722- 726, 1993.
260. Chen, J-C., Shao, Z-M., Sheikh, M.S., Hussain, A., LeRoith, D., Roberts Jr., C.T., and Fontana, J.A. Insulin-like growth factor-binding protein enhancement of insulin-like growth factor-I (IGF-I) mediated DNA synthesis and IGF-I binding in a human breast carcinoma cell line. *J. Cell. Physiol.*, 158:69-78, 1994.
261. Jaffa, A.A., LeRoith, D., Roberts, Jr., C.T., Rust, P.F., and Mayfield, R.K. Insulin-like growth factor I (IGF-I) produces renal hyperfiltration by a kinin-mediated mechanism. *Amer. J. Physiol.*, 266:(Renal Fluid Electrolyte Physiol. 35). F102- F107, 1994.
262. Phillip, M., Werner, H., Palese, T., Kowarski, A.A., Stannard, B., Bach, L.A., LeRoith, D. and Roberts, Jr., C.T. Differential accumulation of IGF-I in kidneys of pre- and postpubertal streptozotocin-diabetic rats. *J. Mol. Endocrinol.*, 12:215-224, 1994.
263. Nadiv, O., Shinitzky, M., Manu, H., Hecht, D., Roberts, Jr., C.T., LeRoith, D. and Zick, Y. Elevated protein tyrosine phosphatase activity and increased membrane viscosity are associated with impaired activation of the insulin receptor kinase in old rats. *Biochem. J.*, 298:443-450, 1994.
264. Zanconato, S., Moromisato, D.Y., Moromisato, M.Y., Woods, J., Brasel, J-A., LeRoith, D., Roberts, Jr., C.T. and Cooper, D. Effect of training and growth hormone suppression on insulin- like growth factor-I mRNA in young rats. *J. Appl. Physiology*, 76:2204-2209, 1994.
265. Kavsan, V.M., Grebenjuk, V.A., Koval, A.P., Skorokhod, A.S.,

Roberts, Jr., C.T. and LeRoith, D. Isolation of a second nonallelic insulin-like growth factor I gene from the salmon genome. *DNA and Cell Biology*, 13:5;555-559, 1994.

266. Rubini, M., Werner, H., Gandini, E., Roberts, Jr., C.T., LeRoith, D. and Baserga, R. Platelet-derived growth factor increases the activity of the promoter of the insulin-like growth factor (IGF-I) receptor gene. *Experimental Cell Research*, 211:374-379, 1994.

267. LeRoith, D., Roberts, Jr., C.T. Structure and Expression of the IGF-I gene. In: *Progress in Endocrinology. The Proceedings of the 9th International Congress of Endocrinology*. Mornex, R., Jafiol, C., and Lectere, J. eds. Parthenon, NY, pp. 244-247, 1993.

268. El-Roeiy, A., Chen, X., Roberts, V.J., Shimasaki, S., Ling, N., LeRoith D., Roberts, Jr., C.T., and Yen, S.S.C. Expression of the genes encoding the insulin-like growth factors (IGF-I and II), the IGF and insulin receptors and IGF binding proteins (IGFBPs 1-6), and the localization of their gene products in normal and polycystic ovary syndrome (PCOS) ovaries. *J. Clin. Endocrinol. and Metab.*, 78:1488-1496, 1994.

269. Werner, H., Rauscher, F.S., III, Sukhatme, V.P., Drummond, I.A., Roberts, Jr., C.T., and LeRoith, D. Transcriptional repression of the insulin-like growth factor I receptor (IGF- I-R) gene by the tumor suppressor WT1 involves binding to sequences both upstream and downstream of the IGF-I-R gene transcription start site. *JBC*, 269:12577-12582, 1994.

270. LeRoith, D., and Roberts, Jr., C.T. Insulin-like growth factors and their receptors in normal physiology and pathological states. In: *Journal of Pediatric Endocrinology. The International Symposium on Growth Hormone and IGF-I*. Casanueva, F.F., Dieguez, C., Pombo, M. (eds.) Freund Publishers, London, England, pp 251-256, 1993.

271. Adamo, M.L., Neuenschwander, S., LeRoith, D. and Roberts, Jr., C.T. Structure, expression, and regulation of the IGF-I gene. In: *Advances in Experimental Medicine and Biology*. LeRoith, D. and Raizada, M.K. (eds.) Plenum Press, NY, pp 1-12, 1993.

272. Werner, H., Roberts, Jr., C.T., and LeRoith, D. The regulation of IGF-I receptor gene expression by positive and negative zinc-finger transcription factors. In: *Advances in Experimental Medicine and Biology*.

LeRoith, D. and Raizada, M.K. (eds.) Plenum Press, NY, pp 91-104, 1993.

273. Landau, D., Domene, H., Shen-Orr, Z., Eshet, R., Laron, Z., Koch, Y., LeRoith, D. and Roberts, C.T., Jr. Effect of GH status on renal insulin-like growth factor I (IGF-I), IGF-I receptor, IGF-binding protein (IGFBP) and GH receptor mRNA levels in prepubertal rats. *Endocrine J.*, 2:611-616, 1994.

274. Faria, T.N., Blakesley, V.A., Kato, H., Stannard, B., LeRoith, D. and Roberts, C.T., Jr. Role of the carboxy-terminal domains of the insulin and insulin-like growth factor-I (IGF-I) receptors in receptor function. *JBC*, 135:13922-13928, 1994.

275. Bikle, D.D., Harris, J., Halloran, B.P., Roberts, Jr., C.T., LeRoith, D., and Morey-Holton, E. Expression of the genes for the insulin-like growth factors and their receptors in bone during skeletal growth. *Amer. J. Physiology*, 267:E278- E286, 1994.

276. Menon, R.K., Stephan, D.A., Rao, R.H., Shen-Orr, Z., Downs, L.S., Jr., Roberts, C.T., Jr., LeRoith, D. and Sperling, M.A. Tissue-specific regulation of the growth hormone receptor gene in streptozocin-induced diabetes in the rat. *Journal of Endocrinology*, 142:453-462, 1994.

277. Mastick, C.C., Kato, H., C.T. Roberts, Jr., D. LeRoith, and A.R. Saltiel. Insulin and insulin-like growth factor-I receptors similarly stimulate DNA synthesis despite differences in cellular protein tyrosine phosphorylation. *Endocrinology*, 135:214-222, 1994.

278. Yakar, S., Domene, H., Meidan, R., Cassorla, F., Gilad, I., Koch, I., Eshet, R., Roberts, Jr., C.T., LeRoith, D. and Laron, Z. Growth hormone (GH) stimulates insulin-like growth factor-I (IGF-I) and IGF-binding protein (IGFBP)-2 gene expression in spleens of juvenile rats. *Hormone and Metabolic Research*, 26:363-366, 1994.

279. LeRoith, D., Sampson, P.C., Roberts, Jr., C.T. How does the mitogenic insulin-like growth factor I receptor differ from the metabolic insulin receptor? *Horm. Res.* 41:2;74-79, 1994.

280. Koval, A., Kulik, V., Duguay, S., Plisetskaya, E., Adamo, M.L., Roberts, Jr., C.T., LeRoith, D. and Kavsan V. Characterization of a salmon insulin-like growth factor I promoter. *DNA and Cell Biology*, 13:10;1057-1062, 1994.

281. Domené, H.M., Meidan, R., Yakar, S., Shen-Orr, Z., Cassorla, F., Roberts, Jr., C.T., and LeRoith, D. Role of GH and IGF-I in the regulation of IGF-I, IGF-I receptor and IGF binding protein gene expression in the rat spleen. *Regulatory Peptides*, 52: 215-226, 1994.
282. Butler, A.A., Ambler, G.R., Breier, B.H., LeRoith, D, Roberts, C.T. and Gluckman, P.D. Growth hormone (GH) and insulin-like growth factor-I (IGF-I) treatment of the GH- deficient dwarf rat: differential effects on IGF-I transcription start site expression on hepatic and extrahepatic tissues and lack of effect on type I IGF receptor mRNA expression. *Mol. and Cell. Endocrinol.* 101(1-2):321-330, 1994.
283. Adamo, M.L., Koval, A., LeRoith, D., and Roberts, C.T., Jr. Post-transcriptional regulation of IGF-I gene expression. In: *The insulin-like growth factors and their regulatory proteins.* Baxter, R.C., Gluckman, P.D., and Rosenfeld, R.G., (eds.) Excerpta Medica, Amsterdam, pp 23-31, 1994.
284. Werner, H., Beitner-Johnson, D., Roberts, C.T., Jr., and LeRoith, D. Molecular comparisons of the insulin and IGF-I receptors. In: *Molecular biology of diabetes.* Draznin, B., and LeRoith, D., (eds.) Humana Press, Inc., Totowa, NJ, pp 377-392, 1994.
285. LeRoith, D, and Roberts, C.T., Jr. Insulin-like growth factors. In: *Handbook of cytokines and their receptors.* Nicola, N., (ed.) Oxford University Press, pp 208-211, 1994.
286. LeRoith, D., and Roberts, C.T., Jr. Receptors and binding proteins for insulin-like growth factors. In: *Handbook of cytokines and their receptors.* Nicola, N., (ed.) Oxford University Press, pp 211-214, 1994.
287. LeRoith, D., Werner, H., Beitner-Johnson, D. and Roberts, C.T., Jr. Molecular biology of the IGF-I receptor. In: *Growth hormone, IGF-I and growth. A modern view of old concepts.* Laron, Z., and Merrimee, J., (eds). Freund Publishing House Ltd. London-Tel Aviv, 1996, Vol 4, 73-99.
288. Werner, H., Adamo, M., Roberts, Jr., C.T. and LeRoith, D. Molecular and cellular aspects of insulin-like growth factor action. In: *Vitamins and Hormones.* Gerald Litwack, (ed.) Academic Press, New York, 1994, 1-58.

289. Kato, H., Faria, T.N., Blakesley, V., Roberts, Jr., C.T., and LeRoith, D. Pathological alterations in various components of the insulin-like growth factor signaling system. In: *Frontiers in Endocrinology: Molecular Basis of Endocrine Diseases*. Isidori, A., New, M.I. and Pavia Sesma, C. (eds.) Ares-Serono Symposia, Rome, Italy, October, 1994.
290. Werner, H., Roberts, Jr., C.T., and LeRoith, D. Transcriptional repression of the IGF-II and IGF-I receptor genes by tumor suppressor WT1: implications for normal kidney development and Wilms' tumor. In: R.C. Baxter, P.D. Gluckman and R.G. Rosenfeld (eds). *The Insulin-Like Growth Factors and their Regulatory Proteins*. Excerpta Medica, New York, 107-115, 1994.
291. LeRoith, D., Werner, H., Beitner-Johnson, D. and Roberts, C.T., Jr. Molecular and cellular aspects of the insulin-like growth factor I receptor. *Endocrine Rev.* 16:2;143-163, 1995.
292. Shuldiner, A.R., LeRoith, D. and Roberts, C.T., Jr. DNA sequence analysis. In: *Molecular endocrinology: basic concepts and clinical correlations*. Weintraub, B., ed. Raven Press, NY, New York, pp 13-21, 1995.
293. LeRoith, D., Adamo, M., Werner, H. and Roberts, C.T., Jr. Molecular and cellular biology of the insulin-like growth factors. In: *Molecular endocrinology: basic concepts and clinical correlations*. Weintraub, B., ed. Raven Press, NY, New York, pp 181-193, 1995.
294. LeRoith, D., Baserga, R., Helman, L., and Roberts, Jr., C.T. Insulin-like growth factors and cancer. *Annals of Internal Medicine*, NIH conference, Vol. 122, pp 54-59, 1995.
295. Pash, J.M., Delany, A.M., Adamo, M.L., Roberts, Jr., C.T., LeRoith, and Canalis, E. Regulation of insulin-like growth factor I transcription by prostaglandin E₂ in osteoblast cells. *Endocrinol.*, 136:33-38, 1995.
296. Blakesley, V., Kato, H., Roberts, Jr., C.T., and LeRoith, D. Mutation of a conserved amino acid residue (Tryptophan 1173) in the tyrosine kinase domain of the IGF-I receptor abolishes autophosphorylation but does not eliminate biologic function. *JBC*, 270:2764-2769, 1995.
297. Domene, H.M., Cassorla, F., Werner, H., Roberts, Jr., C.T. and

LeRoith, D. Rat growth hormone receptor/growth hormone-binding protein mRNAs with divergent 5'-untranslated regions are expressed in a tissue-specific manner. *DNA and Cell Biol.*, 14:3;195-204, 1995.

298. Malozowski, S., Parmer, T.G., Trojan, S., Merriam, G.R., Gibori, G., Roberts, Jr., C.T., LeRoith, D., Werner, H. and Zilberstein, M. GH modulates IGF-I and type-1 IGF receptor mRNA levels in the ovary of prepubertal GH-deficient rats. *Eur. J. Endocrinol.*, 132:497-501, 1995.

299. Landau, D., Chin, E., Bondy, C., Domene, H., Roberts, Jr., C.T., Gronbaek, H., Flyvbjerg, A., and LeRoith, D. Expression of insulin-like growth factor binding proteins in the rat kidney: effects of long-term diabetes. *Endocrinology*, 136:1835-1842, 1995.

300. Beitner-Johnson, D. and LeRoith, D. Insulin-like growth factor-I stimulates tyrosine phosphorylation of endogenous c-Crk. *JBC*, 240:5187-5190, 1995.

301. Surmacz, E., Sell, C., Swantek, J., Kato, H., Roberts, Jr., C.T., LeRoith, D., and Baserga, R. Dissociation of mitogenesis and transforming activity by C-terminal truncation of the insulin-like growth factor-I receptor. *Experimental Cell Research*, 218:370-380, 1995.

302. LeRoith, D., Neuenschwander, S., Koval, A., Sindler, C., and Roberts, Jr., C.T. Insulin-like growth factors during development, In: "GHRH, GH and IGF-1: Basic and Clinical Advances:", M.R. Blackman, S.M. Harman, J. Roth, and J.R. Shapiro (eds). Springer-Verlag, New York, NY, CH.5, 1995, 38-48.

303. Kleinman, D., Karas, M., Roberts, Jr., C.T., LeRoith, D., Phillip, M., Segev, Y., Levy, J. and Sharoni, Y. Modulation of insulin-like growth factor I receptors and membrane-associated IGF binding proteins in endometrial cancer cells by Estradiol. *Endocrinology*, 136:6;2531-2537, 1995.

304. Werner, H., Shen-Orr, Z., Rauscher, III, F.J., Morris, J.F. Roberts, Jr., C.T., and LeRoith, D. Inhibition of cellular proliferation by the Wilms' tumor suppressor WT1 is associated with suppression of IGF-I receptor gene expression. *Molecular and Cellular Biology*, 15:3516-3522, 1995.

305. Werner, H. and LeRoith, D. Insulin-like growth factor I receptor: structure, signal transduction, and function. *Diabetes Reviews*, 3:1;28-37,

1995.

306. Katz, J., Weiss, H., Goldman, B., Hana, K., Stannard, B., LeRoith, D. and Shemer, J. Cytokines and growth factors modulate cell growth and insulin-like growth factor binding protein secretion by the human salivary cell line. *J. Cellular Physiology*, 165:223-227, 1995.

307. Beitner-Johnson, D., Werner, H., Roberts, Jr., C.T., and LeRoith, D. Regulation of insulin-like growth factor I receptor gene expression by Sp1: Physical and functional interactions of Sp1 at GC boxes and at a CT element. *Mol. Endo.*, 9:1147-1156, 1995.

308. Schweichler, M., Hennessey, J.V., Cole, P., Perdue, J.F., and LeRoith, D. Hypoglycemia in pregnancy secondary to a non- islet cell tumor of the pleura and ectopic insulin-like growth factor II hormone production. *Obstet. Gynecol.*, 85:810-813, 1995.

309. LeRoith, D. Editorial: A novel Drosophila insulin receptor: fly in the ointment or evolutionary conservation? *Endocrinol.*, 136(6):2355-2356, 1995.

310. Neuenschwander, S., Roberts, Jr., C.T., and LeRoith, D. Growth inhibition of MCF-7 breast cancer cells by stable expression of an insulin-like growth factor-I receptor antisense RNA. *Endocrinology*, 136:4298-4303, 1995.

311. Yang, H., Adamo, M.L., Koval, A., McGuinness, M.C., Ben-Hur, H., Yang, Y., LeRoith, D. and Roberts, Jr., C.T. Alternative leader sequences in IGF-I mRNAs modulate translational efficiency and encode multiple signal peptides. *Mol. Endo.*, 9:1380-1395, 1995.

312. Phillip, M., Segeve, Y., Zung, A., Kowarski, A.A., Werner, H., Roberts, Jr., C.T., LeRoith, D., Ladas, J. and Mulroney, S.E. The accumulation of IGF-I in kidneys of streptozotocin-diabetic adult rats is not associated with elevated plasma GH or IGF-I levels. *Endocrine J.*, 3:689-693, 1995.

313. Stannard, B., Blakesley, V., Kato, H., Roberts, Jr., C.T., and LeRoith, D. Single tyrosine substitution in the insulin- like growth factor-I-receptor inhibits ligand-induced receptor autophosphorylation and internalization, but not mitogenesis. *Endocrinol.*, 136:4918-4924, 1995.

314. LeRoith, D., and Roberts, Jr., C.T. Growth Factors and Cytokines. In: Principles and Practice of Endocrinology and Metabolism, Becker, K. (ed.) J.B. Lippincott Co. Philadelphia, PA, pp. 1451-1466, 1995.
315. Edmondson, S.R., Werther, G.A., Russell, A., LeRoith, D., Roberts, Jr., C.T., and Beck, F. Localization of Growth Hormone Receptor/Binding Protein Messenger Ribonucleic Acid (mRNA) During Rat Fetal Development: Relationship to Insulin-Like Growth Factor-I mRNA. *Endocrinol.*, 136:4602-4609, 1995.
316. Potashnik, G., Lunenfeld, E., Shwartz, I., Glezerman, M., Roberts, Jr., C.T., LeRoith, D., Sharoni, Y., and Levy, J. Endogenous plasma growth hormone and the occurrence of pregnancies in patients undergoing in-vitro fertilization and embryo transfer with ovarian stimulation. *Human Reproduction*, 10:1065-1069, 1995.
317. LeRoith, D., Yanowski, J., Kaldjian, E.P., Jaffe E.S., LeRoith, T., Purdue, K., Clark, R., Jardieu, P., Cooper, B.D., Pyle, R., and Adler, W. The Effects of Growth Hormone and Insulin-Like Growth Factor-I on the Immune System of Aged Female Monkeys. *Endocrinol.*, 137:1071-1079, 1996.
318. Hernandez-Sanchez, C., Blakesley, V., Kalebic, T., Helman, L. and LeRoith, D. The Role of the Tyrosine Kinase Domain of the Insulin-Like Growth Factor-I Receptor in Intracellular Signaling, Cellular Proliferation and Tumorigenesis. *JBC*, 270:29176-29181, 1995.
319. LeRoith, D., Werner, H., Neuenschwander, S., Kalebic, T., and Helman, L.J. The role of insulin-like growth factor-I receptor in cancer. In: Receptor activation by antigens, cytokines, hormones and growth factors. Naor, D., De Meyts, Feldmann, M., and Schlessinger, J. (eds.). *Annals of the New York Academy of Sciences*, 1995, 402-408.
320. Blakesley, V., Kalebic, T., Helman, L.J., Stannard, B., Faria, T.N., Roberts, Jr., C.T., and LeRoith, D. Tumorigenic and mitogenic capacities are reduced in transfected fibroblasts expressing mutant IGF-I receptors. *Endocrinol.*, 137:410-417, 1996.
321. Mulrone, S.E., Koenig, J.I., Csikos, T., Pesce, C., Striker, L., LeRoith, D., and Haramati, A. Temporal changes in IGF- I, c-fos, and c-jun gene expression during hyperplastic kidney growth in weanling rats.

Endocrinol., 137:839-845, 1996.

322. Werner, H., Hernandez-Sanchez, C., Karnieli, E., and LeRoith, D. The regulation of IGF-I receptor gene expression. *Int. J. Biochem. Cell Biol.* 27:987-994, 1995.

323. Flyvbjerg, A., Landau, D., Domene, H., Hernandez, E., Gronbaek, H. and LeRoith, D. The role of growth hormone, insulin-like growth factors (IGFs), and IGF-binding proteins in experimental diabetic kidney disease. *Metabolism*, 44:4;67-71, 1995.

324. LeRoith, D., Neuenschwander, S., Wood, T.L., and Henninghausen, L. Insulin-like growth factor-I and insulin-like growth factor binding protein-3 inhibit involution of the mammary gland following lactation: Studies in transgenic mice. In: *Progress in Growth Factor Research*. Blum, W.F. and Hall, K. (eds.) Pergamon Press, Elsevier Science Ltd., Great Britain, 6:433-436, 1995.

325. Karas, M., Kleinman, D., Danilenko, M., Roberts, C.T., Jr., LeRoith, D., Levy, J., and Sharoni, Y. Components of the IGF system mediate the opposing effects of tamoxifen on endometrial and breast cancer cell growth. In: *Progress in Growth Factor Research*. Blum, W.F. and Hall, K. (eds.) Pergamon Press, Elsevier Science Ltd., Great Britain, 6:513-520, 1995.

326. Beitner-Johnson, D., Blakesley, V.A., Shen-Orr, Z., Jimenez M., Stannard, B., Wang, L-M., Pierce, J. and LeRoith, D. The proto-oncogene c-Crk Associates with IRS-1 and 4PS: Modulation by IGF-I and enhanced IGF-I signaling. *JBC*, 271;16:9287-90, 1996.

327. Neuenschwander, S., Schwartz, A., Wood, T.L., Roberts Jr., C.T., Henninghausen, L., and LeRoith, D. Involution of the lactating mammary gland is inhibited by the IGF system in a transgenic mouse model. *J. Clin. Invest.*, 97:2225-2232, 1996.

328. Kleinman, D., Karas, M., Danilenko, M., Arbeli, A., Roberts, Jr., C.T., LeRoith, D., Levy, J. and Sharoni, Y. Stimulation of endometrial cancer cell growth by Tamoxifen is associated with increased insulin-like growth factor (IGF)-I induced tyrosine phosphorylation and reduction in IGF binding proteins. *Endocrinol.* 137:1089-1095, 1996.

329. LeRoith, D. Insulin-like growth factor receptors and binding

proteins. In: Bailliere's Clinical Endocrinology and Metabolism. Membrane Surface Receptors, Sheppard, M.C. and Franklyn, J.A. (eds). Bailliere Tindall, Philadelphia, PA, 1996, Vol. 10, 49-73.

330. Matsumura, Y., Domeki, M., Sugahara, K., Kubo, T., Roberts, Jr., C.T., LeRoith, D. and Kato, H. Nutritional regulation of insulin-like growth factor-I receptor mRNA levels in growing chicken. *Biosci., Biotech. Biochem.*, 60:979-982, 1996.

331. Butler, A.A., Funk, B., Breier, B.H., LeRoith, D., Roberts, Jr., C.T., and Gluckman, P.D. Growth hormone (GH) status regulates GH receptor and GH binding protein mRNA in a tissue- and transcript-specific manner but has no effect on insulin-like growth factor-I receptor mRNA in the rat. *Mol. Cell. Endocrinol.* 116:181-189, 1996.

332. LeRoith, D., Parrizas, M., Esposito, D.L., Werner, H. and Blakesley, V. The insulin-like growth factor-I receptor: Implications for ovarian physiology. In: *Frontiers in Endocrinology: The role of insulin-like growth factors in ovarian physiology.* LeRoith, D. (ed). Ares Serono Symposia Publications, Rome, Italy, 19:1-12, 1996.

333. Werner, H., and LeRoith, D. The role of the insulin-like growth factor system in human cancer. In: *Advances in Cancer Research*, Van de Woude, G.F. and Klein, G. (eds). Academic Press, Inc., San Diego, CA, 68:183-234, 1996.

334. Werner, H., Karnieli, E., Rauscher, III, F.J., and LeRoith, D. Wild type and mutant p53 differentially regulate transcription of the insulin-like growth factor I receptor gene. *Proc. Natl. Acad. Sci.*, 93:8318-8323, 1996.

335. Karnieli, E., Werner, H., Rauscher, III, F.J., Benjamin, L.E., and LeRoith, D. The IGF-I receptor gene promoter is a molecular target for the Ewings Sarcoma - Wilm's tumor fusion protein. *JBC*, 271:19304-19309, 1996.

336. Blakesley, V.A., and LeRoith, D. The role of growth factors in the pathogenesis of diabetic vascular complications. In: *Diabetes Mellitus: A fundamental and clinical text.* LeRoith, D., Taylor, S.I., and Olefsky, J.M. (eds.) Lippincott- Raven Publishers, Philadelphia, PA. 824-831, 1996.

337. LeRoith, D., and Bondy, C. Insulin-like growth factors. In:

LeRoith, D. and Bondy, C. (eds.) Growth factors and cytokines in health and disease. JAI Press, Greenwich, CT, 1A:1-26, 1996.

338. Blakesley, V.A., Scrimgeour, A., Esposito, D., and LeRoith, D. Signaling via the insulin-like growth factor-I receptor: does it differ from insulin receptor signaling? *Cytokine & Growth Factor Reviews*, 7:153-159, 1996.

339. Hernandez-Sanchez, C. Wood, T.L. and LeRoith, D. Developmental and tissue specific sulfonylurea receptor gene expression. *Endocrinology*, 138:705-11, 1997.

340. Parrizas, M., Saltiel, A.R. and LeRoith, D. Insulin-like growth factor-I inhibits apoptosis using the phosphatidyl- inositol 3' kinase pathway and the mitogen-activated protein kinase pathways. *JBC*, 272:154-61, 1997.

341. Hernandez-Sanchez, C., Werner, H., Roberts, Jr., C.T., Woo, E.J., Hum, D.W., Rosenthal, S.M., and LeRoith, D. Differential regulation of IGF-I receptor gene expression by insulin-like growth factor-I and basic fibroblastic growth factor. *JBC*, 272:4663-70, 1997.

342. LeRoith, D. Insulin-like growth factors. *Seminars in Medicine of the Beth Israel Deaconess Medical Center. N Engl. J. Med.*, 336:633-40, 1996.

343. Parrizas, M. and LeRoith, D. Insulin-like growth factor-1 inhibition of apoptosis is associated with increased expression of the bcl-xL gene product. *Endocrinology*, 138:1355-58, 1997.

344. Parrizas, M., Gazit, A., Levitzki, A., Wertheimer, E. and LeRoith, D. Specific inhibition of insulin-like growth factor-1 and insulin receptors tyrosine kinase activity and biological function by Tyrphostins. *Endocrinol.*, 138:1427- 33, 1997.

345. Sass, D.A., Jerome, C.P., Bowman, A.R., Bennett-Cain, A., Ginn, T.A., LeRoith, D., and Epstein, S. Short term effects of GH and IGF-1 on cancellous bone in rhesus macaque monkeys. *J. Clin. Endo. & Metab.*, 82:1202-1209, 1997.

346. LeRoith, D., and Blakesley, V.A. The yin and the yang of the IGF system: immunological manifestations of GH resistance. *Eur. J. of*

Endocrinol. 136:33-34, 1997.

347. Wang, J., Niu, W., Nikiforov, Y., Nairo, S., Chernausek, S., Witte, D., LeRoith, D., Strauch, A., and Fagin, J.A. Targeted overexpression of IGF-I evokes distinct patterns of organ remodeling in smooth muscle cell tissue beds of transgenic mice. *J. Clin. Invest.*, 100:1425-1439, 1997.

348. Scrimgeour, A.G., Blakesley, V.A., Stannard, B.S., and LeRoith, D. Mitogen-activated protein kinase and Phosphatidylinositol 3-kinase pathways are not sufficient for insulin-like growth factor I-induced mitogenesis and tumorigenesis. *Endocrinol.*, 138:2552-58, 1997.

349. Rani, C.S., Wang, F., Fuor, E., Berger, A., Wu, J., Sturgill, T.W., Beitner-Johnson, D., LeRoith, D., Varticovski, L., and Spiegel, S. Divergence in signal transduction pathways of platelet-derived growth factor (PDGF) and epidermal growth factor (EGF) receptors. Involvement of sphingosine 1-phosphate in PDGF but not EGF signaling. *JBC*, 272:10777-83, 1997.

350. Chin, E., Zamah, A.M., Landau, D., Gronboek, H., Flyvbjerg, A., LeRoith, D. and Bondy, C.A. Changes in facilitative glucose transporter messenger ribonucleic acid levels in the diabetic rat kidney. *Endocrinol.* 138, 1267-75, 1997.

351. Najjar, S.M., Blakesley, V.A., Calzi, S.L., Kato, H., LeRoith, D., and Choice, C.V. Differential phosphorylation of PP120 by insulin and insulin-like growth factor-1 receptors: Role for the C-terminal domain of the β -subunit. *Biochemistry*, 36:6827-34, 1997.

352. Esposito, D.L., Blakesley, V.A., Koval, A.P., Scrimgeour, A., and LeRoith, D. Tyrosine residues in the C-terminal domain of the insulin-like growth factor-I receptor mediate mitogenic and tumorigenic signals. *Endocrinol.*, 138:2979-88, 1997.

353. Werner, H., Stannard, B., Shen-Orr, Z., Phillip, M., Roberts, Jr., C.T., and LeRoith, D. The streptozotocin-diabetic Rat model of IGF-1 modulated renal hypertrophy. In: E. Shafrir (ed.) *Lessons from Animal Diabetes*, Smith Gordon Publishers, London, Vol. V:169-180, 1995.

354. Blakesley, V.A., Stannard, B.S., Kalebic, T., Helman, L.J. and LeRoith, D. Role of the IGF-I receptor in mutagenesis and tumor promotion.

J. of Endocrinol. 152:339-344, 1997.

355. Flyvbjerg, A., Landau, D., Kiess, W., Bondy, C., Chin, E., Raz, I., Phillip, M., and LeRoith, D. The role of insulin-like growth factors (IGFs) and IGF binding proteins in diabetic nephropathy. In: Baba S. Kaneko, T. (eds.): Elsevier, Scientific Publisher BV, 237-241, 1995.

356. Parrizas, M., Blakesley, V.A., Beitner-Johnson, D. and LeRoith, D. The proto-oncogene Crk-II enhances apoptosis by a Ras-dependent, Raf-1/MAP kinase-independent pathway. *Biochem. & Biophys. Res Comm.* 234:616-620, 1997.

357. Blakesley, V.A., Beitner-Johnson, D., Van Brocklyn, J.R., Rani, S., Shen-Orr, Z., Stannard, B., Spiegel, S. and LeRoith, D. Sphingosine-1-phosphate stimulates tyrosine phosphorylation of Crk. *JBC*, 272:16211-15, 1997.

358. Foncea, R., Andersson, M., Ketterman, A., Blakesley, V., Sapag-Hagara, M., Sugden, P.H., LeRoith, D., and Lavandero, S. Insulin-like growth factor-1 rapidly activates multiple signal transduction pathways in cultured rat cardiac myocytes. *JBC*, 272:19115-124, 1997.

359. Karas, M., Kanilenko, M., Fishman, D., LeRoith, D., Levy, J. and Sharoni, Y. Membrane-associated insulin-like growth factor-binding protein-3 inhibits insulin-like growth factor-I induced insulin-like growth factor-I receptor signaling in Ishikawa endometrial cancer cells. *JBC*, 272:16514-20, 1997.

360. Ng, S.T., Zhou, J., Oluyemisi, O.A., Wang, J., LeRoith, D., and Bondy, C.A. Growth hormone treatment induces mammary gland hyperplasia in aging primates. *Nature Medicine*, 3:1141-1144, 1997.

361. Jaffa, A.A., Vio, C., Velarde, V., LeRoith, D., and Mayfield, R.K. Induction of renal kallikrein and renin gene expression by insulin and insulin-like growth factor-I in the diabetic rat. *Diabetes*, 46:2049-2056, 1997.

362. Butler, A.A., Blakesley, V.A., Koval, A., de Jong, R., Groffen, J. and LeRoith, D. In Vivo regulation of CrkII and CrkL proto-oncogenes in the uterus by insulin-like growth factor-I. *JBC*, 272:27660-27664, 1997.

363. Paz, K., Hemi, R., D. LeRoith, Karasik, A., Elhanany, E., Kanety,

H. and Zick, Y. Interaction between the insulin receptor and its downstream effectors. *JBC*, 272: 29911-29918, 1997.

364. Liu, J-L., Blakesley, V.A., Gutkind, J.S., and LeRoith, D. The constitutively active mutant Ga₁₃ transforms mouse fibroblast cells deficient in insulin-like growth factor-I receptor. *JBC*, 272:29438-29441, 1997.

365. Toretsky, J.A., Kalebic, T., Blakesley, V., LeRoith, D. and Helman, L.J. The insulin-like growth factor I receptor is required for EWS/FLI-1 transformation of fibroblasts. *JBC*, 272: 30822-30834, 1997.

366. Burvin, R., LeRoith, D., Harel, H., Zloczower, M., Marbach, M., and Karnieli, E. The effect of acute insulin-like growth factor-2 administration on glucose metabolism in the rat. *Growth Hormone and IGF Research*. 8(3):205-210, 1998.

367. Ohlsson, C., Kley, N., Werner, H., and LeRoith, D. p53 regulates IGF-I receptor expression and IGF-I induced tyrosine phosphorylation in an osteosarcoma cell line: Interaction between p53 and Sp1. *Endocrinology*, 139: 1101-1107, 1998.

368. Koval, A. P., Blakesley, V.A., Roberts, C.T. Jr., Zick, Y. and LeRoith, D. Interaction in vitro of the product of the c-Crk-II protooncogene with the insulin-like growth factor-I receptor. *Biochem J*, Mar. 1:330 (Pt. 2); 923-32, 1998.

369. LeRoith, D., Parrizas, M. and Blakesley, V.A. The insulin-like growth factor-I receptor and apoptosis: Implications for the Aging process. *Endocrine*, 7:103-105, 1997.

370. Li, S-L., Termini, J., Hayward, A., Siddle, K., Zick, Y., Koval, A., LeRoith, D., and Fujita-Yamaguchi, Y. The Carboxy-terminal domain of the insulin-like growth factor-I receptor interacts with the insulin receptor and activates its protein tyrosine kinase. *FEBS Letters* 421: 45-49, 1998.

371. Kato, H, Noguchi, T and LeRoith, D. Nutritional regulation of gene expression of IGFs and their related proteins. In: *Gene Expression and Nutrition: From Cells to Whole Body*. Muramatsu, T. (ed.) Research Signpost, Trivandrum, India, pp. 25-43, 1996.

372. LeRoith, D., Parrizas, M. and Blakesley, V.A. The insulin-like growth factor-I receptor and the central nervous system: Mechanisms involved in the prevention of apoptosis. In: IGFs in the Nervous System. Muller, Eugenio E. (ed.) Springer, Milan, Italy, pp 17-27, 1998.
373. Adamo, M., Roberts, Jr., C.T. and LeRoith, D. Insulin and Insulin-like Growth Factors in Health and Disease. In: Principles of Medical Biology: Molecular and Cellular Endocrinology, Bittar, E.E. and Bittar, N. (eds.) JAI Press, Greenwich, CT, volume 10B:339-364, 1997.
374. LeRoith, D., Butler A. and Blakesley, V.A. The insulin-like growth factor-I receptor: implications for the aging process. *The Aging Male*, 1: 67-72, 1998.
375. Werner, H. and LeRoith, D. The insulin-like growth factor-I receptor signaling pathways are important for Tumorigenesis and inhibition of apoptosis. In: *Critical Reviews in Oncogenesis*. 8(1):71-92, 1997.
376. Koval, A., Karas, M., Zick, Y. and LeRoith, D. Interplay of the proto-oncogenes CRKL and CRKII in IGF-I receptor-mediated signal transduction. *JBC*, 273:14780-14787, 1998.
377. Butler, A. Blakesley, A., Tsokos, V.A., Pouliki, M., Wood, T.L. and LeRoith, D. Stimulation of tumor growth by recombinant human insulin-like growth factor-I (IGF-I) is dependent on the dose and the level of IGF-I receptor expression. *Cancer Research*, 58:3021-3027, 1998.
378. LeRoith, D., Koval, A.P., Butler, A.A., Yakar, S., Karas, M., Stannard, B. and Blakesley, V.A. The insulin-like growth factor-I receptor and cellular signaling: implications for cellular proliferation and tumorigenesis. In: *Molecular Mechanisms to regulate the activities of IGFs*. Takano, K., Hizuka, N. and Takahashi, S-I., (eds.) Elsevier, Amsterdam, pp. 285-290, 1998.
379. Liu, J-L., Grinberg, A., Westphal, H., Sauer, B., Accili, D., Karas, M. and LeRoith, D. Insulin-like growth factor affects perinatal lethality and post-natal development in a gene dosage-dependent manner: Manipulation using the Cre/LoxP system. *Molec. Endoc.*, 12:1452-1462, 1998.
380. Blakesley, V.A., Koval, A.P., Stannard, B.S., Scrimgeour, A. and LeRoith, D. Replacement of tyrosine 1251 in the carboxy-terminus of the

insulin-like growth factor-I receptor disrupts the actin cytoskeleton and inhibits proliferation and anchorage-independent growth., *JBC*, 273:18411-18422, 1998.

381. Okubo, Y., Blakesley, V.A., Stannard, B., Gutkind, S., and LeRoith, D. Insulin-like growth factor-I inhibits the stress-activated protein kinase/c-Jun NH2-terminal kinase. *JBC*, 273:25961-25966, 1998.

382. Landau, D., Domene, H., Flyvberg, A., Gronbaek, H., Roberts Jr., C.T., and LeRoith, D. Differential expression of renal growth hormone receptor and its binding protein in experimental diabetes mellitus. *Growth Hormone and IGF Research*, Feb. 8(1):39-45, 1998.

383. Zhu, T., Goh, E.L.K., LeRoith, D. and Lobie, P.E. Growth hormone stimulates the formation of a multi-protein signalling complex involving p130Cas and CrkII: resultant activation of JNK/SAPK. *JBC*, 273:33864-33875, 1998.

384. Butler, A.A., Yakar, S., Gewolb, I.H., Karas, M., Okubo, Y., and LeRoith, D. Insulin-like growth factor-I receptor signal transduction: at the interface between physiology and cell biology. *Comp. Biochem. and Physiology Part B*, 121:19-26, 1998.

385. Le Roith, D., and Sonksen, P. Research on growth hormone (GH) and the insulin-like growth factors (IGFs) *Growth Horm IGF Res.* 8(1):1-2, 2000

386. Hernandez-Sanchez, C., Ito, Y., Ferrer, J., Reitman, M. and LeRoith, D. Characterization of the mouse sulfonylurea receptor 1 promoter and its regulation. *JBC*, 274:18261-18269, 1999.

387. LeRoith, D., Blakesley, V.A., Werner, H. Molecular mechanisms of IGF-I receptor function: implications for normal physiology and pathological states. *Handbook of Physiology, Section 7, The Endocrine System. Volume V: Hormonal Control of Growth*, Kostyo, Jack L. and Goodman, H. Maurice, (eds.) American Physiology Society, Oxford Press, New York, pp 633-662, 1999.

388. LeRoith, D. Insulin-like growth factors in the nervous system. *Encyclopedia of Neuroscience*. Edelman, George, and Smith, Barry H. (eds.) Elsevier Science, pp 975-976, 1999.

389. Katz, J., Nasatzky, E., Werner, H., LeRoith, D. and Shemer, J. Tumor Necrosis Factor α and Interferon γ - induced cell growth arrest is mediated via Insulin-Like Growth Factor Binding Protein -3. *Growth Hormone and IGF Research* 9: 174-178, 1999.
390. Yakar, S., Liu, Jun-Li, Stannard, B., Butler, A.A., Accili, D. Sauer, B. and LeRoith, D. Normal growth and development in the absence of hepatic insulin-like growth factor-I. *Proc. Natl. Acad. Sci.*, 96: 7324-7329, 1999.
391. Blakesley, V.A., Butler, A.A., Koval, A.P., Okubo, Y. and LeRoith, D. IGF-I receptor function: Transducing the IGF-I signal into intracellular events. In *The IGF System: Molecular Biology, Physiology and Clinical Applications*. eds R.G.Rosenfeld, R.G. and Roberts Jr., C.T. (eds.) Humana Press, 43-164, 1999.
392. Sjögren, K., Liu, J-L, Blad, K., Skrtic, S., Vidal, O., Wallenius, V., LeRoith, D., Törnell, J., Isaksson, O.G.P., Jansson, J, and Ohlsson, C. Liver-derived insulin-like growth factor I (IGF-I) is the principal source of IGF-I in blood but is not required for postnatal body growth in mice. *Proc. Natl. Acad. Sci.*, 96:7088-7092, 1999.
393. Liu, J-L, and LeRoith, D. Insulin-like growth factor-I is essential for post-natal growth in response to growth hormone. *Endocrinology*, 140:5178-5184, 1999.
394. Paz, K., Liu, Y-F., Shorer, H., Hemi, R., LeRoith, D., Quon, M., Kanety, H., Seger, R., and Zick, Y. Phosphorylation of Insulin Receptor Substrate-1 (IRS-1) by PKB Positively Regulates IRS-1 Function. *JBC*, 274:28816-28822, 1999.
395. Qu, B., Karas, M., Koval, A., and LeRoith, D. Insulin Receptor Substrate-4 Enhances Insulin-like Growth Factor-I-Induced Cell Proliferation., *JBC*, 274:31179-31184, 1999.
396. LeRoith, D. Tumor-Induced Hypoglycemia, *New England Journal of Medicine* (Editorial) 341:757-758, 1999.
397. Karas, M., Zaks, T.Z., Yakar, S., Dudley, M.E., and LeRoith, D. T cell receptor-induced activation and apoptosis in cycling human T cells

occurs throughout the cell cycle. *Molecular Biology of the Cell*, 10:4441-4450, 1999.

398. LeRoith, D., Karas, M., Yakar, S., Qu, B., Wu, Y., and Blakesley, V.A., The Role of the Insulin-like Growth Factors in Cancer. *The Israel Medical Association Journal* 1:25-30, 1999.

399. Chevalier, R.L, Goyal, S., Kim, A., Chang, A.Y., Landau, D. and LeRoith, D. Renal tubulointerstitial injury from ureteral obstruction in the neonatal rat is attenuated by IGF-I. *Kidney International*, 57:882-890, 2000.

400. LeRoith, D., and Butler, A. Insulin-like Growth Factors in Pediatric Health and Disease, *Journal of Clinical Endocrinology & Metabolism*, 84(12):4355-4361, 1999.

401. LeRoith, D. Insulin-like Growth Factor, *Horm. Metab. Res.* (editorial), 31:41-42, 1999.

402. Paz, K., Boura-Halfon, S., Wyatt, L.S., LeRoith, D., and Zick, Y. The juxtamembrane, but not the carboxy-terminal domain of the insulin receptor mediates insulin's metabolic functions in primary adipocytes and cultured hepatoma cells *J. Mol. Endocrinol.*, Jun;24(3):419-32, 2000.

403. de Lacerda, L., Carvalho, J.A.R., Stannard, B., Werner, W., Boguszewski, M.C.S., Sandrini, R., Malozowski, S.N., LeRoith, D., and L.E. Underwood. In vitro and in vivo responses to short-term recombinant human insulin-like growth factor-I (IGF-I) in a severely growth-retarded girl with ring chromosome 15 and deletion of a single allele for the type 1 IGF receptor gene. *Clinical Endocrinology* 51(5):541-550, 1999.

404. LeRoith, D. Insulin-like growth factor I receptor signaling - overlapping or redundant pathways? Review. *Endocrinology*, 141(4):1287-1288, 2000.

405. LeRoith, D. and Blakesley, V.A. Biology of Growth factors. In: *Skeletal Growth Factors*. Canalis, Ernesto (ed.) Lippincott Williams and Wilkins. Philadelphia, pp 31-50, 2000.

406. Liu, J.L., Yakar, S. and LeRoith, D. Conditional knockout of mouse insulin-like growth factor-1 gene using the cre/loxP system. Review. *Proc. Soc. Exp. Biol. Med.* 223(4):344-351, 2000.

407. Goh, E L. K., Zhu, T., Yakar, S., LeRoith, D. and Lobie, P. E. CrkII participation in the cellular effects of growth hormone and insulin-like growth factor-1. phosphatidylinositol-3 kinase dependent and independent effects, *JBC*, 275(23): 17683-17692. 2000.
408. Foncea R, Gálvez A, Pérez V, Morales MP, Calixto A, Meléndez J, González-Jara F, Díaz-Araya G, Sapag-Hagar M, Sugden PH, LeRoith D, Lavandero S. Extracellular regulated kinase, but not protein kinase C, is an antiapoptotic signal of IGF-1 on cultured cardiac myocytes. *Biochem Biophys Res Commun*. 273(2):736-744, 2000.
409. Werner H and LeRoith, D. New concepts in regulation and function of the insulin-like growth factors: implications for understanding normal growth and neoplasia. *Cellular and Molecular Life Sciences*, 57(6):932-942, 2000.
410. Le Roith, D. Regulation of proliferation and apoptosis by the IGF I receptor (review). *Growth Horm IGF Res*. 10 Suppl A:S12-3, 2000.
411. Liu, J., Yakar, S., and LeRoith, D. Mice deficient in liver production of insulin-like growth factor-I display sexual dimorphism in growth hormone-stimulated post-natal growth. *Endocrinology*, 141(12):4436-4441, 2000.
412. Yakar, S., Liu, J. and Le Roith, D. The growth hormone/insulin-like growth factor-I system: implications for organ growth and development. *Pediatric Nephrology*, 14(7):544-549, 2000.
413. Kato, H., Okubo, Y., Matsumura, Y., Roberts, C.T., Jr., Sugahara, K., and LeRoith, D. The tyrosine kinase activity of the chicken insulin receptor is similar to that of the human insulin receptor. *Biosci Biotechnol Biochem.*, Apr.;64(4):903-906, 2000.
414. Karas, M., Zaks, T.Z., Yakar, S., Dudley M. and LeRoith, D. TCR stimulation protects CD8+ T cells from CD95-mediated apoptosis. *Human Immunology*, 62(1):32-38, 2001.
415. Karas, M., Koval, A., Zick, Y. and LeRoith, D. The insulin-like growth factor-I receptor-induced interaction of insulin receptor substrate-4 and Crk-II. *Endocrinology*, May; 142(5):1835-40, 2001.

416. Butler, A. and LeRoith, D. Tissue-specific versus generalized gene targeting of the *igf1* and *igf1r* genes and their roles in insulin-like growth factor physiology. *Endocrinology*, 142(5):1685-1688, 2001.
417. Hernandez-Sanchez, C., Basile, A., Fedorova, I., Arima, H., Stannard, B., Fernandez, A., Ito, Y., and LeRoith, D. Mice transgenically overexpressing sulfonyleurea receptor 1 in forebrain resist seizure induction and excitotoxic neuron death. *Proc. Natl Acad Sci*, March 13, 98(6):3549-3554, 2001.
418. Yakar, S., Liu, J., Fernandez, A., Wu, Y., Schally, A.V., Frystyk, J., Chernausek, S., and LeRoith, D. Liver-specific *igf-1* gene deletion leads to muscle insulin insensitivity. *Diabetes*, 50:1110-1118, 2001.
419. Deb, D., Lanyi, A., Scian, M., Keiger, J., Brown, D.R., LeRoith, D. Differential modulation of cellular and viral promoters by p73 and p53. *Int. J. of Oncology*, 18:401-409, 2001.
420. LeRoith, D., Bondy, C., Yakar, S., Liu, J., Butler, A. The Somatomedin Hypothesis: 2001. *Endocrine Reviews*, 22(1): 53-74, 2001.
421. Butler, A. and LeRoith, D. Control of Growth by the Somatotropic Axis: Growth Hormone and the Insulin-like growth factors have related and independent roles. *Ann. Rev. Physiol*, 63:141-164, 2001.
422. Dupont, J., Karas, M., and LeRoith, D. The potentiation of estrogen on insulin-like growth factor 1 action in MCF-7 human breast cancer cells includes cell cycle components. *JBC*, 275(46):35893-35901, 2000.
423. Dupont, J., Fernandez, A.M., Glackin, C.A., Helman, L., LeRoith, D. IGF-1-induced twist expression is involved in the anti-apoptotic effects of the IGF-1 receptor. *JBC*, 276(28):26699-26707, 2001.
424. Heron-Milhavet, L., Karas, M., Goldsmith, C., Baum, B. and LeRoith, D. IGF-1 receptor activation rescues UV-damaged cells through a p38 signaling pathway: potential role of the IGF-1 receptor in DNA repair. *JBC*, 276(21):18185-92, 2001.
425. Liu, Y.F., Paz, K., Herschkovitz, A., Alt, A., Tennenbaum, T., Sampson, S.R., Ohba, M., Kuroki, T., LeRoith, D. and Zick, Y. Insulin stimulates PKC-mediated phosphorylation of insulin receptor substrate-1

(IRS-1). A self-attenuated mechanism to negatively regulate the function of IRS proteins. *JBC*, April 27; 276(17):14459-65, 2001.

426. Dupont, J. and LeRoith, D. Insulin-like growth factor 1 and oestradiol promote cell proliferation of MCF-7 breast cancer cells: new insights into their synergistic effects. *Mol. Pathology*, 54:149-154, 2001.

427. LeRoith, D. and Zick, Y. Recent advances in our understanding of insulin action and insulin resistance. *Diabetes Care*, 24:588-597, 2001.

428. Hellstrom, A., Perruzzi, C., Ju, M., Engström, E., Hård, Anna-Lena, Liu, Jun-Li, Albertsson-Wikland, K., Carlsson, B., Niklasson, A., Sjödel, L., LeRoith, D., Senger, D.R., and Smith, L.E. Low IGF-1 suppresses VEGF-survival signaling in retinal endothelial cells: Direct correlation with clinical retinopathy of prematurity. *Proc. Natl. Acad. Sciences*. 98(10):5804-5808, 2001.

429. LeRoith, D., Scavo, L. and Butler, A. What is the role of circulating igf-1. *Trends in Endocrinology & Metabolism*, 12(2):48-52, 2001.

430. Dupont, J. and LeRoith, D. Insulin and insulin-like growth factor 1 receptors: similarities and differences in signal transduction. *Hormone Research*, 55(suppl 2):22-26, 2001.

431. Dupont, J., Khan, J., Qu, B.-H., Metzler, P., Helman, L. and LeRoith, D. Insulin and IGF-1 induce different patterns of gene expression in mouse fibroblast NIH-3T3 cells: identification by cDNA microarray analysis. *Endocrinology*, 142(11)4969-4975, 2001.

432. Jacobs, A., LeRoith, D., and Taylor, S. Insulin receptor substrate-1 pleckstrin homology and phosphotyrosine-binding domains are both involved in plasma membrane targeting. *JBC*, 276(44): 40795-40802, 2001.

433. Fernandez, A.M., Kim, J.K., Yakar, S., Dupont, J., Hernandez-Sanchez, C., Castle, A.L., Filmore, J., Shulman, G.I., and LeRoith, D. Functional inactivation of the IGF-I and insulin receptors in skeletal muscle causes Type 2 diabetes. *Genes and Development*. 15:1926-1934, 2001.

434. Le Roith, D. Current Therapeutic Algorithms for Type 2 Diabetes. *Clinical Cornerstone*, 4(2):38-49, 2001.

435. Pietropaolo, M. and Le Roith, D. Pathogenesis of Diabetes: Our Current Understanding. 4(2):1-16, 2001.
436. Fernandez, A., Dupont, J., Farrar, R., Stannard, B., and LeRoith, D. Muscle-specific inactivation of the IGF-1 receptor induces compensatory hyperplasia in skeletal muscle of MKR mice. J. Clin. Invest., 109(3):347-355, 2002.
437. Wu, Y., Yakar, S., Zhao, Ling, LeRoith, D. Circulating IGF-1 levels regulate colon cancer growth and metastasis. Cancer Research, 62:1030-1035, 2002.
438. Burroughs, K.D., Howe, S.R., Okubo, Y., Fuchs-Young, R., LeRoith, D., and Walker, C.L. Dysregulation of IGF-I signaling in uterine leiomyoma. Journal of Endocrinology, 172:83-93, 2002.
439. Naranjo, W., Yakar, S., Sanchez de Gomez, M., Perez, A., Setser, J. and LeRoith, D. Protein calorie restriction affects non-hepatic IGF-1 production and the lymphoid system: studies utilizing the liver-specific gene-deleted mouse model. Endocrinology, 143(6):2233-41, 2002.
440. LeRoith, D., Butler, A., Blakesley, V.A. The role of cell surface receptors in hormone and growth factor signaling: an overview. In: Hormone Resistance and Hypersensitivity States, Chrousos, G.P., Olefsky, J.M., and Samols, E. (eds.) Modern Endocrinology Series, Lippincott, pp 65-88, 2002.
441. LeRoith, D., Quon, M.J., and Zick, Y. Insulin and insulin-like growth factor-I receptors and signaling pathways: similarities and differences. In: Hormone Signaling. Goffin, Vincent, and Kelly, Paul A. (eds.) Kluwer Academic Publishers. Boston, pp 81-99, 2002.
442. Butler, A., Yakar, S. and LeRoith, D. IGF-1: Compartmentalization within the somatotropic axis. News in Physiological Sciences, 17:82-85, 2002.
443. Mejia Naranjo, W., Sanchez-Gomez, M. and LeRoith, D. The Growth Hormone – Insulin-like Growth Factor-I Axis and Immunity. In: Neuroimmune Biology, Vol. 2: Growth and Lactogenic Hormones, Matera, L. and Rapaport, R., eds., 9-25, 2002.

444. Dupont, J., Renou, J.P., Shani, M., Hennighausen, L. and LeRoith, D. PTEN overexpression suppresses proliferation and differentiation and enhances apoptosis of the mouse mammary epithelium. *JCI*, 110:6:815-825, 2002.
445. Le Roith, D., Kim, H., Fernandez, A. and Accili, D. Inactivation of muscle insulin and IGF-1 receptors and insulin responsiveness. *Current Opinion in Clinical Nutrition and Metabolic Care*, 5:371-375, 2002.
446. LeRoith, D. and Werner, H. Insulin-like Growth Factors. In: Encyclopedia of Cancer, Bertino, J., ed., Elsevier Academic Press, San Diego, CA, 2:487-492, 2002.
447. Heron-Milhavet, L. and LeRoith, D. IGF-I induces MDM2-dependent degradation of p53 via the p38 MAP kinase pathway in response to UV-like DNA damage. *JBC*, May 3;277(18):15600-6., 2002.
448. Yakar, S., Rosen, C., Beamer, W., Ackert-Bicknell, C., Wu, Y., Liu, J.L., Ooi, G., Setser, J., Frystyk, J., Boisclair, Y. and LeRoith, D. Circulating levels of insulin-like growth factor-1 directly regulate bone growth and density. Studies utilizing the liver IGF-1 deficient and the Als gene-disrupted mice. *JCI*, Sept. 110(6):771-81, 2002.
449. Akintoye, S., Chebli, C., Booher, S., Feuillan, P., Kushner, H., Leroith, D., Cherman, N., Bianco, P., Wientroub, S., Robey, P., and Collins, M. Characterization of GSP-mediated growth hormone excess in the context of McCune-Albright syndrome. *J. Clin. Endo and Metab.*, 87(11):5104-5112, 2002.
450. Carro, E., Trejo, J.L., Gomez-Isla, T., LeRoith, D. and Torres-Aleman, I. Serum IGF-1 regulates brain amyloid- β levels. *Nature Medicine*, Dec., 8(12):1390-7, 2002.
451. Systemic versus local IGF-1 production in normal development and disease. In: Central and Peripheral Mechanisms in Pituitary Disease, Kleinberg, D.L., and Clemmons, D.R., Bio Scientifica Publishers, Bristol, UK, vol. 6 (HypoCCS series):177-184, 2002.
452. Kim, H., Haluzik, M., Ashghar, Z., Yau, D., Joseph, J., Fernandez, A., Reitman, M., Yakar, S., Stannard, B., Heron-Milhavet, L., Wheeler, M. and LeRoith, D. Peroxisome proliferator-activated receptor (PPAR)- α agonist

treatment in a transgenic model of type 2 diabetes reverses the lipotoxic state and improves glucose homeostasis, *Diabetes* 52(7):1770-8, 2003.

453. LeRoith, D. and Roberts, C. The insulin-like growth factor system and cancer. *Cancer Letters* 195(2):127-137, 2003.

454. Yu, R., Yakar, S., Liu, Y., Lu, Y., LeRoith, D., Miao, D., Liu, J-L. Liver-specific IGF-I gene deficient mice exhibit accelerated diabetes in response to streptozotocin, associated with early onset of insulin resistance. *Mol. and Cell End.*, 204:31-42, 2003.

455. LeRoith, D. b-cell dysfunction and insulin resistance in type 2 diabetes: role of metabolic and genetic abnormalities. *Am. J. Med.*, 113(6)Supplement 6A:3s-11s, 2002.

456. Pennisi, P., Barr, V., Nunez, N., Stannard, B. and Le Roith, D. Reduced expression of IGF-1R in MCF-7 breast cancer cells lead to a more metastatic phenotype. *Cancer Research*, 62:6529-6537, 2002.

457. LeRoith, D., Kim, H., Fernandez, A., Accili, D. Inactivation of muscle insulin and IGF-1 receptors and insulin responsiveness. *Curr. Opinion in Clin. Nutr. & Metabolic Care*, 5(4):371-5, 2002.

458. Dupont, J., Karas, M. and LeRoith, D. The cyclin-dependent kinase inhibitor p21CIP/WAF is a positive regulator of insulin-like growth factor I-induced cell proliferation in MCF-7 human breast cancer cells, *JBC*, 278(39):37256-37264, 2003.

459. Haluzik, M., Yakar, S., Gavrilova, O., Setser, J., Boisclair, Y., and LeRoith, D. Insulin resistance in the liver-specific IGF-1 gene-deleted mouse is abrogated by deletion of the acid-labile subunit of the IGF-binding protein-3 complex, *Diabetes*, 52:10:2483-2489, 2003.

460. LeRoith, D., and Smith, D. Loss of glucose homeostasis: implications of basal glycaemia in type 2 diabetes. *Diabetes, Obesity and Metabolism*, 5(5):285-294, 2003.

461. LeRoith, D. The Insulin-like growth factor system. *Experimental Diabetes Research*, 4(4):205-212, 2003.

462. Le Roith, D., Quon, M. and Zick, Y. *Molecular and Cellular*

Aspects of Insulin Resistance: Implications for Diabetes. In: Signal Transduction and Human Disease, pps. 171-200. T. Finkel and J. S. Gutkind, eds., Wiley Interscience, New Jersey, 2003.

463. Wu, Y., Karas, M., Dupont, J., Zhao, H., Toyoshima, Y., and LeRoith, D. Multiple signaling pathways are involved in the regulation of IGF-I receptor inhibition of PTEN-enhanced apoptosis. *Growth Hormone & IGF Res.*, 14(1):52-58, 2004.

464. Zhao, H., Dupont, J., Yakar, S., Karas, M., and LeRoith, D. PTEN inhibits cell proliferation and induces apoptosis by downregulating cell surface IGF-IR expression in prostate cancer cells. *Oncogene*, 23:786-794, 2004.

465. LeRoith, D., and Helman, L. The new kid on the block(ade) of the IGF-1 Receptor. *Cancer Cell*, 5(3):201-2, 2004. Erratum in *Cancer Cell*, 5(4):403, 2004.

466. LeRoith, D. A Blast from the Past – Insulin does it again! Editorial. *JCEM*. 89(7):3103-3104, 2004.

467. Yakar, S., Setser, J., Zhao, H., Stannard, B., Haluzik, M., Glatt, V., Bouxsein, M., Kopchick, J., and LeRoith, D. Inhibition of growth hormone action improves insulin sensitivity in liver IGF-1-deficient mice. *JCI*, 113(1):96-105, 2004.

468. Heron-Milhavet, L., Xue-Jun, Y., Vannucci, SJ, Wood, T., Willing, L., Stannard, B., Hernandez-Sanchez, C., Mobbs, C., Virsolvy, A. and LeRoith, D. Protection against hypoxia-ischemia injury in transgenic mice overexpressing KIR6.2 channel pore in forebrain, *Mol. Cell. Neurosci.*, 25(4):585-93, 2004.

469. LeRoith, D. Emerging concepts in the role of IGFs and cancer. *Horm. Metab. Res.*, 35(11-12):649-50. 2003.

470. Haluzik, M., Gavrilova, O. and LeRoith, D. Peroxisome proliferators-activated receptor-alpha deficiency does not alter sensitivity in mice maintained on regular or high-fat diet: hyperinsulinemic-euglycemic clamp studies. *Endocrinology*, 145(4):1662-7. 2004.

471. Kok, M., Yamano, S., Lodde, B., Wang, J., Couwenhoven, R.,

Yakar, S., Voutetakis, A., LeRoith, D., Schmidt, M., Afione, S., Pillemer, S., Tsutsui, M., Tak, P., Chiorini, J., and Baum, B. Local adeno-associated virus-mediated interleukin 10 gene transfer has disease-modifying effects in a murine model of Sjogren's syndrome. *Hum Gene Ther.* 14(17):1605-18, 2003.

472. Bentov, I., LeRoith, D. and Werner, H. The WT1 Wilms' tumor suppressor gene: a novel target for insulin-like growth factor-I action. *Endocrinology*, 144(10):4276-9. 2003.

473. Wu, Y., Cui, K., Miyoshi, K., Hennighausen, L., Green, J.E., Setser, J., LeRoith, D. and Yakar, S. Reduced circulating insulin-like growth factor I levels delay the onset of chemically and genetically induced mammary tumors. *Cancer Res.* 63(15):4384-8, 2003.

474. Cefalu, W., LeRoith, D., Council for the Advancement of Diabetes Research and Education. Overcoming the barriers for achieving standards of diabetes care: the formation of CADRE. *Diabetes Technol. Ther.* 5(3):385-92, 2003.

475. Dupont, J., Dunn, S., Barrett, J., and LeRoith, D. Microarray analysis and identification of novel molecules involved in insulin-like growth factor-1 receptor signaling and gene expression. *Recent Prog Horm Res.* 58:325-42, 2003.

476. Jia, Y., Qi, C., Kashireddi, P., Surapureddi, S., Zhu, Y., Rao, M., LeRoith, D., Chambon, P., Gonzalez, F. and Reddy, J. Transcription coactivator PBP, the peroxisome proliferator-activated receptor (PPAR)-binding protein, is required for PPAR α -regulated gene expression in liver. *J Biol Chem.* 279(23):24427-24434, 2004.

477. Haluzik, M., Colombo, C., Gavrilova, O., Chua, S., Wolf, N., Chen, M., Stannard, B., Dietz, K., LeRoith, D and Reitman, M. Genetic background (C57BL/6J versus FVB/N) strongly influences the severity of diabetes and insulin resistance in ob/ob mice. *Endocrinology* 145(7):3258-64, 2004.

478. LeRoith, D. Non-islet cell hypoglycemia. *Ann Endocrinol (Paris).* 65(1):99-103, 2004.

479. Toyoshima, Y., Karas, M., Yakar, S., Dupont, J., Helman, L. and LeRoith, D. TDAG51 mediates the effects of insulin-like growth factor I

- (IGF-I) on cell survival. *J Biol. Chem.* 279(24):25898-25904. 2004.
480. LeRoith, D., Levetan, C., Hirsch, I., and Riddle, M. Type 2 diabetes: the role of basal insulin therapy. *J Fam Pract.* 53(3):215-22. 2004.
481. Welniak, L., Karas, M., Yakar, S., Anver, M., Murphy, W. and LeRoith, D. Effects of organ-specific loss of insulin-like growth factor-I production on murine hematopoiesis. *Biol Blood Marrow Transplant.* 10(1):32-9, 2004.
482. Inoue, H., Ogawa, W., Ozaki, M., Haga, S., Matsumoto, M., Furukawa, K., Hashimoto, N., Kido, Y., Mori, T., Sakaue, H., Teshigawara, K., Jin, S., Iguchi, H., Hiramatsu, R., LeRoith, D., Takeda, K., Akira, S., Kasuga, M. Role of STAT-3 in regulation of hepatic gluconeogenic genes and carbohydrate metabolism in vivo. *Nat Med.* 10(2):168-74, 2004.
483. LeRoith, D. and Adamo, M. Insulin-like Growth Factors, In: *Encyclopedia of Endocrine Diseases*, Vol. 3, Elsevier, Inc., 32-35, 2004.
484. Smith, D. O., and LeRoith, D. Insulin resistance syndrome, pre-diabetes, and the prevention of type 2 diabetes mellitus. *Clin Cornerstone*, 6(2):7-13, 2004.
485. LeRoith, D. Molecular mechanisms by which metabolic control may improve outcomes, *Endocrine Practice*, 10 (suppl. 2):57-62, 2004
486. Mejia-Naranjo, W., Yakar, S., Bernal R., LeRoith, D., Sanchez-Gomez, M. Regulation of the splenic somatotrophic axis by dietary protein and insulin-like growth factor-I in the rat. *Growth Horm IGF Res*, 13(5):254-63, 2003.
487. Scavo, L., Karas, M., Murray, M., and LeRoith, D. Insulin-like growth factor-I stimulates both cell growth and lipogenesis during differentiation of human mesenchymal stem cells into adipocytes. *JCEM*, 89(7):3543-3553, 2004.
488. Adamo, M., Wang, Lai, Heron, L., Ben-Yosef, D., Zhao, H., and Leroith, D. The insulin-like growth factor system, In: IGF and Nutrition in Health and Disease, Humana Press Inc., Houston, M.S., Holly, J.M.P., and Feldman, E.L., Totowa, NJ, 3-22, 2004.

489. Lopez-Lopez, C., LeRoith, D., Torres-Aleman, I. Insulin-like growth factor I is required for vessel remodeling in the adult brain, *PNAS*, 101(26):9833-9838, 2004.
490. Zhang, Y., Karas, M., Zhao, H., Yakar, S., LeRoith, D. 14-3-3 sigma mediation cell cycle progression is p53-independent in response to IGF-I receptor activation, *JBC*, 279(33):34353-34360, 2004.
491. Pennisi, P., Kopchick, J., Thorgeirsson, S., LeRoith, D., and Yakar, S. Role of GH in liver regeneration, *Endocrinology*, 145(10):4748-4755, 2004.
492. Heron-Milhavet, L., Haluzik, M., Yakar, S., Gavrilova, O., Pack, S., Jou, WC, Ibrahimi A., Kim, H., Hunt, D., Yau, D. Asghar Z, Joseph J, Wheeler MB, Abumrad NA, LeRoith D. Muscle-specific overexpression of CD36 reverses the insulin resistance and diabetes of MKR mice. *Endocrinology*. 145(10):4667-76, 2004.
493. Matsusue, K., Gavrilova, O., Lambert, G., Brewer, H.B., Ward, J.M., Inoue, Y., LeRoith, D., Gonzalez, F. Hepatic CCAAT/enhancer binding protein alpha mediates induction of lipogenesis and regulation of glucose homeostasis in leptin-deficient mice. *Mol. Endo.* 18(11):2751-64, 2004.
494. Zhao, H., Yakar, S., Gavrilova, O., Sun, H., Zhang, Y., Kim, H., Setser, J., Jou, W. and LeRoith, D. Phloridzin improves hyperglycemia but not hepatic insulin resistance in a transgenic mouse model of type 2 diabetes. *Diabetes* 53(11):2901-2909, 2004.
495. Yakar, S., Pennisi, P., Zhao, H., Zhang, Y. and LeRoith, D. Circulating IGF-I and its role in cancer: lessons from the IGF-1 gene-deletion (LID) mouse. (Novartis Foundation Symposium 262:3-9; discussion 9-18; 265-8 Review, 2004), In: Biology of IGF-1: Its interaction with insulin in health and malignant states, John Wiley & Sons, Ltd., Chichester, UK, 2004.
496. Lu, Y., Herrera, P., Guo, Y., Sun, D., Tang, Z., LeRoith, D., and Liu, J-L. Pancreatic-specific inactivation of IGF-I gene causes enlarged pancreatic islets and significant resistance to diabetes. *Diabetes*, 53(12):3131-3141, 2004.

497. Moran, S. and LeRoith, D. Drugs and hormones that increase blood glucose levels. In: *Therapy for Diabetes Mellitus and Related Disorders*, 4th edition. Harold E. Lebovitz, ed., American Diabetes Association Press, 2004.
498. Yakar, S., Kim, H., Zhao, H., Toyoshima, Y., Pennisi, P., Gavrilova, O. and LeRoith, D. The growth hormone-insulin like growth factor axis revisited: lessons from IGF-1 and IGF-1 receptor gene targeting. *Pediatric Nephrology*, 20:251-254, 2005.
499. Kim, H., Haluzik, M., Gavrilova, O., Yakar, S., Portas, J., Sun, H., Pajvani, U., Scherer, P., and LeRoith, D. Thiazolidinediones improve insulin sensitivity in adipose tissue and reduce the hyperlipidaemia without affecting the hyperglycaemia in a transgenic model of type 2 diabetes, *Diabetologia*, 47(12):2215-2225, 2005.
500. LeRoith, D., Fonseca, V., Vinik, A., Metabolic memory in diabetes - focus on insulin. *Diabetes/Metabolism Research and Reviews*, 21:85-90, 2005.
501. Kim, H., Barton, E., Muja, N., Yakar, S., Pennisi, P., and LeRoith, D. Intact insulin and insulin-like growth factor-I receptor signaling is required for growth hormone effects on skeletal muscle growth and function in vivo. *Endocrinology*, 146(4):1772-1779, 2005.
502. Yakar, S., Pennisi, P., Wu, Y., Zhao, H. and LeRoith, D. Clinical relevance of system vs. local IGF-I. *Endocr. Dev.*, 9:11-6, 2, 2005.
503. Liu, Y., Herschkovitz, A., Boura-Halfon, S., Ronen, D., Paz, K., LeRoith, D., and Zick, Y. Serine Phosphorylation proximal to its PTB domain inhibits IRS-1 function and promotes insulin resistance. *Mol Cell Biol*, 24(21):9668-81, 2004.
504. LeRoith, D. and Nissley, P. Knock your SOCS off! *J. Clin. Invest.* 115:233-236, 2005.
505. LeRoith, D. and Gavrilova, O. Mouse Models created to study the

pathophysiology of Type 2 diabetes. *Internat'l. J of Biochemistry and Cell Biology*.

506. LeRoith, D. Insulin-like growth factors and cancer. In: *Cancer Research Encyclopedia*. (In press).

507. Rose, A., Froment, P., Perrot, V., Quon, M., LeRoith, D., and Dupont, J. Luteinizing hormone-releasing hormone inhibits the anti-apoptotic activity of IGF-I in pituitary alpha T3 cells by a PKC alpha-mediated negative regulation of AKT. *J. Biol. Chem.*, 279(50):52500-16, 2004.

508. Yakar, S., LeRoith, D., and Brodt, P. The role of the growth hormone/insulin-like growth factor axis in tumor growth and progression: lessons form animal models. *Cytokine & Growth Factor Reviews*, 16,407-420, 2005

509. Toyoshima, Y., Gavrilova, O., Yakar, S., Jou, W., Pack, S., Asghar, Z., Wheeler, M., and LeRoith, D. Leptin improves insulin resistance and hyperglycemia in a mouse model of type 2 diabetes. *Endocrinology*, 46,4024-4035, 2005.

510. S.Yakar, P.Pennisi, C-H.Kim, H.Zhao, Y.Toyoshima, O.Gavrilova and D. LeRoith.

Studies involving the GH-IGF axis: Lessons from IGF-1 and IGF-1 receptor gene –deletion mouse models. *J.of Endocrinological Investigation*. Vol 28. Suppl. 5 pages 19-23, 2005.

511. D.O.Smith and Derek LeRoith. Metabolic Syndrome: A diagnostic and therapeutic dilemma for the primary care physician. *Family Practice Recertification* 27: 33-47,2005.

512 [Freedman RJ](#), [Malkovska V](#), [Leroith D](#), [Collins MT](#).

Hodgkin lymphoma in temporal association with growth hormone replacement.

Endocr J. 2005 Oct;52(5):571-5.

513. D. LeRoith and D.O.Smith. Monitoring glycemic control: The cornerstone of Diabetes care.

Clinical Therapeutics. 27: 1489-1499, 2005.

514. D. LeRoith. Diabetes in the Aging Male. The Aging male pp 133-134, Vol 8, 2005

515. Fernandez AM, LeRoith D. Skeletal muscle. In The GH/IGF-1 axis during Development Adv Exp Med Biol. 2005;567:117-47.

516. Asghar Z, Yau D, Chan F, Leroith D, Chan CB, Wheeler MB. Insulin resistance causes increased beta-cell mass but defective glucose-stimulated insulin secretion in a murine model of type 2 diabetes. Diabetologia. 2006 Jan;49(1):90-99.

517. Patricia Pennisi, Oksana Gavrilova, Jennifer Setser-Portas, William Jou, Stefania Santopietro, David Clemmons, Shoshana Yakar and Derek LeRoith. Recombinant Human Insulin-Like Growth Factor-I (rhIGF-1) treatment inhibits gluconeogenesis in a transgenic mouse model of type 2 Diabetes Mellitus (DM). Endocrinology 2006 ,147:2619-30

518. SadagurskiM, YakarS; WeingartenG; HolzenbergerM; RhodesCJ; BreitkreutzD; LeRoith D; WertheimerE Insulin-like growth factor 1 receptor signaling regulates skin development and inhibits skin keratinocytedifferentiation MOLECULAR AND CELLULAR BIOLOGY 26 (7): 2675-2687 2006

519. LeRoithD; Gavrilova O Mouse models created to study the pathophysiology of Type2diabetes INTERNATIONAL JOURNAL OF BIOCHEMISTRY & CELL BIOLOGY 38 (5-6): 904-912 2006

520. Shukla V, Coumoul X, Cao L, Wang RH, Xiao C, Xu X, Ando S, Yakar S, Leroith D, Deng C. Absence of the full-length breast cancer-associated gene-1 leads to increased expression of insulin-like growth factor signaling axis members. Cancer Res. 2006 Jul 15;66(14):7151-7.

521. Xu X, Kobayashi S, Qiao W, Li C, Xiao C, Radaeva S, Stiles B, Wang RH, Ohara N, Yoshino T, Leroith D, Torbenson MS, Gores GJ, Wu H, Gao B, Deng CX. Induction of intrahepatic cholangiocellular carcinoma by liver-specific disruption of Smad4 and Pten in mice. J Clin Invest. 2006 Jul 3;116(7):1843-1852

522.

Kim H, Pennisi PA, Gavrilova O, Pack S, Jou W, Setser-Portas J, East-Palmer J, Tang Y, Manganiello VC, Leroith D. Effect of adipocyte beta3-adrenergic receptor activation on the type 2 diabetic MKR mice.
Am J Physiol Endocrinol Metab. 2006 Jun;290(6):E1227-36.

523 Yakar S, Bouxsein ML, Canalis E, Sun H, Glatt V, Gundberg C, Cohen P, Hwang D, Boisclair Y, Leroith D, Rosen CJ.
The ternary IGF complex influences postnatal bone acquisition and the skeletal response to intermittent parathyroid hormone.
J Endocrinol. 2006 May;189(2):289-99.

524. Kim CH; Pennisi P; Zhao H; Yakar S; Kaufman JB; Iganaki K; Shiloach J; Scherer PE; Quon MJ; LeRoith D
MKR mice are resistant to the metabolic actions of both insulin and adiponectin: discordance between insulin resistance and adiponectin responsiveness
AMERICAN JOURNAL OF PHYSIOLOGY-ENDOCRINOLOGY AND METABOLISM 291 (2): E298-E305 AUG 2006

525 Diabetes Cure-is the Glass half full. Editorial . New England Journal of Medicine. J.S.Bromberg and D. LeRoith 355: 1372-1374, 2006.

526. Loladze, AV; Stull, MA; Rowzee, AM; DeMarco, J; Lantry, JH; Rosen, CJ; LeRoith, D; Wagner, KU; Hennighausen, L; Wood, TL Epithelial-specific and stage-specific functions of *insulin*-like growth factor-I during postnatal mammary development
ENDOCRINOLOGY 147 (11): 5412-5423 NOV 2006

527. Yakar S; Nunez NP; Pennisi P; Brodt P; Sun H; Fallavollita L; Zhao H; Scavo L; Novosyadlyy R; Kurshan N; Stannard B; East-Palmer J; Smith NCP; Perkins SN; Fuchs-Young R; Barrett JC; Hursting SD; LeRoith D . Increased tumor growth in mice with diet-induced obesity: Impact of ovarian hormones
ENDOCRINOLOGY 147 (12): 5826-5834 DEC 2006

528, Samani AA, Yakar S, LeRoith D, Brodt P.
The role of the IGF system in cancer growth and metastasis: overview and recent insights. Endocr Rev. 2007 Feb;28(1):20-47.

529. Inagaki K, Tiulpakov A, Rubtsov P, Sverdlova P, Peterkova V, Yakar S, Terekhov S, Leroith D.
A familial insulin-like growth factor-I receptor mutant leads to short stature: clinical and biochemical characterization.

J Clin Endocrinol Metab. 2007 Apr;92(4):1542-8.

530. LeRoith D, Yakar S.

Mechanisms of disease: metabolic effects of growth hormone and insulin-like growth factor 1.

Nat Clin Pract Endocrinol Metab. 2007 Mar;3(3):302-10.

531. Kuzmicki M, Szamatowicz J, Kretowski A, Kuc P, Kretowski M, Wawrusiewicz N, Okruszko A, Leroith D, Gorska M.

Evaluation of adiponectin and TNFalpha genes expression in women with gestational diabetes. Ginekol Pol. 2006 Dec;77(12):930-6. Polish.

532. Trejo J, Piriz J, Llorens-Martin MV, Fernandez AM, Bolos M, Leroith D, Nunez A, Torres-Aleman I.

Central actions of liver-derived insulin-like growth factor I underlying its pro-cognitive effects. Mol Psychiatry. 12: 1118-1128 2007

533. Espen E Spangenburg, Derek LeRoith, Christopher W Ward, and Sue C Bodine. A functional insulin-like growth factor receptor is not necessary for load-induced skeletal muscle hypertrophy. J Physiol published 586:283-291, 2008

534. Lann D and LeRoith D. Insulin resistance as the underlying cause for the metabolic syndrome. Med Clinic North America 2007 91: 1063-1077.

535. Derek Le Roith Insulin glargine and receptor-mediated signalling: clinical implications in treating type 2 diabetes Diabetes/Metabolism Research and Reviews 23:8, (p 593-599), 2007

536. LeRoith D, Rayfield EJ. The benefits of tight glycemic control in type 2 diabetes mellitus. Clin Cornerstone. 2007;8 Suppl 7:S19-29.

537. Bentov I, Narla G, Schayek H, Akita K, Plymate SR, LeRoith D, Friedman SL, Werner H. Insulin-like growth factor-1 regulates KLF6 gene expression in a p53-dependent manner. Endocrinology. 2008 149: 1890-1897

538. Derek LeRoith. Dyslipidemia and Glucose Dysregulation in Overweight and Obese Patients. Clinical Cornerstone. 8: 38-49, 2008

539. LeRoith D. Treatment of diabetes: a clinical update on insulin trials.

Clin Cornerstone. 2007; 8: 21-29

540. LeRoith D. Clinical relevance of systemic and local IGF-I: lessons from animal models. *Pediatr Endocrinol Rev.* 2008 Feb;5 Suppl 2:739-43.
541. Moore T, Carbajal S, Beltran L, Perkins SN, Yakar S, Leroith D, Hursting SD, Digiovanni J. Reduced susceptibility to two-stage skin carcinogenesis in mice with low circulating insulin-like growth factor I levels. *Cancer Res.* 2008 May 15;68(10):3680-8.
542. Lann D, Gallagher E, Leroith D. Insulin resistance and the metabolic syndrome. *Minerva Med.* 2008 Jun;99(3):253-62.
543. Epstein S, Leroith D. Diabetes and fragility fractures - A burgeoning epidemic? *Bone.* 2008 Jul;43(1):3-6.
544. Novosyadlyy R, Kurshan N, Lann D, Vijayakumar A, Yakar S, Leroith D. Insulin-like growth factor-I protects cells from ER stress-induced apoptosis via enhancement of the adaptive capacity of endoplasmic reticulum. *Cell Death Differ.* 2008 15:1304-1317
545. Anzo M, Cobb LJ, Hwang DL, Mehta H, Said JW, Yakar S, LeRoith D, Cohen P. Targeted deletion of hepatic IGF1 in TRAMP mice leads to dramatic alterations in the circulating insulin-like growth factor axis but does not reduce tumor progression. *Cancer Res.* 2008 May 1;68(9):3342-9.
546. Skamagas M, Breen TL, LeRoith D. Update on diabetes mellitus: prevention, treatment, and association with oral diseases. *Oral Dis.* 2008 Mar;14(2):105-14.
547. Zhang J, Wu Y, Zhang Y, Leroith D, Bernlohr DA, Chen X. The Role of Lipocalin 2 in the Regulation of Inflammation in Adipocytes and Macrophages. *Mol Endocrinol.* 22: 1416-1426 2008
548. Leroith D, Accili D. Mechanisms of disease: using genetically altered mice to study concepts of type 2 diabetes. *Nat Clin Pract Endocrinol Metab.* 2008 Mar;4(3):164-72
549. Bloomgarden ZT, Inzucchi SE, Karnieli E, LeRoith D. The proposed terminology 'A(1c)-derived average glucose' is inherently imprecise and should not be adopted. *Diabetologia.* 2008 Jul;51(7):1111-4

550. LeRoith D. Our evolving understanding of getting to goal using Insulin in type 2 Diabetes. *Endocrinology and Metabolism Clinic of North America* December 2007; Vol. 36; Suppl 2; pp 9-19 .
551. Toyoshima Y, Monson C, Duan C, Wu Y, Gao C, Yakar S, Sadler KC, Leroith D. The role of insulin receptor signaling in zebrafish embryogenesis. *Endocrinology*. 149: 5996-6005 ,2008
552. D. LeRoith, R.Novosyadlyy, E. J. Gallagher, D. Lann, A.Vijayakumar, S.Yakar Obesity and Type 2 Diabetes are Associated with an Increased Risk of Developing Cancer and a Worse Prognosis; Epidemiological and Mechanistic Evidence. *Exp Clin Endocrinol Diabetes* 2008 ; 116 (Suppl.1): S4 – S6
553. Jaetaek Kim, Adam R. Wende, Sandra Sena, Heather A. Theobald, Jamie Soto, Crystal Sloan, Benjamin E. Wayment, Sheldon E. Litwin, Martin Holzenberger, Derek LeRoith, E. Dale Abel . IGF-1 Receptor Signaling is Required for Exercise-Induced Cardiac Hypertrophy. *Mol. Endocrinology*. 2008;22:2531-43
554. Yakar S, Rosen CJ, Bouxsein ML, Sun H, Mejia W, Kawashima Y, Wu Y, Emerton K, Williams V, Jepsen K, Schaffler MB, Majeska RJ, Gavriloova O, Gutierrez M, Hwang D, Pennisi P, Frystyk J, Boisclair Y, Pintar J, Jasper H, Domene H, Cohen P, Clemmons D, Leroith D. Serum complexes of insulin-like growth factor-1 modulate skeletal integrity and carbohydrate metabolism. *FASEB J*. 2009 23:709-719
555. Lim GE, Huang GJ, Flora N, Leroith D, Rhodes CJ, Brubaker PL. Insulin regulates glucagon-like peptide-1 secretion from the enteroendocrine L cell. *Endocrinology*. 2009;150:580-9
556. Gallagher EJ, LeRoith D, Karnieli E. The metabolic syndrome--from insulin resistance to obesity and diabetes. *Endocrinol Metab Clin North Am*. 2008 Sep;37(3):559-79
557. Serrano ML, Sánchez-Gómez M, Bravo MM, Yakar S, Leroith D. Differential Expression of IGF-I and Insulin Receptor Isoforms in HPV Positive and Negative Human Cervical Cancer Cell Lines. *Horm Metab Res*. 40(10):661-7. 2008.
558. Danielle Lann and D.LeRoith. The Role of Endocrine Insulin-Like Growth Factor-I and Insulin in Breast Cancer" in "Journal of Mammary Gland Biology and Neoplasia: 13, (2008), 371-379.
559. D.LeRoith Mini-Review. Insulin-like Growth factors in the Brain. *Endocrinology* 149:5951. 2008
560. Kawashima Y, Fritton JC, Yakar S, Epstein S, Schaffler MB, Jepsen KJ, Leroith D. Type 2 diabetic mice demonstrate slender long bones with increased fragility secondary to

increased osteoclastogenesis. *Bone*. 44: 648-655, 2009

561. Derek LeRoith. Hyperglycemia, Hypertension and Dyslipidemia in Type 2 Diabetes Mellitus: Goals for Diabetes Management. *Clinical Cornerstone Suppl 2 Vol 9 2008 S8-S16*.

562. Y. Kawashima, J. Chen, H. Sun, D. Lann, R. J. Hajjar, S. Yakar, D. LeRoith
Apolipoprotein E deficiency abrogates insulin resistance in a mouse model of Type 2 diabetes mellitus. *Diabetologia* (in press)

563. Hong SH, Briggs J, Newman R, Hoffman K, Mendoza A, LeRoith D, Helman L, Yakar S, Khanna C. Murine osteosarcoma primary tumour growth and metastatic progression is maintained after marked suppression of serum insulin-like growth factor I. *Int J Cancer*. 2009 May 1;124(9):2042-9.

564. Fan Y, Menon RK, Cohen P, Hwang D, Clemens T, Digirolamo DJ, Kopchick JJ, Leroith D, Trucco M, Sperling MA. Liver-specific Deletion of the Growth Hormone Receptor Reveals Essential Role of GH Signaling in Hepatic Lipid Metabolism. *J Biol Chem*. Jul 24;284(30):19937-44, 2009

565. Novosyadlyy R, Vijayakumar A, Lann D, Fierz Y, Kurshan N, Leroith D.
Physical and functional interaction between polyoma virus middle T antigen and insulin and IGF-I receptors is required for oncogene activation and tumour initiation. *Oncogene*. 2009 Jul 20.

566. YingJie Wu, Hui Sun, Shoshana Yakar, and Derek LeRoith. Elevated Levels of Insulin-Like Growth Factor (IGF)-I in Serum Rescue the Severe Growth Retardation of IGF-I Null Mice. *Endocrinology* 150: 4395–4403, 2009.

567. Derek leRoith. Diabetes Mellitus Type 2. In *Encyclopedia of Molecular mechanisms*, pages 522-523. Ed: Florian Lang. Springer-Verlag Heidelberg. 2009

568. Derek leRoith. Non-Islet Cell Hypoglycemia. In *Encyclopedia of Molecular mechanisms*, pages 1490-1492. Ed: Florian Lang. Springer-Verlag Heidelberg. 2009