

## CURRICULUM VITAE

BORIS DRAZNIN, M.D., Ph.D.

**Present Position:** Director, Adult Diabetes Program  
Celeste & Jack Grynberg Professor of Medicine  
University of Colorado Denver

**Mailing Address:** Division of Endocrinology, Metabolism and Diabetes  
University of Colorado Denver, School of Medicine  
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### Education and Qualifications:

Minsk State Medical Institution, USSR	1962-1968
M.D.	1968
Ph.D.	1972
ECFMG	1975
FLEX	1977
Boards: ABIM	1980
Subspecialty: Endo/Metab	1983

**Licensure:** Colorado from 1980

### Awards:

Mayo Soley Award from WSCI	2006
Father of the Year	2003
Brody Memorial Lectureship at Cedars-Sinai Medical Center	1997
Robert H. Williams/Rachmiel Levin Award	1998
Clinical Investigator, Veterans Administration	1984-1987
Research Associate Award, Veterans Administration	1980-1983
Honor Stipend, Minsk State Medical Institute	1966-1968
Student Research Award, Minsk State Medical Institute	1963-1965

### Professional Training and Experience:

Internship - Medicine, Molodechno Municipal Hospital	1968-1969
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Residency - Medicine and Endocrinology, Minsk Regional Hospital, USSR	1969-1971
Ichilov Municipal Hospital, Tel Aviv Medical Center, Israel	1974-1976
Fellowship - Endocrinology, University of Colorado Health Sciences Assistant Professor, Department of Medicine, University of Colorado Health Sciences Center	1977-1980 1980-1985
Associate Professor, Department of Medicine, University of Colorado Health Sciences Center	1985-1991
Professor of Medicine, University of Colorado Health Sciences Center	1991-Present

**Clinical Appointments:**

Staff Endocrinologist, Minsk Regional Hospital, Minsk, USSR	1971-1973
Veterans Administration Medical Center, Denver, Colorado 1980-Present	
University Hospital, Denver, Colorado	1980-Present

**Research Appointments:**

Research Associate, Laboratory of Endocrine, Biochemistry, and Physiology, Minsk, USSR	1971-1973
Research Associate, Laboratory of Radioimmunology, Tel Aviv Medical Center, Israel	1974-1975
Research Associate, Division of Endocrinology, University of Colorado Health Sciences Center, Denver, Colorado	1977-1980

**Associations and Societies:**

Association of American Physicians  
American Society for Clinical Investigation  
American Diabetes Association  
American Federation for Clinical Research  
The Endocrine Society  
European Association for Study of Diabetes  
American Physiological Society  
American Society for Cell Biology  
Western Society for Clinical Research  
Western Association of Physicians  
Fellow American College of Physicians

**Administrative Appointment:**

Director, Adult Diabetes Program, University of Colorado Denver	2008 - present
Associate Chief of Staff for Research and Development Veterans Affairs Medical Center, Denver, CO	1997-2008
Chief, Section of Endocrinology, Veterans Affairs Medical Center	1985-1997
Acting Associate Chief of Staff for Research and Development, Veterans Affairs Medical Center, Denver, CO	1990-1991

Vice Chairman for Research Affairs, Department of  
Medicine, University of Colorado Health Sciences Center, Denver, CO 1992-1997

## **COMMITTEES, EDITORIAL AND REVIEW BOARDS**

### **Committees:**

#### **A. University of Colorado Health Sciences Center (UCHSC):**

President, USHSC Faculty Senate	1994-1995
Co-Chairman, Student Research Committee, Department of Medicine	1984-1985
Co-Chairman, Academic-Industrial Relations Committee	1990-1995
Department of Medicine Space Committee	1990-1992
Associate Professor Promotion Committee	1989-1992
Medical School Admission Committee	1991-1996
UCHSC Faculty Senate	1990-1994
UCHSC Faculty Council	1990-1993
Chairman, Budget Committee, UCHSC Faculty Council	1991-1992
Chairman, UCHSC Faculty Council	1992-1993
Chairman, Associate Professor Promotion Committee, Department of Medicine, UCHSC	1992-1997
Chairman, School of Medicine Rules Committee	1992-2000
Steering Committee, University Scientists, Inc.	1994-1998
Executive Committee, University of Colorado School of Medicine	1994-1995
Chair, Search Committee for the Associate Dean for Admissions	2002
Member, Research Oversight Committee	2004-2009
Chair, Student Research Committee, School of Medicine	2005-2009
Member, Post-tenure committee, DOM	2008-present
Chair, mid-term Assistant Professor Evaluation Committee, DOM	1998-present
Member, DOM ASCI and AAP nomination committee	2011-present

#### **B. VA Medical Center (VAMC):**

Acting Chief of Staff	2000
Acting Associate Chief of Staff for Research & Development	1990-1991
President, Biomedical Research Foundation of Colorado	1986-1991
Chairman, Research & Development Committee	1987-1989
Chairman, Space & Resources Subcommittee	1987-1988
Chairman, Denver Research Institute	2000-2008
Board Member, Denver Research Institute	2008-present

#### **C. Colorado Affiliate, ADA:**

Denver Chapter	1982-1984
Chairman, Patient Education Committee	1985-1988
Board Member	1985-1995
Vice-President	1986-1988
President	1988-1990

Chairman, Nominating Committee	1990-1991
Member, Fund Raising Committee	1990-1993

**D. National American Diabetes Association:**

Member, Committee on Scientific and Medical Programs	1987-1989
Task Force II	1989-1990
Board Member	1990-1993
Task Force on Regionalization	1990-1991
Member, Committee on Affiliate Associations	1990-1991
Member, Task Force on Regionalization	1990-1991
Chair, Task Force on the Promotion of Health Sciences and Research to Young People	1991-1992
Class Chair, Partners for a Cure	1991-1992
Program Chair, Southwest Region	1992-1993
Co-Chair, Task Force on Resource Allocation	1992-1993

**E. Professional Society Leadership Positions:**

Chair, Professional Section Advisory Panel, ADA	1993-1994
President-elect, Western Association of Physicians	1993-1994
President, Western Association of Physicians	1994-1995

**Editorial Boards:**

Endocrinology	1986-1989
Diabetes Research & Clinical Practice	1990-1995
Diabetes	1991-1993
Journal of Clinical Investigation	1992-1998
Journal of Biological Chemistry	1997-2002 2003-2005

**Review Boards:**

Endocrinology Merit Review Board, Veterans Administration	1987-1990 2002-2004
Juvenile Diabetes Foundation Review Board	1991-1994
NIH (ad hoc)	1995-1999

**Trainees** who worked in my laboratory (students and fellows) alphabetically:

1. Aguirre, Lina, MD
2. Adochio, Rebecca, MD
3. Barbour, Linda, MD
3. Begum, Najma, PhD
4. Bolshoun, David, MD

5. Carel, Kirstin, MD
6. Chang, Larry, MD
7. Chappell, James, MD
8. De Paolo, David, MD
9. Dolgonos, Lior, MD
10. Eckel, Peter
11. Eisenbarth, Stephanie, MD, PhD
12. Goalstone, Marc, PhD
13. Goodman, Marc, MD
14. Gurevitch, Inga, MD, PhD
15. Houlder, Nancy, MD
16. Johnson, Jolene, MD
17. Kim, Toni, MD
18. Kline, Todd, MD
19. Lewis, David, MD
20. Lumerman, Jeffrey, MD
21. Mehler, Philip, MD
22. Moriarty, Megan, MD
23. Nadeau, Kristen, MD
24. Pereira, Rocio, MD
25. Reusch, Jane, MD
26. Rifkin, Robert, MD
27. Segal, Stuart, MD
28. Schubert, Charles, MD
29. Steinberg, Jay, MD
30. Steiner, Claudia, MD
31. Stjernholm, Richard, DO
32. Trowbridge, Michael, MD
33. Vo, Yen (MD expected 2008)
34. Wallner, Julia, MD
35. Wang, Cecilia, MD
36. Wilk, James, MD

## PUBLICATIONS

1. Schtochokina G, Draznin B: Radiological estimation of liver and renal function in diabetic patients. *Ter Arch* 10:69, 1971.
2. Draznin B, Ayalon D, Hoerer E, Oberman Z, Harell A, Ravid R, Laurian L: Effect of diphenylhydantoin on patterns of insulin secretion in obese patients. *Acta Diabet. Lat.* 14:51-61, 1977.
3. Draznin B, Schalch DS, Heinrich UE, and Schlueter RJ: Physicochemical and biological characteristics of insulin-like growth factor carrier protein. IN *Somatomedins and Growth*. Eds. G Giordano, JJ VanWyk, and F Minuto, Academic Press, London, New York, San Francisco, 1979, p 149-161.
4. Heinrich UE, Draznin B, Johnson CJ, Schalch DS: NSILA (Non- suppressible insulin-like activity) and fetal growth. IN *Somatomedins and Growth*. Eds. G Giordano, JJ VanWyk, and F Minuto, Academic Press, London, New York, San Francisco, 1979, p 239-245.
5. Schalch DS, Heinrich UE, Draznin B, Johnson CJ, Miller LL: Role of the liver in regulating somatomedin activity: Hormonal effects on the synthesis and release of insulin-like growth factor and its carrier protein by the isolated perfused rat liver. *Endocrinology* 104:1143-1151, 1979.
6. Burstein PJ, Draznin B, Johnson CJ, Schalch DS: The effect of hypothyroidism on growth, serum growth hormone, the growth hormone-dependent somatomedin, insulin-like growth factor, and its carrier protein in rats. *Endocrinology* 104:1107-1111, 1979.
7. Draznin B, Morris HG, Burstein PJ, and Schalch DS: Serum growth hormone, somatomedin and its carrier protein in the rat: Influence of age, sex and pregnancy. *Proceedings of the Society for Experimental Biology and Medicine* 162:131-138, 1979.
8. Draznin B, Maman A: Estrogen-induced galactorrhea in man. *Arch Intern Med* 139:1059-1060, 1979.
9. Draznin B, Burstein PJ, Heinrich UE, Johnson CB, Emler CA, Schalch DS: Insulin-like growth factor and its carrier protein in hypopituitary and hypothyroid children and adults. *Clinical Endocrinology (Oxf)* 12:137-142, 1980.
10. Draznin B, Solomons CC, Emler CA, Schalch DS, and Sussman KE: Decreased insulin binding and degradation associated with depressed intracellular ATP content. *Diabetes* 29:221-226, 1980.

11. Schalch DS, Mauer K, Draznin B, Emler CA, Miller LL: Regulation of somatomedin biosynthesis. IN Growth hormone and other biologically active peptides. Eds. A Pecile and EE Muller. Excerpta Medica, Amsterdam-Oxford-Princeton, 1980, p 144-160.
12. Draznin B, Solomons CC, Toothaker DR, Sussman KE: Energy- dependent steps in insulin-hepatocyte interaction. Endocrinology 108:8-17, 1981.
13. Miller LL, Schalch DS, Draznin B: Role of the liver in regulating somatomedin activity: Effects of streptozotocin diabetes and starvation on the synthesis and release of insulin-like growth factor and its carrier protein by the isolated perfused rat liver. Endocrinology 108:1265-1271, 1981.
14. Schalch DS, Burstein PJ, Tewel SJ, Draznin B, Emler CA: The effect of renal impairment on growth in the rat: Relationship to malnutrition and serum somatomedin levels. Endocrinology 108:1683-1689, 1981.
15. Draznin B, Todd WW, Leitner JW, Toothaker DR: Lysosomal and non-lysosomal pathways of intracellular insulin degradation in isolated rat hepatocytes. Hormone Research 15:252-262, 1981.
16. Sussman KE, Mehler PS, Leitner JW, Draznin B: Role of the secretion vesicle in the transport of receptors: Modulation of somatostatin binding to pancreatic islets. Endocrinology 111:316-323, 1982.
17. Draznin B, Leitner JW, Sussman KE: Kinetics of somatostatin receptor migration in isolated pancreatic islets. Diabetes 31:467-469, 1982.
18. Draznin B, Trowbridge M: Inhibition of intracellular proteolysis by insulin in isolated rat hepatocytes. Journal of Biological Chemistry 257:11988-11993, 1982.
19. Sussman KE, Draznin B, Leitner JW, Mehler PS: The endocrine secretion granule revisited - postulating new functions. Metabolism 31:959-967, 1982.
20. Trowbridge M, Draznin B: Effect of fasting on insulin's ability to inhibit intracellular proteolysis. Hormone & Metabolic Research 15:48-49, 1983.
21. Rifkin RM, Todd WW, Toothaker DR, Sussman A, Trowbridge M, Draznin B: Effects of in vivo and in vitro alcohol administration on insulin binding and glycogenesis in isolated rat hepatocytes. Annals of Nutrition and Metabolism 27:313-319, 1983.
22. Steinberg JP, Leitner JW, Draznin B, Sussman KE: Calmodulin and cyclic AMP: Possible different sites of action of these two regulatory agents in exocytotic hormone

- release. *Diabetes* 33:339-345, 1984.
23. Draznin B, Trowbridge M, Ferguson L: Quantitative studies of the rate of insulin internalization in isolated rat hepatocytes. *Biochem. J.* 218:307-312, 1984.
  24. Trowbridge M, Sussman A, Ferguson L, Draznin B, Neufeld N, Begum N, Tepperman H, Tepperman J: Mechanisms of the fasting-induced dissociation of insulin binding from its action in isolated rat hepatocytes. *Molecular and Cellular Biochemistry* 62:25-36, 1984.
  25. Draznin B, Mehler PS, Leitner JW, Sussman KE, Dahl R, Vatter A, Melmed S: Localization of somatostatin receptors in secretion vesicles in anterior pituitary cells and pancreatic islets. *Journal of Receptor Research* 5:83-103, 1985.
  26. Draznin B, Steinberg JP, Goodman M, Leitner JW, Sussman KE: Control of secretion vesicle margination and lysis by glucose, IBMX and glyburide. *American Journal of Physiology* 248:E375-E380, 1985.
  27. Draznin B, Leitner JW, Sussman KE: A unique control mechanism in the regulation of insulin secretion: Secretagogue-induced somatostatin receptor recruitment. *Journal of Clinical Investigation* 75:1510-1516, 1985.
  28. Draznin B, Sherman N, Sussman K, Dahl R, Vatter A: Internalization and cellular processing of somatostatin in primary culture of rat anterior pituitary cells. *Endocrinology* 117:960-966, 1985.
  29. Draznin B, Steinberg JP, Leitner JW, Sussman KE: The nature of insulin secretory defect in aging rats. *Diabetes* 34:1168-1173, 1985.
  30. Trowbridge M, Draznin B: Insulin internalization and intracellular protein degradation: A quantitative correlation. *Hormone and Metabolic Research* 18:156-158, 1986.
  31. Draznin B, Goodman M, Leitner JW, Sussman KE: Feedback inhibition of insulin on insulin secretion in isolated pancreatic islets. *Endocrinology* 118:1054-1058, 1986.
  32. Steiner C, Dahl R, Sherman N, Trowbridge M, Vatter A, Robbins R, Draznin B: Somatostatin receptors are biologically active before they are inserted into the plasma membrane. *Endocrinology* 118:766-772, 1986.
  33. Goodman M, Leitner JW, Sussman KE, Draznin B: Insulin secretion in aging: studies with sequential gating of secretion vesicle margination and lysis. *Endocrinology* 119:827-832, 1986.
  34. Draznin B, Steiner C, Sherman N, Sussman KE: Somatostatin inhibits fusion of pituitary

- secretion vesicles with the plasma membranes. *Biochemical and Biophysical Research Communications* 139:673-678, 1986.
35. Draznin B, Kao M, Sussman KE: Insulin and glyburide increase cytosolic free-Ca<sup>2+</sup> concentration in isolated rat adipocytes. *Diabetes* 36:174-178, 1987.
  36. Sussman KE, Leitner JW, Draznin B: Cytosolic free-calcium concentrations in normal pancreatic islet cells: Effect of secretagogues and somatostatin. *Diabetes* 36:571-577, 1987.
  37. Metz SA, Draznin B, Sussman KE, Leitner JW: Unmasking of arachidonate-induced insulin release by removal of extracellular calcium. *Biochemical and Biophysical Research Communications* 142:251-258, 1987.
  38. Draznin B, Metz SA, Sussman KE, Leitner JW: Measurement of cytosolic free calcium concentration in relation to insulin release in normal rat pancreatic islets. *Diabetes Research and Clinical Practice* 3:291-295, 1987.
  39. Draznin B, Sussman K, Kao M, Lewis D, Sherman N: The existence of an optimal range of cytosolic free calcium for insulin-stimulated glucose transport in rat adipocytes. *Journal of Biological Chemistry* 262:14385-14388, 1987.
  40. Draznin B, Dahl R, Sussman KE, Sherman NA: Morphological localization of somatostatin receptors in bovine anterior pituitary secretory vesicles. *Experimental Clinical Endocrinology (Life Sci Adv)* 7:199-202, 1988.
  41. Draznin B, Dahl R, Sherman N, Sussman KE, Staehelin LA: Exocytosis in normal anterior pituitary cells: Quantitative correlation between growth hormone release and the morphological features of exocytosis. *Journal of Clinical Investigation* 81:1042-1050, 1988.
  42. Draznin B, Sussman KE, Kao M, Sherman N: Relationship between cytosolic free calcium concentration and 2-deoxyglucose uptake in adipocytes isolated from 2- and 12-month-old rats. *Endocrinology* 122:2578-2583, 1988.
  43. Draznin B, Metz SA, Sussman KE, Leitner JW: Cyclosporin-induced inhibition of insulin release: Possible role of voltage-dependent calcium transport channels. *Biochemical Pharmacology* 37:3941-3945, 1988.
  44. Draznin B, Leitner JW, Sussman KE, Sherman NA: Insulin and glucose modulate protein kinase C activity in rat adipocytes. *Biochemical and Biophysical Research Communications* 156:570-575, 1988.

45. Draznin B, Sussman KE, Leitner JW, Metz SA: Glyburide increases cytosolic-free calcium concentrations in normal rat pancreatic islet cells. *Metabolism* 37:660-663, 1988.
46. Draznin B, Sussman KE, Eckel RH, Kao M, Yost T, Sherman NA: Possible role of cytosolic free calcium concentrations in mediating insulin resistance of obesity and hyperinsulinemia. *Journal of Clinical Investigation* 82:1848-1852, 1988.
47. Draznin B: Intracellular calcium, insulin secretion, and action. *American Journal of Medicine* 85:44-58, 1988.
48. Draznin B, Lewis D, Houlder N, Sherman N, Adamo M, Garvey WT, LeRoith D, Sussman K: Mechanism of insulin resistance induced by sustained levels of cytosolic free calcium in rat adipocytes. *Endocrinology* 125:2341-2349, 1989.
49. Wang Y, Goodman M, Lumerman J, Sussman KE, Dahl R, Lafferty KJ, Draznin B: In vivo administration of interleukin-1 inhibits glucose-stimulated insulin release. *Diabetes Research and Clinical Practice* 7:205-211, 1989.
50. Murakami K, Wilk J, Nishida K, Sussman KE, Draznin B: Hep-G2 glucose transporter gene polymorphism in Caucasian, Black, Hispanic and Japanese patients with NIDDM. *Diabetes Research and Clinical Practice* 9:115-121, 1990.
51. Segal S, Lloyd S, Sherman N, Sussman K, Draznin B: Postprandial changes in cytosolic free calcium and glucose uptake in adipocytes in obesity and non-insulin-dependent diabetes mellitus. *Hormone Research* 34:39-44, 1990.
52. Draznin B: Cytosolic calcium: a new factor in insulin resistance? *Diabetes Research and Clinical Practice* 11:141-146, 1991.
53. Begum N, Sussman KE, Draznin B: High levels of cytosolic free calcium inhibit dephosphorylation of insulin receptor and glycogen synthase. *Cell Calcium* 12:423-430, 1991.
54. Begum N, Sussman KE, Draznin B: Differential effects of diabetes on adipocyte and liver phosphotyrosine and phosphoserine phosphatase activities. *Diabetes* 40:1620-1629, 1991.
55. Reusch JE-B, Begum N, Sussman KE, Draznin B: Regulation of GLUT-4 phosphorylation by intracellular calcium in adipocytes. *Endocrinology* 129:3269-3273, 1991.
56. Draznin B, Reusch J, Begum N, Sussman K, Byyny R, Ohara T: Calcium, insulin action

- and insulin resistance. *Excerpta Medica, International Congress Series 980*, (eds Smith U, Bruun NE, Hedner T, Hokfelt B), Elsevier Publishers 980:225-245, 1991.
57. Ohara T, Sussman KE, Draznin B: Effect of diabetes on cytosolic free  $\text{Ca}^{2+}$  and  $\text{Na}^+ - \text{K}^+$ -ATPase in rat aorta. *Diabetes* 40:1560-1563, 1991.
  58. Metz S, Holmes D, Robertson RP, Leitner W, Draznin B: Gene expression of type I phospholipase  $\text{A}_2$  in pancreatic beta cells: Regulation of mRNA levels by starvation or glucose excess. *FEBS Letters* 295:110-112, 1991.
  59. Nishida K, Ohara T, Johnson J, Wallner JS, Wilk J, Sherman N, Kawakami K, Sussman KE, Draznin B:  $\text{Na}^+/\text{K}^+$ -ATPase activity and its  $\beta$ II subunit gene expression in rat skeletal muscle: Influence of diabetes, fasting, and refeeding. *Metabolism* 41:56-63, 1992.
  60. Begum N, Graham AL, Sussman KE, Draznin B: Role of cAMP in mediating effects of fasting on dephosphorylation of insulin receptor. *American Journal of Physiology* 262:E142-E149, 1992.
  61. Begum N, Sussman KE, Draznin B: Calcium-induced inhibition of phosphoserine phosphatase in insulin target cells is mediated by the phosphorylation and activation of inhibitor 1. *Journal of Biological Chemistry* 267:5959-5963, 1992.
  62. Byyny RL, LoVerde M, Lloyd S, Mitchell W, Draznin B: Cytosolic calcium and insulin resistance in elderly patients with essential hypertension. *American Journal of Hypertension* 5:459-464, 1992.
  63. Begum N, Draznin B: Effect of streptozotocin-induced diabetes on GLUT-4 phosphorylation in rat adipocytes. *Journal of Clinical Investigation* 90:1254-1262, 1992.
  64. Reusch JE-B, Sussman KE, Draznin B: Inverse relationship between GLUT-4 phosphorylation and its intrinsic activity. *Journal of Biological Chemistry* 268:3348-3351, 1993.
  65. Begum N, Leitner W, Reusch JE-B, Sussman KE, Draznin B: GLUT-4 phosphorylation and its intrinsic activity: Mechanism of  $\text{Ca}^{2+}$ -induced inhibition of insulin-stimulated glucose transport. *Journal of Biological Chemistry* 268:3352-3356, 1993.
  66. Begum N, Olefsky JM, Draznin B: Mechanism of impaired metabolic signaling by a truncated human insulin receptor: Decreased activation of protein phosphatase 1 by insulin. *Journal of Biological Chemistry* 268:7917-7922, 1993.
  67. Draznin B: Cytosolic calcium and insulin resistance. *American Journal of Kidney*

- Diseases 21:32-38, 1993.
68. Draznin B, Chang L, Leitner JW, Takata Y, Olefsky JM: Insulin activates p21Ras and guanine nucleotide releasing factor in cells expressing wild type and mutant insulin receptors. *Journal of Biological Chemistry* 268:19998-20001, 1993.
  69. Begum N, Robinson LJ, Draznin B, Heidenreich KA: Protein phosphatase-1 and -2a activities in cultured fetal chick neurons: Differential regulation by insulin and insulin-like growth factor-I. *Endocrinology* 133:2085-2090, 1993.
  70. Jhun BH, Meinkoth JL, Leitner JW, Draznin B, Olefsky JM: Insulin and insulin-like growth factor-I signal transduction requires p21<sup>ras</sup>. *Journal of Biological Chemistry* 269:5699-5704, 1994.
  71. Sasaoka T, Draznin B, Leitner JW, Langlois WJ, Olefsky JM: Shc is the predominant signaling molecule coupling insulin receptors to activation of guanine nucleotide releasing factor and p21<sup>ras</sup>-GTP formation. *Journal of Biological Chemistry* 269:10734-10738, 1994.
  72. Sasaoka T, Rose DW, Jhun BH, Saltiel AR, Draznin B, Olefsky JM: Evidence for a functional role of Shc proteins in mitogenic signaling induced by insulin, insulin-like growth factor-1, and epidermal growth factor. *Journal of Biological Chemistry* 269:13689-13694, 1994.
  73. Reusch JE-B, Begum N, Draznin B: Cytosolic calcium as an intracellular mediator of insulin resistance. *Cardiovascular Risk Factors* 3:1-8, 1994.
  74. Langlois WJ, Medh J, Leitner JW, Sasaoka T, Olefsky JM, Draznin B: Insulin and epidermal growth factor influence guanine nucleotide-releasing factor by distinct mechanisms. *Endocrinology* 135:2412-2417, 1994.
  75. Reusch JE-B, Hsieh P, Klemm D, Hoeffler J, Draznin B: Insulin inhibits dephosphorylation of adenosine 3',5'-monophosphate response element-binding protein/activating transcription factor-1: Effect on nuclear phosphoserine phosphatase-2a. *Endocrinology* 135:2418-2422, 1994.
  76. Robinson LJ, Leitner W, Draznin B, Heidenreich KA: Evidence that p21Ras mediates the neurotropic effects of insulin and insulin-like growth factor I in chick forebrain neurons. *Endocrinology* 135:2568-2573, 1994.
  77. Sasaoka T, Langlois WJ, Leitner JW, Draznin B, Olefsky JM: The signaling pathway coupling epidermal growth factor receptors to activation of p21Ras. *Journal of*

- Biological Chemistry 269:32621-32625, 1994.
78. Reusch JE-B, Bhuripanyo P, Carel K, Leitner JW, Hsieh P, DePaolo D, Draznin B: Differential requirement for p21<sup>Ras</sup> activation in the metabolic signaling by insulin. *Journal of Biological Chemistry* 270:2036-2040, 1995.
  79. Reusch JE-B, Hsieh P, Bhuripanyo P, Carel K, Leitner JW, Olefsky JM, Draznin B: Insulin inhibits nuclear phosphatase activity: Requirement for the C-terminal domain of the insulin receptor. *Endocrinology* 136:2464-2469, 1995.
  80. Jhun BH, Haruta T, Meinkoth JL, Leitner JW, Draznin B, Saltiel AR, Pang L, Sasaoka T, Olefsky JM: Signal transduction pathways leading to insulin-induced early gene induction. *Biochemistry* 34:7996-8004, 1995.
  81. Langlois J, Leitner JW, Medh J, Sasaoka T, Olefsky JM, Draznin B: Mechanism of activation of guanine nucleotide exchange factor by insulin. *Endocrine* 3:475-479, 1995.
  82. DePaolo D, Reusch JE-B, Carel K, Bhuripanyo P, Leitner JW, Draznin B: Functional interactions of phosphatidylinositol 3-kinase with GTPase-activating protein in 3T3-L1 adipocytes. *Molecular & Cellular Biology* 16:1450-1457, 1996.
  83. Sasaoka T, Langlois WJ, Bai F, Rose DW, Leitner JW, Decker SJ, Saltiel AR, Gill GN, Kobayashi M, Draznin B, Olefsky JM: Involvement of ErbB2 in the signaling pathway leading to cell cycle progression from a truncated epidermal growth factor receptor lacking the C-terminal autophosphorylation sites. *Journal of Biological Chemistry* 271:8338-8344, 1996.
  84. Draznin B: Academic medicine is ill: Diagnosis and prognosis. *Academic Medicine* 71:314-316, 1996.
  85. Carel K, DePaolo D, Reusch JE-B, Leitner JW, Draznin B: Reduced phosphorylation of mitogen-activated protein kinase kinase in response to insulin in cells with truncated C-terminal domain of insulin receptor. *Endocrinology* 137:2362-2366, 1996.
  86. Schubert C, Carel K, DePaolo D, Leitner W, Draznin B: Interactions of protein kinase C with insulin signaling: Influence on GAP and Sos activities. *Journal of Biological Chemistry* 271:15311-15314, 1996.
  87. Draznin B: Insulin signaling network - waiting for Copernicus. Editorial. *Endocrinology* 137:2647-2648, 1996.
  88. Goalstone ML, Draznin B: Effect of insulin on farnesyltransferase activity in 3T3-L1 adipocytes. *Journal of Biological Chemistry* 271:27585-27589, 1996.

89. Carel K, Kummer JL, Schubert C, Leitner W, Heidenreich KA, Draznin B: Insulin stimulates mitogen-activated protein kinase by a Ras-independent pathway in 3T3-L1 adipocytes. *Journal of Biological Chemistry* 271:30625-30630, 1996.
90. Leitner JW, Kline T, Carel K, Goalstone ML, Draznin B: Hyperinsulinemia potentiates activation of p21Ras by growth factors. *Endocrinology* 138: 2211-2214, 1997.
91. Goalstone ML, Draznin B: Insulin signaling. *Western Journal of Medicine* 167:166-173, 1997.
92. Goalstone ML, Carel K, Leitner JW, Draznin B: Insulin stimulates the phosphorylation and activity of farnesyltransferase via the Ras-Map Kinase pathway. *Endocrinology* 138:5119-5124, 1997.
93. Goalstone ML, Leitner JW, Draznin B: GTP loading of farnesylates p21Ras by insulin at the plasma membrane. *Biochemical and Biophysical Research Communications* 239:42-45, 1997.
94. Goalstone ML, Draznin B: What does insulin do to Ras? *Cell Signaling* 10:297-301, 1998.
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