

CURRICULUM VITAE

CHARLOTTE M. BONEY, M.D.

BUSINESS ADDRESS

Division of Pediatric Endocrinology and Metabolism

Hasbro Children's Hospital

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EDUCATION

University of the South, Sewanee, TN

Chemistry, B.S., 1979

University of Tennessee, Knoxville, TN

Biochemistry, M.S., 1984

University of Tennessee College of Medicine, Memphis, TN

Medicine (High Honors), 1988

POSTGRADUATE TRAINING

Internship and Residency

Department of Pediatrics, Johns Hopkins Hospital

Baltimore, Maryland

July 1988 - June 1991

Fellow, Department of Pediatrics

Division of Endocrinology, University of North Carolina

Chapel Hill, North Carolina

July 1991 - June 1994

HONORS AND AWARDS

Alpha Omega Alpha

September 1987

College of Medicine Special Commendation for

Scholarship and Leadership, University of Tennessee

June 1988

Rhode Island Hospital Faculty Teaching Award in Pediatrics

2001

Dean's Teaching Excellence Award, Brown Medical School

2004, 2005

PROFESSIONAL LICENSES AND BOARD CERTIFICATION

Medical License, State of North Carolina	1991-1995
Medical License, State of Rhode Island	1994 -present
American Board of Pediatrics; certificate # 46183	1991, 1999
American Board of Pediatrics, Sub-Board of Pediatric Endocrinology; certificate # 000650	1995, 2003

ACADEMIC APPOINTMENTS

Assistant Professor of Pediatrics Brown University School of Medicine Providence, Rhode Island	1994
Associate Professor of Pediatrics Brown University School of Medicine Providence, Rhode Island	2002

HOSPITAL APPOINTMENTS

Staff Member, Division of Pediatric Endocrinology and Metabolism Department of Pediatrics, Rhode Island Hospital Providence, Rhode Island	August 1994
Interim Director, Division of Pediatric Endocrinology and Metabolism	July 1999 - June 2000
Director, Division of Pediatric Endocrinology and Metabolism Department of Pediatrics, Rhode Island Hospital Providence, Rhode Island	Sept 2005 - present
Program Director, Fellowship in Pediatric Endocrinology Department of Pediatrics, Brown Medical School and Rhode Island Hospital, Providence, Rhode Island	Sept 2003 - present

JOURNAL PEER REVIEW

<i>Journal of Pediatrics</i>	1994 - present
<i>Biochimica et Biophysica Acta</i>	1997 - present
<i>Journal of Pediatric Endocrinology and Metabolism</i>	2000 - present
<i>Biotechnology and Applied Biochemistry</i>	2002
<i>Journal of Biological Chemistry</i>	2002 - present
<i>Journal of Clin Endocrinol Metab</i>	2003 - present

<i>Endocrinology</i>	2003 – present
<i>Pediatrics</i>	2004 - present

HOSPITAL COMMITTEES

Radioactive Drug Research Committee, Rhode Island Hospital	1996 - 1999
Annual Lifespan Research Celebration Planning Committee	2001 - 2003
Rhode Island Hospital Clinical Ethics Committee	2001 - present
Rhode Island Hospital Medicial Records Committee: Hasbro Team	2002

DEPARTMENT COMMITTEES

Residency Selection Committee	1999 - 2004
Pediatric Education: Residency and Student Clerkship	2002 – present
Residency Director’s Education Task Force	2005
Academic Review and Appointment Committee	2006

UNIVERSITY COMMITTEES

Search Committee, Neonatology Faculty Position, Women and Infants Hospital	2000 - 2003
Postgraduate Referral Committee Brown Medical School	2002 - 2007
Search Committee, Adult Endocrinology Faculty Position Brown Medical School	2003 - 2004
Department of Pathobiology, PhD Thesis Committee Member Aimee Hebert, PhD student	2003 - 2006
Search Committee, Pediatric Intensive Care Faculty Position Brown Medical School and Hasbro Children’s Hospital	2004 – 2006
Councilor, Alpha Omega Alpha Honor Medical Society Chapter Brown Medical School	2006 - 2009

COMMITTEES-COMMUNITY

Juvenile Diabetes Foundation, Rhode Island Affiliate Member of the Board of Directors	2000 - 2002
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COMMITTEES-NATIONAL

North American Task Force on Intersexuality	2000 - 2002
Pediatric Academic Societies, Program Committee	2001- 2004
Ad Hoc Member, Endocrine Study Section, NIDDK (NIH)	February 14-15, 2002 February 13-14, 2003
Member, CSR Special Emphasis Panel, NIH (NIDDK)	March 4, 2004
Member, RFA Special Emphasis Panel, NIH (NICHD)	August 2-3, 2004
Intersex Society of North America, Medical Advisory Board member	2003 – present
Member, Focus Group on Issues during Early Childhood in Patients with Ambiguous Genitalia, NIH (NICHD)	February 28, 2005
Member, Technologies for Metabolic Monitoring Peer Review Panel American Institute for Biological Sciences and U.S. Army Medical Research and Material Command	April 11-12, 2005
Charles Hood Foundation Scientific Advisory Board, Boston MA	2005-2010
Member, USMIE Step 2 Pediatrics Test Material Development Committee, National Board of Medical Examiners, Philadelphia, PA	2005-2008

PROFESSIONAL MEMBERSHIPS

The Endocrine Society	1996
Lawson Wilkins Pediatric Endocrine Society	1998
Society for Pediatric Research	2000

PUBLICATIONS

1. **Boney C**, Fink D, Schlichter D, Carr K, Wicks WD. Direct evidence that protein kinase catalytic subunit mediates the effect of cAMP on tyrosine aminotransferase synthesis. *J Biol Chem* 1983;258: 4911-4918.
2. Naider F, Shenbagamurthi P, Steinfeld A, Smith H, **Boney C**, Becker J. Synthesis and biological activity of tripeptidyl polyoxins and antifungal agents. *Antimicrobial Agents and Chemotherapy*, 1983; 24:787-796.
3. **Boney C**, McDonald TP, Jones JB. Abnormal function and Thromboxane release from platelets of dogs with cyclic hematopoiesis. *Exp Hemat*, 1985; 13: 586-590.
4. Shenker A, Weinstein LS, Moran A, Pescovitz OH, Charest NJ, **Boney CM**, Van Wyk JJ, Merino MJ, Feuillan PP, Spiegel AM. Severe endocrine and non-endocrine

- manifestations of the McCune-Albright Syndrome associated with activating mutations of the stimulatory G protein, G_s . *J Pediat*, 1993; 123:509-518.
5. Dai Z, Xing Y, **Boney CM**, Clemmons DR, D'Ercole AJ. Human insulin-like growth factor binding protein-1 (IGFBP-1) in transgenic mice: Characterization and insights into the regulation of IGFBP-1 expression. *Endocrinology*, 1994; 135:1316-1327.
 6. **Boney CM**, Moats-Staats BM, Stiles AD, D'Ercole AJ. Expression of insulin-like growth factor-I and insulin-like growth factor binding proteins during adipogenesis. *Endocrinology*, 1994; 135:1863-1868.
 7. D'Ercole AJ, Dai Z, Xing Y, **Boney CM**, Wilkie MB, Lauder JM, Han VKM, Clemmons DR. Brain growth retardation due to the expression of human IGFBP-1 in transgenic mice: An in vivo model for analysis of IGF function in the brain. *Dev Brain Res*, 1994; 82:213-222.
 8. **Boney CM**, Fiedorek FT, Paul SR, Gruppuso PA. Regulation of preadipocyte factor-1 gene expression during 3T3-L1 cell differentiation. *Endocrinology*, 1996; 137:2923-2928.
 9. Phornphutkul C, **Boney CM**, Gruppuso PA. A novel presentation of Addison's disease: Hypoglycemia unawareness in an adolescent with IDDM. *J Pediat*, 1998; 132:882-884.
 10. **Boney CM**, Smith RM, Gruppuso PA. Modulation of insulin-like growth factor-1 mitogenic signaling in 3T3-L1 preadipocyte differentiation. *Endocrinology*, 1998; 139:1638-1644.
 11. Lefebvre D, **Boney CM**, Ketelslegers JM, Thissen JP. Inhibition of insulin-like growth factor-I mitogenic action by zinc chelation is associated with decreased mitogen-activated protein kinase activation in rat-1 fibroblasts. *FEBS Letters*, 1999; 449:284-8
 12. **Boney CM**, Gruppuso PA, Faris RA, Frackelton AR. The critical role of Shc in IGF-I-mediated mitogenesis and differentiation of 3T3-L1 preadipocytes. *Mol Endocrinol*, 2000; 14:805-813
 13. Kadmon PM, Noto RB, **Boney CM**, Goodwin G, Gruppuso PA. Thyroid storm in a child following radioactive iodine (RAI) therapy: A consequence of RAI versus withdrawal of antithyroid medication. *J Clin Endocrinol Metab*, 2001; 86:1865-1867
 14. **Boney CM**, Sekimoto H, Gruppuso PA, Frackelton AR. Src family kinases participate in IGF-I mitogenic signaling in 3T3-L1 cells. *Cell Growth Diff*, 2001; 12:379-386
 15. Verma A, **Boney C**, Tucker R, Vohr BR. Insulin Resistance Syndrome in Women with Prior History of Gestational Diabetes Mellitus. *J Clin Endocrinol Metab*, 2002; 87:3227-3235
 16. Sekimoto H, **Boney CM**. C-terminal Src Kinase modulates Insulin-like Growth Factor-I mitogenic signaling in 3T3-L1 adipogenesis. *Endocrinol*, 2003; 144:2546-2552

17. **Boney CM**, Verma A, Tucker R, Vohr BR. Metabolic Syndrome in Childhood: Association with Birthweight, Maternal Obesity and Gestational Diabetes. *Pediatrics*, 2005; 115:e290-296
18. Sekimoto H, Eipper-Mains J, Sunthorn P, **Boney CM**. $\alpha\beta3$ integrins and Pyk2 mediate IGF-I activation of Src and MAPK in 3T3-L1 cells. *Mol Endocrinol*, 2005; 19:1859-1867
19. Harrington M, Sunthorn P, Boney CM. Heterodimers of Epidermal Growth Factor (EGF) and ErbB2 receptors mediate the actions of EGF at low concentrations in 3T3-L1 adipogenesis. *Mol Cell Endocrinol*, 2006 submitted

INVITED PUBLICATIONS

- Boney, CM**. Type 2 Diabetes Mellitus in Children and Adolescents: An Emerging Problem. *Medicine and Health, Rhode Island*, 2003; 86:96-100
- Boney, CM** Obesity and Type 2 Diabetes in Children. Clinical Endocrinology Update: 2005 Syllabus. The Endocrine Society

ABSTRACTS/ORAL PRESENTATIONS*

1. Dai Z, **Boney C**, Xing Y, D'Ercole AJ. Human IGFBP-1 transgenic mice exhibit brain growth retardation. The Endocrine Society Program and Abstracts, June 1993; p 56.*
2. **Boney CM**, Moats-Staats BM, Stiles AD, D'Ercole AJ. Expression of insulin-like growth factor-I and insulin-like growth factor binding proteins during adipogenesis. The Endocrine Society Program and Abstracts, June 1994; p 297.
3. **Boney CM**, Smith R, Gruppuso PA. 3T3-L1 preadipocyte differentiation is associated with loss of insulin-like growth factor-1 activation of MAP kinases. *Pediatr Res*, 1996; 39:84A.
4. **Boney CM**, Smith R, Gruppuso PA. Intracellular signaling by insulin-like growth factor-1 is modified during 3T3-L1 preadipocyte differentiation. 10th International Congress of Endocrinology Program and Abstracts, June 1996; 148.
5. **Boney CM**, Smith RM, Gruppuso PA. Intracellular signaling by insulin-like growth factor-1 is modified during 3T3-L1 preadipocyte differentiation. Thirteenth Annual Interdisciplinary Neonatal Gastroenterology and Nutrition Symposium, December 1996.*
6. Phornphutkul C, **Boney CM**, Fausto-Sterling A, Gruppuso PA. Gender assignment at birth: Three cases of reassignment/ambiguity at or beyond adolescence. *Pediatr Res*, 1998; 43:82A.
7. **Boney CM**. Down-regulation of mitogenic signaling by Shc inactivation is an early component of IGF-I-mediated preadipocyte differentiation. The Endocrine Society Program and Abstracts, June 1999; p 558

8. Lefebvre D, **Boney C**, Ketelslegers JM, Thissen JP. Zinc chelation inhibits the mitogenic action of insulin-like growth factor-I and fibroblast growth factor in rat-1 fibroblasts. The Endocrine Society Program and Abstracts, June 1999; p 175.
9. **Boney CM**, Gruppuso PA, Faris RA, Frackelton AR. The critical role of Shc in IGF-I-mediated mitogenesis and differentiation in 3T3-L1 preadipocytes. *Pediatr Res*, 2000; 47:125A.*
10. **Boney CM**, Sekimoto H, Frackelton AR. The role of Src tyrosine kinases in IGF-I mitogenic signaling in 3T3-L1 preadipocytes. *Pediatr Res*, 2000; 47: 125A.*
11. **Boney CM**, Sekimoto H, Frackelton AR. The role of Src tyrosine kinases in IGF-I mitogenic signaling in 3T3-L1 preadipocytes. *FASEB J*, 2000; 14: A1456
12. **Boney CM**, Gruppuso PA, Frackelton AR. The critical role of Shc in IGF-I-mediated mitogenesis and differentiation of 3T3-L1 preadipocytes. New England Conference on Perinatal Research, October 2000*
13. **Boney CM**, Sekimoto H. Insulin-like growth factor-I activates Src Family Kinases in proliferating but not differentiating 3T3-L1 preadipocytes. *Pediatr Res*, 2001; 49:107A*
14. **Boney CM**, Sekimoto H, Gruppuso PA, Frackelton AR. Src Family Tyrosine Kinases participate in IGF-I mitogenic signaling in 3T3-L1 cells. Gordon Research Conference: Second Messengers and Protein Phosphorylation, June 2001
15. **Boney CM**, Sekimoto H. The Role of Src Tyrosine Kinases in the regulation of Adipogenesis by Insulin-like Growth Factor-I. The Endocrine Society Program, June 2002, p 102*
16. Verma A, **Boney CM**, Tucker R, Vohr B. Gestational Diabetes Precedes Insulin Resistance Syndrome. The Endocrine Society Program, June 2002, p165
17. **Boney CM**, Sekimoto H. Regulation of IGF-I Mitogenic Signaling in 3T3-L1 cells. Gordon Research Conference: Peptide Growth Factors, August 2002
18. **Boney CM**, Sekimoto H. Regulation of IGF-I Mitogenic Signaling in 3T3-L1 cells. *Growth Hormone and IGF Research*, 2002; 12: 230*
19. **Boney CM**, Verma A, Tucker R, Vohr BR. Insulin Resistance Syndrome (Syndrome X) in Childhood: Association with birthweight, maternal obesity and gestational diabetes. *Pediatr Res*, 2003; 881:154A *
20. Sekimoto H, **Boney CM**. Integrins regulate Insulin-like Growth Factor-I mitogenic signaling in 3T3-L1 cells. The Endocrine Society Program, June 2003, p 125*
21. Sholler G, **Boney CM**. Regulation of mitogenic signaling by Nerve Growth Factor and Brain-derived Neurotrophic Factor in neuroblastoma cells. Advances in Neuroblastoma Research, June 2004, p 80

22. Harrington M, Pond-Tor S, **Boney CM**. Epidermal Growth Factor is a more potent activator of ERK-1/2 and p38 MAPK pathways than Insulin-like Growth Factor-I in 3T3-L1 growth and differentiation. The Endocrine Society Program, June 2005, p 573

INVITED PRESENTATIONS

“The Emerging Epidemic of Childhood Obesity”
Tenth Annual William E. McKenney Memorial Conference,
Kent County Hospital, Warwick, RI. November 17, 1999

“The Risk of Type 2 Diabetes in Children and Adolescents”
Diabetes Control Program, RI Department of Health
Capitol Hill, Providence, RI June 20, 2000

“The Role of Src Family Kinases in the Regulation of Adipogenesis
by Insulin-like Growth Factor-I”
Department of Pediatrics Research Series
University of Iowa, Iowa City December 7,
2000

“Hyponatremia in the neurosurgical patient: the evidence for Cerebral
Salt Wasting Syndrome”
Endocrine Grand Rounds, Department of Medicine
Rhode Island Hospital and Brown University January 10, 2001

“The Epidemic of Childhood Obesity and its Complications”
Contemporary Topics in Nutrition: Tenth Annual Nutrition Symposium
Rhode Island Hospital, Providence, RI March 15, 2001

“The Role of Src Tyrosine Kinases in IGF-I Mitogenic Signaling”
Arkansas Cancer Research Center Forum
University of Arkansas, Little Rock, AR October 29, 2001

“Unique Challenges in the Diagnosis and Management of Diabetes in Adolescents”
Rhode Island American College of Physicians
American Society of Internal Medicine Update 2001, Newport, RI October 31, 2001

“G-proteins and Endocrine Disease”
Molecular Biology of Medicine Seminar, Department of Biochemistry
University of Illinois, Chicago, IL November 12, 2001

“The Role of Src Tyrosine Kinases in IGF-I-mediated Adipogenesis”
Department of Biochemistry Research Seminar Series
University of Illinois, Chicago, IL November 13, 2001

“The Epidemic of Childhood Obesity: Type 2 Diabetes and Syndrome X”
Pediatric Grand Rounds, Department of Pediatrics

Univeristy of Illinois, Chicago, IL	November 14, 2001
*“Type 2 Diabetes in children and adolescents” “Health Consequences of Obesity in Children” Problems in Pediatrics, Colby College CME Waterville, ME	July 9-10, 2002
“Insulin Resistance of Polycystic Ovary Syndrome” Contemporary Topics in Nutrition: Twelvth Annual Nutrition Symposium Rhode Island Hospital, Providence, RI	March 27, 2003
“Mechanisms of IGF-I Regulation of 3T3-L1 Adipogenesis” Endocrine Grand Rounds Massachusetts General Hospital, Boston, MA	April 8, 2003
“Current Therapeutic Options for Children with Diabetes” Advanced Practice Nurses: Pharmacology CEU RI State Nurses Association, Kent County Hospital	April 15, 2003
“Consequences of Childhood Obesity: Type 2 Diabetes and Syndrome X” Grand Rounds: Welch Center for Prevention, Epidemiology and Clinical Research Johns Hopkins Medical Institutions, Baltimore MD	May 28, 2003
“Clinical Dagnosis and Medical Consequenes of Childhood Obesity” AAP Practical Pediatrics CME Course Keystone, CO	January 16-18, 2004
“New Therapies in Type 1 Diabetes” “Evaluation of Lipid Disorders in Children” “Emerging Epidemic of Type 2 Diabetes in Children” AAP Practical Pediatrics CME Course Keystone, CO	January 15-17, 2004
“Risk Factors for Syndrome X in Obese Children and Adolescents” Department of Endocrinology Research Seminar Children’s Hospital and Harvard University, Boston MA	January 28, 2004
“Modern Approach to Ambiguous Genitalia” Multidisciplinary Antenatal Diagnosis and Management Conference Women and Infants’ Hospital, Providence RI	February 20, 2004
“Childhood Obesity: Clinical Diagnosis and Consequences” Rhode Island Chapter, American Academy Pediatrics Providence, RI	May 20, 2004
“Risk Factors for Syndrome X in Obese Children and Adolescents” Department of Pediatrics, Pediatric Endocrinology Seminar	

Columbia University, New York NY	June 22, 2004
“Diagnosis and Clinical Consequences of Childhood Obesity” Perinatal Conference, Southwest Hospital Group Taunton, MA	October 1, 2004
“Mechanism of IGF-I Regulation of 3T3-L1 Adipogenesis” Departments of Pediatrics and Physiology Joint Seminar Univeristy of Michigan, Ann Arbor, MI	October 6, 2004
“Childhood Obesity: Clinical Diagnosis and Consequences” Rhode Island Primary Care, Physicians Corporation Providence, RI	March 22, 2005
“Risk factors for Syndrome X in children and adolescents” Endocrine Grand Rounds, Johns Hopkins Hospital Baltimore, MD	April 20, 2005
“Mechanism of IGF-I regulation of 3T3-L1 adipogenesis” Research Seminar, Division of Pediatric Endocrinology, JHH Baltimore, MD	April 21, 2005
“Obesity and the Epidemic of Type 2 Diabetes in Children” “Obesity and Hyperlipidemia in Children” CME faculty: Pediatric Jambalaya, The Acadiana Pediatric Society Lafayette, LA	April 23, 2005
“Evaluation and treatment of Hyperlipidemia in children” “Diagnosis and clinical consequences of childhood obesity” Problems in Pediatrics, Colby College CME Waterville, ME	July 12-13, 2005
“Obesity and Type 2 Diabetes Mellitus in Children” Clincial Endocrinology Update, The Endocrine Society Toronto, Ontario Canada	October 7, 2005
“IGF-I Regulation of 3T3-L1 Adipogenesis” Research Seminar, Dept. Animal Sciences, Rutgers University New Brunswick, NJ	January 27, 2006
“Risk factors for Syndrome X in children and adolescents” Pediatric Grand Rounds, Massachusetts General Hospital Boston, MA	February 14, 2006

GRANTS

Principal Investigator: Lifespan Developmental Grant
“Modulation of Mitogenic Signal Transduction in Preadipocyte Differentiation”
Total direct costs: \$19,979 12/1/96 to 5/31/98

Principal Investigator: Charles H. Hood Foundation Child
Health Research Grant “Modulation of Mitogenic Signal
Transduction during Preadipocyte Differentiation”
Total direct costs: \$44,740 1/1/98 to 12/31/98

Principal Investigator: Knoll Pharmaceutical Company
Weight Risk Investigators Study Council Grant
“Modulation of Mitogenic Signal Transduction in Preadipocyte Differentiation”
Total direct costs: \$79,589 1/1/99 to 12/31/00

Principal Investigator: NIH/NIDDK
RO1DK59339
“The Role of Src Kinases in IGF-I-mediated Adipogenesis”
Total Direct Costs: \$670,000 3/15/02 to 1/31/07

OTHER RESEARCH PROJECTS

Principal Investigator: North American Task Force on Intersexuality
“Chart Review of Patients born with Intersex Disorders” 2000

Consultant, “Adrenocortical Stress Reactivity and Gender Differences in Depression”
Principal Investigator: L. Stroud, NARSAD Investigator Award
Behavioral Medicine, Miriam Hospital and Brown Univeristy 2000- present

Consultant, “Insulin Resistance Syndrome in Offspring of Mothers with GDM and Obesity”
Principal investigator: Betty Vohr, MD, Division of Neonatology,
Women and Infant’s Hospital, Providence RI 2001- 2005

UNIVERSITY TEACHING ROLES

BioMed #130, Biochemistry, Brown Medical School 1995 - 2006
(small group leader ‘95-05; lipid lectures ’05, ’06)

BioMed #117, Physiology, Brown Medical School 2003 - present
(section leader, endocrinology)

BioMed #80, Principles of Physiology, Brown University 2000, 2002, 2003
(lecturer, endocrinology section)

BioMed #30, Endocrinology, Brown Univeristy 2002 - 2004
(lecturer, metabolism and growth sections)

HOSPITAL TEACHING ROLES

Course director, Clinical Elective in Pediatric Endocrinology	1994 - present
General Pediatric Ward Attending, one month/year	1996 - present
Department of Pediatrics Noon Lecture Series, four months/year	1994 – present
Pediatrics Clerkship Lecture series, one lecture every 6 weeks	2003 – present
Student-Preceptor Program, core Pediatric Clerkship	1997, 1998