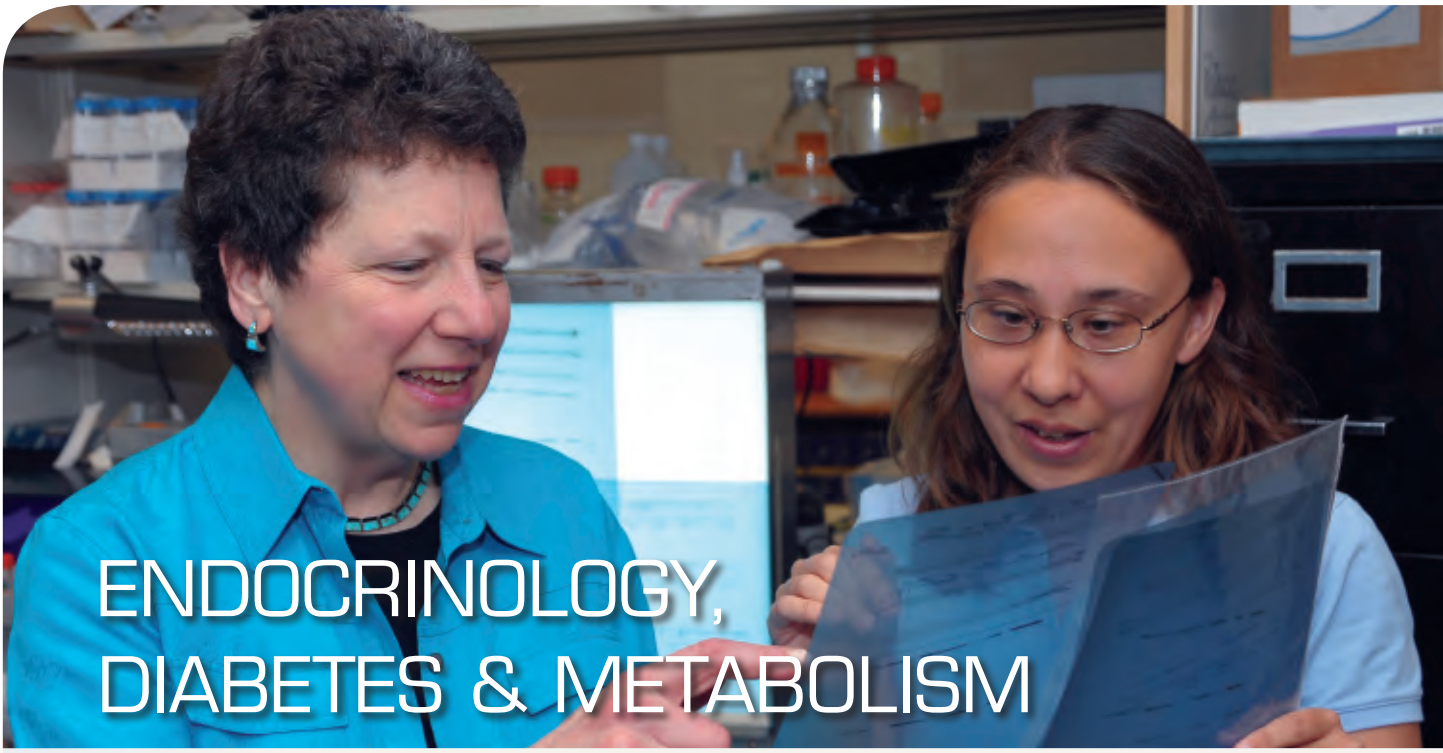


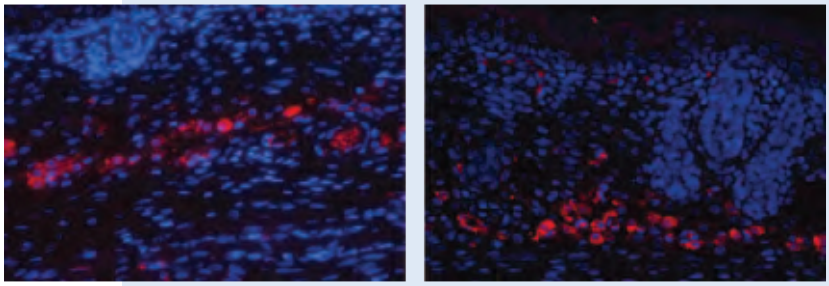
ENDOCRINOLOGY, DIABETES & METABOLISM

Barbara Kahn, MD, Chief/Anthony Hollenberg, MD, Acting Chief — The Division of Endocrinology, Diabetes and Metabolism has three major goals: to deliver outstanding patient care in both the ambulatory and inpatient setting, to provide superb training and to perform outstanding biomedical research that reaches from the laboratory bench to the patient bedside. The Division continues to grow both clinically and academically as both patient visits and research funding continue to increase. This year was another banner year for the Division in all of the above areas and we continue, in collaboration with our colleagues at the Joslin Diabetes Center, to be recognized nationally by U.S. News and World Report, where we rank 16th in the nation.

Highlights

Research

The ability to understand how cells differentiate from fibroblasts to mature cells such as fat cells (adipocytes) is critical to understanding disease processes. In the past year, the laboratory of Dr. Evan Rosen has used state-of-the-art genomic techniques to understand how adipocytes develop. His lab's work demonstrates that unique transcription factors are required in multiple locations across the genome – in many cases far distant from the genes they regulate. In addition, an epigenetic code is present that functions to allow these transcription factors to find their sites. By understanding the process of adipocyte differentiation, the Rosen lab is now in position to try and modify it to treat the epidemic of obesity and type 2 diabetes.



A section of a developing fat pad under the skin of a mouse embryo. Developing fat cells in red, all cells stained with blue. Image courtesy of Evan Rosen, MD, PhD.

Osteoporosis Prevention and Treatment Center

The Osteoporosis Prevention and Treatment Center (OPTC) is a leader in the prevention, diagnosis and treatment of osteoporosis and metabolic bone disease. Under the direction of Dr. Harold Rosen, the OPTC continues to expand and improve access by now offering state-of-the-art bone density testing on Saturdays. The OPTC performed over 6,500 bone density scans

Top: Barbara Kahn, MD (left) with Laura Zemany, MD

(BMDs) this year and has made substantial improvements in quality. Through an enhancement with the densitometer and our online medical record system (OMR), the results are now available more quickly and conveniently and are housed in the "Reports" section of OMR. In addition, the bone density reporting system is now configured to notify referring physicians via email as soon as the report is available. Furthermore, a patient's latest results are available under "Sheets" in OMR, allowing the referring physicians to see at a glance when the last BMD was performed.

Faculty

Martin Abrahamson, MD
Inna Astapova, PhD
Christian Bjorbaek, PhD
Allison Cohen, MD
Jody Dushay, MD
Jeffrey Flier, MD
Jeffrey Garber, MD
Alina Gavrila, MD
Pamela Hartzband, MD
James Hennessey, MD
Mark Herman, MD
Anthony Hollenberg, MD
Barbara Kahn, MD
Young-Bum Kim, PhD
Dong Kong, PhD
Bradford Lowell, MD, PhD
Alan Malabanan, MD
Christos Mantzoros, MD, DSc
Eleftheria Maratos-Flier, MD
Hyun-Seuk Moon, PhD
Johanna Pallotta, MD
Odile Peroni, PhD
Pavlos Pissios, PhD
Arturo Rolla, MD
Evan Rosen, MD, PhD
Harold Rosen, MD
Amin Sabet, MD
Shanti Serdy, MD
Greeshma Shetty, MD
Mala Sivanandy, MD
Gordon Strewler, MD
Anny Usheva-Simidjiyska, PhD
Janice Zabolotny, PhD
Laura Zemany, MD

The Division's community outreach has continued to grow. We currently provide general endocrine services at BID-Chelsea (shown here), a Thyroid Nodule Clinic at BID-Needham and bone density testing at BID-Chelsea and BID-Lexington. Within the next year the Division will be establishing an additional thyroid nodule clinic and general endocrine services at Lawrence General Hospital.

Honors and Awards

Barbara Kahn, MD – Earned the 2010 Gerald Aurbach Award for Outstanding Contributions to Research in Endocrinology from the Endocrine Society.

James Hennessey, MD – Received the Excellence in Tutoring Award from Harvard Medical School; and named in "Best Doctors in America."

Mark Herman, MD – Earned the Excellence in Tutorial Facilitation Award from Harvard Medical School.

Anthony Hollenberg, MD – Became Acting Chief of the Division of Endocrinology, Diabetes and Metabolism.

Christos Mantzoros, MD, DSc – Presented the 2011 S. Berson Lecture at the American Physiological Society.

Eleftheria Maratos-Flier, MD – Received the Sol Horowitz Distinguished Alumni Award from Mount Sinai School of Medicine.

Johanna Pallotta, MD – Recognized in "Best Doctors in America."

Amin Sabet, MD – Earned the Harvard Medical School Excellence in Tutoring Award and the Morgan-Zinsser Fellowship from the HMS Academy.

Selected Publications

Alexandrov BS, Valtchinov VI, Alexandrov LB, Gelev V, Dagon Y, Bock J, Kohane IS, Rasmussen KØ, Bishop AR, Usheva A. DNA dynamics is likely to be a factor in the genomic nucleotide repeats expansions related to diseases. *PLoS One* 2011; 6:e19800.

Astapova I, Vella KR, Ramadoss P, Holtz KA, Rodwin BA, Liao, X-H, Weiss RE, Rosenberg MA, Rosenzweig A, Hollenberg AN. The nuclear receptor corepressor (NCoR) controls thyroid hormone sensitivity and the set point of the hypothalamic-pituitary thyroid axis. *Mol Endocrinol* 2011; 25:212-24.

Chun KH, Lee KD, Lee DH, Jung Y, RR Henry, Ciaraldi TP, Kim YB. In vivo activation of ROCK1 by insulin is impaired in skeletal muscle of humans with type 2 diabetes. *Am J Physiol Endocrinol Metab* 2011; 300:E536-42.

Krashes MJ*, Koda S*, Ye CP, Rogan SC, Adams AC, Cusher DS, Maratos-Flier E, Roth BL, Lowell BB. Rapid, reversible activation of AgRP neurons drives feeding behavior in mice. *J Clin Invest* 2011; 121:1424-8. *Joint first authors.

Mikkelsen TS, Xu Z, Zhang X, Wang L, Gimble JM, Lander ES, Rosen ED. Comparative epigenomic analysis of murine and human adipogenesis. *Cell* 2010; 143:156-69.

Pulinilkunnil T, He H, Kong D, Asakura K, Peroni OD, Lee A, Kahn BB. Adrenergic regulation of AMP-activated protein kinase in BAT in vivo. *J Biol Chem* 2011; 286:8798-809.

Sabet A, Pallotta J. Dichotomous Responses to thyroid hormone treatment in a patient with primary hypothyroidism and thyroid hormone resistance. *Thyroid* 2011; 21:559-61.

Patient Spotlight

Virginia "Billie" Winn *— I came to BIDMC after having only partially successful surgery for a parathyroid condition up in New Hampshire, where I live. They had done what they could there, so I was happy when I heard about a great endocrinologist at BIDMC, Dr. Johanna Pallotta. She and Dr. Barry Sacks soon got involved, and I came to BIDMC to have my bad parathyroid found and ablated, which they did successfully. Dr. Pallotta was very hands on, and I appreciated that she's such a smart lady. Dr. Sacks is also wonderful. They both gave you the feeling of confidence. Dr. Pallotta said a thousand times, "Honey don't worry – we're going to find this."*