

TENURE RECOMMENDATION
UNIVERSITY OF MICHIGAN MEDICAL SCHOOL
DEPARTMENT OF INTERNAL MEDICINE
DEPARTMENT OF MOLECULAR AND INTEGRATIVE PHYSIOLOGY

Charles Burant, M.D., Ph.D., Associate Professor of Internal Medicine, without tenure, Department of Internal Medicine, and Associate Professor of Molecular and Integrative Physiology, without tenure, Department of Molecular and Integrative Physiology, Medical School, is being recommended for promotion to Professor of Internal Medicine, with tenure, Department of Internal Medicine, and Professor of Molecular and Integrative Physiology, without tenure, Department of Molecular and Integrative Physiology, Medical School.

Academic Degrees:

M.D./Ph.D	1987	Medical University of South Carolina
M.S.	1981	University of Wisconsin
B.S.	1979	University of Wisconsin

Professional Record:

2002-Present	Associate Professor of Molecular and Integrative Physiology, University of Michigan
2001-Present	Associate Professor of Internal Medicine, University of Michigan
2001-Present	Adjunct Associate Professor of Kinesiology, University of Michigan
1999-2001	Adjunct Assistant Professor of Medicine, University of Michigan
1992-1998	Assistant Professor of Medicine, University of Chicago
1991-1992	Instructor of Medicine, University of Chicago

Summary of Evaluation:

Teaching: Dr. Burant is involved in the clinical education of medical students, residents, and fellows together with the basic science education of undergraduate students, graduate students, and postdoctoral fellows at the University of Michigan. Dr. Burant's basic science mentorship encompasses classroom instruction in graduate courses related to organogenesis and physiology. Dr. Burant is Chair of the doctoral committee of an outstanding graduate student who is obtaining a PhD under his tutelage and has graduated three additional students who received a PhD or MD/PhD degree. Dr. Burant has served or serves on seven dissertation committees at the University of Michigan and another five at his previous position. He has also served on five preliminary exam committees. A total of eight postdoctoral fellows have obtained training in Dr. Burant's laboratory and have secured positions in academics and industry. Undergraduate students continually work in his laboratory under the auspices of the Undergraduate Research Opportunity Program (UROP) with one presently pursuing her senior thesis in his laboratory. Clinically, Dr. Burant teaches first- and second-year medical students in diabetes and nutrition together with small group instruction in basic endocrinology. On the wards as consult attending on the Endocrinology Service, he mentors third-year medical students, fourth-year medical students (25 hr/yr) and internal medicine residents on the care of endocrinology patients. He supervises endocrinology fellows in a variety of capacities including the Fellows Clinic

(1 month/yr), Consult Service (1 month/yr) and Diabetes Clinic (3-4 clinics/month). Evaluative measures include the growth of his laboratory and the caliber of students he continues to recruit—most of whom obtain independent financial support and training grant support.

Research: Dr. Burant has been considered a leader in the field of diabetes and metabolism for many years. This is reflected in his publication record, grant funding, work on national grant review panels, editorial responsibilities, and invited speaking engagements. Throughout his career he has made seminal discoveries in molecular and cell biology of diabetes. Examples include the cloning and characterization of glucose transporters (including the seminal discovery of the unique fructose transporter, the cloning of the extrapancreatic sulfonylurea receptor, and the demonstration that disruption of this molecule results in enhanced insulin sensitivity but also enhance the chance of cardiac arrhythmia. This work has led several drug companies to use this molecule as both a target for treatment of insulin resistance and as a potential target for treatment of cardiac arrhythmias. Dr. Burant has also participated in and published on clinical trials and basic research related to the development of troglitazone, the first PPAR γ agonist used to treat type 2 diabetes. Dr. Burant is considered one of the world's experts in PPAR γ biology as indicated by national and international invited talks as well as multiple consultations with industry. More recently, Dr. Burant has discovered the true nature of enigmatic cells in the pancreas, demonstrating that the protein nestin mark endothelial cells of the pancreatic islet and that these cells are likely critical for cell endocrine cell growth. This and other studies lead to Dr. Burant receiving one of five special awards from the American Diabetes Association to continue this work with an emphasis on discovering novel methods to enhance adult pancreatic progenitor cell replication and differentiation to create an adequate transplantable mass. Recently, Dr. Burant has begun a systems biology approach to understand the basis of insulin resistance and hepatic steatosis in Non-Alcoholic Fatty Liver Disease and Hepatitis C infection. Combining physiological assessment of patients, genomic, proteomic, and lipomic assessment of liver and blood and treatment outcomes, these studies will be the first to provide a detailed insight into this disease. These studies have been funded with an RO1 grant from the NIDDK.

Dr. Burant has served on a number of editorial boards and is currently an assistant editor of the *Journal of Biological Chemistry* and an associate editor of the *American Journal of Physiology-Endocrinology and Metabolism*. He served as editor and primary author of the official American Diabetes Association's book "Medical Management of Type 2 Diabetes" and was coauthor on the chapter 'Type 2 Diabetes' in the definitive Williams Textbook of Endocrinology. Finally, Dr. Burant has served on a number of special study sections for the NIH and is currently serving on the Integrative Physiology of Diabetes and Obesity Study Section. He also served for five years on the Grant Review Panel of the American Diabetes Association, serving as the Chair of this panel for two years.

Recent and Significant Publications:

Burant CF: Medical Management of Type 2 Diabetes, Fifth Edition. American Diabetes Association, Alexandria VA, 2004.

Treutelaar MK, Skidmore JM, Dias-Leme CL, Hara M, Zhang L, Simeone D, Martin DM and Burant CF: Nestin-lineage cells contribute to microvasculature but not endocrine cells of the pancreatic islet. *Diabetes* 52:2503-2512, 2003.

Macchia PE, Jiang P, Yuan YD, Chandararadna RAS, Weiss RE, Chassande O, Samarut J, Refetoff S and Burant CF: RXR receptor agonist suppression of thyroid function: Central effects in the absence of thyroid hormone receptor. *Am J Physiol Endocrinol Metab* 283:E326-E331, 2002.

Chutkow WA, Pu J, Wheeler MT, Wada T, Makielski JC, Burant CF* and McNally EM*: Prinzmetal-like vasospasm, hypertension, and early death result from the absence of Sur2 K_{ATP} channels in mice. *J Clin Invest* 110:203-208, 2002. (*communicating authors)

Chutkow WA, Samuel V, Hansen PA, Pu J, Valdivia CR, Makielski JC and Burant CF: Disruption of SUR2-containing K_{ATP} channels enhances insulin stimulated glucose uptake in skeletal muscle. *Proc Natl Acad Sci (USA)* 98:11760-11764, 2001.

Service: At the University, Dr. Burant serves on a number of committees including the Career Advisory Panel for the Medical Scientist Training Program, Executive Committee for the K30 Clinical Research Training Grant, Associate Director of the Molecular Biology Core and the Director of the new Metabolic Phenotyping Core for the Michigan Diabetes Research and Training Center (MDRTC). He also serves on the Pilot and Feasibility Grant Review Committee for the MDRTC. He currently serves on the Executive Committee for the Brehm Type 1 Diabetes Center and is on the Building Design Committee. Dr. Burant is an elected representative to the University Faculty Senate Assembly. Finally, Dr. Burant has taken the lead in developing the Michigan Metabolism Center and has been designated as the Director. This center will be the focus of investigation in metabolic diseases with an emphasis on using metabolomic and systems biology approaches to understand and treat obesity, type 2 diabetes and related disorders. Nationally, Dr. Burant serves on the ADA Research Policy Committee which directs the research direction of the organization and is a member of its Research Foundation Board which identifies ways in which large gifts can be attracted and used for research in diabetes. He is active in the programs of the National Diabetes Education Initiative, designing a number of educational initiatives for the organization.

Professional Work: Dr Burant is an international leader in the clinical care of patients with diabetes and insulin resistance. His national reputation routinely brings referrals from across the region. His recent publication of the official ADA 'Medical Management of Type 2 Diabetes' which is the best selling ADA publication and his co-authorship of the Williams Textbook of Endocrinology chapter on type 2 diabetes bespeaks the immense regard that Dr. Burant commands in the diabetes community. In addition, his expertise in the care of women with Polycystic Ovarian Disease brings him many referrals from area physicians. Dr Burant participates in patient care activities through three different venues. He attends on the Endocrinology Consult service (1 month/year) and in the Fellows Clinic (1 month/year). In addition, Dr. Burant sees his own patients in a general Endocrinology Clinic (1 clinic/week). These activities take place in the University and VA hospitals and Briarwood and Taubman Center.

External Review:

Reviewer A: "Dr. Burant is unquestionably one of the leading physician-scientists [of his cohort] in the Diabetes field. He appears to be a literal whirlwind of scholarly activity. I fully expect that he will continue to make fundamental contributions to diabetes teaching, research, and treatment. I also believe, given his drive and talent, that it is highly likely that one day he

will become chief of medicine at a major medical institution....I cannot imagine a better or more valuable professional colleague.”

Reviewer B: “Chuck has consistently published papers that are characterized by experimental rigor, intellectual clarity, and physiological insight. His work is of the highest quality and appears in the most competitive of peer-reviewed journals...His scholarly niche is that of translational physician-scientist, a role now sought by many. Among his peers in this group, Dr. Burant ranks among the elite.”

Reviewer C: “I rank Chuck at the top relative to his peers, in terms of insight and research potential....I believe you should do everything possible to keep him happy; he’s great!”

Reviewer D: “He possesses superb clinical skills and his case discussions on endocrine rounds are exceptional and well appreciated by the fellows....He is a gifted and highly successful scientist, a great teacher and clinician, and a wonderful human being.”

Reviewer E: “This is a consistently courageous and creative investigator, who now has a strong commitment and focus in the area of islet growth and development. His work is already at [a] level that is more rigorous and creative than more famous scientists in the field, and I believe that the papers that he will produce in the next few years will be seminal to the field.”

Reviewer F: “He is highly respected nationally for his ability to understand basic biology and translate it into developing approaches for patient care....Chuck has a very strong record of service in the diabetes community...Chuck is one of the most well-rounded academic physicians that I know.”

Reviewer G: “...Chuck has been a consistent contributor to our knowledge of sugar transport-both its mechanisms and its physiological significance....Chuck is an engaging and dedicated physician scientist [of his cohort] who combines his basic research interest with clinical and clinical research interests as well.”

Summary of Recommendation:

Dr. Burant has made valuable contributions to research, medical care, and education. It is with the highest enthusiasm that I recommend Dr. Charles Burant for promotion to Professor of Internal Medicine, with tenure, and Professor of Molecular and Integrative Physiology, without tenure.



Allen S. Lichter, M.D., Dean
*Newman Family Professor
of Radiation Oncology*

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