

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF PEDIATRICS AND COMMUNICABLE DISEASES

Timothy T. Cornell, M.D., assistant professor of pediatrics and communicable diseases, Department of Pediatrics and Communicable Diseases, Medical School, is recommended for promotion to associate professor of pediatrics and communicable diseases, with tenure, Department of Pediatrics and Communicable Diseases, Medical School.

Academic Degrees:

B.A.	1989	Saint Louis University
M.D.	1995	Southern Illinois University

Professional Record:

2010-present	Assistant Professor of Pediatrics and Communicable Diseases, University of Michigan
2007-2010	Lecturer, Department of Pediatrics and Communicable Diseases, University of Michigan
2002-2004	Assistant Professor of Pediatrics, University of North Carolina, Chapel Hill
1998-1999	Clinical Instructor of Pediatrics, George Washington University

Summary of Evaluation:

Teaching: Dr. Cornell is an accomplished educator in clinical, laboratory and classroom settings. He is active in mentoring undergraduates through the UROP Program and mentors many undergraduates and medical students as they pass through his laboratory. His mentorship has resulted in several students receiving awards at the UROP annual symposium and the Van Andel Research Institute. Additionally, Dr. Cornell is a participant in the Medical School's Summer Biomedical Research Program and College of Engineering's Biotechnology and Human Values Course. In the clinical education realm, Dr. Cornell serves as the division's fellowship director. Currently, most of his clinical education roles include formal lectures and bedside instruction to clinical fellows. In this role, he has developed two curricula. The first is a bedside ultrasound curriculum, which ensures fellows are trained in the use of ultrasound for assessment of hemodynamic status, assessment of the thoracic and abdominal compartments and the use of ultrasound for procedures in critically ill children. The second was developed in conjunction with the Patient and Family Center Care Committee with the goal of educating fellows in the communication skills necessary to provide the best possible experience for patients and families in the Pediatric Intensive Care Unit. Finally, Dr. Cornell provides instruction to pediatric, emergency medicine residents, surgical residents and fellows as well as nurses and community physicians. Dr. Cornell educates nursing staff by teaching the Advance Critical Nursing Classes and Extracorporeal Life Support Course. He also participates as a course instructor in the

International Point of Care Ultrasound Course at Henry Ford Hospital and leads educational sessions on pediatric sepsis through his involvement with the Regional Sepsis Summit for Northern Michigan.

Research: Dr. Cornell has been a successful scientist and scholar since his arrival at Michigan. His accomplishments have been evidenced by his selection as a Pediatric Critical Care Scientist Development Program (PCCSDP) Scholar (2012) and by being selected to receive the Department of Pediatrics' Faculty Basic Science Award (2008) and the Janette Ferrantino Young Investigators Award (2009). Dr. Cornell's early work investigating phosphatase regulation of inflammatory signaling was the basis for his Career Development Award (K08) from the National Institutes of Health for which he received a perfect score of 10. This laid the groundwork which enabled Dr. Cornell to submit his first independent R01 proposal to the National Institutes of Health focusing on the development and validation of the microfluidic immunophenotyping assay device. These experiences with his early research on epigenetics led to the submission of his second R01 proposal in February 2014 investigating the mechanisms of hyperglycemia on immune function and epigenetics in critically ill children. Dr. Cornell's research is dedicated to understanding the processes that lead to dysregulated inflammation in critically ill children in order to design therapies to restore immune homeostasis reducing morbidity and mortality in these patients. His path has led him from the cellular regulation of signal transduction pathways to the clinical bedside to the world of microfluidics. Dr. Cornell began investigating the role of phosphatase in regulating cytokine production utilizing classic cellular and molecular biology tools in the laboratory. From there, he became involved in investigating immune dysregulation in critically ill patients and the processes of epigenetics. The clinical need for a rapid bedside test to determine immune function then led to collaborations with colleagues from mechanical engineering to design a microfluidic platform to provide such a device. Dr. Cornell's role in this team has been to direct both the identification of the biological processes and the device features that allow for a useful bedside tool.

Recent and Significant Publications:

Cornell TT, Hinkovska-Galcheva V, Sun L, Cai Q, Hershenson M B, Vanway S, Shanley TP: (2009). Ceramide-dependent PP2A regulation of TNF -induced IL-8 production in respiratory epithelial cells. *AJP: Lung Cellular and Molecular Physiology* 296:L849-L856, 2009.

Cornell TT, Rodenhouse P, Cai Q, Sun L, Shanley TP: Mitogen-Activated Protein Kinase Phosphatase 2 Regulates the Inflammatory Response in Sepsis. *Infection and Immunity* 78:2868-2876, 2010.

Cornell TT, Fleszar A, McHugh W, Blatt NB, Le Vine AM, Shanley TP: Mitogen-activated protein kinase phosphatase 2, MKP-2, regulates early inflammation in acute lung injury. *AJP: Lung Cellular and Molecular Physiology* 303: L251-L258, 2012.

Cornell TT, Sun L, Hall MW, Gurney JG, Ashbrook MJ, Ohye RG, Shanley TP: Clinical implications and molecular mechanisms of immunoparalysis after cardiopulmonary bypass. *Journal of Thoracic and Cardiovascular Surgery* 143:1160-1166, 2012.

Chen W, Huang N-T, Oh B, Lam RHW, Fan R, Cornell TT, et al: Surface-micromachined microfiltration membranes for efficient isolation and functional immunophenotyping of subpopulations of immune cells. *Advanced Healthcare Materials* 2:965-975, 2013.

Service: Dr. Cornell represents his department and specialty by participating in service related activities both at the institutional and national levels. His administrative service to the University of Michigan includes directorships of the Pediatric Critical Care Medicine Fellowship Program and the Sepsis, Inflammation and Multiple Organ Failure Program in the Michigan Center for Integrated Research in Critical Care (MCIRRC). Dr. Cornell co-chairs the Committee on Pediatric Sedation and the Multidisciplinary Rounding Committee and participates in the Extracorporeal Life Support Clinical Management Committee. His national leadership includes membership of the Society of Critical Care Medicine/American College of Critical Care Task Force on Hemodynamic Support of Pediatric and Neonatal Septic Shock and the Society of Critical Care Medicine Multidisciplinary Critical Care Knowledge Assessment Project.

External Reviewers:

Reviewer A: “Dr. Cornell’s research is not simple, and it is leading to sophisticated understanding of mechanisms of sepsis and sepsis morbidity in children in the critical care environment. His scientific publications are important; his energy to write grant proposals is palpable; his enthusiasm about his science is contagious....Rumors that triple threat faculty can no longer exist are put to rest when one looks at Dr. Cornell, and what he accomplishes in the context of other clinical, teaching and administrative responsibilities....we would be ecstatic to have a faculty member of his stature in our Department.”

Reviewer B: “... Dr. Cornell is making rapid and gratifying progress toward becoming an independent and nationally recognized pediatric physician-scientist....my view is that he is progressing in a laudatory fashion and his retention and recognition at the University of Michigan should be a high priority.”

Reviewer C: “...in the curriculum vitae of Dr. Timothy Cornell, there is ongoing evidence of high quality research, sustained level of external research funding, organizational contribution to the mission of the Medical School, continued scholarly contribution, sustained excellence and evidence of national influence. ... There is no doubt that, in my University, Dr. Cornell would be promoted to the rank of associate professor.”

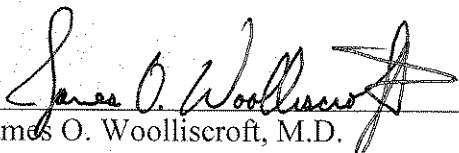
Reviewer D: “Overall, Dr. Timothy Cornell is an accomplished scientist who has established an externally funded and independent research program focused on the study of immune regulation and dysregulation during critical illness.”

Reviewer E: “I think that Tim Cornell is an exceptional member of the academic community. His research program has been highly productive; it is focused, and innovative. His peers, both in terms of publications and extramural funding, have recognized this accomplishment. I would be delighted to support his promotion to Associate Professor at my own institution, and I think

that Michigan and your department are fortunate to have such an accomplished and promising faculty member.”

Summary of Recommendation:

Dr. Cornell is an established researcher in the area of pediatric critical care medicine and an integral member of the department and Medical School. I am pleased to recommend Timothy T. Cornell, M.D. for promotion to associate professor of pediatrics and communicable diseases, with tenure, Department of Pediatrics and Communicable Diseases, Medical School.

A handwritten signature in cursive script, reading "James O. Woolliscroft". The signature is written in black ink and is positioned above a horizontal line.

James O. Woolliscroft, M.D.

Dean

Lyle C. Roll Professor of Medicine

May 2015