

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF UROLOGY
COLLEGE OF ENGINEERING
DEPARTMENT OF BIOMEDICAL ENGINEERING

Approved by the
Regents
May 21, 2015

William W. Roberts, M.D., associate professor of urology, with tenure, Department of Urology, Medical School, and associate professor of biomedical engineering, without tenure, Department of Biomedical Engineering, College of Engineering and Medical School, is recommended for promotion to professor of urology, with tenure, Department of Urology, Medical School, and professor of biomedical engineering, without tenure, Department of Biomedical Engineering, College of Engineering and Medical School.

Academic Degrees:

M.D.	1997	Johns Hopkins University
B.S.	1992	Massachusetts Institute of Technology

Professional Record:

2009-present	Associate Professor of Urology, University of Michigan
2009-present	Associate Professor of Biomedical Engineering, University of Michigan
2008-2009	Assistant Professor of Biomedical Engineering, University of Michigan
2004-2009	Assistant Professor of Urology, University of Michigan
2003	Instructor in Urology, Johns Hopkins University

Summary of Evaluation:

Teaching: Dr. Roberts devotes approximately 15% of his time to teaching responsibilities. His most important teaching contributions are the education and mentoring of residents, fellows, and graduate students in his Translational Histotripsy Laboratory. He has mentored six residents during their research year (two residents during 2009-2011 consisting of 400 hours over two years), co-mentored twelve graduate students, and two post-doctoral fellows in which they have garnered numerous awards and published works. Dr. Roberts lectures to the Medical Student Urology Interest Group and Medical Innovation Group for about five hours per year. He estimates 260 hours with hands-on surgical instruction, training, and feedback to urology residents during endoscopic surgical cases. He provided direct clinical and professional mentorship to Dr. Sapan Ambani during his urology residency who is now completing an endourology fellowship at the University of Michigan. Dr. Roberts devotes about 10 hours per year to the education of practicing physicians. He has mentored undergraduate students for about 240 hours over three years and advised and mentored a medical student for 100 hours over one year as well as graduate biomedical engineering students for 275 hours over five years.

Research: Dr. Roberts has published 89 peer-reviewed publications including 38 since his promotion to associate professor. Additionally he has 27 non-peer-reviewed publications, six book chapters, one other media, and 147 abstracts. His primary research focus is histotripsy which is ultrasound-induced mechanical/cavitational tissue ablation. He and a multidisciplinary scientific team developed histotripsy here at the University of Michigan inventing the equipment, proving the principle, achieving R01 funding, and producing many award-winning papers. He directs the Translational Histotripsy Laboratory. Translating histotripsy from the research lab to clinical therapy in 2009 with creation of the company, HistoSonics, Inc., Dr. Roberts provides expertise and guidance as a founder of the company, consultant, and chair of the clinical advisory board. The first clinical trial enrollment was recently completed. Dr. Roberts has two patents with an additional eight patents in process. He is the principal investigator on an R01 grant related to histotripsy tissue interactions for BPH therapy, serves as a co-investigator on a R01 grant for histotripsy for urinary stone comminution as well as co-investigator concerning the safety for treatment of benign prostatic hyperplasia. He and his colleagues in Biomedical Engineering and the Division of Radiology Research in 2013 were awarded the Ted Kennedy Family Team Excellence Award from the University of Michigan College of Engineering. Dr. Roberts received the prestigious American Urological Association Gold Cystoscope Award in 2014.

Recent and Significant Publications:

Styn NR, Wheat JC, Hall TL, Roberts WW: Histotripsy of VX-2 tumor implanted in a renal rabbit model. *J Endourol* 24:1145-1150, 2010.

Wheat JC, Hall TL, Hempel CR, Cain CA, Xu Z, Roberts WW: Prostate histotripsy in an anticoagulated model. *Urology* 75:207-211, 2010.

Hempel CR, Hall TL, Cain CA, Fowlkes JB, Xu Z, Roberts WW: Histotripsy fractionation of prostate tissue: local effects and systemic response in a canine model. *J Urol* 185:1484-1489, 2011.

Schade GR, Keller J, Ives K, Cheng X, Rosol TJ, Keller E, Roberts WW: Histotripsy focal ablation of implanted prostate tumor in an ACE-1 canine cancer model. *J Urol* 188:1957-1964, 2012.

Duryea AP, Roberts WW, Cain CA, Hall TL: Controlled cavitation to augment SWL stone comminution: mechanistic insights *in-vitro*. *IEEE Trans Ultrason Ferroelectr Freq Control* 60:301-309, 2013.

Service: Dr. Roberts serves on an international Engineering & Urology Society Advisory Board, reviews for seven journals, and has membership in seven professional societies. Nationally, he served four years as a member of the AUA Prize Essay Working Group and currently is a member of the AUA Content Review Subcommittee. Institutionally, he is a member of the UMHS Clinical Simulation Center Steering Committee and participates on their Research and Education Committee. He serves on our T32 Mentor Steering Committee, Urology Senior

Clinical Advisory Committee, Urology Peer Review Committee, Urology Promotions and Appointments Advisory Committee, and director of the Faculty Champion for Medical Devices of the Fast Forward Medical Innovation Initiative. For six years Dr. Roberts was the director of Quality Assurance for the Urology Department and five years as the chair of the Urology Peer Review Committee in which he managed the monthly morbidity and mortality conference. Dr. Roberts spends 25% of his time doing clinical work. He is a member of Endourology Division where he handles stone disease and endourological procedures. His clinical interests are kidney, ureter, and bladder stones, shockwave lithotripsy, ureteroscopy with laser lithotripsy, and percutaneous nephrolithotomy. His contributions as a clinician and surgeon are well respected within the University of Michigan and nationally.

External Reviewers:

Reviewer A: "...he received the Gold Cystoscope Award for his development of the new therapeutic technology known as 'histotripsy' (technically, it's pulsed cavitation ultrasound therapy). This award is presented annually to a urologist distinguished by outstanding contributions to the profession within ten years of completing residency training...His scholarly and professional niche is among the top 10% of this generation in our profession...Since he joined the University of Michigan faculty in 2004, his research projects and accomplishments have been funded with \$10,053,285 and documented in 65 peer-reviewed publications. If the University of Michigan decides not to promote Dr. Roberts to Professor with Tenure...ask him to call me."

Reviewer B: "With regard to the field of histotripsy, he has no peers while with respect to the broader topic of noninvasive tissue ablation, he is, in my opinion, one of the top five researchers internationally...Dr. Roberts has created a unique field of study in the realm of noninvasive tissue ablation. The potential of his work reaches far beyond the borders of Urology and has tremendous translational potential."

Reviewer C: "Overall I would characterize his research efforts to be both innovative and novel and of considerable significance in the field of Urology. He holds two patents with numerous others in process."

Reviewer D: "Dr. Roberts has led the development of a novel technique in urology that has the potential to make lasting changes to the way we treat prostate and kidney tumors as well as renal stones. Although the work is not yet clinical [sic] applicable, it has great promise and his role in its development is clearly an important and unique professional niche."

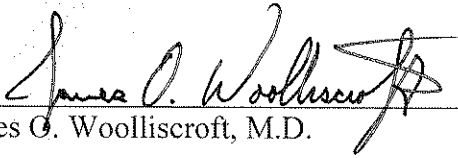
Reviewer E: "Very clearly, his academic productivity has been little short of outstanding, particularly in integrating basic biomedical engineering research with clinical application and development. His work has been truly translational in its impact, and of significant value in several foundational areas."

Reviewer F: "Dr. Roberts' work has had both national and international impact. Bioengineering is a relatively small field within urology but the potential impact of his work on the treatment of benign and malignant diseases of the prostate could be very significant...Dr. Roberts has

developed a significant research program that is innovative and potentially of high impact. He has progressed substantially over the years and is a leader in this field.”

Summary of Recommendation:

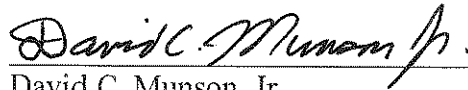
Dr. Roberts is a top flight endourologist, educator, and translational researcher. He is an important member of our urology and biomedical engineering teams. We wholeheartedly recommend William W. Roberts, M.D. for promotion to professor of urology, with tenure, Department of Urology, Medical School, and professor of biomedical engineering, without tenure, Department of Biomedical Engineering, College of Engineering and Medical School.



James G. Woolliscroft, M.D.

Dean

Lyle C. Roll Professor of Medicine



David C. Munson, Jr.

Robert J. Vlasic Dean of Engineering
College of Engineering

May 2015