Approved by the Regents May 15, 2014

PROMOTION RECOMMENDATION
UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF ORTHOPAEDIC SURGERY
COLLEGE OF ENGINEERING
DEPARTMENT OF BIOMEDICAL ENGINEERING

Kenneth M. Kozloff, Ph.D., assistant professor of orthopaedic surgery, Department of Orthopaedic Surgery, Medical School, and assistant professor of biomedical engineering, Department of Biomedical Engineering, College of Engineering and Medical School, is recommended for promotion to associate professor of orthopaedic surgery, with tenure, Department of Orthopaedic Surgery, Medical School, and associate professor of biomedical engineering, without tenure, Department of Biomedical Engineering, College of Engineering and Medical School.

Academic Degrees:

Ph.D.	2005	University of Michigan
M.S.	2000	University of Michigan
B.S.E.	1997	University of Michigan

Professional Record:

2008-present	Assistant Professor of Biomedical Engineering, University of Michigan
2007-present	Assistant Professor of Orthopaedic Surgery, University of Michigan

Summary of Evaluation:

Teaching: Dr. Kozloff has continuously increased his teaching portfolio each year interacting with undergraduates, medical students, and post-doctoral fellows. He has served as the dissertation chair for three Ph.D. students in his laboratory as well as a research advisor for an additional six master's degree students. He has been an active participant in the basic science curriculum for the Department of Orthopaedic Surgery since 2009. In 2010, Dr. Kozloff approached the Department of Biomedical Engineering with the goal of adding a Skeletal Physiology section to their Quantitative Physiology course, and has been teaching the Biomedical Engineering 419/519/Physiology 519: Skeletal Physiology section of this senior level undergraduate/graduate student course since that time. These lectures encompass topics that include bone structure-function, bone cell biology, calcium metabolism, and bone diseases and therapies. This led to the request to develop a condensed version of these lectures on "Bone Physiology" to the M1 medical students beginning in the fall of 2012. Most recently, he serves as a member of the Research Advisory Council in the Department of Orthopaedic Surgery. Dr. Kozloff demonstrates a commitment to mentorship, enthusiasm for teaching, and skill in cultivating multidisciplinary collaborations.

Research: Dr. Kozloff's research interests focus on defining regulators of bone mass, structure, and material properties as they relate to diseases of genetic, hormonal, or mechanical origin. The role of traditional and novel bone therapeutics in the modulation of bone quality is of particular interest due to the emergence of potential complications attributed to skeletal-drug interactions. Dr. Kozloff's unique expertise in the use of micro computed tomography and his training in molecular imaging provides him with the tools to test hypotheses that continue to be somewhat out of reach of most of his biomechanical peers. His work on the characterization of bone using a variety of novel tools has been outstanding and has already begun to make important translational contributions to the understanding of diseases ranging from osteogenesis imperfecta to osteoporosis. Due to his unique skill set and unparalleled motivation, he has been successful in obtaining continuous funding support from the NIH serving as the primary investigator and co-investigator on multiple R01 and R21 research studies. His ability to attract support from such agencies has allowed him the opportunity to translate this important work onto paper to advance the understanding of potential mechanisms associated with the maintenance or deterioration of bone's intrinsic property. As such, he is a productive investigator who has published over 20 articles, five as first or senior author, in the most important discipline-specific journals since his appointment to assistant professor in 2009. Dr. Kozloff was awarded the New Investigator Recognition Award by the Orthopaedic Research Society in 2010 and the Bone Quality and Fracture Prevention Research Symposium Young Investigator Award by the American Academy of Orthopaedic Surgeons/Orthopaedic Research Society in 2013.

Recent and Significant Publications:

Uveges TE*, Kozloff KM*, Ty JM, Ledgard F, Gronowicz G, Goldstein SA, Marini JC: Alendronate treatment of Brtl osteogenesis imperfecta mouse improves femoral geometry and load response before fracture but has detrimental effects on osteoblasts and bone formation and decreases predicted material properties. *Journal of Bone Mineral Research* 24:849-859, 2009. *Denotes co-first authors

Kozloff KM, Volakis LI, Marini JC, Caird MS: Near-infrared fluorescent probe traces bisphosphonate delivery and retention in vivo. *Journal of Bone and Mineral Research* 25:1748-1758, 2010.

Goulet GC, Halonen NR, Koch LG, Britton SL, Zernicke RF, Kozloff KM: Osteoblast response to ovariectomy is enhanced in intrinsically high aerobic capacity rats. *Calcified Tissue International* 88:325-335, 2011.

Davis MS, Kovacic BL, Marini JC, Shih, AJ, Kozloff KM: Increased susceptibility to microdamage in Brtl/+ mouse model for osteogenesis imperfecta. *Bone* 50:784-791, 2012.

Sinder BP, Eddy MM, Caird MS, Marini JC, Kozloff KM: Sclerostin antibody improves skeletal parameters in a Brtl/+ mouse model of osteogenesis imperfecta. *Journal of Bone and Mineral Research* 28:73-80, 2013.

Service: Dr. Kozloff is an active member in the American Society for Bone and Mineral Research, Orthopaedic Research Society, and Society for Molecular Imaging/World Molecular Imaging Society. He is an ad hoc reviewer for 19 journals, including the primary journals of his specific field: *Journal of Bone and Mineral Research*, *Journal of Orthopaedic Research*, and *Bone*. He has participated as an abstract reviewer, session organizer, moderator, and judge for conferences, including the poster chair for the 2013 American Society for Bone and Mineral Research Conference, and as the organizer and moderator at the 2013 World Molecular Imaging Congress meeting in Savannah, Georgia. He has participated in grant reviews for the Orthopaedic Research Education Foundation, and as an invited reviewer for grants from the University of Michigan, Yale, and Vanderbilt.

External Reviewers:

Reviewer A: "Dr. Kozloff is advancing our understanding of the role and regulation of bone quality. He uses new and innovative methods to identify critical mechanisms by which bone quality is compromised in skeletal disease and might be detected diagnostically or maintained....He is an outstanding collaborator and is eager to work with other investigators to move the entire field forward. He is genuinely at the forefront of the field and is well-known for his solid high-quality research."

Reviewer B: "Dr. Kozloff also has demonstrated a consistent history of funding that demonstrates clear potential for a long and successful research career....I would rank Dr. Kozloff in the top tier of his peers in orthopaedic research....He has been productive in publication and funding; his work is novel and has had a significant impact on the field; consequently, he has developed a national reputation in his field; and he has performed service activities in his national professional organizations."

Reviewer C: "...Ken has matured and developed into a rising star in the field of Orthopaedic Bioengineering and already established an independent research career....He is certainly a rising star in the field, who is recognized by a number of prestigious awards in the field...I believe that Ken already made significant impact in the field of bone fragility, advanced our science in metabolic functions of bone diseases, and is among the most promising musculoskeletal bioengineers [of his cohort] in the field."

Reviewer D: "Dr. Kozloff has been a significant contributor in the field of orthopaedic science. In particular his work in skeletal drug delivery, molecular imaging in bone, bone fragility and osteogenesis imperfecta have been cutting edge. I believe Dr. Kozloff's work is both scientifically critical in our understanding as well as highly creative."

Reviewer E: "The breadth and depth of his research program, ranging from molecular imaging to the assessment of bone quality, have allowed him to address novel hypotheses and will ensure longevity of his research findings. He has already made many important contributions to the field and, without a doubt, will continue his success in the future....It is also clear from his CV that Ken is a successful mentor and teacher to students and post-docs who thrive under his tutelage. The list of awards given to people working his lab is impressive."

Reviewer F: "A substantial strength of Dr. Kozloff's record is his success with NIH grant funding. He has received both R01 and R21 grants as a Principal Investigator, in addition to serving as a collaborator on further grants....The R01 grant is a real feather in his cap, particularly in the current funding environment, and signals the strength of this track record and preliminary data."

Summary of Recommendation:

Dr. Kozloff is an outstanding scientist with a unique skill set. His training in biomedical engineering coupled with his research focus in bone metabolic regulators positions him as a leader at the cutting edge of bone and mineral research. He embodies the expertise, collegiality and leadership that are required to be a successful researcher and mentor. For these reasons, we are pleased to recommend Kenneth M. Kozloff, Ph.D. for promotion to associate professor of orthopaedic surgery, with tenure, Department of Orthopaedic Surgery, Medical School, and associate professor of biomedical engineering, without tenure, Department of Biomedical Engineering, Medical School and College of Engineering.

James O. Woolliscroft, M.D.
Dean
Lyle C. Roll Professor of Medicine

David C. Munson, Jr.
Robert J. Vlasic Dean of Engineering
College of Engineering

May 2014