Approved by the Regents May 15, 2014

PROMOTION RECOMMENDATION
University of Michigan
College of Engineering
Department of Biomedical Engineering

Jan P. Stegemann, associate professor of biomedical engineering, with tenure, Department of Biomedical Engineering, College of Engineering and Medical School, is recommended for promotion to professor of biomedical engineering, with tenure, Department of Biomedical Engineering, College of Engineering and Medical School.

Academic Degrees:

Ph.D.	2002	Georgia Institute of Technology, Biomedical Engineering, Atlanta, GA
M.S.	1992	University of Toronto, Chemical Engineering, Toronto, ON, Canada
B.S.	1989	University of Toronto, Chemical Engineering, Toronto, ON, Canada

Professional Record:

2010-present	Associate Professor (with tenure) Department of Biomedical Engineering, University of Michigan
2008-2010	Associate Professor (without tenure) Department of Biomedical Engineering, University of Michigan
2002-2008	Assistant Professor, Department of Biomedical Engineering, Rensselaer Polytechnic Institute, Troy, NY
2004-2008	Adjunct Assistant Professor, Center for Cardiovascular Sciences, Albany Medical College, Albany, NY
2002-2002	Post-Doctoral Fellow, Institute for Bioengineering and Biosciences, Georgia Institute of Technology, Atlanta, GA

Summary of Evaluation:

Teaching: Professor Stegemann has been a leader in the educational mission of the Department of Biomedical Engineering as shown by his excellence in teaching, curriculum development, and mentoring at both undergraduate and graduate levels. Highlights of his teaching include development of BME 474 (Introduction to Tissue Engineering), and BME 584 (Advances in Tissue Engineering), and a new course BME 574 (Cells in their Environment). In the student teaching evaluations of all three courses he has taught since joining Michigan in 2009, Professor Stegemann has received outstanding scores with Q1 and Q2 all above 4.4 (most above 4.6). The third key contribution of Professor Stegemann was to take the baton from another faculty member and continue their successful course BME599 (Graduate Innovative Design in Biomedical Engineering). He helped to continue the offering of this core course in the Medical Product Development concentration in the BME M.S. program and did an outstanding job maintaining the tradition of meaningful projects, close collaboration with clinicians and researchers, dedicated mentoring, and impact to the healthcare services. Letters from undergraduate and graduate students are uniformly positive and laudatory.

Research: Professor Stegemann's research is centered on the use of extracellular environments to control cell function and on the development of engineered tissues. He represents a relatively rare example of a researcher who is an equally well respected member of both the biomaterials and tissue engineering communities. Professor Stegemann and his students have authored over 50 peer-reviewed manuscripts, 30 of which have appeared in the last five years and nearly all as senior author. The quality of the

journals for this work is very high, including *Acta Biomaterialia*, *Biomaterials*, and *Tissue Engineering*, with impact factors of 5.4, 8.5, and 4.1, respectively. He has contributed three book chapters during this same time period and has a total of four patents either awarded or pending. His work has been cited over 1760 times, and over 1400 times since 2008, generating an h-index of 21. Because of his ingenuity and innovation, Professor Stegemann has been able to secure significant and continuous funding to support his research from NIH, NSF, and numerous other agencies and foundations. He is currently the PI on three NIH grants, (an R01, and two R2ls), two NSF grants and a research grant from the AO Foundation. The reference letters provided to the committee by both internal colleagues and external reviewers and students unanimously praise Professor Stegemann.

Recent and Significant Publications:

Rao RR, Peterson AW and Stegemann JP, "Osteogenic differentiation of adipose-derived and marrow-derived mesenchymal stem cells in modular protein/ceramic microbeads," *Journal of Biomedical Materials Research A*, 101(6):1531-8, 2013. [PMCID: pending]

Voge CM, Johns J, Raghavan M, Morris MD and Stegemann JP, "Wrapping and dispersion of multiwalled carbon nanotubes improves electrical conductivity of protein-nanotube composite biomaterials," *Journal of Biomedical Materials Research A*, 101(1):231-8, 2013. [PMCID: pending]

Rao RR, Peterson AW, Ceccarelli J, Putnam AJ and Stegemann JP, "Matrix composition regulates three-dimensional network formation by endothelial cells and mesenchymal stem cells in collagen/fibrin materials," *Angiogenesis*, 15(2):253-64, 2012. [PMCID: PMC3756314]

Galie PA, Russell MW, Westfall MV and Stegemann JP, "Interstitial fluid flow and cyclic strain differentially regulate cardiac fibroblast activation via AT1R and TGF-β1," *Experimental Cell Research*, 318(1):75-84, 2012. [PMCID: PMC3221916]

Wang L, Stegemann JP, "Thermogelling chitosan and collagen composite hydrogels initiated with beta-glycerophosphate for bone tissue engineering," *Biomaterials*, 31(14):3976-3985, 2010. [PMCID: PMC2851195]

Service: Professor Stegemann's service efforts to the University of Michigan and beyond have been extensive. In addition to various search and planning committees for the department, he distinguished himself on the Undergraduate Education Committee which led to his appointment as associate chair for Biomedical Engineering (BME) undergraduate education. The latter includes membership on the BME Executive Committee. As part of his commitment to undergraduate education, he led the BME Department's successful ABET accreditation efforts. Concerning service external to the University of Michigan, he has been a key figure in the Society for Biomaterials (SFB). He was appointed as the education editor for the SFB newsletter publication entitled Biomaterials Forum. In 2011 he was elected to their Awards, Ceremonies, and Nominations Committee and subsequently elected as member-at-large (2013-14). This position places him on the SFB Program Committee, Long Range Planning Committee, Council and Board of Directors. Over the years, Professor Stegemann has undertaken extraordinary review duties for scientific publications and funding agencies such as NSF and NIH. He has reviewed 70 papers in the last five years for a long list of distinguished journals. During his time at Rensselaer Polytechnic Institute (RPI), prior to arriving at Michigan, he was a member of two NIH Study Sections, (Musculoskeletal Tissue Engineering, and Enabling Technologies for Tissue Engineering) during which he reviewed nearly 50 proposals. He serves as a Federal Advisory Committee Act (FACA) appointee to the Rehabilitation Research and Development Scientific Merit Review Board for the Veteran's Administration (May 2010-April 2014) and is currently chair of that review program.

External Reviewers:

Reviewer A: "My conclusion is that Jan has the intellect, energy, dedication, achievements and potential for qualification as Full professor, and I provide my strongest recommendation that he be so promoted."

Reviewer B: "Jan is a creative and productive biomaterials scientist and tissue engineer…He is very well respected in the biomaterials and stem cell engineering communities…I think that he is an excellent candidate for promotion to Full Professor."

Reviewer C: "…Jan has excelled in the development of polymeric biomaterials for tissue engineering applications. He has earned an outstanding international reputation for his scientific accomplishments and professional leadership…I give him my strongest recommendation and support."

Reviewer D: "Dr. Stegemann has already won many awards including Outstanding Achievement Award…Jan Stegemann shows ample evidence of providing service to the community and to his university…I'm confident he is a good teacher…Prof. Jan Stegemann is a deserving candidate for promotion to Full Professor. I recommend his without reservation."

Reviewer E: "Prof. Stegemann has made some interesting contributions to his field, evident in his publications, lectures, and recognitions. This trajectory is likely to continue, and as a result his accomplishments to date warrant promotion to professor."

Reviewer F: "His research is high quality, and has been at a high level for the past several years in terms of grant funding, peer-reviewed publications and mentoring of PhD and master's students. Dr. Stegemann has achieved national recognition for his work in biomaterials, cell-matrix interactions and regenerative medicine."

Summary of Recommendation: Professor Stegemann is a very prominent and very productive biomedical engineer who has made significant contributions to the field of biomedical engineering. He is an excellent teacher and mentor; and he is a leader who contributes both in external and internal service. It is with the support of the College of Engineering Executive Committee that I recommend Jan P. Stegemann for promotion to professor of biomedical engineering, with tenure, Department of Biomedical Engineering, College of Engineering and Medical School.

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

James D. Woolliscroft, M.D.
Dean, Medical School

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