Approved by the Regents
May 17, 2018

PROMOTION RECOMMENDATION
The University of Michigan
College of Pharmacy

James J. Moon, assistant professor of pharmaceutical sciences, College of Pharmacy, and assistant professor of biomedical engineering, Medical School and College of Engineering, is recommended for promotion to associate professor of pharmaceutical sciences, with tenure, College of Pharmacy, and associate professor of biomedical engineering, without tenure, Medical School and College of Engineering.

Academic Degrees:

Ph.D.	2008	Rice University, Houston, TX
B.S.	2002	University of California at Berkeley, CA

Professional Record:

2012 – present	John Gideon Searle Assistant Professor of Pharmaceutical Sciences and Assistant Professor, Department of Pharmaceutical Sciences, College of Pharmacy, University of Michigan
2012- present	Assistant Professor, Department of Biomedical Engineering, Medical School and College of Engineering, University of Michigan
2008 – 2012	Post-doctoral Fellow, Department of Materials Science and Engineering/Biological Engineering, Massachusetts Institute of Technology/Howard Hughes Medical Institute, Cambridge, MA

Summary of Evaluation:

Teaching: Professor Moon is a very dedicated teacher and an outstanding mentor. He has participated in teaching numerous courses covering subjects in the pharmaceutical sciences, cellular biotechnology, biomedical engineering, and chemical engineering. Student ratings of his didactic teaching are excellent, averaging 4.43 (on a 5-point scale) since joining the university in 2012. Professor Moon is an active and successful mentor, having advised eight post-doctoral fellows (and visiting scientists), nine Ph.D. students, four Pharm.D. students, two M.S. students, and 14 undergraduate students in his laboratory, in addition to serving on numerous dissertation committees. The achievements of his students and the honors they have received speak to the outstanding guidance provided by Professor Moon.

Research: Professor Moon is an outstanding scientist, who is gaining an international reputation for his work in the development of drug delivery systems designed to enhance immune functions in the context of cancer immunotherapy and infectious diseases. His interdisciplinary research program includes three major areas: 1) synthetic nanomaterials for vaccination against infectious pathogens; 2) nano-vaccines for personalized cancer vaccination; and 3) biomaterials for improving cancer immunotherapy. Professor Moon received the 2014 AAPS New Investigator Award in Pharmaceutics and Pharmaceutical Technologies and has been extremely successful in attracting external funding for his research, including several federal grants and others totaling

more than $5.7 million in direct costs. He has given 28 invited presentations and has published 40 papers in high quality peer-reviewed journals. He holds several U.S. patents, and his innovative work is highly cited. Professor Moon's work has high potential for translation to patient care.

Recent and Significant Publications:

Nam J, Son S, Moon JJ. Adjuvant-loaded spiky gold nanoparticles for activation of innate immune cells, DOI: 10.1007/s12195-017-0505-8, 2017, *Cellular and Molecular Bioengineering.*

Kuai R, Ochyl LJ, Bahjat KS, Schwendeman A and Moon JJ. Designer vaccine nanodiscs for personalized cancer immunotherapy. 16, 4, 489-496, 2017, *Nature Materials.*

Bailey BA, Ochyl LJ, Schwendeman SP, and Moon JJ. Towards a single dose vaccination strategy with self-encapsulating PLGA microspheres. DOI: 10.1002/adhm.201601418, 2017, *Advanced Healthcare Materials.*

Gao J, Ochyl LJ, Yang E, and Moon JJ. Cationic liposomes promote antigen cross- presentation in dendritic cells by alkalizing the lysosomal pH and limiting degradation of antigens. 12, 1251-64, 2017, *International J. Nanomedicine.*

Fan Y, Sahdev P, Ochyl LJ, Akerberg J, and Moon JJ. Cationic liposome-hyaluronic acid hybrid nanoparticles for intranasal vaccination with subunit antigens. 208, 121-9, 2015, *Journal of Controlled Release.*

Service: Professor Moon is an outstanding citizen of the university and his profession. In addition to serving on college and departmental committees, he led a team of faculty members last year in the development of a new annual high school outreach program through the Detroit Area Pre-College Engineering Program to connect youth from underrepresented communities to educational experiences in science, technology, engineering, and math (STEM) at the University of Michigan. As a recognized leader in the scientific community, Professor Moon has been invited to participate in NIH study sections for nanotechnology and HIV/AIDS. He is an associate editor for *Annals of Biomedical Engineering* (since 2014) and has served as a reviewer for numerous journals, including high impact *Science* and *Nature* journals. He is currently a member of seven professional societies, representing his interests in pharmaceutical sciences, biomedical engineering, and immunology. As a board member of the Korean-American Biomedical Engineering Society, he has participated in organizing its annual symposium every year since 2014. Last year, he served as the conference co-chair and organizer for the 15th International Nanomedicine and Drug Delivery Symposium (NanoDDS), which was hosted by the University of Michigan and very well received by over 300 participants.

External Reviewers:

Reviewer A: "Dr. Moon has developed a very impressive independent research program...The combination of his expertise [from] his PhD as well as his post-doctoral trainings has allowed him to create a unique scientific niche in the field of immune engineering and drug delivery. Based on the current interest in immuno-therapies for cancer, inflammatory diseases, and vaccines, Dr. Moon is uniquely positioned to further his research agenda...He has successfully mentored postdocs and graduate students in his own lab and many of them have received awards. Successful training of the next generation of pharmaceutical scientists is a true hallmark of an academic."

Reviewer B: "Dr. Moon has produced a strong body of scholarship on delivery platforms important in cancer vaccine and combination therapies with immunotherapeutics...Dr. Moon is

emerging as a thought leader in his field, contributing several influential review articles and a book chapter…Dr. Moon is one of most outstanding investigators among his peer and his approach to combination therapy of anticancer drug/vaccine/immunotherapy would impose significant impact in oncology if translated…He is an excellent citizen in the domestic and international scientific communities."

Reviewer C: "My impressions about the quality, quantity, focus, and scholarly impact of Dr. Moon's work are that they are outstanding in every respect. He has developed a research program that is quite interdisciplinary…this list of various disciplinary areas is itself coalescing into a new field that is coming to be known as Immune Engineering, and Dr. Moon sits squarely at its forefront…Dr. Moon's research contributions have been rigorous, creative, unique, and impactful… his recent paper in *Nature Materials* describing nanodiscs for anticancer vaccination was one of the most notable contributions in the field of Immune Engineering this past year."

Reviewer D: "Dr. Moon has been remarkably productive…He has established a top tier research program…In a fairly short period of time, he has established himself as arguably one of the top researchers [of his generation] working on biomaterials, drug delivery, and antigen delivery… Dr. Moon has made positive contributions noting development of an outreach program through the Detroit Area Pre-College Engineering Program. Service as the conference co-chair and organizer for NanoDDS 2017 is also noteworthy…He is top-notch talent that has established an active, visible and productive research program."

Reviewer E: "…Prof. Moon's achievements are stellar…His promotion dossier already surpasses a few that I have reviewed this year for promotion to Full Professor…He has three major areas within this theme…and is making strong impact in all of them…Prof. Moon's research program is well-funded and one of the most impressive hat I've seen of any investigator at any stage of his/her career…He co-organized the outstanding NanoDDS 2017 meeting, which I attended. The conference was one of the best I have attended in the field."

Reviewer F: "My overall impression of Dr. Moon is that he has implemented a complete program at University of Michigan…The manuscripts represent a very interdisciplinary approach…An H factor of 27 is very impressive for a scientist at this stage of their career…This novelty of his research findings has led him, with coworkers, to apply for and receive a number of patents (9). These patents are the backbone for translation of the concepts into products, so they provide a vehicle for amplifying the impact of His work…he has established excellent collaborators for these efforts."

Reviewer G: "Cancer immunotherapy is one of the hottest topics in the current drug/drug delivery community…Prof Moon is uniquely positioned to lead this field given his interdisciplinary training-material sciences and immunology, a rare yet powerful combination…Prof. Moon's scholarly achievement as a junior faculty member is already outstanding by any standard…Graduate student trainees in his laboratory have received numerous prestigious awards…he is a rising star in the field of nanomedicine and immunotherapy and a very important colleague in the drug delivery community."

Summary of Recommendation:

Professor Moon is an outstanding scientist and dedicated teacher, mentor, and citizen of his profession. It is with the support of the College of Pharmacy, the Medical School and the College of Engineering, that we recommend James J. Moon for promotion to associate professor of pharmaceutical sciences, with tenure, College of Pharmacy, and associate professor of biomedical engineering, without tenure, Medical School and College of Engineering.

James T. Dalton
Dean, College of Pharmacy

Marschall S. Runge, M.D., Ph.D.
Executive Vice President for Medical Affairs
Dean, Medical School

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