

PROMOTION RECOMMENDATION
The University of Michigan
College of Pharmacy

Approved by the
Regents
May 21, 2015

Gustavo R. Rosania, associate professor of pharmaceutical sciences, with tenure, College of Pharmacy, is recommended for promotion to professor of pharmaceutical sciences, with tenure, College of Pharmacy.

Academic Degrees:

Ph.D.	1996	Harvard University, Cambridge, MA
B.S.	1989	Stanford University, Stanford, CA

Professional Record:

2008-present	Associate Professor (with tenure), Department of Pharmaceutical Sciences, College of Pharmacy, University of Michigan
2001-2008	Assistant Professor (without tenure), Department of Pharmaceutical Sciences, College of Pharmacy, University of Michigan
1999-2001	Scientist, Cellomics, Inc., Pittsburgh, PA
1997-1999	Research Associate, Howard Hughes Medical Institute (Department of Chemistry, University of California, Berkeley, CA)

Summary of Evaluation:

Teaching: Professor Rosania is a very dedicated and innovative educator in our Pharm.D., graduate, and undergraduate programs. He engages students in the Pharm.D. program with active learning techniques and challenges them to learn and apply critical thinking and problem solving skills. His non-traditional teaching style is valued for its creativity. One example in our graduate program is the journal club course he initiated, which is very popular among our students. Professor Rosania's commitment to teaching excellence is evidenced by the steady improvement of his teaching evaluation scores, which have risen to an average of 4.0-4.7 on a 5-point scale. In addition, his commitment to teaching is demonstrated through his work on the B.S. in pharmaceutical sciences program and on the college's Curriculum Committee, which led the establishment and implementation of a significantly revised Pharm.D. curriculum over the past several years. Professor Rosania has been a successful mentor as evidenced by the success of his students and trainees, who have achieved many honors. He has graduated six Ph.D. students, each with excellent publication records (4-9 articles each). In all, he has supervised nine Ph.D. students, six post-doctoral research fellows, 14 undergraduate students, eight Pharm.D. students, and one visiting scientist in his laboratory.

Research: Professor Rosania is an outstanding scientist who has earned an international reputation for his novel research. He has a great passion for science and has established a thriving program to explore how drug efficacy and toxicity are influenced by the microscopic transport properties of drug molecules inside cells, independently from the drug's extracellular concentrations or its systemic macrodistribution in the different organs of the body. A unique aspect is the translational and collaborative nature of Professor Rosania's work, which may lead

from his laboratory to the testing of new therapies in the clinical setting. Professor Rosania's work is supported by sustained external funding, including a Presidential Early Career Award for Scientists and Engineers and grants from NIH and non-federal sponsors. He has published 57 peer-reviewed articles in high quality journals, serving as the first or senior author on 41 of them, and he has applied for six patents. The significant impact of his work is demonstrated by the numerous invited presentations he has given nationally and internationally.

Significant Publications:

- Kyoung Ah Min; Xinyuan Zhang; Jing-Yu Yu; Gus R. Rosania Computational approaches to analyze and predict small molecule transport and distribution at cellular and subcellular levels. *Biopharmaceutics and Drug Disposition*. 2014;35(1):15-32.
- X. Chu; K. Korzekwa; R. Elsby; K. Fenner; A. Galetin; Y. Lai; P. Matsson; A. Moss; S. Nagar; G.R. Rosania; J.P.F. Bai; J.W. Polli; Y. Sugiyama; K.L.R. Brouwer Intracellular drug concentrations and transporters: Measurement, modeling, and implications for the liver. *Clinical Pharmacology and Therapeutics*. 2013;94(1):126-141
- Kyoung Ah Min; Arjang Talattof; Yasuhiro Tsume; Kathleen A. Stringer; Jing-Yu Yu; Dong Hyun Lim; Gus R. Rosania The extracellular microenvironment explains variations in passive drug transport across different airway epithelial cell types. *Pharmaceutical Research*. 2013;30(8):2118-2132
- Kyoung Ah Min; Meong Cheol Shin; Faquan Yu; Meizhu Yang; Allan E. David; Victor C. Yang; Gus R. Rosania Pulsed magnetic field improves the transport of iron oxide nanoparticles through cell barriers. *ACS Nano*. 2013;7(3):2161-2171
- Jason Baik; Kathleen A. Stringer; Gerta Mane; Gus R. Rosania Multiscale distribution and bioaccumulation analysis of clofazimine reveals a massive immune system-mediated xenobiotic sequestration response. *Antimicrobial Agents and Chemotherapy*. 2013;57(3):1218-1230

Service: Professor Rosania is an excellent citizen within the scientific community and the University. He serves on the editorial advisory boards of four journals and as a reviewer for numerous prestigious journals. He also serves as a reviewer for a number of grant review panels, particularly at NIH and internally here at UM for MICHR. He has served as session chair for a Gordon Research Conference and Symposium Chair at the American Association of Pharmaceutical Scientists (AAPS). Professor Rosania has served as a co-director of the Michigan Alliance for Cheminformatics Exploration (2005-2011) and has served on several college committees, including the Curriculum Committee. He provides service to his department through various committee assignments and involvement in activities such as student and faculty recruitment. He has served on 29 Ph.D. dissertation committees thus far. Professor Rosania is very engaged in college and departmental activities.

External Reviewers:

Reviewer A: "Dr. Rosania's research has been well-supported by grants...this research may be very impactful, as it may lead to improved methods for drug design and for candidate selection...Dr. Rosania's teaching has been well received, particularly with respect to his teaching within the graduate program...By his broad range of service, inside and outside of the University, it is clear that Dr. Rosania [is] willing to contribute his time and talents to the greater good."

Reviewer B: “Dr. Rosania’s CV clearly demonstrates his commitment to education....Student evaluations included in the package are excellent....I rank Dr. Rosania as an outstanding educator....he has shown leadership and impact at the national level....Dr. Rosania has a respected research program, and has made significant impact in his field (as shown by his impact scores and citations). He continuously published in high quality journalsHe has given a large number of invited talks at national meetings and other institutions, showing the regard in which he is held.”

Reviewer C: “I was quite impressed with his accomplishments....This is what impressed me about Gus’s [sic] research program. He understood the chemical aspect of subcellular transport enough to generate novel research tools that were desperately needed for this field progress beyond short descriptions of superficial observations....He, unlike many in the transport field, was not afraid of the complexities of the immune response and has undertaken significant initiative to consider its role in transport processes in healthy and diseased states. Gus’s [sic] unique ability to generate and interpret data from multiple disciplines in order to provide a practical application of subcellular transport is also evident in his teaching activities....Gus’s [sic] enthusiasm for training students to use the basic sciences to understand and solve clinical problems is evident.... In reviewing Gus’s [sic] dossier, I found myself thinking of how early pioneers of drug transport dossiers would look and I suspect that their achievements would not be much different from Gus’s [sic].”

Reviewer D: “Dr. Rosania’s independent research and academic achievement are fully supported by his publications and federal grant support....I value his drug bioaccumulation work as world class, as there are not too many investigators have reached such high level....I would value his teaching as excellent.”

Reviewer E: “Dr. Rosania’s papers represent important research which reveals novel experimental facts that are essential and may contribute a substantial amount of knowledge in the fields of study....Dr. Rosania’s research publications are an impeccable credential and highly innovative....He has attained a high degree of visibility and stature as an expert in his field....All of the aforementioned accomplishments provide the evidence that Dr. Rosania is a highly qualified, world-recognized independent scientist and his scholarly contribution has an outstanding impact in the field.”

Reviewer F: “He has introduced active learning in this course and really engages the student in discussion in class....He has been a mentor for several graduate students....Many of them have won awards at meetings....Dr. Rosania’s commitment to teaching is obvious from his utilization of active learning in class; his expertise in research is obvious from the number of publications in peer reviewed journals, number of invited talks that he has given, number of journals he is a reviewer, and his current research focus being in an important and interesting area.”

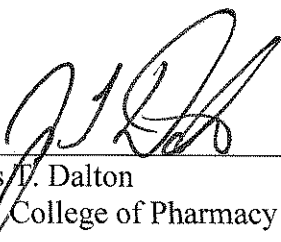
Reviewer G: “Dr. Rosania’s research program...uniquely applies state-of-the-art methodologies....He is clearly at the forefront in developing new methods to characterize and model intracellular drug accumulation and aggregation, a research area that is important for drug pharmacokinetics, efficacy and toxicity but yet remains largely unexplored in pharmaceutical research....Dr. Rosania has pioneered the development of computational models to predict cell-

based intracellular drug transport kinetics....Dr. Rosania has clearly garnered a high level of national and international recognition.....demonstrates an excellent record of mentoring... . Dr. Rosania has done an excellent job in providing services at university, national and international levels... . He has emerged as a world class leader and educator in pharmaceutical sciences.”

Reviewer H: “Prof. Rosania’s research program impresses me as well balanced, combining biology, chemistry, instrumental analysis, and computer modeling. The breadth of his scholarly pursuit has extended into such diverse communities as AAPS and IEEE.”

Summary of Recommendation:

Professor Rosania is an outstanding scientist who is making a significant impact in the discipline of pharmaceutical sciences. He is a very dedicated and innovative educator and an excellent citizen of his profession, college, and university. It is with the support of the College of Pharmacy Executive Committee that I recommend Gustavo R. Rosania for promotion to professor of pharmaceutical sciences, with tenure, College of Pharmacy.



James T. Dalton
Dean, College of Pharmacy

May 2015