

## PROMOTION RECOMMENDATION

The University of Michigan  
School of Dentistry

Christopher Amir Nosrat, assistant professor of dentistry, School of Dentistry, is recommended for promotion to associate professor of dentistry, with tenure, School of Dentistry.

### Academic Degrees:

DDS	1994	Karolinska Institutet
PhD	1997	Karolinska Institutet
Postdoctoral	1999	Karolinska Institutet

### Professional Record:

1990 – 1998	Lecturer, Department of Neuroscience, Karolinska Institutet
1999 – present	Assistant Professor, Department of Biologic and Materials Sciences, University of Michigan, School of Dentistry

### Summary of Evaluation:

Teaching: Dr. Nosrat's teaching record has gone beyond the typical expectation for an assistant professor. The extent of his teaching across DDS, MS and PhD levels, and in laboratory mentoring is impressive, and the quality is very high as indicated by the very positive evaluations from students and peer commentary. He has assumed a key role in teaching oral neurobiology across the various levels of the School curricula. He became the course director of a graduate core course and most recently requested the opportunity to direct the nervous system module of the new Integrated Medical Sciences I (IMS I) course. Dr. Nosrat has an in-depth interest in problem-based learning and has been successful in using this approach within the newly designed IMS teaching module. He has mentored 19 students ranging from PhD, DDS, MS, and multiple undergraduate research students. It is important to note that Dr. Nosrat's publication record includes a shift from mostly first-authored papers to mainly final authored papers. This indicates a progression of mentoring in his laboratory by giving the more junior students and post-docs the first author standing. Dr. Nosrat has established a record of excellence in teaching appropriate if not exceeding the expectations for promotion to associate professor.

Research: Dr. Nosrat's research productivity is excellent as measured by internal and external funding and numbers of peer-reviewed journal articles. He has sustained a research trajectory in developmental neurobiology related to sensory systems of taste and oral sensation, and dental pulp stem cell biology that support his recommendation for advancement. He brings a unique research focus to the School and University, and positions himself to make important contributions in the research communities. Dr. Nosrat overcame several obstacles transitioning to academic life and culture in the US, especially that of the NIH grant application process. However, that did not deter his progress as he has established an exemplary record of research funding. He obtained University of Michigan grants from the Rackham School of Graduate Studies, the Phoenix Memorial Project, and the Office of the Vice President for Research. He also competed for and received a National Institute for Dental and Craniofacial Research, NIH, RO3 grant, and based on work he accomplished with that funding, he applied for and received an

ROI from the National Institute on Deafness and Other Communication Disorders. In addition, his ability to obtain NIH funding after moving here from the European research culture and funding environment is an example of his adaptability, intelligence and creativity. Since his arrival at Michigan, he has published 11 journal articles in peer-reviewed journals, with one in press. Represented in the publication list are papers in outstanding journals that include the *Journal of Neuroscience*, the *Journal of Biological Chemistry*, the *Journal of Comparative Neurology*, and *Development*. He has given 11 invited lectures or seminars, both nationally and internationally which attests to his expertise and leadership in his field.

Recent and Significant Publications:

1. **Nosrat, C.A.**, Blomlöf, J., Elshamy, W.M., Ernfors, P., Olson, L. Lingual deficits in BDNF and NT3 mutant mice leading to gustatory and somatosensory disturbances, respectively, *Development* 124:1333-1342, 1997.
2. Ringstedt, T., Ibáñez, C.F., **Nosrat, C.A.** Role of BDNF in target invasion in the gustatory system, *Journal of Neuroscience* 19:3507-3518, 1999.
3. **Nosrat, C.A.**, MacCallum, D. K., Mistretta, C.M. Distinctive spatiotemporal expression patterns for neurotrophins develop in gustatory papillae and lingual tissues in embryonic tongue organ cultures, *Cell & Tissue Research* 303:35-45, 2001.
4. Nosrat, I.V., Widenfalk, J., Olson, L., **Nosrat, C.A.** Dental pulp cells produce neurotrophic factors, interact with trigeminal neurons in vitro and rescue motoneurons after spinal cord injury, *Developmental Biology* 238:120-132, 2001.
5. Nosrat, I.V., Seiger, A., Olson, L., **Nosrat, C.A.** Expression patterns of neurotrophic factor mRNAs in developing human teeth, *Cell & Tissue Research* 310:177-187, 2002.
6. Agerman, K., Hjerling-Leffler, J., Blanchard, M.P., Scarfone, E., Canlon, B., **Nosrat, C.A.**, Ernfors, P. BDNF gene replacement reveals multiple mechanisms for establishing neurotrophin specificity during sensory nervous system development, *Development* 130:1479-1491, 2003.
7. Nosrat, I.V., Smith, C.A., Mullally, P., Olson, L., **Nosrat, C.A.** Dental pulp cells provide neurotrophic support for dopaminergic neurons and differentiate into neurons in vitro; implications for tissue engineering and repair in the nervous system, *European Journal of Neuroscience* 19:2388-2398, 2004.
8. Nosrat, I. V., Agerman, K., Marinescu, A., Ernfors, P., and **Nosrat, C.A.** Lingual Deficits in Neurotrophin Double Knockout Mice, *Journal of Neurocytology*. [In press]

Service: Dr. Nosrat has contributed significantly in the area of service at the department, school, university and national levels. At the department level he participated in efforts to acquire and maintain core laboratory equipment, and participated on a national search committee; for the School he served on the Academic Review Board and on the Dental Informatics Advisory Group; for the University he served as a member and later chaired the Organogenesis, and the Hearing, Balance and Chemical Senses Seminar Committees. He has also been on the Sensory Node Microarray Advisory Committee, and served for two years on the Admissions Committee of the University-wide Neuroscience Program; this entails detailed review and subsequent lengthy committee meetings for presentation and discussion of more than 80 applications per year. He is a member of the Society of Neuroscience and the Association for Chemoreception Sciences, and regularly presents his work at these annual meetings.

External Reviewers:

Reviewer (A)

"I have no hesitation in recommending Dr. Nosrat for promotion with tenure. He advanced two fields significantly over a short period of time and I expect that he will continue to do so. He clearly is not mired in a single technique or system."

Reviewer (B)

"I feel that Christopher is a very talented and innovative scientist who will contribute substantially to the field in the coming years. One of his greatest assets is his unbridled enthusiasm for science."

Reviewer (C)

"I believe Dr. Nosrat's research program is excellent, particularly his work on, 1) the role of trophic factors on craniofacial development 2) the potential use of dental pulp cell grafts to provide trophic factors for the CNS. [Central Nervous System] These studies have provided important and innovative data on how trophic factors influence development of craniofacial structures."

Reviewer (D)

"Christopher has had excellent research training in cell and molecular biology at the Karolinska Institute, and has done some very elegant work that is published in top ranked journals. Christopher is an enthusiastic, hard working, personable individual who get along well with other people."

Reviewer (E)

"The point here is that, because of his engaging manner and creativity, Chris is an important catalyst among his colleagues at the national and international level as well as at his home institution. In short, it is difficult to imagine a better ambassador for the University of Michigan, School of Dentistry."

Reviewer (F)

"He produces the highest quality work and he publishes in very well-respected journals. My belief is that his publications have a very large impact on the field of sensory neurobiology and I suspect that his more recent work with dental pulp cells will have an equally positive impact on the relevant scientific fields."

Summary of Recommendation: Dr. Nosrat has clearly demonstrated that he has the energy, passion and competitive spirit needed to maintain a long and productive academic career. It is with the support of the Appointments, Promotion and Tenure and Executive Committees that I recommend him for promotion to associate professor of dentistry with tenure.



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Peter J. Polverini, DDS, DMSc  
Dean, School of Dentistry

May 2006