

Approved by the Regents
May 14, 2009

PROMOTION RECOMMENDATION
UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF MOLECULAR AND INTEGRATIVE PHYSIOLOGY

Jimo Borjigin, Ph.D., assistant professor of molecular and integrative physiology, Medical School, is recommended for promotion to associate professor of molecular and integrative physiology, with tenure, Department of Molecular and Integrative Physiology, Medical School.

Academic Degrees:

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| 1994 | Ph.D. | Johns Hopkins University |
| 1986 | M.S. | Tohoku University, Sendai, Japan |
| 1984 | B.S. | Tohoku University, Sendai, Japan |

Professional Record:

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| 2003-present | Assistant Professor of Molecular and Integrative Physiology, University of Michigan |
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Summary of Evaluation:

Teaching: Dr. Borjigin has excelled in all facets related to education, including classroom and laboratory teaching, chairing and participating in student dissertations and committee meetings. She has also developed and directed a new student/postdoctoral fellow/faculty seminar series and provided instruction inside and outside the University to investigators requesting training on the use of a unique automated in vivo pineal microdialysis set-up that she has pioneered that has received broad acclaim. Her teaching in the classroom from 2004-2008 is extensive. One recent highlight is the course Neuroscience 602/616 "Neurobiology of Circadian Rhythms" (Winter 2008) which was established, directed and taught by Dr. Borjigin and involved lecture and contact time of 59 hours in a class that included 15 graduate students. She is currently mentoring one Ph.D. graduate student and has mentored one student who received an M.S. degree and three postdoctoral trainees. During the past five years, she has chaired six preliminary examination committees for graduate students in physiology, and served on dissertation committees of five additional graduate students in Ph.D. programs in physiology and neuroscience. Her student teaching evaluations are excellent and include excerpts such as "Dr. Borjigin helped us to expand our ideas and apply them to daily life" and "very interactive and helpful with questions."

Research: Since arriving at the University of Michigan in 2003, Dr. Borjigin has built a national and international reputation in the circadian rhythm field. Her work is helping our understanding of the molecular determinants that affect jet lag, and probing the physiologic basis for classifying humans as "early birds" versus "night owls." Her growing scholarly stature is supported by 27 original peer-reviewed manuscripts, six review articles, three book chapters and a recent invitation to serve as a special issue guest editor to be published in 2009 in *Reviews in Endocrine and Metabolic Disorders*. Furthermore, she is a member of the editorial boards of the *Journal of Pineal Research* which is a leading journal in neurosciences, and an additional new journal established in 2007 (*The Open Physiology Journal*). She has also served as an ad hoc reviewer

for the National Science Foundation (annually from 2004-present) and has been highly successful in securing national research support as a principal investigator including an NIH R01 (2007-2012) and an Air Force grant (2008-2011).

Recent and Significant Publications:

Liu C, Li S, Liu T, Borjigin J, Lin J: Transcriptional coactivator PGC-1 α integrates the mammalian clock and energy metabolism. *Nature* 447:477-482, 2007.

Liu T, Borjigin J: Relationship between nocturnal serotonin surge and melatonin onset in rodent pineal gland. *J Circadian Rhythms* 4:1-12, 2006.

Liu T, Borjigin J: N-acetyltransferase is not the rate-limiting enzyme of melatonin synthesis at night. *J Pineal Res* 39:91-96, 2005.

Ahmed S, Deng J, Borjigin J: A new strain of rat for functional analysis of PINA. *Mol Brain Res* 137:63-69, 2005.

Liu T, Borjigin J: Reentrainment of the circadian pacemaker through three distinct stages. *J Biol Rhythms* 20:441-450, 2005.

Service: Dr. Borjigin has an outstanding record of service at the University of Michigan. This includes her contributions in the Department of Molecular and Integrative Physiology as a: (i) member of the Graduate Committee for a three-year term (2004-2007), (ii) organizer and coordinator of the Department's weekly seminar series (2007-present), and (iii) member of the Space Committee. At the School level, Dr. Borjigin served or continues to serve in the International Student Admissions Committee (2004-2007), the Rackham Pre-doctoral Award Selection Committee (2008-present), and the Science and Technology Excellence Program (STEP) Committee (2007-present). Her involvement in the STEP program includes the organization of a highly successful and popular monthly meeting with the primary and secondary appointment assistant professor faculty. This is in line with Dr. Borjigin's reputation as a team player.

External Reviews:

Reviewer A: "She is well-funded, she publishes consistently, she is an active teacher, and she is engaged nationally in scientific meetings and peer-review. I would rank her in the top 10% of Assistant Professors at her stage of career..."

Reviewer B: "I consider her a true star and a continual guiding force for future discoveries in circadian biology research. I am confident that you will not find a more qualified individual to promote to Associate Professor with tenure."

Reviewer C: "Dr. Borjigin has received national and international recognition for her scholarly accomplishments. She has developed into an independent scholar who has been invited to give important talks at prestigious conferences and has kept a steady level of funding for her laboratory and publications in esteemed peer review journals."

Reviewer D: “Dr. Borjigin and her team have developed a spectacular new technique of collecting melatonin profiles (the circadian rhythm of melatonin) from individual rats for many sequential days (long-term pineal microdialysis). This technique is completely original and provides a unique look at the workings of the circadian clock....The answer to the question of whether Dr. Borjigin would be promoted to Associate Professor at my institution is absolutely yes! In fact, she’s close to being eligible for promotion to Full Professor her given her funding history, high quality research and teaching.”

Reviewer E: “...Dr. Borjigin’s record of research and scholarship is excellent regardless of area of specialization. With more than two dozen peer-reviewed publications (including two articles in *Nature* and four in the *Proceedings of the National Academy of Sciences*) and almost four million dollars in NIH and Air Force research funding, she is a successful assistant professor regardless of area of specialization....This is a faculty member that you should be proud to have.”

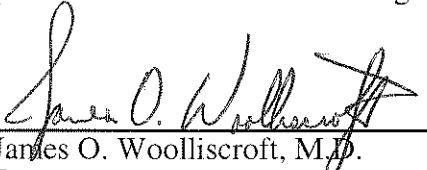
Reviewer F: “Firstly, Dr. Borjigin has the fortitude to not accept the norm, but to challenge conventional wisdom and, secondly, she has ultimate confidence in her abilities and research methods. I feel there are few individuals at her stage of development that would make such a bold move. Her findings in this area have ‘pole vaulted’ her into a position of respective [sic] and authority among individuals in the melatonin field of research.”

Reviewer G: “...I predict that she will be a scientific, educational, and administrative leader in chronobiology (internationally); I would already rank her among the top few in her cohort in our field in the world.”

Reviewer H: “Dr. Borjigin would definitely be promoted to Associate Professor at [my institution]. I expect she will make many important scientific advances in the future. She is an outstanding scientist.”

Summary of Recommendation:

Dr. Jimo Borjigin is an outstanding candidate for promotion to associate professor, with tenure, in the Department of Molecular and Integrative Physiology. She is an excellent teacher and is on the appropriate trajectory in terms of her scholarly productivity and ability to secure national research grant support. She has become a nationally and internationally recognized investigator in the field of circadian rhythm to which she has been able to develop novel tools for monitoring and analysis. I am pleased to recommend Dr. Borjigin for promotion to associate professor of molecular and integrative physiology, with tenure.



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

May 2009