Approved by the Regents

May 17, 2007

PROMOTION RECOMMENDATION
UNIVERSITY OF MICHIGAN MEDICAL SCHOOL
DEPARTMENT OF HUMAN GENETICS
DEPARTMENT OF PEDIATRICS AND COMMUNICABLE DISEASES

Jeffrey W. Innis, M.D., Ph.D., Associate Professor of Human Genetics, with tenure, Department of Human Genetics, and Associate Professor of Pediatrics and Communicable Diseases, without tenure, Department of Pediatrics and Communicable Diseases, Medical School, is recommended for promotion to Professor of Human Genetics, with tenure, Department of Human Genetics, and Professor of Pediatrics and Communicable Diseases, without tenure, Department of Pediatrics and Communicable Diseases, Medical School.

Academic Degrees:

M.D.	1985	University of Miami
Ph.D.	1983	University of Miami
B.S.	1980	Florida Atlantic University

Professional Record:

1998–Present	Associate Professor of Human Genetics and Associate Professor of Pediatrics and Communicable Diseases, University of Michigan
1991–1998	Assistant Professor of Human Genetics and Assistant Professor of Pediatrics and Communicable Diseases, University of Michigan

Summary of Evaluation:

Teaching: Dr. Innis is an outstanding teacher. He teaches cutting edge research methods in genetics at the graduate level (HG803, HG804) and routinely receives high praise from students for his engaging manner and ability to stimulate critical thinking. He has mentored graduate students who are now in faculty positions at respected institutions, and the quality of his trainees is praised in the letters of evaluation. He participates in teaching medical students (M1 and M3 modules) and house officers. He is highly respected for his clinical teaching skills and built the Medical Genetics Residency Program at University of Michigan.

Research: Dr. Innis' research is focused on the molecular genetics of mammalian limb malformations and in homeobox gene function. He identified the first spontaneous mutations in mice and human homeobox genes that are responsible for limb and urogenital malformations. He has taken this deeper and elucidated the underlying mechanisms of abnormal body patterning. He has published extensively on human multiple congenital anomaly and mental retardation syndromes. His future studies emphasize a novel mutation that causes ectopic limbs and genitalia in mice. Human patients with similar features have been described. The manifestations of this mutation are intriguing because there is a high degree of variability in the severity and positioning of the misplaced structures, suggesting that a novel type of gene causing birth defects may be discovered this way. This work was recently featured on the cover of *Mammalian Genome*. Dr.

Innis' accomplishments as a basic scientist were recognized this year by receipt of the Dean's Award for Basic Science Research. In addition to his outstanding research, Dr. Innis has devoted himself to scholarly activity related to pediatric genetics board certification and served on prestigious NIH study sections, including his recent appointment as a permanent member of the "Genetics of Human Disease" study section.

Recent and Significant Publications:

Lehoczky J, Cai W-W, Douglas J, Moran J, Beier D, Innis JW: Description and genetic mapping of *Polypodia*: An X-linked dominant mouse mutant with ectopic caudal limbs and other malformations. Mammalian Genome 17:903-913, 2006.

Williams ME, Lehoczky JA, Innis JW: A group 13 homeodomain is neither necessary nor sufficient for posterior prevalence in the mouse limb. Developmental Biology 297:493-507, 2006.

Williams TM, Williams ME, Kuick R, Misek D, McDonagh K, Hanash S, Innis JW: Candidate downstream regulated genes of HOX group 13 transcription factors with and without monomeric DNA binding capability. Developmental Biology 279:462-480, 2005.

Innis JW, Mortlock DP, Chen Z, Ludwig M, Williams ME, Williams TM, Doyle CD, Shao Z, Glynn M, Mikulic D, Lehmann K, Mundlos S, Utsch B: Polyalanine expansion in HOXA13: Three new affected families and the molecular consequences in a mouse model. Human Molecular Genetics 13:2841-2851, 2004.

Lehoczky JA, Williams ME, Innis JW: Conserved expression domains for genes upstream and within of *HoxA* and *HoxD* clusters suggests a long-range enhancer existed prior to cluster duplication. Evolution and Development 6:423-430, 2004.

Service: Dr. Innis has done a heroic amount of service that has added to his national reputation. This includes national service on GHD, DEV-1, and NIGHMS Special NIH study sections, American Board of Medical Genetics, and American Society of Human Genetics. He has served above and beyond the call of duty locally including the Microarray Advisory Committee, Bioinformatics Program, Center for Statistical Genetics, faculty search committees, Scientific Advisory Committee for Child Health Research Center Grant, director of quality control in Pediatric Genetics, and numerous other search committees and review teams.

Professional Work: Dr. Innis' clinical contributions are extensive, including Division Director of Pediatric Genetics, Medical Genetics Residency Program Director, Pediatric Inpatient ward attending, outpatient clinic, biochemical genetics clinic and inpatient call, inpatient genetic consultation service, genetics outreach clinic, and pediatric newborn nursery genetics. He receives high praise for improving the throughput and quality of patient care through his leadership in the Division. To obtain re-accreditation of the residency program Dr. Innis recruited a physician specialized in biochemical genetics and established a diagnostic laboratory on site that will enhance patient care.

External Review:

Reviewer A: "I know of very few physician scientists who have been able to combine both clinical activities and basic research as successfully as Jeff. Most researchers work only in model organisms, or only in human genetics. Jeff has been able to move back and forth between model organisms and human genetics, translating basic molecular studies into a much deeper understanding of molecular mechanisms of human disease."

Reviewer B: "Dr. Innis represents the embodiment of the classic physician-scientist, and I am confident he will contribute to both basic investigation and clinical medicine for many years to come....Dr. Innis' niche is clearly that of a physician-scientist who has an active clinical practice, teaches extensively, and pursues basic research – a true 'triple threat.' It is notable how his activities are synergistic, each informing the others. It is also notable that this phenotype is increasingly rare."

Reviewer C: "Jeff is the consummate physician scientist. He is a dedicated and skilled clinician, teacher and scientist....Many of his former trainees hold tenure-track faculty appointments at Michigan or other outstanding institutions...and have secured independent NIH funding of their own. This accomplishment is probably the best testament to Jeff's role as a mentor and teacher. I am truly impressed by the number and quality of those he has trained!"

Reviewer D: "In my opinion, Dr. Innis is the closest approximation to the so-called 'triple threat' in academic medicine that I have witnessed. Indeed, his contributions in the research, clinical and pedagogical areas are uniformly of the highest quality....the Medical Genetics Program at the University of Michigan Medical School is widely acknowledged as one of the premiere programs in the country. This directly reflects Jeff's professionalism and leadership ability....I regard Dr. Jeffery Innis as a consummate scholar, researcher, clinician and teacher–a combination the likes of which are not easily found in contemporary academic medicine. He is a fine colleague with the highest standards of intellectual honesty and altruism. I can state unequivocally that he enjoys great respect outside your institution."

Reviewer E: "Jeff's work is creative and addresses fundamental issues of great import....A hallmark of Jeff's research is that it is high-quality, probes key issues and helps to shape the way we think about a problem....His research discoveries and accomplishments are impressive and widely appreciated in the scientific community. He is a world leader and admired for his skills and knowledge."

Summary of Recommendation:

Dr. Innis is a "triple threat" in that he excels in clinical practice, teaching, and basic research. Each of his activities enriches the other. He has an international reputation for his research in limb development and ability to translate findings in animals to clinical practice. He is an outstanding citizen in service to the University of Michigan, not only within the Departments of Human Genetics and Pediatrics, but also at a broader level through participation in Bioinformatics and other interdisciplinary programs. He also contributes extensively at the national level, serving on NIH study sections for basic research and the American Board of Medical Genetics, giving

oversight to clinical qualifications. Dr. Innis is clearly an exceptional individual. I enthusiastically support his promotion to Professor of Human Genetics and Professor of Pediatrics and Communicable Diseases.

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

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