Approved by the Regents
May 14, 2009

PROMOTION RECOMMENDATION
The University of Michigan
School of Public Health
Department of Biostatistics

Gonçalo Abecasis, associate professor of biostatistics, with tenure, Department of Biostatistics, School of Public Health, is recommended for promotion to professor of biostatistics, with tenure, Department of Biostatistics, School of Public Health.

Academic Degrees:

D.Phil	2001	Queen's College, Oxford
B.Sc. (Honours)	1997	University of Leeds

Professional Record:

2005-present	Associate Professor, Department of Biostatistics, University of Michigan
2002-2005	Assistant Professor, Department of Biostatistics, University of Michigan
2001-2002	Assistant Research Scientist, Department of Biostatistics, University of Michigan

Summary of Evaluation:

Teaching: Professor Abecasis has become an excellent teacher. He has developed and offered an important course on statistical computing, teaching simultaneously at the MS and doctoral levels. He also has taught BIOS 666, the main MS course for students in statistical genetics, and a gateway to research in that area. He is also a truly exceptional student mentor. In addition to supporting a large number of students on his grants, he mentors a remarkable number of students on a wide variety of research topics in statistical genetics. In 2007-08, he provided regular advice and mentoring to a total of ten graduate students and four postdoctoral fellows, and interacted regularly with two former students on publications associated with their doctoral research.

Research: Professor Abecasis is a superstar in the field of statistical human genetics, which applies statistical and mathematical modeling to the understanding of the genetic basis for common human diseases. This is a particularly exciting area of biomedicine and public health, owing to the information provided to us by the sequencing of the human and other genomes. Early in his research career, Professor Abecasis made fundamental contributions to statistical and computational methods for analyzing human genetic data in the areas of family studies, linkage disequilibrium mapping, and quantitative trait linkage and association analysis. For several of these methods, he has developed computationally efficient computer algorithms and programs that are now widely used by researchers in human genetics. These include Merlin, for the analysis of human pedigree data, QTDT, for association mapping of quantitative traits, GOLD, for representation of linkage disequilibrium information, and MACH for genotype imputation.

In addition to his outstanding methods development work, Professor Abecasis has a keen interest in and ability for answering important biomedical questions. He was the primary analyst (and co-first-author) on a *Nature* paper that describes the first large-scale human linkage disequilibrium map for human chromosome 22. This landmark paper represented the first step in building a disequilibrium map for the entire human genome, a tool that has greatly enhanced our ability to localize genes that predispose to human diseases. He played a key role in the International HapMap Project, which provided a genome-wide linkage disequilibrium map, and he now is the chair of the Statistical Analysis Group for the 1000 Genomes Project, which will provide DNA sequence data on 1000 individuals from around the world, further extending our knowledge of human genetic variation. Taking advantage of this critical infrastructure, Professor Abecasis has played a lead role in genome-wide association studies to identify

genes for asthma, psoriasis, adiposity, lipid levels, and diabetes. He also is a leader of multiple consortia that are bringing together genome-wide data to understand better the genetic basis for these and other diseases and traits. He has been PI on six NIH grants and a major collaborator on six other grants, and has supported numerous students as pre-docs and post-docs.

Recent and Significant Publications:

Abecasis GR, Cardon LR, and Cookson WOC. (2000) A general test of association for quantitative traits in nuclear families. *Am J Hum Genet* 66:279-292.

Abecasis GR, Cookson WOC, and Cardon LR. (2000) Pedigree tests of transmission disequilibrium. *Eur J Hum Genet* 8:545-551.

Abecasis GR, Cookson WOC, and Cardon LR. (2001) The power to detect linkage disequilibrium with quantitative traits in selected samples. *Am J Hum Genet* 68:1463-1474.

Abecasis GR, Noguchi E, Heinzmann A, Traherne JA, Bhattacharya S, Leaves NI, Anderson GG, Zhang Y, Lench NJ, Carey A, Cardon LR, Moffatt MF, and Cookson WOC. (2001) Extent and distribution of linkage disequilibrium in three genomic regions. *Am J Hum Genet* 68:191-198.

Chen WM and Abecasis GR. (2006) Estimating the power of variance component linkage analysis in large pedigrees. *Genet Epidemiol* 30:471-84.

Wigginton JE and Abecasis GR. (2006) An evaluation of the replicate pool method: quick estimation of genome-wide linkage peak p-values. *Genet Epidemiol* 30:320-32.

Chen WM and Abecasis GR. (2007) Family-based association tests for genomewide association scans. *Am J Hum Genet* 81:913-26.

Swaroop A, Branham KE, Chen W, and Abecasis G. (2007) Genetic susceptibility to age-related macular degeneration: a paradigm for dissecting complex disease traits. *Hum Mol Genet* 16 Special Review Issue No. 2:R174-82.

The International HapMap Consortium (with Abecasis GR) (2007). A second generation human haplotype map of over 3.1 million SNPs. *Nature* 449:851-61.

Kanda A, Abecasis G and Swaroop A (2008). Inflammation in the pathogenesis of age-related macular degeneration. Br J Ophthalmol 92:448-50.

Willer CJ, Sanna S, ..., Abecasis GR (2008) Newly identified loci that influence lipid concentrations and risk of coronary artery disease. *Nature Genetics* 40:161-169.

Zeggini E, Scott LJ, Saxena R, Voight BF and The DIAGRAM Consortium (2008). Meta-analysis of genome-wide association data and large-scale replication identifies additional susceptibility loci for type 2 diabetes. *Nat Genet* 40:638-45.

Service: Professor Abecasis has chaired the computing committee of the biostatistics department for the last few years, and has been a very wise and level-headed participant on the curriculum committee, on departmental faculty searches, and other departmental matters. He is very active and highly regarded in the international scene. Professor Abecasis is an associate editor on three journals, including the *American Journal of Human Genetics*, he has served on a number of study sections to review grants, and is on the Steering Committees of National Center for Genotyping and Analysis and the NHGRI (NIH) Genotyping Service Access Panel.

External Reviewers:

Reviewer (A): "I have been astonished at Dr. Abecasis' ability to perform at a very high level on multiple projects. He is a researcher of international reputation, whose expertise is widely sought ... well exceeds all criteria for promotion to Professor."

Reviewer (B): "I think he is one of the most talented of the young statistical geneticists, with the most promise for a bright and enduring future of innovations in our field. I recommend him for his promotion with the highest enthusiasm and without reservation."

Reviewer (C): "To his credit, he was a driving force behind the international HapMap project. He is co-chair of the analysis team for the international effort to sequence genomes of up to 1000 individuals... In summary, Dr. Abecasis is a unique talent. He would be nearly impossible to replace and is vital to the University of Michigan's research efforts in computational and statistical genetics. He is precisely the kind of exceptional individual research universities such as Michigan should foster."

Reviewer (D): "Gonçalo is intelligent, a critical thinker, an excellent writer, an outstanding team player and an extraordinary leader among leaders.... He has been loyal to your institution by rejecting several attempts to lure him away. I support Gonçalo's nomination most enthusiastically for this promotion."

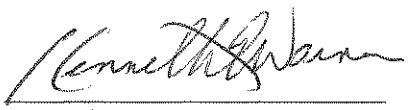
Reviewer (E): "It is hard to imagine any university, within or outside of the United States, finding a more qualified statistical geneticist than Dr. Abecasis for a Full Professorship. In fact, I am a bit surprised that he has not already been promoted ... Dr. Abecasis is truly exceptional, and his work is admirable for its novelty, elegance and sophistication."

Reviewer (F): "Dr. Abecasis has an impressive publication list, both in quality and quantity, and in breadth and depth. He has made significant contributions to a wide variety of current issues in the statistical analysis of human genetic data, and the impact of his work has been greatly enhanced by the production of useful and usable software tools..."

Reviewer (G): "I ... can assure you that Gonçalo would easily be promoted to full professor at our institution... Gonçalo is one-of-a-kind, brilliant and productive. Furthermore, his brilliance has not gone to his head, but rather he is approachable, a wonderful collaborator, and lacks hubris."

Summary of Recommendation:

The promotion of Professor Abecasis is recommended because of his extraordinary research productivity, his world-wide reputation as a superstar in the area of statistical genetics, his excellence as a teacher and mentor, and his very active current program in training pre and post-docs in the School. He is an extremely "hot property" in the statistical genetics world, and he was receiving professor offers from other universities while still an assistant professor here. His presence is a major factor in the very high regard with which the statistical genetics group in the School of Public Health is regarded throughout the world. I enthusiastically recommend that Gonçalo Abecasis be promoted to professor of biostatistics, with tenure, Department of Biostatistics, School of Public Health.



Kenneth E. Warner
Dean, School of Public Health

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