

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF DERMATOLOGY

Johann E. Gudjonsson, M.D., Ph.D., assistant professor of dermatology, Department of Dermatology, Medical School, is recommended for promotion to associate professor of dermatology, with tenure, Department of Dermatology, Medical School.

Academic Degrees:

Ph.D.	2003	University of Iceland, Faculty of Medicine, Reykjavík, Iceland
M.D.	1998	University of Iceland Faculty of Medicine, Reykjavík, Iceland (Candidatus Medicine et Chirurgiae)
B.S.	1992	Menntaskólinn í Reykjavík, Reykjavík, Iceland

Professional Record:

2010-present	Assistant Professor of Dermatology, University of Michigan
2008-2010	Clinical Lecturer, Department of Dermatology, University of Michigan

Summary of Evaluation:

Teaching: Dr. Johann Gudjonsson is an outstanding instructor of medical students, residents, fellows and others within clinical, didactic and laboratory settings. Dr. Gudjonsson provides direct clinical instruction to medical students and residents who are present in his outpatient clinics and who rotate with him on the dermatology consult service and inpatient rounds. While in the context of providing patient care, he is able to identify opportunities for his learners to hone their skills in critical thinking and differential diagnosis. To augment this learning, Dr. Gudjonsson leads a biweekly, clinicopathological conference for residents, in which he reviews and discusses the clinical features and pathology of the most interesting or difficult patients seen on the dermatology consult service. Dr. Gudjonsson is an excellent speaker, who is able to readily convey key concepts and complex information to his listeners. He is a frequent faculty leader for various departmental didactic conferences (e.g., diagnostic/Grand Rounds, resident book club and kodachrome conferences). He has provided lectures on topics of psoriasis and immunological skin diseases to graduate students within the UM Pathology 581 course, to second-year medical students during the annual dermatology teaching sequence, and to UM School of Dentistry students. He also offers lectures on various complex medical dermatology topics to residents and others within the Bone Marrow Transplant Service and the Internal Medicine inpatient service. Notably, Dr. Gudjonsson has authored several chapters regarding psoriasis for various top medical references, including several editions of Fitzpatrick's Dermatology in General Medicine, which is the chief textbook for dermatologists and dermatology residents worldwide.

As a preceptor and the assistant director of the long-standing NIH T32 Training Grant in Cell and Molecular Dermatology, Dr. Gudjonsson provides laboratory-based translational research training to post-doctoral M.D. and Ph.D. fellows, as well as to other learners present in his lab. Resident evaluations of his teaching provide a nearly perfect aggregate rating of 4.97 on a scale of 1/poor to

5/excellent. Comments entered by residents are highly favorable, with praise for him as an exemplary teacher and clinical role model. In recognition of his dedicated and excellent teaching, the graduating resident classes selected Dr. Gudjonsson as recipient of the William B. Taylor Best Resident Teaching Award for Best Resident Educator in 2010 and 2013. In addition, UM clerkship medical students selected him as the Best Medical Student Educator in Dermatology for 2014-2015. The medical student comments regarding Dr. Gudjonsson's teaching are also very positive and often laud him as a remarkable clinical role model.

Research: Dr. Gudjonsson is recognized internationally as a leading physician scientist, who has made major discoveries concerning the genetic, inflammatory, and immunologic basis of psoriasis, a common inflammatory skin disease with complex genetic architecture. His research is focused on the intersection of genetics, transcriptomics, and immunology in psoriasis and other chronic inflammatory skin disorders. He has made key contributions to large, international genome-wide association (GWA) studies that have identified a major proportion of the 83 loci with genome-wide significance in psoriasis for those of Caucasian ancestry. This multinational collaboration, involving thousands of psoriatic subjects and healthy control subjects, has produced many, high-impact publications. Dr. Gudjonsson is using bioinformatics and "omics" approaches to identify, quantify and characterize inflammatory responses in psoriatic skin, and to assign biologic function to identified genetic risk variants. This work is translating results from large international genome-wide association (GWA) studies to clinical application. His description of the interleukin (IL)-36 cytokines pro-inflammatory role in psoriasis and its pustular types, has provided new targets for biologic therapy. He has demonstrated that genetic risk variants shape inflammatory responses in skin, and may ultimately determine the variability in treatment efficacy often seen among psoriasis patients with identical clinical presentation. He has shown the IL12B risk variant unexpectedly promotes only Th1, but not Th17 (IL-17A) responses, which were believed dominant in psoriasis. These data suggest genetic risk variants may have more complex roles in promoting psoriasis inflammation than previously thought.

Dr. Gudjonsson has extended his research to transcriptomics of other inflammatory and non-inflammatory skin conditions, including work showing distinct differences in gene expression between men and women in healthy skin. Importantly, these differences are epigenetically regulated and not secondary to hormonal influences. This work is the basis of a recently submitted manuscript and a pending R01 application and has fundamental implications in disorders such as systemic lupus erythematosus occurring more commonly in women. In active external collaborations, Dr. Gudjonsson is leading research examining steroid deficiency in psoriatic skin with Dr. Spiro Getsios at Northwestern University; exploring the function of super enhancers (genomic regions) in skin with Dr. Bogi Andersen at University of California-Irvine; and addressing the immunology and pathophysiology of the cardiovascular comorbidities of psoriasis with Dr. Nehal Mehta at the National Heart, Lung and Blood Institute. Dr. Gudjonsson's productivity and reputation as an independent investigator have grown rapidly, since joining the UM faculty. In 2010, he became the Frances and Kenneth Eisenberg Emerging Scholar of the Taubman Medical Research Institute, a prestigious recognition that supports promising physician-scientists. He has established a robust research program, with sustained external funding that has progressed from early-career foundation awards (e.g., American Skin Association, Dermatology Foundation and Doris Duke Charitable Foundation), to NIH supported work, including a K08 award and current NIH R01 funding. In addition, he has engaged in translational and clinical research supported via industry-sponsored collaborations and studies. He has authored 76 peer-reviewed original publications, 11 review articles, and seven book chapters, including those for top medical texts, and has an excellent ISI Hirsch (H)-index score of 32.

Recent and Significant Publications:

Swindell WR, Xing X, Stuart PE, Chen CS, Aphale A, Nair RP, Voorhees JJ, Elder JT, Johnston A, Gudjonsson JE: Heterogeneity of inflammatory and cytokine networks in chronic plaque psoriasis. *PLoS ONE* 7: e34594, 2012.

Tsoi LC, Spain SL, Knight J, ... Gudjonsson JE (10/69) ... Trembath RC: Identification of 15 new psoriasis susceptibility loci highlights the role of innate immunity. *Nature Genetics* 44: 1341-1348, 2012.

Johnston A, Xing X, Swindell WR, Kochkodan J, Riblett M, Nair RP, Stuart PE, Ding J, Voorhees JJ, Elder JT, Gudjonsson JE: Susceptibility-associated genetic variation at IL12B enhances Th1 polarization in psoriasis. *Human Molecular Genetics* 22:1807-1815, 2013.

Swindell WR, Remmer HA, Sarkar MK, Xing X, Barnes DH, Wolterink L, Voorhees JJ, Nair RP, Johnston A, Elder JT, Gudjonsson JE: Proteogenomic analysis of psoriasis reveals discordant and concordant changes in mRNA and protein abundance. *Genome Medicine* 7: 86, 2015.

Swindell WR, Sarkar MK, Liang Y, Xing X, Gudjonsson JE: Cross-disease transcriptomics: Unique IL-17A signaling in psoriasis lesions and an autoimmune PBMC signature. *Journal of Investigative Dermatology* 136:1820-1830, 2016.

Service: Dr. Gudjonsson is a frequently invited speaker at national/international seminars and leading academic institutions. He provides active peer-review service for many top journals, is an associate editor for the *Journal of Immunology* and an editorial review board member for *JAMA Dermatology*. He provides scientific grant review for the National Psoriasis Foundation, as well as for the Department of Defense-Defense Threat Reduction Agency. In addition, he serves on the scientific committee of the International Psoriasis Council and was recently chosen to chair the Dermatology Foundation Scientific Advisory Board. Dr. Gudjonsson's diagnostic acumen and expansive knowledge of immunology and dermatology, together with his ongoing involvement in translational research have established him as a leading expert for patients with medically complex dermatologic disease. Known for his compassionate and comprehensive patient care, he serves as an ideal role model to residents and students. Since 2010, his physician-peers have elected him as one of the Best Doctors[®] in America, signifying he is in the top 5% of U.S. Physicians for his clinical and academic accomplishments. He staffs three very busy medical dermatology clinics at the Taubman Health Center, which serves as a major regional, referral center for patients with difficult, or severe dermatologic conditions. As the director of the Dermatology Consultation Service, he fulfills a critical role within the UMHS, providing daily rounds and consults within the Emergency Department and hospital inpatient units, including over 95% of patients with cutaneous drug rashes/reactions. In addition to his above described departmental administrative service and active national and international scientific peer-review service, Dr. Gudjonsson has served as a member of the Resident Selection Committee since 2009 and also serves on the Irwin Blank Forum Committee for the Society for Investigative Dermatology.

External Reviewers:

Reviewer A: "...Dr. Gudjonsson's publications clearly establish him as an internationally recognized key innovator and opinion leader in psoriasis, inflammatory skin disease and meta-

analysis of genomics and transcriptomic data in human disease... Dr. Gudjonsson is THE leading mid-career investigator in psoriasis.”

Reviewer B: “His creative approach to addressing research questions has made him a leader in the emerging field of genomic medicine... He clearly is a major reason the University of Michigan is known as a leading research and clinical program for psoriasis.”

Reviewer C: “In my opinion, Dr. Gudjonsson is emerging as one of the top investigators in the field of psoriasis internationally... He has participated in reviews of grants from around the world, including from the NIH, and has been especially active in this regard with the National Psoriasis Foundation.”

Reviewer D: “His scholarly contributions, focused on psoriasis, have had a huge impact on the field. His research has begun to answer a range of questions through investigations of genetic susceptibility, and the transcriptomic and proteomic profiles of lesional skin in psoriasis.”

Reviewer E: “...he is recognized as one of the world’s leading investigative dermatologists focused on elucidating the genetic, inflammatory, and immunologic basis of psoriasis....His achievements have been continuous, comprehensive, of the very highest professional caliber...”

Summary of Evaluation:

Dr. Gudjonsson is an outstanding medical educator, a foremost provider of complex medical dermatology patient care and an established national leader in the field of dermatology. I enthusiastically recommend Johann E. Gudjonsson, M.D., Ph.D. for promotion to associate professor of dermatology, with tenure, Department of Dermatology, Medical School.



Marschall S. Runge, M.D., Ph.D.
Executive Vice President for Medical Affairs
Dean, Medical School

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