Approved by the Regents
May 20, 2021

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF PEDIATRICS

Jordan A. Shavit, M.D., Ph.D., associate professor of pediatrics, with tenure, Department of Pediatrics, Medical School, is recommended for promotion to professor of pediatrics, with tenure, Department of Pediatrics, Medical School.

Academic Degrees:

Ph.D.	2000	Northwestern University
M.D.	2000	Northwestern University
B.S.	1992	University of Michigan

Professional Record:

2016-present	Associate Professor of Pediatrics, with tenure, University of Michigan
2009-2016	Assistant Professor of Pediatrics, University of Michigan
2006-2009	Lecturer of Pediatrics, University of Michigan

Summary of Evaluation:

Teaching: Dr. Shavit has a strong commitment to teaching at multiple levels, from undergraduate through graduate and medical school, residency, fellowship, and junior faculty; mostly through hands-on research training in his laboratory. He has mentored over a dozen undergraduate students, many of whom have gone on to graduate and professional training programs. He has served as a reviewer and mentor for several undergraduate students through the University of Michigan Cardiovascular Center Summer Undergraduate Research Fellowship program, and serves as a co-investigator on an American Heart Association center grant that funds the program. Dr. Shavit has participated in admissions for the Program in Biomedical Sciences, served on several preliminary examination or dissertation committees, has two graduate students in his laboratory, and mentored a master's student. He has demonstrated his successful mentoring for post-doctoral fellows with two former fellows attaining faculty appointments as assistant professors, and one as a staff scientist at a biotechnology company. He also supervises and trains medical students, house officers, and fellows in the Pediatric Coagulation Disorders Clinic and on the Inpatient Pediatric Hematology Consultation Service. Dr. Shavit provides didactic lectures, including the hematology sequence for medical students, and lecture series on coagulation disorders for pediatric house officers and pediatric hematology/oncology fellows. His excellence in teaching is further demonstrated by his longstanding service as a lecturer for a hematology review course for the American Society of Hematology annual meeting that consistently has positive reviews. His undergraduate and graduate students and post-doctoral fellows have received competitive external fellowship grants from organizations including the American Heart Association, American Society of Hematology, National Hemophilia Foundation, and Hemostasis and Thrombosis Research Society. One of Dr. Shavit's most significant teaching accomplishments, since his last promotion, has been serving as the principal investigator of the Division's longstanding T32 Boxer Training Program

in Molecular and Translational Hematology. Under his leadership, the T32 was successfully renewed for another five-year term.

Research: Dr. Shavit's research focuses on the complex genetics of blood clotting beyond the canonical coagulation cascade. Unidentified modifier genes are believed to affect the variable expressivity and penetrance of clotting disorders, and he is using the zebrafish model to make inroads into this question. His data so far have shown that while there is overall conservation of mechanisms, there are some species-specific differences that indicate a tolerance for clotting defects in fish which may provide insight into the variability seen in humans. He has published 49 peer-reviewed articles, including recent publications in *Blood*, *Journal of Thrombosis and Haemostasis*, *Blood Advances*, *JCI Insight*, *PNAS*, and *Nature Genetics*. Dr. Shavit has a strong and consistent record or grant funding, and is currently the principal investigator of an NIH R01 grant, and recently received a very large NIH R35 grant. He has received multiple foundation grants for his work. Last year, he was elected to the American Society for Clinical Investigation and the American Pediatric Society. Dr. Shavit's work has been highly recognized and he has had been invited to present his research on 65 occasions, including grand rounds and research talks at Tohoku University School of Medicine in Japan, the Gordon Conference on Hemostasis, Children's Hospital of Philadelphia and Penn Medicine, Children's Hospital Boston/Dana-Farber Cancer Institute, and the Centenary Institute of the University of Sydney in Australia.

Recent and Significant Publications:

Grzegorski, SJ, Hu Z, Liu Y, Yu X, Ferguson AC, Madarati H, Friedman AP, Reyon D, Kim PY, Kretz CA, Joung JK, and Shavit JA: Disruption of the kringle 1 domain of prothrombin leads to late onset mortality in zebrafish. *Sci Rep*, 10:4049, 2020.

Weyand AC, Grzegorski SJ, Rost MS, Lavik KI, Ferguson AC, Menegatti M, Richter CE, Asselta R, Duga S, Peyvandi F, and Shavit JA: Analysis of factor V in zebrafish demonstrates minimal levels needed for early hemostasis. *Blood Adv*, 3:1670-80, 2019.

Hu Z, Lavik KI, Liu Y, Vo AH, Richter CE, Di Paola J, and Shavit JA: Loss of fibrinogen in zebrafish results in an asymptomatic embryonic hemostatic defect and synthetic lethality with thrombocytopenia. *J Thromb Haemost*, 17:607-17, 2019.

Rost MS, Shestopalov I, Liu Y, Vo AH, Richter CE, Emly SM Barrett FG, Stachura DL, Holinstat M, Zon LI, and Shavit JA: Nfe2 is dispensable for early but required for adult thrombocyte formation and function in zebrafish. *Blood Adv*, 2:3418-27, 2018.

Hu Z, Liu Y, Huarng, MC, Menegatti M, Reyon D, Rost MS, Norris ZG, Richter CE, Stapleton AN, Chi NC, Peyvandi F, Joung JK, and Shavit JA: Genome editing of factor X in zebrafish reveals unexpected tolerance of severe defects in the common pathway. *Blood*, 130:666-76, 2017.

Service: Dr. Shavit is a member of multiple national and international research societies, serving in a number of important roles. He has served as an editorial board member for *Pediatric Blood and Cancer* for nine years, and has been a reviewer for over 30 journals. Dr. Shavit is a member of the International Zebrafish Disease Models Society Membership Committee and the co-chair

of the Hematology Research Interest Group. He has been a member of the American Society of Hematology Scientific Committee on Megakaryocytes and Platelets for several years and served as the vice chair and the chair for two years. As the chair, he was required to develop two programs consisting of four total speakers for the 2019 annual meeting. Grant review activities have included serving ad hoc on a number of NIH study sections. He is a permanent member of the American Heart Association Basic Science of Thrombosis Peer Review Committee, and serves as a reviewer for the American Society of Hematology and Hemostasis and Thrombosis Research Society. Over the last four years, he has served as the chair of the Research and Grant Review Committee of the National Hemophilia Foundation. Dr. Shavit holds two significant administrative roles within Michigan Medicine including as the associate director of the Pediatric Hemophilia and Coagulation Disorders Program, and as the associate director of the University of Michigan Pediatric Fellowship Program in Hemostasis and Thrombosis.

External Reviewers:
Reviewer A: "Dr. Shavit is internationally known as a zebra fish researcher and one of the few in the world who is trailblazing with genetic and therapeutic studies of hemostatic and thrombotic disorders using this model… As his CV dictates, he just received the prestigious R35 award from the NIH which is essentially a continuation of his R01 using the zebra fish model to better study hemostatic and thrombotic disorders. As you are aware, it is extremely unusual for a mid-career investigator to receive this seven-year career award and is a testimony to the confidence his peers and others have in his upward trajectory."

Reviewer B: Dr. Shavit's name has become synonymous with zebrafish hemostasis research. Through both his strong leadership and collaborative science, he has built up this field to an international standard, as evidenced by his grant capture, speaker invitations and diversity of trainees who have come to train with him. He has remained focused, honing his techniques in keeping with evolving contemporary approaches like CRISPR-based genome editing, to provide new knowledge with the potential to change our understanding of human bleeding and clotting. He is well-respected by the clinical hemostasis and thrombosis and zebrafish disease modeling communities, and, in fact, provides a unique link between these two groups."

Reviewer C: "He is truly one of the leaders in the field of pediatric hematology. He is one of a (regrettably) smaller and smaller cadre of pediatric scientists. As such, it is vital for progress in pediatric diseases to support and promote Jordan and his work...He is at the cutting edge of zebrafish modeling, using advanced transgenic and genome editing techniques...His research record has been consistent and of high quality, also confirmed by his recent NIH R35 award."

Reviewer D: "Dr. Shavit's teaching record is exemplary and shines at both the Institutional/Regional and National/International levels…He is the recipient of multiple foundation and NIH research grants. His research accomplishments have been extramurally recognized with recent election to the American Pediatric Society and American Society for Clinical Investigation and frequent invitations to serve on NIH and foundation or society research grant study sections. Since his last promotion, Dr. Shavit has completed 2 NIH R01 awards and is currently the PI on both an NIH T32 training award and a prestigious R35 'Maximizing Investigators' Research Award (MIRA)."

Reviewer E: "Since 2009, Dr. Shavit has established an independent research program that has demonstrated progressive maturation, with a particular acceleration of progress in the past five years…The level of grant support that Dr. Shavit has attracted, especially in the past 2-3 years has been outstanding, and is a clear indication of the momentum and perceived potential of his research program…The >60 invited extramural talks that he's delivered in the past 14 years further attest to the outstanding reputation that he has established in the national and international hemostasis community…In the past five years in particular, his research productivity and granting success have been stellar and clearly provide strong support of his application for promotion to the rank of Full Professor."

Reviewer F: "He has established himself as a National leader though use of Zebra fish models to develop fundamental concepts in platelet biology, hemostasis and thrombosis…I am truly impressed with very large number of undergraduate students, graduate students and post-doctoral fellows that he has very successfully mentored at University of Michigan. This reflects his serious commitment to scholarship and teaching…He richly deserves this recognition based on his outstanding research productivity, his mentoring record of students at all levels of academic development, his extensive professional contributions to academic activities at University of Michigan, service to professional societies and service as a reviewer for a very large number of major professional journals. In my 50 year academic and research career I have encountered very few people who have accomplished and contributed as much to an Academic Medical Institution as Dr. Shavit has done."

Summary of Recommendations:
Dr. Shavit is an exceptional, collegial, and dynamic faculty member. He has focused his productive research on the complex genetics of blood clotting beyond the canonical coagulation cascade with the use of zebrafish. He is an internationally recognized expert in thromboses. I am pleased to recommend the promotion of Jordan A. Shavit, M.D., Ph.D. to professor of pediatrics, Department of Pediatrics, Medical School.

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

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