

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF PSYCHIATRY

Shelly B. Flagel, Ph.D., associate professor of psychiatry, with tenure, Department of Psychiatry, Medical School, is recommended for promotion to professor of psychiatry, with tenure, Department of Psychiatry, Medical School [also being promoted to research professor, Michigan Neuroscience Institute, Medical School].

Academic Degrees:

Ph.D.	2003	University of Michigan
B.S.	1998	University of Michigan

Professional Record:

2017-present	Associate Professor, with tenure, Psychiatry, University of Michigan
2017-present	Research Associate Professor, Michigan Neuroscience Institute, University of Michigan
2017-present	Adjunct Associate Professor, Psychology, University of Michigan
2015-2017	Assistant Professor, Psychiatry, University of Michigan
2015-2017	Adjunct Assistant Professor, Psychology, University of Michigan
2014	LEO Lecturer, Psychology, University of Michigan
2013-2017	Research Assistant Professor, Molecular and Behavioral Neuroscience Institute, University of Michigan
2012-2013	LEO Lecturer, Psychology, University of Michigan
2011-2015	Assistant Research Scientist, Psychology, University of Michigan
2011-2015	Research Assistant Professor, Psychiatry, University of Michigan
2007-2009	LEO Lecturer, Psychology, University of Michigan
2007-2013	Research Investigator, Molecular and Behavioral Neuroscience Institute, University of Michigan

Summary of Evaluation:

Teaching: Dr. Flagel has an extensive impact on the learning environment through not only direct teaching and mentoring she provides, but also leadership and innovation in extramurally-funded training programs. She co-directs the NSF-funded Summer Intensive Research Experiences in the Neuroscience (SIREN) Program, which assists people from underrepresented groups and/or those who might not otherwise have the chance to conduct research as an undergraduate. As the director of the NIDA T32 Training Program in Neuroscience, she also serves as a mentor to trainees. Dr. Flagel directed and taught the Neuroscience 615 Behavioral Neuroscience module from 2016-2019. In 2019, her efforts were recognized locally with the Endowment for Basic Sciences Teaching Award. Dr. Flagel is an active member of the Neuroscience Graduate Program and is a sought-after mentor. She has had three students in the Neuroscience Graduate Program obtain their Ph.D. under her mentorship, and currently has two additional graduate students conducting their dissertation research in her laboratory. Her students have had great success in obtaining funding through the National Institutes of Health (NIH) and the National Science Foundation

(NSF), and each have produced multiple publications. Additionally, Dr. Flagel mentors several undergraduate students in her laboratory each semester, many of who complete their honors thesis under her mentorship. Since 2016, beyond the students in her laboratory, Dr. Flagel has served on dozens of dissertation committees.

Research: Dr. Flagel's research investigates the neural mechanisms that contribute to individual differences in vulnerability to psychiatric illness, with a focus on addiction. Her work has primarily centered around an animal model she established, and she has recently begun translational studies with human subjects. The rat model captures variation in the propensity to attribute incentive salience to reward cues. Following Pavlovian training, in which a cue predicts the delivery of a food- or drug-reward, sign-trackers attribute incentive salience to the cue and will approach and manipulate it; whereas goal-trackers treat the cue as a predictor and go to the location of reward delivery upon cue presentation. Prior to this discovery, research in this area was confounded by the fact that it was difficult to dissociate the predictive from the incentive properties of reward-associated stimuli. Thus, this model has allowed Dr. Flagel and her research team, for the first time, to parse the psychological and neurobiological mechanisms underlying the attribution of incentive salience—the same mechanisms that go awry in addiction and related disorders. The work outlined above has proven to be integral to research efforts in various laboratories at the University of Michigan, and beyond. Dr. Flagel has several colleagues in the Departments of Psychiatry and Psychology whose research programs center around the sign-tracker/goal-tracker animal model. She also has several collaborations related to this work with colleagues all over the world and within diverse fields.

Dr. Flagel has received funding for several grants including from the National Institutes of Health, and the Pritzker foundation. She is regularly invited to present her research at other institutions and at international conferences including Japan, Italy, France, the United Kingdom, Canada, and the Netherlands. In 2020, Dr. Flagel received the A.E. Bennett Basic Research Award from the Society of Biological Psychiatry in recognition of her scholarly impact. Dr. Flagel's research continues to have momentum, as evidenced by her consistent publication record and success in obtaining NIH grants. She is a leader in the field with 61 peer-reviewed and has published her findings in highly regarded journals such as *Psychopharmacology*, *Neuropsychopharmacology*, and *Neuroscience*.

Recent and Significant Publications:

- Kuhn BN, Campus P, Klumpner MS, Chang SE, Iglesias AG, Flagel SB, "Inhibition of a cortico-thalamic circuit attenuates cue-induced reinstatement of drug-seeking behavior in 'relapse prone' male rats," *Psychopharmacology* (Berl) 239(4):1035-1051, 04/2022.
- Haight JL, Campus P, Maria-Rios CE, Johnson AM, Klumpner MS, Kuhn BN, Covelo IR, Morrow JD, Flagel SB, "The lateral hypothalamus and orexinergic transmission in the paraventricular thalamus promote the attribution of incentive salience to reward-associated cues," *Psychopharmacology* (Berl) 237(12):3741-3758, 12/2020.
- Colaizzi JM, Flagel SB, Joyner MA, Gearhardt AN, Stewart JL, Paulus MP, "Mapping sign-tracking and goal-tracking onto human behaviors," *Neuroscience and Biobehavioral Reviews* 111: 84-94, 01/2020.

Campus P, Covelo IR, Kim Y, Parsegian A, Kuhn BN, Lopez SA, Neumaier JF, Ferguson SM, Solberg Woods LC, Sarter M, Fligel SB, “The paraventricular thalamus is a critical mediator of top-down control of cue-motivated behavior in rats,” *eLife* 8: e49041, 09/2019.

Hughson AR, Horvath AP, Holl K, Palmer AA, Solberg Woods LC, Robinson TE, Fligel SB, “Incentive salience attribution, ‘sensation-seeking’ and ‘novelty-seeking’ are independent traits in a large sample of male and female heterogeneous stock rats.” *Scientific Reports* 9(1):2351, 01/2019.

Service: Dr. Fligel is a highly sought-after speaker at national and international conferences including the European Psychiatry Congress and the Netherlands Institute for Neuroscience. Institutionally, Dr. Fligel serves as the interim co-director of the Michigan Neuroscience Institute and provides outstanding leadership in that role. In addition, she is the associate co-director of admissions for the Neuroscience Graduate Program and the director of the Diversity, Equity, and Inclusion Task Force focused on recruitment and admissions for the Neuroscience Graduate Program. Nationally, is on the Program Committee for the Society for Neuroscience and is the president-elect for the European Behavioural Pharmacology Society. She is a member of the American College of Neuropsychopharmacology and serves on the editorial board for the associated journal, *Neuropsychopharmacology*. She is also a reviewing editor for the journal *eLife* and regularly reviews for other society journals including the *Journal of Neuroscience* and *Psychopharmacology*.

External Reviewers:

Reviewer A: “Dr Fligel is widely recognized as a rigorous, methodical and bold investigator, with innovative ideas...Testimony to these views are a number of awards, and especially the election of Dr Fligel as the incoming president of the European Behavioral Pharmacology Society. This is a major honor, rare for an American and indicative of the field’s recognition of Dr. Fligel’s stature. Further evidence of the wide recognition of her rigor and of the impact of her work is apparent from a high level of competitive, peer-reviewed NIH funding...is among the top 10%...”

Reviewer B: “...Dr. Fligel has made numerous significant and enduring contributions to our understanding of the behavioral, molecular, cellular, and circuit-based mechanisms reward-seeking behaviors in rodents, particularly in the context of modeling substance use disorders... Dr. Fligel has the highest standards for her research. She aspires to work at the cutting edge of her field, make discoveries that will have a lasting impact on her areas of specialization, and publish her findings in scientifically rigorous journals.”

Reviewer C: “...Dr. Fligel maintains an active teaching program, and mentors many students in her lab, demonstrating high achievement in these important areas as recognized by multiple teaching and mentoring awards. Her sensitivity to, and efforts towards, promoting diversity in sciences are especially laudable. Overall, Dr. Fligel goes above and beyond in the area of service. It is not easy, as you know, to balance the disparate demands of research, teaching, and service, and I am impressed at her ability to achieve in all of these critical areas of the academic scientific career.”

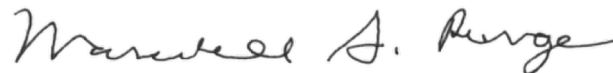
Reviewer D: “Equally impressive is her track record of obtaining extramural funding to support her research and the training of her mentees. Her lab is currently supported by a new R01, an R21 and an F31 award. Her completed research support is also very strong, easily meeting or exceeding the levels of support for individuals in her peer group... I view Dr. Flagel’s service contributions to the discipline as exceptional/second to none... it is easy for me to conclude that her service contributions to the discipline are “top 1%” for individuals at a similar career stage”

Reviewer E: “Dr. Flagel is an outstanding scientist who has made substantial contributions to our improved understanding of the neural mechanisms associated with vulnerability to psychiatric conditions such as addiction. She is creative and productive, and an excellent citizen of the scientific community.”

Reviewer F: “Dr Flagel is at the very top of her field, nationally and internationally. Dr Flagel’s work is of the highest quality, is intellectually very creative, technically proficient, and highly reproducible. Dr Flagel is recognised by her peers as being at the forefront of the field.”

Summary of Recommendation:

Dr. Flagel has made substantive and meaningful contributions to the field in her research work. She is an active collaborator and highly regarded as a teacher and mentor. She has been extremely successful in receiving funding and has received national and international recognition. She is an outstanding scientist and leader who has established a strong independent scientific program conducting world-class research in behavioral neuroscience. I am pleased to recommend Shelly B. Flagel, Ph.D. for promotion to professor of psychiatry, with tenure, Department of Psychiatry, Medical School.



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

May 2023