



SCIENCE FOR THE BENEFIT OF HUMANITY

Jeffrey M. Friedman, M.D., Ph.D.
Marilyn M. Simpson Professor
Laboratory of Molecular Genetics
Phone: 212-327-8800
Fax: 212-327-7420
E-mail: friedj@rockefeller.edu

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Dear Committee,

It is with the highest enthusiasm that I nominate Dr. Han Tan, a postdoctoral researcher in my laboratory at The Rockefeller University, for participation in the 2025 Hong Kong Laureate Forum. Over the past five years, I have had the privilege of closely mentoring Han, and I can state without reservation that he is one of the most talented, dedicated, and innovative scientists I have ever worked with. Han's intellectual rigor, creativity, and independent drive have led to groundbreaking discoveries, most notably the identification of a previously unknown leptin-activated cell type in the hypothalamus that acutely suppresses food intake. His work not only addresses critical gaps in our understanding of feeding regulation and leptin action but also sets the stage for a highly impactful independent research career.

Han's scientific journey began with exceptional training in Dr. Richard Huganir's laboratory at Johns Hopkins University, where he studied the molecular mechanisms of synaptic plasticity and its relevance to brain disorders like autism. During his graduate studies, Han exhibited an extraordinary level of productivity, publishing nine papers, five of which he was the first author. This early success laid the foundation for his expertise in molecular neuroscience, biochemistry, and in vivo imaging.

Since joining my laboratory in November 2019, Han has continued to excel, even in the face of the challenges posed by the COVID-19 pandemic. He has proactively initiated and successfully pursued multiple independent projects, all entirely of his own design. Han's productivity has remained consistently impressive, with one paper published in *Nature*, two papers in preparation, and another nearing completion.

Among Han's many accomplishments, his identification of a novel hypothalamic cell type expressing the leptin receptor stands out as particularly significant. This discovery has broadened our understanding of leptin's role in regulating energy balance. Han developed an innovative approach using multiplexed snRNA-seq and snATAC-seq to systematically map the cellular and molecular targets of leptin within the hypothalamus. His work revealed a previously unknown population of LepR-expressing neurons in the arcuate nucleus, referred to as LepR/BNC2, which act as rapid satiety regulators. This discovery has substantially influenced our understanding of energy balance and addressed a critical knowledge gap in hunger and satiety. In addition to this groundbreaking discovery, Han has conducted a comprehensive exploration of the global hypothalamic response to leptin, revealing cell-type-specific alterations in transcriptomics and chromatin accessibility over time. His in-depth analysis has uncovered novel genes specific to leptin-regulated cell types, further contributing to our understanding of energy balance modulation. It is important to emphasize that Han was the driving intellectual force behind all of these studies. He independently conceived the ideas, designed and performed the experiments, analyzed the data, and synthesized the findings into cohesive stories with minimal input from me. He also established a multiplexed single cell-genomics platform in our lab, making it accessible to other lab members and amplifying the impact of his work.

One of the most remarkable aspects of Han's tenure in my lab is his exceptional ability to secure competitive funding, both for himself and for the lab as a whole. Han not only successfully initiated several independent projects, but also demonstrated unparalleled expertise in grant writing, securing prestigious awards, such as the Kavli NSI Postdoctoral Fellowship and two Pilot Awards. Beyond these, Han independently wrote and secured several major grants for the lab, including significant funding from the Prader-Willi Research Foundation and the

American Federation for Aging Research. All of these proposals were drafted entirely by Han, with minimal edits from me, showcasing his maturity in science and exceptional ability to secure external funding- a skill that surpasses even that of many faculty members. Han's insights, creativity, and strategic thinking in grant writing are among the best I have encountered, and his success in securing these highly competitive grants speaks volumes about his capability to sustain a productive and well-funded research program independently.

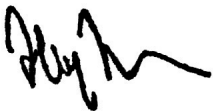
Another key attribute that distinguishes Han is his ability to proactively initiate and maintain fruitful collaborations, both within Rockefeller University and across other institutions. Han has successfully established collaborations with leading researchers, including Dr. Dayu Lin at New York University, Dr. Gerald Shulman from Yale University, and researchers from the University of Pennsylvania, and Stanford University, as well as with various research groups within Rockefeller. These collaborations span a wide array of projects and areas of expertise, reflecting Han's collaborative spirit and his ability to integrate diverse perspectives into his research. The success of these collaborations has significantly amplified the impact of his work.

In addition to his research accomplishments, Han has mentored over 20 junior researchers, including high school students, undergraduates, research technicians, and graduate students. He is a patient and effective teacher who clearly transmits his passion for research to young scientists. Han is also a tremendous citizen and leader in my lab, handling responsibilities with resourcefulness and initiative.

The Hong Kong Laureate Forum is designed to bring together outstanding young scientists with globally recognized laureates across disciplines. I can think of no better candidate than Han to participate in this dialogue. He combines deep scientific insight with a rare ability to communicate across fields and cultures. I am confident that he would both benefit from and enrich the Forum experience—and carry its spirit forward as he launches what I am certain will be a distinguished independent career.

Thank you for your consideration of this nomination. Please do not hesitate to contact me should you require further information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jeffrey M. Friedman', with a stylized, cursive script.

Jeffrey M. Friedman, M.D., Ph.D.
Marilyn M. Simpson Professor, The Rockefeller University
Investigator, Howard Hughes Medical Institute