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December 4, 2014

Faculty Search Committee
Department of Chemical Engineering
102 Engineers' Way
University of Virginia
Charlottesville, VA 22904-4741

this special combination is the applicant's "brand"

Dear Faculty Search Committee,

It is with great enthusiasm that I submit my application for a tenure-track assistant faculty position in the Department of Chemical Engineering at the University of Virginia.

As a scientist trained in the fundamentals of chemical engineering, my research interfaces the disciplines of biotechnology, biopharmaceuticals, regenerative medicine, tissue engineering, and biomedical systems control.

Currently, I am completing a postdoctoral appointment with Professor ██████████ in the Department of ██████████ at MIT where I have led systems-level approaches to investigate acute inflammation and the innate immune response within humanized tissues. Our successes have advanced the use of microphysiological platforms to evaluate disease progression, e.g. cancer metastasis. In collaboration with industrial and academic institutions, we have progressed beyond *organ-on-a-chip* devices to *human-on-a-chip* platforms resulting in multiple peer-reviewed publications and awards. Prior to MIT, my graduate studies were completed under the guidance of Professor ██████████ in the Department of ██████████ at the University ██████████. With an emphasis in biotechnology, my research focused on cell stress, organelle regulation, and the use of yeast as a predominant host cell for recombinant protein production. The integration of experimental and computational approaches was critical to identify underlying mechanisms of cellular quality control, to elucidate networks that regulate protein homeostasis, and to develop a more in-depth understanding of spatial cell biology. At present, results from my graduate studies led to 14 peer-reviewed publications and book chapters, where 5 additional manuscripts are in progress.

I am extremely excited to share with you my passion and vision for scientific research, specifically in multidisciplinary approaches that promote the application of engineering to modern challenges in cell/tissue biology, health and disease, and drug discovery. As my expertise spans numerous facets of translational research — heavily focused on experimentation and statistical frameworks — I will facilitate a collaborative climate that inspires cutting-edge research opportunities for students, colleagues, and collaborators. To establish an innovative research program in the department, I will combine my expertise in systems biology, protein and cellular engineering, membrane biology, and synthetic biology to (i) identify and differentiate cell stress response pathways that significantly impact metabolic and neurodegenerative diseases, and (ii) elucidate the regulation of spatiotemporal signaling that influences cell/tissue function to advance therapeutic intervention. Specific aims of my proposed research plans complement the department's on-going research in bioseparations, cell and protein transport, biomaterials, redox regulation, drug design, and downstream processing of biomolecules, e.g. purification of recombinant proteins. Many aspects of my expertise are synergistic with the Department of Biomedical Engineering and Center for Membrane Biology, i.e. bioimaging, cell-signaling dynamics, cellular engineering, evaluation of GPCRs and membrane compartmentalization.

In addition to research pursuits, I am an experienced educator and dedicated mentor. As the recipient of 8 teaching appointments, I have taught classes in 4 chemical engineering core and elective courses at the University ██████████ under the guidance of Professors ██████████, ██████████, ██████████, and ██████████. In the Department of Chemical Engineering at UVA, I am eager to teach a variety of core and elective courses and to participate in curriculum development. I strongly believe that my experiences in industry, teaching, and multidisciplinary research offer a unique perspective invaluable to students' education and training.

I have enclosed my research proposal, teaching statement, and curriculum vitae for review. Detailed contact information is provided for five prominent faculty members whom will provide outstanding recommendations on my behalf. Please contact me if I can be of further assistance.

I look forward to your reply. Thank you for your time and consideration.

Sincerely,

██████████

██████████, Ph.D.

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