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profile feature



Michael Ehlers, Chief Scientific Officer, Neuroscience Research Unit, Pfizer

While several of the world's largest pharmaceutical companies are reducing or eliminating their neuroscience research, Pfizer is continuing its investment. Where others see challenge, Michael Ehlers, chief scientific officer of Pfizer's neuroscience research unit, sees opportunity and necessity. In November 2011, Pfizer began the construction of a new neuroscience research facility at the Massachusetts Institute of Technology (MIT) in Cambridge, Massachusetts, and has begun recruiting scientists at all levels — from postdocs to senior group leaders. The company has positioned its research and development operations in Cambridge to take advantage of the area's intellectual capital. Pfizer is recruiting for five research groups in Cambridge: Integrative Neuroscience and Circuitry; Neurodegeneration & Neurological Disease; Psychiatry & Behavioral Disorders; CNS Human Biology; and Neuroinformatics. The company is also seeking collaborations with the area's universities and hospitals. Ehlers tells Nature why the Cambridge effort will provide robust career paths in pursuit of neuroscience breakthroughs.

Q: There's been much talk of why neuroscience is challenging. Why do you think this field holds potential?

I believe that there has been no other area of biology over the last decade with as many advances as neuroscience. There has been a remarkable convergence of technology at many levels, including genetic sequencing, imaging techniques and computational analysis. Neuroscience today is unrecognizable from where it was ten years ago. Typically those kinds of advances are a leading indicator of new medicines and discovery. I would compare that to how the advent of molecular biology methods has defined molecular pathways in cancer and tumour cell biology, which has resulted in an amazing set of therapies. But there was at least a five- to ten-year lag between the leading edge of basic science and a noticeable impact on drug development.

I think life scientists at all levels are recognizing the opportunity in neuroscience. Look at the number of neuroscience majors, graduate programmes, new institutions, publications, memberships in professional societies — many of these have seen exponential growth.

Q: You're seeking recruits in fields not traditionally related to neuroscience. Why the interdisciplinary approach?

The kind of people we think will lead modern central nervous system (CNS) drug discovery will have strong skills in quantitative biology or the physical sciences. Biology is moving rapidly to an era where all the necessary data is available, and success will come down to how we analyze it and the kinds of models we build from it. In our interdisciplinary teams, we want to see people come at problems from multiple directions, including biophysics, structural biology, enzymology, electrophysiology,

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systems neuroscience, bioinformatics, proteomics, human neurobiology, and human genetics. This is absolutely essential in integrated drug discovery.

Q: You moved from academia to Pfizer in 2010. What would you tell academic researchers about the difference between the two?

As an academic neuroscientist, I did experiments and published papers in an effort to further the field, but my daily activities seemed distant from an ability to translate my findings into solutions with broader impact. At Pfizer, I have found that I can operate in the way that brought me into science in the first place — finding solutions to real problems. When you move to industry, you can play a critical role in answering the question of 'how can we make this research useful?'

Q: Many academic researchers talk about doing translational research. How can this goal be better pursued in industry?

Academic settings have a lot of flexibility in terms of basic research questions. But for people who become passionate about solving a particular disease problem, it can be difficult to go the distance from idea to clinical impact in academia. Academic groups tend to function independently of each other, and for translational problems you need lots of groups willing to work together over the long term. Academia also does not typically

have the research infrastructure or the resources to pursue drug development. Pfizer has both, as well as the willingness to apply them. If we aren't producing medicines that improve patients' lives we won't have the revenue to support further research.

Q: In Cambridge, you are committing to physiology. Isn't that an 'old' field?

The animal models earlier CNS drugs arose from simply do not translate well into humans. Leaps forward in areas like imaging technology and *in vivo* physiology give us a much more robust ability to observe and monitor brain activity. We want to measure quantitatively what happens at the circuit level.

Also, CNS therapies have been much more limited to small molecules than in other disease areas, because of the blood-brain barrier. This barrier has largely ruled out approaches such as antibodies and proteins, which, in turn, limits molecular mechanisms that we can target. There is remarkably little high-quality research on the blood-brain barrier. If I were a young scientist looking for something important to do, I would consider discovering peripheral targets or else figuring out how to get various kinds of molecules across the barrier.

Q: Why is Pfizer growing its postdoc programme in Cambridge?

At conferences I am often surrounded by grad students and postdocs who want to learn more about industry fellowships specifically and career opportunities generally. Our postdocs work to produce high-impact, high-quality publications. They are intermingled with chemists, clinicians and scientists from many disciplines. They can't help but absorb knowledge about what drug discovery means.

In an academic setting, there is a significant lack of understanding about the drug discovery process. We intend our postdoc fellowships to act as training programmes where people learn about drug discovery. When they finish, we anticipate 50% staying in industry and 50% returning to academia. The programme allows us to bring in young people with new ideas and different backgrounds. It then helps us build a knowledgeable network for the future, because — even if the postdocs return to academia — they will know much more about how industry operates.

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A World of Opportunities

Different people. Different perspectives. One common commitment.

At Pfizer Neuroscience, our science makes a difference in the quality of life for millions of individuals worldwide with neurologic and psychiatric disorders. The commitment and talent of our scientists are key to accomplishing this goal.

A commitment to therapies for brain disorders

Among the most devastating disorders of our time, neurologic and psychiatric diseases combine to cause more disability than any other disease area. At Pfizer, we have a deep industry-leading commitment to understanding the origins of brain disorders and to developing innovative medicines that effectively treat Alzheimer's disease, Parkinson's disease, depression, schizophrenia, Huntington's disease, autism, stroke, bipolar disorder, sensorineural hearing loss, among other diseases of the brain, nerve and muscle.

We are seeking talented scientist at multiple levels to join our team that have a passion for applying the latest science to the discovery of new medicines.

Specifically, we are targeting individuals with expertise in the areas of:

- Human experimental biology
- Translational medicine
- Electrophysiology, imaging and optogenetics
- *In vivo* approaches linking circuit function and behavior
- Clinical neuroscience
- Quantitative biology and modeling

Our Neuroscience Research Unit is located within the vibrant research hub of Cambridge MA. For complete descriptions of open positions and to apply visit www.pfizercareers.com. For more information about our research unit, people and science go to www.pfizerneuroscience.com.



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