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PRESIDENT'S COLUMN

A Cauldron of Innovation

The Clark Center has incubated pathbreaking inventions and transformed our thinking.

Photo: Linda A. Cicero

By John Hennessy

Imagine: What if we could create neural prostheses—devices controlled by the mind—so paralyzed people could help themselves? What if we had microscopes small enough to see how viruses such as hepatitis C, polio and rhinovirus evade detection to infect cells? No need to imagine. These are a few of the many innovations in development in Stanford labs in recent years.

This year we celebrate the 10th anniversary of the James H. Clark Center, Stanford's pioneering center for interdisciplinary collaboration. The Clark Center is home to Bio-X, launched in 1998 at the nexus of science, medicine and engineering. Over the past decade, the center has stimulated more advances than we anticipated.

Designed with huge open labs that serve as catalysts for wide-ranging research, it has become a hub of innovation, engaging more than 600 faculty throughout the University in research that has produced hundreds of publications and dozens of patents.

The research done in the Clark Center's 45 interdisciplinary labs is potentially transformative, and the University has provided early support through competitive seed grants. In the grant program's first decade, these projects were awarded more than $170 million in external funding—more than 10 times our original investment. For example, as a result of the work done on neural prosthetics, Stanford will be the first West Coast site to run an FDA phase-1 neural prosthetic clinical trial. The early work on virus tracking has garnered several large NIH grants and could lead to new treatments for neurodegenerative diseases such as Alzheimer's and Parkinson's.

Bio-X and the Clark Center have stimulated the development of other new research areas, including optogenetics, microfluidics and computational biology. In this century, advances in neuroscience may finally reveal the brain's mysteries. Stanford, with its collaborative culture and proven track record in interdisciplinary research, is well positioned to lead as a result of work being done in the Bio-X NeuroVentures program and our new interdisciplinary neuroscience institute, under the leadership of neurobiology professor William Newsome.

Over the last decade, we've provided support to more than 150 PhD candidates. Bio-X Fellowships and Stanford Interdisciplinary Graduate Fellowships enable students to pursue research across disciplines or work with multiple faculty members, independent of a specific project. And since 2006, more than 240 Stanford undergraduates have participated in interdisciplinary research with Bio-X faculty through the Undergraduate Summer Research Program. These are tomorrow's trailblazers.

Faculty leadership has been critical to the success of the program and the center. Bio-X began as a grassroots movement among our faculty. James Spudich, professor in biochemistry, headed up the founding executive committee, which included faculty from engineering, medicine,and humanities and sciences, and which developed the initial vision for the institute and the building. Matthew Scott, professor in developmental biology and in genetics, was its inaugural chair, and Carla Shatz, professor in biology and in neurobiology, has served as its director since 2007.

Almost as important as the groundbreaking research and education occurring at the Clark Center is the role Bio-X and the center played in pioneering Stanford's expanding interdisciplinary activities. As our first building to combine faculty

from more than a dozen departments and three schools, it became a model for new facilities. And other centers, such as the Woods Institute for the Environment and the Precourt Institute for Energy, have adopted versions of the seed funding and fellowship programs.

When we built the Clark Center, we wanted a facility that would leverage our strengths and support the research of the future. Over the past decade, it has surpassed all expectations, redefining how we conduct research and generating new directions in interdisciplinary work for the benefit of generations to come.

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