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UCSF to name building after biotech pioneer Bill Rutter

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The next big breakthrough in biology may be born on a volleyball court in San Francisco's Mission Bay neighborhood, where UCSF has built a posh community center replete with sports courts and swimming pools.

That wouldn't surprise Bill Rutter, who helped found the biotechnology industry by encouraging social interaction between scientists whose work might seem unrelated at first glance.

That was just one of the visionary ideas that made Rutter one of the key figures in the history of biotech, the history of molecular biology and the rise of UCSF to become one of the most prestigious science institutions in the world.

The powerhouse medical school is naming the community center today for Rutter, the former university leader who helped bridge the gap between academia and industry.

Rutter's pivotal influence on the biotech world began when he became head of the university's biochemistry department in 1969, assembling a collaborative group of scientists who helped establish the techniques of genetic engineering that kicked off the biotechnology industry.

Those discoveries spurred the creation of biotech giant Genentech Inc. of South San Francisco and Chiron Corp., the Emeryville company Rutter co-founded. Patents from the school's fundamental work in molecular biology enriched both the university and the inventors who shared the royalties.

Former UCSF scientists from that era have also donated millions to the university, with Rutter at the forefront. Through a foundation he funded, Rutter has donated \$25 million to the school. He also played a key role in securing the Mission Bay site where the medical school has been expanding in its satellite campus.

Regis Kelly, who was one of Rutter's first faculty recruits, said it's fitting that UCSF is naming its most architecturally striking new building for Rutter. The center's bold design matches the striking impact Rutter had on the school, Kelly said.

"More than any other person I know, he has contributed to the growth of UCSF over the past 30 years," said Kelly, director of the interdisciplinary California Institute for Quantitative Biosciences based at Mission Bay. The institute couples the resources of UCSF, UC Berkeley, and UC Santa Cruz with industry expertise to tackle questions in biology from the perspectives of math, physics and engineering.

Such cross-disciplinary, public-private partnerships were rare in 1969, when UCSF succeeded in luring Rutter away from his academic lab in Seattle.

Rutter was part of the first wave of scientists to explore the rich territory opened up in 1953 when James Watson and Francis Crick unveiled the structure of DNA. That structure reinforced theories that DNA provided the blueprint for the manufacture of other biological molecules. What remained was to discover exactly how the cell reads that code.

Rutter, who had refused the UCSF job several times, finally consented when he was promised the opportunity to hire at least 20 faculty members. He saw the potential to create an interactive biochemistry department culture that would pool a range of skills.

Rutter also saw the possibility that any progress in the lab might be quickly applied to human disease, because UCSF's basic science programs were housed within a medical school.

"It was clear to me before coming down here that there were approaches to human biology, both at the molecular genetics level and the developmental biology level, that were going to open up vistas that were not there before," Rutter said in an interview this week. "One person was not going to do it - you needed cooperating individuals, multiple technologies."

Rutter is widely credited with transforming a mediocre medical school into an internationally prominent center of far-reaching science.

Kelly said Stanford University was working under a similar collaborative model. In 1972, a Stanford team led by Paul Berg created the first recombinant DNA molecule by connecting two pieces of DNA. In 1973, UCSF's Herbert Boyer and Stanford's Stanley Cohen used gene-splicing methods to incorporate toad genes into living bacteria.

These techniques harnessed the cell's natural mechanisms for interpreting the genetic code. They were quickly recognized as powerful tools that could be put to medical use. If the genes coding for human proteins such as insulin could be spliced into bacteria, the microorganisms could quickly manufacture these proteins for use as drugs. At the time, the insulin needed to treat diabetes was derived from animals. Rutter's lab team isolated the mammalian gene for insulin and introduced it into bacteria.

The commercial potential of such work was the impetus for the founding in 1976 of Genentech by Boyer and venture capitalist Robert Swanson. Rutter, open to collaboration with the new commercial entity, offered lab space to Genentech.

The fallout was a long-running patent battle between the company and the university. UCSF scientists had isolated a gene involved in the production of human growth hormone. The school later accused Genentech of improperly obtaining a DNA sample that helped the company develop its drug Protopin to treat growth abnormalities.

Since then, universities and scientists have learned a lot about protecting intellectual property rights,

Rutter said. In 1981, Rutter co-founded Chiron Corp. with collaborators Ed Penhoet and Pablo Valenzuela. A prime impetus for this venture, he said, was to demonstrate the potential of the new technology to a public that feared gene-splicing would unleash unforeseen damage to human health and the environment.

By 1986, Chiron had developed a vaccine for hepatitis B, a severe and sometimes fatal liver infection. It was the first vaccine created with genetic engineering techniques. Kelly said UCSF's part-interest in the Rutter team's hepatitis B work at the school has probably brought in more money for the university than any other patent.

In 1999, Genentech ended its patent dispute with UCSF through a \$200 million settlement, including \$50 million for construction at Mission Bay. In recognition of this contribution, UCSF named a major research building Genentech Hall. It stands across Koret Quad from the William J. Rutter Center.

The community center itself was designed to foster industry interactions with the campus, Kelly said. The four-story building was intentionally made larger than needed by the university so that any biotechnology companies setting up shop nearby could share its use. The rusty orange and pink structure, designed by Mexican architectural firm Legorreta + Legorreta, contains swimming pools, volleyball and basketball courts, a restaurant, a library and other amenities.

The dedication of the Rutter center today is paired with an afternoon symposium on one of Rutter's current interests - the use of information technology to augment medical practice.

Rutter, 79, is the chief executive of Synergenics, a consortium of biotech startups based in Burlingame.

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