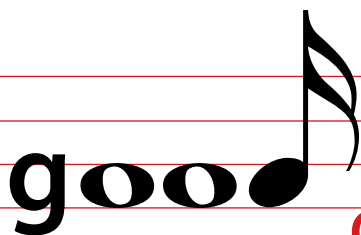


doing



*Steve Cramer, Professor,  
Researcher, Pianist*



## one moment at a time

Steve Cramer was deeply moved by his father's suffering with multiple sclerosis, so he finds great satisfaction when his expertise in protein purification is used during the development of new medications.

"I really enjoy working on health-related scientific challenges and wish that more of my work was more directly related to medicine," he said.

The medical application of Cramer's research is a constant in his career. A Professor in the Department of Chemical and Biological Engineering, he was pre-med at Brown but chose to contribute to the betterment of human health in the laboratory and the classroom, rather than in the hospital.

Because many medicines are proteins, Cramer and his students have worked over the past 20 years to develop new mathematical models and experimental technologies that cleanse proteins of impurities, a process necessary to researching and manufacturing pharmaceuticals. He co-invented a technique that uses low molar weight molecules, instead of large polymers, to make it easier and cheaper to purify proteins. Recently, the chemical company SACHEM licensed a technology developed by Cramer and Jim Moore, Rensselaer professor of chemistry and chemical biology; on May 31, the company launched a line of displacers used to purify proteins.

Cramer's Web site doesn't reveal this, though. One notices instead the tab marked STUDENTS and sees group photos of his students back to 2001, along with a bibliography of the dissertations he's supervised.

"The most important thing I've done is educate a whole cadre of Ph.D. students, about 30 of them, highly sought people who are playing a major role in the bioprocessing of pharmaceuticals," he explained.

Cramer credits his research group with the hard work. Beyond the classroom, he feels teacher-student interactions in the laboratory, during research, and while writing papers round out the students' education.

"I view my lab as a team, a family, a little company, so I try to create an enjoyable, positive, stimulating environment for the students. I treat them like colleagues, because I know I will blink my eye and they will be colleagues," he said.

Cramer celebrates the imagination wherever it manifests itself for human good. He began playing piano at age 5 and eventually became a professional. In college he made summer money playing Vermont resorts and Boston clubs, then in grad school played jazz piano in clubs and restaurants.

Cramer was part of jazz duos and trios, even a rock band. He loves jazz improv, influenced by Keith Jarrett, Chick Corea, and Bill Evans.

Cramer has also married music with meditation, another longtime interest, playing with vocalist Shefa Gold on three CDs for Jewish meditation. They use techniques developed from the religion's mystical teachings. His playing is fluid, precise, with trills of guiding notes. Following the train of his playing and Shefa's singing is a calming and potentially illuminating experience.

"The music is a vehicle to arrive at certain states of consciousness," Cramer said. "Meditation is a way to tune myself to live in the moment, to be very conscious and aware of every moment. It's also a way to connect to the Mystery, and be interconnected with everything else."

That sensitivity had a lot to do with Cramer's ultimate career choice. He opted for science over music when he experienced the same creative moment in research that he feels playing.

His next project will bring the techniques of large-scale separation processes to the challenge of the proteome, which is all the proteins expressed in a cell or system under given conditions. "Success could lead to new drugs, new diagnostic techniques, and deeper understanding of human biology," Cramer said. Hopefully, another conjunction of science, imagination, and health.