# Rafael Jiménez to leave DPTC Spring 2016

*Professor Rafael Jiménez-Flores*

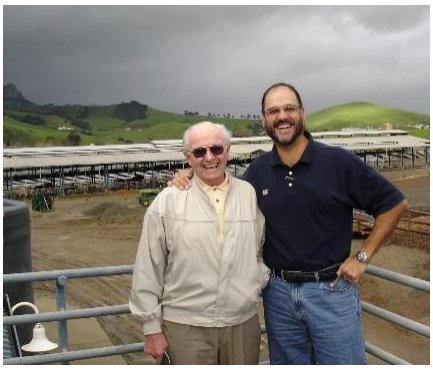
Since the summer of 1995, Professor Rafael Jiménez-Flores has been an important part of the Dairy Products Technology Center. Originally from Mexico City, Mexico he earned his undergraduate education at La Salle University in Mexico City with a major in pharmaceutical chemistry and food science. He earned a master's degree from Cornell University and a Ph.D. from University of California, Davis. He was among the first scientists to publish the sequence of beta-, kappa- and alpha casein from cloned milk proteins. He continued his work on dairy technology by focusing on milk fat, the milk fat globule membrane, and a process to remove cholesterol from butter oil, which was patented by UC Davis.

His first academic position was as an assistant professor at the University of Illinois. Both he, and his wife Lola, were hired by the university's Food Science and Technology Department. "That was an incredible experience, because University of Illinois is much bigger than UC Davis -- it was about 65,000 students when we were there. When we got to there, we only had our daughter, and when we left we had also my son. Needless to say that I am an Illinois sports team fan, Bulls and Bears!" said Jiménez.

After five years at the University of Illinois, he moved to San Luis Obispo, to join the faculty of the Dairy Science Department at Cal Poly and form part of the Dairy Products Technology Center. When asked what made him want to come to Cal Poly, Jiménez said, "The main factor was the opportunity to be part of a growing DPTC. I had witnessed some of the initial founding steps of the "Centers of Excellence" as a graduate student in Davis. So, when I heard that DPTC was part of that, I was very interested. I also trusted the leadership of Professor Phil Tong, whom I had met at Cornell, and kept in touch through the ADSA meetings."

DPTC researchers visit Prof Tom Richardson enroute to the 1997 American Dairy Science Association Annual Meeting Denver, CO

During his 21 years at DPTC, he was active in the research of dairy technology, mostly on the characterization and function of milk components such as milk fat globule membrane (MFGM) and buttermilk, as well as diverse applications of molecular biology and physical-chemistry of MFGM components and interactions.



*Gene Starkey and Rafael Jiménez overlooking the Cal Poly Dairy Farm, 2007*

"In dairy technology our work includes ultra-filtration of milk for production of dairy foods; quality assurance and sanitation… along with work on the microbiology of spores in milk powders, and product development using dairy components," said Jiménez. For the last 10 to 15 years Jiménez's group has also been contributing to the applications of supercritical CO2 (supercritical fluid) processing for lipid extraction and functionality modification of dairy ingredients."

*Phil Tong and Rafael Jiménez with Prof. Harjinder Singh at the 2006 IDF meetings in Mexico City*

In dairy science he worked with molecular biology applications to dairy proteins, using heterologous expression of caseins to explore function and biological activity, early on and when funding allowed it, production of transgenic animals with modified genes in the milk. His work with the milk fat globule membrane is well regarded by the scientific community and it has involved many areas of research; biochemistry of proteins and lipids, physical chemical analysis of properties of phospholipids, distribution of phospholipids in the MFGM, and several nutritional and biological activities. He also explored and saw indications of very positive activity of milk phospholipids in colon cancer, prevention of leaky gut syndrome, and protection by UV damage of skin models that prevented the formation of cancer or melanoma.

Over the years Jiménez taught a wide variety of classes, including dairy microbiology, dairy processing, ice cream and frozen desserts, and sensory evaluation of dairy foods. “The class that I had the most fun teaching was Introduction to Dairy Research for Graduate Students (DSCI 560),” said Jiménez. “I taught it every year since my arrival to Cal Poly. It was a course designed to make an introduction to the basis of scientific methods and about research thinking and mechanics. It was a chance for me to be a mentor for all the students arriving at DPTC, and get them hooked on the idea of being in the lab, helping dairy farmers, and in general the dairy industry to solve problems using science and technology. We really focused on the technical and academic formation of our students to be leaders in science, technology and focusing on relevant areas to solve problems.”

*DPTC Thanksgiving Dinner at Professor Jiménez’s house*

He was also involved in the Seminar Series DSCI 581. Jiménez recalls, “All the three faculty in DPTC had benefited from graduate student seminars in our respective institutions, and we wanted to bring this to the Cal Poly students. So, using funds from the DPTC we offered a seminar course for graduate students every quarter for more than 15 years.”


*Dr. Jimenez addresses 25 anniversary attendees*

For the last two years Jiménez was also charged with the directorship of the Cal Poly Center for Applications in Biotechnology (CAB). In this center Jiménez helped build the vision and mission of Cal Poly CAB – to support research and development of biotechnology on Cal Poly campus, to be a place where students are trained to apply their knowledge and faculty are involved in bringing the fruits of their discipline to benefit their community.

*Jiménez with former students at 25 year celebration picnic*

His accomplishments don’t end there. He is the author of over 80 peer-reviewed papers at Cal Poly, four patents, two patents pending and 14 book chapters. He has been an advisor for 44 graduate students, 12 post-doctoral fellows and has hosted 18 visiting scholars from all over the world. He has been the chair of the ADSA milk protein and enzyme committee, senior editor of the dairy foods section of the Journal of Dairy Science, member of the board of directors of the American Dairy Science Association, and e-chair of the Journal of Dairy Science Management Committee. He received the Alpha Zeta outstanding teaching award (1995) at the University of Illinois, the ADSA Kraft-Milk Industry Foundation Teaching Award (2003), the International Dairy Foods Association (IDFA) Research Award in Dairy Foods Science (2009), The Outstanding Research Award (2010) by the College of Agriculture, Food and Environmental Sciences, Cal Poly, the Distinguished Scholarship Award from the California Polytechnic State University (2010) and the Cal Poly $5 Million Certificate of Excellence in External Research Funding (as a research professor), May 2014.

When asked what he was most proud of during his time at DPTC, his response was, “That is easy. The group of students who I could help and who are now having more fulfilled lives by continuing their academic formation. I keep thinking that well prepared students are our primary product. Research advances and publications and solution to technical problems in the industry really takes second seat to our work. The advice I give all of my graduate students is that the graduate program is about being in the laboratory, not being in class.”

Jiménez said that the dairy industry needs to continue to provide funding in areas of research and knowledge in the dairy foods arena. “All aspects of it are in dire need of people working and having information, technology and improvement of practices to keep with the times,” he said.

In 2016 Jiménez will take a position at Ohio State as the J. T. ’Stubby’ Parker endowed chair in dairy foods. “I will continue to do what I love and what I have found I am good at; forming students (graduate students mostly) that know how to solve problems in the areas of dairy foods processing, dairy components function, and to imagine, test and document issues of milk and human health using all the tools that can be at our disposal. In the past we had proteomics, genomics and the best procedures for analytical chemistry and biochemistry. I imagine I will continue, but I am very enthusiastic to apply some of what I have learned in the Cal Poly CAB on metagenomics and metabolomics to the advancement of our understanding and perhaps apply this to novel ideas that lead to the discovery of the benefits of milk, or how to process milk so that it keeps us in top shape as humans,” he said.

When asked what he will remember the most about his time at Cal Poly, he responded, “The growth of my family. First how my wife went from lecturer to head of a large department (Liberal Studies) which has more than 400 students. I will also remember how my children grew and pursued college degrees and in my daughter's case also a Ph.D. (at Vanderbilt). I will remember all the student reunions and holidays we had, especially when our international students could not go home, how we all at DPTC made a community. I also will remember our 25th anniversary, both with great joy and tremendous sadness for leaving such a great place.”

He added: “I am now following a path that promises to keep me busy and challenged. I am grateful for all the opportunities offered to me while in DPTC at Cal Poly, and am thankful for the career growth it allowed me to have along these 21 years. I consider myself extremely lucky because I got to work with a fantastic group of people. I am mostly appreciative for all the faculty that worked with me at Cal Poly, because I got to see first-hand how dedicated they are to the students, and also how well professors adapt to circumstances and form great teams for collaborative work.”