Transcript of speech rendered by Prof. Keith Yamamoto at the funeral service for Prof. Jack Horowitz on October 10, 2013.

Professor Keith Yamamoto is Vice Chancellor for Research at UCSF, Executive Vice Dean of the School of Medicine, and Professor of Cellular and Molecular Pharmacology at the University of California, San Francisco. He is also a member of the National Academy of Sciences, USA.

Keith received his undergraduate degree in Biochemistry at Iowa State University (1964-68) and conducted research in the laboratory of Prof. Jack Horowitz.

I join you today not so much to say farewell to Jack (indeed, he would never have allowed the fuss), but rather to thank him, to honor him, to celebrate him.

Jack was in his third year as an Iowa State assistant professor when he was assigned to welcome and advise me, a newly arriving freshman journeying up I-35 from Des Moines in the fall of 1964, ushered by my parents. The record will show that Jack took me into his lab through my junior and senior years; that he generously included me as a coauthor on his 23rd scientific publication, my first; that he taught me in his graduate Biochem course; that he encouraged me to apply to top grad programs; and that I departed for Princeton in the summer of 1968.

That was it—just under four years beginning 49 years ago, four years of mostly periodic, mostly limited contact. Nice, but surely you’d expect only limited long-term impact over the course of the 11 years of my training and 38 years as a practicing scientist. You’d be wrong. Wrong because a crucial element, perhaps the crucial element, of training in basic biological research is hidden from view from nonscientists, and underappreciated by many scientists.

What is that crucial element? It is not the course material, it’s not the lab project. It’s mentoring—formal and informal, active and passive, directed and incidental—even accidental. It’s learned behavior, thought patterns, interactions. Back then (and, frankly, even now), there was no didactic training in how to be a scientist.

Students were expected to learn lot of concepts, lots of facts —if you did well, you learned to think. After that, the message essentially was “watch your elders and do as they do.” The luckiest, and I was among them, were found by someone who loved science and did it with excitement and elegance, who loved students and took deep satisfaction from empowering them with vision and skills, corraling but not squelching their restlessness and impatience, imbuing them with wisdom and judgment, expanding their aspirations, passing along every shred of knowledge and insight that might enhance their chances of success, and jumping for joy when they achieved it.

Jack was that “someone” for me—my lifelong mentor, a science touchstone— and a personal one too. And that day in 1964 with my parents and me provided a remarkable inauguration and an indelible Iowa State memory. Jack was at once knowledgeable, energetic, enthusiastic, patient, helpful and supportive — and the most amazing part: he seemed
completely confident that I would excel in the daunting undergraduate Biochemistry curriculum. I myself had no clue! As we say in California, I don’t know what he was smoking!

In Jack’s lab, I learned about research – not just chromatography and centrifugation, but the crucial intangibles: the intensity and dedication required, the joys of a well-controlled experiment even if the results confound the hypothesis, the importance of relating results to those in the wider scientific community, the ethical standards by which good science is done and communicated by good scientists.

Having now gained perspective from my years as researcher, teacher, department chair, vice dean and vice chancellor, I understand what Jack knew all along-- that our legacies as scientists are not our own scientific triumphs, but our trainees, whose sophistication and taste and styles in science we attempt to guide and shape and support. Jack’s pivotal role in every aspect of my scientific development are vivid in my mind, especially at times that invite reflection, such as my election to the National Academy of Sciences, the American Academy of Arts and Sciences, and the Institute of Medicine, and especially the receipt of awards for teaching or research, including the Honorary Doctor of Science degree and the Atanasoff Research and Discovery Award from Iowa State.

And I know also that mine is not an isolated example. Rex Risser, who also trained as an undergraduate with Jack (and who, as a Professor at Wisconsin, died tragically in 1991), spoke often of his good fortune to work with Jack. Rex and I used to joke about what wise and subtle element of Jack’s character and influence might have pre-ordained that we would both receive job offers at Harvard-- and both decline them!

Jack’s research program focused on understanding how one essential class of biological molecules, RNA, could interact with exquisite specificity with another class, proteins, to carry out some of life’s most important processes. While he did not operate alone, of course, it is fair to say that he asked and answered questions a few decades ahead of his time—specific RNA:protein interactions are at the white hot center of molecular biology today, governing virus infections, stem cell differentiation, brain function.

Importantly, Jack used his research as a vehicle for teaching, for developing scholarship and fostering enthusiasm, for cranking up intensity of focus, the purposefulness, that he knows to be so crucial to success in this endeavor. I recall vividly that he delivered one day a soft-spoken but unmistakably firm message to his graduate students, as I sat in his lab, a naive undergraduate—a “teaching moment” that I am certain was not lost on any of us. Jack dedicated his career to creating an outstanding environment for learning and research, in his lab, across the Iowa State campus and beyond.

With these reflections, gratitude rises through the sadness:

So thank you, Jack, for your wisdom, dedication, support and friendship. Thank you for your mentoring. I’ll miss you—your absence leaves a hole in my heart—in all of our hearts.
But your absence is not your disappearance. From my personal perspective, it is clear that my success is your success, and that the achievements of the more than 100 grad students and postdocs trained in my lab trace to you. From that I take solace and peace, even joy and celebration.

And I know that Jack would have been happy with that.