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Yu-li Wang

The son of postal managers, Yu-li Wang grew up in Taipei, Taiwan, where his parents encouraged him to achieve in school and directed him to read a broad range of books, from history to the sciences. His passion for science started while still in elementary school, when he found his way to the local science museum's microscope and planetarium shows. The equipment by current standards was primitive, but he "got hooked" watching the paramecium and amoebae week after week, reflecting that "for some reason I never got bored of it."

While his early education formed the foundation of his career, Wang acknowledges limitations of the formal science education in Taiwan at the time. The students were faced with multiple examinations and most teachers emphasized memorization of facts rather than reasoning. Compared to the U.S., primary and secondary education in Taiwan was both more rigid and more competitive, the fate of each student resting almost entirely on a series of centralized exams. Wang compensated for this formality through museums, books, and experiments at home. He believes that this sort of self-motivated learning is critical for scientists "because it enables you to become an independent thinker and tinkerer."

As he was growing up, Wang witnessed the "opening of a society." Taiwan was preoccupied with anti-communism in the 1950s and 1960s. However, after 1970, the island was making a rapid transition to economic prosperity and democratization. He feels that the combination of hardship and prosperity instilled in many of his generation a "can-do" attitude.

Wang earned his undergraduate degree in physics at the National Taiwan University. The first three years were filled with required core curricula, but his final year allowed him to return to his childhood biology favorites, leading him to explore ways to combine the rigorous reasoning of physics and the more intuitive approach to biology. Outside his academic work, Wang played in several orchestras and chamber groups as a violinist. He still enjoys playing the violin, but time constrains his engagement to a personal hobby.

In 1975, Wang married his schoolmate Lutao Sophia Kang and the couple came to the U.S. so Wang could attend graduate school at Harvard, where he majored in Biophysics. A few years later, Kang entered MIT, earning her Ph.D. in Political Science. Wang and his wife enjoyed life in Cambridge. "You could go to the library or the lab at 11:30 at night and people would be working, but at the same time Cambridge was filled with interesting cultural activities," Wang remembers nostalgically.

Wang relished lab rotations, exposing him to a variety of top labs and investigators, among them his eventual dissertation advisor, Lansing Taylor, who was then an assistant professor. Wang points to his earliest experience with light microscopy as the reason for choosing Taylor's lab, confessing simply that "Taylor's lab was working on amoebae and microscopes, and that old fascination attracted me to his lab." At the time, light microscopy was undergoing a transition from descriptive, photographic forms to analytical, electronic forms. Taking advantage of his training in physics, Wang chose the problem of how to maximize the power of fluorescent microscopy for studying molecular dynamics in living cells, adapting a number of space and military photonic technologies to cell biological research.

In 1982, Wang took his first independent position in the Department of Molecular and Cellular Biology at the National Jewish Hospital in Denver. He confesses sheepishly that at first he "didn't realize how good a position it was," but was pleasantly surprised by the strong institutional support for young investigators. Senior colleagues such as Howard Rickenberg, Frank Harold, and Mayer Goren offered their unlimited support, while younger ones such as Norman Pace, Mitchell Sogin, and Jonathan Scholey interacted freely in a stimulating atmosphere. The institution was also admirably realistic about its teaching and funding requirements, in contrast to many institutions today which Wang feels expect young scientists to compete prematurely with established labs for federal research funding. Wang was able to launch his career through institutional support and grants from the Muscular Dystrophy Association, which allowed him to establish a solid basis for his subsequent NSF and NIH grants.

In 1987, Wang left Colorado for the Worcester Foundation for Experimental Biology, which recently merged with the University of Massachusetts Medical School. He is currently a professor of physiology at the UMass Medical School. His laboratory combines powerful molecular biological, cellular, and digital imaging techniques to study how cytoskeletal proteins reorganize themselves to achieve their diverse functions.

Wang was attracted to cell biology because he felt that it would specially benefit from advances in light microscopy. The ASCB Annual Meeting in 1978 was the first scientific meeting he ever attended; he was a third-year graduate student. "I was so excited and fascinated by what I saw there that I immediately became a member," Wang recalls. Among the other satisfactions of his longstanding ASCB membership is having watched the growth of Molecular Biology of the Cell, where he publishes regularly.

Wang's scientific passion continues to center on experiments with light microscopy. Driven by his physics training, he personally modifies his microscopes "to do the best possible experiments." Among his inventions are an electronic microinjection device, a flexible substrate for cell culture, and a computer imaging system optimized for studying cellular dynamic events. "I don't reinvent the wheel," he explains, but once he realizes that a commercial tool is not as good as it can be for his application, he doesn't hesitate to modify it or to create his own. When asked why he has not sought to commercialize his best inventions, he responds modestly, "I can't spare the time."

Douglas Fishkind, a post-doctoral Fellow in Wang's lab at the Worcester Foundation for Biomedical Research from 1990-1994, says of Wang, "he is an extraordinarily talented cell biologist and modest human being. Yu-li's life experiences and rise to prominence in the field represents the classic tale of how special people who immigrate to our shores bring extraordinary gifts and new dimensions to our country and scientific enterprise. He is truly a national treasure and world-renowned expert in cytoskeletal regulation and applied optical microscopy."

Wang notes that immigrant scientists have "made their mark" by bringing creativity, perspective and relentless effort to the U.S. scientific enterprise. However, he believes that the increasing proportion of young graduate students and postdocs who are foreign-born is because most foreign students are accepted not for their potential for independence, but to address immediate labor demands in research laboratories. He feels that the solution lies in making scientific careers more attractive for American youngsters, not in curtailing the number of foreign students, by more effectively distributing resources. "Too often, scientists are judged not by the quality of their research, but by the amount of grant dollars that they can generate. This leads to inflated labs, a shortage of labor, and scarcity of research funds, particularly for starting scientists." He feels that the situation does not benefit immigrant students, since they will face even more serious problems establishing an independent research career than their U.S. counterparts.

The Wangs live in Northborough, Massachusetts; "we really love central Massachusetts because we have easy access to both the cultural activities of Boston and the rural environment of New England," Wang says. They have two children: their daughter, Ruby, will attend the University of Pennsylvania where she hopes to study the biomedical sciences like her father; their son, Ray, is a "typical eleven-year-old," at the moment mostly preoccupied with sports.