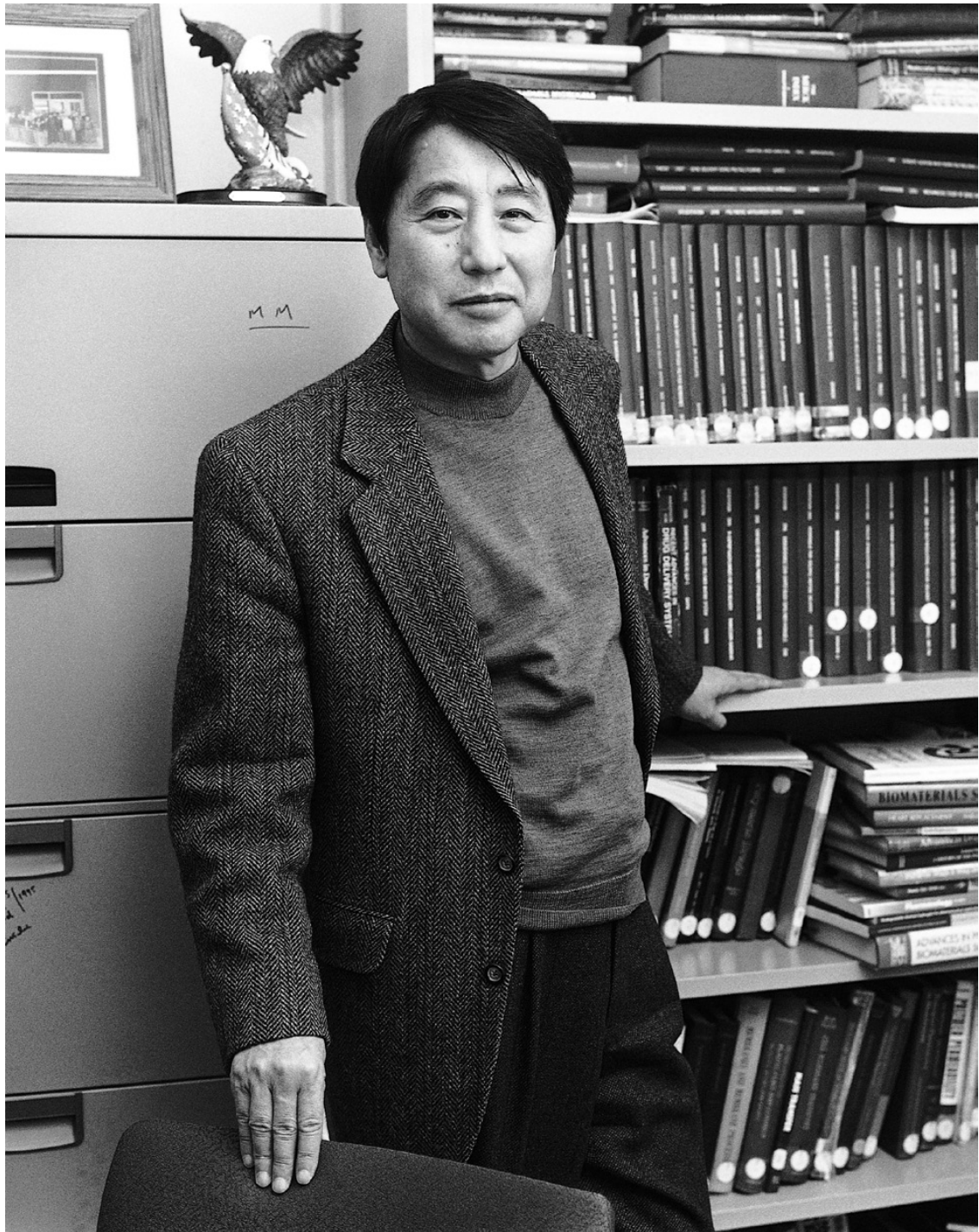


A Portrait of
Sung Wan Kim, Ph.D.

Pharmaceutical Pioneer



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Sung Wan Kim,

Distinguished Professor of Pharmaceutics and Pharmaceutical Chemistry as well as Distinguished Professor of Bioengineering at the University of Utah, was born August 21, 1940, in Busan, South Korea to Jong Kuye Kim and Shin Hee Lee. Growing up, Sung Wan's parents strongly encouraged him to pursue an education. Despite being surrounded by poverty and the terrors of the Korean War, he was determined to succeed academically. Counseled by his mother to seek a career in chemistry, Sung Wan enrolled at Seoul National University where he received his B.S. in chemistry and M.S. in physical chemistry in 1963 and 1965, respectively.



Dr. Kim races mentor Henry Eyring, professor of physical chemistry at the University of Utah.

IN 1963, PROFESSOR HENRY EYRING, RENOWNED CHEMIST FROM

the University of Utah, visited Sung Wan's department at Seoul National University. Sung Wan was impressed by Professor Eyring who convinced him to move to the United States and continue his studies at the University of Utah. In 1966, he bid his family and country farewell and moved to Salt Lake City, Utah where he studied physical chemistry under Professor Eyring.

After receiving his Ph.D. from the University of Utah in 1969, Sung Wan was faced with a professional dilemma. He no longer wanted to pursue a career in physical chemistry. He sought out his friend and mentor, Professor Eyring, who advised him to "move into a hot, new area of science and compete with established researchers."

Professor Eyring introduced Sung Wan to Dr. Willem Johan Kolff, regarded as one of the most important physicians of the 20th century and "Father of the Artificial Organ." Dr. Kolff needed a physical chemist to work on an artificial kidney membrane and artificial organ development steering Sung Wan in the direction of medicinal chemistry and biomaterials. This was not only a new discipline for Sung Wan but, in the early 1970s, a groundbreaking field of study in the world of international medicine. To assist Dr. Kolff with the development of the artificial heart, Sung Wan began research on biomaterials medicine. In 1982, the first artificial heart was successfully implanted in a human patient; Dr. Kolff's and Sung Wan's research had contributed.



Dr. Kim aided Dr. Willem J. Kolff in development of the first artificial heart.

In 1986, Sung Wan, Dr. Dinesh Patel, and Dr. William Higuchi co-founded Theratech, Inc., "a leading drug delivery company developing, manufacturing, and marketing innovative products based on patented and proprietary technologies and systems." That same year, he founded the University of Utah's Center for Controlled Chemical Delivery where he served as co-director until his retirement in 2007. Theratech was eventually sold to Watson Pharmaceuticals, Inc. in 1996.

Although Sung Wan is reluctant to boast of his professional successes, he is reservedly proud of the work he has accomplished and credits his wife, Hee Kyung, with making it all possible. Hee Kyung, whom he met and married in Salt Lake City, worked as a programmer earning

the lion's share of the income while his career was still in its infancy. She would later raise their two children (Alex and Kara) as well as take care of those international friends he inspired to make the same leap he did by moving to the U.S. to pursue science and academics.



Dr. Kim with wife, Hee Kyung (LEFT) and the couple with their children and grandchildren (RIGHT).

REFLECTING ON HIS YEARS GROWING UP IN KOREA, SUNG WAN IS amazed at the country's progress. With a strong grip on the electronics manufacturing sector, Korea has pulled itself out of the poverty it saw for most of the century. He had dreamed of a day when Korea would stand out as a leader in the world economy and is pleased to see that dream come true. He attributes much of this success to the Korean students he has trained who have returned to teach and create new companies. Travelling back to Korea with university leaders and colleagues, Sung Wan has witnessed the impact he has made first-hand.

Sung Wan's achievements have paved the way for further research in drug delivery using biopolymers, an area that has defined his entire career. Becoming the pioneer of biopolymer drug and gene delivery, his research has had an enormous impact in the areas of hydrogels, biodegradable drug conjugates, self-regulating drug delivery, and stimuli sensitive polymers. The fundamental novelty of Sung Wan's gene delivery systems is the design of new polymeric structures suitable to carry genes into cells which is based on a deep

understanding of physico-chemical, synthetic, and biological principles. The successful delivery systems are multifunctional and possess balanced individual contributions providing an optimal composition with outstanding properties. Sung Wan's laboratory has designed many new biomaterials currently being tested in the areas of anticancer drug delivery. For instance, "Regel," the first biodegradable polymer, has thermo-sensitive properties (forms an aqueous solution at room temperature but solidifies into a hydrogel once inside the body). It is currently in Phase II clinical trials.



Dr. Kim with his students outside the Biomedical Polymers Research Building on the U of U campus.

Since 1974, Sung Wan has published more than 500 papers in various SCI-indexed journals and trained 130 students and postdocs, who teach future visionaries all over the world. He owns 38 U.S. patents and has generated more than \$30 million in research funds. Including his faculty positions at the University of Utah, Sung Wan has been Distinguished Professor at Hanyang University since 2004. He has received numerous awards, including the Research Achievement Award—Pharmaceutical Sciences World Conference;

the University of Utah's Rosenblatt Prize for Excellence and its Distinguished Research Award; the AACP Volwiler Award; the American Association of Pharmaceutical Scientists (AAPS) Dale Wurster Award; the DRS Founders Award; the Biomaterials Society Clemson Award; and the Ho-Am Prize. In 2006, he received an honorary doctorate degree from the University of Twente, located in the Netherlands and known for research in social and behavioral sciences as well as engineering. Sung Wan has also been elected to two prestigious national academies: The Institute of Medicine in 1999 and The National Academy of Engineering in 2003.

PROFESSOR EYRING HAD GIVEN SUNG WAN THREE PIECES OF ADVICE:

do something new, become a National Academy member, and publish and train as much as possible. It is clear that he has gone above and beyond in accomplishing these goals, but for Sung Wan, his work is far from being over. 🐼





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