

Ephraim Katchalski-Katzir (1916–2009)

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On 30 May 2009, the scientific community lost one of



Figure 1. Ephraim Katchalski-Katzir in his office at the Weizmann Institute of Science, Rehovot, Israel. Used with the permission and courtesy of the Weizmann Institute of Science.

its prominent scientists, Ephraim Katchalski-Katzir (Figure 1). He was a distinguished professor at the Weizmann Institute of Science in Rehovot, Israel and was scientifically active, bright and sharp until his very last day.

Ephraim Katchalski-Katzir is scientifically best known for his studies on synthetic polypeptides and immobilised enzymes. He prepared the first synthetic polypeptide, poly-L-lysine and showed that it can be lysed by trypsin [1]. This opened the way for the synthesis of more complex polymers of amino acids, including multichain and branched macromolecules. He also showed that these macromolecules could serve as excellent models for studying physicochemical and biological properties of native proteins [2,3]. Another major achievement of Katchalski-Katzir was in immobilising enzymes. He developed methods for binding enzymes, which speed up numerous chemical processes, to a variety of surfaces and molecules [4,5]. The method laid the foundations for what is now called enzyme engineering, which plays an important part in the food and pharmaceutical industries [6]. Much of his more recent work focused on various aspects of molecular-surface recognition [7–9]. He authored hundreds of scientific papers, and served on the editorial and advisory boards of numerous scientific journals.

Ephraim Katchalski-Katzir was born in Kiev, the Ukraine, in 1916. His parents brought him to British-ruled Palestine in 1922. After leaving high school in Jerusalem, he enrolled in the Hebrew University of Jerusalem where he studied botany, zoology and bacteriology before finally concentrating on biochemistry and organic chemistry. In 1941, he completed his PhD thesis on simple synthetic polymers of amino acids and continued his education at the Polytechnic Institute of Brooklyn, Columbia University and Harvard University. In 1949, following a service in the Israel Army's Science

Corps founded at the start of the 1948 Arab–Israeli War (and, for a time, commanding it as a lieutenant colonel), Ephraim and his scientist brother Aharon joined the Weizmann Institute. Ephraim founded and headed the Biophysics Department, whereas Aharon headed the Polymer Research Department until his tragic death at the hands of terrorists belonging to the Japanese Red Army at Ben-Gurion International Airport in 1972 [10].

Along with his scientific research, Ephraim Katchalski-Katzir was always profoundly concerned with the social and educational aspects of science. He headed a governmental committee for the formulation of a national scientific policy, trained a generation of younger scientists, translated important material into Hebrew and helped to establish a popular science magazine. He served as Chief Scientist of the Israel Defense Ministry and was Chairman of the Society for the Advancement of Science in Israel, the National Council for Research and Development, and the Council for the Advancement of Science Education. He headed the National Biotechnology Council and was President of the World ORT Union. Fifty years ago he co-established the Israel Society for Biochemistry and Molecular Biology (then called the Israel Society for Biochemistry) and served as its first President.

In 1973, Ephraim Katchalski-Katzir was elected the fourth President of the State of Israel, a position he held until 1978. During his term of office, he paid special attention to the problems of society and education, and was consistently concerned with learning more about all sectors of the population. Upon completion of his term, he returned to research at the Weizmann Institute.

He also devoted himself to the promotion of biotechnological research in Israel and founded the Department of Biotechnology at Tel Aviv University. The creation of this department was a continuation of his previous efforts to establish science-based industries in Israel: he had helped create several companies based on the fruits of scientific research.

Ephraim Katchalski-Katzir was a member of the Israeli Academy of Sciences and Humanities and of numerous other learned bodies in Israel and abroad, including the Royal Institution of Great Britain, the Royal Society of London, the National Academy of Sciences of the United States, the Academie des Sciences in France, the Scientific Academy of Argentine, and the World Academy of Art and Science. He also won the Rothschild and Israel Prizes in Natural Sciences, the Weizmann Prize, the Linderstrom Land Gold Medal, the Hans Krebs Medal, the Tchernikhovski Prize for

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scientific translations, the Alpha Omega Achievement Medal, and the Engineering Foundation's International Award in Enzyme Engineering. He was the first recipient of the Japan Prize and was appointed to France's *Ordre national de la Légion d'honneur*. He received honorary doctorates from more than a dozen institutions of higher learning in Israel and around the world, including Harvard University, Northwestern University, McGill University, University of Oxford and the Technion-Israel Institute of Technology.

His death is a great loss as he was a dear person and a giant of the biochemical sciences.

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