Choh Hai Li Biography

Choh Hai Li

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Biography

Choh Hai Li's lifelong research into the pituitary gland resulted in a series of hormone discoveries, including the isolation of human growth hormone (somatotropin), ACTH (adrenocorticotropic hormone), and melanocyte-stimulating hormone.

Li was born in Canton, China, and graduated from the University of Nanking in 1933. Two years later he emigrated to the United States, receiving his Ph.D. from the University of California, Berkeley, in 1938. He spent his entire career at that university, eventually becoming head of the Hormone Research Laboratory.

In 1921-22, the American biologist Herbert Evans (1882-1971) was one of several scientists studying the effect of pituitary gland extract on the adrenal gland. One such effect was to make animals grow very large (gigantism). During the 1940s, Li worked with Evans to isolate the growth hormone in cattle, then showed that it was a branched peptide molecule and partially determined its amino acid concentration. Other scientists used their method to isolate the growth hormones of different animal species. Next, working with Harold Papkoff (1925-), Li purified human growth hormone, using the then-new technique of ion exchange. By 1966, Li and his co-workers had determined the exact sequence of human growth hormone's 245 amino acids. Using genetic engineering methods, in 1970 Li was one of several scientists to independently synthesize the hormone, the largest one up to that time. Li's studies showed the great variation in growth hormone's size and composition from one species to another, and also showed that growth hormone is active only in its own species or a very closely related one.

In 1944, Evans and Li were one of several scientific teams to produce a pure form of the hormone ACTH. This hormone stimulates the adrenal gland cortex to produce several hormones that control the body's glucose (sugar), water, and salt metabolism, and also affects numerous other body functions. In 1956 Li showed that ACTH has 39 amino acids, of which the first 13 are required for production of the glucose-controlling hormones. Li also isolated melanocyte-stimulating hormone (MSH), which controls the production of cell pigments. He showed how MSH's structure is similar to ACTH's and how the two hormones' functions are interrelated.