Ernst Felix Hoppe-Selyer Biography

Ernst Felix Hoppe-Selyer

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Biography

Ernst Hoppe-Selyer was one of the leaders in making biochemistry (or physiological chemistry, as it was called then) a scientific field distinct from medical physiology. He performed the first study of the nucleic acids, gave the name hemoglobin to the red blood cells, and discovered the enzyme invertase.

Ernst Hoppe was born in Freiburg-an-der-Unstrut, Germany. His father, a minister, and his mother died when he was a child. After he was adopted by his brother-in-law, he added Selyer to his name. He received his medical degree from the University of Berlin in 1851, then combined a medical practice with scientific research. Hoppe-Selyer 's interest shifted gradually from physiology to chemistry. After serving on the faculties of the Universities of Berlin and Tubingen, in 1872 he became professor of physiological chemistry at the University of Strasbourg (then part of Germany). He established the first independent biochemistry laboratory in 1877 and the first biochemical journal.

Hoppe-Selyer's first important discovery came in 1862, when he used the newly invented spectrograph to determine the structure of the red blood cells, which he called hemoglobin. He later showed how hemoglobin binds and releases oxygen and how carbon monoxide can take oxygen's place in the blood cell. He also demonstrated some of the chemical similarities of hemoglobin and chlorophyll.

Hoppe-Selyer began studying the nucleic acids after they were discovered in 1869 by one of his students, the Swiss biochemist Johann Friedrich Miescher. Hoppe-Selyer showed that nucleic acids were present in yeast, and his work was extended by his one-time assistant, Albrecht Kossel.

Hoppe-Selyer's other research included the discovery in 1871 of invertase, the enzyme that converts sucrose (table sugar) into the simpler sugars glucose and fructose. He helped determine that lecithin is composed of nitrogen, phosphorus, fat, and choline (one of the B vitamins). And he demonstrated that lecithin and the steroid cholesterol are found in every cell.