

# Venkatraman Ramakrishnan

Padma Vibhushan



**Born On 5 April 1952**

Every cell in our body works like a tiny factory, constantly producing the molecules needed for life. One of the most important machines inside these cells is the **ribosome**, which reads genetic instructions and builds proteins. The scientist who helped reveal how this microscopic machine works is **Venkatraman Ramakrishnan**.

Venkatraman Ramakrishnan, often called **Venki Ramakrishnan**, was born in 1952 in Chidambaram, Tamil Nadu. Both his parents were scientists, which encouraged his curiosity about science from an early age. Interestingly, Ramakrishnan did not begin his career in biology. He first studied **physics**, but later became fascinated by biology and shifted his focus to understanding the molecular structures that make life possible.

His most famous discovery involved studying the **ribosome**, the tiny structure inside cells that builds proteins using instructions from DNA. Proteins are essential for almost every process in the body, including muscle movement, immune defense, and cell growth. However, for many years scientists did not fully understand the detailed structure of the ribosome.

Using advanced techniques such as **X-ray crystallography**, Ramakrishnan and his team were able to map the structure of the ribosome at the atomic level. This breakthrough helped scientists understand how ribosomes read genetic information and assemble amino acids to create proteins.

For this groundbreaking discovery, Ramakrishnan shared the **Nobel Prize in Chemistry in 2009** with two other scientists. Their work also helped researchers develop better **antibiotics**, since many antibiotics work by targeting bacterial ribosomes.

Throughout his career, Ramakrishnan has continued to promote scientific research and education. He later served as the president of the Royal Society, one of the oldest and most prestigious scientific institutions in the world.

Venkatraman Ramakrishnan's journey shows that curiosity and persistence can lead to extraordinary discoveries. By revealing how one of life's most important molecular machines works, he helped scientists better understand the basic processes that keep all living organisms alive.

## X-ray Crystallography – in a nutshell

