

# Dr. Samir Kumar Brahmachari



(Born on 1 January 1952)

Have you ever wondered how new medicines are discovered, how doctors understand diseases at the genetic level, or how science helps fight pandemics? Behind many of these advances lies the work of scientists who study **life at its smallest scale** genes, proteins, and cells. One such scientist who played a major role in shaping modern biomedical research in India is **Samir Kumar Brahmachari**.

At the heart of Brahmachari's work is **molecular biology and genomics** the study of DNA and how it controls everything from eye colour to disease. DNA can be thought of as a giant instruction manual inside every cell. Understanding it helps scientists predict diseases, design better medicines, and even personalise treatments for individuals.

Brahmachari made important contributions to **drug discovery and systems biology**, a field that looks at the human body as a connected system rather than isolated parts. This approach is especially useful in tackling complex diseases like **diabetes, tuberculosis, cancer, and malaria**, where many genes and environmental factors work together.

The ideas he helped develop are now used in designing safer and more effective medicines.

for students, the real-life connections are everywhere. The science behind:

- Antibiotics and vaccines
- COVID-19 testing and genome sequencing
- Personalised medicine, where treatments are tailored to a person's genes
- all depend on the kind of research Brahmachari championed. When you hear about doctors using genetic data to choose the best treatment, you are seeing their field of work in action.

Beyond his own research, Brahmachari had a huge impact as a **science leader**. As Director General of the **Council of Scientific and Industrial Research (CSIR)**, he helped transform India's laboratories into centres that focused on real-world problems. Under his leadership, CSIR labs worked on affordable medicines, diagnostics, and technologies that could directly benefit ordinary people—not just scientists.

He strongly believed that science should serve society. This meant encouraging collaboration between biologists, chemists, doctors, engineers, and even computer scientists. Today, fields like **bioinformatics**, which combine biology with computing and data analysis, are growing rapidly, creating exciting career paths for students interested in both science and technology.

Samir Kumar Brahmachari's journey shows students that biology is no longer just about memorising diagrams. It is about solving real problems that affect human lives. From medicines in pharmacies to health apps powered by genetic data, his work helps connect classroom biology to the world outside.