

The path to the Nobel prize

Sir Richard John Roberts, NL (New England Biolabs, USA)

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YouTube Live Link:
<https://tinyurl.com/SpecialASET>

In this talk, the speaker will briefly describe how he became interested in science and how he almost became a professional billiards player. Following early interests in mathematics and some thoughts about becoming a professional detective, and later his pursuit of a PhD in chemistry, Dr Roberts became fascinated with biology and read a book, "The Thread of Life" by John Kendrew that led to his becoming a molecular biologist. In this talk, he will describe the research that led to the discovery of RNA splicing, which turned out to be a temporary diversion from real interests in DNA restriction and modification and bioinformatics. With a keen interest in sequencing DNA, he became heavily involved in using computers and was a pioneer in what is now called bioinformatics. In the RM field many discoveries have been made including, most recently, some exciting findings on bacterial methylomes.

At age of 18, Richard Roberts was admitted to the University of Sheffield where he studied chemistry, physics and mathematics. Three years later he was accepted as a candidate for a doctoral degree in Organic Chemistry. While examining the substances contained in tropical wood, he discovered new compounds and interrelationships which led to an interest in biology. Already a passionate reader, he avidly began reading about molecular biology.

After obtaining his Ph.D., Roberts took on a position as a postdoctoral fellow with Professor Jack Strominger in the Biological Laboratories at Harvard University (USA). Thus, in 1969 a new period of life began for him as a scientist. A stay as a guest in Cambridge (GB), with Frederick Sanger (who in 1980 was awarded the Nobel Prize in Chemistry for the second time) directed him to the "technique" of RNA sequencing and he succeeded in exactly determining the individual nucleotides within some tRNA molecules, beginning a passion for nucleic acid sequences. In 1972, Roberts started working at Cold Spring Harbor Laboratory in New York. There he discovered that the genes in the cells of higher organisms have a mosaic structure in which coding and non-coding sequences are interspersed, whereas in bacteria, like *E. coli*, the genes are continuous. This result was also achieved by Philip A. Sharp with his research team at MIT in Cambridge, MA in 1977. Both scientists were jointly awarded the Nobel Prize in Medicine in 1993 "for their discoveries of split genes". Their discovery led to decisive progress in many fields including cancer research. He was knighted in 2008.

Since 1992, Roberts has been working as a research director at New England Biolabs, a small molecular biology reagent company located in Ipswich, Massachusetts. His current research focuses on DNA methylation in bacteria and the use of bioinformatics to discover new bacterial gene functions. He is currently leading a campaign that includes 158 Nobel Laureates who support the use and inherent safety of GMO techniques for improving plant varieties, especially those needed by developing countries.

