

Frederick

Sanger

1918–2013

What did he discover?

Frederick Sanger was a British biochemist, born in 1918 in Gloucestershire. He was the son of a medical practitioner and was expected to follow in his father's footsteps, but he had a much keener interest in being a scientist.

Sanger's first focus was the structure of insulin. Using separation techniques such as partition chromatography he managed to prove that insulin consisted of two types of amino acid chains. He conducted many different experiments and separation techniques on the insulin until he eventually deduced the complete structure of the protein. In 1958, Sanger received

the Nobel Prize in Chemistry for being the first person to ever sequence a protein.

Sanger then used his knowledge of proteins and enzymes to study DNA molecules. He and his colleague, Alan R. Coulson, developed a new way of sequencing DNA called the 'plus and minus method'. Using this method, they synthesised new DNA from single strand templates. With this knowledge they were able to deduce the DNA sequence for a bacteriophage, which was the first full genome to be sequenced. Sanger then went on to perfect the method and came up with a new method called the 'dideoxy method' which allowed him to sequence human mitochondrial DNA. For his efforts in DNA sequencing, Frederick Sanger shared his second Nobel Prize for Chemistry with his team in 1980.

This month's starter question...

Why is it important to understand the structure of DNA?