Chemist Christian de Duve noted the role of certain compounds, which contain sulphur, in biological processes, particularly in the case of ATP, a key molecule used in biological processes. He believed that the early earth was more volcanic than now, which would be issuing large quantities of hydrogen sulphide and iron sulphide, These chemicals, he believed, could have been involved in the production of a living organism.

This could have occurred, he suggested, by the extra available sulphur providing the conditions to produce molecules which have a strong bond between sulphur and carbon. When this chemical bond is broken, it releases a useful amount of energy, just what occurs in the current operation of ATP in photosynthesis and cellular respiration. What was needed was a lab demonstration to show whether this idea had merit.

Another hypothesis was that the first living organism may have formed on the surface of iron sulphide minerals. It was suggested that the primitive form gradually produced increasing numbers and complexities of biochemicals until after a long time a cell membrane formed to make this a fully independent living organism. But nothing like this has been demonstrated in the lab.

The prevailing belief of those seeking the non-creation origin of life is that the first living organism had to contain a means of making more copies of itself. In all life as we know it, the instructions for building each life-form is encoded in the DNA, the long, twisted double helix molecule. In function, this highly complex molecule serves as a chemically coded record of the structure and operation of that life-form. It is freely conceded that such a molecule could not have existed in the first spontaneously generated life.

Nor is there any explanation of how the process - far from a simple one - could have been self-arranged. DNA inside the nucleus of the cell provides instructions for producing there a long, coded molecule called the messenger RNA. It is called messenger because it carries the coding to produce the proteins which are needed for the structure and operation of that cell.

The messenger RNA molecule, after having been produced inside the nucleus, then travels through a pore in the membrane of the nucleus into the cytoplasm - the main interior of the cell. It then finds and binds with an organelle called a ribosome, which then translates the information on the RNA to produce the protein required by the cell.

The origin of life researchers could see no way that DNA could have been in the first organism which they believe was generated spontaneously from the naturally occurring chemicals in earth’s environment. Various proposals were made to explain how that first organism could have started with RNA instead.

Many years of chemical experiments have shown that RNA is a difficult molecule to make. It has been admitted that RNA “could not have emerged fully formed from random processes in the primordial soup.” Some of these scientists have suggested that there had to be a simpler kind of genetic molecule at the beginning.

Research began towards finding a molecule which they thought could have been randomly produced in the “prebiotic soup” and stable enough to carrying genetic information.