

3 step model for the emergence of first life

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The mystery of the origin of life cannot be solved only by biologist. This topic is solved only when multidisciplinary studies are conducted by all of scientists including astronomer, geochemist, chemist, and geologists. Our research group, mainly geologist, has revealed whole Earth history as cradle of life by the strategy of 4.6-billion-year Approach and Singularity Approach. Through these two approaches, we found out what necessary condition for the emergence of life was, and how the first life was, which provided 3 step model for the emergence of first life. This model explains that life was born through 3 steps, first primordial life, second primordial life, and third primordial life which is prokaryote. Details are as follows.

The first primordial life was born at natural nuclear geyser and living as extracellular symbiont. They should have survive by making symbiont as primitive ecosystem. Probably numerous numbers of small organelle (similar to present virus) existed. To enable them to survive, energy must have been supplied. Nuclear geyser played this important role. On Hadean Earth surface environment, Sun energy cannot be used and surface environment was too dangerous without geomagnetic field. Instead, nuclear geyser supply necessary energy continuously for proto-life.

Due to spout of geyser, first primordial life was tossed out of geyser to die, as solar energy at that time was too strong. They were left on the surface as tahr. After primordial atmosphere became thin enough to pass sun light, life can utilize sun energy on the surface of the Earth. Such life is second primordial life, which obtained new function to utilize solar energy by using principle of semi-conductor. Second primordial life was still extracellular symbiont.

Primordial ocean was too toxic with high acidity, high salinity, and heavy metals. Therefore, second primordial life experienced mass extinction due to influx of toxic ocean as a result of operation of plate tectonics. In spite of repeated mass extinction, some life could survive under strong outer force. Such life became the first life, in other words, first prokaryote on the Earth.

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