From Origin of life to systematization of Astrobiology

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Abstract: Our proposed research, "Origin and evolution of life", which is one of the biggest mysteries in science, was adopted under WPI (World Premier International Research Center Initiative) project in 2012, and Earth-Life Science Institute (ELSI) was newly established.

Our final goal is synthesis of life in laboratory. Since the experiment by Miller (1953), numerous kinds of experiments have been conducted; however, life could not be synthesized. The point is reproduction of primordial surface environment on Earth where first life was born. Another key is the presence of three components such as ocean, atmosphere, and landmass (called "Habitable Trinity") under the driving force, Sun.

Present biology is accumulated on researches of Earth life. Therefore it is not a universal biology applicable to whole Universe, but biology only applicable to Earth. To systematize Astrobiology, how we do it? I will introduce how to make it.

For successful multi-disciplinary research, each researcher needs to recognize self-implementation of multi-disciplinary research. It means an astronomer must write a paper of biology, and vice versa, which requires preparedness and courage. This is critical condition to be met by multi-disciplinary researchers.