Formation and decomposition of amino acids by irradiation with circular-polarized UV light, X-rays or high-energy particles

Kensei Kobayashi[1]; Tomoya Ogawa[2]; Soichiro Shima[2]; Takeo Kaneko[3]; Yoshinori Takano[4]; Jun-ichi Takahashi[5]

[1] Dept. Chem. Biotech., Yokohama Natl. Univ.; [2] Grad. School Eng., Yokohama Natl. Univ.; [3] Dep. Chem. Biot., Yokohama Natl. Univ.; [4] JAMSTEC, IFREE; [5] NTT Sci. & Core Technol. Labo. Group

A wide variety of organic compounds have been detected in such extraterrestrial bodies as comets and meteorites. Enantiomeric excesses of amino acids in meteorite extract were reported. It was hypothesized that bioorganic compounds like amino acids and seeds of homochirality of amino acids were originally produced in interstellar environments.

We irradiated aqueous solution of isovaline and other amino acids with circular polarized UV light, X-rays, beta-rays or high energy heavy particles to see their stability and possible formation of enantiomeric excesses. Preliminary experimental results are presented, together with a senario of chemical evolution from interstellar complex organics to terrestrial life.

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