EXPECTED STORAGE OF NANOBACTERIA FOSSILS IN THE LUNAR INTERIOR TRANSPORTED FROM OLD PLANETS BY GIANT IMPACT. Yas. Miura, Yamaguchi University, 1677-1 Yoshida, Yamaguchi University, 753-8512, Japan (dfb30@yamaguchi-u.ac.jp)

Introduction: The Moon is considered to be few life and fossils due to airless and sea-water-less body without active circulation system. However, the Moon has three characteristics of 1) Ca-rich plagioclases on the lunar crust, 2) carbon-and chlorine-bearing polymict breccias on the Apollo samples [1, 2, 3, 4] and 3) carbon-dioxides fluids with some water components in the lunar interior [2, 3, 4], which can be explained by impact reaction [1]. The main purposes of the paper is that there should be expected as probable storage of nanobacteria fossils in the lunar interiors of assemblage blocks from separated blocks of old planets during giant impact.

Characteristics of carbon-bearing impacted rocks: There are three characteristics of carbon-bearing impacted minerals and rocks on the Moon as follows:

1) Ca-rich plagioclases: Lunar Ca-rich plagioclases (without Na and K plagioclases) are explained as separation of magmatic ocean process on the lunar layering with evaporation of Na and K [1]. When role of carbon dioxides is used to formation of Ca-plagioclase, lunar Ca-rich plagioclase as large crystal can be explained by hot carbon dioxides gas during giant impact process from original K, Na and Ca-rich plagioclases (from old planets-projectiles) with loss of Na and K. In fact, large anorthosite crystals are formed at volcanic islands (Miyake-jima and Sakura-jima, Japan etc. on the Earth) as reaction with hot carbon dioxides.

2) Carbon-and chlorine-bearing impact breccias: Gases with carbon and chlorine can be fixed during impact processes (with hot carbon dioxides) , which are found in the Apollo polymict breccias [1, 2]. This indicates assemblage blocks of giant impact with planets-projectile can be remained irregularly at lunar interior with carbon- and chlorine-bearing breccias, and carbon dioxides fluids [2, 3, 4], which is expected as any mineralized fossils including nanobacteria at lunar interior originally from impacted planets-projectiles.

3) Metamorphic carbonates from carbon dioxides-fluids: Third type carbonates (together with biogenetic and chemical reactions) can be formed by impact process of hot carbon dioxides gas from original Ca, Mg or Fe-rich materials and from carbon dioxides-rich fluids (probably in lunar interior with some water components) [2, 3, 4]. The anomalous fluids with carbon dioxides-rich components can be originally transported from hot gases during giant impact process which is stored at lunar interior. In fact, anomalous hole on lunar surface found by Japanese mission of the Kaguya [5], can be explained such remnants of hot carbon dioxides-rich fluids or dry-ice solids, which shows only evaporation topography of hole (different with any active volcanoes and meteoritic impact) as shown in Table 1.

Table 1. Three indicators to expected nanobacteria fossils as remnants of giant impacted planet-projectiles [2, 3, 4].

1) Ca-rich plagioclases:
Formation from feldspars (from hot CO_2 gas)
2) Carbon- and chlorine-bearing remnants:
Formation with hot CO_2 –rich gas reaction
3) Metamorphic carbonates:
Formation with CO_2-rich gas reaction (from planets-projectiles)

Expected remnants of nanobacteria on the Moon: Probable remnants of life on the Moon are expected as 1) remnants of old planets (Earth and other projectile), and 2) remnants of impacted nanobacteria-typed texture with Fe-rich components. Similar type of nanobacteria texture is reported on Martian meteorites [6], which is expected on lunar interior as the next exploration and analyzed lunar rocks.

Summary: The present results are summarized as follows:

1) The Moon has three characteristics of impact remnants from planetary giant impact; that is, Ca-rich plagioclases, carbon-and chlorine-bearing polymict breccias on the Apollo samples, and probable carbon-dioxides fluids with some water components in the lunar interior.

2) This indicates that there are nanobacteria fossils stored in the lunar crust as assemblages of separated blocks of old planets during giant impact.

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