

生命と物質の境界探査

Exploring the boundary between life and matter

共催 生命創成探究センター「先端共創プラットフォーム」

11月15日（水）/Nov. 15 Wed. 8:50-11:20 F 会場/Room F

オーガナイザー：村田 和義(生命創成探究センター), 荒川 和晴(慶應義塾大学/生命創成探究センター)

Organizers: Kazuyoshi Murata (ExCELLS), Kazuharu Arakawa (Keio Univ./ExCELLS)

Understanding the morphology, function, and dynamics of genomes and molecular complexes of individual extremophiles is progressing as survival strategies in various extreme environments. On the other hand, a metagenomic- based exploration of more extreme environments reveals the importance not only of independent survival strategies of individual organisms but also of cooperative survival strategies through interactions between coexisting heterologous organisms. This project will observe the molecular complexes of morphology, function, dynamics, and their associated biological interactions of viruses, prokaryotes, and eukaryotes living in extreme environments, and elucidate the simple or minimal mechanisms and principles. We will connect these to a systematic understanding of the boundary between matter and life.

1 リボソーム自己複製プロセスの構成的理解による物質と生命の境界探査

Exploring the boundary between matter and life through a constitutive understanding of the ribosomal self-replication process

○青木 航(阪大・工)

Wataru Aoki (Grad. Sch. Eng)

2 Construction of model catalytic proteins to investigate the origin of prebiological catalyses

Koki Makabe^{1,2} (1Yamagata Univ., 2PRESTO)

3 Life-without-water -Shining tardigrades illuminate the way to exploring the mechanism of dehydrated ametabolic state

Sae Tanaka^{1,2}, Kazuharu Arakawa^{1,2} (1ExCELLS, NINS, 2IAB, Keio Univ.)

4 メドゥーサウイルスにコードされるヒストンの宿主細胞内でのウイルス複製における役割について

Role of medusavirus-encoded histones in viral replication in host cells

○武村 政春¹, 東浦 彰史², 村田 和義³ (1 東京理科大・院理, 2 広島大・院医, 3 自然科学研究機構・ExCELLS)

Masaharu Takemura¹, Akifumi Higashiura², Kazuyoshi Murata³ (1Grad. Sch. Sci., Tokyo Univ. Sci., 2Grad. Sch. Med., Hiroshima Univ., 3Res. Inst. Nat. Sci., ExCELLS)

5 Dynamic change of mechanical properties of bacteria investigated by high-speed AFM based force mapping

Christian Ganser¹, Shigetaka Nishiguchi^{1,2}, Takayuki Uchihashi^{1,3} (1National Institutes of Natural Sciences, ExCELLS, 2Osaka University, Department of Biotechnology (present affiliation), 3Nagoya University, Department of Physics)

6 Unraveling the Mechanisms of Desiccation Tolerance: Insights from Anhydrobiotic Tardigrade CAHS1 Fibrous Condensates

Maho Yagi-Utsumi^{1,2}, Koichi Kato^{1,2} (1ExCELLS, NINS, 2Grad. Sch. Pharm. Sci., Nagoya City Univ.)

7 微生物ダークマターを通じて生命－物質の境界を明らかにするために

Unveiling the boundary between life and matter via the exploration of microbial dark matter

○武藤 久(自然科学研究機構・生命創成探究センター)

Hisashi Muto (ExCELLS, NINS)