



BIOSCIENCES

FY17 LDRD

Principal Strategies

BSE

1. Understanding bioactivity of compounds in the context of de-risking or enhancing the scope of biomanufacturing such as (but not limited to) by developing robust/high-throughput assays in higher-order organisms/ systems.
2. Examining host/microbe interactions using modified or engineered systems that are pertinent broadly to the BSA environment, health or energy goals.

EGSB

1. Develop reproducible, controlled plant-microbe ecosystems that enable identification of specific microbes, genes and/or molecules that promote plant health.
2. Develop and apply reproducible models systems for investigation of environmental factors that impact metazoan microbiomes resulting in altered host physiology.
3. Develop new tools for metagenome assembly, phage discovery, and/or host assignment and development of phage engineering for selective manipulation of microbial communities impacting plant health.

MBIB

1. Methods and/or computational approaches that enable or improve integrated imaging of systems to obtain greater biological insight, especially applied to problems in environment, energy, health or biomanufacturing.
2. New approaches that combine structural biology methods, or make significant advances in our ability to image and model biological systems at the nano- and mesoscale.
3. The development of biohybrid systems that combine novel materials and biological components to efficiently convert chemicals or produce fuels.