Realization of low carbon society through game changing technologies

Development of a novel low-carbon bioproduction process of useful compounds from recyclable one-carbon feedstock

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Summary :

Feedstock switch from fossil resources is imperative to build low-carbon society. C1-compounds, such as methane and methanol, are recyclable carbon resources which can be generated from CO_2 or biomass by carbon-neutral processes. In this project, we develop the low-carbon and recycling-based bioproduction system using microorganisms with the ability to utilize C1-compounds.

Efficient C1-carbon fixation and production of useful chemicals and proteins from C1-compounds will be achieved by development of novel methane oxidation biocatalysts, improvement of metabolic pathway from methanol to useful compounds, and enhancement of efficient utilization of formate and CO_2.