

Theme : Microbial Conversion Materials

- Sub Theme : Biocatalyst for non-CO₂ GHG Decomposition

Non-CO₂ greenhouse gases (GHG), particularly SF₆ or NF₃, currently being used in industries are among the fundamental causes of the GHG effect due to their high global warming potential. Considerable energy consumption, low removal efficiency, and difficulty for a large amount of incoming gas are some of the drawbacks of the thermal/chemical treatments of these gases. As the case stands, we are required to come up with novel technologies to control the emission of global warming substances and to process them when these are generated.

There is a need to start planning now to overcome all climate change effects through innovative ideas. We are focusing on the biological processes for the decomposition of non-CO₂ GHG.

- Biological degradation of non-CO₂ GHG, particularly SF₆ or NF₃
- Engineering of factors affecting rates of GHG biodegradation from the enzyme structure to the process optimization
- Development of biocatalyst immobilization for any reaction that involves a gaseous phase
- Enhancement of the mass-transfer rates of poorly water-soluble gaseous substrates into the biocatalyst

※ The topics are not limited to the above examples and the participants are encouraged to propose original idea.

※ Funding : Up to USD \$200,000 per year