

# Realization of a low carbon society through game changing technologies

## Innovation of microalgal cultivation and utility systems using acidic water

**Project Leader :** Shin-ya MIYAGISHIMA  
Professor, National Institute of Genetics



### Summary :

Microalgae are expected to be a new green industry that does not compete with agricultural products. However, the production cost is high due to contamination of other microorganisms and the low culture density. As a result, and their use is limited to expensive supplements. In addition, the shortage of fresh water on a global scale limits the scale of microalgal cultivation. Moreover, genetic modification has not been established in microalgal industry.

In this research and development project, by using sulfuric hot spring microalgae Cyanidiales, we will develop a procedure for outdoor microalgal cultivation in acidified seawater to a high density which leads to an reduction of production cost. The algae produced will be used as fish feed. In addition, we will establish a genome editing technology for Cyanidiales for producing biofunctional substances.

Through this development, we aim to expand the scale of use of microalgae, reduce CO<sub>2</sub> (32 million tons / year / world), and contribute to stable food production and improving human and animal health.

