

## 효소이용 이산화탄소 환원기술

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Nowadays more concerns are increasing on the discharge of CO<sub>2</sub> to atmosphere due to global warming problems. CCS (carbon capture and sequestration) has been actively pursued to address CO<sub>2</sub> accumulation problem in atmosphere, however there are desperate demand for technology to convert CO<sub>2</sub> to value added chemicals. Even though formate dehydrogenase was reported to reduce CO<sub>2</sub> to formate, most formate dehydrogenase showed much higher oxidation activity of formate rather than reduction activity of CO<sub>2</sub>.

In this presentation we searched and expressed several formate dehydrogenases as recombinant protein to find formate dehydrogenase showing higher reduction activity for CO<sub>2</sub>. In addition, since reduction reaction of CO<sub>2</sub> to formate can be favored at low pH, acid tolerant formate dehydrogenase will be more promising. Formate dehydrogenases from genome of acid tolerant microbial such as *Thiobacillus* showed higher activity to synthesize formate from CO<sub>2</sub> at acidic pH condition.