

High-level production of functional type I antifreeze proteins in recombinant *Escherichia coli*

한미정*, 이기석
동양대학교

(mjhan75@dyu.ac.kr*)

Many organisms adapted to live at subzero temperatures produce antifreeze proteins (AFPs) that improve their tolerance against the threat of freezing. AFPs depress the freezing point but not the melting point of aqueous solutions by inhibiting the growth of ice crystals. In addition, they have ice recrystallization inhibition (RI) activity which prevents the growth of larger grains of ice at the expense of smaller grains. These unique properties have attracted significant interest due to their potential applications in a wide variety of industries from medicine and veterinary science (cryopreservation), through agriculture (genetic engineering) to the frozen-food industry. In this study, synthetic type I AFPs were designed as monomeric and multimeric structures and produced by *Escherichia coli*, an ideal host for the large-production of heterologous proteins. Here, these results will be presented in more detail. [This work was supported by the Basic Science Research Program (2010-0008826) through the National Research Foundation of Korea funded by the Ministry of Education, Science and Technology]