

BP-4**Expression of Recombinant Endochitinase
of Antarctic *Sanguibacter sp.* KCTC 13143 in *Pichia pastoris*****Hye Yeon Koh**, Sung Gu Lee, Il-Chan Kim, Soon Kyu Hong, Dockyu Kim, Hong Kum Lee, and Joung Han Yim*Polar BioCenter, Korea Polar Research Institute, KORDI, 7-50 Songdo-dong, Incheon
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Chitin composes the cell walls of some animals and microbes, including insects, crustaceans, and fungi. Chitinases break down glycosidic bonds in chitin. In combination of exochitinases, endochitinases are considered as important enzymes in biomedical industry for producing particularly N-acetylglucosamine (NAG) and others. Endochitinase chi21702 was isolated from Antarctic *Sanguibacter sp.* KCTC 13143 and well characterized in our lab previously. The gene for this enzyme was obtained from the genomic DNA and the sequence was determined successfully. The methylotrophic Yeast *Pichia pastoris* expression system was applied to develop the production process of the enzyme since this system is known to facilitate the purification of the recombinant enzymes secreted to the culture media. The *Pichia* system expressed the recombinant Antarctic endochitinase successfully and revealed enzymatic activity using colloidal chitin as a substrate. The expressed protein showed higher molecular weight than theoretical one due to maybe post-translational modification, presumably glycosylation. This presentation introduces unique characteristics of chitinases from Antarctic bacteria and suggests a potential for the development of biomedical applications.

Keywords: Endochitinases, Antarctic, *Pichia*, Recombinant, NAG

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