Molecular cloning and analysis of non ribosomal peptide synthase from *Fusarium.*

Park So Hyun[1], Song, Hyuk-Hwan[2], Shin, Cha-Kyun[3], Lee Chan[2], Ahn, Joong-Hoon[1]
1.Bio/Molecular Informatics Center, Department of Molecular Biotechnology, KonKuk University, Seoul
2.Department of Food Science and Technology, ChungAng University, Ansung
3. Department of Life Science, ChungAng University, Ansung
TEL: +82-2-450-3764, FAX: +82-2-3437-6106

Abstract

Non ribosomal peptide synthase(NRPS)s are large, multifuntional enzymes that catalyze the assembly of complex natural peptide from amino acid monomers as well as α-hydroxy and carboxylic acid. NRPS generally consists of four domains; amino acid activation domain, thiolation domain, condensation domain and epimerization domain. We have cloned a NRPS gene from Fusarium sp. which produces cyclic peptides with primers designed based on conserved region of NRPS. Blast analysis of the clone gene showed that it has high homology with enniatin synthase. Using PCR-based chromosome walking, so far about 6-kb genome region has been cloned and it was found that it contains four domains. In order to determine which amino acid is recognized by this NRPS, about 1.5-kb amino acid activation domain was subcloned and expressed in E. coli as gluthatione S-transferase fusion protein. The recombinant protein was purified. Amino acid recognized by this will be determined.

Reference

1. Scherkenbeck J., Keschke P., Harder A., PF1022A and related cyclodepsipeptides - A novel class ofanthelinintic,(2002) Current Topics in Medicinal Chemistry, 2, 759-763.
2. Kleinkauf, H. and Doehren, H.(1990) Nonribosomal biosynthesis of peptide antibiotics. Eur J Biochem. 1990 192(1):1-15.