Semisynthestic Study of Interleukin-6 (IL-6)

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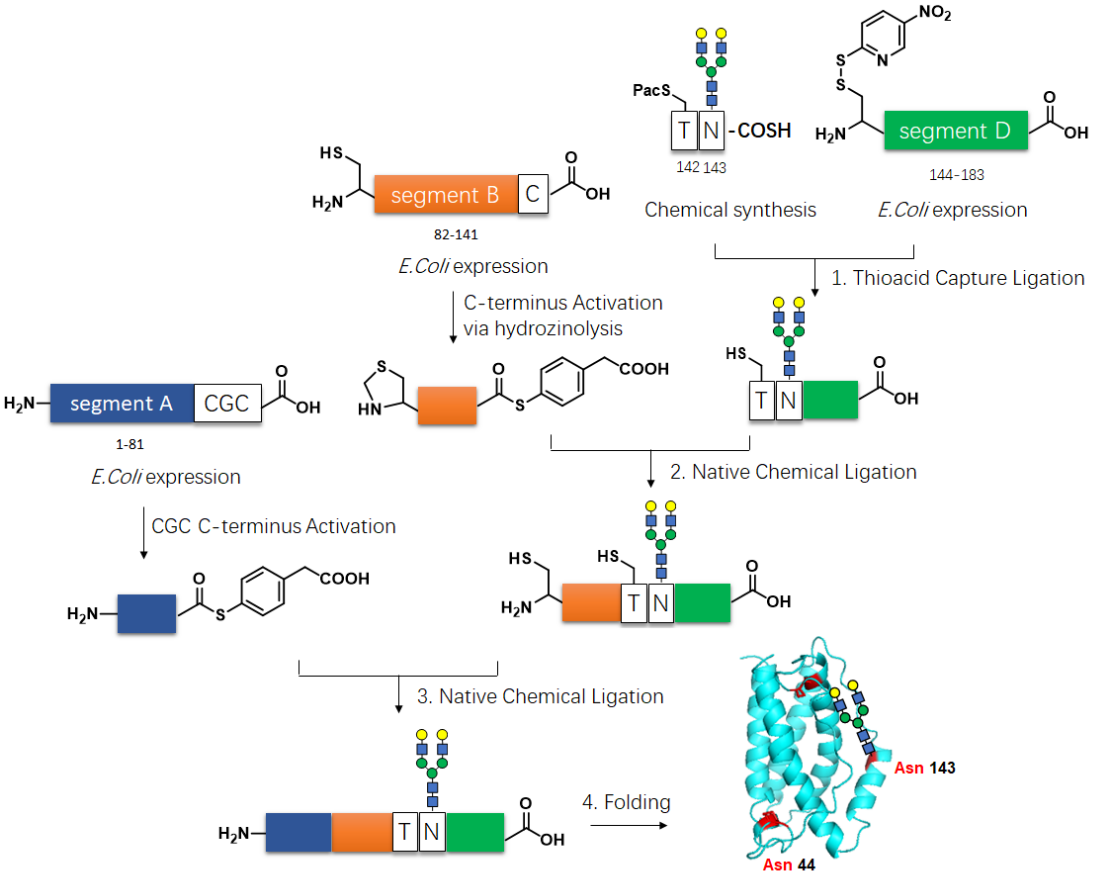
Preparation of glycoproteins having homogeneous oligosaccharides is essential approach for understanding the glycan function at molecular level. However, current mammalian cell expression system is usually not able to yield such homogeneous form. Moreover, total chemical synthesis using solid phase peptide synthesis (SPPS) is time-consuming.

In this research project, we have been developing a novel semisynthetic strategy without using SPPS in order to obtain homogeneous glycoprotein within a few chemical conversion steps. In this strategy, peptide-thioester is prepared by E. coli expression system followed by selective activation of peptidyl-Cys or peptidyl-Cys-Gly-Cys, which were developed in our laboratory. The key glycopeptide is prepared by thioacid capture ligation using glycosyl dipeptide thioacid and an expressed peptide. So far, we have synthesized two N-terminus peptides after C terminal activation of expressed peptide, and C-terminus glycopeptide ready for native chemical ligation (NCL). In this presentation, we would like to present our investigation of the C-terminal activation.



1) Ryo Okamoto, Kota Nomura, Yuta Maki, Yasuhiro Kajihara, *Chemistry Letters*, **2019**, *48*, 1391-1393