

Purification of Tyrosylprotein Sulfotransferase (TPST) from the mutant RIL W115A *Drosophila melanogaster*

Shinta (辛塔)¹, Yen-Chieh Huang (黃彥杰)², and Chun-Jung Chen(陳俊榮)^{1,2*}

¹Department of Physics, College of Science, National Tsing Hua University

²National Synchrotron Radiation Research Center, 101 Hsin-Ann Road, Hsinchu Science Park, Hsinchu, Taiwan

Shinta.anggia49@gmail.com

Abstract

Protein tyrosine sulfation was catalyzed by membrane (TPST) which is post translational modification of Tyrosylprotein Sulfotransferase with 3'-Phosphoadenosine-5'-phosphosulfate (PAPS) as the co-factor for the target. A sulfated protein was prepared to involves the activated sulfate of 3'-phosphoadenosine-5'-phosphosulfate (PAPS) through PAPS synthetase to transfer the sulfur group from 3'- phosphoadenosine-5'-phosphosulfate (PAPS) into a specific tyrosine residue into the target of proteins and peptides which was needed to know it's function.

All organismes, somehow, have two-kind of TPST but the fruit fly such as *Drosophila melanogaster* only has one-kind of TPST that called DmTPST (*Drosophila melanogaster* Tyrosylprotein Sulfotransferase).

The protein was extracted from the mutant bacteria RIL W115A with PET21b as the plasmid. The total sequence of amino acid is 233 with theoretical of isoelectric point is 6.73 and molecular weight is 37 KDa. This protein has 6 His-taq with the mutant from Tryptophan become to Alanine. This mutant is perfect for screening to get the crystallization without the diamond part was left inside from amino acid of protein sequence.

The crystallization process is so complicated which need to get the purify protein. Protein purification is the process to separate one or a few proteins from the whole protein or the other organisms in the binding. Generally, separation steps did according to the difference size of protein, the difference of chemical properties, binding affinity and biological activity. The pure result of protein can get the good resolution of the crystal in crystallization process.

Keywords: TPST, 3'-Phosphoadenosine-5'-phosphosulfate (PAPS), *Drosophila melanogaster*, protein purification.