Characteristics of Hybrid Mussel Adhesive Protein fp-151 expressed in Recombinant Baculovirus/Insect Sf9 Cell System

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Mussel adhesive proteins have been suggested as a basis for environmentally friendly adhesives which can adhere in aqueous conditions. Recently, we construct a functional recombinant hybrid mussel adhesive protein fp-151 that is a fusion protein comprising six-repeated fp-1 decapeptide repeats at both each terminus of fp-5 terminus and express the protein in E.coli system. However there cannot be happened post translational modification in E. coli system, so there are no 3, 4-dihydroxyphenyl-L-alanine (DOPA) and phosphorylated serine, which is known that is very important on adhesion process of mussel foot protein. For expression of originally modified fp-151 similar with natural form, we produced a recombinant fp-151 in baculovirus/insect Sf9 cell expression system and checked the DOPA and phosphorylated fp-151 formation. Through this difference between fp-151 in inset Sf9 and E.coli, we could characterize functionality and originality of our novel model mussel adhesive protein.