

## Functional Recombinant Mussel Adhesive Protein Type 3A and Its Hybrid Derivatives

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Mussel adhesive proteins, including the 20-plus variants of foot protein type 3 (fp-3), have been suggested as potential environmentally friendly adhesives for use in aqueous conditions and in medicine. In previous study, we report the novel production of a recombinant *Mytilus galloprovincialis* foot protein type 3 variant A (Mgfp-3A) fused with a hexahistidine affinity ligand in *Escherichia coli*, and its ~99% purification with affinity chromatography. Recombinant Mgfp-3A showed a superior purification yield and better apparent solubility in 5% acetic acid (prerequisites for large-scale production and practical use) compared to those of the previously reported recombinant *M. galloprovincialis* foot protein type 5 (Mgfp-5). The adhesive ability of recombinant Mgfp-3A was comparable to that of Cell-Tak but lower than that of recombinant Mgfp-5. In this study, to take advantage of previously studied mussel proteins, we tried to make some kinds of hybrid derivatives from those. We made 3 kinds of recombinant vectors, expressed and purified those hybrid proteins in *Escherichia coli*. As a result, we can observe some changes of properties.