

## Introduction of PMMA-Tag to VHH for Improving Recovery and Immobilization Rate of VHHS

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**Abstract :** The PMMA-tag was genetically fused with the C-terminal region of VHH molecules. This antibody, VHH, is known as a single-chain domain, which is devoid of light chains. The PMMA-tag, which could affect the isoelectric point (pI) changeable with a charge of amino acid in VHHs were closely related to the solubility of VHH molecules during refolding. The genetic fusion of PMMA-tag to C-terminal region of VHHs significantly affects the recovery of their soluble protein during refolding by 50 mM TAPS at pH 8.5. It could be refolded with a recovery of more than 95% by dialysis at pH 8.5. A marked difference in the antigen-binding activities in the adsorption state was significantly high in VHH-PM compared to the wild type of VHH. There are approximately 8-fold differences in the antigen-binding activities in the adsorption state between VHH-PM and VHH.

**Keywords :** VHH, PMMA-tag, isoelectric point, pH, Solubility, refolding, immobilization, ELISA

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