

Cell Surface Display on *Escherichia coli*

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Cell surface display allows peptides and proteins to be displayed on the surface of microbial cells by fusing them with the anchoring motifs. Its possible applications include: (i) live vaccine development (ii) antibody production (iii) peptide libraries screening (iv) environmental bioadsorbents development (v) whole cell catalysts construction and (vi) biosensor development. In this talk, I report the results on the development a novel cell surface display system using the OmpC as an anchoring motif in *E. coli*. A C-terminal deletion-fusion strategy was employed to fuse the polyhistidine peptides and recombinant proteins to the C-terminal of the functional portion of OmpC. Surface display of proteins or enzymes could be a powerful tool in biotechnological applications. These results suggest that the C-terminal deletion-fusion strategy employing the *S. typhimurium* OmpC as an anchoring motif is a suitable for the display of large proteins on the surface of *E. coli*.

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References

1. Lee, S.Y., Choi, J.H. and Xu, Z., "Microbial cell surface display", Trends Biotechnol., 12(1):45-52 (2003).
2. Xu, Z., Lee, S.Y., and Yu, Z., "Physiological characteristics of recombinant *Escherichia coli* cells displaying poly-His peptides" Biotechnol. Lett. 21:1091-1094 (2000).
3. Xu, Z. and Lee, S.Y., "Display of poly-His peptides on *Escherichia coli* cell surface using outer membrane protein C (OmpC) as an anchoring motif", Appl. Environ. Microbiol. 65:5142-5147 (1999)