

### Endotoxin removal from protein solutions using Triton X-114 micellular system

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Since recombinant DNA technology was developed, it opens new era for the production of heterogeneous proteins in microbial hosts. The abundance of protein expression systems renders the efficient bacterial production of most proteins possible. However, production of protein using gram-negative bacteria such as *Escherichia coli* leads to the contamination of protein solution by endotoxins from the cell membrane of gram-negative bacteria. And these endotoxins have many side effects like endotoxin shock and tissue injury to human body, so the establishment of robust endotoxin removal step is desperately required. In this study, we propose a method for endotoxin removal by phase separation using the surfactant, namely Triton X-114. After phase separation, residual endotoxin, total protein and lysozyme activity were measured by LAL, RC DC protein assay and lysis rate of *Micrococcus lysodeikticus*, respectively. As a result, a 10<sup>5</sup>-folds of endotoxin reduction was achieved from protein solution. And there are no significant effects on lysozyme activity, but phase separation resulted in about 10% of total protein loss.