

Roles of the *Escherichia coli* small heat shock proteins IbpA and IbpB in recombinant proteins production

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Small heat shock proteins (sHsps) belong to a ubiquitous family of stress-induced proteins having low molecular mass (15-30 kDa) in prokaryotes and eukaryotes. In *Escherichia coli*, IbpA and IbpB, which share 50% amino acid homology, have been identified as two sHsps bound to recombinant proteins produced as inclusion bodies (IBs). Recently, it was also reported that IbpA and IbpB can prevent the aggregation of endogenous proteins denatured in vivo during extreme and long-term heat shock. Even though some possible roles of IbpA and IbpB have been reported under heat shock conditions, it is still unclear why these sHsps bind to recombinant proteins forming IBs. Also, their possible roles as chaperones like DnaK-DnaJ-GrpE or GroEL-GroES in vivo have not been reported during the production of recombinant proteins. In this study, we show that IbpA and IbpB are essential and play important roles in the production of recombinant proteins in *E. coli*. Using this finding, we report the strategies for the enhanced production of recombinant proteins.