

### Optimization of Imidazolium-based Ionic Liquids Assisted Lysozyme Refolding Process

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Imidazolium-based ionic liquids (ILs) assisted lysozyme refolding process was developed in order to overcome the inclusion body formation associated with the expression of recombinant proteins in microorganism. When ILs was added to refolding buffer in place of urea, the refolding yield was remarkably promoted. Refolding yield was calculated by the lysis rate of *Micrococcus lysodeikticus*, and to confirm the ILs inhibition in protein activity assay process mortality by ILs of *Micrococcus lysodeikticus* was measured. As a result, refolding yield was proportionally decreased with alkyl chain length of ILs. It was also found that ILs are non-toxic to *Micrococcus lysodeikticus*. Based on these results, lysozyme refolding process was optimized in terms of the concentration of ILs and operating temperature. When the concentration of BF<sub>4</sub>-based and MS-based ILs in refolding buffer was over 0.5M and 1.0M consequently, ILs works well as effective refolding additives. The optimum refolding temperature was 25°C.