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Purification and Crystallization of the Periplasmic Tripeptide Binding Protein MppA from *E. coli*. Forum Bhatt, Vishal Patel, Constance Jeffery, Dept. of Biological Sciences, Laboratory for Molecular Biology, Univ. of Illinois at Chicago, IL 60607, USA.

Escherichia coli breaks down over one-third of its cell wall components during growth, giving rise to dipeptides, oligopeptides and tripeptides. These peptides can act as the sole source of carbon and nitrogen for the bacterium. The murein peptide permease system (Mpp) along with the general oligopeptide transport system (Opp) is responsible for the transport of tripeptides into the cell. The periplasmic protein MppA is specifically involved in the uptake of the murein tripeptide from the periplasm. It shows 46% identity to another peptide binding protein OppA, which binds peptides two to five residues long. Here we report over-expression, purification and crystallization of MppA in order to solve a three-dimensional X-ray crystal structure. Milligram quantities of the protein were obtained, which enabled screening of a number of crystallization conditions and the growth of diffraction quality crystals. The structure will help us identify the amino acid residues that give MppA its specificity for binding the murein tripeptide.