# Influence of ligands on the aggregation of the normal and mutant forms of phosphofructokinase 2 of Escherichia coli

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The aggregation states of Escherichia coli phosphofructokinase 2 (Pfk-2) and of a mutant enzyme (Pfk-2*) altered in the inhibitory allosteric site for MgATP were measured in the presence and in the absence of substrates and products of the reaction. When sucrose gradient ultracentrifugation experiments were performed in the absence of added ligands, both enzymes sedimented as dimers. Likewise, at low concentrations of both substrates (0.1 mm) the aggregation state of Pfk-2 and Pfk-2* corresponded to a dimer. However, in the presence of 1 mm MgATP alone, Pfk-2 sedimented as a tetramer, whereas Pfk-2* sedimented as a dimer. At a low fructose 6-phosphate concentration (0.1 mm) and an inhibitory concentration of MgATP (4 mm), Pfk-2 sedimented as a tetramer. However, at the same MgATP concentration but at a higher fructose-6-P concentration (1 mm), a condition under which Pfk-2 is not inhibited by the Mg-nucleotide complex, the enzyme sedimented as a dimer. Pfk-2* is not inhibited under the