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Structural Analysis of an *E. coli* Phosphoenolpyruvate Carboxykinase (PCK) Complex with Carbon Dioxide.
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Phosphoenolpyruvate carboxykinase (PCK) is a key enzyme involved in gluconeogenesis. During the reversible decarboxylation and phosphorylation reaction, a carbon dioxide molecule is released or bound. Until now, only two other crystallographic structures containing CO_2 have been published. In the active site of this PCK structure, one of the oxygen atoms is hydrogen bonded to a water molecule and the side chain of an arginine residue, while the other oxygen atom is hydrogen bonded to the hydroxyl group of a tyrosine residue and another water molecule. The common feature of the three CO_2-bound protein structures is the interaction of one oxygen atom of CO_2 with a basic amino acid side chain of the protein.