Refined structures of the active Ser83-->Cys and impaired Ser46-->Asp histidine-containing phosphocarrier proteins.
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BACKGROUND: The histidine-containing phosphocarrier protein (HPr) functions in the bacterial phosphoenolpyruvate:sugar phosphotransferase system. Little is known about the mechanism of each of the phosphoryl transfers and what conformational transitions are associated with each event.

RESULTS: Thus, the crystal structures of the mutants Ser83-->Cys HPr (fully active protein) and Ser46-->Asp HPr (impaired protein) have been determined to 1.9 and 1.65A resolution, respectively. The structures are similar in the region of the active site, with Ser83 and Asp46 capping the following helix.

CONCLUSIONS: The analysis suggests that phosphorylation of either His15 or Ser46 is not associated with main-chain conformational changes.