

Ligand Induced Conformational Change of Pyruvate Kinase Studied by ATR-FTIR Spectroscopy

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Pyruvate kinase (PK) is a key enzyme of the glycolytic pathway that catalyzes the transfer of phosphate from phosphoenol pyruvate (PEP) to adenosine diphosphate (ADP). It requires divalent and monovalent cations for activity. In this study, structural changes induced by ligand binding were studied by attenuated total reflection Fourier transform infrared (ATR-FTIR) spectroscopy in combination with a dialysis accessory [1]. Our experiments probed the effects of PEP, ADP and metal ions on PK. PEP was the most efficient ligand in inducing a change in the PK infrared spectrum. Secondary structure changes and changes of PEP absorption (carboxylate, phosphate) upon binding to PK were monitored successfully and will be discussed.

[1] M. Krasteva, S. Kumar, and A. Barth, *Spectroscopy* 20 (2006) 89-94.

Acknowledgement

This work was supported by Sven och Lilly Lawskis fond för naturvetenskaplig forskning.