

W0293

Crystallographic Studies of Phosphoenolpyruvate Carboxykinase from *Anaerobiospirillum succiniciproducens*. Julien Cotelesage, Louis Delbaere, Gregory Zeikus, Maris Laivenieks, Biochemistry, Univ. of Saskatchewan, 107 Wiggins Rd., Saskatoon, SK S7N 5E5 CANADA.

In most species, the enzyme phosphoenolpyruvate carboxykinase, PCK, preferentially catalyzes the conversion of oxaloacetate to phosphoenolpyruvate. However, in some species the reverse reaction of PCK is an important metabolic step. For instance, the bacteria *Anaerobiospirillum succiniciproducens* uses PCK in a pathway that produces succinate from glycolytic precursors. There is a question of why *A. succiniciproducens* PCK preferentially catalyzes the reverse reaction when the highly similar *Escherichia coli* PCK does not.

A 2.2 Å resolution crystal structure of PCK complexed with substrates and cofactors from *A. succiniciproducens* has been determined. Recently, a 2.2 Å data set was collected for a substrate and cofactor-free PCK crystal and a model of this structure is in the process of being built. A comparison of *E. coli* and *A. succiniciproducens* PCK will be shown along with some possible explanations for their differences.