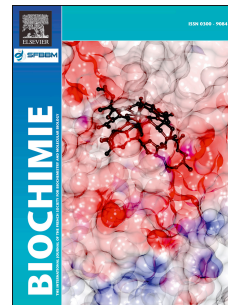


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Regulatory network of the allosteric ATP inhibition of *E. coli* phosphofructokinase-2 studied by hybrid dimers

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1 Regulatory network of the allosteric ATP inhibition of *E. coli* phosphofructokinase-2 studied by
2 hybrid dimers

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11

12 **Abstract**

13 We have proposed an allosteric ATP inhibition mechanism of Pfk-2 determining the structure
14 of different forms of the enzyme together with a kinetic enzyme analysis. Here we
15 complement the mechanism by using hybrid oligomers of the homodimeric enzyme to get
16 insights about the allosteric communication pathways between the same sites or different ones
17 located in different subunits. Kinetic analysis of the hybrid enzymes indicate that homotropic
18 interactions between allosteric sites for ATP or between substrate sites for fructose-6-P have a
19 minor effect on the enzymatic inhibition induced by ATP. In fact, the sigmoid response for
20 fructose-6-P observed at elevated ATP concentrations can be eliminated even though the
21 enzymatic inhibition is still operative. Nevertheless, leverage coupling analysis supports
22 heterotropic interactions between the allosteric ATP and fructose-6-P binding occurring
23 between and within each subunit.

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