

## Promiscuous subunit interactions: A possible mechanism for the regulation of protein kinase CK2

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Protein kinase CK2 is a ubiquitous eukaryotic ser/thr protein kinase. The active holoenzyme is a heterotetrameric protein composed of catalytic ( $\alpha$  and  $\beta$ ) and regulatory ( $\gamma$ ) subunits that phosphorylates many different protein substrates and appears to be involved in the regulation of cell division. Despite important structural studies, the intimate details of the interactions of the  $\alpha$  catalytic subunits with the  $\gamma$  regulatory subunits are unknown. Recent evidence that indicates that both CK2 subunits can interact promiscuously with other proteins in a manner that excludes the binding of their complementary CK2 partners has opened the possibility that the phosphorylating activity of this enzyme may be regulated in a novel way. These alternative interactions could limit the in vivo availability of CK2 subunits to generate fully active holoenzyme CK2 tetramers. Likewise, variations in the ratio of  $\alpha$ - and  $\beta$ -subunits could determine the activity of several phosphorylating and dephosphoryla