

# Protein kinase CK2 as an ectokinase: The role of the regulatory CK2 $\beta$ subunit

Rodriguez, Fernando A.

Contreras, Carlos

Bolanos-Garcia, Víctor

Allende, Jorge E.

Protein kinase CK2 (also known as casein kinase 2) is present in the cytoplasm, nuclei, and several other organelles. In addition, this enzyme has been found bound to the external side of the cell membrane where it acts as an ectokinase phosphorylating several extracellular proteins. Previous experiments with transfection of HEK-293T cells demonstrated that expression of both subunits, CK2 $\alpha$  (catalytic) and CK2 $\beta$  (regulatory), was necessary for the appearance of the ectopic enzyme as an ectokinase. In this work, using deletion and point mutations of CK2 $\beta$ , it was possible to demonstrate that the region between amino acids 20 and 33 was necessary for the export of the enzyme as an ectokinase. Phenylalanines 21 and 22 and acidic residues in positions 26-28 are involved in the structural aspects that are required for export. However, the region encompassing amino acids 20-33 of CK2 $\beta$  is not sufficient to make the carboxyl half of this subunit functional in bringing CK2 to the ectokinase locus