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Title: CK2 enzyme affinity against c-myc$^{424-434}$ substrate in human lung cancer tissue

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Body: CK2 is a serine threonine kinase that participates in a variety of cellular processes with more than 300 defined substrates. This critical enzyme is known to be upregulated in cancers, but the role of this upregulation in carcinogenesis is not yet fully understood but c-myc, one of the defined CK2 substrates, is a well-known proto-oncogene that is normally essential in developmental process but is also involved in tumor development. We evaluated the optimal enzyme and substrate concentrations for CK2 activity in both neoplastic and non-neoplastic human lung tissues using the c-myc$^{424-434}$ peptide (EQKLISEEDL) as a substrate. The activities measured for the neoplastic tissue were 600-750 U/mg protein while those for the control tissue was in the range of 650-800 U/ mg. Km value for c-myc peptide was determined as 0.33 μM in non-neoplastic tissue and 0.18 μM in neoplastic tissue. In this study, we did not observe an increased activity in the neoplastic tissue when compared with the non-neoplastic lung tissue, but we recorded two times higher affinity for c-myc$^{424-434}$ in cancer tissue. Considering the metabolic position of c-myc$^{424-434}$, our results suggest that phosphorylation by CK2 may be important in dimerization and thus it might affect the regulation of c-myc in cancer tissues.