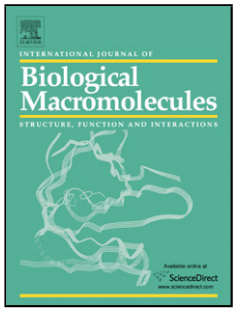

Title: Silencing of DYRK2 increases cell proliferation but reverses CAM-DR in Non-Hodgkin's Lymphoma

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Abstract

DYRK2, a dual-specificity tyrosine-(Y)-phosphorylation regulated kinase gene, is involved in regulating many processes such as cell proliferation, cell differentiation and cytokinesis. DYRK2 also plays an important role in many cancers, such as breast cancer, non-small cell lung cancer and esophageal adenocarcinomas. In this study, we found that DYRK2 is associated with the proliferation of Non-Hodgkin's lymphoma (NHL) and cell adhesion mediated drug resistance (CAM-DR). Clinically, the mRNA and protein expression levels of DYRK2 are decreased in NHL tissues compared with reactive lymphoid hyperplasia tissues. Immunohistochemical analysis revealed that low expression of DYRK2 is associated with poor prognosis of NHL patients. Interestingly, knockdown of DYRK2 can promote cell proliferation via modulating cell cycle progression. Finally, we demonstrated that DYRK2 plays an important role in CAM-DR by regulating $p27^{Kip1}$ expression. Importantly, DYRK2 knockdown reverses CAM-DR in NHL. Our research suggested that DYRK2 may be a novel therapeutic target for NHL.