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Oncomine gene expression profiling of the endocannabinoid receptors expressed in cancer cells

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Non-Hodgkin Lymphoma (NHL), being the most common hematological malignancy, accounts for ~500,000 lymphoma patients annually and attributes to ~20,000 lymphoma-related deaths. B-cell lymphoma makes up 85% of NHL where the most common is diffuse large B-cell lymphoma (DLBCL) and one of the more aggressive forms is mantle cell lymphoma (MCL). There are putative targets for therapy where the current investigation seeks to discover if there is a significant role of the endocannabinoid receptors in cancer cells, particularly lymphomas. This study required primary DLBCL cell lines isolated from patient samples for testing for CB1 and CB2 mRNA expression; where isolated cells from patient samples were obtained through a protocol approved by the Institutional Review Board at MD Anderson Cancer Center. Oncomine gene expression profiling results demonstrated that lymphoma, compared to other tumor types had the highest over-expression of CB1 receptors, with CNS cancers and gastric cancers close behind. In several independent studies, MCL has been shown to express higher levels of CB1 and CB2 than in reactive lymphoid tissue or purified B cell subsets representing various stages of B cell differentiation (Wasik, 2015). With this information, we decided to investigate CB1 and CB2 mRNA expression in Diffuse Large B-cell Lymphoma cell lines. Western blotting assay results confirmed high mRNA expression levels of CB1, thus deeming CB1 as a potential therapeutic target.

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