Involvement of oxLDL in the biology of head and neck cancer cell lines

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Background: Cardiovascular diseases and cancers are the two main causes of death worldwide. They share common factors in their progression as genetic alterations, oxidative stress, angiogenesis and inflammatory process. Also, it is well known that oxidized low-density lipoprotein (oxLDL) plays a major role in the atherosclerotic plaque formation notably by macrophage foam cells formation. The goal of this research is to answer the question: « Does oxLDL accumulation influence tumor progression? »

Conclusion: OxLDL treatment increases CD36 and LOX-1 expression and inhibits β-catenin signaling that might lead to the decrease of cancer cells migration. These factors should be examined in patient samples to validate this mechanism in cancer progression.

Methods: We have analyzed by immunofluorescence the expression of two oxLDL receptors, CD36 and LOX-1 in three head and neck cancer cell lines (FaDu, Detroit 562 and UPCI-SCC-131) treated or not with oxLDL (20µg/ml) during 48h. After, we have examined the impact of oxLDL (20µg/ml) on cell migration after 48h by Boyden chamber and analyzed the Wnt/β-catenin pathway, which is implicated in cell migration, by Western blotting. Statistical analyses were conducted with the Student’s t-test.

Discussion: These results are in line with the recent work of Fang et al. (Nat Commun, 2019) who demonstrated that high CD36 expression in colorectal cancer conducts to the inhibition of the β-catenin signaling cascade leading to colorectal tumor inhibition.