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Title: Over-expression of chloride intracellular channels (CLICs) 3 and 4 in malignant pleural mesothelioma

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Body: Background: Chloride Intracellular Channels (CLICs) are responsible for the regulation of multiple cellular functions. CLICs have been found over-expressed in several malignancies, and therefore they are currently considered as potential as drug targets. Aim: The main goal of our study was to assess the gene expression levels of CLIC's 1-5 in malignant pleural mesothelioma (MPM) as compared to healthy controls. Methods: We used gene expression data from the Oncomine Cancer Microarray database (<http://www.oncomine.org/>) comparing malignant pleural mesothelioma versus healthy tissue in order to investigate the differential expression profile of CLIC 1-5. The gene expression data were log transformed, median centered per array, and the standard deviation was normalized to one per array. Gene expression was considered to be significantly over- or under- expressed when $p < 0.05$ comparing MPM vs. healthy controls. Results: In MPM, the gene expression of CLIC3 and CLIC4 was significantly increased compared to controls ($p=0.0014$ and $p=0.0005$ respectively). On the contrary, there was no significant difference in the gene expression of CLIC1, CLIC2 and CLIC5. We also found a significant positive correlation between the gene expression of CLIC3 and CLIC4 ($p=0.0016$ and Spearman's $\rho=0.48$). Deming regression analysis revealed significant positive association ($p=0.0008$) between the gene expression of CLIC3 and CLIC4 given by the following equation: $CLIC4 = 4.42 CLIC3 - 10.1$. Conclusions: Our results indicate that CLIC3 and CLIC4 are over-expressed in human MPM. The prognostic value of CLIC3 and CLIC4 requires further investigation.