

Pan-cancer analysis of ANO6 and experimental validation in metastatic melanoma

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Abstract: Background: Anoctamin 6 (ANO6) has been implicated in the oncogenicity of malignancies. However, pan-cancer analysis of ANO6 to fully explore its role in tumors has not been performed and little is reported on its role in melanoma. Methods: The ANO6 expression levels, clinical correlation, prognostic significance, mutational profiles, immune infiltration pattern, immune checkpoints, immunomodulatory genes, tumor heterogeneity, and molecular function were explored via systematic bioinformatics analysis and multiple public databases. Subsequently, the biological functions of ANO6 in the pulmonary metastasis of B16F10 melanoma cells in vivo were assessed by experimental validation. Results: Our findings have demonstrated that ANO6 was highly expressed in most cancers and associated with poorer prognosis in cancer patients. A close relationship was observed between ANO6 expression level and clinicopathological characteristics, tumor immunity, and tumor heterogeneity. Gene Ontology (GO) and Kyoto Encyclopedia of Genes and Genomes (KEGG) analyses indicated that ANO6 was associated with immune response and regulated many cancer-related pathways. Furthermore, a melanoma pulmonary metastasis mice model showed that ANO6 was overexpressed in lung metastasis tissues compared with corresponding normal tissues. Conclusion: Collectively, ANO6 may serve as reliable biomarkers to predict the prognosis for diverse types of cancer and as a prospective marker for melanoma progression

Keywords: pan-cancer analysis; ANO6; melanoma; prognosis; tumor immunity

Biography: Dr. Yao Ans research elucidates the pathophysiological mechanisms of endothelial dysfunction-driven thrombosis, particularly in pulmonary arterial hypertension, hyperlipidemia, and hyperuricemia. He proposed the theoretical framework of “thrombosis-hemostatic synergistic intervention” by analyzing the dynamic network of interaction between endothelial injury and the coagulation system. Future research is expected to develop new strategies for antithrombotic treatment, help develop more targeted treatment plans, and improve treatment effects.

Awards: 2023–3rd Prize, Young Investigator Oral Presentation, 4th Chinese Graduate Academic Forum on Clinical Laboratory Diagnostics and Medical Laboratory Technology; 2024-2nd Prize, Young Investigator Oral Presentation, 5th Chinese Graduate Academic Forum on Clinical Laboratory Diagnostics and Medical Laboratory Technology; 2024-National scholarship for doctoral students, China.