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5 - 61 SPP1 as a Potential Biomarker for Immune Microenvironment of Glioblastoma

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Glioblastoma (GBM) is the most common and aggressive primary brain tumor, accounting for about 14.5% of malignant brain and other Central Nervous System (CNS) tumors[1]. Among primary malignant brain and other CNS tumors, only GBM had the lowest median survival about 8 months[2]. The GBM tumor microenvironment (TME) is unique due to its special cellular components, which contributes to the brain being widely recognized as a relatively immunologically privileged organ. Immune-privileged organs tightly regulate immune responses, which results in a natural immunosuppressive environment. Macrophages constitute the main body of infiltrating immune cells and are thought to have preneoplastic lesions and immunosuppressive effects[3]. It is very important to explore the role of macrophages related pathways in the occurrence and development of GBM.

Here, we firstly developed an immune-related prognostic model and verified its ability to significantly distinguish between good and bad outcomes of patients, finding that SPP1 has good diagnostic and prognostic ability in GBM (Fig. 1(a)∼(b)). Subsequently, we analyzed the correlation of GBM immune microenvironment with the prognostic model. It was found that there was a significant correlation between the model and the immune microenvironment, especially model gene SPP1 and macrophages (Fig. 1(c)). Finally, we explored the difference of SPP1 pathway between adjacent tissues and tumor tissues, and found that SPP1 pathway played an important role in tumor tissues (Fig. 1(b)). Subsequently, we visualized the interacting receptor and ligand pairs in the SPP1 pathway in peritumoral and tumor tissues, and found that the main receptor and ligand pairs that played a role in tumor tissues were SPP1-CD44 and SPP1-interferon, especially the SPP1-CD44 receptor and ligand pair contributed most to the SPP1 pathway (Fig. 1(e)).

In conclusion, SPP1 pathway plays an important role in the occurrence and development of GBM. Therefore, the efforts to explore mechanism of SPP1 pathway in glioblastoma are further needed.

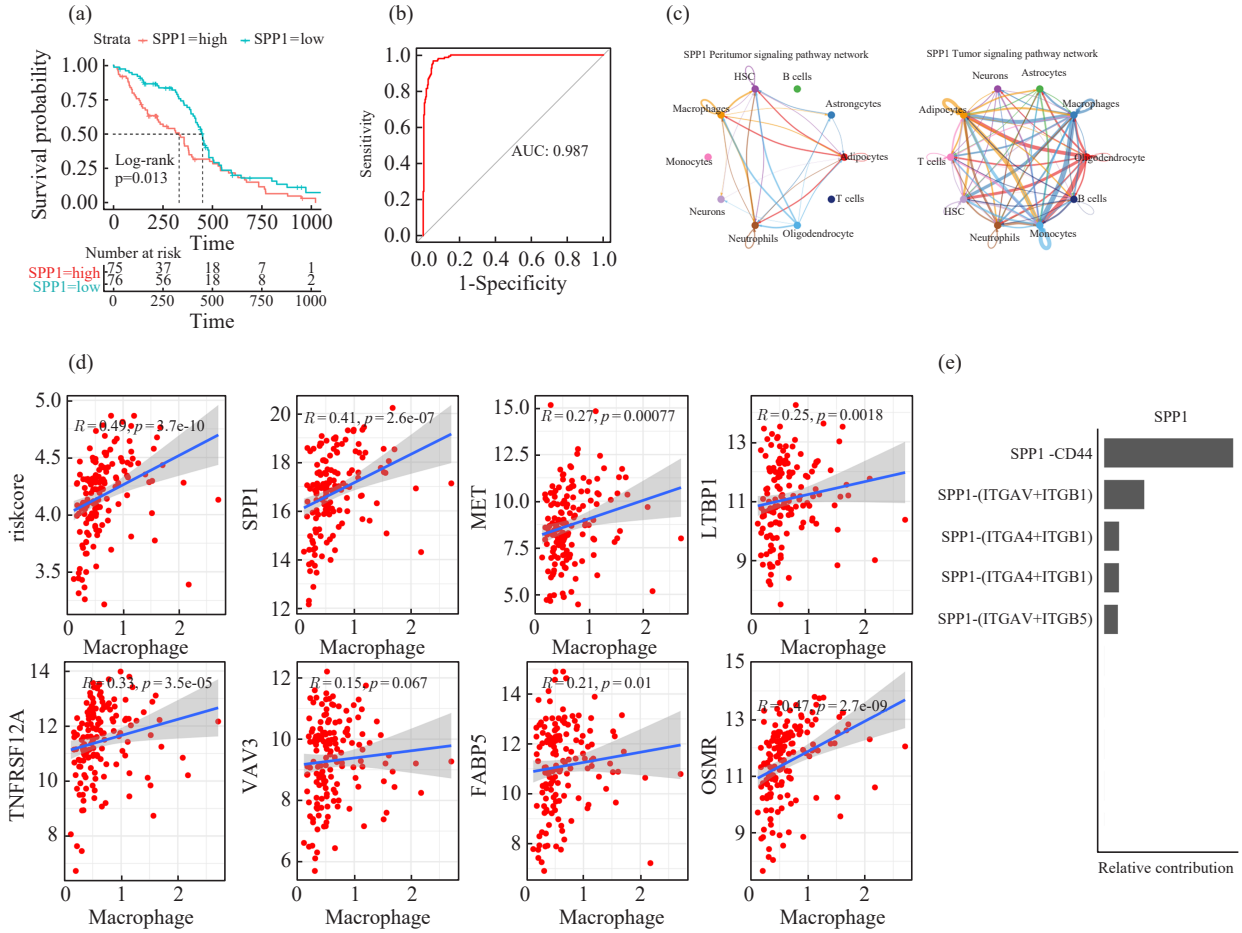

Fig. 1 (color online) Role of SPP1 in tumor cells.

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