

Difference of L-type amino-acid transporter 1 expression in hormone-reactive and hormone-refractory prostate cancer

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Amino acid is crucial as nutrition for the proliferation of cells. Essential amino acids are mainly transported into the tumor cells through the transporting system named "System L". L-type amino acid transporter 1 (LAT1) is a representative transporter that convey neutral amino acids including essential amino acids. Although the expression of LAT1 in normal tissue is limited to specific organs such as brain and placenta, its expression in malignant tumors such as gastric, colon, breast, renal cell carcinomas have been reported by immunohistochemical studies. LAT1 expression in prostate cancer has recently been reported to be associated with the prognosis. However, the relationship between LAT1 expression and the hormone therapy in prostate cancer have not been fully clarified yet. Therefore, in the present study, we have investigated the immunohistochemical expression of LAT1 on prostate cancer tissues in hormone-reactive and hormone-refractory cases respectively. Twenty-one specimens of hormone-reactive cancer tissues and 12 specimens of hormone-refractory ones obtained by prostatectomy were studied. The intensity of LAT1 in each tissue sample was assessed and the more than mild expression on the tumor cell membrane was regarded as positive. None of the hormone-reactive cancer tissues expressed LAT1 while 2 of the hormone-refractory ones expressed LAT1. These results suggest that LAT1 is one of the candidates that induce refractory effect against hormone therapy.