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Vav1 is ectopically expressed in breast tumors in which reduces the efficiency of the metastatic process

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Vav1, normally restricted to hematopoietic cells, results ectopically expressed in solid tumors, including breast cancer (Sebban et al., 2013) in which, contrarily to other neoplasias, seems to be higher in tumors from patients who remained disease-free than in patients who developed recurrence (Lane et al., 2008). The significance of Vav1 expression in breast tumors was evaluated by immunohistochemical analysis on TMAs containing invasive breast tumors from patients without lymph node involvement. Our findings indicate that Vav1 is expressed in almost all investigated cancers and shows a peculiar localization inside the nucleus of tumor cells. High amounts of nuclear Vav1 positively correlates with low incidence of relapse, regardless phenotype and molecular subtype of the neoplasia. Experiments performed with breast tumor-derived cells showing different morphology, immunoprofile and invasive properties indicated that Vav1 negatively modulates their invasiveness *in vitro* and their metastatic efficiency *in vivo*, possibly by affecting the expression of genes involved in invasion and/or metastasis of breast cancer. Since the high heterogeneity of breast tumors makes difficult to predict the evolution of early neoplasias, the evaluation of nuclear Vav1 levels may help in profiling and management of early breast cancer patients. In addition, Vav1 may serve as a target for new therapies designed to prevent breast cancer progression.

References

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Keywords

Breast cancer, Vav1, cell nucleus, metastasis.