Abstract #1418

MOSPD2, a Newly Characterized Protein, Promotes Breast Cancer Metastasis

Itzhak Mendel, Yaniv Salem, Niva Yacov, Oshrat Propheta- Meiran and Eyal Breitbart
VBL Therapeutics

BACKGROUND

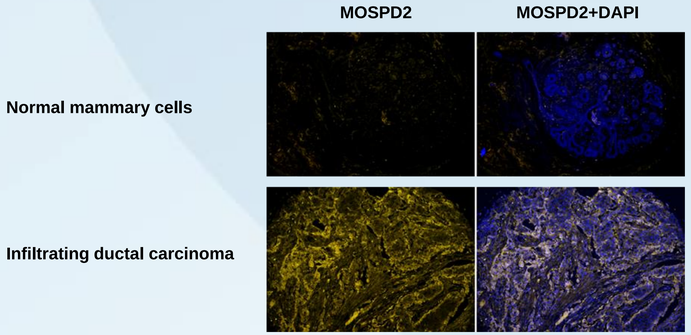
Cancer metastasis is a fundamental therapeutic challenge. We have previously described motile sperm domain-containing protein 2 (MOSPD2) as a key regulator of monocyte migration in-vitro[1]. Since metastasis also implicates cancer cell chemotaxis, we assessed the potential role of MOSPD2 in promoting breast cancer migration and metastasis in-vitro and in-vivo.

METHODS

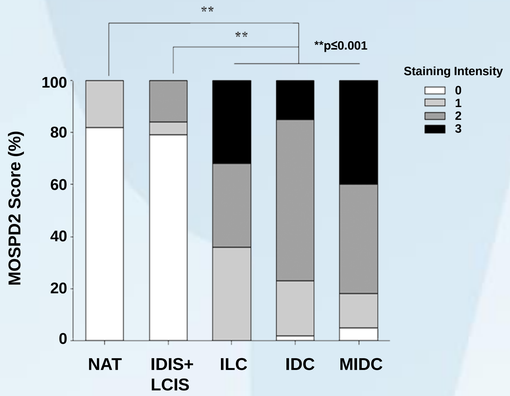
The prevalence of MOSPD2 was evaluated by IHC in tissue microarray representing different stages of invasiveness in breast cancer. MOSPD2 abundance was scored according to the staining intensity on a scale from 0 to 3. MOSPD2 expression was silenced in MDA-231 breast cancer cell line using CRISPR-CAS9 (CRISPR) lentiviral particles. Cells were then tested by in-vitro trans-well assay for migration towards EGF, as well as for lung dissemination following inoculation in-vivo of SCID mice. For mechanism studies, EGF-induced signaling events were analyzed.

RESULTS

MOSPD2 expression is highly prevalent in invasive breast cancer tissue.

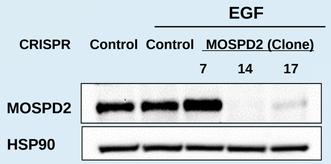


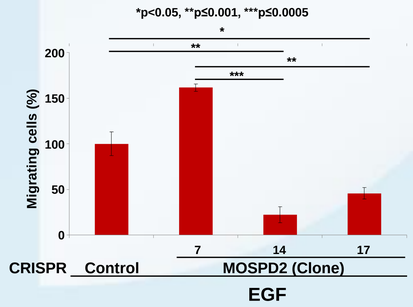
MOSPD2 expression correlates with breast cancer invasiveness



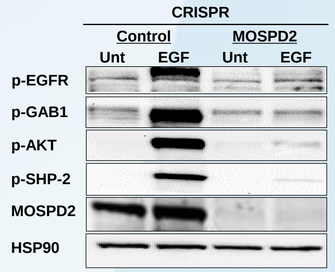
NAT - Normal adjacent tissue
IDIS – Intra-ductal carcinoma in-situ
LCIS – Lobular carcinoma in-situ
ILC – Infiltrating lobular carcinoma
IDC – Infiltrating ductal carcinoma
MIDC - Metastatic invasive ductal carcinoma

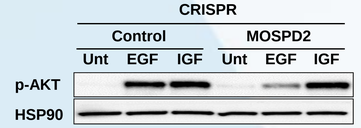
MOSPD2-silenced MDA-231 cells are severely impaired in their ability to migrate in-vitro towards EGF.



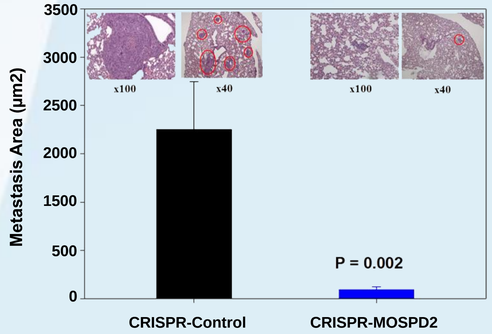


MOSPD2 is essential for EGF-induced signaling pathways in MDA-231 cells





MOSPD2 promotes metastasis of MDA-231 breast cancer cells in-vivo



CONCLUSIONS

- MOSPD2 expression level correlates with breast cancer invasiveness.
- MOSPD2 regulates migration and metastasis of breast cancer cells in-vitro and in-vivo.
- **MOSPD2 is a potential target for the treatment of cancer**.

REFERENCES

Identification of Motile Sperm Domain–Containing Protein 2 as Regulator of Human Monocyte Migration. Itzhak Mendel, Niva Yacov, Yaniv Salem, Oshrat Propheta-Meiran, Eti Ishai, and Eyal Breitbart . *J. Immunol*. 2017; 198:2125-2132.