

Cancer Science & Therapy

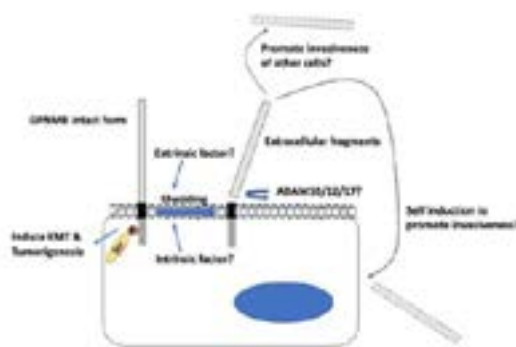
March 07-08, 2019 | Barcelona, Spain

Role of GPNMB in cancer progression

Muhammad Ali Fikry

University of Tsukuba, Japan

Glycoprotein NMB (GPNMB) is a type I transmembrane protein, which is profoundly expressed in many malignant tumor cells and it is considered to be one of the poor prognostic factors. Previously, we showed that GPNMB confers the tumorigenic potential, such as sphere formation *in vitro* and xenograft tumor formation *in vivo*, to non-tumorigenic mammary gland epithelial cells. Additionally, we showed that GPNMB induced epithelial-mesenchymal transition (EMT) and proved to be involved in cell migratory and invasive ability of breast cancer cells. Furthermore, we demonstrated that GPNMB surface expression enhanced in spheres and *in vivo* tumors of breast cancer cells and induced stem-like properties including the high expression of stem-related genes, sphere-forming ability and tumor growth. These GPNMB functions depend on the tyrosine phosphorylation in the intracellular domain of GPNMB, which is known as hemi-immuno receptor tyrosine-based activation motif (ITAM). In this study, we would like to clarify the mechanism of how GPNMB plays a role in cancer progression in different types of cancers. We established GPNMB wild-type or mutant stably expressing cell lines and reviewed the effects on cell migration and invasiveness *in vitro* and *in vivo*. When we examined the expression of GPNMB in invasive cancer cells, we found that GPNMB was secreted in the culture medium. The exact mechanism of how GPNMB promote invasiveness remains unclear, tyrosine phosphorylation and shedding/secretion of its protein might correlate with this mechanism. Further experiments must be conducted by focusing on those possible clues that might lead us to a definite conclusion.



Recent Publications

1. Okita, et al. (2017) The transcription factor MAFK induces EMT and malignant progression of triple-negative breast cancer through its target GPNMB. *Sci. Signal.* 10:474.
2. Chen C, et al. (2018) Glycoprotein nmb is exposed on the surface of dormant breast cancer cells and induces stem cell-like properties. *Cancer Res.* 78(22):6424-6435.

Biography

Muhammad Ali Fikry has completed his Bachelor's degree in Biology at Gadjah Mada University, Indonesia. Currently, he is pursuing his Master's degree in Medical Sciences program at the University of Tsukuba, Japan. He works at the Laboratory of Experimental Pathology and focusing his research on the investigation of GPNMB role in cancer progression.

S1726083@s.tsukuba.ac.jp