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SLUG and SOX9 cooperatively regulate tumor initiating niche factors in breast cancer

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Background: Presence of tumor initiating cells and a proper niche is essential for metastatic colonization. SLUG and SOX9 transcription factors play essential roles in induction and maintenance of tumor initiating capacity in breast cancer cells. On the other hand, Tenascin-C and Periostin are crucial factors in metastatic niche that support tumor initiating capability in breast cancer.

Method: In this study, regulatory effect of SLUG and SOX9 transcription factors on the expression of Tenascin-C and Periostin transcripts was examined. SLUG and SOX9 were overexpressed and knocked-down via lentivirus constructs in MCF7 in MDA-MB-231 cells, as non-invasive and invasive breast cancer-derived cells respectively. Then, Tenascin-C and Periostin expression levels were measured side by side of the SLUG and SOX9 via Real-Time PCR.

Results: Simultaneous over expression of SLUG and SOX9 significantly induced Tenascin-C and Periostin Expression. SLUG and SOX9 knock-down also significantly reduced the expression of Tenascin-C and Periostin. In this analysis, Periostin showed the most deviation in both up- and down-regulation levels.

Conclusion: This regulatory effect might shed light to a crosstalk between factors involved in the tumor initiating capacity and metastatic niche of the breast cancer.

Biography

Babak Behnam has completed his MD degree at Iran University of Medical Sciences (IUMS), and his PhD degree at the University College London (UCL) in Human Genetics. Then he served as postdoctoral research fellow for 4 years at the University of Michigan School of Medicine and University of Central Florida. Then he has joined IUMS and directed medical genetics laboratory at IUMS-Children hospital in parallel to his translational research focused on molecular metastatic pathway and breast cancer stem cell. He has published more than 25 peer-reviewed papers and is also serving as an Editorial Board Member of scientific journals.

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