Tenascin C and its modulatory role in tumor progression in systemic malignancies

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To the editor

The recent article by Reed and Johnson (2013) provided for highly stimulating and interesting reading. Tenascin-C also plays a significant modulatory role in tumor progression in a number of other systemic malignancies.

Tenascin-C plays a major role in evolution and progression of mammary malignancies. Tenascin-C up-regulates LGR5 expression (Oskarsson et al. 2011). In addition, it attenuates the negative impact of STAT 5 on MSI1-dependent NOTCH signaling. Cancer cell proliferation is especially augmented by tenascin-16 (Nagaharu et al. 2011). Tenascin-C also promotes malignant cell migration. It does this by virtue of its attenuating effect on intercellular adhesion in between the cancerous cells. As a result, tenascin-C augments “epithelial mesenchyme transition” in malignant breast tissue. MMP-13 expression is markedly accentuated (Hancox et al. 2009). Tenascin-C thus contributes to the development and evolution of cancerous breast tissue. These effects of tenascin-C are independent of POU5F1 intervention (Ilunga et al. 2004). In addition to these changes, tenascin-C also increases TIMP-3 expression.

Tenascin-C plays a similar role in colonic malignancies. “Large tenascin-C spliced variant” (L-Tn-CSV) in particular is extremely useful for staging in

colo-rectal malignancies. It has a sensitivity of about 57 % in detecting malignant transformation in colonic tissue (Kalembeyi et al. 2003). A close association exists between tumor TNM stage and serum L-Tn-CSV levels. In fact, L-Tn-CSV is more sensitive in detecting colo-rectal malignancies in comparison to CEA. In general, lower 5 year survival rates are seen in individuals with strong tenascin-C staining in contrast to higher 5 year survival rates in individuals who exhibit weak tenascin-C staining (Takeda et al. 2007). In addition, to these effects tenascin-C has a positive impact on 14-3-3sigma expression which in turn augments malignant cell migration (Lundin et al. 2007). It is also of clinical use in assessing post-operative prognosis and recurrence in surgically treated colorectal malignancies (Ide et al. 2007).

The above examples clearly illustrate the modulatory role of tenascin-C in tumor progression and evolution. Further studies are needed in other systemic malignancies to elucidate the possible role of tenascin-C in tumor progression in these malignancies.

Conflict of interest None.

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