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Head and neck squamous cancer stem cells and metastasis *in vitro* and *in vivo* in the chick chorioallantoic membrane assay

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Background: To evaluate the impact of CSC proportion on metastasis in Head and Neck Squamous Cell Carcinoma (HNSCC) using *in vitro* and *in vivo* models.

Method: *In vitro* motility was assessed using wound healing and matrigel invasion assays. Tumorigenesis and metastasis were assessed in a Chick Chorioallantoic Membrane (CAM) assay.

Results: Flow cytometry demonstrated 60-70% CD44⁺ cells in UMSCC-110 and 30-40% in UMSCC-106. UMSCC-110 cells demonstrated significantly faster wound closure (p<0.05) and more efficient invasion (p=0.033) compared to UMSCC-106 cells. In the CAM assay, there was a significant difference in liver metastasis between CD44^{high} cells and unsorted or CD44^{low} cells (p=0.027 in UMSCC-110 and p=0.035 in UMSCC-106, respectively).

Conclusion: The proportion of CSC was significantly related to mobility and metastasis in HNSCC cell lines. This concept might help to improve understanding of mechanisms of metastasis and change therapeutic approaches to treating cancer metastasis.

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