

## Analysis of immunoexpression of common cancer stem cell markers in ameloblastoma

Type: Article

### Abstract:

Recent studies have established that, in benign tumors, a large number of cancer stem cells are present, which have great implications in tumor development. However, in ameloblastoma, a highly aggressive, locally invasive tumor with a high recurrence rate, whether or not cancer stem-like cells are present remains undetermined. Therefore, in this study we analyzed the protein expression of three candidate stem cell markers in ameloblastoma. Immunohistochemical staining for cancer stem cell (CSC) markers (CD133, CD44 and ABCG2) and for the proliferation marker Ki-67 was performed using 23 ameloblastoma cases. In all 23 samples, CD 133, CD44 and ABCG2 were expressed. Nine (39.13%) cases showed high expression and 14 cases (60.87%) showed low expression for CD133. Twelve of the 23 cases (52.17%) showed high expression and 11 cases (47.83%) showed low expression for both CD44 and ABCG2, respectively. Ki-67 was mainly expressed in peripheral ameloblast-like cells, suggesting that these cells have a higher degree of differentiation and, therefore, are less likely to contain cancer stem-like cells. On the other hand, cells positive for CSC markers situated at the close proximity to peripheral cells were devoid of Ki-67 and may have the potential to be cancer stem-like cells. After analyzing the correlation between expression of three CSC markers with clinicopathological factors and Ki-67 expression, only CD44 expression was correlated with tumor recurrence ( $P=0.0391$ ). In conclusion, this study showed various expression patterns of different types of cancer stem cell markers and the presence of candidate CSC-like cells in ameloblastoma, which are possibly involved in cell proliferation, tumor progression and recurrence.

Author	<ul style="list-style-type: none"><li>• Sathi, G. A.</li><li>• Tamamura, R.</li><li>• Tsujigiwa, H.</li><li>• Katase, N.</li><li>• Lefeuvre, M.</li><li>• Siar, C. H.</li><li>• Matsuda, H.</li><li>• Nagatsuka, H.</li></ul>
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Ameloblastoma, cancer stem cell, CD133, CD44, ABCG2, Immunohistochemistry, prospective identification, carcinoma, invasion

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