Glut-1, Best Immunohistochemical Marker for Perineurial Cells: A Note of Caution

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Sir,

I read the article by Pina et al. [1], describing “Glut-1, best immunohistochemical marker for perineurial cells” with great interest. The authors concluded that Glut-1 appears to be a more sensitive immunohistochemical marker than EMA and Claudin-1 for perineurial cells, and therefore the preferable marker to distinguish perineuriomas from its morphological mimics. However, in my experience, although soft tissue perineuriomas are nearly always Glut-1 positive, Glut-1 expression (polyclonal, 1:100; BioSystems) can be observed in some cases of translocation-proven low-grade fibromyxoid sarcoma (LGFMS) (Fig. 1a, b), a tumor in its differential diagnosis. Distinction between perineurioma and LGFMS is important for appropriate treatment and prognostication. LGFMS is a malignant soft tissue tumor with recurrent and metastatic potential mainly occurring in young and middle-aged adults. The most common sites of presentation are the lower extremities, chest wall and the head and neck [2–4]. The bland cytology and variable morphology in LGFMS can lead to

misdiagnosis as a benign lesion and LGFMS has significant morphologic and immunohistochemical features in common with perineurioma [5]. Overlap in expression of EMA, Claudin-1 and Glut-1 in perineurioma and LGFMS suggests that this immunohistochemical panel is not sufficient to discern between these two tumor types. Distinguishing both entities is especially difficult on core biopsy, where the amount of tissue is small and the characteristic architectural features of LGFMS may be absent or difficult to recognize. Although positivity for Glut-1 could be useful as an additional marker for perineurial differentiation, it should be interpreted together with clinical findings, morphology, immunoprofile and genetic investigations where possible. The demonstration of the characteristic t(7; 16) and t(11; 16) translocations (resulting in *FUS-CREB3L2* and *FUS-CREB3L1* fusion genes) or immunopositivity for MUC4 (Fig. 1c), a recently described sensitive and specific marker for LGFMS, remain the gold standard in the diagnosis of LGFMS, differentiating them from perineurioma [6, 7].

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Fig. 1 t(7; 16)-positive low-grade fibromyxoid sarcoma with bland, fascicular architecture, similar in morphology to perineurioma (hematoxylin and eosin staining, $\times 100$ original magnification) (**a**), showing strong Glut-1 reactivity ($\times 200$ original magnification) (**b**) and strong cytoplasmic staining for MUC4 ($\times 200$ original magnification) (**c**)

Ethical standard This article does not contain any studies with human participants or animals performed by the author.

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Conflict of interest The author declares that he has no conflict of interest.