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### **Brain tumour stem cells and neural stem cells: still explored by the same approach?**

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Brain tumour stem cells (BTSCs) are chiefly responsible for the in vivo long-term growth and recurrence of malignant gliomas and may be a potential treatment target. They resemble neural stem cells (NSCs), so their self-renewal and differentiation are currently investigated by the same methods used to study NSCs. There are, however, essential differences between these cell types: in many cases the marker expression pattern of BTSCs does not match the CD133(+)/NSE(-)/FAP(-) pattern of NSCs; BTSC tumourigenicity is independent of marker expression; and while attachment, serum-containing medium and withdrawal of mitogens (epidermal growth factor [EGF] and basic fibroblast growth factor [bFGF]) are essential to induce NSCs to differentiate, they do not affect BTSC tumourigenicity. Evidence implies that research on the renewal and differentiation of BTSCs should be orientated towards tumourigenicity and is essentially a pharmaceutical problem. Such an approach may contribute to the development of an accurate definition of BTSCs and to the search for selective differentiation-inducing drugs for BTSCs.

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