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RETRACTION

Quantification, self-renewal, and genetic tracing of FL1$^+$ tumor-initiating cells in a large cohort of human gliomas

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Neuro-Oncology regrets to inform readers that this article has been retracted at the authors' request [Neuro-Oncology 14(6):720–735, 2012. doi:10.1093/neuonc/nos084].

The authors published a new technique in *Nature Methods* 7:224–230, 2010, identifying tumor-initiating cells from human primary gliomasphere cultures based on a specific morphology (high forward scatter, low side scatter) and intrinsic autofluorescence in the FL1 channel of the FACS. They subsequently became aware that part of the primary gliomasphere cultures that were reported in the paper was contaminated by GFP-expressing HEK cells. Microsatellite analysis of 15 short tandem repeats found that 7 out of 10 of the primary cultures and all of the 3 lines used for tumorigenicity experiments did not match their parental tissue, and their genetic profile was consistent with that of HEK cells. Of importance, the authors also described experiments done with cells prospectively isolated from freshly resected glioma tissues (26); these experiments (in vitro self-renewal and tumorigenicity) remain valid. When the authors excluded HEK-contaminated cultures, they had to conclude that glioma-initiating cells have low autofluorescence levels which do not increase during culture. This led to retraction of their paper in *Nature Methods* on September 8, 2013.

In the *Neuro-Oncology* paper (14:720–735, 2012), the authors used the same technique to identify and quantify the presence of FL1$^+$ cells in a larger cohort of fresh human gliomas (74) and non-tumorigenic epileptic tissues (15) and reported that FL1$^+$ cells can be found in all specimens of human gliomas of different grades. Similar observations were made in a mouse model of glioma (the GFAP-V12 HA-ras B8 mouse model) as well as in control mouse brain. Except for the results related to the cultured cells (Figure 2C and Tables 2 and 4A: column FL1 MI $> 10^3$, Table 4B: line cultured cells, Supplementary Table 3B), all results related to the prospective study remain valid. The discussion in the paper regarding the acquisition of high FL1 autofluorescence in gliomasphere cultures is nevertheless inappropriate as the progressive increase of fluorescence in gliomasphere cultures was due to their progressive contamination by GFP-expressing HEK cells.

Although real autofluorescence levels in traced cells are lower than reported in the *Nature Methods* paper for 7 out of 10 cultures, the technique for isolating glioma-initiating cells is being re-validated in ongoing experiments.

Nevertheless, the misinterpretation of the progressive increase in fluorescence in gliomasphere cultures compels the authors to retract the current paper. The authors sincerely apologize for the technical mistake made in their study.

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