## Supplementary Figure S1

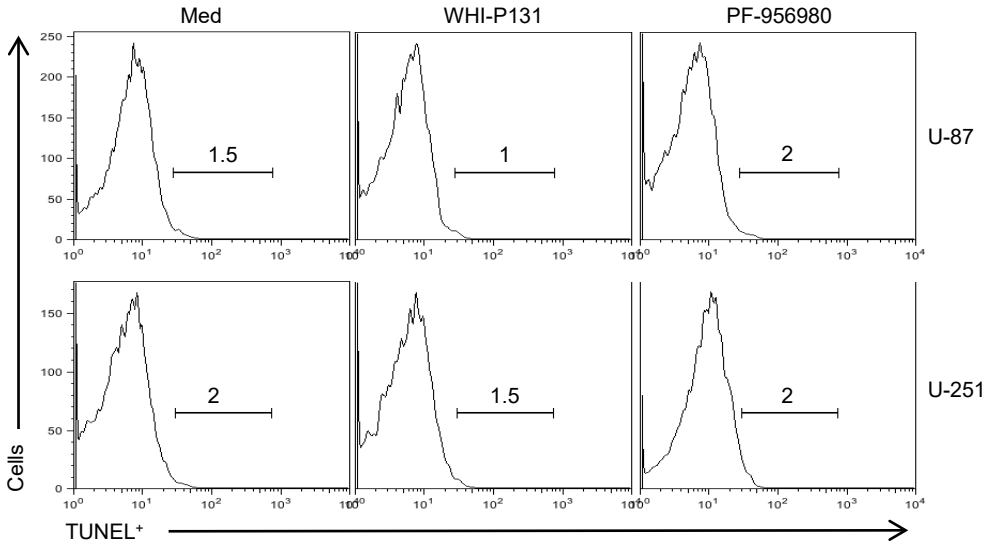



**Figure S1**. **WHI-P131 and PF-956980 treatment do not induce cell death in GBM cells.** TUNEL assay showing the distribution of live (TUNEL$^-$) and dead (TUNEL$^+$) cells evaluated by flow cytometry in 48h culture of U87 and U251 cells with or without treatment of JAK3 inhibitors WHI-P131 (50μM) or PF-956980 (250μM). Data are representative of two independent experiments.

## Supplementary Figure S2

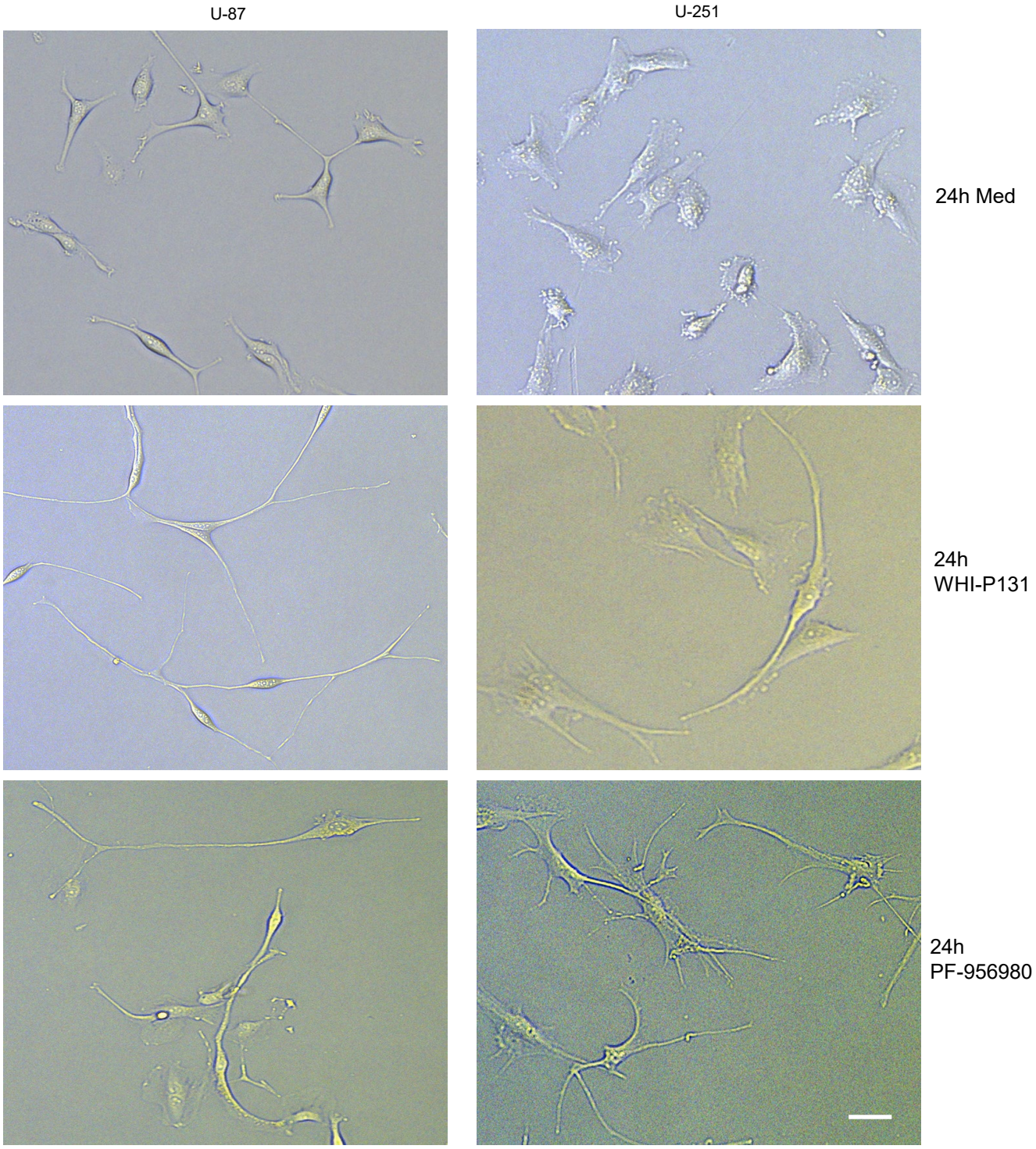



**Figure S2**. **WHI-P131 and PF-956980 induces differentiation of GBM cells to neuronal lineage cells.** Status of U87 and U251 cells proliferation or differentiation at 24h of culture with or without treatment of JAK3 inhibitors WHI-P131 (50µM) or PF-956980 (250µM). Data are representative of ten independent experiments. Scale bar 75 µm.

## Supplementary Figure S3

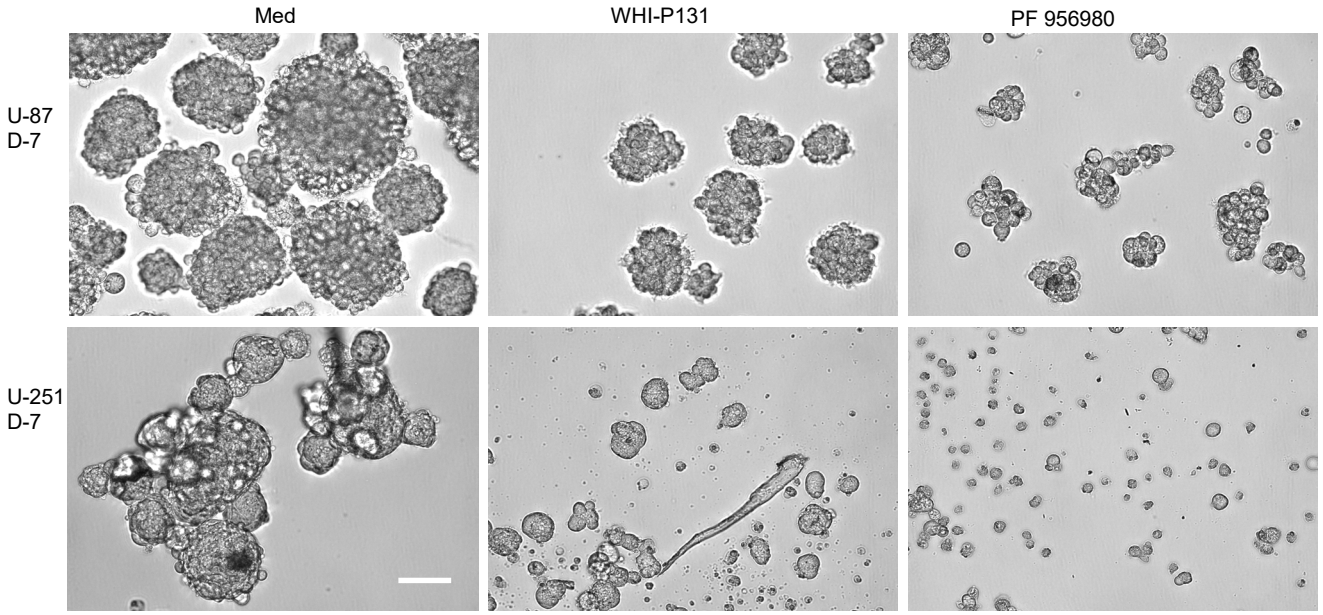



**Figure S3**. **Effects of JAK3 inhibitors on neurosphere forming ability of GBM cells.** Neurosphere formation in absence or in presence of JAK3 inhibitors WHI-P131 (50μM) or PF-956980 (250μM) in U87 and U251 cultures 7 days after treatment. It is clearly evident that JAK3 inhibitors strongly reduced the sphere size and thereby the ability of U87 and U251 cells to proliferate. Scale bar 100 μm.

**Supplementary Figure S4**

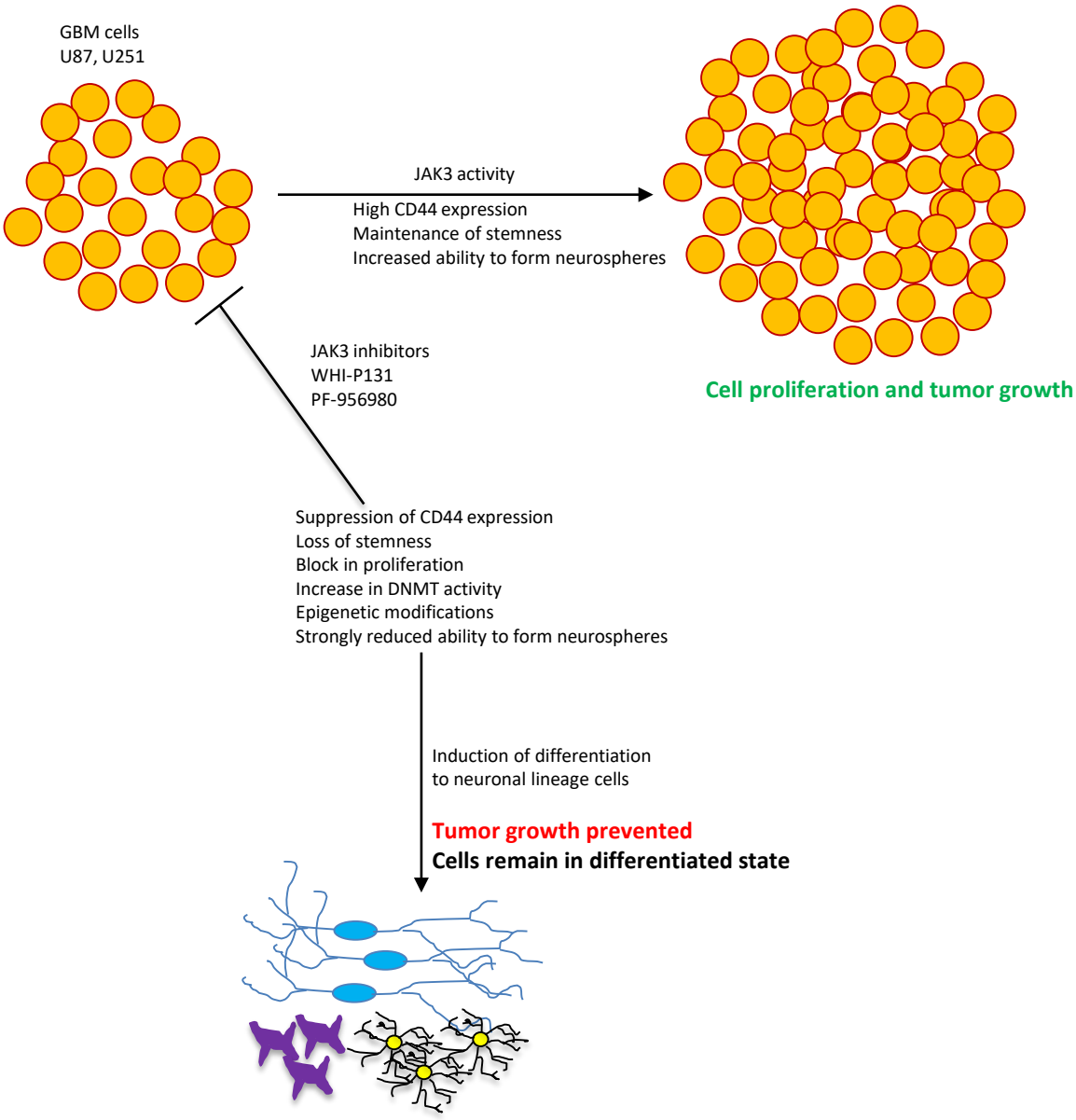



**Figure S4. Model showing the effects of JAK3 activity and its inhibition by JAK3 inhibitors on GBM cell fate.** With uninhibited JAK3 activity both U87 and U251 cells proliferate extensively and the tumor grows. Treatment of JAK3 inhibitors WHI-P131 (50μM) or PF-956980 (250μM) effectively blocks proliferation, induce epigenetic changes leading to differentiation into neuronal lineage cells. As a result, tumor growth is prevented and the cells remain in differentiated state.