Supplementary Material: Toosendanin Exerts an Anti-Cancer Effect in Glioblastoma by Inducing Estrogen Receptor β- and p53-Mediated Apoptosis

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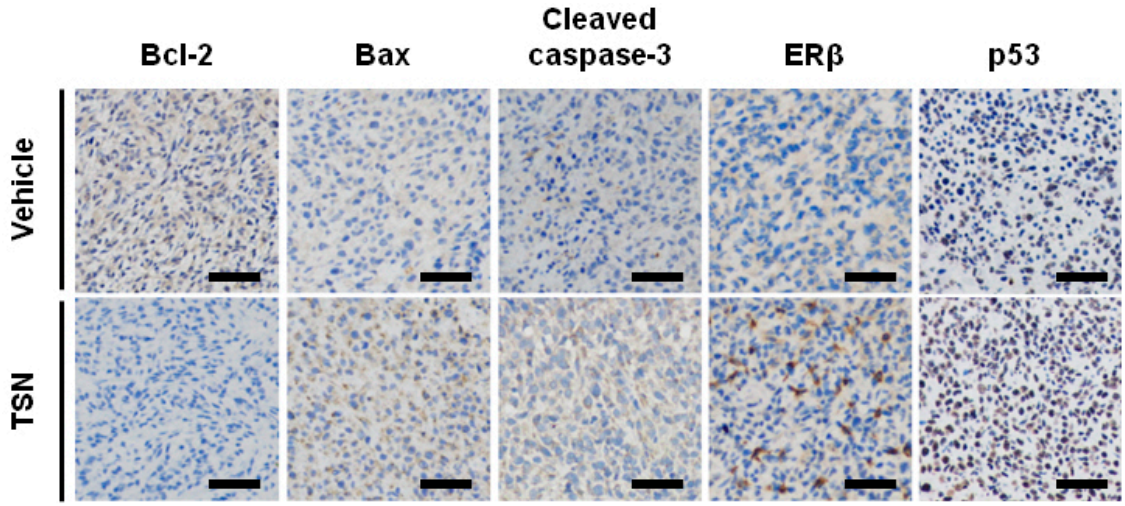

Figure S1. Effect of TSN (toosendanin) on U87 cells apoptosis and ERβ (estrogen receptor β) and p53 induction in vivo. The U87 xenograft tumors were fixed in 4% formalin, cut into 5 μm slides, and evaluated for Bcl-2, Bax, cleaved caspase-3, ERβ, and p53 protein expression by immunohistochemistry (Scale bar = 100 μm).

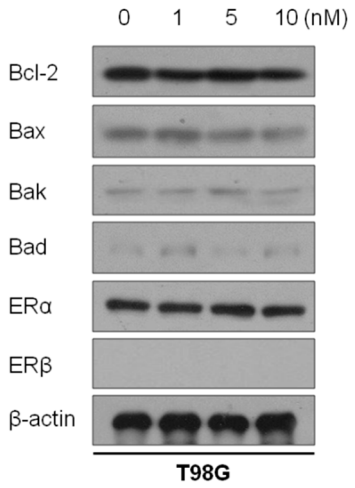

Figure S2. Western blot analysis of apoptosis related proteins and ERs proteins expression in TSN-treated T98G cells.

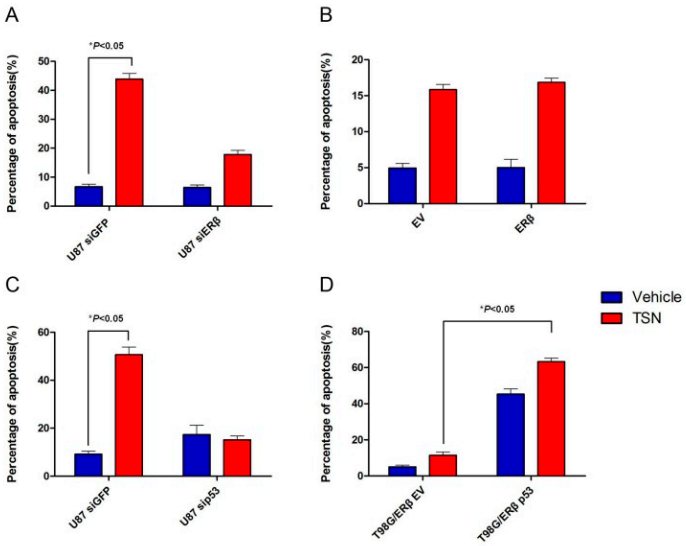

Figure S3. Flow chart of apoptosis related to Figure 4C (**A**), Figure 4E (**B**), Figure 5B (**C**) and Figure 5D (**D**).

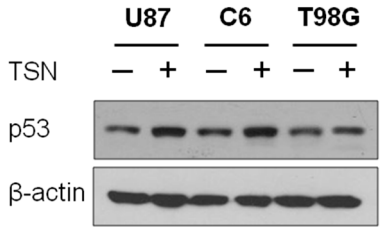

Figure S4. Effect of TSN on p53 expression. U87, C6, and T98G GBM cells were treated with 10 nM TSN for 48 h and examined for p53 protein level.

Cell Line	Species	ERα	ERβ	P53
MCF-7	Human	+	+	Wild Type
T47D	Human	+	+	Mutated

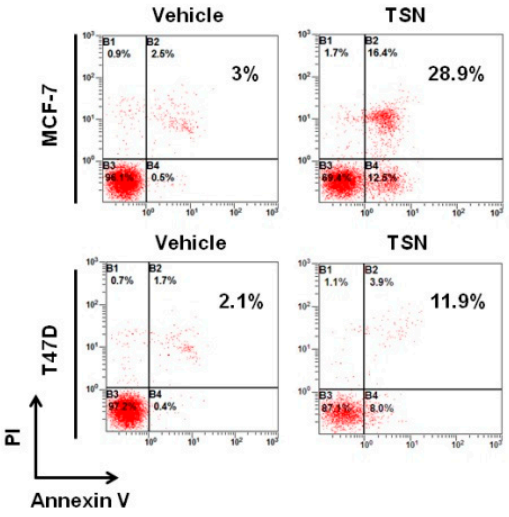

Figure S5. Effect of TSN on apoptosis in breast cancer MCF-7 and T47D cells. MCF-7 and T47D cells were treated with 10 nM TSN. Representative flow cytometry images were shown.

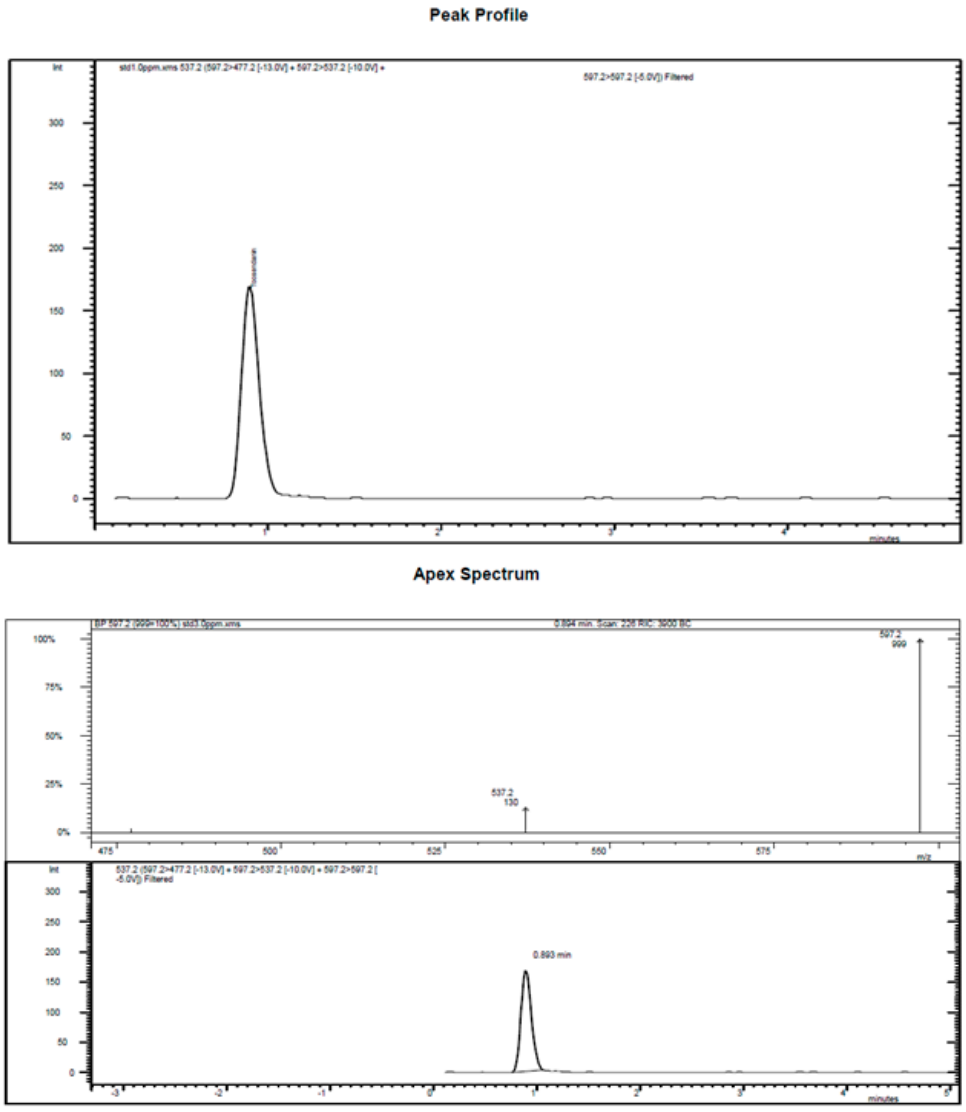

Figure S6. Chromatograms analysis of TSN purity.