

## The different Nrf2 expression of glioblastoma cell lines and glioma stem cells directed from xenografts

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Glioma, the most commonly occurring primary intracranial tumor, remains associated with a dismal outcome, despite the availability of multimodal therapies. However, the identification of glioma stem cells (GSCs), a small group of cells in glioma, has opened up new avenues for research. GSCs are resistant to many kinds of environmental stresses, such as irradiation, anti-tumor drugs and hypoxia. Recent experimental evidence has supported the importance of hypoxia in GSCs. Nuclear factor erythroid 2-related factor 2 (Nrf2) plays a significant role in protecting cells from endogenous and exogenous stresses. Nrf2 is a key nuclear transcription factor that regulates antioxidant response element (ARE)-containing genes. We hypothesized it is an important factor in GSCs. Herein we compared Nrf2 in glioblastoma cell lines and GSCs from xenografts. In our study, GSCs expressing the surface marker CD133 from nude mice xenograft were cultured in neural stem cells medium and were analyzed by immunofluorescence and 24 well cluster cell counting. The different expression of Nrf2 was detected with real-time RCR and Western blot at both transcriptional and translational levels between GSCs and cell lines. The result showed GSCs were successfully isolated from xenografts of U251 and U87 cell lines. The percentage of tumor stem cells in total cells was 1.24%, and that was 1.63% in xenografts. This result indicated Nrf2 is over-expressed in GSCs as compared to glioblastoma cell lines, which points to the expression of Nrf2 being closely related to malignant proliferation, invasion, and differentiation of glioblastoma from the prospective of GSCs. Since, we concluded that Nrf2 may be a potential biomarker and rational therapeutic target for GSCs.

### Biography

Jianhong Zhu is a Ph.D. candidate of the medical school of Nanjing University, supervised by Prof. Handong Wang, the Director of Neurosurgery Department in Jinling Hospital. Mr. Zhu started his medical education in this medical school in 2005. During the studying in Medical School, he has since earned himself the honor of the excellent student and numerous other awards. For example, he has been awarded the second-class *People's Scholarship* and the scholarship of *Wu Jieping Medical Foundation* to visit and study in the Chinese University of Hong Kong in 2009. In the past one year and a half, he performed excellent in researching of the biological characteristics of glioblastoma. For certifying the importance of Glioma Stem Cells in the genesis and developing of glioblastoma, he used different methods to get the Glioma stem cells. Then he found Nuclear erythroid 2 related factor 2 (Nrf2), an important nuclear transcription factor that regulates antioxidant response element (ARE)-containing genes, high expressed in Glioma Stem Cells. Then he knockdown the Nrf2 by shRNA and found the relationship between self-renewal and Nrf2. Further more, he is doing some research in the resistance of temozolomide in glioblastoma now.

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