Characteristics of a human glioblastoma cell line (E297) that is tumorigenic in immunocompetent rats

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ABSTRACT

BACKGROUND: Several animal brain tumor models are currently in use, each having particular strengths and weaknesses. For intracranial growth of human brain tumor cells under immunocompetent rat conditions, xenografts are popular. However, they are more difficult to use than immunocompetent rats, requiring cell proliferation, matrix formation, and other barriers to tumor growth.

METHODS: To establish the E297 cell line, a fresh human specimen was digested enzymatically and then transfused into a 725 tank with the xenogeneic glioma model. After 10 days in culture, the cells were characterized. Tumor growth, cell cycle analysis, and cell culture characteristics were assessed, and the relationship between tumor growth and cell culture characteristics was analyzed.

RESULTS: The E297 cell line was characterized for cell proliferation, matrix formation, and other tumor growth characteristics. Tumor growth was assessed using cell cycle analysis, and the relationship between tumor growth and cell culture characteristics was analyzed.

CONCLUSIONS: The E297 human glioblastoma cell line is highly aggressive and proliferative. If transplanted into immunocompetent rats, it should provide a suitable model for future studies. It would be interesting to discover the immune response for the appropriate tumor bearer. Immunocompetent model tumors bear the tumor and non-tumor tissues in a mixed tumor model.