

# Cancer Diagnostics Conference & Expo

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## Molecular study of synthesis of protoporphyrin IX in fluoropositive and fluoronegative cell cultures of human glioblastoma

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Glioblastoma is a tumor from a heterogeneous group having neuroectodermal origin. Surgery is still the main approach to treat gliomas. To increase efficiency of the surgery, a photodynamic diagnostics is applied based on the fluorescence of protoporphyrin IX. 5-aminolevulinic acid (5-ALA) is a precursor mitochondrial heme. After systemic administration of 5-ALA, it is metabolized into protoporphyrin IX, which, in turn, accumulates in the tumor cells. Due to the protoporphyrin IX fluorescence, it is possible to localize and remove the tumor more precisely. It was shown that the fluorescence intensity of protoporphyrin IX correlates well with the proliferation rate of the tumor cells though 30% of the tumors, especially metastatic ones, do not exhibit fluorescence properties. In this research, a collection of tissues of glioblastomas with different grades and fluorescence capacity has been established; all tissues have etiology. In this research, primary and continuous cell cultures from tissues of human glioblastoma have been developed. All tissues were characterized with immunohistochemical methods and fluoropositivity and fluoronegativity. Lucky enough, the fluoropositive glioma yields fluoropositive cell cultures and fluoronegative tissues yield fluoronegative cell cultures, respectively. The expression level of mRNAs of ferments has been examined by real time PCR, and the data for fluoropositive and fluoronegative cells have been compared. The expression level of CPOX mRNA is up-regulated in the fluoropositive samples. More practical finding is that increasing the duration time from 5-ALA till the surgery from two hours up to six hours increases the number of fluorescent tumors in half.

### Biography

Pavlova G is the Head of the Lab of Neurogenetics and Developmental Biology in Institute of Gene Biology. She has studied the role of cells environment in differentiation of progenitor cells. She has been studying GDNF and drug development based on GDNF for the treatment of neurodegenerative diseases and ischemic strokes. In recent years, she explores proliferation and differentiation of stem and progenitor cells of human glioblastoma. Her research mainstream is neural differentiation potential of stem and progenitor cells of mammals including humans.

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