

DUAL-FUNCTION PROTEIN ATIA FOR DIAGNOSTICS AND THERAPEUTICS OF GLIOBLASTOMA

SUMMARY

Investigators at the NIH have discovered an Anti-TNF Induced Apoptosis (ATIA) protein, which protects cells against apoptosis. ATIA is highly expressed in glioblastoma and astrocytomas and its inhibition results in increased cell sensitivity to TNF-related apoptosis-inducing ligand induced cell death. The National Cancer Institute seeks parties interested in licensing or collaborative research to further develop, evaluate, or commercialize glioblastoma diagnostics and therapeutics.

REFERENCE NUMBER

E-178-2009

PRODUCT TYPE

- Diagnostics
- Therapeutics

KEYWORDS

- Anti-TNF Induced Apoptosis (ATIA)
- Glioblastoma
- Astrocytomas

COLLABORATION OPPORTUNITY

This invention is available for licensing and co-development.

CONTACT

John D. Hewes
NCI - National Cancer Institute
240-276-5515

John.Hewes@nih.gov

DESCRIPTION OF TECHNOLOGY

Investigators at the [NCI Molecular Mechanisms of Apoptosis Section](#) have discovered an Anti-TNF Induced Apoptosis (ATIA) protein, which protects cells against apoptosis. ATIA is highly expressed in glioblastoma and astrocytomas and its inhibition results in increased cell sensitivity to TNF-related apoptosis-inducing ligand induced cell death. Hence, ATIA assays may enable clinicians to effectively stratify patients for appropriate treatment. ATIA exists in a soluble form that can be detected in culture medium of ATIA expressing cells indicating it could be used to develop a non-invasive, blood based diagnostic test such as an ELISA. Glioblastomas and astrocytomas can be diagnosed via MRI and CT

scans; however, these scans cannot detect tumor type, i.e. glioblastoma vs. medulloblastoma. Our recent study suggests that ATIA is induced in cells under hypoxia conditions. More importantly, knockdown of ATIA in human glioblastoma cells renders cells to apoptosis under hypoxia conditions. Therefore, ATIA is a potential novel therapeutic target for treating human glioblastoma.

Glioblastoma arise from astrocytes, cells that provide neurons structural and metabolic support. Glioblastomas account for twenty percent of primary brain tumors and fifty percent of astrocytomas. These indications are designated as rare diseases as there is an annual 2-3 newly diagnosed cases of glioblastoma per 100,000 people in the United States whereas the astrocytoma incidence rate is 1.22 cases per 100,000 for individuals aged 0-19 years in the United States.

POTENTIAL COMMERCIAL APPLICATIONS

- Blood based diagnostic assays
- Assay for clinicians to choose effective treatments
- A potential novel therapy to treat human glioblastoma

COMPETITIVE ADVANTAGES

- Non-invasive diagnostics
- Easy, ready to use assays
- Novel target

INVENTOR(S)

- [Zheng-Gang Liu](#) (NCI)

DEVELOPMENT STAGE

- Discovery (Lead Identification)

PATENT STATUS

- **U.S. Filed:** U.S. Provisional Application No. 61/182,072 filed 28 May 2009

THERAPEUTIC AREA

- Cancer/Neoplasm