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# NOVEL GLIOMA-SPECIFIC VACCINE FOR PEDIATRIC AND YOUNG-ADULT PATIENTS

Tech ID: 25127 / UC Case 2015-163-0

## INVENTION NOVELTY

UCSF researchers have developed a vaccine against pediatric gliomas by targeting a novel epitope.

## VALUE PROPOSITION

Brain tumors are currently the leading cause of cancer-related mortality and morbidity in children. Malignant gliomas, including glioblastoma (GBM) and diffuse intrinsic pontine gliomas (DIPG), are highly aggressive brain tumors. The vast majority of affected children will die within a year of diagnosis despite aggressive therapeutic approaches.

UCSF Researchers have developed a novel vaccine against a **mutated epitope specific to pediatric gliomas** that occurs in approximately **30 % of overall GBM and 70% of DIPG cases**. As this epitope cannot be found in normal cells of the body, the novel vaccine, as well as T cells recognizing this epitope, are highly specific to gliomas carrying this mutation.

## TECHNOLOGY DESCRIPTION

The inventors have targeted a 10 amino acid peptide epitope containing a mutation frequently observed in pediatric gliomas. This epitope can induce specific cytotoxic T lymphocyte (CTL) responses in HLA-A2+ donors. Induced CTLs can recognize the epitope that is endogenously expressed by HLA-A2+ glioma cell lines that harbor the epitope-specific mutation. The Inventors have also isolated  $\alpha$ - and  $\beta$ -chains of cDNAs for T-cell receptor (TCR) from epitope-specific CTL clones, allowing for development of a novel TCR-transduced T-cell therapy targeting the novel epitope.

The subset of HLA-A2+ patients is estimated at 40-45%, based on its representation within the US population.

## APPLICATION

Therapeutic approaches:

- ▶ Glioma vaccine for HLA-A2+ patients
- ▶ Adoptive T cell therapy using T cells engineered to recognize glioma-specific epitope

Diagnostic approach:

- ▶ Peptide epitope as key component to probe the existence of glioma-specific antibodies in patients

## LOOKING FOR PARTNERS

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### OTHER INFORMATION

#### KEYWORDS

Glioma, Glioblastoma,  
  
Diffuse intrinsic pontine  
  
glioma, Pediatric, Vaccine,  
  
Adoptive T cell therapy

#### CATEGORIZED AS

- ▶ [Medical](#)
- ▶ [Diagnostics](#)
- ▶ [Disease: Cancer](#)
- ▶ [Therapeutics](#)
- ▶ [Vaccines](#)

#### RELATED CASES

2015-163-0

To develop vaccine and T cell-based therapies using this epitope to target pediatric brain tumors

STAGE OF DEVELOPMENT

Preclinical

DATA AVAILABILITY

Under NDA/CDA

PATENT STATUS

Country	Type	Number	Dated	Case
Austria	Issued Patent	3800199	08/21/2024	2015-163
Belgium	Issued Patent	3800199	08/21/2024	2015-163
Bulgaria	Issued Patent	3800199	08/21/2024	2015-163
Germany	Issued Patent	3800199	08/21/2024	2015-163
Denmark	Issued Patent	3800199	08/21/2024	2015-163
Estonia	Issued Patent	3800199	08/21/2024	2015-163
European Patent Office	Issued Patent	3800199	08/21/2024	2015-163
Finland	Issued Patent	3800199	08/21/2024	2015-163
France	Issued Patent	3800199	08/21/2024	2015-163
Italy	Issued Patent	3800199	08/21/2024	2015-163
Lithuania	Issued Patent	3800199	08/21/2024	2015-163
Luxembourg	Issued Patent	3800199	08/21/2024	2015-163
Latvia	Issued Patent	3800199	08/21/2024	2015-163
Malta	Issued Patent	3800199	08/21/2024	2015-163
Netherlands (Holland)	Issued Patent	3800199	08/21/2024	2015-163
Portugal	Issued Patent	3800199	08/21/2024	2015-163
Sweden	Issued Patent	3800199	08/21/2024	2015-163
Slovenia	Issued Patent	3800199	08/21/2024	2015-163
Unitary Patent	Issued Patent	3800199	08/21/2024	2015-163
United States Of America	Issued Patent	11,925,679	03/12/2024	2015-163
United States Of America	Issued Patent	11,185,577	11/30/2021	2015-163
United States Of America	Issued Patent	10,849,965	12/01/2020	2015-163
Germany	Issued Patent	3292139	10/28/2020	2015-163
Spain	Issued Patent	3292139	10/28/2020	2015-163
France	Issued Patent	3292139	10/28/2020	2015-163
United Kingdom	Issued Patent	3292139	10/28/2020	2015-163
Italy	Issued Patent	3292139	10/28/2020	2015-163
United States Of America	Issued Patent	10,441,644	10/15/2019	2015-163

Additional Patent Pending

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