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# T Cell Receptor cDNAs to Treat Gliomas

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## TECHNOLOGY DESCRIPTION

Mutations in the isocitrate dehydrogenase (IDH) metabolic enzymes IDH1 and IDH2 are frequently found in gliomas. Mutations in an HLA-class II binding CD4 T-cell epitope of IDH1, termed IDH1R132H, are present in 70-80% of WHO grade II and III glioma patients. In collaboration with Berkeley Lights Inc., scientists at UCSF have recently cloned cDNAs that code for T-cell receptors that react with a peptide derived from isocitrate dehydrogenase 1 mutated at residue 132 (IDH1R132H). Immunizing mice bearing IDH1R132H-transfected syngeneic sarcomas with the IDH1R132H peptide was shown to have an anti-tumor effect. The cDNAs developed can, therefore, be used to develop adoptive T-cell therapies for cancers bearing the IDH1R132H mutation.

## ADVANTAGES

- ▶ The new T cell receptors can recognize IDH proteins that are mutated in most gliomas
- ▶ Can improve the design of safe and effective cancer immunotherapy
- ▶ Cancer immunotherapy targeting IDH1R132H has the potential to be more effective than vaccination

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	<a href="#">20210087252</a>	03/25/2021	2017-067
European Patent Office	Published Application	3749349	12/16/2020	2017-067

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## OTHER INFORMATION

### KEYWORDS

T Cell Receptor, Adoptive  
Cell Therapy, Glioma,  
Isocitrate Dehydrogenase,  
Cancer Immunotherapy

### CATEGORIZED AS

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

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