

TECHNOLOGY OFFERS

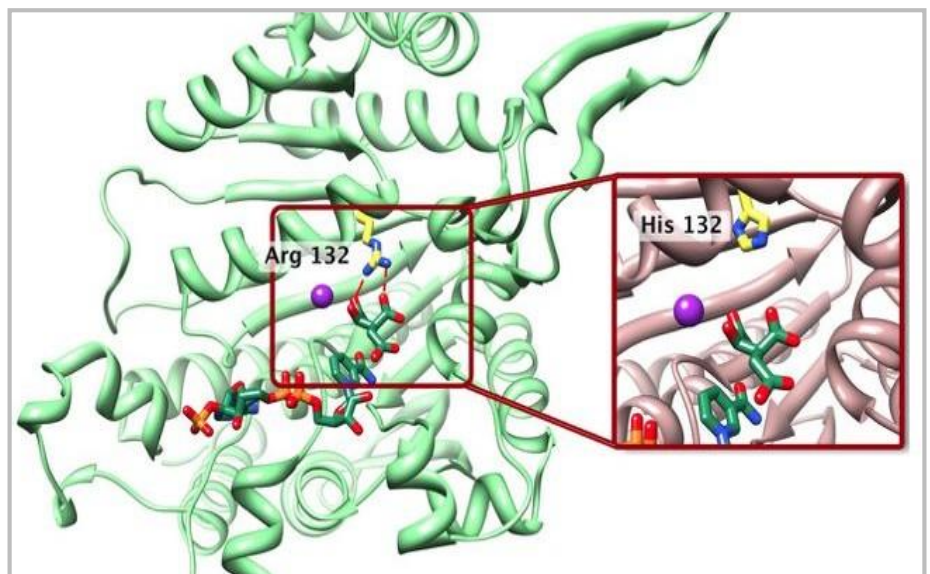
Peptide Vaccine for Treatment of IDH1 R132H Mutant-positive Cancers (P-987)

10-20 amino acids identical to mutant IDH1, for use as a cancer diagnostic and cancer vaccine

EXECUTIVE SUMMARY

Mutations in the human isocitrate dehydrogenase type 1 (IDH1) gene affecting position 132 (R132H) were originally detected in glioma. Since these types of brain tumors, accompanied by IDH1 R132H mutation, are usually aggressive and associated with a poor prognosis, effective therapies and proper diagnostic tools are urgently needed in clinical practice. State of the art diagnosis of IDH1 R132H mutation in cancer requires tissue samples, which are obtainable only via cumbersome and potentially dangerous biopsy.

The peptide referring to the present invention can be used in several ways for detection or treatment of cancers accompanied by IDH1 R132H mutation simply by using blood samples.



John H. Morris et al. Mol Cell Proteomics 2010

Category

Vaccine

Indication

Brain cancer

Development stage

Clinical Phase I completed

Seeking

Licensing, Development partner

BENEFITS

- Peptide for diagnosis of IDH1 R132H mutation in patients suffering from various types of cancer without the need for biopsy
- Peptide for therapeutic vaccination and subsequent immune monitoring of patients with various types of cancer containing an IDH1 R132H mutation
- Phase I trial successfully completed

TECHNOLOGY BACKGROUND

The present invention is a peptide consisting of between 10-20 amino acids identical to human isocitrate dehydrogenase type 1 (IDH1) including an exchange of amino acid at position 132 from R to H.

The peptide can be used in several ways for detection of cancers accompanied by IDH1 R132H mutation simply by using blood samples. Binding of the peptide to antibodies against IDH1 R132H present in blood serum of cancer patients. Stimulation of T-cells obtained from patients suffering from tumors accompanied by IDH1 R132H mutation. In addition the peptide can initiate an immune response against tumor cells accompanied by IDH1 R132H mutation *in vivo*.

DEVELOPMENT STAGE

Diagnostic method, readouts: a) antibody binding to peptide; b) T-cell stimulation by peptide. Clinical Phase I Trial IDH1 Peptide Vaccine in IDH1 R132H mutated Grade III-IV Gliomas (NOA-16) is successfully completed ([see NCT02454634](#)).

APPLICATIONS

Diagnosis of IDH1 132H mutation in tumor cells without the need for biopsy. In addition the peptide can be used for therapeutic vaccination and subsequent immune monitoring.

INTELLECTUAL PROPERTY

- International PCT published as WO2013102641A1.
- Priority patent application "Means and methods for treating or diagnosing IDH1 R132H mutant-positive cancers" as EP2800580B1 (granted), US10161940B2 (granted), JP6316755B2 (granted), CN105142662B (granted), MX349494B (granted), ES2642184T3 (granted), AU2013207191B2 (granted), CA2859078A1, KR20140120324A, HK1203825A1, EA201491324A1, SG11201403877PA, BR112014016612A2.

PUBLICATIONS & REFERENCES

- "Suppression of antitumor T cell immunity by the oncometabolite (R)-2-hydroxyglutarate." by Bunse, L., Pusch, S., Bunse, T. et al. in [Nature Medicine. 2018](#)
- "Mutant IDH1: An immunotherapeutic target in tumors." by T. Schuhmacher et al. in [Oncoimmunology. 2015](#)
- "A vaccine targeting mutant IDH1 induces antitumour immunity." by T. Schuhmacher et al in [Nature. 2014](#)

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Working at the interface of research and industry, the Innovation Management of the German Cancer Research Center (DKFZ) helps to get new cancer medications, diagnostic tests, and research instruments onto the market as quickly as possible.

The DKFZ with its more than 3,000 employees is the largest biomedical research institution in Germany. At the Center more than 1,300 scientists investigate how cancer develops, identify cancer risk factors and endeavor to find new strategies to prevent people from getting cancer. They develop novel approaches to make tumor diagnosis more precise and treatment of cancer patients more successful. DKFZ is a member of the Helmholtz Association of National Research Centers, with ninety percent of its funding coming from the German Federal Ministry of Education and Research and the remaining ten percent from the State of Baden-Württemberg