

# Peptide vaccine for treatment of IDH1 R132H mutant-positive cancers (P-987)

## Key facts

- 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.
- 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

## Abstract

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.

## Development Stage

Diagnostic method, readouts: a) antibody binding to peptide; b) T-cell stimulation by peptide. Clinical Phase I Trial IDH1 Peptide Vaccine in IDH1R132H-mutated Grade III-IV Gliomas (NOA-16) ongoing as [NCT02454634](https://clinicaltrials.gov/ct2/show/study/NCT02454634).

## The Technology

The peptide referring to the present invention 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*.

## Applications and Commercial Opportunity

Diagnosis of IDH1 R132H mutation in tumor cells without the need for biopsy. In addition the peptide can be used for therapeutic vaccination and subsequent immune monitoring.

## Inventors

The invention was jointly conceived by Prof. Platten M., Schumacher T. and Prof. Wick W., University of Heidelberg and DKFZ Heidelberg, Germany

## Scientific Publications

“A vaccine targeting mutant IDH1 induces anti-tumour immunity.” Published by T. Schuhmacher *et al* in [Nature](https://doi.org/10.1038/nature12888). 2014 Aug 21;512(7514):324-7.

„Mutant IDH1: An immunotherapeutic target in tumors.“ published by T. Schuhmacher *et al*. in *Oncoimmunology*. 2015 Jan 7;3 (12):e974392.

## Intellectual Property

Priority patent application “Means and methods for treating or diagnosing IDH1 R132H mutant-positive cancers” EP 12150298.3; international PCT published as [WO 2013/102641](https://pubchem.ncbi.nlm.nih.gov/pat/WO/2013/102641), nationalized in AU, BR, CA, CN, EA, EP ([EP2800580](https://pubchem.ncbi.nlm.nih.gov/pat/EP/2800580)), IN, JP, KR, MX, NZ, SG, UA, US ([US20150023991](https://pubchem.ncbi.nlm.nih.gov/pat/US/20150023991)), HK.

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