Inosine Monophosphate Dehydrogenase Type II (IMPDH II)

Human, recombinant expressed in E. coli

E.C. 1.1.1.205

Synonyms: inosine 5'-monophosphate dehydrogenase, type 2 IMP dehydrogenase type II, IMPDH2

Description

NOVOCIB's IMPDH II is a human recombinant Inosine Monophosphate Dehydrogenase Type II expressed in *E. coli.* It has an apparent molecular weight of *ca.* 56 kDa.

Inosine monophosphate dehydrogenase converts inosine 5'-monophosphate to xanthine 5'-monophosphate using NAD as a cofactor.

IMPDH is involved in *de novo* guanine nucleotide biosynthesis. It plays a major role in cell growth and in the malignancy of some tumors. Additionally, guanine nucleotide is needed for lymphocyte proliferation.
IMPDH II is the predominant isoform of IMPDH. It is recognized as a validated target to treat a wide range of cancers and infectious diseases and to prevent lymphocytes proliferation (for further details, see "IMPDH II, a choice target for major therapeutic applications").

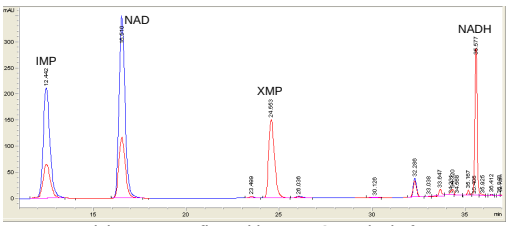
Storage: –70 ℃ in a solution containing 50 mM KH_2PO_4, pH 8.0, 1 mM EDTA, 0.1 mM DTT, 50% glycerol.

Unit Definition: One unit of IMPDH Type II catalyzes the oxidation of 1 µmole of IMP to XMP per minute at pH 7.8 at 37 ℃

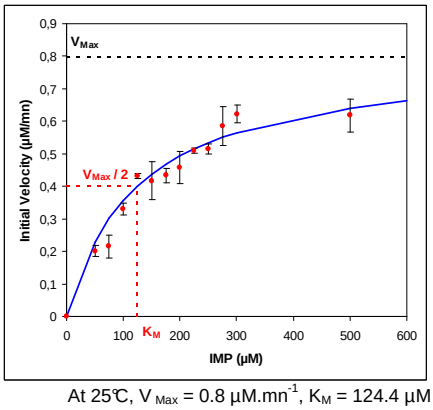
Specific Activity: ≥ 0.150 unit/mg protein.

Assay condition: KH_2PO_4 0.1M, pH7.8, NAD 180µM, DTT 1mM, 0.13mU of human recombinant IMPDH II (2µl at 0.081 U/mg protein)
Incubation at 25℃. Reaction started by adding IMP at various concentrations. NADH formation was measured in an iEMS Reader MF (Labsystems, Finland) microtiter plate reader at 340nm.

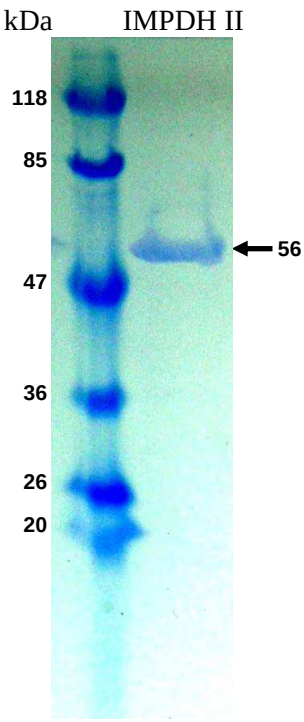
Purity controlled by SDS-PAGE



IMPDH activity was confirmed by HPLC analysis for quantification of IMP, XMP, NAD and NADH



At 25℃, V_{Max} = 0.8 µM.mn^{-1}, K_M = 124.4 µM



IMPDH inhibition assays

NOVOCIB has cloned and purified a human recombinant Inosine Monophosphate Dehydrogenase, Type II (IMPDH II) and has developed a range of PRECICE® services to better evaluate the potential of compounds to inhibit IMPDH.

This key enzyme of nucleoside metabolism is recognized as a validated target to treat immunologic disorders, cancers and infectious diseases.

In vitro Assay
for Screening & Kinetic Analysis (IC_{50})
- **with Human Recombinant IMPDH II**
- **with Bacterial (*Staphylococcus aureus*) IMPDH**

Whole Cell Assay
for Screening & Kinetic Analysis (IC50) in Whole Cell system

Applications: *Chemical library screening,*
Hit selection, Lead optimization
Complementary studies for drug development