



# Human Isocitrate Dehydrogenase 1 (DAG368)

This product is for research use only and is not intended for diagnostic use.

## PRODUCT INFORMATION

Product Overview	Recombinant Human Isocitrate Dehydrogenase 1 (NADP+), Soluble was expressed in <i>Saccharomyces cerevisiae</i> .
Antigen Description	Isocitrate dehydrogenase (EC 1.1.1.42) and (EC 1.1.1.41), also known as IDH, is an enzyme that participates in the citric acid cycle. It catalyzes the third step of the cycle: the oxidative decarboxylation of isocitrate, producing $\alpha$ -ketoglutarate ( $\alpha$ -ketoglutarate) and CO <sub>2</sub> while converting NAD <sup>+</sup> to NADH. This is a two-step process, which involves oxidation of isocitrate (a secondary alcohol) to oxalosuccinate (a ketone), followed by the decarboxylation of the carboxyl group beta to the ketone, forming $\alpha$ -ketoglutarate. Another isoform of the enzyme catalyzes the same reaction, however this reaction is unrelated to the citric acid cycle, is carried out in the cytosol as well as the mitochondrion and peroxisome and uses NADP <sup>+</sup> as a cofactor instead of NAD <sup>+</sup> .
Species	Human
Conjugate	Unconjugated
Applications	Specific methodologies have not been tested using this product.
Format	Purified, Liquid
Concentration	Specific activity: Lot specific 30 Units/mg protein
Buffer	0.05M Potassium phosphate, pH 7.0 containing 50% glycerol
Preservative	None
Storage	2-8°C short term, -20°C long term

## BACKGROUND

Introduction	<p>Isocitrate dehydrogenases catalyze the oxidative decarboxylation of isocitrate to 2-oxoglutarate. These enzymes belong to two distinct subclasses, one of which utilizes NAD(+) as the electron acceptor and the other NADP(+). Five isocitrate dehydrogenases have been reported: three NAD(+)-dependent isocitrate dehydrogenases, which localize to the mitochondrial matrix, and two NADP(+)-dependent isocitrate dehydrogenases, one of which is mitochondrial and the other predominantly cytosolic. Each NADP(+)-dependent isozyme is a homodimer. The protein encoded by this gene is the NADP(+)-dependent isocitrate dehydrogenase found in the cytoplasm and peroxisomes. It contains the PTS-1 peroxisomal targeting signal sequence. The presence of this enzyme in peroxisomes suggests roles in the regeneration of NADPH for intraperoxisomal reductions, such as the conversion of 2, 4-dienoyl-CoAs to 3-enoyl-CoAs, as well as in peroxisomal reactions that consume 2-oxoglutarate, namely the alpha-hydroxylation of phytanic acid. The cytoplasmic enzyme serves a significant role in cytoplasmic NADPH production. Alternatively spliced transcript variants encoding the same protein have been found for this gene. [provided by RefSeq, Sep 2013]</p>
Keywords	<p>IDH1; isocitrate dehydrogenase 1 (NADP+), soluble; IDH; IDP; IDCD; IDPC; PICD; HEL-216; HEL-S-26; isocitrate dehydrogenase [NADP] cytoplasmic; NADP(+)-specific ICDH; oxalosuccinate decarboxylase; epididymis luminal protein 216; epididymis secretory protei</p>