Docket #: S09-430

Collection of plasmid DNA constructs for aldehyde dehydrogenase gene family

This technology consists of a collection of 48 ALDH cDNA and genomic clones for various ALDH isozymes from Prof. Daria Mochly-RosenÍs lab. DNA fragments of various ALDH genomic and cDNA isozymes were obtained by either PCR, direct DNA synthesis, restriction enzyme digests. These fragments were ligated and cloned into different commercially available plasmid vectors for the purpose of protein expression, transfection, generation of mutant enzymes and generation of transgenic or gene-targeting mice. The origin of the ALDH DNA fragments includes human, mouse and Zebra fish.

ALDH Portfolio
This technology is a part of a larger portfolio that explores the potential applications of the ALDH multi-gene family.
Stanford Docket S03-268 describes ALDH2 activation and screening.
Stanford Docket S07-020 describes novel small molecule modulators of ALDH2 and improved screening techniques.
Stanford Docket S08-073 describes structural studies and rational drug design methods.
Stanford Docket S08-154 is comprised of ALDH2 knock-in mice.
Stanford Docket S08-219 describes ALDH2 and ALDH1 activators.
Stanford Docket S11-044 describes a novel ALDH3 activator and it's potential uses.
Stanford Docket S11-154 describes modified N-oxide ALDH2 specific modulators.
Stanford Docket S12-066 describes ALDH2 as a therapeutic target for pain.

Applications

- Recombinant protein expression in bacteria

- Mammalian cell transfection
- Generation of ALDH mutant isozymes
- Mixed species ALDH isozmes and as vectors for the generation of ALDH transgenic or gene-targeting mice
- Characterization of isozyme and substrate selectivity of different ALDH activators

Advantages

- These clones provide expression of function ALDH enzymes for both in vitro and in vivo studies.

Publications

- Activation of aldehyde dehydrogenase-2 reduces ischemic damage to the heart. Chen CH, Budas GR, Churchill EN, Disatnik MH, Hurley TD, Mochly-Rosen D. Science. 2008 Sep 12;321(5895):1493-5.

Innovators

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