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## Product Information

### Monoclonal Anti-AKR1C3

#### Clone NP6.G6.A6

Purified Mouse Immunoglobulin

Product Number **A 6229**

#### Product Description

Monoclonal Anti-AKR1C3 (human  $\alpha$ -hydroxysteroid dehydrogenase, type 2,3; 17 $\beta$ -hydroxysteroid dehydrogenase, type 5) (mouse IgG1 isotype) is derived from the hybridoma NP6.G6.A6 produced by the fusion of mouse myeloma cells (SP20 cells) and splenocytes from BALB/c mice immunized with human AKR1C3 protein. The isotype is determined using Sigma ImmunoType™ Kit (Sigma ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Sigma ISO-2).

Monoclonal Anti-AKR1C3 recognizes human AKR1C3 and does not cross react with human AKR1C1, AKR1C2, and AKR1C4. The antibody may be used in ELISA, immunoblotting (~ 38 kDa), and immunohistochemistry.<sup>5</sup>

Oxidoreduction of natural and foreign substrates is performed by three enzymes superfamilies, one of them being the AKRs (aldo-keto reductases) family. This family contains 114 proteins that are expressed in prokaryotes and eukaryotes and is divided into 14 subfamilies (AKR1-AKR14). The AKR family of proteins have three major characteristics: the ( $\alpha/\beta$ )<sub>8</sub> barrel motif, a conserved cofactor binding site and a catalytic tetrad and a variable loop structures that define substrate specificity. While the majority of the AKR are monomers, the AKR2, 6 and 7 subfamilies may form multimers. The AKR1 family is the largest among the different fourteen families and contains the aldose reductases, aldehyde reductases, hydroxysteroid dehydrogenases, and steroid 5 beta-reductases.<sup>1</sup>

In humans four isoforms AKR1C1-4, catalyze the reduction of the androgen 5 $\alpha$ -dihydrotestosterone (DHT) into inactive 3 $\beta$  or 3 $\alpha$ -androstenediol (3 $\alpha/\beta$ -Diol). These enzymes also display 3 $\alpha$ [17 $\beta$ ]-hydroxysteroid oxidase activity using 3 $\alpha$ -Diol as a substrate, *in vitro*.<sup>2</sup> AKR1Cs are expressed in many tissues. In non-small cell lung carcinoma, their expression is dramatically increased.<sup>3</sup> Due to their product profile and discrete tissue localization, they may regulate the level of active androgens, estrogens, and progestins in target tissues.<sup>4</sup>

#### Reagent

Monoclonal Anti-AKR1C3 is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: Approx. 2 mg/ml.

#### Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

#### Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in frost-free freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

### Product Profile

By immunoblotting, a working antibody concentration of 0.25-0.5 µg/ml is recommended using a cytosolic fraction extract of A549 human lung carcinoma cell.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining optimal working dilutions by titration.

### References

1. Hyndman, D., et al., *Chem. Biol. Interact.*, **144**, 621-631 (2003).
2. Steckelbroeck, S., et al., *J. Biol. Chem.*, **279**, 10784-10795 (2004).
3. Palackal, N.T., et al., *J. Biol. Chem.*, **277**, 24799-24808 (2002).
4. Penning, T., et al., *Biochem. J.*, **351**, 67-77 (2000).
5. Lin, H.K., et al., Characterization of a monoclonal antibody for human aldo-keto reductase AKR1C3 (type 2 3 $\alpha$ -hydroxysteroid dehydrogenase/type 5 17 $\beta$ -hydroxysteroid dehydrogenase); immunohistochemical detection in breast and prostate. *Steroids*, **69**, 795-801 (2004).

KAA/EK 01/05

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