

# Product Information

## Anti- $\alpha$ -Fetoprotein (AFP) antibody, Mouse monoclonal clone C3, purified from hybridoma cell culture

Product Number **SAB4200746**

### Product Description

Anti- $\alpha$ -Fetoprotein (AFP) antibody, Mouse monoclonal, (mouse IgG2a isotype) is derived from the C3 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized BALB/C mouse. Purified human  $\alpha$ -Fetoprotein was used as the immunogen (GeneID: 174). The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents, Product number ISO2. The antibody is purified from culture supernatant of hybridoma cells.

Monoclonal Anti- $\alpha$ -Fetoprotein (AFP) recognizes  $\alpha$ -fetoprotein from human, canine and pig origin, but not from bovine, cat, rat, and mouse  $\alpha$ -Fetoprotein.<sup>1</sup> The product does not cross-react with human serum albumin. The antibody may be used in various immunochemical techniques including Immunoblotting (~74kDa), Immunohistochemistry<sup>2</sup>, ELISA<sup>1</sup>, dot blot and Immunofluorescence<sup>3-4</sup>.

$\alpha$ -Fetoprotein (AFP), also known as Alpha-fetoglobulin is a single-chain glycoprotein which is normally expressed in the fetal liver, gastrointestinal tract and yolk sac.<sup>5-6</sup>  $\alpha$ -Fetoprotein is one of the main plasma proteins during fetus development. Moreover,  $\alpha$ -Fetoprotein levels in the fetus can be 1,000-fold higher than in normal individuals after birth.  $\alpha$ -Fetoprotein is closely related to albumin both genetically and structurally.<sup>7-8</sup> As albumin synthesis increases during later fetal development,  $\alpha$ -Fetoprotein synthesis is markedly reduced shortly after birth.<sup>5</sup> Small amounts of  $\alpha$ -Fetoprotein continue to be produced during adulthood while it is reduced to  $\leq 20$  ng/mL in normal adult serum.<sup>5</sup> Synthesis of  $\alpha$ -Fetoprotein re-appears in a variety of disease states, often associated with increased concentrations of  $\alpha$ -Fetoprotein in the patient serum. Markedly high serum levels are found in patients with malignant tumors of childhood, such as hepatoblastomas and nephroblastomas and in adults with hepatocellular carcinoma and certain testicular tumors.<sup>8</sup> Increased serum concentrations of  $\alpha$ -Fetoprotein are less common in patients with malignancies of the gastrointestinal tract and of other organ systems with massive hepatic metastases. Hence,  $\alpha$ -Fetoprotein determination is useful for the diagnosis of certain germ line tumors that contain

endodermal sinus (yolk sac) structures (testicular and ovarian tumors), hepatocellular carcinoma (hepatoma) and some malignant tumors of the gastrointestinal tract.<sup>5,9-10</sup>

Additionally,  $\alpha$ -Fetoprotein serves as an important marker for certain genetic and embryonic defects. Routine screening of pregnancies with a risk of neural tube defects (spina bifida, anencephaly and Down's syndrome) may be facilitated by the monitoring of  $\alpha$ -Fetoprotein levels.<sup>11</sup>

### Reagent

Supplied as a solution in 0.01 M phosphate buffered saline pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody Concentration:  $\sim 1.0$  mg/mL

### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

### Storage/Stability

Store at  $-20$  °C. For continuous use, store at 2–8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is 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

Immunoblotting: a working concentration of 2–4  $\mu$ g/mL is recommended using liver hepatocellular carcinoma HepG2 cell line extract.

Immunohistochemistry: a working concentration of 2–4  $\mu$ g/mL is recommended using formalin-fixed, paraffin-embedded human fetal liver sections.

**Note:** In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

## References

1. Yazova AK., et al., *Immunol Lett.*, **25**, 325-30 (1990).
2. Inada M., et al., *Hepatol Int.*, **2**, 50-62 (2008).
3. Zhu S., et al., *Nature.*, **508**, 93-7 (2014).
4. Momcilovic O., et al., *PLoS One.*, **11**, e0154890 (2016).
5. Charrière B., et al., *World J Hepatol.*, **8**, 881-90 (2016).
6. Abelev G., *Adv Cancer Res.*, **14**, 295-358 (1971).
7. Chan DW., et al., *Clin Chem.*, **32**, 1318-22 (1985).
8. Purves L., et al., *Cancer*, **25**, 1261-70 (1970).
9. True L., Other Antigens, in: *Atlas of Diagnostic Immunohistopathology*, Chapter 6, Lippincot, Philadelphia, pp 6.2 (1990).
10. Cheon HC., et al., *J Neurooncol.*, **77**, 173-6 (2006).
11. Alldred SK., et al., *Cochrane Database Syst Rev.*, **12**, CD011984 (2015).

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