

## Product specifications

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Name	Anti-hCG beta 5012 SPRN-5
Specificity	Antibody recognizes human chorionic gonadotropin free beta subunit
Description	Monoclonal mouse antibody, cultured <i>in vitro</i> under conditions free from animal-derived components.
Product code	100368
Product buffer solution	37 mM citrate, 125 mM phosphate, pH 6.0, 0.9 % NaCl, 0.095 % NaN <sub>3</sub> as a preservative
Shelf life and storage	36 months from manufacturing at 2–8 °C
Subclass	IgG <sub>1</sub>
Analyte description	Human chorionic gonadotropin (hCG) is a glycoprotein hormone produced in pregnancy by the developing embryo soon after conception and later by the syncytiotrophoblast (part of the placenta). Its role is to prevent the disintegration of the corpus luteum of the ovary and thereby maintain progesterone production that is critical for a pregnancy in humans. Early pregnancy testing, in general, is based on the detection of hCG. hCG is produced also by some tumors, but it is not known whether this production is a contributing cause or an effect of tumorigenesis.

## Parameters tested on each lot

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Product appearance	Liquid, may turn slightly opaque during storage
Product concentration	5.0 mg/ml (+/- 10 %)
Immunoreactivity	80–120 % compared to the reference sample in an FIA test
IEF Profile	6.3–7.3
Purity	≥ 95 %

## Kinetic parameters

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Association rate constant	$2.1 \times 10^4$ 1/Ms
Dissociation rate constant	$1.7 \times 10^{-4}$ 1/s
Affinity constant	$K_A = 1.2 \times 10^9$ 1/M; $K_D = 8.1 \times 10^{-10}$ M (= 0.81 nM)
Determination method	SPR analysis (ProteOn XPR36)
Determination antigen	hCGβ, Scripps (Cat C0914, Lot 2310001)

**Cross-reactivities** Does not recognize intact hCG, hCG $\alpha$ , LH, FSH, or TSH

**Epitope** Beta-7 as described in Berger et al. (2013). The antibody recognizes free hCG $\beta$  subunit.

**Pair recommendations**

		DETECTION										
		hCG beta								alpha subunit		
		5004	5006	5008	5009	5011	5012 free $\beta$	5014	5016	5501	5503	6601
CAPTURE	5004	-	-	-	+	+	-	+	-	+	+	+
	5006	-	-	-	-	-	-	+	-	+	+	+
	5008	-	-	-	+	-	-	+	-	+	+	+
	5009	+	+	+	-	-	-	+	+	-	-	+
	5011	+	+	+	-	-	-	+	+	-	-	+
	5012 free $\beta$	+	+	+	-	-	-	+	+	-	-	-
	5014	+	+	+	+	+	-	-	+	+	+	+
	5016	-	-	-	-	-	-	+		+	+	+

Following pairs are especially recommended for free hCG beta assays:  
CLIA: 5012 (capture) – 5004 (detection) and 5012 – 5008

Please note that pair recommendations are based on results obtained by our laboratory. Equally good results may be obtained using other pairs and therefore these recommendations are only indicative.

**Platforms tested**

FIA, CLIA

**Antigens tested**

Native  $\beta$ -hCG antigen, Lee Biosolutions 325-11

**Product stability**

TEMPERATURE, TIME	RESULT
-70 °C, 21 days	Not Determined (N/D)
-20 °C, 21 days	OK
+4 °C, 21 days	OK
+30 °C, 21 days	OK
+35 °C, 21 days	OK
+45 °C, 3 days	OK
+45 °C, 7 days	Reduced immunoreactivity

Stability testing is performed in the product buffer to see whether different temperatures affect the antigen binding, charge or composition of the antibody. Please note that the shelf life given on the first page is based on real time stability testing at 2–8 °C in the product buffer.

**Miscellaneous**

Binding of antibody 5012 to intact hCG is sterically hindered by the  $\alpha$  subunit. Therefore, assays developed with 5012 do not measure intact hCG.

**References**

Berger, P., Paus, E., Hemken, P.M., Sturgeon, C., Stewart, W.W., Skinner, J.P., Harwick, L.C., Saldana, S.C., Ramsay, C.S., Rupprecht, K.R., Olsen, K.H., Bidart, J.M. and Stenman, U.H. (2013) Candidate epitopes for measurement of hCG and related molecules: the second ISOBM TD-7 workshop. *Tumor Biol.*, 34: 4033-4057.