

## Product specifications

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Name	Anti-h TSH 5405 SP-5
Specificity	Antibody recognizes human thyrotropin and its free beta subunit
Description	Monoclonal mouse antibody, cultured <i>in vitro</i> under conditions free from animal-derived components.
Product code	100819
Product buffer solution	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>2a</sub>
Analyte description	Thyroid-stimulating hormone (also known as TSH or thyrotropin) is a peptide hormone synthesized and secreted by thyrotrope cells in the anterior pituitary gland which regulates the endocrine function of the thyroid gland. TSH levels are tested in the blood of patients suspected of suffering from excess (hyperthyroidism), or deficiency (hypothyroidism) of thyroid hormone.

## 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	6.2–7.1
Purity	≥ 95 %

## Kinetic parameters

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Association rate constant	$1.2 \times 10^6$ 1/Ms
Dissociation rate constant	$1.9 \times 10^{-4}$ 1/s
Affinity constant	$K_A = 6.6 \times 10^9$ 1/M; $K_D = 1.5 \times 10^{-10}$ M (= 0.15 nM)
Determination method	SPR analysis (ProteOn XPR36)
Determination antigen	TSH, Scripps (Cat T0114, Lot 2414402)

**Cross-reactivities**

TSH  $\alpha$  9.3 % (Scripps Laboratories, Cat T0214, Lot 308711)  
 hCG < 0.1 % (Scripps Laboratories, Cat C0714, Lot 191712)  
 LH 0.47 % (Scripps Laboratories, Cat L0814, Lot 125711)  
 FSH 1.8 % (Scripps Laboratories, Cat F0614, Lot 805811)

**Epitope** Group 3

**Pair recommendations**

		DETECTION					
		5401	5404	5405	5407	5408	5409
CAPTURE	5401	-	-	+	+	-	+
	5404	-	-	+	+	-	+
	5405	-	-	-	-	+	+
	5407	-	-	-	-	+	+
	5408	-	-	+	+	-	+
	5409	-	-	+	+	-	-

Following pairs are especially recommended for the below mentioned assays:

CLIA: 5405 (capture) – 5409 (detection), 5407 – 5409 and 5409 – 5407

LF: 5405 (membrane) – 5409 (particles), 5407 – 5409, 5408 – 5405 5408 – 5407, 5408 – 5409, 5409 – 5407

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, LF, CLIA

**Antigens tested** Native TSH antigen Lee Biosolutions 996-50 and 996-51.

TEMPERATURE, TIME	RESULT
-70 °C, 21 days	Not Determined (N/D)
-20 °C, 21 days	OK
+4 °C, 21 days	OK
+35 °C, 21 days	Charge alterations
+45 °C, 3 days	Charge alterations
+45 °C, 7 days	Charge alterations as well as reduced homogeneity and 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** Wu et al. (2002) developed a three antibody assay system which utilizes clones 5403, 5404 and 5405. Clone 5405 was used as a coated antibody and clones 5403 and 5404 were used as biotinylated label antibodies. They were able to achieve 0.002 mIU/L analytical and 0.017 mIU/L functional sensitivity. The test had negligible cross-reactivity with LH, FSH and hCG which were tested up to 200 mIU/L and 2500 IU/L, respectively.

**References** Wu, F.-B., Han, S.-Q. and He, Y.-F. (2002) Time-resolved immunofluorometry of serum hTSH with enhanced sensitivity. J. Immunoass. Immunochem., 23(2):191-210