

UPDATED JULY 7, 2004

TROPONIN I

TROPONIN T

TROPONIN C

MYOGLOBIN

FATTY ACID BINDING GLOBULIN

GLYCOGEN PHOSPHORYLASE, BB ENZYME (GPBB)

C-Reactive Protein

BRAIN S-100 Protein

ANTIBODIES, Antigens and more.....

Contact: RESEARCH DIAGNOSTICS INC

Pleasant Hill Road

Flanders NJ 07836

phone (973) 584-7093

fax (973) 584-0210

web: <http://www.researchd.com>

XVIII Brain S-100 Protein

1. Human Brain S-100 protein

Source: human brain
Purity: ≥ 95 %
Presentation: lyophilized
Application: immunogen for antibody production, immunological and mass S-100 standard, S-100 biochemical and immunochemical studies

S-100 protein derived from brain tissue is an acidic calcium-binding protein with a molecular weight of about 21 kDa. In brain it is predominantly synthesized by astroglial cells and is mainly presented by two isoforms, alpha-beta heterodimer (S-100a) and beta-beta homodimer (S-100b).

Because of its predominant location in glial cells, S-100 protein can be used as a sensitive and reliable marker for central nervous system damage. Structural damage of glial cells causes leakage of S-100 protein into the extracellular matrix and into cerebrospinal fluid, further releasing into the bloodstream. S-100 protein appears to be a promising marker for the severity of brain injury and neuronal damage. There

is a good correlation between S-100 concentration in patients' serum samples and outcome after traumatic and ischemic brain injury. Measurements of S-100 protein could be very useful in diagnosis and prognosis of clinical outcome in acute stroke and in the estimation of the ischemic brain damage during cardiac surgery. Elevated serum levels of S-100 correlate with duration of circulatory arrest.

S-100 protein is purified from human brain tissue by several chromatographic methods including gel-filtration and ion-exchange chromatography. After native gel electrophoresis by Ornstein-Davis S-100 protein is presented by two bands corresponding to alpha-beta and beta-beta forms (Fig. 40).

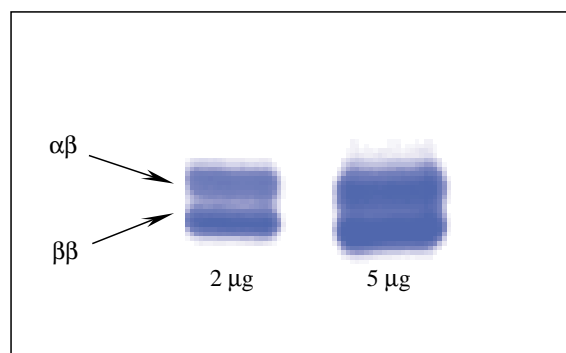


Fig. 40. Native gel electrophoresis of S-100 protein (by Ornstein – Davis)
Antigen loaded: lane 1 – 2 µg
lane 2 – 5 µg
Gel staining: Coomassie brilliant blue R-250

Ordering information

Product	Cat. #	Purity	Source
Human S-100	8S9h	> 95 %	Human brain
Human S-100, beta-beta homodimer	8S9-2h	> 95 %	Human brain

2. Anti-S-100 monoclonal antibodies

Host animal: mice BALB/c
 Cell line used for fusion: Sp2/0
 Antigen: human brain S-100 protein
 Purification method: protein A affinity chromatography
 Presentation: MAb solution in PBS with 0.1 % sodium azide
 Application: S-100 immunoassay, S-100 immunoaffinity purification, S-100 immunodetection in Western blotting

Hybridomas producing anti-S-100 protein antibodies were generated after immunization of Balb/c mice with purified human brain S-100 protein. The best combinations of MAbs for sandwich immunoassay:

8B10 — 6G1 (Fig. 41)
 3B10 — 6G1

The MAbs are working also in Western Blotting (Fig. 42).

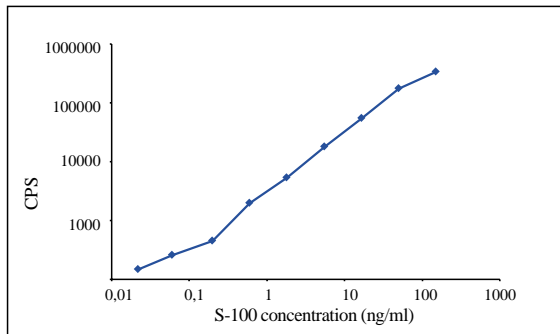


Fig. 41. S-100 calibration curve.
 One step assay in streptavidin coated plates.
 - capture antibodies: biotinylated 8B10; 200 ng/well
 - detection antibodies: Eu-labeled 6G1; 200 ng/well
 Antigen: S-100 protein from human brain
 Incubation time: 20 min
 Temperature: 20 °C

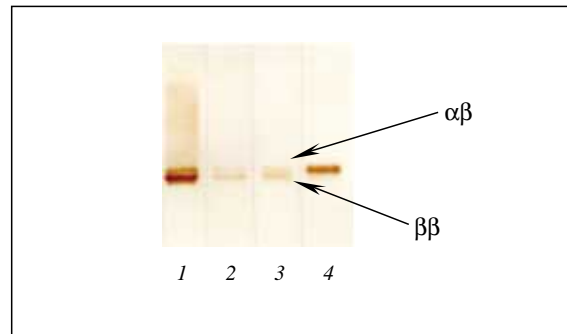


Fig. 42. Interaction of monoclonal antibodies with S100 protein from human brain in Western blotting (after native gel electrophoresis by Ornstein – Davis)

Antigen loaded: 1µg
 1 - MAb 4B3
 2 - MAb 8B10
 3 - MAb 6G1
 4 - MAb 3B10.

Ordering information

Clone	Cat. #	Specificity in WB	Subclass	Application
3B10	4S37	αβ	IgG2a	EIA, Sandwich immunoassay (capture), WB
4B2	4S37	αβ and ββ	IgG2a	WB
8B10	4S37	αβ and ββ	IgG1	EIA, Sandwich immunoassay (capture), WB
6G1	4S37	αβ and ββ	IgG1	EIA, Sandwich immunoassay (detection), WB