

SATB2

Cat.No. 327 004; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For reconstitution add 100 µl H ₂ O, then aliquot and store at -20°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	WB: not recommended IP: not tested yet ICC: 1 : 500 IHC: 1 : 200 IHC-P: 1 : 500
Immunogen	Synthetic peptide corresponding to AA 718 to 733 from mouse SATB2 (UniProt Id: Q8VI24)
Reactivity	Reacts with: rat (D3ZJ19), mouse (Q8VI24). Other species not tested yet.

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Background

The Special **AT**-rich sequence-binding protein **2** or **SATB2** is a transcription factor required for the initiation of the genetic program for the upper-layer neurons (UL1). Together with Ctip 2, Coup-TFI, and Fezf2 it is involved in the fine-tuned sequential formation and specification of the different excitatory neuron populations forming the definitive six-layered cortical structure (1-4). Beyond its pivotal role in neurodevelopment, SATB2 is also expressed in non-neuronal tissues, notably in the epithelium of the lower gastrointestinal tract, including the colon. In normal physiology, it is strongly expressed in glandular cells of the colorectal mucosa. In pathology, SATB2 serves as a highly sensitive and specific immunohistochemical marker for colorectal epithelial differentiation and is expressed in the majority of primary and metastatic colorectal adenocarcinomas (5, 6). This colonic expression pattern makes SATB2 a valuable diagnostic biomarker in surgical pathology, particularly in determining the origin of metastatic lesions.

Selected References for 327 004

Inducing Different Neuronal Subtypes from Astrocytes in the Injured Mouse Cerebral Cortex.
Mattugini N, Bocchi R, Scheuss V, Russo GL, Torper O, Lao CL, Götz M
Neuron (2019) : . . **IHC; tested species: mouse**

iPSC-derived models of PACS1 syndrome reveal transcriptional and functional deficits in neuron activity.
Rylaarsdam L, Rakotomamonjy J, Pope E, Guemez-Gamboa A
Nature communications (2024) 151: 827. . **IHC; tested species: human**

KCNJ2 inhibition mitigates mechanical injury in a human brain organoid model of traumatic brain injury.
Lai JD, Berlind JE, Fricklas G, Lie C, Urenda JP, Lam K, Sta Maria N, Jacobs R, Yu V, Zhao Z, Ichida JK, et al.
Cell stem cell (2024) 314: 519-536.e8. . **IHC; tested species: human**

Single-cell transcriptomic analysis reveals diversity within mammalian spinal motor neurons.
Liao ES, Jin S, Chen YC, Liu WS, Calon M, Nedelec S, Nie Q, Chen JA
Nature communications (2023) 141: 46. . **IHC; tested species: mouse**

MicroRNAs mediate precise control of spinal interneuron populations to exert delicate sensory-to-motor outputs.
Chang SH, Su YC, Chang M, Chen JA
eLife (2021) 10: . . **IHC; tested species: mouse**

A single-cell transcriptomic and anatomic atlas of mouse dorsal raphe Pet1 neurons.
Okaty BW, Sturrock N, Escobedo Lozoya Y, Chang Y, Senft RA, Lyon KA, Alekseyenko OV, Dymecki SM
eLife (2020) 9: . . **IHC; tested species: mouse**

Selected General References

Unc5C and DCC act downstream of Ctip2 and Satb2 and contribute to corpus callosum formation.
Srivatsa S et al. Nat Commun (2014) PubMed:24739528

The CB(1) cannabinoid receptor drives corticospinal motor neuron differentiation through the Ctip2/Satb2 transcriptional regulation axis.
Díaz-Alonso J et al. J. Neurosci. (2012) PubMed:23175820

The sympathetic neurotransmitter switch depends on the nuclear matrix protein Satb2.
Apostolova G et al. J. Neurosci. (2010) PubMed:21123581

SATB2 interacts with chromatin-remodeling molecules in differentiating cortical neurons.
Gyorgy AB et al. Eur. J. Neurosci. (2008) PubMed:18333962

Access the online factsheet including applicable protocols at <https://sysy.com/product/327004> or scan the QR-code.



FAQ - How should I store my antibody?

Shipping Conditions

- All our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form without loss of quality at ambient temperatures for several weeks.

Storage of Sealed Vials after Delivery

- **Unlabeled** and **biotin-labeled antibodies** and **control proteins** should be stored at 4°C before reconstitution. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C.

Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.