

ACTH

Cat.No. 452 005; Polyclonal Guinea pig antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For reconstitution add 50 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use. For detailed information, see back of the data sheet.
Applications	WB: not tested yet IP: not tested yet ICC: not tested yet IHC: 1 : 500 IHC-P/FFPE: 1 : 1000 up to 1 : 2000 (see remarks)
Immunogen	Synthetic peptide corresponding to AA 134 to 162 from mouse Pro-opiomelanocortin (UniProt Id: P01193)
Reactivity	Reacts with: mouse (P01193), rat (P01194). Other species not tested yet.
Specificity	The antibody is specific for ACTH. It may show minor cross-reactivity to the unprocessed precursor protein.
Remarks	IHC-P: For best results apply short antigen retrieval (10 min, citrate pH 6.0 at 97°C).

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

Access the online factsheet including applicable protocols at <https://susy.com/product/452005> or scan the QR-code.



Background

Adrenocorticotrophic hormone (ACTH), also known as corticotropin, is a 39 amino acid peptide hormone. It is synthesized from the precursor POMC (pro-opiomelanocortin). POMC is proteolytically processed in a cell type specific manner to generate a couple of small biologically active peptides including ACTH (1,2).

ACTH is mainly produced and secreted by corticotroph cells of the anterior pituitary in response to corticotropin-releasing hormone from the hypothalamus. ACTH acts on the adrenal cortex of the adrenal gland to stimulate the production of glucocorticoids like cortisol. ACTH plays a pivotal role in homeostasis and stress response and is a key component of the hypothalamic-pituitary-adrenal (HPA) axis (2,3).

ACTH is also produced in extra-pituitary sites like hypothalamus and skin, where further processing of ACTH leads to the generation of alpha melanocyte-stimulating hormone (α-MSH) (2).

An excess of ACTH can cause Cushing's syndrome whereas ACTH deficiency can result in secondary adrenal insufficiency (3,4).

Selected General References

ACTH and related peptides: molecular biology, biochemistry and regulation of secretion.

Imura H

Clinics in endocrinology and metabolism (1985) 144: 845-66. .

ACTH signalling and adrenal development: lessons from mouse models.

Novoselova TV, King PJ, Guasti L, Metherell LA, Clark AJL, Chan LF
Endocrine connections (2019) 87: R122-R130. .

60 YEARS OF POMC: Adrenal and extra-adrenal functions of ACTH.

Gallo-Payet N

Journal of molecular endocrinology (2016) 564: T135-56. .

ACTH: cellular peptide hormone synthesis and secretory pathways.

Stevens A, White A

Results and problems in cell differentiation (2010) 50: 63-84. .

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 10 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 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 a 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.