abcam

Product datasheet

Anti-SERCA2 ATPase antibody ab3625

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Overview

Product name	Anti-SERCA2 ATPase antibody
Description	Rabbit polyclonal to SERCA2 ATPase
Host species	Rabbit
Tested applications	**Suitable for:** IHC-Fr, IP, WB, ICC/IF, IHC-P
Species reactivity	**Reacts with:** Mouse, Rat, Rabbit, Human, Pig **Predicted to work with:** Horse, Chicken, Guinea pig, Cow, Dog, Turkey, Xenopus laevis, Chimpanzee, Rhesus monkey, Gorilla, Orangutan, Xenopus tropicalis, Platypus
Immunogen	Synthetic peptide - which represents a portion of Sarcoplasmic/ Endoplasmic Reticulum Calcium ATPase 2 (SERCA 2)encoded within exon 12.
Positive control	Pig aorta, rabbit aorta and rat aortic smooth muscle cell lysates. IP: HEK-293T whole cell lysate. WB: HEK-293T, HeLA and NIH/3T3 whole cell lysates.

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Upon delivery aliquot and store at -20°C. Avoid freeze / thaw cycles.
Storage buffer	Preservative: 0.1% Sodium azide Constituents: 0.021% PBS, 1.764% Sodium citrate, 1.815% Tris
Purity	Immunogen affinity purified
Clonality	Polyclonal
Isotype	IgG

Applications

Our Abpromise guarantee covers the use of **ab3625** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
IHC-Fr		1/200 - 1/400. PubMed: 19932743

Application	Abreviews	Notes
IP	★★★★☆	Use a concentration of 1 - 4 µg/ml.
WB	★★★★☆	1/1000 - 1/5000. Predicted molecular weight: 115 kDa.
ICC/IF		Use a concentration of 1 µg/ml.
IHC-P	★★★★☆	Use a concentration of 1 µg/ml. Perform heat mediated antigen retrieval before commencing with IHC staining protocol.

Target

Function

This magnesium-dependent enzyme catalyzes the hydrolysis of ATP coupled with the translocation of calcium from the cytosol to the sarcoplasmic reticulum lumen. Isoform 2 is involved in the regulation of the contraction/relaxation cycle.

Tissue specificity

Isoform 1 is widely expressed in smooth muscle and nonmuscle tissues such as in adult skin epidermis, with highest expression in liver, pancreas and lung, and intermediate expression in brain, kidney and placenta. Also expressed at lower levels in heart and skeletal muscle. Isoforms 2 and 3 are highly expressed in the heart and slow twitch skeletal muscle. Expression of isoform 3 is predominantly restricted to cardiomyocytes and in close proximity to the sarcolemma. Both isoforms are mildly expressed in lung, kidney, liver, pancreas and placenta. Expression of isoform 3 is amplified during monocytic differentiation and also observed in the fetal heart.

Involvement in disease

Defects in ATP2A2 are a cause of acrokeratosis verruciformis (AKV) [MIM:101900]; also known as Hopf disease. AKV is a localized disorder of keratinization, which is inherited as an autosomal dominant trait. Its onset is early in life with multiple flat-topped, flesh-colored papules on the hands and feet, punctate keratoses on the palms and soles, with varying degrees of nail involvement. The histopathology shows a distinctive pattern of epidermal features with hyperkeratosis, hypergranulosis, and acanthosis together with papillomatosis. These changes are frequently associated with circumscribed elevations of the epidermis that are said to resemble church spires. There are no features of dyskeratosis or acantholysis, the typical findings in lesions of Darier disease.
Defects in ATP2A2 are the cause of Darier disease (DD) [MIM:124200]; also known as Darier-White disease (DAR). DD is an autosomal dominantly inherited skin disorder characterized by loss of adhesion between epidermal cells (acantholysis) and abnormal keratinization. Patients with mild disease may have no more than a few scattered keratotic papules or subtle nail changes, whereas those with severe disease are handicapped by widespread malodorous keratotic plaques. In a few families, neuropsychiatric abnormalities such as mild mental retardation, schizophrenia, bipolar disorder and epilepsy have been reported. Stress, UV exposure, heat, sweat, friction, and oral contraception exacerbate disease symptoms. Prevalence has been estimated at 1 in 50000. Clinical variants of DD include hypertrophic, vesicobullous, hypopigmented, cornifying, zosteriform or linear, acute and comedonal subtypes. Comedonal Darier disease (CDD) is characterized by the coexistence of acne-like comedonal lesions with typical Darier hyperkeratotic papules on light-exposed areas. At histopathologic level, CDD differs from classic DD in the prominent follicular involvement and the presence of greatly elongated dermal villi.

Sequence similarities

Belongs to the cation transport ATPase (P-type) (TC 3.A.3) family. Type IIA subfamily.

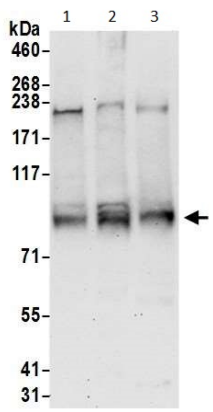
Post-translational

Nitrated under oxidative stress. Nitration on the two tyrosine residues inhibits catalytic activity.

modifications

Cellular localization Endoplasmic reticulum membrane. Sarcoplasmic reticulum membrane.

Images



Western blot - Anti-SERCA2 ATPase antibody (ab3625)

All lanes : Anti-SERCA2 ATPase antibody (ab3625) at 0.1 µg/ml

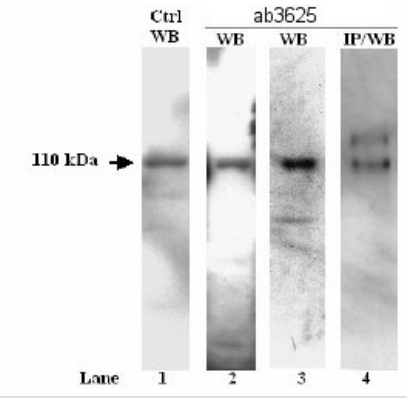
Lane 1 : HeLa (human epithelial cell line from cervix adenocarcinoma) whole cell lysate
Lane 2 : HEK-293T (human epithelial cell line from embryonic kidney transformed with large T antigen) whole cell lysate
Lane 3 : NIH/3T3 (mouse embryo fibroblast cell line) whole cell lysate

Lysates/proteins at 50 µg per lane.

Developed using the ECL technique.

Predicted band size: 115 kDa

Exposure time: 30 seconds



Western blot - Anti-SERCA2 ATPase antibody (ab3625)

Sample: Homogenate from Pig (lanes 1 and 2) or Rabbit (lane 4) aorta or lysate from cultured Rat aortic smooth muscle cells (lane 3)

Affinity purified Rabbit anti-SERCA2 (ab3625) (lanes 2, 3 and IP for lane 4) or control (ctrl) monoclonal anti-SERCA2 (lanes 1 and WB for lane 4).

Dilutions: 1:1,000 (lanes 1, 2 and 4) or 1:2,500 (lane 3)

Sample: Homogenate from Pig (lanes 1 and 2) or Rabbit (lane 4) aorta or lysate from cultured Rat aortic smooth muscle cells (lane 3)

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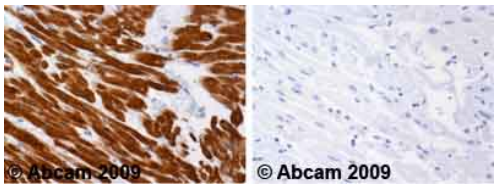
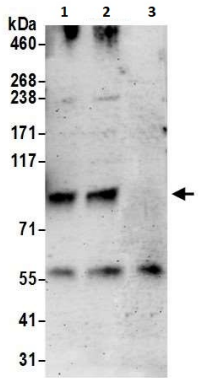


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SERCA2 ATPase antibody (ab3625)

Ab3625 staining human heart. Staining is localised to the cytoplasm/sarcoplasm.
Left panel: with primary antibody at 1 ug/ml. Right panel: isotype control.
Sections were stained using an automated system DAKO Autostainer Plus , at room temperature. Sections were rehydrated and antigen retrieved with the DAKO 3-in-1 antigen retrieval buffer citrate pH 6.0 in a DAKO PT Link. Slides were peroxidase blocked in 3% H2O2 in methanol for 10 minutes. They were then blocked with Dako Protein block for 10 minutes (containing casein 0.25% in PBS) then incubated with primary antibody for 20 minutes and detected with Dako Envision Flex amplification kit for 30 minutes. Colorimetric detection was completed with diaminobenzidine for 5 minutes. Slides were counterstained with Haematoxylin and coverslipped under DePeX. Please note that for manual staining we recommend to optimize the primary antibody concentration and incubation time (overnight incubation), and amplification may be required.



Immunoprecipitation - Anti-SERCA2 ATPase antibody (ab3625)

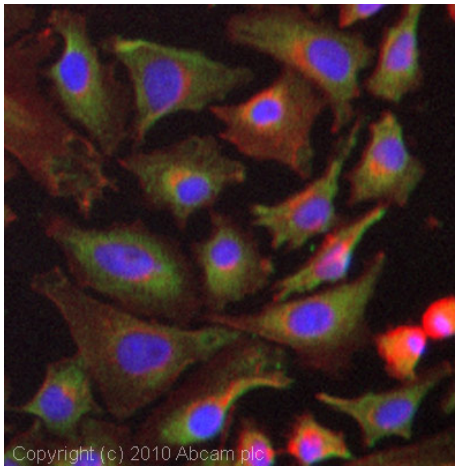
SERCA2 ATPase was immunoprecipitated from HEK-293T (human epithelial cell line from embryonic kidney transformed with large T antigen) whole cell lysate (1 mg for IP, 20% of IP loaded) with ab3625 at 6 µg/mg lysate. Western blot was performed from the immunoprecipitate using ab3625 at 1 µg/ml.

Lane 1: ab3625 IP in HEK-293T whole cell lysate.

Lane 3: ab3625 IP in HEK-293T whole cell lysate.

Lane 2: Control IgG IP in HEK-293T whole cell lysate.

Detection: Chemiluminescence with exposure time of 3 minutes.



Immunocytochemistry/ Immunofluorescence - Anti-SERCA2 ATPase antibody (ab3625)

ICC/IF image of ab3625 stained HeLa cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab3625, 1µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-rabbit IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.

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