abcam

Product datasheet

Anti-SERCA2 ATPase antibody ab91032

4 References 4 Images

Overview

Product name	Anti-SERCA2 ATPase antibody
Description	Rabbit polyclonal to SERCA2 ATPase
Host species	Rabbit
Tested applications	**Suitable for:** IHC-P, ICC/IF, WB
Species reactivity	**Reacts with:** Mouse, Rat, Human **Predicted to work with:** Rabbit, Horse, Chicken, Cat, Dog, Pig, Xenopus laevis
Immunogen	Synthetic peptide corresponding to Human SERCA2 ATPase aa 1-100 conjugated to keyhole limpet haemocyanin. (Peptide available as ab91426)
Positive control	This antibody gave a positive signal in the following tissue lysates: Human Skeletal Muscle; Mouse Skeletal Muscle; Mouse Heart; Rat Heart.

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C or -80°C. Avoid freeze / thaw cycle.
Storage buffer	Preservative: 0.02% Sodium Azide Constituents: 1% BSA, PBS, pH 7.4
Purity	Immunogen affinity purified
Clonality	Polyclonal
Isotype	IgG

Applications

Our Abpromise guarantee covers the use of **ab91032** in the following tested applications.

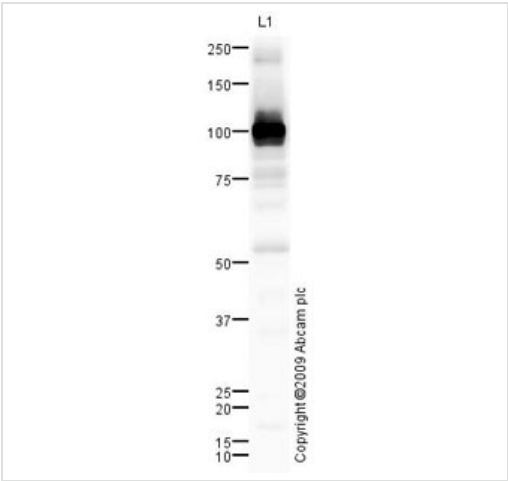
The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
IHC-P		Use a concentration of 1 µg/ml.
ICC/IF		Use a concentration of 1 µg/ml.
WB		Use a concentration of 1 µg/ml. Detects a band of approximately 100 kDa (predicted molecular weight: 115 kDa).

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 modifications	Nitrated under oxidative stress. Nitration on the two tyrosine residues inhibits catalytic activity.
Cellular localization	Endoplasmic reticulum membrane. Sarcoplasmic reticulum membrane.

Images



Western blot - Anti-SERCA2 ATPase antibody (ab91032)

Anti-SERCA2 ATPase antibody (ab91032) at 1 µg/ml + Human skeletal muscle tissue lysate - total protein (ab29330) at 10 µg

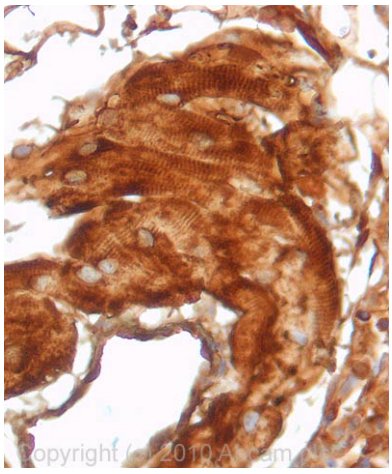
Secondary
Goat polyclonal to Rabbit IgG - H&L - Pre-Adsorbed (HRP) at 1/3000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 115 kDa
Observed band size: 100 kDa
why is the actual band size different from the predicted?

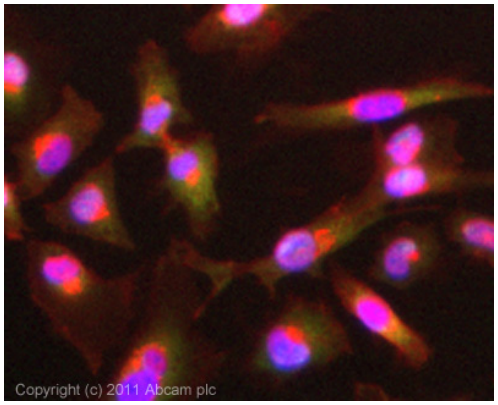
We hypothesize that the 100 kDa band represents isoform SERCA2A, which is highly expressed in skeletal muscle (Swissprot). Furthermore, the 100 kDa band observed is comparable to the molecular weight seen with other commercially available antibodies to SERCA2 ATPase.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SERCA2 ATPase antibody (ab91032)

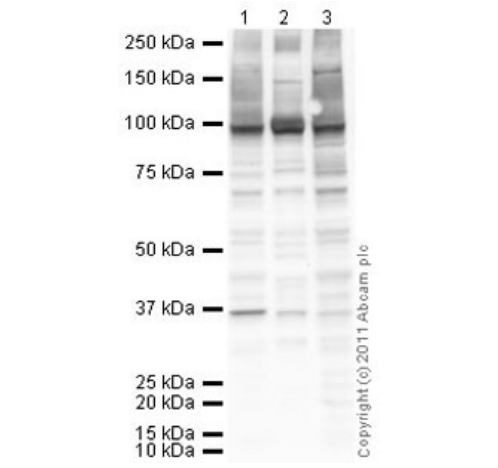
IHC image of SERCA2 ATPase staining in Mouse Skeletal muscle formalin fixed paraffin embedded tissue section, performed on a Leica Bond™ system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab91032, 1µg/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.



Immunocytochemistry/ Immunofluorescence - Anti-SERCA2 ATPase antibody (ab91032)

ICC/IF image of ab91032 stained HeLa cells. The cells were 4% PFA 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 (ab91032, 1µg/ml) overnight at +4°C. The secondary antibody (green) was ab96899 Dylight 488 goat anti-rabbit IgG (H+L) used at a 1/250 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.



Western blot - Anti-SERCA2 ATPase antibody (ab91032)

All lanes : Anti-SERCA2 ATPase antibody (ab91032) at 1 µg/ml

Lane 1 : Heart (Mouse) Tissue Lysate
Lane 2 : Skeletal Muscle (Mouse) Tissue Lysate
Lane 3 : Heart (Rat) Tissue Lysate

Lysates/proteins at 10 µg per lane.

Secondary
All lanes : Goat Anti-Rabbit IgG H&L (HRP) preadsorbed (ab97080) at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 115 kDa
Observed band size: 100 kDa why is the actual band size different from the predicted?
Additional bands at: 37 kDa. We are unsure as to the identity of these extra bands.

Exposure time: 30 seconds

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