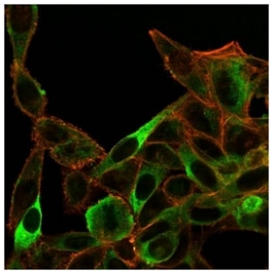
SIRT3 Antibody / Mitochondrial Metabolism Regulator [clone PCRP-SIRT3-1C10] (V9646)

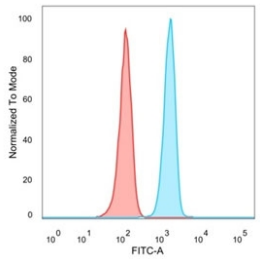
Catalog No.	Formulation	Size
V9646-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V9646-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V9646SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

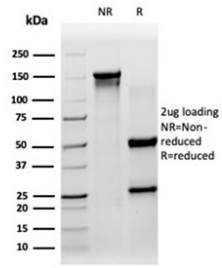
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG2a
Clone Name	PCRP-SIRT3-1C10
Purity	Protein A/G affinity
UniProt	Q9NTG7
Localization	Cytoplasm
Applications	ELISA (order BSA-free format for coating) Flow cytometry: 1-2ug/million cells Immunofluorescence: 1-2ug/ml Western blot: 1-2ug/ml
Limitations	This SIRT3 Antibody / Mitochondrial Metabolism Regulator is available for research use only.



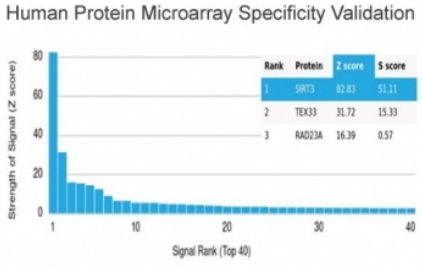
SIRT3 Antibody HeLa Cell IF. Immunofluorescence staining of PFA-fixed human HeLa cells using clone PCRP-SIRT3-1C10 (green) and phalloidin cytoskeletal counterstain (red). Sirtuin 3 / SIRT3 displays punctate cytoplasmic fluorescence consistent with mitochondrial localization, supporting its established role as a mitochondrial metabolism regulator involved in oxidative stress adaptation, energy homeostasis, and mitochondrial acetylation signaling pathways.



SIRT3 Antibody HeLa Cell FACS. Flow cytometry analysis of PFA-fixed human HeLa cells stained with clone PCRP-SIRT3-1C10 (blue) and matched isotype control (red). The observed fluorescence shift demonstrates cellular expression of Sirtuin 3 / SIRT3, a mitochondrial deacetylase involved in regulation of oxidative metabolism, mitochondrial homeostasis, and metabolic stress response pathways associated with cellular energy adaptation.



SDS-PAGE analysis of purified, BSA-free SIRT3 antibody (clone PCRP-SIRT3-1C10) as confirmation of integrity and purity.



SIRT3 Antibody Protein Microarray Validation. Analysis of HuProt(TM) microarray containing more than 19,000 full-length human proteins using clone PCRP-SIRT3-1C10. These results demonstrate high specificity of the mouse monoclonal antibody for Sirtuin 3 / SIRT3, a mitochondrial metabolism regulator involved in oxidative stress adaptation, energy homeostasis, and acetylation-dependent metabolic signaling pathways. Z- and S-score analysis confirms strong preferential binding to the intended target relative to non-specific proteins represented on the HuProt(TM) array. The Z-score represents the signal strength generated by antibody binding to an individual protein relative to the overall array background, while the S-score reflects the relative specificity gap between the top-ranked target and subsequent proteins on the array.

Description

Sirtuin 3 (SIRT3) is a mitochondrial NAD-dependent deacetylase involved in regulation of cellular metabolism, oxidative stress responses, and mitochondrial homeostasis. SIRT3 Antibody / Mitochondrial Metabolism Regulator is useful for studying mitochondrial energy pathways, metabolic adaptation, and stress-response signaling associated with cancer biology, aging, and metabolic disease research. SIRT3 antibody, also referred to as Sirtuin 3 antibody and mitochondrial deacetylase antibody in the literature, recognizes a member of the sirtuin family that regulates post-translational acetylation of mitochondrial proteins involved in oxidative metabolism and cellular respiration.

SIRT3 is predominantly localized within mitochondria where it controls the acetylation status and activity of enzymes associated with the tricarboxylic acid cycle, fatty acid oxidation, amino acid metabolism, and electron transport chain function. Through deacetylation of metabolic enzymes, SIRT3 contributes to ATP production efficiency, mitochondrial integrity, and adaptation to nutrient stress conditions. The protein also participates in maintenance of mitochondrial redox balance by regulating antioxidant defense pathways and reactive oxygen species detoxification mechanisms.

Because SIRT3 functions as a central regulator of mitochondrial metabolism, this target has become highly relevant in studies examining metabolic stress responses, tumor metabolism, and aging-associated cellular dysfunction. Altered SIRT3 expression or activity has been associated with mitochondrial dysfunction, oxidative damage, metabolic syndrome, cardiovascular disease, neurodegeneration, and cancer progression. In tumor biology, SIRT3 has been linked to metabolic reprogramming pathways that influence cellular proliferation, survival under hypoxic conditions, and regulation of oxidative stress within transformed cells.

SIRT3 also contributes to mitochondrial quality control and adaptive responses to fasting, caloric restriction, and energetic stress. The protein regulates acetylation-dependent signaling pathways that influence mitochondrial biogenesis, apoptosis, and cellular resilience under conditions of metabolic challenge. Because mitochondrial dysfunction and

oxidative stress are common features of aging and chronic disease, SIRT3 remains an important target in studies focused on longevity biology, mitochondrial maintenance, and cellular stress adaptation mechanisms.

Immunofluorescence and flow cytometry studies commonly demonstrate cytoplasmic punctate staining patterns consistent with mitochondrial localization, while protein microarray specificity validation supports highly selective target recognition in complex proteomic environments. A mouse monoclonal clone PCRP-SIRT3-1C10 antibody can be used for immunofluorescence, flow cytometry, and protein microarray specificity validation studies examining mitochondrial metabolism and oxidative stress regulation pathways. Because SIRT3 functions at the intersection of mitochondrial signaling, metabolic adaptation, and cellular stress regulation, this target remains highly relevant for studies investigating energy homeostasis, metabolic disease, cancer metabolism, and aging-associated biology.

Researchers studying mitochondrial metabolism, oxidative stress regulation, and cellular energy homeostasis may also be interested in our broader Metabolism Antibodies collection featuring targets involved in metabolic signaling, mitochondrial function, and nutrient-responsive regulatory pathways.

Application Notes

Optimal dilution of the SIRT3 Antibody / Mitochondrial Metabolism Regulator should be determined by the researcher.

Immunogen

Recombinant full-length human SIRT3 protein was used as the immunogen for the SIRT3 antibody.

Storage

Aliquot the SIRT3 antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

SIRT3 mitochondrial antibody, Sirtuin 3 antibody, Mitochondrial deacetylase antibody, Oxidative stress regulator antibody, Metabolic stress response antibody

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