

involucrin (SY5): sc-21748

BACKGROUND

Involucrin is a precursor protein of the keratinocyte cornified envelope, which is formed beneath the inner surface of the cell membrane during terminal differentiation. Involucrin first appears in the cell cytosol but ultimately becomes cross-linked to membrane proteins by transglutaminase. During keratinocyte terminal differentiation, glutamine residues of involucrin become covalently cross-linked to other envelope precursors via covalent ϵ -(γ -glutamyl) lysine bonds. Moreover, its large size allows involucrin to cross-link molecules that are separated by substantial distances in the cornified envelope. These properties allow a single involucrin molecule to form multiple cross-links, in multiple spatial planes, with other envelope precursors. Involucrin is specifically expressed in Chinese hamster ovarian cells (fibroblasts), PtK2 rat kangaroo kidney cells (simple epithelial), and rat epidermal keratinocytes (stratifying squamous epithelial).

REFERENCES

1. Eckert, R.L. and Green, H. 1986. Structure and evolution of the human involucrin gene. *Cell* 46: 583-589.
2. Rorke, E.A. and Eckert, R.L. 1991. Stable expression of transfected human involucrin gene in various cell types: evidence for *in situ* cross-linking by type I and type II transglutaminase. *J. Invest. Dermatol.* 97: 543-548.
3. Yaffe, M.B., et al. 1992. Biophysical characterization of involucrin reveals a molecule ideally suited to function as an intermolecular cross-bridge of the keratinocyte cornified envelope. *J. Biol. Chem.* 267: 12233-12238.
4. Crish, J.F., et al. 1993. Tissue-specific and differentiation-appropriate expression of the human involucrin gene in transgenic mice: an abnormal epidermal phenotype. *Differentiation* 53: 191-200.

CHROMOSOMAL LOCATION

Genetic locus: IVL (human) mapping to 1q21.3; Ivl (mouse) mapping to 3 F1.

SOURCE

involucrin (SY5) is a mouse monoclonal antibody raised against pure involucrin from human keratinocytes.

PRODUCT

Each vial contains 200 μ g IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

involucrin (SY5) is available conjugated to agarose (sc-21748 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-21748 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-21748 PE), fluorescein (sc-21748 FITC), Alexa Fluor[®] 488 (sc-21748 AF488), Alexa Fluor[®] 546 (sc-21748 AF546), Alexa Fluor[®] 594 (sc-21748 AF594) or Alexa Fluor[®] 647 (sc-21748 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-21748 AF680) or Alexa Fluor[®] 790 (sc-21748 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

involucrin (SY5) is recommended for detection of involucrin of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); may cross-react with 170 kD in MCF7 cells, a doublet of 115 kD and 150 kD in gorilla and owl monkey, 66 kD in canine and a doublet of 105 kD in porcine.

involucrin (SY5) is also recommended for detection of involucrin in additional species, including porcine and canine.

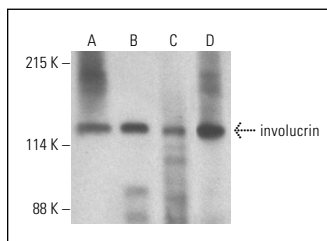
Suitable for use as control antibody for involucrin siRNA (h): sc-35697, involucrin siRNA (m): sc-43367, involucrin shRNA Plasmid (h): sc-35697-SH, involucrin shRNA Plasmid (m): sc-43367-SH, involucrin shRNA (h) Lentiviral Particles: sc-35697-V and involucrin shRNA (m) Lentiviral Particles: sc-43367-V.

Molecular Weight of involucrin precursor: 68 kDa.

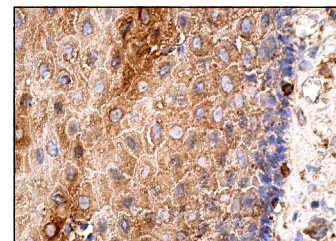
Molecular Weight of involucrin complexed with other proteins: 140 kDa.

Positive Controls: SK-BR-3 cell lysate: sc-2218, RT-4 whole cell lysate: sc-364257 or human cervix extract: sc-363756.

DATA



involucrin (SY5): sc-21748. Western blot analysis of involucrin expression in SK-BR-3 (A), RT-4 (B) and normal human keratinocyte (C) whole cell lysates and human cervix tissue extract (D).



involucrin (SY5): sc-21748. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cervix tissue showing cytoplasmic staining of squamous epithelial cells.

SELECT PRODUCT CITATIONS

1. Yamazaki, T. 2004. Differentiation induction of human keratinocytes by phosphatidylethanolamine-binding protein. *J. Biol. Chem.* 279: 32191-32195.
2. Gil, T.Y., et al. 2022. *Peucedanum japonicum* Thunberg alleviates atopic dermatitis-like inflammation via STAT/MAPK signaling pathways *in vivo* and *in vitro*. *Mol. Immunol.* 144: 106-116.
3. Müller, L., et al. 2023. Plakophilin 3 facilitates G₁/S phase transition and enhances proliferation by capturing RB protein in the cytoplasm and promoting EGFR signaling. *Cell Rep.* 42: 112031.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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