

2,2,7-trimethylguanosine (K121): sc-32724

BACKGROUND

Pre-mRNA splicing is a critical step in the post-transcriptional regulation of gene expression. Several protein complexes are involved in proper mRNA splicing and transport. The small nuclear ribonucleoprotein particles (snRNPs) interact with the SRm160/300 splicing coactivator complex to form a large RNA spliceosome. 2,2,7-trimethylguanosine is a nucleoside at the 5' terminal cap site of the snRNA (small ribonucleoprotein RNA) component of U1, U2, U4/U6 and U5 nuclear snRNPs. U-type snRNPs mediate intron splicing of precursor mRNA. Antibodies recognizing the 5' terminal cap motif can inhibit mRNA splicing. Anti-trimethylguanosine (TMG) monoclonal, K121, can immunoprecipitate all major nuclear snRNPs.

SOURCE

2,2,7-trimethylguanosine (K121) is a mouse monoclonal antibody raised against trimethylguanosine-keyhole limpet hemocyanin conjugates.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

2,2,7-trimethylguanosine (K121) is available conjugated to agarose (sc-32724 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-32724 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-32724 PE), fluorescein (sc-32724 FITC), Alexa Fluor[®] 488 (sc-32724 AF488), Alexa Fluor[®] 546 (sc-32724 AF546), Alexa Fluor[®] 594 (sc-32724 AF594) or Alexa Fluor[®] 647 (sc-32724 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-32724 AF680) or Alexa Fluor[®] 790 (sc-32724 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

2,2,7-trimethylguanosine (K121) is recommended for detection of 5' terminal 2,2,7-trimethylguanosine of all major snRNAs of mouse, rat and human origin by immunoprecipitation [1-2 µg per 100-500 µg 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).

Molecular Weight of 2,2,7-trimethylguanosine: 70 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850. 3) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

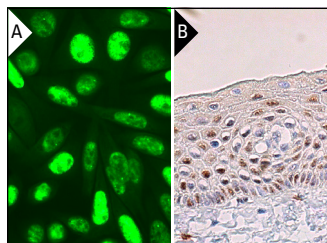
RESEARCH USE

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

STORAGE

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

DATA



2,2,7-trimethylguanosine (K121) Alexa Fluor[®] 488: sc-32724 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing nuclear localization. Blocked with UltraCruz[®] Blocking Reagent: sc-516214 (A). 2,2,7-trimethylguanosine (K121): sc-32724. Immunoperoxidase staining of formalin fixed, paraffin-embedded human uterine cervix tissue showing nuclear staining of squamous epithelial cells (B).

SELECT PRODUCT CITATIONS

- Jia, D., et al. 2007. Systematic identification of non-coding RNA 2,2,7-trimethylguanosine cap structures in *Caenorhabditis elegans*. BMC Mol. Biol. 8: 86.
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- Boon, K.L., et al. 2010. Deletion of Swm2p selectively impairs trimethylation of snRNAs by trimethylguanosine synthase (Tgs1p). FEBS Lett. 584: 3299-3304.
- Tsuiji, H., et al. 2013. Spliceosome integrity is defective in the motor neuron diseases ALS and SMA. EMBO Mol. Med. 5: 221-234.
- Dedukh, D., et al. 2013. Cytological maps of lampbrush chromosomes of European water frogs (*Pelophylax esculentus* complex) from the Eastern Ukraine. BMC Genet. 14: 26.
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- Danks, G.B., et al. 2019. *Trans*-splicing of mRNAs links gene transcription to translational control regulated by mTOR. BMC Genomics 20: 908.
- Lagunas-Rangel, F.A., et al. 2021. Sirtuin GdSir2.4 participates in the regulation of rRNA transcription in the *Giardia duodenalis* parasite. Mol. Microbiol. 115: 1039-1053.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.