

# RNAscope® Probes for Neuroscience Research

Get probes for your gene of interest designed and manufactured in two weeks.

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*Disruption of Fgf13 Causes Synaptic Excitatory-Inhibitory Imbalance and Genetic Epilepsy and Febrile Seizures Plus.*

Puranam R.S. et al. *J Neurosci.* 2015 Jun 10;35(23):8866-81. PMID: 26063919

*Recombinant adeno-associated virus 2/5-mediated gene transfer is reduced in the aged rat midbrain.*

Polinski N.K. et al. *Neurobiology of Aging.* 2014; S0197-4580(14)00636-8. PMID: 25457558

*Axonally Synthesized ATF4 Transmits a Neurodegenerative Signal across Brain Regions.*

Baleriola J. et al. *Cell.* 2014 Aug 28;158(5):1159-72. PMID: 25171414

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## Detection of Neurological Biomarkers

Understanding the molecular mechanisms of neurological disease development and progression is necessary to identify key pathogenic steps, and thereby identify new potential therapeutic targets through a combination of epidemiology-related neuropathology, biomarkers for clinical trials, and experimental studies. RNAscope® *in situ* hybridization (ISH) technology enables cell- and tissue-specific localization of RNA transcripts quickly and precisely for functionally important targets in the nervous system. With RNAscope® ISH assays, you can turn any gene specifically expressed by a particular cell lineage into an endogenous marker for neuronal cell types and tissues.

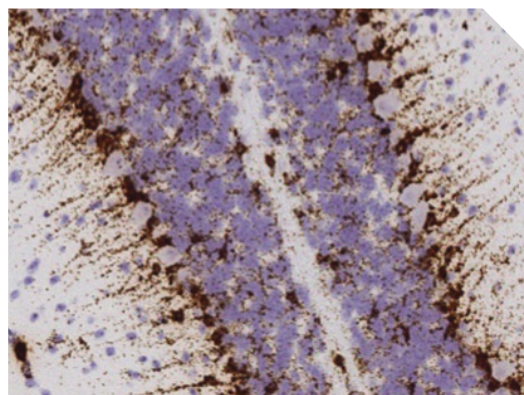


FIGURE 1. *Apoe4* mRNA expression in mouse brain FFPE tissue using the RNAscope® 2.0 HD Reagent Kit-BROWN

## Visualize any RNA

RNAscope® ISH technology achieves high sensitivity and specificity for detection of gene expression in the nervous system. For example, RNAscope®-based CISH assay confirms that *Apoe4*, one of the transcript isoforms of *ApoE*, is locally expressed in the astrocytes of mouse brain (Figure 1); and *Bmp1* expression is restricted to the grey zone of cerebella. RNAscope® ISH is ideal for staining any RNA transcript in FFPE (Figure 1) or fresh frozen (Figure 2) neurological tissues, and can provide *in situ* quantitative analysis for any gene in any species. RNAscope® ISH is especially powerful in detection of low-abundance RNA, as well as targets to which there are no good antibodies available.

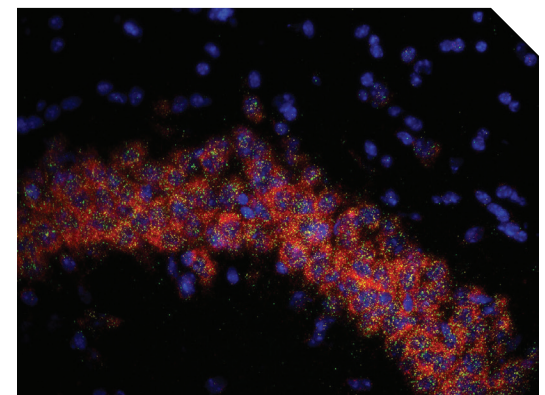


FIGURE 2. *Polr2a* (green), *Ppib* (white), *Ubc* (red) in mouse brain fresh-frozen tissue using the RNAscope® Fluorescent Multiplex Assay



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# RNAscope® Probes for Neuroscience Research

Probe details are available at [www.acdbio.com/probesearch](http://www.acdbio.com/probesearch)

Catalog No.	Probe Name	Catalog No.	Probe Name	Catalog No.	Probe Name	Catalog No.	Probe Name
408471	EDNRB-R9	431331	Hs-CBS	421411	Hs-DKK1	311801	Hs-GFAP
432291	Hs-ABCA1	539041	Hs-CCK	402901	Hs-DMPK	444281	Hs-GJA1
401191	Hs-ABCB1	311101	Hs-CCKBR	434621	Hs-DNM1L	553421	Hs-GNRHR
422721	Hs-ABCG2	423811	Hs-CCL2	434831	Hs-DNMT1	411401	Hs-GNRHR-3UTR
559661	Hs-ADAM10	549171	Hs-CCL5	524991	Hs-DRD1	411491	Hs-GNRHR-5UTR
602791	Hs-ADRA2A	591821	Hs-CCND1	553991	Hs-DRD2	407991	Hs-GNRHR1-noXMm
436021	Hs-ADRA2C	601501	Hs-CCR5	528301	Hs-EDNRB	428421	Hs-GRM1
602841	Hs-AGTR1	418801	Hs-CD14	605771	Hs-EGF	500181	Hs-GRM3
419211	Hs-AKT1	560821	Hs-CD34	310061	Hs-EGFR	437731	Hs-GRN
600941	Hs-ALB	605601	Hs-CD4	319461	Hs-EGFR-delta	448051	Hs-HDAC1
310151	Hs-ALDH1A1	408061	Hs-CD4-40LE-FL	418731	Hs-EGFR-no-X-Mm	310081	Hs-HER2
314731	Hs-ALK-E1-E18	311271	Hs-CD44	438311	Hs-EGFR-tv1	310761	Hs-HGF
314191	Hs-ALK-E19-29	311091	Hs-CDH1	428381	Hs-EGFR-tv4	441421	Hs-HGF-No-XMm
317841	Hs-ALK-E19-E29-20P	310171	Hs-CDH2	421401	Hs-ENO2	435361	Hs-HGF-O1
419221	Hs-APC	311401	Hs-CDKN1A	431851	Hs-ENO2-O1	418701	Hs-HGF-v2d
314311	Hs-APOA1	607061	Hs-CDKN1B	410591	Hs-EPAS1	605221	Hs-HIF1A
445171	Hs-APOD	310181	Hs-CDKN2A	410601	Hs-EPAS1-sense	314331	Hs-HIF1A-3UTR
433091	Hs-APOE	447331	Hs-CDKN2A-No-XMm	407441	Hs-EPHA2	428351	Hs-HLA-DRB1
418321	Hs-APP	603291	Hs-CFTR	406251	Hs-EPHB2	434631	Hs-HMGB1
421831	Hs-AQP1	311111	Hs-CHGA	414201	Hs-EPO	319851	Hs-HMOX1
400491	Hs-AR	408121	Hs-CHI3L1	312671	Hs-ERBB2-FL	431481	Hs-HOXA2
421371	Hs-AR-E1-E3	407951	Hs-CHRM1	411411	Hs-ERBB2-LE1	419541	Hs-HRAS
445951	Hs-AR-Intron8	407961	Hs-CHRM2	418741	Hs-ERBB2-no-X-Mm	447341	Hs-HRAS-No-XMm
408331	Hs-ARexon1	407971	Hs-CHRM3	407831	Hs-ERBB4	402191	Hs-HRH3
311011	Hs-ASCL2	310101	Hs-CHRNA7	310291	Hs-ERCC1	404781	Hs-HTR1A
427881	Hs-ASPM	606241	Hs-CLU	310301	Hs-ESR1	310681	Hs-HTR3A
419271	Hs-ATM	310051	Hs-CMET	319861	Hs-F2RL1	310651	Hs-HTR4
527481	Hs-ATXN3	591521	Hs-CNR1	435561	Hs-FANCF	426531	Hs-HTT
401361	Hs-AVP	596021	Hs-CNR2	312111	Hs-FGF2	426261	Hs-HTT-alter-splice
422541	Hs-BACE1	438491	Hs-CNTN4	439421	Hs-FGF2-O1	409121	Hs-HTT-noXMmOa
422551	Hs-BACE2	411341	Hs-CNTNAP2	310071	Hs-FGFR1	402951	Hs-ICAM1
591721	Hs-BCL2	435841	Hs-CNTNAP2-intron	443411	Hs-FGFR1-no-XMm	537491	Hs-IDH1
409041	Hs-BDNF-CDS	426271	Hs-CRYAB	430581	Hs-FGFR1-O1	537791	Hs-IDH2
434111	Hs-BECN1	310811	Hs-CSF1R	310791	Hs-FGFR3	602681	Hs-IDO1
591931	Hs-BMI1	433681	Hs-CSF1R-sense	436841	Hs-FGFR3-O1	310501	Hs-IFN-G
595251	Hs-BRAF	311731	Hs-CTNNB1	590731	Hs-FMR1	559781	Hs-IFNG
430701	Hs-C3	411261	Hs-CX3CL1	430541	Hs-FOLH1	310111	Hs-IGF-1R
405191	Hs-C9orf72	411251	Hs-CX3CR1	407261	Hs-FOXP2	313031	Hs-IGF1
435521	Hs-C9orf72-tv2tv3	311851	Hs-CXCL10	428961	Hs-FXN	314641	Hs-IGF1-tv1
438451	Hs-CA2	422991	Hs-CXCL12	448211	Hs-GABRA2	415811	Hs-IGF1R
422161	Hs-CALB1	310511	Hs-CXCR4	404031	Hs-GAD1	594361	Hs-IGF2
410241	Hs-CALCA	430861	Hs-CYP19A1-O1	317631	Hs-GAL	313061	Hs-IGFBP2
436561	Hs-CASP3	441961	Hs-DCC	556741	Hs-GCG	602051	Hs-IL10
409371	Hs-CASP8	416161	Hs-DISC1-E2	437871	Hs-GDNF	316061	Hs-IL10-sense

Catalog No.	Probe Name	Catalog No.	Probe Name	Catalog No.	Probe Name	Catalog No.	Probe Name
400301	Hs-IL18	406331	Hs-NGFR	419871	Hs-RB1	605951	Hs-TLR3
556791	Hs-IL1A	417681	Hs-NKX2-1-ver2	413051	Hs-RELN	311281	Hs-TLR4
310361	Hs-IL1B	424991	Hs-NOS2	417871	Hs-REST	420771	Hs-TNC
441601	Hs-IL1RN	446771	Hs-NOS3	424871	Hs-RET	310421	Hs-TNF-a
402041	Hs-IL2	311861	Hs-NOTCH1	424881	Hs-RET-tv2	400611	Hs-TNFRSF1A
315191	Hs-IL4	558991	Hs-NOTCH3	416221	Hs-RHEB	417651	Hs-TNFRSF1B
310371	Hs-IL6	448511	Hs-NPPB	416291	Hs-RHOA	411841	Hs-TNFSF10
313571	Hs-INS	424721	Hs-NR3C1	402211	Hs-RTN4	431641	Hs-TNFSF10-O1
435681	Hs-KAL1	434651	Hs-NR3C2	430891	Hs-S100B	605201	Hs-TP53
591611	Hs-KDR	582621	Hs-NR4A2	430281	Hs-SCN5A	310691	Hs-TPH1
435371	Hs-KDR-O1	311181	Hs-NRG1	562251	Hs-SCN9A	420491	Hs-TREM2
606401	Hs-KIT	418301	Hs-NRG1-alltv	416561	Hs-SEMA3A	311951	Hs-TRPA1
406371	Hs-LEPR	418291	Hs-NRG1-alpha-beta1	555961	Hs-SERPINE1	415381	Hs-TRPV1
410381	Hs-LEPR-alltv	418311	Hs-NRG1-beta3	310561	Hs-SERT	420071	Hs-TSC1
410371	Hs-LEPR-tv1	416721	Hs-NRG1-tv-alpha	416301	Hs-SGK1	312731	Hs-TSC2
414831	Hs-LINGO1	424361	Hs-NRP1	600951	Hs-SHH	438021	Hs-TSPO
421531	Hs-LRRK2	402631	Hs-NTRK1	429781	Hs-SIRT1	318901	Hs-TUBB3
408991	Hs-MAPT	406391	Hs-NTRK1-ver2	311431	Hs-SLC18A2	410971	Hs-UBC-sense
311781	Hs-MDM2	402621	Hs-NTRK2	444721	Hs-SLC1A2	414171	Hs-UBC-ver2
441841	Hs-MECP2-tv1-3UTR	406341	Hs-NTRK3	423141	Hs-SLC2A1	594281	Hs-UCHL1
423081	Hs-MET-E11-E20	406511	Hs-OCLN	604741	Hs-SLC6A4	311351	Hs-VEGF
423061	Hs-MET-E2	424191	Hs-OLIG2	419941	Hs-SMARCB1	423161	Hs-VEGFA
423091	Hs-MET-E21	556711	Hs-OPRK1	428991	Hs-SMN2	412011	Hs-VEGFA-noXrodent
423071	Hs-MET-E3-E10	422651	Hs-OXTR	605681	Hs-SNCA	312121	Hs-VEGFR2
423101	Hs-MET-FL	554091	Hs-P2RX7	409021	Hs-SNCA-CDS	401951	Hs-VHL
443451	Hs-MET-no-XMm	429811	Hs-PARP1	421311	Hs-SNCA-ver2	436081	Hs-WFS1
442621	Hs-MFN2	588881	Hs-PAX6	427311	Hs-SOD1	421571	Hs-WNT10A
588941	Hs-MGMT	604481	Hs-PDGFRA	410061	Hs-SOD1-noXMm	429451	Hs-WNT6
591771	Hs-MKI67	603041	Hs-PIK3CA	400871	Hs-SOX2	415581	Hs-WT1
410891	Hs-MME	559111	Hs-PINK1	425111	Hs-SPARC	410651	Hs-ZIC2
311751	Hs-MMP2	542701	Hs-PLAUR	420101	Hs-SPP1	310971	S100B
311331	Hs-MMP9	599121	Hs-PMP22	310591	Hs-SST	310711	TAC1
313811	Hs-MMP9-30LE	429901	Hs-POMC	425631	Hs-STAT3		
428891	Hs-MSH6	592861	Hs-POU5F1	311421	Hs-SYP		
444751	Hs-MSI1	441691	Hs-PPARG	310701	Hs-TACR1		
419681	Hs-MTOR	315811	Hs-PRL-C2	425671	Hs-TARDBP		
311761	Hs-MYC	311261	Hs-PROM1	417191	Hs-TARDBP-cust		
447281	Hs-MYC-No-XMm	410231	Hs-PRPH	314291	Hs-TBP		
417501	Hs-MYCN	310121	Hs-PTEN	605511	Hs-TERT		
599311	Hs-NAMPT	408511	Hs-PTEN-3UTR	400881	Hs-TGFB1		
421461	Hs-NCAM1	431471	Hs-PTGDS	407121	Hs-TGFB1-long		
419731	Hs-NF1	406801	Hs-PTGS2	443481	Hs-TGFB1-no-XMm		
426781	Hs-NF1-tv1tv2	416351	Hs-QKI	404581	Hs-TGFB2		
549451	Hs-NGF	419851	Hs-RAC1	403111	Hs-TLR2		

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