

RNAscope® Probes for Long Non-coding RNA Biomarkers

Get quantitative molecular detection with morphological context in a single assay.

Above: Human breast cancer: *HOTAIR* expression in FFPE tissue

Featured Publications using RNAscope® Technology

Expression profiling reveals developmentally regulated lncRNA repertoire in the mouse male germline. Bao *et al.* (2013). *Biology of Reproduction*. Nov 7; 89(5):107. doi: 10.1095/biolreprod.113.113308. PMID: 24048575

The long noncoding RNA SChLAP1 promotes aggressive prostate cancer and antagonizes the SWI/SNF complex. Prensner *et al.* (2013). *Nature Genetics*. Nov; 45(11):1392–1398. doi:10.1038/ng.2771. PMID: 24076601

Evaluation of tissue PCA3 expression in prostate cancer by RNA in situ hybridization—a correlative study with urine PCA3 and TMPRSS2-ERG. Warrick *et al.* (2013). *Modern Pathology*. Sep 27. doi: 10.1038/modpathol.2013.169. PMID: 24072184

Long Non-coding RNA

In the most recent statistics from the GENCODE project (v19 July 2013), the human genome contains 22,883 non-coding RNA (ncRNA) genes, surpassing the number of protein-coding genes (20,345). Of the ncRNA species, some 30% (9,013) are less than 200 bases long, termed as small ncRNA. About 60% (13,870) of the ncRNAs are longer than 200 bases, and are operationally designated as long non-coding RNAs (lncRNAs). Some lncRNAs have been shown to regulate gene expression through a diversity of mechanisms and play important roles in chromatin modification (*HOTAIR*), transcriptional and post-transcriptional regulation (*ZEB2*). Dysregulation of lncRNA is being found to have relevance not only in tumorigenesis, but also to neurological, cardiovascular and other diseases.

The discovery of a previously unknown universe of lncRNAs has created an unprecedented demand for effective RNA *in situ* hybridization (ISH) tools. Unlike protein coding genes, for which immunohistochemistry (IHC) and RNA ISH are complementary for mapping gene expression to specific cells *in situ*, lncRNA gene expression can only be interrogated by RNA ISH. The generally lower expression levels of lncRNAs than their protein coding counterparts demand the highest sensitivity from RNA ISH methods. The single-molecule sensitivity and rapid assay development time make RNAscope ideally suited for localizing lncRNAs expression to specific cell types and sub-cellular structures.

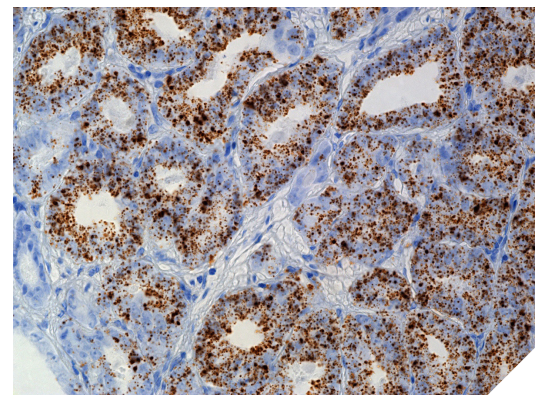


Figure 1. Human prostate cancer: *PCA3* expression (brown dots) in FFPE tissue with RNAscope® 2.0 HD Detection Kit

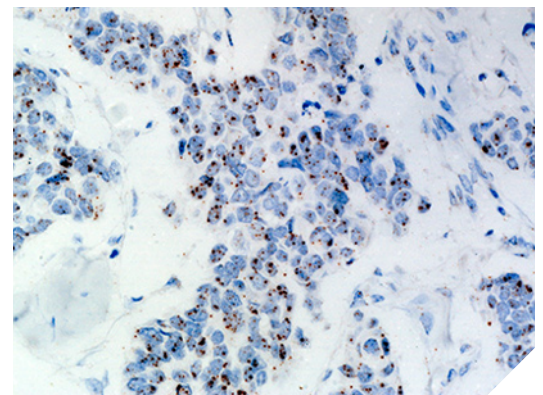


Figure 2. Human breast cancer: *HOTAIR* expression (brown dots) in FFPE tissue with RNAscope® 2.0 HD Detection Kit

MD+MC

Molecular Detection visualizes what genes are expressed.

Morphological Context localizes where those genes are expressed.

Visualize your long non-coding RNA today acdbio.com/lncRNA

Ordering Information

RNAscope® assay is available in both manual and automated formats, to suit individual lab demand. The manual assay workflow is similar to IHC and only requires a Hybridization oven (HybEZ™ System) to help control the temperature and humidity during hybridization. The RNAscope automated assay is available on Ventana® Discovery® XT and Discovery Ultra systems.

ACD offers over 3,000 probe sets for many species. Custom probes are available within 2 weeks for virtually ANY gene from ANY species in ANY tissues.

RNAscope Human Long Non-coding RNA Probe List

CAT #	Probe Name	Gene	CAT #	Probe Name	Gene
527481	Probe - Hs-ATXN3	ATXN3	404761	Probe - Hs-Linc-KLF14-1	LOC646329
407771	Probe - Hs-BCAR4	BCAR4	400811	Probe - Hs-MALAT1	MALAT1
409311	Probe - Hs-BREA2	BREA2	400821	Probe - Hs-MEG3	MEG3
556371	Probe - Hs-CHN1	CHN1	582241	Probe - Hs-NDRG4	NDRG4
407081	Probe - Hs-CLEC4GP1	CLEC4GP1	554091	Probe - Hs-P2RX7	P2RX7
550331	Probe - Hs-CYP3A5	CYP3A5	312201	Probe - Hs-PCA3	PCA3
414691	Probe - Hs-DISC2	DISC2	312201-C2	Probe - Hs-PCA3-C2	PCA3
312191	Probe - Hs-EPOR	EPOR	312201-C3	Probe - Hs-PCA3-C3	PCA3
400771	Probe - Hs-H19	H19	313851	Probe - Hs-PCAT1	PCAT1
400771-C3	Probe - Hs-H19-C3	H19	409321	Probe - Hs-PCGEM1	PCGEM1
312341	Probe - Hs-HOTAIR	HOTAIR	409331	Probe - Hs-PRNCR1	PRNCR1
400791	Probe - Hs-HOXB-AS51	HOXB-AS5	407761	Probe - Hs-PTENP1	PTENP1
410631	Probe - Hs-KCNQ10T1	KCNQ10T1	406951	Probe - Hs-PVT1	PVT1
408221	Probe - Hs-LINC00162	LINC00162	415531	Probe - Hs-RP11-255G12-lincRNA	RP11
314781	Probe - NR_015410	LINC00340	410221	Probe - Hs-TRERNA1	TRERNA1
411081	Probe - Hs-LINC00704	LINC00704	410491	Probe - Hs-UNK-ncRNA	UNK
315401	Probe - Hs-RoR	LINC-ROR	584071	Probe - Hs-WNT2	WNT2
402111	Probe - LOC100506013	LOC100506013	311231	Probe - Hs-XIST	XIST
412021	Probe - Hs-LOC339535	LOC339535			

RNAscope Mouse Long Non-coding RNA Probe List

CAT #	Probe Name	Gene	CAT #	Probe Name	Gene
402141	Probe - NR_030682	2810410L24rik	318171	Probe - Mm-Gpr19	Gpr19
408801	Probe - Mm-E030019B13Rik	E030019B13rik	313741	Probe - Mm-HOTAIR	Hotaair
315961	Probe - Mm-Gm2694	Gm2694	313391	Probe - Mm-Malat1	Malat1

ACD offers an ever-growing selection of RNA biomarker probes for virtually ANY gene from ANY species in ANY tissue. Don't see your gene of interest? We can design your custom probes within 2 weeks.

Visualize your long non-coding RNA today acdbio.com/lncRNA

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