

RNAscope® Probes for Long Non-coding RNA Biomarkers

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

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

RNASCOPE® DELIVERS

MD+MC

IN A SINGLE ASSAY

Molecular Detection visualizes and quantifies expressed genes at single-cell resolution.

Morphological Context localizes expressed genes and reveals tissue architecture.

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.

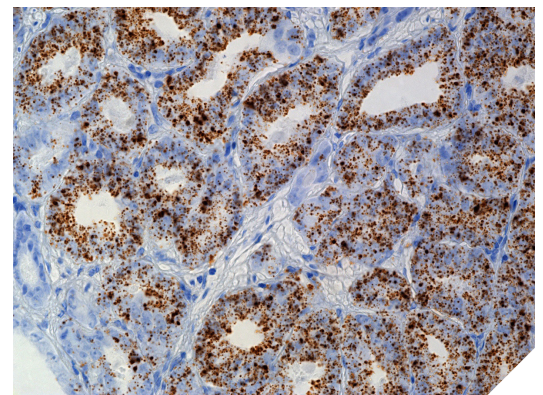


Figure 1. Human prostate cancer: *PCA3* expression (brown dots) in FFPE tissue with RNAscope® 2.0 HD Detection Kit

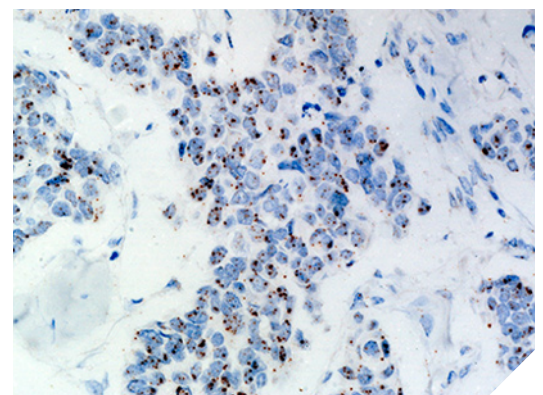


Figure 2. Human breast cancer: *HOTAIR* expression (brown dots) in FFPE tissue with RNAscope® 2.0 HD Detection Kit

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.

RNAscope Human Long Non-coding RNA Probe List

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

RNAscope Mouse Long Non-coding RNA Probe List

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

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

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

This document is provided for informational use only.

For Molecular Biology Applications (MBA), not intended for diagnosis. Refer to appropriate regulations. RNAscope® is a registered trademark of Advanced Cell Diagnostics, Inc. in the United States or other countries. All rights reserved. ©2014 Advanced Cell Diagnostics, Inc. Doc#: 321097/080114/revC



3960 Point Eden Way,
Hayward, CA 94545
1-510-576-8800 (Main)
1-877-576-3636 (Toll Free)