Cheatography

Neuroscience Cheat Sheet

by ACD Marketing Team (ACD Marketing) via cheatography.com/36805/cs/11592/

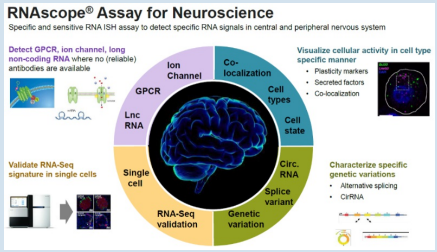
One Minute Pitch

RNAscope® ISH delivers single-molecule sensitivity and specificity. The **multiplexing capability** enables detection of multiple markers at once, enabling exquisite characterization of cell populations, **co-localization/ co-expression** studies and also **sub-cellular localization** of mRNA within the nervous system. Combine with **Immunohistochemistry/ IF**. **Same-day** results and automated assays mean you can get the data you seek quickly, easily, and all backed by our performance guarantee..

Key Selling Point

Multiplex capability and dual ISH/IHC

Overview



No Antibody? Detect GPCRs, Ion Channels, lncRNA

Validate RNA-Seq Signatures in single cells

Visualize cellular activity in cell type specific manner

Plasticity markers, Secreted factors, Co-localization

Characterize specific genetic variations

Alternative splicing, circRNA

Qualifying Questions

Do you want to explore molecular mechanisms of CNS/PNS development and neurological disorders like Alzheimer, Parkinson, Addictions, Pain, Depression...?

Do you need to visualize biomarkers co-localization & expression in specific cellular sub-types?

Are you looking for single cell resolution or need to distinguish expression of biomarkers between various nervous system cell types?

Would you like to visualize sub cellular RNA/protein localization, axon/dendrites RNA transport?

Are you investigating expression of splice variants (~90% of genes in the CNS have splice variants involved in specific diseases)?

Do you need an assay for a non-commun target like for circRNA?

Pain Points and Our Solutions

Immunohistochemistry

Pain Point: Lack of antibody/specificity/secreted proteins/ lncRNA

Our Solution: Detection of any gene/ species/ tissue with highest specificity, new probe in 2 weeks, multiplex – up to 4 RNAs + 2 IHC targets. Co-expression studies with cell type markers, sub-cellular localization possible, detection of GPCRs/ Ion Channels

Conventional ISH

Paint Point: Considered as complicated, long assay, dual ISH/IHC possible but really tricky

Our Solution: One day assay (not V2), easy-to-use, stable assay, great tech support (new user program), probe in depended optimization

RNA-Seq/ RT-PCR

Pain Point: Give up tissue context, quantity of RNA required for qPCR is higher

Our Solution: Morphological context with single-cell specificity

Recommended Products

RNAscope® Fluorescent Multiplex (320850) for fresh & fixed frozen C1/C3: stronger channel (low expressor), C2: slightly weaker channel

RNAscope® Multiplex Fluorescent v2 (323110) up to 4 targets, but ideal for FFPE, 4-plex: They need 4-Plex Ancillary Kit (323120)

RNAscope® 2.5 HD Duplex Reagent Kit (322430)

BaseScope for splice variants, circRNA

Our Limitations

Multiplexing= With V2 6 Opal fluorophores available (Theoretically 4x RNA, 2x protein as we only have 4 channels)

ISH/IF= We can not guarantee results as depending on the antibody.

Most Published Targets:

Gad1, Drd2, Drd1, VGluT2, Gad2, Th, Sst, EGFP, Shh, Vgat

Long non-coding RNA in Neuroscience - examples

Alzheimer's disease (BACE1-AS, SORL1, lncRNA 51A…)
Schizophrenia (Gomafu, DISC2…)
Autism spectrum disorder (MSNP1AS)
Parkinson's disease (AL049437, AK021630...)
Huntington's disease (Neat1)

Key Tools/ References:

App Note, App Review, Probe List, Publication List - http://bit.ly/2oN1lum
GPCR Video - https://www.youtube.com/watch?v=SFjUVZGdToc
Several PubCrushs/ scientific posters - please check Showpad

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