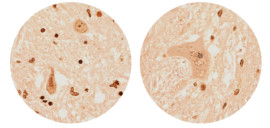




Mar 01, 2024

Version 1

 **SOP and tick-sheet for using TDP-43 RNA aptamer (TDP-43APT) to detect pathological TDP-43 in FFPE-preserved human tissue, as described in Spence and Waldron et al., 2024 (Acta Neuropathologica) V.1**



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Manuscript citation:

RNA aptamer reveals nuclear TDP-43 pathology is an early aggregation event that coincides with STMN-2 cryptic splicing and precedes clinical manifestation in ALS.

Holly Spence*, Fergal M. Waldron*, Rebecca S. Saleeb, Anna-Leigh Brown, Olivia M. Rifai, Martina Gilodi, Fiona Read, Kristine Roberts, Gillian Milne, Debbie Wilkinson, Judi O'Shaughnessy, Annalisa Pastore, Pietro Fratta, Neil Shneider, Gian Gaetano Tartaglia, Elsa Zacco, Mathew H. Horrocks, Jenna M. Gregory (2024). *Acta Neuropathologica* (in press at the time of release of this SOP on 01/03/2024).

*equal contributions, †corresponding author

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Protocol status: Working

We use this protocol and it's working

Created: March 01, 2024

Last Modified: March 01, 2024

Protocol Integer ID: 96023

Keywords: ALS, MND, FTD, ALSFTSD, TDP-43, RNA aptamer, Human tissue staining, Immunohistochemistry, method rna aptamer, performing immunohistochemistry, immunostaining rack, preserved human tissue, rna

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Target ALS

Grant ID: BB-2022-C4-L2

Disclaimer

Authors declare no conflicts of interest.

Abstract

Here we provide a SOP to outline the correct procedures for performing Immunohistochemistry (IHC) to detect pathological TDP-43 in FFPE-preserved human tissue using the TDP-43 RNA Aptamer (TDP-43^{APT}), as described in Spence and Waldron et al., 2024 published in *Acta Neuropathologica* (in press at the time of release of this SOP on 01/03/2024)

Users with access to Sequenza immunostaining racks and histological facilities (with fume hood) should be able to carry out all steps over two days.

This protocol uses the TDP-43^{APT} sequence published in Zacco *et al.*, 2022. The sequence is: CGGUGUUGCU with a 3' Biotin-TEG modification, purified using HPLC, scale: 1.0 µM synthesis.

Reference for citations of this method

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Attachments



TDP-43 RNA
Aptamer_L...
234KB



TDP-43 RNA
Aptamer_L...
169KB

Image Attribution

Jenna M Gregory

Guidelines

This protocol is designed for users with access to Sequenza immunostaining racks and histological facilities (with fume hood) should be able to carry out all steps over two days.

Materials

See SOP appendix for materials.



Safety warnings



Safety First

Before starting, please ensure all relevant Health & Safety documentation is in order including the following

- COSHH assessment
- Risk assessment
- Safe System of Work
- SOP read and understood

Before start

Please see appendix for materials required to carry out this protocol.



Protocol references

Reference for citations of this method

RNA aptamer reveals nuclear TDP-43 pathology is an early aggregation event that coincides with STMN-2 cryptic splicing and precedes clinical manifestation in ALS.

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