

**PLEASE NOTE:**

THESE REAGENTS MUST NOT BE SUBSTITUTED FOR THE MANDATORY POSITIVE AND NEGATIVE CONTROL REAGENTS PROVIDED WITH MANUFACTURED TEST KITS.

**NAME AND INTENDED USE**

The Seraseq® FFPE NTRK Fusion RNA Reference Material is a full-process reference material formulated for use with targeted Next Generation Sequencing (NGS) assays that detect RNA expressed from gene fusions in Neurotrophic Tyrosine Receptor Kinase (NTRK) genes. This product is intended as a quality reference material for translational and disease research testing to monitor nucleic acid extraction, library preparation, sequencing, and fusion RNA detection under a given set of bioinformatics pipeline parameters. *For Research Use Only. Not for use in diagnostic procedures.*

**REAGENTS**

Item No. 0710-1031. One 10 µm FFPE curl per vial.

**WARNINGS AND PRECAUTIONS**

*For Research Use Only. Not for use in diagnostic procedures.*

**CAUTION:** Handle Seraseq FFPE NTRK Fusion RNA Reference Material as though it is capable of transmitting infectious agents. This product is formulated using an engineered human cell line derived from GM24385, which is a B-lymphocytic, male cell line from the Genome in a Bottle (GIAB) Project.

**Safety Precautions**

Use Centers for Disease Control and Prevention (CDC) recommended universal precautions for handling reference materials and human specimens<sup>1</sup>. Do not pipette by mouth. Do not smoke, eat, or drink in areas where specimens are being handled. Clean any spillage by immediately wiping with 0.5% sodium hypochlorite solution. Dispose of all specimens and materials used in testing as though they contain infectious agents.

**Handling Precautions**

Do not use Seraseq FFPE NTRK Fusion RNA Reference Material beyond the expiration date. Avoid contamination of the product when opening and closing the vial.

**STORAGE INSTRUCTIONS**

Store Seraseq FFPE NTRK Fusion RNA Reference Material at 2-8°C. Shelf life when stored under these conditions is two years from date of manufacture.

**PROCEDURE**

**Materials Provided**

Seraseq FFPE NTRK Fusion RNA Reference Material consists of engineered cells which have been formalin treated and embedded in paraffin to create an FFPE block, which is then sliced into 10 µm sections. One 10 µm FFPE curl is provided per vial.

**Materials Required but not Provided**

Refer to instructions supplied by manufacturers of the test kits to be used.

**Instructions for Use**

Allow the product vial to come to room temperature before use. Seraseq FFPE NTRK Fusion RNA Reference Material must go through an extraction process. Refer to your usual assay procedures in order to determine the amount of extracted material to use in library preparation.

**EXPECTED RESULTS & INTERPRETATION OF RESULTS  
RNA Yield and Quality**

Seraseq FFPE NTRK Fusion RNA Reference Material is compatible with different commercially available nucleic acid extraction methods commonly used for FFPE specimens. Each FFPE curl yields >300 ng of extractable RNA when using Agencourt® Formapure extraction kit and quantifying RNA by Thermo Fisher Qubit RNA HS assay.

**Fusion RNAs Present in the Product**

Table 1 indicates each of the fusion RNAs represented in Seraseq FFPE NTRK Fusion RNA Reference Material. The fusion RNA species in this product are NOT present at the DNA level. Detection of fusion RNAs may differ across different NGS panels and different test reagent lots. While the presence of each fusion RNA in this product is confirmed during manufacturing using functional NGS and/or digital PCR-based fusion RNA assays, there may be apparent differences in observed fusion levels due to assay characteristics. Seraseq FFPE NTRK Fusion RNA Reference Material does not have assigned values for the ratios of fusion transcripts to wild-type transcripts for the same genes, or for the overall quantity of fusion transcripts. Each laboratory must establish an assay-specific expected value for each fusion and each lot of Seraseq FFPE NTRK Fusion RNA Reference Material. When results for the product are outside of the established acceptance range, it may indicate unsatisfactory test performance. Possible sources of error include: deterioration of test kit reagents, operator error, faulty performance of equipment, contamination of reagents, or changes in bioinformatics pipeline parameters. Additional support documents are available online at [www.seracare.com/oncology](http://www.seracare.com/oncology).

**LIMITATIONS OF THE PROCEDURE**

Seraseq FFPE NTRK Fusion RNA Reference Material MUST NOT BE SUBSTITUTED FOR THE CONTROL REAGENTS PROVIDED WITH MANUFACTURED TEST KITS. *TEST PROCEDURES* provided by manufacturers must be followed closely. Deviations from procedures recommended by test kit manufacturers may produce unreliable results. This product is offered for Research Use Only. Not for use in diagnostic procedures. Data are provided for informational purposes. SeraCare Life Sciences does not claim that others can duplicate test results exactly. Seraseq FFPE NTRK Fusion RNA Reference Material is not a calibrator and should not be used for assay calibration. Adverse shipping and/or storage conditions or use of outdated product may produce erroneous results.

**REFERENCES**

1. Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee, 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings.

**Table 1. Fusion RNAs present in Seraseq FFPE NTRK Fusion RNA Reference Material**

Fusion RNA	5' Partner	3' Partner	HGVS Name
TPM3-NTRK1	TPM3 exon 7	NTRK1 exon 10	TPM3{ENST00000368533}:r.1_717_NTRK1{ENST00000392302}:r.1262_2609
LMNA-NTRK1	LMNA exon 11	NTRK1 exon 11	LMNA{ENST00000368299}:r.1:2015_NTRK1{ENST00000392302}:r.1318_2609
IRF2BP2-NTRK1	IRF2BP2 exon 1	NTRK1 exon 10	IRF2BP2{ENST00000366609}:r.1_1079_NTRK1{ENST00000392302}:r.1262_2609
SQSTM1-NTRK1	SQSTM1 exon 5	NTRK1 exon 10	SQSTM1{ENST00000389805}:r.1_932_NTRK1{ENST00000392302}:r.1262_2609
TFG-NTRK1	TFG exon 5	NTRK1 exon 10	TFG{ENST00000240851}:r.1_920_NTRK1{ENST00000392302}:r.1262_2609
AFAP1-NTRK2	AFAP1 exon 14	NTRK2 exon 12	AFAP1{ENST00000420658.1}:r.1_2170_NTRK2{ENST00000376214}:r.2098_5608
NACC2-NTRK2	NACC2 exon 4	NTRK2 exon 13	NACC2{ENST00000371753}:r.1_1314_NTRK2{ENST00000376214}:r.2134_5608
QKI-NTRK2	QKI exon 6	NTRK2 exon 16	QKI{ENST00000361752}:r.1_1485_NTRK2{ENST00000376214}:r.2383_5608
TRIM24-NTRK2	TRIM24 exon 12	NTRK2 exon 15	TRIM24{ENST00000343526}:r.1_2229_NTRK2{ENST00000376214}:r.2335_5608
PAN3-NTRK2	PAN3 exon 1	NTRK2 exon 17	PAN3{ENST00000380958}:r.1_582_NTRK2{ENST00000376214}:r.2572_5608
ETV6-NTRK3	ETV6 exon 5	NTRK3 exon 14	ETV6{ENST00000396373}:r.1_1283_NTRK3{ENST00000394480}:r.1719_19984
ETV6-NTRK3	ETV6 exon 5	NTRK3 exon 15	ETV6{ENST00000396373}:r.1_1283_NTRK3{ENST00000394480}:r.1908_19984
ETV6-NTRK3	ETV6 exon 4	NTRK3 exon 15	ETV6{ENST00000396373}:r.1_737_NTRK3{ENST00000394480}:r.1908_19984
ETV6-NTRK3	ETV6 exon 4	NTRK3 exon 14	ETV6{ENST00000396373}:r.1_737_NTRK3{ENST00000394480}:r.1719_19984
BTBD1-NTRK3	BTBD1 exon 4	NTRK3 exon 14	BTBD1{ENST00000261721}:r.1_1065_NTRK3{ENST00000394480}:r.1719_19984

Exon numbers correspond to ENST00000392302.6 for NTRK1

Exon numbers correspond to ENST00000376214.5 for NTRK2

Exon numbers correspond to ENST00000394480.6 for NTRK3