Agilent R6K ScreenTape System Quick Guide

Principles

The Agilent 2200 TapeStation system is a tape-based platform for simpler, faster and more reliable electrophoresis.

The system for analysing RNA comprises three elements:

- 2200 TapeStation System (p/n G2964AA) or 2200 TapeStation Nucleic Acid System (p/n G2965AA)
- High Sensitivity R6K ScreenTape (p/n 5067-5369) with High Sensitivity R6K Reagents (p/n 5067-5370) or R6K ScreenTape (p/n 5067-5367) with R6K Reagents (p/n 5067-5368)
- Agilent 2200 TapeStation Software

Kits

The R6K ScreenTape system is primarily designed for the quality assessment of total RNA, but can be used to separate any RNA molecules from 50 – 6000 nt (nucleotides).

Specifications

Analytical Specification	High Sensitivity R6K ScreenTape	R6K ScreenTape
Quality Score	RIN[e]	RIN[e]
Sensitivity	100 pg/µL	2 ng/µL
Quantitative Precision[1]	20 % CV	15 % CV
Qualitative Range	100 – 10000 pg/µL	2 – 500 ng/µL
Physical Specification		
Analysis Time	16 samples < 15 min, 96 samples ~ 100 min	16 samples < 20 min, 96 samples ~ 100 min
Samples per consumable	16	16
Sample Volume Required	2 µL	1 µL
Shelf Life	4 months	4 months
ScreenTape box size	112 samples/box	112 samples/box

[1] Within a ScreenTape

Essential Measurement Practices

Required tips and tubes for the TapeStation	• Optical Cap 8x Strip, Box of 120, 0.2 mL (p/n 401425) and Optical Tube 8x Strip, Box of 120, 0.2 mL (p/n 401428) • Loading tips, 1 x384 (p/n 5067-5153) or Loading tips, 10 x384 (p/n 5067-5152)

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Steps before use on the TapeStation	• Equilibrate each vial to room temperature. • Vortex mix each vial and briefly spin.
Steps during sample preparation	• Keep reagents at room temperature during sample preparation. • Keep all samples on ice between steps.

Pipette carefully	• Always pipette reagents against the side of the sample tube. • If using a standard pipette ensure that no residual material is left on the outside of the tip.
Mix properly after each pipetting step	• Mix = Vortex the PCR tubes or 96 well plate on half-speed for 5 s. • Spin = Move the samples to the bottom of the tubes/wells by pulsing in a centrifuge.
Heat reactions optimally	• Many heat blocks and PCR machines display a temperature that can be incorrect by up to 10 °C. • Please accurately calibrate the hot block or PCR machine used to heat samples.
Spin after heating	• After each heating step, spin samples down by pulsing in a centrifuge to remove any condensed material from lid or cover.

Storage Conditions

- Reagents vials: 2 – 8 °C
- ScreenTape: 2 – 8 °C (if you run less than 16 lanes, store used tape upright at 2 – 8 °C for a maximum of 2 weeks, never freeze ScreenTape - any ScreenTape that is accidentally frozen should be discarded)

Products for Analysing RNA

High Sensitivity ScreenTape R6K and Reagents			
5067-5369	High Sensitivity ScreenTape R6K		7 ScreenTape
5067-5370	High Sensitivity R6K Reagents		1 vial/bag
	• High Sensitivity R6K Sample Buffer		300 µL
ScreenTape R6K and Reagents			
5067-5367	ScreenTape R6K		7 ScreenTape
5067-5368	R6K Reagents		1 vial/bag
	• R6K Sample Buffer		500 µL

Additional Consumables required for the 2200 TapeStation

- Loading tips, 10 x384 (p/n 5067-5152) / Loading tips, 1 x384 (p/n 5067-5153)
- Optical Tube 8x Strip, Box of 120, 0.2 mL (p/n 401428) and Optical Cap 8x Strip, Box of 120, 0.2 mL (p/n 401425) or 96 -well Sample Plates, Pack of 10 plates (p/n 5067-5150) and 96 -well Plate Foil Seal, Pack of 100 foils (p/n 5067-5154)

Additional Material Required (Not Supplied)

- Volumetric pipette
- Vortex mixer
- Centrifuge
- Heating block or PCR machine

Safety Information

WARNING

Toxic agents

The handling of solvents, samples and reagents can hold health and safety risks.

- ➔ When using/handling the ScreenTape and working with these substances observe appropriate safety procedures (for example by wearing goggles, safety gloves and protective clothing).
- ➔ Always follow good laboratory practices and adhere to the guidelines established in your laboratory.
- ➔ Refer to product material safety datasheets for further information.
- ➔ The volume of substances should be reduced to the minimum required for the analysis.

CAUTION

Damage to the 2200 TapeStation

- ➔ Use only the recommended tips, tubes and plates within the 2200 TapeStation instrument.

Information Working with RNA

CAUTION

Sample degradation

- ➔ Ensure all working areas, reagents and plastic ware are RNase free.
- ➔ Handle RNA samples with care.
- ➔ Wear gloves at all times.
- ➔ Thaw RNA samples on ice.
- ➔ Store RNA samples on ice throughout the ScreenTape analysis procedure.

CAUTION

Solidification of DMSO

R6K sample buffer contains DMSO, which may solidify when placed on cold, for example if taken directly from the fridge or stored on ice.

- ➔ Ensure R6K sample buffers are warmed to room temperature and mixed thoroughly prior to use.
- ➔ Place the RNA sample buffer vials at room temperature throughout the ScreenTape analysis procedure.
- ➔ Sample buffer mixed with sample should always be kept on ice during sample preparation and after sample denaturation.
- ➔ The R6K sample buffers should be returned to 2 – 8 °C storage, once the analysis procedure has been completed.

NOTE

Only use the loading buffers provided with the ScreenTape System.

NOTE

- Do not vortex samples vigorously as this may degrade them.
- When pipetting sample buffer, ensure that excess buffer droplets are removed from the tip before transfer to the sample tubes.
  When pipetting small volumes ensure that no sample remains within the tip.
- When adding sample buffer to sample or ladder, please ensure they are mixed correctly. To achieve this, gently mx several times with additional pipetting, then cap the tubes, gently mix the samples using a vortex mixer, for approximately 5 s and briefly centrifuge to collect the contents at the base of the tubes.

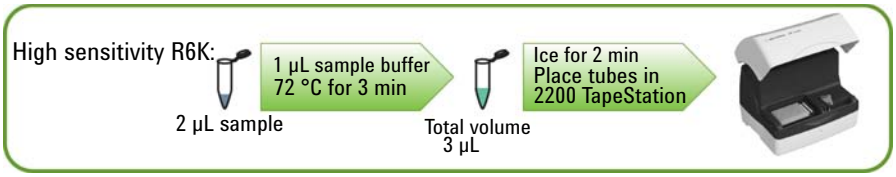
NOTE

RNA applications are only available to run without a ladder. If required, a software ladder can be added in the Agilent 2200 TapeStation analysis software.

Sample Preparation High Sensitivity R6K

Parts required	#	p/n	Description
	1	5067-5369	High Sensitivity R6K ScreenTape
	1	5067-5370	High Sensitivity R6K Reagents

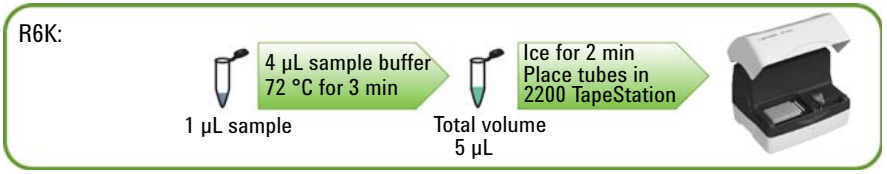
1 Mix 1 µL High Sensitivity Sample Buffer ( ) with 2 µL RNA sample.
2 Sample denaturation
- Heat the samples to 72 °C for 3 min.
- Place samples on ice for 2 min.
- Briefly centrifuge the samples to collect the contents in the base of the tubes.



Sample Preparation R6K

Parts required	p/n	Description
	5067-5367	R6K ScreenTape
	5067-5368	R6K Reagents

1 Mix 4 µL R6K Sample Buffer ( ) with 1 µL RNA sample.
2 Sample denaturation
- Heat the samples to 72 °C for 3 min.
- Place samples on ice for 2 min.
- Briefly centrifuge the samples to collect the contents in the base of the tubes.



Sample Analysis

1 Launch the Agilent 2200 TapeStation software.
2 Load the samples, ScreenTape R6K and loading tips into the 2200 TapeStation.
3 Select the required samples on the controller software.
4 Click **Start** and specify a filename with which to save your results.

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