

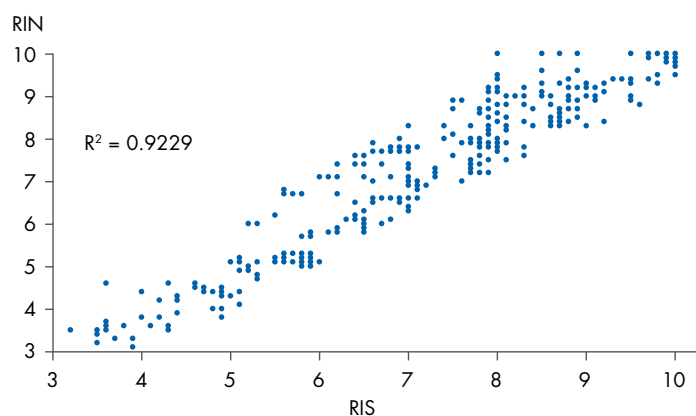
# RIN, RIN<sup>e</sup> and RIS – standardized determination of RNA quality

RNA integrity scores provide information on the quality of RNA before it is used in downstream applications. The quality is indicated by a score ranging from 1 (degraded RNA) to 10 (intact RNA).

This technical note compares the RNA integrity score (RIS) system used by QIAxcel<sup>®</sup> technology with the RNA integrity number (RIN) used by the Bioanalyzer<sup>®</sup> 2100 and the RIN equivalent (RIN<sup>e</sup>) of the TapeStation<sup>®</sup>.

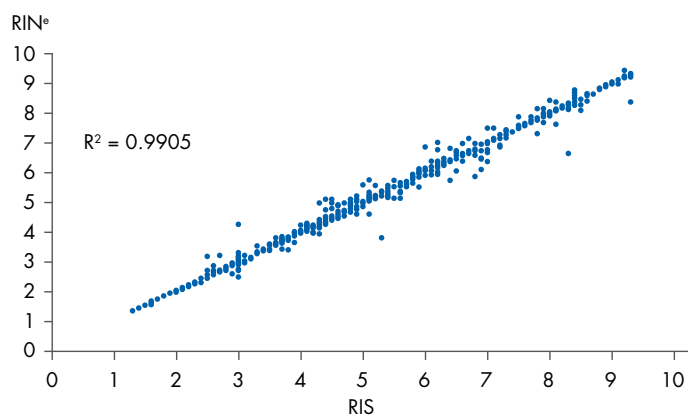
## An at-a-glance comparison of RNA integrity scoring tools

When RIS was compared with RIN and RIN<sup>e</sup>, the data showed correlation of RIS with RIN and RIN<sup>e</sup> values ( $R^2 = 0.92$  and  $R^2 = 0.99$ , respectively) (Figures 1 and 2).



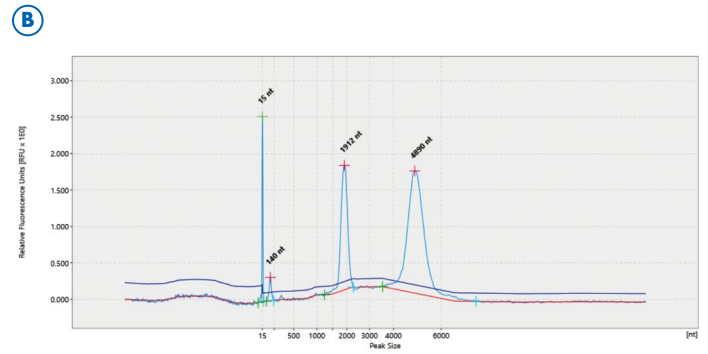
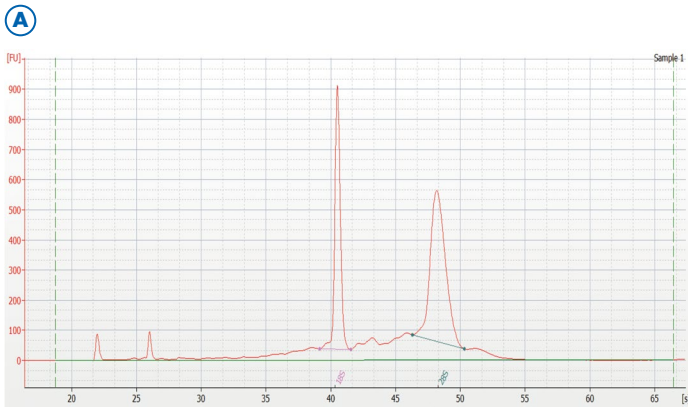
**Figure 1. Correlation of RIN and RIS.**

RNA samples were purified from rat kidney, rat liver, and Jurkat cells. They were then subjected to a gradient of heat-mediated degradation, and then analyzed in replicates (n=427) on the Agilent<sup>®</sup> Bioanalyzer 2100 and the QIAxcel Advanced instrument. The RIN and RIS values of the RNA samples were plotted to establish correlation (2).



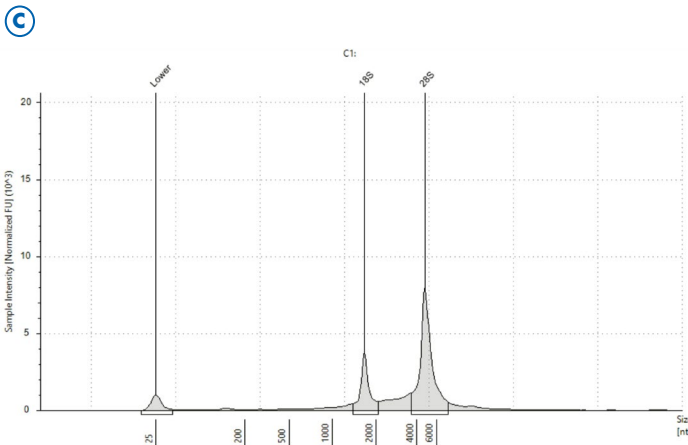
**Figure 2. Correlation of RIN<sup>e</sup> and RIS.**

RNA samples were purified from rat lung, rat liver, and Jurkat cells, and then analyzed in replicates (n=689) on the Agilent TapeStation 2100 and the QIAxcel Advanced instrument. The RIN<sup>e</sup> and RIS values of the RNA samples were plotted to establish correlation (3).



**Figure 3. QIAxcel and Bioanalyzer detect RNAs of small length as well as ribosomal peaks.**

RNA (5 ng/ul) was extracted from Jurkat cells using the RNeasy Mini Kit and then analyzed on the Bioanalyzer **A**, the QIAxcel Connect **B** and the TapeStation **C**. The electropherogram results show 18S and 28S ribosomal peaks. On the Bioanalyzer and QIAxcel Connect, RNAs of small length such as 5S/5.8S rRNA and tRNAs are also clearly visible (4).



#### References:

1. Unger C, Kofanova O, Sokolowska K, Lehmann D, Betsou F. Ultraviolet C radiation influences the robustness of RNA integrity measurement. *Electrophoresis*. 2015;36(17):2072-2081. doi:10.1002/elps.201500082
2. Pfeifer-Sancar K, Kozulic M, Ferdinand PH. A combinatorial approach to nucleic acid quality control for efficient workflow standardization and reliable data generation (White paper). QIAGEN. [www.qiagen.com/prom-11256](http://www.qiagen.com/prom-11256)
3. QIAGEN GmbH. RINe-RIS comparison 2021. Data on file.
4. QIAGEN GmbH. Electropherogram results. 2022. Data on file.



Learn more about QIAxcel Connect technology at [www.qiagen.com/QIAxcel-Connect](http://www.qiagen.com/QIAxcel-Connect)

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