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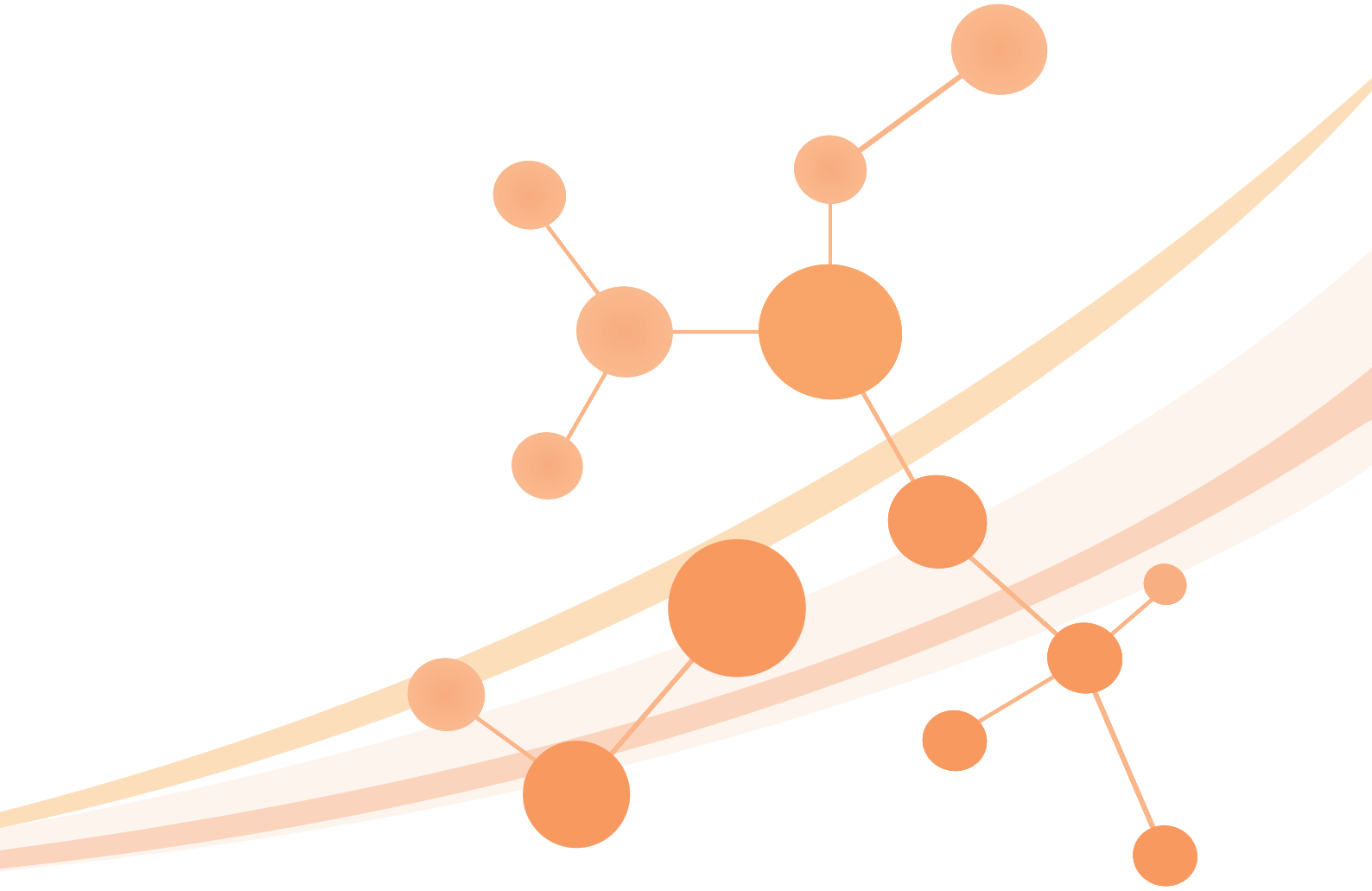
Product Testing Report



RNaseOFF: Product Efficiency

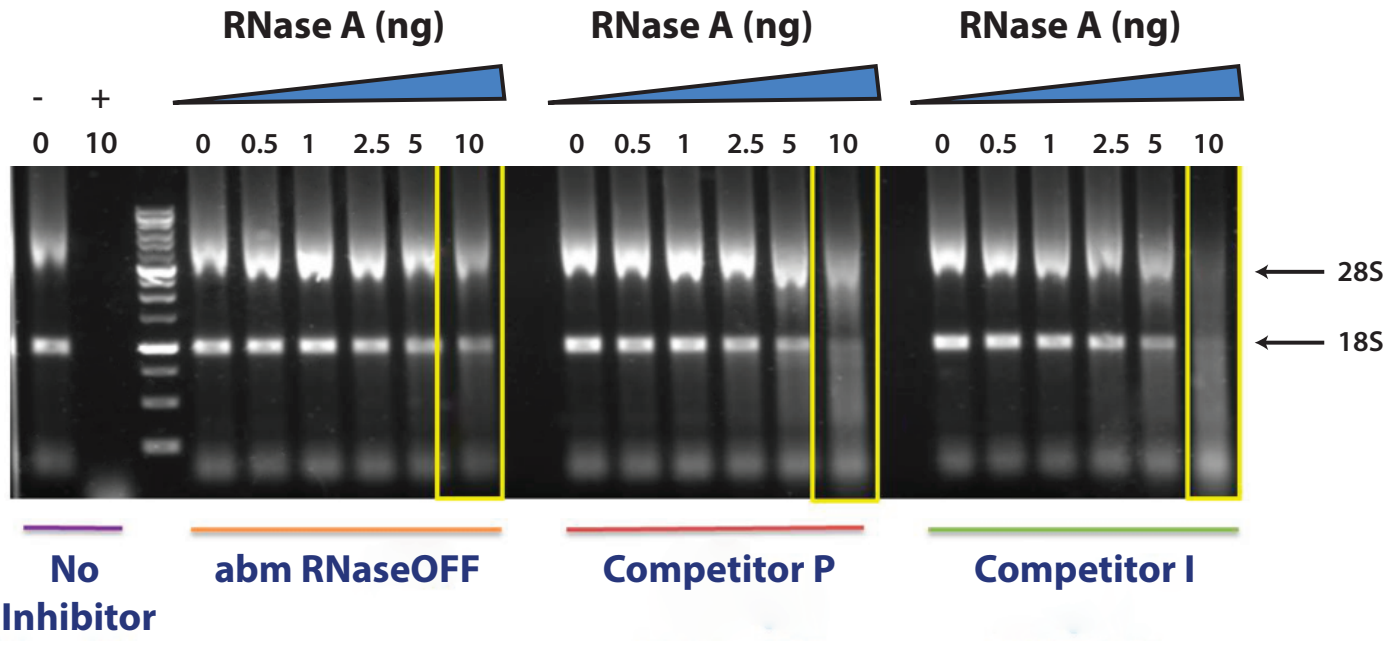
Purpose

To compare the performance of RNaseOFF Ribonuclease Inhibitor to two other leading brand competitor products.

Method

To compare the performance, competitor products (Competitor I and Competitor P) were purchased and quantified using SDS-PAGE. Next, all three proteins were normalized to 0.15 mg/ml and a premix of substrate (HEK293T RNA) (1 µg) and ribonuclease inhibitor (1.5 µg) was assembled and aliquoted into PCR tubes, followed by the addition of RNase A (AG Scientific) at increasing concentrations (0-10 ng). Positive (10 ng RNase A added) and negative controls (no RNase A added) demonstrated how the substrate would look if no ribonuclease inhibitor was added. The reactions were incubated (15 min, 37 °C) and subjected to agarose gel electrophoresis (10 µl load).

Figure 1 – RNaseOFF offers higher substrate protection compared to two leading competitor products when 10 ng of RNase A is added. Intact RNA should exhibit two clear bands, the 18S and 28S ribosomal RNA band, on the agarose gel. Degraded RNA appears as low molecular weight smear.



Result

Equal performance (intact HEK293T RNA) was observed between all three products in the presence of 0-5 ng RNase A. However, RNaseOFF Ribonuclease Inhibitor was superior when 10 ng of RNase A was added: highlighted lanes demonstrate significant substrate digestion in case of the two competitor products but almost complete integrity in case of RNaseOFF.

Conclusion

RNaseOFF Ribonuclease Inhibitor exhibits better activity compared to Competitor I and Competitor P at an identical concentration.

RNaseOFF: Product Stability

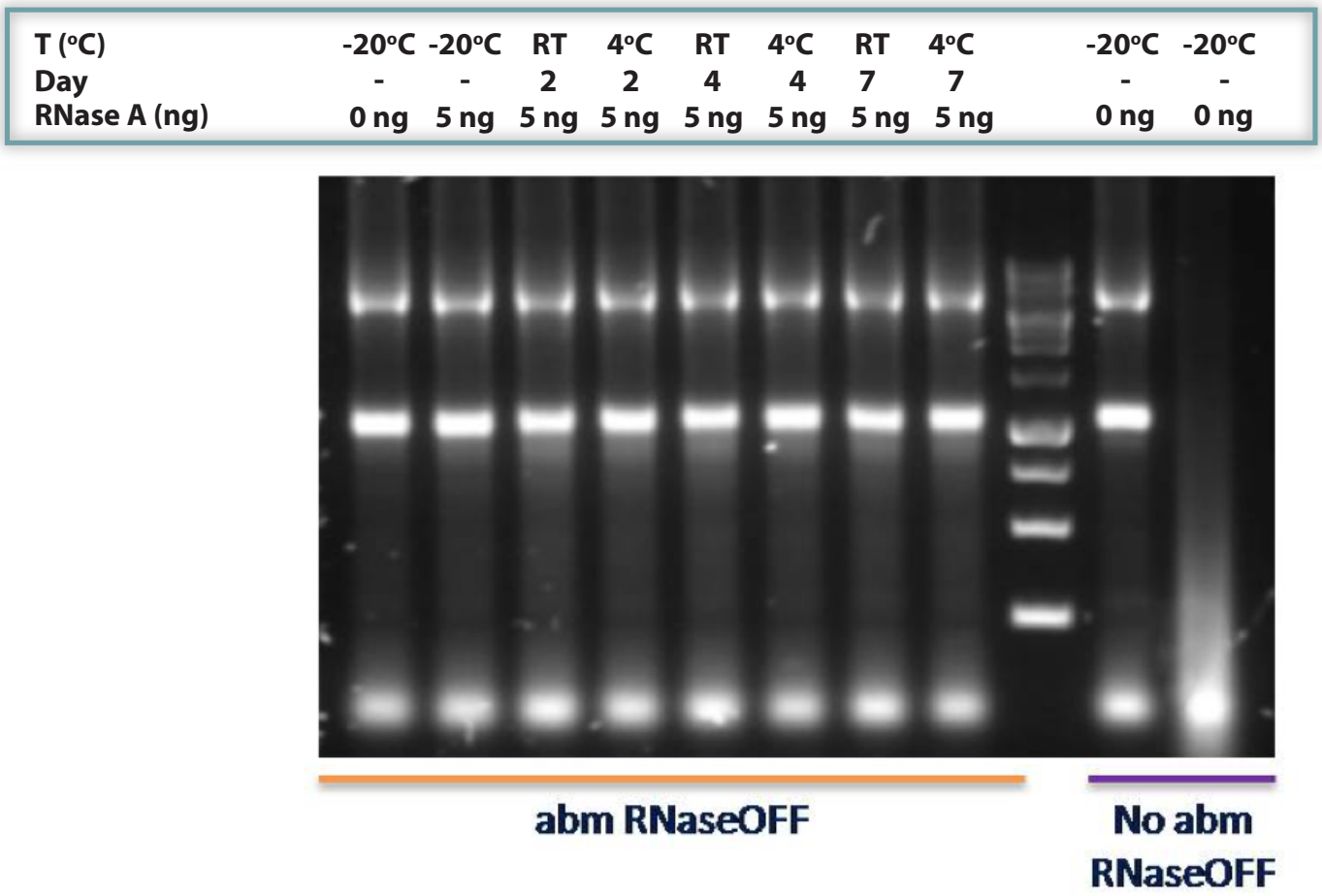
Purpose

To assess the stability of RNaseOFF Ribonuclease Inhibitor at room temperature (RT) 20 °C.

Method

RNaseOFF Ribonuclease Inhibitor (1.5 µg) was incubated at 20 °C and 4 °C (to mimic transportation conditions) for 2, 4, and 7 days. Collected testers were frozen, subsequently thawed all at once, and added to the substrate (HEK293T RNA) (1 µg). The premixes were subjected to incubation with RNase A (AG Scientific, 5 ng) and agarose gel electrophoresis (10 µl load).

Figure 2 – RNaseOFF retains its stability at 4 degrees and 20 degrees (RT) for up to 7 days. It successfully inhibits the RNase A in all samples tested



Result

No RNA degradation was observed if the RNaseOFF remained at 20 °C or 4 °C for up to 7 days. The product maintained its stability and protected the substrate in the presence of 5 ng of RNase A.

Note that RNase A is a highly stable enzyme that remains functional when heated to 100 °C for 15 minutes (Narahashi, T., & Conn, P. M. Ion channels of excitable cells. (2013). Academic Press; RNase A: Frequently Asked Questions. (2019, May). AG Scientific). Therefore, it had been actively inhibited by the RNase OFF Ribonuclease Inhibitor for the whole duration of the experiment.

Conclusion

While we recommend storing RNase OFF Ribonuclease Inhibitor at -20 °C, the product may be used for experiments that require prolonged substrate incubations at 2-6 °C.