

NucleoSpin® Dx RNA Blood for S-Monovette® RNA Exact

CE-IVD certified total RNA purification from S-Monovette® RNA Exact

Application benefits

- Reliable RNA preservation and purification
- Outstanding gene expression preservation
- Time-saving extraction workflow

Keywords

RNA, stabilization, miRNA, clinical trials, CE-IVD, RIN, RNA integrity, diagnostics, personalized medicine, NucleoSpin®, S-Monovette® RNA Exact, SARSTEDT

Introduction

RNA stabilization in blood is of paramount importance due to its potential implications in various fields, including diagnostics, therapeutics, and biomedical research. RNA molecules, such as messenger RNA (mRNA), serve as critical regulators of gene expression and can provide valuable insights into disease states and biological processes. However, the delicate nature of RNA makes it susceptible to degradation, particularly in blood samples, which contain numerous endogenous RNases and other destabilizing factors. Therefore, effective RNA stabilization strategies are essential to preserve the integrity of RNA molecules and enable accurate analysis.

MACHEREY-NAGEL, a leading provider of innovative nucleic acid purification solutions, and SARSTEDT, a renowned manufacturer of high-quality clinical blood sampling products, have joined forces to advance the field of RNA stabilization and purification.

As a result of their collaboration, MACHEREY-NAGEL and SARSTEDT have successfully combined their respective technologies to produce the NucleoSpin® Dx RNA Blood kit and S-Monovette® RNA Exact collection system. The NucleoSpin® Dx RNA Blood kit integrates MACHEREY-NAGEL's advanced nucleic acid extraction methods with SARSTEDT's innovative S-Monovette® RNA Exact blood collection tubes. Together, MACHEREY-NAGEL and SARSTEDT are revolutionizing the field of RNA stabilization and purification, offering comprehensive solutions that simplify workflows, enhance data reliability, and ultimately advance scientific and clinical research.



NucleoSpin® Dx RNA Blood (CE-IVD)

Technology	Silica membrane technology
Sample material	1.2 mL solution of stabilized blood from S-Monovette® RNA Exact
Elution volume	40–60 µL
Fragment size	> 200 bp

S-Monovette® RNA Exact (SARSTEDT, CE-IVD)

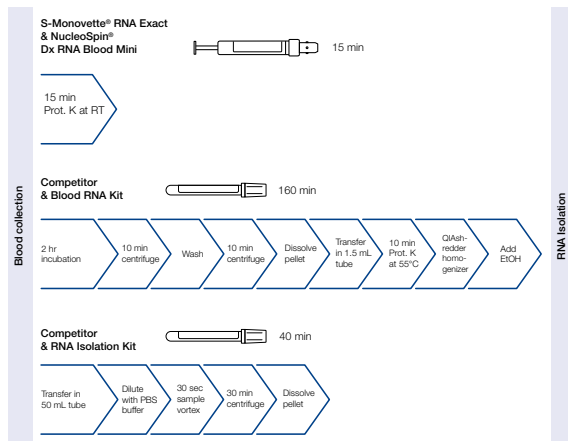
Tube material	Polypropylene (PP)
Additive volume	7.3 mL
Draw volume	≤ 2.4 mL
Tube size	15 x 100 mm
Sample stability	5 days at RT 14 days at 2–8 °C Long-term storage at < -40 °C
Special features	<ul style="list-style-type: none"> ▪ Immediate stabilization of RNA ▪ Gentle aspirating technique (reduces risk of vein collapsing) ▪ Variable blood draw volume possible

Material and Methods

Blood samples were collected using the S-Monovette® RNA Exact collection system (SARSTEDT, Germany). Blood samples were collected according to standard phlebotomy procedures, with the S-Monovette® RNA Exact tubes being gently inverted to mix the blood with the stabilization reagent.

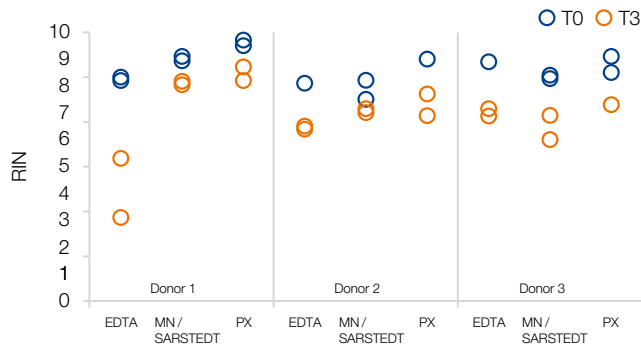
Total RNA extraction was performed using the NucleoSpin® Dx RNA Blood kit (MACHEREY-NAGEL, Germany) following the manufacturer's instructions.

Application Data

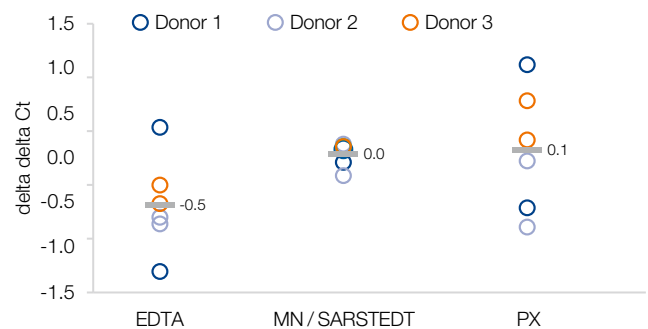


Shorter Workflow: Time-efficient sample preparation

The graphic compares the sample preparation times before RNA isolation of the MN / SARSTEDT solution with the sample preparation times of other providers. The user-friendly NucleoSpin® Dx RNA Blood workflow in combination with S-Monovette® RNA Exact operates without the need for initial RNA pellet formation or time-consuming incubation and centrifugation procedures. The sample preparation involves only a 15 minute Proteinase K incubation, followed by RNA isolation of approximately 40 minutes. For other products, the sample preparation is significantly more complex, prone to errors, and time-consuming.



Pi3K expression



Reliable RNA preservation

The study compares the quality of RNA (measured by RIN values) extracted from human blood gathered using three different blood collection tubes: EDTA, S-Monovette® RNA Exact, and PX. RNA purification from EDTA tubes and SARSTEDT's S-Monovette® RNA Exact was carried out using the NucleoSpin® Dx RNA Blood kit, whereas PX tubes were subjected to purification using the PX extraction kit. The experiment was performed with the blood of three different donors (T0 / T3, extraction immediately after blood collection / after 3 days storage at RT). The results revealed that RIN values were more consistent and homogeneous when applying the MN / SARSTEDT workflow.

Outstanding preservation of gene expression profiles

Gene expression of *Pi3K*, which is known to be dysregulated in cancer, was investigated across different blood collection tubes (PX, EDTA, and MN/SARSTEDT). The results demonstrated that the MN/SARSTEDT solution provided reliable and consistent gene expression data compared to PX and EDTA tubes, which showed higher variability. This suggests that MN/SARSTEDT tubes may be more suitable for preserving the integrity of *Pi3K* gene expression in cancer-related investigations. This result was observed across multiple donors.

Conclusion

The powerful synergy between advanced RNA extraction technology and standardized blood sample collection ensures reliable RNA stabilization and efficient purification, leading to high-quality and reproducible RNA analysis. The collaboration between MACHEREY-NAGEL and SARSTEDT holds groundbreaking advancements in clinical diagnostics, ultimately leading to improved patient care and better healthcare outcomes.

Ordering information

Product	Specifications	Quantity	REF
NucleoSpin® Dx RNA Blood (IVD)	CE-IVD certified kit for the purification of total RNA from the S-Monovette® RNA Exact (SARSTEDT)	1 x 50	740201.50
SARSTEDT S-Monovette® RNA Exact	S-Monovette® RNA Exact ≤ 2.4 mL	20 / 80	01.2048.001*

*For more detailed information and ordering information, please visit www.sarstedt.com

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