

## 11.07.2023 Test report

**Goal:** To assess the quality of nucleic acids (DNA/RNA) automatic purification from human blood using **LT-Biotech 16-wells mobile NA extractor** and DNA/RNA amplification using **LT-Biotech 16-wells mobile PCR device**.

### Equipment:

1. LT-Biotech 16-wells mobile NA extractor (fig.1)
2. LT-Biotech 16-wells mobile PCR device (fig.2)
3. Applied biosystems 7500 PCR instrument (fig.3)



Fig. 1. LT-Biotech 16-wells mobile NA extractor



Fig.2. LT-Biotech 16-wells mobile PCR device

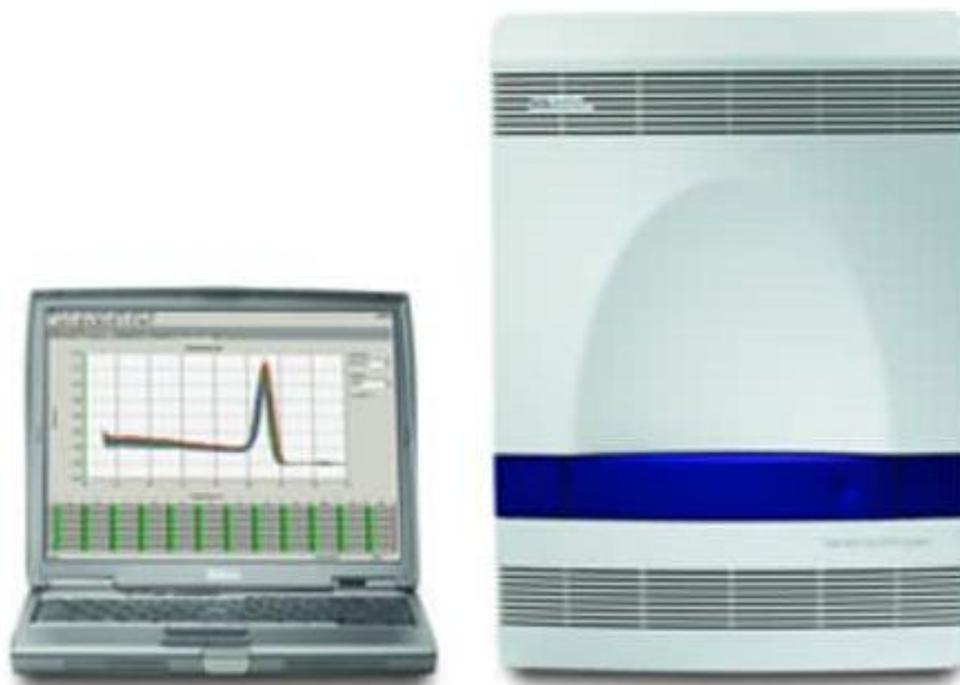


Fig.3. Applied biosystems 7500 PCR instrument

## Material and methods:

### Reagents:

1. Prepacked Nucleic Acids Reagent Plate (fig.4)
2. Human blood (1 sample, 16 replicates)
3. PCR reagents (LT-Biotech)
4. Target genes: RnP (for DNA) and B2M (for RNA)

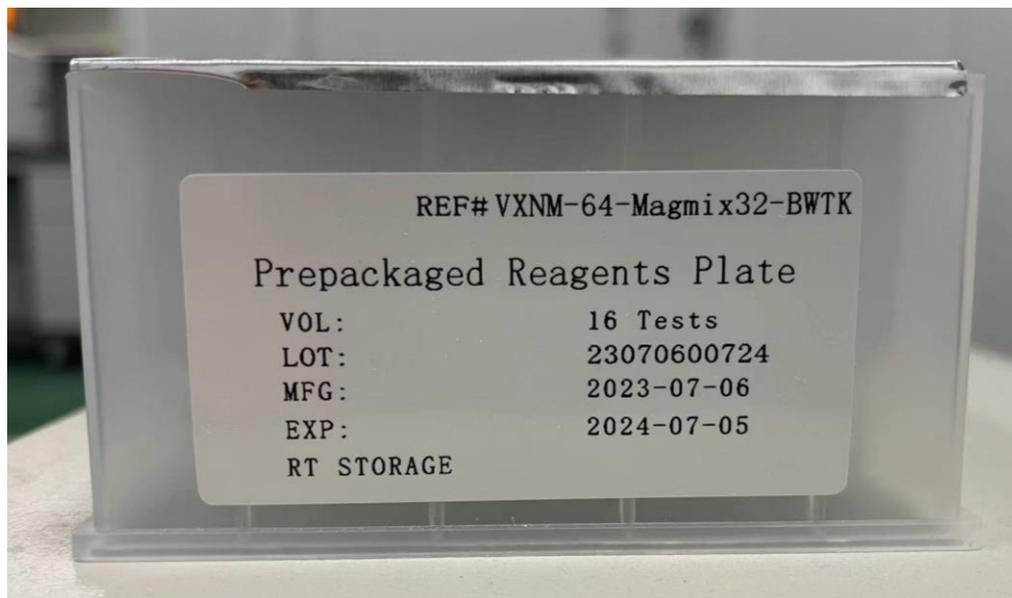


Fig.4. Prepacked Nucleic Acids Reagent Plate

### Methods:

- Human heparinized blood sample (1,4 ml) diluted PBS (2,0 ml) and 0,2 ml were used for testing 16 individual replicates;
- Proteinase K (included in kit) 20 uL were added to each sample slot;
- Run program «Whole blood» using instrument LT-Biotech 16-wells mobile NA extractor;
- Run time 60 minutes (for 16 samples);
- DNA/RNA were added into each PCR tube (5 uL/test), contained ready to use RT-PCR reagents (LT-Biotech), total 16 samples;
- Run PCR on two devices (for comparison) according following run method (table 1)

Table. 1. Run method

Step	Temperature	Time	Cycles	Descriptions
1	37C	10 m	1	UNG activation
2	60C	10 m	1	Reverse transcription
3	95C	5 m	1	Taq Pol activation
4	95C	10 s	40	Amplification
5	60C	30 s		

**Results:**

1. Amplification curves and Ct data for LT-Biotech 16-wells mobile PCR device is presented at fig.5 and table 2, respectively.

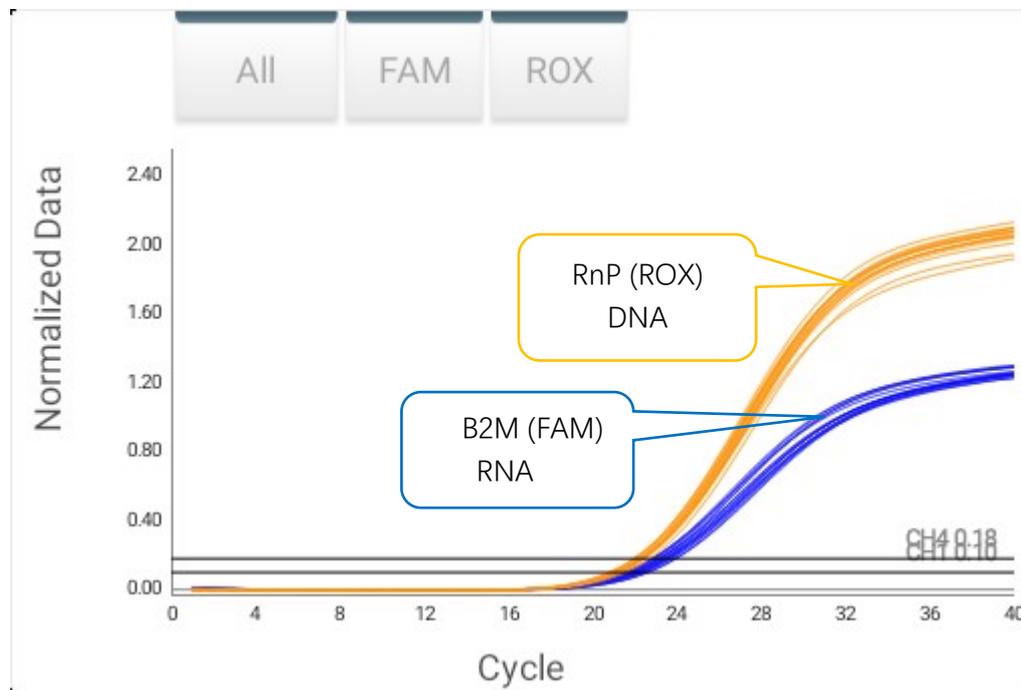


Fig.5. Amplification curves, derived from LT-Biotech 16-wells mobile PCR device.

Table 2.

Repeat:	Channel FAM Target: B2M (RNA)	Channel: ROX Target: RnP (DNA)
R1	21.85	22.26
R2	22.31	22.2
R3	22.14	22.08
R4	22.55	21.96
R5	22.17	22.34
R6	22.13	21.95
R7	21.83	22.04
R8	21.55	22.38
R9	21.46	22.31
R10	21.6	22.38
R11	21.69	22.38
R12	22.61	22.45
R13	22.33	22.7
R14	21.99	22.18
R15	22.02	22.24
R16	21.81	22.31
<b>Mean</b>	<b>22.0025</b>	<b>22.26</b>
<b>SD</b>	<b>0.34478</b>	<b>0.193494</b>

- 2 Amplification curves and Ct data for AB7500 PCR instrument is presented at fig.6 and table 3, respectively.

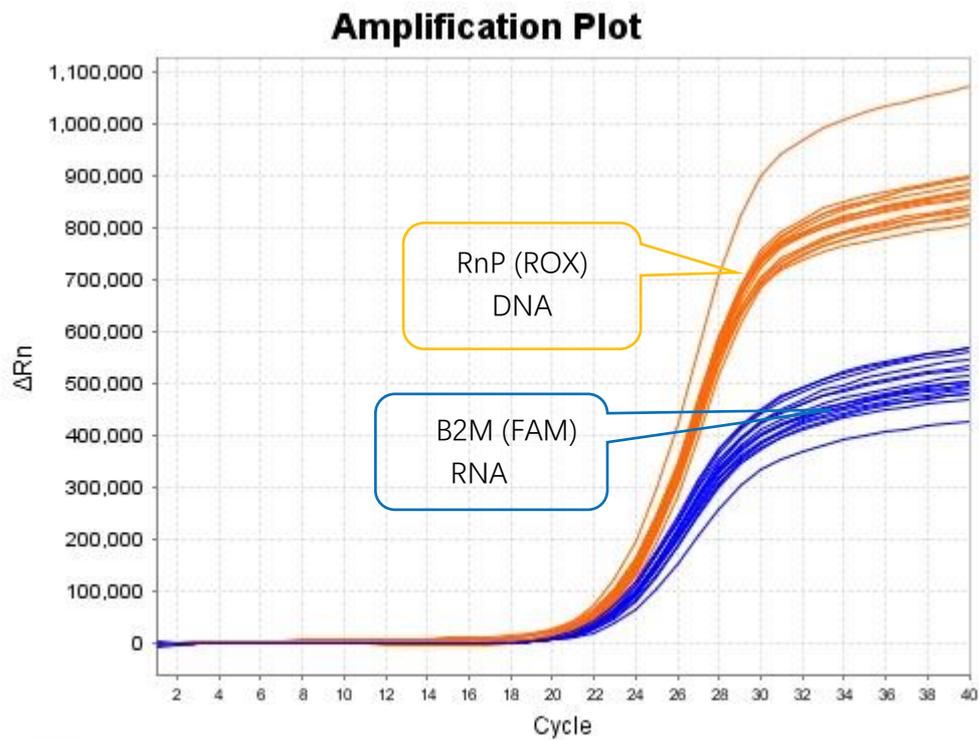


Fig.6. Amplification curves, derived from AB7500 PCR instrument

Table. 3

Repeat:	Channel FAM Target: B2M (RNA)	Channel: ROX Target: RnP (DNA)
R1	23.93924	24.08391
R2	23.1806	23.55737
R3	23.72313	24.30402
R4	23.67441	24.22522
R5	23.67971	24.01942
R6	23.69246	24.37134
R7	24.45135	23.97524
R8	23.64385	24.34949
R9	23.54345	24.37066
R10	23.95441	24.58009
R11	23.52083	24.1144
R12	23.49443	24.14481
R13	23.32922	24.01108
R14	23.53943	24.25151
R15	23.30285	23.94618
R16	23.33796	24.05656
<b>Mean</b>	<b>23.62546</b>	<b>24.14758</b>
<b>SD</b>	<b>0.308017</b>	<b>0.236091</b>

**Conclusion:**

1. Perfect repeatability of blood DNA/RNA extraction using chemistry and LT-Biotech 16-wells mobile NA extractor was found;
2. Better performance of LT-Biotech 16-wells mobile PCR device over AB7500 PCR instrument was found (PCR times is faster and amplification curves (Ct) appears early);
3. We recommend utilization of Nucleic Acids extractor and PCR instrument from LT-Biotech for small scale PCR laboratory or field based PCR testing.