

## Thermal cycler BioCycler TC-S

Thermal cycler BioCycler TC-S - for DNA probes



### Specifications:

Combined Block for 25 pcs x 0.2 ml tubes  
16 pcs x 0.5 ml tubes  
Temperature control range ..... +4...+99.9 °C  
Temperature increment ..... 0,1 °C  
Uniformity ..... Up to 0,3 °C  
Heating hood temperature..... 50 - 105 °C  
Ramping speed ..... Up to 3 °C/sec  
File settings:  
- Number of steps in a file ..... 1 - 9  
- Number of steps in a cycle .... 1 - 7  
- Number of cycles ..... 1 - 99  
- Step time ..... 1 sec - 99 min  
- Step time increment ..... 1 sec  
Programmable file number ..... Up to 100 files  
Voltage ..... 220/240 V, 50/60 Hz  
110/120 V, 50/60 Hz  
Power, max. .... 100W  
Size ..... 240 x 260 x 165 mm  
Weight.. ..... 4.2 kg



**Comparison of two thermal cyclers - BioCycler TC-S (BioSan) and a reference thermocycler (one of the most wide spread thermocyclers)**

Kindly presented by PhD Maris Lazdinsh, Latvian University

### Settings:

#### Target for amplification:

NADH dehydrogenase Gene of *Zymomonas mobilis*  
PCR product contains 3' part of NADH dehydrogenase Gene

Predicted length of PCR product (entrez access Nr AF180145)-833 bp

#### Primers:

NADH1c 5'-CCAGAACCATGATTGCTC-3'

NADH1d 5'-ACGAAGCTTTAGGGCGTAACATGC-3'  
(with 5' extension)

### PCR conditions:

Each reaction (20 µl) contains:  
1x PCR buffer, 2 mM MgCl<sub>2</sub>, 0,2 mM each of dNTP, 0,75 U recombinant *Taq* Pol (MBI Fermentas), 12 pmol of each primer (BMC), 100 ng (2 µl) of genomic DNA (laboratory extraction). All reactions were fully premixed together. Before adding of genomic DNA for negative control 18 µl of mix was taken to a new tube and 2 µl of water was added.  
Amplification performed in 0,2 ml tubes without mineral oil (hot lid approach).

### Thermal profile:

Initial heating: 1 min for 94°C;  
40 cycles of steps: 40 sec for 95°C, 40 sec for 60°C, 60 sec for 72°C;  
final extension 5 min for 72°C.

### Results:

#### Duration:

Duration of PCR with BioCycler TC-S (BioSan) - 2 hrs 10 min

Duration of PCR with a reference thermocycler (one of the most wide spread thermocyclers) - 2 hrs 15 min

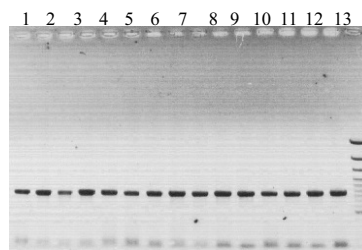


Figure 1. PCR products separated on the 0,8% agarose gel (12x6 cm, 0,5xTAE). On the gel was loaded 5 µl of PCR products. Lanes 1-15 - Biocycler TC-S, PCR products 1-15 respectively. Lane 16 - 100 bp. DNA Ladder Plus (MBI Fermentas), 0,2 µg loaded, only bands 3 000 - 500 are visible.

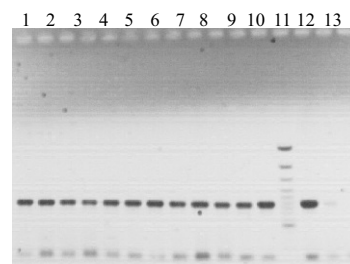


Figure 2. PCR products separated on the 0,8% agarose gel (12x6 cm, 0,5xTAE). On the gel was loaded 5 µl of PCR products. Lanes 1-12 - Biocycler TC-S, PCR products 1-12 respectively. Lanes 14-16 - a reference cycler, PCR products 26-28 respectively (28 - negative control, tube 27 has a reduced volume [10 µl instead 20 µl]). Lane 13 - 100 bp. DNA Ladder Plus (MBI Fermentas), 0,2 µg loaded, only bands 3000 - 1031 are visible.

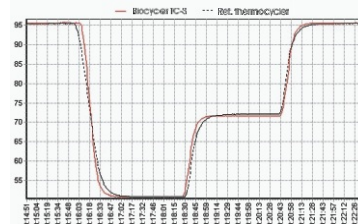


Figure 3. Comparison of temperature ramping between a reference thermocycler (one of the most wide spread thermocyclers) and BioCycler TC-S (BioSan) acquired by Temperature Datalogger (BioSan).