**Fast Real-Time PCR system 7900HT**

**Equipment:** 7900HT Fast Real-Time PCR system

**No. of Equipment: IEM7**

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**Equipment Description**

The 7900HT Fast Real-Time PCR System is the real-time quantitative PCR system that combines 96- and 384-well plate compatibility and enables the TaqMan® Low Density Array.

**Specifications and technical features:**

**Optics:** No filters (CCD acts as spectrograph with continuous detection 500 -650 nm), extended-life 488 nm argon-ion laser excitation source

**Thermal Cycling System:** Peltier-Based System

**Block:**Interchangeable

**Applications:** Gene Expression

SNP Genotyping

Pathogen Detection

Viral Load Analysis

miRNA Quantitation

**Throughput:** >10,000 endpoint PCR rxns per hour (384-well block and automation accessory),

>5,000 real-time PCR rxns per day (384-well block and automation accessory)

**Sensitivity:** Down to 10 copies

**Detection:** Primer-Probe Detection, SYBR

**Sample Ramp Rate:** Standard mode: ± 1.6°C⁄sec, Fast mode: ± 3.0°C⁄sec

**Temperature Uniformity:** ±0.5°C

**Temperature Range:** 4-100°C

**Temperature Accuracy:** ±0.25°C of display temperature

**Format:** 96-well plate (PCR volume 10-100 µl)

**384-Well Block Module**

 **Reaction Volume:** 5-20 µl

**Run Time:** <2 hrs (384-well in standard mode), 52 minutes (384-well in fast mode)

**Dye:** I, TET™, VIC™, JOE™, FAM™, TAMRA™, NED™, ROX™

**96-Well Block Module**

 **Reaction Volume:** 10-30 µl

**Run Time:** 33 minutes (96-well in fast mode)

**Dye:** I, FAM™, TAMRA™, VIC™

**Specification of expertise relevant to NanoEnviCz workpackage**

**WP3**a,d,f,g,h, **WP4**a,b, **WP6**a,d, **WP7**a,c,e,h,i, **WP9**a,b,c,d

**Detailed description of expertise**

**Please, specify the main research topics connected with equipment**:

The 7900HT Fast Real-Time PCR System is an instrument primarily used in nanotoxicology. It allows the analysis of genotoxicity of nanomaterials by measuring the changes in gene expression levels.

**Please, specify the secondary research topics connected with equipment**:

The system may be used in toxicology in general, or in any application that requires analyzes and monitoring the levels of nucleic acids, particularly mRNA.

**Keywords describing research area:**

gene expression, toxicity, genotoxicity

**Competence**

**Relevance for applied and industrial research:**

Versatile system applicable for detection of toxic effects of new materials.

**Relevance for fundamental studies:**

Analyzes of mechanisms of effects of xenobiotics, including nanomaterials, at molecular level with the aim to identify possible negative response of the organism to the exposure to these compounds and materials.