

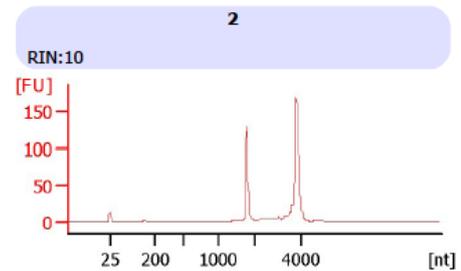
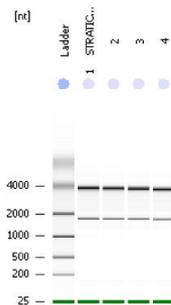
<p>Gene Expression Profiling Platform NanoDrop™ Agilent Bioanalyzer Applied Biosystems 7900 HT Fast Real-Time PCR</p>	<p>Category: D. Nanomaterial exposure assesment</p> <p>Institute: University of Namur - URBC</p> <p>Location: Rue de Bruxelles 61, 5000 Namur, Belgium</p> <p>Contact Details of Technology Expert: Name: Dr Olivier Toussaint Phone: +3281724132 Fax: +3281724135 E-mail: olivier.toussaint@fundp.ac.be</p>
<p>Short technology description/Overview:</p> <p>NanoDrop™ spectrophotometer</p> <p>The NanoDrop™ spectrophotometer, is a spectrophotometer with a large spectrum (220-750 nm) able to measure very low volumes of samples (1 µl) with high accuracy and reproducibility thanks to a patented technology that employs surface tension. Moreover, the NanoDrop™ spectrophotometer has the capability to measure highly concentrated samples without dilution (50x higher concentration than in standard cuvette spectrophotometer). This spectrophotometer is suited for measuring, among others, concentration and purity of nucleic acid samples and analysis of proteins.</p> <p>Agilent Bioanalyzer</p> <p>The Agilent Bioanalyzer is a microfluidics-based platform for sizing, quantification and quality control of DNA, RNA, proteins and cells. The Bioanalyzer allows to achieve on-chip flow cytometry (to acquire dual-color, cell-based fluorescence data) and to determine RNA/DNA/protein quantity and quality.</p> <p>7900HT Fast Real-Time PCR system</p> <p>The Applied Biosystems 7900 HT Fast Real-Time PCR system is a high throughput real-time PCR system that detects and quantitates nucleic acid sequences. The apparatus has two interchangeable 96-well and 384-well blocks, with compatibility for TaqMan Low Density Array. Two softwares are linked to this real-time apparatus: Primer Express software allowing to design new primers in order to study gene expression by SYBR Green and by TaqMan probe assays and SDS software to analyze real-time PCR data.</p>	
<p>Main Features (Equipment Capabilities):</p> <p>NanoDrop™ spectrophotometer</p> <p>is suited for measuring in very low volumes :</p> <ul style="list-style-type: none"> • concentration and purity of nucleic acid samples • Bradford/BCA/Lowry/Pierce assays analysis of proteins • General UV-Vis spectrophotometry <p>Agilent Bioanalyzer</p> <p>is a microfluidics-based platform allowing to preform :</p> <ul style="list-style-type: none"> • On-chip flow cytometry : we developed an assay allowing to determine the percentage of senescent cells presenting a senescence-associated beta-galactosidase activity (SA β-gal) by using CBNF/C12FDG fluorescence. • RNA quality check with RIN (RNA Integrity Number) • To size and quantitate PCR fragments and restriction digests • To assess protein concentration, identity and purity <p>7900HT Fast Real-Time PCR system</p> <ul style="list-style-type: none"> • SYBR green gene expression assays 	

- TaqMan probe and primers gene expression assays
- Predefined or on-demand TaqMan Low Density Arrays (384-wells)

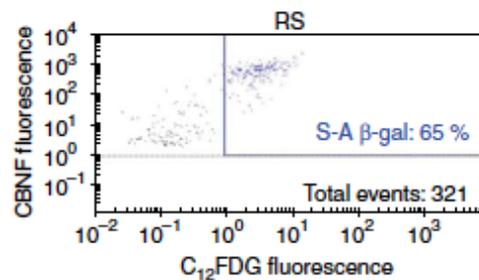
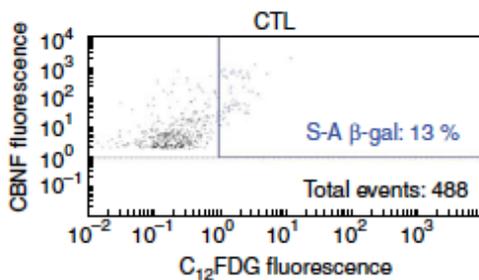
Typical Samples & Images:

Agilent Bioanalyzer

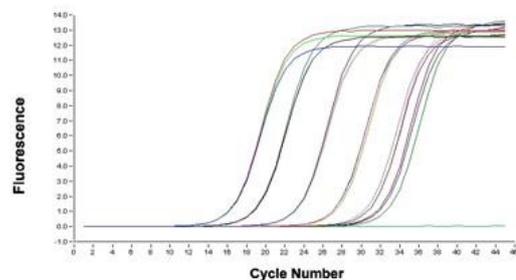
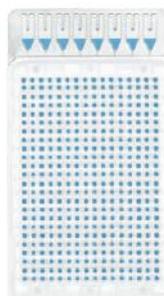
- RNA quality check



- On-chip flow cytometry



7900HT Fast Real-Time PCR



Any further Information:

- Vankoningsloo S, Piret J-P, Saout C, Noël F, Meija J, Coquette A, Zouboulis CC, Lucas S & Toussaint O.

Pro-inflammatory effects of different MWCNTs dispersions in p16INK4A-deficient telomerase-expressing human keratinocytes but not in human SV-40 immortalized sebocytes. Nanotoxicology (DOI: 10.3109/17435390.2011.558642).

- Vo TK, de Saint-Hubert M, Morrhaye G, Godard P, Geenen V, Martens HJ, Debacq-Chainiaux F, Swine C, Toussaint O. Transcriptomic biomarkers of the response of hospitalized geriatric patients admitted with heart failure. Comparison to hospitalized geriatric patients with infectious diseases or hip fracture. *Mech Ageing Dev.* 2011 Mar;132(3):131-9.
- Debacq-Chainiaux F, Erusalimsky JD, Campisi J, Toussaint O. Protocols to detect senescence-associated beta-galactosidase (SA-beta-gal) activity, a biomarker of senescent cells in culture and in vivo. Nat Protoc. 2009;4(12):1798-806
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