

SCR-PRA-020

SCREENING METHODS

Cell-Based Assays

• Context

Among the existing screening analytical methods, cell-based methods are using a biological response measured in a defined cell type to detect the presence of one or more chemicals in a sample extract prepared according to an appropriate procedure and applied onto these cells. Most of such biological tests are working at the genomic level, i.e. consist in the measurement of DNA or RNA entities, the production of which is induced or inhibited by the compound(s) of interest. Besides the two main existing test categories, i.e. single end-point technique such as reporter gene assay or multi-end points technique such as transcriptomics, Quantitative Polymerase Chain Reaction (Q-PCR) may be a complementary technique of high benefit especially to improve the sensitivity.

• General objective(s)

The objective of this practical hands-off session is to demonstrate the main chronological steps of a typical Q-PCR experiment, including a short demonstration and/or simulation on a real instrument as well as a real-case data processing and analysis example.

• Main items

Reporter gene assay / Transcriptomics / Q-PCR

• Pedagogical objectives

- ✓ To describe the main chronological steps of a Q-PCR experiment
- ✓ To know the main practical critical points of such approach

• Pedagogical tools

- ✓ PowerPoint slide show

• Duration

- ✓ 2 hours

• Pre-requisite

- ✓ Basics of molecular biology (Cell Biology, DNA structure and replication)