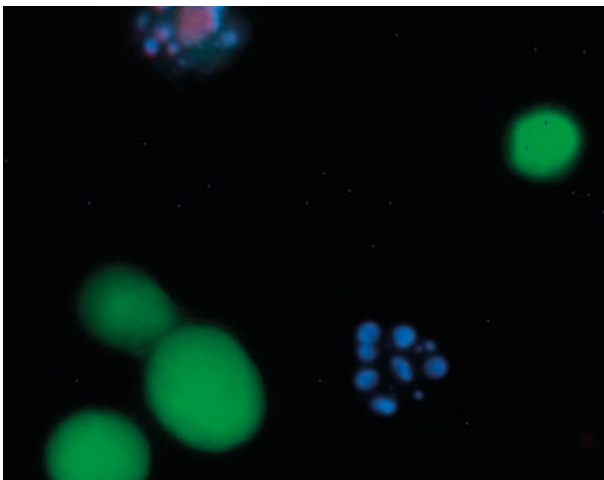


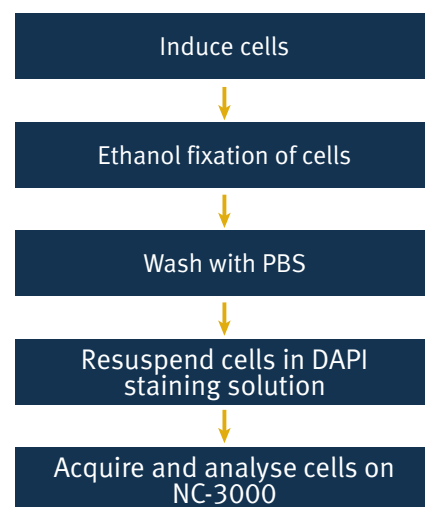
NC-3000 DNA Fragmentation Assay

– For easy monitoring of sub-G₁ cells

During apoptosis, calcium- and magnesium-dependent nucleases are activated which degrade DNA. This means that within the DNA there are nicks and double-strand breaks causing fragmentation. This late event of apoptosis is detected using DNA content analysis to measure cell having less than one DNA equivalent (so-called sub-G₁ cells).



NC-3000 DNA Fragmentation Assay



Key benefits

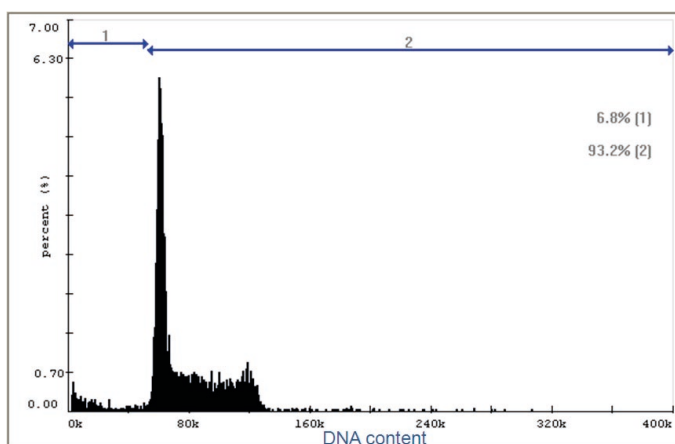
- Fast and easy measurement of DNA fragmentation at the single cell level
- Acquisition and analysis in one simple step
- Analysis time less than 20 seconds
- User friendly protocol with predefined settings
- Standardized results – even with different users
- Provides cell counts and population percentages
- No RNase treatment required
- No calibration required

Principle

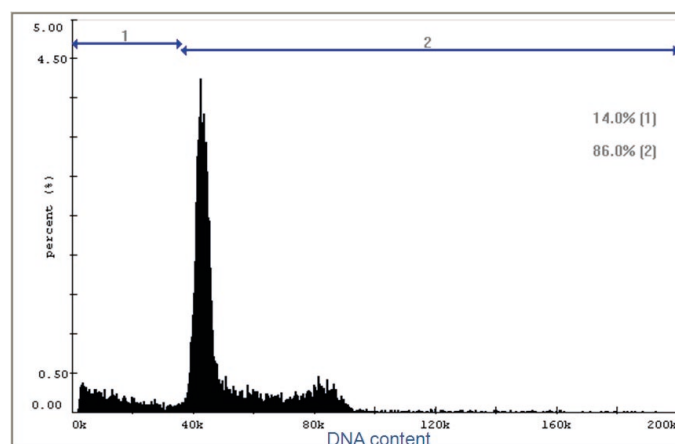
Using fluorescence microscopy and image analysis, the NC-3000 system automates detection of cells with fragmented DNA (sub-G₁ cells). After **DAPI** staining of fixed cells the sample is analyzed using the NC-3000 system and cellular fluorescence is quantified and

apoptotic cells with fragmented DNA are seen as a sub-G₁ peak in a DNA content histogram displayed on PC screen. Markers in the histogram can be used to demarcate apoptotic cells.

MCF-7 cells

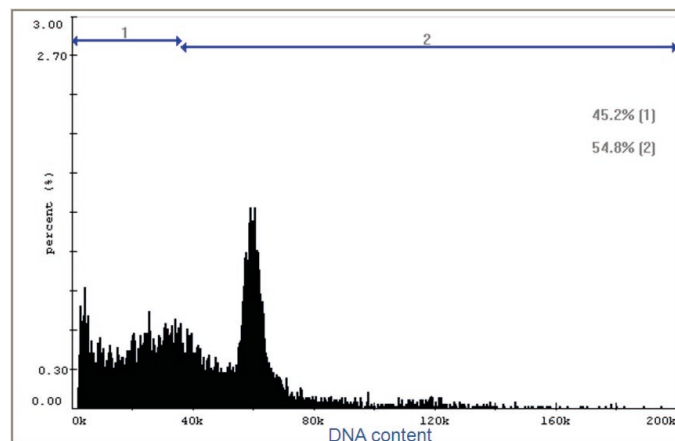
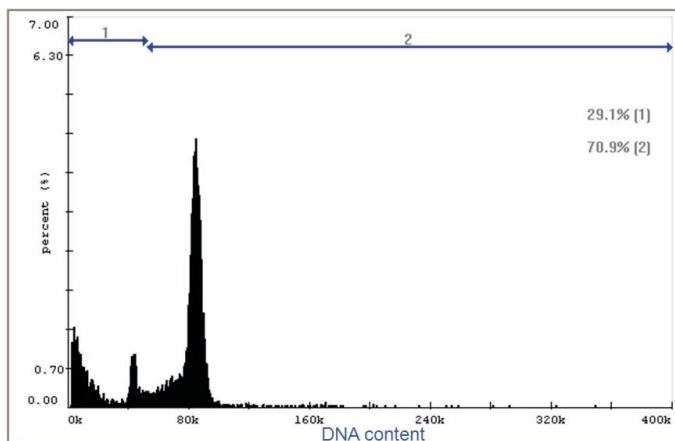


Jurkat cells



-CPT

+CPT



MCF-7 (left) and Jurkat (right) cells were grown in the absence (upper panel) or in the presence (lower panel) of 10 μ M camptothecin (CPT) for 28 hours (MCF-7) or 5 hours (Jurkat) at 37°C. Cells were fixed with 70% ethanol, washed with PBS, stained with DAPI staining solution and analysed on NC-3000 using the *DNA Fragmentation protocol*. Markers in the histograms were used to demarcate cells with fragmented DNA (apoptotic cells). In the untreated samples cells with fragmented DNA (sub-G₁) represent, respectively, 7% and 14% of the MCF-7 and Jurkat cell populations. In the CPT-treated samples these numbers increase to approximately 29% and 45% for, respectively, the MCF-7 and Jurkat cells.