INTRODUCTION TO COMETCHIP™

The comet assay is a sensitive technique for quantifying DNA breaks in single cells. It is widely used in toxicology studies as it is the only technique that can directly measure DNA damage, including single-strand (SSB) and double-strand (DSB) DNA breaks. The CometChip System is a 96-well comet assay platform that is designed for the high-throughput measurement of DNA damage. It captures cells into an array of micropores, thus providing high density data with minimal overlap. You can scan and analyze over 14,000 comets in 10-15 minutes with the CometAssay® Analysis Software, which automatically locates and scores comets in 4X or 10X well images for instant and unbiased analysis.

UNIQUE FEATURES OF THE COMETCHIP PLATFORM

- High-throughput analysis with up to 400 non-overlapping comets per well
- Lower variance between runs
- Comparable results to traditional comet assay
- Versatility for multiple cell types
- Reproducible data
- Cost savings with 10,000% increase in throughput
- Developed and manufactured under ISO 9001/2008 guidelines

THE COMETCHIP PLATFORM GENERATES REPRODUCIBLE DATA

In separate experiments performed by different operators on the same day, human HepaRG hepatocellular carcinoma cells, treated with increasing concentrations of miracle mineral supplement (MMS), were analyzed for DNA damage using the CometChip platform.

THE COMETCHIP PLATFORM AND THE TRADITIONAL COMET ASSAY GENERATE COMPARABLE RESULTS

Comparison of the CometChip (blue lines) and traditional comet assay (red lines) in measuring DNA damage levels resulting from increasing doses of ionizing radiation (IR).

COMETASSAY® ANALYSIS SOFTWARE

The CometAssay Analysis Software can evaluate large numbers of cells and generate summary statistics allowing for rapid analysis of your comet assay. It is specially engineered to complement and operate as the computational component of our CometAssay Electrophoresis System.

ANALYSIS OF DNA DAMAGE IN NALM6 CELLS BY THE COMETCHIP SYSTEM

Human Nalm6 acute lymphoblastic leukemia cells untreated (A) or treated with 5 μm of the chemotherapy drug etoposide for 30 minutes (B) were loaded into a CometChip and visualized using the CometChip Kit (R&D Systems, Catalog # 4260-096-K) under alkaline conditions. Clear comet tails, which contain the damaged DNA, was observed in the cells treated with etoposide (B) while no tails were observed in the untreated cells (A).

R&D SYSTEMS™ COMETCHIP KIT (CATALOG # 4260-096-K)

KIT CONTENTS SIZE CATALOG #
CometChip, 30 μm 1 each 4260-096-01
CometAssay Lysis Solution 100 mL 4250-010-01
CometAssay LMagarose 15 mL 4250-050-02

R&D SYSTEMS™ COMETCHIP STARTER KIT
(CATALOG # 4260-096-CSK)

KIT CONTENTS SIZE CATALOG #
CometChip Kit 1 each 4260-096-K
96-Well CometChip System 1 system 4260-096-CS

R&D SYSTEMS™ COMETCHIP ELECTROPHORESIS STARTER KIT
(CATALOG # 4260-096-ESK)

KIT CONTENTS SIZE CATALOG #
CometChip Starter Kit 1 each 4260-096-CSK
CometAssay Electrophoresis System II 1 system 4250-050-ES

R&D SYSTEMS™ COMETASSAY ANALYSIS SOFTWARE

PRODUCT SIZE CATALOG #
CometAssay Analysis Software 1 license 4260-000-CS

LEARN MORE | rndsystems.com/products/cometassay