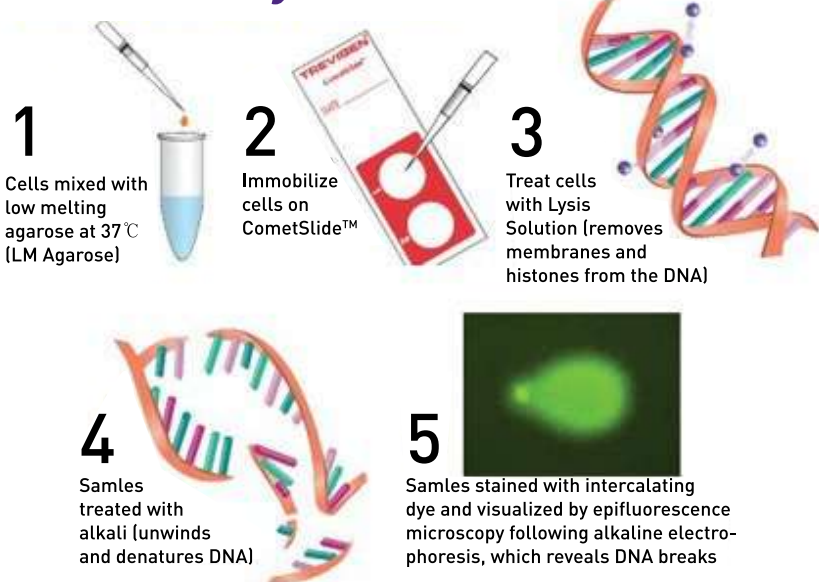


Toxicology - CometAssay

R&D SYSTEMS
a **biotechne** brand

Comet Assay Procedure



CometAssay 실험은 DNA 손상과 연관된 DNA 절편의 발생 유무를 빠르게 육안으로 확인 할 수 있는 실험입니다. DNA 손상이 축적된 세포는 DNA 절편 형태로 파괴되며 전기영동을 통하여 꼬리가 발생하는 모습이 혜성(Comet) 형태를 띠다하여 명명된 실험기법입니다.

In vitro assessment of the photo(geno)toxicity associated with Lapatinib, a Tyrosine Kinase inhibitor

[Click here >>](#)

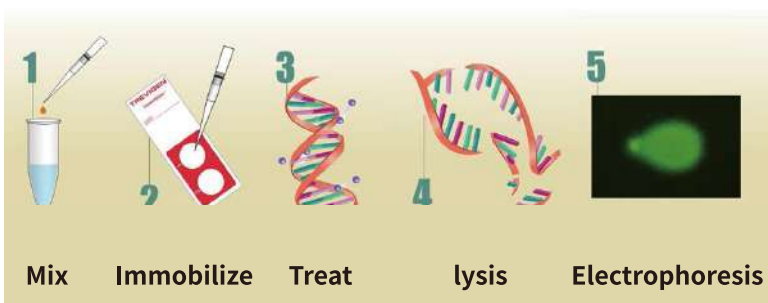
The epidermal growth factor receptors EGFR and HER2 are the main targets for tyrosine kinase inhibitors (TKIs). The quinazoline derivative lapatinib (LAP) is used since 2007 as dual TKI in the treatment of metastatic breast cancer and currently, it is used as an oral anticancer drug for the treatment of solid tumors such as breast and lung cancer. Although hepatotoxicity is its main side effect, it makes sense to investigate the ability of LAP to induce photosensitivity reactions bearing in mind that BRAF (serine/threonine-protein kinase B-Raf) inhibitors display a considerable phototoxic potential and that afloqualone, a quinazoline-marketed drug, causes photodermatitis. Metabolic bioactivation of LAP by CYP3A4 and CYP3A5 leads to chemically reactive N-dealkylated (N-LAP) and O-dealkylated (O-LAP) derivatives. In this context, the aim of the present work is to explore whether LAP and its N- and O-dealkylated metabolites can induce photosensitivity disorders by evaluating their photo(geno)toxicity through in vitro studies, including cell viability as well as photosensitized protein and DNA damage. As a matter of fact, our work has demonstrated that not only LAP, but also its metabolite N-LAP have a clear photosensitizing potential. They are both phototoxic and photogenotoxic to cells, as revealed by the 3T3 NRU assay and the comet assay, respectively. By contrast, the O-LAP does not display relevant photobiological properties. Remarkably, the parent drug LAP shows the highest activity in membrane phototoxicity and protein oxidation, whereas N-LAP is associated with the highest photogenotoxicity, through oxidation of purine bases, as revealed by detection of 8-Oxo-dG.

Toxicology 관련 실험에서 빼놓을 수 없는 DNA damage. 응비에서 제공하는 CometAssay System과 함께 연구해 보세요.


Advantage

- High-throughput으로 시간절약 (2, 20 or 96 well)
- 초보자도 쉽게 시작 가능 (Starter package 구성)
- 결과 Data를 객관적으로 수치화 가능 (Cometanalysis program)

Principles



Simple Workflow




STEP1

Electrophoresis system

- Electrophoresis tank.
- power supply.

+



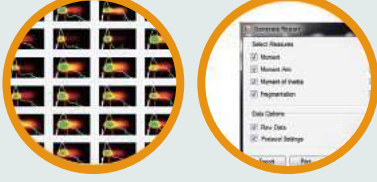
STEP2

CometSlide, Cometchip

다양한 slide.

- 2well
- 20 well
- 96 well

↓



STEP3

Data analysis

전용 Automated software

- Cometanalysis program