Gunnar Brunborg

1947 born (W-part of Norway)

1953-1966 school (W-part of Norway and Oslo)

1966-1967 Nansenskolen - Nansen Humanistic Academy, Lillehammer

1967-1972 Civil Engineer: biophysical and medical technology, Polytechnic University of Trondheim

1982 Toxicologist, Norwegian Research Council, Oslo
1996 PhD, University of Oslo

Several years Consultant Norwegian Pollution Control Authority

Since 2003 Chief Scientist and Department Director of Dep. Chemicals and Radiation

Until 2004 President of Nordic Environmental Mutagen Society

Upto now Toxicologist expert advising Norwegian Environment and Health Authorities
Let’s have a look on his scientific interests
Variations in the SH-content of haploid yeast and their relevance to radiosensitivity
Brunborg G.

The relevance of the nuclear division cycle to radiosensitivity in yeast
Brunborg G, Williamson DH.

Cell-cycle-specific repair of DNA double strand breaks in Saccharomyces cerevisiae
Brunborg G, Resnick MA, Williamson DH.
In 80ties-90ties - ALKALINE ELUTION

Rate of DNA elution through filter membrane under alkaline conditions

Amount of DNA single strand breaks (SSB) or lesions converted to SSB
An automated alkaline elution system: DNA damage induced by 1,2-dibromo-3-chloropropane in vivo and in vitro

Brunborg G, Holme JA, Søderlund EJ, Omichinski JG, Dybing E.

An automated alkaline elution system for the detection of DNA damage has been developed. After manual application of samples, which is completed within 5 min, the subsequent supply of liquids, changes in flow rates, and temperature are controlled automatically. The system operates 16 filters and may easily be expanded. The sensitivity of the fluorometric DNA determinations with the Hoechst 33258 dye is increased by using an elution buffer (20 mM Na2EDTA, pH 12.50) with low background fluorescence. DNA is determined using an automated setup similar to the one recently presented by Sterzel et al. (1985, Anal. Biochem. 147, 462-467). The most significant modification is the use of a neutralization buffer which allows variations in the pH of eluted fractions. This change increases the sensitivity of the DNA measurements. The automated alkaline elution system was evaluated using the nematocide 1,2-dibromo-3-chloropropane (DBCP) in a study of its genotoxic effects in the testes and the kidneys. Significant DNA damage was induced in testicular cells by 2.5 microM DBCP (1 h) in vitro and 85 mumol/kg DBCP ip (3 h) in vivo. The damage appeared after short treatment times (10 min in vivo). Variations in the observed DBCP response in vivo were largely due to interanimal variations. The automated alkaline elution system proved to be a sensitive assay also for the detection of DNA damage in kidney nuclei prepared from rats exposed to DBCP. Provided that kidney nuclei from untreated rats, mice, or hamster were kept ice-cold until lysing, 85-100% of their DNA was retained after 16 h of elution, indicating highly intact DNA. Under the same conditions, guinea pig DNA was rapidly degraded unless the nuclei were prepared in a buffer with a higher concentration of Na2EDTA (20 mM).
From the 90 ties on - SINGLE CELL GEL ELECTROPHORESIS ASSAY

Rate of DNA migration in agarose

Amount of DNA single strand breaks (SSB) or lesions converted to SSB
High levels of DNA damage induced by glycidamide detected by the Comet assay and Fpg-enzyme

Siri Helland Hansen, Minh Hoang, Soderlund, and Gunnar Brunborg
Norwegian Institute of Public Health, Oslo
High-throughput comet assay using 96 minigels

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The single-cell gel electrophoresis—the comet assay—has proved to be a sensitive and relatively simple method that is much used in research for the analysis of specific types of DNA damage, and its use in genotoxicity testing is increasing. The efficiency of the comet assay, in terms of number requiring fewer cells and consequently lower amounts of the drug or chemical compound to be tested may be useful. The scoring of comets represents a very time-consuming step: when revising the technology, the possibilities for automation should be addressed.

We have devised, and described in this report, a modified comet assay based on applying small droplets of agarose with cells (minigels) onto a polyester film (e.g. GelBond®). Using simple technology including a modified electrophoresis system, hundreds of samples can be processed per experiment by one person. The various steps are suitable for further automation, and the format can be adapted to fully automated scoring. The assay gives results that are indistinguishable from the traditional comet assay.

Materials and methods

Isolation of human peripheral blood lymphocytes
LAB
CONFERENCES
COOPERATING with a big shot
Interests in TECHNOLOGY side of comet assay
Intrigued by ‘MOVING DNA’
How to get DNA moving?
Interested in fluorescence microscopy
WHAT NOW?

‘other interests’ are mentioned in his CV.
Outdoor life
Skiing