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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 27820-2011

**Chemicals -- Test method of in vitro mammalian cells sister
chromatid exchange**

化学品 体外哺乳动物细胞姊妹染色单体交换试验方法

(English Translation)

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

This standard with the United Nations Organisation for Economic Co-operation and Development (OECD) Chemicals testing guidelines No.479 (1986) "in vitro mammalian cell Sister chromatid exchange test "(in English) is consistent technical content.

This standard configuration and do the following editorial changes.

- Increasing the range a chapter;
- The original OECD479 the "Introduction" As part of this standard "Introduction";
- The original OECD479 the "essential information" part of the contents of this standard as "4.1.1";
- A unit of measurement unity to our legal units of measurement.

This standard is managed by the National Standardization Technical Committee chemicals dangerous (SAC/TC251) and focal points.

This standard was drafted. Chinese Center for Disease Prevention and Control of Occupational Health and Poison Control, Occupational Disease Prevention Hospital in Liaoning Province, China Chemical Industry Technology Development Center of Jiangsu Entry-Exit Inspection and Quarantine Bureau.

Introduction

In vitro sister chromatid exchange (SCE) test is a rapid test replication between two sister chromatids of chromosome DNA from each other Test Exchange, SCE representatives of sister chromatid homologous sites on DNA replication product exchange. Although the molecular mechanism is not clear Chu, but speculated that it may involve the exchange of DNA breakage and reconnection of two steps. Detection of SCEs requires some way

different dye Chromophore labeled. As can be incorporated into the brominated deoxyuridine (bromodeoxyuridine, BrdU) in chromosomal DNA replication and two the method of cell cycle. SCEs can be performed in a mammalian or non-mammalian systems.

Chemicals in vitro mammalian cell staining sisters Test methods for exchanging monomers

1 Scope

This standard specifies the chemical mammalian cells in vitro sister chromatid exchange test method terminology and definitions, principles of testing, Methods, test data and reports.

This standard applies to chemicals in mammalian cells in vitro sister chromatid exchange tests.

2 Terms and definitions

The following terms and definitions apply to this document.

Sister chromatid exchange, SCE Two chromosomes exchange monomer cell division of a single copy of the chromosome. In the mid-phase of cell division can be seen in this post Change, it may take a DNA double helix of the DNA fragments, transfer and connectivity.

3 Test principle

In mammalian cells, and without the addition of exogenous metabolic activation system conditions, containing the test substance and bromo-deoxyuridine (bro-modeoxyuridine, BrdU) in the culture medium, continuous culture two cell cycles. Join spindle inhibitor (eg colchicine), will be divided Split cells remain in the gathering metaphase-like stage, the cells were harvested, prepared chromosomes.

Test Method 4

4.1.1 Test substance

The test substance should be provided of state, purity, solubility, melting/boiling point, pH value (if applicable), the vapor pressure (if any) and other information.

Should be prepared medium containing the test substance or the test substance is dissolved in a suitable medium prior to cell exposure, the test substance should be freshly prepared.

Final concentration of the media can not significantly affect cell viability, growth rate and the frequency of SCE.

4.1.2 and cell culture methods it can use primary cultured cells (such as human lymphocytes) or established cell lines (eg Chinese hamster ovary cells or lung cells). Cell

Lines Mycoplasma contamination and should ensure that no stable karyotype.

The use of appropriate media and culture conditions (such as temperature, dish, CO₂ concentration and humidity).

4.1.3 Metabolic activation

Respectively, in the presence/absence of suitable mammalian metabolic activation system under the conditions of use of the cells exposed to the test substance. Common metabolic activation system Enzyme inducers through the mammalian liver homogenates and microsomal enzyme system added cofactor preparation of the activation system, as well as feeding primary culture