

# Cholecalciferol

## Cell Culture Tested

**Product Code: TC029**

### Product Description:

Molecular weight: 384.64

Molecular formula:  $C_{27}H_{44}O$

CAS No.: 67-97-0

Synonyms: (+)-Vitamin D<sub>3</sub>, 7-Dehydrocholesterol activated, Activated 7-dehydrocholesterol, Calciol

Cholecalciferol, more commonly known as Vitamin D<sub>3</sub>, is a naturally occurring steroid hormone synthesized in skin of animals upon exposure to ultraviolet-B (UVB) radiation from sunlight. Within the body, cholecalciferol facilitates intestinal absorption of calcium and thus regulates mineral metabolism and bone growth.

In cell cultures, cholecalciferol mainly plays two roles:

#### 1. Induction of Differentiation

The presence of cholecalciferol in cultures regulates differentiation of keratinocytes. Cholecalciferol induces differentiation of human myeloid leukemia cells (HL-60) into mature granulocytes. It also stimulates the adipocytic differentiation of porcine mesenchymal stem cells derived from the bone marrow. The mechanisms of differentiation vary depending on the cell type.

#### 2. Inhibition of Proliferation of Cancer Cells

Cholecalciferol in cultures exerts an antiproliferative effect on a number of cancer cell lines such as colon cancer, prostate cancer, pancreatic cancer, glioblastoma and breast cancer. The mechanisms of cancer prevention include:

- arresting the cell cycle
- promoting apoptosis
- up-regulating nuclear receptors
- enhancing responsiveness to cytotoxic agents

### Directions of Use:

#### Preparation Instructions:

Cholecalciferol is water insoluble. Solutions of desired concentrations can be prepared in ethanol or acetone. Prepared solutions can be sterilized by filtering through a sterile membrane filter with porosity of 0.22 microns. Do not autoclave the solution.

### Quality Control:

#### Appearance

White with yellow cast powder

#### Solubility

Clear, colorless solution at 100mg in 10ml of ethanol

#### Specific rotation $[\alpha]_{20/D}$

+105° to +112°

#### Assay

NLT 97%

#### Cell Culture Test

Passes

### Storage and Shelf Life:

Store powder at 2-8°C in air tight container.

Protect from light and moisture.

Shelf life is 36 months.

Use before expiry date given on product label.

Revision No.: 0 / 2019

### Disclaimer:

User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMedia™ publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMedia™ Laboratories Pvt. Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal diagnostic or therapeutic use but for laboratory, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.

