Product Specification Sheet

Product Name  Stemolecule™ All-Trans Retinoic Acid

Description  Stemolecule All-Trans Retinoic Acid is the oxidized form of Vitamin A and functions as a signaling molecule for various developmental pathways that control differentiation and proliferation\(^1\,^2\). It acts by binding to heterodimers of the retinoic acid receptor (RAR) and the retinoid X receptor (RXR), which then bind to retinoic acid response elements (RAREs) in the regulatory regions activating gene transcription\(^3\). All-Trans Retinoic Acid has been implicated in specification of the embryonic anterior/posterior axis through Hox gene regulation\(^4\). It has been used in various differentiation protocols, including B-cells, T cells and neurons and applied clinically to treat cancer as a form of differentiation-induction therapy\(^2\,^5\,^6\,^7\,^8\,^9\,^10\,^11\).

Catalog Number  04-0021

Size  100 mg

Alternate Name  \((2E,4E,6E,8E)-3,7\text{-dimethyl}-9-(2,6,6\text{-trimethylcyclohexen-1-yl})\text{nona-2,4,6,8-tetraenoic acid}\)

Chemical Formula  \(\text{C}_{20}\text{H}_{28}\text{O}_2\)

Molecular Weight  300.44

CAS Number  302-79-4

Purity  Greater than 98% by HPLC analysis

Formulation  Yellow to light orange crystalline powder

Solubility  For a 10 mM concentrated stock solution of All-Trans Retinoic Acid, add 1.66 ml of DMSO to 5 mg of the compound. If a precipitate is observed, warm the solution to 37°C for 2 to 5 minutes. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%. This molecule is soluble in DMSO at 100 mM and 95% ethanol at 9 mM.

Storage and Stability  Store powder at 4°C protected from light. Following reconstitution, store aliquots at -20°C. Stock solutions are stable for 6 months when stored as directed.

Quality Control  The purity of All-Trans Retinoic Acid was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of All-Trans Retinoic Acid was tested on mouse embryonic stem cells.
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References