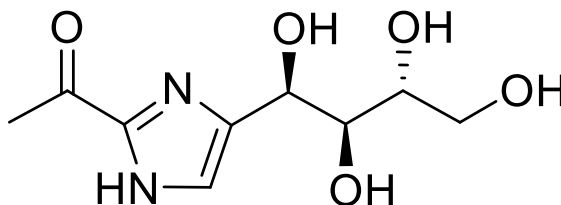


## 2-Acetyl-5-tetrahydroxybutyl imidazole (THI)

Catalog number: B-0031



Molecular Formula:  $C_9H_{14}N_2O_5$

MW: 230.2

CAS: 94944-70-4

Alternate name: 1-(4-((1*R*,2*S*,3*R*)-1,2,3,4-Tetrahydroxybutyl)-1*H*-imidazol-2-yl)ethanone

Solubility: H<sub>2</sub>O: 0.3 mg/mL, low solubility in organic solvents

Storage and Handling: 4°C or below

**Background:** THI is a trace component present in the industrially produced food colorant caramel color III. It acts as an immunosuppressant by inhibiting the enzyme sphingosine 1-phosphate lyase (S1PL) which fragments S1P to hexadecenal and phosphoethanolamine. Administration of THI in drinking water to mice (50 µg/mL) resulted in decreased S1PL activity, increased S1P levels in lymphoid tissues and reduced egress of CD4+ and CD8+ T cells (lymphopenia).

**References:** 1) J. T. Bagdanoff, *et al.* "Inhibition of Sphingosine-1-phosphate Lyase for the Treatment of Autoimmune Disorders." *J. Med. Chem.* 2009, *52*, 3941-3953. 2) G.F. Houben, *et al.* "Effects of Ammonia Caramel and Tetrahydroxybutylimidazole on the Immune System of Rats." *Arch. Toxicol.*, 1989, *13*, 183-187. 3) S.R. Schwab, *et al.* "Lymphocyte Sequestration Through S1P Lyase Inhibition and Disruption of S1P Gradients." *Science* 2005, *309*, 1735-1739.

**Hazardous Properties and Cautions:** The toxicological and pharmacological properties of this compound are not fully known. For further information see the MSDS on request. This product is manufactured and shipped only in small quantities, intended for research and development in a laboratory utilizing prudent procedures for handling chemicals of unknown toxicity, under the supervision of persons technically qualified to evaluate potential risks and authorized to enforce appropriate health and safety measures. As with all research chemicals, precautions should be taken to avoid unnecessary exposures or risks.

**Warranty and Disclaimer:** Echelon warrants the product conforms to the specifications stated herein. In the event of nonconformity, Echelon will replace products or refund purchase price, at its sole option, and Echelon shall not be responsible for any other loss or damage, whether known or foreseeable to Echelon. No other warranties apply, express or implied, including but not limited to warranty of fitness for any purpose or implied warranty of merchantability. Purchaser is solely responsible for all consequences of its use of the product and Echelon assumes no responsibility therefore, including success of purchaser's research and development, or health or safety of any uses of the product.

