

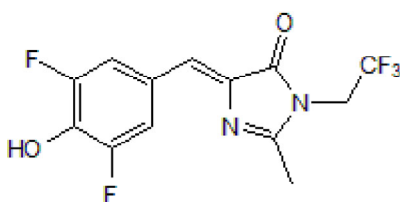
# Certificate of Analysis

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**Product Name:** DFHBI 1T **Catalog No.:** 5610 **Batch No.:** 2  
**CAS Number:** 1539318-36-9  
**IUPAC Name:** (5Z)-5-[(3,5-Difluoro-4-hydroxyphenyl)methylene]-3,5-dihydro-2-methyl-3-(2,2,2-trifluoroethyl)-4H-imidazol-4-one

## 1. PHYSICAL AND CHEMICAL PROPERTIES

**Batch Molecular Formula:** C<sub>13</sub>H<sub>9</sub>F<sub>5</sub>N<sub>2</sub>O<sub>2</sub>  
**Batch Molecular Weight:** 320.21  
**Physical Appearance:** Yellow solid  
**Solubility:** DMSO to 100 mM  
**Storage:** Store at -20°C  
**Batch Molecular Structure:**



## 2. ANALYTICAL DATA

**TLC:** R<sub>f</sub> = 0.74 (Dichloromethane:Methanol [9:1])  
**HPLC:** Shows >99.1% purity  
**<sup>1</sup>H NMR:** Consistent with structure  
**Mass Spectrum:** Consistent with structure  
**Microanalysis:**

	Carbon Hydrogen Nitrogen		
Theoretical	48.76	2.83	8.75
Found	48.8	2.74	8.55

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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**Description:**

DFHBI 1T is a mimic of green fluorescent protein (GFP) fluorophore for imaging RNA in living cells. DFHBI 1T fluorescence is activated by binding to Spinach2 or Broccoli aptamers, also binds to Squash aptamer ( $K_d = 45$  nM). DFHBI 1T exhibits peak excitation maxima of 482 nm and peak fluorescence emission of 505 nm when bound to Spinach2, enabling imaging with GFP filter cubes. Exhibits higher specific fluorescence and lower background fluorescence when bound to Spinach2 compared with Spinach2-DFHBI.

**Physical and Chemical Properties:**

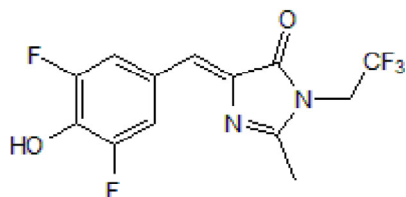
Batch Molecular Formula:  $C_{13}H_9F_5N_2O_2$

Batch Molecular Weight: 320.21

Physical Appearance: Yellow solid

**Minimum Purity:** ≥98%

**Batch Molecular Structure:**



**References:**

**Dey et al** (2022) Repurposing an adenine riboswitch into a fluorogenic imaging and sensing tag. *Nat.Chem.Biol.* **18** 180. PMID: 34937909.

**Truong et al** (2022) The fluorescent aptamer Squash extensively repurposes the adenine riboswitch fold. *Nat.Chem.Biol.* **18** 191. PMID: 34937911.

**Svensen and Jaffrey** (2016) Fluorescent RNA Aptamers as a Tool to Study RNA-Modifying Enzymes. *Cell Chem.Biol.* **23** 415. PMID: 26877022.

**Storage:** Store at -20°C

**CAUTION** - This product is light sensitive and we recommend that the solid material and any solutions obtained are protected from exposure to light.

**Solubility & Usage Info:**

DMSO to 100 mM

**Stability and Solubility Advice:**

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. \*Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

**SOLIDS:** Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

**SOLUTIONS:** We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

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