

# Certificate of Analysis

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**Product Name:** DFHO

**Catalog No.:** 6434

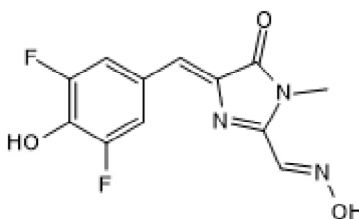
**Batch No.:** 1

CAS Number: 1420815-34-4

IUPAC Name: 4-(3,5-Difluoro-4-hydroxybenzylidene)-1-methyl-5-oxo-4,5-dihydro-1*H*-imidazole-2-carbaldehyde oxime

## 1. PHYSICAL AND CHEMICAL PROPERTIES

**Batch Molecular Formula:** C<sub>12</sub>H<sub>9</sub>F<sub>2</sub>N<sub>3</sub>O<sub>3</sub>  
**Batch Molecular Weight:** 281.22  
**Physical Appearance:** Orange solid  
**Solubility:** DMSO to 100 mM  
**Storage:** Store at -20°C  
**Batch Molecular Structure:**



## 2. ANALYTICAL DATA

**TLC:** R<sub>f</sub> = 0.32 (Ethyl acetate:Petroleum ether [1:1])  
**HPLC:** Shows 99.2% purity at 252 nm  
**<sup>1</sup>H NMR:** Consistent with structure  
**Mass Spectrum:** Consistent with structure  
**Microanalysis:**

	Carbon Hydrogen Nitrogen		
Theoretical	51.25	3.23	14.94
Found	51.28	3.23	14.8

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

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**Description:**

DFHO is a mimic of red fluorescent protein (RFP) fluorophore for imaging RNA in living cells. DFHO fluorescence is activated by binding to Corn aptamer ( $K_d = 70$  nM) or Squash aptamer ( $K_d = 54$  nM). Excitation/emission maxima ( $\lambda$ ) = 505/545 nm; extinction coefficient = 29000 M<sup>-1</sup> cm<sup>-1</sup>.

**Physical and Chemical Properties:**

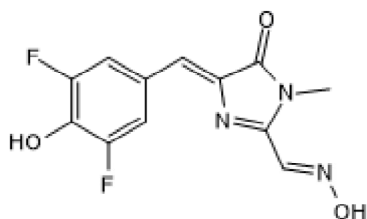
Batch Molecular Formula: C<sub>12</sub>H<sub>9</sub>F<sub>2</sub>N<sub>3</sub>O<sub>3</sub>

Batch Molecular Weight: 281.22

Physical Appearance: Orange solid

**Minimum Purity:** ≥98%

**Batch Molecular Structure:**



**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.

**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.

**Song et al** (2017) Imaging RNA polymerase III transcription using a photostable RNA-fluorophore complex. *Nat.Chem.Biol.* **13** 1187. PMID: 28945233.

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