



## CERTIFICATE OF ANALYSIS

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### 1. Identification

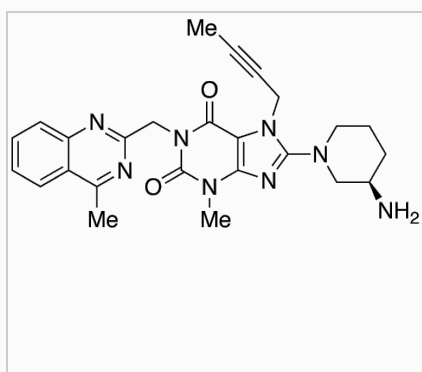
**Catalogue Number:** L465900

**CAS Number:** 668270-12-0

**Product:** Linagliptin

**Synonym:** 8-[(3R)-3-Amino-1-piperidinyl]-7-(2-butyn-1-yl)-3,7-dihydro-3-methyl-1-[(4-methyl-2-quinazoliny)methyl]-1H-purine-2,6-dione; 8-[(3R)-3-Amino-1-piperidinyl]-7-(2-butynyl)-3,7-dihydro-3-methyl-1-[(4-methyl-2-quinazoliny)methyl]-1H-purine-2,6-dione; BI 1356; BI 1356BS; ONDERO;

**Structure:**



**Molecular Formula:**

C<sub>25</sub>H<sub>28</sub>N<sub>8</sub>O<sub>2</sub>

**Molecular weight:**

472.55

**Source of Product:**

N/A

**Solubility:**

Chloroform (Slightly), DMSO (Slightly), Methanol (Slightly)

**Lot Number:** 2023-QIU-035

**Purity:** 98%

**Shipping Condition:** This Product Is Stable To Be Shipped At Room Temperature

**Storage Condition:** 4°C

### 2. Warning

**Warning 1:**

**Warning 2:**

**Warning 3:**

### 3. Analytical Information

| Tests:             | Specifications:       | Results:                       |
|--------------------|-----------------------|--------------------------------|
| Appearance         | White to Orange Solid | Off-White to Pale Yellow Solid |
| NMR                | Conforms to Structure | Conforms                       |
| Elemental Analysis | Conforms              | %C: 63.43, %H: 6.03, %N: 23.72 |
| HPLC Purity        | Report Result         | 100.00% (225 nm)               |
| MS                 | Conforms to Structure | Conforms                       |
| FT-IR              | Conforms to Structure | Conforms                       |
| Specific Rotation  | Report Result         | -16.2° (c = 0.4, Chloroform)   |

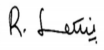
**Additional Information:** N/A

Purity is based on the analytical results of the tests performed. NMR and Elemental Analysis (if available) may have an accuracy of ± 2%. Isotopic purity is based on mass distribution observed. The contents of the specifications are subject to change without advance notice, and the specification values displayed here are the most up to date values.

### 4. Signatures

**Reviewed By**

Swathi Reddy



**Reviewed By**

Toni Rantanen



**C of A Approved  
By**

Christina Gouliaras



**Test Date**

1/19/2023

**Retest Date**

1/17/2027