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**Certificate of Analysis**

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Product Name: Orphanin FQ (1-11)  
Cat. No.: GC14023  
Batch No.: 1  
Chemical Name: (2S,3Z,5S,6Z,8S,9Z,11S,12Z,14S,15Z,18Z,20S,21Z,23S,24Z,27Z,30Z,32S)-32-amino-8-(4-aminobutyl)-23-benzyl-11-(3-guanidinopropyl)-4,7,10,13,16,19,22,25,28,31-decahydroxy-20-((R)-1-hydroxyethyl)-5-(hydroxymethyl)-2,14-dimethyl-33-phenyl-3,6,9,12,15,18,21,24,2

**PHYSICAL AND CHEMICAL PROPERTIES**

Cas. No.: 178249-41-7  
Molecular Formula:  $C_{49}H_{75}N_{15}O_{14}$   
Molecular Weight: 1098.2  
Storage: Store at -20°C  
Chemical Structure:

**ANALYTICAL DATA**

Appearance: solid  
HNMR: Consistent with structure  
HPLC: Consistent with structure  
Purity: >98%  
Conclusion: The product has been tested and complies with the given specifications.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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