

Certificate of Analysis

Product Name :	Tirzepatide (Research Use Only)	Batch No. :	P2729
Molecular Formula :	C ₂₂₅ H ₃₄₈ N ₄₈ O ₆₈ (M.W. 4813.5)	CAS No. :	2023788-19-2
Manufacturing Date :	2026. 03. 26.	Expiry Date :	2027. 03. 25.
Peptide Sequence :	H2N-Tyr-Aib-Glu-Gly-Thr-Phe-Thr-Ser-Asp-Tyr-Ser-Ile-Aib-Leu-Asp-Lys-Ile-Ala-Gln-Lys (C20DA-γGlu-AEEA-AEEA)-Ala-Phe-Val-Gln-Trp-Leu-Ile-Ala-Gly-Gly-Pro-Ser-Ser-Gly-Ala- Pro-Pro-Pro-Ser-NH2		

Test Items	Specification	Results
Appearance	White powder	White powder
Identification		
Mass Spectrometry	4810.5 ± 1.0 (Monoisotopic mass)	4810.5
Peptide Sequencing	Sequence consistent with theoretical structure	Confirmed
Amino Acid Analysis	Asx : 1.6 ~ 2.4 Val : 0.8 ~ 1.2 Glx : 3.2 ~ 4.8 Phe : 1.6 ~ 2.4 Ser : 4.0 ~ 6.0 Ile : 2.4 ~ 3.6 Gly : 3.2 ~ 4.8 Leu : 1.6 ~ 2.4 Thr : 1.6 ~ 2.4 Lys : 1.6 ~ 2.4 Ala : 3.2 ~ 4.8 Pro : 3.2 ~ 4.8 Aib : 1.6 ~ 2.4 Trp : Present Tyr : 1.6 ~ 2.4 AEEA : Present	Asx : 1.9 Val : 0.9 Glx : 3.8 Phe : 1.9 Ser : 4.2 Ile : 2.8 Gly : 3.6 Leu : 1.9 Thr : 1.8 Lys : 1.9 Ala : 3.8 Pro : 3.8 Aib : 1.9 Trp : Present Tyr : 2.1 AEEA : Present
Purity and Related Substances		
Purity	≥ 98.5%	99.6%
D-Ser8 + D-Leu14	≤ 0.5%	0.02%
D-Ser11 + Endo-Gly4	≤ 0.5%	0.07%
D-Trp25	≤ 0.3%	0.18%
Glu19	≤ 0.3%	0.05%
Glu24	≤ 0.3%	Not detected
Unknown impurity(max.)	≤ 0.1%	0.09%
Total impurity	≤ 1.0%	0.47%
Residual Trifluoroacetic Acid	≤ 0.25%	Not detected
Acetate Content	≤ 10.0%	Not detected

Continued Certificate of Analysis

Residual Solvents		
Acetonitrile	$\leq 410\text{ppm}$	21ppm
Water	$\leq 10.0\%$	6.4%
Assay	95.0%~105.0% (on anhydrous and salt free basis)	101.1%

Storage condition: Store in a tightly closed container at -20°C or below. Protected from light.

Lab Manager
Reviewed by / Date

김 태 형 / 2026. 05. 07

QA Manager
Reviewed by / Date

이 태 형 / 2026. 05. 08.

Director
Approved by / Date

박 동 라 / 2026. 05. 08