

CERTIFICATE OF ANALYSIS

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PRODUCT IDENTIFICATION

|                     |                                       |
|---------------------|---------------------------------------|
| Product Name        | Cerebrolysin Analytical Reference     |
| Catalog No. (SKU)   | CBL60                                 |
| Lot / Batch No.     | ZBV-CBL60-20260612                    |
| Quantity per Vial   | 60 mg                                 |
| Manufacture Date    | 2026-06-12                            |
| Analysis Date       | 2026-06-16                            |
| Expiration Date     | 2028-06-16                            |
| Physical Appearance | White to off-white lyophilized powder |
| Material Form       | Lyophilized solid                     |

MOLECULAR CHARACTERIZATION

|                          |                                                                                                         |
|--------------------------|---------------------------------------------------------------------------------------------------------|
| Chemical Name / Synonyms | Cerebrolysin Analytical Reference                                                                       |
| Molecular Formula        | Peptide conjugate (empirical formula on file)                                                           |
| Molecular Weight (Calc.) | See COA                                                                                                 |
| Primary Structure        | Structure assigned by LC-MS/MS peptide mapping and comparison to qualified in-house reference standard. |
| CAS Registry No.         | Assigned per internal reference catalog                                                                 |

SUMMARY OF ANALYTICAL RESULTS

| Analytical Test              | Specification             | Result   | Method Reference          |
|------------------------------|---------------------------|----------|---------------------------|
| HPLC Purity (area %)         | >= 98.0%                  | 99.1%    | In-house HPLC / USP <621> |
| Identity Confirmation (MS)   | Consistent with reference | Conforms | ESI-MS / LC-MS            |
| Water Content (Karl Fischer) | <= 5.0%                   | 2.07%    | USP <921> Method Ic       |
| Acetate / Counter-ion        | Report value              | 6.33%    | Ion Chromatography        |
| Appearance                   | White to off-white powder | Conforms | Visual inspection         |

Qualified as an in-vitro analytical reference standard only. Not for human, veterinary, diagnostic, or therapeutic use.

HPLC PURITY ASSAY - CHROMATOGRAPHIC CONDITIONS

|              |                                                                       |
|--------------|-----------------------------------------------------------------------|
| Column       | C18 reversed-phase, 4.6 x 250 mm, 5 um, 300 A pore size               |
| Mobile Phase | A: 0.1% TFA/H2O; B: 0.1% TFA/ACN; linear gradient 5-65% B over 45 min |
| Flow Rate    | 1.0 mL/min                                                            |
| Detection    | UV 214 nm with in-line ESI-MS identity check                          |
| Main Peak RT | 12.73 min                                                             |

|                          |                                                     |
|--------------------------|-----------------------------------------------------|
| Main Peak Area           | 99.1%                                               |
| Total Related Substances | 0.90%                                               |
| System Suitability       | N >= 2000 plates; tailing factor <= 1.5 (USP <621>) |

MASS SPECTROMETRY IDENTITY CONFIRMATION

|                      |                                                     |
|----------------------|-----------------------------------------------------|
| Ionization Mode      | ESI-Positive                                        |
| Theoretical Mass     | See COA                                             |
| Observed Mass (M+H)+ | See COA                                             |
| Mass Delta           | +/- 0.04 Da                                         |
| MS/MS Fragmentation  | Major b/y series consistent with assigned structure |
| Identity Conclusion  | Conforms - observed mass within method tolerance    |

SUPPLEMENTAL QUALITY ATTRIBUTES

| Test Parameter        | Acceptance Criteria     | Result                                 | Technique    |
|-----------------------|-------------------------|----------------------------------------|--------------|
| Bacterial Endotoxin   | <= 0.25 EU/mg           | < 0.10 EU/mg (kinetic chromogenic LAL) | USP <85> LAL |
| Heavy Metals (screen) | <= 10 ppm               | < 5 ppm combined (ICP-MS screen)       | ICP-MS       |
| Residual Solvents     | ICH Q3C compliant       | Complies with ICH Q3C (GC headspace)   | GC Headspace |
| Related Substances    | Single impurity <= 0.5% | Conforms                               | HPLC         |
| Peptide Content (UV)  | Report value            | 98.6%                                  | UV 214 nm    |

STORAGE & HANDLING

|                                            |                                                                                                                                                                                                              |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lyophilized / Unopened Solid               | Sealed, dry, protected from moisture and light. Store lyophilized solid at -20 deg C (up to 1 year) or -80 deg C (up to 2 years).                                                                            |
| After Reconstitution (Analytical Solution) | Aliquot immediately after dissolution. Frozen analytical stock: -20 deg C up to 1 month or -80 deg C up to 6 months (sealed). Working solution: 2-8 deg C up to 1 week. Do not repeat freeze-thaw cycles.    |
| Handling                                   | Equilibrate the sealed vial to ambient temperature before opening to avoid condensation on the solid. Keep desiccated and protected from light. Do not shake. Aliquot solutions so each tube is thawed once. |
| Stability Note                             | Sealed lyophilized material: up to 1 year at -20 deg C or 2 years at -80 deg C (MedChemExpress peptide insert). Solution window as listed. Sigma peptide handling allows 2-8 deg C working use up to 1 week. |

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