pH SOLUTIONS

**pH Solutions, LLC**
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(626) 734-6620 · www.phsolutionslab.com
ISO/IEC 17025:2017 ACCREDITED · ilac-MRA · PJLA · #84351

CERTIFICATE OF
# Analysis
PLB-COA-MOT-20260714-05

Issued Aug29,2026

ANALYTICAL SUBJECT

# MOTS-C

10 mg/vial · PLB-V-MOT-10

**RELEASED**

| PEPTIDE PURITY (HPLC) | WATER ACTIVITY | MICROBIAL / MYCOTOXIN | FILL CONFORMANCE |
|---|---|---|---|
| 99% | 0.43 aw | ND | 800/800 |
| ≥ 99% spec · Pass | < 0.65 spec · Pass | All analytes · Pass | 10.00 mg target · Pass |

| LOT NUMBER | MANUFACTURE | EXPIRY | VIALS IN LOT | TARGET FILL (mg) |
|---|---|---|---|---|
| PLB-MOT-20260714-05 | 14-Jul-2026 | 14-Jul-2027 | 800 | 10.00 |

## 01 Analytical Test Results

ALL PARAMETERS CONFORM

| PARAMETER | METHOD | SPECIFICATION | RESULT | WHY IT MATTERS |
|---|---|---|---|---|
| **Appearance** Visual Inspection | Visual | White to off-white lyophilized powder cake; free of visible particulates | Pass | Visual anomalies such as discoloration, clumping or particulates can indicate degradation, contamination, or moisture ingress, any of which compromise product integrity before analytical testing is even performed. |
| **Purity** Area % | HPLC @ 274nm | ≥99% | 99% — pass | Measures what fraction of the material is the complete target peptide vs. synthesis byproducts, truncated sequences, or degradation products. High purity ensures the results reflect the intended compound and ensures identity by confirming retention time during this test aligns with a certified reference standard. |
| **Microbials** Total Aerobic Count · Enterobacteriaceae · Total Yeast & Mold | qPCR | Total Aerobic Count: ND in 1g; Enterobacteriaceae: ND in 1g; Total Yeast & Mold: ND in 1g | Not Detected — Pass (all 3 analytes) | Confirms the finished vial is free of viable bacteria, Enterobacteriaceae, yeast, and mold. Microbial contamination in reconstituted peptide solutions can invalidate cell-based and in vivo research results. |
| **Mycotoxins** Aflatoxins B1/B2/G1/G2 · Ochratoxin A · Total Aflatoxins | LCMS | Aflatoxins B1, B2, G1, G2 <4 µg/kg each; Total Aflatoxins <20 µg/kg; Ochratoxin A <20 µg/kg | Not Detected — Pass (all 6 analytes) | Mycotoxins are toxic fungal metabolites that can contaminate peptide raw materials during synthesis or storage. Even trace levels of aflatoxins and ochratoxin A are potent carcinogens and nephrotoxins that confound research outcomes and pose handling risks. |

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## 01 Analytical Test Results (continued)

ALL PARAMETERS CONFORM

| PARAMETER | METHOD | SPECIFICATION | RESULT | WHY IT MATTERS |
|---|---|---|---|---|
| **Water Activity** Moisture determination | Water Activity Meter | <0.65 aw (threshold for microbial growth) | **0.43 aw — Pass** | Lyophilized peptides absorb atmospheric moisture, which dilutes the active content per mg and accelerates degradation. Knowing water content allows researchers to calculate the true peptide mass when preparing solutions for experiments. |
| **Residual solvents** Headspace analysis, tested at raw material inspection | GC headspace | ICH Q3C Class 2/3 limits | **Below ICH limits — Pass** | Organic solvents such as DMF, DCM, and acetonitrile are used during synthesis and purification. Residual traces can interfere with biological assays, affect cell viability, and indicate incomplete purification of the final product. This test was performed on the bulk API lot during incoming raw material inspection prior to manufacturing. |
| **Elemental Impurities (Heavy Metals)** Arsenic · Cadmium · Lead · Mercury, tested at raw material inspection | ICPMS | USP <232> | **Below USP limits — Pass** | Heavy metals accumulate in biological systems and can interfere with enzyme activity, receptor binding, and cell viability. Even trace levels of arsenic, cadmium, lead, and mercury can confound in vitro and in vivo research outcomes. |

## 02 Authorization & Release

TESTED & CERTIFIED BY

*Raquel Keledjian*

**Raquel Keledjian**
Laboratory Director · pH Solutions, LLC
ISO/IEC 17025:2017 · Accreditation #84351

ilac-MRA PJLA Testing
ISO/IEC 17025:2017 Accredited
Accreditation #84351

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