# Certificate of Analysis

LIQUILABS
Analytical services

**NordBioLab**
Nord BioLab
Estonia
info@nordbiolab.com

**Liquilabs s.r.o.**
Inovační 122
252 41 Zlatníky-Hodkovice
Czechia
www.liquilabs.cz

Verify Results Online

## Sample Identification

| | |
|---|---|
| **Sample Name** | MOTS-C 10 mg |
| **Batch Number** | NBLMS1007261101 |
| **Date Published** | 2026-07-23 14:28 |

## Results for LYO-0381

| Peptides | Result | Unit | Uncertainty | Acceptable Range |
|---|---|---|---|---|
| MOTS-C Assay<br>Peptide Screening 0.1% TFA | 10.72 | *mg* | [± 0.05] | |
| MOTS-C Purity<br>Peptide Screening 0.1% TFA | 99.7 | *%* | [± 0.5] | |
| MOTS-C Identification by Spectrum (FTIR)<br>Peptide Screening 0.1% TFA | 987 | | [± 5] | |
| MOTS-C Identification by RT<br>Peptide Screening 0.1% TFA | 0.988 | | [± 0.005] | |

| Mass Spectrometry | Result | Unit | Uncertainty | Acceptable Range |
|---|---|---|---|---|
| Molecular Ion Mass Identification (MS Deconvolution)<br>Mass Spectrometry Identity | 2174 | *Da* | [± 1] | |

| LIQUILABS Analytical services | Method Specification | |
|---|---|---|
| Determination of identity, content and purity of MOTS-C | | |
| *Document number* MOTS_006_2026 | *Superseded document* - | *Number of pages* 4 |

# 1. Content Assesment

## 1.1. Instrumentation

| Module | Name | Serial Number |
|---|---|---|
| System Controller | Shimadzu CBM-40 Lite | L221226351398 |
| Degassing Unit | Shimadzu DGU-403 | NA |
| Pump | Shimadzu LC-40B XR | L22146350580 |
| Autosampler | Shimadzu SIL-40C XR | L22216351622 |
| Colum Thermostat | Shimadzu CTO-40S | L22236351602 |
| PDA Detector | Shimadzu SPD-M40 | L22276352808 |
| SQ MS Detector | Shimadzu LCMS-2050 | O12476200760 |

## 1.2. Chromatographic conditions

| Chromatographic conditions | |
|---|---|
| Eluent A | 0.05% TFA in Water (HPLC, Gradient Grade) |
| Eluent B | 0.0425% TFA in Acetonitrile (HPLC, Gradient Grade) |
| Flow rate | 0.9 mL/min |
| Program | Gradient elution |
| Injection volume | 2 µL |
| Colum Temperature | 55°C |
| Column | Waters XSelect CSH C18, 100x2.1mm 2.5µm |
| Detection wavelength | 280nm |

| Gradient Program | | |
|---|---|---|
| Time [min] | A [%] | B [%] |
| 1.5 | 95 | 5 |
| 13 | 45 | 55 |
| 13.5 | 1 | 99 |
| 14.5 | 1 | 99 |
| 14.51 | 95 | 5 |
| 16 | end | |

1



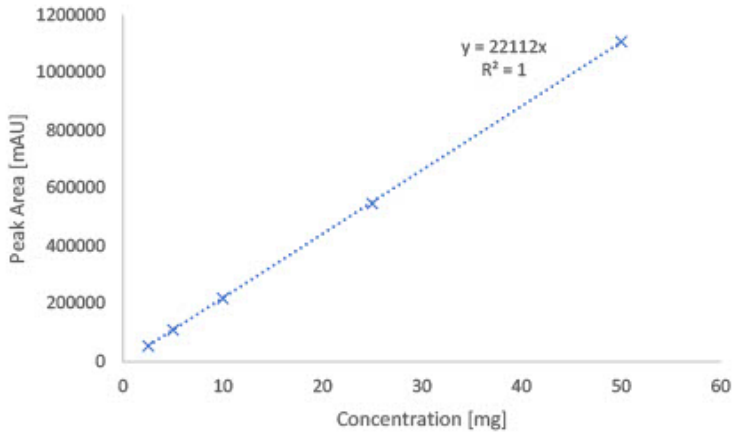
**Liquilabs s.r.o.** • Inovační 122 • 252 41 Zlatníky-Hodkovice • Czechia
Phone : +420 608 444 727 • Fax : • jan.galbavy@liquilabs.cz • www.liquilabs.cz

### 1.3. Sample preparation

Whole amount of container was dissolved in 2mL of water (LCMS Grade). 100 µL of sample was transferred to HPLC vial and diluted by 900 µL water (LCMS Grade) and submitted for analysis.

### 1.4. Calibration curve

| Calibration curve detail | |
|---|---|
| Quantitative method | External Standard |
| Calibration Type | Linear |
| Number of calibration points | 5 |
| Force through Zero | Enabled |
| Weighting Method | None |




2



**Liquilabs s.r.o.** • Inovační 122 • 252 41 Zlatníky-Hodkovice • Czechia
Phone : +420 608 444 727 • Fax : • jan.galbavy@liquilabs.cz • www.liquilabs.cz

# 2. Purity assessment

## 2.1 Instrumentation

| Module | Name | Serial Number |
|---|---|---|
| System Controller | Shimadzu CBM-40 Lite | L221226351398 |
| Degassing Unit | Shimadzu DGU-403 | NA |
| Pump | Shimadzu LC-40B XR | L22146350580 |
| Autosampler | Shimadzu SIL-40C XR | L22216351622 |
| Colum Thermostat | Shimadzu CTO-40S | L22236351602 |
| PDA Detector | Shimadzu SPD-M40 | L22276352808 |
| SQ MS Detector | Shimadzu LCMS-2050 | O12476200760 |

## 2.2 Chromatographic conditions

| Chromatographic conditions | |
|---|---|
| Eluent A | 0.05% TFA in Water (HPLC, Gradient Grade) |
| Eluent B | 0.0425% TFA in Acetonitrile (HPLC, Gradient Grade) |
| Flow rate | 0.9 mL/min |
| Program | Gradient elution |
| Injection volume | 2 µL |
| Colum Temperature | 55°C |
| Column | Waters XSelect CSH C18, 100x2.1mm 2.5µm |
| Detection wavelength | 225nm |

| Gradient Program | | |
|---|---|---|
| Time [min] | A [%] | B [%] |
| 1.5 | 95 | 5 |
| 13 | 45 | 55 |
| 13.5 | 1 | 99 |
| 14.5 | 1 | 99 |
| 14.51 | 95 | 5 |
| 16 | end | |

## 2.3 Purity assesment

Purity of compound assesed by area normalization method, comparing area of each peak to sum of area of all peaks detected at wavelenght of 214 nm.



**Liquilabs s.r.o.** • Inovační 122 • 252 41 Zlatníky-Hodkovice • Czechia
Phone : +420 608 444 727 • Fax : • jan.galbavy@liquilabs.cz • www.liquilabs.cz

# 3. Identity Assessment

## 3.1 Instrumentation

| Module | Name | Serial Number |
|---|---|---|
| System Controller | Shimadzu CBM-40 Lite | L221226351398 |
| Degassing Unit | Shimadzu DGU-403 | NA |
| Pump | Shimadzu LC-40B XR | L22146350580 |
| Autosampler | Shimadzu SIL-40C XR | L22216351622 |
| Colum Thermostat | Shimadzu CTO-40S | L22236351602 |
| PDA Detector | Shimadzu SPD-M40 | L22276352808 |
| SQ MS Detector | Shimadzu LCMS-2050 | O12476200760 |

## 3.2 Chromatographic conditions

| Chromatographic conditions | |
|---|---|
| Eluent A | 0.05% TFA in Water (HPLC, Gradient Grade) |
| Eluent B | 0.0425% TFA in Acetonitrile (HPLC, Gradient Grade) |
| Flow rate | 0.9 mL/min |
| Program | Gradient elution |
| Injection volume | 2 µL |
| Colum Temperature | 55ºC |
| Column | Waters XSelect CSH C18, 100x2.1mm 2.5µm |
| Mass spectrometry | Scan: positive 280-2000 Da |

| Gradient Program | | |
|---|---|---|
| Time [min] | A [%] | B [%] |
| 1.5 | 95 | 5 |
| 13 | 45 | 55 |
| 13.5 | 1 | 99 |
| 14.5 | 1 | 99 |
| 14.51 | 95 | 5 |
| 16 | end | |

## 3.3 Molecular Ion Mass evaluation

Molecular ion mass was determined by deconvolution of multiply charged ESI-MS spectra to calculate the average neutral (zero-charge) molecular mass by equation:

$$M(neutral) = (z_i((mz_i) - H)) - ME$$

Where:
$mz_i$ - Measured mass of charged particle
$z_i$ - charge
H - proton mass (1.0076 Da)
ME – mass error



**Liquilabs s.r.o.** • Inovační 122 • 252 41 Zlatníky-Hodkovice • Czechia
Phone : +420 608 444 727 • Fax : • jan.galbavy@liquilabs.cz • www.liquilabs.cz

# Analysis Report

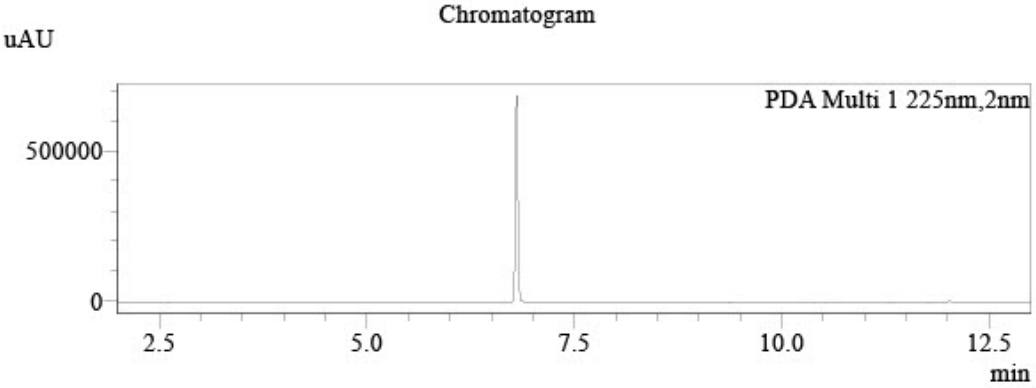
LIQUILABS Analytical services

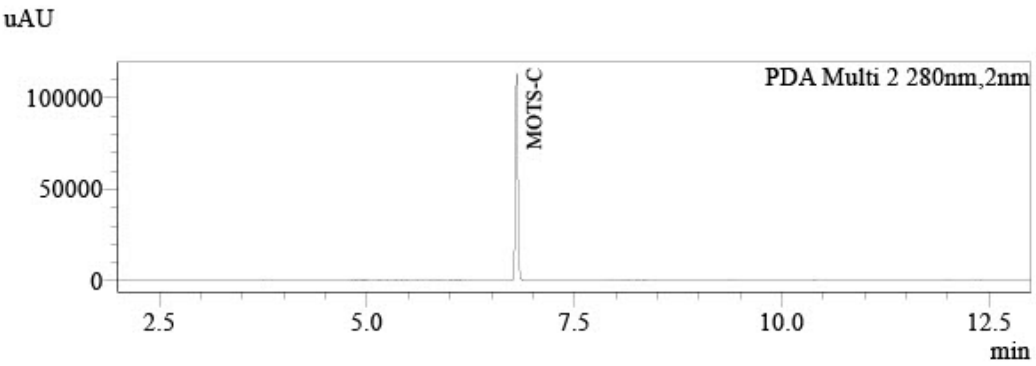
## Analysis of quantity and purity of active ingredient by UHPLC with UV detection

Sample Information

| | |
|---|---|
| Injection Volume | : 2 |
| Data File | : LYO-0381__001.lcd |
| Method File | : Peptide screening_V7_Group C.lcm |
| Date Acquired | : 7/21/2026 2:37:10 PM |

Chromatogram




Peak Table

PDA Ch1 225nm

| Name | Ret. Time | Area | Conc. | Unit | Area% |
|---|---|---|---|---|---|
| | 6.183 | 1735 | 0.000 | | 0.119 |
| | 6.473 | 1355 | 0.000 | | 0.093 |
| | 6.579 | 314 | 0.000 | | 0.022 |
| | 6.803 | 1454492 | 0.000 | | 99.687 |
| | 6.967 | 165 | 0.000 | | 0.011 |
| | 7.047 | 229 | 0.000 | | 0.016 |
| | 7.270 | 193 | 0.000 | | 0.013 |
| | 7.409 | 334 | 0.000 | | 0.023 |
| | 7.618 | 243 | 0.000 | | 0.017 |
| | | 1459060 | | | 100.000 |

Peak Table

PDA Ch2 280nm

| Name | Ret. Time | Area | Conc. | Unit |
|---|---|---|---|---|
| MOTS-C | 6.803 | 236510 | 10.722 | mg |
| | | 236510 | | |



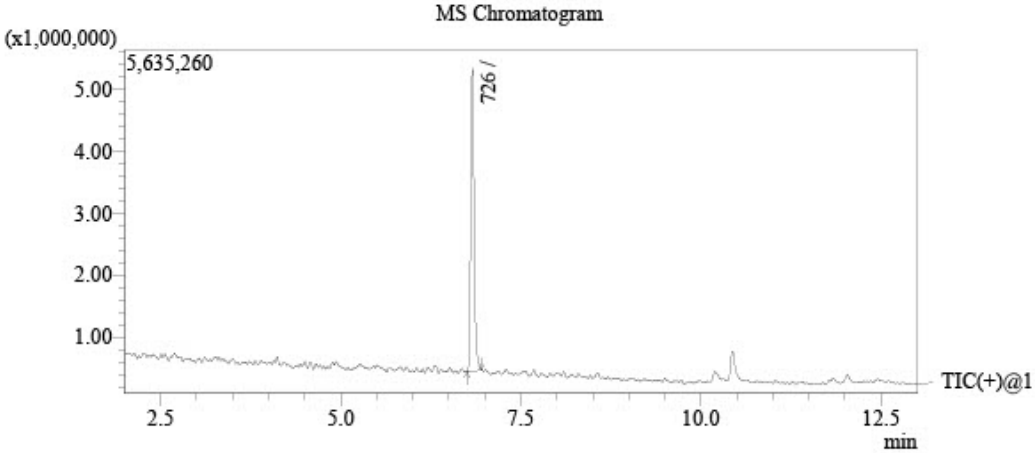
**Liquilabs s.r.o.** • Inovační 122 • 252 41 Zlatníky-Hodkovice • Czechia
Phone : +420 608 444 727 • Fax : • jan.galbavy@liquilabs.cz • www.liquilabs.cz

# Analysis Report

LIQUILABS
Analytical services

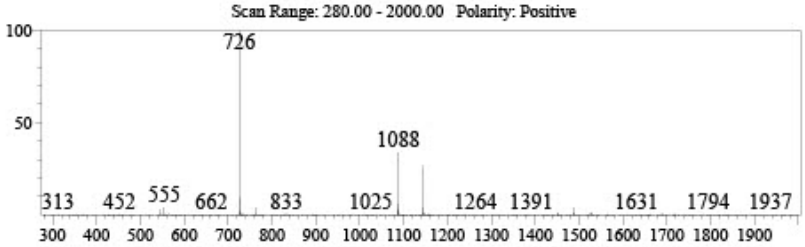
## Analysis of identity of active ingredient by UHPLC with mass spectrometric detection

MS Chromatogram

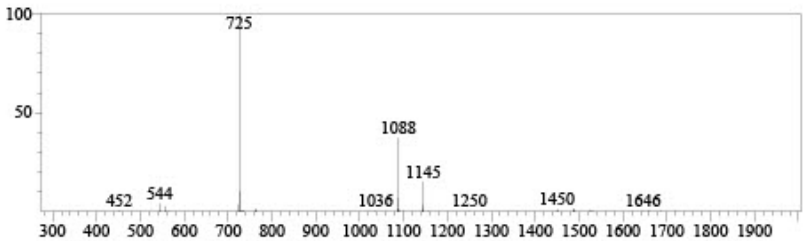



Library Search

Detected compound
Ret.Time: 6.755 Base Peak: 726
Scan Range: 280.00 - 2000.00 Polarity: Positive




Library: Peptide screening.lib
Formula: C101H152N28O22S2 CAS: 162758-64-6 Mol.Weight: 2174 Ret.Index: 0
Compound Name: MOTS-C






**Liquilabs s.r.o.** • Inovační 122 • 252 41 Zlatníky-Hodkovice • Czechia
Phone : +420 608 444 727 • Fax : • jan.galbavy@liquilabs.cz • www.liquilabs.cz

**Responsibles**



**Mr. Ján Galbavý**
*CEO*

Analysis results relate only to the samples tested.
This document shall not be reproduced except in full, without the written approval of Liquilabs s.r.o.



**Liquilabs s.r.o.** • Inovační 122 • 252 41 Zlatníky-Hodkovice • Czechia
Phone : +420 608 444 727 • Fax : • jan.galbavy@liquilabs.cz • www.liquilabs.cz