

ALC-PROOF-MOTS-C-40-45 · Rev 1

Catalog reference: mots-c-40

Search code: ALC-PROOF-MOTS-C-40-45

Received: 2026-09-28

Analyzed: 2026-09-29

Reported: 2026-09-30

Lot: SYN-00045

Sample Summary

Product: MOTS-c - 40 mg

Principal peak purity: 98.83 % (area)

Identity evidence: Mass assignment supplied

Net content: 40.993 mg

Molecular formula: C101H152N28O22S2

Neutral mass: 2,173.10774 Da (monoisotopic; calculated)

Appearance: Lyophilized material

Chemical reference: [PubChem CID 146675088](#)

Analytical Results

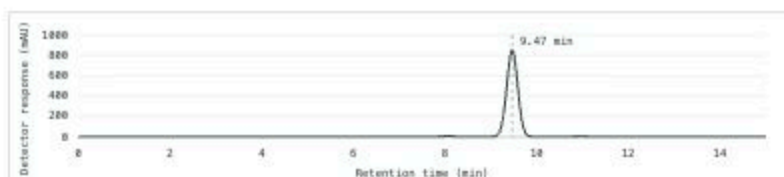
Review required

Profile profile-mots-c-40 v1.

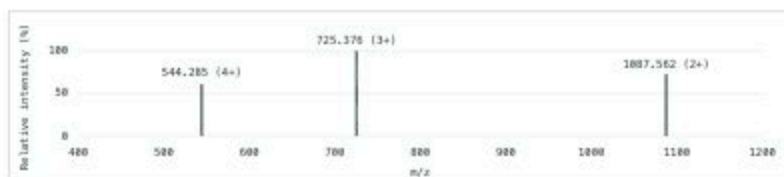
Determination / method	Result	Specification	Decision
Principal peak purity HPLC-01 · area basis Peak area percent. This is not a mass fraction.	98.83 % U = 0.08 %, k = 2	98 to 100 %	Pass simple
Net content QNT-01 · mass basis Specification applies to the declared label claim.	40.993 mg U = 0.6 mg, k = 2	36 to 44 mg	Pass guard-band

Methods: Quantitative assay; RP-HPLC with UV detection; LC-MS mass assignment. Conditions, limits and calculated checks are included in the supporting pages.

Chromatogram



Mass Confirmation



Charge state	m/z (observed)	Mass error (ppm)
[M+2H]2+	1087.56173	0.54
[M+3H]3+	725.37569	-1.15
[M+4H]4+	544.28462	0.75

monoisotopic mass convention; configured tolerance 10 ppm. Full acquisition values follow.

Paul Gütse

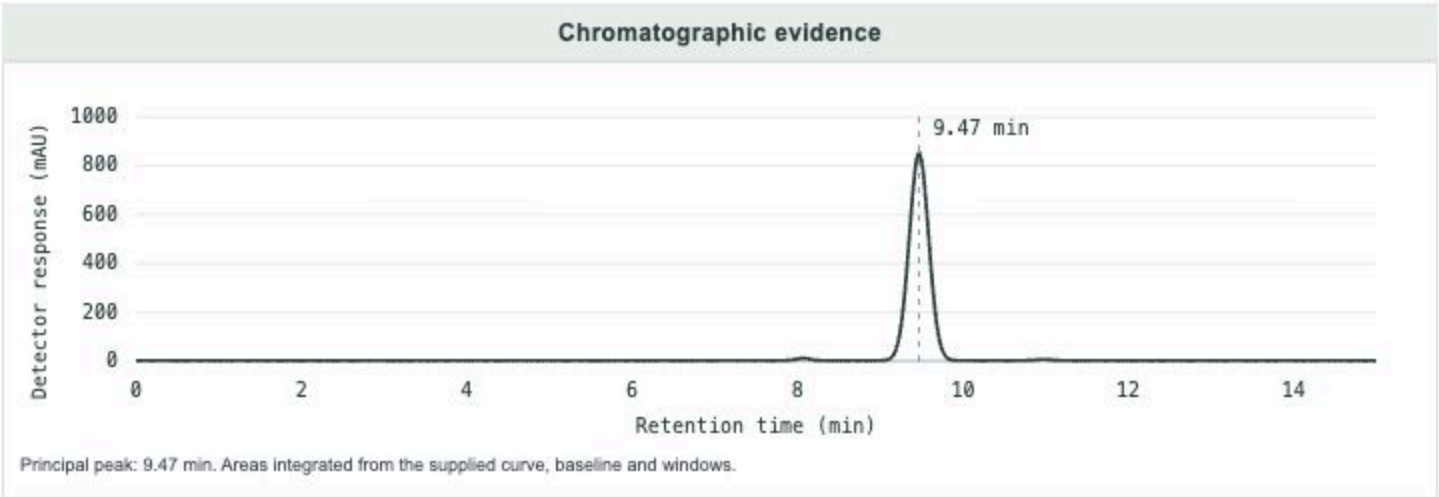
Paul Gütse
Reviewed by

Scan report code
Local design proof
ALC-PROOF-MOTS-C-40-45

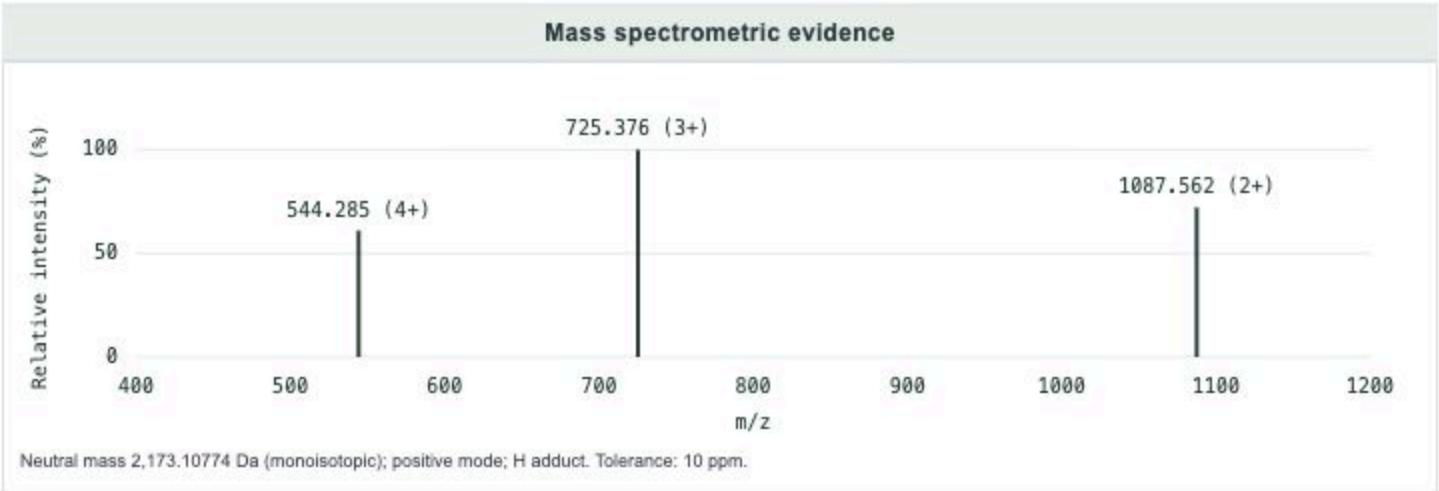


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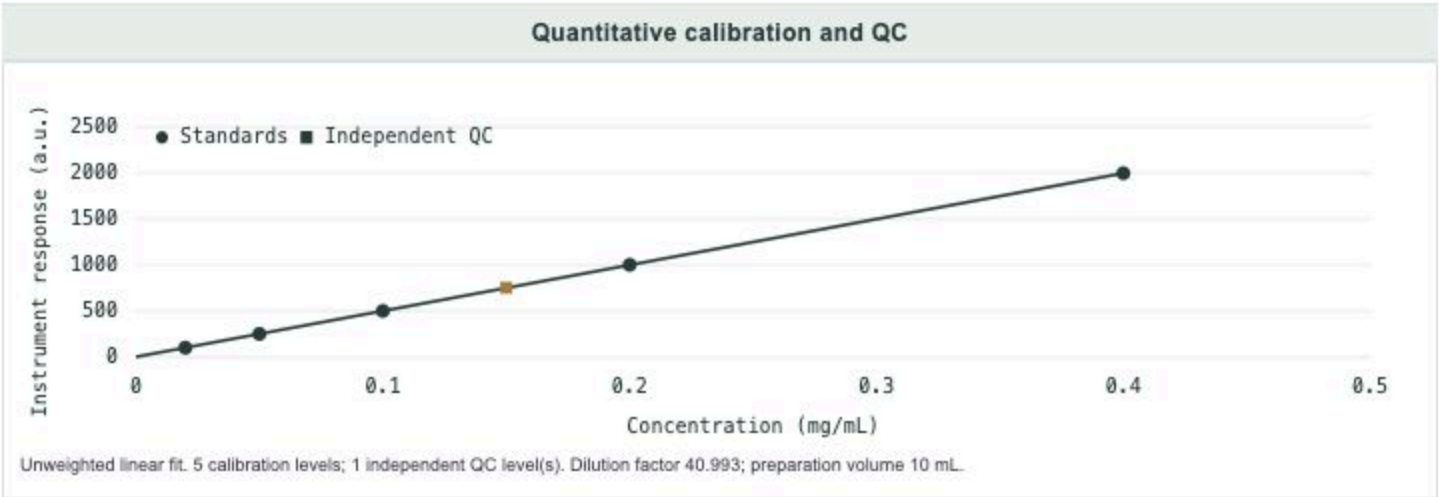
Results apply only to the submitted sample and the methods listed in this report. Only the listed methods are covered. This report does not establish sterility, endotoxin content, biological activity or suitability for clinical use.



Integrated peak	Area (detector unit x min)	Area %
Principal peak	244.99226	98.83
Early impurity	1.87552	0.76
Late impurity	1.0123	0.41



Charge	Observed m/z	Predicted m/z	Error (ppm)
2+	1087.56173	1087.56115	0.54
3+	725.37569	725.37652	-1.15
4+	544.28462	544.28421	0.75



Calculated checks and system suitability			
Analysis check	Value	Configured criterion	Assessment
Expected neutral monoisotopic mass	2173.107741 Da	Chemical reference	informational
Principal peak purity	98.83 % area	Minimum 98; caution below 99	review
Assay relative to label claim	102.483 %	90 to 110	pass
Total integrated impurities	1.165 % area	Maximum 2	pass
Largest integrated impurity	0.7566 % area	Maximum 1.5	pass
Retention time	9.47 min	9.47 +/- 0.2	pass
Principal peak width at half height	0.2718 min	0.2708 +/- 30%	pass
Theoretical plates	6727	Minimum 2000	pass
Resolution to Early impurity	3.535	Minimum 1.5	pass
Resolution to Late impurity	3.66	Minimum 1.5	pass
Tailing factor at 5% height	1.037	Maximum 2	pass
Principal signal to baseline noise	19373.6	Minimum 50	pass
Calibration R squared	0.999998	Minimum 0.995	pass
Independent QC bias	0.278 %	Absolute maximum 5	pass
Calibration-derived content	40.993 mg	Agrees with reported content within uncertainty	informational

Assessment observations

WARNING · purity-caution

Purity is below the configured caution bar. Review impurity distribution.

WARNING · impurity-detected

Early impurity: 0.757% area meets the configured impurity reporting threshold 0.05%.

WARNING · impurity-detected

Late impurity: 0.408% area meets the configured impurity reporting threshold 0.05%.

Methods and decision rules

QNT-01 · Quantitative assay 1

Instrument: analytical balance

Calibration and replicate measurement. Expanded uncertainty uses $k = 2$.

Expanded measurement uncertainty uses a coverage factor of 2.

HPLC-01 · RP-HPLC with UV detection 1

Instrument: HPLC-UV

C18 column, 150 x 4.6 mm, 5 μ m; 0.1% formic acid in water/acetonitrile; 5 to 60% B over 15 min; 1.0 mL/min; 25 C; 214 nm; 10 μ L injection.

Trapezoidal integration against the declared baseline and windows.

MS-01 · LC-MS mass assignment 1

Instrument: ESI mass spectrometer

Positive ionization; protonated species; monoisotopic mass convention.

Neutral analyte formula: linked PubChem reference.

Simple acceptance compares the result with the stated limits. Guard band acceptance requires the full expanded uncertainty interval to fall within the limits; overlap is indeterminate. A failed specification remains a reportable result.

Scope and observations

Calculated from the configured neutral formula using monoisotopic atomic masses. This is a theoretical value, not an observed MS result.

Only the listed methods are covered. This report does not establish sterility, endotoxin content, biological activity or suitability for clinical use.

Sample reference: Catalog identity and nominal content supplied by the client.

Chemical form: Neutral MOTS-c peptide; confirm terminal modifications

Chemical reference: [PubChem CID 146675088](#)

Prepared by: alchemlabs