GENESIS BIOLABS

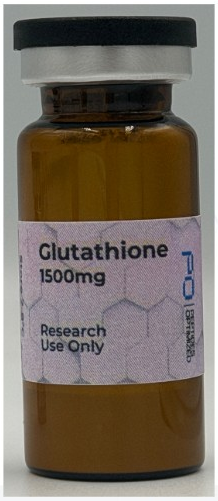
255 S Orange Avenue, Suite 104, Orlando, FL 32801
contact@genesisbiolabs.org | www.genesisbiolabs.org

COA # **5614338**

PASS

Certificate of Analysis

Date:	11/13/2026	Date Tested:	10/28/2026
Customer:	Peptides Optimized LLC	Testing material:	Glutathione
Batch #:	GTT1500-J18	BT Sample ID:	006064977326197
Labeled Peptide Content/Potency:	1500 mg	Storage:	2–8°C
Visual Description:	White lyophilized powder in an amber glass vial; black flip-off cap, silver crimp; free of visible particulate matter.		
Labeled as:	Glutathione	Manufacturer:	N/A
Testing Purpose:	FTIR and HPLC analysis for the identification, purity, potency and composition of a peptide product. It additionally reports elemental impurities (heavy metals), bacterial endotoxins and sterility as recorded in this certificate. It does not provide information on particulate matter.		



Test	Method	Specification	Result	Status
General Appearance	Visual	White to off-white powder	white powder	PASS
HPLC Purity of Peptide Assay	USP <621>	NLT 98.0 % (area normalisation)	99.54 %	PASS
HPLC Potency Assay	USP <621>	1500 mg (net peptide), 90.0 - 110.0 %	1501.25 mg (100.1 %)	PASS
Identity by Mass Spectrometry	LC-MS (ESI)	Observed mass within 1 Da of theoretical	Conforms; observed mass matches Glutathione reference standard.	PASS
FTIR Identification and Composition Analysis	USP <197A>	Sample spectrum consistent with the reference standard	FTIR spectrum consistent with the Glutathione reference standard.	PASS
Heavy Metals (Elemental Impurities)	USP <233> (ICP-MS)	Class 1 (Pb, Cd, As, Hg): NMT USP <232>/ICH Q3D limits	Complies (< LOQ)	PASS

The results of the CoA relate only to the item(s) tested and applied to the sample as received.

COA # 5614338 ACCESS CODE **0TALUY9IRB3T** VERIFY AT www.genesisbiolabs.org/verify

Kenji Sato

Kenji Sato, AS
Laboratory Director
Genesis Biolabs
Signed 11/13/2026

Min-Jun Park

Min-Jun Park, AS
QA Approver
Genesis Biolabs
Signed 11/13/2026

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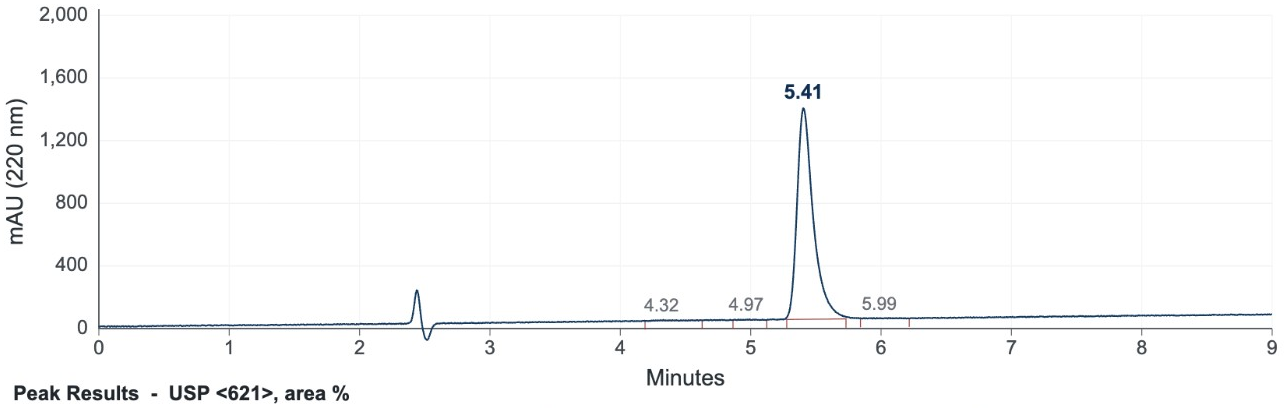
Certificate of Analysis

Product: Glutathione **Batch #:** GTT1500-J18 **Content:** 1500 mg **Tested:** 10/28/2026

HPLC Purity Chromatogram @ 220 nm: Glutathione Lot GTT1500-J18

Sample Name: Glutathione 1500mg
Sample ID / Lot: GTT1500-J18
Method: PEP_TFA_220_GRAD.M
Column: ACE Excel C18, 4.6 x 250 mm, 5 um
Signal: VWD1 A, 220 nm
Mobile Phase: A 0.1% TFA/H2O, B 0.1% TFA/MeCN (gradient)

Injection Volume: 10.0 uL
Acquired: 10/28/2026 10:33
Vial: 1 Injection: 1
Operator: R. Chen
Flow: 1.0 mL/min Column Temp: 30 C
System: HPLC-03



Peak Results - USP <621>, area %

Pk	RT (min)	Area (mAU*s)	Height (mAU)	Area %	USP Res.	USP Tailing	USP Plates
1	4.32	28	3.3	0.24	-	-	-
2	4.97	8	1.4	0.07	-	-	-
3	**5.41**	**11,716**	**1,348**	**99.54**	**2.45**	**1.55**	**10,279**
4	5.99	18	2.2	0.15	-	-	-
Total		**11,770**		**100.00**			

OpenLab CDS | Processing method: USP_PURITY_AREAPCT | Result: main peak 99.5 % (area) | Page 1 of 1

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Certificate of Analysis

Product: Glutathione **Batch #:** GTT1500-J18 **Content:** 1500 mg **Tested:** 10/28/2026

Heavy Metals Analysis (ICP-MS, USP <233>)

Element	Specification	Result	Status
Arsenic (As)	NMT 1.5 ppm	Not Detected	PASS
Cadmium (Cd)	NMT 0.5 ppm	Not Detected	PASS
Mercury (Hg)	NMT 1.5 ppm	Not Detected	PASS
Lead (Pb)	NMT 1 ppm	Not Detected	PASS
Chromium (Cr)	NMT 10 ppm	Not Detected	PASS

Elemental impurities determined by ICP-MS. Limits are laboratory screening limits for research-use material, derived from ICH Q3D permitted daily exposures for the parenteral route.

Test	Method	Specification	Result	Status
Bacterial Endotoxins Test	USP <85>	NMT 40 EU/vial reconstituted	PASS	PASS

The results of the CoA relate only to the item(s) tested and applied to the sample as received.

Bacterial Endotoxins Test Glutathione Lot GTT1500-J18

Sample ID	Description	Volume (mL)	Endotoxin Limit (EU/vial)	Lysate Sensitivity (λ, EU/mL)	Result
GTT1500-J18	Glutathione	3	40 EU/vial	0.25	0.05 EU/vial

The sample passed a valid gel clot endotoxin test based on the type, mode of administration and dosage.

Sterility Test

Test	Method	Specification	Result	Status
Sterility	USP <71> (membrane filtration)	No microbial growth	PASS	PASS

Medium	Incubation Temp.	Duration	Units Tested	Observation
Fluid Thioglycollate Medium (FTM)	30 – 35 °C	14 days	2	No growth
Soybean–Casein Digest Medium (SCDM)	20 – 25 °C	14 days	2	No growth

No microbial growth was observed. The sample meets the requirements of the sterility test (USP <71>).

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Certificate of Analysis

Product: Glutathione **Batch #:** GTT1500-J18 **Content:** 1500 mg **Tested:** 10/28/2026

Notes & Methodology

1. Peptide purity determined by RP-HPLC area normalisation at 220 nm. The value represents the percentage of the target peptide relative to all peptide-related peaks. Non-peptide process-related impurities, where detected, are excluded from the calculation.
2. Net peptide content (potency) calculated as assay content corrected for water (Karl Fischer) and counterion content, expressed as a percentage of the labelled claim.
3. Identity confirmed by FTIR against a reference standard (USP <197A>) and by chromatographic retention time comparison.
4. Elemental impurities screened by ICP-MS per USP <233> methodology. Acceptance criteria are laboratory screening limits for research-use material and do not constitute evaluation against a specific pharmacopoeial monograph.
5. Bacterial endotoxins determined by gel-clot method per USP <85>. Sterility per USP <71>.
6. The chromatogram reproduced in this certificate is representative of the batch tested.

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