

ANALYTICAL CERTIFICATE

Page 1/8

Sample name	GHRP-2
Batch No.	2023154
Sample No.	01
Specification	NA
Manufacturing date	NA

1. Peptide content by HPLC/CLND:

1.1 HPLC Instrument:

Pump: Agilent 1200 Series, Quat Pump G1311A
Sampler: Agilent 1260 Series, Hip ALS G1367E
Degasser: Agilent 1200 Series, Degasser G1379B
Detectors: Agilent 1200 Series, VWD G1314B
Nitrogen detector Antek 8060

1.2 HPLC conditions:

Eluents: A – MilliQ water
B – isopropanol
D – 1% TFA in MilliQ water
Flow rate: 1 mL/min
Gradient:

Time	A (%)	B (%)	D (%)
0	90	0	10
1	90	0	10
9	10	80	10
10	10	80	10
11	90	0	10
15	90	0	10

Column: ARION 5 μ C4-BIO 300 A, 4.6 x 100 mm
Serial No 221258

1.3 Sample preparation:

The whole amount of GHRP-2 (5 mg) was dissolved in 1 mL of DMSO.
Injection: 2 μ L

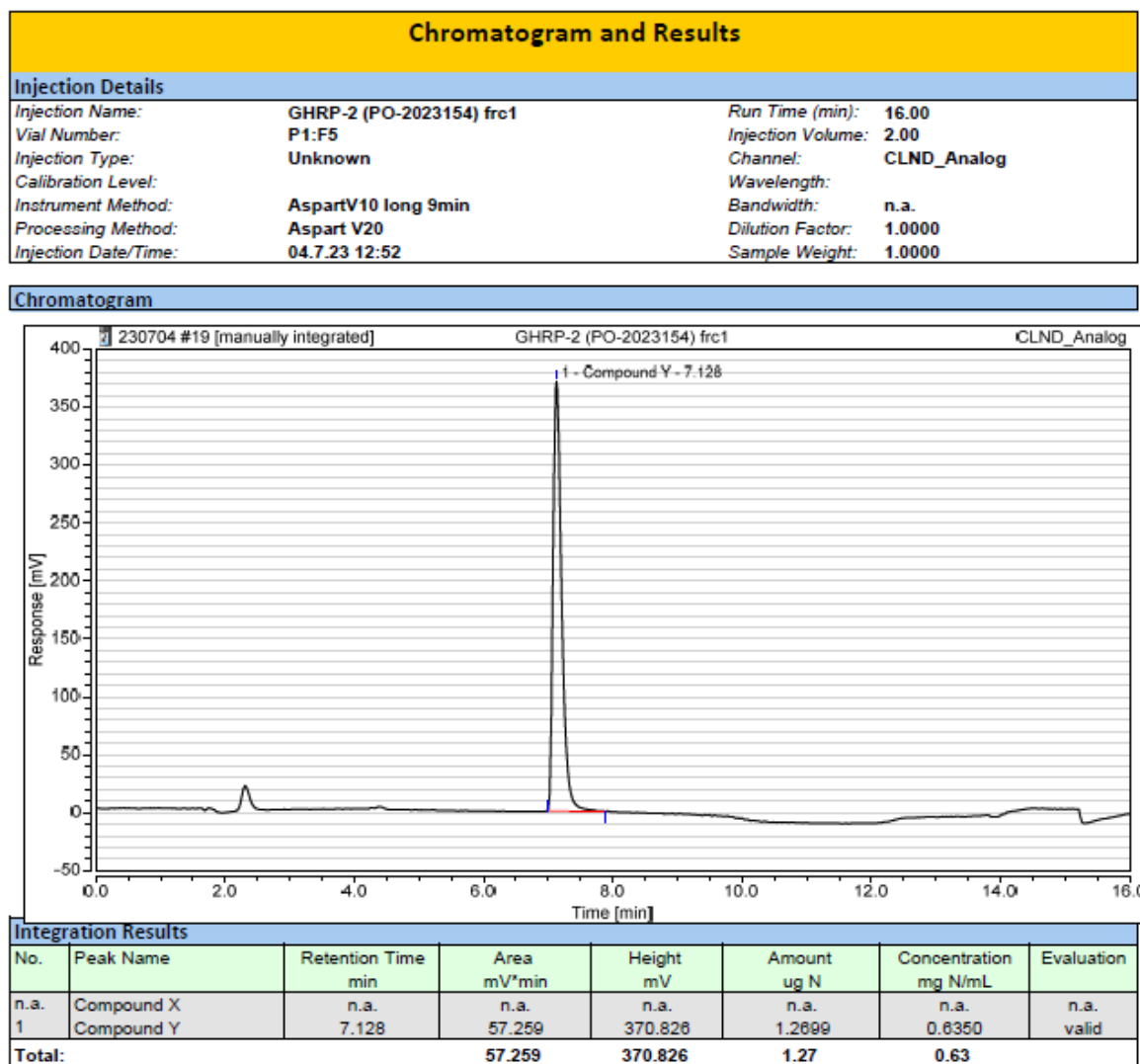
ANALYTICAL CERTIFICATE

Page 2/8

1.4 Chromatograms and calibration curve:

Instrument: CLND-2 Sequence: 230704

Page 1 of 2



ANALYTICAL CERTIFICATE

Page 3/8

Instrument: CLND-2 Sequence: 230704

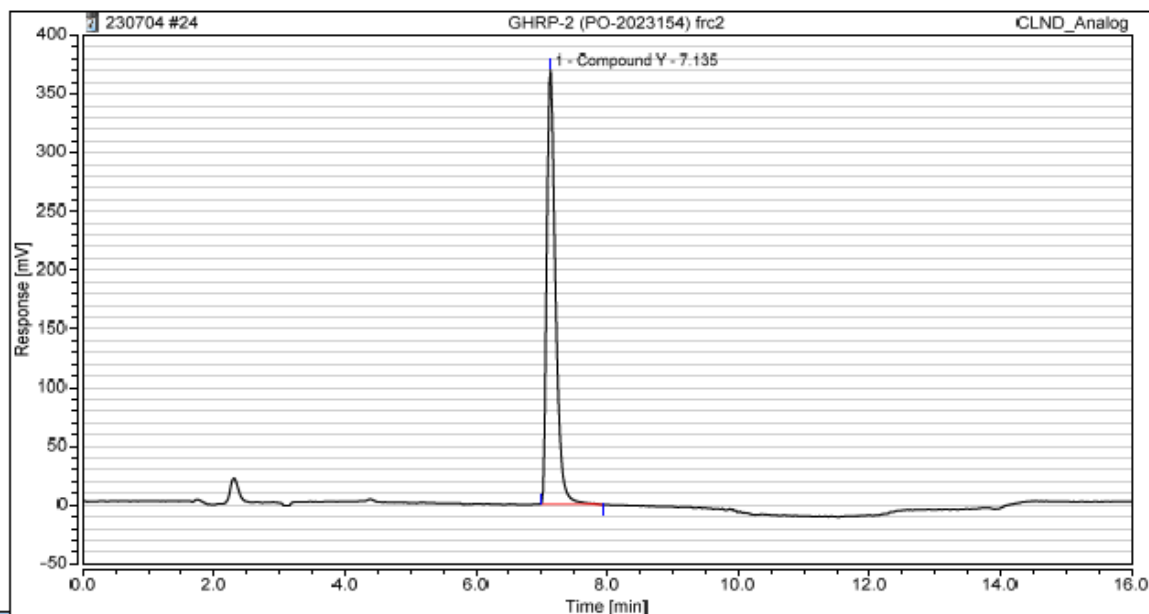
Page 1 of 2

Chromatogram and Results

Injection Details

Injection Name:	GHRP-2 (PO-2023154) frc2	Run Time (min):	16.00
Vial Number:	P1:F5	Injection Volume:	2.00
Injection Type:	Unknown	Channel:	CLND_Analog
Calibration Level:		Wavelength:	
Instrument Method:	AspartV10 long 9min	Bandwidth:	n.a.
Processing Method:	Aspart V20	Dilution Factor:	1.0000
Injection Date/Time:	04.7.23 14:16	Sample Weight:	1.0000

Chromatogram



Integration Results

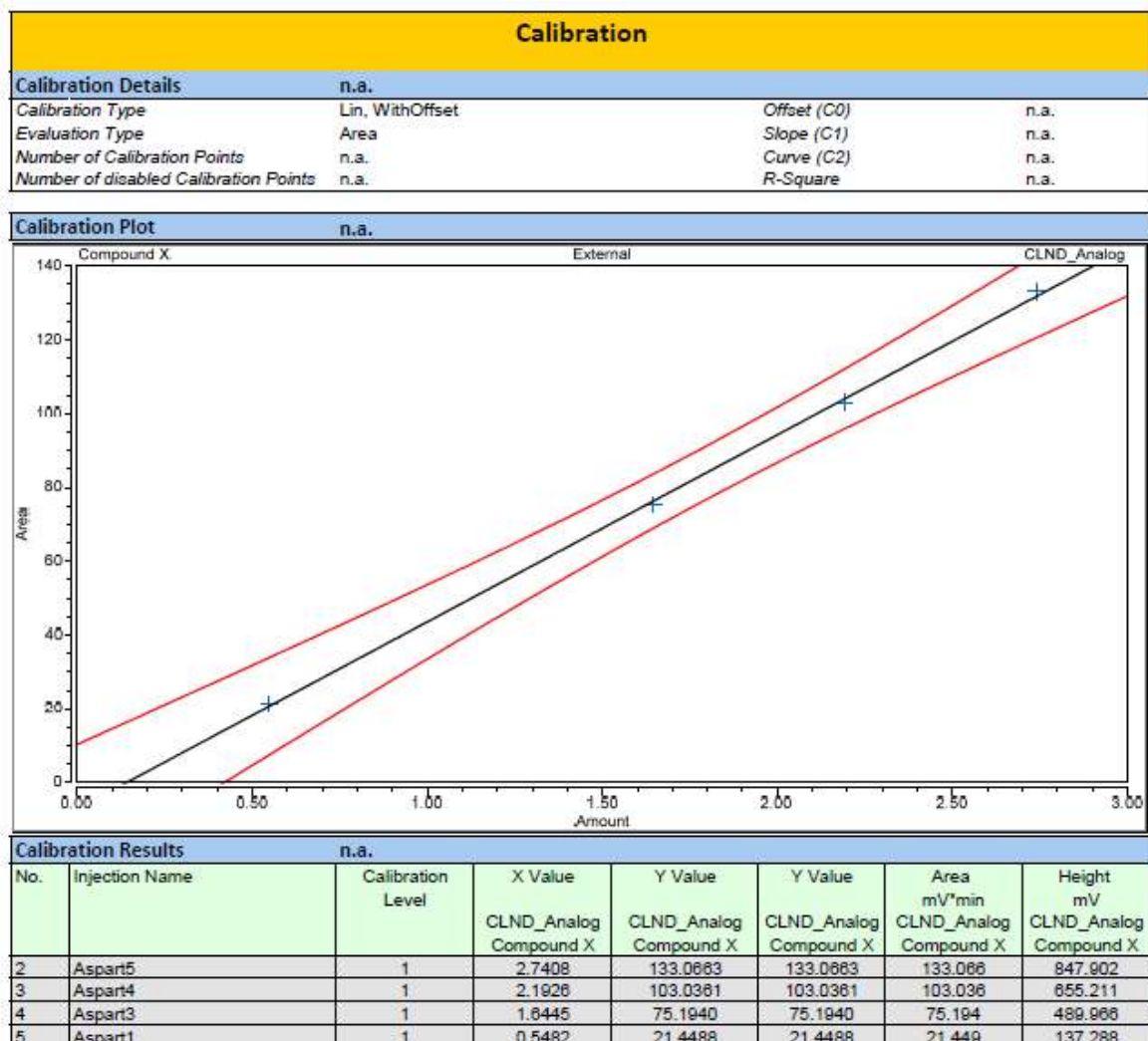
No.	Peak Name	Retention Time min	Area mV*min	Height mV	Amount ug N	Concentration mg N/mL	Evaluation
n.a.	Compound X	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1	Compound Y	7.135	57.398	369.731	1.2727	0.6363	valid
Total:			57.398	369.731	1.27	0.64	

ANALYTICAL CERTIFICATE

Page 4/8

Instrument:CLND-2 Sequence:230704

Page 2 of 2



ANALYTICAL CERTIFICATE

Page 5/8

1.4 Results:

NNC: GHRP-2 (PO-2023154)		Salt:	0
MW (calculated) g/mol	N content (calculated) %	N conc. (measured) mg × N/ml	
817,99	15,41	0,6357	
Theoretical Volume ml		Lyophilizate amount mg	
1,00		5,00	
Peptide concentration mg/ml		Quantified amount mg	
nmol/ml		nmol	
4,12	5043	4,1	5 043
Peptide content assay			
%			
82,5			

Summary table:

Peptide	Aliquoting (mg)	Total weight of sample (mg)	Content of the peptide by CLND (mg)	Content of the peptide in the sample (%)	Content of the peptide against the amount on label.
GHRP-2	5	NA	4.1		82.5%

ANALYTICAL CERTIFICATE

Page 6/8

2. Purity assessment by UPLC:

2.1 HPLC Instrument:

LC-System Waters Acquity UPLC
Detectors: UV or DAD at 214 nm

2.2 HPLC conditions:

Eluents: A – MilliQ water + 0.05% TFA
 B – acetonitrile + 0.05% TFA
Flow rate: 0.40 mL/min
Gradient: from 5% B to 60% B in 4 min, according to chromatogram results
Column: Waters Acquity BEH, C-18, 1.7µm, 2.1mm x 50mm
 Part No 186002353

2.3 Sample preparation:

The whole amount of GHRP-2 (5 mg) was dissolved in 1 mL of DMSO.
Injection: 0,4 µL

ANALYTICAL CERTIFICATE

Page 7/8

2.4 Chromatogram of GHRP-2 (PO2023154)

Sample information

UPLC5

Channel Description PDA Ch1 214nm@4.8nm

Vial : 1:A,6 Vol. : 0.10 ul

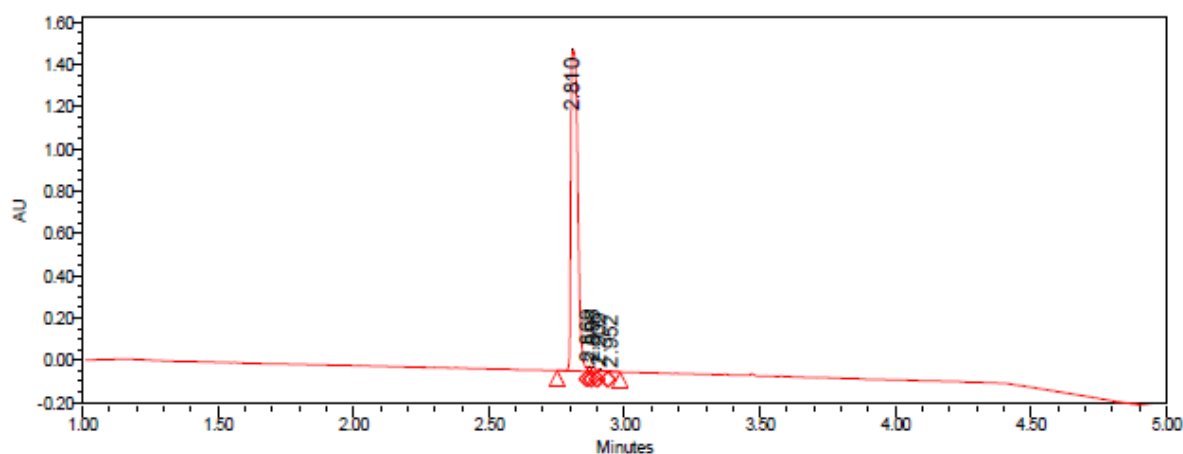
Sample: GHRP-2 (PO-2023154)

Date Acquired 7/11/2023 10:48:05 AM CEST

Date Processed 7/25/2023 7:13:18 PM CEST

Acq Method Set :

Gr5_60_4mi_40C_0_45ml_K2_met_s



	RT	Area	Height (μV)	% Area
1	2.810	2671871	1519449	98.02
2	2.889	19890	23808	0.73
3	2.886	19348	23871	0.71
4	2.909	10473	11925	0.38
5	2.952	4248	4552	0.16

A: 0.05% TFA in water

B: 0.05% TFA in acetonitrile

Gradient :

0.0 - 0.5min 5 - 5 % B

0.5 - 4 min 5 - 60 % B

4.0 - 4.5 min 60 - 100 % B

4.5 - 5.0min 100 % B

5.0 - 5.5min 100 - 5 % B

6min 5 % B

0.45ml/min

Acquity UPLC BEHC18, 1.7μm, 2.1 x 50 mm column

column oven temp. = 40 °C

2.5 Result of purity assessment

The overall purity is 98.02 % at 214 nm.

ANALYTICAL CERTIFICATE

Page 8/8

CONCLUSION:

The sample GHRP-2 (Batch No. 2023154) was analyzed for peptide content and UV purity.

Peptide content is 82.5 % (4.1 mg in 5 mg)

Purity is 98.02 % (UPLC at 214 nm).

ANALYSIS COMPLETED:	Date: 11.07.2023
Issued by QC:	Date: 25.07.2023 Signature: 