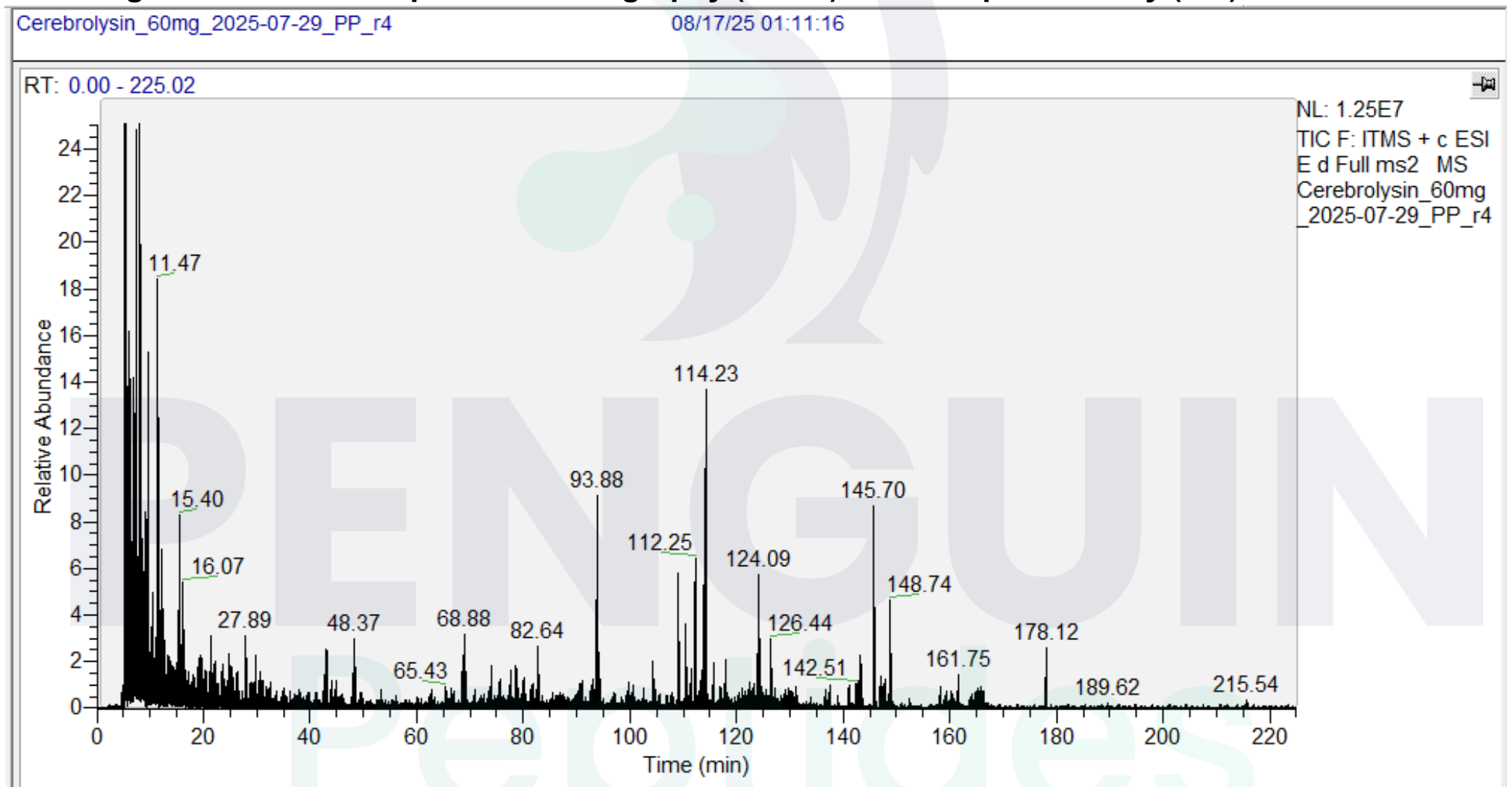


Certificate of Analysis

Cerebrolysin 60mg

Product : Cerebtolysin **Client** : Penguin Peptides
Lot number : 2025-07-29
Analysis date : 2025-08-27
Method : nanoHPLC-MS Proteomics
Description : light yellow/brown, clear liquid when resuspended

Nano High Performance Liquid Chromatography (HPLC) – Mass Spectrometry (MS)



Cerebroprotein hydrolysate consists of hundreds to thousands of small molecules and peptides generated by the enzymatic hydrolysis of porcine brain tissue.

Peptides and their parent proteins can be identified from complex hydrolysates using proteomics. Proteomics uses the fragmentation function of a mass spectrometer to isolate and fragment molecules as they are separated by the HPLC, in this case a nanoHPLC to increase sensitivity. Fragmentation provides sequence information that can be used by various software to identify peptides. The chromatogram above represents the detected compounds that were fragmented by the mass spec over the course of a 225 minute analysis.

Analysis Performed by
Ken Pendarvis, ChE
Analytical Chemist
MZ Biolabs
contact@mzbiolabs.com



2025-08-29

Cerebrolysin 60mg

Analysis Results

44 proteins and isoforms were identified from a porcine (*Sus scrofa*) database from UniProt.org. Of these 44 proteins, **6 have published evidence of cerebral expression**, confirming the tissue source as porcine cerebrum. The most abundant protein detected was Synapsin-1, a brain expressed protein.

Selected cerebral proteins identified in the analysis include:

Synapsin-1 UniProt accession: B7TY10

12 peptides identified

AGGPGAPPAARPPASPS, AGGPGAPPAARPPASPSQ, GGPGAPPAARPPASPSQ, GPGAPPAARPPASPSQ, GPPAQQRPPPQGGPPQPGPGPQ, LQRQP PPPPPAAPS, LQRQP PPPPPAAPSPG, RPPPQGGPPQPGPGPQ, RPQPPPPPAAPS, RPQPPPPPAAPSPG, RPQPPPPPAAPSPGA, RQGPPQKPPGPAGPT

Neuromodulin UniProt accession: A0A287A0Z5

1 peptide identified

KIEQDGIKPEDK

Neurofilament medium chain UniProt accession: A0A5G2QW19

1 peptide identified

EKVEGEGGKEEGGL

Myelin basic protein UniProt accession: P81558

1 peptide identified

AQHGRPQDENPV

Bassoon presynaptic cytomatrix protein UniProt accession: A0A287A274

1 peptide identified

AEPVPKPPPETPLPPGTPK

Amphiphysin UniProt accession: A0A5G2R5I4

2 peptides identified

GPPVPPLPK, KGPPVPPLPK

Porcine species source – CONFIRMED

Cerebrum tissue source – CONFIRMED

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2025-08-29