

Certificate of Analysis

Actovegin – 5 ml, 40 mg/ml

Product : Actovegin
Lot number : 00700423
Analysis date : 2025-06-28
Method : nanoHPLC-MS Proteomics
Description : light yellow/brown, clear liquid
Extractable Vol. : 5.1 ml
pH : 7.0

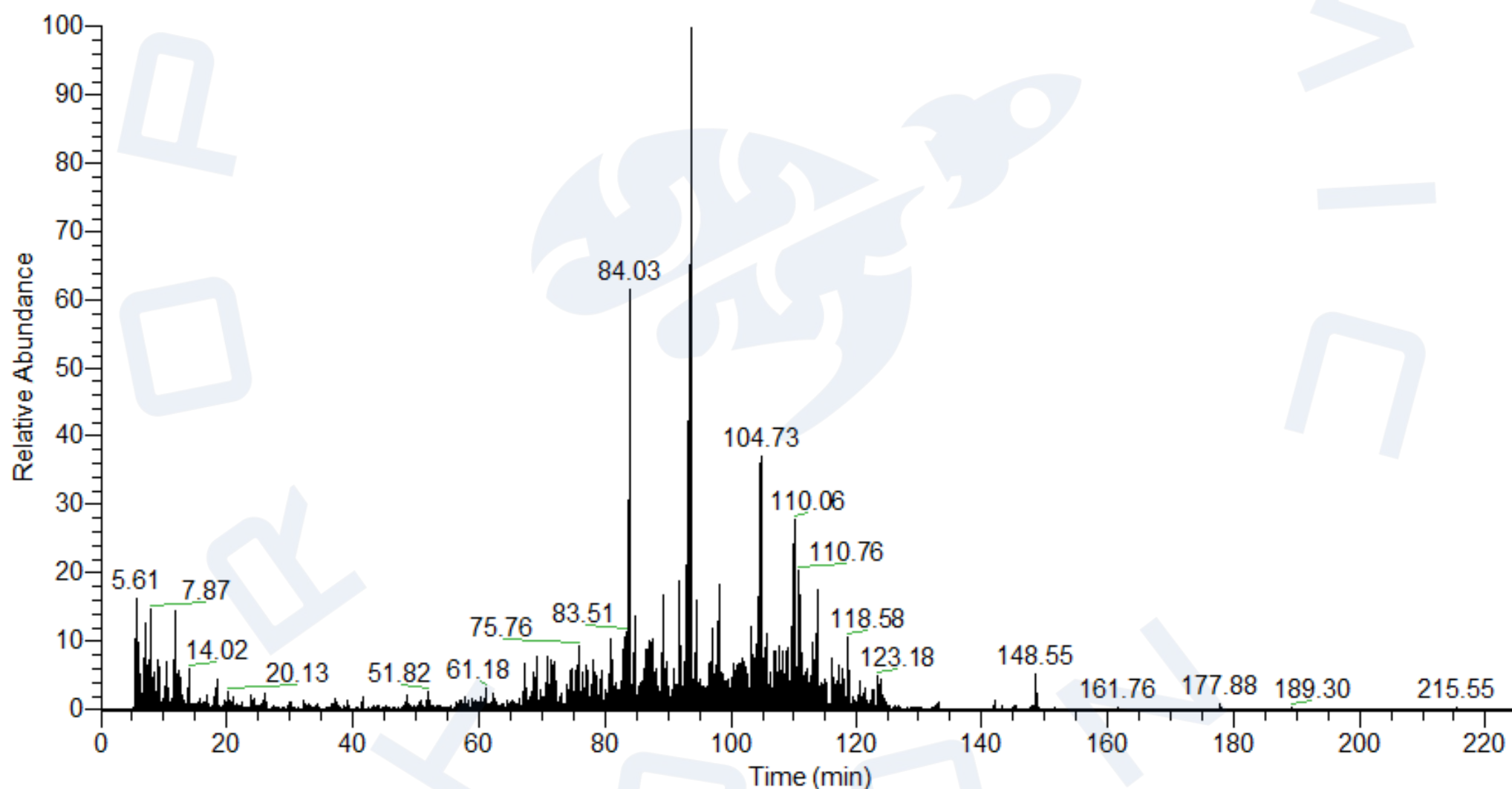
Client : CosmicNootropic

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

Actovegin_Takeda_00700423

06/27/25 16:51:38

RT: 0.00 - 225.03



Actovegin consists of hundreds to thousands of small molecules and peptides generated by the deproteinization and filtration of bovine blood.

Peptides and their parent proteins can be identified from complex samples 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
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2025-07-10

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Analysis Results

Fragments of 197 proteins with published expression data in blood were identified from a bovine (*Bos taurus*) database from UniProt.org. 481 different peptide sequences were identified by the analysis. The most abundant protein detected, also with the highest number of identified peptides was Hemoglobin.

Selected blood related proteins identified in the analysis include:

sp|P01966 |HBA_BOVIN Hemoglobin subunit alpha

28 peptides identified

VLSAADKGNVKAAGWKVGGHAAE, VLSAADKGNVKAAGWKVGGHAA, VLSAADKGNVKAAGWKVGGHA, VLSAADKGNVKA, SAADKGNVKAAGWKVGGHAAE, SAADKGNVKAAGWKVGGHAA, SAADKGNVKAAGWKVGGHA, SAADKGNVKAAGWK, DKGNVKAAGWKVGGHAAEY, KGNVKAAGWKVGGHAAE, VKAAGWKVGGHAA, LSFPTTKTYFPHF, SFPTTKTYFPH, FPTTKTYFPH, DLSHGSAQVKGHGAK, DLSHGSAQVKGHGA, GAKVAAALTKAVEHL, LSDLHAHKL RVD PVN, LSDLHAHKL, SDLHAHKL RVD PV, HAHKL RVD PVN, LASHLPSDFTPAVH, SHLPSDFTPAVH, HLPDFTPAVHASL DK, HLPDFTPAVH

sp|P02070 |HBB_BOVIN Hemoglobin subunit beta

25 peptides identified

WGKVKVDE, DAVMNNPKVKAHGKK, AVMNNPKVKAHGKKVLDS, AVMNNPKVKAHGKKVL, AVMNNPKVKAHGKKV, AVMNNPKVKAHGKK, AVMNNPKVKAHGK, VMNNPKVKAHGK, FSNGMKHLDDLKG, FSNGMKHLDD, GMKHLDDLKG, HVDPENFK, DFQKVAGVANALAHRYH, FQKVAGVANALAHRYH, FQKVAGVANALAHRY, FQKVAGVAN, KVVAGVANALAHRYH, KVVAGVANALAHRY, VVAGVANALAHRYH, AGVANALAHRYH, GVANALAHRYH, VANALAHRYH

sp|P02769 |ALBU_BOVIN Albumin OS=Bos taurus

4 peptides identified

VELLKHKPKATEEQLKT, VELLKHKPKATEEQ, LLKHKPKATEEQLKT, LKHKPKATEEQLK

sp|P80177 |MIF_BOVIN Macrophage migration inhibitory factor.

14 peptides identified

VVNTNVPRASVPDG, VVNTNVPRASVPD, TQQLAQATGKPAQYIAVHVVPDQ, TQQLAQATGKPAQ, QLAQATGKPAQY, QLAQATGKPA, LAQATGKPAQY, LHSIGKIGGAQNR, HSIGKIGGAQNR SYS, HSIGKIGGAQNR, HSIGKIGGAQNR, HSIGKIGGAQNRQ

sp|Q03247 |APOE_BOVIN Apolipoprotein E

1 peptide identified

EEVHAKVEEQGNQM

Bovine species source – CONFIRMED

Blood source – CONFIRMED

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