

PROTEOMICS

Supporting Information

for Proteomics

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The chicken egg yolk plasma and granule proteomes

Supplementary material

Table S1

Tentative identifications and keratins

This table shows protein identifications which were considered as potentially interesting, but were judged to be borderline cases because they did not yield convincing MS³ data. Selected spectra instrumental in identifying these proteins are shown in figures S3-S10. Also included in this table are keratin identifications. These were represented by overlapping peptide sets and some of them also had peptides in common with very similar human keratins. The values given refer to peptides unique to the specified entry.

IPI_Chick	Swiss Prot/Trembl accession no.	Protein		Protein score	No. of unique peptides	Total no. of accepted peptides	Sequence coverage	Gel section	emPAI	Sum emPAI
00584841.1	Q90890	Hep21	P	117	1	9	19%	13	1.5	4.5
			G	157	2	8	41%	14	3.0	
00588085.1	Q6QLR1	Gallinacin-6 (β-defensin-9)	P	166	2	13	49%	16,17	3.6	3.6
00598533.1	P80566	Superoxide dismutase	P	73	1	3	7%	13	0.9	0.9
00572756.1	Q9PRS8	Ovocleidin-17	P	95	1	22	7%	1,17	0.4	0.8
			G	123	1	8	7%	14,18	0.4	
00604279.1	Q6PTX2	Clusterin	P	229	3	15	5%	1,17,18	0.4	0.6
			G	160	2		3%	9,17,18	0.2	
00578517.1	Q6WV24	Zona pellucida protein 1	P	125	2	6	1%	12,13,16	0.4	0.4

00601265.3	P02701	Avidin	G	91	1	2	6%	13,14	0.4	0.4
00600069.1	P21760	Extracellular fatty acid-binding protein	G	79	1	1	6%	12	0.3	0.3
TYPE II KERATINS										
00577384.2		57kDa protein/similar to type II α -keratin IIC	P	278	3	11	4%	1,3,4,6,17	0.4	0.8
00581466.2			G	244	3	4	4%	14,18	0.4	
00581314.1										
00574393.2		Type II α -keratin/61kDa protein/64 kDa protein	P	235	3	10	3%	1,17,18	0.3	0.5
00680485.1			G	163	2	3	3%	15,18	0.2	
00584075.2	Q6PVZ5	Keratin, type II cytoskeletal, cochlear	P	122	1	31	2%	1-4,12,15	0.2	0.4
00570671.2			G	136	1	5	2%	13,14,18	0.2	
00588495.1	O93532	Similar to type II keratin K6h	P	213	2	30	1%	1-3,5,12,15-18	0.1	0.2
			G	333	3	17	2%	1,7,9-11,13-15,17,18	0.1	

Apolipoprotein-1 (fragmentary)	11	72	P	-	-	-	-	-
			G	378	4	59%	1,3-7,12	16.8
Phosphatidylcholine	98	~229	P	-	-	-	-	-
			G	133	1	8%	11,14-16	3.6
Apolipoprotein-2 (fragmentary)	~230	347	P	471	5	59%	16,17	13.7
			G	1125	9	71%	1,9-14	315.2

Figure S1

Alignment of chicken egg α 2-macroglobulin-like proteins

The aligned sequences are IPI00574726/IPI00589043.1 and IPI00599918.2 (all similar to MGC68875) from egg yolk, IPI00595847.1 (similar to α 2-macroglobulin-1) from egg white [29] and chicken ovostatin (OVOS_CHICK, P20740; IPI00589747.1). Sequence stretches containing peptides identified by MS/MS are in red (for IPI00595847.1 these are the peptides from egg white [29]). Residues identical in 3 of the four sequences are shaded yellow.

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IPI00599918.2    1    PAQAMGAPILLALLTLFLATDEASLELQYMVVFPAAVIHRFQEEKLCIHLSSVTEAVH
IPI00595847.1   84    KEEVQSLKGGAFECKLNDVFC SYAMCMVTHYLVVIPAHLRYPSIQVACLHITCYEAKIQ
OVOS_CHICK      12    FFCLTVRKMWLKFIILAILLLHAAAGKEPEPQYVLMVPAVLQSDSPSQVCLQFFNLNQTIS

IPI00574726.1   728
IPI00599918.2   58    LTVTLEIVETQNETLVEKESVVPGHRREQVLVMESQGHLLQCF SYTRIPSVLRLSHIQVLI
IPI00595847.1   144   VKLVLERFAGHDLLVQKNIQK-----EKTfMCTKFWVAPPADGTEEIATVR
OVOS_CHICK      72    VRVVLEYDQTINTTIFEKNTTT-----SNGLQCLNF-MIPPVTSVS-LAFIS

IPI00574726.1   732   SVSIEGESLNTTRKSVMLRALKPGIFVQTDKAIYKPGQEVKFRIVSLDKDFIASDKKLPL
IPI00599918.2   118   RSSDSVLFEGY-KK-VLVKQESIIILLETDKAFYKPGETVKFRIVSLDDDLMVIKKEYLQ
IPI00595847.1   190   LIITGQGVNIEEKKNVLIHKANSGTFIQMDKPIYKPGQTVKFRIVTLDEDFIAFNDSIS-
OVOS_CHICK      116   FTAKGTTFFDLKERRSVMIWNMESFVVFQTDKPIYKPGQSMFRVVALDFNFKPVQEMYPL

IPI00574726.1   792   VFLKDPGRNRIAQWRDVSPRQGIVDLSLPLAAEPALGTYTIHVEGK-----THSFVVEEY
IPI00599918.2   176   IWLQDPEYNRIAEWLNKSRHGIVDLSFPLASEAALGKYIISVQDMAQKTF SVKEYELIK
IPI00595847.1   249   VFLQDPKNNRIEQWLNVPQEGIADLSFQLSDEPLLGTIVINVTNR---KIYDSFTVEEY
OVOS_CHICK      176   IAVQDPQNNRIFQWQNVTSEINIVQIEFPLTEEPILGNKYIIVTKKSGERTSHSFLVEEY

IPI00574726.1   847   VLPKFEVTIDLPPTVWEKDEKFOLEICGRYTYGKPVQGVHASL-----CQPWSFRRYPL
IPI00599918.2   236   FELKFEH----PPFISTEDEFQKLKCGKYTYGKPVQKIDITFITLLQCEMGKQOSWVG
IPI00595847.1   306   VLPKFEVIFEAPVKIYALDKTFPLRVCGRYTYGKAVQGMVYVSL-----CQKISQFLPSA
OVOS_CHICK      236   VLPKFDVIVTAPGSLTVMDSLTVKICAVYTYGQPVQEGKQVLSV-----CRDFDSYGRCK

IPI00574726.1   902   VLKESK-DICTEIDGQ-----TKKNGCFSTEVSMSSFNLSNYNLRKEFQV
IPI00599918.2   292   EQIR-----CPFCDHFRFLQ-----TDKNGCAKFTVKTKALELINESDSCIIVIG
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IPI00595847.1 361 ----SKPDLQQEFYNQVNCLAGAENYSVTVLTDNMGCFFFTNV-TLSFSQDLRYRDSIVA
 OVOS_CHICK 291 ---KSP--VCQSFTKDLDD-----TD--GCLSHILSSKVFELNRIIGYKRNLDV

IPI00574726.1 946 KASLVEEGTGLEMNNTKTCRI--LEKIFTVTFFENTDDFYKRGLPYTGTMQLKRADHSALG
 IPI00599918.2 336 EME--EIGTGAQTKDFS--RISIVTRMKSIIEFINLHPFYKRGLPYTGQQMFCHSDDSPLO
 IPI00595847.1 416 EASLLEDGTEIQVNASHKLLISKIGGM--ALFDDVNSYYHAGEMRGRKIKVIDYKGMKMLK
 OVOS_CHICK 331 KAIVTEKEQVCNLTATQS--ISITQVMSSLOFENVDDHYYRRGIPYFGQIKLVDKDNSPIS

IPI00574726.1 1004 GQQLVLLVNNKIRH---SFLTDES-GRVSFELDTSNWTETV-ELIGEVMMLAYSQN--GS
 IPI00599918.2 392 NEIVYLIIDVNDKIHLSFLTDEE-GKVHFSLNNTTSWN----SLKGTYFLENGTKDNYGQ
 IPI00595847.1 454 YKKVLLVVSFGEQQFQKYLTDGT-GTASFSLNTTAWNSTSVSLEASVLHQMDMDREP-GT
 OVOS_CHICK 388 NKVIQLFVNNKNTHN----FTTDINGIAPFSIDTSKIFDPELSLKALYKTSDQCHSE-GW

IPI00574726.1 1057 SLPAFNRA-YLNLRSSFFSKSQSFLHHRRLKGLKLSCSQTEQLQVDYIILNKEALGSELQSLD
 IPI00599918.2 447 NAGIEK--SFHWLKPFFYSESNFSLEIKARNVMPCDQEQKVQVDYIILNQNKLSSTGTDHMD
 IPI00595847.1 532 VDLNYMRAS-HFIRPFYSTSRFSLSIVHVPMMPCGKKQAIQVDFRIYQEDLEHGPKRVI
 OVOS_CHICK 444 IEPSYPDASLSVQRRLYSWTS-SFVRIEPLWKDMSCGQKRMITVYYIILNTEGYEH-INIVN

IPI00574726.1 1116 VVFLVLAQGTIANILRKELTLGAGLR--GSFSLELPTSPELAPTATVLGYA-VLPNGEML
 IPI00599918.2 505 FYYMNFNTVQKAAGNL-VSNTS--ATKGFFWMGKANLHGSFS-LTLTIGNDFLPDIKLL
 IPI00595847.1 591 FSYLVTGKSGIVHAGQKTIVWGLPRMLKGFSSIPVTFSSVYAPTSTLIVYV-IFPNKGTI
 OVOS_CHICK 502 FYYVGMAGKGIIVLTGEIKVNIQADQ--NGTFMIPLVVNEKMAPALRLLVYM-LHPAKELV

IPI00574726.1 1173 AGSTNLN-----VLNCLPNKVKMAFSKERALPGSTLRMGLEASPGSLCAIRAVD
 IPI00599918.2 561 VYTVFLDGQVVADVEEFQVAKCFRHKVELDFSSKQEVPGSKVSLNKAAPGSLCSVQSVD
 IPI00595847.1 650 -----ADSAVFSVSMCFRNKAELSFSVPKILPGSEVNLHLQAAPGSTCAVWAVD
 OVOS_CHICK 558 -----ADSVRFSEIEKCFKNKVLQFSEKQMLTTSNVSLVIEAAANSFCAVRAVD

IPI00574726.1 1222 RSVLLLLKPEAELSMAEIYKVLPNFDYP--GS-----IRDPP--PCTWYRRHWYIPRITM
 IPI00599918.2 621 KSVLLMENNTLTADTLYFTIGGR-----GFPYH--LEDFDAYPCLPQSS-VIKKIQM
 IPI00595847.1 699 QTVFLLKPEKELSHSMIYGLFSPSTYSGYPHQV--SEDD--NSCGFQNSDQ-----
 OVOS_CHICK 608 KSMLLLLKSETELSAETIYNLHP--IQDLQGYIFNGLNLEDDPQDPCVSSDDIFHKGLYYR

IPI00574726.1 1272 SEPI-----DVRRSRR----FILPPYWDSFQLSPYTLF-----QNAAL-KLL---TNAKT
 IPI00599918.2 671 GAPWYQSDADVFNLFKSLRMKILTNTKIKKPVSCM-----QQNFERKMLPNKNSVMD
 IPI00595847.1 748 -----PDVFTAFREMGLKIMSNTNIRKPRLCITQSTTMMQERGMFTSRPMLMFAQP
 OVOS_CHICK 666 PLTSGLG-PDVYQFLRDMGMKFFTNKIRQPTVC-TRETV-----RPPSYF---

IPI00574726.1 1314 RDDCKVLYKPKQRHFLMGAPARSHARED TMDMVMVESG-----
 IPI00599918.2 723 SHVVHDNLVPSDD-TKKP-----KARTY-----

IPI00595847.1	800	HKESNICLCLWLCCEPAIHKVGSWDVSWDKGEADLHRSPQDLGLCPVRKAEDSVSVQDSPW
OVOS_CHICK	710	-----LNAGFTASTHHV-----KLSAEVAREE-----
IPI00574726.1	1351	--LEMPMLASVPGAPSNEEEPPAPRTHFPETWLWDLV--PVGEE--GSAEMVVTVPDAIT
IPI00599918.2	746	-----FPETWIWDLV--PISDE--GQASLQVTVPDTIT
IPI00595847.1	860	TRKQISVFQTGRGSRMVVWEAIFHRASEERDKLLKIFLLWTSSELPKQTVTVTVPTIT
OVOS_CHICK	732	-----RGKRHIL-ETI--REFFPETWIWDIILIN-ST--GKASVSYTIPDTIT
IPI00574726.1	1405	EWKAEMFCTAPV-GLGLAPATTLTVFKPFFVDLALPYAVIRGEAFSLVATVFNYLRCCLR
IPI00599918.2	775	EWNANTFCVADT-GFGLSHLATLRVFPFFVDLSLPYSVIQGEIFSLKATIFFNLYKDCIQ
IPI00595847.1	920	GWKAGMFCTGHN-GFGLAPTSSLLVFKPFSVELTLPSSVIQGETFILKATVLSYLQCCMK
OVOS_CHICK	774	EWKASAFCEELAGFGMSVPATLTAFQPPFVDLTLPLYSIIHGEDFLVRANVFNLYLNHCIK
IPI00574726.1	1464	VRVTLADSAELEVSEVAGAIYSICVCADEAKTFRWDVKATNLGEVNIITISTEAISSEELC
IPI00599918.2	834	VHTTLEIETPELKVDACPGCQFTSCLCANEAKIFAWNVTATRLGKVNVTVSSVAEDSHNLC
IPI00595847.1	979	IQVTMEEFPPQFQLKSCEGCVYSSCLCAGEVKTFLWSVTAERLGFNTITLSTEAIAATKELC
OVOS_CHICK	834	INVLLLESLDYQAKLISPED-DGCVCAKIRKSYVWNIFPKGTGDVLFSAET-NDDEAC
IPI00574726.1	1524	GNEKPVVPAQGRVDTVIKPLLVQPGGILVEKAHSSLLCQEA---SEE-VSLELPANVLEG
IPI00599918.2	894	DNRVAVTPLQGMKDTVIKPLLVKPGGILQEKTONAFLCATDNTVSEE-FSLTLPATLEG
IPI00595847.1	1039	GKEIPFVFNQGGKDTITKLLLVKPEGVVIEKAHSSILCPKKGSPAEESVSLTLPNTVEG
OVOS_CHICK	892	EEELRNIRIDYRDTQIRALLVEPEGIRREETQNFLICMKDDVISQD-VAIDLPTNVVEG
IPI00574726.1	1580	SQRAHVTVMGDMGNALQNVDRLLAMPYGCGEQNMVRFAPNIYIQQYLEKSGQMNPDIRA
IPI00599918.2	953	SGRATFSVIGDMGPALQNLQQLQMPFGCGEQNMVQFAPNIFVLQYLKKTQLDPEIEV
IPI00595847.1	1099	SVRATVSVTGDLMGTALQNLHLVQMPHGCGEQNMVLFAPIVYMLQYLEKTRQLTPEIKE
OVOS_CHICK	951	SPRPSFSVVGDMGTAIQNVHQLQMPFGNGEQNMVLFAPNIYVLDYLDKTRQLSEDEVKS
IPI00574726.1	1640	KAQGFLOSQYQRELLYKHS DGSYS AFGETD DSGNTWLTAFVLLKSFQARAFVAIEERHIT
IPI00599918.2	1013	IALYFLRTGYQRQLLYKHDDGSYS AFGKSDTQ GNTWLTAFVARSFGQASSYIYINKDHVQ
IPI00595847.1	1159	RATGFLRNGYQIQLOYPDPGFSSEFGTKDEY GNTWLTAFVVKCFAQAKPYIFLDDRSIQ
OVOS_CHICK	1011	KTIGYLVSGYKQLSYKHPDGSYSTFGIRDKEGNTWLTAFVYKSF AEASRFIYIDDNVQA
IPI00574726.1	1700	DAQHWLQRQQESGCFR SVGKLFNNALQGGV SDELSLSAYVTAALLELGLPPTDPTVSS-
IPI00599918.2	1073	DAVLWLQKHQLSNGCFQ SVGKLFNNDLKGVDDTI SLTAYVAAALLELQLEKND-TMLDN
IPI00595847.1	1219	AAFNWLEFHQLPNGCFRDVGQLFHTAMK S-----TVVRK
OVOS_CHICK	1071	QTLIWLATKQKTDGCFQSTGILVNNAMKGGVENELSL SAYITIALLEAGHSMSH-TVIRN
IPI00574726.1	1759	ALKCLEASSTDDL---YTEALLAYVCGLAGREEQQARLQSLLRGTSTEGLLFWKRKDK
IPI00599918.2	1132	ALRCLK-NVTFDETSLYVKALMAYVFTLTEDVEMRQELLDKL-EKET---GSSAWMHSNN

IPI00595847.1	1253	ALGCIIPSLPKA-TSTYTQALLAYTFALAKDPQRTQELLDILDEKAIRAGGQIHW--SQT
OVOS_CHICK	1130	AFYCLETASEKNITDIYTQALVAYAFCLAGKAEICESFLRELQKSAKEVDGSKYWEQNQR
IPI00574726.1	1816	ALSTEFWLWAEAAPAE--EMTAYVLLAYL--PERASVPC
IPI00599918.2	1187	KCGFLIKDSSSEESSSMIEIVAYILLAHVSKPDF-AVND-SAVSKLVHWLSKQRNALGGF
IPI00595847.1	1310	PSKAHSTSLWSQPLSVDVELTAYVLLALLSKPNV-TEADFTIASGIVAWLTRQQNAYGGF
OVOS_CHICK	1190	SAPEKSH-LLDHVQSTDVEITSYVLLALLYKPNR-SQEDLTKASAIVQWIIRQQNSYGGF
IPI00599918.2	1245	ASTQDTVVSLQALAQYAAALIPHEVRDVKVTVGKEA--SPLEFHVHKNNKLVLHQASLLEV
IPI00595847.1	1369	ASTQDTVVVALQALAKYAALTHNTKGVAEVRKVRSQRSGSRKFQVSYHNRLLVQEMALREI
OVOS_CHICK	1248	ASMQDTVVVALQALAAAYGAATYNSVTQNVIKINSKN-TFEKVFVNNENRLLQQTPLPQV
IPI00599918.2	1304	PGMYTVEATGSGCVYIQSTLYYNIPPPKTQVV-FLLDVEVTRECDGVRKQFDIHIS-VS
IPI00595847.1	1428	PGKFSVQAHGSCCVFTRTVLRYNIPFPQVSK-SFALQVKTKPDNCTEDDAYSVTLYVNV
OVOS_CHICK	1307	PGKYSLTVNGTGCVLIQTALRYNIHLPEGAF-GFSLSVQTSNASCPRDQPGKFDIVLISS
IPI00589043.1	1	MVVEAKMPSGYIPDKSSVVE-LKRQKLVKKVEVQSDQVTIYLDQ-LTKEE
IPI00599918.2	1363	YTGDRETSNNMALVEVDMLSGFIPTKRSVKE-LENVFLVKKAEIKPKDKVTVYLEE-LDKTS
IPI00595847.1	1487	YTGKRAISNMVIVEVSLLSGFVLAARSGM-SPHHWYPVRRTEKTQAGVAIYLDK-LSHVS
OVOS_CHICK	1366	YTGKRSSSNMVIIDVKMLSGFVFPKSSLDQLIDDHT-VMQVEYKKNHVLLYLGNILQKRR
IPI00589043.1	50	ETFFSFAATQDFPVKNLQPATVTLTYDYYETGDRDAAAYSAPCSSSEDDRQTKENF
IPI00599918.2	1420	LNLNISVEQDNEVQILKPATVHVYDYYKPDRTAREYNSPCSSVQ
IPI00595847.1	1545	ETYVLHLEREIEVTNLKPGQVRVYDYYHPEEQALADYNVSCI
OVOS_CHICK	1425	KEVTFVSVEQDFVVTHPKPAPVQIYDYYETEEYAVAEYMSLCRGVVEEMG

Figure S2

Sequence alignment egg yolk aspartic protease to lizard nothepsin and chicken cathepsin D.

The nothepsin sequence is from *Podarcis sicula* (Italian wall lizard). Identical residues are shaded yellow. Only the sequence containing peptides identified by MS/MS is shown. The identified peptide sequences are shown in red.

IPI00595742.1	151	FDGVLGLGYPSLAVGNALPVFDSIMNQKLVEEPVFSFYLRGDDTENGGE
Nothepsin	184	FDGVLGLGYPSLSVLHGLPVFDGMLRQQLIEEPVFSFILNRGGNTENGGE
Cathepsin D	183	FDGILGMAFFRISVDKVTFPFFDNVMQQKLIKNIFFSYLNRDPTAQPGE
IPI00595742.1	201	LILGGIDHSLYKGSIHWPVTEKSYWQIHLNNIKIQGRVVFCSHGCEAIV
Nothepsin	234	LIFGGIDHSLYKGSIHWPVTEQKYWKIHMDNVKIQGHIAACKDGCAAIV
Cathepsin D	233	LLLGGTDPKYYSGDFSWNVNTRKAYWQVHMDSVDVANGLTLCKGGCEAIV
IPI00595742.1	251	DSGTSLITGPPSSQIRRLQEQYIGASPSRSGEFLVDCRRLSSLPHISFTIGH
Nothepsin	284	DSGTSLITGPPSSQIRRLQKIGAHAPPHGEFIVDCRRLSSLPPIFTTIGQ
Cathepsin D	283	DTGTSLITGPTKEVKELQTAIGAKPLIKGQYVISCDKISSLPVVTMLMLGG
IPI00595742.1	301	HDYKLTAEQYVVKESIDDDQTFMMSGFQSLDIPTHNGPLWILGDVFM SAFY
Nothepsin	334	REYTIITSKQYIIKQTSNGEAFCLSGFQALDLGPRSKPMWILGDVFIGQYY
Cathepsin D	333	KPYQLTGEQYVFKVSAQGETICLSGFSGLDVPPPGGPLWILGDVFIGPYY
IPI00595742.1	351	CI FDRGNDRVGFSAHRDDY
Nothepsin	384	TVFDRANDRVGFARPNDR
Cathepsin D	383	TVFDRDND SVGFAK

Figure S3

Identification of Hep21

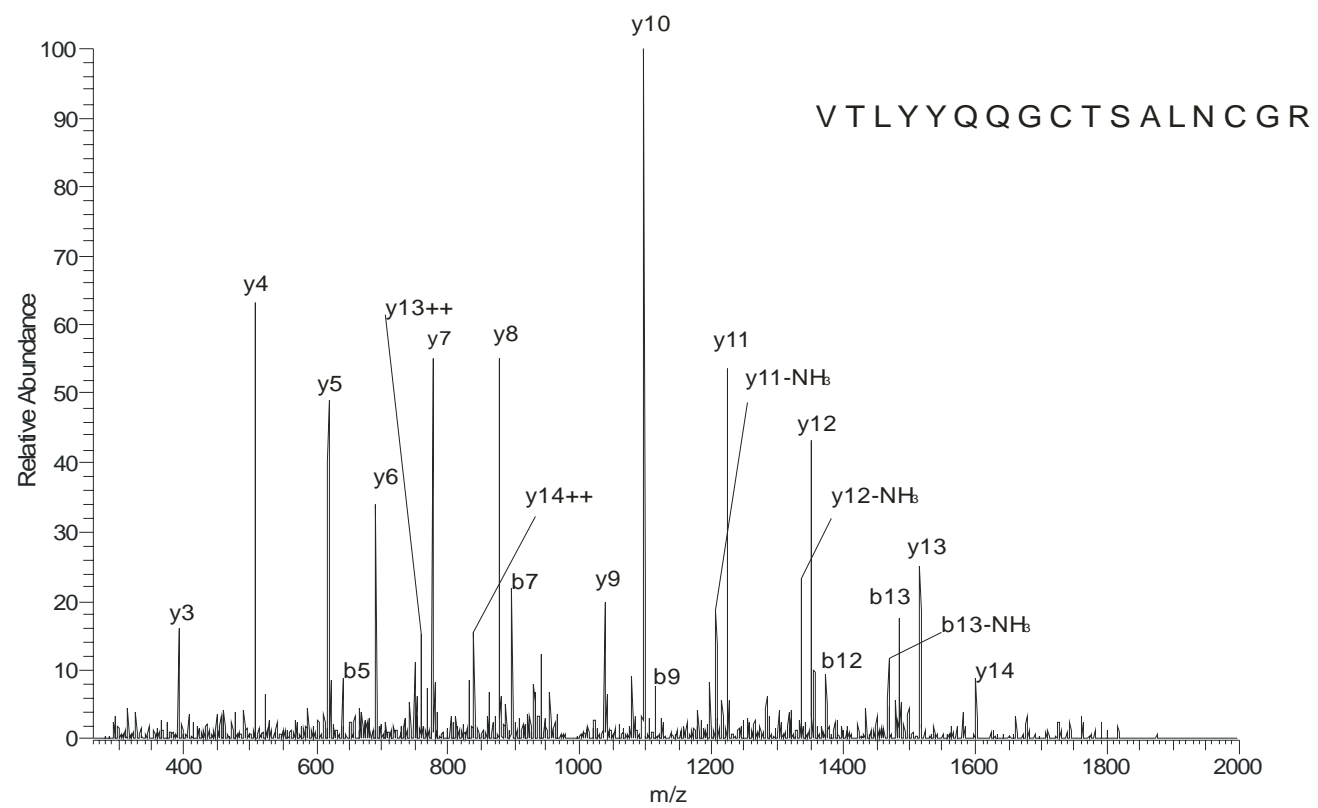


Figure S4

Identification of gallinacin-6

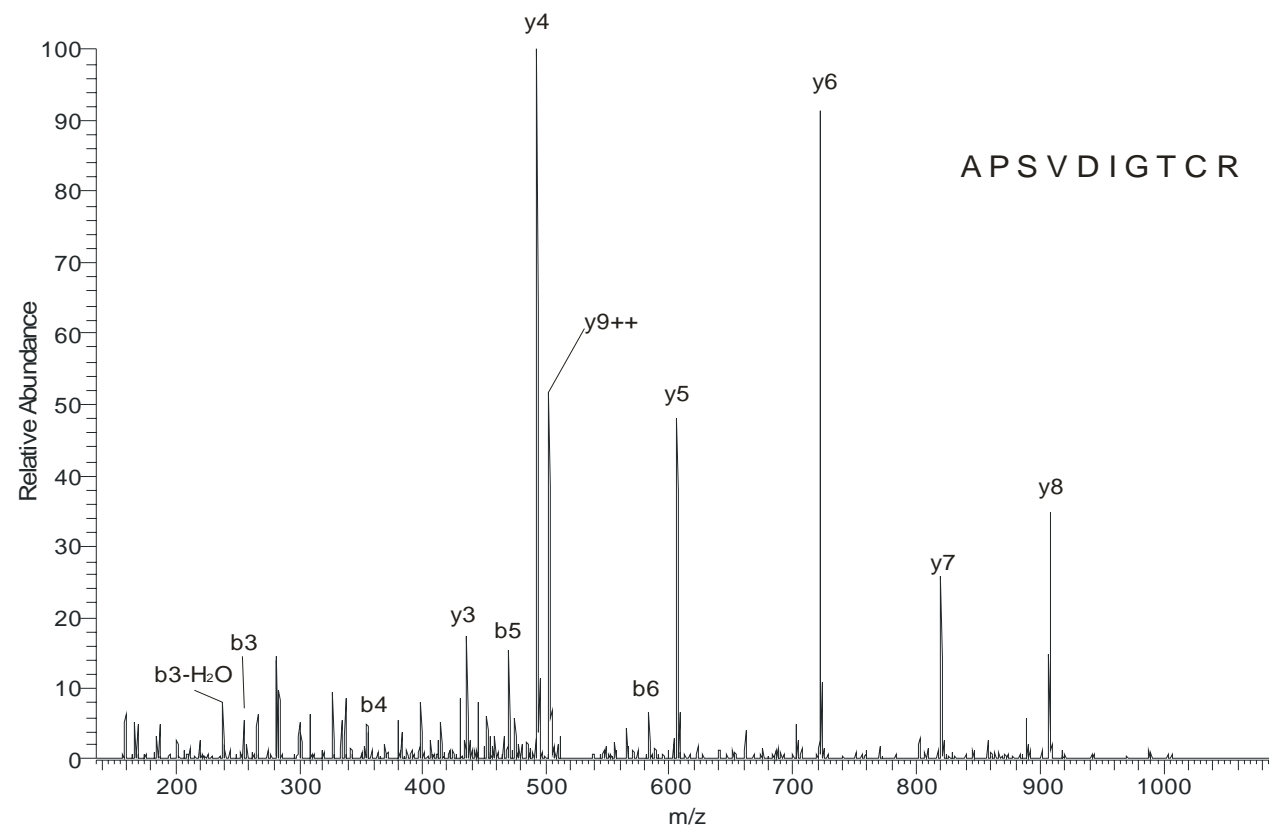


Figure S5

Identification of ovocleidin-17

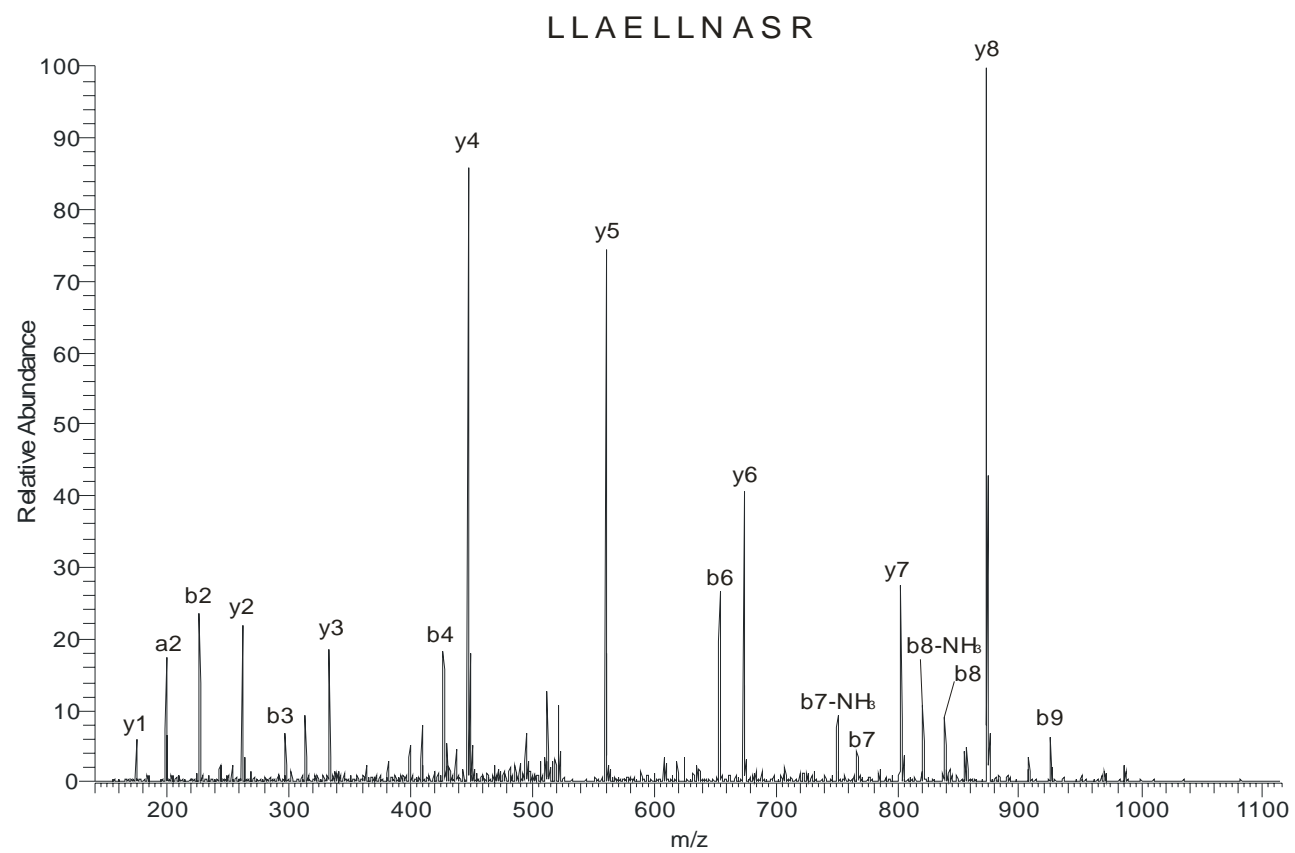


Figure S6

Identification of avidin

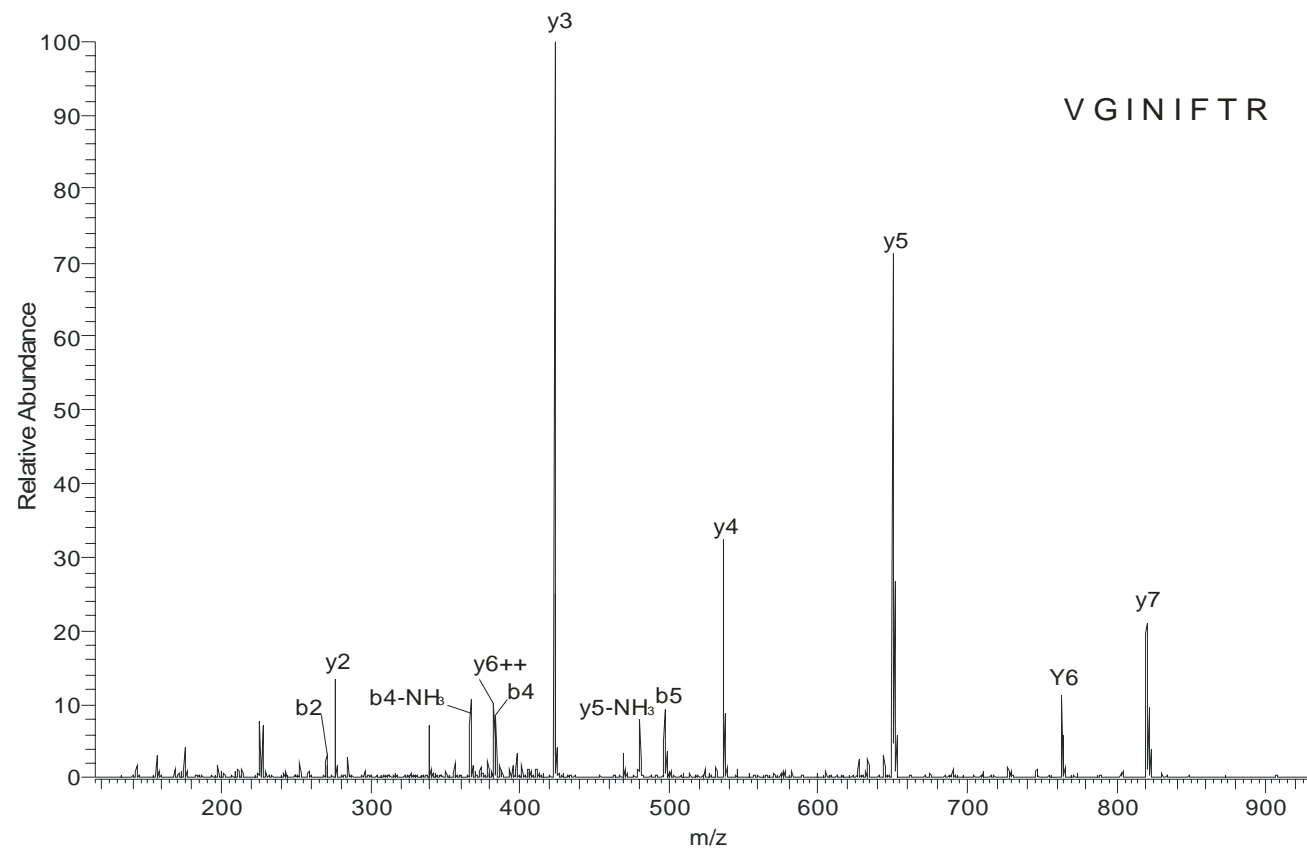


Figure S7

Identification of clusterin

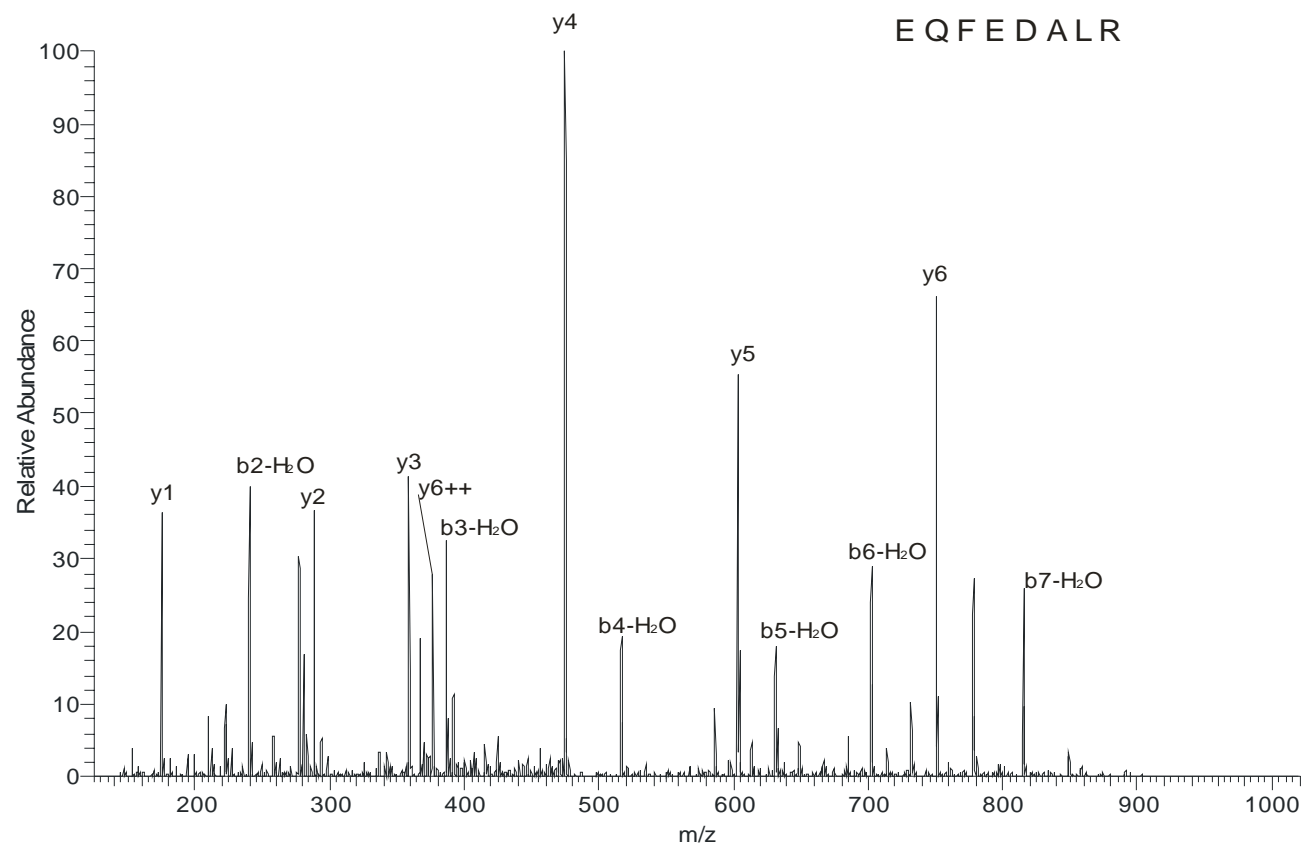


Figure S8

Identification of extracellular fatty acid-binding protein

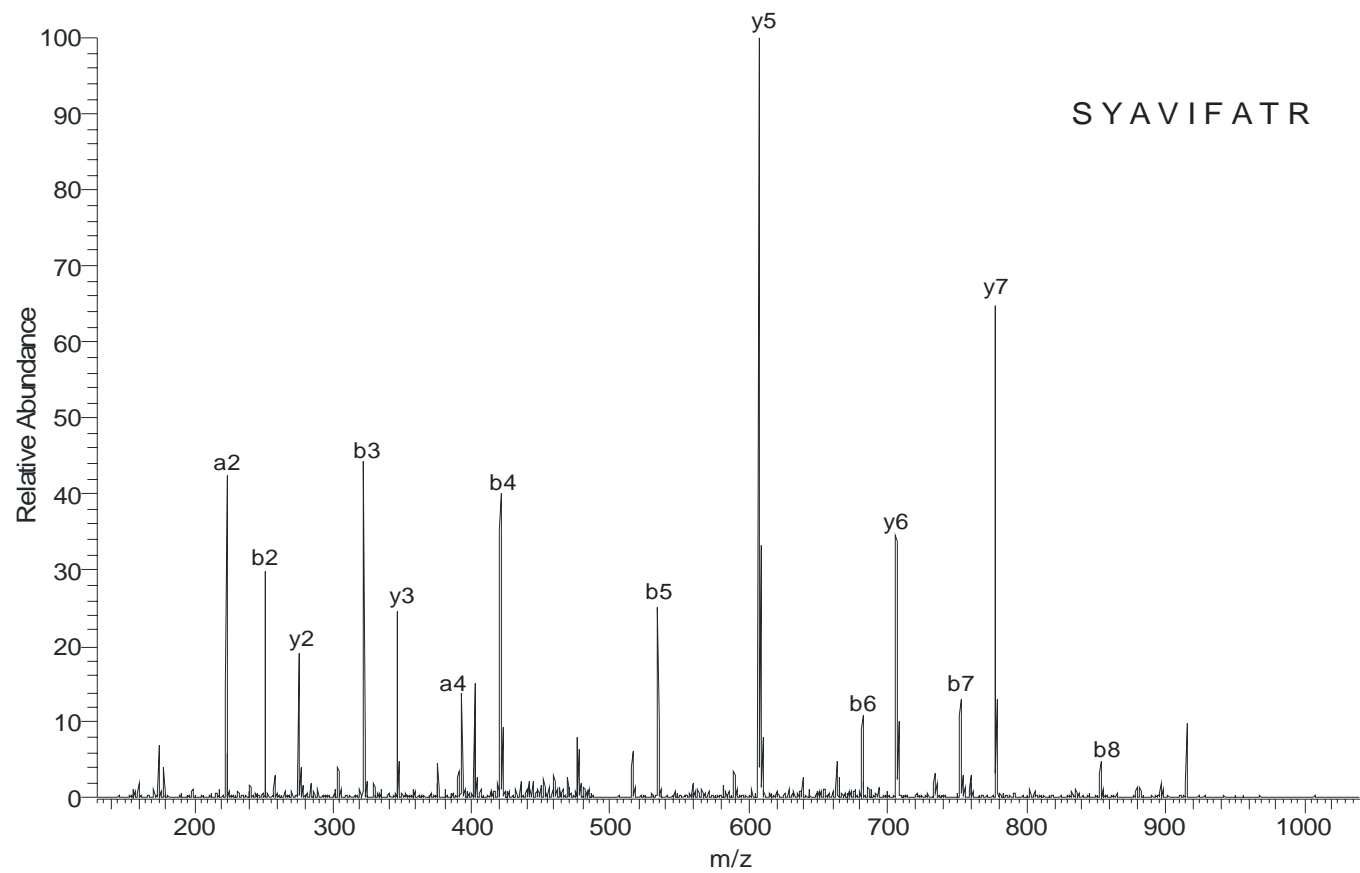


Figure S9

Identification of Zona pellucida protein 1

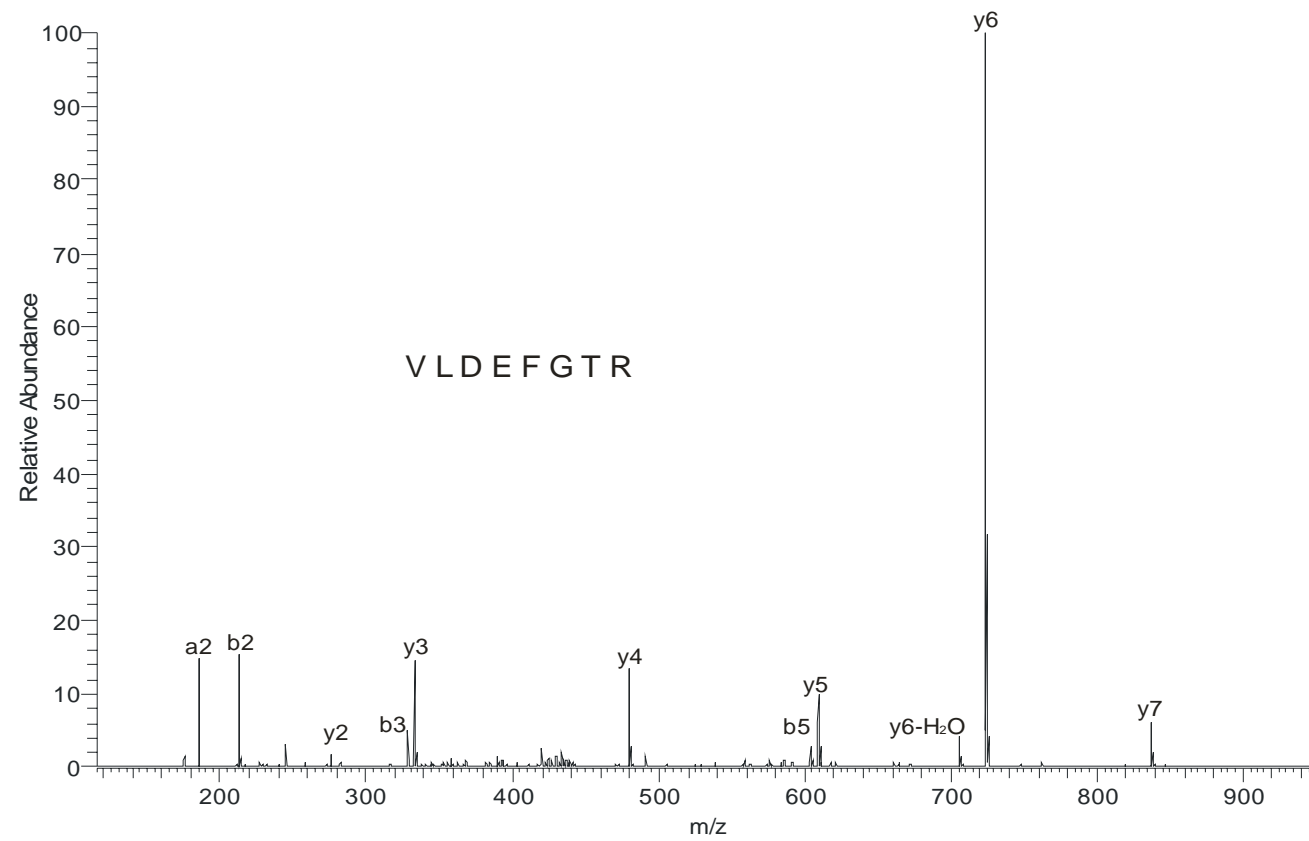


Figure S10

Identification of superoxide dismutase

