

AF Peptide	Amino Acid Sequence	Transcript
AF1	KNEFIRFa	<i>afp-7</i>
AF2	KHEYLRFa	<i>afp-4</i>
AF3	AVPGVLRFa	<i>afp-1</i>
AF4	GDVPGVLRFa	<i>afp-1</i>
AF5	SGKPTFIRFa	<i>afp-2</i>
AF6	FIRFa	
AF7	AGPRFIRFa	
AF8	KSAYMRFa	<i>afp-3</i>
AF9	GLGPRPLRFa	
AF10	GFGDEMSMPGVLRFa	<i>afp-1</i>
AF11	SDIGISEPNFLRFa	<i>afp-11</i>
AF13	SDMPGVLRFa	<i>afp-1</i>
AF14	SMPGVLRFa	<i>afp-1</i>
AF15	AQTFVRFa	<i>afp-9</i>
AF16	ILMRFa	<i>afp-10</i>
AF17	DFDRDFMHFa	<i>afp-5</i>
AF18	NKFFLRKP	
AF19	AEGLSSPLIRFa	<i>afp-13</i>
AF20	GMPGVLRFa	<i>afp-1</i>
AF21	AMRNALVRFa	<i>afp-6</i>
AF22	NGAPQPFVRFa	<i>afp-6</i>
AF23	SGMRNALVRFa	<i>afp-6</i>
AF24	RNKFEFIRFa	<i>afp-8</i>
AF25	NNFLRFa	<i>afp-11</i>
AF26	KPNFLRFa	<i>afp-11</i>
AF27	PADPNFLRFa	<i>afp-11</i>
AF28	SAEPNFLRFa	<i>afp-11</i>
AF29	NAEPNFLRFa	<i>afp-11</i>
AF30	APNKILMRFa	<i>afp-10</i>
AF31	TPSNNFLRFa	<i>afp-11</i>
AF32	GSDPNFLRFa	<i>afp-11</i>
AF33	SNQAQNFLRFa	<i>afp-11</i>
AF34	DSKLM DPLIRFa	<i>afp-13</i>
AF35	DPQQRIVTDETVLRFa	<i>afp-13</i>
AF36	VPSAADMMIRFa	<i>afp-12</i>
AF37	FRGEPIRFa	
AF38	AQREPIRFa	
AF39	SPKQKFIRFa	
AF41	KPNFIRFa	<i>afp-11</i>

Supplementary Table S1. *Ascaris* FMRFamide-like peptides (AF peptides). When known, peptide transcripts are given in the 3rd column. (1-11)

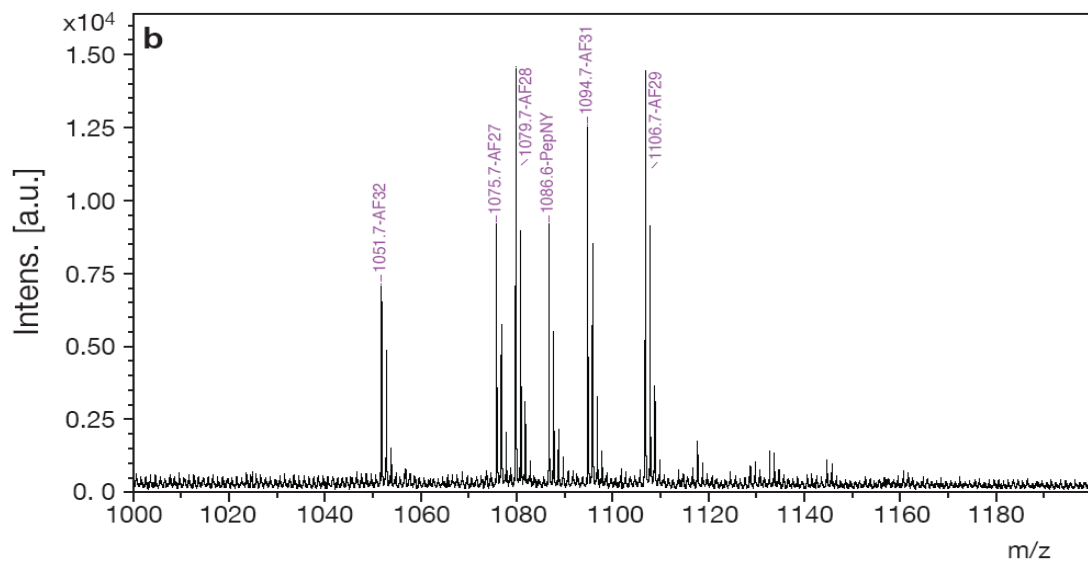
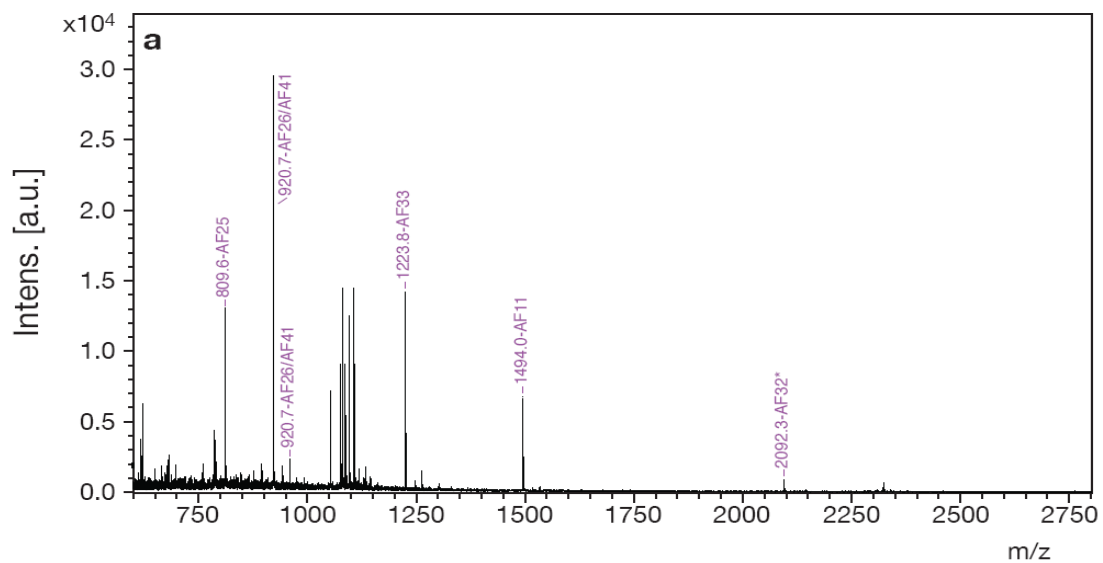
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						628.0						
	630.1	630.0	630.0			630.0	630.1	630.1		630.1	630.1	
		632.0	632.0			632.0		632.1		632.1	632.1	
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								650.0		650.0	650.1	
								654.3		654.3	656.1	
			656.0					656.2			660.3	
	660.0								660.2	660.2	666.1	
			666.6									
			668.6	668.6								
								676.1				676.1
							678.6			678.5	678.5	
							682.1					
								692.0		692.0	692.1	
			693.9					694.0		694.0	694.1	
	695.4	695.4	695.4	695.4	695.3	695.4		695.4	695.4	695.4	695.5	
					696.3					696.4		696.1
								698.1				
								706.6				
												746.0
												748.0
								784.7				
								786.7		786.6	786.6	
								788.7		788.6	788.6	
	792.5	792.4			792.4	792.4				792.4		
AF25	809.5	809.4	809.4	809.4	809.4	809.4	809.6	809.6	809.4	809.4	809.5	809.5
								810.5				
									817.8			
AF25Na		831.4	831.4			831.4			831.4			831.5
	833.1					833.1						
					839.4					839.5		
	844.1											
						851.4						
	855.1					855.0						
	856.1											
	857.4											
	860.1											
												861.2
		863.3				863.4						

								865.2				
								867.6		867.4		
AF25Cu	871.1	871.4	871.4			871.3			871.4	871.4	871.4	871.5
						872.5					873.4	
	873.1	873.3							873.3	873.4		
			877.0									877.1
							893.2					
AF31'	896.5	896.5	896.5	896.5	896.5	896.5		896.6	896.5	896.5	896.5	896.6
					898.5							
		902.5	902.5		902.5	902.5			902.5		902.5	
	905.7	905.5			905.5	905.5				905.7		
					913.5	913.5						
AF26/41	920.6	920.5	920.6	920.6	920.5	920.5	920.7	920.7	920.5	920.5	920.6	920.6
AF26/41Na	942.6	942.5	942.5	942.5	942.5	942.5	942.7		942.5	942.5	942.5	942.6
	958.5	958.5			958.5	958.5	958.7					
					962.5	962.6						
	974.5	974.5			974.5	974.5		974.6				974.6
	978.6				978.5	978.6		978.7		978.6		
AF26/41Cu	982.5	982.5	982.5		982.5	982.5			982.5	982.5	982.5	982.6
		984.5	984.5		984.5	984.5			984.5	984.5	984.5	984.6
AF2	991.6	991.6	991.6		991.5	991.6		991.7		991.5		991.6
						1004.6						
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	1044.1											
											1046.4	
AF32	1051.6	1051.5	1051.5	1051.6	1051.5	1051.5	1051.7	1051.7	1051.5	1051.5	1051.5	1051.6
	1056.5				1056.5	1056.5				1056.5	1056.5	
	1060.1											
					1063.6							
	1068.5	1068.5			1068.4	1068.5			1068.4	1068.4		
AF27	1075.6	1075.6	1075.6	1075.6	1075.6	1075.6	1075.7	1075.7	1075.6	1075.5	1075.6	1075.7
AF28	1079.6	1079.6	1079.6	1079.6	1079.6	1079.6	1079.7	1079.7	1079.5	1079.5	1079.6	1079.7
PepNY	1086.5	1086.5	1086.5	1086.5	1086.5	1086.5	1086.6	1086.6	1086.4	1086.4	1086.5	1086.5
AF31	1094.6	1094.6	1094.6	1094.6	1094.6	1094.6	1094.7	1094.7	1094.6	1094.6	1094.6	1094.7
			1097.6									
AF28Na			1101.6	1101.6					1101.5			
AF29	1106.6	1106.6	1106.6	1106.6	1106.6	1106.6	1106.7	1106.7	1106.6	1106.6	1106.6	1106.7
AF32Cu		1113.5			1113.5	1113.5				1113.4	1113.5	
AF31Na		1116.6	1116.6	1116.6	1116.6				1116.5		1116.6	1116.7
	1117.6				1117.5	1117.6	1117.7					
											1118.6	
					1121.6	1121.6						
						1124.4						
AF29Na		1128.6	1128.6	1128.6	1128.6	1128.5			1128.5		1128.6	1128.7
	1129.6	1129.5				1129.5		1129.7				
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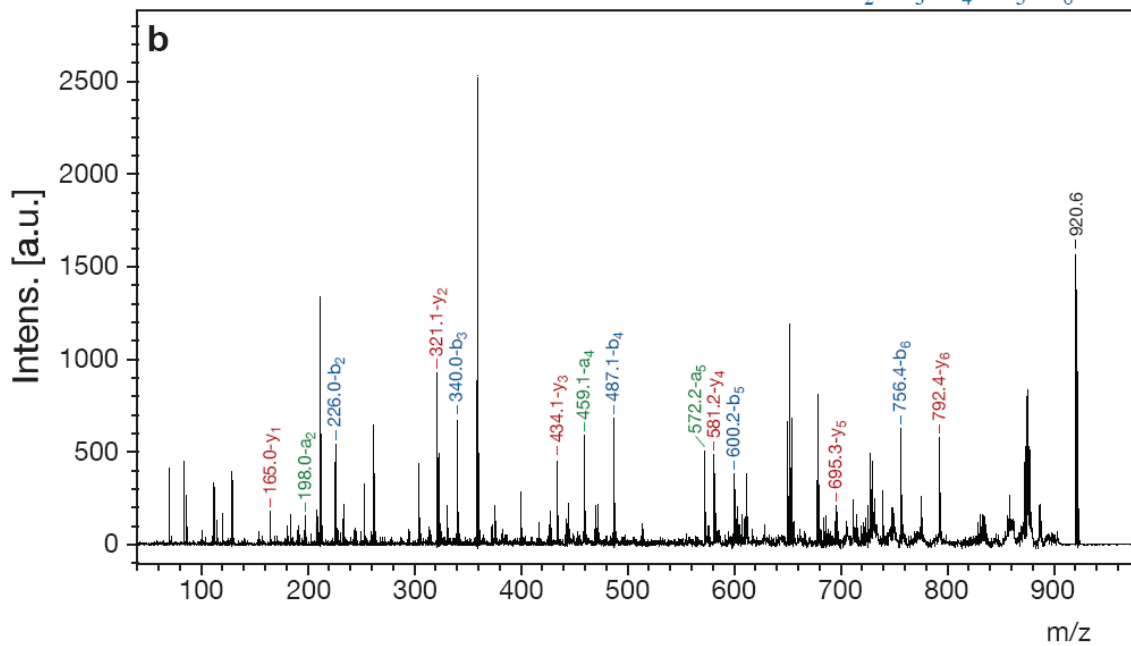
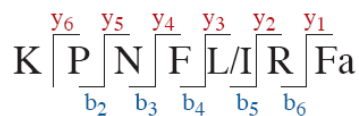
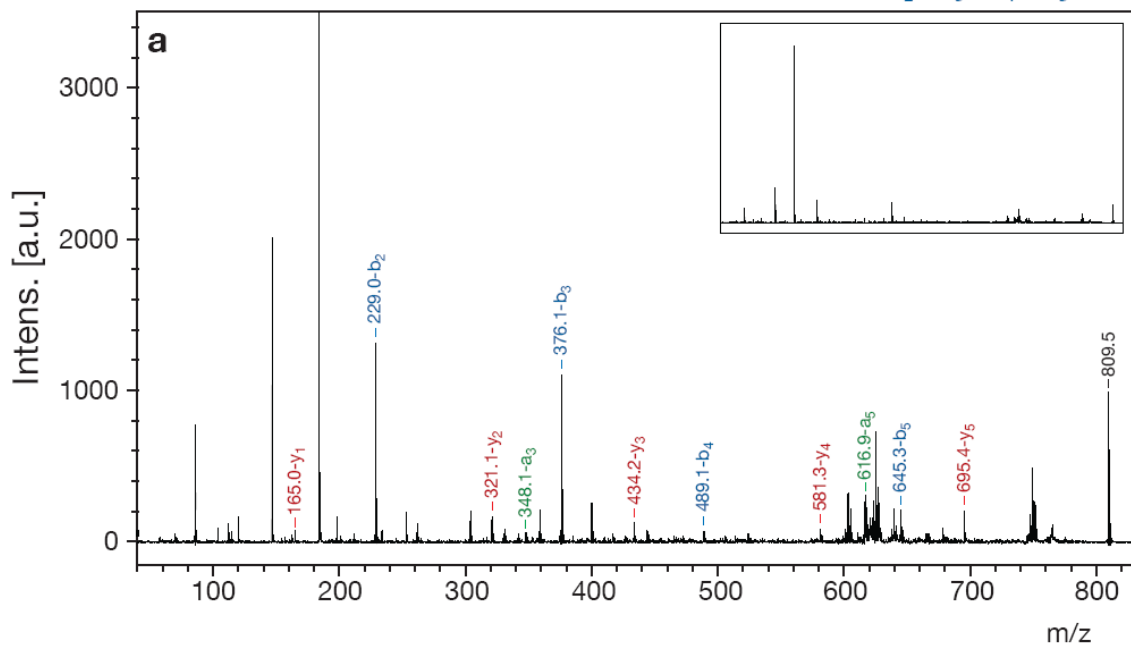
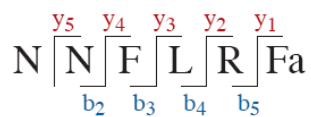
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		1139.5										
		1140.4				1140.4		1140.5				
AF28Cu		1141.5				1141.5				1141.5	1141.5	1141.6
										1143.5	1143.5	
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PepNYCu		1148.4				1148.6					1148.4	
								1152.8		1152.6		
					1155.6							
AF31Cu		1156.5	1156.5			1156.5			1156.5	1156.5	1156.5	1156.6
	1157.0											
		1158.5							1158.5	1158.5	1158.5	
			1159.5									
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		1162.1				1162.6						
								1164.8		1164.6		
AF29Cu		1168.5			1168.5	1168.5				1168.5	1168.5	1168.6
		1170.5								1170.5	1170.5	
						1171.5						
						1175.6						
					1183.6							
	1206.7	1206.6			1206.6	1206.6				1206.6		
					1210.6							
AF33	1223.7	1223.6	1223.7	1223.7	1223.6	1223.7	1223.8	1223.8	1223.6	1223.6	1223.6	1223.7
											1235.6	
AF33Na	1245.7	1245.6	1245.6	1245.6	1245.6	1245.6			1245.6	1245.6	1245.6	1245.7
	1261.7				1261.6		1261.8			1261.6		
					1265.6	1265.7						
						1277.6						
										1280.6		
								1281.8				
AF33Cu		1285.6	1285.6			1285.6			1285.5	1285.5	1285.5	1285.7
		1287.6								1287.5	1287.5	
	1300.1											
					1327.7	1327.7					1327.6	
AF11I3V						1479.8						
AF11	1493.8	1493.8	1493.8	1493.8	1493.8	1493.8	1494.0	1494.0	1493.8	1493.7	1493.8	1493.9
AF11I3VNa						1501.8						
										1505.7		
AF11Na		1515.8	1515.8	1515.8	1515.8					1515.7		
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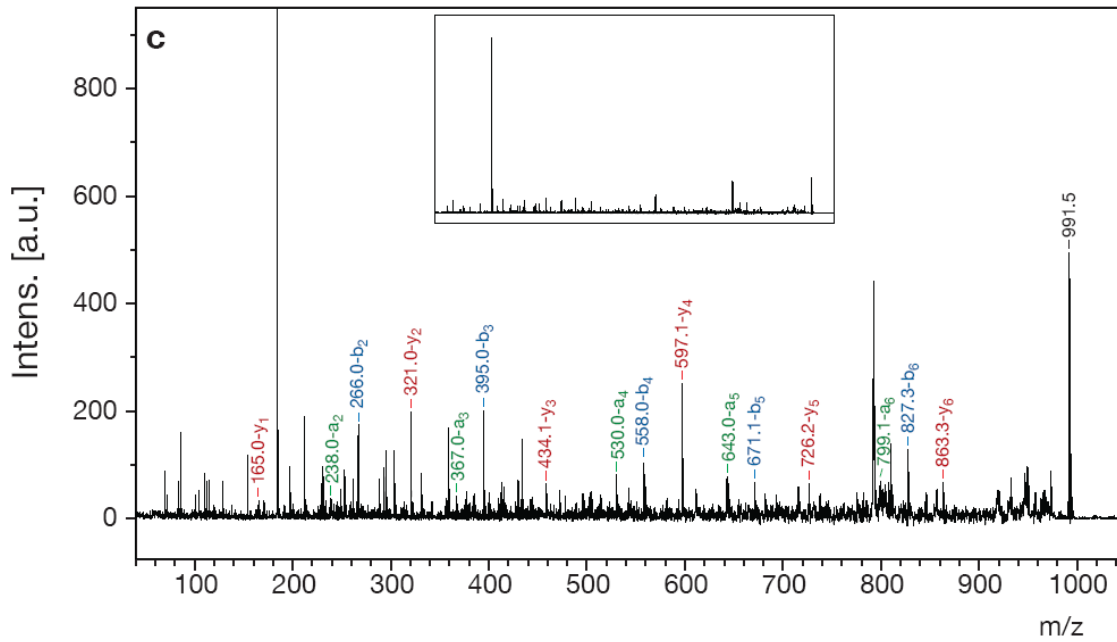
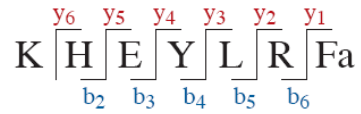
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AF11Cu		1555.7							1555.7		1555.8	
					1597.8							
AF32*	2092.4	2092.2		2092.2	2092.2	2092.2	2092.3	2092.3		2092.2	2092.2	2092.4
						2134.2						
AF26*	2144.3	2144.1			2144.1	2144.1				2144.1		
										2226.3		
					2289.2					2289.2		
		2303.2										
	2305.5	2305.3			2305.2	2305.3				2305.3		
	2321.5	2321.2		2321.2	2321.2	2321.2	2321.3	2321.4		2321.2		2321.5
		2375.1				2375.1						
		2383.1				2383.1				2383.2		
					2457.3	2457.4				2457.4		
AF33*	2485.7	2485.4		2485.4	2485.4	2485.4				2485.5		2485.7
		2810.4			2810.4	2810.4						2810.9
		2832.4		2832.5	2832.4							
		2872.4				2872.4						

Supplemental Table S2. Peak lists from 5 unmodified, 1 acetylated, and 6 methylene blue-treated AVKs. Relative peak height is indicated by 3 intensities of color; the highest intensity peaks are indicated by the darkest color, and lowest intensity peaks are indicated by the lightest color. O, oxygen; Na, sodium; Cu, copper; *, extended form of peptide. a: acetylated; b: treated with Methylene Blue



Supplemental Figure S1. Mass spectrum of oxidized AVK neuron. a) Spectrum from an individual AVK stained with methylene blue, which oxidizes methionines and adds 16 mass units. b) Expansion of (a) from m/z 1000-2000. X axis: m/z is mass-to-charge ratio. Y axis is intensity of MS signal in arbitrary units, a.u.

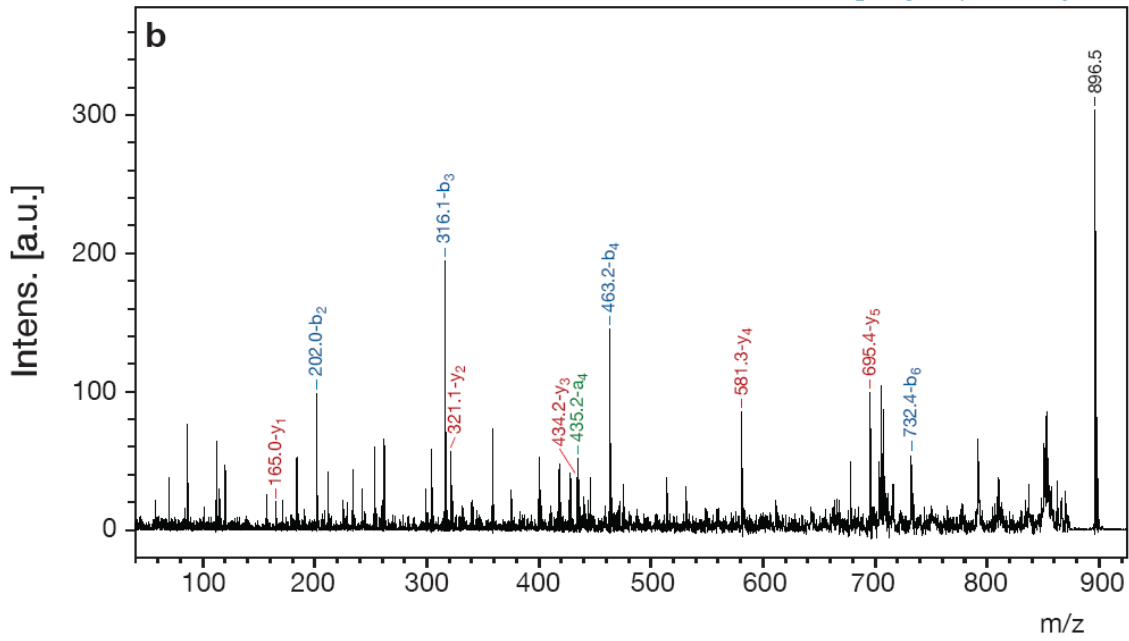
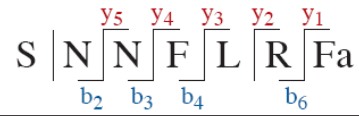
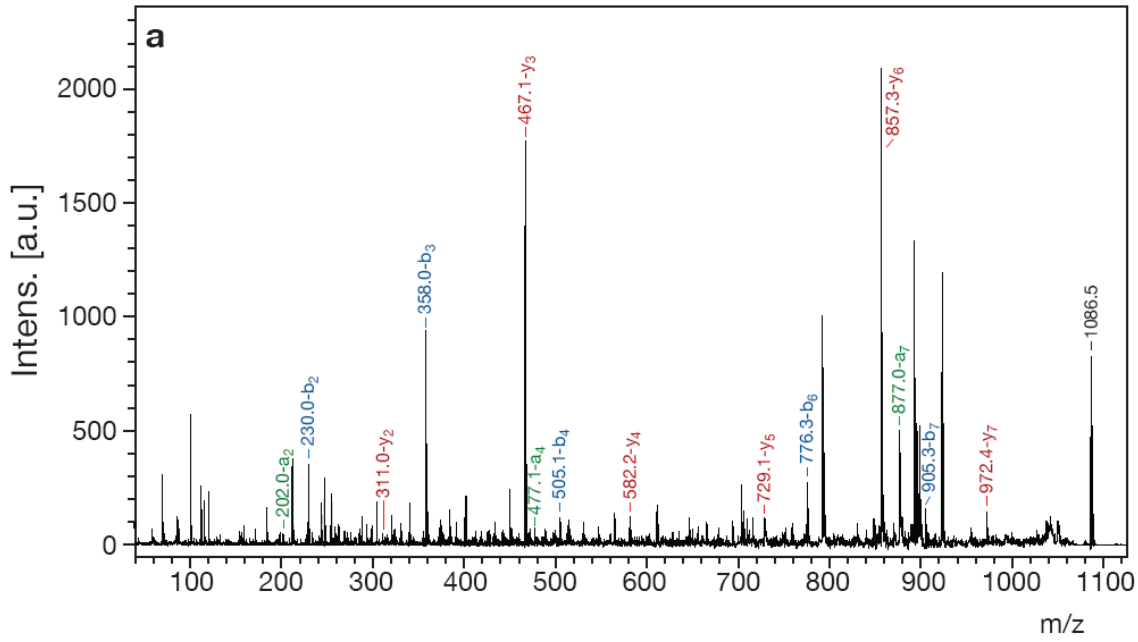
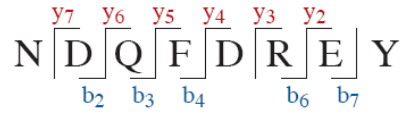


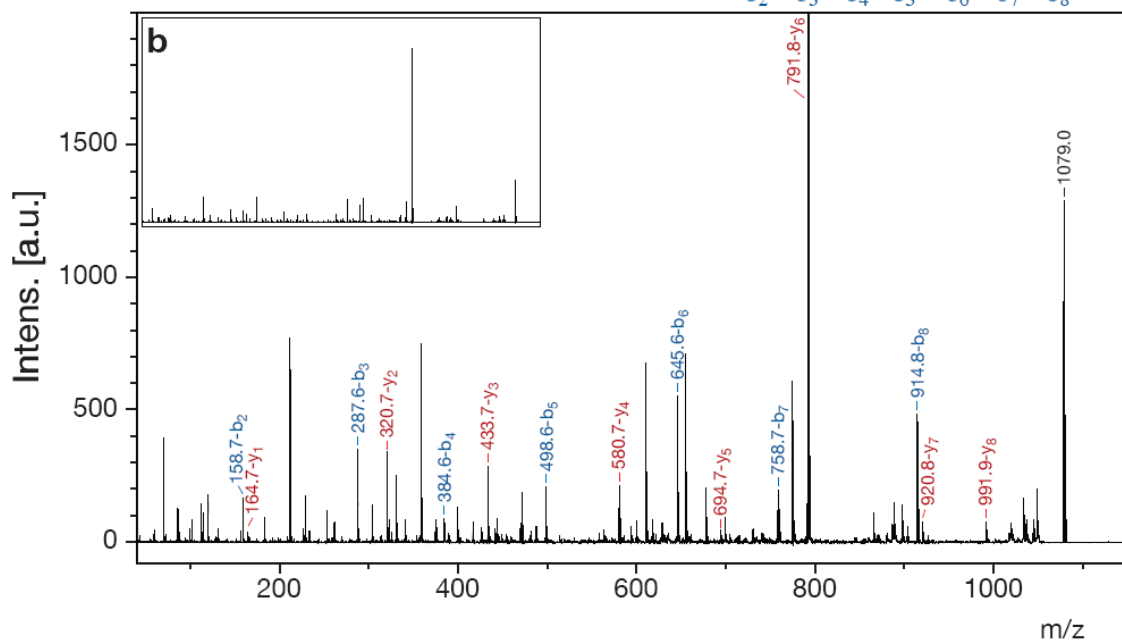
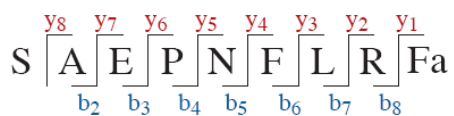
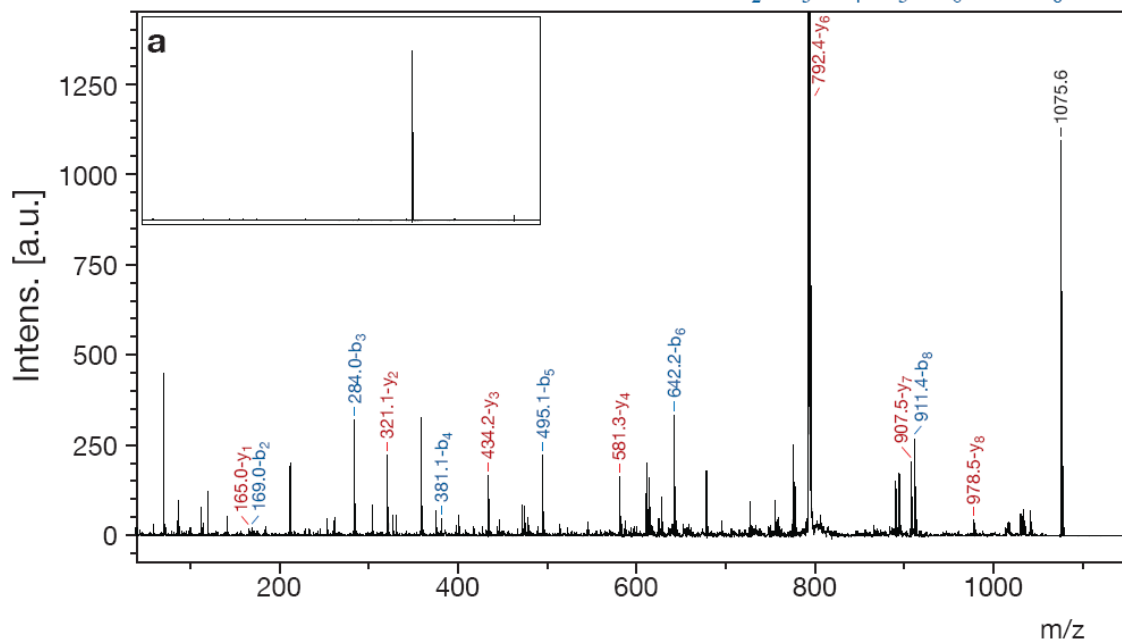
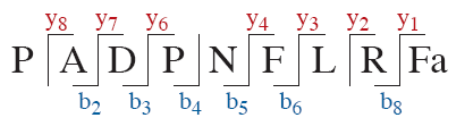


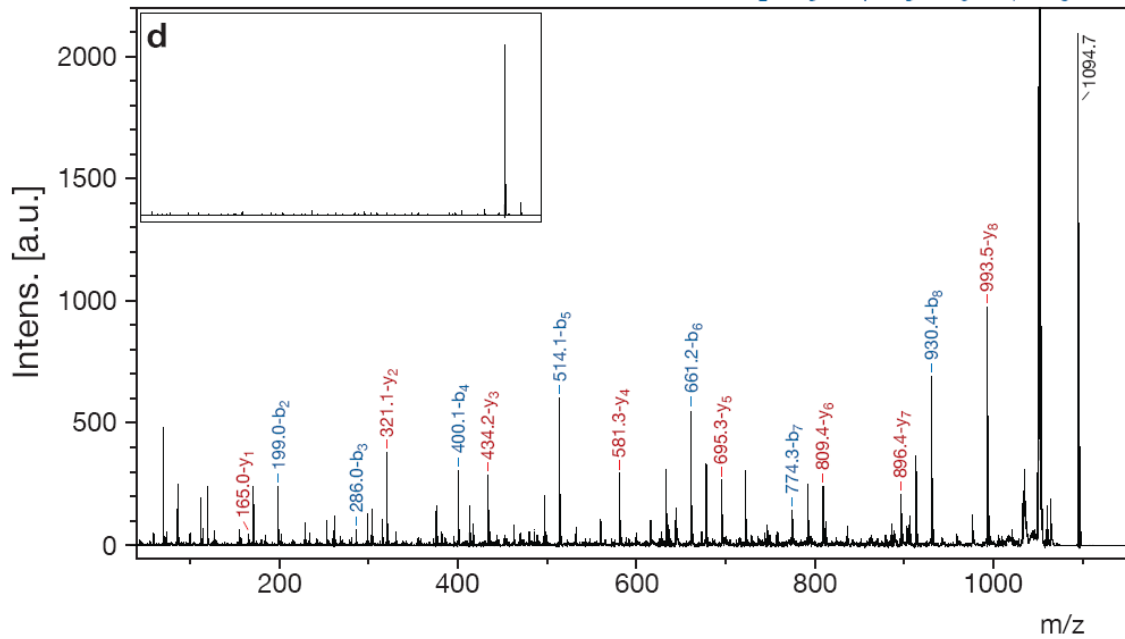
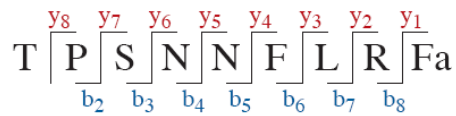
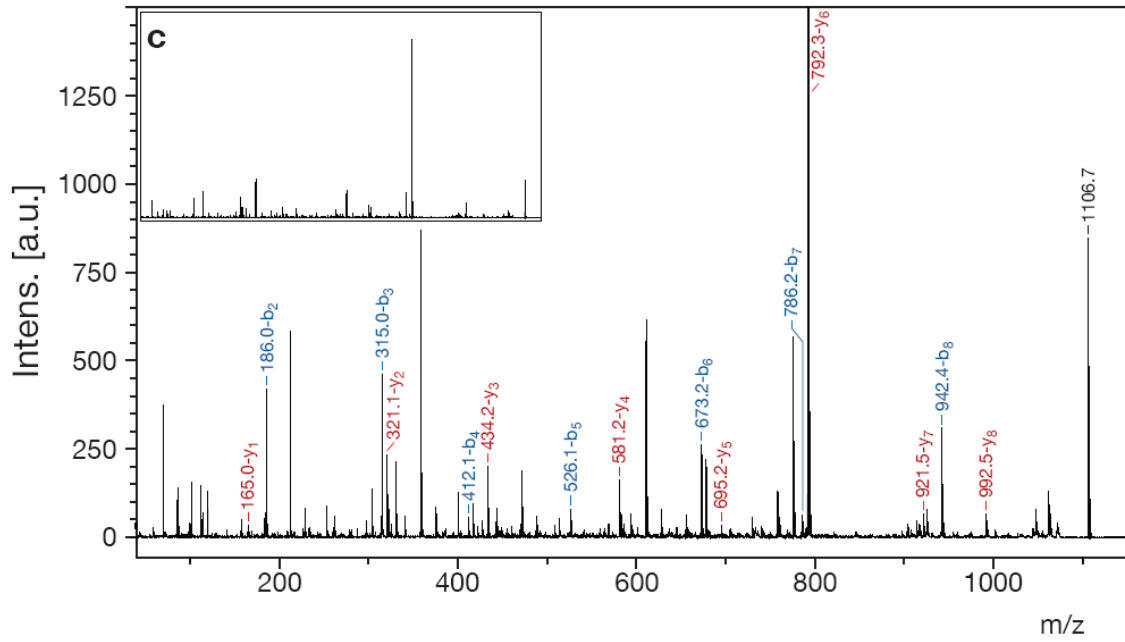
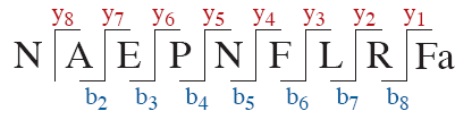
Supplemental Figure S2. MS/MS of previously identified AF peptides from AVK. Peaks representing a (green), b (blue), and y (red) ions are labeled, and b and y ions are summarized in the sequence at the top of each spectrum. a) MS/MS spectrum of AF25, m/z 809.4. b) MS/MS spectrum of AF26, m/z 920.5. c) MS/MS spectrum of AF2, m/z 991.5. Insets in a and c show the same spectra with condensed X axis and lower scale Y axis. X axis: m/z is mass-to-charge ratio. Y axis is intensity of MS signal in arbitrary units, a.u.

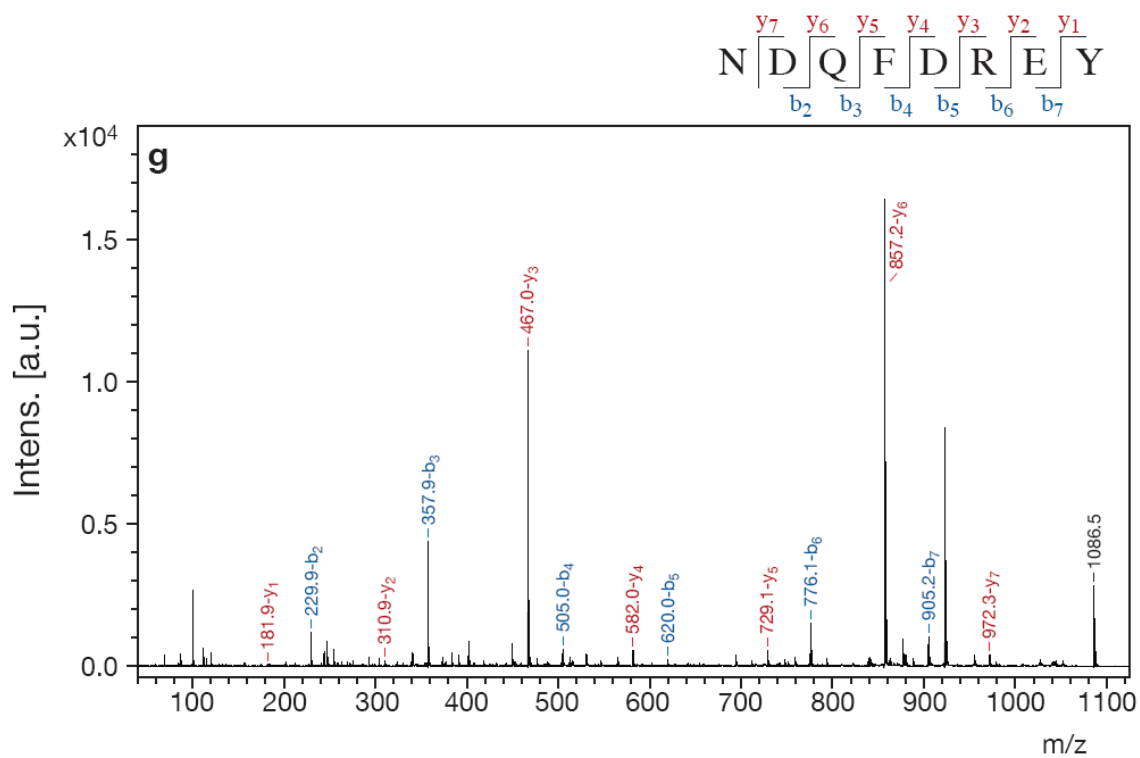


Supplemental Figure S3. Structure of the *afp-11* gene. There are 4 exons of 48, 184, 154 and 100 bp, separated by introns of 726, 1477, and 1313 bp. The 3'UTR is 125 bp in length.









Supplemental Figure S5. MS/MS of synthetic novel peptides. Peaks representing b (blue) and y (red) ions are labeled, and b and y ions are summarized in the sequence at the top of each spectrum. a) MS/MS spectrum of AF27, m/z 1075.6. b) MS/MS spectrum of AF28, m/z 1079.6. c) MS/MS spectrum of AF29, m/z 1106.6. d) MS/MS spectrum of AF31, m/z 1094.6. e) MS/MS spectrum of AF32, m/z 1051.5. f) MS/MS spectrum of AF33, m/z 1223.6. g) MS/MS spectrum of PepNY, m/z 1086.4. Insets in a - e show the same spectra with condensed X axis and lower scale Y axis. X axis: m/z is mass-to-charge ratio. Y axis is intensity of MS signal in arbitrary units, a.u.

References for Supplemental material

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