

**Supplemental Table S3.** Summary of N-terminal peptides and associated proteins of *Hfx. volcanii* detected by MS/MS<sup>1</sup>.

**Group I. N1 alone**

**Penultimate residue small (e.g., Gly, Ala, Pro, Val, Ser, Thr, Cys)**

HVO_0028	hypothetical protein	N1	MTRAELEER
HVO_0041	argF ornithine carbamoyltransferase	N1	MLETHFTDIDDISASELDR
HVO_0062	dipeptide ABC transporter dipeptide-binding	N1	MPDTNK
HVO_0196	conserved hypothetical protein	N1	MADLIVK
HVO_0203	rfcS replication factor C small subunit	N1	MSEAAESGDAPAGR
HVO_0274	conserved hypothetical protein	N1	MSGRKQGD SAVYAAAQGR
HVO_0455	cctB Thermosome subunit 2	N1	MSQRMQQGQPMIIMGEDAQR
HVO_0874	epf mRNA 3''-end processing factor homolog	N1	MSSVDKQLENLK
HVO_0887	porB 2-oxoglutarate Fd oxidoreductase beta	N1	MSSNVR
HVO_0888	porA 2-oxoglutarate Fd oxidoreductase	N1	MPADFNWAIGGEAGDGIDSTGK
HVO_1009	aad oxidoreductase	N1	MSLDYRR
HVO_1054	gatA Glutamyl-tRNA(Gln) amidotransferase	N1	MSLNAFITK
HVO_1145	RPS1A 30S ribosomal protein S3Ae	N1	MSERSVSKQKR
HVO_1684	thrS threonyl-tRNA synthetase	N1	MSDIAVILPDGTELSVEEGATVR
HVO_1799	FAD dependent oxidoreductase putative	N1	MTDNYDVI IAGAGPAGGQAAR
HVO_1914	3-ketoacyl-CoA thiolase	N1	MPVPVIAAAYR
HVO_2110	arcR transcription regulator	N1	MATNKPR
HVO_2158	mdh nadp-dependent malic enzyme	N1	MTLGDDAR
HVO_2222	ppiA peptidyl-prolyl cis-trans isomerase	N1	MSDNPTATLHTNKGDITVELFEDK
HVO_2564	rplC ribosomal protein L3	N1	MPQPSRPRKSGMGSFSPR
HVO_2740	ndk Nucleoside diphosphate kinase	N1	MSDAERTFVMVKPDGVQR
HVO_A0266	transcriptional regulator putative	N1	MVNSVLR LAMNER

**Penultimate residue other**

HVO_0138	tyrS tyrosyl-tRNA synthetase	N1	MDAYDLITR
HVO_0199	pmm phosphoglucomutase/phosphomannomutase	N1	MDEISFGTDGWR
HVO_0435	phosphoribosyl-ATP pyrophosphohydrolase	N1	MDADTPTDEVLDLDELFIATIESR
HVO_0452	leuS leucyl-tRNA synthetase	N1	MDYDPQLEAR
HVO_0826	TET aminopeptidase homolog	N1	MEFDVDR
HVO_1381	mdmC caffeoyl-CoA O-methyltransferase	N1	MDILTDETR
HVO_1402	pmu phosphomannomutase	N1	MELFGTAGIR
HVO_1568	HydD putative	N1	MDLDYGM LGGR
HVO_1585	acs Acetyl-coenzyme A synthetase	N1	MDVPDPTVVHEPDPAFVEDANVTR
HVO_1678	eIF-2 Translation initiation factor	N1	MDYDDQLDR
HVO_1896	Ribosomal protein S24e	N1	MDIEIISEEENPMLHR
HVO_2091	gabT 4-aminobutyrate aminotransferase	N1	MDRDSVEPTVTS LPGPK
HVO_2554	Chain J Trigger Factor Ribosome Binding	N1	MEALKADITKGVAR
HVO_2601	hit histidine triad protein	N1	MDQLFAPWR
HVO_2712	RtcB RNA terminal phosphate cyclase oper	N1	METREFGDIELR
HVO_2716	acd Acyl-CoA dehydrogenase	N1	METVGSATGLTDEQR
HVO_2790	mrp Mrp protein homolog	N1	MDEADVR
HVO_2796	conserved hypothetical protein	N1	MDWPHDPDGEEGSEGGR
HVO_2899	conserved domain protein	N1	MELAAIEDLIESHIEDADATVSRPR
HVO_A0286	unknown	N1	MEFAIWAYPWDVLDAGPR
HVO_B0268	alkanal monooxygenase-like	N1	MDFSIVDLSPVPK
HVO_0387	conserved hypothetical protein	N1	MNDEELDEL R

HVO_0581	cell division protein FtsZ	N1	MQDIVREAMER
HVO_0790	conserved hypothetical protein	N1	MNTDVGLSAR
HVO_0806	pyk pyruvate kinase	N1	MRNAKIVCTLGPASFDR
HVO_0819	sirR transcription repressor	N1	MLSDVMEDYLK
HVO_0973	aspB aspartate aminotransferase	N1	MNFDFSDR
HVO_0999	cobyrinic acid ac-diamide synthase	N1	MNTVLVSTSTGESTGK
HVO_1082	orotate phosphoribosyltransferase	N1	MKNVDDLIASAAELADR
HVO_1099	dapD 23 4 5-tetrahydropyridine-2-carboxy	N1	MNLESVDR
HVO_1198	syrB universal stress protein	N1	MYSHILFPTDGSDCADAALDHAIEHAR
HVO_1344	conserved hypothetical protein TIGR00291	N1	MISLDEAVTAR
HVO_1377	Hypothetical UPF0145 protein	N1	MIVTTTETVIGR
HVO_1380	mcmA methylmalonyl-CoA mutase subunit alpha	N1	MFDPELEEIR
HVO_1382	alpha-NAC homolog	N1	MFGGGGMNPR
HVO_1527	glucose-1-phosphate thymidyltransferase	N1	MQAVVLAAGK
HVO_1830	gndA 6-phosphogluconate dehydrogenase	N1	MQLGVIGLGR
HVO_2057	glucose-1-phosphate thymidyltransferase	N1	MKGVLLSGGTGSR
HVO_2068	ftsZ cell division protein	N1	MNVFCFGAGK
HVO_2313	nirH heme biosynthesis protein	N1	MIQADADLSR
HVO_2373	ribosomal protein S8.e	N1	MKDQGRSK
HVO_2543	rpmD ribosomal protein L30P	N1	MQAIVQLR
HVO_2699	bcp Bacterioferritin comigratory protein	N1	MLEPGDDAPDFELPDQHGDVLSLSDFR
HVO_2706	eif2bd translation initiation factor eIF	N1	MIDETIEEIR
HVO_2869	DNA binding domain similar to hmvng1864	N1	MYDLTGFQR
HVO_A0586	rffH1 glucose-1-P thymidyltransferase	N1	MQTVILAAGR
HVO_B0064	unknown	N1	MFGEYLTR

## Group II. N2 and intermediates

### Penultimate residue small (e.g. Gly, Ala, Pro, Val, Ser, Thr, Cys)

HVO_0024	tssB thiosulfate sulfurtransferase	N2	VDVVSPTWLADR
HVO_0027	transcription anti-termination factor	N2	SELLDTLRDDHETPLSR
HVO_0069	arylsulfatase	N2	TAESPENVLVVMMDTVR
HVO_0104	radA DNA repair and recombination protein	N2	AEDDLESPLPGVGPATADK
HVO_0107	SUF system FeS assembly protein NifU family	N2	GIGSDMYR
HVO_0118	Ribosomal LX protein	N2	SQFIITGSFTSR
HVO_0123	srp Signal recognition 54 kDa protein	N2	VLNLSGSSLRGSLDK
HVO_0167	ahcY adenosylhomocysteinase	N2	SEHYAPVSEHLDDVEAAR
HVO_0177	arsC arsC protein	N2	TDAADVVDADTDATTTTR
HVO_0304	etfA Electron transfer flavoprotein alpha	N2	SDVLAVVEHR
HVO_0329	ilvE branched-chain amino acid aminotran	N2	GFDEMDVSTIWQSGEYK
HVO_0353	ribosomal protein S23 (S12)	N2	ANGKYAAR
HVO_0491	Pyridoxamine 5'-phosphate oxidase family	N2	SLDQQTELSPEIR
HVO_0541	acnA aconitate hydratase 1	N2	SDTETLDAIR
HVO_0704	dgs dolichol-P-glucose transferase	N2	SQSVGVVVPAYRPDPER
HVO_0736	Domain of unknown function DUF302 superf	N2	ALPIDPSAIKPEDIGEER
HVO_0738	conserved hypothetical protein	N2	ADEEAEAPAVELGTGASVEGAPLAR
HVO_0870	proS prolyl-tRNA synthetase	N2	SDEQELGITESK
HVO_0880	coiled-coil protein of COG 1340	N2	VTKQEVLSSEFDVQELDEAR
HVO_1000	acetyl-CoA synthetase	N2	GELSELFAPNR
HVO_1020	PBS lyase HEAT-like repeat domain protein	N2	SDGDDTTTELSPEFDER
HVO_1022	nadh-dependent flavin oxidoreductase	N2	TDSLFTPLSLR

HVO_1053	gatC glutamyl-tRNA(Gln) amidotransferase	N2	SDTPVDADEV
HVO_1077	conserved protein	N2	TSEWVSLFSGGK
HVO_1132	purA adenylosuccinate synthetase	N2	TVTIVGSQGLGDEGK
HVO_1174	TFIIE alpha subunit	N2	AFEELLNDPVIQK
HVO_1257	moxR methanol dehydrogenase regulatory	N2	SDNPDRFGDDGQR
HVO_1311	dehydrogenase putative (TBD)	N2	AFDDVDFEGR
HVO_1451	Glutamate dehydrogenase	N2	ASAAPSTATDDEPTEETALETAR
HVO_1453	gdhA Glutamate dehydrogenase	N2	AQEANPFESLQEQIDDAATYLDVR
HVO_1492	conserved hypothetical protein	N2	AHWTDSIVGDRMTVDR
HVO_1493	conserved hypothetical protein	N2	PQIHLDDDETVAR
HVO_1506	ilvC ketol-acid reductoisomerase	N2	TELTTEVYDDADR
HVO_1541	glpK glycerol kinase	N2	SGETYVGAIDQGTGTR
HVO_1595	conserved hypothetical protein	N2	SDDTAPDENWQQQFDR
HVO_1626	metallo-beta-lactamase	N2	TVSDWSDWLPR
HVO_1745	hypothetical protein	N2	VAPISHADELDPFIALELPPGWVR
HVO_1857	conserved protein	N2	SGSPDDERLEELR
HVO_1871	Chlorite dismutase family	N2	VEAPQTDEGWFALHDFR
HVO_1946	translation initiation factor SUI1 putative	N2	SEVCSTCGLPEELCVCEDVAK
HVO_1973	conserved hypothetical protein	N2	TESESDTEAAEASER
HVO_2029	trh transcription regulator AsnC family	N2	TYENLDSDLINALLEDGR
HVO_2256	Protein of unknown function DUF262 family	N2	AIYVDDPLNSNDEDWDISK
HVO_2265	hypothetical protein	N2	TDDPEDIPDPVKPTTLQK
HVO_2300	eif5A translation initiation factor eIF-5A	N2	AKEQKQVR
HVO_2371	conserved hypothetical protein	N2	VVDSLSDGTR
HVO_2400	conserved hypothetical protein	N2	SDLEIER
HVO_2413	tuf translation elongation factor EF-1 s...	N2	ADKPHQNLAIIGHVDHGK
HVO_2436	tme nadp-dependent malic enzyme	N2	GLDDDSRKYHR
HVO_2452	ribonucleoside-diphosphate reductase ade	N2	SDANLSTDELVLVVK
HVO_2557	rpmC ribosomal protein L29	N2	AIFYTEEIR
HVO_2558	30S ribosomal protein S3P	N2	ADEHQFIENGLQR
HVO_2559	rplV ribosomal protein L22	N2	GINYSVEADPDTTAK
HVO_2624	pyrG CTP synthase	N2	PTDEYDPEMGRK
HVO_2677	acetyltransferase (gnat) family	N2	AELQTQTVSSGK
HVO_2723	snp snRNP homolog	N2	SGRPLDVLEASLDEPVTVLLK
HVO_2737	RPL8A 50S ribosomal protein L7Ae	N2	AVYVDFDVPADLADSAVEALEVAR
HVO_2743	methionine synthase vitamin-B12 independent	N2	TELVSTTPGLYPLPDWAK
HVO_2753	Domain of unknown function	N2	SESEQR
HVO_2758	ribosomal protein L11	N2	AGTIEVLVPGGK
HVO_2774	eno phosphopyruvate hydratase	N2	TRITSVALR
HVO_2783	rpsD ribosomal protein S4	N2	TTGNNTKFYETPNHPFQGER
HVO_2945	valS valyl-tRNA synthetase	N2	PSGEYDPETVEAK
HVO_2961	lpdA dihydrolipoamide dehydrogenase	N2	VVGDIAATGTELLVIGAGPGGYVAAIR
HVO_2981	upp uracil phosphoribosyltransferase	N2	PIEDRDDAYLITHALAK
HVO_A0406	hypothetical protein	N2	GLFDSGDVNPEAQR
HVO_A0472	trxB2 thioredoxin reductase	N2	ADVIVIGGGPAGLTTALFAAK
HVO_A0503	amidohydrolase	N2	TVLDWVDEPR
HVO_B0113	Luciferase-like monooxygenase superfam.	N2	SDISFEYNVPVFAGAPDEGTEPTHR
HVO_B0295	ugpC sn-glycerol-3-phosphate transport	N2	SDITIQNLR
HVO_B0376	oxidoreductase	N2	TTLEDIDLDFVFPQGTGLQTSSELQFGTWR
HVO_C0038	hypothetical protein	N2	TEYDEDSIPSHTLESNGR
HVO_0213	Ferritin-like domain subfamily	N1/N2	MSEDVTALLK/SEDVTALLK
HVO_0313	ATP synthase (E/31 kDa) subunit	N1/N2	MSLDNVVEDIR/SLDNVVEDIRDEAR
HVO_0354	rpsG ribosomal protein S7	N1/N2	MSESDAPEPESPASSEAK/SESDAPEPESPASSEAK
HVO_0359	tuf translation elongation factor EF-1 s...	N1/N2	MSDKPHQNLAIIGHVDHGK/SDKPHQNLAIIGHVDHGK

HVO_0711	conserved hypothetical protein	N1/N2	MGLLDTISSLWK/GLLDTISSLWK
HVO_0812	ppsA phosphoenolpyruvate synthase	N1/N2	MAVVWLLDDVR/AVVWLLDDVR
HVO_0964	trxC thioredoxin	N1/N2	MSDDELTDIR/SDELTDIRK
HVO_1577	imd inosine-5''-monophosphate dehydrogenase	N1/N2	MSSIELTSSQKILTALINLYRSEDVAVK/SSELTSSQK
HVO_1699	aminotransferase classes I and II superf	N1/N2	MTATFPGIPYLEWIVDR/TATFPGIPYLEWIVDR
HVO_1858	Ribosomal protein S19e	N1/N2	MVTIYDVPADALIEEVAGR/VTIYDVPADALIEEVAGR
HVO_1869	hypothetical protein	N1/N2	MSLIDFIR/SLIDFIR
HVO_2361	carB carbamoyl-phosphate synthase large	N1/N2	MTDEDSTGPGQEGTEDR/TDEDSTGPGQEGTEDR
HVO_2464	sucD succinyl-CoA synthase alpha subunit	N1/N2	MSIFVDDDRVQVQGITGEGEK/SIFVDDDR
HVO_2547	rpl32e ribosomal protein	N1/N2	MSEITELEDISGVGPSK/SEEITELEDISGVGPSK
HVO_2577	pyrF orotidine 5'-phosphate decarboxylase	N1/N2	MGFFDDLRL/GFFDDLRL
HVO_2625	guaA GMP synthase C-terminal domain	N1/N2	MVNVDEFIEDATASIR/VNVDEFIEDATASIR
HVO_A0377	hydantoin racemase putative	N1/N2	MTEILWVDPVGHDDFSGDIEALLQNAAR/TEILWVDPVGHDDFSGDIEALLQNAAR
HVO_A0488	cobO cob(I)alamin adenosyltransferase	N1/N2	MTDAPDGTTPETGDETTTPDSVR/TDAPDGTTPETGDETTTPDSVR

### **Penultimate residue other**

HVO_1238	oxidoreductase aldo/keto reductase family	N2	EYTTLGDTGMEVSR
HVO_1824	RecJ-like exonuclease	N2	EDELIDSSQLSLPR
HVO_B0167	narJ chaperonin-like protein	N2	DTNTNAERTTDDTNRDTR
HVO_1654	cysK Cysteine synthase	N1/N2	MDSILDIAIGSPLVR/DDSILDIAIGSPLVR
HVO_1443	ABC transporter ATP-binding protein	N2	ITVENLR
HVO_2621	ppc phosphoenolpyruvate carboxylase	N2	WYSYSSMR
HVO_A0529	ilvB3 acetolactate synthase large	N2	NTSERLVESLERLGVSR

## **Group III. Ac1 and intermediates**

### **Penultimate residue small (e.g., Gly, Ala, Pro, Val, Ser, Thr, Cys)**

HVO_0133	cctA Thermosome subunit 1	Ac1	Ac-MSQRMQQGQPMIILGEDSQR
HVO_0424	rli RNase L inhibitor homolog	Ac1	Ac-MADDSIAVVLDLR
HVO_0481	gap glyceraldehyde-3-phosphate dehydrogenase	Ac1	Ac-MSEKSYLSAGENVDES DVVR
HVO_0827	conserved protein	Ac1	Ac-MSDTESQLR
HVO_1164	HD domain protein	Ac1	Ac-MSDTEDTLNGGR
HVO_1716	exsB protein	Ac1	Ac-MTTEPTSDDK
HVO_2598	ppk polyphosphate kinase	Ac1	Ac-MSDDEVRRGGDSQGR
HVO_2779	rpl18e Chain O	Ac1	Ac-MSKTNPRLNLSIAELK
HVO_2902	gatE glutamyl-tRNA(Gln) amidotransferase	Ac1	Ac-MTEYDYDYEDLGLVAGLEIHQQLDTETK
HVO_A0021	unknown	Ac1	Ac-MANYEVIERVVVDRWGDEEGR
HVO_B0053	hypothetical protein	Ac1	Ac-MACAELEALR
HVO_C0043	hypothetical protein	Ac1	Ac-MTDDGLVMER
HVO_0536	Nutrient-stress induced DNA binding prot	Ac1/N1	Ac-MSTQKSVLKEAGSVGDNPVRLDTEK/MSTQKSVLKEAGSVGDNPVR
HVO_2336	pyridoxine biosynthesis protein	Ac1/N1	Ac-MPEETDLEELR/MPEETDLEELR
HVO_B0117	unknown	Ac1/N1	Ac-MGTDQSTNRR/MGTDQSTNR
HVO_B0217	livK-2 branched-chain amino acid ABC	Ac1/N1	Ac-MTDQPALTDERSR/MTDQPALTDERSR

### **Penultimate residue NatB-like (e.g., Asp, Glu, Asn, Met)**

HVO_1120	conserved hypothetical protein	Ac1	Ac-MDDDDPRRRPR
HVO_2923	psmC Proteasome subunit alpha2	Ac1	Ac-MNRNDKQAYDR
HVO_B0045	L-2,4-diaminobutyrate decarboxylase	Ac1	Ac-MNGVGDVDGERR
HVO_0572	lpl lipocate protein ligase	Ac1/N1	Ac-MNDSQGSIA DREWRVIR/MNDSQGSIA DR

### **Penultimate residue other**

HVO_1967	pgi glucose-6-phosphate isomerase	Ac1	Ac-MQVDLGNVLDTPAHGVSR
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## Group IV. Ac1 and N2 isoforms and intermediates

### Penultimate residue small (e.g., Gly, Ala, Pro, Val, Ser, Thr, Cys)

HVO_0291	conserved protein	Ac1/N2	MSSNEIPTREVAR/SSNEIPTREVAR
HVO_1250	thiol-disulfide isomerase/thioredoxin	Ac1/N2	Ac-MVLLSDSELER/VLLEDSELER
HVO_1560	Uncharacterized protein conserved	Ac1/N2	MSNYLVAMEAAWLVR/SNYLVAMEAAWLVR
HVO_2056	spsK spore coat polysaccharide synthesis	Ac1/N2	Ac-MPNIHDVEVR/PNIHDVEVRDLQVNADQR
HVO_2809	sdhB succinate dehydrogenase chain B hom	Ac1/N2	Ac-MSTQVPETVEEESATEAASAGK/STQVPETVEEESATEAASAGK
HVO_0628	dppD dipeptide ABC transporter ATP-binding	Ac1/N1/N2	Ac-MSQDGNVSR/MSQDGNVSR/SQDGNVSR
HVO_0783	ATP-dependent protease Lon protease	Ac1/N1/N2	Ac-MSNDTNTDDSLHER/MSNDTNTDDSLHER/SNDTNTDDSLHER
HVO_2959	2-oxoacid decarboxylase E1 beta chain	Ac1/N1/N2	Ac-MSSQNLTIQAVR/MSSQNLTIQAVR/SSQNLTIQAVR

### Penultimate residue other

HVO_1091	psmA proteasome subunit alpha1	Ac1/N2	Ac-MQQAQQQAYDR/QQAQQQAYDRGITIFSPDGR
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## Group V. Ac2 and intermediates

### Penultimate residue small/NatA-like (e.g., Gly, Ala, Pro, Val, Ser, Thr, Cys)

HVO_0070	NifU-like domain protein	Ac2	Ac-STETQDGEDDLKER
HVO_0116	Ribosomal protein L31e	Ac2	Ac-SANDFEER
HVO_0778	cctA Thermosome subunit 3	Ac2	Ac-ASRMQQPLYILAEGTNRTHGR
HVO_0862	conserved hypothetical protein	Ac2	Ac-SVGYQVSSDHQLAR
HVO_1804	nadC nicotinate phosphoribosyltransferase	Ac2	Ac-SDFDIVGPEAIR
HVO_2226	trpD anthranilate phosphoribosyltransferase	Ac2	Ac-AVVESEFGWPLKR
HVO_2348	conserved hypothetical protein TIGR00294	Ac2	Ac-SHQLPDVQASQPDVTVGLSQQVGTGVEK
HVO_2506	Isopentenyl-diphosphate delta-isomerase	Ac2	Ac-SNAAADEATELHK
HVO_2550	rpsN ribosomal protein S14p/S29e	Ac2	Ac-SDSETEQTGEHASR
HVO_2551	rpl5p ribosomal protein L5.	Ac2	Ac-SEADFHEMR
HVO_2562	rplW ribosomal protein L23	Ac2	Ac-SIIIEHPLVTEKAMNQMFDFNK
HVO_A0520-TG_gha_452	uncharacterized domain 1 putative	Ac2	Ac-SEQDDYAEIRER
HVO_C0074-TG_gha_454	dppF dipeptide ABC transp. ATP-binding	Ac2	Ac-SVVSEHTSQQDGR
HVO_0316	ATP synthase archaeal A subunit	Ac2/N1	Ac-SQATQDSVREDGVIASVSGPVVTAR/MSQATQDSVR
HVO_0551	mutL-2 DNA mismatch repair protein mutL	Ac2/N1	Ac-SDIKQLDEK/MSDIKQLDEKTVQR
HVO_0979	ndhG nadh dehydrogenase/oxidoreductase	Ac2/N1	Ac-SSEQKPFVTDVDTQVQTETR/MSSEKPFVTDVDTQVQTETR
HVO_0729	ppa inorganic pyrophosphatase	Ac2/N2	Ac-VNLWEDMETGPNAPDEIYAVVECLK/VNLWEDMETGPNAPDEIYAVVECLK
HVO_0861	sufB/sufD domain protein	Ac2/N2	Ac-SAQLPANLSAETVR/SAQLPANLSAETVR
HVO_0884	aldehyde reductase	Ac2/N2	Ac-TENLASADDAPR/TENLASADDAPR
HVO_1637	slyD peptidyl-prolyl cis-trans isomerase	Ac2/N1/N2	Ac-SDEQQAAEQVDVEEVESGIQDGFVR/MSDEQQAAEQVDVEEVESGIQDGFVR/ SDEQQAAEQVDVEEVESGIQDGFVR
HVO_2126	oligopeptide ABC transporter oligopeptid	Ac2/N1	Ac-SDDNITEVNMDR/MSDDNITEVNMDR
HVO_2600	map methionine aminopeptidase type II	Ac2/N2	Ac-SIGPLDDETVEK/SIGPLDDETVEK
HVO_2620	rieske 2Fe-2S domain protein	Ac2/N1	Ac-SDSKYPADSGR/MSDSKYPADSGR
HVO_2757	L1P family of ribosomal proteins	Ac2/N1/N2	Ac-ADTIVDAVSR/MADTIVDAVSR/ADTIVDAVSR
HVO_A0378	hydantoin utilization protein B	Ac2/N2	Ac-STHDVDPATVEVIR/STHDVDPATVEVIR

### Penultimate residue other

HVO_0662	DNA binding protein	Ac2	Ac-KFIEEIVVDAFLPTFRALLAEDLRDR
HVO_1308	aroA 3-phosphoshikimate 1-carboxyvinyltr	Ac2	Ac-DAHVTPSR
HVO_1497	FruB phosphocarrier protein Hpr	Ac2	Ac-ERTVTVVPEGLHARPASK
HVO_2486	bccA biotin carboxylase	Ac2	Ac-FSKVLVANR
HVO_C0075-TG_gha_454	oligopeptide/dipeptide ABC transporter	Ac2	Ac-QYELAMSDTALDRR
HVO_2242	eif probable translation initiation fact	Ac2/N1	Ac-EYQTALDR/MEYQTALDR

HVO_A0571 hydrolase isochorismatase family	Ac2/N1 Ac-LDATASQAK/MLDATASQAK
HVO_B0112 mandelate racemase/muconate lactoniz	Ac2/N1 Ac-EITDISATK/MEITDISATK

### Group V. Ac1 and Ac2 isoforms and intermediates

#### **Penultimate residue small (e.g., Gly, Ala, Pro, Val, Ser, Thr, Cys) includes NatA-like Ac2 forms**

HVO_0136 translation initiation factor eIF-1A	Ac1/Ac2 Ac-MSDDENESR, Ac-SDDENESRR
HVO_0860 sufB FeS assembly protein SufB	Ac1/Ac2/N1 Ac-MSSDQDHLKETDTEAR/Ac-SSDQDHLKETDTEAR/MSSDQDHLK
HVO_1396 P-hydroxybenzoate hydroxylase	Ac1/Ac2/N1 Ac-MSTDENDTAEDSSASPR/ Ac-STDENDTAEDSSASPR/MSTDENDTAEDSSASPR
HVO_1545 dihydroxyacetone kinase L subunit	Ac1/Ac2/N1 Ac-MADAETQREAVLDALDNVAER/Ac-ADAETQR/ADAETQREAVLDALDNVAER
HVO_2784 rpsM ribosomal protein S13p/S18e	Ac1/Ac2/N1/N2 Ac-MSAEEPQDSSPEEEEDLRYFIR/Ac-SAEEPQDSSPEEEEDLR/ MSAEEPQDSSPEEEEDLR/SAEEPQDSSPEEEEDLR

<sup>1</sup>Abbreviations: N1, protein retaining its initiator methionine; Ac1, protein with an N<sup>α</sup>-acetyl group on its initiator methionine; N2, protein with its initiator methionine removed; Ac2, protein with its initiator methionine removed and an N<sup>α</sup>-acetyl group on the exposed penultimate residue.