

**Table 3**

**Identification of 7422 strain proteins by LC-MS/MS.** Protein identified by a liquid chromatography (LC) separation (reversed-phase HPLC) coupled with a tandem mass spectrometry (MS/MS) by searching *M. hyopneumoniae* strain 7448 and J protein databases using MASCOT search engine.

Accession number <sup>1</sup>	Protein description <sup>2</sup>	MASCOT score <sup>3</sup>	Sequence coverage (%)	COG <sup>4</sup>
gi 72080345 ref YP_287403.1	glucose-inhibited division protein A	42	25.2	D
gi 72080347 ref YP_287405.1	putative MgpA like-protein	60	9.2	R
gi 72080348 ref YP_287406.1	DHH family phosphoesterase	74	14.1	R
gi 72080351 ref YP_287409.1	hypothetical protein MHP7448_0009	75	24.8	S
gi 72080353 ref YP_287411.1	heat shock protein	118	12.8	O
gi 72080356 ref YP_287414.1	fructose-bisphosphate aldolase	326	13.6	G
gi 72080363 ref YP_287421.1	ABC transporter ATP-binding protein	14	4.5	R
gi 72080370 ref YP_287428.1	amidase	44	20.7	J
gi 72080377 ref YP_287435.1	glyceraldehyde 3-phosphate dehydrogenase	567	36.6	G
gi 72080379 ref YP_287437.1	VACB-like ribonuclease II	28	17.2	K
gi 72080395 ref YP_287453.1	ATP synthase subunit B	216	31	C
gi 72080397 ref YP_287455.1	30S ribosomal protein S2	533	34	J
gi 72080398 ref YP_287456.1	elongation factor Ts	70	30.7	J
gi 72080401 ref YP_287459.1	DNA primase	22	2	L
gi 72080409 ref YP_287467.1	molecular chaperone DnaK	543	24.5	O

gi 72080413 ref YP_287471.1	bacterial nucleoid DNA-binding protein	38	57.3	L
gi 72080417 ref YP_287475.1	elongation factor EF-2	364	27.6	K
gi 72080419 ref YP_287477.1	30S ribosomal protein S12	34	20.1	J
gi 72080424 ref YP_287482.1	NADH oxidase	1376	41.3	R
gi 72080425 ref YP_287483.1	thymidinephosphorylase	21	4	F
gi 72080426 ref YP_287484.1	purine-nucleoside phosphorylase	186	10.8	F
gi 72080428 ref YP_287486.1	translocase	30	25.3	N
gi 72080436 ref YP_287494.1	hypothetical protein MHP7448_0094	38	20.7	S
gi 72080438 ref YP_287496.1	thiolperoxidase	13	14	O
gi 72080440 ref YP_287498.1	thioredoxin reductase	117	25.9	O
gi 72080441 ref YP_287499.1	outer membrane protein - P95	17	1	S
gi 72080444 ref YP_287502.1	triosephosphate isomerase	35	9.1	G
gi 72080447 ref YP_287505.1	protein P102	64	16.9	S
gi 72080448 ref YP_287506.1	P97 paralog 2	303	21.2	S
gi 72080449 ref YP_287507.1	DNA gyrase subunit B	95	21.4	L
gi 72080451 ref YP_287509.1	6-phosphofructokinase	68	13.4	G
gi 72080454 ref YP_287512.1	adenine phosphoribosyltransferase	495	47.9	F
gi 72080455 ref YP_287513.1	pyruvate dehydrogenase E1-alpha subunit	2274	39.3	C
gi 72080456 ref YP_287514.1	pyruvate dehydrogenase	2031	57.2	C
gi 72080461 ref YP_287519.1	hypothetical protein MHP7448_0121	17	6	S

gi 72080466 ref YP_287524.1	pyruvate kinase	224	28.8	G
gi 72080469 ref YP_287527.1	aminopeptidase	111	24.2	G
gi 72080471 ref YP_287529.1	50S ribosomal protein L21	90	16.2	J
gi 72080472 ref YP_287530.1	50S ribosomal protein L27	130	22.6	J
gi 72080473 ref YP_287531.1	lipase-esterase	52	27.9	R
gi 72080475 ref YP_287533.1	hexosephosphate transport protein	62	30.1	P
gi 72080476 ref YP_287534.1	L-lactate dehydrogenase	441	28.9	C
gi 72080477 ref YP_287535.1	hypothetical protein MHP7448_0138	80	16.5	S
gi 72080487 ref YP_287545.1	hypothetical protein MHP7448_0148	27	20.4	S
gi 72080488 ref YP_287546.1	trigger factor	347	22.5	O
gi 72080492 ref YP_287550.1	guanylate kinase	32	33	F
gi 72080495 ref YP_287553.1	GTP-binding protein	26	12.6	R
gi 72080500 ref YP_287558.1	phosphopentomutase	48	23.6	G
gi 72080507 ref YP_287565.1	DNA-directed RNA polymerase alpha subunit	296	14.2	K
gi 72080508 ref YP_287566.1	30S ribosomal protein S11	122	46.3	J
gi 72080509 ref YP_287567.1	30S ribosomal protein S13	44	21.9	J
gi 72080518 ref YP_287576.1	50S ribosomal protein L6	70	42.5	J
gi 72080519 ref YP_287577.1	30S ribosomal protein S8	31	8.4	J
gi 72080521 ref YP_287579.1	50S ribosomal protein L5	46	16.7	J
gi 72080522 ref YP_287580.1	50S ribosomal protein L24	53	13.1	J

gi 72080525 ref YP_287583.1	50S ribosomal protein L29	78	22.1	S
gi 72080528 ref YP_287586.1	50S ribosomal protein L22	122	34.7	J
gi 72080530 ref YP_287588.1	50S ribosomal protein L2	113	27.3	J
gi 72080532 ref YP_287590.1	50S ribosomal protein L4	86	18.4	J
gi 72080533 ref YP_287591.1	50S ribosomal protein L3	116	12.6	J
gi 72080537 ref YP_287595.1	protein P97	1199	26.9	S
gi 72080538 ref YP_287596.1	protein P102	451	24.9	S
gi 72080539 ref YP_287597.1	hypothetical protein MHP7448_0200	18	4	S
gi 72080540 ref YP_287598.1	alanine--tRNA ligase	20	2	J
gi 72080545 ref YP_287603.1	cell division protein	335	20.7	O
gi 72080546 ref YP_287604.1	lysyl-tRNA synthetase	110	19.2	J
gi 72080547 ref YP_287605.1	hydrolase of the HAD family	22	5.4	R
gi 72080551 ref YP_287609.1	oligopeptide ABC transporter system permease	17	4.4	E
gi 72080554 ref YP_287612.1	oligopeptide ABC transporter ATP-binding protein	17	7	E
gi 72080560 ref YP_287618.1	ribonucleotide-diphosphate reductase alpha subunit	38	7.7	F
gi 72080562 ref YP_287620.1	ribonucleotide-diphosphate reductase beta subunit	244	13.6	F
gi 72080564 ref YP_287622.1	methylmalonate-semialdehyde dehydrogenase	445	33.1	C
gi 72080568 ref YP_287626.1	myo-inositol catabolism protein	303	14.9	G
gi 72080573 ref YP_287631.1	periplasmic sugar-binding proteins	84	16.7	G
gi 72080582 ref YP_287640.1	aspartyl-tRNA synthetase	80	17.6	J

gi 72080583 ref YP_287641.1	hypothetical protein MHP7448_0244	46	9.9	S
gi 72080586 ref YP_287644.1	TRSE-likeprotein	23	3	N
gi 72080589 ref YP_287647.1	phosphopyruvate hydratase	224	20.8	G
gi 72080591 ref YP_287649.1	hypothetical protein MHP7448_0252	29	16.9	S
gi 72080592 ref YP_287650.1	triacylglycerol lipase	38	12.8	R
gi 72080593 ref YP_287651.1	lipoate-protein ligase A	40	12.6	H
gi 72080596 ref YP_287654.1	hypothetical protein MHP7448_0257	84	34.6	S
gi 72080597 ref YP_287655.1	recombination protein RecR	34	34.5	L
gi 72080601 ref YP_287659.1	hypoxanthine-guanine phosphoribosyltransferase	17	16.3	F
gi 72080605 ref YP_287663.1	DNA ligase	37	5.6	L
gi 72080611 ref YP_287669.1	P97 paralog 2	56	11.6	S
gi 72080613 ref YP_287671.1	phenylalanyl-tRNA synthetase beta subunit	89	13.2	J
gi 72080618 ref YP_287676.1	transcriptional regulator	89	9.6	K
gi 72080619 ref YP_287677.1	CTP synthetase	30	19.8	F
gi 72080635 ref YP_287693.1	hypothetical protein MHP7448_0297	39	32.6	S
gi 72080643 ref YP_287701.1	ABCtransporterATP-bindingprotein	18	1	R
gi 72080650 ref YP_287708.1	glycine cleavage system H protein	16	11.8	E
gi 72080682 ref YP_287740.1	hypothetical protein MHP7448_0346	15	2	S
gi 72080688 ref YP_287746.1	hypothetical protein MHP7448_0352	38	14.8	S
gi 72080689 ref YP_287747.1	P60-like lipoprotein	140	17.3	S

gi 72080690 ref YP_287748.1	HIT-like protein	48	19.1	F
gi 72080702 ref YP_287760.1	lipoprotein	562	33.4	S
gi 72080703 ref YP_287761.1	lipoprotein	82	13.6	S
gi 72080708 ref YP_287766.1	Lppt protein	26	14.1	S
gi 72080709 ref YP_287767.1	hypothetical protein MHP7448_0373	389	20.3	S
gi 72080711 ref YP_287769.1	PTS system enzyme IIB component	156	14.6	G
gi 72080713 ref YP_287771.1	hypothetical protein MHP7448_0377	1003	50	S
gi 72080720 ref YP_287778.1	thioredoxin	351	44.5	O
gi 72080725 ref YP_287783.1	hypothetical protein MHP7448_0391	18	6	S
gi 72080726 ref YP_287784.1	S-adenosyl-methyltransferase	14	9	M
gi 72080735 ref YP_287793.1	asparaginyl-tRNA synthetase	99	20.7	J
gi 72080737 ref YP_287795.1	ATP-dependent helicase PcrA	130	10.7	L
gi 72080761 ref YP_287819.1	transketolase	212	30.6	G
gi 72080771 ref YP_287829.1	3-hexulose-6-phosphate synthase	129	22	G
gi 72080787 ref YP_287845.1	acyl carrier protein phosphodiesterase	57	25.4	I
gi 72080791 ref YP_287849.1	50S ribosomal protein L1	155	28.1	J
gi 72080792 ref YP_287850.1	50S ribosomal protein L11	117	26.2	J
gi 72080795 ref YP_287853.1	hypothetical protein MHP7448_0463	17	2	S
gi 72080796 ref YP_287854.1	leucyl aminopeptidase	125	24.5	E
gi 72080798 ref YP_287856.1	hypothetical protein MHP7448_0466	115	17.5	S

gi 72080801 ref YP_287859.1	ABC transporter atp-binding protein	46	16.9	R
gi 72080804 ref YP_287862.1	phosphoenolpyruvate-protein phosphotransferase	260	17	G
gi 72080820 ref YP_287878.1	hypothetical protein MHP7448_0489	83	20.7	S
gi 72080825 ref YP_287883.1	mannose-6-phosphate isomerase	126	17.6	G
gi 72080827 ref YP_287885.1	putative p216 surface protein	2622	34.4	S
gi 72080828 ref YP_287886.1	p76 membrane protein precursor	1885	27.3	S
gi 72080832 ref YP_287890.1	oligopeptide ABC transporter ATP-binding protein	20	5.2	E
gi 72080833 ref YP_287891.1	oligopeptide ABC transporter ATP binding protein	40	18.6	E
gi 72080837 ref YP_287895.1	dihydrolipoamide acetyltransferase	120	22.6	C
gi 72080838 ref YP_287896.1	dihydrolipoamide dehydrogenase	429	17.1	C
gi 72080839 ref YP_287897.1	acetate kinase	510	39.3	C
gi 72080840 ref YP_287898.1	phosphate acetyltransferase	823	39.7	C
gi 72080844 ref YP_287902.1	46K surface antigen precursor	1275	39.9	S
gi 72080852 ref YP_287910.1	oligoendopeptidase F	193	10.6	E
gi 72080854 ref YP_287912.1	elongation factor Tu	1388	63.7	J
gi 72080855 ref YP_287913.1	heat shock ATP-dependent protease	263	25.6	O
gi 72080858 ref YP_287916.1	deoxyribose-phosphate aldolase	54	24.9	F
gi 72080859 ref YP_287917.1	DNA gyrase subunit A	27	17.9	L
gi 72080860 ref YP_287918.1	methionine sulfoxide reductase B	101	42.8	O
gi 72080862 ref YP_287920.1	glucose-6-phosphate isomerase	68	28	G

gi 72080865 ref YP_287923.1	ribosome recycling factor	202	23	J
gi 72080909 ref YP_287967.1	5'-3' exonuclease	54	14.6	L
gi 72080912 ref YP_287970.1	translation initiation factor IF-2	25	21.7	J
gi 72080918 ref YP_287976.1	tryptophanyl-tRNA synthetase	124	39.3	J
gi 72080920 ref YP_287978.1	ATP binding protein	298	25	L
gi 72080923 ref YP_287981.1	phosphoglyceromutase	123	21	G
gi 72080932 ref YP_287990.1	ABC transporter xylose-binding lipoprotein	607	15.2	R
gi 72080933 ref YP_287991.1	sugar ABC transporter ATP-binding protein	87	25.8	R
gi 72080944 ref YP_288002.1	DNA-directed RNA polymerase beta' subunit	53	17	K
gi 72080945 ref YP_288003.1	DNA-directed RNA polymerase beta subunit	43	16.1	K
gi 72080946 ref YP_288004.1	50S ribosomal protein L7/L12	104	27.3	J
gi 72080949 ref YP_288007.1	lipoprotein	75	20.8	S
gi 72080952 ref YP_288010.1	ABC transporter ATP-binding protein - Pr2	30	10.2	Q
gi 72080957 ref YP_288015.1	5'-nucleotidase precursor	55	15.5	F
gi 72080959 ref YP_288017.1	segregation and condensation protein A	32	22.6	L
gi 72080974 ref YP_288032.1	leucyl-tRNA synthetase	15	1	J
gi 72080977 ref YP_288035.1	30S ribosomal protein S9	91	10.6	J
gi 72080978 ref YP_288036.1	50S ribosomal protein L13	28	22.2	J
gi 72080983 ref YP_288041.1	prolipoprotein p65	1485	27.6	S
gi 72080987 ref YP_288045.1	hypothetical protein MHP7448_0660	30	16.9	S



gi 72080989 ref YP_288047.1	hypothetical protein MHP7448_0662	399	22.4	S
gi 72080990 ref YP_288048.1	adhesin like-protein P146	533	27.7	S
gi 72080995 ref YP_288053.1	transcription elongation factor	188	30.6	K

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<sup>1</sup> CDS access number in the NCBI database (<http://www.ncbi.nlm.nih.gov>).

<sup>2</sup> Protein identification according to NCBI database (<http://www.ncbi.nlm.nih.gov>).

<sup>3</sup> MASCOT score is  $-10 \times \log(P)$ , where  $P$  is the probability that the observed match is a random event.

<sup>4</sup> COG database functional classes: (J) Translation, ribosomal structure and biogenesis, (K) Transcription, (L) DNA replication, recombination and repair, (D) Cell division and chromosome partitioning, (O) Posttranslational modification, protein turnover, chaperones, (M) Cell envelope biogenesis, outer membrane, (N) Cell motility and secretion, (P) Inorganic ion transport and metabolism, (C) Energy production and conversion, (G) Carbohydrate transport and metabolism, (E) Amino acid transport and metabolism, (F) Nucleotide transport and metabolism, (H) Coenzyme metabolism, (I) Lipid metabolism, (Q) Secondary metabolites biosynthesis, transport and catabolism, (R) General function prediction only, and (S) Function unknown.