

Table 2

Identification of 7448 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 protein databases using MASCOT search engine.

Accession number ¹	Protein description ²	MASCOT score ³	Sequence coverage (%)	COG ⁴
gi 72080345 ref YP_287403.1	glucose-inhibited division protein A	15	3.1	D
gi 72080348 ref YP_287406.1	DHH family phosphoesterase	32	9.1	R
gi 72080351 ref YP_287409.1	hypothetical protein MHP7448_0009	76	18.4	S
gi 72080353 ref YP_287411.1	heat shock protein	54	18.4	O
gi 72080356 ref YP_287414.1	fructose-bisphosphate aldolase	94	30.7	G
gi 72080361 ref YP_287419.1	ABC transporter ATP-binding protein	55	13.3	R
gi 72080365 ref YP_287423.1	ABC transporter ATP-binding protein	26	1	R
gi 72080373 ref YP_287431.1	lipoprotein signal peptidase	23	10	M
gi 72080374 ref YP_287432.1	isoleucyl-tRNA synthetase	39	17.8	J
gi 72080377 ref YP_287435.1	glyceraldehyde 3-phosphate dehydrogenase	575	16.1	G
gi 72080379 ref YP_287437.1	VACB-like ribonuclease II	14	1	K
gi 72080383 ref YP_287441.1	GTP-binding protein Obg	17	4.8	R
gi 72080395 ref YP_287453.1	ATP synthase subunit B	94	9.6	C
gi 72080397 ref YP_287455.1	30S ribosomal protein S2	173	7.3	J
gi 72080398 ref YP_287456.1	elongation factor Ts	30	13.5	J

gi 72080406 ref YP_287464.1	hypothetical protein MHP7448_0064	40	13.3	S
gi 72080408 ref YP_287466.1	excinuclease ABC subunit C	29	11	L
gi 72080409 ref YP_287467.1	molecular chaperone DnaK	969	36.5	O
gi 72080413 ref YP_287471.1	bacterial nucleoid DNA-binding protein	66	14.6	L
gi 72080417 ref YP_287475.1	elongation factor EF-2	134	22.2	K
gi 72080419 ref YP_287477.1	30S ribosomal protein S12	51	5.8	J
gi 72080424 ref YP_287482.1	NADH oxidase	478	16.5	R
gi 72080428 ref YP_287486.1	translocase	18	4.2	N
gi 72080434 ref YP_287492.1	hypothetical protein MHP7448_0092	28	12.5	S
gi 72080438 ref YP_287496.1	thiol peroxidase	107	40.2	O
gi 72080440 ref YP_287498.1	thioredoxin reductase	125	28.5	O
gi 72080443 ref YP_287501.1	ATP-dependent protease binding protein	37	5.5	O
gi 72080448 ref YP_287506.1	P97 paralog 1	344	19.3	S
gi 72080449 ref YP_287507.1	DNA gyrase subunit B	36	20	L
gi 72080451 ref YP_287509.1	6-phosphofructokinase	29	25.2	G
gi 72080454 ref YP_287512.1	adenine phosphoribosyltransferase	597	41.4	F
gi 72080455 ref YP_287513.1	pyruvate dehydrogenase E1-alpha subunit	1541	34.5	C
gi 72080456 ref YP_287514.1	pyruvate dehydrogenase	1185	62	C
gi 72080461 ref YP_287519.1	hypothetical protein MHP7448_0121	17	6.3	S
gi 72080466 ref YP_287524.1	pyruvate kinase	50	4.2	G

gi 72080471 ref YP_287529.1	50S ribosomal protein L21	32	17.2	J
gi 72080472 ref YP_287530.1	50S ribosomal protein L27	92	22.6	J
gi 72080473 ref YP_287531.1	lipase-esterase	80	20.8	R
gi 72080475 ref YP_287533.1	hexosephosphate transport protein	38	7.1	P
gi 72080476 ref YP_287534.1	L-lactate dehydrogenase	388	43.5	C
gi 72080487 ref YP_287545.1	hypothetical protein MHP7448_0148	33	8.3	S
gi 72080488 ref YP_287546.1	trigger factor	171	18.6	O
gi 72080489 ref YP_287547.1	hypothetical protein MHP7448_0150	18	4.7	S
gi 72080500 ref YP_287558.1	phosphopentomutase	16	6	G
gi 72080507 ref YP_287565.1	DNA-directed RNA polymerase alpha subunit	59	10.8	K
gi 72080508 ref YP_287566.1	50S ribosomal protein L11	93	32	J
gi 72080508 ref YP_287566.1	30S ribosomal protein S11	42	35.1	J
gi 72080509 ref YP_287567.1	30S ribosomal protein S13	67	14.6	J
gi 72080515 ref YP_287573.1	50S ribosomal protein L15	66	9	J
gi 72080519 ref YP_287577.1	30S ribosomal protein S8	78	16.8	J
gi 72080521 ref YP_287579.1	50S ribosomal protein L5	82	37.8	J
gi 72080522 ref YP_287580.1	50S ribosomal protein L24	87	15	J
gi 72080525 ref YP_287583.1	50S ribosomal protein L29	78	22	S
gi 72080528 ref YP_287586.1	50S ribosomal protein L22	50	15.3	J
gi 72080530 ref YP_287588.1	50S ribosomal protein L2	137	11.3	J

gi 72080532 ref YP_287590.1	50S ribosomal protein L4	47	12.1	J
gi 72080533 ref YP_287591.1	50S ribosomal protein L3	36	12.2	J
gi 72080537 ref YP_287595.1	protein P97	1550	26.3	S
gi 72080538 ref YP_287596.1	protein P102	575	25.1	S
gi 72080540 ref YP_287598.1	alanine--tRNA ligase	15	2.3	J
gi 72080545 ref YP_287603.1	cell division protein	130	11.7	O
gi 72080546 ref YP_287604.1	lysyl-tRNA synthetase	104	4.9	J
gi 72080556 ref YP_287614.1	lipoprotein	36	3.1	S
gi 72080560 ref YP_287618.1	ribonucleotide-diphosphate reductase alpha subunit	45	22.4	F
gi 72080562 ref YP_287620.1	ribonucleotide-diphosphate reductase beta subunit	33	6.5	F
gi 72080564 ref YP_287622.1	methylmalonate-semialdehyde dehydrogenase	346	38.2	C
gi 72080568 ref YP_287626.1	myo-inositol catabolism protein	91	11.7	G
gi 72080573 ref YP_287631.1	periplasmic sugar-binding proteins	51	27.4	G
gi 72080574 ref YP_287632.1	myo-inositol 2-dehydrogenase	20	3.2	R
gi 72080580 ref YP_287638.1	protein-export membrane protein	35	5	N
gi 72080583 ref YP_287641.1	hypothetical protein MHP7448_0244	54	9.9	S
gi 72080589 ref YP_287647.1	phosphopyruvate hydratase	141	35.4	G
gi 72080590 ref YP_287648.1	seryl-tRNA synthetase	31	7.5	J
gi 72080591 ref YP_287649.1	hypothetical protein MHP7448_0252	20	18	S
gi 72080593 ref YP_287651.1	lipoate-protein ligase A	14	6.9	H

gi 72080601 ref YP_287659.1	hypoxanthine-guanine phosphoribosyltransferase	30	34.3	F
gi 72080607 ref YP_287665.1	cation-transporting P-type ATPase	37	22.4	P
gi 72080611 ref YP_287669.1	P97 paralog 2	26	19	S
gi 72080613 ref YP_287671.1	phenylalanyl-tRNA synthetase beta subunit	43	14.8	J
gi 72080628 ref YP_287686.1	hypothetical protein MHP7448_0289	23	4	S
gi 72080634 ref YP_287692.1	30S ribosomal protein S6	51	16.2	J
gi 72080635 ref YP_287693.1	hypothetical protein MHP7448_0297	32	23.7	S
gi 72080644 ref YP_287702.1	ABC transporter ATP-binding protein	55	17.8	R
gi 72080647 ref YP_287705.1	NADH-dependent flavin oxidoreductase	28	24.6	C
gi 72080652 ref YP_287710.1	ABC transporter ATP-binding protein	15	3.2	R
gi 72080653 ref YP_287711.1	ABC transporter ATP-binding protein	55	18.3	R
gi 72080687 ref YP_287745.1	hypothetical protein MHP7448_0351	20	6.3	S
gi 72080688 ref YP_287746.1	hypothetical protein MHP7448_0352	29	13.7	S
gi 72080689 ref YP_287747.1	P60-like lipoprotein	44	4.1	S
gi 72080690 ref YP_287748.1	HIT-like protein	25	44.5	F
gi 72080692 ref YP_287750.1	hypothetical protein MHP7448_0356	29	15.2	S
gi 72080702 ref YP_287760.1	lipoprotein	151	16.3	S
gi 72080703 ref YP_287761.1	lipoprotein	28	20.3	S
gi 72080708 ref YP_287766.1	Lppt protein	115	17.8	S
gi 72080709 ref YP_287767.1	hypothetical protein MHP7448_0373	452	14.8	S

gi 72080711 ref YP_287769.1	PTS system enzyme IIB component	177	14.6	G
gi 72080713 ref YP_287771.1	hypothetical protein MHP7448_0377	434	30	S
gi 72080714 ref YP_287772.1	lipoprotein	17	3.5	S
gi 72080720 ref YP_287778.1	thioredoxin	272	44.5	O
gi 72080725 ref YP_287783.1	hypothetical protein MHP7448_0391	18	6.8	S
gi 72080726 ref YP_287784.1	S-adenosyl-methyltransferase	24	9.5	M
gi 72080735 ref YP_287793.1	asparaginyl-tRNA synthetase	69	18.5	J
gi 72080737 ref YP_287795.1	ATP-dependent helicase PcrA	49	5.2	L
gi 72080739 ref YP_287797.1	Holliday junction DNA helicase motor protein	15	18.1	L
gi 72080758 ref YP_287816.1	hypothetical protein MHP7448_0425	16	4.2	S
gi 72080761 ref YP_287819.1	transketolase	122	23.9	G
gi 72080771 ref YP_287829.1	3-hexulose-6-phosphate synthase	78	19.8	G
gi 72080786 ref YP_287844.1	acyl carrier protein phosphodiesterase	57	21.6	I
gi 72080791 ref YP_287849.1	50S ribosomal protein L1	19	7.4	J
gi 72080796 ref YP_287854.1	leucyl aminopeptidase	80	20.5	E
gi 72080798 ref YP_287856.1	hypothetical protein MHP7448_0466	133	15.7	S
gi 72080804 ref YP_287862.1	phosphoenolpyruvate-protein phosphotransferase	49	9.2	G
gi 72080810 ref YP_287868.1	ATP synthase subunit A	66	2.9	C
gi 72080813 ref YP_287871.1	hypothetical protein MHP7448_0482	58	27	S
gi 72080814 ref YP_287872.1	hypothetical protein MHP7448_0483	61	12.2	S

gi 72080820 ref YP_287878.1	hypothetical protein MHP7448_0489	38	14.2	S
gi 72080821 ref YP_287879.1	phosphoglycerate kinase	46	23.5	G
gi 72080825 ref YP_287883.1	mannose-6-phosphate isomerase	92	28	G
gi 72080827 ref YP_287885.1	putative p216 surface protein	1560	21.6	S
gi 72080828 ref YP_287886.1	p76 membrane protein precursor	1366	30.8	S
gi 72080837 ref YP_287895.1	dihydrolipoamide acetyltransferase	198	37.7	C
gi 72080839 ref YP_287897.1	acetate kinase	101	37.6	C
gi 72080840 ref YP_287898.1	phosphate acetyltransferase	441	28.7	C
gi 72080844 ref YP_287902.1	46K surface antigen precursor	900	26.5	S
gi 72080845 ref YP_287903.1	xylose ABC transporter ATP-binding protein	17	4.7	G
gi 72080852 ref YP_287910.1	oligoendopeptidase F	117	7.5	E
gi 72080854 ref YP_287912.1	elongation factor Tu	1229	48.3	J
gi 72080855 ref YP_287913.1	heat shock ATP-dependent protease	160	23.1	O
gi 72080859 ref YP_287917.1	DNA gyrase subunit A	14	5.8	L
gi 72080862 ref YP_287920.1	glucose-6-phosphate isomerase	49	5.8	G
gi 72080865 ref YP_287923.1	ribosome recycling factor	90	18.4	J
gi 72080873 ref YP_287931.1	spermidine/putrescine ABC transporter ATP-binding	27	14.6	E
gi 72080899 ref YP_287957.1	dihydrolipoamide dehydrogenase	47	4.2	C
gi 72080904 ref YP_287962.1	30S ribosomal protein S4	103	19	J
gi 72080909 ref YP_287967.1	5'-3' exonuclease	31	7.5	L

gi 72080914 ref YP_287972.1	transcription elongation factor NusA	41	16.2	K
gi 72080920 ref YP_287978.1	ATP binding protein	95	8.9	L
gi 72080923 ref YP_287981.1	phosphoglyceromutase	74	17.8	G
gi 72080929 ref YP_287987.1	hypothetical protein MHP7448_0601	15	9.7	S
gi 72080931 ref YP_287989.1	inorganic pyrophosphatase	42	10.3	C
gi 72080932 ref YP_287990.1	ABC transporter xylose-binding lipoprotein	372	15.2	R
gi 72080933 ref YP_287991.1	sugar ABC transporter ATP-binding protein	75	11.1	R
gi 72080944 ref YP_288002.1	DNA-directed RNA polymerase beta' subunit	15	2.7	K
gi 72080949 ref YP_288007.1	lipoprotein	61	15.5	S
gi 72080954 ref YP_288012.1	ABC transporter ATP-binding - Pr1-like	19	1.5	Q
gi 72080957 ref YP_288015.1	5'-nucleotidase precursor	20	7	F
gi 72080975 ref YP_288033.1	excinuclease ABC subunit B	26	20	L
gi 72080977 ref YP_288035.1	30S ribosomal protein S9	49	13.6	J
gi 72080982 ref YP_288040.1	glucose-inhibited division protein B	19	12.4	M
gi 72080983 ref YP_288041.1	prolipoprotein p65	939	35.7	S
gi 72080986 ref YP_288044.1	XAA-PRO aminopeptidase	89	23.8	E
gi 72080989 ref YP_288047.1	hypothetical protein MHP7448_0662	626	21.9	S
gi 72080990 ref YP_288048.1	adhesin like-protein P146	559	28.4	S
gi 72080999 ref YP_288057.1	valyl-tRNA synthetase	21	3.8	J

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

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

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

⁴ 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.