

# ELECTROPHORESIS

**Supporting Information  
for Electrophoresis**

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**A complexomic study of *Escherichia coli* using two-dimensional blue  
native/SDS polyacrylamide gel electrophoresis**

Number complex	Gene name	Located	Subunit number	Peptides matches	Swissprot	Protein fonction	Xcorr	Seq coverage (%)	Pred MW	Bibliography
51	accD	C	2	7	P0A9Q5	Acetyl-coenzyme A carboxylase carboxyl transferase subunit beta		24	33 322	66
52	aceA	C	4	9	P0A9G6	Isocitrate lyase		33	47 522	67
53	aceE	C	2	40	P06958	Pyruvate dehydrogenase E1 component		33	99 537	50
54	ackA	C	2	16	P0A6A3	Acetate kinase		57	43 290	Swissprot
55	adhC	C	2	3	P25437	Alcohol dehydrogenase class III		8	39 359	68
56	adhE	C	40	4, 6, 7	P0A9Q7	Aldehyde-alcohol dehydrogenase		7, 10, 11	95 996	69
57	adiA	C	10	35	P28629	Biodegradative arginine decarboxylase		26	84 425	70
58	ahpC	C	2	28, 12	P26427	Alkyl hydroperoxide reductase subunit C		67, 47	20 630	Swissprot
59	ahpF	C	2	60	P35340	Alkyl hydroperoxide reductase subunit F		39	56 177	71
60	alaS	C	4	30	P00957	Alanyl-tRNA synthetase		38	96 032	72
61	ansB	C	4	12	P00805	L-asparaginase II [Precursor]		41	36 851	73
62	apt	C	2	2	P69503	Adenine phosphoribosyltransferase	2.5 3.0	12	19 859	Swissprot
63	aspA	C	4	4, 93	P04422	Aspartate ammonia-lyase	3.09 2.09	10, 34	52 356	74, 75
64	aspC	C	2	2	P00509	Aspartate aminotransferase	2.2 2.7	7	43 573	76
65	aspS	C	2	23	P21889	Aspartyl-tRNA synthetase		36	65 913	77
66	bfr	C	24	10, 8	P11056	Bacterioferritin		71	18 495	78
67	can	C	2	3	P61517	Carbonic anhydrase 2		17	25 097	Swissprot
68	carA	C	2	3	P0A6F1	Carbamoyl-phosphate synthase small chain		11	41 431	79
69	cdd	C	2	5	P13652	Cytidine deaminase		21	31 540	80
70	clpB	C	6	48	P63284	Chaperone clpB		30, 51	95 585	81
71	clpP	C	14	2	P0A6G7	ATP-dependent Clp protease proteolytic subunit	1.78 5.48	14	23 187	82, 83
72	codA	C	4	3	P25524	Cytosine deaminase		11	47 460	84
73	crr	C	2	22	P69783	Glucose-specific phosphotransferase enzyme IIA component		50	18 120	Swissprot
74	cysK	C	2	8	P11096	Cysteine synthase A		39	34 358	Swissprot
75	dapA	C	4	6	P0A6L2	Dihydrodipicolinate synthase		28	31 270	85, 86
76	dapB	C	4	9	P04036	Dihydrodipicolinate reductase		49	28 757	87, 88
77	deoC	C	2	4	P0A6L0	Deoxyribose-phosphate aldolase		21	27 734	89
78	deoD	C	6	33	P09743	Purine nucleoside phosphorylase		63	25 819	90
79	dhaK	C	2	6	P76015	PTS-dependent dihydroxyacetone kinase, dihydroxyacetone binding subunit dhaK		15	39 495	91
80	dnaN	C	2	4	P0A988	DNA polymerase III, beta chain		17	40 587	92
81	dut	C	3	2	P06968	Deoxyuridine 5'-triphosphate nucleotidohydrolase	3.08 2.67	20	16 155	93
82	eda	C	3	8, 2	P0A955	KHG/KDPG aldolase	2.29 4.65	42, 12	22 284	Swissprot
83	eno	C	2	3, 3, 5, 29, 5	P0A6P9	Enolase		8, 9, 15, 63	45 524	94
84	fabB	C	2	2	P0A953	3-oxoacyl-[acyl-carrier-protein] synthase I	2.5 2.8	10	42 613	95
85	fabF	C	2	3	P39435	3-oxoacyl-[acyl-carrier-protein] synthase II		13	42 915	95
86	fbaB	C	8, 10	12, 11, 3	P0A991	Fructose-bisphosphate aldolase class I		34, 33, 15	37 978	96
87	fkfB	C	2	6	P0A9L3	FKBP-type 22 kDa peptidyl-prolyl cis-trans isomerase		31	22 085	97
88	ftnA	C	24	2	P0A998	Ferritin 1	2.91 3.11	11	19 424	Swissprot
89	fucl	C	6	5	P69922	L-fucose isomerase		16	64 977	98
90	fumA	C	2	9	P00923	Fumarate hydratase class I, aerobic		18	60 167	99
91	fumB	C	2	11	P14407	Fumarate hydratase class I, anaerobic		25	60 105	Swissprot
92	gadA	C	6	11, 9, 14, 10, 16, 9	P69908	Glutamate decarboxylase alpha		30, 28, 36, 28, 40, 25	52 685	100
93	gadB	C	6	11, 9, 14, 10, 16, 9	P69910	Glutamate decarboxylase beta		30, 28, 36, 28, 40, 25	52 668	101

94	galE	C	2	4	P09147	UDP-glucose 4-epimerase		20	37 265	102
95	galU	C	5	1	P25520	UTP--glucose-1-phosphate uridylyltransferase	2,98	4	32 811	103
96	gapA	C	4	3, 35	P0A9B2	Glyceraldehyde-3-phosphate dehydrogenase A		12, 54	35 401	52
97	gcvP	C	2	56	P33195	Glycine dehydrogenase [decarboxylating]		23	104 245	swissprot
98	glmS	C	2	22	P17169	Glucosamine--fructose-6-phosphate aminotransferase [isomerizing]		40	66 763	104
99	glnA	C	12	7	P0A9C5	Glutamine synthetase		15	51 773	Swissprot
100	glpK	C	4 et 2	2, 4	P0A6F3	Glycerol kinase	3.12 5.08	6, 10	56 100	105
101	gltA	C	6	5	P00891	Citrate synthase		16	48 015	106
102	glyA	C	4	5, 2, 6	P0A825	Serine hydroxymethyltransferase	3.56 2.8	13, 5, 19	45 317	107
103	glyS	C	2	3	P00961	Glycyl-tRNA synthetase beta chain		6	76 682	108
104	gpt	C	3	3	P0A9M5	Xanthine phosphoribosyltransferase		33	16 971	109
105	groL	C	14	25, 27, 31	P0A6F5	60 kDa chaperonin		34, 37, 37	57 198	53, 54
106	groS	C	7	5	P0A6F9	10 kDa chaperonin		56	10 387	110
107	gshB	C	4	3	P04425	Glutathione synthetase		16	35 561	111
108	guaA	C	2	29	P04079	GMP synthase [glutamine-hydrolyzing]		53	58 679	112
109	guaB	C	4	35	P06981	Inosine-5'-monophosphate dehydrogenase		34	52 022	Swissprot
110	hchA	C	2	3	P31658	Chaperone protein hchA		13	31 059	113
111	hdhA	C	4	4	P25529	7-alpha-hydroxysteroid dehydrogenase		25	26 779	114
112	hemB	C	8	6	P15002	Delta-aminolevulinic acid dehydratase		21	35 494	115
113	hemL	C	2	2	P23893	Glutamate-1-semialdehyde 2,1- aminomutase	3.4 3.5	7	45 366	116
114	hldD	C	5	19	P67910	ADP-L-glycero-D-manno-heptose-6- epimerase		48	34 893	117
115	hlpA	C	4	2	P11457	Histone-like protein HLP-1 [Precursor]	2.7 3.0	19	17 688	Swissprot
116	hslV	C	6	1	P0A7B8	ATP-dependent protease hslV	3,56	6	18 962	118
117	htpG	C	2	11	P0A6Z3	Chaperone protein htpG		20	71 423	119
118	katE	C	4	13, 27	P21179	Catalase HPII		19, 28	84 163	44, 45
119	katG	C	4	10, 12	P13029	Peroxidase/catalase HPI		16, 18	80 024	51
120	kdsA	C	3	9	P0A715	2-dehydro-3-deoxyphosphooctonate aldolase		36	30 833	120
121	kdul	C	6	6, 7, 10, 9, 3, 8, 6, 5, 8, 5	Q46938	4-deoxy-L-threo-5-hexosulose-uronate ketol isomerase		23, 33, 34, 37, 21, 34, 25, 23, 33,	31 076	Swissprot
122	lacI	C	4	8	P03023	Lactose operon repressor		24	38 590	121
123	lpdA	C	2	10, 20	P0A9P0	Dihydrolipoyl dehydrogenase		26, 33	50 557	Swissprot
124	lysS	C	2	15	P0A8N3	Lysyl-tRNA synthetase		21	57 472	Swissprot
125	lysU	C	2	39	P0A8N5	Lysyl-tRNA synthetase, heat inducible		44	57 695	122
126	maeB	C	?	21	P76558	NADP-dependent malic enzyme		22	82 417	123
127	mdh	C	2	12	P61889	Malate dehydrogenase		50	32 337	124, 125
128	metG	C	2	15	P00959	Methionyl-tRNA synthetase		33	76 124	126
129	metK	C	4	13	P0A817	S-adenosylmethionine synthetase		33	41 820	127, 128
130	nfnB	C	1 et 2	8	P38489	Oxygen-insensitive NAD(P)H nitroreductase		50	23 905	129, 130
131	nrdB	C	2	4	P69924	Ribonucleoside-diphosphate reductase 1 beta subunit		14	43 386	131
132	nudF	C	2	2	Q93K97	ADP-ribose pyrophosphatase	2.5 3.0	17	23 667	132
133	panB	C	6	2	P31057	3-methyl-2-oxobutanoate hydroxymethyltransferase	3.76 1.77	9	28 237	Swissprot
134	panC	C	2	3	P31663	Pantoate--beta-alanine ligase		12	31 598	133
135	pdxJ	C	8	3	P0A794	Pyridoxal phosphate biosynthetic protein pdxJ		16	26 253	134, 135
136	pepB	C	6	30	P37095	Peptidase B		50	46 180	Swissprot
137	pepP	C	4	7	P15034	Xaa-Pro aminopeptidase		15	49 684	136
138	pgi	C	2	54, 16	P0A6T1	Glucose-6-phosphate isomerase		51, 31	61 530	137
139	pnp	C	3	35	P05055	Polyribonucleotide nucleotidyltransferase		29	77 101	Swissprot
140	poxB	C	4	3	P07003	Pyruvate dehydrogenase [cytochrome]		9	62 011	138
141	ppa	C	6	17	P0A7A9	Inorganic pyrophosphatase		47	19 572	139
142	ppk	C	4	2	P0A7B1	Polyphosphate kinase	2.79 3.16	4	80 300	140

143	proS	C	2	56	P16659	Prolyl-tRNA synthetase		49	63 693	141
144	ptsl	C	2	4, 15	P08839	Phosphoenolpyruvate-protein phosphotransferase		9, 27	63 562	142
145	purA	C	2	5, 14	P0A7D4	Adenylosuccinate synthetase		14, 37	47 214	143
146	purC	C	3	2, 2	P0A7D7	Phosphoribosylaminoimidazole-succinocarboxamide synthase	4, 2.4 2.2, 4.5	13, 11	26 995	Swissprot
147	purE	C	6	3	P09028	Phosphoribosylaminoimidazole carboxylase catalytic subunit		15	17 649	144
148	purF	C	4	11	P00496	Amidophosphoribosyltransferase		21	56 357	145
149	pykA	C	4	2	P21599	Pyruvate kinase II	2.76 4.02	6	51 226	Swissprot
150	pykF	C	4	39	P14178	Pyruvate kinase I		37	50 729	146
151	pyrG	C	4	4	P0A7E5	CTP synthase		8	60 243	Swissprot
152	ribB	C	2	2	P0A7J0	3,4-dihydroxy-2-butanone 4-phosphate synthase	3.0 4.3	13	23 353	Swissprot
153	rmlA1	C	4	9	P37744	Glucose-1-phosphate thymidyltransferase 1		27	32 694	147
154	rpiA	C	2	4, 3	P0A7Z0	Ribose-5-phosphate isomerase A		21, 17	22 860	148
155	serS	C	2	32	P0A8L1	Seryl-tRNA synthetase		59	48 414	149
156	sodB	C	2	2, 7, 2	P09157	Superoxide dismutase [Fe]	4.0 2.5 2.0 2.3	18, 33, 9	21 135	150
157	speE	C	2	5	P09158	Spermidine synthase		27	32 190	151
158	sucA	C	2	5	P07015	2-oxoglutarate dehydrogenase E1 component		6	105 062	Swissprot
159	talB	C	2	19, 12	P0A870	Transaldolase B		62, 46	35 088	152
160	tdh	C	4	3	P07913	L-threonine 3-dehydrogenase		9	37 239	153
161	tig	C	1 et 2	6, 3	P0A850	Trigger factor		20, 10	48 193	154
162	tnaA	C	4	8, 7, 5, 43	P0A853	Tryptophanase		21, 15, 11, 32	52 773	47
163	tpiA	C	2	16	P0A858	Triosephosphate isomerase		45	26 972	155
164	tyrS	C	2	2, 2	P00951	Tyrosyl-tRNA synthetase	3.0 4.4 2.5 3.1	9, 8	47 396	Swissprot
165	udp	C	6	21	P12758	Uridine phosphorylase		29	27 028	156
166	upp	C	2 ou 3 et 5 ou 6	8	P0A8F0	Uracil phosphoribosyltransferase		46	22 533	157
167	ycaC	C	8	4, 5	P21367	Protein ycaC		23, 30	23 100	46
168	aceE	M	2	2	P06958	Pyruvate dehydrogenase E1 component	2.3 2.1	3	99 537	50
169	ackA	M	2	3	P0A6A3	Acetate kinase		14	43 290	Swissprot
170	adhE	M	40	2, 15	P0A9Q7	Aldehyde-alcohol dehydrogenase	3.5 2.5	3, 19	95 996	69
171	ahpC	M	2	2, 25	P26427	Alkyl hydroperoxide reductase subunit C		59	20 630	Swissprot
172	alaS	M	4	3	P00957	Alanyl-tRNA synthetase		4	96 032	72
173	aspA	M	4	9, 15	P04422	Aspartate ammonia-lyase		24, 30	52 356	74, 75
174	bfr	M	24	9	P11056	Bacterioferritin		70	18 495	78
175	clpB	M	6	41, 5	P63284	Chaperone clpB		34	95 585	81
176	clpP	M	14	3	P0A6G7	ATP-dependent Clp protease proteolytic subunit		23	23 187	82, 83
177	CodA	M	4	3	P00891	Citrate synthase		10	48 015	84
178	crr	M	2	5	P69783	Glucose-specific phosphotransferase enzyme IIA component		42	18 120	Swissprot
179	deoA	M	2	3	P07650	Thymidine phosphorylase		9	47 207	158
180	deoC	M	2	11	P0A6L0	Deoxyribose-phosphate aldolase		58	27 734	89
181	Deod	M	6	5	P09743	Purine nucleoside phosphorylase		30	25 819	90
182	dps	M	12	12, 3	P27430	DNA protection during starvation protein		52, 23	18 564	159
183	eda	M	3	4	P0A955	KHG/KDPG aldolase		16	22 284	Swissprot
184	eno	M	2	24	P0A6P9	Enolase		41	45 524	90
185	fabI	M	4	3	P29132	Enoyl-[acyl-carrier-protein] reductase [NADH]		18	27 733	160
186	fbaB	M	8 ou 10	8, 2, 6	P0A991	Fructose-bisphosphate aldolase class I	2.5 3.1	27, 4, 22	37 978	96
187	gadA	M	6	7, 19	P69908	Glutamate decarboxylase alpha		21, 39	52 685	100
188	gadB	M	6	7, 20	P69910	Glutamate decarboxylase beta		21, 40	52 668	101

189	gapA	M	4	6, 4	P0A9B2	Glyceraldehyde-3-phosphate dehydrogenase A		24, 14	35 401	52
190	glnA	M	12	6	P0A9C5	Glutamine synthetase		18	51 773	Swissprot
191	glyA	M	4	21	P0A825	Serine hydroxymethyltransferase		27	45 317	107
192	gor	M	2	3	P06715	Glutathione reductase		8	48 773	161
193	groL	M	14	10, 8, 9	P0A6F5	60 kDa chaperonin		22, 21, 25	57 198	53, 54
194	gyrA	M	2	9	P09097	DNA gyrase subunit A		10	96 964	162
195	hldD	M	5	8	P67910	ADP-L-glycero-D-manno-heptose-6-epimerase		27	34 893	117
196	hslU	M	6	8	P0A6H5	ATP-dependent hsl protease ATP-binding subunit hslU		22	49 594	163
197	lpdA	M	2	3, 3	P0A9P0	E3 component of pyruvate and 2-oxoglutarate dehydrogenases complexes		10, 10	50 557	Swissprot
198	lpp	M	3	2	P69776	Major outer membrane lipoprotein [Precursor]	3.2 3.5	33	8 323	164
199	lysS	M	2	7	P0A8N3	Lysyl-tRNA synthetase		15	57 472	Swissprot
200	lysU	M	2	24	P0A8N5	Lysyl-tRNA synthetase, heat inducible		35	57 695	122
201	mdh	M	2	10	P61889	Malate dehydrogenase		40	32 337	124, 125
202	metG	M	2	3	P00959	Methionyl-tRNA synthetase		7	76 124	126
203	mrcB	M	2	3	P02919	Penicillin-binding protein 1B		3	94 293	165
204	msbA	M	2	3	P60752	Lipid A export ATP-binding/permease protein msbA		6	64 461	166
205	mscL	M	5	2	P0A742	Large-conductance mechanosensitive channel	2.77 2.13	15	14 957	167
206	nfnB	M	2	8	P38489	Oxygen-insensitive NAD(P)H nitroreductase		34	23 905	129, 130
207	panB	M	6	2	P31057	3-methyl-2-oxobutanoate hydroxymethyltransferase	3.9 3.7	11	28 237	Swissprot
208	pf1B	M	2	43	P09373	Formate acetyltransferase 1		31	85 226	Swissprot
209	pheT	M	2	7	P07395	Phenylalanyl-tRNA synthetase beta chain		12	87 378	60
210	pnp	M	3	14	P05055	Polyribonucleotide nucleotidyltransferase		18	77 101	Swissprot
211	ppa	M	6	5	P0A7A9	Inorganic pyrophosphatase		24	19 572	139
212	purA	M	2	2	P0A7D4	Adenylosuccinate synthetase	2.4 2.9	5	47 214	143
213	purC	M	3	3	P0A7D7	Phosphoribosylaminoimidazole-succinocarboxamide synthase		19	26 995	Swissprot
214	pykF	M	4	7	P14178	Pyruvate kinase I		15	50 729	146
215	rho	M	6	2	P03002	Transcription termination factor rho	2.7 2.9	6	47 004	168
216	sodB	M	2	5, 4	P09157	Superoxide dismutase [Fe]		30, 26	21 135	150
217	sppA	M	4	4	P08395	Protease IV		11	67 219	Swissprot
218	talB	M	2	2, 2	P0A870	Transaldolase B	2.8 2.8 2.2 2.2	6	35 088	152
219	tig	M	2	12	P0A850	Trigger factor		35	48 193	154
220	tnaA	M	4	8, 36, 15	P0A853	Tryptophanase		16, 45, 29	52 773	47
221	tpiA	M	2	3	P0A858	Triosephosphate isomerase		14	26 972	155
222	tsf	M	2	2, 3	P0A6P1	Elongation factor Ts	2.6 3.0	11, 13	30 292	36, 55, 56
223	tyrS	M	2	2	P00951	Tyrosyl-tRNA synthetase	4.5 2.4	8	47 396	Swissprot
224	Udp	M	6	2	P12758	Uridine phosphorylase	3.8 2.1	9	27 028	156
225	upp	M	6	6, 3	P0A8F0	Uracil phosphoribosyltransferase		36, 18	22 533	157
226	uspA	M	2	3	P28242	Universal stress protein A		35	15 935	Swissprot
227	wrbA	M	2 et 4	3	P0A8G6	Flavoprotein wrbA		19	20 714	169
228	ycaC	M	8	3	P21367	Protein ycaC		23	23 100	46
229	yjgF	M	3	2	P39330	UPF0076 protein yjgF	2.2 2.9	17	13 480	170