

<u>JHU ID</u>	<u>ORF size</u>	<u>POI</u>	<u>ORF description</u>	<u>MT#</u>	<u>Rv#</u>
JHU10012a-130	153	130	Hypothetical protein	MT0012	
JHU0013-603	699	603	Glutamine amidotransferase	MT0016	Rv0013
JHU0031a-142	144	142	Hypothetical protein	MT0031	
JHU0052-621	639	621	Conserved hypothetical protein	MT0058	Rv0052
JHU0052-623	639	623	Conserved hypothetical protein	MT0058	Rv0052
JHU0056-457	459	457	Ribosomal protein L9	MT0062	Rv0056
JHU0069c-1324	1386	1324	L-serine dehydratase	MT0075	Rv0069c
JHU0117-877	951	877	"Transcriptional regulator, LysR family (oxyS)	MT0125.1	Rv0117
JHU0133-514	606	514	Puromycin N-acetyltransferase, putative	MT0141	Rv0133
JHU0133-517	606	517	"Puromycin N-acetyltransferase, putative"	MT0141	Rv0133
JHU0157-1365	1428	1365	"NAD(P) transhydrogenase, beta subunit"	MT0165	Rv0157
JHU0157-1366	1428	1366	NAD(P) transhydrogenase, beta subunit	MT0165	Rv0157
JHU0165c-610	672	610	Transcriptional regulator	MT0174	Rv0165c
JHU0177-505	555	505	Hypothetical protein	MT0186	Rv0177
JHU0236c-4200	4203	4200	Conserved hypothetical protein	MT0247	Rv0236c
JHU0251c-391	480	391	"Heat shock protein, HSP20 family (hsp)"	MT0265	Rv0251c
JHU0251c-430	480	430	Heat shock protein, HSP20 family	MT0265	Rv0251c
JHU0270.2a-207	249	207	Hypothetical protein	MT0270.2	
JHU0271c-2096	2196	2096	Acyl-CoA dehydrogenase	MT0284	Rv0271c
JHU0271c-2125	2196	2125	Conserved hypothetical protein	MT0284	Rv0271c
JHU0321-566	573	566	Deoxycytidine triphosphate deaminase (dcd)	MT0336	Rv0321
JHU0321-571	573	571	Deoxycytidine triphosphate deaminase	MT0336	Rv0321
JHU0337c-1288	1290	1288	Aspartate aminotransferase (aspC)	MT0351	Rv0337c
JHU0365c-1033	1131	1033	Fructose-bisphosphate aldolase family prote	MT0381	Rv0365c
JHU0407.1a-247	249	247	Hypothetical protein	MT0407.1	
JHU0400c-1121	1191	1121	Glutaryl-CoA dehydrogenase, putative	MT0410	Rv0400c
JHU0413a-853	885	853	IS6110, transposase	MT0413	
JHU0431a-152	153	152	Hypothetical protein	MT0431	
JHU0459-397	492	397	Conserved hypothetical protein	MT0475	Rv0459
JHU0468-856	861	856	3-hydroxyacyl-CoA dehydrogenase family pr	MT0484	Rv0468
JHU0469-877	878	877	Mycolic acid synthase, authentic frameshift	MT0485	Rv0469
JHU0474-343	423	343	"Transcriptional regulator, Pbs X family (HP)"	MT0491	Rv0474
JHU0474-348	423	348	"Transcriptional regulatory protein, PbsX fan	MT0491	Rv0474
JHU0495c-807	891	807	Conserved hypothetical protein	MT0515	Rv0495c
JHU0500A-220	237	220	Excisionase putative (b/w Rv500/501)	MT0521	Rv0500A
JHU0600c-1122	1134	1122	Sensor histidine kinase	MT0630	Rv0600c
JHU0634c-945	714	945	Metallo-beta-lactamase superfamily protein	MT0662	Rv0634c
JHU0653c-768	774	768	Transcriptional repressor	MT0682	Rv0653c
JHU668-3877	3951	3877	RNA polymerase, B'-subunit (rpoC)	MT0696	Rv0668
JHU0692-250	312	250	Conserved hypothetical protein	MT0719.2	Rv0692
JHU0733-545	546	545	Adenylate kinase	MT0757	Rv0733
JHU0751c-805	885	805	3-hydroxyisobutyrate dehydrogenase	MT0775	Rv0751c
JHU0768-1436	1470	1436	Aldehyde dehydrogenase (aldA)	MT0792	Rv0768
JHU0786c-567	639	567	Conserved hypothetical protein	MT0810	Rv0786c
JHU0798c-311	798	311	Bacteriocin CFP29	MT0819	Rv0798c
JHU0798c-732	798	732	Bacteriocin CFP29	MT0819	Rv0798c

JHU0820-754	777	754	Phosphate ABC transporter	MT0842	Rv0820
JHU0825c-658	720	658	Hypothetical protein	MT0847	Rv0825c
JHU0825c-658	720	658	Hypothetical protein	MT0847	Rv0825c
JHU0851c-737	837	737	"Oxidoreductase, short chain dehydrogenase	MT0874	Rv0851c
JHU0865-404	483	404	Molybdopterin biosynthesis protein	MT0888	Rv0865
JHU0868c-255	279	255	Conserved hypothetical protein	MT0891	Rv0868c
JHU0919-458	501	458	Conserved hypothetical protein	MT0945	Rv0919
JHU0922-1138	1653	1138	IS1535, transposase	MT0949	Rv0922
JHU0922-1584	1653	1584	"IS1535, transposase"	MT0949	Rv0922
JHU0958-1323	1380	1323	Magnesium chelatase	MT0985	Rv0958
JHU0990c-612	657	612	Hypothetical protein	MT1019	Rv0990c
JHU1030-2051	2130	2051	Potassium-transporting ATPase, B subunit	MT1059	Rv1030
JHU1037c-284	285	284	Conserved hypothetical protein	MT1066	Rv1037c
JHU1072a-925	928	925	Hypothetical protein	MT1072	
JHU1083.2a-284	339	284	Hypothetical protein	MT1083.2	
JHU1080c-493	495	493	Transcriptional elongation factor, GreA	MT1111	Rv1080c
JHU1134-190	237	190	Hypothetical protein	MT1167	Rv1134
JHU1136-341	342	341	Enoyl-CoA hydratase-isomerase	MT1169.1	Rv1136
JHU1144-671	753	671	Oxidoreductase	MT1177	Rv1144
JHU1181a-323	333	323	Hypothetical protein	MT1181	
JHU1181a-323	333	323	Hypothetical protein	MT1181	
JHU1181a-323	333	323	Hypothetical protein	MT1181	
JHU1157c-1113	1116	1113	Hypothetical protein	MT1193	Rv1157c
JHU1159-1213	1299	1213	Hypothetical protein	MT1195	Rv1159
JHU1160-425	426	425	MutT/nudix family protein	MT1197	Rv1160
JHU1170-910	912	910	LmbE related protein	MT1207	Rv1170
JHU1187-1609	1632	1609	Delta-1-pyrroline-5-carboxylate dehydrogenase	MT1224	Rv1187
JHU1264.1a-580	594	580	Hypothetical protein	MT1264.1	
JHU1257c-1280	1368	1280	Oxidoreductase, FAD-binding	MT1296	Rv1257c
JHU1269c-396	423	396	Hypothetical protein	MT1307	Rv1269c
JHU1303-431	486	431	Conserved hypothetical protein	MT1343	Rv1303
JHU1317c-1417	1491	1417	Regulatory protein Ada, putative	MT1358	Rv1317c
JHU1317c-1417	1491	1417	Regulatory protein Ada, putative	MT1358	Rv1317c
JHU1317c-1418	1491	1418	"Regulatory protein Ada, putative"	MT1358	Rv1317c
JHU1337-608	684	608	Rhomboid family protein	MT1378	Rv1337
JHU1337-608	684	608	Rhomboid family protein	MT1378	Rv1337
JHU1338-815	816	815	Glutamate acemase (mur1)	MT1379	Rv1338
JHU1338-815	816	815	Glutamate recemase (murl)	MT1379	Rv1338
JHU1373-881	963	881	"Sulfotransferase, putative"	MT1418	Rv1373
JHU1386-257	309	257	PE family protein	MT1430	Rv1386
JHU1386-305	309	305	PE family protein	MT1430	Rv1386
JHU1391-1249	1257	1249	DNA-pantothenate metabolism flavoprotein	MT1436	Rv1391
JHU01391-1249	1257	1249	DNA-pantothenate metabolism flavoprotein	MT1436	Rv1391
JHU1403c-766	825	766	Methyltransferase	MT1447	Rv1403c
JHU1472-857	858	857	Enoyl-CoA hydratase/isomerase family prote	MT1518	Rv1472
JHU1560.1a-342	420	342	Hypothetical protein	MT1560.1	
JHU1560.1a-412	420	412	Hypothetical protein	MT1560.1	

JHU1560.1a-417	420	417	Hypothetical protein	MT1560.1	
JHU1571a-191	201	191	Hypothetical protein	MT1571	
JHU1530-1047	1104	1047	Zinc-binding dehydrogenase	MT1581	Rv1530
JHU1530-1047	1104	1047	Zinc-binding dehydrogenase	MT1581	Rv1530
JHU1602a-258	288	258	Hypothetical protein	MT1602	
JHU1552-1711	1752	1711	"Fumarate reductase, flavoprotein sub α "	MT1603	Rv1552
JHU1556-579	609	579	"Transcriptional regulator, TetR family"	MT1607	Rv1556
JHU1596-882	888	882	Nicotinate-nucleotide pyrophosphorylase (n	MT1632	Rv1596
JHU1627c-1208	1209	1208	Nonspecific lipid-transfer protein	MT1663	Rv1627c
JHU1646-572	933	572	PE family protein	MT1684	Rv1646
JHU1646-932	933	932	PE family protein	MT1684	Rv1646
JHU1671-412	459	412	Hypothetical protein	MT1709	Rv1671
JHU1671-412	459	412	Hypothetical protein	MT1709	Rv1671
JHU1742a-175	216	175	Hypothetical protein	MT1742	
JHU1771.1a-105	120	105	Hypothetical protein	MT1771.1	
JHU1753c-3317	3318	3317	PPE family protein	MT1796	Rv1753c
JHU1808a-233	234	233	Hypothetical protein	MT1808	
JHU1775-749	819	749	Conserved hypothetical protein	MT1825	Rv1775
JHU1776c-482	561	482	"Transcriptional regulator, TetR family"	MT1826	Rv1776c
JHU1788-240	300	240	PE family protein	MT1837	Rv1788
JHU1792-253	297	253	Conserved hypothetical protein	MT1841	Rv1792
JHU1822-574	630	574	CDP-diaclyglycerol--glycerol-3-phosphate 3- ϵ	MT1870	Rv1822
JHU1829-1292	495	1292	Conserved Hypothetical protein	MT1877	Rv1829
JHU1849-286	315	286	"Urease, beta subunit (ureB)"	MT1897	Rv1849
JHU1855c-839	924	839	"Oxidoreductase, putative"	MT1903	Rv1855c
JHU1881c-376	465	376	Lipoprotein antigen	MT1930	Rv1881c
JHU1881c-376	465	376	"Lipoprotein antigen, 22 kDa (lppE)"	MT1930	Rv1881c
JHU1881c-377	465	377	"Lipoprotein antigen, 22 kDa (lppE)"	MT1930	Rv1881c
JHU1890c-517	612	517	Hypothetical protein	MT1940	Rv1890c
JHU1897c-470	486	470	Conserved hypothetical protein	MT1948	Rv1897c
JHU1926c-400	480	400	Hypothetical protein	MT1977	Rv1926c
JHU1933c-997	1092	997	"Acyl-CoA dehydrogenase, putative"	MT1983	Rv1933c
JHU1933c-997	1092	997	"Acyl-CoA dehydrogenase, putative"	MT1983	Rv1933c
JHU1934c-1141	1230	1141	"Acyl-CoA dehydrogenase, FadE17"	MT1984	Rv1934c
JHU1970-1083	1134	1083	Virulance factor mce family protein	MT2022	Rv1970
JHU1985c-878	912	878	"Transcriptional regulator, LysR family (HP)"	MT2039	Rv1985c
JHU1987-416	429	416	Chitinase-related protein	MT2041	Rv1987
JHU2003c-772	858	772	Conserved hypothetical protein	MT2059	Rv2003c
JHU2012-442	495	442	Hypothetical protein	MT2067	Rv2012
JHU2022c-605	606	605	Conserved hypothetical protein	MT2078	Rv2022c
JHU2028c-833	840	833	Universal stress protein family	MT2087	Rv2028c
JHU2102-792	834	792	Conserved hypothetical protein	MT2162	Rv2102
JHU2165-249	297	249	Hypothetical protein	MT2165	
JHU2165.1a-97	99	97	Hypothetical protein	MT2165.1	
JHU2110c-847	876	847	"proteasome, beta subunit "	MT2170	Rv2110c
JHU2120c-511	516	511	Hypothetical protein	MT2180	Rv2120c
JHU2139-1072	1074	1072	Dihydroorotate dehydrogenase	MT2197	Rv2139

JHU2147c-723	726	723	Conserved hypothetical protein	MT2206	Rv2147c
JHU2169c-335	405	335	Conserved hypothetical protein	MT2225	Rv2169c
JHU2169c-404	405	404	Conserved hypothetical protein	MT2225	Rv2169c
JHU2197c-602	645	602	Hypothetical protein	MT2253	Rv2197c
JHU2197c-602	645	602	Hypothetical protein	MT2253	Rv2197c
JHU2200c-1085	1092	1085	"Cytochrome c oxidase, subunit II"	MT2256	Rv2200c
JHU2228c-1088	1095	1088	Phosphoglycerate mutase family protein	MT2287	Rv2228c
JHU2228c-1093	1095	1093	Phosphoglycerate mutase family protein (HP	MT2287	Rv2228c
JHU2242-1227	1245	1227	Conserved hypothetical protein	MT2302	Rv2242
JHU2242-1228	1245	1228	Conserved hypothetical protein	MT2302	Rv2242
JHU2247-1420	1422	1420	Propionyl-CoA carboxylase	MT2307	Rv2247
JHU2295-507	564	507	Conserved hypothetical protein	MT2352	Rv2295
JHU2301-601	660	601	Serine esterase, cutinase family	MT2358	Rv2301
JHU2306c-625	627	625	Hypothetical protein	MT2363	Rv2306c
JHU2396a-169	171	169	Hypothetical protein	MT2396	
JHU2341-360	420	360	Lipoprotein (lppQ)	MT2406	Rv2341
JHU2341-381	420	381	Lipoprotein (lppQ)	MT2406	Rv2341
JHU2347c-251	297	251	Conserved hypothetical protein	MT2412	Rv2347c
JHU2350c-1458	1539	1458	Phospholipase C	MT2415	Rv2350c
JHU2421a-256	300	256	Conserved hypothetical protein	MT2421	
JHU2455a-208	210	208	Hypothetical protein	MT2455	
JHU2467a-164	165	164	Hypothetical protein	MT2467	
JHU2414c-1508	1554	1508	Hypothetical protein	MT2487	Rv2414c
JHU2414c-1509	1554	1509	Hypothetical protein	MT2487	Rv2414c
JHU2453c-605	606	605	Molybdopterin-guanine dinucleotide biosynt	MT2528	Rv2453c
JHU2463-1183	1185	1183	Esterase (lipP)	MT2538	Rv2463
JHU2491-605	624	605	Conserved hypothetical protein	MT2566	Rv2491
JHU2519-1446	1506	1446	PE family protein (PPE)	MT2595	Rv2519
JHU2546-384	417	384	Hypothetical protein	MT2622	Rv2546
JHU2574-466	504	466	Hypothetical protein	MT2650	Rv2574
JHU2574-466	504	466	Hypothetical protein	MT2650	Rv2574
JHU2578c-943	1023	943	Conserved hypothetical protein	MT2655	Rv2578c
JHU2603c-674	756	674	Conserved Hypothetical protein	MT2678	Rv2603c
JHU2616-483	501	483	Conserved hypothetical protein	MT2691.1	Rv2616
JHU2659c-1131	1161	1131	Integrase	MT2735	Rv2659c
JHU2665-281	282	281	Hypothetical protein	MT2739	Rv2665
JHU2691-586	684	586	Ceob protein	MT2765	Rv2691
JHU2736c-536	537	536	RecX protein	MT2805	Rv2736c
JHU2766c-731	783	731	"Oxidoreductase, short-chain dehydrogenase	MT2836	Rv2766c
JHU2772c-386	474	386	Conserved hypothetical protein	MT2842	Rv2772c
JHU2784c-456	516	456	HP (contains signal for LPPU-lipoprotein att	MT2854	Rv2784c
JHU2807-1153	1155	1153	Conserved hypothetical protein	MT2874	Rv2807
JHU2860c-1288	1374	1288	"Glutamine synthetase, putative (glnA4)"	MT2928	Rv2860c
JHU2860c-1353	1374	1353	"Glutamine synthetase, putative (glnA4)"	MT2928	Rv2860c
JHU2867c-763	855	763	Acyltransferase	MT2935	Rv2867c
JHU2869c-626	1215	626	PDZ domain protein	MT2937	Rv2869c
JHU2869c-1158	1215	1158	PDZ domain family protein	MT2937	Rv2869c

JHU2872-439	444	439	Hypothetical protein	MT2939	Rv2872
JHU2878c-440	534	440	Soluble secreted antigen MPT53 precursor	MT2946	Rv2878c
JHU2915c-971	1056	971	Hypothetical protein	MT2983	Rv2915c
JHU2922A-280	282	280	Acylphosphatase	MT2991	Rv2922A
JHU2962c-1348	1350	1348	UDP-glucuronosyltransferase and UDP-glucosyltransferase	MT3038	Rv2962c
JHU2999-902	990	902	Hypothetical protein	MT3078	Rv2999
JHU3000-605	660	605	ABC transporter, ATP-binding protein	MT3080	Rv3000
JHU3020c-262	309	262	PE family protein	MT3105	Rv3020c
JHU3020c-263	309	263	PE family protein	MT3105	Rv3020c
JHU3038c-972	984	972	Hypothetical protein	MT3123	Rv3038c
JHU3039c-764	765	764	Enoyl-CoA hydratase/isomerase family protein	MT3124	Rv3039c
JHU3040c-823	867	823	Conserved hypothetical protein	MT3125	Rv3040c
JHU3044-982	984	982	"ABC transporter, periplasmic subunit binding protein"	MT3129	Rv3044
JHU3048c-974	975	974	ribonucleoside-diphosphate reductase	MT3133	Rv3048c
JHU3055-740	831	740	Transcriptional regulator	MT3141	Rv3055
JHU3055-740	831	740	Transcriptional regulator	MT3141	Rv3055
JHU3058c-713	714	713	"Transcriptional regulator, TetR family"	MT3144	Rv3058c
JHU3067-371	411	371	Hypothetical protein	MT3152	Rv3067
JHU3096-1061	1140	1061	Hypothetical protein	MT3180	Rv3096
JHU3145-346	387	346	NADH dehydrogenase I, A subunit	MT3233	Rv3145
JHU3145-352	387	352	NADH dehydrogenase I, A subunit	MT3233	Rv3145
JHU3170-1361	1365	1361	"Amine oxidase, Flavin-containing"	MT3259	Rv3170
JHU3183-308	330	308	Hypothetical protein	MT3275	Rv3183
JHU3183-310	330	310	Hypothetical protein	MT3275	Rv3183
JHU3213c-768	801	768	Soj family protein	MT3309	Rv3213c
JHU3220c-1428	1506	1428	Sensor histidine kinase	MT3316	Rv3220c
JHU3220c-1428	1506	1428	Serine histidine kinase	MT3316	Rv3220c
JHU3234c-726	816	726	Hypothetical protein	MT3331	Rv3234c
JHU3241c-583	660	583	S30AE family protein	MT3339	Rv3241c
JHU3298c-824	915	824	Esterase	MT3397	Rv3298c
JHU3312A-344	345	344	Hypothetical protein	MT3413	Rv3312A
JHU3322c-552	615	552	Hypothetical protein	MT3423	Rv3322c
JHU3377c-1449	1506	1449	Cyclase putative	MT3487	Rv3377c
JHU3377c-1470	1506	1470	Cyclase putative	MT3487	Rv3377c
JHU3388-2326	2328	2326	PE_PGRS	MT3495	Rv3388
JHU3399-1046	1047	1046	Conserved hypothetical protein	MT3507	Rv3399
JHU3405c-542	567	542	"Transcriptional regulator, TetR family"	MT3513	Rv3405c
JHU3412-340	411	340	Conserved hypothetical protein	MT3521	Rv3412
JHU3416-307	309	307	WhiB-related protein	MT3525	Rv3416
JHU3493c-709	729	709	Hypothetical protein	MT3597	Rv3493c
JHU3501c-674	714	674	Conserved hypothetical protein	MT3605	Rv3501c
JHU3523-1140	1185	1140	Nonspecific lipid-transfer protein	MT3623	Rv3523
JHU3536c-350	786	350	2-keto-4-pentenoate hydratase	MT3640	Rv3536c
JHU3536c-785	786	785	2-Keto-4-pentenoate hydratase	MT3640	Rv3536c
JHU3539-1438	1440	1438	PPE family protein	MT3643	Rv3539
JHU3600c-777	819	777	"Transcriptional activator, putative, Baf family"	MT3706	Rv3600c
JHU3612c-279	330	279	Hypothetical protein	MT3715	Rv3612c

JHU3622c-260	300	260	PE family protein	MT3724	Rv3622c
JHU3624c-602	609	602	Hypoxanthine/guanine phosphoribosyltransf	MT3726	Rv3624c
JHU3660c-734	786	734	Conserved hypothetical protein	MT3760	Rv3660c
JHU3770a-681	711	681	Hypothetical protein	MT3770	
JHU3688c-386	465	386	Conserved hypothetical protein	MT3790	Rv3688c
JHU3690-651	702	651	Hypothetical protein	MT3792	Rv3690
JHU3729-671	2331	671	MoaA-nifB-pqqE family protein	MT3833	Rv3729
JHU3729-2301	2331	2301	MoaA/nifB/pqqE family protein	MT3833	Rv3729
JHU3763-388	480	388	Protein family HMM PF05481	MT3870	Rv3763
JHU3770A-158	183	158	Hypothetical protein	MT3878	Rv3770A
JHU3783-840	843	840	"O antigen export system, permease protein	MT3892	Rv3783
JHU3802c-1005	1011	1005	Hypothetical protein	MT3909	Rv3802c
JHU3817-679	756	679	Aminoglycoside phosphotransferase	MT3925.1	Rv3817
JHU3838c-876	966	876	Prephenate dehydratase	MT3946	Rv3838c
JHU3872-298	339	298	Hypothetical protein	MT3986	Rv3872
JHU3899c-1159	1233	1159	Hypothetical protein	MT4016	Rv3899c
JHU3901c-366	450	366	Hypothetical protein	MT4018	Rv3901c
JHU3904c-233	273	233	Hypothetical protein	MT4023	Rv3904c
JHU3910-3223	3555	3223	Membrane protein	MT4029	Rv3910
JHU3910-3486	3555	3486	Conserved hypothetical protein	MT4029	Rv3910
JHU3911-559	591	559	"RNA polymerase sigma 70 factor, ECF family	MT4030	Rv3911
JHU4035.1a-244	288	244	Hypothetical protein	MT4035.1	

Supporting Table 1: This table lists 212 unique genes that were disrupted by Himar1 transposon by insertion in the distal region only. This table lists 256 unique mutants yet represents 212 genes only as some genes have been hit more than once in the distal region.

JHU_ID= a unique identificaiton # for each mutant.

ORF size = length of the gene

POI= **P**oint **O**f **I**nsertion : This is the position of the base, from the putative translation start site, at which the Himar1 transposon has inserted.

MT # = Annotation number assigned to each open reading frame by CDC1551 annotation database (www.jcvi.org).

Rv# = Annotation number assigned to each open reading frame by CDC1551 annotation database (<http://tuberculist.epfl.ch/index.html>)