Figure A1

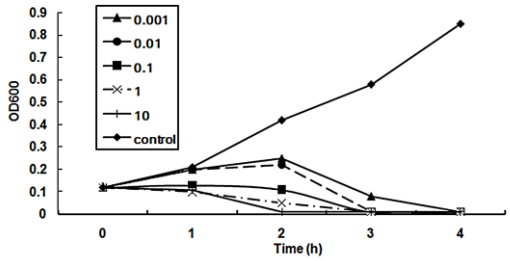
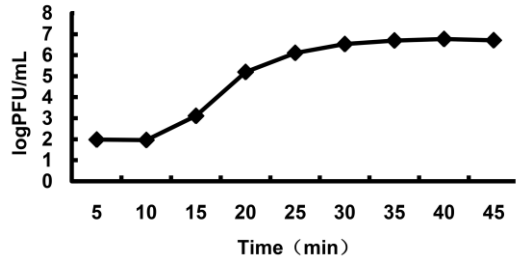


Figure A1 Time course of bacteriolytic activity of phage Bp7 against *E.coli* O78 strains.

Early-exponential cultures of *E.coli* (5×107CFU/mL) were infected with Bp7 at MOI of 0.001, 0.01, 0.1, 1 and 10.

6 Figure A2



7 Figure A2 One-step growth of phage Bp7. The latent period was estimated to be 10-15 min, and

8 the average burst size was about 90 PFU/infected cell.

9 Table A1 Genome annotation of phage Bp7

10

ORF	Gene	Start	Stop	Size(bp)	hypothetical protein	Molecular mass (kDa)	No. of peptides	Identities (%)				
								T4	JS98	IME08	JS10	Other phages (Identities%)
ORF1	Hp1	189	587	399	conserved hypothetical protein	15.13	133			97		
ORF2	e.6	665	1258	594	hypothetical protein	22.45	198			97.7		
ORF3	Hp3	1307	1843	537	hypothetical protein	20.86	179		90.4	97.7	91.5	
ORF4	Hp4	1836	2186	351	hypothetical protein	13.02	117		70.1	69.2	70.1	
ORF5	Hp5	2183	2473	291	hypothetical protein	10.68	97		99	100	100	
ORF6	Hp6	2483	2764	282	hypothetical protein	10.45	94		94.6			
ORF7	Hp7	2774	2986	213	hypothetical protein	8.11	71					Shigellla phage SP18 gp138 (58%)
ORF8	Hp8	2997	3221	225	hypothetical protein	8.26	75		97.3	97.3	98.6	
ORF9	Hp9	3215	3442	228	hypothetical protein	9.03	76		100	100	100	
ORF10	Hp10	3452	3802	351	hypothetical protein	13.95	117		99.1	100	99.1	
ORF11	Hp11	3846	4085	240	hypothetical protein	9.43	80		100	98.7	96.3	
ORF12	Hp12	4105	5064	960	hypothetical protein	37.41	320		98.4	98.1	96.9	
ORF13	Hp13	5077	5355	279	hypothetical protein	10.36	93		100	98.9		
ORF14	Hp14	5370	6059	690	hypothetical protein	26.62	230		91.7	93.4	92.1	
ORF15	e.2	6059	6646	588	hypothetical protein	22.35	196	65.4		96.9		
ORF16	Hp16	6643	6879	237	hypothetical protein	9.11	79		94.9	94.9	94.9	
ORF17	NudE	6872	7321	450	nudix hydrolase	17.24	150	74.8	98.7	99.3	99.3	
ORF18	e	7352	7840	489	lysozyme murein	18.71	163		100	99.4		

					hydrolase							
ORF19	DenV	7902	8345	444	endonuclease V	17.22	148	98.6	99.3	100		
ORF20	Vs.8	8448	9035	588	hypothetical protein	21.74	196	74.7	96.4	96.7	64.2	
ORF21	Vs.7	9032	9328	297	hypothetical protein	11.86	99	62	99	98	98	
ORF22	Hp17	9321	9539	219	hypothetical protein	8.32	73		84.7	84.7	83.3	
ORF23	Vs.4	9536	9814	279	hypothetical protein	10.82	93	78.4	85.9	87		
ORF24	RegB	9876	10334	459	site-specific RNA endonuclease	17.99	153	73.5	100	100		
ORF25	Vs.1	10347	10886	540	hypothetical protein	20.65	180	82.7	100	100	100	
ORF26	Vs	10887	11243	357	valyl-tRNA synthetase modifier	13.46	119	61.7	100	100		
ORF27	Tk.4	11240	11707	468	hypothetical protein	16.97	156	72.9	85.5	98.7	98.1	
ORF28	Tk.3	11679	11891	213	hypothetical protein	8.76	71	75.7	98.6	98.6		
ORF29	Tk.2	11882	12073	192	hypothetical protein	7.38	64	68.9	88.5	98.4		
ORF30	Tk	12083	12655	573	hypothetical protein	21.13	191	82.7	99.5	99.5	100	
ORF31	Hp18	12663	12941	279	hypothetical protein	10.68	93		98.9	100		
ORF32	Hp19	13034	13327	294	hypothetical protein	10.63	98		91.8	94.8		
ORF33	MobD.6	13314	13685	372	hypothetical protein	14.16	124	71.7	97.9	99		
ORF34	Hp20	13797	14033	237	hypothetical protein	9.26	79					Enterobacteria phage vB_EcoM-VR7(84%)
ORF35	MobD.3	14038	14220	183	hypothetical protein	6.75	61	74.6	88.3	83.3	88.3	
ORF36	Hp21	14320	14538	219	hypothetical protein	8.15	73		100	100	100	
ORF37	MobD.1	14549	15109	561	hypothetical protein	21.42	187	57.5	93.5	91.4	94.6	
ORF38	Hp22	15120	15572	453	hypothetical protein	17.16	151		98.7	98.7		

ORF39	NrdC.11	15569	16579	1011	hypothetical protein	39.00	337	89.9	94	94	93.8	
ORF40	NrdC.10	16610	17668	1059	hypothetical protein	39.73	353	85.4	98.5	98.6	98.8	
ORF41	Hp23	17746	18030	285	hypothetical protein	11.06	95	58.5	84	89.4	80.9	
ORF42	NrdC.8	18031	18582	552	hypothetical protein	21.06	184	84.5	100	99.3	99.3	
ORF43	NrdC.6	18679	19518	840	hypothetical protein	32.28	280	64.2	87.9	99.3	89.3	
ORF44	Hp24	19520	19708	189	hypothetical protein	6.92	63					Enterobacteria phage vB_EcoM-VR7 gp094 (61%)
ORF45	Hp25	19738	20607	870	hypothetical protein	33.13	290	49.5	95.5	95.8	93.2	
ORF46	NrdC.4	20627	21676	1050	hypothetical protein	39.89	350	61.3	91.6	98.8	96.7	
ORF47	NrdC.2	21673	21984	312	hypothetical protein	11.75	104	83.5	89.4	97.1	87.9	
ORF48	NrdC.1	21971	22207	237	hypothetical protein	9.08	79	79.7	98.7	98.7		
ORF49	NrdC	22209	22472	264	thioredoxin	9.89	88	94.3				
ORF50	Hp26	22469	22630	162	hypothetical protein	6.15	54					Shigella phage SP18 gp087 (81%)
ORF51	gp49.3	22627	22935	309	hypothetical protein	12.03	103	91.2	93.1	99	95.1	
ORF52	Hp27	23052	23225	174	hypothetical protein	6.49	58	62.5	100	98.2	91.2	
ORF53	Hp28	23225	23527	303	hypothetical protein	11.67	101		100		99	
ORF54	Hp29	23524	23709	186	hypothetical protein	7.22	62		96.7	96.5		
ORF55	Hp30	23748	24563	816	hypothetical protein	32.13	272					Salmonella phage STML-198 (82%)
ORF56	**Hp31**	**24578**	**24685**	**108**	**hypothetical protein**	**3.91**	**36**					
ORF57	gp55.8	24835	24948	114	conserved hypothetical predicted membrane protein	4.43	38					Enterobacteria phage vB_EcoM-VR7 (60%)

ORF58	gp55.8'	24945	25160	216	conserved hypothetical predicted membrane protein	7.85	72			94.4	
ORF59	Hp32	25157	25453	297	hypothetical protein	11.76	99		94.9	98	94.9
ORF60	NrdH	25434	25751	318	glutaredoxin	9.80	89	76.7	98.9	100	
ORF61	gp55.6	25811	25993	183	hypothetical protein	6.99	61	71.2	79.3	100	
ORF62	Hp33	25990	26244	255	hypothetical protein	9.83	85		98.8	100	98.8
ORF63	gp55.5	26247	26510	264	hypothetical protein	10.46	88		98.6	98.6	
ORF64	gp55.4	26546	26677	132	hypothetical protein	5.17	44	100	97.7	97.7	97.7
ORF65	gp55.3	26678	26878	201	hypothetical protein	7.66	67	85.7	93.9	98.5	95.5
ORF66	gp55.2	26946	27275	330	hypothetical protein	12.48	110	76.6	98.2	98.2	
ORF67	gp55.1	27272	27538	267	hypothetical protein	10.32	89	72.9	98.6	98.9	
ORF68	Hp34	27535	27798	264	hypothetical protein	10.10	88		96.6	78.2	
ORF69	gp55	27865	28422	558	sigma factor for T4 late transcription	21.39	186	84.3	98.4	100	
ORF70	a-gt.5	28406	28636	231	hypothetical protein	8.96	77	63.4	65.3		
ORF71	a-gt.4	28638	28949	312	hypothetical protein	12.13	104	64.6		99	
ORF72	a-gt.3	29038	29133	96	hypothetical protein	7.88	67	63.1	98.5	98.5	
ORF73	gp47	29431	30453	1023	recombination endonuclease subunit	39.37	341	82	92.1	92.4	92.4
ORF74	gp46.2	30450	30713	264	hypothetical protein	10.00	88	65.4	95.4	87.4	95.3
ORF75	gp46.1	30706	30912	207	hypothetical protein	7.93	69	60.7	98.5	98.5	
ORF76	gp46	30909	32147	1239	recombination endonuclease subunit	46.44	413	79.6	98.5	99.8	98.8
ORF77	gp46'	32227	32409	183	recombination	6.91	61	94.8	94.8	94.8	94.8

					endonuclease subunit						
ORF78	mobB	32592	33308	717	putative homing endonuclease	27.45	239	64.7			
ORF79	gp45.2	33352	33546	195	hypothetical protein	7.65	65	83.3	95.2	100	96.8
ORF80	RpbA	33592	34020	429	RNA polymerase binding protein	16.42	143	68.2	97.1	100	
ORF81	gp45	34049	34747	699	sliding clamp DNA polymerase accessory protein	25.50	233	72.8			
ORF82	Hp35	34747	35325	579	unknown	22.53	193	42.1			
ORF83	gp44	35303	36295	993	clamp loader subunit DNA polymerase	36.96	331	81.1		99.4	
ORF84	gp62	36286	36858	573	clamp loader subunit DNA polymerase	22.17	191	72.7		98.9	
ORF85	RegA	36864	37226	363	translational repressor protein	14.38	121	88.5		99.2	
ORF86	Hp36	37216	37443	228	hypothetical protein	8.73	76		94.4	94.7	95.8
ORF87	gp43	37525	40236	2712	DNA polymerase	104.71	904	77.8	98.8	99.1	98.9
ORF88	Imm	40299	40535	237	immunity to superinfection membrane protein	8.69	79			98.7	
ORF89	Hp37	40532	40669	138	hypothetical protein	5.22	46		100		100
ORF90	Hp38	40677	41177	501	hypothetical protein	19.11	167		98.2	99.4	98.8

ORF91	Hp39	41208	42911	1704	hypothetical protein	65.06	568		99.3	99.6	99.5	
ORF92	Hp40	42896	43270	375	hypothetical protein	14.60	125		91.7	91.7		
ORF93	Hp41	43267	43803	537	hypothetical protein	20.84	179		99.4	100		
ORF94	Hp42	43800	44498	699	hypothetical protein	26.68	233		99.1	99.1		
ORF95	Hp43	44495	45388	894	hypothetical protein	34.69	298		98.6	99.3		
ORF96	UvsX	45466	46647	1182	RecA-like recombination protein	43.57	394	82.1	99	99.7	99.5	
ORF97	gp40	46640	46969	330	head vertex assembly chaperone	12.71	110	71.8	100	100		
ORF98	gp41	46963	48393	1431	DNA primase-helicase subunit	53.59	477	80.4	100	99.8		
ORF99	Hp44	48476	48793	318	hypothetical protein	11.64	106		100	100		
ORF100	Dmd	48794	48988	195	discriminator of mRNA degradation	7.22	65	67.2	73.3	96.9		
ORF101	Hp45	48989	49129	141	hypothetical protein	5.19	47					*Nectria haematococca mp*VI 77-13-4 (47%)
ORF102	gp61.4	49130	49369	240	hypothetical protein	9.64	80	60.3	97.5	97.5		
ORF103	sp	49399	49722	324	spackle periplasmic protein	11.91	108	74.2	100	96.2	100	
ORF104	Hp46	49715	50155	441	hypothetical protein	17.30	147		94.4	96.6	97.3	
ORF105	Hp47	50157	50348	192	hypothetical protein	7.05	64		100	98.4		
ORF106	Hp48	50365	50526	162	hypothetical protein	5.60	54	88.1	97.6	95.2		
ORF107	gp61	50565	51593	1029	DNA primase subunit	40.01	343	77	95.9	95.6		
ORF108	MobB	51590	52345	756	homing endonuclease	29.62	252	61.6				
ORF109	Hp49	52352	52552	201	hypothetical protein	7.40	67					Enterobacteria phage

												vB_EcoM-VR7 (56.8%)
ORF110	gp56	52652	53167	516	dCTPase	19.74	172	86.5	83.8	85.5		
ORF111	Soc	53211	53444	234	small outer capsid protein	8.47	78	75	94.8	96.1	57.4	
ORF112	Mrh.2	53539	53736	198	hypothetical protein	7.48	66	69.1	68.1	68.1		
ORF113	Mrh.1	53733	54062	330	hypothetical protein	11.74	110	47.3	79.3	96.5	87.8	
ORF114	Srh	54062	54262	201	transcription modulator	8.08	67	76.1	100	98.5		
ORF115	ModA.4	54259	54426	168	hypothetical protein	6.22	56	92.9	97.2	97.2		
ORF116	ModA.3	54413	54901	489	hypothetical protein	18.72	163	56.6	91.4	93.3	90.2	
ORF117	ModA.2	54901	55089	189	hypothetical protein	7.21	63	61.7	96.8	88.9	98.4	
ORF118	ModB	55145	55714	570	ADP-ribosylase	22.16	190	58.8	94.7	98.4	95.8	
ORF119	ModA	55898	56383	486	ADP-ribosylase	24.05	205	53.4	97.1	96.6		
ORF120	Srd	56522	57187	666	putative Srd anti-sigma factor	25.22	222	60.7	94.3	95.1	94.8	
ORF121	Dda.1	57272	57571	300	hypothetical protein	11.80	100	52.5	98	85.9		
ORF122	Dda	57568	58899	1332	DNA helicase	50.57	444	74.5	99.1	98.9		
ORF123	Hp50	58907	59146	240	hypothetical protein	9.54	80	65.4	96.2	96.2		
ORF124	DexA	59143	59817	675	exonuclease A	25.74	225	78.4	99.6	99.6	99.6	
ORF125	MotB.2	59878	60351	474	hypothetical protein	18.90	158	83	86.8	95.6	91.9	
ORF126	MotB.1	60458	60928	471	hypothetical protein	17.84	157	73.1	94.2	93.5	94.2	
ORF127	MotB	61002	61568	567	modifier of transcription	21.03	189	78.3	89.1	96.3	73	
ORF128	cef	61641	61865	225	cef modifier of suppressor tRNAs	8.59	75	80.9	100	100	100	

ORF129	gp39.2	61852	62028	177	hypothetical protein	6.73	59	93.2	100			
ORF130	gp39.1	62035	62295	261	hypothetical protein	9.35	87	88.5	100	100	98.8	
ORF131	Hp51	62362	63042	681	hypothetical protein	26.72	227	48.7		44.3	45.2	
ORF132	gp39	63035	64855	1821	topoisomerase II, large subunit, N-terminal region	68.47	607	86.3	88.9	89.1	88.8	
ORF133	Hp52	64861	65061	201	hypothetical protein	7.91	67					Enterobacteria phage Vb_EcoM-VR7 (82%)
ORF134	rIIA.1	65135	65458	324	hypothetical protein	12.12	108					Enterobacteria phage Vb_EcoM-VR7 (63.4%)
ORF135	rIIA.1'	65445	65648	204	hypothetical protein	8.16	68	88.1	100	100		
ORF136	rIIA	65656	67866	2211	rIIA protector from prophage-induced early lysis	84.15	737	70.6	98.9	97.8	99	
ORF137	rIIB	67881	68849	969	rIIB protector from prophage-induced early lysis	36.37	323	79.1	95.7	91	96	
ORF138	DenB.1	68887	69084	198	hypothetical protein	7.35	66	70.3	98.5	100	95.4	
ORF139	Hp53	69077	69385	309	hypothetical protein	11.09	100		53.3			
ORF140	DenB	69399	69875	477	DNA endonuclease IV	17.88	159	83.5	99.4	100		
ORF141	Hp54	69904	70215	312	hypothetical protein	11.54	104		90.7	99	89.5	
ORF142	Hp55	70591	71049	459	hypothetical protein	17.73	153			100		
ORF143	Ndd	71139	71576	438	nucleoid disruption protein	16.53	150	76.5	98.7	100	98.7	
ORF144	gp52.1	71664	71825	162	hypothetical protein	5.91	54		96%		96%	
ORF145	gp52.1'	71818	71958	141	hypothetical protein	5.09	47	100	100	100	100	

ORF146	gp52	71963	73291	1329	topoisomerase II medium subunit	50.15	443	89.4	99.3	98.9	99.1
ORF147	Hp56	73500	73715	216	hypothetical protein	8.05	72		98.6	100	
ORF148	MotA	73821	74030	210	activator of middle period transcription	7.56	70	79.4	100	100	100
ORF149	MotA'	74030	74455	426	activator of middle period transcription	16.02	142	60.9	99.3	100	99.3
ORF150	Arn.4	74470	74799	330	hypothetical protein	12.61	110	88.2	100	100	
ORF151	Arn.3	74787	75134	348	hypothetical protein	13.47	116			99.1	75.4
ORF152	Arn.3'	75131	75619	489	hypothetical protein	18.76	163	86	98.8	98.1	98.8
ORF153	Arn.2	75619	75900	282	hypothetical protein	10.90	94	56.1	90.2	98.9	100
ORF154	Hp57	75990	76148	159	hypothetical protein	6.35	53		90.6	100	100
ORF155	AsiA	76204	76479	276	anti-sigma 70 protein	10.79	92	76.5	86.8	100	100
ORF156	t	76476	77129	654	holin lysis mediator	24.89	218	76.4	92.2	99.5	99.5
ORF157	gp38	77158	77949	792	long tail fiber assembly catalyst	27.74	264		92.3	67.1	90.3
ORF158	gp37	77979	81239	3261	long tail fiber distal subunit	116.41	1087	46.8	87	47.7	72.6
ORF159	gp36	81248	81895	648	long tail fiber, distal connector	23.49	216	57.9	98.6	81.7	98.6
ORF160	gp35	81970	83091	1122	long tail fiber, proximal connector	41.51	374	64.7	94.4	81.3	94.1
ORF161	gp34	83103	87152	4050	long tail fiber proximal subunit	147.07	1350	74.8	98.1	88.9	96
ORF162	RNaseH	87260	88207	948	RNaseH ribonuclease	36.46	316	75.7	99.4	100	100
ORF163	DsbA	88218	88487	270	dsDNA binding protein	10.38	90	77	100	100	100

ORF164	gp33	88468	88770	303	ate promoter transcription accessory protein	11.05	101	77.1	100		
ORF165	gp59	88767	89420	654	DNA helicase	26.03	218	88	99.5	99.5	
ORF166	Hp58	89435	90052	618	hypothetical protein	23.73	206	71.6			
ORF167	gp32	90151	91062	912	single-stranded DNA binding protein	33.35	304	81.2	99.3	99.3	
ORF168	Frd.2	91174	91536	363	hypothetical protein	13.68	121	53.2	85.4	54.2	86.2
ORF169	Hp59	91538	91798	261	hypothetical protein	9.95	87		100	100	
ORF170	Hp60	91844	92089	246	hypothetical protein	9.56	82	86.7	96	97.5	
ORF171	Frd.1	92145	92384	240	hypothetical protein	9.11	80	86.1	97.5	97.5	97.5
ORF172	Frd	92392	92973	582	dihydrofolate reductase	21.91	194	90.7	91.8	96.9	96.9
ORF173	Ts	92970	93830	861	dTMP thymidylate synthase	33.12	287	89.5	94.4	92.7	94
ORF174	NrdA.1	93892	94185	294	hypothetical protein	11.38	98	77.6	99		99
ORF175	NrdA	94252	96507	2256	aerobic NDP reductase large subunit	85.89	752	93.7	99.3	99.5	99.5
ORF176	NrdB	96562	96792	231	aerobic NDP reductase, small subunit	8.84	77	95.1	100	100	100
ORF177	NrdB	96789	97238	450	aerobic NDP reductase, small subunit	17.62	150	87.6	91.2	91.2	91.2
ORF178	NrdB	97382	98188	807	I-TevIII	30.78	269	96.6			
ORF179	NrdB	98348	98827	480	aerobic NDP reductase, small subunit	18.35	160	94.3	100	99.4	99.4
ORF180	DenA	98831	99268	438	endonuclease II	16.72	146	83.3	99.3	100	

ORF181	RnlA	99297	100421	1125	RNA ligase 1 and tail fiber attachment catalyst	43.75	383	69	99	99.5	98.7
ORF182	PseT.3	100968	101321	354	RNA ligase 1 and tail fiber attachment catalyst	13.24	118	60	99.1	100	99.1
ORF183	PseT.3	101318	101608	291	RNA ligase 1 and tail fiber attachment catalyst	11.18	97	78.8	97.9	100	97.9
ORF184	Hp61	101740	102075	336	hypothetical protein	12.34	112		72.4	91.3	72.4
ORF185	PseT	102076	102984	909	polynucleotide 5'-kinase and 3'-phosphatase	35.07	303	93	98	98	97.3
ORF186	Cd.4	102984	103181	198	hypothetical protein	7.66	66	80	100	100	98.5
ORF187	Cd.4	103174	103389	216	hypothetical protein	8.40	72		98.6	100	
ORF188	Cd.3	103397	103675	279	hypothetical protein	10.22	93	69.2	97.8	97.8	97.8
ORF189	Hp62	103687	104292	606	hypothetical protein	23.06	202		91.3	90.3	91.3
ORF190	Cd.2	104292	104525	234	hypothetical protein	8.57	78	82.6	97.4	98.7	100
ORF191	Cd	104522	105067	546	dCMP deaminase	20.15	182	76.7	99.4	100	
ORF192	gp31.1	105302	105601	300	hypothetical protein	11.49	100	60.8	98	79.6	93.1
ORF193	gp31	105660	105983	324	head assembly cochaperone with GroEL	11.62	108	90.6	99.1	99.1	

ORF194	rIII	106130	106378	249	lysis inhibition accessory protein rapidlysis phenotype	9.29	83	93.9	98.8	100	97.6
ORF195	gp30.9	106642	106803	162	hypothetical protein	5.80	54	79.1	100		100
ORF196	gp30.8	106925	107257	333	hypothetical protein	12.79	111	90	99.1	56.9	
ORF197	gp30.7	107466	107696	231	hypothetical protein	14.09	122	95.9	98.3	98.3	
ORF198	gp30.6	107705	108025	321	hypothetical protein	11.97	107	89.5	98.9	98.1	98.9
ORF199	gp30.5	108025	108219	195	hypothetical protein	6.97	65	76.2	96.9	100	
ORF200	gp30.4	108221	108436	216	hypothetical protein	8.05	72	73.1	98.6	88.6	
ORF201	gp30.3	108429	108887	459	hypothetical protein	17.38	153	93.4	94.1	96.7	
ORF202	gp30.2	108884	109522	639	hypothetical protein	24.39	213	85.9	100	100	
ORF203	gp30.1	109524	109802	279	hypothetical protein	11.04	93	65.1	70.5		
ORF204	gp30	109795	111336	1542	DNA ligase	57.92	514	74.5	99.2	96.8	99
ORF205	Alt.1	111338	111520	183	hypothetical protein	6.89	61	82	83.9	73.7	85.7
ORF206	Alt	111575	113659	2085	ADP-ribosylase	77.44	695	66.4	81.2	98.8	98.4
ORF207	Alt'	113660	115714	2055	ADP-ribosylase	75.97	685	77.4	68.8	71.8	71.2
ORF208	Alt.-3	115772	116062	291	hypothetical protein	10.79	97	74	99	99	97.9
ORF209	gp54	116109	117050	942	baseplate tail tube initiator	34.06	314	81.2	99.7	99	
ORF210	gp48	117050	118138	1089	baseplate tail tube cap	39.67	363	73.7	96.4	97.2	
ORF211	gp29	118147	119883	1737	baseplate hub subunit	64.13	579	55.6	98.8	99.5	98.8
ORF212	gp28	119867	120394	528	baseplate hub subunit	19.88	176	73.1	98.8	99.4	
ORF213	gp27	120348	121517	1170	baseplate hub subunit	44.94	390	78.7	100	100	
ORF214	gp51	121514	122266	753	baseplate hub assembly catalyst	29.47	251	76.5	100	98.8	98.8

ORF215	gp26	122317	122940	624	baseplate hub subunit	23.68	208	68.3	97.1	98.6	97.1
ORF216	gp25	122940	123329	390	baseplate hub subunit	14.43	130	86	99.2	98.4	99.2
ORF217	UvsY	123355	123822	468	recombination repair and ssDNA binding protein	18.29	156	81.6	100	98.7	
ORF218	UvsY.-2	123949	124116	168	hypothetical protein	6.04	56	95	100	97.5	
ORF219	Hp63	124176	124403	228	hypothetical protein	8.63	76	84.7	96.8	98.4	
ORF220	MobE	124400	125182	783	homing endonuclease	29.52	261	61.8			
ORF221	UvsW	125179	126159	981	DNA helicase	37.38	327	87	97.2	97.2	97.5
ORF222	UvsW'	126470	126682	213	DNA helicase ATPase	8.41	71	91.1	96.4	96.4	96.4
ORF223	Inh	126738	127409	672	inhibitor of prohead protease gp21	25.38	224	78.7	97.3	92.8	96.4
ORF224	Hoc	127419	128267	849	head outer capsid protein	29.91	283	66.5	97.2	94.2	76.9
ORF225	gp24.3	128332	128493	162	hypothetical protein	6.20	54	69.7	100	95.1	100
ORF226	RnlB	128696	129703	1008	RNA ligase 2	37.97	336	81.7	98.5	98.8	99.1
ORF227	gp24	129730	131010	1281	head vertex protein	46.57	427	76.1	96.2	96	99.3
ORF228	gp24'	131010	132293	1284	head vertex protein	46.72	428	84	98.1	98.4	99.1
ORF229	Hp64	132380	132661	282	hypothetical protein	10.98	94		100	100	96.6
ORF230	gp23	132711	134270	1560	major head protein	55.73	520	90.5	99.8	99.8	99.4
ORF231	gp22	134292	135107	816	prohead core scaffold protein	29.91	272	88.1	98.2	97.4	
ORF232	gp21	135138	135773	636	prohead core scaffold protein and protease	23.05	212	94.9	100	100	

ORF233	gp68	135773	136201	429	prohead core protein	15.95	143	85.1	97.9	97.2		
ORF234	gp67	136201	136446	246	prohead core protein precursor	8.97	82	68.1	95.6	97.9	95.6	
ORF235	gp20	136446	137690	1245	portal vertex protein of head	48.58	415	90.8	100	100	100	
ORF236	gp20'	137696	138019	324	portal vertex protein of head	12.51	108	74.7	100	100	100	
ORF237	Hp65	138077	138658	582	hypothetical protein	22.39	194					Enterobacteria phage Vb_EcoM-VR7 (39.6%)
ORF238	gp19	138726	139217	492	tail tube protein	18.76	164	86.5	100	100		
ORF239	Hp66	139255	139926	672	hypothetical protein	25.90	224					Acinetobacter phage Aci61 (57.1%)
ORF240	gp18	140108	142090	1983	tail sheath protein	71.77	661	84.9	98.9	98.9		
ORF241	gp17	142123	143958	1836	terminase DNA packaging enzyme large subunit	70.57	612	91	99.5	99.5	99.5	
ORF242	gp16	143942	144433	492	terminase DNA packaging enzyme small subunit	18.25	164	90.2	98.2	98.2		
ORF243	gp15	144430	145248	819	tail sheath stabilizer and completion protein	31.78	273	78.2	99.2	98.8	98.8	
ORF244	gp14	145338	146111	774	neck protein	29.49	258	84	99.6	99.6	99.6	
ORF245	gp13	146114	147049	936	neck protein	34.76	312	81.5	100	97.7		
ORF246	Wac	147104	148693	1590	fibritin neck whiskers	57.78	530	58.5	93.7	82.3	94.3	
ORF247	gp12	148703	150229	1527	short tail fibers	53.22	509	62.4	99.6	81.1	99.8	

ORF248	gp11	150229	150894	666	baseplate wedge subunit and tail pin	24.08	222	51.6	100	93.6	100	
ORF249	gp10	150894	152705	1812	baseplate wedge subunit and tail pin	65.79	604	68.3	99.3	89.9	99.5	
ORF250	gp9	152705	153565	861	baseplate wedge tail fiber	31.31	287	65.4	99.7	95.1		
ORF251	gp8	153627	154631	1005	baseplate wedge subunit	38.41	335	86.2	99.7	99.1		
ORF252	gp7	154624	157719	3096	baseplate wedge initiator	120.19	1032	77.6	99.3	97		
ORF253	gp6	157747	159705	1959	baseplate wedge subunit	73.60	653	82.5	99.7	98		
ORF254	Hp67	159707	161770	2064	hypothetical protein	77.08	688					Shigella phage_SP18 (99.9%)
ORF255	gp5	161772	163559	1788	baseplate hub subunit and tail lysozyme	65.57	596	77	88.4	88.9	88.7	
ORF256	gp53	163559	164161	603	baseplate wedge subunit	23.48	201	81.2	99	99.5		
ORF257	gp4	164208	164657	450	head completion protein	18.03	150	78.5	94.6	99.3		
ORF258	gp2	164654	165481	828	DNA end protector protein	31.29	276	87.2	99.3	98.9		
ORF259	gp3	165564	166154	591	tail completion and sheath stabilizer protein	22.19	197	71.6	100	99.5	100	
ORF260	gp1	166154	166915	762	dNMP kinase	28.90	254	67.6	98.8	99.2	98.4	

ORF261	gp57A	166908	167153	246	chaperone for tail fiber	8.85	82	75.7	100	78.6	100
ORF262	gp57B	167153	167560	408	hypothetical protein	15.21	136	89.6	99.3	99.3	99.3
ORF263	IpI	167636	167914	279	internal head protein	9.90	93	77.7			