Students used DNA MAster for the initial annotation, recorded their notes in an Excel file and then added their information to PECAAN.

tRNAs were only found using DNA Master.

Here are the notes on the three genes that were deleted:

Between Genes 61 and 62 Start 4361 End 43491,ammehl changed note to I don't think this is a gene. Missing coding potential. Doesn't match up with any genomes in Pham. Single reverse within forward. -AM at 2023-04-17T22:55:39

Between Genes 106 and 107 Start 63338 End 63054 Reverse sequence that overlaps with forward genes.

Between Genes 125 and 126 Start 69382 End 69137 Reverse sequence that overlaps with forward genes.

Annotation Notes from PECAAN

CDS 10 - 270

/gene="1"

/product="gp1"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_1"

/note=Genemark calls start at 160

/note=SSC: 10-270 CP: no SCS: genemark-cs ST: NI BLAST-Start: [hypothetical protein SEA\_DUSK\_1 [Mycobacterium phage Dusk] ],,NCBI, q1:s1 100.0% 2.11091E-58 GAP: 0 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.871, -4.9163222688718005, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_DUSK\_1 [Mycobacterium phage Dusk] ],,YP\_009224269,100.0,2.11091E-58 SIF-HHPRED: SIF-Syn:

CDS 267 - 449

/gene="2"

/product="gp2"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_2"

/note=Original Glimmer call @bp 267 has strength 9.14; Genemark calls start at 267

/note=SSC: 267-449 CP: yes SCS: both ST: NI BLAST-Start: [hypothetical protein Kostya\_2 [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 1.1525E-34 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 3.244, -2.0111200136961407, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Kostya\_2 [Mycobacterium phage Kostya] ],,YP\_002014470,100.0,1.1525E-34 SIF-HHPRED: SIF-Syn:

CDS 446 - 604

/gene="3"

/product="gp3"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_3"

/note=Original Glimmer call @bp 446 has strength 9.8; Genemark calls start at 446

/note=SSC: 446-604 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein Porky\_2 [Mycobacterium phage Porky] ],,NCBI, q1:s1 100.0% 2.02236E-28 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.499, -3.586741874491512, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Porky\_2 [Mycobacterium phage Porky] ],,YP\_002014323,100.0,2.02236E-28 SIF-HHPRED: SIF-Syn:

CDS 601 - 786

/gene="4"

/product="gp4"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_4"

/note=Original Glimmer call @bp 601 has strength 6.46; Genemark calls start at 601

/note=SSC: 601-786 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein Kostya\_4 [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 2.32421E-35 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.061, -4.784283191845562, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Kostya\_4 [Mycobacterium phage Kostya] ],,YP\_002014472,100.0,2.32421E-35 SIF-HHPRED: SIF-Syn:

CDS 783 - 1064

/gene="5"

/product="gp5"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_5"

/note=Original Glimmer call @bp 783 has strength 4.81; Genemark calls start at 783

/note=SSC: 783-1064 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_DUSK\_5 [Mycobacterium phage Dusk] ],,NCBI, q1:s1 100.0% 3.3422E-57 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.615, -3.342129169857323, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_DUSK\_5 [Mycobacterium phage Dusk] ],,YP\_009224273,100.0,3.3422E-57 SIF-HHPRED: SIF-Syn:

CDS 1057 - 1518

/gene="6"

/product="gp6"

/function="terminase, small subunit"

/locus tag="Marshmallow\_6"

/note=Original Glimmer call @bp 1057 has strength 8.21; Genemark calls start at 1057

/note=SSC: 1057-1518 CP: yes SCS: both ST: SS BLAST-Start: [terminase small subunit [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 8.8596E-109 GAP: -8 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 3.002, -2.5052746077145835, yes F: terminase, small subunit SIF-BLAST: ,,[terminase small subunit [Mycobacterium phage Kostya] ],,YP\_002014474,100.0,8.8596E-109 SIF-HHPRED: Terminase small subunit; genome packaging, bacteriophage, DNA binding, VIRAL PROTEIN; 1.4A {Enterobacteria phage HK97},,,6Z6E\_B,64.7059,99.7 SIF-Syn:

CDS 1511 - 1855

/gene="7"

/product="gp7"

/function="membrane protein"

/locus tag="Marshmallow\_7"

/note=Original Glimmer call @bp 1511 has strength 4.57; Genemark calls start at 1511

/note=SSC: 1511-1855 CP: no SCS: both ST: SS BLAST-Start: [hypothetical protein Kostya\_7 [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 1.65669E-76 GAP: -8 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.535, -3.4932654573164204, yes F: membrane protein SIF-BLAST: ,,[hypothetical protein Kostya\_7 [Mycobacterium phage Kostya] ],,YP\_002014475,100.0,1.65669E-76 SIF-HHPRED: SIF-Syn:

CDS complement (1956 - 2267)

/gene="8"

/product="gp8"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_8"

/note=Original Glimmer call @bp 2267 has strength 5.74; Genemark calls start at 2267

/note=SSC: 2267-1956 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein Kostya\_8 [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 7.87246E-69 GAP: 35 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.121, -5.214587260100814, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Kostya\_8 [Mycobacterium phage Kostya] ],,YP\_002014476,100.0,7.87246E-69 SIF-HHPRED: SIF-Syn:

CDS 2303 - 4966

/gene="9"

/product="gp9"

/function="terminase, large subunit"

/locus tag="Marshmallow\_9"

/note=Original Glimmer call @bp 2303 has strength 7.23; Genemark calls start at 2303

/note=SSC: 2303-4966 CP: yes SCS: both ST: SS BLAST-Start: [exonuclease [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 0.0 GAP: 35 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.343, -3.9166971242758706, no F: terminase, large subunit SIF-BLAST: ,,[exonuclease [Mycobacterium phage Kostya] ],,YP\_002014477,99.8873,0.0 SIF-HHPRED: Terminase large subunit; genome packaging, bacteriophage, ATPase, nuclease, VIRAL PROTEIN; HET: BR; 2.2A {Enterobacteria phage HK97},,,6Z6D\_A,51.9729,100.0 SIF-Syn:

CDS 4978 - 5199

/gene="10"

/product="gp10"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_10"

/note=Original Glimmer call @bp 4978 has strength 6.5; Genemark calls start at 4978

/note=SSC: 4978-5199 CP: yes SCS: both ST: SS BLAST-Start: [gp9 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 8.25928E-46 GAP: 11 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.557, -3.46411222063, yes F: Hypothetical Protein SIF-BLAST: ,,[gp9 [Mycobacterium phage Cjw1] ],,NP\_817459,100.0,8.25928E-46 SIF-HHPRED: SIF-Syn:

CDS 5186 - 6742

/gene="11"

/product="gp11"

/function="portal protein"

/locus tag="Marshmallow\_11"

/note=Original Glimmer call @bp 5186 has strength 8.4; Genemark calls start at 5186

/note=SSC: 5186-6742 CP: yes SCS: both ST: SS BLAST-Start: [portal protein [Mycobacterium phage DrDrey] ],,NCBI, q1:s1 100.0% 0.0 GAP: -14 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.528, -3.525474288708562, yes F: portal protein SIF-BLAST: ,,[portal protein [Mycobacterium phage DrDrey] ],,YP\_008409404,100.0,0.0 SIF-HHPRED: Phage portal protein, HK97 family; "neck", "portal", "capsid", "tail tube", VIRUS; 3.58A {Rhodobacter capsulatus},,,6TE9\_A,67.1815,100.0 SIF-Syn:

CDS 6745 - 7839

/gene="12"

/product="gp12"

/function="capsid maturation protease"

/locus tag="Marshmallow\_12"

/note=Original Glimmer call @bp 6745 has strength 7.25; Genemark calls start at 6745

/note=SSC: 6745-7839 CP: yes SCS: both ST: SS BLAST-Start: [head maturation protease [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 0.0 GAP: 2 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.526, -3.5925599723783583, no F: capsid maturation protease SIF-BLAST: ,,[head maturation protease [Mycobacterium phage Kostya] ],,YP\_002014480,100.0,0.0 SIF-HHPRED: Peptidase\_S78 ; Caudovirus prohead serine protease,,,PF04586.20,35.4396,99.7 SIF-Syn:

CDS 7927 - 9420

/gene="13"

/product="gp13"

/function="major capsid protein"

/locus tag="Marshmallow\_13"

/note=Original Glimmer call @bp 7927 has strength 9.78; Genemark calls start at 7927

/note=SSC: 7927-9420 CP: yes SCS: both ST: NI BLAST-Start: [major head protein [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 0.0 GAP: 87 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 3.149, -2.1958114445137396, yes F: major capsid protein SIF-BLAST: ,,[major head protein [Mycobacterium phage Kostya] ],,YP\_002014481,100.0,0.0 SIF-HHPRED: Major capsid protein; Virus Procapsid particles, VIRUS; 5.2A {Enterobacteria phage HK97},,,3QPR\_B,98.994,100.0 SIF-Syn:

CDS 9487 - 9678

/gene="14"

/product="gp14"

/function="head-to-tail adaptor"

/locus tag="Marshmallow\_14"

/note=Original Glimmer call @bp 9487 has strength 8.77; Genemark calls start at 9487

/note=SSC: 9487-9678 CP: yes SCS: both ST: SS BLAST-Start: [head-tail connector protein [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 2.16557E-35 GAP: 66 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.73, -3.5466635877785, yes F: head-to-tail adaptor SIF-BLAST: ,,[head-tail connector protein [Mycobacterium phage Kostya] ],,YP\_002014482,100.0,2.16557E-35 SIF-HHPRED: SIF-Syn:

CDS 9678 - 10244

/gene="15"

/product="gp15"

/function="head-to-tail adaptor"

/locus tag="Marshmallow\_15"

/note=Original Glimmer call @bp 9678 has strength 11.61; Genemark calls start at 9678

/note=SSC: 9678-10244 CP: no SCS: both ST: SS BLAST-Start: [head-tail adaptor [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 1.57038E-135 GAP: -1 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.432, -3.790975366313636, yes F: head-to-tail adaptor SIF-BLAST: ,,[head-tail adaptor [Mycobacterium phage Kostya] ],,YP\_002014483,100.0,1.57038E-135 SIF-HHPRED: Adaptor protein Rcc01688; "neck", "portal", "capsid", "tail tube", VIRUS; 3.58A {Rhodobacter capsulatus},,,6TE9\_D,94.1489,99.9 SIF-Syn:

CDS 10257 - 10592

/gene="16"

/product="gp16"

/function="head-to-tail stopper"

/locus tag="Marshmallow\_16"

/note=Original Glimmer call @bp 10257 has strength 9.2; Genemark calls start at 10257

/note=SSC: 10257-10592 CP: yes SCS: both ST: SS BLAST-Start: [head closure [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 1.05647E-75 GAP: 12 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.112, -4.4057176022952405, no F: head-to-tail stopper SIF-BLAST: ,,[head closure [Mycobacterium phage Kostya] ],,YP\_002014484,100.0,1.05647E-75 SIF-HHPRED: DUF3599 ; Domain of unknown function (DUF3599),,,PF12206.11,97.2973,99.6 SIF-Syn:

CDS 10589 - 10969

/gene="17"

/product="gp17"

/function="head-to-tail adaptor"

/locus tag="Marshmallow\_17"

/note=Original Glimmer call @bp 10766 has strength 5.19; Genemark calls start at 10589

/note=SSC: 10589-10969 CP: yes SCS: both-gm ST: NI BLAST-Start: [minor tail protein [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 6.18283E-87 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.653, -3.1816499351312086, yes F: head-to-tail adaptor SIF-BLAST: ,,[minor tail protein [Mycobacterium phage Kostya] ],,YP\_002014485,100.0,6.18283E-87 SIF-HHPRED: Minor\_capsid\_2 ; Minor capsid protein,,,PF11114.11,80.9524,99.1 SIF-Syn:

CDS 10947 - 11351

/gene="18"

/product="gp18"

/function="tail terminator"

/locus tag="Marshmallow\_18"

/note=Original Glimmer call @bp 10947 has strength 6.3; Genemark calls start at 10947

/note=SSC: 10947-11351 CP: yes SCS: both ST: SS BLAST-Start: [head-tail adaptor [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 4.08684E-95 GAP: -23 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.588, -3.8462096892182602, yes F: tail terminator SIF-BLAST: ,,[head-tail adaptor [Mycobacterium phage Cjw1] ],,NP\_817467,100.0,4.08684E-95 SIF-HHPRED: Tail terminator protein Rcc01690; "neck", "portal", "capsid", "tail tube", VIRUS; 3.58A {Rhodobacter capsulatus},,,6TE9\_F,94.7761,99.3 SIF-Syn:

CDS 11378 - 12349

/gene="19"

/product="gp19"

/function="major tail protein"

/locus tag="Marshmallow\_19"

/note=Original Glimmer call @bp 11387 has strength 14.45; Genemark calls start at 11378

/note=SSC: 11378-12349 CP: yes SCS: both-gm ST: SS BLAST-Start: [major tail protein [Mycobacterium phage Contagion] ],,NCBI, q1:s1 100.0% 0.0 GAP: 26 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.768, -3.080676611399484, yes F: major tail protein SIF-BLAST: ,,[major tail protein [Mycobacterium phage Contagion] ],,YP\_008410036,100.0,0.0 SIF-HHPRED: YSD1\_22 major tail protein; Bacteriophage tail, helical assembly, VIRAL PROTEIN; 3.5A {Bacteriophage sp.},,,6XGR\_L,62.2291,97.2 SIF-Syn:

CDS 12469 - 12930

/gene="20"

/product="gp20"

/function="tail assembly chaperone"

/locus tag="Marshmallow\_20"

/note=Original Glimmer call @bp 12469 has strength 11.99; Genemark calls start at 12469

/note=SSC: 12469-12930 CP: yes SCS: both ST: SS BLAST-Start: [tail assembly chaperone [Mycobacterium phage Phaja]],,NCBI, q1:s25 100.0% 9.36037E-109 GAP: 119 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.594, -3.6571726089641587, yes F: tail assembly chaperone SIF-BLAST: ,,[tail assembly chaperone [Mycobacterium phage Phaja]],,AXH48199,86.4407,9.36037E-109 SIF-HHPRED: GP24\_25 ; Mycobacteriophage tail assembly protein,,,PF17388.5,33.9869,96.0 SIF-Syn:

CDS 13074 - 13340

/gene="21"

/product="gp21"

/function="tail assembly chaperone"

/locus tag="Marshmallow\_21"

/note=Original Glimmer call @bp 13074 has strength 5.14; Genemark calls start at 13062

/note=SSC: 13074-13340 CP: no SCS: both-gl ST: NI BLAST-Start: [tail assembly chaperone [Mycobacterium phage Kostya] ],,NCBI, q1:s5 100.0% 3.07751E-56 GAP: 143 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.38, -7.179728324748169, no F: tail assembly chaperone SIF-BLAST: ,,[tail assembly chaperone [Mycobacterium phage Kostya] ],,YP\_002014489,95.6522,3.07751E-56 SIF-HHPRED: SIF-Syn:

CDS 13333 - 18066

/gene="22"

/product="gp22"

/function="tape measure protein"

/locus tag="Marshmallow\_22"

/note=Original Glimmer call @bp 13333 has strength 6.95; Genemark calls start at 13333

/note=SSC: 13333-18066 CP: yes SCS: both ST: SS BLAST-Start: [tail length tape measure protein [Mycobacterium phage Contagion] ],,NCBI, q1:s1 100.0% 0.0 GAP: -8 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.757, -2.9625409806968013, yes F: tape measure protein SIF-BLAST: ,,[tail length tape measure protein [Mycobacterium phage Contagion] ],,YP\_008410039,100.0,0.0 SIF-HHPRED: Tape Measure Protein, gp57; phage tail, tail tip, tape measure protein, VIRAL PROTEIN; 3.7A {Staphylococcus virus 80alpha},,,6V8I\_CF,3.2974,98.9 SIF-Syn:

CDS 18096 - 19757

/gene="23"

/product="gp23"

/function="minor tail protein"

/locus tag="Marshmallow\_23"

/note=Original Glimmer call @bp 18096 has strength 8.35; Genemark calls start at 18096

/note=SSC: 18096-19757 CP: yes SCS: both ST: SS BLAST-Start: [minor tail protein [Mycobacterium phage Contagion] ],,NCBI, q1:s1 100.0% 0.0 GAP: 29 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.145, -5.358093050197135, no F: minor tail protein SIF-BLAST: ,,[minor tail protein [Mycobacterium phage Contagion] ],,YP\_008410040,100.0,0.0 SIF-HHPRED: SIF-Syn:

CDS 19829 - 21424

/gene="24"

/product="gp24"

/function="minor tail protein"

/locus tag="Marshmallow\_24"

/note=Original Glimmer call @bp 19829 has strength 6.76; Genemark calls start at 19745

/note=SSC: 19829-21424 CP: yes SCS: both-gl ST: SS BLAST-Start: [minor tail protein [Mycobacterium phage Kostya] ],,NCBI, q1:s29 100.0% 0.0 GAP: 71 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.7, -6.103928156785973, no F: minor tail protein SIF-BLAST: ,,[minor tail protein [Mycobacterium phage Kostya] ],,YP\_002014492,94.9911,0.0 SIF-HHPRED: Tail-Associated Lysin, gp59; phage tail, tail tip, tape measure protein, VIRAL PROTEIN; 3.7A {Staphylococcus virus 80alpha},,,6V8I\_BE,92.2787,99.3 SIF-Syn:

CDS 21445 - 22266

/gene="25"

/product="gp25"

/function="minor tail protein"

/locus tag="Marshmallow\_25"

/note=Original Glimmer call @bp 21445 has strength 9.49; Genemark calls start at 21445

/note=SSC: 21445-22266 CP: yes SCS: both ST: SS BLAST-Start: [minor tail protein [Mycobacterium phage 244] ],,NCBI, q1:s112 100.0% 0.0 GAP: 20 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.61, -5.7386222390588415, no F: minor tail protein SIF-BLAST: ,,[minor tail protein [Mycobacterium phage 244] ],,YP\_654782,71.0938,0.0 SIF-HHPRED: SIF-Syn:

CDS 22283 - 24679

/gene="26"

/product="gp26"

/function="minor tail protein"

/locus tag="Marshmallow\_26"

/note=Original Glimmer call @bp 22283 has strength 7.64; Genemark calls start at 22283

/note=SSC: 22283-24679 CP: no SCS: both ST: SS BLAST-Start: [minor tail protein [Mycobacterium phage SirDuracell] ],,NCBI, q1:s1 100.0% 0.0 GAP: 16 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.751, -3.055523716677687, no F: minor tail protein SIF-BLAST: ,,[minor tail protein [Mycobacterium phage SirDuracell] ],,YP\_009607955,100.0,0.0 SIF-HHPRED: SIF-Syn:

CDS 24676 - 27522

/gene="27"

/product="gp27"

/function="minor tail protein"

/locus tag="Marshmallow\_27"

/note=Original Glimmer call @bp 24676 has strength 4.48; Genemark calls start at 24676

/note=SSC: 24676-27522 CP: yes SCS: both ST: SS BLAST-Start: [minor tail protein [Mycobacterium phage Bask21] ],,NCBI, q1:s1 100.0% 0.0 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 3.002, -3.095100142625534, yes F: minor tail protein SIF-BLAST: ,,[minor tail protein [Mycobacterium phage Bask21] ],,YP\_009591187,100.0,0.0 SIF-HHPRED: SIF-Syn:

CDS 27523 - 28467

/gene="28"

/product="gp28"

/function="minor tail protein"

/locus tag="Marshmallow\_28"

/note=Original Glimmer call @bp 27523 has strength 5.26; Genemark calls start at 27523

/note=SSC: 27523-28467 CP: yes SCS: both ST: SS BLAST-Start: [minor tail protein [Mycobacterium phage Goku] ],,NCBI, q1:s1 100.0% 0.0 GAP: 0 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.407, -3.8426483658976065, yes F: minor tail protein SIF-BLAST: ,,[minor tail protein [Mycobacterium phage Goku] ],,YP\_008430544,100.0,0.0 SIF-HHPRED: SIF-Syn:

CDS 28547 - 28975

/gene="29"

/product="gp29"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_29"

/note=Original Glimmer call @bp 28547 has strength 10.55; Genemark calls start at 28547

/note=SSC: 28547-28975 CP: no SCS: both ST: NI BLAST-Start: [hypothetical protein GOKU\_29 [Mycobacterium phage Goku] ],,NCBI, q1:s1 100.0% 5.38075E-89 GAP: 79 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 3.138, -2.156361006712914, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein GOKU\_29 [Mycobacterium phage Goku] ],,YP\_008430545,100.0,5.38075E-89 SIF-HHPRED: SIF-Syn:

CDS complement (28972 - 29148)

/gene="30"

/product="gp30"

/function="DNA binding protein"

/locus tag="Marshmallow\_30"

/note=Original Glimmer call @bp 29148 has strength 4.06; Genemark calls start at 29148

/note=SSC: 29148-28972 CP: yes SCS: both ST: SS BLAST-Start: [HTH DNA binding protein [Mycobacterium phage Goku] ],,NCBI, q1:s1 100.0% 1.24976E-32 GAP: 132 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 0.976, -6.869863506935954, no F: DNA binding protein SIF-BLAST: ,,[HTH DNA binding protein [Mycobacterium phage Goku] ],,YP\_008430546,100.0,1.24976E-32 SIF-HHPRED: ECF RNA polymerase sigma factor SigK; sigma factor, transcription initiation, DNA binding, Promoter DNA binding and transcription initiation, anti-sigma factor, DNA BINDING; HET: CD; 2.4A {Mycobacterium tuberculosis},,,4NQW\_A,86.2069,98.2 SIF-Syn:

CDS 29281 - 29565

/gene="31"

/product="gp31"

/function="membrane protein"

/locus tag="Marshmallow\_31"

/note=Original Glimmer call @bp 29281 has strength 8.28; Genemark calls start at 29281

/note=SSC: 29281-29565 CP: yes SCS: both ST: SS BLAST-Start: [gp31 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 3.65334E-62 GAP: 132 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 3.159, -2.253377680616507, yes F: membrane protein SIF-BLAST: ,,[gp31 [Mycobacterium phage Cjw1] ],,NP\_817481,100.0,3.65334E-62 SIF-HHPRED: DUF3551 ; Protein of unknown function (DUF3551),,,PF12071.11,39.3617,89.1 SIF-Syn:

CDS 29639 - 31141

/gene="32"

/product="gp32"

/function="Lysin A"

/locus tag="Marshmallow\_32"

/note=Original Glimmer call @bp 29708 has strength 7.36; Genemark calls start at 29639

/note=SSC: 29639-31141 CP: yes SCS: both-gm ST: SS BLAST-Start: [endolysin [Mycobacterium phage SirDuracell] ],,NCBI, q1:s1 100.0% 0.0 GAP: 73 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.576, -5.538930744277278, no F: Lysin A SIF-BLAST: ,,[endolysin [Mycobacterium phage SirDuracell] ],,YP\_009607961,100.0,0.0 SIF-HHPRED: chitinase; class I chitinase, whole structure, Oryza sativa L. japonica, HYDROLASE; HET: MPD, MES; 2.0A {Oryza sativa Japonica Group},,,2DKV\_A,32.8,86.3 SIF-Syn:

CDS 31145 - 31528

/gene="33"

/product="gp33"

/function="holin"

/locus tag="Marshmallow\_33"

/note=Original Glimmer call @bp 31145 has strength 10.05; Genemark calls start at 31145

/note=SSC: 31145-31528 CP: yes SCS: both ST: SS BLAST-Start: [holin [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 3.4777E-82 GAP: 3 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.905, -4.763756451838196, no F: holin SIF-BLAST: ,,[holin [Mycobacterium phage Cjw1] ],,NP\_817483,100.0,3.4777E-82 SIF-HHPRED: Phage\_holin\_7\_1 ; Mycobacterial 2 TMS Phage Holin (M2 Hol) Family,,,PF16081.8,93.7008,100.0 SIF-Syn:

CDS 31521 - 31859

/gene="34"

/product="gp34"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_34"

/note=Original Glimmer call @bp 31521 has strength 10.46; Genemark calls start at 31521

/note=SSC: 31521-31859 CP: yes SCS: both ST: SS BLAST-Start: [gp34 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 1.74575E-75 GAP: -8 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.438, -6.403886157111313, no F: Hypothetical Protein SIF-BLAST: ,,[gp34 [Mycobacterium phage Cjw1] ],,NP\_817484,100.0,1.74575E-75 SIF-HHPRED: SIF-Syn:

CDS 31856 - 32713

/gene="35"

/product="gp35"

/function="lysin B"

/locus tag="Marshmallow\_35"

/note=Original Glimmer call @bp 31856 has strength 6.67; Genemark calls start at 31856

/note=SSC: 31856-32713 CP: yes SCS: both ST: SS BLAST-Start: [lysin B [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 0.0 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.85, -3.8154491356968365, yes F: lysin B SIF-BLAST: ,,[lysin B [Mycobacterium phage Kostya] ],,YP\_002014504,100.0,0.0 SIF-HHPRED: SIF-Syn:

CDS 32710 - 33126

/gene="36"

/product="gp36"

/function="membrane protein"

/locus tag="Marshmallow\_36"

/note=Original Glimmer call @bp 32710 has strength 9.15; Genemark calls start at 32710

/note=SSC: 32710-33126 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_DUSK\_35 [Mycobacterium phage Dusk] ],,NCBI, q1:s1 100.0% 8.19715E-95 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 0.97, -7.2690057605968725, no F: membrane protein SIF-BLAST: ,,[hypothetical protein SEA\_DUSK\_35 [Mycobacterium phage Dusk] ],,YP\_009224303,100.0,8.19715E-95 SIF-HHPRED: SIF-Syn:

CDS 33133 - 33378

/gene="37"

/product="gp37"

/function="NrdH-like glutaredoxin"

/locus tag="Marshmallow\_37"

/note=Original Glimmer call @bp 33133 has strength 9.49; Genemark calls start at 33133

/note=SSC: 33133-33378 CP: yes SCS: both ST: SS BLAST-Start: [thioredoxin domain [Mycobacterium phage DrDrey] ],,NCBI, q1:s1 100.0% 4.4028E-51 GAP: 6 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.016, -5.356325827079472, no F: NrdH-like glutaredoxin SIF-BLAST: ,,[thioredoxin domain [Mycobacterium phage DrDrey] ],,YP\_008409431,100.0,4.4028E-51 SIF-HHPRED: SIF-Syn:

CDS complement (33540 - 34061)

/gene="38"

/product="gp38"

/function="HNH endonuclease"

/locus tag="Marshmallow\_38"

/note=Original Glimmer call @bp 34061 has strength 4.36; Genemark calls start at 34127

/note=SSC: 34061-33540 CP: no SCS: both-gl ST: NI BLAST-Start: [HNH endonuclease [Mycobacterium phage Toto] ],,NCBI, q1:s1 100.0% 1.51889E-125 GAP: 188 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.751, -3.0377949497172554, yes F: HNH endonuclease SIF-BLAST: ,,[HNH endonuclease [Mycobacterium phage Toto] ],,YP\_009208446,100.0,1.51889E-125 SIF-HHPRED: SIF-Syn:

CDS complement (34250 - 34636)

/gene="39"

/product="gp39"

/function="Lsr2-like DNA bridging protein"

/locus tag="Marshmallow\_39"

/note=Original Glimmer call @bp 34636 has strength 9.14; Genemark calls start at 34636

/note=SSC: 34636-34250 CP: yes SCS: both ST: NI BLAST-Start: [nucloid associated Lsr2-like [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 5.13002E-88 GAP: 47 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.741, -3.0766426734767767, yes F: Lsr2-like DNA bridging protein SIF-BLAST: ,,[nucloid associated Lsr2-like [Mycobacterium phage Cjw1] ],,NP\_817489,100.0,5.13002E-88 SIF-HHPRED: SIF-Syn:

CDS complement (34684 - 34875)

/gene="40"

/product="gp40"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_40"

/note=Original Glimmer call @bp 34875 has strength 6.58; Genemark calls start at 34875

/note=SSC: 34875-34684 CP: no SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_MURICA\_38 [Mycobacterium phage Murica]],,NCBI, q1:s3 100.0% 5.03773E-40 GAP: 2 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.001, -4.641378341780927, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_MURICA\_38 [Mycobacterium phage Murica]],,ATN91073,82.8947,5.03773E-40 SIF-HHPRED: SIF-Syn:

CDS complement (34878 - 35345)

/gene="41"

/product="gp41"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_41"

/note=Original Glimmer call @bp 35345 has strength 4.41; Genemark calls start at 35345

/note=SSC: 35345-34878 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_TOTO\_41 [Mycobacterium phage Toto] ],,NCBI, q1:s1 100.0% 1.16699E-109 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.85, -2.8454123590742793, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_TOTO\_41 [Mycobacterium phage Toto] ],,YP\_009208449,100.0,1.16699E-109 SIF-HHPRED: SIF-Syn:

CDS complement (35342 - 35818)

/gene="42"

/product="gp42"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_42"

/note=Original Glimmer call @bp 35818 has strength 4.18; Genemark calls start at 35830

/note=SSC: 35818-35342 CP: no SCS: both-gl ST: SS BLAST-Start: [hypothetical protein SEA\_TOTO\_42 [Mycobacterium phage Toto] ],,NCBI, q1:s1 100.0% 4.94674E-107 GAP: 4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.038, -4.5445265580148115, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_TOTO\_42 [Mycobacterium phage Toto] ],,YP\_009208450,100.0,4.94674E-107 SIF-HHPRED: SIF-Syn:

CDS complement (35823 - 36119)

/gene="43"

/product="gp43"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_43"

/note=Original Glimmer call @bp 36119 has strength 5.59; Genemark calls start at 36119

/note=SSC: 36119-35823 CP: yes SCS: both ST: NI BLAST-Start: [hypothetical protein SEA\_TOTO\_43 [Mycobacterium phage Toto] ],,NCBI, q1:s1 100.0% 4.67139E-66 GAP: 107 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.158, -4.229395370396053, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_TOTO\_43 [Mycobacterium phage Toto] ],,YP\_009208451,100.0,4.67139E-66 SIF-HHPRED: SIF-Syn:

CDS complement (36227 - 36340)

/gene="44"

/product="gp44"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_44"

/note=Original Glimmer call @bp 36340 has strength 19.85; Genemark calls start at 36355

/note=SSC: 36340-36227 CP: yes SCS: both-gl ST: NI BLAST-Start: [hypothetical protein SEA\_TOTO\_44 [Mycobacterium phage Toto] ],,NCBI, q1:s6 100.0% 1.35364E-15 GAP: 14 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.871, -4.835658240213919, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_TOTO\_44 [Mycobacterium phage Toto] ],,YP\_009208452,88.0952,1.35364E-15 SIF-HHPRED: SIF-Syn:

CDS complement (36355 - 36522)

/gene="45"

/product="gp45"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_45"

/note=Original Glimmer call @bp 36522 has strength 3.32; Genemark calls start at 36522

/note=SSC: 36522-36355 CP: yes SCS: both ST: SS BLAST-Start: [site-specific recombination directionality factor RDF [Mycobacterium phage Toto] ],,NCBI, q1:s1 100.0% 4.95153E-30 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.719, -5.238109312333945, yes F: Hypothetical Protein SIF-BLAST: ,,[site-specific recombination directionality factor RDF [Mycobacterium phage Toto] ],,YP\_009208453,100.0,4.95153E-30 SIF-HHPRED: SIF-Syn:

CDS complement (36519 - 36689)

/gene="46"

/product="gp46"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_46"

/note=Original Glimmer call @bp 36689 has strength 5.53; Genemark calls start at 36689

/note=SSC: 36689-36519 CP: yes SCS: both ST: NI BLAST-Start: [hypothetical protein SEA\_UKULELE\_44 [Mycobacterium phage Ukulele] ],,NCBI, q1:s23 100.0% 2.31854E-33 GAP: 58 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.613, -5.380462049242474, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_UKULELE\_44 [Mycobacterium phage Ukulele] ],,ALA06276,71.7949,2.31854E-33 SIF-HHPRED: SIF-Syn:

CDS complement (36748 - 36963)

/gene="47"

/product="gp47"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_47"

/note=Original Glimmer call @bp 36963 has strength 9.56; Genemark calls start at 36963

/note=SSC: 36963-36748 CP: no SCS: both ST: NI BLAST-Start: [gp49 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 1.10959E-42 GAP: 18 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.761, -3.303727606004721, yes F: Hypothetical Protein SIF-BLAST: ,,[gp49 [Mycobacterium phage Cjw1] ],,NP\_817498,100.0,1.10959E-42 SIF-HHPRED: SIF-Syn:

CDS complement (36982 - 37128)

/gene="48"

/product="gp48"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_48"

/note=Original Glimmer call @bp 37128 has strength 6.53; Genemark calls start at 37128

/note=SSC: 37128-36982 CP: no SCS: both ST: NI BLAST-Start: [gp50 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 1.21177E-26 GAP: -1 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.75, -5.154811153158988, no F: Hypothetical Protein SIF-BLAST: ,,[gp50 [Mycobacterium phage Cjw1] ],,NP\_817499,100.0,1.21177E-26 SIF-HHPRED: SIF-Syn:

CDS complement (37128 - 37523)

/gene="49"

/product="gp49"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_49"

/note=Original Glimmer call @bp 37523 has strength 11.65; Genemark calls start at 37523

/note=SSC: 37523-37128 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_TOTO\_49 [Mycobacterium phage Toto] ],,NCBI, q1:s1 100.0% 5.98126E-90 GAP: 286 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.907, -3.473611599459246, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_TOTO\_49 [Mycobacterium phage Toto] ],,YP\_009208457,100.0,5.98126E-90 SIF-HHPRED: SIF-Syn:

CDS complement (37810 - 38112)

/gene="50"

/product="gp50"

/function="membrane protein"

/locus tag="Marshmallow\_50"

/note=Genemark calls start at 38133

/note=SSC: 38112-37810 CP: no SCS: genemark-cs ST: NI BLAST-Start: [gp52 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 4.16867E-62 GAP: 250 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.594, -3.3060637489568596, yes F: membrane protein SIF-BLAST: ,,[gp52 [Mycobacterium phage Cjw1] ],,NP\_817501,100.0,4.16867E-62 SIF-HHPRED: SIF-Syn:

CDS 38363 - 39244

/gene="51"

/product="gp51"

/function="tyrosine integrase"

/locus tag="Marshmallow\_51"

/note=Original Glimmer call @bp 38363 has strength 10.72; Genemark calls start at 38363

/note=SSC: 38363-39244 CP: yes SCS: both ST: SS BLAST-Start: [integrase [Mycobacterium phage Toto] ],,NCBI, q1:s1 100.0% 0.0 GAP: 250 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.741, -4.096047812582576, yes F: tyrosine integrase SIF-BLAST: ,,[integrase [Mycobacterium phage Toto] ],,YP\_009208459,100.0,0.0 SIF-HHPRED: Gp33; Bacteriophage, Brujita, DNA-binding, Integrase, DNA BINDING PROTEIN; HET: ACT, GOL; 1.847A {Mycobacterium phage Brujita},,,5VFZ\_A,97.9522,100.0 SIF-Syn:

CDS 39383 - 39622

/gene="52"

/product="gp52"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_52"

/note=Original Glimmer call @bp 39383 has strength 6.01; Genemark calls start at 39383

/note=SSC: 39383-39622 CP: yes SCS: both ST: SS BLAST-Start: [gp54 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 3.5349E-48 GAP: 138 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.795, -3.409075959487936, yes F: Hypothetical Protein SIF-BLAST: ,,[gp54 [Mycobacterium phage Cjw1] ],,NP\_817503,100.0,3.5349E-48 SIF-HHPRED: SIF-Syn:

CDS complement (39600 - 40373)

/gene="53"

/product="gp53"

/function="membrane protein"

/locus tag="Marshmallow\_53"

/note=Original Glimmer call @bp 40211 has strength 3.61; Genemark calls start at 40373

/note=SSC: 40373-39600 CP: yes SCS: both-gm ST: NI BLAST-Start: [hypothetical protein PBI\_ABCAT\_52 [Mycobacterium phage ABCat] ],,NCBI, q1:s1 100.0% 0.0 GAP: 94 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.577, -3.6929813131220834, yes F: membrane protein SIF-BLAST: ,,[hypothetical protein PBI\_ABCAT\_52 [Mycobacterium phage ABCat] ],,AGR48892,100.0,0.0 SIF-HHPRED: SIF-Syn:

CDS complement (40468 - 40767)

/gene="54"

/product="gp54"

/function="immunity repressor"

/locus tag="Marshmallow\_54"

/note=Original Glimmer call @bp 40908 has strength 10.69; Genemark calls start at 40767

/note=SSC: 40767-40468 CP: yes SCS: both-gm ST: SS BLAST-Start: [immunity repressor [Mycobacterium phage FireRed] ],,NCBI, q1:s17 100.0% 1.06902E-66 GAP: 357 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.958, -4.732489854405757, no F: immunity repressor SIF-BLAST: ,,[immunity repressor [Mycobacterium phage FireRed] ],,ATN89154,86.087,1.06902E-66 SIF-HHPRED: SIF-Syn:

CDS 41125 - 41223

/gene="55"

/product="gp55"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_55"

/note=Genemark calls start at 41125

/note=SSC: 41125-41223 CP: no SCS: genemark ST: SS BLAST-Start: [gp57 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 6.22824E-13 GAP: 357 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 3.002, -2.442961286954254, yes F: Hypothetical Protein SIF-BLAST: ,,[gp57 [Mycobacterium phage Cjw1] ],,NP\_817506,100.0,6.22824E-13 SIF-HHPRED: SIF-Syn:

CDS 41220 - 41357

/gene="56"

/product="gp56"

/function="membrane protein"

/locus tag="Marshmallow\_56"

/note=Original Glimmer call @bp 41220 has strength 6.99; Genemark calls start at 41220

/note=SSC: 41220-41357 CP: yes SCS: both ST: SS BLAST-Start: [gp58 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 3.39942E-23 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.83, -5.574333665528913, yes F: membrane protein SIF-BLAST: ,,[gp58 [Mycobacterium phage Cjw1] ],,NP\_817507,100.0,3.39942E-23 SIF-HHPRED: SIF-Syn:

CDS 41354 - 42199

/gene="57"

/product="gp57"

/function="pentapeptide repeat protein"

/locus tag="Marshmallow\_57"

/note=Original Glimmer call @bp 41354 has strength 5.04; Genemark calls start at 41354

/note=SSC: 41354-42199 CP: yes SCS: both ST: SS BLAST-Start: [pentapeptide repeat protein [Mycobacterium phage Inca] ],,NCBI, q1:s1 100.0% 0.0 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.517, -3.531715028714623, yes F: pentapeptide repeat protein SIF-BLAST: ,,[pentapeptide repeat protein [Mycobacterium phage Inca] ],,AXH65728,100.0,0.0 SIF-HHPRED: Qnr; pentapeptide repeat, antibiotic resistance, DNA topoisomerase II, CELL CYCLE; HET: MLY; 2.0A {Aeromonas hydrophila},,,3PSS\_A,66.1922,99.7 SIF-Syn:

CDS 42201 - 42347

/gene="58"

/product="gp58"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_58"

/note=Original Glimmer call @bp 42201 has strength 12.7; Genemark calls start at 42201

/note=SSC: 42201-42347 CP: yes SCS: both ST: SS BLAST-Start: [gp60 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 8.98596E-26 GAP: 1 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.984, -4.65945827897842, yes F: Hypothetical Protein SIF-BLAST: ,,[gp60 [Mycobacterium phage Cjw1] ],,NP\_817509,100.0,8.98596E-26 SIF-HHPRED: SIF-Syn:

CDS 42344 - 42622

/gene="59"

/product="gp59"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_59"

/note=Original Glimmer call @bp 42344 has strength 8.21; Genemark calls start at 42344

/note=SSC: 42344-42622 CP: yes SCS: both ST: SS BLAST-Start: [gp61 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 1.27369E-61 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.704, -5.269767271831238, no F: Hypothetical Protein SIF-BLAST: ,,[gp61 [Mycobacterium phage Cjw1] ],,NP\_817510,100.0,1.27369E-61 SIF-HHPRED: SIF-Syn:

CDS 43166 - 43471

/gene="60"

/product="gp60"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_60"

/note=Original Glimmer call @bp 43166 has strength 1.92; Genemark calls start at 43166

/note=SSC: 43166-43471 CP: yes SCS: both ST: SS BLAST-Start: [gp62 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 1.86382E-65 GAP: 543 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 3.002, -2.5052746077145835, yes F: Hypothetical Protein SIF-BLAST: ,,[gp62 [Mycobacterium phage Cjw1] ],,NP\_817511,100.0,1.86382E-65 SIF-HHPRED: SIF-Syn:

/note=Big gap due to TRNA`s

CDS 43600 - 43833

/gene="61"

/product="gp61"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_61"

/note=Original Glimmer call @bp 43600 has strength 4.29; Genemark calls start at 43600

/note=SSC: 43600-43833 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_INCA\_61 [Mycobacterium phage Inca] ],,NCBI, q1:s1 100.0% 5.70974E-49 GAP: 128 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.719, -5.220380545373514, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_INCA\_61 [Mycobacterium phage Inca] ],,AXH65733,100.0,5.70974E-49 SIF-HHPRED: FYDLN\_acid ; Protein of unknown function (FYDLN\_acid),,,PF09538.13,41.5584,96.1 SIF-Syn:

CDS 43833 - 43994

/gene="62"

/product="gp62"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_62"

/note=Original Glimmer call @bp 43833 has strength 8.7; Genemark calls start at 43833

/note=SSC: 43833-43994 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_NELITZAMV\_62 [Mycobacterium phage NelitzaMV] ],,NCBI, q1:s1 100.0% 1.72922E-31 GAP: -1 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.74, -2.996985748252251, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_NELITZAMV\_62 [Mycobacterium phage NelitzaMV] ],,YP\_009197730,100.0,1.72922E-31 SIF-HHPRED: SIF-Syn:

CDS 44184 - 44516

/gene="63"

/product="gp63"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_63"

/note=Original Glimmer call @bp 44184 has strength 15.52; Genemark calls start at 44184

/note=SSC: 44184-44516 CP: yes SCS: both ST: SS BLAST-Start: [secreted protein [Mycobacterium phage Phaux] ],,NCBI, q1:s1 100.0% 2.70214E-74 GAP: 189 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 3.002, -2.583959800616441, yes F: Hypothetical Protein SIF-BLAST: ,,[secreted protein [Mycobacterium phage Phaux] ],,YP\_008052241,100.0,2.70214E-74 SIF-HHPRED: DUF1523 ; Protein of unknown function (DUF1523),,,PF07509.14,98.1818,100.0 SIF-Syn:

/note=Doesn`t align with secreted protein, secreted protein does not show up for confirmed function.

CDS 44513 - 44842

/gene="64"

/product="gp64"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_64"

/note=Original Glimmer call @bp 44513 has strength 7.85; Genemark calls start at 44513

/note=SSC: 44513-44842 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_NELITZAMV\_64 [Mycobacterium phage NelitzaMV] ],,NCBI, q1:s1 100.0% 3.54293E-75 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.097, -4.497860114175419, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_NELITZAMV\_64 [Mycobacterium phage NelitzaMV] ],,YP\_009197732,100.0,3.54293E-75 SIF-HHPRED: DUF6197 ; Family of unknown function (DUF6197),,,PF19698.2,98.1651,99.9 SIF-Syn:

CDS 44839 - 45807

/gene="65"

/product="gp65"

/function="exonuclease"

/locus tag="Marshmallow\_65"

/note=Original Glimmer call @bp 44839 has strength 8.14; Genemark calls start at 44839

/note=SSC: 44839-45807 CP: yes SCS: both ST: SS BLAST-Start: [exonuclease [Mycobacterium phage Porky] ],,NCBI, q1:s1 100.0% 0.0 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.656, -3.527651923078076, yes F: exonuclease SIF-BLAST: ,,[exonuclease [Mycobacterium phage Porky] ],,YP\_002014387,100.0,0.0 SIF-HHPRED: Mitochondrial genome maintenance exonuclease 1; human MGME1, DNA complex, DNA exonuclease, DNA BINDING PROTEIN; 2.702A {Homo sapiens},,,5ZYT\_C,87.8882,99.9 SIF-Syn:

CDS 45804 - 46214

/gene="66"

/product="gp66"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_66"

/note=Original Glimmer call @bp 45804 has strength 8.98; Genemark calls start at 45804

/note=SSC: 45804-46214 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_NELITZAMV\_66 [Mycobacterium phage NelitzaMV] ],,NCBI, q1:s1 100.0% 5.1298E-95 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.694, -5.290324183593171, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_NELITZAMV\_66 [Mycobacterium phage NelitzaMV] ],,YP\_009197734,100.0,5.1298E-95 SIF-HHPRED: Ebola surface glycoprotein, GP1; Ebola virus surface glycoprotein, therapeutic antibody cocktail, ZMapp, VIRAL PROTEIN-IMMUNE SYSTEM complex; HET: NAG, BMA, MAN; 4.3A {Zaire ebolavirus (strain Mayinga-76)},,,5KEL\_F,33.0882,58.4 SIF-Syn:

CDS 46207 - 46929

/gene="67"

/product="gp67"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_67"

/note=Original Glimmer call @bp 46207 has strength 9.12; Genemark calls start at 46207

/note=SSC: 46207-46929 CP: yes SCS: both ST: SS BLAST-Start: [ERF family ssDNA binding protein [Mycobacterium phage Porky] ],,NCBI, q1:s1 100.0% 2.74896E-176 GAP: -8 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.048, -4.522979412939132, no F: Hypothetical Protein SIF-BLAST: ,,[ERF family ssDNA binding protein [Mycobacterium phage Porky] ],,YP\_002014389,100.0,2.74896E-176 SIF-HHPRED: ERF ; ERF superfamily,,,PF04404.15,57.0833,99.9 SIF-Syn:

CDS 46922 - 47233

/gene="68"

/product="gp68"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_68"

/note=Original Glimmer call @bp 46922 has strength 7.86; Genemark calls start at 46922

/note=SSC: 46922-47233 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein DRDREY\_70 [Mycobacterium phage DrDrey] ],,NCBI, q1:s1 100.0% 1.84967E-72 GAP: -8 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.001, -5.86668762350679, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein DRDREY\_70 [Mycobacterium phage DrDrey] ],,YP\_008409463,100.0,1.84967E-72 SIF-HHPRED: SIF-Syn:

CDS 47233 - 47706

/gene="69"

/product="gp69"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_69"

/note=Original Glimmer call @bp 47233 has strength 7.94; Genemark calls start at 47233

/note=SSC: 47233-47706 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_KIMCHI\_75 [Mycobacterium phage Kimchi] ],,NCBI, q1:s1 100.0% 5.11771E-112 GAP: -1 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.907, -2.6453814847322845, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_KIMCHI\_75 [Mycobacterium phage Kimchi] ],,AVE00115,100.0,5.11771E-112 SIF-HHPRED: SIF-Syn:

CDS 47706 - 48074

/gene="70"

/product="gp70"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_70"

/note=Original Glimmer call @bp 47706 has strength 8.55; Genemark calls start at 47706

/note=SSC: 47706-48074 CP: yes SCS: both ST: NI BLAST-Start: [membrane domain protein [Mycobacterium phage Sotrice96] ],,NCBI, q1:s2 100.0% 7.5899E-82 GAP: -1 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.925, -5.2484617369160205, no F: Hypothetical Protein SIF-BLAST: ,,[membrane domain protein [Mycobacterium phage Sotrice96] ],,AVI04526,99.187,7.5899E-82 SIF-HHPRED: SIF-Syn:

CDS 48077 - 48448

/gene="71"

/product="gp71"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_71"

/note=Original Glimmer call @bp 48077 has strength 9.78; Genemark calls start at 48077

/note=SSC: 48077-48448 CP: no SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_TEARDROPMSU\_69 [Mycobacterium phage TeardropMSU] ],,NCBI, q1:s3 100.0% 3.87799E-86 GAP: 2 bp gap LO: no RBS: Kibler 6, Karlin Medium, 3.002, -2.442961286954254, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_TEARDROPMSU\_69 [Mycobacterium phage TeardropMSU] ],,AMS01872,98.4,3.87799E-86 SIF-HHPRED: SIF-Syn:

CDS 48448 - 48621

/gene="72"

/product="gp72"

/function="membrane protein"

/locus tag="Marshmallow\_72"

/note=Original Glimmer call @bp 48448 has strength 8.41; Genemark calls start at 48448

/note=SSC: 48448-48621 CP: yes SCS: both ST: SS BLAST-Start: [gp75 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 1.02313E-32 GAP: -1 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.599, -5.5524625202905655, no F: membrane protein SIF-BLAST: ,,[gp75 [Mycobacterium phage Cjw1] ],,NP\_817524,100.0,1.02313E-32 SIF-HHPRED: SIF-Syn:

CDS 48624 - 48857

/gene="73"

/product="gp73"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_73"

/note=Original Glimmer call @bp 48624 has strength 10.65; Genemark calls start at 48624

/note=SSC: 48624-48857 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein [Gardnerella vaginalis] ],,NCBI, q1:s1 100.0% 1.18806E-46 GAP: 2 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.613, -3.2669815101762634, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein [Gardnerella vaginalis] ],,WP\_015969694,100.0,1.18806E-46 SIF-HHPRED: SIF-Syn:

CDS 48854 - 49267

/gene="74"

/product="gp74"

/function="DprA-like DNA processing chain A"

/locus tag="Marshmallow\_74"

/note=Original Glimmer call @bp 48854 has strength 8.76; Genemark calls start at 48854

/note=SSC: 48854-49267 CP: yes SCS: both ST: SS BLAST-Start: [GTP-binding domain [Mycobacterium phage SirDuracell] ],,NCBI, q1:s1 100.0% 1.62675E-97 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.471, -5.82369656923664, no F: DprA-like DNA processing chain A SIF-BLAST: ,,[GTP-binding domain [Mycobacterium phage SirDuracell] ],,YP\_009608005,100.0,1.62675E-97 SIF-HHPRED: SIF-Syn:

CDS 49264 - 49581

/gene="75"

/product="gp75"

/function="HNH endonuclease"

/locus tag="Marshmallow\_75"

/note=Original Glimmer call @bp 49264 has strength 3.86; Genemark calls start at 49288

/note=SSC: 49264-49581 CP: no SCS: both-gl ST: SS BLAST-Start: [HNH endonuclease [Mycobacterium phage Bask21] ],,NCBI, q1:s1 100.0% 8.36596E-72 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 0.395, -8.036616207190853, no F: HNH endonuclease SIF-BLAST: ,,[HNH endonuclease [Mycobacterium phage Bask21] ],,YP\_009591237,100.0,8.36596E-72 SIF-HHPRED: SIF-Syn:

CDS 49571 - 49807

/gene="76"

/product="gp76"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_76"

/note=Original Glimmer call @bp 49571 has strength 14.66; Genemark calls start at 49571

/note=SSC: 49571-49807 CP: yes SCS: both ST: SS BLAST-Start: [gp79 [Mycobacterium phage 244] ],,NCBI, q1:s58 100.0% 3.78413E-48 GAP: -11 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.577, -3.9940113087860643, yes F: Hypothetical Protein SIF-BLAST: ,,[gp79 [Mycobacterium phage 244] ],,YP\_654834,57.7778,3.78413E-48 SIF-HHPRED: SIF-Syn:

CDS 49804 - 50454

/gene="77"

/product="gp77"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_77"

/note=Original Glimmer call @bp 49804 has strength 6.32; Genemark calls start at 49804

/note=SSC: 49804-50454 CP: yes SCS: both ST: SS BLAST-Start: [gp80 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 2.52109E-156 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 0.891, -6.988038999513095, no F: Hypothetical Protein SIF-BLAST: ,,[gp80 [Mycobacterium phage Cjw1] ],,NP\_817529,100.0,2.52109E-156 SIF-HHPRED: SIF-Syn:

CDS 50436 - 50783

/gene="78"

/product="gp78"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_78"

/note=Original Glimmer call @bp 50436 has strength 7.96; Genemark calls start at 50451

/note=SSC: 50436-50783 CP: yes SCS: both-gl ST: SS BLAST-Start: [hypothetical protein Porky\_79 [Mycobacterium phage Porky] ],,NCBI, q1:s1 100.0% 1.39323E-78 GAP: -19 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.95, -4.810045260256, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Porky\_79 [Mycobacterium phage Porky] ],,YP\_002014400,100.0,1.39323E-78 SIF-HHPRED: SIF-Syn:

CDS 50776 - 52038

/gene="79"

/product="gp79"

/function="DnaB-like dsDNA helicase"

/locus tag="Marshmallow\_79"

/note=Original Glimmer call @bp 50776 has strength 9.34; Genemark calls start at 50776

/note=SSC: 50776-52038 CP: yes SCS: both ST: SS BLAST-Start: [DnaB-like replicative helicase [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 0.0 GAP: -8 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.532, -5.615966648652074, no F: DnaB-like dsDNA helicase SIF-BLAST: ,,[DnaB-like replicative helicase [Mycobacterium phage Cjw1] ],,NP\_817531,100.0,0.0 SIF-HHPRED: DNAB-Like Replicative Helicase; ATPase, REPLICATION; 3.91A {Bacillus phage SPP1},,,3BGW\_A,99.7619,100.0 SIF-Syn:

CDS 52035 - 52223

/gene="80"

/product="gp80"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_80"

/note=Original Glimmer call @bp 52035 has strength 7.48; Genemark calls start at 52035

/note=SSC: 52035-52223 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein M039\_gp084 [Mycobacterium phage Phaux] ],,NCBI, q1:s1 100.0% 2.85953E-36 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.145, -5.085091778133397, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein M039\_gp084 [Mycobacterium phage Phaux] ],,YP\_008052258,100.0,2.85953E-36 SIF-HHPRED: SIF-Syn:

CDS 52205 - 52480

/gene="81"

/product="gp81"

/function="WhiB family transcription factor"

/locus tag="Marshmallow\_81"

/note=Original Glimmer call @bp 52205 has strength 4.65; Genemark calls start at 52205

/note=SSC: 52205-52480 CP: no SCS: both ST: NI BLAST-Start: [transcriptional regulator WhiB-like [Mycobacterium phage Murphy] ],,NCBI, q1:s1 100.0% 6.35545E-61 GAP: -19 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.827, -5.978651650680696, yes F: WhiB family transcription factor SIF-BLAST: ,,[transcriptional regulator WhiB-like [Mycobacterium phage Murphy] ],,YP\_008051562,100.0,6.35545E-61 SIF-HHPRED: SIF-Syn:

CDS 52455 - 52676

/gene="82"

/product="gp82"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_82"

/note=Original Glimmer call @bp 52455 has strength 9.47; Genemark calls start at 52455

/note=SSC: 52455-52676 CP: yes SCS: both ST: SS BLAST-Start: [gp85 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 5.50015E-45 GAP: -26 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.907, -3.1725816037952645, yes F: Hypothetical Protein SIF-BLAST: ,,[gp85 [Mycobacterium phage Cjw1] ],,NP\_817534,100.0,5.50015E-45 SIF-HHPRED: SIF-Syn:

CDS 52669 - 53034

/gene="83"

/product="gp83"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_83"

/note=Original Glimmer call @bp 52669 has strength 6.21; Genemark calls start at 52669

/note=SSC: 52669-53034 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein M039\_gp087 [Mycobacterium phage Phaux] ],,NCBI, q1:s1 100.0% 7.58495E-83 GAP: -8 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.367, -4.314376101284997, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein M039\_gp087 [Mycobacterium phage Phaux] ],,YP\_008052261,100.0,7.58495E-83 SIF-HHPRED: SIF-Syn:

CDS 53031 - 53393

/gene="84"

/product="gp84"

/function="Holliday junction resolvase"

/locus tag="Marshmallow\_84"

/note=Original Glimmer call @bp 53031 has strength 13.1; Genemark calls start at 53031

/note=SSC: 53031-53393 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_TOTO\_84 [Mycobacterium phage Toto] ],,NCBI, q1:s8 100.0% 6.78601E-81 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.699, -3.6128803882603027, yes F: Holliday junction resolvase SIF-BLAST: ,,[hypothetical protein SEA\_TOTO\_84 [Mycobacterium phage Toto] ],,YP\_009208492,94.4882,6.78601E-81 SIF-HHPRED: Holliday junction resolvase; archeal holliday junction resolvase helicase DNA binding enzyme phage 15-6 thermus thermophilus, RECOMBINATION; HET: MSE, SO4; 2.5A {Thermus thermophilus phage 15-6},,,7BGS\_A,95.8333,99.7 SIF-Syn:

CDS 53390 - 53584

/gene="85"

/product="gp85"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_85"

/note=Original Glimmer call @bp 53390 has strength 7.99; Genemark calls start at 53390

/note=SSC: 53390-53584 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein P755\_gp090 [Mycobacterium phage Quink] ],,NCBI, q1:s1 100.0% 1.85884E-38 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.613, -3.329294830936593, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein P755\_gp090 [Mycobacterium phage Quink] ],,YP\_008531166,100.0,1.85884E-38 SIF-HHPRED: SIF-Syn:

CDS 53739 - 54680

/gene="86"

/product="gp86"

/function="polynucleotide kinase"

/locus tag="Marshmallow\_86"

/note=Original Glimmer call @bp 53739 has strength 10.85; Genemark calls start at 53739

/note=SSC: 53739-54680 CP: yes SCS: both ST: SS BLAST-Start: [polynucleotide kinase [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 0.0 GAP: 154 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.741, -3.058913906516345, yes F: polynucleotide kinase SIF-BLAST: ,,[polynucleotide kinase [Mycobacterium phage Kostya] ],,YP\_002014556,100.0,0.0 SIF-HHPRED: POLYNUCLEOTIDE KINASE; KINASE, PHOSPHATASE, ALPHA/BETA, P-LOOP, TRANSFERASE; HET: ADP, MSE; 2.33A {Enterobacteria phage T4} SCOP: c.108.1.9, c.37.1.1,,,1LTQ\_A,99.6805,100.0 SIF-Syn:

CDS 54787 - 55155

/gene="87"

/product="gp87"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_87"

/note=Original Glimmer call @bp 54787 has strength 12.18; Genemark calls start at 54787

/note=SSC: 54787-55155 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein PBI\_MURPHY\_89 [Mycobacterium phage Murphy] ],,NCBI, q1:s1 100.0% 2.74068E-85 GAP: 106 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.985, -2.6197685047743655, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein PBI\_MURPHY\_89 [Mycobacterium phage Murphy] ],,YP\_008051568,100.0,2.74068E-85 SIF-HHPRED: SIF-Syn:

CDS 55128 - 55250

/gene="88"

/product="gp88"

/function="membrane protein"

/locus tag="Marshmallow\_88"

/note=Original Glimmer call @bp 55128 has strength 1.84; Genemark calls start at 55152

/note=SSC: 55128-55250 CP: no SCS: both-gl ST: SS BLAST-Start: [hypothetical protein Kostya\_90 [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 2.82845E-18 GAP: -28 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.699, -4.3910316386439465, yes F: membrane protein SIF-BLAST: ,,[hypothetical protein Kostya\_90 [Mycobacterium phage Kostya] ],,YP\_002014558,100.0,2.82845E-18 SIF-HHPRED: SIF-Syn:

CDS 55247 - 56572

/gene="89"

/product="gp89"

/function="RNA ligase"

/locus tag="Marshmallow\_89"

/note=Original Glimmer call @bp 55247 has strength 10.78; Genemark calls start at 55247

/note=SSC: 55247-56572 CP: no SCS: both ST: SS BLAST-Start: [RNA ligase [Mycobacterium phage Phaux] ],,NCBI, q1:s1 100.0% 0.0 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.332, -4.2111970702621555, no F: RNA ligase SIF-BLAST: ,,[RNA ligase [Mycobacterium phage Phaux] ],,YP\_008052268,99.7732,0.0 SIF-HHPRED: SIF-Syn:

/note=Low E-Value

/note=gap of -3

CDS 56609 - 57430

/gene="90"

/product="gp90"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_90"

/note=Original Glimmer call @bp 56609 has strength 5.18; Genemark calls start at 56627

/note=SSC: 56609-57430 CP: no SCS: both-gl ST: SS BLAST-Start: [hypothetical protein PBI\_DUMBO\_92 [Mycobacterium phage Dumbo] ],,NCBI, q1:s1 100.0% 0.0 GAP: 36 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.832, -3.15492870275902, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein PBI\_DUMBO\_92 [Mycobacterium phage Dumbo] ],,YP\_008051717,100.0,0.0 SIF-HHPRED: SIF-Syn:

CDS 57427 - 57687

/gene="91"

/product="gp91"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_91"

/note=Original Glimmer call @bp 57427 has strength 4.08; Genemark calls start at 57427

/note=SSC: 57427-57687 CP: no SCS: both ST: SS BLAST-Start: [gp95 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 9.1621E-57 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.754, -3.108788982793736, yes F: Hypothetical Protein SIF-BLAST: ,,[gp95 [Mycobacterium phage Cjw1] ],,NP\_817544,100.0,9.1621E-57 SIF-HHPRED: SIF-Syn:

CDS 57704 - 57862

/gene="92"

/product="gp92"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_92"

/note=Original Glimmer call @bp 57704 has strength 11.2; Genemark calls start at 57704

/note=SSC: 57704-57862 CP: no SCS: both ST: NI BLAST-Start: [hypothetical protein SEA\_RIVERMONSTER\_95 [Mycobacterium phage RiverMonster]],,NCBI, q1:s30 100.0% 1.23006E-29 GAP: 16 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.673, -3.490561115344053, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_RIVERMONSTER\_95 [Mycobacterium phage RiverMonster]],,AVO23626,64.1975,1.23006E-29 SIF-HHPRED: SIF-Syn:

CDS 57859 - 58329

/gene="93"

/product="gp93"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_93"

/note=Original Glimmer call @bp 57859 has strength 8.38; Genemark calls start at 57859

/note=SSC: 57859-58329 CP: no SCS: both ST: NI BLAST-Start: [hypothetical protein PBI\_PHRUX\_93 [Mycobacterium phage Phrux] ],,NCBI, q1:s1 100.0% 1.50536E-110 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.624, -5.437750947756905, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein PBI\_PHRUX\_93 [Mycobacterium phage Phrux] ],,YP\_008052029,100.0,1.50536E-110 SIF-HHPRED: SIF-Syn:

CDS 58331 - 58666

/gene="94"

/product="gp94"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_94"

/note=Original Glimmer call @bp 58331 has strength 9.65; Genemark calls start at 58331

/note=SSC: 58331-58666 CP: no SCS: both ST: NI BLAST-Start: [hypothetical protein M039\_gp099 [Mycobacterium phage Phaux] ],,NCBI, q1:s1 100.0% 8.57549E-76 GAP: 1 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.655, -4.085313187509542, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein M039\_gp099 [Mycobacterium phage Phaux] ],,YP\_008052273,100.0,8.57549E-76 SIF-HHPRED: SIF-Syn:

CDS 58699 - 59199

/gene="95"

/product="gp95"

/function="helix-turn-helix DNA binding domain"

/locus tag="Marshmallow\_95"

/note=Original Glimmer call @bp 58699 has strength 2.76; Genemark calls start at 58699

/note=SSC: 58699-59199 CP: yes SCS: both ST: SS BLAST-Start: [DNA binding protein [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 7.57155E-120 GAP: 32 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.215, -4.2482196028815515, no F: helix-turn-helix DNA binding domain SIF-BLAST: ,,[DNA binding protein [Mycobacterium phage Kostya] ],,YP\_002014566,100.0,7.57155E-120 SIF-HHPRED: SIF-Syn:

CDS 59435 - 59803

/gene="96"

/product="gp96"

/function="endonuclease VII"

/locus tag="Marshmallow\_96"

/note=Original Glimmer call @bp 59435 has strength 0.54

/note=SSC: 59435-59803 CP: no SCS: glimmer ST: SS BLAST-Start: [endonuclease VII [Mycobacterium phage Kostya] ],,NCBI, q1:s66 100.0% 2.76267E-84 GAP: 235 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.333, -6.324813489314698, no F: endonuclease VII SIF-BLAST: ,,[endonuclease VII [Mycobacterium phage Kostya] ],,YP\_002014567,65.2406,2.76267E-84 SIF-HHPRED: SIF-Syn:

CDS 59796 - 60236

/gene="97"

/product="gp97"

/function="DNA binding protein"

/locus tag="Marshmallow\_97"

/note=Original Glimmer call @bp 59796 has strength 7.66; Genemark calls start at 59796

/note=SSC: 59796-60236 CP: yes SCS: both ST: SS BLAST-Start: [ssDNA binding protein [Mycobacterium phage YassJohnny] ],,NCBI, q1:s1 100.0% 2.32908E-102 GAP: -8 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.007, -4.611371280732909, no F: DNA binding protein SIF-BLAST: ,,[ssDNA binding protein [Mycobacterium phage YassJohnny] ],,ATN92664,100.0,2.32908E-102 SIF-HHPRED: Single-stranded DNA-binding protein; DNA binding, quaternary structure, plasticity, inhibitor development, DNA BINDING PROTEIN; HET: FMT; 1.92A {Mycobacterium tuberculosis (strain ATCC 25618 / H37Rv)},,,7F5Y\_A,79.4521,100.0 SIF-Syn:

CDS 60352 - 61131

/gene="98"

/product="gp98"

/function="protease"

/locus tag="Marshmallow\_98"

/note=Original Glimmer call @bp 60352 has strength 9.65; Genemark calls start at 60370

/note=SSC: 60352-61131 CP: yes SCS: both-gl ST: SS BLAST-Start: [head maturation protease [Mycobacterium phage Lilac] ],,NCBI, q1:s1 100.0% 0.0 GAP: 115 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.907, -2.7254235724530456, yes F: protease SIF-BLAST: ,,[head maturation protease [Mycobacterium phage Lilac] ],,YP\_009011862,100.0,0.0 SIF-HHPRED: Putative ATP-dependent Clp protease proteolytic subunit; mitochondrial ClpP, Clp/Hsp 100, ATP-dependent protease, HYDROLASE; HET: GOL, FME, DIO, EDO; 2.1A {Homo sapiens} SCOP: c.14.1.1,,,1TG6\_F,68.3398,99.9 SIF-Syn:

CDS 61133 - 61330

/gene="99"

/product="gp99"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_99"

/note=Original Glimmer call @bp 61133 has strength 6.5; Genemark calls start at 61133

/note=SSC: 61133-61330 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein Kostya\_102 [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 1.37161E-38 GAP: 1 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.377, -5.07183379116951, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Kostya\_102 [Mycobacterium phage Kostya] ],,YP\_002014570,100.0,1.37161E-38 SIF-HHPRED: SIF-Syn:

CDS 61327 - 61683

/gene="100"

/product="gp100"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_100"

/note=Original Glimmer call @bp 61411 has strength 7.82; Genemark calls start at 61327

/note=SSC: 61327-61683 CP: yes SCS: both-gm ST: NI BLAST-Start: [hypothetical protein Porky\_101 [Mycobacterium phage Porky] ],,NCBI, q1:s1 100.0% 7.99698E-78 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.945, -5.507500699639458, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Porky\_101 [Mycobacterium phage Porky] ],,YP\_002014422,100.0,7.99698E-78 SIF-HHPRED: SIF-Syn:

CDS 61684 - 61974

/gene="101"

/product="gp101"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_101"

/note=Original Glimmer call @bp 61684 has strength 9.09; Genemark calls start at 61684

/note=SSC: 61684-61974 CP: yes SCS: both ST: SS BLAST-Start: [gp105 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 3.97059E-61 GAP: 0 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.024, -4.513079314654054, yes F: Hypothetical Protein SIF-BLAST: ,,[gp105 [Mycobacterium phage Cjw1] ],,NP\_817554,100.0,3.97059E-61 SIF-HHPRED: SIF-Syn:

CDS 61979 - 62290

/gene="102"

/product="gp102"

/function="helix-turn-helix DNA binding domain"

/locus tag="Marshmallow\_102"

/note=Original Glimmer call @bp 61979 has strength 3.86; Genemark calls start at 61979

/note=SSC: 61979-62290 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein BRUIN\_102 [Mycobacterium phage Bruin] ],,NCBI, q1:s9 100.0% 5.2481E-70 GAP: 4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 0.987, -6.768399669413642, no F: helix-turn-helix DNA binding domain SIF-BLAST: ,,[hypothetical protein BRUIN\_102 [Mycobacterium phage Bruin] ],,YP\_008859539,92.7928,5.2481E-70 SIF-HHPRED: SIF-Syn:

CDS 62472 - 62633

/gene="103"

/product="gp103"

/function="HNH endonuclease"

/locus tag="Marshmallow\_103"

/note=Original Glimmer call @bp 62472 has strength 9.4; Genemark calls start at 62472

/note=SSC: 62472-62633 CP: yes SCS: both ST: SS BLAST-Start: [HNH endonuclease [Mycobacterium phage Quallification]],,NCBI, q1:s1 100.0% 3.65061E-31 GAP: 181 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.407, -3.8426483658976065, no F: HNH endonuclease SIF-BLAST: ,,[HNH endonuclease [Mycobacterium phage Quallification]],,UVK62215,100.0,3.65061E-31 SIF-HHPRED: HNH\_3 ; HNH endonuclease,,,PF13392.9,83.0189,99.6 SIF-Syn:

CDS 62606 - 62722

/gene="104"

/product="gp104"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_104"

/note=Original Glimmer call @bp 62606 has strength 2.35

/note=SSC: 62606-62722 CP: no SCS: glimmer ST: SS BLAST-Start: [hypothetical protein PBI\_CONTAGION\_103 [Mycobacterium phage Contagion] ],,NCBI, q1:s1 100.0% 5.23843E-19 GAP: -28 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.85, -2.9063687850157054, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein PBI\_CONTAGION\_103 [Mycobacterium phage Contagion] ],,YP\_008410121,100.0,5.23843E-19 SIF-HHPRED: SIF-Syn:

CDS 63087 - 63311

/gene="105"

/product="gp105"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_105"

/note=Original Glimmer call @bp 63171 has strength 8.09; Genemark calls start at 63087

/note=SSC: 63087-63311 CP: no SCS: both-gm ST: SS BLAST-Start: [hypothetical protein SEA\_XKCD\_113 [Mycobacterium phage xkcd] ],,NCBI, q1:s25 100.0% 6.53717E-50 GAP: 364 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.442, -3.769471247018311, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_XKCD\_113 [Mycobacterium phage xkcd] ],,AXH68580,75.5102,6.53717E-50 SIF-HHPRED: SIF-Syn:

Two tRNAs found only with DNA Master

tRNA 62734 - 62818

/product="tRNA-Gly(ccc)"

/locus tag="DNAM\_1500"

tRNA 62820 - 62894

/product="tRNA-Gly(tcc)"

/locus tag="DNAM\_1510"

CDS 63308 - 63571

/gene="106"

/product="gp106"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_106"

/note=Original Glimmer call @bp 63308 has strength 8.38; Genemark calls start at 63338

/note=SSC: 63308-63571 CP: no SCS: both-gl ST: SS BLAST-Start: [gp112 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 4.6165E-57 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.361, -4.901215214744926, yes F: Hypothetical Protein SIF-BLAST: ,,[gp112 [Mycobacterium phage Cjw1] ],,NP\_817559,100.0,4.6165E-57 SIF-HHPRED: SIF-Syn:

CDS 63582 - 64082

/gene="107"

/product="gp107"

/function="HNH endonuclease"

/locus tag="Marshmallow\_107"

/note=Original Glimmer call @bp 63582 has strength 0.75

/note=SSC: 63582-64082 CP: no SCS: glimmer ST: SS BLAST-Start: [HNH endonuclease [Mycobacterium phage 244] ],,NCBI, q1:s1 100.0% 8.56256E-119 GAP: 10 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.974, -4.698691165234176, no F: HNH endonuclease SIF-BLAST: ,,[HNH endonuclease [Mycobacterium phage 244] ],,YP\_654865,100.0,8.56256E-119 SIF-HHPRED: HNH homing endonuclease; HNH catalytic motif, Helix-turn-helix DNA binding domain, protein-DNA complex, DNA binding protein-DNA COMPLEX; HET: EDO; 2.92A {Bacillus phage SPO1} SCOP: d.4.1.3, d.285.1.1,,,1U3E\_M,68.6747,99.9 SIF-Syn:

CDS 64096 - 64428

/gene="108"

/product="gp108"

/function="hydrolase"

/locus tag="Marshmallow\_108"

/note=Original Glimmer call @bp 64096 has strength 8.22; Genemark calls start at 64126

/note=SSC: 64096-64428 CP: no SCS: both-gl ST: SS BLAST-Start: [MazG-like pyrophosphatase [Mycobacterium phage Porky] ],,NCBI, q1:s1 100.0% 4.71581E-75 GAP: 13 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.623, -5.4405295101119755, no F: hydrolase SIF-BLAST: ,,[MazG-like pyrophosphatase [Mycobacterium phage Porky] ],,YP\_002014429,100.0,4.71581E-75 SIF-HHPRED: SIF-Syn:

CDS 64425 - 65018

/gene="109"

/product="gp109"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_109"

/note=Original Glimmer call @bp 64425 has strength 7.3; Genemark calls start at 64425

/note=SSC: 64425-65018 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein Porky\_111 [Mycobacterium phage Porky] ],,NCBI, q1:s1 100.0% 7.9764E-143 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.664, -3.2997855658338913, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Porky\_111 [Mycobacterium phage Porky] ],,YP\_002014430,100.0,7.9764E-143 SIF-HHPRED: SIF-Syn:

CDS 65029 - 65814

/gene="110"

/product="gp110"

/function="DnaQ-like (DNA polymerase III subunit)"

/locus tag="Marshmallow\_110"

/note=Original Glimmer call @bp 65029 has strength 10.73; Genemark calls start at 65029

/note=SSC: 65029-65814 CP: yes SCS: both ST: SS BLAST-Start: [DNA polymerase exonuclease subunit [Mycobacterium phage DrDrey] ],,NCBI, q1:s1 100.0% 0.0 GAP: 10 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.826, -2.8970853586582503, yes F: DnaQ-like (DNA polymerase III subunit) SIF-BLAST: ,,[DNA polymerase exonuclease subunit [Mycobacterium phage DrDrey] ],,YP\_008409505,100.0,0.0 SIF-HHPRED: SIF-Syn:

CDS 65811 - 65963

/gene="111"

/product="gp111"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_111"

/note=Original Glimmer call @bp 65811 has strength 10.33; Genemark calls start at 65811

/note=SSC: 65811-65963 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein Kostya\_115 [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 4.12389E-28 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.361, -4.707395188728813, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Kostya\_115 [Mycobacterium phage Kostya] ],,YP\_002014581,100.0,4.12389E-28 SIF-HHPRED: SIF-Syn:

CDS 65960 - 66169

/gene="112"

/product="gp112"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_112"

/note=Original Glimmer call @bp 65960 has strength 7.92; Genemark calls start at 65960

/note=SSC: 65960-66169 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein Kostya\_116 [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 2.07076E-43 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.509, -3.5660483139923818, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Kostya\_116 [Mycobacterium phage Kostya] ],,YP\_002014582,100.0,2.07076E-43 SIF-HHPRED: SIF-Syn:

CDS 66166 - 66255

/gene="113"

/product="gp113"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_113"

/note=Genemark calls start at 66166

/note=SSC: 66166-66255 CP: yes SCS: genemark ST: SS BLAST-Start: [hypothetical protein DRDREY\_117 [Mycobacterium phage DrDrey] ],,NCBI, q1:s1 100.0% 5.11288E-11 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.808, -5.030707817577878, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein DRDREY\_117 [Mycobacterium phage DrDrey] ],,YP\_008409508,100.0,5.11288E-11 SIF-HHPRED: SIF-Syn:

CDS 66252 - 66494

/gene="114"

/product="gp114"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_114"

/note=Original Glimmer call @bp 66252 has strength 6.75; Genemark calls start at 66252

/note=SSC: 66252-66494 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_MINDY\_117 [Mycobacterium phage Mindy] ],,NCBI, q1:s1 100.0% 4.60665E-52 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.007, -4.628403632346534, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_MINDY\_117 [Mycobacterium phage Mindy] ],,YP\_009225402,98.75,4.60665E-52 SIF-HHPRED: SIF-Syn:

CDS 66502 - 67464

/gene="115"

/product="gp115"

/function="RecA-like DNA recombinase"

/locus tag="Marshmallow\_115"

/note=Original Glimmer call @bp 66502 has strength 8.36; Genemark calls start at 66502

/note=SSC: 66502-67464 CP: yes SCS: both ST: SS BLAST-Start: [RecA-like recombinase [Mycobacterium phage BaboJay]],,NCBI, q1:s1 100.0% 0.0 GAP: 7 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.836, -3.622410502704947, yes F: RecA-like DNA recombinase SIF-BLAST: ,,[RecA-like recombinase [Mycobacterium phage BaboJay]],,AYQ99101,99.6875,0.0 SIF-HHPRED: Protein recA; Alpha and beta proteins (a/b, a+b), ATP-binding, Cytoplasm, DNA damage, DNA recombination, DNA repair, DNA-binding, Nucleotide-binding; 1.95A {Thermotoga maritima},,,3HR8\_A,99.0625,100.0 SIF-Syn:

CDS 67461 - 67598

/gene="116"

/product="gp116"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_116"

/note=Original Glimmer call @bp 67461 has strength 4.39

/note=SSC: 67461-67598 CP: no SCS: glimmer ST: SS BLAST-Start: [hypothetical protein Porky\_115 [Mycobacterium phage Porky] ],,NCBI, q1:s1 100.0% 2.48481E-22 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.761, -2.952618745997422, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Porky\_115 [Mycobacterium phage Porky] ],,YP\_002014434,100.0,2.48481E-22 SIF-HHPRED: SIF-Syn:

CDS 67585 - 67758

/gene="117"

/product="gp117"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_117"

/note=Original Glimmer call @bp 67585 has strength 8.75; Genemark calls start at 67585

/note=SSC: 67585-67758 CP: yes SCS: both ST: SS BLAST-Start: [gp119 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 8.39533E-33 GAP: -14 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.598, -6.513391808765885, no F: Hypothetical Protein SIF-BLAST: ,,[gp119 [Mycobacterium phage Cjw1] ],,NP\_817566,100.0,8.39533E-33 SIF-HHPRED: SIF-Syn:

CDS complement (67748 - 67858)

/gene="118"

/product="gp118"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_118"

/note=Genemark calls start at 67858

/note=SSC: 67858-67748 CP: yes SCS: genemark ST: SS BLAST-Start: [hypothetical protein SEA\_BUCK\_119 [Mycobacterium phage Buck] ],,NCBI, q1:s1 100.0% 1.27927E-15 GAP: 0 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.297, -4.9845315433504895, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_BUCK\_119 [Mycobacterium phage Buck] ],,QGJ95425,100.0,1.27927E-15 SIF-HHPRED: SIF-Syn:

CDS complement (67859 - 68131)

/gene="119"

/product="gp119"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_119"

/note=Original Glimmer call @bp 68131 has strength 4.43; Genemark calls start at 68131

/note=SSC: 68131-67859 CP: no SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_ORIONPAX\_116 [Mycobacterium phage OrionPax] ],,NCBI, q1:s1 100.0% 4.18863E-59 GAP: 15 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.969, -4.629584883725491, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_ORIONPAX\_116 [Mycobacterium phage OrionPax] ],,QGJ92372,100.0,4.18863E-59 SIF-HHPRED: SIF-Syn:

CDS 68147 - 68608

/gene="120"

/product="gp120"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_120"

/note=Original Glimmer call @bp 68147 has strength 6.21; Genemark calls start at 68147

/note=SSC: 68147-68608 CP: yes SCS: both ST: SS BLAST-Start: [gp122 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 4.174E-107 GAP: 15 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.996, -2.5969056218148614, yes F: Hypothetical Protein SIF-BLAST: ,,[gp122 [Mycobacterium phage Cjw1] ],,NP\_817569,100.0,4.174E-107 SIF-HHPRED: SIF-Syn:

CDS 68605 - 68772

/gene="121"

/product="gp121"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_121"

/note=Original Glimmer call @bp 68605 has strength 9.46; Genemark calls start at 68605

/note=SSC: 68605-68772 CP: yes SCS: both ST: SS BLAST-Start: [gp123 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 9.33115E-33 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.535, -3.5719506502182776, yes F: Hypothetical Protein SIF-BLAST: ,,[gp123 [Mycobacterium phage Cjw1] ],,NP\_817570,100.0,9.33115E-33 SIF-HHPRED: SIF-Syn:

CDS 68756 - 68956

/gene="122"

/product="gp122"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_122"

/note=Original Glimmer call @bp 68756 has strength 9.25; Genemark calls start at 68756

/note=SSC: 68756-68956 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein Porky\_122 [Mycobacterium phage Porky] ],,NCBI, q1:s1 100.0% 5.435E-38 GAP: -17 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 3.002, -2.970161406017234, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Porky\_122 [Mycobacterium phage Porky] ],,YP\_002014441,100.0,5.435E-38 SIF-HHPRED: SIF-Syn:

CDS 68953 - 69090

/gene="123"

/product="gp123"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_123"

/note=Original Glimmer call @bp 68953 has strength 2.76

/note=SSC: 68953-69090 CP: yes SCS: glimmer ST: SS BLAST-Start: [gp125 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 3.45653E-24 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 3.063, -3.222210725506937, yes F: Hypothetical Protein SIF-BLAST: ,,[gp125 [Mycobacterium phage Cjw1] ],,NP\_817572,100.0,3.45653E-24 SIF-HHPRED: SIF-Syn:

CDS 69087 - 69266

/gene="124"

/product="gp124"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_124"

/note=Genemark calls start at 69087

/note=SSC: 69087-69266 CP: yes SCS: genemark ST: SS BLAST-Start: [gp126 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 5.62718E-35 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.838, -5.046247871416941, no F: Hypothetical Protein SIF-BLAST: ,,[gp126 [Mycobacterium phage Cjw1] ],,NP\_817573,100.0,5.62718E-35 SIF-HHPRED: SIF-Syn:

CDS 69266 - 69397

/gene="125"

/product="gp125"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_125"

/note=Genemark calls start at 69266

/note=SSC: 69266-69397 CP: yes SCS: genemark ST: SS BLAST-Start: [gp127 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 9.16064E-21 GAP: -1 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 1.699, -5.261583822777037, no F: Hypothetical Protein SIF-BLAST: ,,[gp127 [Mycobacterium phage Cjw1] ],,NP\_817574,100.0,9.16064E-21 SIF-HHPRED: SIF-Syn:

CDS 69408 - 69542

/gene="126"

/product="gp126"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_126"

/note=Genemark calls start at 69408

/note=SSC: 69408-69542 CP: no SCS: genemark ST: SS BLAST-Start: [gp128 [Mycobacterium phage Cjw1] ],,NCBI, q1:s10 100.0% 4.33513E-24 GAP: 10 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.775, -5.69021729366323, no F: Hypothetical Protein SIF-BLAST: ,,[gp128 [Mycobacterium phage Cjw1] ],,NP\_817575,83.0189,4.33513E-24 SIF-HHPRED: SIF-Syn:

CDS complement (69922 - 70185)

/gene="127"

/product="gp127"

/function="helix-turn-helix DNA binding domain"

/locus tag="Marshmallow\_127"

/note=Original Glimmer call @bp 70185 has strength 2.41; Genemark calls start at 70116

/note=SSC: 70185-69922 CP: yes SCS: both-gl ST: SS BLAST-Start: [hypothetical protein Kostya\_129 [Mycobacterium phage Kostya] ],,NCBI, q1:s1 100.0% 2.10135E-56 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.346, -3.9718914447963414, no F: helix-turn-helix DNA binding domain SIF-BLAST: ,,[hypothetical protein Kostya\_129 [Mycobacterium phage Kostya] ],,YP\_002014595,100.0,2.10135E-56 SIF-HHPRED: SIF-Syn:

CDS complement (70182 - 70571)

/gene="128"

/product="gp128"

/function="ParB-like nuclease domain"

/locus tag="Marshmallow\_128"

/note=Original Glimmer call @bp 70571 has strength 7.29; Genemark calls start at 70571

/note=SSC: 70571-70182 CP: yes SCS: both ST: SS BLAST-Start: [ParB C-terminal domain [Mycobacterium phage Murphy] ],,NCBI, q1:s1 100.0% 2.71567E-87 GAP: 118 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.553, -4.443838065747148, no F: ParB-like nuclease domain SIF-BLAST: ,,[ParB C-terminal domain [Mycobacterium phage Murphy] ],,YP\_008051604,100.0,2.71567E-87 SIF-HHPRED: SIF-Syn:

CDS complement (70690 - 70944)

/gene="129"

/product="gp129"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_129"

/note=Original Glimmer call @bp 70944 has strength 1.9; Genemark calls start at 70860

/note=SSC: 70944-70690 CP: no SCS: both-gl ST: SS BLAST-Start: [gp130 [Mycobacterium phage Cjw1] ],,NCBI, q1:s3 100.0% 3.91998E-53 GAP: 67 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.74, -3.1379842619144376, yes F: Hypothetical Protein SIF-BLAST: ,,[gp130 [Mycobacterium phage Cjw1] ],,NP\_817577,97.6744,3.91998E-53 SIF-HHPRED: SIF-Syn:

CDS complement (71012 - 71380)

/gene="130"

/product="gp130"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_130"

/note=Original Glimmer call @bp 71380 has strength 2.72

/note=SSC: 71380-71012 CP: yes SCS: glimmer ST: NI BLAST-Start: [hypothetical protein SEA\_DUSK\_132 [Mycobacterium phage Dusk] ],,NCBI, q1:s1 100.0% 2.74068E-85 GAP: -4 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.72, -4.346318957457468, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_DUSK\_132 [Mycobacterium phage Dusk] ],,YP\_009224398,100.0,2.74068E-85 SIF-HHPRED: SIF-Syn:

CDS complement (71377 - 71835)

/gene="131"

/product="gp131"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_131"

/note=Original Glimmer call @bp 71835 has strength 5.44; Genemark calls start at 71835

/note=SSC: 71835-71377 CP: no SCS: both ST: SS BLAST-Start: [hypothetical protein PBI\_MURPHY\_131 [Mycobacterium phage Murphy] ],,NCBI, q1:s1 100.0% 3.79443E-106 GAP: 14 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 3.063, -3.3648782290756687, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein PBI\_MURPHY\_131 [Mycobacterium phage Murphy] ],,YP\_008051608,100.0,3.79443E-106 SIF-HHPRED: SIF-Syn:

CDS complement (71850 - 72179)

/gene="132"

/product="gp132"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_132"

/note=Original Glimmer call @bp 72179 has strength 12.38; Genemark calls start at 72179

/note=SSC: 72179-71850 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein PBI\_MURPHY\_132 [Mycobacterium phage Murphy] ],,NCBI, q1:s1 100.0% 4.4552E-73 GAP: 1 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.624, -5.357708860036144, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein PBI\_MURPHY\_132 [Mycobacterium phage Murphy] ],,YP\_008051609,100.0,4.4552E-73 SIF-HHPRED: SIF-Syn:

CDS complement (72181 - 72498)

/gene="133"

/product="gp133"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_133"

/note=Original Glimmer call @bp 72447 has strength 12.57; Genemark calls start at 72498

/note=SSC: 72498-72181 CP: yes SCS: both-gm ST: SS BLAST-Start: [gp134 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 1.87822E-69 GAP: 5 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.615, -3.4030855957987485, yes F: Hypothetical Protein SIF-BLAST: ,,[gp134 [Mycobacterium phage Cjw1] ],,NP\_817581,100.0,1.87822E-69 SIF-HHPRED: SIF-Syn:

CDS complement (72504 - 72629)

/gene="134"

/product="gp134"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_134"

/note=Original Glimmer call @bp 72629 has strength 7.1

/note=SSC: 72629-72504 CP: no SCS: glimmer ST: SS BLAST-Start: [hypothetical protein PBI\_PHRUX\_131 [Mycobacterium phage Phrux] ],,NCBI, q1:s1 100.0% 4.33184E-22 GAP: -11 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.645, -4.504757315476905, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein PBI\_PHRUX\_131 [Mycobacterium phage Phrux] ],,YP\_008052065,100.0,4.33184E-22 SIF-HHPRED: SIF-Syn:

CDS complement (72619 - 72825)

/gene="135"

/product="gp135"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_135"

/note=Original Glimmer call @bp 72825 has strength 5.18; Genemark calls start at 72825

/note=SSC: 72825-72619 CP: yes SCS: both ST: SS BLAST-Start: [gp136 [Mycobacterium phage Cjw1] ],,NCBI, q1:s11 100.0% 3.65956E-42 GAP: 45 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.721, -3.0387982655504704, yes F: Hypothetical Protein SIF-BLAST: ,,[gp136 [Mycobacterium phage Cjw1] ],,NP\_817583,87.1795,3.65956E-42 SIF-HHPRED: SIF-Syn:

CDS complement (72871 - 73383)

/gene="136"

/product="gp136"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_136"

/note=Original Glimmer call @bp 73383 has strength 8.84; Genemark calls start at 73383

/note=SSC: 73383-72871 CP: yes SCS: both ST: SS BLAST-Start: [hypothetical protein SEA\_MADAMMONKFISH\_137 [Mycobacterium phage MadamMonkfish] ],,NCBI, q1:s1 100.0% 1.58407E-121 GAP: 39 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.816, -2.8363780677724404, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_MADAMMONKFISH\_137 [Mycobacterium phage MadamMonkfish] ],,ASZ73622,100.0,1.58407E-121 SIF-HHPRED: SIF-Syn:

CDS complement (73423 - 73818)

/gene="137"

/product="gp137"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_137"

/note=Original Glimmer call @bp 73782 has strength 4.62; Genemark calls start at 73818

/note=SSC: 73818-73423 CP: no SCS: both-gm ST: NI BLAST-Start: [hypothetical protein PBI\_PAT3\_138 [Mycobacterium phage Pat3]],,NCBI, q1:s1 100.0% 3.80873E-90 GAP: 4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.373, -3.8362837638757656, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein PBI\_PAT3\_138 [Mycobacterium phage Pat3]],,AYR00246,99.2366,3.80873E-90 SIF-HHPRED: SIF-Syn:

CDS complement (73823 - 74170)

/gene="138"

/product="gp138"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_138"

/note=Original Glimmer call @bp 74170 has strength 8.76; Genemark calls start at 74059

/note=SSC: 74170-73823 CP: yes SCS: both-gl ST: SS BLAST-Start: [hypothetical protein Porky\_141 [Mycobacterium phage Porky] ],,NCBI, q1:s3 100.0% 4.24332E-80 GAP: 10 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.615, -3.2620870821365617, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein Porky\_141 [Mycobacterium phage Porky] ],,YP\_002014460,98.2906,4.24332E-80 SIF-HHPRED: SIF-Syn:

CDS complement (74181 - 74339)

/gene="139"

/product="gp139"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_139"

/note=Original Glimmer call @bp 74339 has strength 6.2

/note=SSC: 74339-74181 CP: no SCS: glimmer ST: SS BLAST-Start: [hypothetical protein SEA\_COOKIES\_141 [Mycobacterium phage Cookies]],,NCBI, q1:s1 100.0% 4.00083E-30 GAP: 11 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.664, -5.336886114444951, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_COOKIES\_141 [Mycobacterium phage Cookies]],,QAY06673,100.0,4.00083E-30 SIF-HHPRED: SIF-Syn:

CDS complement (74351 - 74587)

/gene="140"

/product="gp140"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_140"

/note=Original Glimmer call @bp 74587 has strength 4.43; Genemark calls start at 74587

/note=SSC: 74587-74351 CP: no SCS: both ST: SS BLAST-Start: [hypothetical protein GOKU\_140 [Mycobacterium phage Goku] ],,NCBI, q1:s4 100.0% 8.46688E-48 GAP: 2 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.373, -3.8362837638757656, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein GOKU\_140 [Mycobacterium phage Goku] ],,YP\_008430654,96.2963,8.46688E-48 SIF-HHPRED: SIF-Syn:

CDS complement (74590 - 74802)

/gene="141"

/product="gp141"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_141"

/note=Genemark calls start at 74802

/note=SSC: 74802-74590 CP: no SCS: genemark ST: SS BLAST-Start: [hypothetical protein SEA\_NELITZAMV\_136 [Mycobacterium phage NelitzaMV] ],,NCBI, q1:s1 100.0% 6.15472E-41 GAP: -4 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.456, -4.6476424945195145, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_NELITZAMV\_136 [Mycobacterium phage NelitzaMV] ],,YP\_009197802,100.0,6.15472E-41 SIF-HHPRED: SIF-Syn:

CDS complement (74799 - 74996)

/gene="142"

/product="gp142"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_142"

/note=Original Glimmer call @bp 74996 has strength 8.96; Genemark calls start at 74996

/note=SSC: 74996-74799 CP: no SCS: both ST: SS BLAST-Start: [hypothetical protein HUFFLYPUFF\_144 [Mycobacterium phage HufflyPuff] ],,NCBI, q1:s14 100.0% 3.0394E-40 GAP: 27 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.615, -3.324400402896891, yes F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein HUFFLYPUFF\_144 [Mycobacterium phage HufflyPuff] ],,YP\_008858871,83.3333,3.0394E-40 SIF-HHPRED: SIF-Syn:

CDS complement (75024 - 75185)

/gene="143"

/product="gp143"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_143"

/note=Original Glimmer call @bp 75185 has strength 1.74

/note=SSC: 75185-75024 CP: no SCS: glimmer ST: SS BLAST-Start: [hypothetical protein PBI\_MANDA\_143 [Mycobacterium phage Manda]],,NCBI, q1:s1 100.0% 3.96224E-30 GAP: 84 bp gap LO: no RBS: Kibler 6, Karlin Medium, 2.488, -4.182126921701495, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein PBI\_MANDA\_143 [Mycobacterium phage Manda]],,AYQ99819,100.0,3.96224E-30 SIF-HHPRED: SIF-Syn:

CDS complement (75270 - 75482)

/gene="144"

/product="gp144"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_144"

/note=Original Glimmer call @bp 75482 has strength 5.38; Genemark calls start at 75461

/note=SSC: 75482-75270 CP: no SCS: both-gl ST: SS BLAST-Start: [hypothetical protein SEA\_YOUNGBLOOD\_147 [Mycobacterium phage Youngblood]],,NCBI, q1:s1 100.0% 1.37943E-44 GAP: 43 bp gap LO: no RBS: Kibler 6, Karlin Medium, 1.517, -6.413541402115999, no F: Hypothetical Protein SIF-BLAST: ,,[hypothetical protein SEA\_YOUNGBLOOD\_147 [Mycobacterium phage Youngblood]],,ATW59693,100.0,1.37943E-44 SIF-HHPRED: SIF-Syn:

CDS 75526 - 75873

/gene="145"

/product="gp145"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_145"

/note=Original Glimmer call @bp 75526 has strength 9.81; Genemark calls start at 75526

/note=SSC: 75526-75873 CP: yes SCS: both ST: SS BLAST-Start: [gp143 [Mycobacterium phage Cjw1] ],,NCBI, q1:s1 100.0% 9.13273E-77 GAP: 43 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.233, -5.121035876719934, no F: Hypothetical Protein SIF-BLAST: ,,[gp143 [Mycobacterium phage Cjw1] ],,NP\_817590,100.0,9.13273E-77 SIF-HHPRED: SIF-Syn:

CDS 75975 - 76169

/gene="146"

/product="gp146"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_146"

/note=Original Glimmer call @bp 75975 has strength 3.95; Genemark calls start at 75948

/note=SSC: 75975-76169 CP: no SCS: both-gl ST: SS BLAST-Start: [gp144 [Mycobacterium phage Cjw1] ],,NCBI, q1:s10 100.0% 2.41148E-35 GAP: 101 bp gap LO: no RBS: Kibler 6, Karlin Medium, 0.644, -8.259005505978577, no F: Hypothetical Protein SIF-BLAST: ,,[gp144 [Mycobacterium phage Cjw1] ],,NP\_817591,86.3014,2.41148E-35 SIF-HHPRED: SIF-Syn:

CDS complement (76261 - 76608)

/gene="147"

/product="gp147"

/function="Hypothetical Protein"

/locus tag="Marshmallow\_147"

/note=Original Glimmer call @bp 76431 has strength 0.78

/note=SSC: 76608-76261 CP: no SCS: glimmer-cs ST: NI BLAST-Start: GAP: 0 bp gap LO: yes RBS: Kibler 6, Karlin Medium, 2.113, -5.231186240009632, no F: Hypothetical Protein SIF-BLAST: SIF-HHPRED: SIF-Syn:

/note=Orpham in starterator.

/note=On GeneMark, there is no coding potential for this gene, however there is a start and stop in this bp position with Z-score near 2 and low final score.

/note=Few phages in cluster E contain similar genes of function unknown with low Escores.

/note=Maybe should be deleted.