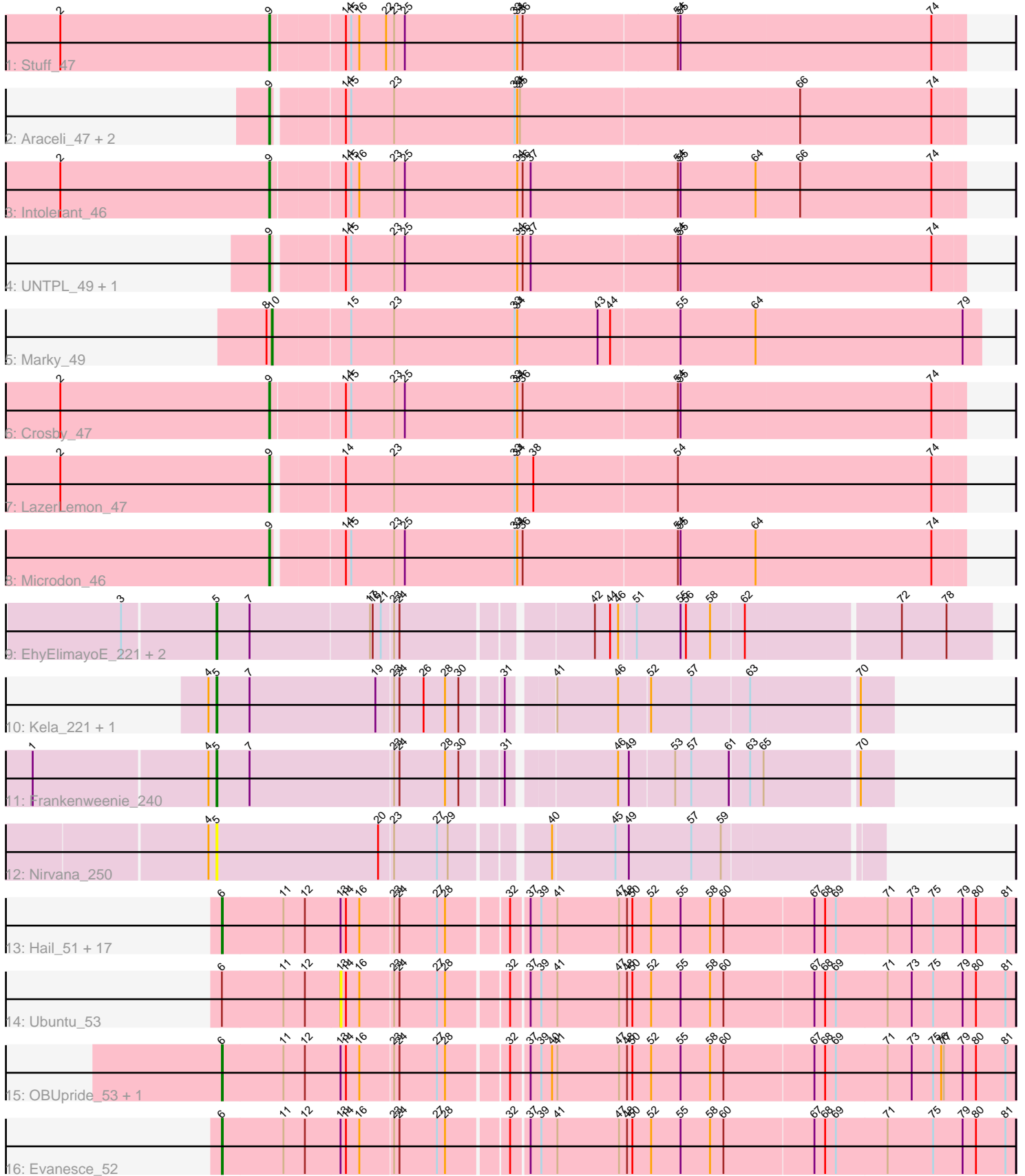


# Pham 158009



Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly with annotated starts, the track will be further scaled to only show that region of the ORF with annotated starts. This action will be indicated by adding "Zoomed" to the title. For starts, yellow indicates the location of called starts comprised solely of Glimmer/GeneMark auto-annotations, green indicates the location of called starts with at least 1 manual gene annotation.

## Pham 158009 Report

This analysis was run 04/13/24 on database version 558.

Pham number 158009 has 40 members, 2 are drafts.

Phages represented in each track:

- Track 1 : Stuff\_47
- Track 2 : Araceli\_47, Henoccus\_47, JackieB\_47
- Track 3 : Intolerant\_46
- Track 4 : UNTPL\_49, Bogota\_48
- Track 5 : Marky\_49
- Track 6 : Crosby\_47
- Track 7 : LazerLemon\_47
- Track 8 : Microdon\_46
- Track 9 : EhyElimayoE\_221, Satis\_218, Kradal\_220
- Track 10 : Kela\_221, JustBecause\_223
- Track 11 : Frankenweenie\_240
- Track 12 : Nirvana\_250
- Track 13 : Hail\_51, LilHazelnut\_53, Hadrien\_53, Wishmaker\_51, Giles\_51, Ein37\_53, Webster2\_53, Amymech\_53, Forge\_51, Dewey\_51, HH92\_52, DeepSoil15\_53, Amochick\_53, Daegal\_55, Luke\_53, Gancho\_52, Kinbote\_53, Luna22\_51
- Track 14 : Ubuntu\_53
- Track 15 : OBUpride\_53, Gravaillia\_52
- Track 16 : Evanesce\_52

### ***Summary of Final Annotations (See graph section above for start numbers):***

The start number called the most often in the published annotations is 6, it was called in 21 of the 38 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amochick\_53, Amymech\_53, Daegal\_55, DeepSoil15\_53, Dewey\_51, Ein37\_53, Evanesce\_52, Forge\_51, Gancho\_52, Giles\_51, Gravaillia\_52, HH92\_52, Hadrien\_53, Hail\_51, Kinbote\_53, LilHazelnut\_53, Luke\_53, Luna22\_51, OBUpride\_53, Webster2\_53, Wishmaker\_51,

Genes that have the "Most Annotated" start but do not call it:

- Ubuntu\_53,

Genes that do not have the "Most Annotated" start:

- Araceli\_47, Bogota\_48, Crosby\_47, EhyElimayoE\_221, Frankenweenie\_240, Henoccus\_47, Intolerant\_46, JackieB\_47, JustBecause\_223, Kela\_221, Kradal\_220, LazerLemon\_47, Marky\_49, Microdon\_46, Nirvana\_250, Satis\_218, Stuff\_47, UNTPL\_49,

### Summary by start number:

Start 5:

- Found in 7 of 40 ( 17.5% ) of genes in pham
- Manual Annotations of this start: 6 of 38
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EhyElimayoE\_221 (BM), Frankenweenie\_240 (BM), JustBecause\_223 (BM), Kela\_221 (BM), Kradal\_220 (BM), Nirvana\_250 (BM), Satis\_218 (BM),

Start 6:

- Found in 22 of 40 ( 55.0% ) of genes in pham
- Manual Annotations of this start: 21 of 38
- Called 95.5% of time when present
- Phage (with cluster) where this start called: Amochick\_53 (Q), Amymech\_53 (Q), Daegal\_55 (Q), DeepSoil15\_53 (Q), Dewey\_51 (Q), Ein37\_53 (Q), Evanesce\_52 (Q), Forge\_51 (Q), Gancho\_52 (Q), Giles\_51 (Q), Gravaillia\_52 (Q), HH92\_52 (Q), Hadrien\_53 (Q), Hail\_51 (Q), Kinbote\_53 (Q), LilHazelnut\_53 (Q), Luke\_53 (Q), Luna22\_51 (Q), OBUpride\_53 (Q), Webster2\_53 (Q), Wishmaker\_51 (Q),

Start 9:

- Found in 10 of 40 ( 25.0% ) of genes in pham
- Manual Annotations of this start: 10 of 38
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Araceli\_47 (BH), Bogota\_48 (BH), Crosby\_47 (BH), Henoccus\_47 (BH), Intolerant\_46 (BH), JackieB\_47 (BH), LazerLemon\_47 (BH), Microdon\_46 (BH), Stuff\_47 (BH), UNTPL\_49 (BH),

Start 10:

- Found in 1 of 40 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 1 of 38
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Marky\_49 (BH),

Start 13:

- Found in 22 of 40 ( 55.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 4.5% of time when present
- Phage (with cluster) where this start called: Ubuntu\_53 (Q),

### Summary by clusters:

There are 3 clusters represented in this pham: Q, BM, BH,

Info for manual annotations of cluster BH:

- Start number 9 was manually annotated 10 times for cluster BH.
- Start number 10 was manually annotated 1 time for cluster BH.

Info for manual annotations of cluster BM:

- Start number 5 was manually annotated 6 times for cluster BM.

Info for manual annotations of cluster Q:

- Start number 6 was manually annotated 21 times for cluster Q.

### **Gene Information:**

Gene: Amochick\_53 Start: 37915, Stop: 38778, Start Num: 6

Candidate Starts for Amochick\_53:

(Start: 6 @37915 has 21 MA's), (11, 37981), (12, 38005), (13, 38044), (14, 38050), (16, 38065), (23, 38101), (24, 38107), (27, 38149), (28, 38158), (32, 38221), (37, 38239), (39, 38251), (41, 38269), (47, 38338), (48, 38347), (50, 38353), (52, 38374), (55, 38407), (58, 38440), (60, 38455), (67, 38554), (68, 38566), (69, 38578), (71, 38635), (73, 38662), (75, 38686), (79, 38719), (80, 38734), (81, 38767),

Gene: Amymech\_53 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for Amymech\_53:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Araceli\_47 Start: 34357, Stop: 35109, Start Num: 9

Candidate Starts for Araceli\_47:

(Start: 9 @34357 has 10 MA's), (14, 34429), (15, 34435), (23, 34483), (33, 34618), (34, 34621), (35, 34624), (66, 34930), (74, 35074),

Gene: Bogota\_48 Start: 34899, Stop: 35651, Start Num: 9

Candidate Starts for Bogota\_48:

(Start: 9 @34899 has 10 MA's), (14, 34971), (15, 34977), (23, 35025), (25, 35037), (34, 35163), (36, 35169), (37, 35178), (54, 35337), (55, 35340), (74, 35616),

Gene: Crosby\_47 Start: 34650, Stop: 35408, Start Num: 9

Candidate Starts for Crosby\_47:

(2, 34416), (Start: 9 @34650 has 10 MA's), (14, 34728), (15, 34734), (23, 34782), (25, 34794), (33, 34917), (34, 34920), (36, 34926), (54, 35094), (55, 35097), (74, 35373),

Gene: Daegal\_55 Start: 38475, Stop: 39338, Start Num: 6

Candidate Starts for Daegal\_55:

(Start: 6 @38475 has 21 MA's), (11, 38541), (12, 38565), (13, 38604), (14, 38610), (16, 38625), (23, 38661), (24, 38667), (27, 38709), (28, 38718), (32, 38781), (37, 38799), (39, 38811), (41, 38829), (47, 38898), (48, 38907), (50, 38913), (52, 38934), (55, 38967), (58, 39000), (60, 39015), (67, 39114), (68, 39126), (69, 39138), (71, 39195), (73, 39222), (75, 39246), (79, 39279), (80, 39294), (81, 39327),

Gene: DeepSoil15\_53 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for DeepSoil15\_53:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Dewey\_51 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for Dewey\_51:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: EhyElimayoE\_221 Start: 131574, Stop: 132389, Start Num: 5

Candidate Starts for EhyElimayoE\_221:

(3, 131472), (Start: 5 @131574 has 6 MA's), (7, 131610), (17, 131742), (18, 131745), (21, 131754), (23, 131766), (24, 131772), (42, 131967), (44, 131982), (46, 131991), (51, 132009), (55, 132057), (56, 132063), (58, 132090), (62, 132126), (72, 132291), (78, 132339),

Gene: Ein37\_53 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for Ein37\_53:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Evanesce\_52 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for Evanesce\_52:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Forge\_51 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for Forge\_51:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Frankenweenie\_240 Start: 142886, Stop: 143593, Start Num: 5

Candidate Starts for Frankenweenie\_240:

(1, 142685), (4, 142877), (Start: 5 @142886 has 6 MA's), (7, 142922), (23, 143081), (24, 143087), (28, 143138), (30, 143153), (31, 143195), (46, 143303), (49, 143315), (53, 143363), (57, 143381), (61, 143423), (63, 143444), (65, 143459), (70, 143558),

Gene: Gancho\_52 Start: 37614, Stop: 38477, Start Num: 6

Candidate Starts for Gancho\_52:

(Start: 6 @37614 has 21 MA's), (11, 37680), (12, 37704), (13, 37743), (14, 37749), (16, 37764), (23, 37800), (24, 37806), (27, 37848), (28, 37857), (32, 37920), (37, 37938), (39, 37950), (41, 37968), (47, 38037), (48, 38046), (50, 38052), (52, 38073), (55, 38106), (58, 38139), (60, 38154), (67, 38253), (68, 38265), (69, 38277), (71, 38334), (73, 38361), (75, 38385), (79, 38418), (80, 38433), (81, 38466),

Gene: Giles\_51 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for Giles\_51:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68,

38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Gravaillia\_52 Start: 37905, Stop: 38768, Start Num: 6

Candidate Starts for Gravaillia\_52:

(Start: 6 @37905 has 21 MA's), (11, 37971), (12, 37995), (13, 38034), (14, 38040), (16, 38055), (23, 38091), (24, 38097), (27, 38139), (28, 38148), (32, 38211), (37, 38229), (39, 38241), (40, 38253), (41, 38259), (47, 38328), (48, 38337), (50, 38343), (52, 38364), (55, 38397), (58, 38430), (60, 38445), (67, 38544), (68, 38556), (69, 38568), (71, 38625), (73, 38652), (75, 38676), (76, 38685), (77, 38688), (79, 38709), (80, 38724), (81, 38757),

Gene: HH92\_52 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for HH92\_52:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Hadrien\_53 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for Hadrien\_53:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Hail\_51 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for Hail\_51:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Henococcus\_47 Start: 34374, Stop: 35126, Start Num: 9

Candidate Starts for Henococcus\_47:

(Start: 9 @34374 has 10 MA's), (14, 34446), (15, 34452), (23, 34500), (33, 34635), (34, 34638), (35, 34641), (66, 34947), (74, 35091),

Gene: Intolerant\_46 Start: 34591, Stop: 35349, Start Num: 9

Candidate Starts for Intolerant\_46:

(2, 34357), (Start: 9 @34591 has 10 MA's), (14, 34669), (15, 34675), (16, 34684), (23, 34723), (25, 34735), (34, 34861), (36, 34867), (37, 34876), (54, 35035), (55, 35038), (64, 35122), (66, 35170), (74, 35314),

Gene: JackieB\_47 Start: 34213, Stop: 34965, Start Num: 9

Candidate Starts for JackieB\_47:

(Start: 9 @34213 has 10 MA's), (14, 34285), (15, 34291), (23, 34339), (33, 34474), (34, 34477), (35, 34480), (66, 34786), (74, 34930),

Gene: JustBecause\_223 Start: 130604, Stop: 131311, Start Num: 5

Candidate Starts for JustBecause\_223:

(4, 130595), (Start: 5 @130604 has 6 MA's), (7, 130640), (19, 130781), (23, 130799), (24, 130805), (26, 130832), (28, 130856), (30, 130871), (31, 130913), (41, 130955), (46, 131021), (52, 131054), (57, 131099), (63, 131162), (70, 131276),

Gene: Kela\_221 Start: 130449, Stop: 131156, Start Num: 5

Candidate Starts for Kela\_221:

(4, 130440), (Start: 5 @130449 has 6 MA's), (7, 130485), (19, 130626), (23, 130644), (24, 130650), (26, 130677), (28, 130701), (30, 130716), (31, 130758), (41, 130800), (46, 130866), (52, 130899), (57, 130944), (63, 131007), (70, 131121),

Gene: Kinbote\_53 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for Kinbote\_53:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Kradal\_220 Start: 131571, Stop: 132386, Start Num: 5

Candidate Starts for Kradal\_220:

(3, 131469), (Start: 5 @131571 has 6 MA's), (7, 131607), (17, 131739), (18, 131742), (21, 131751), (23, 131763), (24, 131769), (42, 131964), (44, 131979), (46, 131988), (51, 132006), (55, 132054), (56, 132060), (58, 132087), (62, 132123), (72, 132288), (78, 132336),

Gene: LazerLemon\_47 Start: 35007, Stop: 35759, Start Num: 9

Candidate Starts for LazerLemon\_47:

(2, 34773), (Start: 9 @35007 has 10 MA's), (14, 35079), (23, 35133), (33, 35268), (34, 35271), (38, 35289), (54, 35445), (74, 35724),

Gene: LilHazelnut\_53 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for LilHazelnut\_53:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Luke\_53 Start: 37846, Stop: 38709, Start Num: 6

Candidate Starts for Luke\_53:

(Start: 6 @37846 has 21 MA's), (11, 37912), (12, 37936), (13, 37975), (14, 37981), (16, 37996), (23, 38032), (24, 38038), (27, 38080), (28, 38089), (32, 38152), (37, 38170), (39, 38182), (41, 38200), (47, 38269), (48, 38278), (50, 38284), (52, 38305), (55, 38338), (58, 38371), (60, 38386), (67, 38485), (68, 38497), (69, 38509), (71, 38566), (73, 38593), (75, 38617), (79, 38650), (80, 38665), (81, 38698),

Gene: Luna22\_51 Start: 37875, Stop: 38738, Start Num: 6

Candidate Starts for Luna22\_51:

(Start: 6 @37875 has 21 MA's), (11, 37941), (12, 37965), (13, 38004), (14, 38010), (16, 38025), (23, 38061), (24, 38067), (27, 38109), (28, 38118), (32, 38181), (37, 38199), (39, 38211), (41, 38229), (47, 38298), (48, 38307), (50, 38313), (52, 38334), (55, 38367), (58, 38400), (60, 38415), (67, 38514), (68, 38526), (69, 38538), (71, 38595), (73, 38622), (75, 38646), (79, 38679), (80, 38694), (81, 38727),

Gene: Marky\_49 Start: 35097, Stop: 35876, Start Num: 10

Candidate Starts for Marky\_49:

(8, 35091), (Start: 10 @35097 has 1 MA's), (15, 35181), (23, 35229), (33, 35364), (34, 35367), (43, 35457), (44, 35469), (55, 35544), (64, 35628), (79, 35856),

Gene: Microdon\_46 Start: 34403, Stop: 35155, Start Num: 9

Candidate Starts for Microdon\_46:

(Start: 9 @34403 has 10 MA's), (14, 34475), (15, 34481), (23, 34529), (25, 34541), (33, 34664), (34, 34667), (36, 34673), (54, 34841), (55, 34844), (64, 34928), (74, 35120),

Gene: Nirvana\_250 Start: 141161, Stop: 141862, Start Num: 5

Candidate Starts for Nirvana\_250:

(4, 141152), (Start: 5 @141161 has 6 MA's), (20, 141341), (23, 141356), (27, 141404), (29, 141416), (40, 141512), (45, 141578), (49, 141593), (57, 141662), (59, 141695),

Gene: OBUpride\_53 Start: 37905, Stop: 38768, Start Num: 6

Candidate Starts for OBUpride\_53:

(Start: 6 @37905 has 21 MA's), (11, 37971), (12, 37995), (13, 38034), (14, 38040), (16, 38055), (23, 38091), (24, 38097), (27, 38139), (28, 38148), (32, 38211), (37, 38229), (39, 38241), (40, 38253), (41, 38259), (47, 38328), (48, 38337), (50, 38343), (52, 38364), (55, 38397), (58, 38430), (60, 38445), (67, 38544), (68, 38556), (69, 38568), (71, 38625), (73, 38652), (75, 38676), (76, 38685), (77, 38688), (79, 38709), (80, 38724), (81, 38757),

Gene: Satis\_218 Start: 131908, Stop: 132723, Start Num: 5

Candidate Starts for Satis\_218:

(3, 131806), (Start: 5 @131908 has 6 MA's), (7, 131944), (17, 132076), (18, 132079), (21, 132088), (23, 132100), (24, 132106), (42, 132301), (44, 132316), (46, 132325), (51, 132343), (55, 132391), (56, 132397), (58, 132424), (62, 132460), (72, 132625), (78, 132673),

Gene: Stuff\_47 Start: 34889, Stop: 35647, Start Num: 9

Candidate Starts for Stuff\_47:

(2, 34655), (Start: 9 @34889 has 10 MA's), (14, 34967), (15, 34973), (16, 34982), (22, 35012), (23, 35021), (25, 35033), (33, 35156), (34, 35159), (36, 35165), (54, 35333), (55, 35336), (74, 35612),

Gene: UNTPL\_49 Start: 34934, Stop: 35686, Start Num: 9

Candidate Starts for UNTPL\_49:

(Start: 9 @34934 has 10 MA's), (14, 35006), (15, 35012), (23, 35060), (25, 35072), (34, 35198), (36, 35204), (37, 35213), (54, 35372), (55, 35375), (74, 35651),

Gene: Ubuntu\_53 Start: 38020, Stop: 38754, Start Num: 13

Candidate Starts for Ubuntu\_53:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Webster2\_53 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for Webster2\_53:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),

Gene: Wishmaker\_51 Start: 37891, Stop: 38754, Start Num: 6

Candidate Starts for Wishmaker\_51:

(Start: 6 @37891 has 21 MA's), (11, 37957), (12, 37981), (13, 38020), (14, 38026), (16, 38041), (23, 38077), (24, 38083), (27, 38125), (28, 38134), (32, 38197), (37, 38215), (39, 38227), (41, 38245), (47, 38314), (48, 38323), (50, 38329), (52, 38350), (55, 38383), (58, 38416), (60, 38431), (67, 38530), (68, 38542), (69, 38554), (71, 38611), (73, 38638), (75, 38662), (79, 38695), (80, 38710), (81, 38743),