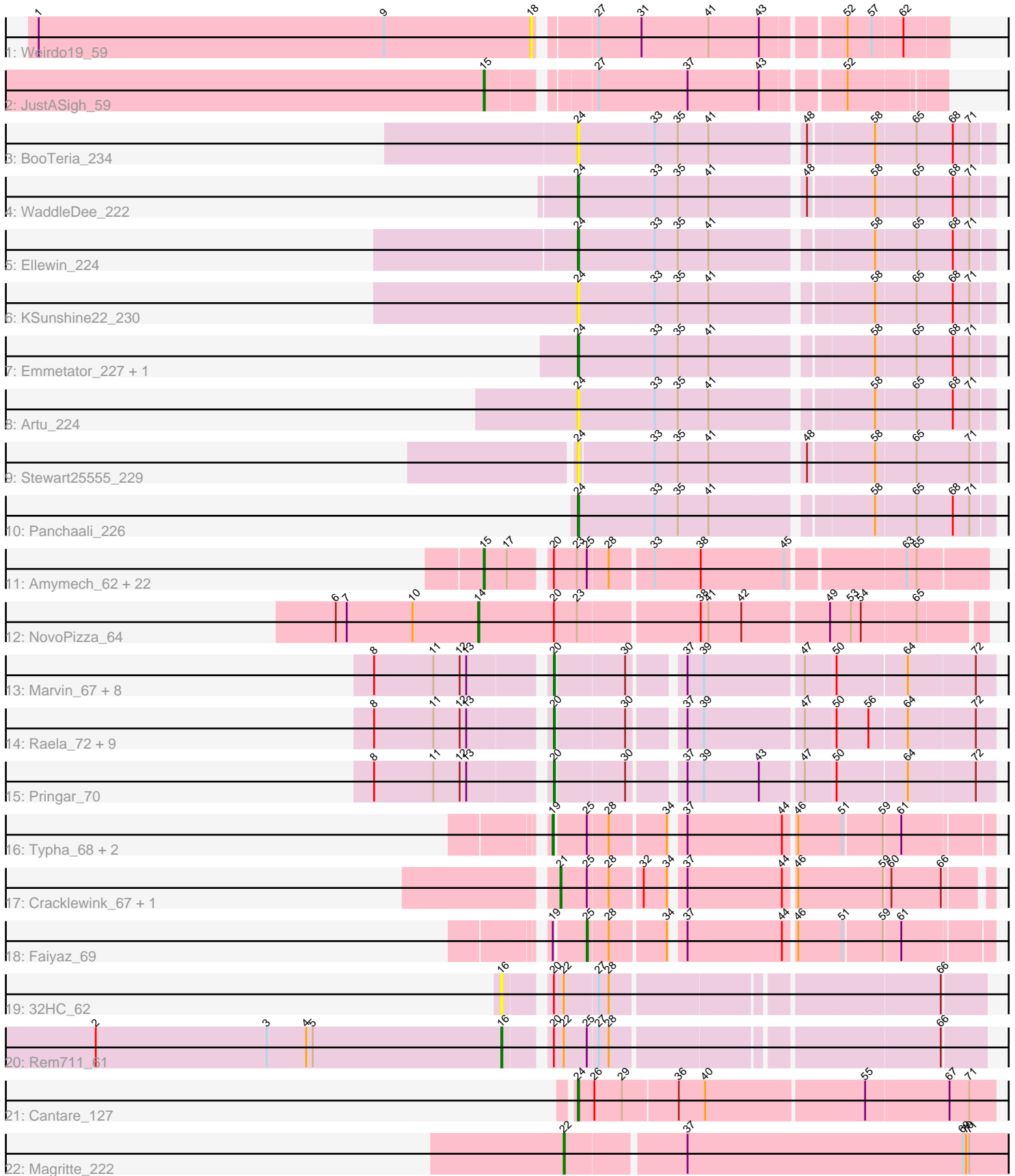


Pham 311591



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 311591 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311591 has 65 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Weirido19\_59
- Track 2 : JustASigh\_59
- Track 3 : BooTeria\_234
- Track 4 : WaddleDee\_222
- Track 5 : Ellewin\_224
- Track 6 : KSunshine22\_230
- Track 7 : Emmetator\_227, DunneganBoMo\_226
- Track 8 : Artu\_224
- Track 9 : Stewart25555\_229
- Track 10 : Panchaali\_226
- Track 11 : Amymech\_62, Ein37\_62, OBUpride\_62, Hail\_59, HH92\_61, Luke\_61, Amochick\_62, Ubuntu\_62, Wishmaker\_59, Giles\_59, Luna22\_59, Kinbote\_61, Gravaillia\_60, LilHazelnut\_62, Forge\_59, Dewey\_59, BloominB\_62, Evanesce\_61, Gancho\_61, Hadrien\_61, DeepSoil15\_62, Daegal\_64, Webster2\_62
- Track 12 : NovoPizza\_64
- Track 13 : Marvin\_67, Corazon\_69, FeliMaine\_74, Beelzebub\_76, JoieB\_73, Clarkson\_73, Caprice\_66, VasuNzinga\_70, Huphlepuuff\_74
- Track 14 : Raela\_72, Lilbit\_69, Poise\_72, RedRaider77\_71, Gattaca\_69, MosMoris\_68, LittleLaf\_71, GoongGoong\_71, Tesla\_68, Blackbeetle\_72
- Track 15 : Pringar\_70
- Track 16 : Typha\_68, AuntGwenStacy\_69, Hilltopfarm\_68
- Track 17 : Cracklewink\_67, Bipper\_68
- Track 18 : Faiyaz\_69
- Track 19 : 32HC\_62
- Track 20 : Rem711\_61
- Track 21 : Cantare\_127
- Track 22 : Magritte\_222

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

The start number called the most often in the published annotations is 15, it was called in 23 of the 56 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amochick\_62, Amymech\_62, BloominB\_62, Daegal\_64, DeepSoil15\_62, Dewey\_59, Ein37\_62, Evanesce\_61, Forge\_59, Gancho\_61, Giles\_59, Gravaillia\_60, HH92\_61, Hadrien\_61, Hail\_59, JustASigh\_59, Kinbote\_61, LilHazelnut\_62, Luke\_61, Luna22\_59, OBUpride\_62, Ubuntu\_62, Webster2\_62, Wishmaker\_59,

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

- 

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

- 32HC\_62, Artu\_224, AuntGwenStacy\_69, Beelzebub\_76, Bipper\_68, Blackbeetle\_72, BooTeria\_234, Cantare\_127, Caprice\_66, Clarkson\_73, Corazon\_69, Cracklewink\_67, DunneganBoMo\_226, Ellewin\_224, Emmetator\_227, Faiyaz\_69, FeliMaine\_74, Gattaca\_69, GoongGoong\_71, Hilltopfarm\_68, Huphlepuuff\_74, JoieB\_73, KSunshine22\_230, Lilbit\_69, LittleLaf\_71, Magritte\_222, Marvin\_67, MosMoris\_68, NovoPizza\_64, Panchaali\_226, Poise\_72, Pringar\_70, Raela\_72, RedRaider77\_71, Rem711\_61, Stewart25555\_229, Tesla\_68, Typha\_68, VasuNzinga\_70, WaddleDee\_222, Weirido19\_59,

### Summary by start number:

Start 14:

- Found in 1 of 65 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: NovoPizza\_64 (Q),

Start 15:

- Found in 24 of 65 ( 36.9% ) of genes in pham
- Manual Annotations of this start: 23 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amochick\_62 (Q), Amymech\_62 (Q), BloominB\_62 (Q), Daegal\_64 (Q), DeepSoil15\_62 (Q), Dewey\_59 (Q), Ein37\_62 (Q), Evanesce\_61 (Q), Forge\_59 (Q), Gancho\_61 (Q), Giles\_59 (Q), Gravaillia\_60 (Q), HH92\_61 (Q), Hadrien\_61 (Q), Hail\_59 (Q), JustASigh\_59 (AH), Kinbote\_61 (Q), LilHazelnut\_62 (Q), Luke\_61 (Q), Luna22\_59 (Q), OBUpride\_62 (Q), Ubuntu\_62 (Q), Webster2\_62 (Q), Wishmaker\_59 (Q),

Start 16:

- Found in 2 of 65 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 1 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 32HC\_62 (Z), Rem711\_61 (Z),

Start 18:

- Found in 1 of 65 ( 1.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Weirido19\_59 (AH),

Start 19:

- Found in 4 of 65 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 3 of 56
- Called 75.0% of time when present

- Phage (with cluster) where this start called: AuntGwenStacy\_69 (Y), Hilltopfarm\_68 (Y), Typha\_68 (Y),

#### Start 20:

- Found in 46 of 65 ( 70.8% ) of genes in pham
- Manual Annotations of this start: 19 of 56
- Called 43.5% of time when present
- Phage (with cluster) where this start called: Beelzebub\_76 (S), Blackbeetle\_72 (S), Caprice\_66 (S), Clarkson\_73 (S), Corazon\_69 (S), FeliMaine\_74 (S), Gattaca\_69 (S), GoongGoong\_71 (S), Huphlepuuff\_74 (S), JoieB\_73 (S), Lilbit\_69 (S), LittleLaf\_71 (S), Marvin\_67 (S), MosMoris\_68 (S), Poise\_72 (S), Pringar\_70 (S), Raela\_72 (S), RedRaider77\_71 (S), Tesla\_68 (S), VasuNzinga\_70 (S),

#### Start 21:

- Found in 2 of 65 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 2 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bipper\_68 (Y), Cracklewink\_67 (Y),

#### Start 22:

- Found in 3 of 65 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 1 of 56
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Magritte\_222 (singleton),

#### Start 24:

- Found in 10 of 65 ( 15.4% ) of genes in pham
- Manual Annotations of this start: 5 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Artu\_224 (FC), BooTeria\_234 (FC), Cantare\_127 (singleton), DunneganBoMo\_226 (FC), Ellewin\_224 (FC), Emmetator\_227 (FC), KSunshine22\_230 (FC), Panchaali\_226 (FC), Stewart25555\_229 (FC), WaddleDee\_222 (FC),

#### Start 25:

- Found in 30 of 65 ( 46.2% ) of genes in pham
- Manual Annotations of this start: 1 of 56
- Called 3.3% of time when present
- Phage (with cluster) where this start called: Faiyaz\_69 (Y),

### Summary by clusters:

There are 7 clusters represented in this pham: singleton, AH, Q, S, FC, Y, Z,

Info for manual annotations of cluster AH:

- Start number 15 was manually annotated 1 time for cluster AH.

Info for manual annotations of cluster FC:

- Start number 24 was manually annotated 4 times for cluster FC.

Info for manual annotations of cluster Q:

- Start number 14 was manually annotated 1 time for cluster Q.
- Start number 15 was manually annotated 22 times for cluster Q.

Info for manual annotations of cluster S:

- Start number 20 was manually annotated 19 times for cluster S.

Info for manual annotations of cluster Y:

- Start number 19 was manually annotated 3 times for cluster Y.
- Start number 21 was manually annotated 2 times for cluster Y.
- Start number 25 was manually annotated 1 time for cluster Y.

Info for manual annotations of cluster Z:

- Start number 16 was manually annotated 1 time for cluster Z.

### **Gene Information:**

Gene: 32HC\_62 Start: 40727, Stop: 41119, Start Num: 16

Candidate Starts for 32HC\_62:

(Start: 16 @40727 has 1 MA's), (Start: 20 @40760 has 19 MA's), (Start: 22 @40769 has 1 MA's), (27, 40799), (28, 40808), (66, 41081),

Gene: Amochick\_62 Start: 43234, Stop: 43653, Start Num: 15

Candidate Starts for Amochick\_62:

(Start: 15 @43234 has 23 MA's), (17, 43255), (Start: 20 @43285 has 19 MA's), (23, 43306), (Start: 25 @43315 has 1 MA's), (28, 43333), (33, 43369), (38, 43411), (45, 43486), (63, 43582), (65, 43591),

Gene: Amymech\_62 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for Amymech\_62:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: Artu\_224 Start: 156095, Stop: 156448, Start Num: 24

Candidate Starts for Artu\_224:

(Start: 24 @156095 has 5 MA's), (33, 156164), (35, 156185), (41, 156212), (58, 156344), (65, 156380), (68, 156413), (71, 156428),

Gene: AuntGwenStacy\_69 Start: 48322, Stop: 48681, Start Num: 19

Candidate Starts for AuntGwenStacy\_69:

(Start: 19 @48322 has 3 MA's), (Start: 25 @48349 has 1 MA's), (28, 48367), (34, 48415), (37, 48424), (44, 48508), (46, 48517), (51, 48556), (59, 48589), (61, 48604),

Gene: Beelzebub\_76 Start: 41016, Stop: 41381, Start Num: 20

Candidate Starts for Beelzebub\_76:

(8, 40866), (11, 40920), (12, 40944), (13, 40950), (Start: 20 @41016 has 19 MA's), (30, 41076), (37, 41118), (39, 41133), (47, 41217), (50, 41244), (64, 41304), (72, 41364),

Gene: Bipper\_68 Start: 48081, Stop: 48434, Start Num: 21

Candidate Starts for Bipper\_68:

(Start: 21 @48081 has 2 MA's), (Start: 25 @48105 has 1 MA's), (28, 48123), (32, 48150), (34, 48171), (37, 48180), (44, 48264), (46, 48273), (59, 48348), (60, 48354), (66, 48399),

Gene: Blackbeetle\_72 Start: 40028, Stop: 40393, Start Num: 20

Candidate Starts for Blackbeetle\_72:

(8, 39878), (11, 39932), (12, 39956), (13, 39962), (Start: 20 @40028 has 19 MA's), (30, 40088), (37, 40130), (39, 40145), (47, 40229), (50, 40256), (56, 40283), (64, 40316), (72, 40376),

Gene: BloominB\_62 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for BloominB\_62:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: BooTeria\_234 Start: 155925, Stop: 156278, Start Num: 24

Candidate Starts for BooTeria\_234:

(Start: 24 @155925 has 5 MA's), (33, 155994), (35, 156015), (41, 156042), (48, 156120), (58, 156174), (65, 156210), (68, 156243), (71, 156258),

Gene: Cantare\_127 Start: 88150, Stop: 88515, Start Num: 24

Candidate Starts for Cantare\_127:

(Start: 24 @88150 has 5 MA's), (26, 88165), (29, 88189), (36, 88237), (40, 88261), (55, 88399), (67, 88474), (71, 88492),

Gene: Caprice\_66 Start: 40342, Stop: 40707, Start Num: 20

Candidate Starts for Caprice\_66:

(8, 40192), (11, 40246), (12, 40270), (13, 40276), (Start: 20 @40342 has 19 MA's), (30, 40402), (37, 40444), (39, 40459), (47, 40543), (50, 40570), (64, 40630), (72, 40690),

Gene: Clarkson\_73 Start: 40744, Stop: 41109, Start Num: 20

Candidate Starts for Clarkson\_73:

(8, 40594), (11, 40648), (12, 40672), (13, 40678), (Start: 20 @40744 has 19 MA's), (30, 40804), (37, 40846), (39, 40861), (47, 40945), (50, 40972), (64, 41032), (72, 41092),

Gene: Corazon\_69 Start: 40938, Stop: 41303, Start Num: 20

Candidate Starts for Corazon\_69:

(8, 40788), (11, 40842), (12, 40866), (13, 40872), (Start: 20 @40938 has 19 MA's), (30, 40998), (37, 41040), (39, 41055), (47, 41139), (50, 41166), (64, 41226), (72, 41286),

Gene: Cracklewink\_67 Start: 47115, Stop: 47468, Start Num: 21

Candidate Starts for Cracklewink\_67:

(Start: 21 @47115 has 2 MA's), (Start: 25 @47139 has 1 MA's), (28, 47157), (32, 47184), (34, 47205), (37, 47214), (44, 47298), (46, 47307), (59, 47382), (60, 47388), (66, 47433),

Gene: Daegal\_64 Start: 43796, Stop: 44215, Start Num: 15

Candidate Starts for Daegal\_64:

(Start: 15 @43796 has 23 MA's), (17, 43817), (Start: 20 @43847 has 19 MA's), (23, 43868), (Start: 25 @43877 has 1 MA's), (28, 43895), (33, 43931), (38, 43973), (45, 44048), (63, 44144), (65, 44153),

Gene: DeepSoil15\_62 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for DeepSoil15\_62:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: Dewey\_59 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for Dewey\_59:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: DunneganBoMo\_226 Start: 155428, Stop: 155781, Start Num: 24

Candidate Starts for DunneganBoMo\_226:

(Start: 24 @155428 has 5 MA's), (33, 155497), (35, 155518), (41, 155545), (58, 155677), (65, 155713), (68, 155746), (71, 155761),

Gene: Ein37\_62 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for Ein37\_62:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: Ellewin\_224 Start: 154702, Stop: 155055, Start Num: 24

Candidate Starts for Ellewin\_224:

(Start: 24 @154702 has 5 MA's), (33, 154771), (35, 154792), (41, 154819), (58, 154951), (65, 154987), (68, 155020), (71, 155035),

Gene: Emmetator\_227 Start: 154568, Stop: 154921, Start Num: 24

Candidate Starts for Emmetator\_227:

(Start: 24 @154568 has 5 MA's), (33, 154637), (35, 154658), (41, 154685), (58, 154817), (65, 154853), (68, 154886), (71, 154901),

Gene: Evanesce\_61 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for Evanesce\_61:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: Faiyaz\_69 Start: 48355, Stop: 48687, Start Num: 25

Candidate Starts for Faiyaz\_69:

(Start: 19 @48328 has 3 MA's), (Start: 25 @48355 has 1 MA's), (28, 48373), (34, 48421), (37, 48430), (44, 48514), (46, 48523), (51, 48562), (59, 48595), (61, 48610),

Gene: FeliMaine\_74 Start: 40986, Stop: 41351, Start Num: 20

Candidate Starts for FeliMaine\_74:

(8, 40836), (11, 40890), (12, 40914), (13, 40920), (Start: 20 @40986 has 19 MA's), (30, 41046), (37, 41088), (39, 41103), (47, 41187), (50, 41214), (64, 41274), (72, 41334),

Gene: Forge\_59 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for Forge\_59:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: Gancho\_61 Start: 42939, Stop: 43358, Start Num: 15

Candidate Starts for Gancho\_61:

(Start: 15 @42939 has 23 MA's), (17, 42960), (Start: 20 @42990 has 19 MA's), (23, 43011), (Start: 25 @43020 has 1 MA's), (28, 43038), (33, 43074), (38, 43116), (45, 43191), (63, 43287), (65, 43296),

Gene: Gattaca\_69 Start: 40132, Stop: 40497, Start Num: 20

Candidate Starts for Gattaca\_69:

(8, 39982), (11, 40036), (12, 40060), (13, 40066), (Start: 20 @40132 has 19 MA's), (30, 40192), (37, 40234), (39, 40249), (47, 40333), (50, 40360), (56, 40387), (64, 40420), (72, 40480),

Gene: Giles\_59 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for Giles\_59:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: GoongGoong\_71 Start: 39931, Stop: 40296, Start Num: 20

Candidate Starts for GoongGoong\_71:

(8, 39781), (11, 39835), (12, 39859), (13, 39865), (Start: 20 @39931 has 19 MA's), (30, 39991), (37, 40033), (39, 40048), (47, 40132), (50, 40159), (56, 40186), (64, 40219), (72, 40279),

Gene: Gravaillia\_60 Start: 43220, Stop: 43639, Start Num: 15

Candidate Starts for Gravaillia\_60:

(Start: 15 @43220 has 23 MA's), (17, 43241), (Start: 20 @43271 has 19 MA's), (23, 43292), (Start: 25 @43301 has 1 MA's), (28, 43319), (33, 43355), (38, 43397), (45, 43472), (63, 43568), (65, 43577),

Gene: HH92\_61 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for HH92\_61:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: Hadrien\_61 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for Hadrien\_61:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: Hail\_59 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for Hail\_59:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: Hilltopfarm\_68 Start: 48031, Stop: 48390, Start Num: 19

Candidate Starts for Hilltopfarm\_68:

(Start: 19 @48031 has 3 MA's), (Start: 25 @48058 has 1 MA's), (28, 48076), (34, 48124), (37, 48133), (44, 48217), (46, 48226), (51, 48265), (59, 48298), (61, 48313),

Gene: Huphlebuff\_74 Start: 40549, Stop: 40914, Start Num: 20

Candidate Starts for Huphlebuff\_74:

(8, 40399), (11, 40453), (12, 40477), (13, 40483), (Start: 20 @40549 has 19 MA's), (30, 40609), (37, 40651), (39, 40666), (47, 40750), (50, 40777), (64, 40837), (72, 40897),

Gene: JoieB\_73 Start: 40982, Stop: 41347, Start Num: 20

Candidate Starts for JoieB\_73:

(8, 40832), (11, 40886), (12, 40910), (13, 40916), (Start: 20 @40982 has 19 MA's), (30, 41042), (37, 41084), (39, 41099), (47, 41183), (50, 41210), (64, 41270), (72, 41330),

Gene: JustASigh\_59 Start: 40937, Stop: 41311, Start Num: 15

Candidate Starts for JustASigh\_59:

(Start: 15 @40937 has 23 MA's), (27, 41021), (37, 41102), (43, 41165), (52, 41231),

Gene: KSunshine22\_230 Start: 154100, Stop: 154453, Start Num: 24

Candidate Starts for KSunshine22\_230:

(Start: 24 @154100 has 5 MA's), (33, 154169), (35, 154190), (41, 154217), (58, 154349), (65, 154385), (68, 154418), (71, 154433),

Gene: Kinbote\_61 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for Kinbote\_61:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: LilHazelnut\_62 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for LilHazelnut\_62:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: Lilbit\_69 Start: 40712, Stop: 41077, Start Num: 20

Candidate Starts for Lilbit\_69:

(8, 40562), (11, 40616), (12, 40640), (13, 40646), (Start: 20 @40712 has 19 MA's), (30, 40772), (37, 40814), (39, 40829), (47, 40913), (50, 40940), (56, 40967), (64, 41000), (72, 41060),

Gene: LittleLaf\_71 Start: 40441, Stop: 40806, Start Num: 20

Candidate Starts for LittleLaf\_71:

(8, 40291), (11, 40345), (12, 40369), (13, 40375), (Start: 20 @40441 has 19 MA's), (30, 40501), (37, 40543), (39, 40558), (47, 40642), (50, 40669), (56, 40696), (64, 40729), (72, 40789),

Gene: Luke\_61 Start: 43167, Stop: 43586, Start Num: 15

Candidate Starts for Luke\_61:

(Start: 15 @43167 has 23 MA's), (17, 43188), (Start: 20 @43218 has 19 MA's), (23, 43239), (Start: 25 @43248 has 1 MA's), (28, 43266), (33, 43302), (38, 43344), (45, 43419), (63, 43515), (65, 43524),

Gene: Luna22\_59 Start: 43196, Stop: 43615, Start Num: 15

Candidate Starts for Luna22\_59:

(Start: 15 @43196 has 23 MA's), (17, 43217), (Start: 20 @43247 has 19 MA's), (23, 43268), (Start: 25 @43277 has 1 MA's), (28, 43295), (33, 43331), (38, 43373), (45, 43448), (63, 43544), (65, 43553),

Gene: Magritte\_222 Start: 117575, Stop: 117985, Start Num: 22

Candidate Starts for Magritte\_222:

(Start: 22 @117575 has 1 MA's), (37, 117677), (69, 117926), (70, 117929), (71, 117932),

Gene: Marvin\_67 Start: 40202, Stop: 40567, Start Num: 20

Candidate Starts for Marvin\_67:

(8, 40052), (11, 40106), (12, 40130), (13, 40136), (Start: 20 @40202 has 19 MA's), (30, 40262), (37, 40304), (39, 40319), (47, 40403), (50, 40430), (64, 40490), (72, 40550),

Gene: MosMoris\_68 Start: 40132, Stop: 40497, Start Num: 20

Candidate Starts for MosMoris\_68:

(8, 39982), (11, 40036), (12, 40060), (13, 40066), (Start: 20 @40132 has 19 MA's), (30, 40192), (37, 40234), (39, 40249), (47, 40333), (50, 40360), (56, 40387), (64, 40420), (72, 40480),

Gene: NovoPizza\_64 Start: 44510, Stop: 44947, Start Num: 14

Candidate Starts for NovoPizza\_64:

(6, 44381), (7, 44390), (10, 44450), (Start: 14 @44510 has 1 MA's), (Start: 20 @44579 has 19 MA's), (23, 44600), (38, 44705), (41, 44711), (42, 44741), (49, 44816), (53, 44834), (54, 44843), (65, 44891),

Gene: OBUpride\_62 Start: 43208, Stop: 43627, Start Num: 15

Candidate Starts for OBUpride\_62:

(Start: 15 @43208 has 23 MA's), (17, 43229), (Start: 20 @43259 has 19 MA's), (23, 43280), (Start: 25 @43289 has 1 MA's), (28, 43307), (33, 43343), (38, 43385), (45, 43460), (63, 43556), (65, 43565),

Gene: Panchaali\_226 Start: 156131, Stop: 156484, Start Num: 24

Candidate Starts for Panchaali\_226:

(Start: 24 @156131 has 5 MA's), (33, 156200), (35, 156221), (41, 156248), (58, 156380), (65, 156416), (68, 156449), (71, 156464),

Gene: Poise\_72 Start: 40028, Stop: 40393, Start Num: 20

Candidate Starts for Poise\_72:

(8, 39878), (11, 39932), (12, 39956), (13, 39962), (Start: 20 @40028 has 19 MA's), (30, 40088), (37, 40130), (39, 40145), (47, 40229), (50, 40256), (56, 40283), (64, 40316), (72, 40376),

Gene: Pringar\_70 Start: 40350, Stop: 40715, Start Num: 20

Candidate Starts for Pringar\_70:

(8, 40200), (11, 40254), (12, 40278), (13, 40284), (Start: 20 @40350 has 19 MA's), (30, 40410), (37, 40452), (39, 40467), (43, 40515), (47, 40551), (50, 40578), (64, 40638), (72, 40698),

Gene: Raela\_72 Start: 40585, Stop: 40950, Start Num: 20

Candidate Starts for Raela\_72:

(8, 40435), (11, 40489), (12, 40513), (13, 40519), (Start: 20 @40585 has 19 MA's), (30, 40645), (37, 40687), (39, 40702), (47, 40786), (50, 40813), (56, 40840), (64, 40873), (72, 40933),

Gene: RedRaider77\_71 Start: 39973, Stop: 40338, Start Num: 20

Candidate Starts for RedRaider77\_71:

(8, 39823), (11, 39877), (12, 39901), (13, 39907), (Start: 20 @39973 has 19 MA's), (30, 40033), (37, 40075), (39, 40090), (47, 40174), (50, 40201), (56, 40228), (64, 40261), (72, 40321),

Gene: Rem711\_61 Start: 40712, Stop: 41104, Start Num: 16

Candidate Starts for Rem711\_61:

(2, 40343), (3, 40499), (4, 40535), (5, 40541), (Start: 16 @40712 has 1 MA's), (Start: 20 @40745 has 19 MA's), (Start: 22 @40754 has 1 MA's), (Start: 25 @40775 has 1 MA's), (27, 40784), (28, 40793), (66, 41066),

Gene: Stewart25555\_229 Start: 154481, Stop: 154831, Start Num: 24

Candidate Starts for Stewart25555\_229:

(Start: 24 @154481 has 5 MA's), (33, 154547), (35, 154568), (41, 154595), (48, 154673), (58, 154727), (65, 154763), (71, 154811),

Gene: Tesla\_68 Start: 39822, Stop: 40187, Start Num: 20

Candidate Starts for Tesla\_68:

(8, 39672), (11, 39726), (12, 39750), (13, 39756), (Start: 20 @39822 has 19 MA's), (30, 39882), (37, 39924), (39, 39939), (47, 40023), (50, 40050), (56, 40077), (64, 40110), (72, 40170),

Gene: Typha\_68 Start: 48322, Stop: 48681, Start Num: 19

Candidate Starts for Typha\_68:

(Start: 19 @48322 has 3 MA's), (Start: 25 @48349 has 1 MA's), (28, 48367), (34, 48415), (37, 48424), (44, 48508), (46, 48517), (51, 48556), (59, 48589), (61, 48604),

Gene: Ubuntu\_62 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for Ubuntu\_62:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: VasuNzinga\_70 Start: 39924, Stop: 40289, Start Num: 20

Candidate Starts for VasuNzinga\_70:

(8, 39774), (11, 39828), (12, 39852), (13, 39858), (Start: 20 @39924 has 19 MA's), (30, 39984), (37, 40026), (39, 40041), (47, 40125), (50, 40152), (64, 40212), (72, 40272),

Gene: WaddleDee\_222 Start: 154253, Stop: 154606, Start Num: 24

Candidate Starts for WaddleDee\_222:

(Start: 24 @154253 has 5 MA's), (33, 154322), (35, 154343), (41, 154370), (48, 154448), (58, 154502), (65, 154538), (68, 154571), (71, 154586),

Gene: Webster2\_62 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for Webster2\_62:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),

Gene: Weirido19\_59 Start: 41212, Stop: 41553, Start Num: 18

Candidate Starts for Weirido19\_59:

(1, 40765), (9, 41080), (18, 41212), (27, 41257), (31, 41296), (41, 41356), (43, 41401), (52, 41467), (57, 41488), (62, 41515),

Gene: Wishmaker\_59 Start: 43212, Stop: 43631, Start Num: 15

Candidate Starts for Wishmaker\_59:

(Start: 15 @43212 has 23 MA's), (17, 43233), (Start: 20 @43263 has 19 MA's), (23, 43284), (Start: 25 @43293 has 1 MA's), (28, 43311), (33, 43347), (38, 43389), (45, 43464), (63, 43560), (65, 43569),