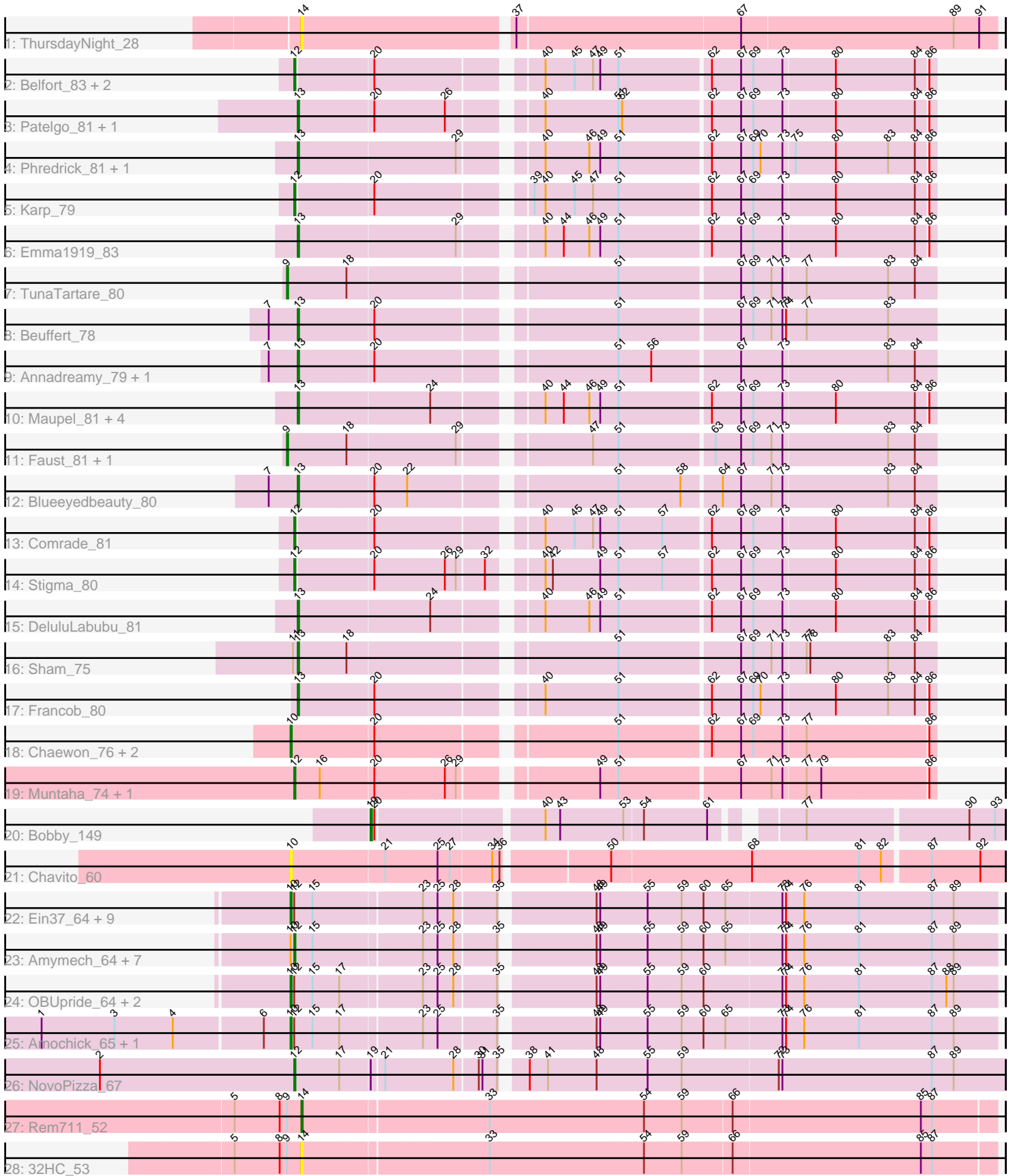


Pham 294752



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 294752 Report

This analysis was run 04/18/26 on database version 643.

Pham number 294752 has 60 members, 7 are drafts.

Phages represented in each track:

- Track 1 : ThursdayNight\_28
- Track 2 : Belfort\_83, SparkleGoddess\_81, Westy\_82
- Track 3 : Patelgo\_81, Moab\_81
- Track 4 : Phredrick\_81, Kenrey\_83
- Track 5 : Karp\_79
- Track 6 : Emma1919\_83
- Track 7 : TunaTartare\_80
- Track 8 : Beuffert\_78
- Track 9 : Annadreamy\_79, Limpid\_78
- Track 10 : Maupel\_81, Forrest\_84, Gilson\_82, Jada\_82, MeganTheeKilla\_80
- Track 11 : Faust\_81, SeresaTree\_81
- Track 12 : Blueeyedbeauty\_80
- Track 13 : Comrade\_81
- Track 14 : Stigma\_80
- Track 15 : DeluluLabubu\_81
- Track 16 : Sham\_75
- Track 17 : Francob\_80
- Track 18 : Chaewon\_76, Circinus\_73, BillNye\_72
- Track 19 : Muntaha\_74, Wakanda\_73
- Track 20 : Bobby\_149
- Track 21 : Chavito\_60
- Track 22 : Ein37\_64, Hadrien\_63, HH92\_63, Dewey\_61, Kinbote\_63, Evanesce\_63, DeepSoil15\_64, LilHazelnut\_64, Giles\_61, Webster2\_64
- Track 23 : Amymech\_64, Forge\_61, Wishmaker\_61, Ubuntu\_64, Luna22\_61, Hail\_61, BloominB\_64, Luke\_63
- Track 24 : OBUpride\_64, Gravaiillia\_62, Gancho\_63
- Track 25 : Amochick\_65, Daegal\_67
- Track 26 : NovoPizza\_67
- Track 27 : Rem711\_52
- Track 28 : 32HC\_53

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

The start number called the most often in the published annotations is 10, it was called in 17 of the 53 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amochick\_65, BillNye\_72, Chaewon\_76, Chavito\_60, Circinus\_73, Daegal\_67, DeepSoil15\_64, Dewey\_61, Ein37\_64, Evanesce\_63, Gancho\_63, Giles\_61, Gravaillia\_62, HH92\_63, Hadrien\_63, Kinbote\_63, LilHazelNut\_64, OBUpride\_64, Webster2\_64,

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

- Amymech\_64, BloominB\_64, Forge\_61, Hail\_61, Luke\_63, Luna22\_61, Ubuntu\_64, Wishmaker\_61,

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

- 32HC\_53, Annadreamy\_79, Belfort\_83, Beuffert\_78, Blueeyedbeauty\_80, Bobby\_149, Comrade\_81, DeluluLabubu\_81, Emma1919\_83, Faust\_81, Forrest\_84, Francob\_80, Gilson\_82, Jada\_82, Karp\_79, Kenrey\_83, Limpid\_78, Maupel\_81, MeganTheeKilla\_80, Moab\_81, Muntaha\_74, NovoPizza\_67, Patelgo\_81, Phredrick\_81, Rem711\_52, SeresaTree\_81, Sham\_75, SparkleGoddess\_81, Stigma\_80, ThursdayNight\_28, TunaTartare\_80, Wakanda\_73, Westy\_82,

### Summary by start number:

Start 9:

- Found in 5 of 60 ( 8.3% ) of genes in pham
- Manual Annotations of this start: 2 of 53
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Faust\_81 (BK1), SeresaTree\_81 (BK1), TunaTartare\_80 (BK1),

Start 10:

- Found in 27 of 60 ( 45.0% ) of genes in pham
- Manual Annotations of this start: 17 of 53
- Called 70.4% of time when present
- Phage (with cluster) where this start called: Amochick\_65 (Q), BillNye\_72 (BK2), Chaewon\_76 (BK2), Chavito\_60 (K1), Circinus\_73 (BK2), Daegal\_67 (Q), DeepSoil15\_64 (Q), Dewey\_61 (Q), Ein37\_64 (Q), Evanesce\_63 (Q), Gancho\_63 (Q), Giles\_61 (Q), Gravaillia\_62 (Q), HH92\_63 (Q), Hadrien\_63 (Q), Kinbote\_63 (Q), LilHazelNut\_64 (Q), OBUpride\_64 (Q), Webster2\_64 (Q),

Start 12:

- Found in 32 of 60 ( 53.3% ) of genes in pham
- Manual Annotations of this start: 16 of 53
- Called 53.1% of time when present
- Phage (with cluster) where this start called: Amymech\_64 (Q), Belfort\_83 (BK1), BloominB\_64 (Q), Comrade\_81 (BK1), Forge\_61 (Q), Hail\_61 (Q), Karp\_79 (BK1), Luke\_63 (Q), Luna22\_61 (Q), Muntaha\_74 (BK2), NovoPizza\_67 (Q), SparkleGoddess\_81 (BK1), Stigma\_80 (BK1), Ubuntu\_64 (Q), Wakanda\_73 (BK2), Westy\_82 (BK1), Wishmaker\_61 (Q),

Start 13:

- Found in 17 of 60 ( 28.3% ) of genes in pham
- Manual Annotations of this start: 16 of 53

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Annadreamy\_79 (BK1), Beuffert\_78 (BK1), Blueeyedbeauty\_80 (BK1), DeluluLabubu\_81 (BK1), Emma1919\_83 (BK1), Forrest\_84 (BK1), Francob\_80 (BK1), Gilson\_82 (BK1), Jada\_82 (BK1), Kenrey\_83 (BK1), Limpid\_78 (BK1), Maupel\_81 (BK1), MeganTheeKilla\_80 (BK1), Moab\_81 (BK1), Patelgo\_81 (BK1), Phredrick\_81 (BK1), Sham\_75 (BK1),

Start 14:

- Found in 3 of 60 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 1 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 32HC\_53 (Z), Rem711\_52 (Z), ThursdayNight\_28 (AZ),

Start 19:

- Found in 2 of 60 ( 3.3% ) of genes in pham
- Manual Annotations of this start: 1 of 53
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Bobby\_149 (J),

### **Summary by clusters:**

There are 7 clusters represented in this pham: AZ, J, Q, K1, BK1, BK2, Z,

Info for manual annotations of cluster BK1:

- Start number 9 was manually annotated 2 times for cluster BK1.
- Start number 12 was manually annotated 6 times for cluster BK1.
- Start number 13 was manually annotated 16 times for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 10 was manually annotated 2 times for cluster BK2.
- Start number 12 was manually annotated 2 times for cluster BK2.

Info for manual annotations of cluster J:

- Start number 19 was manually annotated 1 time for cluster J.

Info for manual annotations of cluster Q:

- Start number 10 was manually annotated 15 times for cluster Q.
- Start number 12 was manually annotated 8 times for cluster Q.

Info for manual annotations of cluster Z:

- Start number 14 was manually annotated 1 time for cluster Z.

### **Gene Information:**

Gene: 32HC\_53 Start: 36136, Stop: 36690, Start Num: 14

Candidate Starts for 32HC\_53:

(5, 36082), (8, 36118), (Start: 9 @36124 has 2 MA's), (Start: 14 @36136 has 1 MA's), (33, 36283), (54, 36409), (59, 36439), (66, 36478), (85, 36631), (87, 36640),

Gene: Amochick\_65 Start: 44443, Stop: 44997, Start Num: 10

Candidate Starts for Amochick\_65:

(1, 44248), (3, 44308), (4, 44356), (6, 44422), (Start: 10 @44443 has 17 MA's), (Start: 12 @44446 has 16 MA's), (15, 44461), (17, 44482), (23, 44545), (25, 44557), (35, 44602), (48, 44671), (49, 44674), (55, 44713), (59, 44740), (60, 44758), (65, 44776), (73, 44821), (74, 44824), (76, 44839), (81, 44884), (87, 44944), (89, 44962),

Gene: Amymech\_64 Start: 43962, Stop: 44513, Start Num: 12

Candidate Starts for Amymech\_64:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Annadreamy\_79 Start: 59408, Stop: 59899, Start Num: 13

Candidate Starts for Annadreamy\_79:

(7, 59384), (Start: 13 @59408 has 16 MA's), (20, 59468), (51, 59648), (56, 59675), (67, 59744), (73, 59777), (83, 59861), (84, 59882),

Gene: Belfort\_83 Start: 61237, Stop: 61725, Start Num: 12

Candidate Starts for Belfort\_83:

(Start: 12 @61237 has 16 MA's), (20, 61297), (40, 61417), (45, 61441), (47, 61456), (49, 61462), (51, 61477), (62, 61549), (67, 61573), (69, 61582), (73, 61606), (80, 61648), (84, 61711), (86, 61720),

Gene: Beuffert\_78 Start: 59970, Stop: 60461, Start Num: 13

Candidate Starts for Beuffert\_78:

(7, 59946), (Start: 13 @59970 has 16 MA's), (20, 60030), (51, 60210), (67, 60306), (69, 60315), (71, 60330), (73, 60339), (74, 60342), (77, 60357), (83, 60423),

Gene: BillNye\_72 Start: 61063, Stop: 61557, Start Num: 10

Candidate Starts for BillNye\_72:

(Start: 10 @61063 has 17 MA's), (20, 61129), (51, 61309), (62, 61381), (67, 61405), (69, 61414), (73, 61438), (77, 61456), (86, 61552),

Gene: BloominB\_64 Start: 43962, Stop: 44513, Start Num: 12

Candidate Starts for BloominB\_64:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Blueeyedbeauty\_80 Start: 59360, Stop: 59851, Start Num: 13

Candidate Starts for Blueeyedbeauty\_80:

(7, 59336), (Start: 13 @59360 has 16 MA's), (20, 59420), (22, 59447), (51, 59600), (58, 59651), (64, 59681), (67, 59696), (71, 59720), (73, 59729), (83, 59813), (84, 59834),

Gene: Bobby\_149 Start: 86590, Stop: 87060, Start Num: 19

Candidate Starts for Bobby\_149:

(Start: 19 @86590 has 1 MA's), (20, 86593), (40, 86719), (43, 86731), (53, 86782), (54, 86797), (61, 86848), (77, 86905), (90, 87031), (93, 87052),

Gene: Chaewon\_76 Start: 61004, Stop: 61498, Start Num: 10

Candidate Starts for Chaewon\_76:

(Start: 10 @61004 has 17 MA's), (20, 61070), (51, 61250), (62, 61322), (67, 61346), (69, 61355), (73, 61379), (77, 61397), (86, 61493),

Gene: Chavito\_60 Start: 41135, Stop: 41692, Start Num: 10

Candidate Starts for Chavito\_60:

(Start: 10 @41135 has 17 MA's), (21, 41210), (25, 41252), (27, 41261), (34, 41294), (36, 41300), (50, 41381), (68, 41492), (81, 41579), (82, 41597), (87, 41633), (92, 41672),

Gene: Circinus\_73 Start: 61050, Stop: 61544, Start Num: 10

Candidate Starts for Circinus\_73:

(Start: 10 @61050 has 17 MA's), (20, 61116), (51, 61296), (62, 61368), (67, 61392), (69, 61401), (73, 61425), (77, 61443), (86, 61539),

Gene: Comrade\_81 Start: 60853, Stop: 61341, Start Num: 12

Candidate Starts for Comrade\_81:

(Start: 12 @60853 has 16 MA's), (20, 60913), (40, 61033), (45, 61057), (47, 61072), (49, 61078), (51, 61093), (57, 61129), (62, 61165), (67, 61189), (69, 61198), (73, 61222), (80, 61264), (84, 61327), (86, 61336),

Gene: Daegal\_67 Start: 45005, Stop: 45559, Start Num: 10

Candidate Starts for Daegal\_67:

(1, 44810), (3, 44870), (4, 44918), (6, 44984), (Start: 10 @45005 has 17 MA's), (Start: 12 @45008 has 16 MA's), (15, 45023), (17, 45044), (23, 45107), (25, 45119), (35, 45164), (48, 45233), (49, 45236), (55, 45275), (59, 45302), (60, 45320), (65, 45338), (73, 45383), (74, 45386), (76, 45401), (81, 45446), (87, 45506), (89, 45524),

Gene: DeepSoil15\_64 Start: 43959, Stop: 44513, Start Num: 10

Candidate Starts for DeepSoil15\_64:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: DeluluLabubu\_81 Start: 58901, Stop: 59389, Start Num: 13

Candidate Starts for DeluluLabubu\_81:

(Start: 13 @58901 has 16 MA's), (24, 59006), (40, 59081), (46, 59117), (49, 59126), (51, 59141), (62, 59213), (67, 59237), (69, 59246), (73, 59270), (80, 59312), (84, 59375), (86, 59384),

Gene: Dewey\_61 Start: 43959, Stop: 44513, Start Num: 10

Candidate Starts for Dewey\_61:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Ein37\_64 Start: 43959, Stop: 44513, Start Num: 10

Candidate Starts for Ein37\_64:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Emma1919\_83 Start: 59575, Stop: 60063, Start Num: 13

Candidate Starts for Emma1919\_83:

(Start: 13 @59575 has 16 MA's), (29, 59701), (40, 59755), (44, 59770), (46, 59791), (49, 59800), (51, 59815), (62, 59887), (67, 59911), (69, 59920), (73, 59944), (80, 59986), (84, 60049), (86, 60058),

Gene: Evanesce\_63 Start: 43959, Stop: 44513, Start Num: 10

Candidate Starts for Evanesce\_63:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Faust\_81 Start: 60777, Stop: 61277, Start Num: 9

Candidate Starts for Faust\_81:

(Start: 9 @60777 has 2 MA's), (18, 60825), (29, 60912), (47, 61005), (51, 61026), (63, 61101), (67, 61122), (69, 61131), (71, 61146), (73, 61155), (83, 61239), (84, 61260),

Gene: Forge\_61 Start: 43962, Stop: 44513, Start Num: 12

Candidate Starts for Forge\_61:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Forrest\_84 Start: 60868, Stop: 61356, Start Num: 13

Candidate Starts for Forrest\_84:

(Start: 13 @60868 has 16 MA's), (24, 60973), (40, 61048), (44, 61063), (46, 61084), (49, 61093), (51, 61108), (62, 61180), (67, 61204), (69, 61213), (73, 61237), (80, 61279), (84, 61342), (86, 61351),

Gene: Francob\_80 Start: 59594, Stop: 60082, Start Num: 13

Candidate Starts for Francob\_80:

(Start: 13 @59594 has 16 MA's), (20, 59654), (40, 59774), (51, 59834), (62, 59906), (67, 59930), (69, 59939), (70, 59945), (73, 59963), (80, 60005), (83, 60047), (84, 60068), (86, 60077),

Gene: Gancho\_63 Start: 43686, Stop: 44240, Start Num: 10

Candidate Starts for Gancho\_63:

(Start: 10 @43686 has 17 MA's), (Start: 12 @43689 has 16 MA's), (15, 43704), (17, 43725), (23, 43788), (25, 43800), (28, 43812), (35, 43845), (48, 43914), (49, 43917), (55, 43956), (59, 43983), (60, 44001), (73, 44064), (74, 44067), (76, 44082), (81, 44127), (87, 44187), (88, 44199), (89, 44205),

Gene: Giles\_61 Start: 43959, Stop: 44513, Start Num: 10

Candidate Starts for Giles\_61:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Gilson\_82 Start: 59537, Stop: 60025, Start Num: 13

Candidate Starts for Gilson\_82:

(Start: 13 @59537 has 16 MA's), (24, 59642), (40, 59717), (44, 59732), (46, 59753), (49, 59762), (51, 59777), (62, 59849), (67, 59873), (69, 59882), (73, 59906), (80, 59948), (84, 60011), (86, 60020),

Gene: Gravaillia\_62 Start: 43967, Stop: 44521, Start Num: 10

Candidate Starts for Gravaillia\_62:

(Start: 10 @43967 has 17 MA's), (Start: 12 @43970 has 16 MA's), (15, 43985), (17, 44006), (23, 44069), (25, 44081), (28, 44093), (35, 44126), (48, 44195), (49, 44198), (55, 44237), (59, 44264), (60, 44282), (73, 44345), (74, 44348), (76, 44363), (81, 44408), (87, 44468), (88, 44480), (89, 44486),

Gene: HH92\_63 Start: 43959, Stop: 44513, Start Num: 10

Candidate Starts for HH92\_63:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Hadrien\_63 Start: 43959, Stop: 44513, Start Num: 10

Candidate Starts for Hadrien\_63:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Hail\_61 Start: 43962, Stop: 44513, Start Num: 12

Candidate Starts for Hail\_61:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Jada\_82 Start: 60050, Stop: 60538, Start Num: 13

Candidate Starts for Jada\_82:

(Start: 13 @60050 has 16 MA's), (24, 60155), (40, 60230), (44, 60245), (46, 60266), (49, 60275), (51, 60290), (62, 60362), (67, 60386), (69, 60395), (73, 60419), (80, 60461), (84, 60524), (86, 60533),

Gene: Karp\_79 Start: 60446, Stop: 60934, Start Num: 12

Candidate Starts for Karp\_79:

(Start: 12 @60446 has 16 MA's), (20, 60506), (39, 60617), (40, 60626), (45, 60650), (47, 60665), (51, 60686), (62, 60758), (67, 60782), (69, 60791), (73, 60815), (80, 60857), (84, 60920), (86, 60929),

Gene: Kenrey\_83 Start: 59731, Stop: 60219, Start Num: 13

Candidate Starts for Kenrey\_83:

(Start: 13 @59731 has 16 MA's), (29, 59857), (40, 59911), (46, 59947), (49, 59956), (51, 59971), (62, 60043), (67, 60067), (69, 60076), (70, 60082), (73, 60100), (75, 60109), (80, 60142), (83, 60184), (84, 60205), (86, 60214),

Gene: Kinbote\_63 Start: 43959, Stop: 44513, Start Num: 10

Candidate Starts for Kinbote\_63:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: LilHazelnut\_64 Start: 43959, Stop: 44513, Start Num: 10

Candidate Starts for LilHazelnut\_64:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Limpid\_78 Start: 59407, Stop: 59898, Start Num: 13

Candidate Starts for Limpid\_78:

(7, 59383), (Start: 13 @59407 has 16 MA's), (20, 59467), (51, 59647), (56, 59674), (67, 59743), (73, 59776), (83, 59860), (84, 59881),

Gene: Luke\_63 Start: 43917, Stop: 44468, Start Num: 12

Candidate Starts for Luke\_63:

(Start: 10 @43914 has 17 MA's), (Start: 12 @43917 has 16 MA's), (15, 43932), (23, 44016), (25, 44028), (28, 44040), (35, 44073), (48, 44142), (49, 44145), (55, 44184), (59, 44211), (60, 44229), (65,

44247), (73, 44292), (74, 44295), (76, 44310), (81, 44355), (87, 44415), (89, 44433),

Gene: Luna22\_61 Start: 43946, Stop: 44497, Start Num: 12

Candidate Starts for Luna22\_61:

(Start: 10 @43943 has 17 MA's), (Start: 12 @43946 has 16 MA's), (15, 43961), (23, 44045), (25, 44057), (28, 44069), (35, 44102), (48, 44171), (49, 44174), (55, 44213), (59, 44240), (60, 44258), (65, 44276), (73, 44321), (74, 44324), (76, 44339), (81, 44384), (87, 44444), (89, 44462),

Gene: Maupel\_81 Start: 59537, Stop: 60025, Start Num: 13

Candidate Starts for Maupel\_81:

(Start: 13 @59537 has 16 MA's), (24, 59642), (40, 59717), (44, 59732), (46, 59753), (49, 59762), (51, 59777), (62, 59849), (67, 59873), (69, 59882), (73, 59906), (80, 59948), (84, 60011), (86, 60020),

Gene: MeganTheeKilla\_80 Start: 58898, Stop: 59386, Start Num: 13

Candidate Starts for MeganTheeKilla\_80:

(Start: 13 @58898 has 16 MA's), (24, 59003), (40, 59078), (44, 59093), (46, 59114), (49, 59123), (51, 59138), (62, 59210), (67, 59234), (69, 59243), (73, 59267), (80, 59309), (84, 59372), (86, 59381),

Gene: Moab\_81 Start: 60787, Stop: 61275, Start Num: 13

Candidate Starts for Moab\_81:

(Start: 13 @60787 has 16 MA's), (20, 60847), (26, 60904), (40, 60967), (51, 61027), (52, 61030), (62, 61099), (67, 61123), (69, 61132), (73, 61156), (80, 61198), (84, 61261), (86, 61270),

Gene: Muntaha\_74 Start: 59541, Stop: 60032, Start Num: 12

Candidate Starts for Muntaha\_74:

(Start: 12 @59541 has 16 MA's), (16, 59562), (20, 59604), (26, 59661), (29, 59670), (49, 59769), (51, 59784), (67, 59880), (71, 59904), (73, 59913), (77, 59931), (79, 59943), (86, 60027),

Gene: NovoPizza\_67 Start: 45546, Stop: 46103, Start Num: 12

Candidate Starts for NovoPizza\_67:

(2, 45390), (Start: 12 @45546 has 16 MA's), (17, 45582), (Start: 19 @45606 has 1 MA's), (21, 45615), (28, 45669), (30, 45687), (31, 45690), (35, 45702), (38, 45717), (41, 45732), (48, 45771), (55, 45813), (59, 45840), (72, 45918), (73, 45921), (87, 46044), (89, 46062),

Gene: OBUpride\_64 Start: 43955, Stop: 44509, Start Num: 10

Candidate Starts for OBUpride\_64:

(Start: 10 @43955 has 17 MA's), (Start: 12 @43958 has 16 MA's), (15, 43973), (17, 43994), (23, 44057), (25, 44069), (28, 44081), (35, 44114), (48, 44183), (49, 44186), (55, 44225), (59, 44252), (60, 44270), (73, 44333), (74, 44336), (76, 44351), (81, 44396), (87, 44456), (88, 44468), (89, 44474),

Gene: Patelgo\_81 Start: 60950, Stop: 61438, Start Num: 13

Candidate Starts for Patelgo\_81:

(Start: 13 @60950 has 16 MA's), (20, 61010), (26, 61067), (40, 61130), (51, 61190), (52, 61193), (62, 61262), (67, 61286), (69, 61295), (73, 61319), (80, 61361), (84, 61424), (86, 61433),

Gene: Phredrick\_81 Start: 58811, Stop: 59299, Start Num: 13

Candidate Starts for Phredrick\_81:

(Start: 13 @58811 has 16 MA's), (29, 58937), (40, 58991), (46, 59027), (49, 59036), (51, 59051), (62, 59123), (67, 59147), (69, 59156), (70, 59162), (73, 59180), (75, 59189), (80, 59222), (83, 59264), (84, 59285), (86, 59294),

Gene: Rem711\_52 Start: 36120, Stop: 36674, Start Num: 14

Candidate Starts for Rem711\_52:

(5, 36066), (8, 36102), (Start: 9 @36108 has 2 MA's), (Start: 14 @36120 has 1 MA's), (33, 36267), (54, 36393), (59, 36423), (66, 36462), (85, 36615), (87, 36624),

Gene: SeresaTree\_81 Start: 60167, Stop: 60667, Start Num: 9

Candidate Starts for SeresaTree\_81:

(Start: 9 @60167 has 2 MA's), (18, 60215), (29, 60302), (47, 60395), (51, 60416), (63, 60491), (67, 60512), (69, 60521), (71, 60536), (73, 60545), (83, 60629), (84, 60650),

Gene: Sham\_75 Start: 59928, Stop: 60419, Start Num: 13

Candidate Starts for Sham\_75:

(11, 59925), (Start: 13 @59928 has 16 MA's), (18, 59967), (51, 60168), (67, 60264), (69, 60273), (71, 60288), (73, 60297), (77, 60315), (78, 60318), (83, 60381), (84, 60402),

Gene: SparkleGoddess\_81 Start: 60854, Stop: 61342, Start Num: 12

Candidate Starts for SparkleGoddess\_81:

(Start: 12 @60854 has 16 MA's), (20, 60914), (40, 61034), (45, 61058), (47, 61073), (49, 61079), (51, 61094), (62, 61166), (67, 61190), (69, 61199), (73, 61223), (80, 61265), (84, 61328), (86, 61337),

Gene: Stigma\_80 Start: 60862, Stop: 61350, Start Num: 12

Candidate Starts for Stigma\_80:

(Start: 12 @60862 has 16 MA's), (20, 60922), (26, 60979), (29, 60988), (32, 61009), (40, 61042), (42, 61048), (49, 61087), (51, 61102), (57, 61138), (62, 61174), (67, 61198), (69, 61207), (73, 61231), (80, 61273), (84, 61336), (86, 61345),

Gene: ThursdayNight\_28 Start: 22431, Stop: 22979, Start Num: 14

Candidate Starts for ThursdayNight\_28:

(Start: 14 @22431 has 1 MA's), (37, 22593), (67, 22773), (89, 22944), (91, 22965),

Gene: TunaTartare\_80 Start: 61330, Stop: 61827, Start Num: 9

Candidate Starts for TunaTartare\_80:

(Start: 9 @61330 has 2 MA's), (18, 61375), (51, 61576), (67, 61672), (69, 61681), (71, 61696), (73, 61705), (77, 61723), (83, 61789), (84, 61810),

Gene: Ubuntu\_64 Start: 43962, Stop: 44513, Start Num: 12

Candidate Starts for Ubuntu\_64:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Wakanda\_73 Start: 59478, Stop: 59969, Start Num: 12

Candidate Starts for Wakanda\_73:

(Start: 12 @59478 has 16 MA's), (16, 59499), (20, 59541), (26, 59598), (29, 59607), (49, 59706), (51, 59721), (67, 59817), (71, 59841), (73, 59850), (77, 59868), (79, 59880), (86, 59964),

Gene: Webster2\_64 Start: 43959, Stop: 44513, Start Num: 10

Candidate Starts for Webster2\_64:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),

Gene: Westy\_82 Start: 60854, Stop: 61342, Start Num: 12

Candidate Starts for Westy\_82:

(Start: 12 @60854 has 16 MA's), (20, 60914), (40, 61034), (45, 61058), (47, 61073), (49, 61079), (51, 61094), (62, 61166), (67, 61190), (69, 61199), (73, 61223), (80, 61265), (84, 61328), (86, 61337),

Gene: Wishmaker\_61 Start: 43962, Stop: 44513, Start Num: 12

Candidate Starts for Wishmaker\_61:

(Start: 10 @43959 has 17 MA's), (Start: 12 @43962 has 16 MA's), (15, 43977), (23, 44061), (25, 44073), (28, 44085), (35, 44118), (48, 44187), (49, 44190), (55, 44229), (59, 44256), (60, 44274), (65, 44292), (73, 44337), (74, 44340), (76, 44355), (81, 44400), (87, 44460), (89, 44478),