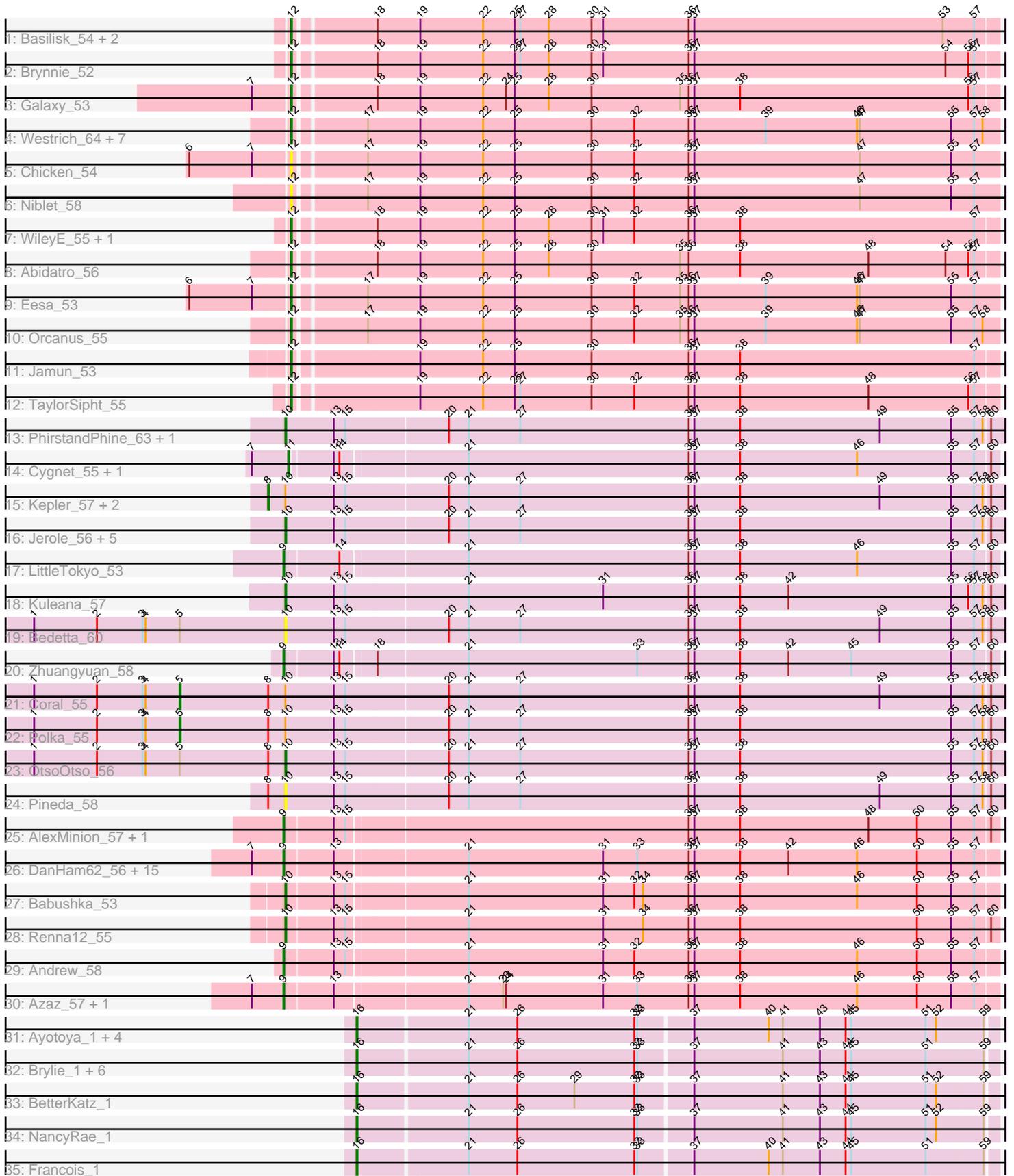


Pham 289328



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 289328 Report

This analysis was run 03/28/26 on database version 641.

Pham number 289328 has 81 members, 22 are drafts.

Phages represented in each track:

- Track 1 : Basilisk_54, Vulpecula_53, Ruchi_53
- Track 2 : Brynnie_52
- Track 3 : Galaxy_53
- Track 4 : Westrich_64, Gravel_65, Zixiang_57, Toad24_56, Amanises_63, Pelletreau_65, Shen_53, KendraB23_64
- Track 5 : Chicken_54
- Track 6 : Niblet_58
- Track 7 : WileyE_55, Chickaboom_55
- Track 8 : Abidatro_56
- Track 9 : Eesa_53
- Track 10 : Orcanus_55
- Track 11 : Jamun_53
- Track 12 : TaylorSipht_55
- Track 13 : PhirstandPhine_63, Lunar_57
- Track 14 : Cygnet_55, Antrice_56
- Track 15 : Kepler_57, Melons_57, Daob_57
- Track 16 : Jerole_56, Amelia_55, Cote_58, HannahPhantana_57, Bible12_59, Colusalem_56
- Track 17 : LittleTokyo_53
- Track 18 : Kuleana_57
- Track 19 : Bedetta_60
- Track 20 : Zhuangyuan_58
- Track 21 : Coral_55
- Track 22 : Polka_55
- Track 23 : OtsoOtso_56
- Track 24 : Pineda_58
- Track 25 : AlexMinion_57, StuartMinion_47
- Track 26 : DanHam62_56, Fingolfin_56, Amphitrite_56, Juno112_55, AdoptaAdorb5_55, AmiCi24_55, KHumphrey_56, Atlantica_56, RedFox_56, HamCheese_56, Laphuphu24k_55, Glotell_57, Camara_56, Rattail_56, PhluffyCoco_56, Oppalora_55
- Track 27 : Babushka_53
- Track 28 : Renna12_55
- Track 29 : Andrew_58
- Track 30 : Azaz_57, Leona_55
- Track 31 : Ayotoya_1, GrandSlam_1, Bock_1, Chop_1, Hamood_1

- Track 32 : Brylie_1, Parada_1, Nadeem_1, Pimento_1, Mulch_1, DelRio_1, WheatThin_1
- Track 33 : BetterKatz_1
- Track 34 : NancyRae_1
- Track 35 : Francois_1

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

The start number called the most often in the published annotations is 16, it was called in 15 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ayotoya_1, BetterKatz_1, Bock_1, Brylie_1, Chop_1, DelRio_1, Francois_1, GrandSlam_1, Hamood_1, Mulch_1, Nadeem_1, NancyRae_1, Parada_1, Pimento_1, WheatThin_1,

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

-

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

- Abidatro_56, AdoptaAdorbs_55, AlexMinion_57, Amanises_63, Amelia_55, AmiCi24_55, Amphitrite_56, Andrew_58, Antrice_56, Atlantica_56, Azaz_57, Babushka_53, Basilisk_54, Bedetta_60, Bibble12_59, Brynnie_52, Camara_56, Chickaboom_55, Chicken_54, Colusalem_56, Coral_55, Cote_58, Cygnet_55, DanHam62_56, Daob_57, Eesa_53, Fingolfin_56, Galaxy_53, Glotell_57, Gravel_65, HamCheese_56, HannahPhantana_57, Jamun_53, Jerole_56, Juno112_55, KHumphrey_56, KendraB23_64, Kepler_57, Kuleana_57, Laphuphu24k_55, Leona_55, LittleTokyo_53, Lunar_57, Melons_57, Niblet_58, Oppalora_55, Orcanus_55, OtsoOtso_56, Pelletreau_65, PhirstandPhine_63, PhluffyCoco_56, Pineda_58, Polka_55, Rattail_56, RedFox_56, Renna12_55, Ruchi_53, Shen_53, StuartMinion_47, TaylorSipht_55, Toad24_56, Vulpecula_53, Westrich_64, WileyE_55, Zhuangyuan_58, Zixiang_57,

Summary by start number:

Start 5:

- Found in 4 of 81 (4.9%) of genes in pham
- Manual Annotations of this start: 2 of 59
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Coral_55 (AS2), Polka_55 (AS2),

Start 8:

- Found in 7 of 81 (8.6%) of genes in pham
- Manual Annotations of this start: 3 of 59
- Called 42.9% of time when present
- Phage (with cluster) where this start called: Daob_57 (AS2), Kepler_57 (AS2), Melons_57 (AS2),

Start 9:

- Found in 23 of 81 (28.4%) of genes in pham

- Manual Annotations of this start: 14 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AdoptaAdorbs_55 (AS3), AlexMinion_57 (AS3), AmiCi24_55 (AS3), Amphitrite_56 (AS3), Andrew_58 (AS3), Atlantica_56 (AS3), Azaz_57 (AS3), Camara_56 (AS3), DanHam62_56 (AS3), Fingolfin_56 (AS3), Glotell_57 (AS3), HamCheese_56 (AS3), Juno112_55 (AS3), KHumphrey_56 (AS3), Laphuphu24k_55 (AS3), Leona_55 (AS3), LittleTokyo_53 (AS2), Oppalora_55 (AS3), PhluffyCoco_56 (AS3), Rattail_56 (AS3), RedFox_56 (AS3), StuartMinion_47 (AS3), Zhuangyuan_58 (AS2),

Start 10:

- Found in 19 of 81 (23.5%) of genes in pham
- Manual Annotations of this start: 10 of 59
- Called 73.7% of time when present
- Phage (with cluster) where this start called: Amelia_55 (AS2), Babushka_53 (AS3), Bedetta_60 (AS2), Bibble12_59 (AS2), Colusalem_56 (AS2), Cote_58 (AS2), HannahPhantana_57 (AS2), Jerole_56 (AS2), Kuleana_57 (AS2), Lunar_57 (AS2), OtsoOtso_56 (AS2), PhirstandPhine_63 (AS2), Pineda_58 (AS2), Renna12_55 (AS3),

Start 11:

- Found in 2 of 81 (2.5%) of genes in pham
- Manual Annotations of this start: 2 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Antrice_56 (AS2), Cygnet_55 (AS2),

Start 12:

- Found in 22 of 81 (27.2%) of genes in pham
- Manual Annotations of this start: 13 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abidatro_56 (AS1), Amanises_63 (AS1), Basilisk_54 (AS1), Brynnie_52 (AS1), Chickaboom_55 (AS1), Chicken_54 (AS1), Eesa_53 (AS1), Galaxy_53 (AS1), Gravel_65 (AS1), Jamun_53 (AS1), KendraB23_64 (AS1), Niblet_58 (AS1), Orcanus_55 (AS1), Pelletreau_65 (AS1), Ruchi_53 (AS1), Shen_53 (AS1), TaylorSipt_55 (AS1), Toad24_56 (AS1), Vulpecula_53 (AS1), Westrich_64 (AS1), WileyE_55 (AS1), Zixiang_57 (AS1),

Start 16:

- Found in 15 of 81 (18.5%) of genes in pham
- Manual Annotations of this start: 15 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ayotoya_1 (DI), BetterKatz_1 (DI), Bock_1 (DI), Brylie_1 (DI), Chop_1 (DI), DelRio_1 (DI), Francois_1 (DI), GrandSlam_1 (DI), Hamood_1 (DI), Mulch_1 (DI), Nadeem_1 (DI), NancyRae_1 (DI), Parada_1 (DI), Pimento_1 (DI), WheatThin_1 (DI),

Summary by clusters:

There are 4 clusters represented in this pham: AS3, AS2, AS1, DI,

Info for manual annotations of cluster AS1:

- Start number 12 was manually annotated 13 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 5 was manually annotated 2 times for cluster AS2.
- Start number 8 was manually annotated 3 times for cluster AS2.
- Start number 9 was manually annotated 2 times for cluster AS2.
- Start number 10 was manually annotated 8 times for cluster AS2.
- Start number 11 was manually annotated 2 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 9 was manually annotated 12 times for cluster AS3.
- Start number 10 was manually annotated 2 times for cluster AS3.

Info for manual annotations of cluster DI:

- Start number 16 was manually annotated 15 times for cluster DI.

Gene Information:

Gene: Abidatro_56 Start: 35238, Stop: 35966, Start Num: 12

Candidate Starts for Abidatro_56:

(Start: 12 @35238 has 13 MA's), (18, 35316), (19, 35361), (22, 35427), (25, 35460), (28, 35496), (30, 35541), (35, 35634), (36, 35643), (38, 35697), (48, 35832), (54, 35913), (56, 35937), (57, 35943),

Gene: AdoptaAdorbs_55 Start: 34059, Stop: 34793, Start Num: 9

Candidate Starts for AdoptaAdorbs_55:

(7, 34026), (Start: 9 @34059 has 14 MA's), (13, 34107), (21, 34239), (31, 34380), (33, 34416), (36, 34470), (37, 34476), (38, 34524), (42, 34575), (46, 34647), (50, 34710), (55, 34746), (57, 34770),

Gene: AlexMinion_57 Start: 34089, Stop: 34823, Start Num: 9

Candidate Starts for AlexMinion_57:

(Start: 9 @34089 has 14 MA's), (13, 34137), (15, 34149), (36, 34500), (37, 34506), (38, 34554), (48, 34689), (50, 34740), (55, 34776), (57, 34800), (60, 34815),

Gene: Amanises_63 Start: 35571, Stop: 36302, Start Num: 12

Candidate Starts for Amanises_63:

(Start: 12 @35571 has 13 MA's), (17, 35640), (19, 35694), (22, 35760), (25, 35793), (30, 35874), (32, 35919), (36, 35976), (37, 35982), (39, 36057), (46, 36153), (47, 36156), (55, 36252), (57, 36276), (58, 36285),

Gene: Amelia_55 Start: 33239, Stop: 33988, Start Num: 10

Candidate Starts for Amelia_55:

(Start: 10 @33239 has 10 MA's), (13, 33290), (15, 33302), (20, 33407), (21, 33428), (27, 33482), (36, 33659), (37, 33665), (38, 33713), (55, 33935), (57, 33959), (58, 33968), (60, 33974),

Gene: AmiCi24_55 Start: 34168, Stop: 34902, Start Num: 9

Candidate Starts for AmiCi24_55:

(7, 34135), (Start: 9 @34168 has 14 MA's), (13, 34216), (21, 34348), (31, 34489), (33, 34525), (36, 34579), (37, 34585), (38, 34633), (42, 34684), (46, 34756), (50, 34819), (55, 34855), (57, 34879),

Gene: Amphitrite_56 Start: 34058, Stop: 34792, Start Num: 9

Candidate Starts for Amphitrite_56:

(7, 34025), (Start: 9 @34058 has 14 MA's), (13, 34106), (21, 34238), (31, 34379), (33, 34415), (36, 34469), (37, 34475), (38, 34523), (42, 34574), (46, 34646), (50, 34709), (55, 34745), (57, 34769),

Gene: Andrew_58 Start: 34468, Stop: 35202, Start Num: 9

Candidate Starts for Andrew_58:

(Start: 9 @34468 has 14 MA's), (13, 34516), (15, 34528), (21, 34648), (31, 34789), (32, 34822), (36, 34879), (37, 34885), (38, 34933), (46, 35056), (50, 35119), (55, 35155), (57, 35179),

Gene: Antrice_56 Start: 34053, Stop: 34781, Start Num: 11

Candidate Starts for Antrice_56:

(7, 34017), (Start: 11 @34053 has 2 MA's), (13, 34095), (14, 34101), (21, 34227), (36, 34458), (37, 34464), (38, 34512), (46, 34635), (55, 34734), (57, 34758), (60, 34773),

Gene: Atlantica_56 Start: 34170, Stop: 34904, Start Num: 9

Candidate Starts for Atlantica_56:

(7, 34137), (Start: 9 @34170 has 14 MA's), (13, 34218), (21, 34350), (31, 34491), (33, 34527), (36, 34581), (37, 34587), (38, 34635), (42, 34686), (46, 34758), (50, 34821), (55, 34857), (57, 34881),

Gene: Ayotoya_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for Ayotoya_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (40, 559), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (52, 733), (59, 781),

Gene: Azaz_57 Start: 34254, Stop: 34988, Start Num: 9

Candidate Starts for Azaz_57:

(7, 34221), (Start: 9 @34254 has 14 MA's), (13, 34302), (21, 34434), (23, 34470), (24, 34473), (31, 34575), (33, 34611), (36, 34665), (37, 34671), (38, 34719), (46, 34842), (50, 34905), (55, 34941), (57, 34965),

Gene: Babushka_53 Start: 33984, Stop: 34718, Start Num: 10

Candidate Starts for Babushka_53:

(Start: 10 @33984 has 10 MA's), (13, 34032), (15, 34044), (21, 34164), (31, 34305), (32, 34338), (34, 34347), (36, 34395), (37, 34401), (38, 34449), (46, 34572), (50, 34635), (55, 34671), (57, 34695),

Gene: Basilisk_54 Start: 34461, Stop: 35189, Start Num: 12

Candidate Starts for Basilisk_54:

(Start: 12 @34461 has 13 MA's), (18, 34539), (19, 34584), (22, 34650), (25, 34683), (27, 34689), (28, 34719), (30, 34764), (31, 34776), (36, 34866), (37, 34872), (53, 35133), (57, 35166),

Gene: Bedetta_60 Start: 33399, Stop: 34148, Start Num: 10

Candidate Starts for Bedetta_60:

(1, 33135), (2, 33201), (3, 33249), (4, 33252), (Start: 5 @33288 has 2 MA's), (Start: 10 @33399 has 10 MA's), (13, 33450), (15, 33462), (20, 33567), (21, 33588), (27, 33642), (36, 33819), (37, 33825), (38, 33873), (49, 34020), (55, 34095), (57, 34119), (58, 34128), (60, 34134),

Gene: BetterKatz_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for BetterKatz_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (29, 361), (32, 424), (33, 427), (37, 481), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (52, 733), (59, 781),

Gene: Bible12_59 Start: 33234, Stop: 33983, Start Num: 10

Candidate Starts for Bible12_59:

(Start: 10 @33234 has 10 MA's), (13, 33285), (15, 33297), (20, 33402), (21, 33423), (27, 33477), (36, 33654), (37, 33660), (38, 33708), (55, 33930), (57, 33954), (58, 33963), (60, 33969),

Gene: Bock_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for Bock_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (40, 559), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (52, 733), (59, 781),

Gene: Brylie_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for Brylie_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (59, 781),

Gene: Brynnie_52 Start: 34086, Stop: 34814, Start Num: 12

Candidate Starts for Brynnie_52:

(Start: 12 @34086 has 13 MA's), (18, 34164), (19, 34209), (22, 34275), (25, 34308), (27, 34314), (28, 34344), (30, 34389), (31, 34401), (36, 34491), (37, 34497), (54, 34761), (56, 34785), (57, 34791),

Gene: Camara_56 Start: 34061, Stop: 34795, Start Num: 9

Candidate Starts for Camara_56:

(7, 34028), (Start: 9 @34061 has 14 MA's), (13, 34109), (21, 34241), (31, 34382), (33, 34418), (36, 34472), (37, 34478), (38, 34526), (42, 34577), (46, 34649), (50, 34712), (55, 34748), (57, 34772),

Gene: Chickaboom_55 Start: 34797, Stop: 35525, Start Num: 12

Candidate Starts for Chickaboom_55:

(Start: 12 @34797 has 13 MA's), (18, 34875), (19, 34920), (22, 34986), (25, 35019), (28, 35055), (30, 35100), (31, 35112), (32, 35145), (36, 35202), (37, 35208), (38, 35256), (57, 35502),

Gene: Chicken_54 Start: 34897, Stop: 35628, Start Num: 12

Candidate Starts for Chicken_54:

(6, 34795), (7, 34861), (Start: 12 @34897 has 13 MA's), (17, 34966), (19, 35020), (22, 35086), (25, 35119), (30, 35200), (32, 35245), (36, 35302), (37, 35308), (47, 35482), (55, 35578), (57, 35602),

Gene: Chop_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for Chop_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (40, 559), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (52, 733), (59, 781),

Gene: Colusalem_56 Start: 33216, Stop: 33965, Start Num: 10

Candidate Starts for Colusalem_56:

(Start: 10 @33216 has 10 MA's), (13, 33267), (15, 33279), (20, 33384), (21, 33405), (27, 33459), (36, 33636), (37, 33642), (38, 33690), (55, 33912), (57, 33936), (58, 33945), (60, 33951),

Gene: Coral_55 Start: 33033, Stop: 33893, Start Num: 5

Candidate Starts for Coral_55:

(1, 32880), (2, 32946), (3, 32994), (4, 32997), (Start: 5 @33033 has 2 MA's), (Start: 8 @33126 has 3 MA's), (Start: 10 @33144 has 10 MA's), (13, 33195), (15, 33207), (20, 33312), (21, 33333), (27, 33387), (36, 33564), (37, 33570), (38, 33618), (49, 33765), (55, 33840), (57, 33864), (58, 33873), (60, 33879),

Gene: Cote_58 Start: 33577, Stop: 34326, Start Num: 10

Candidate Starts for Cote_58:

(Start: 10 @33577 has 10 MA's), (13, 33628), (15, 33640), (20, 33745), (21, 33766), (27, 33820), (36, 33997), (37, 34003), (38, 34051), (55, 34273), (57, 34297), (58, 34306), (60, 34312),

Gene: Cygnet_55 Start: 34657, Stop: 35385, Start Num: 11

Candidate Starts for Cygnet_55:

(7, 34621), (Start: 11 @34657 has 2 MA's), (13, 34699), (14, 34705), (21, 34831), (36, 35062), (37, 35068), (38, 35116), (46, 35239), (55, 35338), (57, 35362), (60, 35377),

Gene: DanHam62_56 Start: 34169, Stop: 34903, Start Num: 9

Candidate Starts for DanHam62_56:

(7, 34136), (Start: 9 @34169 has 14 MA's), (13, 34217), (21, 34349), (31, 34490), (33, 34526), (36, 34580), (37, 34586), (38, 34634), (42, 34685), (46, 34757), (50, 34820), (55, 34856), (57, 34880),

Gene: Daob_57 Start: 33570, Stop: 34337, Start Num: 8

Candidate Starts for Daob_57:

(Start: 8 @33570 has 3 MA's), (Start: 10 @33588 has 10 MA's), (13, 33639), (15, 33651), (20, 33756), (21, 33777), (27, 33831), (36, 34008), (37, 34014), (38, 34062), (49, 34209), (55, 34284), (57, 34308), (58, 34317), (60, 34323),

Gene: DelRio_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for DelRio_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (59, 781),

Gene: Eesa_53 Start: 35312, Stop: 36043, Start Num: 12

Candidate Starts for Eesa_53:

(6, 35210), (7, 35276), (Start: 12 @35312 has 13 MA's), (17, 35381), (19, 35435), (22, 35501), (25, 35534), (30, 35615), (32, 35660), (35, 35708), (36, 35717), (37, 35723), (39, 35798), (46, 35894), (47, 35897), (55, 35993), (57, 36017),

Gene: Fingolfin_56 Start: 34172, Stop: 34906, Start Num: 9

Candidate Starts for Fingolfin_56:

(7, 34139), (Start: 9 @34172 has 14 MA's), (13, 34220), (21, 34352), (31, 34493), (33, 34529), (36, 34583), (37, 34589), (38, 34637), (42, 34688), (46, 34760), (50, 34823), (55, 34859), (57, 34883),

Gene: Francois_1 Start: 138, Stop: 791, Start Num: 16

Candidate Starts for Francois_1:

(Start: 16 @138 has 15 MA's), (21, 249), (26, 300), (32, 423), (33, 426), (37, 480), (40, 558), (41, 573), (43, 612), (44, 639), (45, 645), (51, 723), (59, 780),

Gene: Galaxy_53 Start: 33655, Stop: 34383, Start Num: 12

Candidate Starts for Galaxy_53:

(7, 33619), (Start: 12 @33655 has 13 MA's), (18, 33733), (19, 33778), (22, 33844), (24, 33868), (25, 33877), (28, 33913), (30, 33958), (35, 34051), (36, 34060), (37, 34066), (38, 34114), (56, 34354), (57, 34360),

Gene: Glotell_57 Start: 34216, Stop: 34950, Start Num: 9

Candidate Starts for Glotell_57:

(7, 34183), (Start: 9 @34216 has 14 MA's), (13, 34264), (21, 34396), (31, 34537), (33, 34573), (36, 34627), (37, 34633), (38, 34681), (42, 34732), (46, 34804), (50, 34867), (55, 34903), (57, 34927),

Gene: GrandSlam_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for GrandSlam_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (40, 559), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (52, 733), (59, 781),

Gene: Gravel_65 Start: 35885, Stop: 36616, Start Num: 12

Candidate Starts for Gravel_65:

(Start: 12 @35885 has 13 MA's), (17, 35954), (19, 36008), (22, 36074), (25, 36107), (30, 36188), (32, 36233), (36, 36290), (37, 36296), (39, 36371), (46, 36467), (47, 36470), (55, 36566), (57, 36590), (58, 36599),

Gene: HamCheese_56 Start: 34156, Stop: 34890, Start Num: 9

Candidate Starts for HamCheese_56:

(7, 34123), (Start: 9 @34156 has 14 MA's), (13, 34204), (21, 34336), (31, 34477), (33, 34513), (36, 34567), (37, 34573), (38, 34621), (42, 34672), (46, 34744), (50, 34807), (55, 34843), (57, 34867),

Gene: Hamood_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for Hamood_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (40, 559), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (52, 733), (59, 781),

Gene: HannahPhantana_57 Start: 33234, Stop: 33983, Start Num: 10

Candidate Starts for HannahPhantana_57:

(Start: 10 @33234 has 10 MA's), (13, 33285), (15, 33297), (20, 33402), (21, 33423), (27, 33477), (36, 33654), (37, 33660), (38, 33708), (55, 33930), (57, 33954), (58, 33963), (60, 33969),

Gene: Jamun_53 Start: 34887, Stop: 35615, Start Num: 12

Candidate Starts for Jamun_53:

(Start: 12 @34887 has 13 MA's), (19, 35010), (22, 35076), (25, 35109), (30, 35190), (36, 35292), (37, 35298), (38, 35346), (57, 35592),

Gene: Jerole_56 Start: 33358, Stop: 34107, Start Num: 10

Candidate Starts for Jerole_56:

(Start: 10 @33358 has 10 MA's), (13, 33409), (15, 33421), (20, 33526), (21, 33547), (27, 33601), (36, 33778), (37, 33784), (38, 33832), (55, 34054), (57, 34078), (58, 34087), (60, 34093),

Gene: Juno112_55 Start: 34172, Stop: 34906, Start Num: 9

Candidate Starts for Juno112_55:

(7, 34139), (Start: 9 @34172 has 14 MA's), (13, 34220), (21, 34352), (31, 34493), (33, 34529), (36, 34583), (37, 34589), (38, 34637), (42, 34688), (46, 34760), (50, 34823), (55, 34859), (57, 34883),

Gene: KHumphrey_56 Start: 34060, Stop: 34794, Start Num: 9

Candidate Starts for KHumphrey_56:

(7, 34027), (Start: 9 @34060 has 14 MA's), (13, 34108), (21, 34240), (31, 34381), (33, 34417), (36, 34471), (37, 34477), (38, 34525), (42, 34576), (46, 34648), (50, 34711), (55, 34747), (57, 34771),

Gene: KendraB23_64 Start: 35573, Stop: 36304, Start Num: 12

Candidate Starts for KendraB23_64:

(Start: 12 @35573 has 13 MA's), (17, 35642), (19, 35696), (22, 35762), (25, 35795), (30, 35876), (32, 35921), (36, 35978), (37, 35984), (39, 36059), (46, 36155), (47, 36158), (55, 36254), (57, 36278), (58, 36287),

Gene: Kepler_57 Start: 33337, Stop: 34104, Start Num: 8

Candidate Starts for Kepler_57:

(Start: 8 @33337 has 3 MA's), (Start: 10 @33355 has 10 MA's), (13, 33406), (15, 33418), (20, 33523), (21, 33544), (27, 33598), (36, 33775), (37, 33781), (38, 33829), (49, 33976), (55, 34051), (57, 34075), (58, 34084), (60, 34090),

Gene: Kuleana_57 Start: 33673, Stop: 34422, Start Num: 10

Candidate Starts for Kuleana_57:

(Start: 10 @33673 has 10 MA's), (13, 33724), (15, 33736), (21, 33862), (31, 34003), (36, 34093), (37, 34099), (38, 34147), (42, 34198), (55, 34369), (56, 34387), (57, 34393), (58, 34402), (60, 34408),

Gene: Laphuphu24k_55 Start: 34156, Stop: 34890, Start Num: 9

Candidate Starts for Laphuphu24k_55:

(7, 34123), (Start: 9 @34156 has 14 MA's), (13, 34204), (21, 34336), (31, 34477), (33, 34513), (36, 34567), (37, 34573), (38, 34621), (42, 34672), (46, 34744), (50, 34807), (55, 34843), (57, 34867),

Gene: Leona_55 Start: 34255, Stop: 34989, Start Num: 9

Candidate Starts for Leona_55:

(7, 34222), (Start: 9 @34255 has 14 MA's), (13, 34303), (21, 34435), (23, 34471), (24, 34474), (31, 34576), (33, 34612), (36, 34666), (37, 34672), (38, 34720), (46, 34843), (50, 34906), (55, 34942), (57, 34966),

Gene: LittleTokyo_53 Start: 32621, Stop: 33355, Start Num: 9

Candidate Starts for LittleTokyo_53:

(Start: 9 @32621 has 14 MA's), (14, 32675), (21, 32801), (36, 33032), (37, 33038), (38, 33086), (46, 33209), (55, 33308), (57, 33332), (60, 33347),

Gene: Lunar_57 Start: 33267, Stop: 34016, Start Num: 10

Candidate Starts for Lunar_57:

(Start: 10 @33267 has 10 MA's), (13, 33318), (15, 33330), (20, 33435), (21, 33456), (27, 33510), (36, 33687), (37, 33693), (38, 33741), (49, 33888), (55, 33963), (57, 33987), (58, 33996), (60, 34002),

Gene: Melons_57 Start: 33063, Stop: 33830, Start Num: 8

Candidate Starts for Melons_57:

(Start: 8 @33063 has 3 MA's), (Start: 10 @33081 has 10 MA's), (13, 33132), (15, 33144), (20, 33249), (21, 33270), (27, 33324), (36, 33501), (37, 33507), (38, 33555), (49, 33702), (55, 33777), (57, 33801), (58, 33810), (60, 33816),

Gene: Mulch_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for Mulch_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (59, 781),

Gene: Nadeem_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for Nadeem_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (59, 781),

Gene: NancyRae_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for NancyRae_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (52, 733), (59, 781),

Gene: Niblet_58 Start: 35194, Stop: 35925, Start Num: 12

Candidate Starts for Niblet_58:

(Start: 12 @35194 has 13 MA's), (17, 35263), (19, 35317), (22, 35383), (25, 35416), (30, 35497), (32, 35542), (36, 35599), (37, 35605), (47, 35779), (55, 35875), (57, 35899),

Gene: Oppalora_55 Start: 34170, Stop: 34904, Start Num: 9

Candidate Starts for Oppalora_55:

(7, 34137), (Start: 9 @34170 has 14 MA's), (13, 34218), (21, 34350), (31, 34491), (33, 34527), (36, 34581), (37, 34587), (38, 34635), (42, 34686), (46, 34758), (50, 34821), (55, 34857), (57, 34881),

Gene: Orcanus_55 Start: 35170, Stop: 35901, Start Num: 12

Candidate Starts for Orcanus_55:

(Start: 12 @35170 has 13 MA's), (17, 35239), (19, 35293), (22, 35359), (25, 35392), (30, 35473), (32, 35518), (35, 35566), (36, 35575), (37, 35581), (39, 35656), (46, 35752), (47, 35755), (55, 35851), (57, 35875), (58, 35884),

Gene: OtsoOtso_56 Start: 33089, Stop: 33838, Start Num: 10

Candidate Starts for OtsoOtso_56:

(1, 32825), (2, 32891), (3, 32939), (4, 32942), (Start: 5 @32978 has 2 MA's), (Start: 8 @33071 has 3 MA's), (Start: 10 @33089 has 10 MA's), (13, 33140), (15, 33152), (20, 33257), (21, 33278), (27, 33332), (36, 33509), (37, 33515), (38, 33563), (55, 33785), (57, 33809), (58, 33818), (60, 33824),

Gene: Parada_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for Parada_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (59, 781),

Gene: Pelletreau_65 Start: 35885, Stop: 36616, Start Num: 12

Candidate Starts for Pelletreau_65:

(Start: 12 @35885 has 13 MA's), (17, 35954), (19, 36008), (22, 36074), (25, 36107), (30, 36188), (32, 36233), (36, 36290), (37, 36296), (39, 36371), (46, 36467), (47, 36470), (55, 36566), (57, 36590), (58, 36599),

Gene: PhirstandPhine_63 Start: 33227, Stop: 33976, Start Num: 10

Candidate Starts for PhirstandPhine_63:

(Start: 10 @33227 has 10 MA's), (13, 33278), (15, 33290), (20, 33395), (21, 33416), (27, 33470), (36, 33647), (37, 33653), (38, 33701), (49, 33848), (55, 33923), (57, 33947), (58, 33956), (60, 33962),

Gene: PhluffyCoco_56 Start: 34271, Stop: 35005, Start Num: 9

Candidate Starts for PhluffyCoco_56:

(7, 34238), (Start: 9 @34271 has 14 MA's), (13, 34319), (21, 34451), (31, 34592), (33, 34628), (36, 34682), (37, 34688), (38, 34736), (42, 34787), (46, 34859), (50, 34922), (55, 34958), (57, 34982),

Gene: Pimento_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for Pimento_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (59, 781),

Gene: Pineda_58 Start: 33396, Stop: 34145, Start Num: 10

Candidate Starts for Pineda_58:

(Start: 8 @33378 has 3 MA's), (Start: 10 @33396 has 10 MA's), (13, 33447), (15, 33459), (20, 33564), (21, 33585), (27, 33639), (36, 33816), (37, 33822), (38, 33870), (49, 34017), (55, 34092), (57, 34116), (58, 34125), (60, 34131),

Gene: Polka_55 Start: 32978, Stop: 33838, Start Num: 5

Candidate Starts for Polka_55:

(1, 32825), (2, 32891), (3, 32939), (4, 32942), (Start: 5 @32978 has 2 MA's), (Start: 8 @33071 has 3 MA's), (Start: 10 @33089 has 10 MA's), (13, 33140), (15, 33152), (20, 33257), (21, 33278), (27, 33332), (36, 33509), (37, 33515), (38, 33563), (55, 33785), (57, 33809), (58, 33818), (60, 33824),

Gene: Rattail_56 Start: 34356, Stop: 35090, Start Num: 9

Candidate Starts for Rattail_56:

(7, 34323), (Start: 9 @34356 has 14 MA's), (13, 34404), (21, 34536), (31, 34677), (33, 34713), (36, 34767), (37, 34773), (38, 34821), (42, 34872), (46, 34944), (50, 35007), (55, 35043), (57, 35067),

Gene: RedFox_56 Start: 34269, Stop: 35003, Start Num: 9

Candidate Starts for RedFox_56:

(7, 34236), (Start: 9 @34269 has 14 MA's), (13, 34317), (21, 34449), (31, 34590), (33, 34626), (36, 34680), (37, 34686), (38, 34734), (42, 34785), (46, 34857), (50, 34920), (55, 34956), (57, 34980),

Gene: Renna12_55 Start: 34125, Stop: 34859, Start Num: 10

Candidate Starts for Renna12_55:

(Start: 10 @34125 has 10 MA's), (13, 34173), (15, 34185), (21, 34305), (31, 34446), (34, 34488), (36, 34536), (37, 34542), (38, 34590), (50, 34776), (55, 34812), (57, 34836), (60, 34851),

Gene: Ruchi_53 Start: 34383, Stop: 35111, Start Num: 12

Candidate Starts for Ruchi_53:

(Start: 12 @34383 has 13 MA's), (18, 34461), (19, 34506), (22, 34572), (25, 34605), (27, 34611), (28, 34641), (30, 34686), (31, 34698), (36, 34788), (37, 34794), (53, 35055), (57, 35088),

Gene: Shen_53 Start: 33485, Stop: 34216, Start Num: 12

Candidate Starts for Shen_53:

(Start: 12 @33485 has 13 MA's), (17, 33554), (19, 33608), (22, 33674), (25, 33707), (30, 33788), (32, 33833), (36, 33890), (37, 33896), (39, 33971), (46, 34067), (47, 34070), (55, 34166), (57, 34190), (58, 34199),

Gene: StuartMinion_47 Start: 30988, Stop: 31722, Start Num: 9

Candidate Starts for StuartMinion_47:

(Start: 9 @30988 has 14 MA's), (13, 31036), (15, 31048), (36, 31399), (37, 31405), (38, 31453), (48, 31588), (50, 31639), (55, 31675), (57, 31699), (60, 31714),

Gene: TaylorSipht_55 Start: 34807, Stop: 35535, Start Num: 12

Candidate Starts for TaylorSipht_55:

(Start: 12 @34807 has 13 MA's), (19, 34930), (22, 34996), (25, 35029), (27, 35035), (30, 35110), (32, 35155), (36, 35212), (37, 35218), (38, 35266), (48, 35401), (56, 35506), (57, 35512),

Gene: Toad24_56 Start: 35625, Stop: 36356, Start Num: 12

Candidate Starts for Toad24_56:

(Start: 12 @35625 has 13 MA's), (17, 35694), (19, 35748), (22, 35814), (25, 35847), (30, 35928), (32, 35973), (36, 36030), (37, 36036), (39, 36111), (46, 36207), (47, 36210), (55, 36306), (57, 36330), (58, 36339),

Gene: Vulpecula_53 Start: 34043, Stop: 34771, Start Num: 12

Candidate Starts for Vulpecula_53:

(Start: 12 @34043 has 13 MA's), (18, 34121), (19, 34166), (22, 34232), (25, 34265), (27, 34271), (28, 34301), (30, 34346), (31, 34358), (36, 34448), (37, 34454), (53, 34715), (57, 34748),

Gene: Westrich_64 Start: 35809, Stop: 36540, Start Num: 12

Candidate Starts for Westrich_64:

(Start: 12 @35809 has 13 MA's), (17, 35878), (19, 35932), (22, 35998), (25, 36031), (30, 36112), (32, 36157), (36, 36214), (37, 36220), (39, 36295), (46, 36391), (47, 36394), (55, 36490), (57, 36514), (58, 36523),

Gene: WheatThin_1 Start: 139, Stop: 792, Start Num: 16

Candidate Starts for WheatThin_1:

(Start: 16 @139 has 15 MA's), (21, 250), (26, 301), (32, 424), (33, 427), (37, 481), (41, 574), (43, 613), (44, 640), (45, 646), (51, 724), (59, 781),

Gene: WileyE_55 Start: 34797, Stop: 35525, Start Num: 12

Candidate Starts for WileyE_55:

(Start: 12 @34797 has 13 MA's), (18, 34875), (19, 34920), (22, 34986), (25, 35019), (28, 35055), (30, 35100), (31, 35112), (32, 35145), (36, 35202), (37, 35208), (38, 35256), (57, 35502),

Gene: Zhuangyuan_58 Start: 34701, Stop: 35435, Start Num: 9

Candidate Starts for Zhuangyuan_58:

(Start: 9 @34701 has 14 MA's), (13, 34749), (14, 34755), (18, 34788), (21, 34881), (33, 35058), (36, 35112), (37, 35118), (38, 35166), (42, 35217), (45, 35283), (55, 35388), (57, 35412), (60, 35427),

Gene: Zixiang_57 Start: 34989, Stop: 35720, Start Num: 12

Candidate Starts for Zixiang_57:

(Start: 12 @34989 has 13 MA's), (17, 35058), (19, 35112), (22, 35178), (25, 35211), (30, 35292), (32, 35337), (36, 35394), (37, 35400), (39, 35475), (46, 35571), (47, 35574), (55, 35670), (57, 35694), (58, 35703),