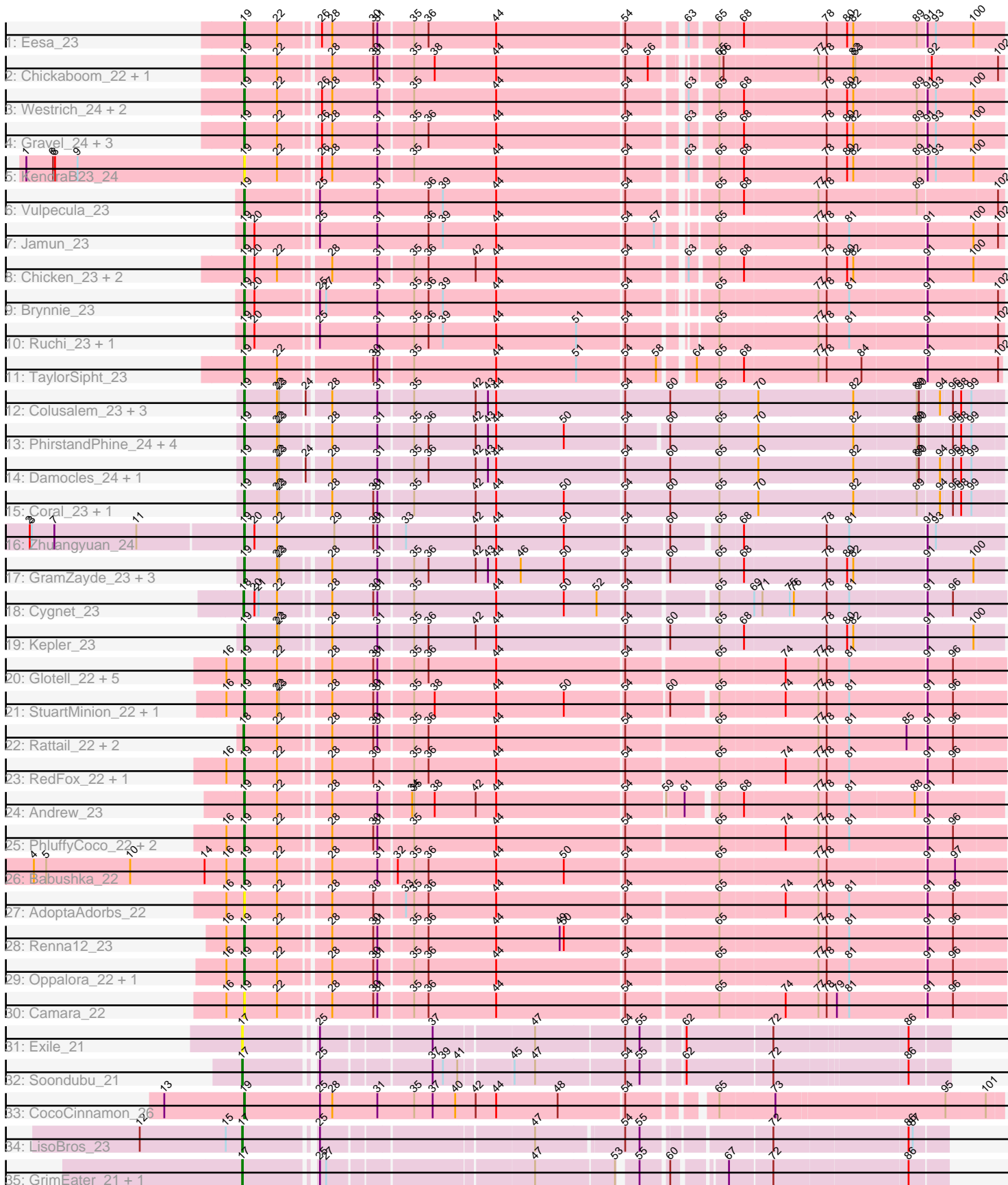


Pham 311563



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 311563 Report

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

Pham number 311563 has 69 members, 16 are drafts.

Phages represented in each track:

- Track 1 : Eesa_23
- Track 2 : Chickaboom_22, WileyE_22
- Track 3 : Westrich_24, Amanises_24, Shen_24
- Track 4 : Gravel_24, Toad24_24, Pelletreau_24, Orcanus_23
- Track 5 : KendraB23_24
- Track 6 : Vulpecula_23
- Track 7 : Jamun_23
- Track 8 : Chicken_23, Niblet_23, Zixiang_23
- Track 9 : Brynnie_23
- Track 10 : Ruchi_23, Basilisk_23
- Track 11 : TaylorSipht_23
- Track 12 : Colusalem_23, Bedetta_24, OtsoOtso_23, Polka_23
- Track 13 : PhirstandPhine_24, Lunar_24, Daob_24, Melons_24, Cote_24
- Track 14 : Damocles_24, Pineda_24
- Track 15 : Coral_23, Amelia_24
- Track 16 : Zhuangyuan_24
- Track 17 : GramZayde_23, Bibble12_24, Jerole_24, HannahPhantana_24
- Track 18 : Cygnet_23
- Track 19 : Kepler_23
- Track 20 : Glotell_22, KHumphrey_22, Amphitrite_22, Fingolfin_22, Juno112_22, Atlantica_22
- Track 21 : StuartMinion_22, AlexMinion_23
- Track 22 : Rattail_22, Azaz_22, Leona_22
- Track 23 : RedFox_22, DanHam62_22
- Track 24 : Andrew_23
- Track 25 : PhluffyCoco_22, Laphuphu24k_21, HamCheese_22
- Track 26 : Babushka_22
- Track 27 : AdoptaAdorbs_22
- Track 28 : Renna12_23
- Track 29 : Oppalora_22, AmiCi24_22
- Track 30 : Camara_22
- Track 31 : Exile_21
- Track 32 : Soondubu_21
- Track 33 : CocoCinnamon_26
- Track 34 : LisoBros_23
- Track 35 : GrimEater_21, Jankie_21

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

The start number called the most often in the published annotations is 19, it was called in 46 of the 53 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AdoptaAdorbs_22, AlexMinion_23, Amanises_24, Amelia_24, AmiCi24_22, Amphitrite_22, Andrew_23, Atlantica_22, Babushka_22, Basilisk_23, Bedetta_24, Bibble12_24, Brynnie_23, Camara_22, Chickaboom_22, Chicken_23, CocoCinnamon_26, Colusalem_23, Coral_23, Cote_24, Damocles_24, DanHam62_22, Daob_24, Eesa_23, Fingolfin_22, Glotell_22, GramZayde_23, Gravel_24, HamCheese_22, HannahPhantana_24, Jamun_23, Jerole_24, Juno112_22, KHumphrey_22, KendraB23_24, Kepler_23, Laphuphu24k_21, Lunar_24, Melons_24, Niblet_23, Oppalora_22, Orcanus_23, OtsoOtso_23, Pelletreau_24, PhirstandPhine_24, PhluffyCoco_22, Pineda_24, Polka_23, RedFox_22, Renna12_23, Ruchi_23, Shen_24, StuartMinion_22, TaylorSipht_23, Toad24_24, Vulpecula_23, Westrich_24, WileyE_22, Zhuangyuan_24, Zixiang_23,

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

-

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

- Azaz_22, Cygnet_23, Exile_21, GrimEater_21, Jankie_21, Leona_22, LisoBros_23, Rattail_22, Soondubu_21,

Summary by start number:

Start 17:

- Found in 5 of 69 (7.2%) of genes in pham
- Manual Annotations of this start: 4 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Exile_21 (AZ6), GrimEater_21 (FP), Jankie_21 (FP), LisoBros_23 (FP), Soondubu_21 (AZ6),

Start 18:

- Found in 4 of 69 (5.8%) of genes in pham
- Manual Annotations of this start: 3 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Azaz_22 (AS3), Cygnet_23 (AS2), Leona_22 (AS3), Rattail_22 (AS3),

Start 19:

- Found in 60 of 69 (87.0%) of genes in pham
- Manual Annotations of this start: 46 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AdoptaAdorbs_22 (AS3), AlexMinion_23 (AS3), Amanises_24 (AS1), Amelia_24 (AS2), AmiCi24_22 (AS3), Amphitrite_22 (AS3), Andrew_23 (AS3), Atlantica_22 (AS3), Babushka_22 (AS3), Basilisk_23 (AS1), Bedetta_24 (AS2), Bibble12_24 (AS2), Brynnie_23 (AS1), Camara_22 (AS3), Chickaboom_22 (AS1), Chicken_23 (AS1), CocoCinnamon_26 (FO), Colusalem_23

(AS2), Coral_23 (AS2), Cote_24 (AS2), Damocles_24 (AS2), DanHam62_22 (AS3), Daob_24 (AS2), Eesa_23 (AS1), Fingolfin_22 (AS3), Glotell_22 (AS3), GramZayde_23 (AS2), Gravel_24 (AS1), HamCheese_22 (AS3), HannahPhantana_24 (AS2), Jamun_23 (AS1), Jerole_24 (AS2), Juno112_22 (AS3), KHumphrey_22 (AS3), KendraB23_24 (AS1), Kepler_23 (AS2), Laphuphu24k_21 (AS3), Lunar_24 (AS2), Melons_24 (AS2), Niblet_23 (AS1), Oppalora_22 (AS3), Orcanus_23 (AS1), OtsoOtso_23 (AS2), Pelletreau_24 (AS1), PhirstandPhine_24 (AS2), PhluffyCoco_22 (AS3), Pineda_24 (AS2), Polka_23 (AS2), RedFox_22 (AS3), Renna12_23 (AS3), Ruchi_23 (AS1), Shen_24 (AS1), StuartMinion_22 (AS3), TaylorSipht_23 (AS1), Toad24_24 (AS1), Vulpecula_23 (AS1), Westrich_24 (AS1), WileyE_22 (AS1), Zhuangyuan_24 (AS2), Zixiang_23 (AS1),

Summary by clusters:

There are 6 clusters represented in this pham: AS3, AS2, AS1, FP, AZ6, FO,

Info for manual annotations of cluster AS1:

- Start number 19 was manually annotated 15 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 18 was manually annotated 1 time for cluster AS2.
- Start number 19 was manually annotated 14 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 18 was manually annotated 2 times for cluster AS3.
- Start number 19 was manually annotated 16 times for cluster AS3.

Info for manual annotations of cluster AZ6:

- Start number 17 was manually annotated 1 time for cluster AZ6.

Info for manual annotations of cluster FO:

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

Info for manual annotations of cluster FP:

- Start number 17 was manually annotated 3 times for cluster FP.

Gene Information:

Gene: AdoptaAdorbs_22 Start: 16561, Stop: 17622, Start Num: 19

Candidate Starts for AdoptaAdorbs_22:

(16, 16537), (Start: 19 @16561 has 46 MA's), (22, 16609), (28, 16675), (30, 16735), (33, 16777), (35, 16789), (36, 16810), (44, 16909), (54, 17092), (65, 17218), (74, 17308), (77, 17356), (78, 17368), (81, 17401), (91, 17512), (96, 17548),

Gene: AlexMinion_23 Start: 16606, Stop: 17655, Start Num: 19

Candidate Starts for AlexMinion_23:

(16, 16582), (Start: 19 @16606 has 46 MA's), (22, 16654), (23, 16657), (28, 16720), (30, 16777), (31, 16783), (35, 16831), (38, 16861), (44, 16951), (50, 17050), (54, 17134), (60, 17194), (65, 17251), (74, 17341), (77, 17389), (78, 17401), (81, 17434), (91, 17545), (96, 17581),

Gene: Amanises_24 Start: 18144, Stop: 19181, Start Num: 19

Candidate Starts for Amanises_24:

(Start: 19 @18144 has 46 MA's), (22, 18192), (26, 18243), (28, 18258), (31, 18324), (35, 18372), (44, 18492), (54, 18675), (63, 18747), (65, 18783), (68, 18816), (78, 18933), (80, 18963), (82, 18972), (89, 19062), (91, 19074), (93, 19086), (100, 19140),

Gene: Amelia_24 Start: 16976, Stop: 18043, Start Num: 19

Candidate Starts for Amelia_24:

(Start: 19 @16976 has 46 MA's), (22, 17024), (23, 17027), (28, 17090), (30, 17150), (31, 17156), (35, 17204), (42, 17294), (44, 17324), (50, 17423), (54, 17507), (60, 17573), (65, 17642), (70, 17699), (82, 17837), (89, 17927), (94, 17957), (96, 17972), (98, 17984), (99, 17999),

Gene: AmiCi24_22 Start: 16560, Stop: 17621, Start Num: 19

Candidate Starts for AmiCi24_22:

(16, 16536), (Start: 19 @16560 has 46 MA's), (22, 16608), (28, 16674), (30, 16734), (31, 16740), (35, 16788), (36, 16809), (44, 16908), (54, 17091), (65, 17217), (77, 17355), (78, 17367), (81, 17400), (91, 17511), (96, 17547),

Gene: Amphitrite_22 Start: 16559, Stop: 17620, Start Num: 19

Candidate Starts for Amphitrite_22:

(16, 16535), (Start: 19 @16559 has 46 MA's), (22, 16607), (28, 16673), (30, 16733), (31, 16739), (35, 16787), (36, 16808), (44, 16907), (54, 17090), (65, 17216), (74, 17306), (77, 17354), (78, 17366), (81, 17399), (91, 17510), (96, 17546),

Gene: Andrew_23 Start: 16999, Stop: 18045, Start Num: 19

Candidate Starts for Andrew_23:

(Start: 19 @16999 has 46 MA's), (22, 17047), (28, 17113), (31, 17179), (34, 17224), (35, 17227), (38, 17257), (42, 17317), (44, 17347), (54, 17530), (59, 17584), (61, 17608), (65, 17647), (68, 17680), (77, 17785), (78, 17797), (81, 17830), (88, 17923), (91, 17938),

Gene: Atlantica_22 Start: 16561, Stop: 17622, Start Num: 19

Candidate Starts for Atlantica_22:

(16, 16537), (Start: 19 @16561 has 46 MA's), (22, 16609), (28, 16675), (30, 16735), (31, 16741), (35, 16789), (36, 16810), (44, 16909), (54, 17092), (65, 17218), (74, 17308), (77, 17356), (78, 17368), (81, 17401), (91, 17512), (96, 17548),

Gene: Azaz_22 Start: 16621, Stop: 17682, Start Num: 18

Candidate Starts for Azaz_22:

(Start: 18 @16621 has 3 MA's), (22, 16669), (28, 16735), (30, 16795), (31, 16801), (35, 16849), (36, 16870), (44, 16969), (54, 17152), (65, 17278), (77, 17416), (78, 17428), (81, 17461), (85, 17545), (91, 17572), (96, 17608),

Gene: Babushka_22 Start: 16615, Stop: 17682, Start Num: 19

Candidate Starts for Babushka_22:

(4, 16315), (5, 16333), (10, 16456), (14, 16564), (16, 16591), (Start: 19 @16615 has 46 MA's), (22, 16663), (28, 16729), (31, 16795), (32, 16819), (35, 16843), (36, 16864), (44, 16963), (50, 17062), (54, 17146), (65, 17281), (77, 17419), (78, 17431), (91, 17572), (97, 17611),

Gene: Basilisk_23 Start: 18276, Stop: 19316, Start Num: 19

Candidate Starts for Basilisk_23:

(Start: 19 @18276 has 46 MA's), (20, 18291), (25, 18372), (31, 18456), (35, 18510), (36, 18531), (39, 18552), (44, 18630), (51, 18747), (54, 18813), (65, 18918), (77, 19056), (78, 19068), (81, 19101), (91, 19209), (102, 19308),

Gene: Bedetta_24 Start: 16980, Stop: 18047, Start Num: 19

Candidate Starts for Bedetta_24:

(Start: 19 @16980 has 46 MA's), (22, 17028), (23, 17031), (24, 17064), (28, 17094), (31, 17160), (35, 17208), (42, 17298), (43, 17316), (44, 17328), (54, 17511), (60, 17577), (65, 17646), (70, 17703), (82, 17841), (89, 17931), (90, 17934), (94, 17961), (96, 17976), (98, 17988), (99, 18003),

Gene: Bible12_24 Start: 16979, Stop: 18034, Start Num: 19

Candidate Starts for Bible12_24:

(Start: 19 @16979 has 46 MA's), (22, 17027), (23, 17030), (28, 17093), (31, 17159), (35, 17207), (36, 17228), (42, 17297), (43, 17315), (44, 17327), (46, 17363), (50, 17426), (54, 17510), (60, 17567), (65, 17636), (68, 17669), (78, 17786), (80, 17816), (82, 17825), (91, 17927), (100, 17993),

Gene: Brynnie_23 Start: 18087, Stop: 19124, Start Num: 19

Candidate Starts for Brynnie_23:

(Start: 19 @18087 has 46 MA's), (20, 18102), (25, 18183), (27, 18192), (31, 18267), (35, 18321), (36, 18342), (39, 18363), (44, 18441), (54, 18624), (65, 18726), (77, 18864), (78, 18876), (81, 18909), (91, 19017), (102, 19116),

Gene: Camara_22 Start: 16562, Stop: 17623, Start Num: 19

Candidate Starts for Camara_22:

(16, 16538), (Start: 19 @16562 has 46 MA's), (22, 16610), (28, 16676), (30, 16736), (31, 16742), (35, 16790), (36, 16811), (44, 16910), (54, 17093), (65, 17219), (74, 17309), (77, 17357), (78, 17369), (79, 17384), (81, 17402), (91, 17513), (96, 17549),

Gene: Chickaboom_22 Start: 17014, Stop: 18045, Start Num: 19

Candidate Starts for Chickaboom_22:

(Start: 19 @17014 has 46 MA's), (22, 17062), (28, 17128), (30, 17188), (31, 17194), (35, 17242), (38, 17272), (44, 17362), (54, 17545), (56, 17578), (65, 17647), (66, 17653), (77, 17785), (78, 17797), (82, 17836), (83, 17839), (92, 17944), (102, 18037),

Gene: Chicken_23 Start: 18013, Stop: 19050, Start Num: 19

Candidate Starts for Chicken_23:

(Start: 19 @18013 has 46 MA's), (20, 18028), (22, 18061), (28, 18127), (31, 18193), (35, 18241), (36, 18262), (42, 18331), (44, 18361), (54, 18544), (63, 18616), (65, 18652), (68, 18685), (78, 18802), (80, 18832), (82, 18841), (91, 18943), (100, 19009),

Gene: CocoCinnamon_26 Start: 18953, Stop: 20008, Start Num: 19

Candidate Starts for CocoCinnamon_26:

(13, 18836), (Start: 19 @18953 has 46 MA's), (25, 19064), (28, 19082), (31, 19148), (35, 19202), (37, 19229), (40, 19262), (42, 19292), (44, 19322), (48, 19412), (54, 19505), (65, 19610), (73, 19688), (95, 19928), (101, 19985),

Gene: Colusalem_23 Start: 16819, Stop: 17886, Start Num: 19

Candidate Starts for Colusalem_23:

(Start: 19 @16819 has 46 MA's), (22, 16867), (23, 16870), (24, 16903), (28, 16933), (31, 16999), (35, 17047), (42, 17137), (43, 17155), (44, 17167), (54, 17350), (60, 17416), (65, 17485), (70, 17542), (82, 17680), (89, 17770), (90, 17773), (94, 17800), (96, 17815), (98, 17827), (99, 17842),

Gene: Coral_23 Start: 16815, Stop: 17882, Start Num: 19

Candidate Starts for Coral_23:

(Start: 19 @16815 has 46 MA's), (22, 16863), (23, 16866), (28, 16929), (30, 16989), (31, 16995), (35, 17043), (42, 17133), (44, 17163), (50, 17262), (54, 17346), (60, 17412), (65, 17481), (70, 17538), (82, 17676), (89, 17766), (94, 17796), (96, 17811), (98, 17823), (99, 17838),

Gene: Cote_24 Start: 16976, Stop: 18034, Start Num: 19

Candidate Starts for Cote_24:

(Start: 19 @16976 has 46 MA's), (22, 17024), (23, 17027), (28, 17090), (31, 17156), (35, 17204), (36, 17225), (42, 17294), (43, 17312), (44, 17324), (50, 17423), (54, 17507), (60, 17564), (65, 17633), (70, 17690), (82, 17828), (89, 17918), (90, 17921), (96, 17963), (98, 17975), (99, 17990),

Gene: Cygnet_23 Start: 17632, Stop: 18687, Start Num: 18

Candidate Starts for Cygnet_23:

(Start: 18 @17632 has 3 MA's), (20, 17647), (21, 17653), (22, 17680), (28, 17746), (30, 17806), (31, 17812), (35, 17860), (44, 17980), (50, 18079), (52, 18127), (54, 18163), (65, 18283), (69, 18331), (71, 18343), (75, 18382), (76, 18388), (78, 18436), (81, 18469), (91, 18577), (96, 18613),

Gene: Damocles_24 Start: 16978, Stop: 18045, Start Num: 19

Candidate Starts for Damocles_24:

(Start: 19 @16978 has 46 MA's), (22, 17026), (23, 17029), (24, 17062), (28, 17092), (31, 17158), (35, 17206), (36, 17227), (42, 17296), (43, 17314), (44, 17326), (54, 17509), (60, 17575), (65, 17644), (70, 17701), (82, 17839), (89, 17929), (90, 17932), (94, 17959), (96, 17974), (98, 17986), (99, 18001),

Gene: DanHam62_22 Start: 16561, Stop: 17622, Start Num: 19

Candidate Starts for DanHam62_22:

(16, 16537), (Start: 19 @16561 has 46 MA's), (22, 16609), (28, 16675), (30, 16735), (35, 16789), (36, 16810), (44, 16909), (54, 17092), (65, 17218), (74, 17308), (77, 17356), (78, 17368), (81, 17401), (91, 17512), (96, 17548),

Gene: Daob_24 Start: 16981, Stop: 18039, Start Num: 19

Candidate Starts for Daob_24:

(Start: 19 @16981 has 46 MA's), (22, 17029), (23, 17032), (28, 17095), (31, 17161), (35, 17209), (36, 17230), (42, 17299), (43, 17317), (44, 17329), (50, 17428), (54, 17512), (60, 17569), (65, 17638), (70, 17695), (82, 17833), (89, 17923), (90, 17926), (96, 17968), (98, 17980), (99, 17995),

Gene: Eesa_23 Start: 18236, Stop: 19273, Start Num: 19

Candidate Starts for Eesa_23:

(Start: 19 @18236 has 46 MA's), (22, 18284), (26, 18335), (28, 18350), (30, 18410), (31, 18416), (35, 18464), (36, 18485), (44, 18584), (54, 18767), (63, 18839), (65, 18875), (68, 18908), (78, 19025), (80, 19055), (82, 19064), (89, 19154), (91, 19166), (93, 19178), (100, 19232),

Gene: Exile_21 Start: 20646, Stop: 21581, Start Num: 17

Candidate Starts for Exile_21:

(Start: 17 @20646 has 4 MA's), (25, 20739), (37, 20886), (47, 21021), (54, 21147), (55, 21168), (62, 21222), (72, 21342), (86, 21525),

Gene: Fingolfin_22 Start: 16562, Stop: 17623, Start Num: 19

Candidate Starts for Fingolfin_22:

(16, 16538), (Start: 19 @16562 has 46 MA's), (22, 16610), (28, 16676), (30, 16736), (31, 16742), (35, 16790), (36, 16811), (44, 16910), (54, 17093), (65, 17219), (74, 17309), (77, 17357), (78, 17369), (81, 17402), (91, 17513), (96, 17549),

Gene: Glotell_22 Start: 16559, Stop: 17620, Start Num: 19

Candidate Starts for Glotell_22:

(16, 16535), (Start: 19 @16559 has 46 MA's), (22, 16607), (28, 16673), (30, 16733), (31, 16739), (35, 16787), (36, 16808), (44, 16907), (54, 17090), (65, 17216), (74, 17306), (77, 17354), (78, 17366), (81, 17399), (91, 17510), (96, 17546),

Gene: GramZayde_23 Start: 16815, Stop: 17870, Start Num: 19

Candidate Starts for GramZayde_23:

(Start: 19 @16815 has 46 MA's), (22, 16863), (23, 16866), (28, 16929), (31, 16995), (35, 17043), (36, 17064), (42, 17133), (43, 17151), (44, 17163), (46, 17199), (50, 17262), (54, 17346), (60, 17403), (65, 17472), (68, 17505), (78, 17622), (80, 17652), (82, 17661), (91, 17763), (100, 17829),

Gene: Gravel_24 Start: 18142, Stop: 19179, Start Num: 19

Candidate Starts for Gravel_24:

(Start: 19 @18142 has 46 MA's), (22, 18190), (26, 18241), (28, 18256), (31, 18322), (35, 18370), (36, 18391), (44, 18490), (54, 18673), (63, 18745), (65, 18781), (68, 18814), (78, 18931), (80, 18961), (82, 18970), (89, 19060), (91, 19072), (93, 19084), (100, 19138),

Gene: GrimEater_21 Start: 18277, Stop: 19182, Start Num: 17

Candidate Starts for GrimEater_21:

(Start: 17 @18277 has 4 MA's), (25, 18370), (27, 18379), (47, 18652), (53, 18763), (55, 18784), (60, 18820), (67, 18880), (72, 18940), (86, 19129),

Gene: HamCheese_22 Start: 16561, Stop: 17622, Start Num: 19

Candidate Starts for HamCheese_22:

(16, 16537), (Start: 19 @16561 has 46 MA's), (22, 16609), (28, 16675), (30, 16735), (31, 16741), (35, 16789), (44, 16909), (54, 17092), (65, 17218), (74, 17308), (77, 17356), (78, 17368), (81, 17401), (91, 17512), (96, 17548),

Gene: HannahPhantana_24 Start: 16979, Stop: 18034, Start Num: 19

Candidate Starts for HannahPhantana_24:

(Start: 19 @16979 has 46 MA's), (22, 17027), (23, 17030), (28, 17093), (31, 17159), (35, 17207), (36, 17228), (42, 17297), (43, 17315), (44, 17327), (46, 17363), (50, 17426), (54, 17510), (60, 17567), (65, 17636), (68, 17669), (78, 17786), (80, 17816), (82, 17825), (91, 17927), (100, 17993),

Gene: Jamun_23 Start: 17682, Stop: 18722, Start Num: 19

Candidate Starts for Jamun_23:

(Start: 19 @17682 has 46 MA's), (20, 17697), (25, 17778), (31, 17862), (36, 17937), (39, 17958), (44, 18036), (54, 18219), (57, 18261), (65, 18324), (77, 18462), (78, 18474), (81, 18507), (91, 18615), (100, 18681), (102, 18714),

Gene: Jankie_21 Start: 18276, Stop: 19181, Start Num: 17

Candidate Starts for Jankie_21:

(Start: 17 @18276 has 4 MA's), (25, 18369), (27, 18378), (47, 18651), (53, 18762), (55, 18783), (60, 18819), (67, 18879), (72, 18939), (86, 19128),

Gene: Jerole_24 Start: 16976, Stop: 18031, Start Num: 19

Candidate Starts for Jerole_24:

(Start: 19 @16976 has 46 MA's), (22, 17024), (23, 17027), (28, 17090), (31, 17156), (35, 17204), (36, 17225), (42, 17294), (43, 17312), (44, 17324), (46, 17360), (50, 17423), (54, 17507), (60, 17564), (65, 17633), (68, 17666), (78, 17783), (80, 17813), (82, 17822), (91, 17924), (100, 17990),

Gene: Juno112_22 Start: 16562, Stop: 17629, Start Num: 19

Candidate Starts for Juno112_22:

(16, 16538), (Start: 19 @16562 has 46 MA's), (22, 16610), (28, 16676), (30, 16736), (31, 16742), (35, 16790), (36, 16811), (44, 16910), (54, 17093), (65, 17219), (74, 17309), (77, 17357), (78, 17369), (81, 17402), (91, 17513), (96, 17549),

Gene: KHumphrey_22 Start: 16559, Stop: 17620, Start Num: 19

Candidate Starts for KHumphrey_22:

(16, 16535), (Start: 19 @16559 has 46 MA's), (22, 16607), (28, 16673), (30, 16733), (31, 16739), (35, 16787), (36, 16808), (44, 16907), (54, 17090), (65, 17216), (74, 17306), (77, 17354), (78, 17366), (81, 17399), (91, 17510), (96, 17546),

Gene: KendraB23_24 Start: 18144, Stop: 19181, Start Num: 19

Candidate Starts for KendraB23_24:

(1, 17826), (6, 17865), (8, 17868), (9, 17901), (Start: 19 @18144 has 46 MA's), (22, 18192), (26, 18243), (28, 18258), (31, 18324), (35, 18372), (44, 18492), (54, 18675), (63, 18747), (65, 18783), (68, 18816), (78, 18933), (80, 18963), (82, 18972), (89, 19062), (91, 19074), (93, 19086), (100, 19140),

Gene: Kepler_23 Start: 16814, Stop: 17869, Start Num: 19

Candidate Starts for Kepler_23:

(Start: 19 @16814 has 46 MA's), (22, 16862), (23, 16865), (28, 16928), (31, 16994), (35, 17042), (36, 17063), (42, 17132), (44, 17162), (54, 17345), (60, 17402), (65, 17471), (68, 17504), (78, 17621), (80, 17651), (82, 17660), (91, 17762), (100, 17828),

Gene: Laphuphu24k_21 Start: 16561, Stop: 17622, Start Num: 19

Candidate Starts for Laphuphu24k_21:

(16, 16537), (Start: 19 @16561 has 46 MA's), (22, 16609), (28, 16675), (30, 16735), (31, 16741), (35, 16789), (44, 16909), (54, 17092), (65, 17218), (74, 17308), (77, 17356), (78, 17368), (81, 17401), (91, 17512), (96, 17548),

Gene: Leona_22 Start: 16621, Stop: 17682, Start Num: 18

Candidate Starts for Leona_22:

(Start: 18 @16621 has 3 MA's), (22, 16669), (28, 16735), (30, 16795), (31, 16801), (35, 16849), (36, 16870), (44, 16969), (54, 17152), (65, 17278), (77, 17416), (78, 17428), (81, 17461), (85, 17545), (91, 17572), (96, 17608),

Gene: LisoBros_23 Start: 20284, Stop: 21207, Start Num: 17

Candidate Starts for LisoBros_23:

(12, 20134), (15, 20260), (Start: 17 @20284 has 4 MA's), (25, 20377), (47, 20659), (54, 20779), (55, 20800), (72, 20965), (86, 21154), (87, 21160),

Gene: Lunar_24 Start: 16976, Stop: 18034, Start Num: 19

Candidate Starts for Lunar_24:

(Start: 19 @16976 has 46 MA's), (22, 17024), (23, 17027), (28, 17090), (31, 17156), (35, 17204), (36, 17225), (42, 17294), (43, 17312), (44, 17324), (50, 17423), (54, 17507), (60, 17564), (65, 17633), (70, 17690), (82, 17828), (89, 17918), (90, 17921), (96, 17963), (98, 17975), (99, 17990),

Gene: Melons_24 Start: 16976, Stop: 18034, Start Num: 19

Candidate Starts for Melons_24:

(Start: 19 @16976 has 46 MA's), (22, 17024), (23, 17027), (28, 17090), (31, 17156), (35, 17204), (36, 17225), (42, 17294), (43, 17312), (44, 17324), (50, 17423), (54, 17507), (60, 17564), (65, 17633), (70, 17690), (82, 17828), (89, 17918), (90, 17921), (96, 17963), (98, 17975), (99, 17990),

Gene: Niblet_23 Start: 18013, Stop: 19050, Start Num: 19

Candidate Starts for Niblet_23:

(Start: 19 @18013 has 46 MA's), (20, 18028), (22, 18061), (28, 18127), (31, 18193), (35, 18241), (36, 18262), (42, 18331), (44, 18361), (54, 18544), (63, 18616), (65, 18652), (68, 18685), (78, 18802), (80, 18832), (82, 18841), (91, 18943), (100, 19009),

Gene: Oppalora_22 Start: 16560, Stop: 17621, Start Num: 19

Candidate Starts for Oppalora_22:

(16, 16536), (Start: 19 @16560 has 46 MA's), (22, 16608), (28, 16674), (30, 16734), (31, 16740), (35, 16788), (36, 16809), (44, 16908), (54, 17091), (65, 17217), (77, 17355), (78, 17367), (81, 17400), (91, 17511), (96, 17547),

Gene: Orcanus_23 Start: 17936, Stop: 18973, Start Num: 19

Candidate Starts for Orcanus_23:

(Start: 19 @17936 has 46 MA's), (22, 17984), (26, 18035), (28, 18050), (31, 18116), (35, 18164), (36, 18185), (44, 18284), (54, 18467), (63, 18539), (65, 18575), (68, 18608), (78, 18725), (80, 18755), (82, 18764), (89, 18854), (91, 18866), (93, 18878), (100, 18932),

Gene: OtsoOtso_23 Start: 16822, Stop: 17889, Start Num: 19

Candidate Starts for OtsoOtso_23:

(Start: 19 @16822 has 46 MA's), (22, 16870), (23, 16873), (24, 16906), (28, 16936), (31, 17002), (35, 17050), (42, 17140), (43, 17158), (44, 17170), (54, 17353), (60, 17419), (65, 17488), (70, 17545), (82, 17683), (89, 17773), (90, 17776), (94, 17803), (96, 17818), (98, 17830), (99, 17845),

Gene: Pelletreau_24 Start: 18142, Stop: 19179, Start Num: 19

Candidate Starts for Pelletreau_24:

(Start: 19 @18142 has 46 MA's), (22, 18190), (26, 18241), (28, 18256), (31, 18322), (35, 18370), (36, 18391), (44, 18490), (54, 18673), (63, 18745), (65, 18781), (68, 18814), (78, 18931), (80, 18961), (82, 18970), (89, 19060), (91, 19072), (93, 19084), (100, 19138),

Gene: PhirstandPhine_24 Start: 16976, Stop: 18034, Start Num: 19

Candidate Starts for PhirstandPhine_24:

(Start: 19 @16976 has 46 MA's), (22, 17024), (23, 17027), (28, 17090), (31, 17156), (35, 17204), (36, 17225), (42, 17294), (43, 17312), (44, 17324), (50, 17423), (54, 17507), (60, 17564), (65, 17633), (70, 17690), (82, 17828), (89, 17918), (90, 17921), (96, 17963), (98, 17975), (99, 17990),

Gene: PhluffyCoco_22 Start: 16561, Stop: 17622, Start Num: 19

Candidate Starts for PhluffyCoco_22:

(16, 16537), (Start: 19 @16561 has 46 MA's), (22, 16609), (28, 16675), (30, 16735), (31, 16741), (35, 16789), (44, 16909), (54, 17092), (65, 17218), (74, 17308), (77, 17356), (78, 17368), (81, 17401), (91, 17512), (96, 17548),

Gene: Pineda_24 Start: 16978, Stop: 18045, Start Num: 19

Candidate Starts for Pineda_24:

(Start: 19 @16978 has 46 MA's), (22, 17026), (23, 17029), (24, 17062), (28, 17092), (31, 17158), (35, 17206), (36, 17227), (42, 17296), (43, 17314), (44, 17326), (54, 17509), (60, 17575), (65, 17644), (70, 17701), (82, 17839), (89, 17929), (90, 17932), (94, 17959), (96, 17974), (98, 17986), (99, 18001),

Gene: Polka_23 Start: 16822, Stop: 17889, Start Num: 19

Candidate Starts for Polka_23:

(Start: 19 @16822 has 46 MA's), (22, 16870), (23, 16873), (24, 16906), (28, 16936), (31, 17002), (35, 17050), (42, 17140), (43, 17158), (44, 17170), (54, 17353), (60, 17419), (65, 17488), (70, 17545), (82, 17683), (89, 17773), (90, 17776), (94, 17803), (96, 17818), (98, 17830), (99, 17845),

Gene: Rattail_22 Start: 16621, Stop: 17682, Start Num: 18

Candidate Starts for Rattail_22:

(Start: 18 @16621 has 3 MA's), (22, 16669), (28, 16735), (30, 16795), (31, 16801), (35, 16849), (36, 16870), (44, 16969), (54, 17152), (65, 17278), (77, 17416), (78, 17428), (81, 17461), (85, 17545), (91, 17572), (96, 17608),

Gene: RedFox_22 Start: 16561, Stop: 17622, Start Num: 19

Candidate Starts for RedFox_22:

(16, 16537), (Start: 19 @16561 has 46 MA's), (22, 16609), (28, 16675), (30, 16735), (35, 16789), (36, 16810), (44, 16909), (54, 17092), (65, 17218), (74, 17308), (77, 17356), (78, 17368), (81, 17401), (91, 17512), (96, 17548),

Gene: Renna12_23 Start: 16914, Stop: 17975, Start Num: 19

Candidate Starts for Renna12_23:

(16, 16890), (Start: 19 @16914 has 46 MA's), (22, 16962), (28, 17028), (30, 17088), (31, 17094), (35, 17142), (36, 17163), (44, 17262), (49, 17355), (50, 17361), (54, 17445), (65, 17571), (77, 17709), (78, 17721), (81, 17754), (91, 17865), (96, 17901),

Gene: Ruchi_23 Start: 18222, Stop: 19262, Start Num: 19

Candidate Starts for Ruchi_23:

(Start: 19 @18222 has 46 MA's), (20, 18237), (25, 18318), (31, 18402), (35, 18456), (36, 18477), (39, 18498), (44, 18576), (51, 18693), (54, 18759), (65, 18864), (77, 19002), (78, 19014), (81, 19047), (91, 19155), (102, 19254),

Gene: Shen_24 Start: 18143, Stop: 19180, Start Num: 19

Candidate Starts for Shen_24:

(Start: 19 @18143 has 46 MA's), (22, 18191), (26, 18242), (28, 18257), (31, 18323), (35, 18371), (44, 18491), (54, 18674), (63, 18746), (65, 18782), (68, 18815), (78, 18932), (80, 18962), (82, 18971), (89, 19061), (91, 19073), (93, 19085), (100, 19139),

Gene: Soondubu_21 Start: 20650, Stop: 21585, Start Num: 17

Candidate Starts for Soondubu_21:

(Start: 17 @20650 has 4 MA's), (25, 20743), (37, 20890), (39, 20905), (41, 20926), (45, 20995), (47, 21025), (54, 21151), (55, 21172), (62, 21226), (72, 21346), (86, 21529),

Gene: StuartMinion_22 Start: 16606, Stop: 17655, Start Num: 19

Candidate Starts for StuartMinion_22:

(16, 16582), (Start: 19 @16606 has 46 MA's), (22, 16654), (23, 16657), (28, 16720), (30, 16777), (31, 16783), (35, 16831), (38, 16861), (44, 16951), (50, 17050), (54, 17134), (60, 17194), (65, 17251), (74, 17341), (77, 17389), (78, 17401), (81, 17434), (91, 17545), (96, 17581),

Gene: TaylorSipht_23 Start: 16956, Stop: 17999, Start Num: 19

Candidate Starts for TaylorSipht_23:

(Start: 19 @16956 has 46 MA's), (22, 17004), (30, 17130), (31, 17136), (35, 17184), (44, 17304), (51, 17421), (54, 17487), (58, 17532), (64, 17571), (65, 17604), (68, 17637), (77, 17742), (78, 17754), (84, 17805), (91, 17895), (102, 17994),

Gene: Toad24_24 Start: 18143, Stop: 19180, Start Num: 19

Candidate Starts for Toad24_24:

(Start: 19 @18143 has 46 MA's), (22, 18191), (26, 18242), (28, 18257), (31, 18323), (35, 18371), (36, 18392), (44, 18491), (54, 18674), (63, 18746), (65, 18782), (68, 18815), (78, 18932), (80, 18962), (82, 18971), (89, 19061), (91, 19073), (93, 19085), (100, 19139),

Gene: Vulpecula_23 Start: 17680, Stop: 18720, Start Num: 19

Candidate Starts for Vulpecula_23:

(Start: 19 @17680 has 46 MA's), (25, 17776), (31, 17860), (36, 17935), (39, 17956), (44, 18034), (54, 18217), (65, 18322), (68, 18355), (77, 18460), (78, 18472), (89, 18601), (102, 18712),

Gene: Westrich_24 Start: 18132, Stop: 19169, Start Num: 19

Candidate Starts for Westrich_24:

(Start: 19 @18132 has 46 MA's), (22, 18180), (26, 18231), (28, 18246), (31, 18312), (35, 18360), (44, 18480), (54, 18663), (63, 18735), (65, 18771), (68, 18804), (78, 18921), (80, 18951), (82, 18960), (89, 19050), (91, 19062), (93, 19074), (100, 19128),

Gene: WileyE_22 Start: 17014, Stop: 18045, Start Num: 19

Candidate Starts for WileyE_22:

(Start: 19 @17014 has 46 MA's), (22, 17062), (28, 17128), (30, 17188), (31, 17194), (35, 17242), (38, 17272), (44, 17362), (54, 17545), (56, 17578), (65, 17647), (66, 17653), (77, 17785), (78, 17797), (82, 17836), (83, 17839), (92, 17944), (102, 18037),

Gene: Zhuangyuan_24 Start: 17386, Stop: 18453, Start Num: 19

Candidate Starts for Zhuangyuan_24:

(2, 17080), (3, 17083), (7, 17116), (11, 17236), (Start: 19 @17386 has 46 MA's), (20, 17401), (22, 17434), (29, 17518), (30, 17575), (31, 17581), (33, 17617), (42, 17719), (44, 17749), (50, 17848), (54, 17932), (60, 17992), (65, 18052), (68, 18085), (78, 18202), (81, 18235), (91, 18346), (93, 18358),

Gene: Zixiang_23 Start: 18014, Stop: 19051, Start Num: 19

Candidate Starts for Zixiang_23:

(Start: 19 @18014 has 46 MA's), (20, 18029), (22, 18062), (28, 18128), (31, 18194), (35, 18242), (36, 18263), (42, 18332), (44, 18362), (54, 18545), (63, 18617), (65, 18653), (68, 18686), (78, 18803), (80, 18833), (82, 18842), (91, 18944), (100, 19010),