

Pham 325187

1: Eesa_23		16	19		23	25	28	32	33		40			41		54	56	58		67	69		76	80	81		
2: Chickaboom_22 + 1		16	19		23	25	28	32	35		40			41	48		54	56	58		67	69		76	80	87	
3: Westrich_24 + 2		16	19		23	25	28	32	33		40			41		54	56	58		67	69		76	80	87		
4: Gravel_24 + 3	1	16	19		23	25	28	32	33		40			41		54	56	58		67	69		76	80	87		
5: KendraB23_24	1	16			22		28		33	36		40		41			56	58		68	71		76		89		
6: Vulpecula_23		16	17		22		28		33	36		40		41	49		56			68	71	70		78	87	89	
7: Jamun_23		16	17	19		25	28	32	33		38	40		41		54	56	58		67	69		78		87	89	
8: Chicken_23 + 2		16	17		24	25	28	32	33	36		40		41			56			68	71	70		78		89	
9: Brynnie_23		16	17		22		28	32	33	36		40			45		56			68	71	70		78		89	
10: Ruchi_23 + 1		16	19				28	32				40		45	47	50	55	56	58	68	71	73		78		89	
11: TaylorSipht_23		16	19	21	25		28	32		38	39			41		52	56	60			71		78	81	83	86	
12: Colusalem_23 + 3		16	19	21	25		28	32	33	38	39		44	47		52	56	60			71		78	81	83	86	
13: PhirstandPhine_24 + 4		16	19	21	25		28	32	33	38	39			47		52	56	60			71		78	81	83	86	
14: Damocles_24 + 1		16	19	21	25		28	32	33	38		40		44	47	52	56	60			71		76	81	83	86	
15: BadWillHunting_24	1	16	17	19	26	28	30	38		38	40		44	47	52	56	58			67	70		78	80	81	83	86
16: Zhuangyuan_24		16	19	21	25		28	32	33	38	39	41		44	47	52	56	58		67	69		78			87	
17: GramZayde_23 + 3	1	16	18	19	25	28	32	38		40			44	46	47		56	59	61	65	67	70		78	83	86	
18: Cygnet_23		16	19	21	25	28	32	38		40			44		47	52	56	60		65		71		76	81	83	86
19: Amelia_24 + 1		16	19	21	25	28	32	33	38		40			47	52	56	58			67	69		78			87	
20: Kepler_23		14	16	19	25	28	32	33		40				47	52	56			63	68	71	70		78	83		
21: Glotell_22 + 5		14	16	19	25	28	32	35		40			44	47	52	56			63	68	71	70		78	83		
22: StuartMinion_22 + 1		15	19	25	28	32	33		40					47	52	56				68	71	70		74	78	83	
23: Rattail_22 + 2		16	19	25	28	32	35	38		40				47	51	53	56	58		68	71	70		75	78		
24: Andrew_23		14	16	19	25	27	32	33		40				47			56		63	68	71	70		78	83		
25: DanHam62_22 + 1		14	16	19	25	28	32		40					47			56		63	68	71	70		78	83		
26: PhluffyCoco_22 + 2	4	13	14	16	19	25	28	29	32	33		40		44	47		56			63	68	71		78	84		
27: Babushka_22	4	13	14	16	19	25	27	32	33		40			47			56		63	68	71	70		78	83		
28: AdoptaAdorbs_22		14	16	19	25	28	32	33		40			44	47			56			68	71	70		78	83		
29: Renna12_23		14	16	19	25	28	32	33		40				47			56			68	71	70		78	83		
30: Oppalora_22 + 1		14	16	19	25	28	32	33		40				47			56		63	68	71	70		78	83		
31: Camara_22	12	16			22	25	28	32	34	37	38	40		42	47		56		62					82		88	
32: CocoCinnamon_26	12	16			22	25	28	32	34	37	38	40		42													

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 325187 Report

This analysis was run 09/05/26 on database version 662.

Pham number 325187 has 65 members, 14 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 : BadWillHunting_24
- Track 16 : Zhuangyuan_24
- Track 17 : GramZayde_23, Bibble12_24, Jerole_24, HannahPhantana_24
- Track 18 : Cygnet_23
- Track 19 : Amelia_24, Coral_23
- Track 20 : Kepler_23
- Track 21 : Glotell_22, Amphitrite_22, Fingolfin_22, KHumphrey_22, Juno112_22, Atlantica_22
- Track 22 : StuartMinion_22, AlexMinion_22
- Track 23 : Rattail_22, Azaz_22, Leona_22
- Track 24 : Andrew_23
- Track 25 : DanHam62_22, RedFox_22
- Track 26 : PhluffyCoco_22, Laphuphu24k_21, HamCheese_22
- Track 27 : Babushka_22
- Track 28 : AdoptaAdorbs_22
- Track 29 : Renna12_23
- Track 30 : Oppalora_22, AmiCi24_22
- Track 31 : Camara_22
- Track 32 : CocoCinnamon_26

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 48 of the 51 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AdoptaAdorbs_22, AlexMinion_22, Amanises_24, Amelia_24, AmiCi24_22, Amphitrite_22, Andrew_23, Atlantica_22, Babushka_22, BadWillHunting_24, 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:

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

- Azaz_22, Cygnet_23, Leona_22, Rattail_22,

Summary by start number:

Start 15:

- Found in 4 of 65 (6.2%) of genes in pham
- Manual Annotations of this start: 3 of 51
- 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 16:

- Found in 61 of 65 (93.8%) of genes in pham
- Manual Annotations of this start: 48 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AdoptaAdorbs_22 (AS3), AlexMinion_22 (AS3), Amanises_24 (AS1), Amelia_24 (AS2), AmiCi24_22 (AS3), Amphitrite_22 (AS3), Andrew_23 (AS3), Atlantica_22 (AS3), Babushka_22 (AS3), BadWillHunting_24 (AS2), 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 4 clusters represented in this pham: AS3, AS2, AS1, FO,

Info for manual annotations of cluster AS1:

- Start number 16 was manually annotated 15 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 15 was manually annotated 1 time for cluster AS2.
- Start number 16 was manually annotated 15 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 15 was manually annotated 2 times for cluster AS3.
- Start number 16 was manually annotated 17 times for cluster AS3.

Info for manual annotations of cluster FO:

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

Gene Information:

Gene: AdoptaAdorbs_22 Start: 16561, Stop: 17622, Start Num: 16

Candidate Starts for AdoptaAdorbs_22:

(14, 16537), (Start: 16 @16561 has 48 MA's), (19, 16609), (25, 16675), (27, 16735), (30, 16777), (32, 16789), (33, 16810), (40, 16909), (47, 17092), (56, 17218), (63, 17308), (66, 17356), (67, 17368), (70, 17401), (78, 17512), (83, 17548),

Gene: AlexMinion_22 Start: 16606, Stop: 17655, Start Num: 16

Candidate Starts for AlexMinion_22:

(14, 16582), (Start: 16 @16606 has 48 MA's), (19, 16654), (20, 16657), (25, 16720), (27, 16777), (28, 16783), (32, 16831), (35, 16861), (40, 16951), (44, 17050), (47, 17134), (52, 17194), (56, 17251), (63, 17341), (66, 17389), (67, 17401), (70, 17434), (78, 17545), (83, 17581),

Gene: Amanises_24 Start: 18144, Stop: 19181, Start Num: 16

Candidate Starts for Amanises_24:

(Start: 16 @18144 has 48 MA's), (19, 18192), (23, 18243), (25, 18258), (28, 18324), (32, 18372), (40, 18492), (47, 18675), (54, 18747), (56, 18783), (58, 18816), (67, 18933), (69, 18963), (71, 18972), (76, 19062), (78, 19074), (80, 19086), (87, 19140),

Gene: Amelia_24 Start: 16976, Stop: 18043, Start Num: 16

Candidate Starts for Amelia_24:

(Start: 16 @16976 has 48 MA's), (19, 17024), (20, 17027), (25, 17090), (27, 17150), (28, 17156), (32, 17204), (38, 17294), (40, 17324), (44, 17423), (47, 17507), (52, 17573), (56, 17642), (60, 17699), (71, 17837), (76, 17927), (81, 17957), (83, 17972), (85, 17984), (86, 17999),

Gene: AmiCi24_22 Start: 16560, Stop: 17621, Start Num: 16

Candidate Starts for AmiCi24_22:

(14, 16536), (Start: 16 @16560 has 48 MA's), (19, 16608), (25, 16674), (27, 16734), (28, 16740), (32, 16788), (33, 16809), (40, 16908), (47, 17091), (56, 17217), (66, 17355), (67, 17367), (70, 17400), (78, 17511), (83, 17547),

Gene: Amphitrite_22 Start: 16559, Stop: 17620, Start Num: 16

Candidate Starts for Amphitrite_22:

(14, 16535), (Start: 16 @16559 has 48 MA's), (19, 16607), (25, 16673), (27, 16733), (28, 16739), (32, 16787), (33, 16808), (40, 16907), (47, 17090), (56, 17216), (63, 17306), (66, 17354), (67, 17366), (70, 17399), (78, 17510), (83, 17546),

Gene: Andrew_23 Start: 16999, Stop: 18045, Start Num: 16

Candidate Starts for Andrew_23:

(Start: 16 @16999 has 48 MA's), (19, 17047), (25, 17113), (28, 17179), (31, 17224), (32, 17227), (35, 17257), (38, 17317), (40, 17347), (47, 17530), (51, 17584), (53, 17608), (56, 17647), (58, 17680), (66, 17785), (67, 17797), (70, 17830), (75, 17923), (78, 17938),

Gene: Atlantica_22 Start: 16561, Stop: 17622, Start Num: 16

Candidate Starts for Atlantica_22:

(14, 16537), (Start: 16 @16561 has 48 MA's), (19, 16609), (25, 16675), (27, 16735), (28, 16741), (32, 16789), (33, 16810), (40, 16909), (47, 17092), (56, 17218), (63, 17308), (66, 17356), (67, 17368), (70, 17401), (78, 17512), (83, 17548),

Gene: Azaz_22 Start: 16621, Stop: 17682, Start Num: 15

Candidate Starts for Azaz_22:

(Start: 15 @16621 has 3 MA's), (19, 16669), (25, 16735), (27, 16795), (28, 16801), (32, 16849), (33, 16870), (40, 16969), (47, 17152), (56, 17278), (66, 17416), (67, 17428), (70, 17461), (74, 17545), (78, 17572), (83, 17608),

Gene: Babushka_22 Start: 16615, Stop: 17682, Start Num: 16

Candidate Starts for Babushka_22:

(4, 16315), (5, 16333), (10, 16456), (13, 16564), (14, 16591), (Start: 16 @16615 has 48 MA's), (19, 16663), (25, 16729), (28, 16795), (29, 16819), (32, 16843), (33, 16864), (40, 16963), (44, 17062), (47, 17146), (56, 17281), (66, 17419), (67, 17431), (78, 17572), (84, 17611),

Gene: BadWillHunting_24 Start: 16977, Stop: 18044, Start Num: 16

Candidate Starts for BadWillHunting_24:

(Start: 16 @16977 has 48 MA's), (19, 17025), (20, 17028), (25, 17091), (28, 17157), (32, 17205), (33, 17226), (38, 17295), (40, 17325), (44, 17424), (47, 17508), (52, 17574), (56, 17643), (60, 17700), (71, 17838), (76, 17928), (81, 17958), (83, 17973), (85, 17985), (86, 18000),

Gene: Basilisk_23 Start: 18276, Stop: 19316, Start Num: 16

Candidate Starts for Basilisk_23:

(Start: 16 @18276 has 48 MA's), (17, 18291), (22, 18372), (28, 18456), (32, 18510), (33, 18531), (36, 18552), (40, 18630), (45, 18747), (47, 18813), (56, 18918), (66, 19056), (67, 19068), (70, 19101), (78, 19209), (89, 19308),

Gene: Bedetta_24 Start: 16980, Stop: 18047, Start Num: 16

Candidate Starts for Bedetta_24:

(Start: 16 @16980 has 48 MA's), (19, 17028), (20, 17031), (21, 17064), (25, 17094), (28, 17160), (32, 17208), (38, 17298), (39, 17316), (40, 17328), (47, 17511), (52, 17577), (56, 17646), (60, 17703), (71, 17841), (76, 17931), (77, 17934), (81, 17961), (83, 17976), (85, 17988), (86, 18003),

Gene: Bibble12_24 Start: 16979, Stop: 18034, Start Num: 16

Candidate Starts for Bibble12_24:

(Start: 16 @16979 has 48 MA's), (19, 17027), (20, 17030), (25, 17093), (28, 17159), (32, 17207), (33, 17228), (38, 17297), (39, 17315), (40, 17327), (41, 17363), (44, 17426), (47, 17510), (52, 17567), (56, 17636), (58, 17669), (67, 17786), (69, 17816), (71, 17825), (78, 17927), (87, 17993),

Gene: Brynnie_23 Start: 18087, Stop: 19124, Start Num: 16

Candidate Starts for Brynnie_23:

(Start: 16 @18087 has 48 MA's), (17, 18102), (22, 18183), (24, 18192), (28, 18267), (32, 18321), (33, 18342), (36, 18363), (40, 18441), (47, 18624), (56, 18726), (66, 18864), (67, 18876), (70, 18909), (78, 19017), (89, 19116),

Gene: Camara_22 Start: 16562, Stop: 17623, Start Num: 16

Candidate Starts for Camara_22:

(14, 16538), (Start: 16 @16562 has 48 MA's), (19, 16610), (25, 16676), (27, 16736), (28, 16742), (32, 16790), (33, 16811), (40, 16910), (47, 17093), (56, 17219), (63, 17309), (66, 17357), (67, 17369), (68, 17384), (70, 17402), (78, 17513), (83, 17549),

Gene: Chickaboom_22 Start: 17014, Stop: 18045, Start Num: 16

Candidate Starts for Chickaboom_22:

(Start: 16 @17014 has 48 MA's), (19, 17062), (25, 17128), (27, 17188), (28, 17194), (32, 17242), (35, 17272), (40, 17362), (47, 17545), (48, 17578), (56, 17647), (57, 17653), (66, 17785), (67, 17797), (71, 17836), (72, 17839), (79, 17944), (89, 18037),

Gene: Chicken_23 Start: 18013, Stop: 19050, Start Num: 16

Candidate Starts for Chicken_23:

(Start: 16 @18013 has 48 MA's), (17, 18028), (19, 18061), (25, 18127), (28, 18193), (32, 18241), (33, 18262), (38, 18331), (40, 18361), (47, 18544), (54, 18616), (56, 18652), (58, 18685), (67, 18802), (69, 18832), (71, 18841), (78, 18943), (87, 19009),

Gene: CocoCinnamon_26 Start: 18953, Stop: 20008, Start Num: 16

Candidate Starts for CocoCinnamon_26:

(12, 18836), (Start: 16 @18953 has 48 MA's), (22, 19064), (25, 19082), (28, 19148), (32, 19202), (34, 19229), (37, 19262), (38, 19292), (40, 19322), (42, 19412), (47, 19505), (56, 19610), (62, 19688), (82, 19928), (88, 19985),

Gene: Colusalem_23 Start: 16819, Stop: 17886, Start Num: 16

Candidate Starts for Colusalem_23:

(Start: 16 @16819 has 48 MA's), (19, 16867), (20, 16870), (21, 16903), (25, 16933), (28, 16999), (32, 17047), (38, 17137), (39, 17155), (40, 17167), (47, 17350), (52, 17416), (56, 17485), (60, 17542), (71, 17680), (76, 17770), (77, 17773), (81, 17800), (83, 17815), (85, 17827), (86, 17842),

Gene: Coral_23 Start: 16815, Stop: 17882, Start Num: 16

Candidate Starts for Coral_23:

(Start: 16 @16815 has 48 MA's), (19, 16863), (20, 16866), (25, 16929), (27, 16989), (28, 16995), (32, 17043), (38, 17133), (40, 17163), (44, 17262), (47, 17346), (52, 17412), (56, 17481), (60, 17538), (71, 17676), (76, 17766), (81, 17796), (83, 17811), (85, 17823), (86, 17838),

Gene: Cote_24 Start: 16976, Stop: 18034, Start Num: 16

Candidate Starts for Cote_24:

(Start: 16 @16976 has 48 MA's), (19, 17024), (20, 17027), (25, 17090), (28, 17156), (32, 17204), (33, 17225), (38, 17294), (39, 17312), (40, 17324), (44, 17423), (47, 17507), (52, 17564), (56, 17633), (60, 17690), (71, 17828), (76, 17918), (77, 17921), (83, 17963), (85, 17975), (86, 17990),

Gene: Cygnet_23 Start: 17632, Stop: 18687, Start Num: 15

Candidate Starts for Cygnet_23:

(Start: 15 @17632 has 3 MA's), (17, 17647), (18, 17653), (19, 17680), (25, 17746), (27, 17806), (28, 17812), (32, 17860), (40, 17980), (44, 18079), (46, 18127), (47, 18163), (56, 18283), (59, 18331), (61,

18343), (64, 18382), (65, 18388), (67, 18436), (70, 18469), (78, 18577), (83, 18613),

Gene: Damocles_24 Start: 16978, Stop: 18045, Start Num: 16

Candidate Starts for Damocles_24:

(Start: 16 @16978 has 48 MA's), (19, 17026), (20, 17029), (21, 17062), (25, 17092), (28, 17158), (32, 17206), (33, 17227), (38, 17296), (39, 17314), (40, 17326), (47, 17509), (52, 17575), (56, 17644), (60, 17701), (71, 17839), (76, 17929), (77, 17932), (81, 17959), (83, 17974), (85, 17986), (86, 18001),

Gene: DanHam62_22 Start: 16561, Stop: 17622, Start Num: 16

Candidate Starts for DanHam62_22:

(14, 16537), (Start: 16 @16561 has 48 MA's), (19, 16609), (25, 16675), (27, 16735), (32, 16789), (33, 16810), (40, 16909), (47, 17092), (56, 17218), (63, 17308), (66, 17356), (67, 17368), (70, 17401), (78, 17512), (83, 17548),

Gene: Daob_24 Start: 16981, Stop: 18039, Start Num: 16

Candidate Starts for Daob_24:

(Start: 16 @16981 has 48 MA's), (19, 17029), (20, 17032), (25, 17095), (28, 17161), (32, 17209), (33, 17230), (38, 17299), (39, 17317), (40, 17329), (44, 17428), (47, 17512), (52, 17569), (56, 17638), (60, 17695), (71, 17833), (76, 17923), (77, 17926), (83, 17968), (85, 17980), (86, 17995),

Gene: Eesa_23 Start: 18236, Stop: 19273, Start Num: 16

Candidate Starts for Eesa_23:

(Start: 16 @18236 has 48 MA's), (19, 18284), (23, 18335), (25, 18350), (27, 18410), (28, 18416), (32, 18464), (33, 18485), (40, 18584), (47, 18767), (54, 18839), (56, 18875), (58, 18908), (67, 19025), (69, 19055), (71, 19064), (76, 19154), (78, 19166), (80, 19178), (87, 19232),

Gene: Fingolfin_22 Start: 16562, Stop: 17623, Start Num: 16

Candidate Starts for Fingolfin_22:

(14, 16538), (Start: 16 @16562 has 48 MA's), (19, 16610), (25, 16676), (27, 16736), (28, 16742), (32, 16790), (33, 16811), (40, 16910), (47, 17093), (56, 17219), (63, 17309), (66, 17357), (67, 17369), (70, 17402), (78, 17513), (83, 17549),

Gene: Glotell_22 Start: 16559, Stop: 17620, Start Num: 16

Candidate Starts for Glotell_22:

(14, 16535), (Start: 16 @16559 has 48 MA's), (19, 16607), (25, 16673), (27, 16733), (28, 16739), (32, 16787), (33, 16808), (40, 16907), (47, 17090), (56, 17216), (63, 17306), (66, 17354), (67, 17366), (70, 17399), (78, 17510), (83, 17546),

Gene: GramZayde_23 Start: 16815, Stop: 17870, Start Num: 16

Candidate Starts for GramZayde_23:

(Start: 16 @16815 has 48 MA's), (19, 16863), (20, 16866), (25, 16929), (28, 16995), (32, 17043), (33, 17064), (38, 17133), (39, 17151), (40, 17163), (41, 17199), (44, 17262), (47, 17346), (52, 17403), (56, 17472), (58, 17505), (67, 17622), (69, 17652), (71, 17661), (78, 17763), (87, 17829),

Gene: Gravel_24 Start: 18142, Stop: 19179, Start Num: 16

Candidate Starts for Gravel_24:

(Start: 16 @18142 has 48 MA's), (19, 18190), (23, 18241), (25, 18256), (28, 18322), (32, 18370), (33, 18391), (40, 18490), (47, 18673), (54, 18745), (56, 18781), (58, 18814), (67, 18931), (69, 18961), (71, 18970), (76, 19060), (78, 19072), (80, 19084), (87, 19138),

Gene: HamCheese_22 Start: 16561, Stop: 17622, Start Num: 16

Candidate Starts for HamCheese_22:

(14, 16537), (Start: 16 @16561 has 48 MA's), (19, 16609), (25, 16675), (27, 16735), (28, 16741), (32, 16789), (40, 16909), (47, 17092), (56, 17218), (63, 17308), (66, 17356), (67, 17368), (70, 17401), (78, 17512), (83, 17548),

Gene: HannahPhantana_24 Start: 16979, Stop: 18034, Start Num: 16

Candidate Starts for HannahPhantana_24:

(Start: 16 @16979 has 48 MA's), (19, 17027), (20, 17030), (25, 17093), (28, 17159), (32, 17207), (33, 17228), (38, 17297), (39, 17315), (40, 17327), (41, 17363), (44, 17426), (47, 17510), (52, 17567), (56, 17636), (58, 17669), (67, 17786), (69, 17816), (71, 17825), (78, 17927), (87, 17993),

Gene: Jamun_23 Start: 17682, Stop: 18722, Start Num: 16

Candidate Starts for Jamun_23:

(Start: 16 @17682 has 48 MA's), (17, 17697), (22, 17778), (28, 17862), (33, 17937), (36, 17958), (40, 18036), (47, 18219), (49, 18261), (56, 18324), (66, 18462), (67, 18474), (70, 18507), (78, 18615), (87, 18681), (89, 18714),

Gene: Jerole_24 Start: 16976, Stop: 18031, Start Num: 16

Candidate Starts for Jerole_24:

(Start: 16 @16976 has 48 MA's), (19, 17024), (20, 17027), (25, 17090), (28, 17156), (32, 17204), (33, 17225), (38, 17294), (39, 17312), (40, 17324), (41, 17360), (44, 17423), (47, 17507), (52, 17564), (56, 17633), (58, 17666), (67, 17783), (69, 17813), (71, 17822), (78, 17924), (87, 17990),

Gene: Juno112_22 Start: 16562, Stop: 17629, Start Num: 16

Candidate Starts for Juno112_22:

(14, 16538), (Start: 16 @16562 has 48 MA's), (19, 16610), (25, 16676), (27, 16736), (28, 16742), (32, 16790), (33, 16811), (40, 16910), (47, 17093), (56, 17219), (63, 17309), (66, 17357), (67, 17369), (70, 17402), (78, 17513), (83, 17549),

Gene: KHumphrey_22 Start: 16559, Stop: 17620, Start Num: 16

Candidate Starts for KHumphrey_22:

(14, 16535), (Start: 16 @16559 has 48 MA's), (19, 16607), (25, 16673), (27, 16733), (28, 16739), (32, 16787), (33, 16808), (40, 16907), (47, 17090), (56, 17216), (63, 17306), (66, 17354), (67, 17366), (70, 17399), (78, 17510), (83, 17546),

Gene: KendraB23_24 Start: 18144, Stop: 19181, Start Num: 16

Candidate Starts for KendraB23_24:

(1, 17826), (6, 17865), (8, 17868), (9, 17901), (Start: 16 @18144 has 48 MA's), (19, 18192), (23, 18243), (25, 18258), (28, 18324), (32, 18372), (40, 18492), (47, 18675), (54, 18747), (56, 18783), (58, 18816), (67, 18933), (69, 18963), (71, 18972), (76, 19062), (78, 19074), (80, 19086), (87, 19140),

Gene: Kepler_23 Start: 16814, Stop: 17869, Start Num: 16

Candidate Starts for Kepler_23:

(Start: 16 @16814 has 48 MA's), (19, 16862), (20, 16865), (25, 16928), (28, 16994), (32, 17042), (33, 17063), (38, 17132), (40, 17162), (47, 17345), (52, 17402), (56, 17471), (58, 17504), (67, 17621), (69, 17651), (71, 17660), (78, 17762), (87, 17828),

Gene: Laphuphu24k_21 Start: 16561, Stop: 17622, Start Num: 16

Candidate Starts for Laphuphu24k_21:

(14, 16537), (Start: 16 @16561 has 48 MA's), (19, 16609), (25, 16675), (27, 16735), (28, 16741), (32, 16789), (40, 16909), (47, 17092), (56, 17218), (63, 17308), (66, 17356), (67, 17368), (70, 17401), (78, 17512), (83, 17548),

Gene: Leona_22 Start: 16621, Stop: 17682, Start Num: 15

Candidate Starts for Leona_22:

(Start: 15 @16621 has 3 MA's), (19, 16669), (25, 16735), (27, 16795), (28, 16801), (32, 16849), (33, 16870), (40, 16969), (47, 17152), (56, 17278), (66, 17416), (67, 17428), (70, 17461), (74, 17545), (78, 17572), (83, 17608),

Gene: Lunar_24 Start: 16976, Stop: 18034, Start Num: 16

Candidate Starts for Lunar_24:

(Start: 16 @16976 has 48 MA's), (19, 17024), (20, 17027), (25, 17090), (28, 17156), (32, 17204), (33, 17225), (38, 17294), (39, 17312), (40, 17324), (44, 17423), (47, 17507), (52, 17564), (56, 17633), (60, 17690), (71, 17828), (76, 17918), (77, 17921), (83, 17963), (85, 17975), (86, 17990),

Gene: Melons_24 Start: 16976, Stop: 18034, Start Num: 16

Candidate Starts for Melons_24:

(Start: 16 @16976 has 48 MA's), (19, 17024), (20, 17027), (25, 17090), (28, 17156), (32, 17204), (33, 17225), (38, 17294), (39, 17312), (40, 17324), (44, 17423), (47, 17507), (52, 17564), (56, 17633), (60, 17690), (71, 17828), (76, 17918), (77, 17921), (83, 17963), (85, 17975), (86, 17990),

Gene: Niblet_23 Start: 18013, Stop: 19050, Start Num: 16

Candidate Starts for Niblet_23:

(Start: 16 @18013 has 48 MA's), (17, 18028), (19, 18061), (25, 18127), (28, 18193), (32, 18241), (33, 18262), (38, 18331), (40, 18361), (47, 18544), (54, 18616), (56, 18652), (58, 18685), (67, 18802), (69, 18832), (71, 18841), (78, 18943), (87, 19009),

Gene: Oppalora_22 Start: 16560, Stop: 17621, Start Num: 16

Candidate Starts for Oppalora_22:

(14, 16536), (Start: 16 @16560 has 48 MA's), (19, 16608), (25, 16674), (27, 16734), (28, 16740), (32, 16788), (33, 16809), (40, 16908), (47, 17091), (56, 17217), (66, 17355), (67, 17367), (70, 17400), (78, 17511), (83, 17547),

Gene: Orcanus_23 Start: 17936, Stop: 18973, Start Num: 16

Candidate Starts for Orcanus_23:

(Start: 16 @17936 has 48 MA's), (19, 17984), (23, 18035), (25, 18050), (28, 18116), (32, 18164), (33, 18185), (40, 18284), (47, 18467), (54, 18539), (56, 18575), (58, 18608), (67, 18725), (69, 18755), (71, 18764), (76, 18854), (78, 18866), (80, 18878), (87, 18932),

Gene: OtsoOtso_23 Start: 16822, Stop: 17889, Start Num: 16

Candidate Starts for OtsoOtso_23:

(Start: 16 @16822 has 48 MA's), (19, 16870), (20, 16873), (21, 16906), (25, 16936), (28, 17002), (32, 17050), (38, 17140), (39, 17158), (40, 17170), (47, 17353), (52, 17419), (56, 17488), (60, 17545), (71, 17683), (76, 17773), (77, 17776), (81, 17803), (83, 17818), (85, 17830), (86, 17845),

Gene: Pelletreau_24 Start: 18142, Stop: 19179, Start Num: 16

Candidate Starts for Pelletreau_24:

(Start: 16 @18142 has 48 MA's), (19, 18190), (23, 18241), (25, 18256), (28, 18322), (32, 18370), (33, 18391), (40, 18490), (47, 18673), (54, 18745), (56, 18781), (58, 18814), (67, 18931), (69, 18961), (71, 18970), (76, 19060), (78, 19072), (80, 19084), (87, 19138),

Gene: PhirstandPhine_24 Start: 16976, Stop: 18034, Start Num: 16

Candidate Starts for PhirstandPhine_24:

(Start: 16 @16976 has 48 MA's), (19, 17024), (20, 17027), (25, 17090), (28, 17156), (32, 17204), (33, 17225), (38, 17294), (39, 17312), (40, 17324), (44, 17423), (47, 17507), (52, 17564), (56, 17633), (60, 17690), (71, 17828), (76, 17918), (77, 17921), (83, 17963), (85, 17975), (86, 17990),

Gene: PhluffyCoco_22 Start: 16561, Stop: 17622, Start Num: 16

Candidate Starts for PhluffyCoco_22:

(14, 16537), (Start: 16 @16561 has 48 MA's), (19, 16609), (25, 16675), (27, 16735), (28, 16741), (32, 16789), (40, 16909), (47, 17092), (56, 17218), (63, 17308), (66, 17356), (67, 17368), (70, 17401), (78, 17512), (83, 17548),

Gene: Pineda_24 Start: 16978, Stop: 18045, Start Num: 16

Candidate Starts for Pineda_24:

(Start: 16 @16978 has 48 MA's), (19, 17026), (20, 17029), (21, 17062), (25, 17092), (28, 17158), (32, 17206), (33, 17227), (38, 17296), (39, 17314), (40, 17326), (47, 17509), (52, 17575), (56, 17644), (60, 17701), (71, 17839), (76, 17929), (77, 17932), (81, 17959), (83, 17974), (85, 17986), (86, 18001),

Gene: Polka_23 Start: 16822, Stop: 17889, Start Num: 16

Candidate Starts for Polka_23:

(Start: 16 @16822 has 48 MA's), (19, 16870), (20, 16873), (21, 16906), (25, 16936), (28, 17002), (32, 17050), (38, 17140), (39, 17158), (40, 17170), (47, 17353), (52, 17419), (56, 17488), (60, 17545), (71, 17683), (76, 17773), (77, 17776), (81, 17803), (83, 17818), (85, 17830), (86, 17845),

Gene: Rattail_22 Start: 16621, Stop: 17682, Start Num: 15

Candidate Starts for Rattail_22:

(Start: 15 @16621 has 3 MA's), (19, 16669), (25, 16735), (27, 16795), (28, 16801), (32, 16849), (33, 16870), (40, 16969), (47, 17152), (56, 17278), (66, 17416), (67, 17428), (70, 17461), (74, 17545), (78, 17572), (83, 17608),

Gene: RedFox_22 Start: 16561, Stop: 17622, Start Num: 16

Candidate Starts for RedFox_22:

(14, 16537), (Start: 16 @16561 has 48 MA's), (19, 16609), (25, 16675), (27, 16735), (32, 16789), (33, 16810), (40, 16909), (47, 17092), (56, 17218), (63, 17308), (66, 17356), (67, 17368), (70, 17401), (78, 17512), (83, 17548),

Gene: Renna12_23 Start: 16914, Stop: 17975, Start Num: 16

Candidate Starts for Renna12_23:

(14, 16890), (Start: 16 @16914 has 48 MA's), (19, 16962), (25, 17028), (27, 17088), (28, 17094), (32, 17142), (33, 17163), (40, 17262), (43, 17355), (44, 17361), (47, 17445), (56, 17571), (66, 17709), (67, 17721), (70, 17754), (78, 17865), (83, 17901),

Gene: Ruchi_23 Start: 18222, Stop: 19262, Start Num: 16

Candidate Starts for Ruchi_23:

(Start: 16 @18222 has 48 MA's), (17, 18237), (22, 18318), (28, 18402), (32, 18456), (33, 18477), (36, 18498), (40, 18576), (45, 18693), (47, 18759), (56, 18864), (66, 19002), (67, 19014), (70, 19047), (78, 19155), (89, 19254),

Gene: Shen_24 Start: 18143, Stop: 19180, Start Num: 16

Candidate Starts for Shen_24:

(Start: 16 @18143 has 48 MA's), (19, 18191), (23, 18242), (25, 18257), (28, 18323), (32, 18371), (40, 18491), (47, 18674), (54, 18746), (56, 18782), (58, 18815), (67, 18932), (69, 18962), (71, 18971), (76, 19061), (78, 19073), (80, 19085), (87, 19139),

Gene: StuartMinion_22 Start: 16606, Stop: 17655, Start Num: 16

Candidate Starts for StuartMinion_22:

(14, 16582), (Start: 16 @16606 has 48 MA's), (19, 16654), (20, 16657), (25, 16720), (27, 16777), (28, 16783), (32, 16831), (35, 16861), (40, 16951), (44, 17050), (47, 17134), (52, 17194), (56, 17251), (63, 17341), (66, 17389), (67, 17401), (70, 17434), (78, 17545), (83, 17581),

Gene: TaylorSipht_23 Start: 16956, Stop: 17999, Start Num: 16

Candidate Starts for TaylorSipht_23:

(Start: 16 @16956 has 48 MA's), (19, 17004), (27, 17130), (28, 17136), (32, 17184), (40, 17304), (45, 17421), (47, 17487), (50, 17532), (55, 17571), (56, 17604), (58, 17637), (66, 17742), (67, 17754), (73, 17805), (78, 17895), (89, 17994),

Gene: Toad24_24 Start: 18143, Stop: 19180, Start Num: 16

Candidate Starts for Toad24_24:

(Start: 16 @18143 has 48 MA's), (19, 18191), (23, 18242), (25, 18257), (28, 18323), (32, 18371), (33, 18392), (40, 18491), (47, 18674), (54, 18746), (56, 18782), (58, 18815), (67, 18932), (69, 18962), (71, 18971), (76, 19061), (78, 19073), (80, 19085), (87, 19139),

Gene: Vulpecula_23 Start: 17680, Stop: 18720, Start Num: 16

Candidate Starts for Vulpecula_23:

(Start: 16 @17680 has 48 MA's), (22, 17776), (28, 17860), (33, 17935), (36, 17956), (40, 18034), (47, 18217), (56, 18322), (58, 18355), (66, 18460), (67, 18472), (76, 18601), (89, 18712),

Gene: Westrich_24 Start: 18132, Stop: 19169, Start Num: 16

Candidate Starts for Westrich_24:

(Start: 16 @18132 has 48 MA's), (19, 18180), (23, 18231), (25, 18246), (28, 18312), (32, 18360), (40, 18480), (47, 18663), (54, 18735), (56, 18771), (58, 18804), (67, 18921), (69, 18951), (71, 18960), (76, 19050), (78, 19062), (80, 19074), (87, 19128),

Gene: WileyE_22 Start: 17014, Stop: 18045, Start Num: 16

Candidate Starts for WileyE_22:

(Start: 16 @17014 has 48 MA's), (19, 17062), (25, 17128), (27, 17188), (28, 17194), (32, 17242), (35, 17272), (40, 17362), (47, 17545), (48, 17578), (56, 17647), (57, 17653), (66, 17785), (67, 17797), (71, 17836), (72, 17839), (79, 17944), (89, 18037),

Gene: Zhuangyuan_24 Start: 17386, Stop: 18453, Start Num: 16

Candidate Starts for Zhuangyuan_24:

(2, 17080), (3, 17083), (7, 17116), (11, 17236), (Start: 16 @17386 has 48 MA's), (17, 17401), (19, 17434), (26, 17518), (27, 17575), (28, 17581), (30, 17617), (38, 17719), (40, 17749), (44, 17848), (47, 17932), (52, 17992), (56, 18052), (58, 18085), (67, 18202), (70, 18235), (78, 18346), (80, 18358),

Gene: Zixiang_23 Start: 18014, Stop: 19051, Start Num: 16

Candidate Starts for Zixiang_23:

(Start: 16 @18014 has 48 MA's), (17, 18029), (19, 18062), (25, 18128), (28, 18194), (32, 18242), (33, 18263), (38, 18332), (40, 18362), (47, 18545), (54, 18617), (56, 18653), (58, 18686), (67, 18803), (69, 18833), (71, 18842), (78, 18944), (87, 19010),