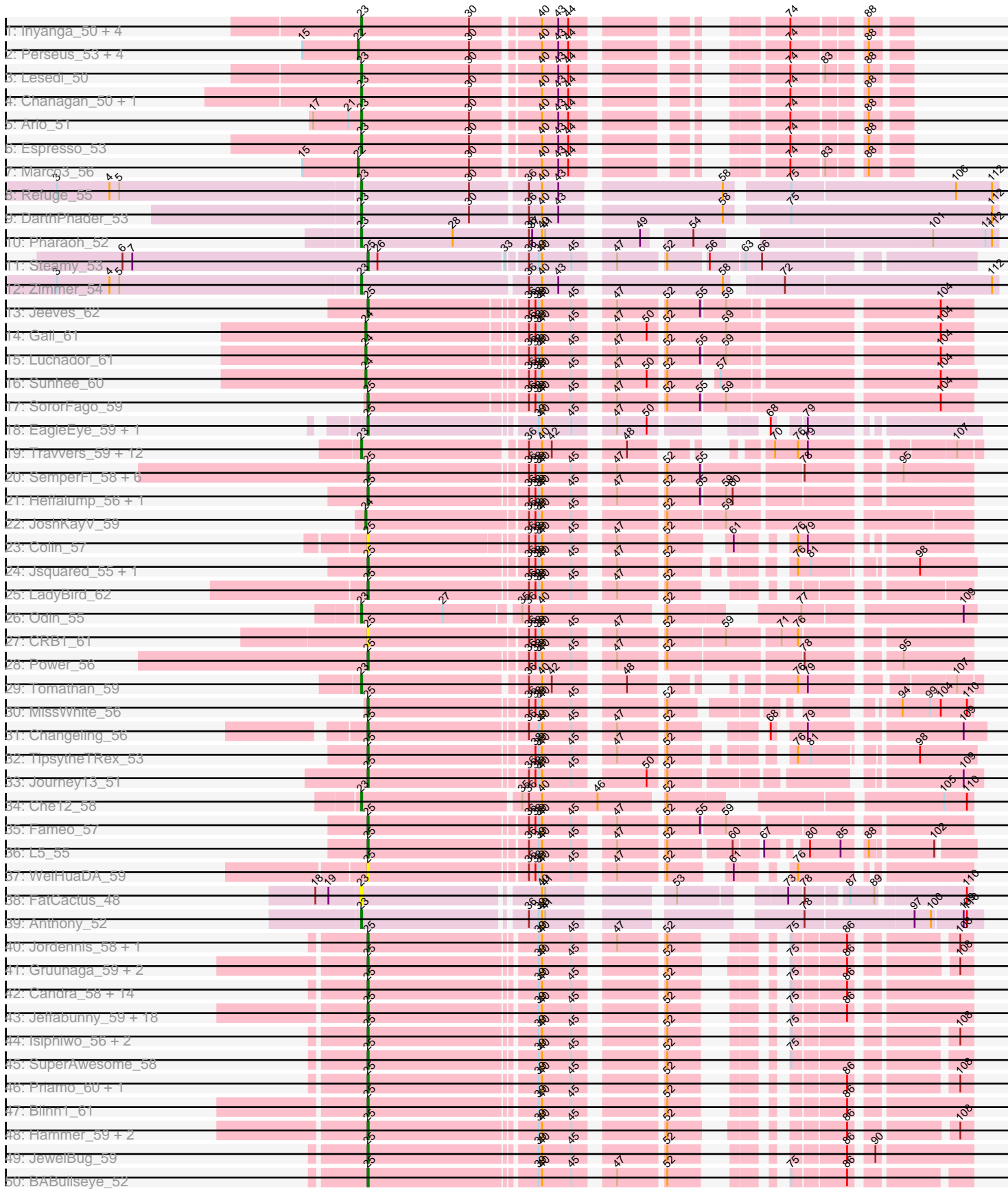
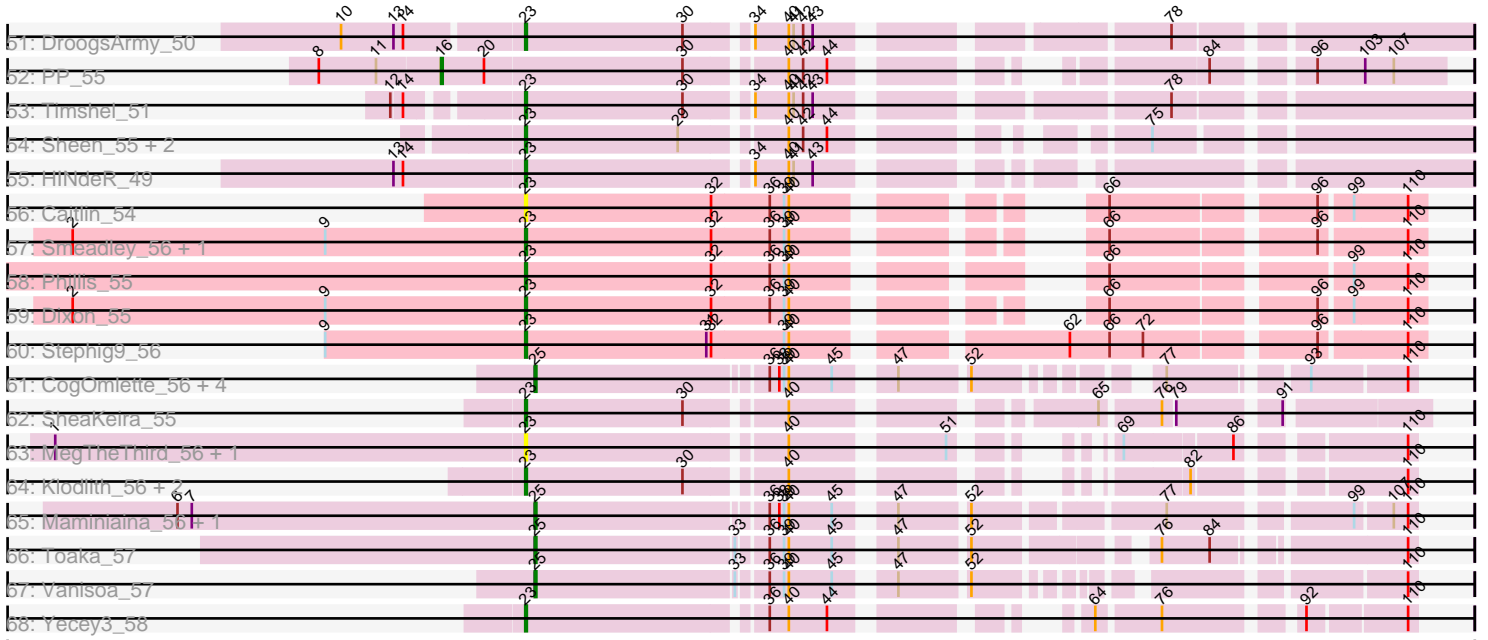


Pham 304777



Pham 304777



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 304777 Report

This analysis was run 06/08/26 on database version 649.

Pham number 304777 has 149 members, 20 are drafts.

Phages represented in each track:

- Track 1 : Inyanga\_50, Ajay\_55, MPlant7149\_52, Applejack\_48, Iqorha\_50
- Track 2 : Perseus\_53, Aeneas\_55, Smairt\_55, Mule\_50, PhrostyMug\_52
- Track 3 : Lesedi\_50
- Track 4 : Chanagan\_50, Niza\_56
- Track 5 : Arlo\_51
- Track 6 : Espresso\_53
- Track 7 : Marco3\_56
- Track 8 : Refuge\_55
- Track 9 : DarthPhader\_53
- Track 10 : Pharaoh\_52
- Track 11 : Steamy\_53
- Track 12 : Zimmer\_54
- Track 13 : Jeeves\_62
- Track 14 : Gail\_61
- Track 15 : Luchador\_61
- Track 16 : Sunhee\_60
- Track 17 : SororFago\_59
- Track 18 : EagleEye\_59, Lucyedi\_58
- Track 19 : Travvers\_59, Pomar16\_59, C3\_55, AN9\_60, D29\_55, D32\_58, Kerberos\_59, DBQu4n\_59, Naji\_59, Duplo\_59, ANI8\_60, VC3\_60, StarStuff\_59
- Track 20 : SemperFi\_58, Georgie2\_58, FiringLine\_57, SweetiePie\_57, SnapTap\_57, QueenBeesly\_57, Crucio\_57
- Track 21 : Heffalump\_56, QueenB2\_56
- Track 22 : JoshKayV\_59
- Track 23 : Colin\_57
- Track 24 : Jsquared\_55, Serenity\_57
- Track 25 : LadyBird\_62
- Track 26 : Odin\_55
- Track 27 : CRB1\_61
- Track 28 : Power\_56
- Track 29 : Tomathan\_59
- Track 30 : MissWhite\_56
- Track 31 : Changeling\_56
- Track 32 : TipsytheTRex\_53
- Track 33 : Journey13\_51
- Track 34 : Che12\_58
- Track 35 : Fameo\_57

- Track 36 : L5\_55
- Track 37 : WeiHuaDA\_59
- Track 38 : FatCactus\_48
- Track 39 : Anthony\_52
- Track 40 : Jordennis\_58, Dorothea\_58
- Track 41 : Gruunaga\_59, Gladiator\_56, Blue7\_60
- Track 42 : Candra\_58, Polyphemus\_60, SmellyB\_58, SuperCallie99\_57, Cookiedough\_58, GreedyLawyer\_58, Kipper29\_58, McFly\_58, Kazan\_59, EricB\_58, Neeharika16\_57, Newrala\_58, VohminGhazi\_58, Pmask\_58, Hoot\_53
- Track 43 : Jeffabunny\_59, Artemis2UCLA\_59, ToneTone\_56, BennyP\_59, Wiks\_58, Koko\_60, Helmet\_61, Garak\_61, Temprado\_60, Tucker\_59, Indra\_62, BlessJoy\_59, Zaka\_59, Zulu\_60, Lilbunny\_58, WunderPhul\_59, Yokurt\_59, CloudWang3\_59, Hexamo\_59
- Track 44 : Isiphiwo\_56, Chartreuse\_57, DaVinci\_57
- Track 45 : SuperAwesome\_58
- Track 46 : Priamo\_60, DelvinSonDorr\_57
- Track 47 : Blinn1\_61
- Track 48 : Hammer\_59, Roksolana\_60, Rifter\_59
- Track 49 : JewelBug\_59
- Track 50 : BABullseye\_52
- Track 51 : DroogsArmy\_50
- Track 52 : PP\_55
- Track 53 : Timshel\_51
- Track 54 : Sheen\_55, FlyCatcher\_59, Toro\_57
- Track 55 : HINdeR\_49
- Track 56 : Caitlin\_54
- Track 57 : Smeadley\_56, Expelliarmus\_54
- Track 58 : Phillis\_55
- Track 59 : Dixon\_55
- Track 60 : Stephig9\_56
- Track 61 : CogOmlette\_56, Rahalelujah\_57, Bellris\_56, Minispark\_56, WorldCup\_56
- Track 62 : SheaKeira\_55
- Track 63 : MegTheThird\_56, Celestialunch\_56
- Track 64 : Klodlith\_56, Charm\_55, DreamTeam1\_55
- Track 65 : Maminiaina\_56, BogosyJay\_56
- Track 66 : Toaka\_57
- Track 67 : Vanisoa\_57
- Track 68 : Yecey3\_58

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

The start number called the most often in the published annotations is 25, it was called in 77 of the 129 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Artemis2UCLA\_59, BABullseye\_52, Bellris\_56, BennyP\_59, BlessJoy\_59, Blinn1\_61, Blue7\_60, BogosyJay\_56, CRB1\_61, Candra\_58, Changeling\_56, Chartreuse\_57, CloudWang3\_59, CogOmlette\_56, Colin\_57, Cookiedough\_58, Crucio\_57, DaVinci\_57, DelvinSonDorr\_57, Dorothea\_58, EagleEye\_59, EricB\_58, Fameo\_57, FiringLine\_57, Garak\_61, Georgie2\_58, Gladiator\_56, GreedyLawyer\_58,

Gruunaga\_59, Hammer\_59, Heffalump\_56, Helmet\_61, Hexamo\_59, Hoot\_53, Indra\_62, Isiphiwo\_56, Jeeves\_62, Jeffabunny\_59, JewelBug\_59, Jordennis\_58, Journey13\_51, Jsquared\_55, Kazan\_59, Kipper29\_58, Koko\_60, L5\_55, LadyBird\_62, Lilbunny\_58, Lucyedi\_58, Maminina\_56, McFly\_58, Minispark\_56, MissWhite\_56, Neeharika16\_57, Newrala\_58, Pmask\_58, Polyphemus\_60, Power\_56, Priamo\_60, QueenB2\_56, QueenBeesly\_57, Rahalelujah\_57, Rifter\_59, Roksolana\_60, SemperFi\_58, Serenity\_57, SmellyB\_58, SnapTap\_57, SororFago\_59, Steamy\_53, SuperAwesome\_58, SuperCallie99\_57, SweetiePie\_57, Temprado\_60, TipsytheTRex\_53, Toaka\_57, ToneTone\_56, Tucker\_59, Vanisoa\_57, VohminGhazi\_58, WeiHuaDA\_59, Wiks\_58, WorldCup\_56, WunderPhul\_59, Yokurt\_59, Zaka\_59, Zulu\_60,

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

•

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

• AN9\_60, ANI8\_60, Aeneas\_55, Ajay\_55, Anthony\_52, Applejack\_48, Arlo\_51, C3\_55, Caitlin\_54, Celestiallunch\_56, Chanagan\_50, Charm\_55, Che12\_58, D29\_55, D32\_58, DBQu4n\_59, DarthPhader\_53, Dixon\_55, DreamTeam1\_55, DroogsArmy\_50, Duplo\_59, Espresso\_53, Expelliarmus\_54, FatCactus\_48, FlyCatcher\_59, Gail\_61, HINdeR\_49, Inyanga\_50, Iqorha\_50, JoshKayV\_59, Kerberos\_59, Klodlith\_56, Lesedi\_50, Luchador\_61, MPlant7149\_52, Marco3\_56, MegTheThird\_56, Mule\_50, Naji\_59, Niza\_56, Odin\_55, PP\_55, Perseus\_53, Pharaoh\_52, Phillis\_55, PhrostyMug\_52, Pomar16\_59, Refuge\_55, SheaKeira\_55, Sheen\_55, Smairt\_55, Smeadley\_56, StarStuff\_59, StepHig9\_56, Sunhee\_60, Timshel\_51, Tomathan\_59, Toro\_57, Travvers\_59, VC3\_60, Yecy3\_58, Zimmer\_54,

### Summary by start number:

Start 16:

- Found in 1 of 149 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 129
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PP\_55 (A7),

Start 22:

- Found in 6 of 149 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 6 of 129
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aeneas\_55 (A1), Marco3\_56 (A1), Mule\_50 (A1), Perseus\_53 (A1), PhrostyMug\_52 (A1), Smairt\_55 (A1),

Start 23:

- Found in 51 of 149 ( 34.2% ) of genes in pham
- Manual Annotations of this start: 41 of 129
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AN9\_60 (A2), ANI8\_60 (A2), Ajay\_55 (A1), Anthony\_52 (A20), Applejack\_48 (A1), Arlo\_51 (A1), C3\_55 (A2), Caitlin\_54 (A8), Celestiallunch\_56 (A9), Chanagan\_50 (A1), Charm\_55 (A9), Che12\_58 (A2), D29\_55 (A2), D32\_58 (A2), DBQu4n\_59 (A2), DarthPhader\_53 (A12), Dixon\_55 (A8), DreamTeam1\_55 (A9), DroogsArmy\_50 (A7), Duplo\_59 (A2), Espresso\_53 (A1), Expelliarmus\_54 (A8), FatCactus\_48 (A20), FlyCatcher\_59 (A7), HINdeR\_49 (A7), Inyanga\_50 (A1), Iqorha\_50 (A1), Kerberos\_59 (A2), Klodlith\_56 (A9), Lesedi\_50

(A1), MPlant7149\_52 (A1), MegTheThird\_56 (A9), Naji\_59 (A2), Niza\_56 (A1), Odin\_55 (A2), Pharaoh\_52 (A12), Phillis\_55 (A8), Pomar16\_59 (A2), Refuge\_55 (A12), SheaKeira\_55 (A9), Sheen\_55 (A7), Smeadley\_56 (A8), StarStuff\_59 (A2), Stephig9\_56 (A8), Timshel\_51 (A7), Tomathan\_59 (A2), Toro\_57 (A7), Travvers\_59 (A2), VC3\_60 (A2), Yecey3\_58 (A9), Zimmer\_54 (A12),

Start 24:

- Found in 4 of 149 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 4 of 129
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gail\_61 (A14), JoshKayV\_59 (A2), Luchador\_61 (A14), Sunhee\_60 (A14),

Start 25:

- Found in 87 of 149 ( 58.4% ) of genes in pham
- Manual Annotations of this start: 77 of 129
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Artemis2UCLA\_59 (A6), BABullseye\_52 (A6), Bellris\_56 (A9), BennyP\_59 (A6), BlessJoy\_59 (A6), Blinn1\_61 (A6), Blue7\_60 (A6), BogosyJay\_56 (A9), CRB1\_61 (A2), Candra\_58 (A6), Changeling\_56 (A2), Chartreuse\_57 (A6), CloudWang3\_59 (A6), CogOmlette\_56 (A9), Colin\_57 (A2), Cookiedough\_58 (A6), Crucio\_57 (A2), DaVinci\_57 (A6), DelvinSonDorr\_57 (A6), Dorothea\_58 (A6), EagleEye\_59 (A16), EricB\_58 (A6), Fameo\_57 (A2), FiringLine\_57 (A2), Garak\_61 (A6), Georgie2\_58 (A2), Gladiator\_56 (A6), GreedyLawyer\_58 (A6), Gruunaga\_59 (A6), Hammer\_59 (A6), Heffalump\_56 (A2), Helmet\_61 (A6), Hexamo\_59 (A6), Hoot\_53 (A6), Indra\_62 (A6), Isiphiwo\_56 (A6), Jeeves\_62 (A14), Jeffabunny\_59 (A6), JewelBug\_59 (A6), Jordennis\_58 (A6), Journey13\_51 (A2), Jsquared\_55 (A2), Kazan\_59 (A6), Kipper29\_58 (A6), Koko\_60 (A6), L5\_55 (A2), LadyBird\_62 (A2), Lilbunny\_58 (A6), Lucyedi\_58 (A16), Maminiaina\_56 (A9), McFly\_58 (A6), Minispark\_56 (A9), MissWhite\_56 (A2), Neeharika16\_57 (A6), Newrala\_58 (A6), Pmask\_58 (A6), Polyphemus\_60 (A6), Power\_56 (A2), Priamo\_60 (A6), QueenB2\_56 (A2), QueenBeesly\_57 (A2), Rahalelujah\_57 (A9), Rifter\_59 (A6), Roksolana\_60 (A6), SemperFi\_58 (A2), Serenity\_57 (A2), SmellyB\_58 (A6), SnapTap\_57 (A2), SororFago\_59 (A14), Steamy\_53 (A12), SuperAwesome\_58 (A6), SuperCallie99\_57 (A6), SweetiePie\_57 (A2), Temprado\_60 (A6), TipsytheTRex\_53 (A2), Toaka\_57 (A9), ToneTone\_56 (A6), Tucker\_59 (A6), Vanisoa\_57 (A9), VohminGhazi\_58 (A6), WeiHuaDA\_59 (A2), Wiks\_58 (A6), WorldCup\_56 (A9), WunderPhul\_59 (A6), Yokurt\_59 (A6), Zaka\_59 (A6), Zulu\_60 (A6),

### Summary by clusters:

There are 10 clusters represented in this pham: A20, A14, A16, A12, A1, A2, A7, A6, A9, A8,

Info for manual annotations of cluster A1:

- Start number 22 was manually annotated 6 times for cluster A1.
- Start number 23 was manually annotated 8 times for cluster A1.

Info for manual annotations of cluster A12:

- Start number 23 was manually annotated 4 times for cluster A12.
- Start number 25 was manually annotated 1 time for cluster A12.

Info for manual annotations of cluster A14:

- Start number 24 was manually annotated 3 times for cluster A14.
- Start number 25 was manually annotated 2 times for cluster A14.

Info for manual annotations of cluster A16:

- Start number 25 was manually annotated 2 times for cluster A16.

Info for manual annotations of cluster A2:

- Start number 23 was manually annotated 15 times for cluster A2.
- Start number 24 was manually annotated 1 time for cluster A2.
- Start number 25 was manually annotated 19 times for cluster A2.

Info for manual annotations of cluster A20:

- Start number 23 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A6:

- Start number 25 was manually annotated 48 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 16 was manually annotated 1 time for cluster A7.
- Start number 23 was manually annotated 4 times for cluster A7.

Info for manual annotations of cluster A8:

- Start number 23 was manually annotated 5 times for cluster A8.

Info for manual annotations of cluster A9:

- Start number 23 was manually annotated 4 times for cluster A9.
- Start number 25 was manually annotated 5 times for cluster A9.

### ***Gene Information:***

Gene: AN9\_60 Start: 38397, Stop: 37942, Start Num: 23

Candidate Starts for AN9\_60:

(Start: 23 @38397 has 41 MA's), (36, 38256), (40, 38244), (42, 38235), (48, 38181), (70, 38106), (76, 38085), (79, 38076), (107, 37962),

Gene: ANI8\_60 Start: 38397, Stop: 37942, Start Num: 23

Candidate Starts for ANI8\_60:

(Start: 23 @38397 has 41 MA's), (36, 38256), (40, 38244), (42, 38235), (48, 38181), (70, 38106), (76, 38085), (79, 38076), (107, 37962),

Gene: Aeneas\_55 Start: 39139, Stop: 38738, Start Num: 22

Candidate Starts for Aeneas\_55:

(15, 39190), (Start: 22 @39139 has 6 MA's), (30, 39037), (40, 38983), (43, 38968), (44, 38959), (74, 38824), (88, 38770),

Gene: Ajay\_55 Start: 39243, Stop: 38845, Start Num: 23

Candidate Starts for Ajay\_55:

(Start: 23 @39243 has 41 MA's), (30, 39144), (40, 39090), (43, 39075), (44, 39066), (74, 38931), (88, 38877),

Gene: Anthony\_52 Start: 35777, Stop: 35280, Start Num: 23

Candidate Starts for Anthony\_52:

(Start: 23 @35777 has 41 MA's), (36, 35636), (39, 35627), (40, 35624), (41, 35621), (78, 35435), (97, 35339), (100, 35324), (109, 35297), (110, 35294),

Gene: Applejack\_48 Start: 35405, Stop: 35007, Start Num: 23

Candidate Starts for Applejack\_48:

(Start: 23 @35405 has 41 MA's), (30, 35306), (40, 35252), (43, 35237), (44, 35228), (74, 35093), (88, 35039),

Gene: Arlo\_51 Start: 37427, Stop: 37029, Start Num: 23

Candidate Starts for Arlo\_51:

(17, 37469), (21, 37439), (Start: 23 @37427 has 41 MA's), (30, 37328), (40, 37274), (43, 37259), (44, 37250), (74, 37115), (88, 37061),

Gene: Artemis2UCLA\_59 Start: 37105, Stop: 36662, Start Num: 25

Candidate Starts for Artemis2UCLA\_59:

(Start: 25 @37105 has 77 MA's), (39, 36961), (40, 36958), (45, 36931), (52, 36865), (75, 36805), (86, 36760),

Gene: BABullseye\_52 Start: 34678, Stop: 34244, Start Num: 25

Candidate Starts for BABullseye\_52:

(Start: 25 @34678 has 77 MA's), (39, 34534), (40, 34531), (45, 34504), (47, 34477), (52, 34438), (75, 34378), (86, 34333),

Gene: Bellris\_56 Start: 37720, Stop: 37262, Start Num: 25

Candidate Starts for Bellris\_56:

(Start: 25 @37720 has 77 MA's), (36, 37582), (38, 37576), (39, 37573), (40, 37570), (45, 37543), (47, 37516), (52, 37477), (77, 37396), (93, 37324), (110, 37267),

Gene: BennyP\_59 Start: 37175, Stop: 36732, Start Num: 25

Candidate Starts for BennyP\_59:

(Start: 25 @37175 has 77 MA's), (39, 37031), (40, 37028), (45, 37001), (52, 36935), (75, 36875), (86, 36830),

Gene: BlessJoy\_59 Start: 37531, Stop: 37088, Start Num: 25

Candidate Starts for BlessJoy\_59:

(Start: 25 @37531 has 77 MA's), (39, 37387), (40, 37384), (45, 37357), (52, 37291), (75, 37231), (86, 37186),

Gene: Blinn1\_61 Start: 37123, Stop: 36680, Start Num: 25

Candidate Starts for Blinn1\_61:

(Start: 25 @37123 has 77 MA's), (39, 36979), (40, 36976), (45, 36949), (52, 36883), (86, 36778),

Gene: Blue7\_60 Start: 37199, Stop: 36762, Start Num: 25

Candidate Starts for Blue7\_60:

(Start: 25 @37199 has 77 MA's), (39, 37055), (40, 37052), (45, 37025), (52, 36959), (75, 36896), (86, 36851), (108, 36773),

Gene: BogosyJay\_56 Start: 37976, Stop: 37491, Start Num: 25

Candidate Starts for BogosyJay\_56:

(6, 38201), (7, 38192), (Start: 25 @37976 has 77 MA's), (36, 37838), (38, 37832), (39, 37829), (40, 37826), (45, 37799), (47, 37772), (52, 37733), (77, 37628), (99, 37526), (107, 37505), (110, 37496),

Gene: C3\_55 Start: 38397, Stop: 37942, Start Num: 23

Candidate Starts for C3\_55:

(Start: 23 @38397 has 41 MA's), (36, 38256), (40, 38244), (42, 38235), (48, 38181), (70, 38106), (76, 38085), (79, 38076), (107, 37962),

Gene: CRB1\_61 Start: 39164, Stop: 38667, Start Num: 25

Candidate Starts for CRB1\_61:

(Start: 25 @39164 has 77 MA's), (36, 39023), (38, 39017), (39, 39014), (40, 39011), (45, 38984), (47, 38957), (52, 38918), (59, 38867), (71, 38822), (76, 38807),

Gene: Caitlin\_54 Start: 36631, Stop: 36161, Start Num: 23

Candidate Starts for Caitlin\_54:

(Start: 23 @36631 has 41 MA's), (32, 36514), (36, 36478), (39, 36469), (40, 36466), (66, 36340), (96, 36223), (99, 36205), (110, 36172),

Gene: Candra\_58 Start: 37045, Stop: 36602, Start Num: 25

Candidate Starts for Candra\_58:

(Start: 25 @37045 has 77 MA's), (39, 36901), (40, 36898), (45, 36871), (52, 36805), (75, 36745), (86, 36700),

Gene: Celestiallunch\_56 Start: 37762, Stop: 37325, Start Num: 23

Candidate Starts for Celestiallunch\_56:

(1, 38056), (Start: 23 @37762 has 41 MA's), (40, 37609), (51, 37525), (69, 37480), (86, 37417), (110, 37330),

Gene: Chanagan\_50 Start: 36851, Stop: 36453, Start Num: 23

Candidate Starts for Chanagan\_50:

(Start: 23 @36851 has 41 MA's), (30, 36752), (40, 36698), (43, 36683), (44, 36674), (74, 36539), (88, 36485),

Gene: Changeling\_56 Start: 38803, Stop: 38336, Start Num: 25

Candidate Starts for Changeling\_56:

(Start: 25 @38803 has 77 MA's), (36, 38665), (39, 38656), (40, 38653), (45, 38626), (47, 38599), (52, 38560), (68, 38503), (79, 38482), (109, 38356),

Gene: Charm\_55 Start: 37821, Stop: 37384, Start Num: 23

Candidate Starts for Charm\_55:

(Start: 23 @37821 has 41 MA's), (30, 37722), (40, 37668), (82, 37500), (110, 37389),

Gene: Chartreuse\_57 Start: 36396, Stop: 35962, Start Num: 25

Candidate Starts for Chartreuse\_57:

(Start: 25 @36396 has 77 MA's), (39, 36252), (40, 36249), (45, 36222), (52, 36156), (75, 36096), (108, 35973),

Gene: Che12\_58 Start: 37116, Stop: 36628, Start Num: 23

Candidate Starts for Che12\_58:

(Start: 23 @37116 has 41 MA's), (35, 36975), (36, 36969), (40, 36957), (46, 36906), (52, 36855), (105, 36654), (110, 36633),

Gene: CloudWang3\_59 Start: 37193, Stop: 36750, Start Num: 25

Candidate Starts for CloudWang3\_59:

(Start: 25 @37193 has 77 MA's), (39, 37049), (40, 37046), (45, 37019), (52, 36953), (75, 36893), (86, 36848),

Gene: CogOmlette\_56 Start: 37717, Stop: 37259, Start Num: 25

Candidate Starts for CogOmlette\_56:

(Start: 25 @37717 has 77 MA's), (36, 37579), (38, 37573), (39, 37570), (40, 37567), (45, 37540), (47, 37513), (52, 37474), (77, 37393), (93, 37321), (110, 37264),

Gene: Colin\_57 Start: 38509, Stop: 38060, Start Num: 25

Candidate Starts for Colin\_57:

(Start: 25 @38509 has 77 MA's), (36, 38374), (38, 38368), (39, 38365), (40, 38362), (45, 38335), (47, 38308), (52, 38269), (61, 38230), (76, 38197), (79, 38188),

Gene: Cookiedough\_58 Start: 37024, Stop: 36581, Start Num: 25

Candidate Starts for Cookiedough\_58:

(Start: 25 @37024 has 77 MA's), (39, 36880), (40, 36877), (45, 36850), (52, 36784), (75, 36724), (86, 36679),

Gene: Crucio\_57 Start: 38174, Stop: 37680, Start Num: 25

Candidate Starts for Crucio\_57:

(Start: 25 @38174 has 77 MA's), (36, 38036), (38, 38030), (39, 38027), (40, 38024), (45, 37997), (47, 37970), (52, 37931), (55, 37901), (78, 37817), (95, 37742),

Gene: D29\_55 Start: 38000, Stop: 37545, Start Num: 23

Candidate Starts for D29\_55:

(Start: 23 @38000 has 41 MA's), (36, 37859), (40, 37847), (42, 37838), (48, 37784), (70, 37709), (76, 37688), (79, 37679), (107, 37565),

Gene: D32\_58 Start: 38000, Stop: 37545, Start Num: 23

Candidate Starts for D32\_58:

(Start: 23 @38000 has 41 MA's), (36, 37859), (40, 37847), (42, 37838), (48, 37784), (70, 37709), (76, 37688), (79, 37679), (107, 37565),

Gene: DBQu4n\_59 Start: 37981, Stop: 37526, Start Num: 23

Candidate Starts for DBQu4n\_59:

(Start: 23 @37981 has 41 MA's), (36, 37840), (40, 37828), (42, 37819), (48, 37765), (70, 37690), (76, 37669), (79, 37660), (107, 37546),

Gene: DaVinci\_57 Start: 36450, Stop: 36016, Start Num: 25

Candidate Starts for DaVinci\_57:

(Start: 25 @36450 has 77 MA's), (39, 36306), (40, 36303), (45, 36276), (52, 36210), (75, 36150), (108, 36027),

Gene: DarthPhader\_53 Start: 38914, Stop: 38369, Start Num: 23

Candidate Starts for DarthPhader\_53:

(Start: 23 @38914 has 41 MA's), (30, 38815), (36, 38767), (40, 38755), (43, 38740), (58, 38608), (75, 38557), (112, 38374),

Gene: DelvinSonDorr\_57 Start: 37255, Stop: 36821, Start Num: 25

Candidate Starts for DelvinSonDorr\_57:

(Start: 25 @37255 has 77 MA's), (39, 37111), (40, 37108), (45, 37081), (52, 37015), (86, 36910), (108, 36832),

Gene: Dixon\_55 Start: 36492, Stop: 36022, Start Num: 23

Candidate Starts for Dixon\_55:

(2, 36777), (9, 36618), (Start: 23 @36492 has 41 MA's), (32, 36375), (36, 36339), (39, 36330), (40, 36327), (66, 36201), (96, 36084), (99, 36066), (110, 36033),

Gene: Dorothea\_58 Start: 37019, Stop: 36585, Start Num: 25

Candidate Starts for Dorothea\_58:

(Start: 25 @37019 has 77 MA's), (39, 36875), (40, 36872), (45, 36845), (47, 36818), (52, 36779), (75, 36719), (86, 36674), (108, 36596),

Gene: DreamTeam1\_55 Start: 37653, Stop: 37216, Start Num: 23

Candidate Starts for DreamTeam1\_55:

(Start: 23 @37653 has 41 MA's), (30, 37554), (40, 37500), (82, 37332), (110, 37221),

Gene: DroogsArmy\_50 Start: 38758, Stop: 38237, Start Num: 23

Candidate Starts for DroogsArmy\_50:

(10, 38866), (13, 38833), (14, 38827), (Start: 23 @38758 has 41 MA's), (30, 38659), (34, 38626), (40, 38605), (41, 38602), (42, 38596), (43, 38590), (78, 38407),

Gene: Duplo\_59 Start: 38037, Stop: 37582, Start Num: 23

Candidate Starts for Duplo\_59:

(Start: 23 @38037 has 41 MA's), (36, 37896), (40, 37884), (42, 37875), (48, 37821), (70, 37746), (76, 37725), (79, 37716), (107, 37602),

Gene: EagleEye\_59 Start: 37874, Stop: 37425, Start Num: 25

Candidate Starts for EagleEye\_59:

(Start: 25 @37874 has 77 MA's), (39, 37730), (40, 37727), (45, 37700), (47, 37673), (50, 37646), (68, 37577), (79, 37559),

Gene: EricB\_58 Start: 37002, Stop: 36559, Start Num: 25

Candidate Starts for EricB\_58:

(Start: 25 @37002 has 77 MA's), (39, 36858), (40, 36855), (45, 36828), (52, 36762), (75, 36702), (86, 36657),

Gene: Espresso\_53 Start: 39063, Stop: 38665, Start Num: 23

Candidate Starts for Espresso\_53:

(Start: 23 @39063 has 41 MA's), (30, 38964), (40, 38910), (43, 38895), (44, 38886), (74, 38751), (88, 38697),

Gene: Expelliarmus\_54 Start: 36696, Stop: 36226, Start Num: 23

Candidate Starts for Expelliarmus\_54:

(2, 36981), (9, 36822), (Start: 23 @36696 has 41 MA's), (32, 36579), (36, 36543), (39, 36534), (40, 36531), (66, 36405), (96, 36288), (110, 36237),

Gene: Fameo\_57 Start: 38505, Stop: 38011, Start Num: 25

Candidate Starts for Fameo\_57:

(Start: 25 @38505 has 77 MA's), (36, 38367), (38, 38361), (39, 38358), (40, 38355), (45, 38328), (47, 38301), (52, 38262), (55, 38232), (59, 38211),

Gene: FatCactus\_48 Start: 35445, Stop: 34978, Start Num: 23

Candidate Starts for FatCactus\_48:

(18, 35484), (19, 35472), (Start: 23 @35445 has 41 MA's), (40, 35292), (41, 35289), (53, 35199), (73, 35124), (78, 35112), (87, 35079), (89, 35058), (110, 34983),

Gene: FiringLine\_57 Start: 38155, Stop: 37661, Start Num: 25

Candidate Starts for FiringLine\_57:

(Start: 25 @38155 has 77 MA's), (36, 38017), (38, 38011), (39, 38008), (40, 38005), (45, 37978), (47, 37951), (52, 37912), (55, 37882), (78, 37798), (95, 37723),

Gene: FlyCatcher\_59 Start: 40134, Stop: 39640, Start Num: 23

Candidate Starts for FlyCatcher\_59:

(Start: 23 @40134 has 41 MA's), (29, 40038), (40, 39981), (42, 39972), (44, 39957), (75, 39819),

Gene: Gail\_61 Start: 39377, Stop: 38874, Start Num: 24

Candidate Starts for Gail\_61:

(Start: 24 @39377 has 4 MA's), (36, 39242), (38, 39236), (39, 39233), (40, 39230), (45, 39203), (47, 39176), (50, 39149), (52, 39137), (59, 39083), (104, 38903),

Gene: Garak\_61 Start: 37472, Stop: 37029, Start Num: 25

Candidate Starts for Garak\_61:

(Start: 25 @37472 has 77 MA's), (39, 37328), (40, 37325), (45, 37298), (52, 37232), (75, 37172), (86, 37127),

Gene: Georgie2\_58 Start: 38200, Stop: 37706, Start Num: 25

Candidate Starts for Georgie2\_58:

(Start: 25 @38200 has 77 MA's), (36, 38062), (38, 38056), (39, 38053), (40, 38050), (45, 38023), (47, 37996), (52, 37957), (55, 37927), (78, 37843), (95, 37768),

Gene: Gladiator\_56 Start: 36697, Stop: 36260, Start Num: 25

Candidate Starts for Gladiator\_56:

(Start: 25 @36697 has 77 MA's), (39, 36553), (40, 36550), (45, 36523), (52, 36457), (75, 36394), (86, 36349), (108, 36271),

Gene: GreedyLawyer\_58 Start: 37009, Stop: 36566, Start Num: 25

Candidate Starts for GreedyLawyer\_58:

(Start: 25 @37009 has 77 MA's), (39, 36865), (40, 36862), (45, 36835), (52, 36769), (75, 36709), (86, 36664),

Gene: Gruunaga\_59 Start: 37396, Stop: 36959, Start Num: 25

Candidate Starts for Gruunaga\_59:

(Start: 25 @37396 has 77 MA's), (39, 37252), (40, 37249), (45, 37222), (52, 37156), (75, 37093), (86, 37048), (108, 36970),

Gene: HINdeR\_49 Start: 38405, Stop: 37899, Start Num: 23

Candidate Starts for HINdeR\_49:

(13, 38486), (14, 38480), (Start: 23 @38405 has 41 MA's), (34, 38273), (40, 38252), (41, 38249), (43, 38237),

Gene: Hammer\_59 Start: 37003, Stop: 36566, Start Num: 25

Candidate Starts for Hammer\_59:

(Start: 25 @37003 has 77 MA's), (39, 36859), (40, 36856), (45, 36829), (52, 36763), (86, 36655), (108, 36577),

Gene: Heffalump\_56 Start: 38973, Stop: 38479, Start Num: 25

Candidate Starts for Heffalump\_56:

(Start: 25 @38973 has 77 MA's), (36, 38835), (38, 38829), (39, 38826), (40, 38823), (45, 38796), (47, 38769), (52, 38730), (55, 38700), (59, 38679), (60, 38673),

Gene: Helmet\_61 Start: 37472, Stop: 37029, Start Num: 25  
Candidate Starts for Helmet\_61:  
(Start: 25 @37472 has 77 MA's), (39, 37328), (40, 37325), (45, 37298), (52, 37232), (75, 37172), (86, 37127),

Gene: Hexamo\_59 Start: 37102, Stop: 36659, Start Num: 25  
Candidate Starts for Hexamo\_59:  
(Start: 25 @37102 has 77 MA's), (39, 36958), (40, 36955), (45, 36928), (52, 36862), (75, 36802), (86, 36757),

Gene: Hoot\_53 Start: 34860, Stop: 34417, Start Num: 25  
Candidate Starts for Hoot\_53:  
(Start: 25 @34860 has 77 MA's), (39, 34716), (40, 34713), (45, 34686), (52, 34620), (75, 34560), (86, 34515),

Gene: Indra\_62 Start: 37473, Stop: 37030, Start Num: 25  
Candidate Starts for Indra\_62:  
(Start: 25 @37473 has 77 MA's), (39, 37329), (40, 37326), (45, 37299), (52, 37233), (75, 37173), (86, 37128),

Gene: Inyanga\_50 Start: 36800, Stop: 36402, Start Num: 23  
Candidate Starts for Inyanga\_50:  
(Start: 23 @36800 has 41 MA's), (30, 36701), (40, 36647), (43, 36632), (44, 36623), (74, 36488), (88, 36434),

Gene: Iqorha\_50 Start: 36799, Stop: 36401, Start Num: 23  
Candidate Starts for Iqorha\_50:  
(Start: 23 @36799 has 41 MA's), (30, 36700), (40, 36646), (43, 36631), (44, 36622), (74, 36487), (88, 36433),

Gene: Isiphiwo\_56 Start: 36576, Stop: 36142, Start Num: 25  
Candidate Starts for Isiphiwo\_56:  
(Start: 25 @36576 has 77 MA's), (39, 36432), (40, 36429), (45, 36402), (52, 36336), (75, 36276), (108, 36153),

Gene: Jeeves\_62 Start: 38354, Stop: 37857, Start Num: 25  
Candidate Starts for Jeeves\_62:  
(Start: 25 @38354 has 77 MA's), (36, 38219), (38, 38213), (39, 38210), (40, 38207), (45, 38180), (47, 38153), (52, 38114), (55, 38084), (59, 38063), (104, 37886),

Gene: Jeffabunny\_59 Start: 37099, Stop: 36656, Start Num: 25  
Candidate Starts for Jeffabunny\_59:  
(Start: 25 @37099 has 77 MA's), (39, 36955), (40, 36952), (45, 36925), (52, 36859), (75, 36799), (86, 36754),

Gene: JewelBug\_59 Start: 37215, Stop: 36772, Start Num: 25  
Candidate Starts for JewelBug\_59:  
(Start: 25 @37215 has 77 MA's), (39, 37071), (40, 37068), (45, 37041), (52, 36975), (86, 36870), (90, 36855),

Gene: Jordennis\_58 Start: 36696, Stop: 36262, Start Num: 25  
Candidate Starts for Jordennis\_58:

(Start: 25 @36696 has 77 MA's), (39, 36552), (40, 36549), (45, 36522), (47, 36495), (52, 36456), (75, 36396), (86, 36351), (108, 36273),

Gene: JoshKayV\_59 Start: 38828, Stop: 38325, Start Num: 24

Candidate Starts for JoshKayV\_59:

(Start: 24 @38828 has 4 MA's), (36, 38687), (38, 38681), (39, 38678), (40, 38675), (45, 38648), (52, 38582), (59, 38531),

Gene: Journey13\_51 Start: 36542, Stop: 36054, Start Num: 25

Candidate Starts for Journey13\_51:

(Start: 25 @36542 has 77 MA's), (36, 36404), (38, 36398), (39, 36395), (40, 36392), (45, 36365), (50, 36311), (52, 36299), (109, 36071),

Gene: Jsquared\_55 Start: 37136, Stop: 36672, Start Num: 25

Candidate Starts for Jsquared\_55:

(Start: 25 @37136 has 77 MA's), (36, 36998), (38, 36992), (39, 36989), (40, 36986), (45, 36959), (47, 36932), (52, 36893), (76, 36812), (81, 36800), (98, 36722),

Gene: Kazan\_59 Start: 37015, Stop: 36572, Start Num: 25

Candidate Starts for Kazan\_59:

(Start: 25 @37015 has 77 MA's), (39, 36871), (40, 36868), (45, 36841), (52, 36775), (75, 36715), (86, 36670),

Gene: Kerberos\_59 Start: 37999, Stop: 37544, Start Num: 23

Candidate Starts for Kerberos\_59:

(Start: 23 @37999 has 41 MA's), (36, 37858), (40, 37846), (42, 37837), (48, 37783), (70, 37708), (76, 37687), (79, 37678), (107, 37564),

Gene: Kipper29\_58 Start: 37028, Stop: 36585, Start Num: 25

Candidate Starts for Kipper29\_58:

(Start: 25 @37028 has 77 MA's), (39, 36884), (40, 36881), (45, 36854), (52, 36788), (75, 36728), (86, 36683),

Gene: Klodlith\_56 Start: 37715, Stop: 37278, Start Num: 23

Candidate Starts for Klodlith\_56:

(Start: 23 @37715 has 41 MA's), (30, 37616), (40, 37562), (82, 37394), (110, 37283),

Gene: Koko\_60 Start: 37533, Stop: 37090, Start Num: 25

Candidate Starts for Koko\_60:

(Start: 25 @37533 has 77 MA's), (39, 37389), (40, 37386), (45, 37359), (52, 37293), (75, 37233), (86, 37188),

Gene: L5\_55 Start: 37502, Stop: 37032, Start Num: 25

Candidate Starts for L5\_55:

(Start: 25 @37502 has 77 MA's), (36, 37364), (39, 37355), (40, 37352), (45, 37325), (47, 37298), (52, 37259), (60, 37205), (67, 37184), (80, 37157), (85, 37130), (88, 37115), (102, 37064),

Gene: LadyBird\_62 Start: 39099, Stop: 38653, Start Num: 25

Candidate Starts for LadyBird\_62:

(Start: 25 @39099 has 77 MA's), (36, 38958), (38, 38952), (39, 38949), (40, 38946), (45, 38919), (47, 38892), (52, 38853),

Gene: Lesedi\_50 Start: 37197, Stop: 36799, Start Num: 23

Candidate Starts for Lesedi\_50:

(Start: 23 @37197 has 41 MA's), (30, 37098), (40, 37044), (43, 37029), (44, 37020), (74, 36885), (83, 36858), (88, 36831),

Gene: Lilbunny\_58 Start: 37103, Stop: 36660, Start Num: 25

Candidate Starts for Lilbunny\_58:

(Start: 25 @37103 has 77 MA's), (39, 36959), (40, 36956), (45, 36929), (52, 36863), (75, 36803), (86, 36758),

Gene: Luchador\_61 Start: 39939, Stop: 39442, Start Num: 24

Candidate Starts for Luchador\_61:

(Start: 24 @39939 has 4 MA's), (36, 39804), (38, 39798), (39, 39795), (40, 39792), (45, 39765), (47, 39738), (52, 39699), (55, 39669), (59, 39648), (104, 39471),

Gene: Lucyedi\_58 Start: 38070, Stop: 37621, Start Num: 25

Candidate Starts for Lucyedi\_58:

(Start: 25 @38070 has 77 MA's), (39, 37926), (40, 37923), (45, 37896), (47, 37869), (50, 37842), (68, 37773), (79, 37755),

Gene: MPlant7149\_52 Start: 37293, Stop: 36895, Start Num: 23

Candidate Starts for MPlant7149\_52:

(Start: 23 @37293 has 41 MA's), (30, 37194), (40, 37140), (43, 37125), (44, 37116), (74, 36981), (88, 36927),

Gene: Maminiaina\_56 Start: 37958, Stop: 37473, Start Num: 25

Candidate Starts for Maminiaina\_56:

(6, 38183), (7, 38174), (Start: 25 @37958 has 77 MA's), (36, 37820), (38, 37814), (39, 37811), (40, 37808), (45, 37781), (47, 37754), (52, 37715), (77, 37610), (99, 37508), (107, 37487), (110, 37478),

Gene: Marco3\_56 Start: 40086, Stop: 39685, Start Num: 22

Candidate Starts for Marco3\_56:

(15, 40137), (Start: 22 @40086 has 6 MA's), (30, 39984), (40, 39930), (43, 39915), (44, 39906), (74, 39771), (83, 39744), (88, 39717),

Gene: McFly\_58 Start: 37009, Stop: 36566, Start Num: 25

Candidate Starts for McFly\_58:

(Start: 25 @37009 has 77 MA's), (39, 36865), (40, 36862), (45, 36835), (52, 36769), (75, 36709), (86, 36664),

Gene: MegTheThird\_56 Start: 37761, Stop: 37324, Start Num: 23

Candidate Starts for MegTheThird\_56:

(1, 38055), (Start: 23 @37761 has 41 MA's), (40, 37608), (51, 37524), (69, 37479), (86, 37416), (110, 37329),

Gene: Minispark\_56 Start: 37714, Stop: 37256, Start Num: 25

Candidate Starts for Minispark\_56:

(Start: 25 @37714 has 77 MA's), (36, 37576), (38, 37570), (39, 37567), (40, 37564), (45, 37537), (47, 37510), (52, 37471), (77, 37390), (93, 37318), (110, 37261),

Gene: MissWhite\_56 Start: 36656, Stop: 36198, Start Num: 25

Candidate Starts for MissWhite\_56:

(Start: 25 @36656 has 77 MA's), (36, 36518), (38, 36512), (39, 36509), (40, 36506), (45, 36479), (52, 36413), (94, 36260), (99, 36236), (104, 36227), (110, 36203),

Gene: Mule\_50 Start: 36434, Stop: 36033, Start Num: 22

Candidate Starts for Mule\_50:

(15, 36485), (Start: 22 @36434 has 6 MA's), (30, 36332), (40, 36278), (43, 36263), (44, 36254), (74, 36119), (88, 36065),

Gene: Naji\_59 Start: 38000, Stop: 37545, Start Num: 23

Candidate Starts for Naji\_59:

(Start: 23 @38000 has 41 MA's), (36, 37859), (40, 37847), (42, 37838), (48, 37784), (70, 37709), (76, 37688), (79, 37679), (107, 37565),

Gene: Neeharika16\_57 Start: 36469, Stop: 36026, Start Num: 25

Candidate Starts for Neeharika16\_57:

(Start: 25 @36469 has 77 MA's), (39, 36325), (40, 36322), (45, 36295), (52, 36229), (75, 36169), (86, 36124),

Gene: Newrala\_58 Start: 37011, Stop: 36568, Start Num: 25

Candidate Starts for Newrala\_58:

(Start: 25 @37011 has 77 MA's), (39, 36867), (40, 36864), (45, 36837), (52, 36771), (75, 36711), (86, 36666),

Gene: Niza\_56 Start: 40289, Stop: 39891, Start Num: 23

Candidate Starts for Niza\_56:

(Start: 23 @40289 has 41 MA's), (30, 40190), (40, 40136), (43, 40121), (44, 40112), (74, 39977), (88, 39923),

Gene: Odin\_55 Start: 37059, Stop: 36571, Start Num: 23

Candidate Starts for Odin\_55:

(Start: 23 @37059 has 41 MA's), (27, 36984), (35, 36921), (36, 36915), (40, 36903), (52, 36801), (77, 36714), (109, 36582),

Gene: PP\_55 Start: 41225, Stop: 40698, Start Num: 16

Candidate Starts for PP\_55:

(8, 41300), (11, 41264), (Start: 16 @41225 has 1 MA's), (20, 41198), (30, 41075), (40, 41021), (42, 41012), (44, 40997), (84, 40829), (96, 40778), (103, 40748), (107, 40730),

Gene: Perseus\_53 Start: 39320, Stop: 38919, Start Num: 22

Candidate Starts for Perseus\_53:

(15, 39371), (Start: 22 @39320 has 6 MA's), (30, 39218), (40, 39164), (43, 39149), (44, 39140), (74, 39005), (88, 38951),

Gene: Pharaoh\_52 Start: 38002, Stop: 37490, Start Num: 23

Candidate Starts for Pharaoh\_52:

(Start: 23 @38002 has 41 MA's), (28, 37918), (36, 37849), (37, 37846), (40, 37837), (41, 37834), (49, 37765), (54, 37732), (101, 37549), (111, 37501), (112, 37495),

Gene: Phillis\_55 Start: 36641, Stop: 36165, Start Num: 23

Candidate Starts for Phillis\_55:

(Start: 23 @36641 has 41 MA's), (32, 36524), (36, 36488), (39, 36479), (40, 36476), (66, 36344), (99, 36209), (110, 36176),

Gene: PhrostyMug\_52 Start: 38599, Stop: 38198, Start Num: 22

Candidate Starts for PhrostyMug\_52:

(15, 38650), (Start: 22 @38599 has 6 MA's), (30, 38497), (40, 38443), (43, 38428), (44, 38419), (74, 38284), (88, 38230),

Gene: Pmask\_58 Start: 37012, Stop: 36569, Start Num: 25

Candidate Starts for Pmask\_58:

(Start: 25 @37012 has 77 MA's), (39, 36868), (40, 36865), (45, 36838), (52, 36772), (75, 36712), (86, 36667),

Gene: Polyphemus\_60 Start: 37394, Stop: 36951, Start Num: 25

Candidate Starts for Polyphemus\_60:

(Start: 25 @37394 has 77 MA's), (39, 37250), (40, 37247), (45, 37220), (52, 37154), (75, 37094), (86, 37049),

Gene: Pomar16\_59 Start: 38040, Stop: 37585, Start Num: 23

Candidate Starts for Pomar16\_59:

(Start: 23 @38040 has 41 MA's), (36, 37899), (40, 37887), (42, 37878), (48, 37824), (70, 37749), (76, 37728), (79, 37719), (107, 37605),

Gene: Power\_56 Start: 38208, Stop: 37714, Start Num: 25

Candidate Starts for Power\_56:

(Start: 25 @38208 has 77 MA's), (36, 38070), (38, 38064), (39, 38061), (40, 38058), (45, 38031), (47, 38004), (52, 37965), (78, 37851), (95, 37776),

Gene: Priamo\_60 Start: 36762, Stop: 36328, Start Num: 25

Candidate Starts for Priamo\_60:

(Start: 25 @36762 has 77 MA's), (39, 36618), (40, 36615), (45, 36588), (52, 36522), (86, 36417), (108, 36339),

Gene: QueenB2\_56 Start: 38186, Stop: 37692, Start Num: 25

Candidate Starts for QueenB2\_56:

(Start: 25 @38186 has 77 MA's), (36, 38048), (38, 38042), (39, 38039), (40, 38036), (45, 38009), (47, 37982), (52, 37943), (55, 37913), (59, 37892), (60, 37886),

Gene: QueenBeesly\_57 Start: 38155, Stop: 37661, Start Num: 25

Candidate Starts for QueenBeesly\_57:

(Start: 25 @38155 has 77 MA's), (36, 38017), (38, 38011), (39, 38008), (40, 38005), (45, 37978), (47, 37951), (52, 37912), (55, 37882), (78, 37798), (95, 37723),

Gene: Rahalelujah\_57 Start: 37729, Stop: 37271, Start Num: 25

Candidate Starts for Rahalelujah\_57:

(Start: 25 @37729 has 77 MA's), (36, 37591), (38, 37585), (39, 37582), (40, 37579), (45, 37552), (47, 37525), (52, 37486), (77, 37405), (93, 37333), (110, 37276),

Gene: Refuge\_55 Start: 39270, Stop: 38728, Start Num: 23

Candidate Starts for Refuge\_55:

(3, 39543), (4, 39495), (5, 39486), (Start: 23 @39270 has 41 MA's), (30, 39171), (36, 39123), (40, 39111), (43, 39096), (58, 38964), (75, 38913), (106, 38766), (112, 38733),

Gene: Rifter\_59 Start: 36599, Stop: 36162, Start Num: 25

Candidate Starts for Rifter\_59:

(Start: 25 @36599 has 77 MA's), (39, 36455), (40, 36452), (45, 36425), (52, 36359), (86, 36251), (108, 36173),

Gene: Roksolana\_60 Start: 37433, Stop: 36996, Start Num: 25

Candidate Starts for Roksolana\_60:

(Start: 25 @37433 has 77 MA's), (39, 37289), (40, 37286), (45, 37259), (52, 37193), (86, 37085), (108, 37007),

Gene: SemperFi\_58 Start: 38423, Stop: 37929, Start Num: 25

Candidate Starts for SemperFi\_58:

(Start: 25 @38423 has 77 MA's), (36, 38285), (38, 38279), (39, 38276), (40, 38273), (45, 38246), (47, 38219), (52, 38180), (55, 38150), (78, 38066), (95, 37991),

Gene: Serenity\_57 Start: 37359, Stop: 36895, Start Num: 25

Candidate Starts for Serenity\_57:

(Start: 25 @37359 has 77 MA's), (36, 37221), (38, 37215), (39, 37212), (40, 37209), (45, 37182), (47, 37155), (52, 37116), (76, 37035), (81, 37023), (98, 36945),

Gene: SheaKeira\_55 Start: 37666, Stop: 37181, Start Num: 23

Candidate Starts for SheaKeira\_55:

(Start: 23 @37666 has 41 MA's), (30, 37567), (40, 37513), (65, 37360), (76, 37327), (79, 37321), (91, 37264),

Gene: Sheen\_55 Start: 40022, Stop: 39528, Start Num: 23

Candidate Starts for Sheen\_55:

(Start: 23 @40022 has 41 MA's), (29, 39926), (40, 39869), (42, 39860), (44, 39845), (75, 39707),

Gene: Smairt\_55 Start: 39592, Stop: 39191, Start Num: 22

Candidate Starts for Smairt\_55:

(15, 39643), (Start: 22 @39592 has 6 MA's), (30, 39490), (40, 39436), (43, 39421), (44, 39412), (74, 39277), (88, 39223),

Gene: Smeadley\_56 Start: 36818, Stop: 36348, Start Num: 23

Candidate Starts for Smeadley\_56:

(2, 37103), (9, 36944), (Start: 23 @36818 has 41 MA's), (32, 36701), (36, 36665), (39, 36656), (40, 36653), (66, 36527), (96, 36410), (110, 36359),

Gene: SmellyB\_58 Start: 37009, Stop: 36566, Start Num: 25

Candidate Starts for SmellyB\_58:

(Start: 25 @37009 has 77 MA's), (39, 36865), (40, 36862), (45, 36835), (52, 36769), (75, 36709), (86, 36664),

Gene: SnapTap\_57 Start: 38234, Stop: 37740, Start Num: 25

Candidate Starts for SnapTap\_57:

(Start: 25 @38234 has 77 MA's), (36, 38096), (38, 38090), (39, 38087), (40, 38084), (45, 38057), (47, 38030), (52, 37991), (55, 37961), (78, 37877), (95, 37802),

Gene: SororFago\_59 Start: 39270, Stop: 38767, Start Num: 25

Candidate Starts for SororFago\_59:

(Start: 25 @39270 has 77 MA's), (36, 39135), (38, 39129), (39, 39126), (40, 39123), (45, 39096), (47, 39069), (52, 39030), (55, 39000), (59, 38979), (104, 38796),

Gene: StarStuff\_59 Start: 38002, Stop: 37547, Start Num: 23

Candidate Starts for StarStuff\_59:

(Start: 23 @38002 has 41 MA's), (36, 37861), (40, 37849), (42, 37840), (48, 37786), (70, 37711), (76, 37690), (79, 37681), (107, 37567),

Gene: Steamy\_53 Start: 37734, Stop: 37234, Start Num: 25

Candidate Starts for Steamy\_53:

(6, 37959), (7, 37950), (Start: 25 @37734 has 77 MA's), (26, 37725), (33, 37611), (36, 37596), (39, 37587), (40, 37584), (45, 37557), (47, 37530), (52, 37491), (56, 37458), (63, 37428), (66, 37413),

Gene: Stephig9\_56 Start: 36929, Stop: 36414, Start Num: 23

Candidate Starts for Stephig9\_56:

(9, 37055), (Start: 23 @36929 has 41 MA's), (31, 36815), (32, 36812), (39, 36767), (40, 36764), (62, 36617), (66, 36593), (72, 36572), (96, 36476), (110, 36425),

Gene: Sunhee\_60 Start: 37715, Stop: 37224, Start Num: 24

Candidate Starts for Sunhee\_60:

(Start: 24 @37715 has 4 MA's), (36, 37577), (38, 37571), (39, 37568), (40, 37565), (45, 37538), (47, 37511), (50, 37484), (52, 37472), (57, 37436), (104, 37256),

Gene: SuperAwesome\_58 Start: 37014, Stop: 36580, Start Num: 25

Candidate Starts for SuperAwesome\_58:

(Start: 25 @37014 has 77 MA's), (39, 36870), (40, 36867), (45, 36840), (52, 36774), (75, 36714),

Gene: SuperCallie99\_57 Start: 36896, Stop: 36453, Start Num: 25

Candidate Starts for SuperCallie99\_57:

(Start: 25 @36896 has 77 MA's), (39, 36752), (40, 36749), (45, 36722), (52, 36656), (75, 36596), (86, 36551),

Gene: SweetiePie\_57 Start: 38366, Stop: 37872, Start Num: 25

Candidate Starts for SweetiePie\_57:

(Start: 25 @38366 has 77 MA's), (36, 38228), (38, 38222), (39, 38219), (40, 38216), (45, 38189), (47, 38162), (52, 38123), (55, 38093), (78, 38009), (95, 37934),

Gene: Temprado\_60 Start: 37472, Stop: 37029, Start Num: 25

Candidate Starts for Temprado\_60:

(Start: 25 @37472 has 77 MA's), (39, 37328), (40, 37325), (45, 37298), (52, 37232), (75, 37172), (86, 37127),

Gene: Timshel\_51 Start: 38839, Stop: 38318, Start Num: 23

Candidate Starts for Timshel\_51:

(12, 38905), (14, 38899), (Start: 23 @38839 has 41 MA's), (30, 38740), (34, 38707), (40, 38686), (41, 38683), (42, 38677), (43, 38671), (78, 38488),

Gene: TipsytheTRex\_53 Start: 37429, Stop: 36965, Start Num: 25

Candidate Starts for TipsytheTRex\_53:

(Start: 25 @37429 has 77 MA's), (38, 37285), (39, 37282), (40, 37279), (45, 37252), (47, 37225), (52, 37186), (76, 37105), (81, 37093), (98, 37015),

Gene: Toaka\_57 Start: 37937, Stop: 37467, Start Num: 25

Candidate Starts for Toaka\_57:

(Start: 25 @37937 has 77 MA's), (33, 37814), (36, 37799), (39, 37790), (40, 37787), (45, 37760), (47, 37733), (52, 37694), (76, 37604), (84, 37574), (110, 37472),

Gene: Tomathan\_59 Start: 38049, Stop: 37594, Start Num: 23

Candidate Starts for Tomathan\_59:

(Start: 23 @38049 has 41 MA's), (36, 37908), (40, 37896), (42, 37887), (48, 37833), (76, 37737), (79, 37728), (107, 37614),

Gene: ToneTone\_56 Start: 37032, Stop: 36589, Start Num: 25

Candidate Starts for ToneTone\_56:

(Start: 25 @37032 has 77 MA's), (39, 36888), (40, 36885), (45, 36858), (52, 36792), (75, 36732), (86, 36687),

Gene: Toro\_57 Start: 40134, Stop: 39640, Start Num: 23

Candidate Starts for Toro\_57:

(Start: 23 @40134 has 41 MA's), (29, 40038), (40, 39981), (42, 39972), (44, 39957), (75, 39819),

Gene: Travvers\_59 Start: 37999, Stop: 37544, Start Num: 23

Candidate Starts for Travvers\_59:

(Start: 23 @37999 has 41 MA's), (36, 37858), (40, 37846), (42, 37837), (48, 37783), (70, 37708), (76, 37687), (79, 37678), (107, 37564),

Gene: Tucker\_59 Start: 37201, Stop: 36758, Start Num: 25

Candidate Starts for Tucker\_59:

(Start: 25 @37201 has 77 MA's), (39, 37057), (40, 37054), (45, 37027), (52, 36961), (75, 36901), (86, 36856),

Gene: VC3\_60 Start: 38397, Stop: 37942, Start Num: 23

Candidate Starts for VC3\_60:

(Start: 23 @38397 has 41 MA's), (36, 38256), (40, 38244), (42, 38235), (48, 38181), (70, 38106), (76, 38085), (79, 38076), (107, 37962),

Gene: Vanisoa\_57 Start: 39057, Stop: 38596, Start Num: 25

Candidate Starts for Vanisoa\_57:

(Start: 25 @39057 has 77 MA's), (33, 38934), (36, 38919), (39, 38910), (40, 38907), (45, 38880), (47, 38853), (52, 38814), (110, 38601),

Gene: VohminGhazi\_58 Start: 37010, Stop: 36567, Start Num: 25

Candidate Starts for VohminGhazi\_58:

(Start: 25 @37010 has 77 MA's), (39, 36866), (40, 36863), (45, 36836), (52, 36770), (75, 36710), (86, 36665),

Gene: WeiHuaDA\_59 Start: 39056, Stop: 38604, Start Num: 25

Candidate Starts for WeiHuaDA\_59:

(Start: 25 @39056 has 77 MA's), (36, 38918), (38, 38912), (39, 38909), (40, 38906), (45, 38879), (47, 38852), (52, 38813), (61, 38774), (76, 38741),

Gene: Wiks\_58 Start: 37103, Stop: 36660, Start Num: 25

Candidate Starts for Wiks\_58:

(Start: 25 @37103 has 77 MA's), (39, 36959), (40, 36956), (45, 36929), (52, 36863), (75, 36803), (86, 36758),

Gene: WorldCup\_56 Start: 37723, Stop: 37265, Start Num: 25

Candidate Starts for WorldCup\_56:

(Start: 25 @37723 has 77 MA's), (36, 37585), (38, 37579), (39, 37576), (40, 37573), (45, 37546), (47, 37519), (52, 37480), (77, 37399), (93, 37327), (110, 37270),

Gene: WunderPhul\_59 Start: 37101, Stop: 36658, Start Num: 25

Candidate Starts for WunderPhul\_59:

(Start: 25 @37101 has 77 MA's), (39, 36957), (40, 36954), (45, 36927), (52, 36861), (75, 36801), (86, 36756),

Gene: Yecey3\_58 Start: 37824, Stop: 37375, Start Num: 23

Candidate Starts for Yecey3\_58:

(Start: 23 @37824 has 41 MA's), (36, 37683), (40, 37671), (44, 37647), (64, 37545), (76, 37509), (92, 37437), (110, 37380),

Gene: Yokurt\_59 Start: 37103, Stop: 36660, Start Num: 25

Candidate Starts for Yokurt\_59:

(Start: 25 @37103 has 77 MA's), (39, 36959), (40, 36956), (45, 36929), (52, 36863), (75, 36803), (86, 36758),

Gene: Zaka\_59 Start: 37103, Stop: 36660, Start Num: 25

Candidate Starts for Zaka\_59:

(Start: 25 @37103 has 77 MA's), (39, 36959), (40, 36956), (45, 36929), (52, 36863), (75, 36803), (86, 36758),

Gene: Zimmer\_54 Start: 38954, Stop: 38418, Start Num: 23

Candidate Starts for Zimmer\_54:

(3, 39227), (4, 39179), (5, 39170), (Start: 23 @38954 has 41 MA's), (36, 38807), (40, 38795), (43, 38780), (58, 38648), (72, 38609), (112, 38423),

Gene: Zulu\_60 Start: 37481, Stop: 37038, Start Num: 25

Candidate Starts for Zulu\_60:

(Start: 25 @37481 has 77 MA's), (39, 37337), (40, 37334), (45, 37307), (52, 37241), (75, 37181), (86, 37136),