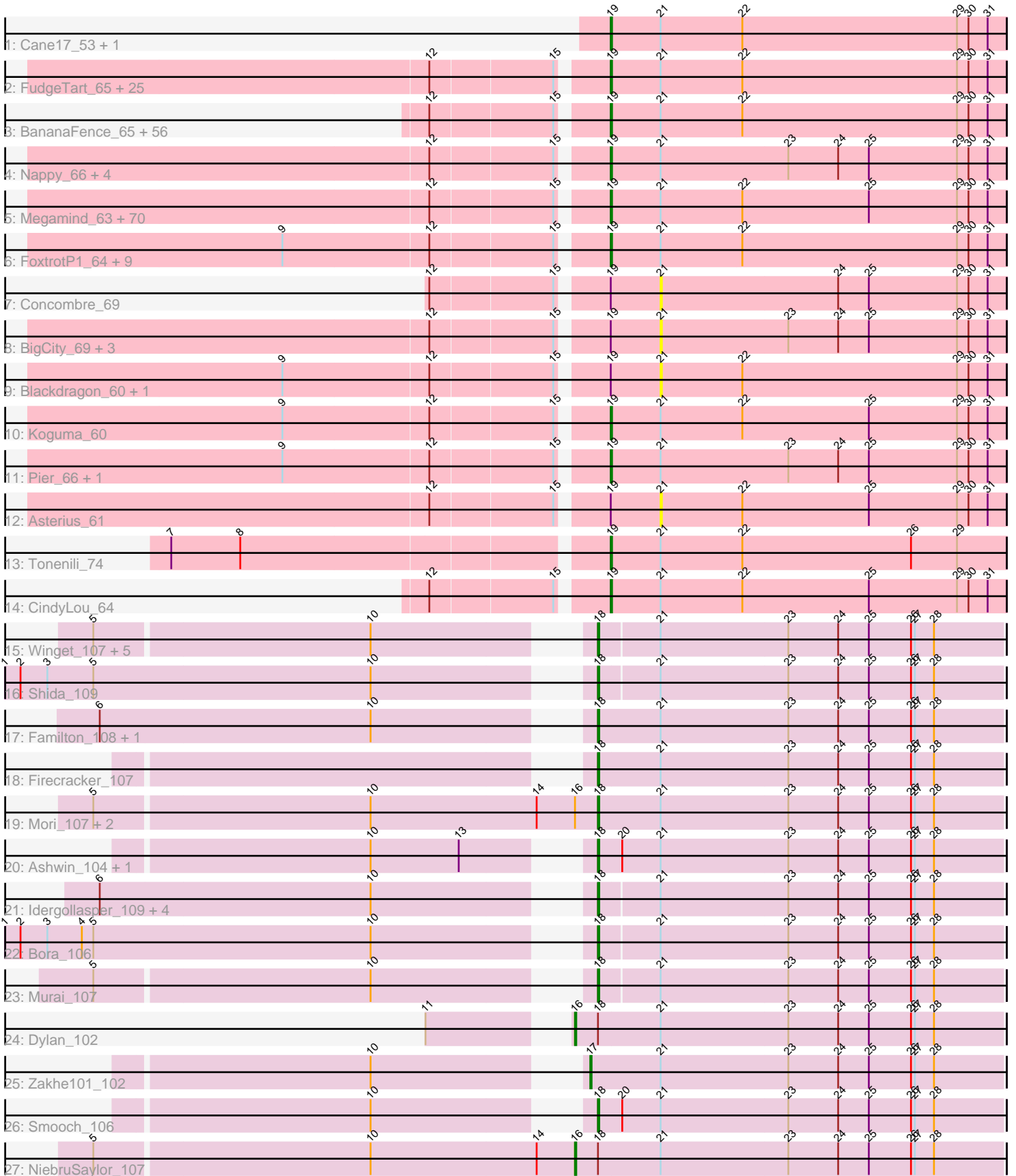


# Pham 171198



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 171198 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171198 has 210 members, 19 are drafts.

Phages represented in each track:

- Track 1 : Cane17\_53, Blubba\_53
- Track 2 : FudgeTart\_65, Trinitium\_59, HyRo\_59, MoMoMixon\_64, Stubby\_59, Sebata\_66, EasyJones\_66, DirtMonster\_60, Turret\_58, Mangeria\_67, Alice\_58, LinStu\_65, Issimir\_63, Cactojaque\_58, Pinkcreek\_56, Kboogie\_64, Colt\_55, RoMag\_58, EmToTheThree\_67, InterFolia\_72, Astraea\_65, ChickenPhender\_59, Blackbrain\_58, ChaylaJr\_59, Dietrick\_57, JustHall\_59
- Track 3 : BananaFence\_65, Gabriel\_65, Littleton\_63, Guwapp\_62, Derek\_64, Chomp\_61, ValleyTerrace\_63, Momo\_62, YoungMoneyMata\_63, Quasimodo\_63, EmmaElysia\_62, Jemmno\_63, Jedediah\_64, Breeniome\_65, Jaygup\_63, SilverDipper\_64, Audrick\_65, Essence\_62, JPickles\_61, BackyardAgain\_61, Pio\_68, Naija\_62, DTDevon\_64, Phlegm\_65, Ghost\_63, McGee\_62, Babyland\_62, Teardrop\_63, Amataga\_63, Tortoise16\_61, Adlitam\_63, Capablanca\_65, Shnickers\_63, Atlantean\_62, Patter\_63, Rahel\_64, LifeSavor\_63, Matsumoto\_62, Drazdys\_63, ArcherS7\_63, Pivoine\_62, InigoMontoya\_64, Spec\_61, Ngannou\_58, Specks\_69, Bangla1971\_64, SmallFry\_63, Phusco\_63, ShiaLabeouf\_63, Ading\_63, Burrough\_64, Latch\_63, Melpomini\_59, Darko\_63, Gamgam\_63, Tyke\_65, Bxz1\_64
- Track 4 : Nappy\_66, Dandelion\_69, I3\_66, IkeLoa\_58, Bigswole\_70
- Track 5 : Megamind\_63, Daffodil\_66, Bipolarisk\_63, Salacia\_66, Kamryn\_63, Delilah\_64, BadAgartude\_63, Roots515\_63, Willis\_64, LolaVinca\_67, Shaqato\_58, DrPhinkDaddy\_63, Iota\_58, NoodleTree\_64, Erdmann\_65, Fludd\_63, Flabslab\_60, Naval22\_70, Cali\_61, Lukilu\_57, Basquiat\_59, McWolfish\_62, LRRHood\_60, Gizmo\_66, Caravan\_60, MikeLiesIn\_64, Wally\_62, Grungle\_55, Napoleon13\_61, Ewok\_64, Mikro\_62, Maby2021\_64, Shelob\_66, ZygoTaiga\_64, Izajani\_65, Pleione\_66, Ava3\_65, Jessibeth14\_62, Chargie21\_59, Delylah\_65, Rizal\_62, Zeenon\_66, NedWong\_65, BeanWater\_57, Zalkecks\_65, StubbySaigey\_63, CharlieB\_61, Yucca\_64, NuevoMundo\_69, SrishMeg2525\_63, PurduePete\_63, FrayBell\_70, Lee7\_62, LordLeafolot\_69, ET08\_55, Spud\_64, Janiyra\_65, TinyTim\_64, Khaleesi\_63, Shrimp\_64, Bonray\_64, Norm\_64, Ronan\_58, Catera\_62, Sprinklers\_60, ParkTD\_63, Halldule\_58, Loanshark\_64, YemiJoy2021\_64, Bread\_64, Phox\_62
- Track 6 : FoxtrotP1\_64, Nidhogg\_64, ErnieJ\_63, StephanieG\_64, Yassified\_61, Shifa\_57, Morizzled23\_66, QBert\_58, Rabinovish\_63, Sauce\_65
- Track 7 : Concombre\_69
- Track 8 : BigCity\_69, Grasshills\_69, EggyFarm\_69, JayJay\_67
- Track 9 : Blackdragon\_60, JulietS\_58
- Track 10 : Koguma\_60
- Track 11 : Pier\_66, ScottMcG\_62

- Track 12 : Asterius\_61
- Track 13 : Tonenili\_74
- Track 14 : CindyLou\_64
- Track 15 : Winget\_107, MadKillah\_110, Schuy\_107, Catdawg\_108, Alkhayr\_103, FoulBall\_103
- Track 16 : Shida\_109
- Track 17 : Familton\_108, Ryadel\_111
- Track 18 : Firecracker\_107
- Track 19 : Mori\_107, Vorrps\_107, Krili\_109
- Track 20 : Ashwin\_104, Wildflower\_104
- Track 21 : Idergollasper\_109, TelAviv\_104, Blessica\_105, SchoolBus\_106, JangDynasty\_103
- Track 22 : Bora\_106
- Track 23 : Murai\_107
- Track 24 : Dylan\_102
- Track 25 : Zakhe101\_102
- Track 26 : Smooch\_106
- Track 27 : NiebruSaylor\_107

***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 167 of the 191 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ading\_63, Adlitam\_63, Alice\_58, Amataga\_63, ArcherS7\_63, Astraea\_65, Atlantean\_62, Audrick\_65, Ava3\_65, Babyland\_62, BackyardAgain\_61, BadAgartude\_63, BananaFence\_65, Bangla1971\_64, Basquiat\_59, BeanWater\_57, Bigswole\_70, Bipolarisk\_63, Blackbrain\_58, Blubba\_53, Bonray\_64, Bread\_64, Breeniome\_65, Burrough\_64, Bxz1\_64, Cactojaque\_58, Cali\_61, Cane17\_53, Capablanca\_65, Caravan\_60, Catera\_62, Chargie21\_59, CharlieB\_61, ChaylaJr\_59, ChickenPhender\_59, Chomp\_61, CindyLou\_64, Colt\_55, DTDevon\_64, Daffodil\_66, Dandelion\_69, Darko\_63, Delilah\_64, Delylah\_65, Derek\_64, Dietrick\_57, DirtMonster\_60, DrPhinkDaddy\_63, Drazdys\_63, ET08\_55, EasyJones\_66, EmToTheThree\_67, EmmaElysia\_62, Erdmann\_65, ErnieJ\_63, Essence\_62, Ewok\_64, Flabslab\_60, Fludd\_63, FoxtrotP1\_64, FrayBell\_70, FudgeTart\_65, Gabriel\_65, Gamgam\_63, Ghost\_63, Gizmo\_66, Grungle\_55, Guwapp\_62, Halldule\_58, HyRo\_59, I3\_66, IkeLoa\_58, InigoMontoya\_64, InterFolia\_72, Iota\_58, Issimir\_63, Izajani\_65, JPickles\_61, Janiyra\_65, Jaygup\_63, Jedediah\_64, Jemmno\_63, Jessibeth14\_62, JustHall\_59, Kamryn\_63, Kboogie\_64, Khaleesi\_63, Koguma\_60, LRRHood\_60, Latch\_63, Lee7\_62, LifeSavor\_63, LinStu\_65, Littleton\_63, Loanshark\_64, LolaVinca\_67, LordLeafolot\_69, Lukilu\_57, Maby2021\_64, Mangeria\_67, Matsumoto\_62, McGee\_62, McWolfish\_62, Megamind\_63, Melpomini\_59, MikeLiesIn\_64, Mikro\_62, MoMoMixon\_64, Momo\_62, Morizzled23\_66, Naija\_62, Napoleon13\_61, Nappy\_66, Naval22\_70, NedWong\_65, Ngannou\_58, Nidhogg\_64, NoodleTree\_64, Norm\_64, NuevoMundo\_69, ParkTD\_63, Patter\_63, Phlegm\_65, Phox\_62, Phusco\_63, Pier\_66, Pinkcreek\_56, Pio\_68, Pivoine\_62, Pleione\_66, PurduePete\_63, QBert\_58, Quasimodo\_63, Rabinovish\_63, Rahel\_64, Rizal\_62, RoMag\_58, Ronan\_58, Roots515\_63, Salacia\_66, Sauce\_65, ScottMcG\_62, Sebata\_66, Shaq nato\_58, Shelob\_66, ShiaLabeouf\_63, Shifa\_57,

Shnickers\_63, Shrimp\_64, SilverDipper\_64, SmallFry\_63, Spec\_61, Specks\_69, Sprinklers\_60, Spud\_64, SrishMeg2525\_63, StephanieG\_64, StubbySaigey\_63, Stubby\_59, Teardrop\_63, TinyTim\_64, Tonerili\_74, Tortoise16\_61, Trinitium\_59, Turret\_58, Tyke\_65, ValleyTerrace\_63, Wally\_62, Willis\_64, Yassified\_61, YemiJoy2021\_64, YoungMoneyMata\_63, Yucca\_64, Zalkecks\_65, Zeenon\_66, ZygoTaiga\_64,

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

- Asterius\_61, BigCity\_69, Blackdragon\_60, Concombre\_69, EggFarm\_69, Grasshills\_69, JayJay\_67, JulietS\_58,

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

- Alkhayr\_103, Ashwin\_104, Blessica\_105, Bora\_106, Catdawg\_108, Dylan\_102, Familton\_108, Firecracker\_107, FoulBall\_103, Idergollasper\_109, JangDynasty\_103, Kriili\_109, MadKillah\_110, Mori\_107, Murai\_107, NiebruSaylor\_107, Ryadel\_111, SchoolBus\_106, Schuy\_107, Shida\_109, Smooch\_106, TelAviv\_104, Vorrps\_107, Wildflower\_104, Winget\_107, Zakhe101\_102,

### Summary by start number:

Start 16:

- Found in 5 of 210 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 2 of 191
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Dylan\_102 (O), NiebruSaylor\_107 (O),

Start 17:

- Found in 1 of 210 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 191
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Zakhe101\_102 (O),

Start 18:

- Found in 25 of 210 ( 11.9% ) of genes in pham
- Manual Annotations of this start: 21 of 191
- Called 92.0% of time when present
- Phage (with cluster) where this start called: Alkhayr\_103 (O), Ashwin\_104 (O), Blessica\_105 (O), Bora\_106 (O), Catdawg\_108 (O), Familton\_108 (O), Firecracker\_107 (O), FoulBall\_103 (O), Idergollasper\_109 (O), JangDynasty\_103 (O), Kriili\_109 (O), MadKillah\_110 (O), Mori\_107 (O), Murai\_107 (O), Ryadel\_111 (O), SchoolBus\_106 (O), Schuy\_107 (O), Shida\_109 (O), Smooch\_106 (O), TelAviv\_104 (O), Vorrps\_107 (O), Wildflower\_104 (O), Winget\_107 (O),

Start 19:

- Found in 184 of 210 ( 87.6% ) of genes in pham
- Manual Annotations of this start: 167 of 191
- Called 95.7% of time when present
- Phage (with cluster) where this start called: Ading\_63 (C1), Adlitam\_63 (C1), Alice\_58 (C1), Amataga\_63 (C1), ArcherS7\_63 (C1), Astraea\_65 (C1), Atlantean\_62 (C1), Audrick\_65 (C1), Ava3\_65 (C1), Babyland\_62 (C1), BackyardAgain\_61 (C1), BadAgartude\_63 (C1), BananaFence\_65 (C1), Bangla1971\_64 (C1), Basquiat\_59 (C1), BeanWater\_57 (C1), Bigswole\_70 (C1), Bipolarisk\_63 (C1), Blackbrain\_58 (C1), Blubba\_53 (C1), Bonray\_64 (C1), Bread\_64 (C1), Breeniome\_65 (C1),

Burrough\_64 (C1), Bxz1\_64 (C1), Cactojaque\_58 (C1), Cali\_61 (C1), Cane17\_53 (C1), Capablanca\_65 (C1), Caravan\_60 (C1), Catera\_62 (C1), Chargie21\_59 (C1), CharlieB\_61 (C1), ChaylaJr\_59 (C1), ChickenPhender\_59 (C1), Chomp\_61 (C1), CindyLou\_64 (C1), Colt\_55 (C1), DTDevon\_64 (C1), Daffodil\_66 (C1), Dandelion\_69 (C1), Darko\_63 (C1), Delilah\_64 (C1), Delylah\_65 (C1), Derek\_64 (C1), Dietrick\_57 (C1), DirtMonster\_60 (C1), DrPhinkDaddy\_63 (C1), Drazdys\_63 (C1), ET08\_55 (C1), EasyJones\_66 (C1), EmToTheThree\_67 (C1), EmmaElysia\_62 (C1), Erdmann\_65 (C1), ErnieJ\_63 (C1), Essence\_62 (C1), Ewok\_64 (C1), Flabslab\_60 (C1), Fludd\_63 (C1), FoxtrotP1\_64 (C1), FrayBell\_70 (C1), FudgeTart\_65 (C1), Gabriel\_65 (C1), Gamgam\_63 (C1), Ghost\_63 (C1), Gizmo\_66 (C1), Grungle\_55 (C1), Guwapp\_62 (C1), Halldule\_58 (C1), HyRo\_59 (C1), I3\_66 (C1), IkeLoa\_58 (C1), InigoMontoya\_64 (C1), InterFolia\_72 (C1), Iota\_58 (C1), Issimir\_63 (C1), Izajani\_65 (C1), JPickles\_61 (C1), Janiyr\_65 (C1), Jaygup\_63 (C1), Jediah\_64 (C1), Jemmno\_63 (C1), Jessibeth14\_62 (C1), JustHall\_59 (C1), Kamryn\_63 (C1), Kboogie\_64 (C1), Khaleesi\_63 (C1), Koguma\_60 (C1), LRRHood\_60 (C1), Latch\_63 (C1), Lee7\_62 (C1), LifeSavor\_63 (C1), LinStu\_65 (C1), Littleton\_63 (C1), Loanshark\_64 (C1), LolaVince\_67 (C1), LordLeafolot\_69 (C1), Lukilu\_57 (C1), Maby2021\_64 (C1), Mangeria\_67 (C1), Matsumoto\_62 (C1), McGee\_62 (C1), McWolfish\_62 (C1), Megamind\_63 (C1), Melpomini\_59 (C1), MikeLiesIn\_64 (C1), Mikro\_62 (C1), MoMoMixon\_64 (C1), Momo\_62 (C1), Morizzled23\_66 (C1), Naija\_62 (C1), Napoleon13\_61 (C1), Nappy\_66 (C1), Naval22\_70 (C1), NedWong\_65 (C1), Ngannou\_58 (C1), Nidhogg\_64 (C1), NoodleTree\_64 (C1), Norm\_64 (C1), NuevoMundo\_69 (C1), ParkTD\_63 (C1), Patter\_63 (C1), Phlegm\_65 (C1), Phox\_62 (C1), Phusco\_63 (C1), Pier\_66 (C1), Pinkcreek\_56 (C1), Pio\_68 (C1), Pivoine\_62 (C1), Pleione\_66 (C1), PurduePete\_63 (C1), QBert\_58 (C1), Quasimodo\_63 (C1), Rabinovich\_63 (C1), Rahel\_64 (C1), Rizal\_62 (C1), RoMag\_58 (C1), Ronan\_58 (C1), Roots515\_63 (C1), Salacia\_66 (C1), Sauce\_65 (C1), ScottMcG\_62 (C1), Sebata\_66 (C1), Shaqato\_58 (C1), Shelob\_66 (C1), ShiaLabeouf\_63 (C1), Shifa\_57 (C1), Shnickers\_63 (C1), Shrimp\_64 (C1), SilverDipper\_64 (C1), SmallFry\_63 (C1), Spec\_61 (C1), Specks\_69 (C1), Sprinklers\_60 (C1), Spud\_64 (C1), SrishMeg2525\_63 (C1), StephanieG\_64 (C1), StubbySaigey\_63 (C1), Stubby\_59 (C1), Teardrop\_63 (C1), TinyTim\_64 (C1), Tonenili\_74 (C1), Tortoise16\_61 (C1), Trinitium\_59 (C1), Turret\_58 (C1), Tyke\_65 (C1), ValleyTerrace\_63 (C1), Wally\_62 (C1), Willis\_64 (C1), Yassified\_61 (C1), YemiJoy2021\_64 (C1), YoungMoneyMata\_63 (C1), Yucca\_64 (C1), Zalkecks\_65 (C1), Zeenon\_66 (C1), ZygoTaiga\_64 (C1),

Start 21:

- Found in 210 of 210 ( 100.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 3.8% of time when present
- Phage (with cluster) where this start called: Asterius\_61 (C1), BigCity\_69 (C1), Blackdragon\_60 (C1), Concombre\_69 (C1), EggyFarm\_69 (C1), Grasshills\_69 (C1), JayJay\_67 (C1), JulietS\_58 (C1),

### Summary by clusters:

There are 2 clusters represented in this pham: C1, O,

Info for manual annotations of cluster C1:

- Start number 19 was manually annotated 167 times for cluster C1.

Info for manual annotations of cluster O:

- Start number 16 was manually annotated 2 times for cluster O.
- Start number 17 was manually annotated 1 time for cluster O.
- Start number 18 was manually annotated 21 times for cluster O.

### **Gene Information:**

Gene: Ading\_63 Start: 19644, Stop: 19952, Start Num: 19

Candidate Starts for Ading\_63:

(12, 19518), (15, 19611), (Start: 19 @19644 has 167 MA's), (21, 19683), (22, 19746), (29, 19914), (30, 19923), (31, 19938),

Gene: Adlitam\_63 Start: 19661, Stop: 19969, Start Num: 19

Candidate Starts for Adlitam\_63:

(12, 19535), (15, 19628), (Start: 19 @19661 has 167 MA's), (21, 19700), (22, 19763), (29, 19931), (30, 19940), (31, 19955),

Gene: Alice\_58 Start: 19718, Stop: 20026, Start Num: 19

Candidate Starts for Alice\_58:

(12, 19592), (15, 19685), (Start: 19 @19718 has 167 MA's), (21, 19757), (22, 19820), (29, 19988), (30, 19997), (31, 20012),

Gene: Alkhayr\_103 Start: 64105, Stop: 63794, Start Num: 18

Candidate Starts for Alkhayr\_103:

(5, 64450), (10, 64240), (Start: 18 @64105 has 21 MA's), (21, 64060), (23, 63961), (24, 63922), (25, 63898), (26, 63865), (27, 63862), (28, 63847),

Gene: Amataga\_63 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for Amataga\_63:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: ArcherS7\_63 Start: 20028, Stop: 20336, Start Num: 19

Candidate Starts for ArcherS7\_63:

(12, 19902), (15, 19995), (Start: 19 @20028 has 167 MA's), (21, 20067), (22, 20130), (29, 20298), (30, 20307), (31, 20322),

Gene: Ashwin\_104 Start: 63342, Stop: 63028, Start Num: 18

Candidate Starts for Ashwin\_104:

(10, 63477), (13, 63408), (Start: 18 @63342 has 21 MA's), (20, 63324), (21, 63294), (23, 63195), (24, 63156), (25, 63132), (26, 63099), (27, 63096), (28, 63081),

Gene: Asterius\_61 Start: 20041, Stop: 20310, Start Num: 21

Candidate Starts for Asterius\_61:

(12, 19876), (15, 19969), (Start: 19 @20002 has 167 MA's), (21, 20041), (22, 20104), (25, 20203), (29, 20272), (30, 20281), (31, 20296),

Gene: Astraea\_65 Start: 21121, Stop: 21429, Start Num: 19

Candidate Starts for Astraea\_65:

(12, 20995), (15, 21088), (Start: 19 @21121 has 167 MA's), (21, 21160), (22, 21223), (29, 21391), (30, 21400), (31, 21415),

Gene: Atlantean\_62 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for Atlantean\_62:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: Audrick\_65 Start: 19644, Stop: 19952, Start Num: 19

Candidate Starts for Audrick\_65:

(12, 19518), (15, 19611), (Start: 19 @19644 has 167 MA's), (21, 19683), (22, 19746), (29, 19914), (30, 19923), (31, 19938),

Gene: Ava3\_65 Start: 20719, Stop: 21027, Start Num: 19

Candidate Starts for Ava3\_65:

(12, 20593), (15, 20686), (Start: 19 @20719 has 167 MA's), (21, 20758), (22, 20821), (25, 20920), (29, 20989), (30, 20998), (31, 21013),

Gene: Babyland\_62 Start: 19103, Stop: 19411, Start Num: 19

Candidate Starts for Babyland\_62:

(12, 18977), (15, 19070), (Start: 19 @19103 has 167 MA's), (21, 19142), (22, 19205), (29, 19373), (30, 19382), (31, 19397),

Gene: BackyardAgain\_61 Start: 19596, Stop: 19904, Start Num: 19

Candidate Starts for BackyardAgain\_61:

(12, 19470), (15, 19563), (Start: 19 @19596 has 167 MA's), (21, 19635), (22, 19698), (29, 19866), (30, 19875), (31, 19890),

Gene: BadAgartude\_63 Start: 21462, Stop: 21770, Start Num: 19

Candidate Starts for BadAgartude\_63:

(12, 21336), (15, 21429), (Start: 19 @21462 has 167 MA's), (21, 21501), (22, 21564), (25, 21663), (29, 21732), (30, 21741), (31, 21756),

Gene: BananaFence\_65 Start: 20603, Stop: 20911, Start Num: 19

Candidate Starts for BananaFence\_65:

(12, 20477), (15, 20570), (Start: 19 @20603 has 167 MA's), (21, 20642), (22, 20705), (29, 20873), (30, 20882), (31, 20897),

Gene: Bangla1971\_64 Start: 20158, Stop: 20466, Start Num: 19

Candidate Starts for Bangla1971\_64:

(12, 20032), (15, 20125), (Start: 19 @20158 has 167 MA's), (21, 20197), (22, 20260), (29, 20428), (30, 20437), (31, 20452),

Gene: Basquiat\_59 Start: 19089, Stop: 19397, Start Num: 19

Candidate Starts for Basquiat\_59:

(12, 18963), (15, 19056), (Start: 19 @19089 has 167 MA's), (21, 19128), (22, 19191), (25, 19290), (29, 19359), (30, 19368), (31, 19383),

Gene: BeanWater\_57 Start: 20011, Stop: 20319, Start Num: 19

Candidate Starts for BeanWater\_57:

(12, 19885), (15, 19978), (Start: 19 @20011 has 167 MA's), (21, 20050), (22, 20113), (25, 20212), (29, 20281), (30, 20290), (31, 20305),

Gene: BigCity\_69 Start: 21965, Stop: 22234, Start Num: 21

Candidate Starts for BigCity\_69:

(12, 21800), (15, 21893), (Start: 19 @21926 has 167 MA's), (21, 21965), (23, 22064), (24, 22103), (25, 22127), (29, 22196), (30, 22205), (31, 22220),

Gene: Bigswole\_70 Start: 22960, Stop: 23268, Start Num: 19

Candidate Starts for Bigswole\_70:

(12, 22834), (15, 22927), (Start: 19 @22960 has 167 MA's), (21, 22999), (23, 23098), (24, 23137), (25, 23161), (29, 23230), (30, 23239), (31, 23254),

Gene: Bipolarisk\_63 Start: 20430, Stop: 20738, Start Num: 19

Candidate Starts for Bipolarisk\_63:

(12, 20304), (15, 20397), (Start: 19 @20430 has 167 MA's), (21, 20469), (22, 20532), (25, 20631), (29, 20700), (30, 20709), (31, 20724),

Gene: Blackbrain\_58 Start: 18906, Stop: 19214, Start Num: 19

Candidate Starts for Blackbrain\_58:

(12, 18780), (15, 18873), (Start: 19 @18906 has 167 MA's), (21, 18945), (22, 19008), (29, 19176), (30, 19185), (31, 19200),

Gene: Blackdragon\_60 Start: 19969, Stop: 20238, Start Num: 21

Candidate Starts for Blackdragon\_60:

(9, 19693), (12, 19804), (15, 19897), (Start: 19 @19930 has 167 MA's), (21, 19969), (22, 20032), (29, 20200), (30, 20209), (31, 20224),

Gene: Blessica\_105 Start: 64314, Stop: 64003, Start Num: 18

Candidate Starts for Blessica\_105:

(6, 64659), (10, 64449), (Start: 18 @64314 has 21 MA's), (21, 64269), (23, 64170), (24, 64131), (25, 64107), (26, 64074), (27, 64071), (28, 64056),

Gene: Blubba\_53 Start: 17829, Stop: 18137, Start Num: 19

Candidate Starts for Blubba\_53:

(Start: 19 @17829 has 167 MA's), (21, 17868), (22, 17931), (29, 18099), (30, 18108), (31, 18123),

Gene: Bonray\_64 Start: 20707, Stop: 21015, Start Num: 19

Candidate Starts for Bonray\_64:

(12, 20581), (15, 20674), (Start: 19 @20707 has 167 MA's), (21, 20746), (22, 20809), (25, 20908), (29, 20977), (30, 20986), (31, 21001),

Gene: Bora\_106 Start: 65156, Stop: 64845, Start Num: 18

Candidate Starts for Bora\_106:

(1, 65576), (2, 65564), (3, 65543), (4, 65516), (5, 65507), (10, 65291), (Start: 18 @65156 has 21 MA's), (21, 65111), (23, 65012), (24, 64973), (25, 64949), (26, 64916), (27, 64913), (28, 64898),

Gene: Bread\_64 Start: 20400, Stop: 20708, Start Num: 19

Candidate Starts for Bread\_64:

(12, 20274), (15, 20367), (Start: 19 @20400 has 167 MA's), (21, 20439), (22, 20502), (25, 20601), (29, 20670), (30, 20679), (31, 20694),

Gene: Breeniome\_65 Start: 19907, Stop: 20215, Start Num: 19

Candidate Starts for Breeniome\_65:

(12, 19781), (15, 19874), (Start: 19 @19907 has 167 MA's), (21, 19946), (22, 20009), (29, 20177), (30, 20186), (31, 20201),

Gene: Burrough\_64 Start: 20433, Stop: 20741, Start Num: 19



Candidate Starts for Burrough\_64:

(12, 20307), (15, 20400), (Start: 19 @20433 has 167 MA's), (21, 20472), (22, 20535), (29, 20703), (30, 20712), (31, 20727),

Gene: Bxz1\_64 Start: 21484, Stop: 21792, Start Num: 19

Candidate Starts for Bxz1\_64:

(12, 21358), (15, 21451), (Start: 19 @21484 has 167 MA's), (21, 21523), (22, 21586), (29, 21754), (30, 21763), (31, 21778),

Gene: Cactojaque\_58 Start: 19013, Stop: 19321, Start Num: 19

Candidate Starts for Cactojaque\_58:

(12, 18887), (15, 18980), (Start: 19 @19013 has 167 MA's), (21, 19052), (22, 19115), (29, 19283), (30, 19292), (31, 19307),

Gene: Cali\_61 Start: 21248, Stop: 21556, Start Num: 19

Candidate Starts for Cali\_61:

(12, 21122), (15, 21215), (Start: 19 @21248 has 167 MA's), (21, 21287), (22, 21350), (25, 21449), (29, 21518), (30, 21527), (31, 21542),

Gene: Cane17\_53 Start: 17547, Stop: 17855, Start Num: 19

Candidate Starts for Cane17\_53:

(Start: 19 @17547 has 167 MA's), (21, 17586), (22, 17649), (29, 17817), (30, 17826), (31, 17841),

Gene: Capablanca\_65 Start: 20790, Stop: 21098, Start Num: 19

Candidate Starts for Capablanca\_65:

(12, 20664), (15, 20757), (Start: 19 @20790 has 167 MA's), (21, 20829), (22, 20892), (29, 21060), (30, 21069), (31, 21084),

Gene: Caravan\_60 Start: 19778, Stop: 20086, Start Num: 19

Candidate Starts for Caravan\_60:

(12, 19652), (15, 19745), (Start: 19 @19778 has 167 MA's), (21, 19817), (22, 19880), (25, 19979), (29, 20048), (30, 20057), (31, 20072),

Gene: Catdawg\_108 Start: 65425, Stop: 65114, Start Num: 18

Candidate Starts for Catdawg\_108:

(5, 65770), (10, 65560), (Start: 18 @65425 has 21 MA's), (21, 65380), (23, 65281), (24, 65242), (25, 65218), (26, 65185), (27, 65182), (28, 65167),

Gene: Catera\_62 Start: 19599, Stop: 19907, Start Num: 19

Candidate Starts for Catera\_62:

(12, 19473), (15, 19566), (Start: 19 @19599 has 167 MA's), (21, 19638), (22, 19701), (25, 19800), (29, 19869), (30, 19878), (31, 19893),

Gene: Chargie21\_59 Start: 19089, Stop: 19397, Start Num: 19

Candidate Starts for Chargie21\_59:

(12, 18963), (15, 19056), (Start: 19 @19089 has 167 MA's), (21, 19128), (22, 19191), (25, 19290), (29, 19359), (30, 19368), (31, 19383),

Gene: CharlieB\_61 Start: 19246, Stop: 19554, Start Num: 19

Candidate Starts for CharlieB\_61:

(12, 19120), (15, 19213), (Start: 19 @19246 has 167 MA's), (21, 19285), (22, 19348), (25, 19447), (29, 19516), (30, 19525), (31, 19540),

Gene: ChaylaJr\_59 Start: 19178, Stop: 19486, Start Num: 19

Candidate Starts for ChaylaJr\_59:

(12, 19052), (15, 19145), (Start: 19 @19178 has 167 MA's), (21, 19217), (22, 19280), (29, 19448), (30, 19457), (31, 19472),

Gene: ChickenPhender\_59 Start: 19137, Stop: 19445, Start Num: 19

Candidate Starts for ChickenPhender\_59:

(12, 19011), (15, 19104), (Start: 19 @19137 has 167 MA's), (21, 19176), (22, 19239), (29, 19407), (30, 19416), (31, 19431),

Gene: Chomp\_61 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for Chomp\_61:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: CindyLou\_64 Start: 20190, Stop: 20498, Start Num: 19

Candidate Starts for CindyLou\_64:

(12, 20064), (15, 20157), (Start: 19 @20190 has 167 MA's), (21, 20229), (22, 20292), (25, 20391), (29, 20460), (30, 20469), (31, 20484),

Gene: Colt\_55 Start: 18533, Stop: 18841, Start Num: 19

Candidate Starts for Colt\_55:

(12, 18407), (15, 18500), (Start: 19 @18533 has 167 MA's), (21, 18572), (22, 18635), (29, 18803), (30, 18812), (31, 18827),

Gene: Concombres\_69 Start: 22526, Stop: 22795, Start Num: 21

Candidate Starts for Concombres\_69:

(12, 22361), (15, 22454), (Start: 19 @22487 has 167 MA's), (21, 22526), (24, 22664), (25, 22688), (29, 22757), (30, 22766), (31, 22781),

Gene: DTDevon\_64 Start: 20829, Stop: 21137, Start Num: 19

Candidate Starts for DTDevon\_64:

(12, 20703), (15, 20796), (Start: 19 @20829 has 167 MA's), (21, 20868), (22, 20931), (29, 21099), (30, 21108), (31, 21123),

Gene: Daffodil\_66 Start: 20719, Stop: 21027, Start Num: 19

Candidate Starts for Daffodil\_66:

(12, 20593), (15, 20686), (Start: 19 @20719 has 167 MA's), (21, 20758), (22, 20821), (25, 20920), (29, 20989), (30, 20998), (31, 21013),

Gene: Dandelion\_69 Start: 22506, Stop: 22814, Start Num: 19

Candidate Starts for Dandelion\_69:

(12, 22380), (15, 22473), (Start: 19 @22506 has 167 MA's), (21, 22545), (23, 22644), (24, 22683), (25, 22707), (29, 22776), (30, 22785), (31, 22800),

Gene: Darko\_63 Start: 20572, Stop: 20880, Start Num: 19

Candidate Starts for Darko\_63:

(12, 20446), (15, 20539), (Start: 19 @20572 has 167 MA's), (21, 20611), (22, 20674), (29, 20842), (30, 20851), (31, 20866),

Gene: Delilah\_64 Start: 20719, Stop: 21027, Start Num: 19

Candidate Starts for Delilah\_64:

(12, 20593), (15, 20686), (Start: 19 @20719 has 167 MA's), (21, 20758), (22, 20821), (25, 20920), (29, 20989), (30, 20998), (31, 21013),

Gene: Delylah\_65 Start: 20497, Stop: 20805, Start Num: 19

Candidate Starts for Delylah\_65:

(12, 20371), (15, 20464), (Start: 19 @20497 has 167 MA's), (21, 20536), (22, 20599), (25, 20698), (29, 20767), (30, 20776), (31, 20791),

Gene: Derek\_64 Start: 19996, Stop: 20304, Start Num: 19

Candidate Starts for Derek\_64:

(12, 19870), (15, 19963), (Start: 19 @19996 has 167 MA's), (21, 20035), (22, 20098), (29, 20266), (30, 20275), (31, 20290),

Gene: Dietrick\_57 Start: 18837, Stop: 19145, Start Num: 19

Candidate Starts for Dietrick\_57:

(12, 18711), (15, 18804), (Start: 19 @18837 has 167 MA's), (21, 18876), (22, 18939), (29, 19107), (30, 19116), (31, 19131),

Gene: DirtMonster\_60 Start: 20505, Stop: 20813, Start Num: 19

Candidate Starts for DirtMonster\_60:

(12, 20379), (15, 20472), (Start: 19 @20505 has 167 MA's), (21, 20544), (22, 20607), (29, 20775), (30, 20784), (31, 20799),

Gene: DrPhinkDaddy\_63 Start: 20771, Stop: 21079, Start Num: 19

Candidate Starts for DrPhinkDaddy\_63:

(12, 20645), (15, 20738), (Start: 19 @20771 has 167 MA's), (21, 20810), (22, 20873), (25, 20972), (29, 21041), (30, 21050), (31, 21065),

Gene: Drazdys\_63 Start: 20502, Stop: 20810, Start Num: 19

Candidate Starts for Drazdys\_63:

(12, 20376), (15, 20469), (Start: 19 @20502 has 167 MA's), (21, 20541), (22, 20604), (29, 20772), (30, 20781), (31, 20796),

Gene: Dylan\_102 Start: 63094, Stop: 62762, Start Num: 16

Candidate Starts for Dylan\_102:

(11, 63178), (Start: 16 @63094 has 2 MA's), (Start: 18 @63076 has 21 MA's), (21, 63028), (23, 62929), (24, 62890), (25, 62866), (26, 62833), (27, 62830), (28, 62815),

Gene: ET08\_55 Start: 19114, Stop: 19422, Start Num: 19

Candidate Starts for ET08\_55:

(12, 18988), (15, 19081), (Start: 19 @19114 has 167 MA's), (21, 19153), (22, 19216), (25, 19315), (29, 19384), (30, 19393), (31, 19408),

Gene: EasyJones\_66 Start: 20664, Stop: 20972, Start Num: 19

Candidate Starts for EasyJones\_66:

(12, 20538), (15, 20631), (Start: 19 @20664 has 167 MA's), (21, 20703), (22, 20766), (29, 20934), (30, 20943), (31, 20958),

Gene: EggyFarm\_69 Start: 21965, Stop: 22234, Start Num: 21

Candidate Starts for EggyFarm\_69:

(12, 21800), (15, 21893), (Start: 19 @21926 has 167 MA's), (21, 21965), (23, 22064), (24, 22103), (25, 22127), (29, 22196), (30, 22205), (31, 22220),

Gene: EmToTheThree\_67 Start: 22133, Stop: 22441, Start Num: 19

Candidate Starts for EmToTheThree\_67:

(12, 22007), (15, 22100), (Start: 19 @22133 has 167 MA's), (21, 22172), (22, 22235), (29, 22403), (30, 22412), (31, 22427),

Gene: EmmaElysia\_62 Start: 19235, Stop: 19543, Start Num: 19

Candidate Starts for EmmaElysia\_62:

(12, 19109), (15, 19202), (Start: 19 @19235 has 167 MA's), (21, 19274), (22, 19337), (29, 19505), (30, 19514), (31, 19529),

Gene: Erdmann\_65 Start: 20719, Stop: 21027, Start Num: 19

Candidate Starts for Erdmann\_65:

(12, 20593), (15, 20686), (Start: 19 @20719 has 167 MA's), (21, 20758), (22, 20821), (25, 20920), (29, 20989), (30, 20998), (31, 21013),

Gene: ErnieJ\_63 Start: 20008, Stop: 20316, Start Num: 19

Candidate Starts for ErnieJ\_63:

(9, 19771), (12, 19882), (15, 19975), (Start: 19 @20008 has 167 MA's), (21, 20047), (22, 20110), (29, 20278), (30, 20287), (31, 20302),

Gene: Essence\_62 Start: 19519, Stop: 19827, Start Num: 19

Candidate Starts for Essence\_62:

(12, 19393), (15, 19486), (Start: 19 @19519 has 167 MA's), (21, 19558), (22, 19621), (29, 19789), (30, 19798), (31, 19813),

Gene: Ewok\_64 Start: 20722, Stop: 21030, Start Num: 19

Candidate Starts for Ewok\_64:

(12, 20596), (15, 20689), (Start: 19 @20722 has 167 MA's), (21, 20761), (22, 20824), (25, 20923), (29, 20992), (30, 21001), (31, 21016),

Gene: Familton\_108 Start: 64841, Stop: 64527, Start Num: 18

Candidate Starts for Familton\_108:

(6, 65186), (10, 64976), (Start: 18 @64841 has 21 MA's), (21, 64793), (23, 64694), (24, 64655), (25, 64631), (26, 64598), (27, 64595), (28, 64580),

Gene: Firecracker\_107 Start: 64710, Stop: 64396, Start Num: 18

Candidate Starts for Firecracker\_107:

(Start: 18 @64710 has 21 MA's), (21, 64662), (23, 64563), (24, 64524), (25, 64500), (26, 64467), (27, 64464), (28, 64449),

Gene: Flabslab\_60 Start: 19741, Stop: 20049, Start Num: 19

Candidate Starts for Flabslab\_60:

(12, 19615), (15, 19708), (Start: 19 @19741 has 167 MA's), (21, 19780), (22, 19843), (25, 19942), (29, 20011), (30, 20020), (31, 20035),

Gene: Fludd\_63 Start: 19594, Stop: 19902, Start Num: 19

Candidate Starts for Fludd\_63:

(12, 19468), (15, 19561), (Start: 19 @19594 has 167 MA's), (21, 19633), (22, 19696), (25, 19795), (29, 19864), (30, 19873), (31, 19888),

Gene: FoulBall\_103 Start: 64388, Stop: 64077, Start Num: 18

Candidate Starts for FoulBall\_103:

(5, 64733), (10, 64523), (Start: 18 @64388 has 21 MA's), (21, 64343), (23, 64244), (24, 64205), (25, 64181), (26, 64148), (27, 64145), (28, 64130),

Gene: FoxtrotP1\_64 Start: 21047, Stop: 21355, Start Num: 19

Candidate Starts for FoxtrotP1\_64:

(9, 20810), (12, 20921), (15, 21014), (Start: 19 @21047 has 167 MA's), (21, 21086), (22, 21149), (29, 21317), (30, 21326), (31, 21341),

Gene: FrayBell\_70 Start: 22233, Stop: 22541, Start Num: 19

Candidate Starts for FrayBell\_70:

(12, 22107), (15, 22200), (Start: 19 @22233 has 167 MA's), (21, 22272), (22, 22335), (25, 22434), (29, 22503), (30, 22512), (31, 22527),

Gene: FudgeTart\_65 Start: 20583, Stop: 20891, Start Num: 19

Candidate Starts for FudgeTart\_65:

(12, 20457), (15, 20550), (Start: 19 @20583 has 167 MA's), (21, 20622), (22, 20685), (29, 20853), (30, 20862), (31, 20877),

Gene: Gabriel\_65 Start: 19898, Stop: 20206, Start Num: 19

Candidate Starts for Gabriel\_65:

(12, 19772), (15, 19865), (Start: 19 @19898 has 167 MA's), (21, 19937), (22, 20000), (29, 20168), (30, 20177), (31, 20192),

Gene: Gamgam\_63 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for Gamgam\_63:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: Ghost\_63 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for Ghost\_63:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: Gizmo\_66 Start: 20402, Stop: 20710, Start Num: 19

Candidate Starts for Gizmo\_66:

(12, 20276), (15, 20369), (Start: 19 @20402 has 167 MA's), (21, 20441), (22, 20504), (25, 20603), (29, 20672), (30, 20681), (31, 20696),

Gene: Grasshills\_69 Start: 21965, Stop: 22234, Start Num: 21

Candidate Starts for Grasshills\_69:

(12, 21800), (15, 21893), (Start: 19 @21926 has 167 MA's), (21, 21965), (23, 22064), (24, 22103), (25, 22127), (29, 22196), (30, 22205), (31, 22220),

Gene: Grungle\_55 Start: 18196, Stop: 18504, Start Num: 19

Candidate Starts for Grungle\_55:

(12, 18070), (15, 18163), (Start: 19 @18196 has 167 MA's), (21, 18235), (22, 18298), (25, 18397), (29, 18466), (30, 18475), (31, 18490),

Gene: Guwapp\_62 Start: 19760, Stop: 20068, Start Num: 19

Candidate Starts for Guwapp\_62:

(12, 19634), (15, 19727), (Start: 19 @19760 has 167 MA's), (21, 19799), (22, 19862), (29, 20030), (30, 20039), (31, 20054),

Gene: Halldule\_58 Start: 18773, Stop: 19081, Start Num: 19

Candidate Starts for Halldule\_58:

(12, 18647), (15, 18740), (Start: 19 @18773 has 167 MA's), (21, 18812), (22, 18875), (25, 18974), (29, 19043), (30, 19052), (31, 19067),

Gene: HyRo\_59 Start: 20126, Stop: 20434, Start Num: 19

Candidate Starts for HyRo\_59:

(12, 20000), (15, 20093), (Start: 19 @20126 has 167 MA's), (21, 20165), (22, 20228), (29, 20396), (30, 20405), (31, 20420),

Gene: I3\_66 Start: 20338, Stop: 20646, Start Num: 19

Candidate Starts for I3\_66:

(12, 20212), (15, 20305), (Start: 19 @20338 has 167 MA's), (21, 20377), (23, 20476), (24, 20515), (25, 20539), (29, 20608), (30, 20617), (31, 20632),

Gene: Idergollasper\_109 Start: 65389, Stop: 65078, Start Num: 18

Candidate Starts for Idergollasper\_109:

(6, 65734), (10, 65524), (Start: 18 @65389 has 21 MA's), (21, 65344), (23, 65245), (24, 65206), (25, 65182), (26, 65149), (27, 65146), (28, 65131),

Gene: IkeLoa\_58 Start: 19404, Stop: 19712, Start Num: 19

Candidate Starts for IkeLoa\_58:

(12, 19278), (15, 19371), (Start: 19 @19404 has 167 MA's), (21, 19443), (23, 19542), (24, 19581), (25, 19605), (29, 19674), (30, 19683), (31, 19698),

Gene: InigoMontoya\_64 Start: 19626, Stop: 19934, Start Num: 19

Candidate Starts for InigoMontoya\_64:

(12, 19500), (15, 19593), (Start: 19 @19626 has 167 MA's), (21, 19665), (22, 19728), (29, 19896), (30, 19905), (31, 19920),

Gene: InterFolia\_72 Start: 23171, Stop: 23479, Start Num: 19

Candidate Starts for InterFolia\_72:

(12, 23045), (15, 23138), (Start: 19 @23171 has 167 MA's), (21, 23210), (22, 23273), (29, 23441), (30, 23450), (31, 23465),

Gene: Iota\_58 Start: 19702, Stop: 20010, Start Num: 19

Candidate Starts for Iota\_58:

(12, 19576), (15, 19669), (Start: 19 @19702 has 167 MA's), (21, 19741), (22, 19804), (25, 19903), (29, 19972), (30, 19981), (31, 19996),

Gene: Issimir\_63 Start: 20662, Stop: 20970, Start Num: 19

Candidate Starts for Issimir\_63:

(12, 20536), (15, 20629), (Start: 19 @20662 has 167 MA's), (21, 20701), (22, 20764), (29, 20932), (30, 20941), (31, 20956),

Gene: Izajani\_65 Start: 20735, Stop: 21043, Start Num: 19

Candidate Starts for Izajani\_65:

(12, 20609), (15, 20702), (Start: 19 @20735 has 167 MA's), (21, 20774), (22, 20837), (25, 20936), (29, 21005), (30, 21014), (31, 21029),

Gene: JPickles\_61 Start: 18859, Stop: 19167, Start Num: 19

Candidate Starts for JPickles\_61:

(12, 18733), (15, 18826), (Start: 19 @18859 has 167 MA's), (21, 18898), (22, 18961), (29, 19129), (30, 19138), (31, 19153),

Gene: JangDynasty\_103 Start: 63739, Stop: 63428, Start Num: 18

Candidate Starts for JangDynasty\_103:

(6, 64084), (10, 63874), (Start: 18 @63739 has 21 MA's), (21, 63694), (23, 63595), (24, 63556), (25, 63532), (26, 63499), (27, 63496), (28, 63481),

Gene: Janiyra\_65 Start: 20424, Stop: 20732, Start Num: 19

Candidate Starts for Janiyra\_65:

(12, 20298), (15, 20391), (Start: 19 @20424 has 167 MA's), (21, 20463), (22, 20526), (25, 20625), (29, 20694), (30, 20703), (31, 20718),

Gene: JayJay\_67 Start: 21254, Stop: 21523, Start Num: 21

Candidate Starts for JayJay\_67:

(12, 21089), (15, 21182), (Start: 19 @21215 has 167 MA's), (21, 21254), (23, 21353), (24, 21392), (25, 21416), (29, 21485), (30, 21494), (31, 21509),

Gene: Jaygup\_63 Start: 19661, Stop: 19969, Start Num: 19

Candidate Starts for Jaygup\_63:

(12, 19535), (15, 19628), (Start: 19 @19661 has 167 MA's), (21, 19700), (22, 19763), (29, 19931), (30, 19940), (31, 19955),

Gene: Jedediah\_64 Start: 20162, Stop: 20470, Start Num: 19

Candidate Starts for Jedediah\_64:

(12, 20036), (15, 20129), (Start: 19 @20162 has 167 MA's), (21, 20201), (22, 20264), (29, 20432), (30, 20441), (31, 20456),

Gene: Jemmno\_63 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for Jemmno\_63:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: Jessibeth14\_62 Start: 20123, Stop: 20431, Start Num: 19

Candidate Starts for Jessibeth14\_62:

(12, 19997), (15, 20090), (Start: 19 @20123 has 167 MA's), (21, 20162), (22, 20225), (25, 20324), (29, 20393), (30, 20402), (31, 20417),

Gene: JulietS\_58 Start: 18663, Stop: 18932, Start Num: 21

Candidate Starts for JulietS\_58:

(9, 18387), (12, 18498), (15, 18591), (Start: 19 @18624 has 167 MA's), (21, 18663), (22, 18726), (29, 18894), (30, 18903), (31, 18918),

Gene: JustHall\_59 Start: 19984, Stop: 20292, Start Num: 19

Candidate Starts for JustHall\_59:

(12, 19858), (15, 19951), (Start: 19 @19984 has 167 MA's), (21, 20023), (22, 20086), (29, 20254), (30, 20263), (31, 20278),

Gene: Kamryn\_63 Start: 20338, Stop: 20646, Start Num: 19

Candidate Starts for Kamryn\_63:

(12, 20212), (15, 20305), (Start: 19 @20338 has 167 MA's), (21, 20377), (22, 20440), (25, 20539), (29, 20608), (30, 20617), (31, 20632),

Gene: Kboogie\_64 Start: 19648, Stop: 19956, Start Num: 19

Candidate Starts for Kboogie\_64:

(12, 19522), (15, 19615), (Start: 19 @19648 has 167 MA's), (21, 19687), (22, 19750), (29, 19918), (30, 19927), (31, 19942),

Gene: Khaleesi\_63 Start: 20466, Stop: 20774, Start Num: 19

Candidate Starts for Khaleesi\_63:

(12, 20340), (15, 20433), (Start: 19 @20466 has 167 MA's), (21, 20505), (22, 20568), (25, 20667), (29, 20736), (30, 20745), (31, 20760),

Gene: Koguma\_60 Start: 18842, Stop: 19150, Start Num: 19

Candidate Starts for Koguma\_60:

(9, 18605), (12, 18716), (15, 18809), (Start: 19 @18842 has 167 MA's), (21, 18881), (22, 18944), (25, 19043), (29, 19112), (30, 19121), (31, 19136),

Gene: Krili\_109 Start: 64941, Stop: 64627, Start Num: 18

Candidate Starts for Krili\_109:

(5, 65328), (10, 65118), (14, 64989), (Start: 16 @64959 has 2 MA's), (Start: 18 @64941 has 21 MA's), (21, 64893), (23, 64794), (24, 64755), (25, 64731), (26, 64698), (27, 64695), (28, 64680),

Gene: LRRHood\_60 Start: 20765, Stop: 21073, Start Num: 19

Candidate Starts for LRRHood\_60:

(12, 20639), (15, 20732), (Start: 19 @20765 has 167 MA's), (21, 20804), (22, 20867), (25, 20966), (29, 21035), (30, 21044), (31, 21059),

Gene: Latch\_63 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for Latch\_63:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: Lee7\_62 Start: 20397, Stop: 20705, Start Num: 19

Candidate Starts for Lee7\_62:

(12, 20271), (15, 20364), (Start: 19 @20397 has 167 MA's), (21, 20436), (22, 20499), (25, 20598), (29, 20667), (30, 20676), (31, 20691),

Gene: LifeSavor\_63 Start: 19384, Stop: 19692, Start Num: 19

Candidate Starts for LifeSavor\_63:

(12, 19258), (15, 19351), (Start: 19 @19384 has 167 MA's), (21, 19423), (22, 19486), (29, 19654), (30, 19663), (31, 19678),

Gene: LinStu\_65 Start: 21472, Stop: 21780, Start Num: 19

Candidate Starts for LinStu\_65:

(12, 21346), (15, 21439), (Start: 19 @21472 has 167 MA's), (21, 21511), (22, 21574), (29, 21742), (30, 21751), (31, 21766),

Gene: Littleton\_63 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for Littleton\_63:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: Loanshark\_64 Start: 20719, Stop: 21027, Start Num: 19

Candidate Starts for Loanshark\_64:



(12, 20593), (15, 20686), (Start: 19 @20719 has 167 MA's), (21, 20758), (22, 20821), (25, 20920), (29, 20989), (30, 20998), (31, 21013),

Gene: LolaVinca\_67 Start: 21880, Stop: 22188, Start Num: 19

Candidate Starts for LolaVinca\_67:

(12, 21754), (15, 21847), (Start: 19 @21880 has 167 MA's), (21, 21919), (22, 21982), (25, 22081), (29, 22150), (30, 22159), (31, 22174),

Gene: LordLeafolot\_69 Start: 22232, Stop: 22540, Start Num: 19

Candidate Starts for LordLeafolot\_69:

(12, 22106), (15, 22199), (Start: 19 @22232 has 167 MA's), (21, 22271), (22, 22334), (25, 22433), (29, 22502), (30, 22511), (31, 22526),

Gene: Lukilu\_57 Start: 19967, Stop: 20275, Start Num: 19

Candidate Starts for Lukilu\_57:

(12, 19841), (15, 19934), (Start: 19 @19967 has 167 MA's), (21, 20006), (22, 20069), (25, 20168), (29, 20237), (30, 20246), (31, 20261),

Gene: Maby2021\_64 Start: 20400, Stop: 20708, Start Num: 19

Candidate Starts for Maby2021\_64:

(12, 20274), (15, 20367), (Start: 19 @20400 has 167 MA's), (21, 20439), (22, 20502), (25, 20601), (29, 20670), (30, 20679), (31, 20694),

Gene: MadKillah\_110 Start: 64460, Stop: 64149, Start Num: 18

Candidate Starts for MadKillah\_110:

(5, 64805), (10, 64595), (Start: 18 @64460 has 21 MA's), (21, 64415), (23, 64316), (24, 64277), (25, 64253), (26, 64220), (27, 64217), (28, 64202),

Gene: Mangeria\_67 Start: 21743, Stop: 22051, Start Num: 19

Candidate Starts for Mangeria\_67:

(12, 21617), (15, 21710), (Start: 19 @21743 has 167 MA's), (21, 21782), (22, 21845), (29, 22013), (30, 22022), (31, 22037),

Gene: Matsumoto\_62 Start: 19626, Stop: 19934, Start Num: 19

Candidate Starts for Matsumoto\_62:

(12, 19500), (15, 19593), (Start: 19 @19626 has 167 MA's), (21, 19665), (22, 19728), (29, 19896), (30, 19905), (31, 19920),

Gene: McGee\_62 Start: 18849, Stop: 19157, Start Num: 19

Candidate Starts for McGee\_62:

(12, 18723), (15, 18816), (Start: 19 @18849 has 167 MA's), (21, 18888), (22, 18951), (29, 19119), (30, 19128), (31, 19143),

Gene: McWolfish\_62 Start: 20147, Stop: 20455, Start Num: 19

Candidate Starts for McWolfish\_62:

(12, 20021), (15, 20114), (Start: 19 @20147 has 167 MA's), (21, 20186), (22, 20249), (25, 20348), (29, 20417), (30, 20426), (31, 20441),

Gene: Megamind\_63 Start: 20385, Stop: 20693, Start Num: 19

Candidate Starts for Megamind\_63:

(12, 20259), (15, 20352), (Start: 19 @20385 has 167 MA's), (21, 20424), (22, 20487), (25, 20586), (29, 20655), (30, 20664), (31, 20679),

Gene: Melpomini\_59 Start: 19076, Stop: 19384, Start Num: 19

Candidate Starts for Melpomini\_59:

(12, 18950), (15, 19043), (Start: 19 @19076 has 167 MA's), (21, 19115), (22, 19178), (29, 19346), (30, 19355), (31, 19370),

Gene: MikeLiesIn\_64 Start: 20732, Stop: 21040, Start Num: 19

Candidate Starts for MikeLiesIn\_64:

(12, 20606), (15, 20699), (Start: 19 @20732 has 167 MA's), (21, 20771), (22, 20834), (25, 20933), (29, 21002), (30, 21011), (31, 21026),

Gene: Mikro\_62 Start: 21206, Stop: 21514, Start Num: 19

Candidate Starts for Mikro\_62:

(12, 21080), (15, 21173), (Start: 19 @21206 has 167 MA's), (21, 21245), (22, 21308), (25, 21407), (29, 21476), (30, 21485), (31, 21500),

Gene: MoMoMixon\_64 Start: 20817, Stop: 21125, Start Num: 19

Candidate Starts for MoMoMixon\_64:

(12, 20691), (15, 20784), (Start: 19 @20817 has 167 MA's), (21, 20856), (22, 20919), (29, 21087), (30, 21096), (31, 21111),

Gene: Momo\_62 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for Momo\_62:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: Mori\_107 Start: 64966, Stop: 64652, Start Num: 18

Candidate Starts for Mori\_107:

(5, 65353), (10, 65143), (14, 65014), (Start: 16 @64984 has 2 MA's), (Start: 18 @64966 has 21 MA's), (21, 64918), (23, 64819), (24, 64780), (25, 64756), (26, 64723), (27, 64720), (28, 64705),

Gene: Morizzled23\_66 Start: 20691, Stop: 20999, Start Num: 19

Candidate Starts for Morizzled23\_66:

(9, 20454), (12, 20565), (15, 20658), (Start: 19 @20691 has 167 MA's), (21, 20730), (22, 20793), (29, 20961), (30, 20970), (31, 20985),

Gene: Murai\_107 Start: 64811, Stop: 64500, Start Num: 18

Candidate Starts for Murai\_107:

(5, 65156), (10, 64946), (Start: 18 @64811 has 21 MA's), (21, 64766), (23, 64667), (24, 64628), (25, 64604), (26, 64571), (27, 64568), (28, 64553),

Gene: Naija\_62 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for Naija\_62:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: Napoleon13\_61 Start: 19058, Stop: 19366, Start Num: 19

Candidate Starts for Napoleon13\_61:

(12, 18932), (15, 19025), (Start: 19 @19058 has 167 MA's), (21, 19097), (22, 19160), (25, 19259), (29, 19328), (30, 19337), (31, 19352),

Gene: Nappy\_66 Start: 21020, Stop: 21328, Start Num: 19

Candidate Starts for Nappy\_66:

(12, 20894), (15, 20987), (Start: 19 @21020 has 167 MA's), (21, 21059), (23, 21158), (24, 21197), (25, 21221), (29, 21290), (30, 21299), (31, 21314),

Gene: Naval22\_70 Start: 21742, Stop: 22050, Start Num: 19

Candidate Starts for Naval22\_70:

(12, 21616), (15, 21709), (Start: 19 @21742 has 167 MA's), (21, 21781), (22, 21844), (25, 21943), (29, 22012), (30, 22021), (31, 22036),

Gene: NedWong\_65 Start: 20719, Stop: 21027, Start Num: 19

Candidate Starts for NedWong\_65:

(12, 20593), (15, 20686), (Start: 19 @20719 has 167 MA's), (21, 20758), (22, 20821), (25, 20920), (29, 20989), (30, 20998), (31, 21013),

Gene: Ngannou\_58 Start: 18647, Stop: 18955, Start Num: 19

Candidate Starts for Ngannou\_58:

(12, 18521), (15, 18614), (Start: 19 @18647 has 167 MA's), (21, 18686), (22, 18749), (29, 18917), (30, 18926), (31, 18941),

Gene: Nidhogg\_64 Start: 20573, Stop: 20881, Start Num: 19

Candidate Starts for Nidhogg\_64:

(9, 20336), (12, 20447), (15, 20540), (Start: 19 @20573 has 167 MA's), (21, 20612), (22, 20675), (29, 20843), (30, 20852), (31, 20867),

Gene: NiebruSaylor\_107 Start: 64100, Stop: 63768, Start Num: 16

Candidate Starts for NiebruSaylor\_107:

(5, 64469), (10, 64259), (14, 64130), (Start: 16 @64100 has 2 MA's), (Start: 18 @64082 has 21 MA's), (21, 64034), (23, 63935), (24, 63896), (25, 63872), (26, 63839), (27, 63836), (28, 63821),

Gene: NoodleTree\_64 Start: 20522, Stop: 20830, Start Num: 19

Candidate Starts for NoodleTree\_64:

(12, 20396), (15, 20489), (Start: 19 @20522 has 167 MA's), (21, 20561), (22, 20624), (25, 20723), (29, 20792), (30, 20801), (31, 20816),

Gene: Norm\_64 Start: 20720, Stop: 21028, Start Num: 19

Candidate Starts for Norm\_64:

(12, 20594), (15, 20687), (Start: 19 @20720 has 167 MA's), (21, 20759), (22, 20822), (25, 20921), (29, 20990), (30, 20999), (31, 21014),

Gene: NuevoMundo\_69 Start: 21721, Stop: 22029, Start Num: 19

Candidate Starts for NuevoMundo\_69:

(12, 21595), (15, 21688), (Start: 19 @21721 has 167 MA's), (21, 21760), (22, 21823), (25, 21922), (29, 21991), (30, 22000), (31, 22015),

Gene: ParkTD\_63 Start: 20719, Stop: 21027, Start Num: 19

Candidate Starts for ParkTD\_63:

(12, 20593), (15, 20686), (Start: 19 @20719 has 167 MA's), (21, 20758), (22, 20821), (25, 20920), (29, 20989), (30, 20998), (31, 21013),

Gene: Patter\_63 Start: 19682, Stop: 19990, Start Num: 19

Candidate Starts for Patter\_63:

(12, 19556), (15, 19649), (Start: 19 @19682 has 167 MA's), (21, 19721), (22, 19784), (29, 19952), (30, 19961), (31, 19976),

Gene: Phlegm\_65 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for Phlegm\_65:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: Phox\_62 Start: 21447, Stop: 21755, Start Num: 19

Candidate Starts for Phox\_62:

(12, 21321), (15, 21414), (Start: 19 @21447 has 167 MA's), (21, 21486), (22, 21549), (25, 21648), (29, 21717), (30, 21726), (31, 21741),

Gene: Phusco\_63 Start: 20475, Stop: 20783, Start Num: 19

Candidate Starts for Phusco\_63:

(12, 20349), (15, 20442), (Start: 19 @20475 has 167 MA's), (21, 20514), (22, 20577), (29, 20745), (30, 20754), (31, 20769),

Gene: Pier\_66 Start: 20419, Stop: 20727, Start Num: 19

Candidate Starts for Pier\_66:

(9, 20182), (12, 20293), (15, 20386), (Start: 19 @20419 has 167 MA's), (21, 20458), (23, 20557), (24, 20596), (25, 20620), (29, 20689), (30, 20698), (31, 20713),

Gene: Pinkcreek\_56 Start: 19025, Stop: 19333, Start Num: 19

Candidate Starts for Pinkcreek\_56:

(12, 18899), (15, 18992), (Start: 19 @19025 has 167 MA's), (21, 19064), (22, 19127), (29, 19295), (30, 19304), (31, 19319),

Gene: Pio\_68 Start: 21873, Stop: 22181, Start Num: 19

Candidate Starts for Pio\_68:

(12, 21747), (15, 21840), (Start: 19 @21873 has 167 MA's), (21, 21912), (22, 21975), (29, 22143), (30, 22152), (31, 22167),

Gene: Pivoine\_62 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for Pivoine\_62:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: Pleione\_66 Start: 20718, Stop: 21026, Start Num: 19

Candidate Starts for Pleione\_66:

(12, 20592), (15, 20685), (Start: 19 @20718 has 167 MA's), (21, 20757), (22, 20820), (25, 20919), (29, 20988), (30, 20997), (31, 21012),

Gene: PurduePete\_63 Start: 20443, Stop: 20751, Start Num: 19

Candidate Starts for PurduePete\_63:

(12, 20317), (15, 20410), (Start: 19 @20443 has 167 MA's), (21, 20482), (22, 20545), (25, 20644), (29, 20713), (30, 20722), (31, 20737),

Gene: QBert\_58 Start: 20456, Stop: 20764, Start Num: 19

Candidate Starts for QBert\_58:

(9, 20219), (12, 20330), (15, 20423), (Start: 19 @20456 has 167 MA's), (21, 20495), (22, 20558), (29, 20726), (30, 20735), (31, 20750),

Gene: Quasimodo\_63 Start: 20683, Stop: 20991, Start Num: 19

Candidate Starts for Quasimodo\_63:

(12, 20557), (15, 20650), (Start: 19 @20683 has 167 MA's), (21, 20722), (22, 20785), (29, 20953), (30, 20962), (31, 20977),

Gene: Rabinovish\_63 Start: 21743, Stop: 22051, Start Num: 19

Candidate Starts for Rabinovish\_63:

(9, 21506), (12, 21617), (15, 21710), (Start: 19 @21743 has 167 MA's), (21, 21782), (22, 21845), (29, 22013), (30, 22022), (31, 22037),

Gene: Rahel\_64 Start: 20034, Stop: 20342, Start Num: 19

Candidate Starts for Rahel\_64:

(12, 19908), (15, 20001), (Start: 19 @20034 has 167 MA's), (21, 20073), (22, 20136), (29, 20304), (30, 20313), (31, 20328),

Gene: Rizal\_62 Start: 19636, Stop: 19944, Start Num: 19

Candidate Starts for Rizal\_62:

(12, 19510), (15, 19603), (Start: 19 @19636 has 167 MA's), (21, 19675), (22, 19738), (25, 19837), (29, 19906), (30, 19915), (31, 19930),

Gene: RoMag\_58 Start: 19638, Stop: 19946, Start Num: 19

Candidate Starts for RoMag\_58:

(12, 19512), (15, 19605), (Start: 19 @19638 has 167 MA's), (21, 19677), (22, 19740), (29, 19908), (30, 19917), (31, 19932),

Gene: Ronan\_58 Start: 18264, Stop: 18572, Start Num: 19

Candidate Starts for Ronan\_58:

(12, 18138), (15, 18231), (Start: 19 @18264 has 167 MA's), (21, 18303), (22, 18366), (25, 18465), (29, 18534), (30, 18543), (31, 18558),

Gene: Roots515\_63 Start: 20520, Stop: 20828, Start Num: 19

Candidate Starts for Roots515\_63:

(12, 20394), (15, 20487), (Start: 19 @20520 has 167 MA's), (21, 20559), (22, 20622), (25, 20721), (29, 20790), (30, 20799), (31, 20814),

Gene: Ryadel\_111 Start: 65800, Stop: 65486, Start Num: 18

Candidate Starts for Ryadel\_111:

(6, 66145), (10, 65935), (Start: 18 @65800 has 21 MA's), (21, 65752), (23, 65653), (24, 65614), (25, 65590), (26, 65557), (27, 65554), (28, 65539),

Gene: Salacia\_66 Start: 20719, Stop: 21027, Start Num: 19

Candidate Starts for Salacia\_66:

(12, 20593), (15, 20686), (Start: 19 @20719 has 167 MA's), (21, 20758), (22, 20821), (25, 20920), (29, 20989), (30, 20998), (31, 21013),

Gene: Sauce\_65 Start: 20665, Stop: 20973, Start Num: 19

Candidate Starts for Sauce\_65:

(9, 20428), (12, 20539), (15, 20632), (Start: 19 @20665 has 167 MA's), (21, 20704), (22, 20767), (29, 20935), (30, 20944), (31, 20959),

Gene: SchoolBus\_106 Start: 64554, Stop: 64243, Start Num: 18

Candidate Starts for SchoolBus\_106:

(6, 64899), (10, 64689), (Start: 18 @64554 has 21 MA's), (21, 64509), (23, 64410), (24, 64371), (25, 64347), (26, 64314), (27, 64311), (28, 64296),

Gene: Schuy\_107 Start: 64173, Stop: 63862, Start Num: 18

Candidate Starts for Schuy\_107:

(5, 64518), (10, 64308), (Start: 18 @64173 has 21 MA's), (21, 64128), (23, 64029), (24, 63990), (25, 63966), (26, 63933), (27, 63930), (28, 63915),

Gene: ScottMcG\_62 Start: 20497, Stop: 20805, Start Num: 19

Candidate Starts for ScottMcG\_62:

(9, 20260), (12, 20371), (15, 20464), (Start: 19 @20497 has 167 MA's), (21, 20536), (23, 20635), (24, 20674), (25, 20698), (29, 20767), (30, 20776), (31, 20791),

Gene: Sebata\_66 Start: 21591, Stop: 21899, Start Num: 19

Candidate Starts for Sebata\_66:

(12, 21465), (15, 21558), (Start: 19 @21591 has 167 MA's), (21, 21630), (22, 21693), (29, 21861), (30, 21870), (31, 21885),

Gene: Shaqnato\_58 Start: 19187, Stop: 19495, Start Num: 19

Candidate Starts for Shaqnato\_58:

(12, 19061), (15, 19154), (Start: 19 @19187 has 167 MA's), (21, 19226), (22, 19289), (25, 19388), (29, 19457), (30, 19466), (31, 19481),

Gene: Shelob\_66 Start: 21711, Stop: 22019, Start Num: 19

Candidate Starts for Shelob\_66:

(12, 21585), (15, 21678), (Start: 19 @21711 has 167 MA's), (21, 21750), (22, 21813), (25, 21912), (29, 21981), (30, 21990), (31, 22005),

Gene: ShiaLabeouf\_63 Start: 20102, Stop: 20410, Start Num: 19

Candidate Starts for ShiaLabeouf\_63:

(12, 19976), (15, 20069), (Start: 19 @20102 has 167 MA's), (21, 20141), (22, 20204), (29, 20372), (30, 20381), (31, 20396),

Gene: Shida\_109 Start: 65065, Stop: 64754, Start Num: 18

Candidate Starts for Shida\_109:

(1, 65485), (2, 65473), (3, 65452), (5, 65416), (10, 65200), (Start: 18 @65065 has 21 MA's), (21, 65020), (23, 64921), (24, 64882), (25, 64858), (26, 64825), (27, 64822), (28, 64807),

Gene: Shifa\_57 Start: 19572, Stop: 19880, Start Num: 19

Candidate Starts for Shifa\_57:

(9, 19335), (12, 19446), (15, 19539), (Start: 19 @19572 has 167 MA's), (21, 19611), (22, 19674), (29, 19842), (30, 19851), (31, 19866),

Gene: Shnickers\_63 Start: 19661, Stop: 19969, Start Num: 19

Candidate Starts for Shnickers\_63:

(12, 19535), (15, 19628), (Start: 19 @19661 has 167 MA's), (21, 19700), (22, 19763), (29, 19931), (30, 19940), (31, 19955),

Gene: Shrimp\_64 Start: 20723, Stop: 21031, Start Num: 19

Candidate Starts for Shrimp\_64:

(12, 20597), (15, 20690), (Start: 19 @20723 has 167 MA's), (21, 20762), (22, 20825), (25, 20924), (29, 20993), (30, 21002), (31, 21017),

Gene: SilverDipper\_64 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for SilverDipper\_64:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: SmallFry\_63 Start: 19661, Stop: 19969, Start Num: 19

Candidate Starts for SmallFry\_63:

(12, 19535), (15, 19628), (Start: 19 @19661 has 167 MA's), (21, 19700), (22, 19763), (29, 19931), (30, 19940), (31, 19955),

Gene: Smooch\_106 Start: 64948, Stop: 64634, Start Num: 18

Candidate Starts for Smooch\_106:

(10, 65083), (Start: 18 @64948 has 21 MA's), (20, 64930), (21, 64900), (23, 64801), (24, 64762), (25, 64738), (26, 64705), (27, 64702), (28, 64687),

Gene: Spec\_61 Start: 19805, Stop: 20113, Start Num: 19

Candidate Starts for Spec\_61:

(12, 19679), (15, 19772), (Start: 19 @19805 has 167 MA's), (21, 19844), (22, 19907), (29, 20075), (30, 20084), (31, 20099),

Gene: Specks\_69 Start: 22194, Stop: 22502, Start Num: 19

Candidate Starts for Specks\_69:

(12, 22068), (15, 22161), (Start: 19 @22194 has 167 MA's), (21, 22233), (22, 22296), (29, 22464), (30, 22473), (31, 22488),

Gene: Sprinklers\_60 Start: 19637, Stop: 19945, Start Num: 19

Candidate Starts for Sprinklers\_60:

(12, 19511), (15, 19604), (Start: 19 @19637 has 167 MA's), (21, 19676), (22, 19739), (25, 19838), (29, 19907), (30, 19916), (31, 19931),

Gene: Spud\_64 Start: 21034, Stop: 21342, Start Num: 19

Candidate Starts for Spud\_64:

(12, 20908), (15, 21001), (Start: 19 @21034 has 167 MA's), (21, 21073), (22, 21136), (25, 21235), (29, 21304), (30, 21313), (31, 21328),

Gene: SrishMeg2525\_63 Start: 20430, Stop: 20738, Start Num: 19

Candidate Starts for SrishMeg2525\_63:

(12, 20304), (15, 20397), (Start: 19 @20430 has 167 MA's), (21, 20469), (22, 20532), (25, 20631), (29, 20700), (30, 20709), (31, 20724),

Gene: StephanieG\_64 Start: 21037, Stop: 21345, Start Num: 19

Candidate Starts for StephanieG\_64:

(9, 20800), (12, 20911), (15, 21004), (Start: 19 @21037 has 167 MA's), (21, 21076), (22, 21139), (29, 21307), (30, 21316), (31, 21331),

Gene: Stubby\_59 Start: 20356, Stop: 20664, Start Num: 19

Candidate Starts for Stubby\_59:

(12, 20230), (15, 20323), (Start: 19 @20356 has 167 MA's), (21, 20395), (22, 20458), (29, 20626), (30, 20635), (31, 20650),

Gene: StubbySaigey\_63 Start: 19359, Stop: 19667, Start Num: 19

Candidate Starts for StubbySaigey\_63:

(12, 19233), (15, 19326), (Start: 19 @19359 has 167 MA's), (21, 19398), (22, 19461), (25, 19560), (29, 19629), (30, 19638), (31, 19653),

Gene: Teardrop\_63 Start: 19518, Stop: 19826, Start Num: 19

Candidate Starts for Teardrop\_63:

(12, 19392), (15, 19485), (Start: 19 @19518 has 167 MA's), (21, 19557), (22, 19620), (29, 19788), (30, 19797), (31, 19812),

Gene: TelAviv\_104 Start: 64790, Stop: 64479, Start Num: 18

Candidate Starts for TelAviv\_104:

(6, 65135), (10, 64925), (Start: 18 @64790 has 21 MA's), (21, 64745), (23, 64646), (24, 64607), (25, 64583), (26, 64550), (27, 64547), (28, 64532),

Gene: TinyTim\_64 Start: 20719, Stop: 21027, Start Num: 19

Candidate Starts for TinyTim\_64:

(12, 20593), (15, 20686), (Start: 19 @20719 has 167 MA's), (21, 20758), (22, 20821), (25, 20920), (29, 20989), (30, 20998), (31, 21013),

Gene: Tonenili\_74 Start: 23256, Stop: 23564, Start Num: 19

Candidate Starts for Tonenili\_74:

(7, 22932), (8, 22986), (Start: 19 @23256 has 167 MA's), (21, 23295), (22, 23358), (26, 23490), (29, 23526),

Gene: Tortoise16\_61 Start: 20169, Stop: 20477, Start Num: 19

Candidate Starts for Tortoise16\_61:

(12, 20043), (15, 20136), (Start: 19 @20169 has 167 MA's), (21, 20208), (22, 20271), (29, 20439), (30, 20448), (31, 20463),

Gene: Trinitium\_59 Start: 19122, Stop: 19430, Start Num: 19

Candidate Starts for Trinitium\_59:

(12, 18996), (15, 19089), (Start: 19 @19122 has 167 MA's), (21, 19161), (22, 19224), (29, 19392), (30, 19401), (31, 19416),

Gene: Turret\_58 Start: 18846, Stop: 19154, Start Num: 19

Candidate Starts for Turret\_58:

(12, 18720), (15, 18813), (Start: 19 @18846 has 167 MA's), (21, 18885), (22, 18948), (29, 19116), (30, 19125), (31, 19140),

Gene: Tyke\_65 Start: 21073, Stop: 21381, Start Num: 19

Candidate Starts for Tyke\_65:

(12, 20947), (15, 21040), (Start: 19 @21073 has 167 MA's), (21, 21112), (22, 21175), (29, 21343), (30, 21352), (31, 21367),

Gene: ValleyTerrace\_63 Start: 19665, Stop: 19973, Start Num: 19

Candidate Starts for ValleyTerrace\_63:

(12, 19539), (15, 19632), (Start: 19 @19665 has 167 MA's), (21, 19704), (22, 19767), (29, 19935), (30, 19944), (31, 19959),

Gene: Vorrrps\_107 Start: 64967, Stop: 64653, Start Num: 18

Candidate Starts for Vorrrps\_107:

(5, 65354), (10, 65144), (14, 65015), (Start: 16 @64985 has 2 MA's), (Start: 18 @64967 has 21 MA's), (21, 64919), (23, 64820), (24, 64781), (25, 64757), (26, 64724), (27, 64721), (28, 64706),

Gene: Wally\_62 Start: 19274, Stop: 19582, Start Num: 19

Candidate Starts for Wally\_62:



(12, 19148), (15, 19241), (Start: 19 @19274 has 167 MA's), (21, 19313), (22, 19376), (25, 19475), (29, 19544), (30, 19553), (31, 19568),

Gene: Wildflower\_104 Start: 62974, Stop: 62660, Start Num: 18

Candidate Starts for Wildflower\_104:

(10, 63109), (13, 63040), (Start: 18 @62974 has 21 MA's), (20, 62956), (21, 62926), (23, 62827), (24, 62788), (25, 62764), (26, 62731), (27, 62728), (28, 62713),

Gene: Willis\_64 Start: 20614, Stop: 20922, Start Num: 19

Candidate Starts for Willis\_64:

(12, 20488), (15, 20581), (Start: 19 @20614 has 167 MA's), (21, 20653), (22, 20716), (25, 20815), (29, 20884), (30, 20893), (31, 20908),

Gene: Winget\_107 Start: 64858, Stop: 64547, Start Num: 18

Candidate Starts for Winget\_107:

(5, 65203), (10, 64993), (Start: 18 @64858 has 21 MA's), (21, 64813), (23, 64714), (24, 64675), (25, 64651), (26, 64618), (27, 64615), (28, 64600),

Gene: Yassified\_61 Start: 20024, Stop: 20332, Start Num: 19

Candidate Starts for Yassified\_61:

(9, 19787), (12, 19898), (15, 19991), (Start: 19 @20024 has 167 MA's), (21, 20063), (22, 20126), (29, 20294), (30, 20303), (31, 20318),

Gene: YemiJoy2021\_64 Start: 20400, Stop: 20708, Start Num: 19

Candidate Starts for YemiJoy2021\_64:

(12, 20274), (15, 20367), (Start: 19 @20400 has 167 MA's), (21, 20439), (22, 20502), (25, 20601), (29, 20670), (30, 20679), (31, 20694),

Gene: YoungMoneyMata\_63 Start: 19416, Stop: 19724, Start Num: 19

Candidate Starts for YoungMoneyMata\_63:

(12, 19290), (15, 19383), (Start: 19 @19416 has 167 MA's), (21, 19455), (22, 19518), (29, 19686), (30, 19695), (31, 19710),

Gene: Yucca\_64 Start: 20641, Stop: 20949, Start Num: 19

Candidate Starts for Yucca\_64:

(12, 20515), (15, 20608), (Start: 19 @20641 has 167 MA's), (21, 20680), (22, 20743), (25, 20842), (29, 20911), (30, 20920), (31, 20935),

Gene: Zakhe101\_102 Start: 63086, Stop: 62766, Start Num: 17

Candidate Starts for Zakhe101\_102:

(10, 63215), (Start: 17 @63086 has 1 MA's), (21, 63032), (23, 62933), (24, 62894), (25, 62870), (26, 62837), (27, 62834), (28, 62819),

Gene: Zalkecks\_65 Start: 20404, Stop: 20712, Start Num: 19

Candidate Starts for Zalkecks\_65:

(12, 20278), (15, 20371), (Start: 19 @20404 has 167 MA's), (21, 20443), (22, 20506), (25, 20605), (29, 20674), (30, 20683), (31, 20698),

Gene: Zeenon\_66 Start: 20706, Stop: 21014, Start Num: 19

Candidate Starts for Zeenon\_66:

(12, 20580), (15, 20673), (Start: 19 @20706 has 167 MA's), (21, 20745), (22, 20808), (25, 20907), (29, 20976), (30, 20985), (31, 21000),

Gene: ZygoTaiga\_64 Start: 20720, Stop: 21028, Start Num: 19

Candidate Starts for ZygoTaiga\_64:

(12, 20594), (15, 20687), (Start: 19 @20720 has 167 MA's), (21, 20759), (22, 20822), (25, 20921), (29, 20990), (30, 20999), (31, 21014),