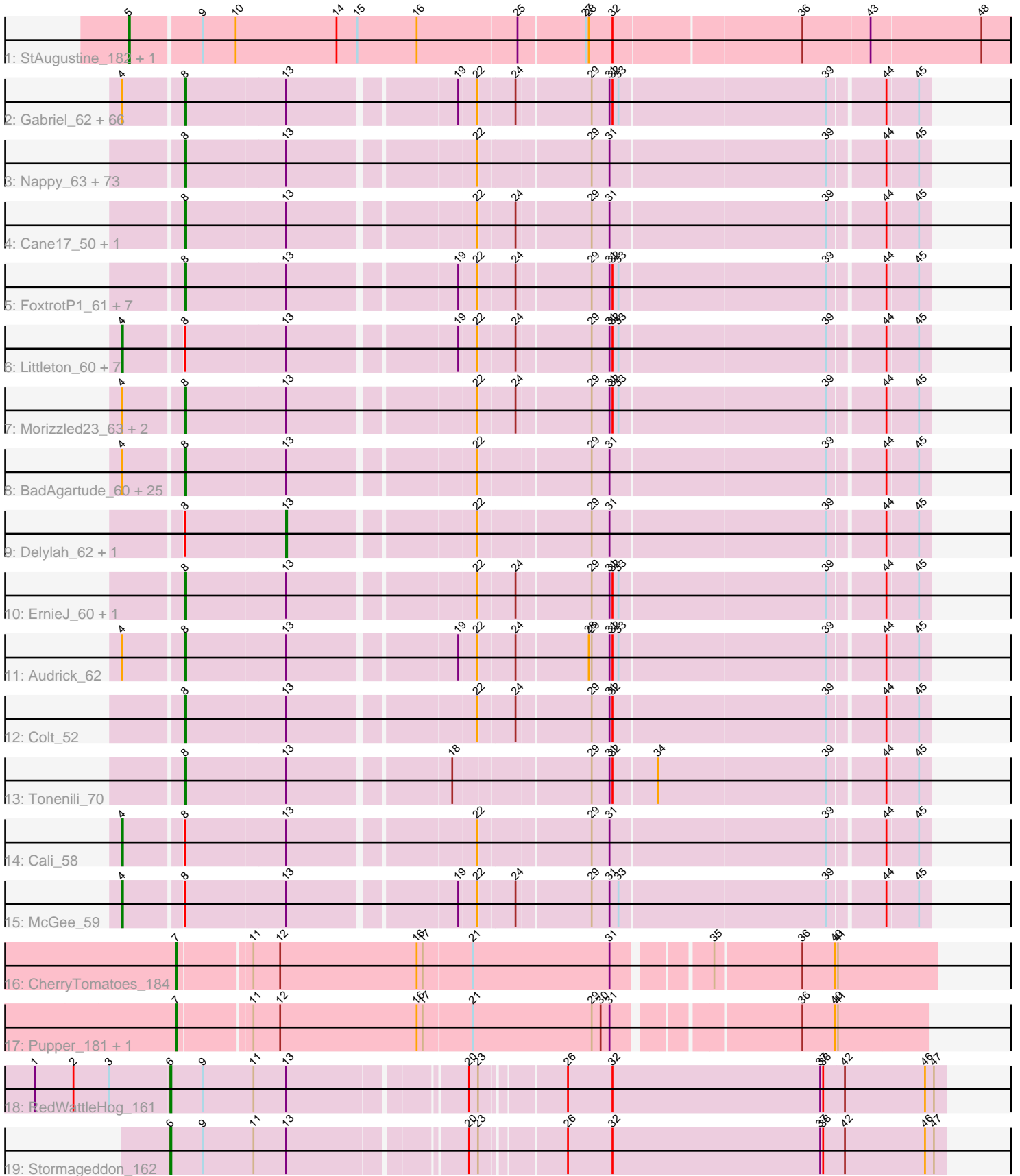


# Pham 221145



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 221145 Report

This analysis was run 03/28/25 on database version 593.

Pham number 221145 has 204 members, 26 are drafts.

Phages represented in each track:

- Track 1 : StAugustine\_182, Causa\_195
- Track 2 : Gabriel\_62, HyRo\_56, Jedediah\_61, Sprinklers\_57, GlutenPhree\_58, Stubby\_56, Blackdragon\_57, CindyLou\_61, Ading\_60, Momo\_59, StephanieG\_61, Jemmno\_60, ShiaLabeouf\_60, ValleyTerrace\_60, YoungMoneyMata\_60, Quasimodo\_60, BananaFence\_62, Jaygup\_60, Pivoine\_59, Matsumoto\_59, Chomp\_59, SilverDipper\_61, Pio\_65, DeejaClivia\_53, QBert\_55, Rahel\_61, Tortoise16\_58, JayJay\_66, Amataga\_60, Phlegm\_62, Pinkcreek\_53, Pier\_63, Ghost\_60, Atlantean\_59, JPickles\_58, Naija\_59, BackyardAgain\_58, RoMag\_55, Adlitam\_60, Halldule\_55, Ngannou\_55, InigoMontoya\_61, Shnickers\_60, Babyland\_59, Patter\_60, ArcherS7\_60, Drazdys\_60, JulietS\_55, Caravan\_57, Bangla1971\_61, SmallFry\_60, Belieber\_55, EmmaElysia\_59, Burrough\_61, Shifa\_54, Latch\_60, Darko\_60, Phusco\_60, Guwapp\_59, Fongie\_60, Melpomini\_56, Tyke\_62, JustHall\_56, Domi\_55, Bxz1\_61, Gamgam\_60, Capablanca\_62
- Track 3 : Nappy\_63, FudgeTart\_62, Salacia\_63, Jessibeth14\_59, Daffodil\_63, Bipolarisk\_60, Kamryn\_60, Tainan\_66, Nidhogg\_61, Delilah\_61, Wally\_59, StubbySaigey\_60, McWolfish\_59, Roots515\_60, Mikro\_59, Bonray\_61, LolaVinca\_64, Norm\_61, Naval22\_67, BigCity\_66, DrPhinkDaddy\_60, Erdmann\_62, ChickenPhender\_56, Jezreel\_59, Basquiat\_56, Lee7\_59, Flabslab\_57, MikeLiesIn\_61, Issimir\_61, Grasshills\_66, Ewok\_61, Maby2021\_61, Cactojaque\_55, Ablatia\_57, Kboogie\_61, ChaylaJr\_56, ZygoTaiga\_61, Dietrick\_54, Mangeria\_64, Pleione\_63, Rizal\_59, Ava3\_62, EmToTheThree\_64, Chargie21\_56, Yucca\_61, Primadonna\_57, Izajani\_62, MoMoMixon\_61, SVoro\_60, Zeenon\_63, Zalkecks\_62, NedWong\_62, LordLeafolot\_66, NuevoMundo\_66, PurduePete\_60, SrishMeg2525\_60, YemiJoy2021\_61, Blackbrain\_55, Bigswole\_67, TinyTim\_61, Fludd\_60, Catera\_59, Spud\_61, Khaleesi\_60, Bread\_61, Napoleon13\_58, Shrimp\_61, EggyFarm\_66, Janiyra\_62, FrayBell\_67, ParkTD\_60, Willis\_61, Loanshark\_61, Megamind\_60
- Track 4 : Cane17\_50, Blubba\_51
- Track 5 : FoxtrotP1\_61, Trinitium\_56, Dandelion\_66, LinStu\_62, Turret\_55, Essence\_59, Spec\_58, Sebata\_63
- Track 6 : Littleton\_60, Breeniome\_62, Derek\_61, Alice\_55, DTDevon\_61, Astraea\_62, LifeSavor\_60, Rabinovish\_60
- Track 7 : Morizzled23\_63, EasyJones\_63, Yassified\_58
- Track 8 : BadAgartude\_60, Shaqnato\_55, JigglyPuff\_65, Lethe\_61, Iota\_55, BeanWater\_54, Grungle\_52, Lukilu\_54, Koguma\_57, Demodog\_65, Phox\_59, I3\_63, Shelob\_63, Asterius\_61, Teardrop\_60, CharlieB\_58, Specks\_66, NoodleTree\_61, IkeLoa\_55, LRRHood\_57, ET08\_52, Concombre\_66, ScottMcG\_59, Sauce\_62,

- Ronan\_55, InterFolia\_69
- Track 9 : Delylah\_62, Gizmo\_63
  - Track 10 : ErnieJ\_60, DirtMonster\_57
  - Track 11 : Audrick\_62
  - Track 12 : Colt\_52
  - Track 13 : Tonenili\_70
  - Track 14 : Cali\_58
  - Track 15 : McGee\_59
  - Track 16 : CherryTomatoes\_184
  - Track 17 : Pupper\_181, SCentae\_180
  - Track 18 : RedWattleHog\_161
  - Track 19 : Stormageddon\_162

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

The start number called the most often in the published annotations is 8, it was called in 160 of the 178 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ablatia\_57, Ading\_60, Adlitam\_60, Amataga\_60, ArcherS7\_60, Asterius\_61, Atlantean\_59, Audrick\_62, Ava3\_62, Babyland\_59, BackyardAgain\_58, BadAgartude\_60, BananaFence\_62, Bangla1971\_61, Basquiat\_56, BeanWater\_54, Belieber\_55, BigCity\_66, Bigswole\_67, Bipolarisk\_60, Blackbrain\_55, Blackdragon\_57, Blubba\_51, Bonray\_61, Bread\_61, Burrough\_61, Bxz1\_61, Cactojaque\_55, Cane17\_50, Capablanca\_62, Caravan\_57, Catera\_59, Chargie21\_56, CharlieB\_58, ChaylaJr\_56, ChickenPhender\_56, Chomp\_59, CindyLou\_61, Colt\_52, Concombre\_66, Daffodil\_63, Dandelion\_66, Darko\_60, DeejaClivia\_53, Delilah\_61, Demodog\_65, Dietrick\_54, DirtMonster\_57, Domi\_55, DrPhinkDaddy\_60, Drazdys\_60, ET08\_52, EasyJones\_63, EggyFarm\_66, EmToTheThree\_64, EmmaElysia\_59, Erdmann\_62, ErnieJ\_60, Essence\_59, Ewok\_61, Flabslab\_57, Fludd\_60, Fongie\_60, FoxtrotP1\_61, FrayBell\_67, FudgeTart\_62, Gabriel\_62, Gamgam\_60, Ghost\_60, GlutenPhree\_58, Grasshills\_66, Grungle\_52, Guwapp\_59, Halldule\_55, HyRo\_56, I3\_63, IkeLoa\_55, InigoMontoya\_61, InterFolia\_69, Iota\_55, Issimir\_61, Izajani\_62, JPickles\_58, Janiyra\_62, JayJay\_66, Jaygup\_60, Jedediah\_61, Jemmno\_60, Jessibeth14\_59, Jezreel\_59, JigglyPuff\_65, JulietS\_55, JustHall\_56, Kamryn\_60, Kboogie\_61, Khaleesi\_60, Koguma\_57, LRRHood\_57, Latch\_60, Lee7\_59, Lethe\_61, LinStu\_62, Loanshark\_61, LolaVinca\_64, LordLeafolot\_66, Lukilu\_54, Maby2021\_61, Mangeria\_64, Matsumoto\_59, McWolfish\_59, Megamind\_60, Melpomini\_56, MikeLiesIn\_61, Mikro\_59, MoMoMixon\_61, Momo\_59, Morizzled23\_63, Naija\_59, Napoleon13\_58, Nappy\_63, Naval22\_67, NedWong\_62, Ngannou\_55, Nidhogg\_61, NoodleTree\_61, Norm\_61, NuevoMundo\_66, ParkTD\_60, Patter\_60, Phlegm\_62, Phox\_59, Phusco\_60, Pier\_63, Pinkcreek\_53, Pio\_65, Pivoine\_59, Pleione\_63, Primadonna\_57, PurduePete\_60, QBert\_55, Quasimodo\_60, Rahel\_61, Rizal\_59, RoMag\_55, Ronan\_55, Roots515\_60, SVoro\_60, Salacia\_63, Sauce\_62, ScottMcG\_59, Sebata\_63, Shaqnato\_55, Shelob\_63, ShiaLabeouf\_60, Shifa\_54, Shnickers\_60, Shrimp\_61, SilverDipper\_61, SmallFry\_60, Spec\_58, Specks\_66, Sprinklers\_57, Spud\_61, SrishMeg2525\_60, StephanieG\_61, StubbySaigey\_60, Stubby\_56, Tainan\_66, Teardrop\_60, TinyTim\_61, Tonenili\_70, Tortoise16\_58, Trinitium\_56, Turret\_55, Tyke\_62, ValleyTerrace\_60, Wally\_59, Willis\_61,

Yassified\_58, YemiJoy2021\_61, YoungMoneyMata\_60, Yucca\_61, Zalkecks\_62, Zeenon\_63, ZygoTaiga\_61,

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

- Alice\_55, Astraea\_62, Breeniome\_62, Cali\_58, DTDevon\_61, Delylah\_62, Derek\_61, Gizmo\_63, LifeSavor\_60, Littleton\_60, McGee\_59, Rabinovish\_60,

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

- Causa\_195, CherryTomatoes\_184, Pupper\_181, RedWattleHog\_161, SCentae\_180, StAugustine\_182, Stormageddon\_162,

### Summary by start number:

Start 4:

- Found in 107 of 204 ( 52.5% ) of genes in pham
- Manual Annotations of this start: 10 of 178
- Called 9.3% of time when present
- Phage (with cluster) where this start called: Alice\_55 (C1), Astraea\_62 (C1), Breeniome\_62 (C1), Cali\_58 (C1), DTDevon\_61 (C1), Derek\_61 (C1), LifeSavor\_60 (C1), Littleton\_60 (C1), McGee\_59 (C1), Rabinovish\_60 (C1),

Start 5:

- Found in 2 of 204 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 178
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Causa\_195 (AI), StAugustine\_182 (AI),

Start 6:

- Found in 2 of 204 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 2 of 178
- Called 100.0% of time when present
- Phage (with cluster) where this start called: RedWattleHog\_161 (DX), Stormageddon\_162 (DX),

Start 7:

- Found in 3 of 204 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 3 of 178
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CherryTomatoes\_184 (DO), Pupper\_181 (DO), SCentae\_180 (DO),

Start 8:

- Found in 197 of 204 ( 96.6% ) of genes in pham
- Manual Annotations of this start: 160 of 178
- Called 93.9% of time when present
- Phage (with cluster) where this start called: Ablatia\_57 (C1), Ading\_60 (C1), Adlitam\_60 (C1), Amataga\_60 (C1), ArcherS7\_60 (C1), Asterius\_61 (C1), Atlantean\_59 (C1), Audrick\_62 (C1), Ava3\_62 (C1), Babyland\_59 (C1), BackyardAgain\_58 (C1), BadAgartude\_60 (C1), BananaFence\_62 (C1), Bangla1971\_61 (C1), Basquiat\_56 (C1), BeanWater\_54 (C1), Belieber\_55 (C1), BigCity\_66 (C1), Bigswole\_67 (C1), Bipolarisk\_60 (C1), Blackbrain\_55 (C1), Blackdragon\_57 (C1), Blubba\_51 (C1), Bonray\_61 (C1), Bread\_61 (C1), Burrough\_61 (C1), Bxz1\_61 (C1), Cactojaque\_55 (C1), Cane17\_50 (C1), Capablanca\_62 (C1),

Caravan\_57 (C1), Catera\_59 (C1), Chargie21\_56 (C1), CharlieB\_58 (C1), ChaylaJr\_56 (C1), ChickenPhender\_56 (C1), Chomp\_59 (C1), CindyLou\_61 (C1), Colt\_52 (C1), Concombre\_66 (C1), Daffodil\_63 (C1), Dandelion\_66 (C1), Darko\_60 (C1), DeejaClivia\_53 (C1), Delilah\_61 (C1), Demodog\_65 (C1), Dietrick\_54 (C1), DirtMonster\_57 (C1), Domi\_55 (C1), DrPhinkDaddy\_60 (C1), Drazdys\_60 (C1), ET08\_52 (C1), EasyJones\_63 (C1), EggyFarm\_66 (C1), EmToTheThree\_64 (C1), EmmaElysia\_59 (C1), Erdmann\_62 (C1), ErnieJ\_60 (C1), Essence\_59 (C1), Ewok\_61 (C1), Flabslab\_57 (C1), Fludd\_60 (C1), Fongie\_60 (C1), FoxtrotP1\_61 (C1), FrayBell\_67 (C1), FudgeTart\_62 (C1), Gabriel\_62 (C1), Gamgam\_60 (C1), Ghost\_60 (C1), GlutenPhree\_58 (C1), Grasshills\_66 (C1), Grungle\_52 (C1), Guwapp\_59 (C1), Haldule\_55 (C1), HyRo\_56 (C1), I3\_63 (C1), IkeLoa\_55 (C1), InigoMontoya\_61 (C1), InterFolia\_69 (C1), Iota\_55 (C1), Issimir\_61 (C1), Izajani\_62 (C1), JPickles\_58 (C1), Janiyra\_62 (C1), JayJay\_66 (C1), Jaygup\_60 (C1), Jedediah\_61 (C1), Jemmno\_60 (C1), Jessibeth14\_59 (C1), Jezreel\_59 (C1), JigglyPuff\_65 (C1), JulietS\_55 (C1), JustHall\_56 (C1), Kamryn\_60 (C1), Kboogie\_61 (C1), Khaleesi\_60 (C1), Koguma\_57 (C1), LRRHood\_57 (C1), Latch\_60 (C1), Lee7\_59 (C1), Lethe\_61 (C1), LinStu\_62 (C1), Loanshark\_61 (C1), LolaVinca\_64 (C1), LordLeafolot\_66 (C1), Lukilu\_54 (C1), Maby2021\_61 (C1), Mangeria\_64 (C1), Matsumoto\_59 (C1), McWolfish\_59 (C1), Megamind\_60 (C1), Melpomini\_56 (C1), MikeLiesIn\_61 (C1), Mikro\_59 (C1), MoMoMixon\_61 (C1), Momo\_59 (C1), Morizzled23\_63 (C1), Naija\_59 (C1), Napoleon13\_58 (C1), Nappy\_63 (C1), Naval22\_67 (C1), NedWong\_62 (C1), Ngannou\_55 (C1), Nidhogg\_61 (C1), NoodleTree\_61 (C1), Norm\_61 (C1), NuevoMundo\_66 (C1), ParkTD\_60 (C1), Patter\_60 (C1), Phlegm\_62 (C1), Phox\_59 (C1), Phusco\_60 (C1), Pier\_63 (C1), Pinkcreek\_53 (C1), Pio\_65 (C1), Pivoine\_59 (C1), Pleione\_63 (C1), Primadonna\_57 (C1), PurduePete\_60 (C1), QBert\_55 (C1), Quasimodo\_60 (C1), Rahel\_61 (C1), Rizal\_59 (C1), RoMag\_55 (C1), Ronan\_55 (C1), Roots515\_60 (C1), SVoro\_60 (C1), Salacia\_63 (C1), Sauce\_62 (C1), ScottMcG\_59 (C1), Sebata\_63 (C1), Shaqato\_55 (C1), Shelob\_63 (C1), ShiaLabeouf\_60 (C1), Shifa\_54 (C1), Shnickers\_60 (C1), Shrimp\_61 (C1), SilverDipper\_61 (C1), SmallFry\_60 (C1), Spec\_58 (C1), Specks\_66 (C1), Sprinklers\_57 (C1), Spud\_61 (C1), SrishMeg2525\_60 (C1), StephanieG\_61 (C1), StubbySaigey\_60 (C1), Stubby\_56 (C1), Tainan\_66 (C1), Teardrop\_60 (C1), TinyTim\_61 (C1), Tonenili\_70 (C1), Tortoise16\_58 (C1), Trinitium\_56 (C1), Turret\_55 (C1), Tyke\_62 (C1), ValleyTerrace\_60 (C1), Wally\_59 (C1), Willis\_61 (C1), Yassified\_58 (C1), YemiJoy2021\_61 (C1), YoungMoneyMata\_60 (C1), Yucca\_61 (C1), Zalkecks\_62 (C1), Zeenon\_63 (C1), ZygoTaiga\_61 (C1),

Start 13:

- Found in 199 of 204 ( 97.5% ) of genes in pham
- Manual Annotations of this start: 2 of 178
- Called 1.0% of time when present
- Phage (with cluster) where this start called: Delylah\_62 (C1), Gizmo\_63 (C1),

### Summary by clusters:

There are 4 clusters represented in this pham: AI, DO, C1, DX,

Info for manual annotations of cluster AI:

- Start number 5 was manually annotated 1 time for cluster AI.

Info for manual annotations of cluster C1:

- Start number 4 was manually annotated 10 times for cluster C1.
- Start number 8 was manually annotated 160 times for cluster C1.

•Start number 13 was manually annotated 2 times for cluster C1.

Info for manual annotations of cluster DO:

•Start number 7 was manually annotated 3 times for cluster DO.

Info for manual annotations of cluster DX:

•Start number 6 was manually annotated 2 times for cluster DX.

### **Gene Information:**

Gene: Ablatia\_57 Start: 18338, Stop: 19033, Start Num: 8

Candidate Starts for Ablatia\_57:

(Start: 8 @18338 has 160 MA's), (Start: 13 @18437 has 2 MA's), (22, 18608), (29, 18710), (31, 18728), (39, 18941), (44, 18992), (45, 19022),

Gene: Ading\_60 Start: 18438, Stop: 19133, Start Num: 8

Candidate Starts for Ading\_60:

(Start: 4 @18384 has 10 MA's), (Start: 8 @18438 has 160 MA's), (Start: 13 @18537 has 2 MA's), (19, 18693), (22, 18708), (24, 18741), (29, 18810), (31, 18828), (32, 18831), (33, 18837), (39, 19041), (44, 19092), (45, 19122),

Gene: Adlitam\_60 Start: 18455, Stop: 19150, Start Num: 8

Candidate Starts for Adlitam\_60:

(Start: 4 @18401 has 10 MA's), (Start: 8 @18455 has 160 MA's), (Start: 13 @18554 has 2 MA's), (19, 18710), (22, 18725), (24, 18758), (29, 18827), (31, 18845), (32, 18848), (33, 18854), (39, 19058), (44, 19109), (45, 19139),

Gene: Alice\_55 Start: 18458, Stop: 19207, Start Num: 4

Candidate Starts for Alice\_55:

(Start: 4 @18458 has 10 MA's), (Start: 8 @18512 has 160 MA's), (Start: 13 @18611 has 2 MA's), (19, 18767), (22, 18782), (24, 18815), (29, 18884), (31, 18902), (32, 18905), (33, 18911), (39, 19115), (44, 19166), (45, 19196),

Gene: Amataga\_60 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for Amataga\_60:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: ArcherS7\_60 Start: 18822, Stop: 19517, Start Num: 8

Candidate Starts for ArcherS7\_60:

(Start: 4 @18768 has 10 MA's), (Start: 8 @18822 has 160 MA's), (Start: 13 @18921 has 2 MA's), (19, 19077), (22, 19092), (24, 19125), (29, 19194), (31, 19212), (32, 19215), (33, 19221), (39, 19425), (44, 19476), (45, 19506),

Gene: Asterius\_61 Start: 18796, Stop: 19491, Start Num: 8

Candidate Starts for Asterius\_61:

(Start: 4 @18742 has 10 MA's), (Start: 8 @18796 has 160 MA's), (Start: 13 @18895 has 2 MA's), (22, 19066), (29, 19168), (31, 19186), (39, 19399), (44, 19450), (45, 19480),

Gene: Astraea\_62 Start: 19861, Stop: 20610, Start Num: 4

Candidate Starts for Astraea\_62:

(Start: 4 @19861 has 10 MA's), (Start: 8 @19915 has 160 MA's), (Start: 13 @20014 has 2 MA's), (19, 20170), (22, 20185), (24, 20218), (29, 20287), (31, 20305), (32, 20308), (33, 20314), (39, 20518), (44, 20569), (45, 20599),

Gene: Atlantean\_59 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for Atlantean\_59:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: Audrick\_62 Start: 18438, Stop: 19133, Start Num: 8

Candidate Starts for Audrick\_62:

(Start: 4 @18384 has 10 MA's), (Start: 8 @18438 has 160 MA's), (Start: 13 @18537 has 2 MA's), (19, 18693), (22, 18708), (24, 18741), (28, 18807), (29, 18810), (31, 18828), (32, 18831), (33, 18837), (39, 19041), (44, 19092), (45, 19122),

Gene: Ava3\_62 Start: 19513, Stop: 20208, Start Num: 8

Candidate Starts for Ava3\_62:

(Start: 8 @19513 has 160 MA's), (Start: 13 @19612 has 2 MA's), (22, 19783), (29, 19885), (31, 19903), (39, 20116), (44, 20167), (45, 20197),

Gene: Babyland\_59 Start: 17897, Stop: 18592, Start Num: 8

Candidate Starts for Babyland\_59:

(Start: 4 @17843 has 10 MA's), (Start: 8 @17897 has 160 MA's), (Start: 13 @17996 has 2 MA's), (19, 18152), (22, 18167), (24, 18200), (29, 18269), (31, 18287), (32, 18290), (33, 18296), (39, 18500), (44, 18551), (45, 18581),

Gene: BackyardAgain\_58 Start: 18390, Stop: 19085, Start Num: 8

Candidate Starts for BackyardAgain\_58:

(Start: 4 @18336 has 10 MA's), (Start: 8 @18390 has 160 MA's), (Start: 13 @18489 has 2 MA's), (19, 18645), (22, 18660), (24, 18693), (29, 18762), (31, 18780), (32, 18783), (33, 18789), (39, 18993), (44, 19044), (45, 19074),

Gene: BadAgartude\_60 Start: 20256, Stop: 20951, Start Num: 8

Candidate Starts for BadAgartude\_60:

(Start: 4 @20202 has 10 MA's), (Start: 8 @20256 has 160 MA's), (Start: 13 @20355 has 2 MA's), (22, 20526), (29, 20628), (31, 20646), (39, 20859), (44, 20910), (45, 20940),

Gene: BananaFence\_62 Start: 19397, Stop: 20092, Start Num: 8

Candidate Starts for BananaFence\_62:

(Start: 4 @19343 has 10 MA's), (Start: 8 @19397 has 160 MA's), (Start: 13 @19496 has 2 MA's), (19, 19652), (22, 19667), (24, 19700), (29, 19769), (31, 19787), (32, 19790), (33, 19796), (39, 20000), (44, 20051), (45, 20081),

Gene: Bangla1971\_61 Start: 18952, Stop: 19647, Start Num: 8

Candidate Starts for Bangla1971\_61:

(Start: 4 @18898 has 10 MA's), (Start: 8 @18952 has 160 MA's), (Start: 13 @19051 has 2 MA's), (19, 19207), (22, 19222), (24, 19255), (29, 19324), (31, 19342), (32, 19345), (33, 19351), (39, 19555), (44, 19606), (45, 19636),

Gene: Basquiat\_56 Start: 17883, Stop: 18578, Start Num: 8

Candidate Starts for Basquiat\_56:

(Start: 8 @17883 has 160 MA's), (Start: 13 @17982 has 2 MA's), (22, 18153), (29, 18255), (31, 18273), (39, 18486), (44, 18537), (45, 18567),

Gene: BeanWater\_54 Start: 18805, Stop: 19500, Start Num: 8

Candidate Starts for BeanWater\_54:

(Start: 4 @18751 has 10 MA's), (Start: 8 @18805 has 160 MA's), (Start: 13 @18904 has 2 MA's), (22, 19075), (29, 19177), (31, 19195), (39, 19408), (44, 19459), (45, 19489),

Gene: Belieber\_55 Start: 17811, Stop: 18506, Start Num: 8

Candidate Starts for Belieber\_55:

(Start: 4 @17757 has 10 MA's), (Start: 8 @17811 has 160 MA's), (Start: 13 @17910 has 2 MA's), (19, 18066), (22, 18081), (24, 18114), (29, 18183), (31, 18201), (32, 18204), (33, 18210), (39, 18414), (44, 18465), (45, 18495),

Gene: BigCity\_66 Start: 20720, Stop: 21415, Start Num: 8

Candidate Starts for BigCity\_66:

(Start: 8 @20720 has 160 MA's), (Start: 13 @20819 has 2 MA's), (22, 20990), (29, 21092), (31, 21110), (39, 21323), (44, 21374), (45, 21404),

Gene: Bigswole\_67 Start: 21754, Stop: 22449, Start Num: 8

Candidate Starts for Bigswole\_67:

(Start: 8 @21754 has 160 MA's), (Start: 13 @21853 has 2 MA's), (22, 22024), (29, 22126), (31, 22144), (39, 22357), (44, 22408), (45, 22438),

Gene: Bipolarisk\_60 Start: 19224, Stop: 19919, Start Num: 8

Candidate Starts for Bipolarisk\_60:

(Start: 8 @19224 has 160 MA's), (Start: 13 @19323 has 2 MA's), (22, 19494), (29, 19596), (31, 19614), (39, 19827), (44, 19878), (45, 19908),

Gene: Blackbrain\_55 Start: 17700, Stop: 18395, Start Num: 8

Candidate Starts for Blackbrain\_55:

(Start: 8 @17700 has 160 MA's), (Start: 13 @17799 has 2 MA's), (22, 17970), (29, 18072), (31, 18090), (39, 18303), (44, 18354), (45, 18384),

Gene: Blackdragon\_57 Start: 18724, Stop: 19419, Start Num: 8

Candidate Starts for Blackdragon\_57:

(Start: 4 @18670 has 10 MA's), (Start: 8 @18724 has 160 MA's), (Start: 13 @18823 has 2 MA's), (19, 18979), (22, 18994), (24, 19027), (29, 19096), (31, 19114), (32, 19117), (33, 19123), (39, 19327), (44, 19378), (45, 19408),

Gene: Blubba\_51 Start: 16623, Stop: 17318, Start Num: 8

Candidate Starts for Blubba\_51:

(Start: 8 @16623 has 160 MA's), (Start: 13 @16722 has 2 MA's), (22, 16893), (24, 16926), (29, 16995), (31, 17013), (39, 17226), (44, 17277), (45, 17307),

Gene: Bonray\_61 Start: 19501, Stop: 20196, Start Num: 8

Candidate Starts for Bonray\_61:

(Start: 8 @19501 has 160 MA's), (Start: 13 @19600 has 2 MA's), (22, 19771), (29, 19873), (31, 19891), (39, 20104), (44, 20155), (45, 20185),

Gene: Bread\_61 Start: 19194, Stop: 19889, Start Num: 8

Candidate Starts for Bread\_61:



(Start: 8 @19194 has 160 MA's), (Start: 13 @19293 has 2 MA's), (22, 19464), (29, 19566), (31, 19584), (39, 19797), (44, 19848), (45, 19878),

Gene: Breeniome\_62 Start: 18647, Stop: 19396, Start Num: 4

Candidate Starts for Breeniome\_62:

(Start: 4 @18647 has 10 MA's), (Start: 8 @18701 has 160 MA's), (Start: 13 @18800 has 2 MA's), (19, 18956), (22, 18971), (24, 19004), (29, 19073), (31, 19091), (32, 19094), (33, 19100), (39, 19304), (44, 19355), (45, 19385),

Gene: Burrough\_61 Start: 19227, Stop: 19922, Start Num: 8

Candidate Starts for Burrough\_61:

(Start: 4 @19173 has 10 MA's), (Start: 8 @19227 has 160 MA's), (Start: 13 @19326 has 2 MA's), (19, 19482), (22, 19497), (24, 19530), (29, 19599), (31, 19617), (32, 19620), (33, 19626), (39, 19830), (44, 19881), (45, 19911),

Gene: Bxz1\_61 Start: 20278, Stop: 20973, Start Num: 8

Candidate Starts for Bxz1\_61:

(Start: 4 @20224 has 10 MA's), (Start: 8 @20278 has 160 MA's), (Start: 13 @20377 has 2 MA's), (19, 20533), (22, 20548), (24, 20581), (29, 20650), (31, 20668), (32, 20671), (33, 20677), (39, 20881), (44, 20932), (45, 20962),

Gene: Cactojaque\_55 Start: 17807, Stop: 18502, Start Num: 8

Candidate Starts for Cactojaque\_55:

(Start: 8 @17807 has 160 MA's), (Start: 13 @17906 has 2 MA's), (22, 18077), (29, 18179), (31, 18197), (39, 18410), (44, 18461), (45, 18491),

Gene: Cali\_58 Start: 19988, Stop: 20737, Start Num: 4

Candidate Starts for Cali\_58:

(Start: 4 @19988 has 10 MA's), (Start: 8 @20042 has 160 MA's), (Start: 13 @20141 has 2 MA's), (22, 20312), (29, 20414), (31, 20432), (39, 20645), (44, 20696), (45, 20726),

Gene: Cane17\_50 Start: 16341, Stop: 17036, Start Num: 8

Candidate Starts for Cane17\_50:

(Start: 8 @16341 has 160 MA's), (Start: 13 @16440 has 2 MA's), (22, 16611), (24, 16644), (29, 16713), (31, 16731), (39, 16944), (44, 16995), (45, 17025),

Gene: Capablanca\_62 Start: 19584, Stop: 20279, Start Num: 8

Candidate Starts for Capablanca\_62:

(Start: 4 @19530 has 10 MA's), (Start: 8 @19584 has 160 MA's), (Start: 13 @19683 has 2 MA's), (19, 19839), (22, 19854), (24, 19887), (29, 19956), (31, 19974), (32, 19977), (33, 19983), (39, 20187), (44, 20238), (45, 20268),

Gene: Caravan\_57 Start: 18572, Stop: 19267, Start Num: 8

Candidate Starts for Caravan\_57:

(Start: 4 @18518 has 10 MA's), (Start: 8 @18572 has 160 MA's), (Start: 13 @18671 has 2 MA's), (19, 18827), (22, 18842), (24, 18875), (29, 18944), (31, 18962), (32, 18965), (33, 18971), (39, 19175), (44, 19226), (45, 19256),

Gene: Catera\_59 Start: 18393, Stop: 19088, Start Num: 8

Candidate Starts for Catera\_59:

(Start: 8 @18393 has 160 MA's), (Start: 13 @18492 has 2 MA's), (22, 18663), (29, 18765), (31, 18783), (39, 18996), (44, 19047), (45, 19077),

Gene: Causa\_195 Start: 100860, Stop: 99988, Start Num: 5

Candidate Starts for Causa\_195:

(Start: 5 @100860 has 1 MA's), (9, 100791), (10, 100758), (14, 100659), (15, 100638), (16, 100578), (25, 100482), (27, 100419), (28, 100416), (32, 100392), (36, 100209), (43, 100143), (48, 100035),

Gene: Chargie21\_56 Start: 17883, Stop: 18578, Start Num: 8

Candidate Starts for Chargie21\_56:

(Start: 8 @17883 has 160 MA's), (Start: 13 @17982 has 2 MA's), (22, 18153), (29, 18255), (31, 18273), (39, 18486), (44, 18537), (45, 18567),

Gene: CharlieB\_58 Start: 18040, Stop: 18735, Start Num: 8

Candidate Starts for CharlieB\_58:

(Start: 4 @17986 has 10 MA's), (Start: 8 @18040 has 160 MA's), (Start: 13 @18139 has 2 MA's), (22, 18310), (29, 18412), (31, 18430), (39, 18643), (44, 18694), (45, 18724),

Gene: ChaylaJr\_56 Start: 17972, Stop: 18667, Start Num: 8

Candidate Starts for ChaylaJr\_56:

(Start: 8 @17972 has 160 MA's), (Start: 13 @18071 has 2 MA's), (22, 18242), (29, 18344), (31, 18362), (39, 18575), (44, 18626), (45, 18656),

Gene: CherryTomatoes\_184 Start: 131711, Stop: 132439, Start Num: 7

Candidate Starts for CherryTomatoes\_184:

(Start: 7 @131711 has 3 MA's), (11, 131780), (12, 131807), (16, 131945), (17, 131951), (21, 131999), (31, 132137), (35, 132221), (36, 132305), (40, 132338), (41, 132341),

Gene: ChickenPhender\_56 Start: 17931, Stop: 18626, Start Num: 8

Candidate Starts for ChickenPhender\_56:

(Start: 8 @17931 has 160 MA's), (Start: 13 @18030 has 2 MA's), (22, 18201), (29, 18303), (31, 18321), (39, 18534), (44, 18585), (45, 18615),

Gene: Chomp\_59 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for Chomp\_59:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: CindyLou\_61 Start: 18984, Stop: 19679, Start Num: 8

Candidate Starts for CindyLou\_61:

(Start: 4 @18930 has 10 MA's), (Start: 8 @18984 has 160 MA's), (Start: 13 @19083 has 2 MA's), (19, 19239), (22, 19254), (24, 19287), (29, 19356), (31, 19374), (32, 19377), (33, 19383), (39, 19587), (44, 19638), (45, 19668),

Gene: Colt\_52 Start: 17327, Stop: 18022, Start Num: 8

Candidate Starts for Colt\_52:

(Start: 8 @17327 has 160 MA's), (Start: 13 @17426 has 2 MA's), (22, 17597), (24, 17630), (29, 17699), (31, 17717), (32, 17720), (39, 17930), (44, 17981), (45, 18011),

Gene: Concombre\_66 Start: 21281, Stop: 21976, Start Num: 8

Candidate Starts for Concombre\_66:

(Start: 4 @21227 has 10 MA's), (Start: 8 @21281 has 160 MA's), (Start: 13 @21380 has 2 MA's), (22, 21551), (29, 21653), (31, 21671), (39, 21884), (44, 21935), (45, 21965),

Gene: DTDevon\_61 Start: 19569, Stop: 20318, Start Num: 4

Candidate Starts for DTDevon\_61:

(Start: 4 @19569 has 10 MA's), (Start: 8 @19623 has 160 MA's), (Start: 13 @19722 has 2 MA's), (19, 19878), (22, 19893), (24, 19926), (29, 19995), (31, 20013), (32, 20016), (33, 20022), (39, 20226), (44, 20277), (45, 20307),

Gene: Daffodil\_63 Start: 19513, Stop: 20208, Start Num: 8

Candidate Starts for Daffodil\_63:

(Start: 8 @19513 has 160 MA's), (Start: 13 @19612 has 2 MA's), (22, 19783), (29, 19885), (31, 19903), (39, 20116), (44, 20167), (45, 20197),

Gene: Dandelion\_66 Start: 21300, Stop: 21995, Start Num: 8

Candidate Starts for Dandelion\_66:

(Start: 8 @21300 has 160 MA's), (Start: 13 @21399 has 2 MA's), (19, 21555), (22, 21570), (24, 21603), (29, 21672), (31, 21690), (32, 21693), (33, 21699), (39, 21903), (44, 21954), (45, 21984),

Gene: Darko\_60 Start: 19366, Stop: 20061, Start Num: 8

Candidate Starts for Darko\_60:

(Start: 4 @19312 has 10 MA's), (Start: 8 @19366 has 160 MA's), (Start: 13 @19465 has 2 MA's), (19, 19621), (22, 19636), (24, 19669), (29, 19738), (31, 19756), (32, 19759), (33, 19765), (39, 19969), (44, 20020), (45, 20050),

Gene: DeejaClivia\_53 Start: 16955, Stop: 17650, Start Num: 8

Candidate Starts for DeejaClivia\_53:

(Start: 4 @16901 has 10 MA's), (Start: 8 @16955 has 160 MA's), (Start: 13 @17054 has 2 MA's), (19, 17210), (22, 17225), (24, 17258), (29, 17327), (31, 17345), (32, 17348), (33, 17354), (39, 17558), (44, 17609), (45, 17639),

Gene: Delilah\_61 Start: 19513, Stop: 20208, Start Num: 8

Candidate Starts for Delilah\_61:

(Start: 8 @19513 has 160 MA's), (Start: 13 @19612 has 2 MA's), (22, 19783), (29, 19885), (31, 19903), (39, 20116), (44, 20167), (45, 20197),

Gene: Delylah\_62 Start: 19390, Stop: 19986, Start Num: 13

Candidate Starts for Delylah\_62:

(Start: 8 @19291 has 160 MA's), (Start: 13 @19390 has 2 MA's), (22, 19561), (29, 19663), (31, 19681), (39, 19894), (44, 19945), (45, 19975),

Gene: Demodog\_65 Start: 21281, Stop: 21976, Start Num: 8

Candidate Starts for Demodog\_65:

(Start: 4 @21227 has 10 MA's), (Start: 8 @21281 has 160 MA's), (Start: 13 @21380 has 2 MA's), (22, 21551), (29, 21653), (31, 21671), (39, 21884), (44, 21935), (45, 21965),

Gene: Derek\_61 Start: 18736, Stop: 19485, Start Num: 4

Candidate Starts for Derek\_61:

(Start: 4 @18736 has 10 MA's), (Start: 8 @18790 has 160 MA's), (Start: 13 @18889 has 2 MA's), (19, 19045), (22, 19060), (24, 19093), (29, 19162), (31, 19180), (32, 19183), (33, 19189), (39, 19393), (44, 19444), (45, 19474),

Gene: Dietrick\_54 Start: 17631, Stop: 18326, Start Num: 8

Candidate Starts for Dietrick\_54:

(Start: 8 @17631 has 160 MA's), (Start: 13 @17730 has 2 MA's), (22, 17901), (29, 18003), (31, 18021), (39, 18234), (44, 18285), (45, 18315),

Gene: DirtMonster\_57 Start: 19299, Stop: 19994, Start Num: 8

Candidate Starts for DirtMonster\_57:

(Start: 8 @19299 has 160 MA's), (Start: 13 @19398 has 2 MA's), (22, 19569), (24, 19602), (29, 19671), (31, 19689), (32, 19692), (33, 19698), (39, 19902), (44, 19953), (45, 19983),

Gene: Domi\_55 Start: 18401, Stop: 19096, Start Num: 8

Candidate Starts for Domi\_55:

(Start: 4 @18347 has 10 MA's), (Start: 8 @18401 has 160 MA's), (Start: 13 @18500 has 2 MA's), (19, 18656), (22, 18671), (24, 18704), (29, 18773), (31, 18791), (32, 18794), (33, 18800), (39, 19004), (44, 19055), (45, 19085),

Gene: DrPhinkDaddy\_60 Start: 19565, Stop: 20260, Start Num: 8

Candidate Starts for DrPhinkDaddy\_60:

(Start: 8 @19565 has 160 MA's), (Start: 13 @19664 has 2 MA's), (22, 19835), (29, 19937), (31, 19955), (39, 20168), (44, 20219), (45, 20249),

Gene: Drazdys\_60 Start: 19296, Stop: 19991, Start Num: 8

Candidate Starts for Drazdys\_60:

(Start: 4 @19242 has 10 MA's), (Start: 8 @19296 has 160 MA's), (Start: 13 @19395 has 2 MA's), (19, 19551), (22, 19566), (24, 19599), (29, 19668), (31, 19686), (32, 19689), (33, 19695), (39, 19899), (44, 19950), (45, 19980),

Gene: ET08\_52 Start: 17908, Stop: 18603, Start Num: 8

Candidate Starts for ET08\_52:

(Start: 4 @17854 has 10 MA's), (Start: 8 @17908 has 160 MA's), (Start: 13 @18007 has 2 MA's), (22, 18178), (29, 18280), (31, 18298), (39, 18511), (44, 18562), (45, 18592),

Gene: EasyJones\_63 Start: 19458, Stop: 20153, Start Num: 8

Candidate Starts for EasyJones\_63:

(Start: 4 @19404 has 10 MA's), (Start: 8 @19458 has 160 MA's), (Start: 13 @19557 has 2 MA's), (22, 19728), (24, 19761), (29, 19830), (31, 19848), (32, 19851), (33, 19857), (39, 20061), (44, 20112), (45, 20142),

Gene: EggyFarm\_66 Start: 20720, Stop: 21415, Start Num: 8

Candidate Starts for EggyFarm\_66:

(Start: 8 @20720 has 160 MA's), (Start: 13 @20819 has 2 MA's), (22, 20990), (29, 21092), (31, 21110), (39, 21323), (44, 21374), (45, 21404),

Gene: EmToTheThree\_64 Start: 20927, Stop: 21622, Start Num: 8

Candidate Starts for EmToTheThree\_64:

(Start: 8 @20927 has 160 MA's), (Start: 13 @21026 has 2 MA's), (22, 21197), (29, 21299), (31, 21317), (39, 21530), (44, 21581), (45, 21611),

Gene: EmmaElysia\_59 Start: 18029, Stop: 18724, Start Num: 8

Candidate Starts for EmmaElysia\_59:

(Start: 4 @17975 has 10 MA's), (Start: 8 @18029 has 160 MA's), (Start: 13 @18128 has 2 MA's), (19, 18284), (22, 18299), (24, 18332), (29, 18401), (31, 18419), (32, 18422), (33, 18428), (39, 18632), (44, 18683), (45, 18713),

Gene: Erdmann\_62 Start: 19513, Stop: 20208, Start Num: 8

Candidate Starts for Erdmann\_62:

(Start: 8 @19513 has 160 MA's), (Start: 13 @19612 has 2 MA's), (22, 19783), (29, 19885), (31, 19903), (39, 20116), (44, 20167), (45, 20197),

Gene: ErnieJ\_60 Start: 18802, Stop: 19497, Start Num: 8

Candidate Starts for ErnieJ\_60:

(Start: 8 @18802 has 160 MA's), (Start: 13 @18901 has 2 MA's), (22, 19072), (24, 19105), (29, 19174), (31, 19192), (32, 19195), (33, 19201), (39, 19405), (44, 19456), (45, 19486),

Gene: Essence\_59 Start: 18313, Stop: 19008, Start Num: 8

Candidate Starts for Essence\_59:

(Start: 8 @18313 has 160 MA's), (Start: 13 @18412 has 2 MA's), (19, 18568), (22, 18583), (24, 18616), (29, 18685), (31, 18703), (32, 18706), (33, 18712), (39, 18916), (44, 18967), (45, 18997),

Gene: Ewok\_61 Start: 19516, Stop: 20211, Start Num: 8

Candidate Starts for Ewok\_61:

(Start: 8 @19516 has 160 MA's), (Start: 13 @19615 has 2 MA's), (22, 19786), (29, 19888), (31, 19906), (39, 20119), (44, 20170), (45, 20200),

Gene: Flabslab\_57 Start: 18535, Stop: 19230, Start Num: 8

Candidate Starts for Flabslab\_57:

(Start: 8 @18535 has 160 MA's), (Start: 13 @18634 has 2 MA's), (22, 18805), (29, 18907), (31, 18925), (39, 19138), (44, 19189), (45, 19219),

Gene: Fludd\_60 Start: 18388, Stop: 19083, Start Num: 8

Candidate Starts for Fludd\_60:

(Start: 8 @18388 has 160 MA's), (Start: 13 @18487 has 2 MA's), (22, 18658), (29, 18760), (31, 18778), (39, 18991), (44, 19042), (45, 19072),

Gene: Fongie\_60 Start: 19732, Stop: 20427, Start Num: 8

Candidate Starts for Fongie\_60:

(Start: 4 @19678 has 10 MA's), (Start: 8 @19732 has 160 MA's), (Start: 13 @19831 has 2 MA's), (19, 19987), (22, 20002), (24, 20035), (29, 20104), (31, 20122), (32, 20125), (33, 20131), (39, 20335), (44, 20386), (45, 20416),

Gene: FoxtrotP1\_61 Start: 19841, Stop: 20536, Start Num: 8

Candidate Starts for FoxtrotP1\_61:

(Start: 8 @19841 has 160 MA's), (Start: 13 @19940 has 2 MA's), (19, 20096), (22, 20111), (24, 20144), (29, 20213), (31, 20231), (32, 20234), (33, 20240), (39, 20444), (44, 20495), (45, 20525),

Gene: FrayBell\_67 Start: 21027, Stop: 21722, Start Num: 8

Candidate Starts for FrayBell\_67:

(Start: 8 @21027 has 160 MA's), (Start: 13 @21126 has 2 MA's), (22, 21297), (29, 21399), (31, 21417), (39, 21630), (44, 21681), (45, 21711),

Gene: FudgeTart\_62 Start: 19377, Stop: 20072, Start Num: 8

Candidate Starts for FudgeTart\_62:

(Start: 8 @19377 has 160 MA's), (Start: 13 @19476 has 2 MA's), (22, 19647), (29, 19749), (31, 19767), (39, 19980), (44, 20031), (45, 20061),

Gene: Gabriel\_62 Start: 18692, Stop: 19387, Start Num: 8

Candidate Starts for Gabriel\_62:

(Start: 4 @18638 has 10 MA's), (Start: 8 @18692 has 160 MA's), (Start: 13 @18791 has 2 MA's), (19, 18947), (22, 18962), (24, 18995), (29, 19064), (31, 19082), (32, 19085), (33, 19091), (39, 19295), (44, 19346), (45, 19376),

Gene: Gamgam\_60 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for Gamgam\_60:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: Ghost\_60 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for Ghost\_60:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: Gizmo\_63 Start: 19295, Stop: 19891, Start Num: 13

Candidate Starts for Gizmo\_63:

(Start: 8 @19196 has 160 MA's), (Start: 13 @19295 has 2 MA's), (22, 19466), (29, 19568), (31, 19586), (39, 19799), (44, 19850), (45, 19880),

Gene: GlutenPhree\_58 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for GlutenPhree\_58:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: Grasshills\_66 Start: 20720, Stop: 21415, Start Num: 8

Candidate Starts for Grasshills\_66:

(Start: 8 @20720 has 160 MA's), (Start: 13 @20819 has 2 MA's), (22, 20990), (29, 21092), (31, 21110), (39, 21323), (44, 21374), (45, 21404),

Gene: Grungle\_52 Start: 16990, Stop: 17685, Start Num: 8

Candidate Starts for Grungle\_52:

(Start: 4 @16936 has 10 MA's), (Start: 8 @16990 has 160 MA's), (Start: 13 @17089 has 2 MA's), (22, 17260), (29, 17362), (31, 17380), (39, 17593), (44, 17644), (45, 17674),

Gene: Guwapp\_59 Start: 18554, Stop: 19249, Start Num: 8

Candidate Starts for Guwapp\_59:

(Start: 4 @18500 has 10 MA's), (Start: 8 @18554 has 160 MA's), (Start: 13 @18653 has 2 MA's), (19, 18809), (22, 18824), (24, 18857), (29, 18926), (31, 18944), (32, 18947), (33, 18953), (39, 19157), (44, 19208), (45, 19238),

Gene: Halldule\_55 Start: 17567, Stop: 18262, Start Num: 8

Candidate Starts for Halldule\_55:

(Start: 4 @17513 has 10 MA's), (Start: 8 @17567 has 160 MA's), (Start: 13 @17666 has 2 MA's), (19, 17822), (22, 17837), (24, 17870), (29, 17939), (31, 17957), (32, 17960), (33, 17966), (39, 18170), (44, 18221), (45, 18251),

Gene: HyRo\_56 Start: 18920, Stop: 19615, Start Num: 8

Candidate Starts for HyRo\_56:

(Start: 4 @18866 has 10 MA's), (Start: 8 @18920 has 160 MA's), (Start: 13 @19019 has 2 MA's), (19, 19175), (22, 19190), (24, 19223), (29, 19292), (31, 19310), (32, 19313), (33, 19319), (39, 19523), (44, 19574), (45, 19604),

Gene: I3\_63 Start: 19132, Stop: 19827, Start Num: 8

Candidate Starts for I3\_63:

(Start: 4 @19078 has 10 MA's), (Start: 8 @19132 has 160 MA's), (Start: 13 @19231 has 2 MA's), (22, 19402), (29, 19504), (31, 19522), (39, 19735), (44, 19786), (45, 19816),

Gene: IkeLoa\_55 Start: 18198, Stop: 18893, Start Num: 8

Candidate Starts for IkeLoa\_55:

(Start: 4 @18144 has 10 MA's), (Start: 8 @18198 has 160 MA's), (Start: 13 @18297 has 2 MA's), (22, 18468), (29, 18570), (31, 18588), (39, 18801), (44, 18852), (45, 18882),

Gene: InigoMontoya\_61 Start: 18420, Stop: 19115, Start Num: 8

Candidate Starts for InigoMontoya\_61:

(Start: 4 @18366 has 10 MA's), (Start: 8 @18420 has 160 MA's), (Start: 13 @18519 has 2 MA's), (19, 18675), (22, 18690), (24, 18723), (29, 18792), (31, 18810), (32, 18813), (33, 18819), (39, 19023), (44, 19074), (45, 19104),

Gene: InterFolia\_69 Start: 21965, Stop: 22660, Start Num: 8

Candidate Starts for InterFolia\_69:

(Start: 4 @21911 has 10 MA's), (Start: 8 @21965 has 160 MA's), (Start: 13 @22064 has 2 MA's), (22, 22235), (29, 22337), (31, 22355), (39, 22568), (44, 22619), (45, 22649),

Gene: Iota\_55 Start: 18496, Stop: 19191, Start Num: 8

Candidate Starts for Iota\_55:

(Start: 4 @18442 has 10 MA's), (Start: 8 @18496 has 160 MA's), (Start: 13 @18595 has 2 MA's), (22, 18766), (29, 18868), (31, 18886), (39, 19099), (44, 19150), (45, 19180),

Gene: Issimir\_61 Start: 19456, Stop: 20151, Start Num: 8

Candidate Starts for Issimir\_61:

(Start: 8 @19456 has 160 MA's), (Start: 13 @19555 has 2 MA's), (22, 19726), (29, 19828), (31, 19846), (39, 20059), (44, 20110), (45, 20140),

Gene: Izajani\_62 Start: 19529, Stop: 20224, Start Num: 8

Candidate Starts for Izajani\_62:

(Start: 8 @19529 has 160 MA's), (Start: 13 @19628 has 2 MA's), (22, 19799), (29, 19901), (31, 19919), (39, 20132), (44, 20183), (45, 20213),

Gene: JPickles\_58 Start: 17653, Stop: 18348, Start Num: 8

Candidate Starts for JPickles\_58:

(Start: 4 @17599 has 10 MA's), (Start: 8 @17653 has 160 MA's), (Start: 13 @17752 has 2 MA's), (19, 17908), (22, 17923), (24, 17956), (29, 18025), (31, 18043), (32, 18046), (33, 18052), (39, 18256), (44, 18307), (45, 18337),

Gene: Janiyra\_62 Start: 19218, Stop: 19913, Start Num: 8

Candidate Starts for Janiyra\_62:

(Start: 8 @19218 has 160 MA's), (Start: 13 @19317 has 2 MA's), (22, 19488), (29, 19590), (31, 19608), (39, 19821), (44, 19872), (45, 19902),

Gene: JayJay\_66 Start: 20009, Stop: 20704, Start Num: 8

Candidate Starts for JayJay\_66:

(Start: 4 @19955 has 10 MA's), (Start: 8 @20009 has 160 MA's), (Start: 13 @20108 has 2 MA's), (19, 20264), (22, 20279), (24, 20312), (29, 20381), (31, 20399), (32, 20402), (33, 20408), (39, 20612), (44, 20663), (45, 20693),

Gene: Jaygup\_60 Start: 18455, Stop: 19150, Start Num: 8

Candidate Starts for Jaygup\_60:

(Start: 4 @18401 has 10 MA's), (Start: 8 @18455 has 160 MA's), (Start: 13 @18554 has 2 MA's), (19, 18710), (22, 18725), (24, 18758), (29, 18827), (31, 18845), (32, 18848), (33, 18854), (39, 19058), (44, 19109), (45, 19139),

Gene: Jedediah\_61 Start: 18956, Stop: 19651, Start Num: 8

Candidate Starts for Jedediah\_61:

(Start: 4 @18902 has 10 MA's), (Start: 8 @18956 has 160 MA's), (Start: 13 @19055 has 2 MA's), (19, 19211), (22, 19226), (24, 19259), (29, 19328), (31, 19346), (32, 19349), (33, 19355), (39, 19559), (44, 19610), (45, 19640),

Gene: Jemmno\_60 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for Jemmno\_60:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: Jessibeth14\_59 Start: 18917, Stop: 19612, Start Num: 8

Candidate Starts for Jessibeth14\_59:

(Start: 8 @18917 has 160 MA's), (Start: 13 @19016 has 2 MA's), (22, 19187), (29, 19289), (31, 19307), (39, 19520), (44, 19571), (45, 19601),

Gene: Jezreel\_59 Start: 18772, Stop: 19467, Start Num: 8

Candidate Starts for Jezreel\_59:

(Start: 8 @18772 has 160 MA's), (Start: 13 @18871 has 2 MA's), (22, 19042), (29, 19144), (31, 19162), (39, 19375), (44, 19426), (45, 19456),

Gene: JigglyPuff\_65 Start: 20674, Stop: 21369, Start Num: 8

Candidate Starts for JigglyPuff\_65:

(Start: 4 @20620 has 10 MA's), (Start: 8 @20674 has 160 MA's), (Start: 13 @20773 has 2 MA's), (22, 20944), (29, 21046), (31, 21064), (39, 21277), (44, 21328), (45, 21358),

Gene: JulietS\_55 Start: 17418, Stop: 18113, Start Num: 8

Candidate Starts for JulietS\_55:

(Start: 4 @17364 has 10 MA's), (Start: 8 @17418 has 160 MA's), (Start: 13 @17517 has 2 MA's), (19, 17673), (22, 17688), (24, 17721), (29, 17790), (31, 17808), (32, 17811), (33, 17817), (39, 18021), (44, 18072), (45, 18102),

Gene: JustHall\_56 Start: 18778, Stop: 19473, Start Num: 8

Candidate Starts for JustHall\_56:

(Start: 4 @18724 has 10 MA's), (Start: 8 @18778 has 160 MA's), (Start: 13 @18877 has 2 MA's), (19, 19033), (22, 19048), (24, 19081), (29, 19150), (31, 19168), (32, 19171), (33, 19177), (39, 19381), (44, 19432), (45, 19462),

Gene: Kamryn\_60 Start: 19132, Stop: 19827, Start Num: 8

Candidate Starts for Kamryn\_60:

(Start: 8 @19132 has 160 MA's), (Start: 13 @19231 has 2 MA's), (22, 19402), (29, 19504), (31, 19522), (39, 19735), (44, 19786), (45, 19816),

Gene: Kboogie\_61 Start: 18442, Stop: 19137, Start Num: 8

Candidate Starts for Kboogie\_61:

(Start: 8 @18442 has 160 MA's), (Start: 13 @18541 has 2 MA's), (22, 18712), (29, 18814), (31, 18832), (39, 19045), (44, 19096), (45, 19126),



Gene: Khaleesi\_60 Start: 19260, Stop: 19955, Start Num: 8

Candidate Starts for Khaleesi\_60:

(Start: 8 @19260 has 160 MA's), (Start: 13 @19359 has 2 MA's), (22, 19530), (29, 19632), (31, 19650), (39, 19863), (44, 19914), (45, 19944),

Gene: Koguma\_57 Start: 17636, Stop: 18331, Start Num: 8

Candidate Starts for Koguma\_57:

(Start: 4 @17582 has 10 MA's), (Start: 8 @17636 has 160 MA's), (Start: 13 @17735 has 2 MA's), (22, 17906), (29, 18008), (31, 18026), (39, 18239), (44, 18290), (45, 18320),

Gene: LRRHood\_57 Start: 19559, Stop: 20254, Start Num: 8

Candidate Starts for LRRHood\_57:

(Start: 4 @19505 has 10 MA's), (Start: 8 @19559 has 160 MA's), (Start: 13 @19658 has 2 MA's), (22, 19829), (29, 19931), (31, 19949), (39, 20162), (44, 20213), (45, 20243),

Gene: Latch\_60 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for Latch\_60:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: Lee7\_59 Start: 19191, Stop: 19886, Start Num: 8

Candidate Starts for Lee7\_59:

(Start: 8 @19191 has 160 MA's), (Start: 13 @19290 has 2 MA's), (22, 19461), (29, 19563), (31, 19581), (39, 19794), (44, 19845), (45, 19875),

Gene: Lethe\_61 Start: 19453, Stop: 20148, Start Num: 8

Candidate Starts for Lethe\_61:

(Start: 4 @19399 has 10 MA's), (Start: 8 @19453 has 160 MA's), (Start: 13 @19552 has 2 MA's), (22, 19723), (29, 19825), (31, 19843), (39, 20056), (44, 20107), (45, 20137),

Gene: LifeSavor\_60 Start: 18124, Stop: 18873, Start Num: 4

Candidate Starts for LifeSavor\_60:

(Start: 4 @18124 has 10 MA's), (Start: 8 @18178 has 160 MA's), (Start: 13 @18277 has 2 MA's), (19, 18433), (22, 18448), (24, 18481), (29, 18550), (31, 18568), (32, 18571), (33, 18577), (39, 18781), (44, 18832), (45, 18862),

Gene: LinStu\_62 Start: 20266, Stop: 20961, Start Num: 8

Candidate Starts for LinStu\_62:

(Start: 8 @20266 has 160 MA's), (Start: 13 @20365 has 2 MA's), (19, 20521), (22, 20536), (24, 20569), (29, 20638), (31, 20656), (32, 20659), (33, 20665), (39, 20869), (44, 20920), (45, 20950),

Gene: Littleton\_60 Start: 18405, Stop: 19154, Start Num: 4

Candidate Starts for Littleton\_60:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: Loanshark\_61 Start: 19513, Stop: 20208, Start Num: 8

Candidate Starts for Loanshark\_61:

(Start: 8 @19513 has 160 MA's), (Start: 13 @19612 has 2 MA's), (22, 19783), (29, 19885), (31, 19903), (39, 20116), (44, 20167), (45, 20197),

Gene: LolaVinca\_64 Start: 20674, Stop: 21369, Start Num: 8

Candidate Starts for LolaVinca\_64:

(Start: 8 @20674 has 160 MA's), (Start: 13 @20773 has 2 MA's), (22, 20944), (29, 21046), (31, 21064), (39, 21277), (44, 21328), (45, 21358),

Gene: LordLeafolot\_66 Start: 21026, Stop: 21721, Start Num: 8

Candidate Starts for LordLeafolot\_66:

(Start: 8 @21026 has 160 MA's), (Start: 13 @21125 has 2 MA's), (22, 21296), (29, 21398), (31, 21416), (39, 21629), (44, 21680), (45, 21710),

Gene: Lukilu\_54 Start: 18761, Stop: 19456, Start Num: 8

Candidate Starts for Lukilu\_54:

(Start: 4 @18707 has 10 MA's), (Start: 8 @18761 has 160 MA's), (Start: 13 @18860 has 2 MA's), (22, 19031), (29, 19133), (31, 19151), (39, 19364), (44, 19415), (45, 19445),

Gene: Maby2021\_61 Start: 19194, Stop: 19889, Start Num: 8

Candidate Starts for Maby2021\_61:

(Start: 8 @19194 has 160 MA's), (Start: 13 @19293 has 2 MA's), (22, 19464), (29, 19566), (31, 19584), (39, 19797), (44, 19848), (45, 19878),

Gene: Mangeria\_64 Start: 20537, Stop: 21232, Start Num: 8

Candidate Starts for Mangeria\_64:

(Start: 8 @20537 has 160 MA's), (Start: 13 @20636 has 2 MA's), (22, 20807), (29, 20909), (31, 20927), (39, 21140), (44, 21191), (45, 21221),

Gene: Matsumoto\_59 Start: 18420, Stop: 19115, Start Num: 8

Candidate Starts for Matsumoto\_59:

(Start: 4 @18366 has 10 MA's), (Start: 8 @18420 has 160 MA's), (Start: 13 @18519 has 2 MA's), (19, 18675), (22, 18690), (24, 18723), (29, 18792), (31, 18810), (32, 18813), (33, 18819), (39, 19023), (44, 19074), (45, 19104),

Gene: McGee\_59 Start: 17589, Stop: 18338, Start Num: 4

Candidate Starts for McGee\_59:

(Start: 4 @17589 has 10 MA's), (Start: 8 @17643 has 160 MA's), (Start: 13 @17742 has 2 MA's), (19, 17898), (22, 17913), (24, 17946), (29, 18015), (31, 18033), (33, 18042), (39, 18246), (44, 18297), (45, 18327),

Gene: McWolfish\_59 Start: 18941, Stop: 19636, Start Num: 8

Candidate Starts for McWolfish\_59:

(Start: 8 @18941 has 160 MA's), (Start: 13 @19040 has 2 MA's), (22, 19211), (29, 19313), (31, 19331), (39, 19544), (44, 19595), (45, 19625),

Gene: Megamind\_60 Start: 19179, Stop: 19874, Start Num: 8

Candidate Starts for Megamind\_60:

(Start: 8 @19179 has 160 MA's), (Start: 13 @19278 has 2 MA's), (22, 19449), (29, 19551), (31, 19569), (39, 19782), (44, 19833), (45, 19863),

Gene: Melpomini\_56 Start: 17870, Stop: 18565, Start Num: 8

Candidate Starts for Melpomini\_56:

(Start: 4 @17816 has 10 MA's), (Start: 8 @17870 has 160 MA's), (Start: 13 @17969 has 2 MA's), (19, 18125), (22, 18140), (24, 18173), (29, 18242), (31, 18260), (32, 18263), (33, 18269), (39, 18473), (44, 18524), (45, 18554),

Gene: MikeLiesIn\_61 Start: 19526, Stop: 20221, Start Num: 8

Candidate Starts for MikeLiesIn\_61:

(Start: 8 @19526 has 160 MA's), (Start: 13 @19625 has 2 MA's), (22, 19796), (29, 19898), (31, 19916), (39, 20129), (44, 20180), (45, 20210),

Gene: Mikro\_59 Start: 20000, Stop: 20695, Start Num: 8

Candidate Starts for Mikro\_59:

(Start: 8 @20000 has 160 MA's), (Start: 13 @20099 has 2 MA's), (22, 20270), (29, 20372), (31, 20390), (39, 20603), (44, 20654), (45, 20684),

Gene: MoMoMixon\_61 Start: 19611, Stop: 20306, Start Num: 8

Candidate Starts for MoMoMixon\_61:

(Start: 8 @19611 has 160 MA's), (Start: 13 @19710 has 2 MA's), (22, 19881), (29, 19983), (31, 20001), (39, 20214), (44, 20265), (45, 20295),

Gene: Momo\_59 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for Momo\_59:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: Morizzled23\_63 Start: 19485, Stop: 20180, Start Num: 8

Candidate Starts for Morizzled23\_63:

(Start: 4 @19431 has 10 MA's), (Start: 8 @19485 has 160 MA's), (Start: 13 @19584 has 2 MA's), (22, 19755), (24, 19788), (29, 19857), (31, 19875), (32, 19878), (33, 19884), (39, 20088), (44, 20139), (45, 20169),

Gene: Naija\_59 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for Naija\_59:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: Napoleon13\_58 Start: 17852, Stop: 18547, Start Num: 8

Candidate Starts for Napoleon13\_58:

(Start: 8 @17852 has 160 MA's), (Start: 13 @17951 has 2 MA's), (22, 18122), (29, 18224), (31, 18242), (39, 18455), (44, 18506), (45, 18536),

Gene: Nappy\_63 Start: 19814, Stop: 20509, Start Num: 8

Candidate Starts for Nappy\_63:

(Start: 8 @19814 has 160 MA's), (Start: 13 @19913 has 2 MA's), (22, 20084), (29, 20186), (31, 20204), (39, 20417), (44, 20468), (45, 20498),

Gene: Naval22\_67 Start: 20536, Stop: 21231, Start Num: 8

Candidate Starts for Naval22\_67:

(Start: 8 @20536 has 160 MA's), (Start: 13 @20635 has 2 MA's), (22, 20806), (29, 20908), (31, 20926), (39, 21139), (44, 21190), (45, 21220),

Gene: NedWong\_62 Start: 19513, Stop: 20208, Start Num: 8

Candidate Starts for NedWong\_62:

(Start: 8 @19513 has 160 MA's), (Start: 13 @19612 has 2 MA's), (22, 19783), (29, 19885), (31, 19903), (39, 20116), (44, 20167), (45, 20197),

Gene: Ngannou\_55 Start: 17441, Stop: 18136, Start Num: 8

Candidate Starts for Ngannou\_55:

(Start: 4 @17387 has 10 MA's), (Start: 8 @17441 has 160 MA's), (Start: 13 @17540 has 2 MA's), (19, 17696), (22, 17711), (24, 17744), (29, 17813), (31, 17831), (32, 17834), (33, 17840), (39, 18044), (44, 18095), (45, 18125),

Gene: Nidhogg\_61 Start: 19367, Stop: 20062, Start Num: 8

Candidate Starts for Nidhogg\_61:

(Start: 8 @19367 has 160 MA's), (Start: 13 @19466 has 2 MA's), (22, 19637), (29, 19739), (31, 19757), (39, 19970), (44, 20021), (45, 20051),

Gene: NoodleTree\_61 Start: 19316, Stop: 20011, Start Num: 8

Candidate Starts for NoodleTree\_61:

(Start: 4 @19262 has 10 MA's), (Start: 8 @19316 has 160 MA's), (Start: 13 @19415 has 2 MA's), (22, 19586), (29, 19688), (31, 19706), (39, 19919), (44, 19970), (45, 20000),

Gene: Norm\_61 Start: 19514, Stop: 20209, Start Num: 8

Candidate Starts for Norm\_61:

(Start: 8 @19514 has 160 MA's), (Start: 13 @19613 has 2 MA's), (22, 19784), (29, 19886), (31, 19904), (39, 20117), (44, 20168), (45, 20198),

Gene: NuevoMundo\_66 Start: 20515, Stop: 21210, Start Num: 8

Candidate Starts for NuevoMundo\_66:

(Start: 8 @20515 has 160 MA's), (Start: 13 @20614 has 2 MA's), (22, 20785), (29, 20887), (31, 20905), (39, 21118), (44, 21169), (45, 21199),

Gene: ParkTD\_60 Start: 19513, Stop: 20208, Start Num: 8

Candidate Starts for ParkTD\_60:

(Start: 8 @19513 has 160 MA's), (Start: 13 @19612 has 2 MA's), (22, 19783), (29, 19885), (31, 19903), (39, 20116), (44, 20167), (45, 20197),

Gene: Patter\_60 Start: 18476, Stop: 19171, Start Num: 8

Candidate Starts for Patter\_60:

(Start: 4 @18422 has 10 MA's), (Start: 8 @18476 has 160 MA's), (Start: 13 @18575 has 2 MA's), (19, 18731), (22, 18746), (24, 18779), (29, 18848), (31, 18866), (32, 18869), (33, 18875), (39, 19079), (44, 19130), (45, 19160),

Gene: Phlegm\_62 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for Phlegm\_62:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: Phox\_59 Start: 20241, Stop: 20936, Start Num: 8

Candidate Starts for Phox\_59:

(Start: 4 @20187 has 10 MA's), (Start: 8 @20241 has 160 MA's), (Start: 13 @20340 has 2 MA's), (22, 20511), (29, 20613), (31, 20631), (39, 20844), (44, 20895), (45, 20925),

Gene: Phusco\_60 Start: 19269, Stop: 19964, Start Num: 8

Candidate Starts for Phusco\_60:

(Start: 4 @19215 has 10 MA's), (Start: 8 @19269 has 160 MA's), (Start: 13 @19368 has 2 MA's), (19, 19524), (22, 19539), (24, 19572), (29, 19641), (31, 19659), (32, 19662), (33, 19668), (39, 19872), (44, 19923), (45, 19953),

Gene: Pier\_63 Start: 19213, Stop: 19908, Start Num: 8

Candidate Starts for Pier\_63:

(Start: 4 @19159 has 10 MA's), (Start: 8 @19213 has 160 MA's), (Start: 13 @19312 has 2 MA's), (19, 19468), (22, 19483), (24, 19516), (29, 19585), (31, 19603), (32, 19606), (33, 19612), (39, 19816), (44, 19867), (45, 19897),

Gene: Pinkcreek\_53 Start: 17819, Stop: 18514, Start Num: 8

Candidate Starts for Pinkcreek\_53:

(Start: 4 @17765 has 10 MA's), (Start: 8 @17819 has 160 MA's), (Start: 13 @17918 has 2 MA's), (19, 18074), (22, 18089), (24, 18122), (29, 18191), (31, 18209), (32, 18212), (33, 18218), (39, 18422), (44, 18473), (45, 18503),

Gene: Pio\_65 Start: 20667, Stop: 21362, Start Num: 8

Candidate Starts for Pio\_65:

(Start: 4 @20613 has 10 MA's), (Start: 8 @20667 has 160 MA's), (Start: 13 @20766 has 2 MA's), (19, 20922), (22, 20937), (24, 20970), (29, 21039), (31, 21057), (32, 21060), (33, 21066), (39, 21270), (44, 21321), (45, 21351),

Gene: Pivoine\_59 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for Pivoine\_59:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: Pleione\_63 Start: 19512, Stop: 20207, Start Num: 8

Candidate Starts for Pleione\_63:

(Start: 8 @19512 has 160 MA's), (Start: 13 @19611 has 2 MA's), (22, 19782), (29, 19884), (31, 19902), (39, 20115), (44, 20166), (45, 20196),

Gene: Primadonna\_57 Start: 18858, Stop: 19553, Start Num: 8

Candidate Starts for Primadonna\_57:

(Start: 8 @18858 has 160 MA's), (Start: 13 @18957 has 2 MA's), (22, 19128), (29, 19230), (31, 19248), (39, 19461), (44, 19512), (45, 19542),

Gene: Pupper\_181 Start: 131295, Stop: 132014, Start Num: 7

Candidate Starts for Pupper\_181:

(Start: 7 @131295 has 3 MA's), (11, 131364), (12, 131391), (16, 131529), (17, 131535), (21, 131583), (29, 131703), (30, 131712), (31, 131721), (36, 131889), (40, 131922), (41, 131925),

Gene: PurduePete\_60 Start: 19237, Stop: 19932, Start Num: 8

Candidate Starts for PurduePete\_60:

(Start: 8 @19237 has 160 MA's), (Start: 13 @19336 has 2 MA's), (22, 19507), (29, 19609), (31, 19627), (39, 19840), (44, 19891), (45, 19921),

Gene: QBert\_55 Start: 19250, Stop: 19945, Start Num: 8

Candidate Starts for QBert\_55:

(Start: 4 @19196 has 10 MA's), (Start: 8 @19250 has 160 MA's), (Start: 13 @19349 has 2 MA's), (19, 19505), (22, 19520), (24, 19553), (29, 19622), (31, 19640), (32, 19643), (33, 19649), (39, 19853), (44, 19904), (45, 19934),

Gene: Quasimodo\_60 Start: 19477, Stop: 20172, Start Num: 8

Candidate Starts for Quasimodo\_60:

(Start: 4 @19423 has 10 MA's), (Start: 8 @19477 has 160 MA's), (Start: 13 @19576 has 2 MA's), (19, 19732), (22, 19747), (24, 19780), (29, 19849), (31, 19867), (32, 19870), (33, 19876), (39, 20080), (44, 20131), (45, 20161),

Gene: Rabinovish\_60 Start: 20483, Stop: 21232, Start Num: 4

Candidate Starts for Rabinovish\_60:

(Start: 4 @20483 has 10 MA's), (Start: 8 @20537 has 160 MA's), (Start: 13 @20636 has 2 MA's), (19, 20792), (22, 20807), (24, 20840), (29, 20909), (31, 20927), (32, 20930), (33, 20936), (39, 21140), (44, 21191), (45, 21221),

Gene: Rahel\_61 Start: 18828, Stop: 19523, Start Num: 8

Candidate Starts for Rahel\_61:

(Start: 4 @18774 has 10 MA's), (Start: 8 @18828 has 160 MA's), (Start: 13 @18927 has 2 MA's), (19, 19083), (22, 19098), (24, 19131), (29, 19200), (31, 19218), (32, 19221), (33, 19227), (39, 19431), (44, 19482), (45, 19512),

Gene: RedWattleHog\_161 Start: 107048, Stop: 107791, Start Num: 6

Candidate Starts for RedWattleHog\_161:

(1, 106913), (2, 106952), (3, 106988), (Start: 6 @107048 has 2 MA's), (9, 107081), (11, 107132), (Start: 13 @107165 has 2 MA's), (20, 107327), (23, 107336), (26, 107411), (32, 107456), (37, 107666), (38, 107669), (42, 107690), (46, 107771), (47, 107780),

Gene: Rizal\_59 Start: 18430, Stop: 19125, Start Num: 8

Candidate Starts for Rizal\_59:

(Start: 8 @18430 has 160 MA's), (Start: 13 @18529 has 2 MA's), (22, 18700), (29, 18802), (31, 18820), (39, 19033), (44, 19084), (45, 19114),

Gene: RoMag\_55 Start: 18432, Stop: 19127, Start Num: 8

Candidate Starts for RoMag\_55:

(Start: 4 @18378 has 10 MA's), (Start: 8 @18432 has 160 MA's), (Start: 13 @18531 has 2 MA's), (19, 18687), (22, 18702), (24, 18735), (29, 18804), (31, 18822), (32, 18825), (33, 18831), (39, 19035), (44, 19086), (45, 19116),

Gene: Ronan\_55 Start: 17058, Stop: 17753, Start Num: 8

Candidate Starts for Ronan\_55:

(Start: 4 @17004 has 10 MA's), (Start: 8 @17058 has 160 MA's), (Start: 13 @17157 has 2 MA's), (22, 17328), (29, 17430), (31, 17448), (39, 17661), (44, 17712), (45, 17742),

Gene: Roots515\_60 Start: 19314, Stop: 20009, Start Num: 8

Candidate Starts for Roots515\_60:

(Start: 8 @19314 has 160 MA's), (Start: 13 @19413 has 2 MA's), (22, 19584), (29, 19686), (31, 19704), (39, 19917), (44, 19968), (45, 19998),

Gene: SCentae\_180 Start: 131487, Stop: 132206, Start Num: 7

Candidate Starts for SCentae\_180:

(Start: 7 @131487 has 3 MA's), (11, 131556), (12, 131583), (16, 131721), (17, 131727), (21, 131775), (29, 131895), (30, 131904), (31, 131913), (36, 132081), (40, 132114), (41, 132117),

Gene: SVoro\_60 Start: 19507, Stop: 20202, Start Num: 8

Candidate Starts for SVoro\_60:

(Start: 8 @19507 has 160 MA's), (Start: 13 @19606 has 2 MA's), (22, 19777), (29, 19879), (31, 19897), (39, 20110), (44, 20161), (45, 20191),

Gene: Salacia\_63 Start: 19513, Stop: 20208, Start Num: 8

Candidate Starts for Salacia\_63:

(Start: 8 @19513 has 160 MA's), (Start: 13 @19612 has 2 MA's), (22, 19783), (29, 19885), (31, 19903), (39, 20116), (44, 20167), (45, 20197),

Gene: Sauce\_62 Start: 19459, Stop: 20154, Start Num: 8

Candidate Starts for Sauce\_62:

(Start: 4 @19405 has 10 MA's), (Start: 8 @19459 has 160 MA's), (Start: 13 @19558 has 2 MA's), (22, 19729), (29, 19831), (31, 19849), (39, 20062), (44, 20113), (45, 20143),

Gene: ScottMcG\_59 Start: 19291, Stop: 19986, Start Num: 8

Candidate Starts for ScottMcG\_59:

(Start: 4 @19237 has 10 MA's), (Start: 8 @19291 has 160 MA's), (Start: 13 @19390 has 2 MA's), (22, 19561), (29, 19663), (31, 19681), (39, 19894), (44, 19945), (45, 19975),

Gene: Sebata\_63 Start: 20385, Stop: 21080, Start Num: 8

Candidate Starts for Sebata\_63:

(Start: 8 @20385 has 160 MA's), (Start: 13 @20484 has 2 MA's), (19, 20640), (22, 20655), (24, 20688), (29, 20757), (31, 20775), (32, 20778), (33, 20784), (39, 20988), (44, 21039), (45, 21069),

Gene: Shaqnato\_55 Start: 17981, Stop: 18676, Start Num: 8

Candidate Starts for Shaqnato\_55:

(Start: 4 @17927 has 10 MA's), (Start: 8 @17981 has 160 MA's), (Start: 13 @18080 has 2 MA's), (22, 18251), (29, 18353), (31, 18371), (39, 18584), (44, 18635), (45, 18665),

Gene: Shelob\_63 Start: 20505, Stop: 21200, Start Num: 8

Candidate Starts for Shelob\_63:

(Start: 4 @20451 has 10 MA's), (Start: 8 @20505 has 160 MA's), (Start: 13 @20604 has 2 MA's), (22, 20775), (29, 20877), (31, 20895), (39, 21108), (44, 21159), (45, 21189),

Gene: ShiaLabeouf\_60 Start: 18896, Stop: 19591, Start Num: 8

Candidate Starts for ShiaLabeouf\_60:

(Start: 4 @18842 has 10 MA's), (Start: 8 @18896 has 160 MA's), (Start: 13 @18995 has 2 MA's), (19, 19151), (22, 19166), (24, 19199), (29, 19268), (31, 19286), (32, 19289), (33, 19295), (39, 19499), (44, 19550), (45, 19580),

Gene: Shifa\_54 Start: 18366, Stop: 19061, Start Num: 8

Candidate Starts for Shifa\_54:

(Start: 4 @18312 has 10 MA's), (Start: 8 @18366 has 160 MA's), (Start: 13 @18465 has 2 MA's), (19, 18621), (22, 18636), (24, 18669), (29, 18738), (31, 18756), (32, 18759), (33, 18765), (39, 18969), (44, 19020), (45, 19050),

Gene: Shnickers\_60 Start: 18455, Stop: 19150, Start Num: 8

Candidate Starts for Shnickers\_60:

(Start: 4 @18401 has 10 MA's), (Start: 8 @18455 has 160 MA's), (Start: 13 @18554 has 2 MA's), (19, 18710), (22, 18725), (24, 18758), (29, 18827), (31, 18845), (32, 18848), (33, 18854), (39, 19058), (44, 19109), (45, 19139),

Gene: Shrimp\_61 Start: 19517, Stop: 20212, Start Num: 8

Candidate Starts for Shrimp\_61:

(Start: 8 @19517 has 160 MA's), (Start: 13 @19616 has 2 MA's), (22, 19787), (29, 19889), (31, 19907), (39, 20120), (44, 20171), (45, 20201),

Gene: SilverDipper\_61 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for SilverDipper\_61:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: SmallFry\_60 Start: 18455, Stop: 19150, Start Num: 8

Candidate Starts for SmallFry\_60:

(Start: 4 @18401 has 10 MA's), (Start: 8 @18455 has 160 MA's), (Start: 13 @18554 has 2 MA's), (19, 18710), (22, 18725), (24, 18758), (29, 18827), (31, 18845), (32, 18848), (33, 18854), (39, 19058), (44, 19109), (45, 19139),

Gene: Spec\_58 Start: 18599, Stop: 19294, Start Num: 8

Candidate Starts for Spec\_58:

(Start: 8 @18599 has 160 MA's), (Start: 13 @18698 has 2 MA's), (19, 18854), (22, 18869), (24, 18902), (29, 18971), (31, 18989), (32, 18992), (33, 18998), (39, 19202), (44, 19253), (45, 19283),

Gene: Specks\_66 Start: 20988, Stop: 21683, Start Num: 8

Candidate Starts for Specks\_66:

(Start: 4 @20934 has 10 MA's), (Start: 8 @20988 has 160 MA's), (Start: 13 @21087 has 2 MA's), (22, 21258), (29, 21360), (31, 21378), (39, 21591), (44, 21642), (45, 21672),

Gene: Sprinklers\_57 Start: 18431, Stop: 19126, Start Num: 8

Candidate Starts for Sprinklers\_57:

(Start: 4 @18377 has 10 MA's), (Start: 8 @18431 has 160 MA's), (Start: 13 @18530 has 2 MA's), (19, 18686), (22, 18701), (24, 18734), (29, 18803), (31, 18821), (32, 18824), (33, 18830), (39, 19034), (44, 19085), (45, 19115),

Gene: Spud\_61 Start: 19828, Stop: 20523, Start Num: 8

Candidate Starts for Spud\_61:

(Start: 8 @19828 has 160 MA's), (Start: 13 @19927 has 2 MA's), (22, 20098), (29, 20200), (31, 20218), (39, 20431), (44, 20482), (45, 20512),

Gene: SrishMeg2525\_60 Start: 19224, Stop: 19919, Start Num: 8

Candidate Starts for SrishMeg2525\_60:

(Start: 8 @19224 has 160 MA's), (Start: 13 @19323 has 2 MA's), (22, 19494), (29, 19596), (31, 19614), (39, 19827), (44, 19878), (45, 19908),

Gene: StAugustine\_182 Start: 100406, Stop: 99534, Start Num: 5

Candidate Starts for StAugustine\_182:

(Start: 5 @100406 has 1 MA's), (9, 100337), (10, 100304), (14, 100205), (15, 100184), (16, 100124), (25, 100028), (27, 99965), (28, 99962), (32, 99938), (36, 99755), (43, 99689), (48, 99581),

Gene: StephanieG\_61 Start: 19831, Stop: 20526, Start Num: 8

Candidate Starts for StephanieG\_61:

(Start: 4 @19777 has 10 MA's), (Start: 8 @19831 has 160 MA's), (Start: 13 @19930 has 2 MA's), (19, 20086), (22, 20101), (24, 20134), (29, 20203), (31, 20221), (32, 20224), (33, 20230), (39, 20434), (44, 20485), (45, 20515),

Gene: Stormageddon\_162 Start: 108013, Stop: 108756, Start Num: 6

Candidate Starts for Stormageddon\_162:

(Start: 6 @108013 has 2 MA's), (9, 108046), (11, 108097), (Start: 13 @108130 has 2 MA's), (20, 108292), (23, 108301), (26, 108376), (32, 108421), (37, 108631), (38, 108634), (42, 108655), (46,



108736), (47, 108745),

Gene: Stubby\_56 Start: 19150, Stop: 19845, Start Num: 8

Candidate Starts for Stubby\_56:

(Start: 4 @19096 has 10 MA's), (Start: 8 @19150 has 160 MA's), (Start: 13 @19249 has 2 MA's), (19, 19405), (22, 19420), (24, 19453), (29, 19522), (31, 19540), (32, 19543), (33, 19549), (39, 19753), (44, 19804), (45, 19834),

Gene: StubbySaigey\_60 Start: 18153, Stop: 18848, Start Num: 8

Candidate Starts for StubbySaigey\_60:

(Start: 8 @18153 has 160 MA's), (Start: 13 @18252 has 2 MA's), (22, 18423), (29, 18525), (31, 18543), (39, 18756), (44, 18807), (45, 18837),

Gene: Tainan\_66 Start: 21026, Stop: 21721, Start Num: 8

Candidate Starts for Tainan\_66:

(Start: 8 @21026 has 160 MA's), (Start: 13 @21125 has 2 MA's), (22, 21296), (29, 21398), (31, 21416), (39, 21629), (44, 21680), (45, 21710),

Gene: Teardrop\_60 Start: 18312, Stop: 19007, Start Num: 8

Candidate Starts for Teardrop\_60:

(Start: 4 @18258 has 10 MA's), (Start: 8 @18312 has 160 MA's), (Start: 13 @18411 has 2 MA's), (22, 18582), (29, 18684), (31, 18702), (39, 18915), (44, 18966), (45, 18996),

Gene: TinyTim\_61 Start: 19513, Stop: 20208, Start Num: 8

Candidate Starts for TinyTim\_61:

(Start: 8 @19513 has 160 MA's), (Start: 13 @19612 has 2 MA's), (22, 19783), (29, 19885), (31, 19903), (39, 20116), (44, 20167), (45, 20197),

Gene: Tonenili\_70 Start: 21859, Stop: 22554, Start Num: 8

Candidate Starts for Tonenili\_70:

(Start: 8 @21859 has 160 MA's), (Start: 13 @21958 has 2 MA's), (18, 22108), (29, 22231), (31, 22249), (32, 22252), (34, 22294), (39, 22462), (44, 22513), (45, 22543),

Gene: Tortoise16\_58 Start: 18963, Stop: 19658, Start Num: 8

Candidate Starts for Tortoise16\_58:

(Start: 4 @18909 has 10 MA's), (Start: 8 @18963 has 160 MA's), (Start: 13 @19062 has 2 MA's), (19, 19218), (22, 19233), (24, 19266), (29, 19335), (31, 19353), (32, 19356), (33, 19362), (39, 19566), (44, 19617), (45, 19647),

Gene: Trinitium\_56 Start: 17916, Stop: 18611, Start Num: 8

Candidate Starts for Trinitium\_56:

(Start: 8 @17916 has 160 MA's), (Start: 13 @18015 has 2 MA's), (19, 18171), (22, 18186), (24, 18219), (29, 18288), (31, 18306), (32, 18309), (33, 18315), (39, 18519), (44, 18570), (45, 18600),

Gene: Turret\_55 Start: 17640, Stop: 18335, Start Num: 8

Candidate Starts for Turret\_55:

(Start: 8 @17640 has 160 MA's), (Start: 13 @17739 has 2 MA's), (19, 17895), (22, 17910), (24, 17943), (29, 18012), (31, 18030), (32, 18033), (33, 18039), (39, 18243), (44, 18294), (45, 18324),

Gene: Tyke\_62 Start: 19867, Stop: 20562, Start Num: 8

Candidate Starts for Tyke\_62:

(Start: 4 @19813 has 10 MA's), (Start: 8 @19867 has 160 MA's), (Start: 13 @19966 has 2 MA's), (19, 20122), (22, 20137), (24, 20170), (29, 20239), (31, 20257), (32, 20260), (33, 20266), (39, 20470), (44,

20521), (45, 20551),

Gene: ValleyTerrace\_60 Start: 18459, Stop: 19154, Start Num: 8

Candidate Starts for ValleyTerrace\_60:

(Start: 4 @18405 has 10 MA's), (Start: 8 @18459 has 160 MA's), (Start: 13 @18558 has 2 MA's), (19, 18714), (22, 18729), (24, 18762), (29, 18831), (31, 18849), (32, 18852), (33, 18858), (39, 19062), (44, 19113), (45, 19143),

Gene: Wally\_59 Start: 18068, Stop: 18763, Start Num: 8

Candidate Starts for Wally\_59:

(Start: 8 @18068 has 160 MA's), (Start: 13 @18167 has 2 MA's), (22, 18338), (29, 18440), (31, 18458), (39, 18671), (44, 18722), (45, 18752),

Gene: Willis\_61 Start: 19408, Stop: 20103, Start Num: 8

Candidate Starts for Willis\_61:

(Start: 8 @19408 has 160 MA's), (Start: 13 @19507 has 2 MA's), (22, 19678), (29, 19780), (31, 19798), (39, 20011), (44, 20062), (45, 20092),

Gene: Yassified\_58 Start: 18818, Stop: 19513, Start Num: 8

Candidate Starts for Yassified\_58:

(Start: 4 @18764 has 10 MA's), (Start: 8 @18818 has 160 MA's), (Start: 13 @18917 has 2 MA's), (22, 19088), (24, 19121), (29, 19190), (31, 19208), (32, 19211), (33, 19217), (39, 19421), (44, 19472), (45, 19502),

Gene: YemiJoy2021\_61 Start: 19194, Stop: 19889, Start Num: 8

Candidate Starts for YemiJoy2021\_61:

(Start: 8 @19194 has 160 MA's), (Start: 13 @19293 has 2 MA's), (22, 19464), (29, 19566), (31, 19584), (39, 19797), (44, 19848), (45, 19878),

Gene: YoungMoneyMata\_60 Start: 18210, Stop: 18905, Start Num: 8

Candidate Starts for YoungMoneyMata\_60:

(Start: 4 @18156 has 10 MA's), (Start: 8 @18210 has 160 MA's), (Start: 13 @18309 has 2 MA's), (19, 18465), (22, 18480), (24, 18513), (29, 18582), (31, 18600), (32, 18603), (33, 18609), (39, 18813), (44, 18864), (45, 18894),

Gene: Yucca\_61 Start: 19435, Stop: 20130, Start Num: 8

Candidate Starts for Yucca\_61:

(Start: 8 @19435 has 160 MA's), (Start: 13 @19534 has 2 MA's), (22, 19705), (29, 19807), (31, 19825), (39, 20038), (44, 20089), (45, 20119),

Gene: Zalkecks\_62 Start: 19198, Stop: 19893, Start Num: 8

Candidate Starts for Zalkecks\_62:

(Start: 8 @19198 has 160 MA's), (Start: 13 @19297 has 2 MA's), (22, 19468), (29, 19570), (31, 19588), (39, 19801), (44, 19852), (45, 19882),

Gene: Zeenon\_63 Start: 19500, Stop: 20195, Start Num: 8

Candidate Starts for Zeenon\_63:

(Start: 8 @19500 has 160 MA's), (Start: 13 @19599 has 2 MA's), (22, 19770), (29, 19872), (31, 19890), (39, 20103), (44, 20154), (45, 20184),

Gene: ZygoTaiga\_61 Start: 19514, Stop: 20209, Start Num: 8

Candidate Starts for ZygoTaiga\_61:

(Start: 8 @19514 has 160 MA's), (Start: 13 @19613 has 2 MA's), (22, 19784), (29, 19886), (31, 19904),  
(39, 20117), (44, 20168), (45, 20198),