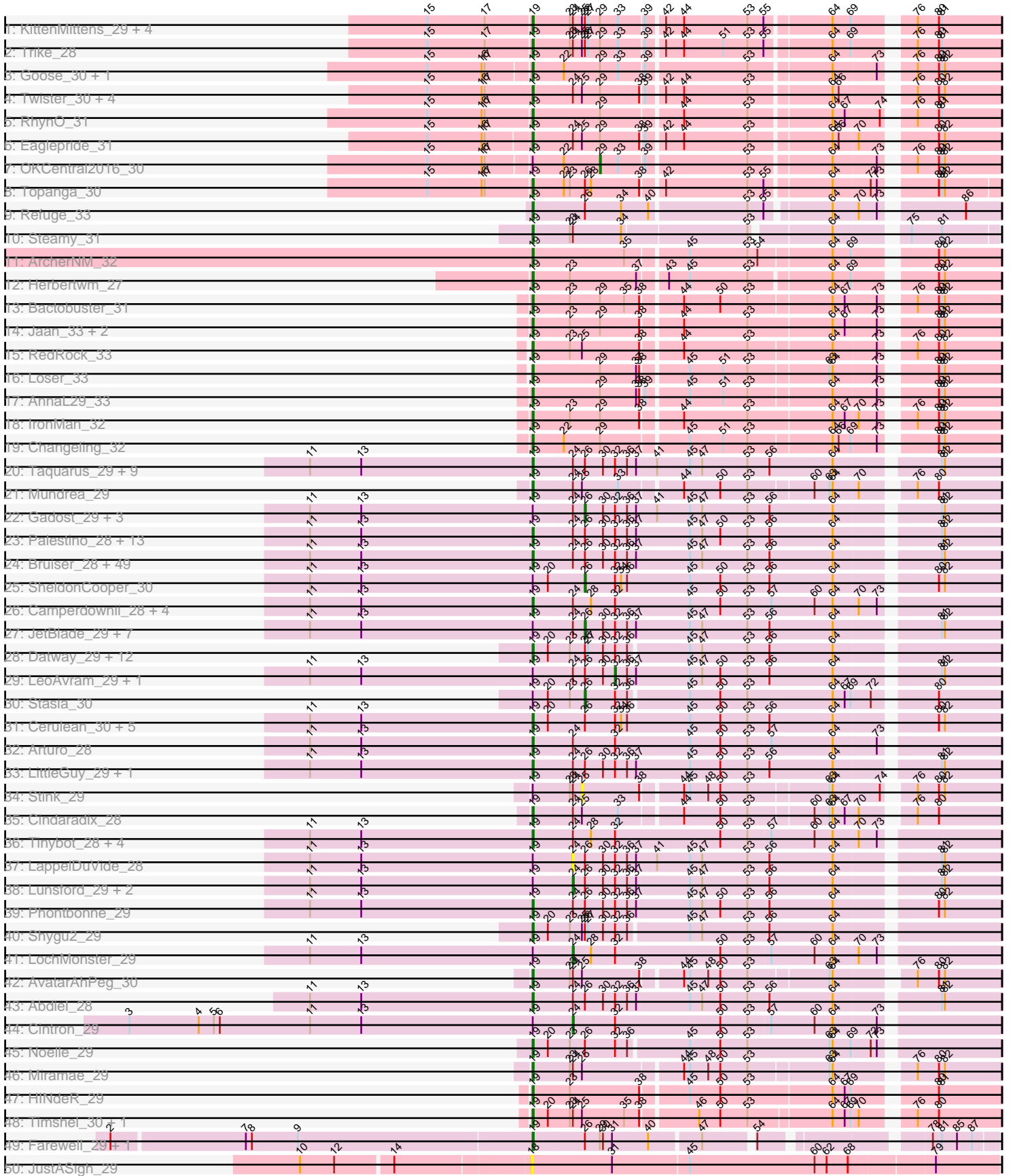
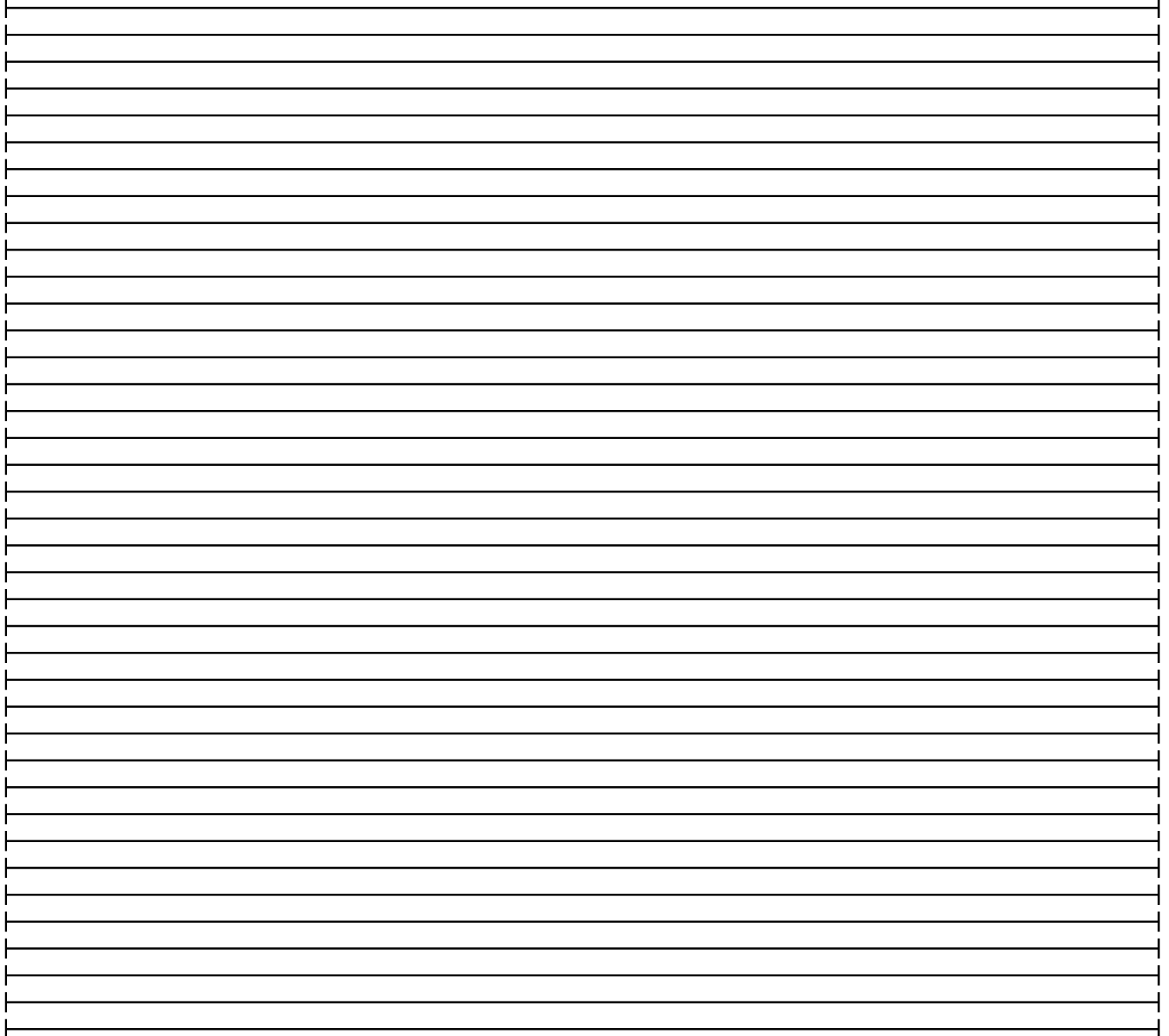
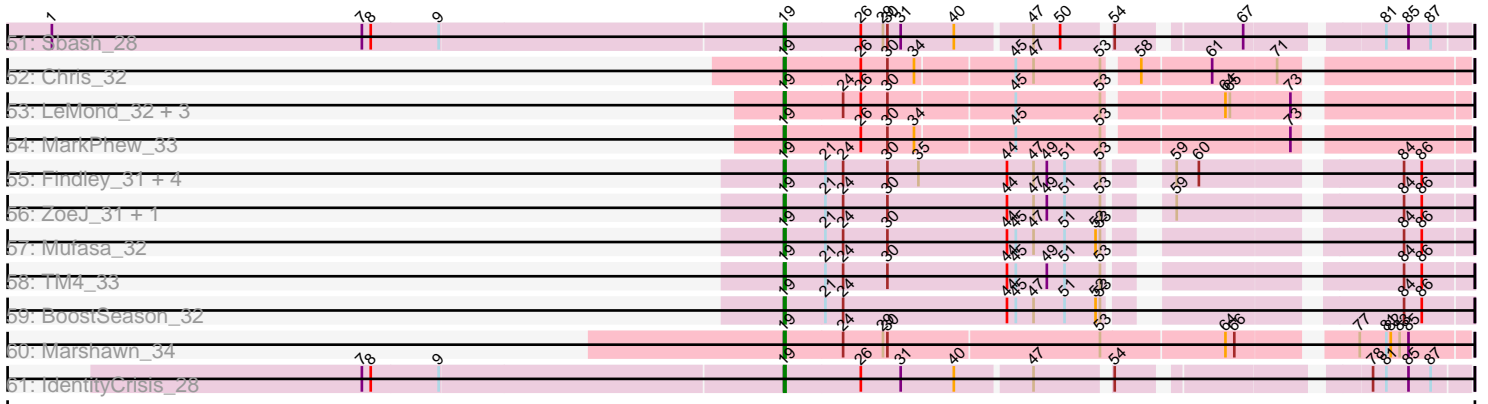


Pham 154482



# Pham 154482



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 154482 Report

This analysis was run 04/12/24 on database version 558.

Pham number 154482 has 192 members, 9 are drafts.

Phages represented in each track:

- Track 1 : KittenMittens\_29, Drake94\_29, PeaceMeal1\_29, Severus\_29, Poompha\_29
- Track 2 : Trike\_28
- Track 3 : Goose\_30, Chupacabra\_30
- Track 4 : Twister\_30, Kristoff\_31, Rebeuca\_31, Edison31\_30, WalterMcMickey\_30
- Track 5 : RhynO\_31
- Track 6 : Eaglepride\_31
- Track 7 : OKCentral2016\_30
- Track 8 : Topanga\_30
- Track 9 : Refuge\_33
- Track 10 : Steamy\_31
- Track 11 : ArcherNM\_32
- Track 12 : Herbertwm\_27
- Track 13 : Bactobuster\_31
- Track 14 : Jaan\_33, Landor\_31, Phaded\_33
- Track 15 : RedRock\_33
- Track 16 : Loser\_33
- Track 17 : AnnaL29\_33
- Track 18 : IronMan\_32
- Track 19 : Changeling\_32
- Track 20 : Taquarus\_29, Phelipe\_29, Cocoaberry\_29, Nemo27\_29, Caelakin\_29, Holli\_29, Funston\_29, Phacado\_29, Mazhar510\_29, Avle17\_29
- Track 21 : Mundrea\_29
- Track 22 : Gadost\_29, NotAPhaseMom\_29, Relief\_29, Houdini22\_29
- Track 23 : Palestino\_28, Scamp\_29, ICleared\_29, Nebs\_29, Commander\_29, Polymorphads\_29, Maxo\_29, BellusTerra\_29, Morrow\_29, MeeZee\_29, Eurydice\_29, Ohfah\_29, Pumbaa\_29, BubbleTrouble\_29
- Track 24 : Bruiser\_28, TiroTheta9\_29, Alberto7\_30, Roosevelt\_29, Broseidon\_29, Spino\_29, Connomayer\_29, Koreni\_28, Ruin\_29, YoSam321\_29, Florean\_29, Lorenzo\_29, JoongJeon\_29, Bartimeaus\_29, ChampagnePapi\_30, Wizard007\_29, Wilbur\_29, Chaph\_29, CentreCat\_29, Bombshell\_29, Druantia\_29, Sparxx\_29, Albee\_29, Flux\_29, Baby16\_29, Citius\_29, OKaNui\_30, Lemur\_29, Blackmoor\_29, Maverick\_29, LittleB\_29, Medusa\_29, Dhanush\_29, Wander\_29, Romney\_29, Iceman\_30, Clarenza\_29, Sabertooth\_29, PeterPeter\_29, Shaka\_29, Pipcraft\_29, Peaches\_29, Burger\_28, Melvin\_29, Eris\_28, HamSlice\_28, Millski\_28, TinaFeyge\_29, TroyPia\_29, Eapen\_29
- Track 25 : SheldonCooper\_30

- Track 26 : Camperdownii\_28, Kyee\_29, KFPoly\_29, Thanksgivukkah\_29, Kratark\_29
- Track 27 : JetBlade\_29, Annyong\_29, Kingmustik0402\_29, Kremtemulon\_28, TygerBlood\_29, Eros\_29, NorthStar\_29, Deano\_29
- Track 28 : Datway\_29, Achebe\_28, Morpher26\_29, Perplexer\_29, Backyardigan\_29, Xena\_29, PetiteSangsue\_29, Badger\_29, Wile\_29, Bumblebee11\_29, Katalie136\_29, AbbysRanger\_29, Cici\_29
- Track 29 : LeoAvram\_29, Kampy\_29
- Track 30 : Stasia\_30
- Track 31 : Cerulean\_30, Eagle\_28, Obama12\_30, Happiness\_29, BangNhom\_29, LHTSCC\_30
- Track 32 : Arturo\_28
- Track 33 : LittleGuy\_29, Nyxis\_29
- Track 34 : Stink\_29
- Track 35 : Cindaradix\_28
- Track 36 : Tinybot\_28, Ulysses\_28, Iracema64\_30, DirtyDunning\_29, Phighter1804\_29
- Track 37 : LappelDuVide\_28
- Track 38 : Lunsford\_29, Skipitt\_29, Jaykayelowell\_29
- Track 39 : Phontbonne\_29
- Track 40 : Shygu2\_29
- Track 41 : LochMonster\_29
- Track 42 : AvatarAhPeg\_30
- Track 43 : Abdiel\_28
- Track 44 : Cintron\_29
- Track 45 : Noelle\_29
- Track 46 : Miramae\_29
- Track 47 : HINdeR\_29
- Track 48 : Timshel\_30, DroogsArmy\_30
- Track 49 : Farewell\_29, Sparky\_29
- Track 50 : JustASigh\_29
- Track 51 : Sbash\_28
- Track 52 : Chris\_32
- Track 53 : LeMond\_32, KiSi\_32, Oscar\_32, Scarlett\_32
- Track 54 : MarkPhew\_33
- Track 55 : Findley\_31, DismalStressor\_31, Strobilo\_33, Marcoliusprime\_31, DismalFunk\_31
- Track 56 : ZoeJ\_31, Milly\_31
- Track 57 : Mufasa\_32
- Track 58 : TM4\_33
- Track 59 : BoostSeason\_32
- Track 60 : Marshawn\_34
- Track 61 : IdentityCrisis\_28

***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 163 of the 183 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AbbysRanger\_29, Abdiel\_28, Achebe\_28, Albee\_29, Alberto7\_30, AnnaL29\_33, ArcherNM\_32, Arturo\_28, AvatarAhPeg\_30, Avle17\_29, Baby16\_29, Backyardigan\_29, Bactobuster\_31, Badger\_29, BangNhom\_29, Bartimeaus\_29, BellusTerra\_29, Blackmoor\_29, Bombshell\_29, BoostSeason\_32, Broseidon\_29, Bruiser\_28, BubbleTrouble\_29, Bumblebee11\_29, Burger\_28, Caelakin\_29, Camperdownii\_28, CentreCat\_29, Cerulean\_30, ChampagnePapi\_30, Changeling\_32, Chaph\_29, Chris\_32, Chupacabra\_30, Cici\_29, Cindaradix\_28, Citius\_29, Clarenza\_29, Cocoaberry\_29, Commander\_29, Connomayer\_29, Datway\_29, Dhanush\_29, DirtyDunning\_29, DismalFunk\_31, DismalStressor\_31, Drake94\_29, DroogsArmy\_30, Druantia\_29, Eagle\_28, Eaglepride\_31, Eapen\_29, Edison31\_30, Eris\_28, Eurydice\_29, Farewell\_29, Findley\_31, Florean\_29, Flux\_29, Funston\_29, Goose\_30, HINdeR\_29, HamSlice\_28, Happiness\_29, Herbertwm\_27, Holli\_29, ICleared\_29, Iceman\_30, IdentityCrisis\_28, Iracema64\_30, IronMan\_32, Jaan\_33, JoongJeon\_29, KFPoly\_29, Katalie136\_29, KiSi\_32, KittenMittens\_29, Koreni\_28, Kratark\_29, Kristoff\_31, Kyee\_29, LHTSCC\_30, Landor\_31, LeMond\_32, Lemur\_29, LittleB\_29, LittleGuy\_29, Lorenzo\_29, Loser\_33, Marcoliusprime\_31, MarkPhew\_33, Marshawn\_34, Maverick\_29, Maxo\_29, Mazhar510\_29, Medusa\_29, MeeZee\_29, Melvin\_29, Millski\_28, Milly\_31, Miramae\_29, Morpher26\_29, Morrow\_29, Mufasa\_32, Mundrea\_29, Nebs\_29, Nemo27\_29, Noelle\_29, Nyxis\_29, OKaNui\_30, Obama12\_30, Ohfah\_29, Oscar\_32, Palestino\_28, PeaceMeal1\_29, Peaches\_29, Perplexer\_29, PeterPeter\_29, PetiteSangsue\_29, Phacado\_29, Phaded\_33, Phelipe\_29, Phighter1804\_29, Phontbonne\_29, Pipcraft\_29, Polymorphads\_29, Poompha\_29, Pumbaa\_29, Rebeuca\_31, RedRock\_33, Refuge\_33, RhynO\_31, Romney\_29, Roosevelt\_29, Ruin\_29, Sabertooth\_29, Sbash\_28, Scamp\_29, Scarlett\_32, Severus\_29, Shaka\_29, Shygu2\_29, Sparky\_29, Sparxx\_29, Spino\_29, Steamy\_31, Strobilo\_33, TM4\_33, Taquarus\_29, Thanksgivukkah\_29, Timshel\_30, TinaFeyge\_29, Tinybot\_28, TiroTheta9\_29, Topanga\_30, Trike\_28, TroyPia\_29, Twister\_30, Ulysses\_28, WalterMcMickey\_30, Wander\_29, Wilbur\_29, Wile\_29, Wizard007\_29, Xena\_29, YoSam321\_29, ZoeJ\_31,

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

- Annyong\_29, Cintron\_29, Deano\_29, Eros\_29, Gadost\_29, Houdini22\_29, Jaykayelowell\_29, JetBlade\_29, Kampy\_29, Kingmustik0402\_29, Kremtemulon\_28, LappelDuVide\_28, LeoAvram\_29, LochMonster\_29, Lunsford\_29, NorthStar\_29, NotAPhaseMom\_29, OKCentral2016\_30, Relief\_29, SheldonCooper\_30, Skipitt\_29, Stasia\_30, Stink\_29, TygerBlood\_29,

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

- JustASigh\_29,

### Summary by start number:

Start 18:

- Found in 1 of 192 ( 0.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JustASigh\_29 (AH),

Start 19:

- Found in 191 of 192 ( 99.5% ) of genes in pham
- Manual Annotations of this start: 163 of 183
- Called 87.4% of time when present

- Phage (with cluster) where this start called: AbbysRanger\_29 (A4), Abdiel\_28 (A4), Achebe\_28 (A4), Albee\_29 (A4), Alberto7\_30 (A4), AnnaL29\_33 (A2), ArcherNM\_32 (A2), Arturo\_28 (A4), AvatarAhPeg\_30 (A4), Avle17\_29 (A4), Baby16\_29 (A4), Backyardigan\_29 (A4), Bactobuster\_31 (A2), Badger\_29 (A4), BangNhom\_29 (A4), Bartimeaus\_29 (A4), BellusTerra\_29 (A4), Blackmoor\_29 (A4), Bombshell\_29 (A4), BoostSeason\_32 (K2), Broseidon\_29 (A4), Bruiser\_28 (A4), BubbleTrouble\_29 (A4), Bumblebee11\_29 (A4), Burger\_28 (A4), Caelakin\_29 (A4), Camperdownii\_28 (A4), CentreCat\_29 (A4), Cerulean\_30 (A4), ChampagnePapi\_30 (A4), Changeling\_32 (A2), Chaph\_29 (A4), Chris\_32 (K1), Chupacabra\_30 (A10), Cici\_29 (A4), Cindaradix\_28 (A4), Citius\_29 (A4), Clarenza\_29 (A4), Cocoaberry\_29 (A4), Commander\_29 (A4), Connomayer\_29 (A4), Datway\_29 (A4), Dhanush\_29 (A4), DirtyDunning\_29 (A4), DismalFunk\_31 (K2), DismalStressor\_31 (K2), Drake94\_29 (A10), DroogsArmy\_30 (A7), Druantia\_29 (A4), Eagle\_28 (A4), Eaglepride\_31 (A10), Eapen\_29 (A4), Edison31\_30 (A10), Eris\_28 (A4), Eurydice\_29 (A4), Farewell\_29 (AF), Findley\_31 (K2), Florean\_29 (A4), Flux\_29 (A4), Funston\_29 (A4), Goose\_30 (A10), HINdeR\_29 (A7), HamSlice\_28 (A4), Happiness\_29 (A4), Herbertwm\_27 (A2), Holli\_29 (A4), ICleared\_29 (A4), Iceman\_30 (A4), IdentityCrisis\_28 (singleton), Iracema64\_30 (A4), IronMan\_32 (A2), Jaan\_33 (A2), JoongJeon\_29 (A4), KFPoly\_29 (A4), Katalie136\_29 (A4), KiSi\_32 (K1), KittenMittens\_29 (A10), Koreni\_28 (A4), Kratark\_29 (A4), Kristoff\_31 (A10), Kyee\_29 (A4), LHTSCC\_30 (A4), Landor\_31 (A2), LeMond\_32 (K1), Lemur\_29 (A4), LittleB\_29 (A4), LittleGuy\_29 (A4), Lorenzo\_29 (A4), Loser\_33 (A2), Marcoliusprime\_31 (K2), MarkPhew\_33 (K1), Marshawn\_34 (K6), Maverick\_29 (A4), Maxo\_29 (A4), Mazhar510\_29 (A4), Medusa\_29 (A4), MeeZee\_29 (A4), Melvin\_29 (A4), Millski\_28 (A4), Milly\_31 (K2), Miramae\_29 (A4), Morpher26\_29 (A4), Morrow\_29 (A4), Mufasa\_32 (K2), Mundrea\_29 (A4), Nebs\_29 (A4), Nemo27\_29 (A4), Noelle\_29 (A4), Nyxis\_29 (A4), OKaNui\_30 (A4), Obama12\_30 (A4), Ohfah\_29 (A4), Oscar\_32 (K1), Palestino\_28 (A4), PeaceMeal1\_29 (A10), Peaches\_29 (A4), Perplexer\_29 (A4), PeterPeter\_29 (A4), PetiteSangsue\_29 (A4), Phacado\_29 (A4), Phaded\_33 (A2), Felipe\_29 (A4), Phighter1804\_29 (A4), Phontbonne\_29 (A4), Pipcraft\_29 (A4), Polymorphads\_29 (A4), Poompha\_29 (A10), Pumbaa\_29 (A4), Rebeuca\_31 (A10), RedRock\_33 (A2), Refuge\_33 (A12), RhynO\_31 (A10), Romney\_29 (A4), Roosevelt\_29 (A4), Ruin\_29 (A4), Sabertooth\_29 (A4), Sbash\_28 (I2), Scamp\_29 (A4), Scarlett\_32 (K1), Severus\_29 (A10), Shaka\_29 (A4), Shygu2\_29 (A4), Sparky\_29 (AF), Sparxx\_29 (A4), Spino\_29 (A4), Steamy\_31 (A12), Strobilo\_33 (K2), TM4\_33 (K2), Taquarus\_29 (A4), Thanksgivukkah\_29 (A4), Timshel\_30 (A7), TinaFeyge\_29 (A4), Tinybot\_28 (A4), TiroTheta9\_29 (A4), Topanga\_30 (A10), Trike\_28 (A10), TroyPia\_29 (A4), Twister\_30 (A10), Ulysses\_28 (A4), WalterMcMickey\_30 (A10), Wander\_29 (A4), Wilbur\_29 (A4), Wile\_29 (A4), Wizard007\_29 (A4), Xena\_29 (A4), YoSam321\_29 (A4), ZoeJ\_31 (K2),

#### Start 24:

- Found in 144 of 192 ( 75.0% ) of genes in pham
- Manual Annotations of this start: 4 of 183
- Called 4.2% of time when present
- Phage (with cluster) where this start called: Cintron\_29 (A4), Jaykayelowell\_29 (A4), LappelDuVide\_28 (A4), LochMonster\_29 (A4), Lunsford\_29 (A4), Skipitt\_29 (A4),

#### Start 25:

- Found in 21 of 192 ( 10.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 4.8% of time when present
- Phage (with cluster) where this start called: Stink\_29 (A4),

Start 26:

- Found in 137 of 192 ( 71.4% ) of genes in pham
- Manual Annotations of this start: 13 of 183
- Called 10.2% of time when present
- Phage (with cluster) where this start called: Annyong\_29 (A4), Deano\_29 (A4), Eros\_29 (A4), Gadost\_29 (A4), Houdini22\_29 (A4), JetBlade\_29 (A4), Kingmustik0402\_29 (A4), Kremtemulon\_28 (A4), NorthStar\_29 (A4), NotAPhaseMom\_29 (A4), Relief\_29 (A4), SheldonCooper\_30 (A4), Stasia\_30 (A4), TygerBlood\_29 (A4),

Start 29:

- Found in 28 of 192 ( 14.6% ) of genes in pham
- Manual Annotations of this start: 1 of 183
- Called 3.6% of time when present
- Phage (with cluster) where this start called: OKCentral2016\_30 (A10),

Start 32:

- Found in 132 of 192 ( 68.8% ) of genes in pham
- Manual Annotations of this start: 2 of 183
- Called 1.5% of time when present
- Phage (with cluster) where this start called: Kampy\_29 (A4), LeoAvram\_29 (A4),

**Summary by clusters:**

There are 12 clusters represented in this pham: singleton, A10, A12, AH, I2, K2, K1, A2, A4, AF, A7, K6,

Info for manual annotations of cluster A10:

- Start number 19 was manually annotated 15 times for cluster A10.
- Start number 29 was manually annotated 1 time for cluster A10.

Info for manual annotations of cluster A12:

- Start number 19 was manually annotated 2 times for cluster A12.

Info for manual annotations of cluster A2:

- Start number 19 was manually annotated 10 times for cluster A2.

Info for manual annotations of cluster A4:

- Start number 19 was manually annotated 114 times for cluster A4.
- Start number 24 was manually annotated 4 times for cluster A4.
- Start number 26 was manually annotated 13 times for cluster A4.
- Start number 32 was manually annotated 2 times for cluster A4.

Info for manual annotations of cluster A7:

- Start number 19 was manually annotated 3 times for cluster A7.

Info for manual annotations of cluster AF:

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

Info for manual annotations of cluster I2:

- Start number 19 was manually annotated 1 time for cluster I2.

Info for manual annotations of cluster K1:

- Start number 19 was manually annotated 6 times for cluster K1.

Info for manual annotations of cluster K2:

- Start number 19 was manually annotated 9 times for cluster K2.

Info for manual annotations of cluster K6:

- Start number 19 was manually annotated 1 time for cluster K6.

### **Gene Information:**

Gene: AbbysRanger\_29 Start: 22117, Stop: 22557, Start Num: 19

Candidate Starts for AbbysRanger\_29:

(Start: 19 @22117 has 163 MA's), (20, 22132), (23, 22153), (Start: 26 @22168 has 13 MA's), (27, 22171), (30, 22186), (Start: 32 @22198 has 2 MA's), (36, 22210), (45, 22267), (47, 22279), (53, 22324), (56, 22345), (64, 22408),

Gene: Abdiel\_28 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for Abdiel\_28:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (50, 22265), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Achebe\_28 Start: 22100, Stop: 22540, Start Num: 19

Candidate Starts for Achebe\_28:

(Start: 19 @22100 has 163 MA's), (20, 22115), (23, 22136), (Start: 26 @22151 has 13 MA's), (27, 22154), (30, 22169), (Start: 32 @22181 has 2 MA's), (36, 22193), (45, 22250), (47, 22262), (53, 22307), (56, 22328), (64, 22391),

Gene: Albee\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Albee\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Alberto7\_30 Start: 22384, Stop: 22830, Start Num: 19

Candidate Starts for Alberto7\_30:

(11, 22162), (13, 22213), (Start: 19 @22384 has 163 MA's), (Start: 24 @22423 has 4 MA's), (Start: 26 @22435 has 13 MA's), (30, 22453), (Start: 32 @22465 has 2 MA's), (36, 22477), (37, 22486), (45, 22540), (47, 22552), (53, 22597), (56, 22618), (64, 22681), (81, 22771), (82, 22774),

Gene: AnnaL29\_33 Start: 24257, Stop: 24685, Start Num: 19

Candidate Starts for AnnaL29\_33:

(Start: 19 @24257 has 163 MA's), (Start: 29 @24323 has 1 MA's), (37, 24359), (38, 24362), (39, 24365), (45, 24404), (51, 24437), (53, 24461), (64, 24539), (73, 24581), (80, 24623), (81, 24626), (82, 24629),

Gene: Annyong\_29 Start: 22134, Stop: 22529, Start Num: 26

Candidate Starts for Annyong\_29:



(11, 21861), (13, 21912), (Start: 19 @22083 has 163 MA's), (Start: 24 @22122 has 4 MA's), (Start: 26 @22134 has 13 MA's), (30, 22152), (Start: 32 @22164 has 2 MA's), (36, 22176), (37, 22185), (45, 22239), (47, 22251), (53, 22296), (56, 22317), (64, 22380), (81, 22470), (82, 22473),

Gene: ArcherNM\_32 Start: 24201, Stop: 24629, Start Num: 19

Candidate Starts for ArcherNM\_32:

(Start: 19 @24201 has 163 MA's), (35, 24291), (45, 24348), (53, 24405), (54, 24414), (64, 24483), (69, 24501), (80, 24567), (82, 24573),

Gene: Arturo\_28 Start: 22194, Stop: 22637, Start Num: 19

Candidate Starts for Arturo\_28:

(11, 21972), (13, 22023), (Start: 19 @22194 has 163 MA's), (Start: 24 @22233 has 4 MA's), (Start: 32 @22275 has 2 MA's), (45, 22350), (50, 22380), (53, 22407), (57, 22428), (64, 22488), (73, 22530),

Gene: AvatarAhPeg\_30 Start: 22382, Stop: 22810, Start Num: 19

Candidate Starts for AvatarAhPeg\_30:

(Start: 19 @22382 has 163 MA's), (23, 22418), (Start: 24 @22421 has 4 MA's), (25, 22430), (38, 22487), (44, 22523), (45, 22529), (48, 22547), (50, 22559), (53, 22586), (63, 22661), (64, 22664), (76, 22727), (80, 22748), (82, 22754),

Gene: Avle17\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Avle17\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (41, 22205), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Baby16\_29 Start: 22091, Stop: 22537, Start Num: 19

Candidate Starts for Baby16\_29:

(11, 21869), (13, 21920), (Start: 19 @22091 has 163 MA's), (Start: 24 @22130 has 4 MA's), (Start: 26 @22142 has 13 MA's), (30, 22160), (Start: 32 @22172 has 2 MA's), (36, 22184), (37, 22193), (45, 22247), (47, 22259), (53, 22304), (56, 22325), (64, 22388), (81, 22478), (82, 22481),

Gene: Backyardigan\_29 Start: 22112, Stop: 22552, Start Num: 19

Candidate Starts for Backyardigan\_29:

(Start: 19 @22112 has 163 MA's), (20, 22127), (23, 22148), (Start: 26 @22163 has 13 MA's), (27, 22166), (30, 22181), (Start: 32 @22193 has 2 MA's), (36, 22205), (45, 22262), (47, 22274), (53, 22319), (56, 22340), (64, 22403),

Gene: Bactobuster\_31 Start: 24014, Stop: 24442, Start Num: 19

Candidate Starts for Bactobuster\_31:

(Start: 19 @24014 has 163 MA's), (23, 24050), (Start: 29 @24080 has 1 MA's), (35, 24104), (38, 24119), (44, 24155), (50, 24191), (53, 24218), (64, 24296), (67, 24308), (73, 24338), (76, 24359), (80, 24380), (81, 24383), (82, 24386),

Gene: Badger\_29 Start: 22101, Stop: 22541, Start Num: 19

Candidate Starts for Badger\_29:

(Start: 19 @22101 has 163 MA's), (20, 22116), (23, 22137), (Start: 26 @22152 has 13 MA's), (27, 22155), (30, 22170), (Start: 32 @22182 has 2 MA's), (36, 22194), (45, 22251), (47, 22263), (53, 22308), (56, 22329), (64, 22392),

Gene: BangNhom\_29 Start: 22396, Stop: 22842, Start Num: 19

Candidate Starts for BangNhom\_29:

(11, 22174), (13, 22225), (Start: 19 @22396 has 163 MA's), (20, 22411), (Start: 26 @22447 has 13 MA's), (Start: 32 @22477 has 2 MA's), (34, 22483), (36, 22489), (45, 22552), (50, 22582), (53, 22609), (56, 22630), (64, 22693), (80, 22780), (82, 22786),

Gene: Bartimeaus\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Bartimeaus\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: BellusTerra\_29 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for BellusTerra\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (50, 22265), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Blackmoor\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Blackmoor\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Bombshell\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Bombshell\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: BoostSeason\_32 Start: 26585, Stop: 27004, Start Num: 19

Candidate Starts for BoostSeason\_32:

(Start: 19 @26585 has 163 MA's), (21, 26612), (Start: 24 @26624 has 4 MA's), (44, 26735), (45, 26741), (47, 26753), (51, 26774), (52, 26795), (53, 26798), (84, 26960), (86, 26972),

Gene: Broseidon\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Broseidon\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Bruiser\_28 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Bruiser\_28:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: BubbleTrouble\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for BubbleTrouble\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (50, 22268), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Bumblebee11\_29 Start: 22103, Stop: 22543, Start Num: 19

Candidate Starts for Bumblebee11\_29:

(Start: 19 @22103 has 163 MA's), (20, 22118), (23, 22139), (Start: 26 @22154 has 13 MA's), (27, 22157), (30, 22172), (Start: 32 @22184 has 2 MA's), (36, 22196), (45, 22253), (47, 22265), (53, 22310), (56, 22331), (64, 22394),

Gene: Burger\_28 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Burger\_28:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Caelakin\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Caelakin\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (41, 22205), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Camperdownii\_28 Start: 21704, Stop: 22147, Start Num: 19

Candidate Starts for Camperdownii\_28:

(11, 21482), (13, 21533), (Start: 19 @21704 has 163 MA's), (Start: 24 @21743 has 4 MA's), (28, 21761), (Start: 32 @21785 has 2 MA's), (45, 21860), (50, 21890), (53, 21917), (57, 21938), (60, 21980), (64, 21998), (70, 22022), (73, 22040),

Gene: CentreCat\_29 Start: 22083, Stop: 22529, Start Num: 19

Candidate Starts for CentreCat\_29:

(11, 21861), (13, 21912), (Start: 19 @22083 has 163 MA's), (Start: 24 @22122 has 4 MA's), (Start: 26 @22134 has 13 MA's), (30, 22152), (Start: 32 @22164 has 2 MA's), (36, 22176), (37, 22185), (45, 22239), (47, 22251), (53, 22296), (56, 22317), (64, 22380), (81, 22470), (82, 22473),

Gene: Cerulean\_30 Start: 22397, Stop: 22843, Start Num: 19

Candidate Starts for Cerulean\_30:

(11, 22175), (13, 22226), (Start: 19 @22397 has 163 MA's), (20, 22412), (Start: 26 @22448 has 13 MA's), (Start: 32 @22478 has 2 MA's), (34, 22484), (36, 22490), (45, 22553), (50, 22583), (53, 22610), (56, 22631), (64, 22694), (80, 22781), (82, 22787),

Gene: ChampagnePapi\_30 Start: 22396, Stop: 22842, Start Num: 19

Candidate Starts for ChampagnePapi\_30:

(11, 22174), (13, 22225), (Start: 19 @22396 has 163 MA's), (Start: 24 @22435 has 4 MA's), (Start: 26 @22447 has 13 MA's), (30, 22465), (Start: 32 @22477 has 2 MA's), (36, 22489), (37, 22498), (45, 22552), (47, 22564), (53, 22609), (56, 22630), (64, 22693), (81, 22783), (82, 22786),

Gene: Changeling\_32 Start: 24255, Stop: 24683, Start Num: 19

Candidate Starts for Changeling\_32:

(Start: 19 @24255 has 163 MA's), (22, 24285), (Start: 29 @24321 has 1 MA's), (45, 24402), (51, 24435), (53, 24459), (64, 24537), (66, 24543), (69, 24555), (73, 24579), (80, 24621), (81, 24624), (82, 24627),

Gene: Chaph\_29 Start: 22091, Stop: 22537, Start Num: 19

Candidate Starts for Chaph\_29:

(11, 21869), (13, 21920), (Start: 19 @22091 has 163 MA's), (Start: 24 @22130 has 4 MA's), (Start: 26 @22142 has 13 MA's), (30, 22160), (Start: 32 @22172 has 2 MA's), (36, 22184), (37, 22193), (45, 22247), (47, 22259), (53, 22304), (56, 22325), (64, 22388), (81, 22478), (82, 22481),

Gene: Chris\_32 Start: 26948, Stop: 27370, Start Num: 19

Candidate Starts for Chris\_32:

(Start: 19 @26948 has 163 MA's), (Start: 26 @26999 has 13 MA's), (30, 27017), (34, 27035), (45, 27098), (47, 27110), (53, 27155), (58, 27173), (61, 27218), (71, 27260),

Gene: Chupacabra\_30 Start: 22409, Stop: 22834, Start Num: 19

Candidate Starts for Chupacabra\_30:

(15, 22310), (16, 22364), (17, 22367), (Start: 19 @22409 has 163 MA's), (22, 22439), (Start: 29 @22475 has 1 MA's), (33, 22493), (39, 22517), (53, 22613), (64, 22688), (73, 22730), (76, 22751), (80, 22772), (81, 22775), (82, 22778),

Gene: Cici\_29 Start: 22097, Stop: 22537, Start Num: 19

Candidate Starts for Cici\_29:

(Start: 19 @22097 has 163 MA's), (20, 22112), (23, 22133), (Start: 26 @22148 has 13 MA's), (27, 22151), (30, 22166), (Start: 32 @22178 has 2 MA's), (36, 22190), (45, 22247), (47, 22259), (53, 22304), (56, 22325), (64, 22388),

Gene: Cindaradix\_28 Start: 21827, Stop: 22255, Start Num: 19

Candidate Starts for Cindaradix\_28:

(Start: 19 @21827 has 163 MA's), (Start: 24 @21866 has 4 MA's), (25, 21875), (33, 21911), (44, 21968), (50, 22004), (53, 22031), (60, 22091), (63, 22106), (64, 22109), (67, 22121), (70, 22133), (76, 22172), (80, 22193),

Gene: Cintron\_29 Start: 22169, Stop: 22573, Start Num: 24

Candidate Starts for Cintron\_29:

(3, 21728), (4, 21797), (5, 21812), (6, 21818), (11, 21908), (13, 21959), (Start: 19 @22130 has 163 MA's), (Start: 24 @22169 has 4 MA's), (Start: 32 @22211 has 2 MA's), (50, 22316), (53, 22343), (57, 22364), (60, 22406), (64, 22424), (73, 22466),

Gene: Citius\_29 Start: 22082, Stop: 22543, Start Num: 19

Candidate Starts for Citius\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22484), (82, 22487),

Gene: Clarenza\_29 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for Clarenza\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Cocoaberry\_29 Start: 22086, Stop: 22532, Start Num: 19

Candidate Starts for Cocoaberry\_29:

(11, 21864), (13, 21915), (Start: 19 @22086 has 163 MA's), (Start: 24 @22125 has 4 MA's), (Start: 26 @22137 has 13 MA's), (30, 22155), (Start: 32 @22167 has 2 MA's), (36, 22179), (37, 22188), (41, 22209), (45, 22242), (47, 22254), (53, 22299), (56, 22320), (64, 22383), (81, 22473), (82, 22476),

Gene: Commander\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Commander\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (50, 22268), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Connomayer\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Connomayer\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Datway\_29 Start: 22112, Stop: 22552, Start Num: 19

Candidate Starts for Datway\_29:

(Start: 19 @22112 has 163 MA's), (20, 22127), (23, 22148), (Start: 26 @22163 has 13 MA's), (27, 22166), (30, 22181), (Start: 32 @22193 has 2 MA's), (36, 22205), (45, 22262), (47, 22274), (53, 22319), (56, 22340), (64, 22403),

Gene: Deano\_29 Start: 22141, Stop: 22536, Start Num: 26

Candidate Starts for Deano\_29:

(11, 21868), (13, 21919), (Start: 19 @22090 has 163 MA's), (Start: 24 @22129 has 4 MA's), (Start: 26 @22141 has 13 MA's), (30, 22159), (Start: 32 @22171 has 2 MA's), (36, 22183), (37, 22192), (45, 22246), (47, 22258), (53, 22303), (56, 22324), (64, 22387), (81, 22477), (82, 22480),

Gene: Dhanush\_29 Start: 22085, Stop: 22531, Start Num: 19

Candidate Starts for Dhanush\_29:

(11, 21863), (13, 21914), (Start: 19 @22085 has 163 MA's), (Start: 24 @22124 has 4 MA's), (Start: 26 @22136 has 13 MA's), (30, 22154), (Start: 32 @22166 has 2 MA's), (36, 22178), (37, 22187), (45, 22241), (47, 22253), (53, 22298), (56, 22319), (64, 22382), (81, 22472), (82, 22475),

Gene: DirtyDunning\_29 Start: 22078, Stop: 22521, Start Num: 19

Candidate Starts for DirtyDunning\_29:

(11, 21856), (13, 21907), (Start: 19 @22078 has 163 MA's), (Start: 24 @22117 has 4 MA's), (28, 22135), (Start: 32 @22159 has 2 MA's), (50, 22264), (53, 22291), (57, 22312), (60, 22354), (64, 22372), (70, 22396), (73, 22414),

Gene: DismalFunk\_31 Start: 26497, Stop: 26916, Start Num: 19

Candidate Starts for DismalFunk\_31:

(Start: 19 @26497 has 163 MA's), (21, 26524), (Start: 24 @26536 has 4 MA's), (30, 26566), (35, 26587), (44, 26647), (47, 26665), (49, 26674), (51, 26686), (53, 26710), (59, 26737), (60, 26752), (84, 26872), (86, 26884),

Gene: DismalStressor\_31 Start: 26497, Stop: 26916, Start Num: 19

Candidate Starts for DismalStressor\_31:

(Start: 19 @26497 has 163 MA's), (21, 26524), (Start: 24 @26536 has 4 MA's), (30, 26566), (35, 26587), (44, 26647), (47, 26665), (49, 26674), (51, 26686), (53, 26710), (59, 26737), (60, 26752), (84, 26872), (86, 26884),

Gene: Drake94\_29 Start: 20541, Stop: 20966, Start Num: 19

Candidate Starts for Drake94\_29:

(15, 20439), (17, 20496), (Start: 19 @20541 has 163 MA's), (23, 20577), (Start: 24 @20580 has 4 MA's), (25, 20589), (Start: 26 @20592 has 13 MA's), (27, 20595), (Start: 29 @20607 has 1 MA's), (33, 20625), (39, 20649), (42, 20664), (44, 20682), (53, 20745), (55, 20760), (64, 20820), (69, 20838), (76, 20883), (80, 20904), (81, 20907),

Gene: DroogsArmy\_30 Start: 24905, Stop: 25333, Start Num: 19

Candidate Starts for DroogsArmy\_30:

(Start: 19 @24905 has 163 MA's), (20, 24920), (23, 24941), (Start: 24 @24944 has 4 MA's), (25, 24953), (35, 24995), (38, 25010), (46, 25061), (50, 25082), (53, 25109), (64, 25187), (67, 25199), (69, 25205), (70, 25211), (76, 25250), (80, 25271),

Gene: Druantia\_29 Start: 22083, Stop: 22529, Start Num: 19

Candidate Starts for Druantia\_29:

(11, 21861), (13, 21912), (Start: 19 @22083 has 163 MA's), (Start: 24 @22122 has 4 MA's), (Start: 26 @22134 has 13 MA's), (30, 22152), (Start: 32 @22164 has 2 MA's), (36, 22176), (37, 22185), (45, 22239), (47, 22251), (53, 22296), (56, 22317), (64, 22380), (81, 22470), (82, 22473),

Gene: Eagle\_28 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Eagle\_28:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (20, 22097), (Start: 26 @22133 has 13 MA's), (Start: 32 @22163 has 2 MA's), (34, 22169), (36, 22175), (45, 22238), (50, 22268), (53, 22295), (56, 22316), (64, 22379), (80, 22466), (82, 22472),

Gene: Eaglepride\_31 Start: 22419, Stop: 22844, Start Num: 19

Candidate Starts for Eaglepride\_31:

(15, 22320), (16, 22374), (17, 22377), (Start: 19 @22419 has 163 MA's), (Start: 24 @22458 has 4 MA's), (25, 22467), (Start: 29 @22485 has 1 MA's), (38, 22524), (39, 22527), (42, 22542), (44, 22560), (53, 22623), (64, 22698), (66, 22704), (70, 22722), (80, 22782), (82, 22788),

Gene: Eapen\_29 Start: 22081, Stop: 22527, Start Num: 19

Candidate Starts for Eapen\_29:

(11, 21859), (13, 21910), (Start: 19 @22081 has 163 MA's), (Start: 24 @22120 has 4 MA's), (Start: 26 @22132 has 13 MA's), (30, 22150), (Start: 32 @22162 has 2 MA's), (36, 22174), (37, 22183), (45, 22237), (47, 22249), (53, 22294), (56, 22315), (64, 22378), (81, 22468), (82, 22471),

Gene: Edison31\_30 Start: 22449, Stop: 22874, Start Num: 19

Candidate Starts for Edison31\_30:

(15, 22344), (16, 22398), (17, 22401), (Start: 19 @22449 has 163 MA's), (Start: 24 @22488 has 4 MA's), (25, 22497), (Start: 29 @22515 has 1 MA's), (38, 22554), (39, 22557), (42, 22572), (44, 22590), (53, 22653), (64, 22728), (66, 22734), (76, 22791), (80, 22812), (82, 22818),

Gene: Eris\_28 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Eris\_28:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Eros\_29 Start: 22133, Stop: 22528, Start Num: 26

Candidate Starts for Eros\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Eurydice\_29 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for Eurydice\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (50, 22265), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Farewell\_29 Start: 27075, Stop: 27485, Start Num: 19

Candidate Starts for Farewell\_29:

(2, 26667), (7, 26796), (8, 26802), (9, 26847), (Start: 19 @27075 has 163 MA's), (Start: 26 @27126 has 13 MA's), (Start: 29 @27141 has 1 MA's), (30, 27144), (31, 27153), (40, 27189), (47, 27237), (54,

27282), (78, 27423), (81, 27432), (85, 27447), (87, 27462),

Gene: Findley\_31 Start: 26489, Stop: 26908, Start Num: 19

Candidate Starts for Findley\_31:

(Start: 19 @26489 has 163 MA's), (21, 26516), (Start: 24 @26528 has 4 MA's), (30, 26558), (35, 26579), (44, 26639), (47, 26657), (49, 26666), (51, 26678), (53, 26702), (59, 26729), (60, 26744), (84, 26864), (86, 26876),

Gene: Florean\_29 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for Florean\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Flux\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Flux\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Funston\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Funston\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (41, 22205), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Gadost\_29 Start: 22137, Stop: 22532, Start Num: 26

Candidate Starts for Gadost\_29:

(11, 21864), (13, 21915), (Start: 19 @22086 has 163 MA's), (Start: 24 @22125 has 4 MA's), (Start: 26 @22137 has 13 MA's), (30, 22155), (Start: 32 @22167 has 2 MA's), (36, 22179), (37, 22188), (41, 22209), (45, 22242), (47, 22254), (53, 22299), (56, 22320), (64, 22383), (81, 22473), (82, 22476),

Gene: Goose\_30 Start: 22410, Stop: 22835, Start Num: 19

Candidate Starts for Goose\_30:

(15, 22311), (16, 22365), (17, 22368), (Start: 19 @22410 has 163 MA's), (22, 22440), (Start: 29 @22476 has 1 MA's), (33, 22494), (39, 22518), (53, 22614), (64, 22689), (73, 22731), (76, 22752), (80, 22773), (81, 22776), (82, 22779),

Gene: HINdeR\_29 Start: 25006, Stop: 25437, Start Num: 19

Candidate Starts for HINdeR\_29:

(Start: 19 @25006 has 163 MA's), (23, 25042), (38, 25111), (45, 25153), (50, 25183), (53, 25210), (64, 25291), (67, 25303), (69, 25309), (80, 25375), (81, 25378),

Gene: HamSlice\_28 Start: 22080, Stop: 22526, Start Num: 19

Candidate Starts for HamSlice\_28:

(11, 21858), (13, 21909), (Start: 19 @22080 has 163 MA's), (Start: 24 @22119 has 4 MA's), (Start: 26 @22131 has 13 MA's), (30, 22149), (Start: 32 @22161 has 2 MA's), (36, 22173), (37, 22182), (45, 22236), (47, 22248), (53, 22293), (56, 22314), (64, 22377), (81, 22467), (82, 22470),

Gene: Happiness\_29 Start: 22088, Stop: 22534, Start Num: 19

Candidate Starts for Happiness\_29:

(11, 21866), (13, 21917), (Start: 19 @22088 has 163 MA's), (20, 22103), (Start: 26 @22139 has 13 MA's), (Start: 32 @22169 has 2 MA's), (34, 22175), (36, 22181), (45, 22244), (50, 22274), (53, 22301),

(56, 22322), (64, 22385), (80, 22472), (82, 22478),

Gene: Herbertwm\_27 Start: 21048, Stop: 21473, Start Num: 19

Candidate Starts for Herbertwm\_27:

(Start: 19 @21048 has 163 MA's), (23, 21084), (37, 21150), (43, 21174), (45, 21195), (53, 21252), (64, 21327), (69, 21345), (80, 21411), (82, 21417),

Gene: Holli\_29 Start: 21872, Stop: 22318, Start Num: 19

Candidate Starts for Holli\_29:

(11, 21650), (13, 21701), (Start: 19 @21872 has 163 MA's), (Start: 24 @21911 has 4 MA's), (Start: 26 @21923 has 13 MA's), (30, 21941), (Start: 32 @21953 has 2 MA's), (36, 21965), (37, 21974), (41, 21995), (45, 22028), (47, 22040), (53, 22085), (56, 22106), (64, 22169), (81, 22259), (82, 22262),

Gene: Houdini22\_29 Start: 22137, Stop: 22532, Start Num: 26

Candidate Starts for Houdini22\_29:

(11, 21864), (13, 21915), (Start: 19 @22086 has 163 MA's), (Start: 24 @22125 has 4 MA's), (Start: 26 @22137 has 13 MA's), (30, 22155), (Start: 32 @22167 has 2 MA's), (36, 22179), (37, 22188), (41, 22209), (45, 22242), (47, 22254), (53, 22299), (56, 22320), (64, 22383), (81, 22473), (82, 22476),

Gene: ICleared\_29 Start: 22080, Stop: 22526, Start Num: 19

Candidate Starts for ICleared\_29:

(11, 21858), (13, 21909), (Start: 19 @22080 has 163 MA's), (Start: 24 @22119 has 4 MA's), (Start: 26 @22131 has 13 MA's), (30, 22149), (Start: 32 @22161 has 2 MA's), (36, 22173), (37, 22182), (45, 22236), (47, 22248), (50, 22266), (53, 22293), (56, 22314), (64, 22377), (81, 22467), (82, 22470),

Gene: Iceman\_30 Start: 22371, Stop: 22817, Start Num: 19

Candidate Starts for Iceman\_30:

(11, 22149), (13, 22200), (Start: 19 @22371 has 163 MA's), (Start: 24 @22410 has 4 MA's), (Start: 26 @22422 has 13 MA's), (30, 22440), (Start: 32 @22452 has 2 MA's), (36, 22464), (37, 22473), (45, 22527), (47, 22539), (53, 22584), (56, 22605), (64, 22668), (81, 22758), (82, 22761),

Gene: IdentityCrisis\_28 Start: 23464, Stop: 23874, Start Num: 19

Candidate Starts for IdentityCrisis\_28:

(7, 23185), (8, 23191), (9, 23236), (Start: 19 @23464 has 163 MA's), (Start: 26 @23515 has 13 MA's), (31, 23542), (40, 23578), (47, 23626), (54, 23671), (78, 23812), (81, 23821), (85, 23836), (87, 23851),

Gene: Iracema64\_30 Start: 22393, Stop: 22836, Start Num: 19

Candidate Starts for Iracema64\_30:

(11, 22171), (13, 22222), (Start: 19 @22393 has 163 MA's), (Start: 24 @22432 has 4 MA's), (28, 22450), (Start: 32 @22474 has 2 MA's), (50, 22579), (53, 22606), (57, 22627), (60, 22669), (64, 22687), (70, 22711), (73, 22729),

Gene: IronMan\_32 Start: 23977, Stop: 24408, Start Num: 19

Candidate Starts for IronMan\_32:

(Start: 19 @23977 has 163 MA's), (23, 24013), (Start: 29 @24043 has 1 MA's), (38, 24082), (44, 24118), (53, 24181), (64, 24262), (67, 24274), (70, 24286), (73, 24304), (76, 24325), (80, 24346), (81, 24349), (82, 24352),

Gene: Jaan\_33 Start: 24366, Stop: 24797, Start Num: 19

Candidate Starts for Jaan\_33:

(Start: 19 @24366 has 163 MA's), (23, 24402), (Start: 29 @24432 has 1 MA's), (38, 24471), (44, 24507), (53, 24570), (64, 24651), (67, 24663), (73, 24693), (80, 24735), (81, 24738), (82, 24741),



Gene: Jaykayelowell\_29 Start: 22117, Stop: 22524, Start Num: 24

Candidate Starts for Jaykayelowell\_29:

(11, 21856), (13, 21907), (Start: 19 @22078 has 163 MA's), (Start: 24 @22117 has 4 MA's), (Start: 26 @22129 has 13 MA's), (30, 22147), (Start: 32 @22159 has 2 MA's), (36, 22171), (37, 22180), (45, 22234), (47, 22246), (53, 22291), (56, 22312), (64, 22375), (81, 22465), (82, 22468),

Gene: JetBlade\_29 Start: 22130, Stop: 22525, Start Num: 26

Candidate Starts for JetBlade\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: JoongJeon\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for JoongJeon\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: JustASigh\_29 Start: 27518, Stop: 27970, Start Num: 18

Candidate Starts for JustASigh\_29:

(10, 27302), (12, 27335), (14, 27389), (18, 27518), (31, 27596), (45, 27671), (60, 27794), (62, 27806), (68, 27827), (79, 27908),

Gene: KFPoly\_29 Start: 22082, Stop: 22525, Start Num: 19

Candidate Starts for KFPoly\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (28, 22139), (Start: 32 @22163 has 2 MA's), (45, 22238), (50, 22268), (53, 22295), (57, 22316), (60, 22358), (64, 22376), (70, 22400), (73, 22418),

Gene: Kampy\_29 Start: 22161, Stop: 22526, Start Num: 32

Candidate Starts for Kampy\_29:

(11, 21858), (13, 21909), (Start: 19 @22080 has 163 MA's), (Start: 24 @22119 has 4 MA's), (Start: 26 @22131 has 13 MA's), (30, 22149), (Start: 32 @22161 has 2 MA's), (36, 22173), (37, 22182), (45, 22236), (47, 22248), (50, 22266), (53, 22293), (56, 22314), (64, 22377), (81, 22467), (82, 22470),

Gene: Katalie136\_29 Start: 22103, Stop: 22543, Start Num: 19

Candidate Starts for Katalie136\_29:

(Start: 19 @22103 has 163 MA's), (20, 22118), (23, 22139), (Start: 26 @22154 has 13 MA's), (27, 22157), (30, 22172), (Start: 32 @22184 has 2 MA's), (36, 22196), (45, 22253), (47, 22265), (53, 22310), (56, 22331), (64, 22394),

Gene: KiSi\_32 Start: 26826, Stop: 27248, Start Num: 19

Candidate Starts for KiSi\_32:

(Start: 19 @26826 has 163 MA's), (Start: 24 @26865 has 4 MA's), (Start: 26 @26877 has 13 MA's), (30, 26895), (45, 26976), (53, 27033), (64, 27105), (65, 27108), (73, 27147),

Gene: Kingmustik0402\_29 Start: 22125, Stop: 22520, Start Num: 26

Candidate Starts for Kingmustik0402\_29:

(11, 21852), (13, 21903), (Start: 19 @22074 has 163 MA's), (Start: 24 @22113 has 4 MA's), (Start: 26 @22125 has 13 MA's), (30, 22143), (Start: 32 @22155 has 2 MA's), (36, 22167), (37, 22176), (45, 22230), (47, 22242), (53, 22287), (56, 22308), (64, 22371), (81, 22461), (82, 22464),

Gene: KittenMittens\_29 Start: 20549, Stop: 20974, Start Num: 19

Candidate Starts for KittenMittens\_29:

(15, 20447), (17, 20504), (Start: 19 @20549 has 163 MA's), (23, 20585), (Start: 24 @20588 has 4 MA's), (25, 20597), (Start: 26 @20600 has 13 MA's), (27, 20603), (Start: 29 @20615 has 1 MA's), (33, 20633), (39, 20657), (42, 20672), (44, 20690), (53, 20753), (55, 20768), (64, 20828), (69, 20846), (76, 20891), (80, 20912), (81, 20915),

Gene: Koreni\_28 Start: 21728, Stop: 22174, Start Num: 19

Candidate Starts for Koreni\_28:

(11, 21506), (13, 21557), (Start: 19 @21728 has 163 MA's), (Start: 24 @21767 has 4 MA's), (Start: 26 @21779 has 13 MA's), (30, 21797), (Start: 32 @21809 has 2 MA's), (36, 21821), (37, 21830), (45, 21884), (47, 21896), (53, 21941), (56, 21962), (64, 22025), (81, 22115), (82, 22118),

Gene: Kratark\_29 Start: 22077, Stop: 22520, Start Num: 19

Candidate Starts for Kratark\_29:

(11, 21855), (13, 21906), (Start: 19 @22077 has 163 MA's), (Start: 24 @22116 has 4 MA's), (28, 22134), (Start: 32 @22158 has 2 MA's), (45, 22233), (50, 22263), (53, 22290), (57, 22311), (60, 22353), (64, 22371), (70, 22395), (73, 22413),

Gene: Kremtemulon\_28 Start: 22181, Stop: 22576, Start Num: 26

Candidate Starts for Kremtemulon\_28:

(11, 21908), (13, 21959), (Start: 19 @22130 has 163 MA's), (Start: 24 @22169 has 4 MA's), (Start: 26 @22181 has 13 MA's), (30, 22199), (Start: 32 @22211 has 2 MA's), (36, 22223), (37, 22232), (45, 22286), (47, 22298), (53, 22343), (56, 22364), (64, 22427), (81, 22517), (82, 22520),

Gene: Kristoff\_31 Start: 22613, Stop: 23038, Start Num: 19

Candidate Starts for Kristoff\_31:

(15, 22508), (16, 22562), (17, 22565), (Start: 19 @22613 has 163 MA's), (Start: 24 @22652 has 4 MA's), (25, 22661), (Start: 29 @22679 has 1 MA's), (38, 22718), (39, 22721), (42, 22736), (44, 22754), (53, 22817), (64, 22892), (66, 22898), (76, 22955), (80, 22976), (82, 22982),

Gene: Kyee\_29 Start: 22083, Stop: 22526, Start Num: 19

Candidate Starts for Kyee\_29:

(11, 21861), (13, 21912), (Start: 19 @22083 has 163 MA's), (Start: 24 @22122 has 4 MA's), (28, 22140), (Start: 32 @22164 has 2 MA's), (45, 22239), (50, 22269), (53, 22296), (57, 22317), (60, 22359), (64, 22377), (70, 22401), (73, 22419),

Gene: LHTSCC\_30 Start: 22396, Stop: 22842, Start Num: 19

Candidate Starts for LHTSCC\_30:

(11, 22174), (13, 22225), (Start: 19 @22396 has 163 MA's), (20, 22411), (Start: 26 @22447 has 13 MA's), (Start: 32 @22477 has 2 MA's), (34, 22483), (36, 22489), (45, 22552), (50, 22582), (53, 22609), (56, 22630), (64, 22693), (80, 22780), (82, 22786),

Gene: Landor\_31 Start: 24018, Stop: 24449, Start Num: 19

Candidate Starts for Landor\_31:

(Start: 19 @24018 has 163 MA's), (23, 24054), (Start: 29 @24084 has 1 MA's), (38, 24123), (44, 24159), (53, 24222), (64, 24303), (67, 24315), (73, 24345), (80, 24387), (81, 24390), (82, 24393),

Gene: LappelDuVide\_28 Start: 22118, Stop: 22525, Start Num: 24

Candidate Starts for LappelDuVide\_28:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (41, 22202), (45, 22235), (47, 22247), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: LeMond\_32 Start: 26897, Stop: 27319, Start Num: 19

Candidate Starts for LeMond\_32:

(Start: 19 @26897 has 163 MA's), (Start: 24 @26936 has 4 MA's), (Start: 26 @26948 has 13 MA's), (30, 26966), (45, 27047), (53, 27104), (64, 27176), (65, 27179), (73, 27218),

Gene: Lemur\_29 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for Lemur\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: LeoAvram\_29 Start: 22160, Stop: 22525, Start Num: 32

Candidate Starts for LeoAvram\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (50, 22265), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: LittleB\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for LittleB\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: LittleGuy\_29 Start: 22025, Stop: 22471, Start Num: 19

Candidate Starts for LittleGuy\_29:

(11, 21803), (13, 21854), (Start: 19 @22025 has 163 MA's), (Start: 24 @22064 has 4 MA's), (Start: 26 @22076 has 13 MA's), (30, 22094), (Start: 32 @22106 has 2 MA's), (36, 22118), (37, 22127), (45, 22181), (50, 22211), (53, 22238), (56, 22259), (64, 22322), (81, 22412), (82, 22415),

Gene: LochMonster\_29 Start: 22096, Stop: 22500, Start Num: 24

Candidate Starts for LochMonster\_29:

(11, 21835), (13, 21886), (Start: 19 @22057 has 163 MA's), (Start: 24 @22096 has 4 MA's), (28, 22114), (Start: 32 @22138 has 2 MA's), (50, 22243), (53, 22270), (57, 22291), (60, 22333), (64, 22351), (70, 22375), (73, 22393),

Gene: Lorenzo\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Lorenzo\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Loser\_33 Start: 24176, Stop: 24604, Start Num: 19

Candidate Starts for Loser\_33:

(Start: 19 @24176 has 163 MA's), (Start: 29 @24242 has 1 MA's), (37, 24278), (38, 24281), (45, 24323), (51, 24356), (53, 24380), (63, 24455), (64, 24458), (73, 24500), (80, 24542), (81, 24545), (82, 24548),

Gene: Lunsford\_29 Start: 22118, Stop: 22525, Start Num: 24

Candidate Starts for Lunsford\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Marcoliusprime\_31 Start: 26497, Stop: 26916, Start Num: 19

Candidate Starts for Marcoliusprime\_31:

(Start: 19 @26497 has 163 MA's), (21, 26524), (Start: 24 @26536 has 4 MA's), (30, 26566), (35, 26587), (44, 26647), (47, 26665), (49, 26674), (51, 26686), (53, 26710), (59, 26737), (60, 26752), (84, 26872), (86, 26884),

Gene: MarkPhew\_33 Start: 26795, Stop: 27217, Start Num: 19

Candidate Starts for MarkPhew\_33:

(Start: 19 @26795 has 163 MA's), (Start: 26 @26846 has 13 MA's), (30, 26864), (34, 26882), (45, 26945), (53, 27002), (73, 27116),

Gene: Marshawn\_34 Start: 27478, Stop: 27912, Start Num: 19

Candidate Starts for Marshawn\_34:

(Start: 19 @27478 has 163 MA's), (Start: 24 @27517 has 4 MA's), (Start: 29 @27544 has 1 MA's), (30, 27547), (53, 27688), (64, 27769), (66, 27775), (77, 27841), (81, 27859), (82, 27862), (83, 27868), (85, 27874),

Gene: Maverick\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Maverick\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Maxo\_29 Start: 22080, Stop: 22526, Start Num: 19

Candidate Starts for Maxo\_29:

(11, 21858), (13, 21909), (Start: 19 @22080 has 163 MA's), (Start: 24 @22119 has 4 MA's), (Start: 26 @22131 has 13 MA's), (30, 22149), (Start: 32 @22161 has 2 MA's), (36, 22173), (37, 22182), (45, 22236), (47, 22248), (50, 22266), (53, 22293), (56, 22314), (64, 22377), (81, 22467), (82, 22470),

Gene: Mazhar510\_29 Start: 22083, Stop: 22529, Start Num: 19

Candidate Starts for Mazhar510\_29:

(11, 21861), (13, 21912), (Start: 19 @22083 has 163 MA's), (Start: 24 @22122 has 4 MA's), (Start: 26 @22134 has 13 MA's), (30, 22152), (Start: 32 @22164 has 2 MA's), (36, 22176), (37, 22185), (41, 22206), (45, 22239), (47, 22251), (53, 22296), (56, 22317), (64, 22380), (81, 22470), (82, 22473),

Gene: Medusa\_29 Start: 22083, Stop: 22529, Start Num: 19

Candidate Starts for Medusa\_29:

(11, 21861), (13, 21912), (Start: 19 @22083 has 163 MA's), (Start: 24 @22122 has 4 MA's), (Start: 26 @22134 has 13 MA's), (30, 22152), (Start: 32 @22164 has 2 MA's), (36, 22176), (37, 22185), (45, 22239), (47, 22251), (53, 22296), (56, 22317), (64, 22380), (81, 22470), (82, 22473),

Gene: MeeZee\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for MeeZee\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (50, 22268), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Melvin\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Melvin\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Millski\_28 Start: 22085, Stop: 22531, Start Num: 19

Candidate Starts for Millski\_28:

(11, 21863), (13, 21914), (Start: 19 @22085 has 163 MA's), (Start: 24 @22124 has 4 MA's), (Start: 26 @22136 has 13 MA's), (30, 22154), (Start: 32 @22166 has 2 MA's), (36, 22178), (37, 22187), (45, 22241), (47, 22253), (53, 22298), (56, 22319), (64, 22382), (81, 22472), (82, 22475),

Gene: Milly\_31 Start: 26470, Stop: 26889, Start Num: 19

Candidate Starts for Milly\_31:

(Start: 19 @26470 has 163 MA's), (21, 26497), (Start: 24 @26509 has 4 MA's), (30, 26539), (44, 26620), (47, 26638), (49, 26647), (51, 26659), (53, 26683), (59, 26710), (84, 26845), (86, 26857),

Gene: Miramae\_29 Start: 22046, Stop: 22474, Start Num: 19

Candidate Starts for Miramae\_29:

(Start: 19 @22046 has 163 MA's), (23, 22082), (Start: 24 @22085 has 4 MA's), (25, 22094), (44, 22187), (45, 22193), (48, 22211), (50, 22223), (53, 22250), (63, 22325), (64, 22328), (76, 22391), (80, 22412), (82, 22418),

Gene: Morpher26\_29 Start: 22103, Stop: 22543, Start Num: 19

Candidate Starts for Morpher26\_29:

(Start: 19 @22103 has 163 MA's), (20, 22118), (23, 22139), (Start: 26 @22154 has 13 MA's), (27, 22157), (30, 22172), (Start: 32 @22184 has 2 MA's), (36, 22196), (45, 22253), (47, 22265), (53, 22310), (56, 22331), (64, 22394),

Gene: Morrow\_29 Start: 22085, Stop: 22531, Start Num: 19

Candidate Starts for Morrow\_29:

(11, 21863), (13, 21914), (Start: 19 @22085 has 163 MA's), (Start: 24 @22124 has 4 MA's), (Start: 26 @22136 has 13 MA's), (30, 22154), (Start: 32 @22166 has 2 MA's), (36, 22178), (37, 22187), (45, 22241), (47, 22253), (50, 22271), (53, 22298), (56, 22319), (64, 22382), (81, 22472), (82, 22475),

Gene: Mufasa\_32 Start: 26578, Stop: 26997, Start Num: 19

Candidate Starts for Mufasa\_32:

(Start: 19 @26578 has 163 MA's), (21, 26605), (Start: 24 @26617 has 4 MA's), (30, 26647), (44, 26728), (45, 26734), (47, 26746), (51, 26767), (52, 26788), (53, 26791), (84, 26953), (86, 26965),

Gene: Mundrea\_29 Start: 22067, Stop: 22495, Start Num: 19

Candidate Starts for Mundrea\_29:

(Start: 19 @22067 has 163 MA's), (Start: 24 @22106 has 4 MA's), (25, 22115), (33, 22151), (44, 22208), (50, 22244), (53, 22271), (60, 22331), (63, 22346), (64, 22349), (70, 22373), (76, 22412), (80, 22433),

Gene: Nebs\_29 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for Nebs\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (50, 22265), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Nemo27\_29 Start: 22081, Stop: 22527, Start Num: 19

Candidate Starts for Nemo27\_29:

(11, 21859), (13, 21910), (Start: 19 @22081 has 163 MA's), (Start: 24 @22120 has 4 MA's), (Start: 26 @22132 has 13 MA's), (30, 22150), (Start: 32 @22162 has 2 MA's), (36, 22174), (37, 22183), (41, 22204), (45, 22237), (47, 22249), (53, 22294), (56, 22315), (64, 22378), (81, 22468), (82, 22471),

Gene: Noelle\_29 Start: 22160, Stop: 22600, Start Num: 19

Candidate Starts for Noelle\_29:

(Start: 19 @22160 has 163 MA's), (20, 22175), (23, 22196), (Start: 26 @22211 has 13 MA's), (Start: 32 @22241 has 2 MA's), (36, 22253), (45, 22310), (50, 22340), (53, 22367), (63, 22448), (64, 22451), (69, 22469), (72, 22487), (73, 22493),

Gene: NorthStar\_29 Start: 22133, Stop: 22528, Start Num: 26

Candidate Starts for NorthStar\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: NotAPhaseMom\_29 Start: 22137, Stop: 22532, Start Num: 26

Candidate Starts for NotAPhaseMom\_29:

(11, 21864), (13, 21915), (Start: 19 @22086 has 163 MA's), (Start: 24 @22125 has 4 MA's), (Start: 26 @22137 has 13 MA's), (30, 22155), (Start: 32 @22167 has 2 MA's), (36, 22179), (37, 22188), (41, 22209), (45, 22242), (47, 22254), (53, 22299), (56, 22320), (64, 22383), (81, 22473), (82, 22476),

Gene: Nyxis\_29 Start: 22025, Stop: 22471, Start Num: 19

Candidate Starts for Nyxis\_29:

(11, 21803), (13, 21854), (Start: 19 @22025 has 163 MA's), (Start: 24 @22064 has 4 MA's), (Start: 26 @22076 has 13 MA's), (30, 22094), (Start: 32 @22106 has 2 MA's), (36, 22118), (37, 22127), (45, 22181), (50, 22211), (53, 22238), (56, 22259), (64, 22322), (81, 22412), (82, 22415),

Gene: OKCentral2016\_30 Start: 22182, Stop: 22541, Start Num: 29

Candidate Starts for OKCentral2016\_30:

(15, 22017), (16, 22071), (17, 22074), (Start: 19 @22116 has 163 MA's), (22, 22146), (Start: 29 @22182 has 1 MA's), (33, 22200), (39, 22224), (53, 22320), (64, 22395), (73, 22437), (76, 22458), (80, 22479), (81, 22482), (82, 22485),

Gene: OKaNui\_30 Start: 22135, Stop: 22581, Start Num: 19

Candidate Starts for OKaNui\_30:

(11, 21913), (13, 21964), (Start: 19 @22135 has 163 MA's), (Start: 24 @22174 has 4 MA's), (Start: 26 @22186 has 13 MA's), (30, 22204), (Start: 32 @22216 has 2 MA's), (36, 22228), (37, 22237), (45, 22291), (47, 22303), (53, 22348), (56, 22369), (64, 22432), (81, 22522), (82, 22525),

Gene: Obama12\_30 Start: 22398, Stop: 22844, Start Num: 19

Candidate Starts for Obama12\_30:

(11, 22176), (13, 22227), (Start: 19 @22398 has 163 MA's), (20, 22413), (Start: 26 @22449 has 13 MA's), (Start: 32 @22479 has 2 MA's), (34, 22485), (36, 22491), (45, 22554), (50, 22584), (53, 22611), (56, 22632), (64, 22695), (80, 22782), (82, 22788),

Gene: Ohfah\_29 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for Ohfah\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (50, 22265), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Oscar\_32 Start: 26898, Stop: 27320, Start Num: 19

Candidate Starts for Oscar\_32:

(Start: 19 @26898 has 163 MA's), (Start: 24 @26937 has 4 MA's), (Start: 26 @26949 has 13 MA's), (30, 26967), (45, 27048), (53, 27105), (64, 27177), (65, 27180), (73, 27219),

Gene: Palestino\_28 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Palestino\_28:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (50, 22268), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: PeaceMeal1\_29 Start: 20550, Stop: 20975, Start Num: 19

Candidate Starts for PeaceMeal1\_29:

(15, 20448), (17, 20505), (Start: 19 @20550 has 163 MA's), (23, 20586), (Start: 24 @20589 has 4 MA's), (25, 20598), (Start: 26 @20601 has 13 MA's), (27, 20604), (Start: 29 @20616 has 1 MA's), (33, 20634), (39, 20658), (42, 20673), (44, 20691), (53, 20754), (55, 20769), (64, 20829), (69, 20847), (76, 20892), (80, 20913), (81, 20916),

Gene: Peaches\_29 Start: 22081, Stop: 22527, Start Num: 19

Candidate Starts for Peaches\_29:

(11, 21859), (13, 21910), (Start: 19 @22081 has 163 MA's), (Start: 24 @22120 has 4 MA's), (Start: 26 @22132 has 13 MA's), (30, 22150), (Start: 32 @22162 has 2 MA's), (36, 22174), (37, 22183), (45, 22237), (47, 22249), (53, 22294), (56, 22315), (64, 22378), (81, 22468), (82, 22471),

Gene: Perplexer\_29 Start: 22100, Stop: 22540, Start Num: 19

Candidate Starts for Perplexer\_29:

(Start: 19 @22100 has 163 MA's), (20, 22115), (23, 22136), (Start: 26 @22151 has 13 MA's), (27, 22154), (30, 22169), (Start: 32 @22181 has 2 MA's), (36, 22193), (45, 22250), (47, 22262), (53, 22307), (56, 22328), (64, 22391),

Gene: PeterPeter\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for PeterPeter\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: PetiteSangsue\_29 Start: 22103, Stop: 22543, Start Num: 19

Candidate Starts for PetiteSangsue\_29:

(Start: 19 @22103 has 163 MA's), (20, 22118), (23, 22139), (Start: 26 @22154 has 13 MA's), (27, 22157), (30, 22172), (Start: 32 @22184 has 2 MA's), (36, 22196), (45, 22253), (47, 22265), (53, 22310), (56, 22331), (64, 22394),

Gene: Phacado\_29 Start: 22081, Stop: 22527, Start Num: 19

Candidate Starts for Phacado\_29:

(11, 21859), (13, 21910), (Start: 19 @22081 has 163 MA's), (Start: 24 @22120 has 4 MA's), (Start: 26 @22132 has 13 MA's), (30, 22150), (Start: 32 @22162 has 2 MA's), (36, 22174), (37, 22183), (41, 22204), (45, 22237), (47, 22249), (53, 22294), (56, 22315), (64, 22378), (81, 22468), (82, 22471),

Gene: Phaded\_33 Start: 24365, Stop: 24796, Start Num: 19

Candidate Starts for Phaded\_33:

(Start: 19 @24365 has 163 MA's), (23, 24401), (Start: 29 @24431 has 1 MA's), (38, 24470), (44, 24506), (53, 24569), (64, 24650), (67, 24662), (73, 24692), (80, 24734), (81, 24737), (82, 24740),

Gene: Felipe\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Felipe\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (41, 22205), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Phighter1804\_29 Start: 22060, Stop: 22503, Start Num: 19

Candidate Starts for Phighter1804\_29:

(11, 21838), (13, 21889), (Start: 19 @22060 has 163 MA's), (Start: 24 @22099 has 4 MA's), (28, 22117), (Start: 32 @22141 has 2 MA's), (50, 22246), (53, 22273), (57, 22294), (60, 22336), (64, 22354), (70, 22378), (73, 22396),

Gene: Phontbonne\_29 Start: 22026, Stop: 22472, Start Num: 19

Candidate Starts for Phontbonne\_29:

(11, 21804), (13, 21855), (Start: 19 @22026 has 163 MA's), (Start: 24 @22065 has 4 MA's), (Start: 26 @22077 has 13 MA's), (30, 22095), (Start: 32 @22107 has 2 MA's), (36, 22119), (37, 22128), (45, 22182), (47, 22194), (50, 22212), (53, 22239), (56, 22260), (64, 22323), (80, 22410), (82, 22416),

Gene: Pipcraft\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Pipcraft\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Polymorphads\_29 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for Polymorphads\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (50, 22265), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Poompha\_29 Start: 20548, Stop: 20973, Start Num: 19

Candidate Starts for Poompha\_29:

(15, 20446), (17, 20503), (Start: 19 @20548 has 163 MA's), (23, 20584), (Start: 24 @20587 has 4 MA's), (25, 20596), (Start: 26 @20599 has 13 MA's), (27, 20602), (Start: 29 @20614 has 1 MA's), (33, 20632), (39, 20656), (42, 20671), (44, 20689), (53, 20752), (55, 20767), (64, 20827), (69, 20845), (76, 20890), (80, 20911), (81, 20914),

Gene: Pumbaa\_29 Start: 22057, Stop: 22503, Start Num: 19

Candidate Starts for Pumbaa\_29:

(11, 21835), (13, 21886), (Start: 19 @22057 has 163 MA's), (Start: 24 @22096 has 4 MA's), (Start: 26 @22108 has 13 MA's), (30, 22126), (Start: 32 @22138 has 2 MA's), (36, 22150), (37, 22159), (45, 22213), (47, 22225), (50, 22243), (53, 22270), (56, 22291), (64, 22354), (81, 22444), (82, 22447),

Gene: Rebeuca\_31 Start: 22614, Stop: 23039, Start Num: 19

Candidate Starts for Rebeuca\_31:

(15, 22509), (16, 22563), (17, 22566), (Start: 19 @22614 has 163 MA's), (Start: 24 @22653 has 4 MA's), (25, 22662), (Start: 29 @22680 has 1 MA's), (38, 22719), (39, 22722), (42, 22737), (44, 22755), (53, 22818), (64, 22893), (66, 22899), (76, 22956), (80, 22977), (82, 22983),

Gene: RedRock\_33 Start: 24334, Stop: 24762, Start Num: 19

Candidate Starts for RedRock\_33:

(Start: 19 @24334 has 163 MA's), (23, 24370), (25, 24382), (38, 24439), (44, 24475), (53, 24538), (64, 24616), (73, 24658), (76, 24679), (80, 24700), (82, 24706),

Gene: Refuge\_33 Start: 25341, Stop: 25766, Start Num: 19

Candidate Starts for Refuge\_33:

(Start: 19 @25341 has 163 MA's), (Start: 26 @25392 has 13 MA's), (34, 25428), (40, 25455), (53, 25548), (55, 25563), (64, 25620), (70, 25644), (73, 25662), (86, 25731),



Gene: Relief\_29 Start: 22131, Stop: 22526, Start Num: 26

Candidate Starts for Relief\_29:

(11, 21858), (13, 21909), (Start: 19 @22080 has 163 MA's), (Start: 24 @22119 has 4 MA's), (Start: 26 @22131 has 13 MA's), (30, 22149), (Start: 32 @22161 has 2 MA's), (36, 22173), (37, 22182), (41, 22203), (45, 22236), (47, 22248), (53, 22293), (56, 22314), (64, 22377), (81, 22467), (82, 22470),

Gene: RhynO\_31 Start: 22595, Stop: 23020, Start Num: 19

Candidate Starts for RhynO\_31:

(15, 22493), (16, 22547), (17, 22550), (Start: 19 @22595 has 163 MA's), (Start: 29 @22661 has 1 MA's), (44, 22736), (53, 22799), (64, 22874), (67, 22886), (74, 22919), (76, 22937), (80, 22958), (81, 22961),

Gene: Romney\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Romney\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Roosevelt\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Roosevelt\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Ruin\_29 Start: 22078, Stop: 22524, Start Num: 19

Candidate Starts for Ruin\_29:

(11, 21856), (13, 21907), (Start: 19 @22078 has 163 MA's), (Start: 24 @22117 has 4 MA's), (Start: 26 @22129 has 13 MA's), (30, 22147), (Start: 32 @22159 has 2 MA's), (36, 22171), (37, 22180), (45, 22234), (47, 22246), (53, 22291), (56, 22312), (64, 22375), (81, 22465), (82, 22468),

Gene: Sabertooth\_29 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for Sabertooth\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Sbash\_28 Start: 25821, Stop: 26231, Start Num: 19

Candidate Starts for Sbash\_28:

(1, 25332), (7, 25542), (8, 25548), (9, 25593), (Start: 19 @25821 has 163 MA's), (Start: 26 @25872 has 13 MA's), (Start: 29 @25887 has 1 MA's), (30, 25890), (31, 25899), (40, 25935), (47, 25983), (50, 26001), (54, 26028), (67, 26100), (81, 26178), (85, 26193), (87, 26208),

Gene: Scamp\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Scamp\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (50, 22268), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Scarlett\_32 Start: 26899, Stop: 27321, Start Num: 19

Candidate Starts for Scarlett\_32:

(Start: 19 @26899 has 163 MA's), (Start: 24 @26938 has 4 MA's), (Start: 26 @26950 has 13 MA's), (30, 26968), (45, 27049), (53, 27106), (64, 27178), (65, 27181), (73, 27220),

Gene: Severus\_29 Start: 20548, Stop: 20973, Start Num: 19

Candidate Starts for Severus\_29:

(15, 20446), (17, 20503), (Start: 19 @20548 has 163 MA's), (23, 20584), (Start: 24 @20587 has 4 MA's), (25, 20596), (Start: 26 @20599 has 13 MA's), (27, 20602), (Start: 29 @20614 has 1 MA's), (33, 20632), (39, 20656), (42, 20671), (44, 20689), (53, 20752), (55, 20767), (64, 20827), (69, 20845), (76, 20890), (80, 20911), (81, 20914),

Gene: Shaka\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Shaka\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: SheldonCooper\_30 Start: 22448, Stop: 22843, Start Num: 26

Candidate Starts for SheldonCooper\_30:

(11, 22175), (13, 22226), (Start: 19 @22397 has 163 MA's), (20, 22412), (Start: 26 @22448 has 13 MA's), (Start: 32 @22478 has 2 MA's), (34, 22484), (36, 22490), (45, 22553), (50, 22583), (53, 22610), (56, 22631), (64, 22694), (80, 22781), (82, 22787),

Gene: Shygu2\_29 Start: 22094, Stop: 22534, Start Num: 19

Candidate Starts for Shygu2\_29:

(Start: 19 @22094 has 163 MA's), (20, 22109), (23, 22130), (25, 22142), (Start: 26 @22145 has 13 MA's), (27, 22148), (30, 22163), (Start: 32 @22175 has 2 MA's), (36, 22187), (45, 22244), (47, 22256), (53, 22301), (56, 22322), (64, 22385),

Gene: Skipitt\_29 Start: 22118, Stop: 22525, Start Num: 24

Candidate Starts for Skipitt\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Sparky\_29 Start: 27110, Stop: 27520, Start Num: 19

Candidate Starts for Sparky\_29:

(2, 26702), (7, 26831), (8, 26837), (9, 26882), (Start: 19 @27110 has 163 MA's), (Start: 26 @27161 has 13 MA's), (Start: 29 @27176 has 1 MA's), (30, 27179), (31, 27188), (40, 27224), (47, 27272), (54, 27317), (78, 27458), (81, 27467), (85, 27482), (87, 27497),

Gene: Sparxx\_29 Start: 22080, Stop: 22526, Start Num: 19

Candidate Starts for Sparxx\_29:

(11, 21858), (13, 21909), (Start: 19 @22080 has 163 MA's), (Start: 24 @22119 has 4 MA's), (Start: 26 @22131 has 13 MA's), (30, 22149), (Start: 32 @22161 has 2 MA's), (36, 22173), (37, 22182), (45, 22236), (47, 22248), (53, 22293), (56, 22314), (64, 22377), (81, 22467), (82, 22470),

Gene: Spino\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Spino\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Stasia\_30 Start: 22574, Stop: 22963, Start Num: 26

Candidate Starts for Stasia\_30:

(Start: 19 @22523 has 163 MA's), (20, 22538), (23, 22559), (Start: 26 @22574 has 13 MA's), (Start: 32 @22604 has 2 MA's), (36, 22616), (45, 22673), (50, 22703), (53, 22730), (64, 22814), (67, 22826),

(69, 22832), (72, 22850), (80, 22901),

Gene: Steamy\_31 Start: 23486, Stop: 23908, Start Num: 19

Candidate Starts for Steamy\_31:

(Start: 19 @23486 has 163 MA's), (23, 23522), (Start: 24 @23525 has 4 MA's), (34, 23573), (53, 23693), (64, 23765), (75, 23825), (81, 23855),

Gene: Stink\_29 Start: 22431, Stop: 22811, Start Num: 25

Candidate Starts for Stink\_29:

(Start: 19 @22383 has 163 MA's), (23, 22419), (Start: 24 @22422 has 4 MA's), (25, 22431), (38, 22488), (44, 22524), (45, 22530), (48, 22548), (50, 22560), (53, 22587), (63, 22662), (64, 22665), (74, 22710), (76, 22728), (80, 22749), (82, 22755),

Gene: Strobilo\_33 Start: 26470, Stop: 26889, Start Num: 19

Candidate Starts for Strobilo\_33:

(Start: 19 @26470 has 163 MA's), (21, 26497), (Start: 24 @26509 has 4 MA's), (30, 26539), (35, 26560), (44, 26620), (47, 26638), (49, 26647), (51, 26659), (53, 26683), (59, 26710), (60, 26725), (84, 26845), (86, 26857),

Gene: TM4\_33 Start: 26676, Stop: 27095, Start Num: 19

Candidate Starts for TM4\_33:

(Start: 19 @26676 has 163 MA's), (21, 26703), (Start: 24 @26715 has 4 MA's), (30, 26745), (44, 26826), (45, 26832), (49, 26853), (51, 26865), (53, 26889), (84, 27051), (86, 27063),

Gene: Taquarus\_29 Start: 22085, Stop: 22531, Start Num: 19

Candidate Starts for Taquarus\_29:

(11, 21863), (13, 21914), (Start: 19 @22085 has 163 MA's), (Start: 24 @22124 has 4 MA's), (Start: 26 @22136 has 13 MA's), (30, 22154), (Start: 32 @22166 has 2 MA's), (36, 22178), (37, 22187), (41, 22208), (45, 22241), (47, 22253), (53, 22298), (56, 22319), (64, 22382), (81, 22472), (82, 22475),

Gene: Thanksgivukkah\_29 Start: 22086, Stop: 22529, Start Num: 19

Candidate Starts for Thanksgivukkah\_29:

(11, 21864), (13, 21915), (Start: 19 @22086 has 163 MA's), (Start: 24 @22125 has 4 MA's), (28, 22143), (Start: 32 @22167 has 2 MA's), (45, 22242), (50, 22272), (53, 22299), (57, 22320), (60, 22362), (64, 22380), (70, 22404), (73, 22422),

Gene: Timshel\_30 Start: 25135, Stop: 25563, Start Num: 19

Candidate Starts for Timshel\_30:

(Start: 19 @25135 has 163 MA's), (20, 25150), (23, 25171), (Start: 24 @25174 has 4 MA's), (25, 25183), (35, 25225), (38, 25240), (46, 25291), (50, 25312), (53, 25339), (64, 25417), (67, 25429), (69, 25435), (70, 25441), (76, 25480), (80, 25501),

Gene: TinaFeyge\_29 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for TinaFeyge\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Tinybot\_28 Start: 22062, Stop: 22505, Start Num: 19

Candidate Starts for Tinybot\_28:

(11, 21840), (13, 21891), (Start: 19 @22062 has 163 MA's), (Start: 24 @22101 has 4 MA's), (28, 22119), (Start: 32 @22143 has 2 MA's), (50, 22248), (53, 22275), (57, 22296), (60, 22338), (64, 22356), (70, 22380), (73, 22398),

Gene: TiroTheta9\_29 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for TiroTheta9\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: Topanga\_30 Start: 22541, Stop: 22963, Start Num: 19

Candidate Starts for Topanga\_30:

(15, 22439), (16, 22493), (17, 22496), (Start: 19 @22541 has 163 MA's), (22, 22571), (23, 22577), (Start: 26 @22592 has 13 MA's), (28, 22598), (38, 22646), (42, 22664), (53, 22745), (55, 22760), (64, 22820), (72, 22856), (73, 22862), (80, 22904), (81, 22907), (82, 22910),

Gene: Trike\_28 Start: 20556, Stop: 20981, Start Num: 19

Candidate Starts for Trike\_28:

(15, 20454), (17, 20511), (Start: 19 @20556 has 163 MA's), (23, 20592), (Start: 24 @20595 has 4 MA's), (25, 20604), (Start: 26 @20607 has 13 MA's), (27, 20610), (Start: 29 @20622 has 1 MA's), (33, 20640), (39, 20664), (42, 20679), (44, 20697), (51, 20736), (53, 20760), (55, 20775), (64, 20835), (69, 20853), (76, 20898), (80, 20919), (81, 20922),

Gene: TroyPia\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for TroyPia\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Twister\_30 Start: 22447, Stop: 22872, Start Num: 19

Candidate Starts for Twister\_30:

(15, 22342), (16, 22396), (17, 22399), (Start: 19 @22447 has 163 MA's), (Start: 24 @22486 has 4 MA's), (25, 22495), (Start: 29 @22513 has 1 MA's), (38, 22552), (39, 22555), (42, 22570), (44, 22588), (53, 22651), (64, 22726), (66, 22732), (76, 22789), (80, 22810), (82, 22816),

Gene: TygerBlood\_29 Start: 22133, Stop: 22528, Start Num: 26

Candidate Starts for TygerBlood\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Ulysses\_28 Start: 21803, Stop: 22246, Start Num: 19

Candidate Starts for Ulysses\_28:

(11, 21581), (13, 21632), (Start: 19 @21803 has 163 MA's), (Start: 24 @21842 has 4 MA's), (28, 21860), (Start: 32 @21884 has 2 MA's), (50, 21989), (53, 22016), (57, 22037), (60, 22079), (64, 22097), (70, 22121), (73, 22139),

Gene: WalterMcMickey\_30 Start: 22447, Stop: 22872, Start Num: 19

Candidate Starts for WalterMcMickey\_30:

(15, 22342), (16, 22396), (17, 22399), (Start: 19 @22447 has 163 MA's), (Start: 24 @22486 has 4 MA's), (25, 22495), (Start: 29 @22513 has 1 MA's), (38, 22552), (39, 22555), (42, 22570), (44, 22588), (53, 22651), (64, 22726), (66, 22732), (76, 22789), (80, 22810), (82, 22816),

Gene: Wander\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Wander\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Wilbur\_29 Start: 22082, Stop: 22528, Start Num: 19

Candidate Starts for Wilbur\_29:

(11, 21860), (13, 21911), (Start: 19 @22082 has 163 MA's), (Start: 24 @22121 has 4 MA's), (Start: 26 @22133 has 13 MA's), (30, 22151), (Start: 32 @22163 has 2 MA's), (36, 22175), (37, 22184), (45, 22238), (47, 22250), (53, 22295), (56, 22316), (64, 22379), (81, 22469), (82, 22472),

Gene: Wile\_29 Start: 22113, Stop: 22553, Start Num: 19

Candidate Starts for Wile\_29:

(Start: 19 @22113 has 163 MA's), (20, 22128), (23, 22149), (Start: 26 @22164 has 13 MA's), (27, 22167), (30, 22182), (Start: 32 @22194 has 2 MA's), (36, 22206), (45, 22263), (47, 22275), (53, 22320), (56, 22341), (64, 22404),

Gene: Wizard007\_29 Start: 22084, Stop: 22530, Start Num: 19

Candidate Starts for Wizard007\_29:

(11, 21862), (13, 21913), (Start: 19 @22084 has 163 MA's), (Start: 24 @22123 has 4 MA's), (Start: 26 @22135 has 13 MA's), (30, 22153), (Start: 32 @22165 has 2 MA's), (36, 22177), (37, 22186), (45, 22240), (47, 22252), (53, 22297), (56, 22318), (64, 22381), (81, 22471), (82, 22474),

Gene: Xena\_29 Start: 22100, Stop: 22540, Start Num: 19

Candidate Starts for Xena\_29:

(Start: 19 @22100 has 163 MA's), (20, 22115), (23, 22136), (Start: 26 @22151 has 13 MA's), (27, 22154), (30, 22169), (Start: 32 @22181 has 2 MA's), (36, 22193), (45, 22250), (47, 22262), (53, 22307), (56, 22328), (64, 22391),

Gene: YoSam321\_29 Start: 22079, Stop: 22525, Start Num: 19

Candidate Starts for YoSam321\_29:

(11, 21857), (13, 21908), (Start: 19 @22079 has 163 MA's), (Start: 24 @22118 has 4 MA's), (Start: 26 @22130 has 13 MA's), (30, 22148), (Start: 32 @22160 has 2 MA's), (36, 22172), (37, 22181), (45, 22235), (47, 22247), (53, 22292), (56, 22313), (64, 22376), (81, 22466), (82, 22469),

Gene: ZoeJ\_31 Start: 26475, Stop: 26894, Start Num: 19

Candidate Starts for ZoeJ\_31:

(Start: 19 @26475 has 163 MA's), (21, 26502), (Start: 24 @26514 has 4 MA's), (30, 26544), (44, 26625), (47, 26643), (49, 26652), (51, 26664), (53, 26688), (59, 26715), (84, 26850), (86, 26862),