



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 311348 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311348 has 134 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Chunky\_95, HSavage\_94, Boehler\_94, Vivaldi\_97, ElvisPhasley\_97, Gyarad\_0095
- Track 2 : Pops\_94
- Track 3 : Triad\_96, Lehmann\_97
- Track 4 : Roscoe\_95
- Track 5 : BlueHusk\_97
- Track 6 : Horchata\_91
- Track 7 : Imvubu\_92
- Track 8 : Indlovu\_88
- Track 9 : LittleMinkey\_107
- Track 10 : Hashim76\_100
- Track 11 : Zenteno07\_105
- Track 12 : BirdsNest\_104
- Track 13 : LizLemon\_84, Sabella\_84, Rhinoforte\_84, Arbiter\_81, Brownie5\_84, Qyrzula\_75, Ares\_84, FrenchFry\_85, Bananafish\_85, Tinciduntolum\_85, Hedgerow\_84, Opia\_85
- Track 14 : PrinceCharming\_84, LilSmirk\_84, West99\_84, Tres\_84
- Track 15 : Phantasmagoria\_83, Kolhan\_85, Boyle\_84, Calamitous\_85, Faze9\_83, Coffee\_83, Allegro\_84
- Track 16 : Glass\_86, Godines\_84, Kaleb\_84, Rosebush\_82, ItsyBitsy1\_81, TA17A\_87, Holeinone\_84
- Track 17 : Laurie\_83
- Track 18 : MasterPo\_85
- Track 19 : Lars\_85
- Track 20 : Lephleur\_84
- Track 21 : Vic9\_00082
- Track 22 : Kheth\_84
- Track 23 : Blocker23\_84
- Track 24 : Ben11\_96, Mortcellus\_96, Marley1013\_94, TinyTerror\_97, Chandler\_96, Kronus\_96, LestyG\_94, Chentzyk\_98, Devonte\_94, Yahalom\_94, Glubnar\_96, Bernardo\_93, SwainyDoc\_96, Casbah\_96, Compostia\_95
- Track 25 : Tydolla\_92, Neos5\_95, Gervas\_97, SynergyX\_97, OrangeOswald\_95, Akoma\_97, Philly\_95, Mulaychimus\_97, HarveySr\_93, RagingRooster\_96, Corofin\_96, Phlyer\_96, SlippinJimmy\_99, Audrey\_96, GlenHope\_97, MmasiCarm\_97, Rita1961\_97, Baloo\_95, Briakila\_97, Phayeta\_98, Deenasa\_97, Chalmers\_96, Heathcliff\_96, Abinghost\_96, Athena\_98, Nozo\_96, Obutu\_98, Morty007\_94, RomaT\_96, Daisy\_95, Phaedrus\_91, Kamiyu\_96, Halfpint\_95,

Pipefish\_95, Jackstina\_89, Marlia\_96, ChaChing\_96

- Track 26 : Yinz\_94
- Track 27 : Olivio\_96
- Track 28 : Shenandoah\_96
- Track 29 : DigitDog\_91, Shenyu\_90, Nangang\_90
- Track 30 : Suigeneris\_90, Donny\_89, Acadian\_89
- Track 31 : Jolie1\_089
- Track 32 : KayaCho\_87
- Track 33 : ForDig\_89
- Track 34 : Saguaro\_82
- Track 35 : Knocker\_87
- Track 36 : Funsized\_88
- Track 37 : Quesadilla\_90
- Track 38 : Rinkes\_86
- Track 39 : CRB2\_88
- Track 40 : PenguinLover67\_87
- Track 41 : Sienna\_36
- Track 42 : Terapin\_37
- Track 43 : Beyoncage\_36, Djokovic\_36, BiteSize\_36
- Track 44 : LilyPad\_39
- Track 45 : Madi\_36
- Track 46 : Suzy\_36

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

The start number called the most often in the published annotations is 57, it was called in 51 of the 121 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abinghost\_96, Akoma\_97, Athena\_98, Audrey\_96, Baloo\_95, Ben11\_96, Bernardo\_93, Briakila\_97, Casbah\_96, ChaChing\_96, Chalmers\_96, Chandler\_96, Chentzyk\_98, Compostia\_95, Corofin\_96, Daisy\_95, Deenasa\_97, Devonte\_94, Gervas\_97, GlenHope\_97, Glubnar\_96, Halfpint\_95, HarveySr\_93, Heathcliff\_96, Jackstina\_89, Kamiyu\_96, Kronus\_96, LestyG\_94, Marley1013\_94, Marlia\_96, MmasiCarm\_97, Mortcellus\_96, Morty007\_94, Mulaychimus\_97, Neos5\_95, Nozo\_96, Obutu\_98, OrangeOswald\_95, Phaedrus\_91, Phayeta\_98, Philly\_95, Phlyer\_96, Pipefish\_95, RagingRooster\_96, Rita1961\_97, RomaT\_96, Saguaro\_82, Shenandoah\_96, SlippinJimmy\_99, SwainyDoc\_96, SynergyX\_97, TinyTerror\_97, Tydolla\_92, Yahalom\_94, Yinz\_94,

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

- Olivio\_96, Quesadilla\_90,

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

- Acadian\_89, Allegro\_84, Arbiter\_81, Ares\_84, Bananafish\_85, Beyoncage\_36, BirdsNest\_104, BiteSize\_36, Blocker23\_84, BlueHusk\_97, Boehler\_94, Boyle\_84, Brownie5\_84, CRB2\_88, Calamitous\_85, Chunky\_95, Coffee\_83, DigitDog\_91, Djokovic\_36, Donny\_89, ElvisPhasley\_97, Faze9\_83, ForDig\_89, FrenchFry\_85, Funsized\_88, Glass\_86, Godines\_84, Gyarad\_0095, HSavage\_94, Hashim76\_100, Hedgerow\_84, Holeinone\_84, Horchata\_91, Imvubu\_92, Indlovu\_88, ItsyBitsy1\_81,

Jolie1\_089, Kaleb\_84, KayaCho\_87, Kheth\_84, Knocker\_87, Kolhan\_85, Lars\_85, Laurie\_83, Lehmann\_97, Lephleur\_84, LilSmirk\_84, LilyPad\_39, LittleMinkey\_107, LizLemon\_84, Madi\_36, MasterPo\_85, Nangang\_90, Opia\_85, PenguinLover67\_87, Phantasmagoria\_83, Pops\_94, PrinceCharming\_84, Qyrzula\_75, Rhinoforte\_84, Rinkes\_86, Roscoe\_95, Rosebush\_82, Sabella\_84, Shenyu\_90, Sienna\_36, Suigeneris\_90, Suzy\_36, TA17A\_87, Terapin\_37, Tinciduntolum\_85, Tres\_84, Triad\_96, Vic9\_00082, Vivaldi\_97, West99\_84, Zenteno07\_105,

### Summary by start number:

#### Start 22:

- Found in 5 of 134 ( 3.7% ) of genes in pham
- Manual Annotations of this start: 1 of 121
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Kheth\_84 (B2),

#### Start 24:

- Found in 32 of 134 ( 23.9% ) of genes in pham
- Manual Annotations of this start: 19 of 121
- Called 59.4% of time when present
- Phage (with cluster) where this start called: Arbiter\_81 (B2), Ares\_84 (B2), Bananafish\_85 (B2), Brownie5\_84 (B2), FrenchFry\_85 (B2), Glass\_86 (B2), Godines\_84 (B2), Hedgerow\_84 (B2), Holeinone\_84 (B2), ItsyBitsy1\_81 (B2), Kaleb\_84 (B2), LizLemon\_84 (B2), Opia\_85 (B2), Qyrzula\_75 (B2), Rhinoforte\_84 (B2), Rosebush\_82 (B2), Sabella\_84 (B2), TA17A\_87 (B2), Tinciduntolum\_85 (B2),

#### Start 26:

- Found in 32 of 134 ( 23.9% ) of genes in pham
- Manual Annotations of this start: 3 of 121
- Called 12.5% of time when present
- Phage (with cluster) where this start called: LilSmirk\_84 (B2), PrinceCharming\_84 (B2), Tres\_84 (B2), West99\_84 (B2),

#### Start 27:

- Found in 1 of 134 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 121
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Roscoe\_95 (B1),

#### Start 28:

- Found in 3 of 134 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 3 of 121
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acadian\_89 (B5), Donny\_89 (B5), Suigeneris\_90 (B5),

#### Start 31:

- Found in 7 of 134 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 4 of 121
- Called 57.1% of time when present
- Phage (with cluster) where this start called: Beyoncage\_36 (DG1), BiteSize\_36 (DG1), Djokovic\_36 (DG1), Sienna\_36 (DG1),

Start 32:

- Found in 1 of 134 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 121
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Zenteno07\_105 (B13),

Start 34:

- Found in 6 of 134 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 1 of 121
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Madi\_36 (DG1),

Start 35:

- Found in 2 of 134 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 2 of 121
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlueHusk\_97 (B1), Horchata\_91 (B1),

Start 37:

- Found in 37 of 134 ( 27.6% ) of genes in pham
- Manual Annotations of this start: 13 of 121
- Called 35.1% of time when present
- Phage (with cluster) where this start called: Allegro\_84 (B2), Blocker23\_84 (B2), Boyle\_84 (B2), Calamitous\_85 (B2), Coffee\_83 (B2), Faze9\_83 (B2), Kolhan\_85 (B2), Lars\_85 (B2), Laurie\_83 (B2), Lephieur\_84 (B2), MasterPo\_85 (B2), Phantasmagoria\_83 (B2), Vic9\_00082 (B2),

Start 38:

- Found in 3 of 134 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 2 of 121
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ForDig\_89 (B6), Jolie1\_089 (B6), KayaCho\_87 (B6),

Start 39:

- Found in 7 of 134 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 6 of 121
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Boehler\_94 (B1), Chunky\_95 (B1), ElvisPhasley\_97 (B1), Gyarad\_0095 (B1), HSavage\_94 (B1), Vivaldi\_97 (B1),

Start 43:

- Found in 1 of 134 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 121
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Imvubu\_92 (B10),

Start 44:

- Found in 1 of 134 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 121
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Quesadilla\_90 (B9),

Start 45:

- Found in 6 of 134 ( 4.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: DigitDog\_91 (B5), Nangang\_90 (B5), Shenyu\_90 (B5),

Start 46:

- Found in 12 of 134 ( 9.0% ) of genes in pham
- Manual Annotations of this start: 1 of 121
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Lehmann\_97 (B1), Pops\_94 (B1), Triad\_96 (B1),

Start 47:

- Found in 4 of 134 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 2 of 121
- Called 75.0% of time when present
- Phage (with cluster) where this start called: BirdsNest\_104 (B13), Hashim76\_100 (B13), LittleMinkey\_107 (B13),

Start 48:

- Found in 7 of 134 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 2 of 121
- Called 28.6% of time when present
- Phage (with cluster) where this start called: Suzy\_36 (DG1), Terapin\_37 (DG1),

Start 51:

- Found in 1 of 134 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 121
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rinkes\_86 (B9),

Start 54:

- Found in 2 of 134 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 2 of 121
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Funsized\_88 (B9), Knocker\_87 (B9),

Start 56:

- Found in 19 of 134 ( 14.2% ) of genes in pham
- Manual Annotations of this start: 3 of 121
- Called 15.8% of time when present
- Phage (with cluster) where this start called: CRB2\_88 (B9), Indlovu\_88 (B11), PenguinLover67\_87 (B9),

Start 57:

- Found in 57 of 134 ( 42.5% ) of genes in pham
- Manual Annotations of this start: 51 of 121
- Called 96.5% of time when present
- Phage (with cluster) where this start called: Abinghost\_96 (B3), Akoma\_97 (B3), Athena\_98 (B3), Audrey\_96 (B3), Baloo\_95 (B3), Ben11\_96 (B3), Bernardo\_93 (B3), Briakila\_97 (B3), Casbah\_96 (B3), ChaChing\_96 (B3), Chalmers\_96 (B3),

Chandler\_96 (B3), Chentzyk\_98 (B3), Compostia\_95 (B3), Corofin\_96 (B3), Daisy\_95 (B3), Deenasa\_97 (B3), Devonte\_94 (B3), Gervas\_97 (B3), GlenHope\_97 (B3), Glubnar\_96 (B3), Halfpint\_95 (B3), HarveySr\_93 (B3), Heathcliff\_96 (B3), Jackstina\_89 (B3), Kamiyu\_96 (B3), Kronus\_96 (B3), LestyG\_94 (B3), Marley1013\_94 (B3), Marlia\_96 (B3), MmasiCarm\_97 (B3), Mortcellus\_96 (B3), Morty007\_94 (B3), Mulaychimus\_97 (B3), Neos5\_95 (B3), Nozo\_96 (B3), Obutu\_98 (B3), OrangeOswald\_95 (B3), Phaerdrus\_91 (B3), Phayeta\_98 (B3), Philly\_95 (B3), Phlyer\_96 (B3), Pipefish\_95 (B3), RagingRooster\_96 (B3), Rita1961\_97 (B3), RomaT\_96 (B3), Saguaro\_82 (B7), Shenandoah\_96 (B3), SlippinJimmy\_99 (B3), SwainyDoc\_96 (B3), SynergyX\_97 (B3), TinyTerror\_97 (B3), Tydolla\_92 (B3), Yahalom\_94 (B3), Yinz\_94 (B3),

Start 58:

- Found in 2 of 134 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 121
- Called 50.0% of time when present
- Phage (with cluster) where this start called: LilyPad\_39 (DG1),

Start 67:

- Found in 55 of 134 ( 41.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.8% of time when present
- Phage (with cluster) where this start called: Olivio\_96 (B3),

### **Summary by clusters:**

There are 11 clusters represented in this pham: B10, B11, B5, B6, B7, B13, B2, B3, DG1, B9, B1,

Info for manual annotations of cluster B1:

- Start number 27 was manually annotated 1 time for cluster B1.
- Start number 35 was manually annotated 2 times for cluster B1.
- Start number 39 was manually annotated 6 times for cluster B1.
- Start number 46 was manually annotated 1 time for cluster B1.

Info for manual annotations of cluster B10:

- Start number 43 was manually annotated 1 time for cluster B10.

Info for manual annotations of cluster B11:

- Start number 56 was manually annotated 1 time for cluster B11.

Info for manual annotations of cluster B13:

- Start number 32 was manually annotated 1 time for cluster B13.
- Start number 47 was manually annotated 2 times for cluster B13.

Info for manual annotations of cluster B2:

- Start number 22 was manually annotated 1 time for cluster B2.
- Start number 24 was manually annotated 19 times for cluster B2.
- Start number 26 was manually annotated 3 times for cluster B2.
- Start number 37 was manually annotated 13 times for cluster B2.

Info for manual annotations of cluster B3:

- Start number 57 was manually annotated 50 times for cluster B3.

Info for manual annotations of cluster B5:

- Start number 28 was manually annotated 3 times for cluster B5.

Info for manual annotations of cluster B6:

- Start number 38 was manually annotated 2 times for cluster B6.

Info for manual annotations of cluster B7:

- Start number 57 was manually annotated 1 time for cluster B7.

Info for manual annotations of cluster B9:

- Start number 44 was manually annotated 1 time for cluster B9.
- Start number 51 was manually annotated 1 time for cluster B9.
- Start number 54 was manually annotated 2 times for cluster B9.
- Start number 56 was manually annotated 2 times for cluster B9.

Info for manual annotations of cluster DG1:

- Start number 31 was manually annotated 4 times for cluster DG1.
- Start number 34 was manually annotated 1 time for cluster DG1.
- Start number 48 was manually annotated 2 times for cluster DG1.
- Start number 58 was manually annotated 1 time for cluster DG1.

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

Gene: Abinghost\_96 Start: 65736, Stop: 65248, Start Num: 57

Candidate Starts for Abinghost\_96:

(Start: 57 @65736 has 51 MA's), (66, 65697), (67, 65694), (69, 65619), (71, 65610), (76, 65568), (87, 65460), (93, 65418), (103, 65355), (107, 65337),

Gene: Acadian\_89 Start: 66018, Stop: 65326, Start Num: 28

Candidate Starts for Acadian\_89:

(2, 66897), (7, 66402), (21, 66072), (Start: 28 @66018 has 3 MA's), (45, 65943), (69, 65772), (71, 65763), (85, 65655), (99, 65538), (103, 65514), (107, 65496), (115, 65460), (122, 65379),

Gene: Akoma\_97 Start: 65813, Stop: 65325, Start Num: 57

Candidate Starts for Akoma\_97:

(Start: 57 @65813 has 51 MA's), (66, 65774), (67, 65771), (69, 65696), (71, 65687), (76, 65645), (87, 65537), (93, 65495), (103, 65432), (107, 65414),

Gene: Allegro\_84 Start: 63711, Stop: 63181, Start Num: 37

Candidate Starts for Allegro\_84:

(16, 63888), (Start: 24 @63777 has 19 MA's), (Start: 26 @63759 has 3 MA's), (Start: 37 @63711 has 13 MA's), (42, 63684), (49, 63657), (52, 63648), (61, 63606), (64, 63597), (69, 63501), (74, 63465), (81, 63393), (93, 63297), (94, 63291), (101, 63249), (103, 63237),

Gene: Arbiter\_81 Start: 63817, Stop: 63221, Start Num: 24

Candidate Starts for Arbiter\_81:

(16, 63928), (Start: 24 @63817 has 19 MA's), (Start: 26 @63799 has 3 MA's), (Start: 37 @63751 has 13 MA's), (42, 63724), (49, 63697), (52, 63688), (61, 63646), (64, 63637), (69, 63541), (74, 63505), (81, 63433), (93, 63337), (94, 63331), (101, 63289), (103, 63277),

Gene: Ares\_84 Start: 63776, Stop: 63180, Start Num: 24

Candidate Starts for Ares\_84:

(16, 63887), (Start: 24 @63776 has 19 MA's), (Start: 26 @63758 has 3 MA's), (Start: 37 @63710 has 13 MA's), (42, 63683), (49, 63656), (52, 63647), (61, 63605), (64, 63596), (69, 63500), (74, 63464), (81, 63392), (93, 63296), (94, 63290), (101, 63248), (103, 63236),

Gene: Athena\_98 Start: 66509, Stop: 66021, Start Num: 57

Candidate Starts for Athena\_98:

(Start: 57 @66509 has 51 MA's), (66, 66470), (67, 66467), (69, 66392), (71, 66383), (76, 66341), (87, 66233), (93, 66191), (103, 66128), (107, 66110),

Gene: Audrey\_96 Start: 65763, Stop: 65275, Start Num: 57

Candidate Starts for Audrey\_96:

(Start: 57 @65763 has 51 MA's), (66, 65724), (67, 65721), (69, 65646), (71, 65637), (76, 65595), (87, 65487), (93, 65445), (103, 65382), (107, 65364),

Gene: Baloo\_95 Start: 65616, Stop: 65128, Start Num: 57

Candidate Starts for Baloo\_95:

(Start: 57 @65616 has 51 MA's), (66, 65577), (67, 65574), (69, 65499), (71, 65490), (76, 65448), (87, 65340), (93, 65298), (103, 65235), (107, 65217),

Gene: Bananafish\_85 Start: 63713, Stop: 63117, Start Num: 24

Candidate Starts for Bananafish\_85:

(16, 63824), (Start: 24 @63713 has 19 MA's), (Start: 26 @63695 has 3 MA's), (Start: 37 @63647 has 13 MA's), (42, 63620), (49, 63593), (52, 63584), (61, 63542), (64, 63533), (69, 63437), (74, 63401), (81, 63329), (93, 63233), (94, 63227), (101, 63185), (103, 63173),

Gene: Ben11\_96 Start: 65993, Stop: 65505, Start Num: 57

Candidate Starts for Ben11\_96:

(Start: 57 @65993 has 51 MA's), (66, 65954), (67, 65951), (69, 65876), (71, 65867), (76, 65825), (87, 65717), (93, 65675), (103, 65612), (107, 65594),

Gene: Bernardo\_93 Start: 65287, Stop: 64799, Start Num: 57

Candidate Starts for Bernardo\_93:

(Start: 57 @65287 has 51 MA's), (66, 65248), (67, 65245), (69, 65170), (71, 65161), (76, 65119), (87, 65011), (93, 64969), (103, 64906), (107, 64888),

Gene: Beyoncage\_36 Start: 30874, Stop: 31419, Start Num: 31

Candidate Starts for Beyoncage\_36:

(8, 30490), (11, 30505), (15, 30715), (23, 30823), (Start: 31 @30874 has 4 MA's), (Start: 34 @30883 has 1 MA's), (Start: 48 @30952 has 2 MA's), (50, 30958), (60, 30997), (79, 31192), (84, 31213), (86, 31237), (100, 31336), (104, 31369), (108, 31390),

Gene: BirdsNest\_104 Start: 70091, Stop: 69573, Start Num: 47

Candidate Starts for BirdsNest\_104:

(Start: 47 @70091 has 2 MA's), (53, 70070), (Start: 56 @70049 has 3 MA's), (63, 70022), (64, 70019), (74, 69890), (76, 69872), (81, 69815), (84, 69806), (103, 69656),

Gene: BiteSize\_36 Start: 30960, Stop: 31505, Start Num: 31

Candidate Starts for BiteSize\_36:

(8, 30576), (11, 30591), (15, 30801), (23, 30909), (Start: 31 @30960 has 4 MA's), (Start: 34 @30969 has 1 MA's), (Start: 48 @31038 has 2 MA's), (50, 31044), (60, 31083), (79, 31278), (84, 31299), (86, 31323), (100, 31422), (104, 31455), (108, 31476),

Gene: Blocker23\_84 Start: 63711, Stop: 63181, Start Num: 37

Candidate Starts for Blocker23\_84:

(1, 65055), (3, 64545), (5, 64293), (9, 64113), (13, 63984), (Start: 22 @63789 has 1 MA's), (Start: 37 @63711 has 13 MA's), (42, 63684), (49, 63657), (52, 63648), (61, 63606), (64, 63597), (69, 63501), (74, 63465), (81, 63393), (93, 63297), (94, 63291), (101, 63249), (103, 63237),

Gene: BlueHusk\_97 Start: 66586, Stop: 65990, Start Num: 35

Candidate Starts for BlueHusk\_97:

(Start: 35 @66586 has 2 MA's), (Start: 46 @66529 has 1 MA's), (Start: 56 @66487 has 3 MA's), (69, 66361), (72, 66340), (74, 66328), (81, 66256), (96, 66142), (103, 66103), (107, 66085),

Gene: Boehler\_94 Start: 66718, Stop: 66140, Start Num: 39

Candidate Starts for Boehler\_94:

(Start: 39 @66718 has 6 MA's), (Start: 46 @66679 has 1 MA's), (Start: 56 @66637 has 3 MA's), (69, 66511), (72, 66490), (74, 66478), (81, 66406), (96, 66292), (103, 66253), (107, 66235),

Gene: Boyle\_84 Start: 63759, Stop: 63229, Start Num: 37

Candidate Starts for Boyle\_84:

(16, 63936), (Start: 24 @63825 has 19 MA's), (Start: 26 @63807 has 3 MA's), (Start: 37 @63759 has 13 MA's), (42, 63732), (49, 63705), (52, 63696), (61, 63654), (64, 63645), (69, 63549), (74, 63513), (81, 63441), (93, 63345), (94, 63339), (101, 63297), (103, 63285),

Gene: Briakila\_97 Start: 66267, Stop: 65779, Start Num: 57

Candidate Starts for Briakila\_97:

(Start: 57 @66267 has 51 MA's), (66, 66228), (67, 66225), (69, 66150), (71, 66141), (76, 66099), (87, 65991), (93, 65949), (103, 65886), (107, 65868),

Gene: Brownie5\_84 Start: 63825, Stop: 63229, Start Num: 24

Candidate Starts for Brownie5\_84:

(16, 63936), (Start: 24 @63825 has 19 MA's), (Start: 26 @63807 has 3 MA's), (Start: 37 @63759 has 13 MA's), (42, 63732), (49, 63705), (52, 63696), (61, 63654), (64, 63645), (69, 63549), (74, 63513), (81, 63441), (93, 63345), (94, 63339), (101, 63297), (103, 63285),

Gene: CRB2\_88 Start: 67867, Stop: 67412, Start Num: 56

Candidate Starts for CRB2\_88:

(6, 68446), (12, 68266), (Start: 56 @67867 has 3 MA's), (60, 67858), (63, 67840), (70, 67735), (73, 67708), (81, 67633), (84, 67624), (85, 67621), (101, 67492), (103, 67480), (107, 67462),

Gene: Calamitous\_85 Start: 63642, Stop: 63112, Start Num: 37

Candidate Starts for Calamitous\_85:

(16, 63819), (Start: 24 @63708 has 19 MA's), (Start: 26 @63690 has 3 MA's), (Start: 37 @63642 has 13 MA's), (42, 63615), (49, 63588), (52, 63579), (61, 63537), (64, 63528), (69, 63432), (74, 63396), (81, 63324), (93, 63228), (94, 63222), (101, 63180), (103, 63168),

Gene: Casbah\_96 Start: 66078, Stop: 65590, Start Num: 57

Candidate Starts for Casbah\_96:

(Start: 57 @66078 has 51 MA's), (66, 66039), (67, 66036), (69, 65961), (71, 65952), (76, 65910), (87, 65802), (93, 65760), (103, 65697), (107, 65679),

Gene: ChaChing\_96 Start: 65776, Stop: 65288, Start Num: 57

Candidate Starts for ChaChing\_96:

(Start: 57 @65776 has 51 MA's), (66, 65737), (67, 65734), (69, 65659), (71, 65650), (76, 65608), (87, 65500), (93, 65458), (103, 65395), (107, 65377),

Gene: Chalmers\_96 Start: 66514, Stop: 66026, Start Num: 57

Candidate Starts for Chalmers\_96:

(Start: 57 @66514 has 51 MA's), (66, 66475), (67, 66472), (69, 66397), (71, 66388), (76, 66346), (87, 66238), (93, 66196), (103, 66133), (107, 66115),

Gene: Chandler\_96 Start: 66552, Stop: 66064, Start Num: 57

Candidate Starts for Chandler\_96:

(Start: 57 @66552 has 51 MA's), (66, 66513), (67, 66510), (69, 66435), (71, 66426), (76, 66384), (87, 66276), (93, 66234), (103, 66171), (107, 66153),

Gene: Chentzyk\_98 Start: 66708, Stop: 66220, Start Num: 57

Candidate Starts for Chentzyk\_98:

(Start: 57 @66708 has 51 MA's), (66, 66669), (67, 66666), (69, 66591), (71, 66582), (76, 66540), (87, 66432), (93, 66390), (103, 66327), (107, 66309),

Gene: Chunky\_95 Start: 66380, Stop: 65802, Start Num: 39

Candidate Starts for Chunky\_95:

(Start: 39 @66380 has 6 MA's), (Start: 46 @66341 has 1 MA's), (Start: 56 @66299 has 3 MA's), (69, 66173), (72, 66152), (74, 66140), (81, 66068), (96, 65954), (103, 65915), (107, 65897),

Gene: Coffee\_83 Start: 63752, Stop: 63222, Start Num: 37

Candidate Starts for Coffee\_83:

(16, 63929), (Start: 24 @63818 has 19 MA's), (Start: 26 @63800 has 3 MA's), (Start: 37 @63752 has 13 MA's), (42, 63725), (49, 63698), (52, 63689), (61, 63647), (64, 63638), (69, 63542), (74, 63506), (81, 63434), (93, 63338), (94, 63332), (101, 63290), (103, 63278),

Gene: Compostia\_95 Start: 66230, Stop: 65742, Start Num: 57

Candidate Starts for Compostia\_95:

(Start: 57 @66230 has 51 MA's), (66, 66191), (67, 66188), (69, 66113), (71, 66104), (76, 66062), (87, 65954), (93, 65912), (103, 65849), (107, 65831),

Gene: Corofin\_96 Start: 65787, Stop: 65299, Start Num: 57

Candidate Starts for Corofin\_96:

(Start: 57 @65787 has 51 MA's), (66, 65748), (67, 65745), (69, 65670), (71, 65661), (76, 65619), (87, 65511), (93, 65469), (103, 65406), (107, 65388),

Gene: Daisy\_95 Start: 65336, Stop: 64848, Start Num: 57

Candidate Starts for Daisy\_95:

(Start: 57 @65336 has 51 MA's), (66, 65297), (67, 65294), (69, 65219), (71, 65210), (76, 65168), (87, 65060), (93, 65018), (103, 64955), (107, 64937),

Gene: Deenasa\_97 Start: 66990, Stop: 66502, Start Num: 57

Candidate Starts for Deenasa\_97:

(Start: 57 @66990 has 51 MA's), (66, 66951), (67, 66948), (69, 66873), (71, 66864), (76, 66822), (87, 66714), (93, 66672), (103, 66609), (107, 66591),

Gene: Devonte\_94 Start: 65402, Stop: 64914, Start Num: 57

Candidate Starts for Devonte\_94:

(Start: 57 @65402 has 51 MA's), (66, 65363), (67, 65360), (69, 65285), (71, 65276), (76, 65234), (87, 65126), (93, 65084), (103, 65021), (107, 65003),

Gene: DigitDog\_91 Start: 66458, Stop: 65841, Start Num: 45

Candidate Starts for DigitDog\_91:

(7, 66893), (21, 66563), (45, 66458), (69, 66290), (71, 66281), (85, 66173), (99, 66056), (103, 66032), (107, 66014), (121, 65921),

Gene: Djokovic\_36 Start: 30873, Stop: 31418, Start Num: 31

Candidate Starts for Djokovic\_36:

(8, 30489), (11, 30504), (15, 30714), (23, 30822), (Start: 31 @30873 has 4 MA's), (Start: 34 @30882 has 1 MA's), (Start: 48 @30951 has 2 MA's), (50, 30957), (60, 30996), (79, 31191), (84, 31212), (86, 31236), (100, 31335), (104, 31368), (108, 31389),

Gene: Donny\_89 Start: 65845, Stop: 65159, Start Num: 28

Candidate Starts for Donny\_89:

(2, 66724), (7, 66229), (21, 65899), (Start: 28 @65845 has 3 MA's), (45, 65770), (69, 65605), (71, 65596), (85, 65488), (99, 65371), (103, 65347), (107, 65329), (115, 65293), (122, 65212),

Gene: ElvisPhasley\_97 Start: 67655, Stop: 67077, Start Num: 39

Candidate Starts for ElvisPhasley\_97:

(Start: 39 @67655 has 6 MA's), (Start: 46 @67616 has 1 MA's), (Start: 56 @67574 has 3 MA's), (69, 67448), (72, 67427), (74, 67415), (81, 67343), (96, 67229), (103, 67190), (107, 67172),

Gene: Faze9\_83 Start: 63774, Stop: 63244, Start Num: 37

Candidate Starts for Faze9\_83:

(16, 63951), (Start: 24 @63840 has 19 MA's), (Start: 26 @63822 has 3 MA's), (Start: 37 @63774 has 13 MA's), (42, 63747), (49, 63720), (52, 63711), (61, 63669), (64, 63660), (69, 63564), (74, 63528), (81, 63456), (93, 63360), (94, 63354), (101, 63312), (103, 63300),

Gene: ForDig\_89 Start: 66193, Stop: 65561, Start Num: 38

Candidate Starts for ForDig\_89:

(18, 66334), (Start: 38 @66193 has 2 MA's), (55, 66124), (59, 66115), (69, 65995), (71, 65986), (73, 65965), (81, 65893), (85, 65881), (102, 65740), (103, 65737), (107, 65719), (113, 65692), (118, 65650),

Gene: FrenchFry\_85 Start: 63827, Stop: 63231, Start Num: 24

Candidate Starts for FrenchFry\_85:

(16, 63938), (Start: 24 @63827 has 19 MA's), (Start: 26 @63809 has 3 MA's), (Start: 37 @63761 has 13 MA's), (42, 63734), (49, 63707), (52, 63698), (61, 63656), (64, 63647), (69, 63551), (74, 63515), (81, 63443), (93, 63347), (94, 63341), (101, 63299), (103, 63287),

Gene: Funsized\_88 Start: 68273, Stop: 67824, Start Num: 54

Candidate Starts for Funsized\_88:

(40, 68339), (41, 68333), (Start: 54 @68273 has 2 MA's), (69, 68144), (70, 68138), (73, 68114), (101, 67898), (103, 67886), (107, 67868), (109, 67856),

Gene: Gervas\_97 Start: 66231, Stop: 65743, Start Num: 57

Candidate Starts for Gervas\_97:

(Start: 57 @66231 has 51 MA's), (66, 66192), (67, 66189), (69, 66114), (71, 66105), (76, 66063), (87, 65955), (93, 65913), (103, 65850), (107, 65832),

Gene: Glass\_86 Start: 63834, Stop: 63238, Start Num: 24

Candidate Starts for Glass\_86:

(16, 63945), (Start: 24 @63834 has 19 MA's), (Start: 26 @63816 has 3 MA's), (Start: 37 @63768 has 13 MA's), (42, 63741), (52, 63705), (61, 63663), (64, 63654), (69, 63558), (74, 63522), (81, 63450), (93, 63354), (94, 63348), (101, 63306), (103, 63294),

Gene: GlenHope\_97 Start: 65806, Stop: 65318, Start Num: 57

Candidate Starts for GlenHope\_97:

(Start: 57 @65806 has 51 MA's), (66, 65767), (67, 65764), (69, 65689), (71, 65680), (76, 65638), (87, 65530), (93, 65488), (103, 65425), (107, 65407),

Gene: Glubnar\_96 Start: 65722, Stop: 65234, Start Num: 57

Candidate Starts for Glubnar\_96:

(Start: 57 @65722 has 51 MA's), (66, 65683), (67, 65680), (69, 65605), (71, 65596), (76, 65554), (87, 65446), (93, 65404), (103, 65341), (107, 65323),

Gene: Godines\_84 Start: 63740, Stop: 63144, Start Num: 24

Candidate Starts for Godines\_84:

(16, 63851), (Start: 24 @63740 has 19 MA's), (Start: 26 @63722 has 3 MA's), (Start: 37 @63674 has 13 MA's), (42, 63647), (52, 63611), (61, 63569), (64, 63560), (69, 63464), (74, 63428), (81, 63356), (93, 63260), (94, 63254), (101, 63212), (103, 63200),

Gene: Gyarad\_0095 Start: 66382, Stop: 65804, Start Num: 39

Candidate Starts for Gyarad\_0095:

(Start: 39 @66382 has 6 MA's), (Start: 46 @66343 has 1 MA's), (Start: 56 @66301 has 3 MA's), (69, 66175), (72, 66154), (74, 66142), (81, 66070), (96, 65956), (103, 65917), (107, 65899),

Gene: HSavage\_94 Start: 66365, Stop: 65787, Start Num: 39

Candidate Starts for HSavage\_94:

(Start: 39 @66365 has 6 MA's), (Start: 46 @66326 has 1 MA's), (Start: 56 @66284 has 3 MA's), (69, 66158), (72, 66137), (74, 66125), (81, 66053), (96, 65939), (103, 65900), (107, 65882),

Gene: Halfpint\_95 Start: 65551, Stop: 65063, Start Num: 57

Candidate Starts for Halfpint\_95:

(Start: 57 @65551 has 51 MA's), (66, 65512), (67, 65509), (69, 65434), (71, 65425), (76, 65383), (87, 65275), (93, 65233), (103, 65170), (107, 65152),

Gene: HarveySr\_93 Start: 64875, Stop: 64387, Start Num: 57

Candidate Starts for HarveySr\_93:

(Start: 57 @64875 has 51 MA's), (66, 64836), (67, 64833), (69, 64758), (71, 64749), (76, 64707), (87, 64599), (93, 64557), (103, 64494), (107, 64476),

Gene: Hashim76\_100 Start: 69243, Stop: 68725, Start Num: 47

Candidate Starts for Hashim76\_100:

(4, 70089), (Start: 47 @69243 has 2 MA's), (53, 69222), (Start: 56 @69201 has 3 MA's), (63, 69174), (64, 69171), (74, 69042), (76, 69024), (81, 68967), (84, 68958), (103, 68808),

Gene: Heathcliff\_96 Start: 65730, Stop: 65242, Start Num: 57

Candidate Starts for Heathcliff\_96:

(Start: 57 @65730 has 51 MA's), (66, 65691), (67, 65688), (69, 65613), (71, 65604), (76, 65562), (87, 65454), (93, 65412), (103, 65349), (107, 65331),

Gene: Hedgerow\_84 Start: 63791, Stop: 63195, Start Num: 24

Candidate Starts for Hedgerow\_84:

(16, 63902), (Start: 24 @63791 has 19 MA's), (Start: 26 @63773 has 3 MA's), (Start: 37 @63725 has 13 MA's), (42, 63698), (49, 63671), (52, 63662), (61, 63620), (64, 63611), (69, 63515), (74, 63479), (81, 63407), (93, 63311), (94, 63305), (101, 63263), (103, 63251),

Gene: Holeinone\_84 Start: 63681, Stop: 63085, Start Num: 24

Candidate Starts for Holeinone\_84:

(16, 63792), (Start: 24 @63681 has 19 MA's), (Start: 26 @63663 has 3 MA's), (Start: 37 @63615 has 13 MA's), (42, 63588), (52, 63552), (61, 63510), (64, 63501), (69, 63405), (74, 63369), (81, 63297), (93, 63201), (94, 63195), (101, 63153), (103, 63141),

Gene: Horchata\_91 Start: 66558, Stop: 65962, Start Num: 35

Candidate Starts for Horchata\_91:

(14, 66816), (17, 66714), (Start: 35 @66558 has 2 MA's), (Start: 46 @66501 has 1 MA's), (Start: 56 @66459 has 3 MA's), (69, 66333), (72, 66312), (74, 66300), (96, 66114), (103, 66075), (107, 66057),

Gene: Imvubu\_92 Start: 66340, Stop: 65831, Start Num: 43

Candidate Starts for Imvubu\_92:

(25, 66430), (Start: 43 @66340 has 1 MA's), (Start: 58 @66280 has 1 MA's), (71, 66154), (75, 66127), (82, 66049), (96, 65932), (97, 65929), (101, 65905), (103, 65893), (107, 65875), (109, 65863),

Gene: Indlovu\_88 Start: 67222, Stop: 66713, Start Num: 56

Candidate Starts for Indlovu\_88:

(Start: 56 @67222 has 3 MA's), (69, 67096), (71, 67087), (72, 67075), (91, 66898), (93, 66895), (98, 66874), (103, 66838), (110, 66802), (114, 66775), (120, 66736),

Gene: ItsyBitsy1\_81 Start: 63908, Stop: 63312, Start Num: 24

Candidate Starts for ItsyBitsy1\_81:

(16, 64019), (Start: 24 @63908 has 19 MA's), (Start: 26 @63890 has 3 MA's), (Start: 37 @63842 has 13 MA's), (42, 63815), (52, 63779), (61, 63737), (64, 63728), (69, 63632), (74, 63596), (81, 63524), (93, 63428), (94, 63422), (101, 63380), (103, 63368),

Gene: Jackstina\_89 Start: 65647, Stop: 65159, Start Num: 57

Candidate Starts for Jackstina\_89:

(Start: 57 @65647 has 51 MA's), (66, 65608), (67, 65605), (69, 65530), (71, 65521), (76, 65479), (87, 65371), (93, 65329), (103, 65266), (107, 65248),

Gene: Jolie1\_089 Start: 66284, Stop: 65610, Start Num: 38

Candidate Starts for Jolie1\_089:

(18, 66428), (Start: 38 @66284 has 2 MA's), (55, 66203), (59, 66194), (69, 66074), (73, 66044), (81, 65972), (85, 65960), (102, 65819), (103, 65816), (107, 65798), (113, 65771), (117, 65747), (119, 65732),

Gene: Kaleb\_84 Start: 63837, Stop: 63241, Start Num: 24

Candidate Starts for Kaleb\_84:

(16, 63948), (Start: 24 @63837 has 19 MA's), (Start: 26 @63819 has 3 MA's), (Start: 37 @63771 has 13 MA's), (42, 63744), (52, 63708), (61, 63666), (64, 63657), (69, 63561), (74, 63525), (81, 63453), (93, 63357), (94, 63351), (101, 63309), (103, 63297),

Gene: Kamiyu\_96 Start: 65734, Stop: 65246, Start Num: 57

Candidate Starts for Kamiyu\_96:

(Start: 57 @65734 has 51 MA's), (66, 65695), (67, 65692), (69, 65617), (71, 65608), (76, 65566), (87, 65458), (93, 65416), (103, 65353), (107, 65335),

Gene: KayaCho\_87 Start: 66154, Stop: 65498, Start Num: 38

Candidate Starts for KayaCho\_87:

(Start: 38 @66154 has 2 MA's), (55, 66085), (68, 65983), (69, 65956), (73, 65926), (81, 65851), (85, 65839), (93, 65755), (102, 65698), (103, 65695), (107, 65677), (113, 65650), (117, 65623),

Gene: Kheth\_84 Start: 63754, Stop: 63146, Start Num: 22

Candidate Starts for Kheth\_84:

(1, 65020), (3, 64510), (5, 64258), (9, 64078), (13, 63949), (Start: 22 @63754 has 1 MA's), (Start: 37 @63676 has 13 MA's), (42, 63649), (49, 63622), (52, 63613), (61, 63571), (64, 63562), (69, 63466), (74, 63430), (81, 63358), (93, 63262), (94, 63256), (101, 63214), (103, 63202),

Gene: Knocker\_87 Start: 67165, Stop: 66737, Start Num: 54

Candidate Starts for Knocker\_87:

(7, 67660), (Start: 54 @67165 has 2 MA's), (62, 67135), (69, 67036), (71, 67027), (90, 66841), (92, 66835), (103, 66778), (107, 66760),

Gene: Kolhan\_85 Start: 63664, Stop: 63134, Start Num: 37

Candidate Starts for Kolhan\_85:

(16, 63841), (Start: 24 @63730 has 19 MA's), (Start: 26 @63712 has 3 MA's), (Start: 37 @63664 has 13 MA's), (42, 63637), (49, 63610), (52, 63601), (61, 63559), (64, 63550), (69, 63454), (74, 63418), (81, 63346), (93, 63250), (94, 63244), (101, 63202), (103, 63190),

Gene: Kronus\_96 Start: 66819, Stop: 66331, Start Num: 57

Candidate Starts for Kronus\_96:

(Start: 57 @66819 has 51 MA's), (66, 66780), (67, 66777), (69, 66702), (71, 66693), (76, 66651), (87, 66543), (93, 66501), (103, 66438), (107, 66420),

Gene: Lars\_85 Start: 63740, Stop: 63210, Start Num: 37

Candidate Starts for Lars\_85:

(3, 64574), (5, 64322), (9, 64142), (13, 64013), (Start: 22 @63818 has 1 MA's), (Start: 37 @63740 has 13 MA's), (42, 63713), (49, 63686), (52, 63677), (61, 63635), (64, 63626), (69, 63530), (74, 63494), (81, 63422), (93, 63326), (94, 63320), (101, 63278), (103, 63266),

Gene: Laurie\_83 Start: 63078, Stop: 62548, Start Num: 37

Candidate Starts for Laurie\_83:

(3, 63918), (5, 63666), (9, 63486), (13, 63357), (Start: 22 @63162 has 1 MA's), (Start: 37 @63078 has 13 MA's), (42, 63051), (49, 63024), (52, 63015), (61, 62973), (64, 62964), (69, 62868), (74, 62832), (81, 62760), (93, 62664), (94, 62658), (101, 62616), (103, 62604),

Gene: Lehmann\_97 Start: 66916, Stop: 66377, Start Num: 46

Candidate Starts for Lehmann\_97:

(14, 67195), (17, 67093), (29, 66955), (Start: 46 @66916 has 1 MA's), (Start: 56 @66874 has 3 MA's), (69, 66748), (72, 66727), (74, 66715), (81, 66643), (96, 66529), (103, 66490), (107, 66472),

Gene: Lephleur\_84 Start: 63596, Stop: 63066, Start Num: 37

Candidate Starts for Lephleur\_84:

(16, 63773), (Start: 24 @63662 has 19 MA's), (Start: 26 @63644 has 3 MA's), (Start: 37 @63596 has 13 MA's), (42, 63569), (52, 63533), (61, 63491), (64, 63482), (69, 63386), (74, 63350), (81, 63278), (93, 63182), (94, 63176), (101, 63134), (103, 63122),

Gene: LestyG\_94 Start: 65305, Stop: 64817, Start Num: 57

Candidate Starts for LestyG\_94:

(Start: 57 @65305 has 51 MA's), (66, 65266), (67, 65263), (69, 65188), (71, 65179), (76, 65137), (87, 65029), (93, 64987), (103, 64924), (107, 64906),

Gene: LilSmirk\_84 Start: 63683, Stop: 63105, Start Num: 26

Candidate Starts for LilSmirk\_84:

(16, 63812), (Start: 24 @63701 has 19 MA's), (Start: 26 @63683 has 3 MA's), (Start: 37 @63635 has 13 MA's), (42, 63608), (49, 63581), (52, 63572), (61, 63530), (64, 63521), (69, 63425), (74, 63389), (81, 63317), (93, 63221), (94, 63215), (101, 63173), (103, 63161),

Gene: LilyPad\_39 Start: 32381, Stop: 32785, Start Num: 58

Candidate Starts for LilyPad\_39:

(20, 32234), (Start: 31 @32309 has 4 MA's), (Start: 58 @32381 has 1 MA's), (88, 32654), (100, 32702), (108, 32756),

Gene: LittleMinkey\_107 Start: 69748, Stop: 69230, Start Num: 47

Candidate Starts for LittleMinkey\_107:

(Start: 47 @69748 has 2 MA's), (53, 69727), (Start: 56 @69706 has 3 MA's), (63, 69679), (64, 69676), (74, 69547), (76, 69529), (81, 69472), (84, 69463), (103, 69313),

Gene: LizLemon\_84 Start: 63833, Stop: 63237, Start Num: 24

Candidate Starts for LizLemon\_84:

(16, 63944), (Start: 24 @63833 has 19 MA's), (Start: 26 @63815 has 3 MA's), (Start: 37 @63767 has 13 MA's), (42, 63740), (49, 63713), (52, 63704), (61, 63662), (64, 63653), (69, 63557), (74, 63521), (81, 63449), (93, 63353), (94, 63347), (101, 63305), (103, 63293),

Gene: Madi\_36 Start: 30966, Stop: 31496, Start Num: 34

Candidate Starts for Madi\_36:

(Start: 31 @30957 has 4 MA's), (Start: 34 @30966 has 1 MA's), (Start: 48 @31035 has 2 MA's), (60, 31074), (79, 31269), (84, 31290), (86, 31314), (100, 31413), (104, 31446), (108, 31467),

Gene: Marley1013\_94 Start: 66265, Stop: 65777, Start Num: 57

Candidate Starts for Marley1013\_94:

(Start: 57 @66265 has 51 MA's), (66, 66226), (67, 66223), (69, 66148), (71, 66139), (76, 66097), (87, 65989), (93, 65947), (103, 65884), (107, 65866),

Gene: Marlia\_96 Start: 65827, Stop: 65339, Start Num: 57

Candidate Starts for Marlia\_96:

(Start: 57 @65827 has 51 MA's), (66, 65788), (67, 65785), (69, 65710), (71, 65701), (76, 65659), (87, 65551), (93, 65509), (103, 65446), (107, 65428),

Gene: MasterPo\_85 Start: 63636, Stop: 63106, Start Num: 37

Candidate Starts for MasterPo\_85:

(16, 63813), (Start: 24 @63702 has 19 MA's), (Start: 26 @63684 has 3 MA's), (Start: 37 @63636 has 13 MA's), (42, 63609), (49, 63582), (52, 63573), (61, 63531), (64, 63522), (65, 63516), (69, 63426), (74, 63390), (81, 63318), (93, 63222), (94, 63216), (101, 63174), (103, 63162),

Gene: MmasiCarm\_97 Start: 66162, Stop: 65674, Start Num: 57

Candidate Starts for MmasiCarm\_97:

(Start: 57 @66162 has 51 MA's), (66, 66123), (67, 66120), (69, 66045), (71, 66036), (76, 65994), (87, 65886), (93, 65844), (103, 65781), (107, 65763),

Gene: Mortcellus\_96 Start: 66900, Stop: 66412, Start Num: 57

Candidate Starts for Mortcellus\_96:

(Start: 57 @66900 has 51 MA's), (66, 66861), (67, 66858), (69, 66783), (71, 66774), (76, 66732), (87, 66624), (93, 66582), (103, 66519), (107, 66501),

Gene: Morty007\_94 Start: 66532, Stop: 66044, Start Num: 57

Candidate Starts for Morty007\_94:

(Start: 57 @66532 has 51 MA's), (66, 66493), (67, 66490), (69, 66415), (71, 66406), (76, 66364), (87, 66256), (93, 66214), (103, 66151), (107, 66133),

Gene: Mulaychimus\_97 Start: 66341, Stop: 65853, Start Num: 57

Candidate Starts for Mulaychimus\_97:

(Start: 57 @66341 has 51 MA's), (66, 66302), (67, 66299), (69, 66224), (71, 66215), (76, 66173), (87, 66065), (93, 66023), (103, 65960), (107, 65942),

Gene: Nangang\_90 Start: 66354, Stop: 65737, Start Num: 45

Candidate Starts for Nangang\_90:

(7, 66789), (21, 66459), (45, 66354), (69, 66186), (71, 66177), (85, 66069), (99, 65952), (103, 65928), (107, 65910), (121, 65817),

Gene: Neos5\_95 Start: 65988, Stop: 65500, Start Num: 57

Candidate Starts for Neos5\_95:

(Start: 57 @65988 has 51 MA's), (66, 65949), (67, 65946), (69, 65871), (71, 65862), (76, 65820), (87, 65712), (93, 65670), (103, 65607), (107, 65589),

Gene: Nozo\_96 Start: 66541, Stop: 66053, Start Num: 57

Candidate Starts for Nozo\_96:

(Start: 57 @66541 has 51 MA's), (66, 66502), (67, 66499), (69, 66424), (71, 66415), (76, 66373), (87, 66265), (93, 66223), (103, 66160), (107, 66142),

Gene: Obutu\_98 Start: 66345, Stop: 65857, Start Num: 57

Candidate Starts for Obutu\_98:

(Start: 57 @66345 has 51 MA's), (66, 66306), (67, 66303), (69, 66228), (71, 66219), (76, 66177), (87, 66069), (93, 66027), (103, 65964), (107, 65946),

Gene: Olivio\_96 Start: 65939, Stop: 65493, Start Num: 67

Candidate Starts for Olivio\_96:

(Start: 57 @65981 has 51 MA's), (66, 65942), (67, 65939), (69, 65864), (71, 65855), (76, 65813), (87, 65705), (93, 65663), (103, 65600), (107, 65582),

Gene: Opia\_85 Start: 63726, Stop: 63130, Start Num: 24

Candidate Starts for Opia\_85:

(16, 63837), (Start: 24 @63726 has 19 MA's), (Start: 26 @63708 has 3 MA's), (Start: 37 @63660 has 13 MA's), (42, 63633), (49, 63606), (52, 63597), (61, 63555), (64, 63546), (69, 63450), (74, 63414), (81, 63342), (93, 63246), (94, 63240), (101, 63198), (103, 63186),

Gene: OrangeOswald\_95 Start: 65776, Stop: 65288, Start Num: 57

Candidate Starts for OrangeOswald\_95:

(Start: 57 @65776 has 51 MA's), (66, 65737), (67, 65734), (69, 65659), (71, 65650), (76, 65608), (87, 65500), (93, 65458), (103, 65395), (107, 65377),

Gene: PenguinLover67\_87 Start: 65234, Stop: 64770, Start Num: 56

Candidate Starts for PenguinLover67\_87:

(Start: 56 @65234 has 3 MA's), (60, 65225), (73, 65075), (74, 65072), (78, 65024), (85, 64988), (103, 64847), (107, 64829),

Gene: Phaedrus\_91 Start: 65191, Stop: 64703, Start Num: 57

Candidate Starts for Phaedrus\_91:

(Start: 57 @65191 has 51 MA's), (66, 65152), (67, 65149), (69, 65074), (71, 65065), (76, 65023), (87, 64915), (93, 64873), (103, 64810), (107, 64792),

Gene: Phantasmagoria\_83 Start: 63643, Stop: 63113, Start Num: 37

Candidate Starts for Phantasmagoria\_83:

(16, 63820), (Start: 24 @63709 has 19 MA's), (Start: 26 @63691 has 3 MA's), (Start: 37 @63643 has 13 MA's), (42, 63616), (49, 63589), (52, 63580), (61, 63538), (64, 63529), (69, 63433), (74, 63397), (81, 63325), (93, 63229), (94, 63223), (101, 63181), (103, 63169),

Gene: Phayeta\_98 Start: 66026, Stop: 65538, Start Num: 57

Candidate Starts for Phayeta\_98:

(Start: 57 @66026 has 51 MA's), (66, 65987), (67, 65984), (69, 65909), (71, 65900), (76, 65858), (87, 65750), (93, 65708), (103, 65645), (107, 65627),

Gene: Philly\_95 Start: 65624, Stop: 65136, Start Num: 57

Candidate Starts for Philly\_95:

(Start: 57 @65624 has 51 MA's), (66, 65585), (67, 65582), (69, 65507), (71, 65498), (76, 65456), (87, 65348), (93, 65306), (103, 65243), (107, 65225),

Gene: Phlyer\_96 Start: 66486, Stop: 65998, Start Num: 57

Candidate Starts for Phlyer\_96:

(Start: 57 @66486 has 51 MA's), (66, 66447), (67, 66444), (69, 66369), (71, 66360), (76, 66318), (87, 66210), (93, 66168), (103, 66105), (107, 66087),

Gene: Pipefish\_95 Start: 66160, Stop: 65672, Start Num: 57

Candidate Starts for Pipefish\_95:

(Start: 57 @66160 has 51 MA's), (66, 66121), (67, 66118), (69, 66043), (71, 66034), (76, 65992), (87, 65884), (93, 65842), (103, 65779), (107, 65761),

Gene: Pops\_94 Start: 66731, Stop: 66201, Start Num: 46

Candidate Starts for Pops\_94:

(Start: 46 @66731 has 1 MA's), (Start: 56 @66698 has 3 MA's), (69, 66572), (72, 66551), (74, 66539), (81, 66467), (96, 66353), (103, 66314), (107, 66296),

Gene: PrinceCharming\_84 Start: 63736, Stop: 63158, Start Num: 26

Candidate Starts for PrinceCharming\_84:

(16, 63865), (Start: 24 @63754 has 19 MA's), (Start: 26 @63736 has 3 MA's), (Start: 37 @63688 has 13 MA's), (42, 63661), (49, 63634), (52, 63625), (61, 63583), (64, 63574), (69, 63478), (74, 63442), (81, 63370), (93, 63274), (94, 63268), (101, 63226), (103, 63214),

Gene: Quesadilla\_90 Start: 66835, Stop: 66329, Start Num: 44

Candidate Starts for Quesadilla\_90:

(Start: 44 @66835 has 1 MA's), (Start: 57 @66787 has 51 MA's), (78, 66583), (80, 66580), (83, 66553), (93, 66463), (94, 66457), (103, 66406), (107, 66388), (110, 66370), (112, 66361),

Gene: Qyrzula\_75 Start: 63848, Stop: 63252, Start Num: 24

Candidate Starts for Qyrzula\_75:

(16, 63959), (Start: 24 @63848 has 19 MA's), (Start: 26 @63830 has 3 MA's), (Start: 37 @63782 has 13 MA's), (42, 63755), (49, 63728), (52, 63719), (61, 63677), (64, 63668), (69, 63572), (74, 63536), (81, 63464), (93, 63368), (94, 63362), (101, 63320), (103, 63308),

Gene: RagingRooster\_96 Start: 65772, Stop: 65284, Start Num: 57

Candidate Starts for RagingRooster\_96:

(Start: 57 @65772 has 51 MA's), (66, 65733), (67, 65730), (69, 65655), (71, 65646), (76, 65604), (87, 65496), (93, 65454), (103, 65391), (107, 65373),

Gene: Rhinoforte\_84 Start: 63745, Stop: 63149, Start Num: 24

Candidate Starts for Rhinoforte\_84:

(16, 63856), (Start: 24 @63745 has 19 MA's), (Start: 26 @63727 has 3 MA's), (Start: 37 @63679 has 13 MA's), (42, 63652), (49, 63625), (52, 63616), (61, 63574), (64, 63565), (69, 63469), (74, 63433), (81, 63361), (93, 63265), (94, 63259), (101, 63217), (103, 63205),

Gene: Rinkes\_86 Start: 67114, Stop: 66665, Start Num: 51

Candidate Starts for Rinkes\_86:

(Start: 51 @67114 has 1 MA's), (74, 66943), (75, 66940), (78, 66895), (89, 66772), (95, 66751), (97, 66742), (103, 66706),

Gene: Rita1961\_97 Start: 66117, Stop: 65629, Start Num: 57

Candidate Starts for Rita1961\_97:

(Start: 57 @66117 has 51 MA's), (66, 66078), (67, 66075), (69, 66000), (71, 65991), (76, 65949), (87, 65841), (93, 65799), (103, 65736), (107, 65718),

Gene: RomaT\_96 Start: 66340, Stop: 65852, Start Num: 57

Candidate Starts for RomaT\_96:

(Start: 57 @66340 has 51 MA's), (66, 66301), (67, 66298), (69, 66223), (71, 66214), (76, 66172), (87, 66064), (93, 66022), (103, 65959), (107, 65941),

Gene: Roscoe\_95 Start: 67027, Stop: 66401, Start Num: 27

Candidate Starts for Roscoe\_95:

(14, 67246), (17, 67144), (Start: 27 @67027 has 1 MA's), (Start: 39 @66979 has 6 MA's), (Start: 46 @66940 has 1 MA's), (Start: 56 @66898 has 3 MA's), (69, 66772), (72, 66751), (74, 66739), (81, 66667), (96, 66553), (103, 66514), (107, 66496),

Gene: Rosebush\_82 Start: 63817, Stop: 63221, Start Num: 24

Candidate Starts for Rosebush\_82:

(16, 63928), (Start: 24 @63817 has 19 MA's), (Start: 26 @63799 has 3 MA's), (Start: 37 @63751 has 13 MA's), (42, 63724), (52, 63688), (61, 63646), (64, 63637), (69, 63541), (74, 63505), (81, 63433), (93, 63337), (94, 63331), (101, 63289), (103, 63277),

Gene: Sabella\_84 Start: 63653, Stop: 63057, Start Num: 24

Candidate Starts for Sabella\_84:

(16, 63764), (Start: 24 @63653 has 19 MA's), (Start: 26 @63635 has 3 MA's), (Start: 37 @63587 has 13 MA's), (42, 63560), (49, 63533), (52, 63524), (61, 63482), (64, 63473), (69, 63377), (74, 63341), (81, 63269), (93, 63173), (94, 63167), (101, 63125), (103, 63113),

Gene: Saguaro\_82 Start: 64421, Stop: 63921, Start Num: 57

Candidate Starts for Saguaro\_82:

(Start: 57 @64421 has 51 MA's), (75, 64265), (81, 64196), (85, 64184), (91, 64103), (103, 64043), (110, 64007), (111, 64004), (114, 63980), (116, 63974),

Gene: Shenandoah\_96 Start: 65692, Stop: 65204, Start Num: 57

Candidate Starts for Shenandoah\_96:

(Start: 57 @65692 has 51 MA's), (66, 65653), (67, 65650), (69, 65575), (71, 65566), (76, 65524), (87, 65416), (93, 65374), (103, 65311), (107, 65293),

Gene: Shenyu\_90 Start: 66352, Stop: 65735, Start Num: 45

Candidate Starts for Shenyu\_90:

(7, 66787), (21, 66457), (45, 66352), (69, 66184), (71, 66175), (85, 66067), (99, 65950), (103, 65926), (107, 65908), (121, 65815),

Gene: Sienna\_36 Start: 30957, Stop: 31496, Start Num: 31

Candidate Starts for Sienna\_36:

(Start: 31 @30957 has 4 MA's), (Start: 34 @30966 has 1 MA's), (Start: 48 @31035 has 2 MA's), (60, 31074), (79, 31269), (84, 31290), (86, 31314), (100, 31413), (104, 31446), (108, 31467),

Gene: SlippinJimmy\_99 Start: 67140, Stop: 66652, Start Num: 57

Candidate Starts for SlippinJimmy\_99:

(Start: 57 @67140 has 51 MA's), (66, 67101), (67, 67098), (69, 67023), (71, 67014), (76, 66972), (87, 66864), (93, 66822), (103, 66759), (107, 66741),

Gene: Suigeneris\_90 Start: 66233, Stop: 65547, Start Num: 28

Candidate Starts for Suigeneris\_90:

(2, 67112), (7, 66617), (21, 66287), (Start: 28 @66233 has 3 MA's), (45, 66158), (69, 65993), (71, 65984), (85, 65876), (99, 65759), (103, 65735), (107, 65717), (115, 65681), (122, 65600),

Gene: Suzy\_36 Start: 31538, Stop: 32008, Start Num: 48

Candidate Starts for Suzy\_36:

(30, 31457), (33, 31466), (36, 31484), (Start: 48 @31538 has 2 MA's), (60, 31577), (77, 31772), (84, 31802), (100, 31925), (104, 31958), (106, 31964), (108, 31979),

Gene: SwainyDoc\_96 Start: 66206, Stop: 65718, Start Num: 57

Candidate Starts for SwainyDoc\_96:

(Start: 57 @66206 has 51 MA's), (66, 66167), (67, 66164), (69, 66089), (71, 66080), (76, 66038), (87, 65930), (93, 65888), (103, 65825), (107, 65807),

Gene: SynergyX\_97 Start: 66082, Stop: 65594, Start Num: 57

Candidate Starts for SynergyX\_97:

(Start: 57 @66082 has 51 MA's), (66, 66043), (67, 66040), (69, 65965), (71, 65956), (76, 65914), (87, 65806), (93, 65764), (103, 65701), (107, 65683),

Gene: TA17A\_87 Start: 63660, Stop: 63064, Start Num: 24

Candidate Starts for TA17A\_87:

(16, 63771), (Start: 24 @63660 has 19 MA's), (Start: 26 @63642 has 3 MA's), (Start: 37 @63594 has 13 MA's), (42, 63567), (52, 63531), (61, 63489), (64, 63480), (69, 63384), (74, 63348), (81, 63276), (93, 63180), (94, 63174), (101, 63132), (103, 63120),

Gene: Terapin\_37 Start: 30953, Stop: 31420, Start Num: 48

Candidate Starts for Terapin\_37:

(8, 30491), (11, 30506), (15, 30716), (23, 30824), (Start: 31 @30875 has 4 MA's), (Start: 34 @30884 has 1 MA's), (Start: 48 @30953 has 2 MA's), (50, 30959), (60, 30998), (79, 31193), (84, 31214), (86, 31238), (100, 31337), (104, 31370), (108, 31391),

Gene: Tinciduntolum\_85 Start: 63824, Stop: 63228, Start Num: 24

Candidate Starts for Tinciduntolum\_85:

(16, 63935), (Start: 24 @63824 has 19 MA's), (Start: 26 @63806 has 3 MA's), (Start: 37 @63758 has 13 MA's), (42, 63731), (49, 63704), (52, 63695), (61, 63653), (64, 63644), (69, 63548), (74, 63512), (81, 63440), (93, 63344), (94, 63338), (101, 63296), (103, 63284),

Gene: TinyTerror\_97 Start: 66203, Stop: 65715, Start Num: 57

Candidate Starts for TinyTerror\_97:

(Start: 57 @66203 has 51 MA's), (66, 66164), (67, 66161), (69, 66086), (71, 66077), (76, 66035), (87, 65927), (93, 65885), (103, 65822), (107, 65804),

Gene: Tres\_84 Start: 63660, Stop: 63079, Start Num: 26

Candidate Starts for Tres\_84:

(16, 63789), (Start: 24 @63678 has 19 MA's), (Start: 26 @63660 has 3 MA's), (Start: 37 @63609 has 13 MA's), (42, 63582), (49, 63555), (52, 63546), (61, 63504), (64, 63495), (69, 63399), (74, 63363), (81, 63291), (93, 63195), (94, 63189), (101, 63147), (103, 63135),

Gene: Triad\_96 Start: 66221, Stop: 65682, Start Num: 46

Candidate Starts for Triad\_96:

(14, 66500), (17, 66398), (29, 66260), (Start: 46 @66221 has 1 MA's), (Start: 56 @66179 has 3 MA's), (69, 66053), (72, 66032), (74, 66020), (81, 65948), (96, 65834), (103, 65795), (107, 65777),

Gene: Tydolla\_92 Start: 65758, Stop: 65270, Start Num: 57

Candidate Starts for Tydolla\_92:

(Start: 57 @65758 has 51 MA's), (66, 65719), (67, 65716), (69, 65641), (71, 65632), (76, 65590), (87, 65482), (93, 65440), (103, 65377), (107, 65359),

Gene: Vic9\_00082 Start: 64144, Stop: 63614, Start Num: 37

Candidate Starts for Vic9\_00082:

(3, 64978), (5, 64726), (9, 64546), (13, 64417), (Start: 22 @64222 has 1 MA's), (Start: 37 @64144 has 13 MA's), (42, 64117), (49, 64090), (52, 64081), (61, 64039), (64, 64030), (69, 63934), (74, 63898), (81, 63826), (93, 63730), (94, 63724), (101, 63682), (103, 63670),

Gene: Vivaldi\_97 Start: 67032, Stop: 66454, Start Num: 39

Candidate Starts for Vivaldi\_97:

(Start: 39 @67032 has 6 MA's), (Start: 46 @66993 has 1 MA's), (Start: 56 @66951 has 3 MA's), (69, 66825), (72, 66804), (74, 66792), (81, 66720), (96, 66606), (103, 66567), (107, 66549),

Gene: West99\_84 Start: 63829, Stop: 63251, Start Num: 26

Candidate Starts for West99\_84:

(16, 63958), (Start: 24 @63847 has 19 MA's), (Start: 26 @63829 has 3 MA's), (Start: 37 @63781 has 13 MA's), (42, 63754), (49, 63727), (52, 63718), (61, 63676), (64, 63667), (69, 63571), (74, 63535), (81, 63463), (93, 63367), (94, 63361), (101, 63319), (103, 63307),

Gene: Yahalom\_94 Start: 65583, Stop: 65095, Start Num: 57

Candidate Starts for Yahalom\_94:

(Start: 57 @65583 has 51 MA's), (66, 65544), (67, 65541), (69, 65466), (71, 65457), (76, 65415), (87, 65307), (93, 65265), (103, 65202), (107, 65184),

Gene: Yinz\_94 Start: 65180, Stop: 64692, Start Num: 57

Candidate Starts for Yinz\_94:

(19, 65402), (29, 65300), (Start: 57 @65180 has 51 MA's), (66, 65141), (67, 65138), (69, 65063), (71, 65054), (76, 65012), (87, 64904), (93, 64862), (103, 64799), (107, 64781),

Gene: Zenteno07\_105 Start: 69900, Stop: 69328, Start Num: 32

Candidate Starts for Zenteno07\_105:

(10, 70275), (Start: 32 @69900 has 1 MA's), (Start: 47 @69834 has 2 MA's), (Start: 56 @69792 has 3 MA's), (64, 69762), (74, 69633), (76, 69615), (81, 69558), (84, 69549), (103, 69399), (105, 69384),