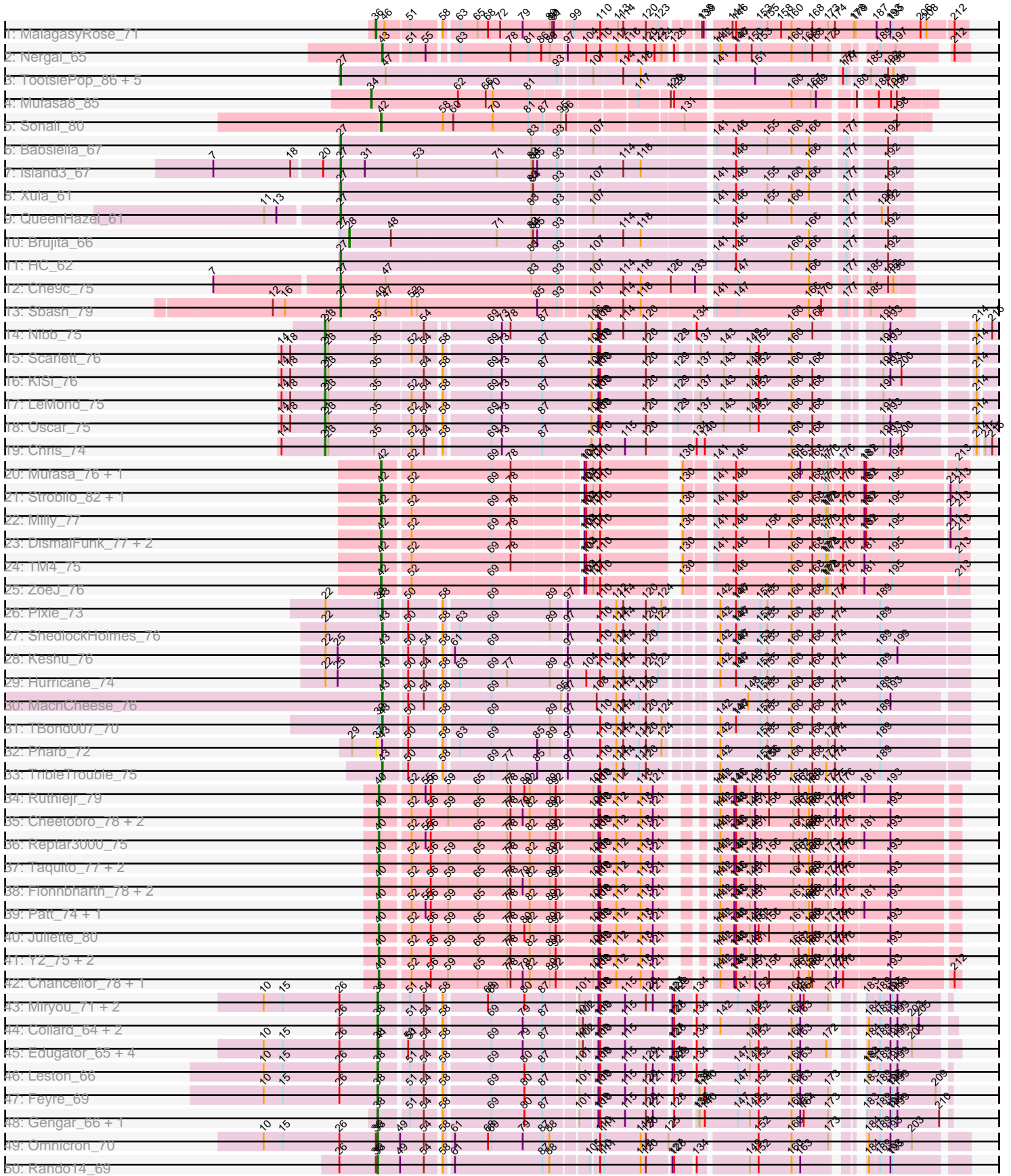
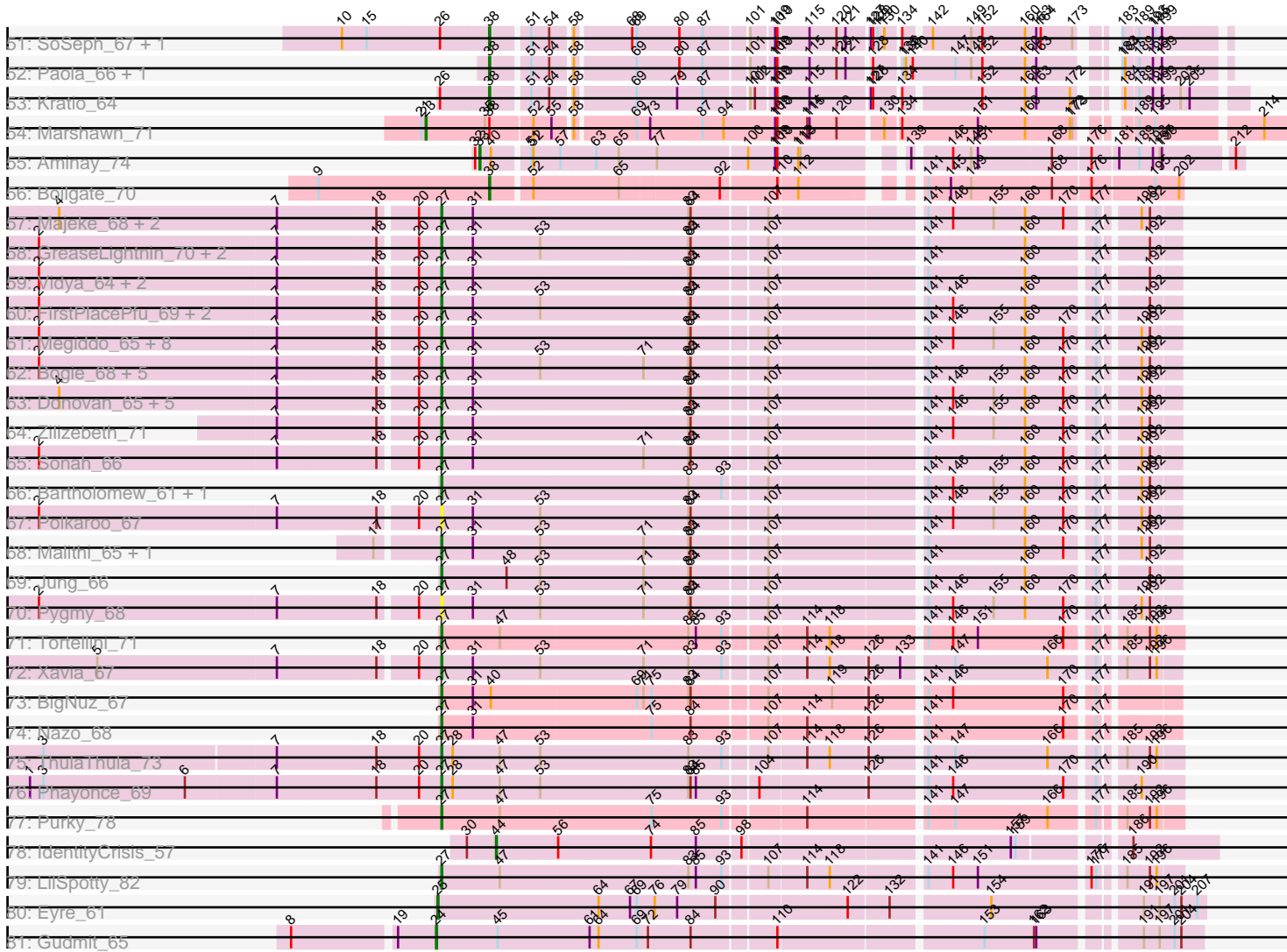


Pham 157671



Pham 157671



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 157671 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157671 has 139 members, 10 are drafts.

Phages represented in each track:

- Track 1 : MalagasyRose\_71
- Track 2 : Nergal\_65
- Track 3 : TootsiePop\_86, Misha28\_86, Awesomesauce\_87, Piper2020\_91, ChickenDinner\_90, DocMcStuffins\_83
- Track 4 : Mufasa8\_85
- Track 5 : Sonali\_80
- Track 6 : Babsiella\_67
- Track 7 : Island3\_67
- Track 8 : Xula\_61
- Track 9 : QueenHazel\_61
- Track 10 : Brujita\_66
- Track 11 : HC\_62
- Track 12 : Che9c\_75
- Track 13 : Sbash\_79
- Track 14 : Nibb\_75
- Track 15 : Scarlett\_76
- Track 16 : KiSi\_76
- Track 17 : LeMond\_75
- Track 18 : Oscar\_75
- Track 19 : Chris\_74
- Track 20 : Mufasa\_76, BoostSeason\_76
- Track 21 : Strobilo\_82, Findley\_77
- Track 22 : Milly\_77
- Track 23 : DismalFunk\_77, Marcoliusprime\_76, DismalStressor\_77
- Track 24 : TM4\_75
- Track 25 : ZoeJ\_76
- Track 26 : Pixie\_73
- Track 27 : ShedlockHolmes\_76
- Track 28 : Keshu\_76
- Track 29 : Hurricane\_74
- Track 30 : MacnCheese\_76
- Track 31 : TBond007\_70
- Track 32 : Pharb\_72
- Track 33 : TribbleTrouble\_75
- Track 34 : Ruthiejr\_79
- Track 35 : Cheetobro\_78, Slarp\_78, OmniCritical\_78
- Track 36 : Reptar3000\_75

- Track 37 : Taquito\_77, Malthus\_79, Mitti\_78
- Track 38 : Fionnbharth\_78, Eponine\_80, Wintermute\_78
- Track 39 : Patt\_74, MissDaisy\_75
- Track 40 : Juliette\_80
- Track 41 : Y2\_75, Y10\_75, JF1\_78
- Track 42 : Chancellor\_78, SamScheppers\_77
- Track 43 : Miryou\_71, Waterfoul\_68, Thyatira\_69
- Track 44 : Collard\_64, InvictusManeo\_64, Agent47\_64
- Track 45 : Edugator\_65, Dadosky\_68, AlleyCat\_68, Psycho\_66, Larva\_67
- Track 46 : Leston\_66
- Track 47 : Feyre\_69
- Track 48 : Gengar\_66, OkiRoe\_67
- Track 49 : Omnicron\_70
- Track 50 : Rando14\_69
- Track 51 : SoSeph\_67, Heftyboy\_67
- Track 52 : Paola\_66, Guillsminger\_67
- Track 53 : Kratio\_64
- Track 54 : Marshawn\_71
- Track 55 : Aminay\_74
- Track 56 : Boilgate\_70
- Track 57 : Majeke\_68, Phegasus\_68, Mangethe\_68
- Track 58 : GreaseLightnin\_70, StevieRay\_70, Atcoo\_67
- Track 59 : Vidya\_64, Thespis\_67, Brusacoram\_67
- Track 60 : FirstPlacePfu\_69, Bunnies\_71, Ksquared\_69
- Track 61 : Megiddo\_65, Willsammy\_67, Jebeks\_66, CactusJack\_66, Juniormint\_63, StressBall\_65, Glaske\_65, Phalm\_66, KilKor\_66
- Track 62 : Bogie\_68, HUHilltop\_68, Necropolis\_63, Camster\_66, Dynamo\_65, Shipwreck\_68
- Track 63 : Donovan\_65, Arib1\_64, Fishburne\_64, Techage\_66, Kari\_63, Langerak\_65
- Track 64 : Zilizebeth\_71
- Track 65 : Sonah\_66
- Track 66 : Bartholomew\_61, Venti\_63
- Track 67 : Polkaroo\_67
- Track 68 : Malithi\_65, Phineas\_66
- Track 69 : Jung\_66
- Track 70 : Pygmy\_68
- Track 71 : Tortellini\_71
- Track 72 : Xavia\_67
- Track 73 : BigNuz\_67
- Track 74 : Nazo\_68
- Track 75 : ThulaThula\_73
- Track 76 : Phayonce\_69
- Track 77 : Purky\_78
- Track 78 : IdentityCrisis\_57
- Track 79 : LilSpotty\_82
- Track 80 : Eyre\_61
- Track 81 : Gudmit\_65

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

The start number called the most often in the published annotations is 27, it was called in 57 of the 129 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arib1\_64, Atcoo\_67, Awesomesauce\_87, Babsiella\_67, Bartholomew\_61, BigNuz\_67, Bogie\_68, Brusacoram\_67, Bunnies\_71, CactusJack\_66, Camster\_66, Che9c\_75, ChickenDinner\_90, DocMcStuffins\_83, Donovan\_65, Dynamo\_65, FirstPlacePfu\_69, Fishburne\_64, Glaske\_65, GreaseLightnin\_70, HC\_62, HUHilltop\_68, Island3\_67, Jebeks\_66, Jung\_66, Juniormint\_63, Kari\_63, KilKor\_66, Ksquared\_69, Langerak\_65, LilSpotty\_82, Majeke\_68, Malithi\_65, Mangethe\_68, Megiddo\_65, Misha28\_86, Nazo\_68, Necropolis\_63, Phalm\_66, Phayonce\_69, Phegasus\_68, Phineas\_66, Piper2020\_91, Polkaroo\_67, Purky\_78, Pygmy\_68, QueenHazel\_61, Sbash\_79, Shipwreck\_68, Sonah\_66, StevieRay\_70, StressBall\_65, Techage\_66, Thespis\_67, ThulaThula\_73, TootsiePop\_86, Tortellini\_71, Venti\_63, Vidya\_64, Willsammy\_67, Xavia\_67, Xula\_61, Zilizebeth\_71,

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

- Brujita\_66,

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

- Agent47\_64, AlleyCat\_68, Aminay\_74, Boilgate\_70, BoostSeason\_76, Chancellor\_78, Cheetobro\_78, Chris\_74, Collard\_64, Dadosky\_68, DismalFunk\_77, DismalStressor\_77, Edugator\_65, Eponine\_80, Eyre\_61, Feyre\_69, Findley\_77, Fionnbharth\_78, Gengar\_66, Gudmit\_65, Guillsminger\_67, Heftyboy\_67, Hurricane\_74, IdentityCrisis\_57, InvictusManeo\_64, JF1\_78, Juliette\_80, Keshu\_76, KiSi\_76, Kratio\_64, Larva\_67, LeMond\_75, Leston\_66, MacnCheese\_76, MalagasyRose\_71, Malthus\_79, Marcoliusprime\_76, Marshawn\_71, Milly\_77, Miryou\_71, MissDaisy\_75, Mitti\_78, Mufasa8\_85, Mufasa\_76, Nergal\_65, Nibb\_75, OkiRoe\_67, OmniCritical\_78, Omnicron\_70, Oscar\_75, Paola\_66, Patt\_74, Pharb\_72, Pixie\_73, Psycho\_66, Rando14\_69, Reptar3000\_75, Ruthiejr\_79, SamScheppers\_77, Scarlett\_76, ShedlockHolmes\_76, Slarp\_78, SoSeph\_67, Sonali\_80, Strobilo\_82, TBond007\_70, TM4\_75, Taquito\_77, Thyatira\_69, TripleTrouble\_75, Waterfoul\_68, Wintermute\_78, Y10\_75, Y2\_75, ZoeJ\_76,

### Summary by start number:

Start 21:

- Found in 7 of 139 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 6 of 129
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Chris\_74 (K1), KiSi\_76 (K1), LeMond\_75 (K1), Nibb\_75 (K1), Oscar\_75 (K1), Scarlett\_76 (K1),

Start 23:

- Found in 7 of 139 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 1 of 129
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Marshawn\_71 (K6),

Start 24:

- Found in 1 of 139 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 129

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gudmit\_65 (singleton),

#### Start 25:

- Found in 3 of 139 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 1 of 129
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Eyre\_61 (singleton),

#### Start 27:

- Found in 64 of 139 ( 46.0% ) of genes in pham
- Manual Annotations of this start: 57 of 129
- Called 98.4% of time when present
- Phage (with cluster) where this start called: Arib1\_64 (P1), Atcoo\_67 (P1), Awesomesauce\_87 (F1), Babsiella\_67 (I1), Bartholomew\_61 (P1), BigNuz\_67 (P4), Bogie\_68 (P1), Brusacoram\_67 (P1), Bunnies\_71 (P1), CactusJack\_66 (P1), Camster\_66 (P1), Che9c\_75 (I2), ChickenDinner\_90 (F1), DocMcStuffins\_83 (F1), Donovan\_65 (P1), Dynamo\_65 (P1), FirstPlacePfu\_69 (P1), Fishburne\_64 (P1), Glaske\_65 (P1), GreaseLightnin\_70 (P1), HC\_62 (I1), HUHilltop\_68 (P1), Island3\_67 (I1), Jebeks\_66 (P1), Jung\_66 (P1), Juniormint\_63 (P1), Kari\_63 (P1), KilKor\_66 (P1), Ksquared\_69 (P1), Langerak\_65 (P1), LilSpotty\_82 (singleton), Majeke\_68 (P1), Malithi\_65 (P1), Mangethe\_68 (P1), Megiddo\_65 (P1), Misha28\_86 (F1), Nazo\_68 (P4), Necropolis\_63 (P1), Phalm\_66 (P1), Phayonce\_69 (P5), Phegasus\_68 (P1), Phineas\_66 (P1), Piper2020\_91 (F1), Polkaroo\_67 (P1), Purky\_78 (P6), Pygmy\_68 (P1), QueenHazel\_61 (I1), Sbash\_79 (I2), Shipwreck\_68 (P1), Sonah\_66 (P1), StevieRay\_70 (P1), StressBall\_65 (P1), Techage\_66 (P1), Thespis\_67 (P1), ThulaThula\_73 (P5), TootsiePop\_86 (F1), Tortellini\_71 (P2), Venti\_63 (P1), Vidya\_64 (P1), Willsammy\_67 (P1), Xavia\_67 (P3), Xula\_61 (I1), Zilizebeth\_71 (P1),

#### Start 28:

- Found in 3 of 139 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 1 of 129
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Brujita\_66 (I1),

#### Start 33:

- Found in 1 of 139 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 129
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aminay\_74 (K7),

#### Start 34:

- Found in 1 of 139 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 129
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mufasa8\_85 (FG),

#### Start 36:

- Found in 3 of 139 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 1 of 129
- Called 33.3% of time when present
- Phage (with cluster) where this start called: MalagasyRose\_71 (AG),

Start 37:

- Found in 1 of 139 ( 0.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pharb\_72 (K3),

Start 38:

- Found in 24 of 139 ( 17.3% ) of genes in pham
- Manual Annotations of this start: 21 of 129
- Called 95.8% of time when present
- Phage (with cluster) where this start called: Agent47\_64 (K5), AlleyCat\_68 (K5), Boilgate\_70 (K8), Collard\_64 (K5), Dadosky\_68 (K5), Edugator\_65 (K5), Feyre\_69 (K5), Gengar\_66 (K5), Guillsminger\_67 (K5), Heftyboy\_67 (K5), InvictusManeo\_64 (K5), Kratio\_64 (K5), Larva\_67 (K5), Leston\_66 (K5), Miryou\_71 (K5), OkiRoe\_67 (K5), Omnicron\_70 (K5), Paola\_66 (K5), Psycho\_66 (K5), Rando14\_69 (K5), SoSeph\_67 (K5), Thyatira\_69 (K5), Waterfoul\_68 (K5),

Start 40:

- Found in 22 of 139 ( 15.8% ) of genes in pham
- Manual Annotations of this start: 19 of 129
- Called 86.4% of time when present
- Phage (with cluster) where this start called: Chancellor\_78 (K4), Cheetobro\_78 (K4), Eponine\_80 (K4), Fionnbharth\_78 (K4), JF1\_78 (K4), Juliette\_80 (K4), Malthus\_79 (K4), MissDaisy\_75 (K4), Mitti\_78 (K4), OmniCritical\_78 (K4), Patt\_74 (K4), Reptar3000\_75 (K4), Ruthiejr\_79 (K4), SamScheppers\_77 (K4), Slarp\_78 (K4), Taquito\_77 (K4), Wintermute\_78 (K4), Y10\_75 (K4), Y2\_75 (K4),

Start 42:

- Found in 11 of 139 ( 7.9% ) of genes in pham
- Manual Annotations of this start: 10 of 129
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BoostSeason\_76 (K2), DismalFunk\_77 (K2), DismalStressor\_77 (K2), Findley\_77 (K2), Marcoliusprime\_76 (K2), Milly\_77 (K2), Mufasa\_76 (K2), Sonali\_80 (FG), Strobilo\_82 (K2), TM4\_75 (K2), ZoeJ\_76 (K2),

Start 43:

- Found in 9 of 139 ( 6.5% ) of genes in pham
- Manual Annotations of this start: 8 of 129
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Hurricane\_74 (K3), Keshu\_76 (K3), MacnCheese\_76 (K3), Nergal\_65 (AG), Pixie\_73 (K3), ShedlockHolmes\_76 (K3), TBond007\_70 (K3), TripleTrouble\_75 (K3),

Start 44:

- Found in 1 of 139 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 129
- Called 100.0% of time when present
- Phage (with cluster) where this start called: IdentityCrisis\_57 (singleton),

**Summary by clusters:**

There are 20 clusters represented in this pham: FG, F1, singleton, P1, P6, P4, AG, P5, I1, P3, I2, P2, K3, K2, K1, K7, K6, K5, K4, K8,

Info for manual annotations of cluster AG:

- Start number 36 was manually annotated 1 time for cluster AG.
- Start number 43 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster F1:

- Start number 27 was manually annotated 4 times for cluster F1.

Info for manual annotations of cluster FG:

- Start number 34 was manually annotated 1 time for cluster FG.
- Start number 42 was manually annotated 1 time for cluster FG.

Info for manual annotations of cluster I1:

- Start number 27 was manually annotated 5 times for cluster I1.
- Start number 28 was manually annotated 1 time for cluster I1.

Info for manual annotations of cluster I2:

- Start number 27 was manually annotated 2 times for cluster I2.

Info for manual annotations of cluster K1:

- Start number 21 was manually annotated 6 times for cluster K1.

Info for manual annotations of cluster K2:

- Start number 42 was manually annotated 9 times for cluster K2.

Info for manual annotations of cluster K3:

- Start number 43 was manually annotated 7 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 40 was manually annotated 19 times for cluster K4.

Info for manual annotations of cluster K5:

- Start number 38 was manually annotated 20 times for cluster K5.

Info for manual annotations of cluster K6:

- Start number 23 was manually annotated 1 time for cluster K6.

Info for manual annotations of cluster K7:

- Start number 33 was manually annotated 1 time for cluster K7.

Info for manual annotations of cluster K8:

- Start number 38 was manually annotated 1 time for cluster K8.

Info for manual annotations of cluster P1:

- Start number 27 was manually annotated 38 times for cluster P1.

Info for manual annotations of cluster P2:

- Start number 27 was manually annotated 1 time for cluster P2.

Info for manual annotations of cluster P3:

- Start number 27 was manually annotated 1 time for cluster P3.



Info for manual annotations of cluster P4:

- Start number 27 was manually annotated 2 times for cluster P4.

Info for manual annotations of cluster P5:

- Start number 27 was manually annotated 2 times for cluster P5.

Info for manual annotations of cluster P6:

- Start number 27 was manually annotated 1 time for cluster P6.

### **Gene Information:**

Gene: Agent47\_64 Start: 46221, Stop: 47066, Start Num: 38

Candidate Starts for Agent47\_64:

(26, 46158), (Start: 38 @46221 has 21 MA's), (51, 46263), (54, 46287), (58, 46311), (69, 46383), (79, 46437), (87, 46470), (101, 46521), (102, 46527), (109, 46548), (110, 46551), (115, 46590), (127, 46665), (128, 46668), (134, 46698), (142, 46725), (149, 46776), (152, 46791), (160, 46848), (163, 46860), (184, 46935), (189, 46950), (193, 46968), (199, 46980), (203, 47004), (205, 47016),

Gene: AlleyCat\_68 Start: 46549, Stop: 47403, Start Num: 38

Candidate Starts for AlleyCat\_68:

(10, 46357), (15, 46390), (26, 46486), (Start: 38 @46549 has 21 MA's), (41, 46552), (50, 46591), (51, 46594), (54, 46618), (58, 46642), (69, 46714), (79, 46768), (87, 46801), (101, 46852), (102, 46858), (109, 46879), (110, 46882), (115, 46921), (127, 46996), (128, 46999), (134, 47029), (149, 47107), (152, 47122), (160, 47179), (163, 47191), (172, 47236), (184, 47266), (189, 47281), (193, 47299), (199, 47311), (203, 47335),

Gene: Aminay\_74 Start: 48045, Stop: 48938, Start Num: 33

Candidate Starts for Aminay\_74:

(32, 48039), (Start: 33 @48045 has 1 MA's), (Start: 40 @48060 has 19 MA's), (51, 48102), (52, 48105), (57, 48141), (63, 48189), (65, 48219), (77, 48261), (100, 48372), (109, 48408), (110, 48411), (112, 48435), (113, 48438), (139, 48540), (146, 48582), (149, 48606), (151, 48615), (168, 48711), (176, 48759), (181, 48789), (189, 48816), (193, 48834), (197, 48843), (199, 48846), (212, 48927),

Gene: Arib1\_64 Start: 41089, Stop: 41991, Start Num: 27

Candidate Starts for Arib1\_64:

(4, 40597), (7, 40885), (18, 41014), (20, 41059), (Start: 27 @41089 has 57 MA's), (31, 41131), (83, 41410), (84, 41413), (107, 41503), (141, 41695), (146, 41728), (155, 41782), (160, 41824), (170, 41875), (177, 41905), (190, 41944), (192, 41953),

Gene: Atcoo\_67 Start: 44457, Stop: 45359, Start Num: 27

Candidate Starts for Atcoo\_67:

(2, 43938), (7, 44253), (18, 44382), (20, 44427), (Start: 27 @44457 has 57 MA's), (31, 44499), (53, 44589), (83, 44778), (84, 44781), (107, 44871), (141, 45063), (160, 45192), (177, 45273), (192, 45321),

Gene: Awesomesauce\_87 Start: 52119, Stop: 53024, Start Num: 27

Candidate Starts for Awesomesauce\_87:

(Start: 27 @52119 has 57 MA's), (47, 52197), (93, 52482), (107, 52533), (114, 52581), (118, 52611), (141, 52725), (151, 52791), (176, 52929), (177, 52935), (185, 52959), (192, 52983), (196, 52992),

Gene: Babsiella\_67 Start: 42425, Stop: 43327, Start Num: 27

Candidate Starts for Babsiella\_67:

(Start: 27 @42425 has 57 MA's), (83, 42746), (93, 42788), (107, 42839), (141, 43031), (146, 43064), (155, 43118), (160, 43160), (166, 43190), (177, 43241), (192, 43289),

Gene: Bartholomew\_61 Start: 40452, Stop: 41354, Start Num: 27

Candidate Starts for Bartholomew\_61:

(Start: 27 @40452 has 57 MA's), (83, 40773), (93, 40815), (107, 40866), (141, 41058), (146, 41091), (155, 41145), (160, 41187), (170, 41238), (177, 41268), (190, 41307), (192, 41316),

Gene: BigNuz\_67 Start: 43296, Stop: 44198, Start Num: 27

Candidate Starts for BigNuz\_67:

(Start: 27 @43296 has 57 MA's), (31, 43338), (Start: 40 @43362 has 19 MA's), (69, 43551), (71, 43560), (75, 43569), (83, 43617), (84, 43620), (107, 43710), (119, 43791), (126, 43836), (141, 43902), (146, 43935), (170, 44082), (177, 44112),

Gene: Bogie\_68 Start: 43439, Stop: 44341, Start Num: 27

Candidate Starts for Bogie\_68:

(2, 42920), (7, 43235), (18, 43364), (20, 43409), (Start: 27 @43439 has 57 MA's), (31, 43481), (53, 43571), (71, 43703), (83, 43760), (84, 43763), (107, 43853), (141, 44045), (160, 44174), (170, 44225), (177, 44255), (190, 44294), (192, 44303),

Gene: Boilgate\_70 Start: 51766, Stop: 52578, Start Num: 38

Candidate Starts for Boilgate\_70:

(9, 51538), (Start: 38 @51766 has 21 MA's), (52, 51811), (65, 51925), (92, 52045), (110, 52114), (112, 52138), (141, 52255), (145, 52285), (149, 52312), (168, 52417), (176, 52465), (195, 52543), (202, 52573),

Gene: BoostSeason\_76 Start: 50587, Stop: 51489, Start Num: 42

Candidate Starts for BoostSeason\_76:

(Start: 42 @50587 has 10 MA's), (52, 50629), (69, 50764), (78, 50797), (103, 50899), (104, 50902), (107, 50914), (110, 50926), (130, 51040), (141, 51079), (146, 51112), (160, 51208), (163, 51220), (168, 51241), (171, 51262), (173, 51268), (176, 51289), (181, 51319), (182, 51322), (195, 51367), (213, 51472),

Gene: Brujita\_66 Start: 42486, Stop: 43373, Start Num: 28

Candidate Starts for Brujita\_66:

(Start: 27 @42471 has 57 MA's), (Start: 28 @42486 has 1 MA's), (48, 42558), (71, 42735), (83, 42792), (84, 42795), (85, 42801), (93, 42834), (114, 42933), (118, 42963), (146, 43110), (166, 43236), (177, 43287), (192, 43335),

Gene: Brusacoram\_67 Start: 43000, Stop: 43902, Start Num: 27

Candidate Starts for Brusacoram\_67:

(2, 42481), (7, 42796), (18, 42925), (20, 42970), (Start: 27 @43000 has 57 MA's), (31, 43042), (83, 43321), (84, 43324), (107, 43414), (141, 43606), (160, 43735), (177, 43816), (192, 43864),

Gene: Bunnies\_71 Start: 44201, Stop: 45103, Start Num: 27

Candidate Starts for Bunnies\_71:

(2, 43682), (7, 43997), (18, 44126), (20, 44171), (Start: 27 @44201 has 57 MA's), (31, 44243), (53, 44333), (83, 44522), (84, 44525), (107, 44615), (141, 44807), (146, 44840), (160, 44936), (177, 45017), (192, 45065),

Gene: CactusJack\_66 Start: 43072, Stop: 43974, Start Num: 27

Candidate Starts for CactusJack\_66:

(2, 42553), (7, 42868), (18, 42997), (20, 43042), (Start: 27 @43072 has 57 MA's), (31, 43114), (83, 43393), (84, 43396), (107, 43486), (141, 43678), (146, 43711), (155, 43765), (160, 43807), (170, 43858), (177, 43888), (190, 43927), (192, 43936),

Gene: Camster\_66 Start: 41900, Stop: 42802, Start Num: 27

Candidate Starts for Camster\_66:

(2, 41381), (7, 41696), (18, 41825), (20, 41870), (Start: 27 @41900 has 57 MA's), (31, 41942), (53, 42032), (71, 42164), (83, 42221), (84, 42224), (107, 42314), (141, 42506), (160, 42635), (170, 42686), (177, 42716), (190, 42755), (192, 42764),

Gene: Chancellor\_78 Start: 49464, Stop: 50342, Start Num: 40

Candidate Starts for Chancellor\_78:

(Start: 40 @49464 has 19 MA's), (52, 49509), (56, 49542), (59, 49572), (65, 49623), (77, 49665), (78, 49671), (79, 49692), (82, 49704), (89, 49737), (92, 49746), (107, 49803), (109, 49812), (110, 49815), (112, 49839), (118, 49881), (121, 49902), (141, 49953), (142, 49959), (145, 49983), (146, 49986), (149, 50010), (151, 50019), (156, 50043), (161, 50085), (162, 50091), (166, 50109), (168, 50115), (173, 50142), (175, 50151), (176, 50163), (193, 50238), (212, 50331),

Gene: Che9c\_75 Start: 52152, Stop: 53057, Start Num: 27

Candidate Starts for Che9c\_75:

(7, 51948), (Start: 27 @52152 has 57 MA's), (47, 52230), (83, 52473), (93, 52515), (107, 52566), (114, 52614), (118, 52644), (126, 52692), (133, 52734), (147, 52794), (166, 52917), (177, 52968), (185, 52992), (192, 53016), (196, 53025),

Gene: Cheetobro\_78 Start: 49632, Stop: 50510, Start Num: 40

Candidate Starts for Cheetobro\_78:

(Start: 40 @49632 has 19 MA's), (52, 49677), (56, 49710), (59, 49740), (65, 49791), (77, 49833), (78, 49839), (79, 49860), (82, 49872), (89, 49905), (92, 49914), (107, 49971), (109, 49980), (110, 49983), (112, 50007), (118, 50049), (121, 50070), (141, 50121), (142, 50127), (145, 50151), (146, 50154), (149, 50178), (151, 50187), (156, 50211), (161, 50253), (162, 50259), (166, 50277), (168, 50283), (173, 50310), (175, 50319), (176, 50331), (193, 50406),

Gene: ChickenDinner\_90 Start: 51883, Stop: 52788, Start Num: 27

Candidate Starts for ChickenDinner\_90:

(Start: 27 @51883 has 57 MA's), (47, 51961), (93, 52246), (107, 52297), (114, 52345), (118, 52375), (141, 52489), (151, 52555), (176, 52693), (177, 52699), (185, 52723), (192, 52747), (196, 52756),

Gene: Chris\_74 Start: 49447, Stop: 50478, Start Num: 21

Candidate Starts for Chris\_74:

(14, 49372), (Start: 21 @49447 has 6 MA's), (Start: 23 @49453 has 1 MA's), (35, 49531), (52, 49591), (54, 49612), (58, 49636), (69, 49711), (73, 49729), (87, 49795), (106, 49879), (110, 49894), (115, 49933), (120, 49969), (134, 50041), (140, 50053), (160, 50203), (168, 50236), (191, 50314), (193, 50326), (200, 50344), (214, 50449), (215, 50455), (216, 50467),

Gene: Collard\_64 Start: 46182, Stop: 47027, Start Num: 38

Candidate Starts for Collard\_64:

(26, 46119), (Start: 38 @46182 has 21 MA's), (51, 46224), (54, 46248), (58, 46272), (69, 46344), (79, 46398), (87, 46431), (101, 46482), (102, 46488), (109, 46509), (110, 46512), (115, 46551), (127, 46626), (128, 46629), (134, 46659), (142, 46686), (149, 46737), (152, 46752), (160, 46809), (163, 46821), (184, 46896), (189, 46911), (193, 46929), (199, 46941), (203, 46965), (205, 46977),

Gene: Dadosky\_68 Start: 46551, Stop: 47405, Start Num: 38

Candidate Starts for Dadosky\_68:

(10, 46359), (15, 46392), (26, 46488), (Start: 38 @46551 has 21 MA's), (41, 46554), (50, 46593), (51, 46596), (54, 46620), (58, 46644), (69, 46716), (79, 46770), (87, 46803), (101, 46854), (102, 46860), (109, 46881), (110, 46884), (115, 46923), (127, 46998), (128, 47001), (134, 47031), (149, 47109), (152, 47124), (160, 47181), (163, 47193), (172, 47238), (184, 47268), (189, 47283), (193, 47301), (199, 47313), (203, 47337),

Gene: DismalFunk\_77 Start: 51116, Stop: 52018, Start Num: 42

Candidate Starts for DismalFunk\_77:

(Start: 42 @51116 has 10 MA's), (52, 51158), (69, 51293), (78, 51326), (103, 51428), (104, 51431), (107, 51443), (110, 51455), (130, 51569), (141, 51608), (146, 51641), (156, 51698), (160, 51737), (168, 51770), (171, 51791), (173, 51797), (176, 51818), (181, 51848), (182, 51851), (195, 51896), (211, 51986), (213, 52001),

Gene: DismalStressor\_77 Start: 51116, Stop: 52018, Start Num: 42

Candidate Starts for DismalStressor\_77:

(Start: 42 @51116 has 10 MA's), (52, 51158), (69, 51293), (78, 51326), (103, 51428), (104, 51431), (107, 51443), (110, 51455), (130, 51569), (141, 51608), (146, 51641), (156, 51698), (160, 51737), (168, 51770), (171, 51791), (173, 51797), (176, 51818), (181, 51848), (182, 51851), (195, 51896), (211, 51986), (213, 52001),

Gene: DocMcStuffins\_83 Start: 53513, Stop: 54418, Start Num: 27

Candidate Starts for DocMcStuffins\_83:

(Start: 27 @53513 has 57 MA's), (47, 53591), (93, 53876), (107, 53927), (114, 53975), (118, 54005), (141, 54119), (151, 54185), (176, 54323), (177, 54329), (185, 54353), (192, 54377), (196, 54386),

Gene: Donovan\_65 Start: 42034, Stop: 42936, Start Num: 27

Candidate Starts for Donovan\_65:

(4, 41542), (7, 41830), (18, 41959), (20, 42004), (Start: 27 @42034 has 57 MA's), (31, 42076), (83, 42355), (84, 42358), (107, 42448), (141, 42640), (146, 42673), (155, 42727), (160, 42769), (170, 42820), (177, 42850), (190, 42889), (192, 42898),

Gene: Dynamo\_65 Start: 41473, Stop: 42375, Start Num: 27

Candidate Starts for Dynamo\_65:

(2, 40954), (7, 41269), (18, 41398), (20, 41443), (Start: 27 @41473 has 57 MA's), (31, 41515), (53, 41605), (71, 41737), (83, 41794), (84, 41797), (107, 41887), (141, 42079), (160, 42208), (170, 42259), (177, 42289), (190, 42328), (192, 42337),

Gene: Edugator\_65 Start: 47969, Stop: 48823, Start Num: 38

Candidate Starts for Edugator\_65:

(10, 47777), (15, 47810), (26, 47906), (Start: 38 @47969 has 21 MA's), (41, 47972), (50, 48011), (51, 48014), (54, 48038), (58, 48062), (69, 48134), (79, 48188), (87, 48221), (101, 48272), (102, 48278), (109, 48299), (110, 48302), (115, 48341), (127, 48416), (128, 48419), (134, 48449), (149, 48527), (152, 48542), (160, 48599), (163, 48611), (172, 48656), (184, 48686), (189, 48701), (193, 48719), (199, 48731), (203, 48755),

Gene: Eponine\_80 Start: 50458, Stop: 51336, Start Num: 40

Candidate Starts for Eponine\_80:

(Start: 40 @50458 has 19 MA's), (52, 50503), (56, 50536), (59, 50566), (65, 50617), (77, 50659), (78, 50665), (79, 50686), (82, 50698), (89, 50731), (92, 50740), (107, 50797), (109, 50806), (110, 50809), (112, 50833), (118, 50875), (121, 50896), (141, 50947), (142, 50953), (145, 50977), (146, 50980), (149, 51004), (151, 51013), (161, 51079), (166, 51103), (168, 51109), (173, 51136), (175, 51145), (176, 51157), (193, 51232),

Gene: Eyre\_61 Start: 39340, Stop: 40278, Start Num: 25

Candidate Starts for Eyre\_61:

(Start: 25 @39340 has 1 MA's), (64, 39550), (67, 39589), (69, 39598), (76, 39622), (79, 39652), (90, 39703), (122, 39862), (132, 39910), (154, 40030), (191, 40198), (197, 40219), (201, 40237), (204, 40246), (207, 40267),

Gene: Feyre\_69 Start: 49943, Stop: 50788, Start Num: 38

Candidate Starts for Feyre\_69:

(10, 49751), (15, 49784), (26, 49880), (Start: 38 @49943 has 21 MA's), (51, 49985), (54, 50009), (58, 50033), (69, 50105), (80, 50162), (87, 50192), (101, 50243), (109, 50270), (110, 50273), (115, 50312), (120, 50348), (121, 50360), (128, 50387), (135, 50420), (136, 50423), (140, 50432), (147, 50489), (152, 50525), (160, 50582), (163, 50594), (173, 50642), (183, 50666), (189, 50684), (193, 50702), (195, 50705), (199, 50714), (209, 50774),

Gene: Findley\_77 Start: 51134, Stop: 52036, Start Num: 42

Candidate Starts for Findley\_77:

(Start: 42 @51134 has 10 MA's), (52, 51176), (69, 51311), (78, 51344), (103, 51446), (104, 51449), (107, 51461), (110, 51473), (130, 51587), (141, 51626), (146, 51659), (160, 51755), (168, 51788), (171, 51809), (173, 51815), (176, 51836), (181, 51866), (182, 51869), (195, 51914), (211, 52004), (213, 52019),

Gene: Fionnbharth\_78 Start: 49856, Stop: 50734, Start Num: 40

Candidate Starts for Fionnbharth\_78:

(Start: 40 @49856 has 19 MA's), (52, 49901), (56, 49934), (59, 49964), (65, 50015), (77, 50057), (78, 50063), (79, 50084), (82, 50096), (89, 50129), (92, 50138), (107, 50195), (109, 50204), (110, 50207), (112, 50231), (118, 50273), (121, 50294), (141, 50345), (142, 50351), (145, 50375), (146, 50378), (149, 50402), (151, 50411), (161, 50477), (166, 50501), (168, 50507), (173, 50534), (175, 50543), (176, 50555), (193, 50630),

Gene: FirstPlacePfu\_69 Start: 41066, Stop: 41968, Start Num: 27

Candidate Starts for FirstPlacePfu\_69:

(2, 40547), (7, 40862), (18, 40991), (20, 41036), (Start: 27 @41066 has 57 MA's), (31, 41108), (53, 41198), (83, 41387), (84, 41390), (107, 41480), (141, 41672), (146, 41705), (160, 41801), (177, 41882), (192, 41930),

Gene: Fishburne\_64 Start: 41860, Stop: 42762, Start Num: 27

Candidate Starts for Fishburne\_64:

(4, 41368), (7, 41656), (18, 41785), (20, 41830), (Start: 27 @41860 has 57 MA's), (31, 41902), (83, 42181), (84, 42184), (107, 42274), (141, 42466), (146, 42499), (155, 42553), (160, 42595), (170, 42646), (177, 42676), (190, 42715), (192, 42724),

Gene: Gengar\_66 Start: 47930, Stop: 48778, Start Num: 38

Candidate Starts for Gengar\_66:

(Start: 38 @47930 has 21 MA's), (51, 47972), (54, 47996), (58, 48020), (69, 48092), (80, 48149), (87, 48179), (101, 48230), (109, 48257), (110, 48260), (115, 48299), (120, 48335), (121, 48347), (128, 48374), (135, 48407), (136, 48410), (140, 48419), (147, 48476), (149, 48497), (152, 48512), (160, 48569), (163, 48581), (164, 48587), (173, 48629), (183, 48653), (189, 48671), (193, 48689), (195, 48692), (199, 48701), (210, 48770),

Gene: Glaske\_65 Start: 43072, Stop: 43974, Start Num: 27

Candidate Starts for Glaske\_65:

(2, 42553), (7, 42868), (18, 42997), (20, 43042), (Start: 27 @43072 has 57 MA's), (31, 43114), (83, 43393), (84, 43396), (107, 43486), (141, 43678), (146, 43711), (155, 43765), (160, 43807), (170, 43858), (177, 43888), (190, 43927), (192, 43936),

Gene: GreaseLightnin\_70 Start: 43854, Stop: 44756, Start Num: 27

Candidate Starts for GreaseLightnin\_70:

(2, 43335), (7, 43650), (18, 43779), (20, 43824), (Start: 27 @43854 has 57 MA's), (31, 43896), (53, 43986), (83, 44175), (84, 44178), (107, 44268), (141, 44460), (160, 44589), (177, 44670), (192, 44718),

Gene: Gudmit\_65 Start: 38909, Stop: 39847, Start Num: 24

Candidate Starts for Gudmit\_65:

(8, 38729), (19, 38858), (Start: 24 @38909 has 1 MA's), (45, 38990), (61, 39113), (64, 39125), (69, 39173), (72, 39188), (84, 39245), (110, 39347), (153, 39596), (162, 39659), (163, 39662), (191, 39770), (197, 39791), (201, 39809), (204, 39818),

Gene: Guillsminger\_67 Start: 47872, Stop: 48717, Start Num: 38

Candidate Starts for Guillsminger\_67:

(Start: 38 @47872 has 21 MA's), (51, 47914), (54, 47938), (58, 47962), (69, 48034), (80, 48091), (87, 48121), (101, 48172), (109, 48199), (110, 48202), (115, 48241), (120, 48277), (121, 48289), (128, 48316), (135, 48349), (136, 48352), (140, 48361), (147, 48418), (149, 48439), (152, 48454), (160, 48511), (163, 48523), (183, 48595), (184, 48598), (189, 48613), (193, 48631), (199, 48643),

Gene: HC\_62 Start: 39977, Stop: 40879, Start Num: 27

Candidate Starts for HC\_62:

(Start: 27 @39977 has 57 MA's), (83, 40298), (93, 40340), (107, 40391), (141, 40583), (146, 40616), (160, 40712), (166, 40742), (177, 40793), (192, 40841),

Gene: HUHilltop\_68 Start: 41696, Stop: 42598, Start Num: 27

Candidate Starts for HUHilltop\_68:

(2, 41177), (7, 41492), (18, 41621), (20, 41666), (Start: 27 @41696 has 57 MA's), (31, 41738), (53, 41828), (71, 41960), (83, 42017), (84, 42020), (107, 42110), (141, 42302), (160, 42431), (170, 42482), (177, 42512), (190, 42551), (192, 42560),

Gene: Heftyboy\_67 Start: 48251, Stop: 49087, Start Num: 38

Candidate Starts for Heftyboy\_67:

(10, 48059), (15, 48092), (26, 48188), (Start: 38 @48251 has 21 MA's), (51, 48293), (54, 48317), (58, 48341), (68, 48407), (69, 48413), (80, 48470), (87, 48500), (101, 48551), (109, 48578), (110, 48581), (115, 48620), (120, 48656), (121, 48668), (127, 48695), (128, 48698), (129, 48704), (130, 48713), (134, 48728), (142, 48755), (149, 48806), (152, 48821), (160, 48878), (163, 48890), (164, 48896), (173, 48938), (183, 48962), (189, 48980), (193, 48998), (195, 49001), (199, 49010),

Gene: Hurricane\_74 Start: 48983, Stop: 49900, Start Num: 43

Candidate Starts for Hurricane\_74:

(22, 48890), (Start: 25 @48911 has 1 MA's), (Start: 43 @48983 has 8 MA's), (50, 49019), (54, 49046), (58, 49070), (63, 49091), (69, 49142), (77, 49169), (89, 49241), (97, 49265), (104, 49295), (110, 49319), (112, 49343), (114, 49355), (120, 49394), (123, 49415), (142, 49484), (146, 49511), (147, 49514), (153, 49553), (155, 49565), (160, 49607), (168, 49640), (174, 49679), (189, 49754),

Gene: IdentityCrisis\_57 Start: 35089, Stop: 35964, Start Num: 44

Candidate Starts for IdentityCrisis\_57:

(30, 35053), (Start: 44 @35089 has 1 MA's), (56, 35170), (74, 35284), (85, 35341), (98, 35395), (157, 35725), (159, 35731), (186, 35851),

Gene: InvictusManeo\_64 Start: 46225, Stop: 47070, Start Num: 38

Candidate Starts for InvictusManeo\_64:

(26, 46162), (Start: 38 @46225 has 21 MA's), (51, 46267), (54, 46291), (58, 46315), (69, 46387), (79, 46441), (87, 46474), (101, 46525), (102, 46531), (109, 46552), (110, 46555), (115, 46594), (127, 46669), (128, 46672), (134, 46702), (142, 46729), (149, 46780), (152, 46795), (160, 46852), (163, 46864), (184, 46939), (189, 46954), (193, 46972), (199, 46984), (203, 47008), (205, 47020),

Gene: Island3\_67 Start: 42444, Stop: 43346, Start Num: 27

Candidate Starts for Island3\_67:

(7, 42237), (18, 42366), (20, 42414), (Start: 27 @42444 has 57 MA's), (31, 42486), (53, 42576), (71, 42708), (83, 42765), (84, 42768), (85, 42774), (93, 42807), (114, 42906), (118, 42936), (146, 43083), (166, 43209), (177, 43260), (192, 43308),

Gene: JF1\_78 Start: 49773, Stop: 50651, Start Num: 40

Candidate Starts for JF1\_78:

(Start: 40 @49773 has 19 MA's), (52, 49818), (56, 49851), (59, 49881), (65, 49932), (77, 49974), (78, 49980), (82, 50013), (89, 50046), (92, 50055), (107, 50112), (109, 50121), (110, 50124), (112, 50148), (118, 50190), (121, 50211), (141, 50262), (142, 50268), (145, 50292), (146, 50295), (149, 50319), (151, 50328), (161, 50394), (162, 50400), (166, 50418), (168, 50424), (173, 50451), (175, 50460), (176, 50472), (193, 50547),

Gene: Jebeks\_66 Start: 40993, Stop: 41895, Start Num: 27

Candidate Starts for Jebeks\_66:

(2, 40474), (7, 40789), (18, 40918), (20, 40963), (Start: 27 @40993 has 57 MA's), (31, 41035), (83, 41314), (84, 41317), (107, 41407), (141, 41599), (146, 41632), (155, 41686), (160, 41728), (170, 41779), (177, 41809), (190, 41848), (192, 41857),

Gene: Juliette\_80 Start: 49877, Stop: 50755, Start Num: 40

Candidate Starts for Juliette\_80:

(Start: 40 @49877 has 19 MA's), (52, 49922), (56, 49955), (59, 49985), (65, 50036), (77, 50078), (78, 50084), (80, 50108), (82, 50117), (89, 50150), (92, 50159), (107, 50216), (109, 50225), (110, 50228), (112, 50252), (118, 50294), (121, 50315), (141, 50366), (142, 50372), (145, 50396), (146, 50399), (149, 50423), (151, 50432), (152, 50438), (156, 50456), (161, 50498), (166, 50522), (168, 50528), (173, 50555), (175, 50564), (176, 50576), (193, 50651),

Gene: Jung\_66 Start: 41978, Stop: 42880, Start Num: 27

Candidate Starts for Jung\_66:

(Start: 27 @41978 has 57 MA's), (48, 42065), (53, 42110), (71, 42242), (83, 42299), (84, 42302), (107, 42392), (141, 42584), (160, 42713), (177, 42794), (192, 42842),

Gene: Juniormint\_63 Start: 40449, Stop: 41351, Start Num: 27

Candidate Starts for Juniormint\_63:

(2, 39930), (7, 40245), (18, 40374), (20, 40419), (Start: 27 @40449 has 57 MA's), (31, 40491), (83, 40770), (84, 40773), (107, 40863), (141, 41055), (146, 41088), (155, 41142), (160, 41184), (170, 41235), (177, 41265), (190, 41304), (192, 41313),

Gene: Kari\_63 Start: 41857, Stop: 42759, Start Num: 27

Candidate Starts for Kari\_63:

(4, 41365), (7, 41653), (18, 41782), (20, 41827), (Start: 27 @41857 has 57 MA's), (31, 41899), (83, 42178), (84, 42181), (107, 42271), (141, 42463), (146, 42496), (155, 42550), (160, 42592), (170, 42643), (177, 42673), (190, 42712), (192, 42721),

Gene: Keshu\_76 Start: 49138, Stop: 50055, Start Num: 43

Candidate Starts for Keshu\_76:

(22, 49045), (Start: 25 @49066 has 1 MA's), (Start: 43 @49138 has 8 MA's), (50, 49174), (54, 49201), (58, 49225), (61, 49237), (69, 49297), (97, 49420), (110, 49474), (112, 49498), (114, 49510), (120, 49549), (142, 49639), (146, 49666), (147, 49669), (153, 49708), (155, 49720), (160, 49762), (168, 49795), (174, 49834), (189, 49909), (199, 49939),

Gene: KiSi\_76 Start: 49435, Stop: 50466, Start Num: 21

Candidate Starts for KiSi\_76:

(14, 49360), (18, 49375), (Start: 21 @49435 has 6 MA's), (Start: 23 @49441 has 1 MA's), (35, 49519), (54, 49600), (58, 49624), (69, 49699), (73, 49717), (87, 49783), (106, 49867), (109, 49879), (110, 49882), (120, 49957), (129, 50002), (137, 50035), (143, 50074), (149, 50119), (152, 50134), (160, 50191), (168, 50224), (191, 50302), (193, 50314), (200, 50332), (214, 50437),

Gene: KilKor\_66 Start: 43765, Stop: 44667, Start Num: 27

Candidate Starts for KilKor\_66:

(2, 43246), (7, 43561), (18, 43690), (20, 43735), (Start: 27 @43765 has 57 MA's), (31, 43807), (83, 44086), (84, 44089), (107, 44179), (141, 44371), (146, 44404), (155, 44458), (160, 44500), (170, 44551), (177, 44581), (190, 44620), (192, 44629),

Gene: Kratio\_64 Start: 45964, Stop: 46821, Start Num: 38

Candidate Starts for Kratio\_64:

(26, 45901), (Start: 38 @45964 has 21 MA's), (51, 46006), (54, 46030), (58, 46054), (69, 46126), (79, 46180), (87, 46213), (101, 46264), (102, 46270), (109, 46291), (110, 46294), (115, 46333), (127, 46408), (128, 46411), (134, 46441), (152, 46534), (160, 46591), (163, 46603), (172, 46648), (184, 46678), (189, 46693), (193, 46711), (199, 46723), (203, 46747), (205, 46759),

Gene: Ksquared\_69 Start: 44078, Stop: 44980, Start Num: 27

Candidate Starts for Ksquared\_69:

(2, 43559), (7, 43874), (18, 44003), (20, 44048), (Start: 27 @44078 has 57 MA's), (31, 44120), (53, 44210), (83, 44399), (84, 44402), (107, 44492), (141, 44684), (146, 44717), (160, 44813), (177, 44894), (192, 44942),

Gene: Langerak\_65 Start: 41837, Stop: 42739, Start Num: 27

Candidate Starts for Langerak\_65:

(4, 41345), (7, 41633), (18, 41762), (20, 41807), (Start: 27 @41837 has 57 MA's), (31, 41879), (83, 42158), (84, 42161), (107, 42251), (141, 42443), (146, 42476), (155, 42530), (160, 42572), (170, 42623), (177, 42653), (190, 42692), (192, 42701),

Gene: Larva\_67 Start: 47423, Stop: 48277, Start Num: 38

Candidate Starts for Larva\_67:

(10, 47231), (15, 47264), (26, 47360), (Start: 38 @47423 has 21 MA's), (41, 47426), (50, 47465), (51, 47468), (54, 47492), (58, 47516), (69, 47588), (79, 47642), (87, 47675), (101, 47726), (102, 47732), (109, 47753), (110, 47756), (115, 47795), (127, 47870), (128, 47873), (134, 47903), (149, 47981), (152, 47996), (160, 48053), (163, 48065), (172, 48110), (184, 48140), (189, 48155), (193, 48173), (199, 48185), (203, 48209),

Gene: LeMond\_75 Start: 49039, Stop: 50070, Start Num: 21

Candidate Starts for LeMond\_75:

(14, 48964), (18, 48979), (Start: 21 @49039 has 6 MA's), (Start: 23 @49045 has 1 MA's), (35, 49123), (52, 49183), (54, 49204), (58, 49228), (69, 49303), (73, 49321), (87, 49387), (106, 49471), (109, 49483), (110, 49486), (120, 49561), (129, 49606), (137, 49639), (143, 49678), (149, 49723), (152, 49738), (160, 49795), (168, 49828), (191, 49906), (214, 50041),



Gene: Leston\_66 Start: 48001, Stop: 48834, Start Num: 38

Candidate Starts for Leston\_66:

(10, 47809), (15, 47842), (26, 47938), (Start: 38 @48001 has 21 MA's), (51, 48043), (54, 48067), (58, 48091), (69, 48163), (80, 48220), (87, 48250), (101, 48301), (109, 48328), (110, 48331), (115, 48370), (120, 48406), (121, 48418), (127, 48445), (128, 48448), (129, 48454), (134, 48478), (147, 48535), (149, 48556), (152, 48571), (160, 48628), (163, 48640), (183, 48712), (184, 48715), (189, 48730), (193, 48748), (199, 48760),

Gene: LilSpotty\_82 Start: 47559, Stop: 48464, Start Num: 27

Candidate Starts for LilSpotty\_82:

(Start: 27 @47559 has 57 MA's), (47, 47637), (83, 47880), (85, 47889), (93, 47922), (107, 47973), (114, 48021), (118, 48051), (141, 48165), (146, 48198), (151, 48231), (176, 48369), (177, 48375), (185, 48399), (192, 48423), (196, 48432),

Gene: MacnCheese\_76 Start: 49599, Stop: 50501, Start Num: 43

Candidate Starts for MacnCheese\_76:

(Start: 43 @49599 has 8 MA's), (50, 49635), (54, 49662), (58, 49686), (69, 49758), (95, 49875), (97, 49881), (108, 49929), (112, 49959), (114, 49971), (117, 49998), (120, 50010), (148, 50142), (153, 50163), (155, 50175), (160, 50217), (168, 50250), (174, 50289), (189, 50364), (193, 50382),

Gene: Majeke\_68 Start: 42487, Stop: 43389, Start Num: 27

Candidate Starts for Majeke\_68:

(4, 41992), (7, 42283), (18, 42412), (20, 42457), (Start: 27 @42487 has 57 MA's), (31, 42529), (83, 42808), (84, 42811), (107, 42901), (141, 43093), (146, 43126), (155, 43180), (160, 43222), (170, 43273), (177, 43303), (190, 43342), (192, 43351),

Gene: MalagasyRose\_71 Start: 47350, Stop: 48273, Start Num: 36

Candidate Starts for MalagasyRose\_71:

(Start: 36 @47350 has 1 MA's), (46, 47365), (51, 47404), (58, 47452), (63, 47473), (65, 47503), (68, 47521), (72, 47542), (79, 47578), (89, 47623), (90, 47626), (91, 47629), (99, 47656), (110, 47698), (113, 47728), (114, 47737), (120, 47776), (123, 47797), (138, 47842), (139, 47845), (144, 47881), (146, 47887), (153, 47929), (155, 47941), (158, 47965), (160, 47983), (168, 48016), (173, 48043), (174, 48052), (178, 48085), (179, 48088), (187, 48124), (193, 48148), (195, 48151), (206, 48199), (208, 48208), (212, 48250),

Gene: Malithi\_65 Start: 41622, Stop: 42524, Start Num: 27

Candidate Starts for Malithi\_65:

(17, 41544), (Start: 27 @41622 has 57 MA's), (31, 41664), (53, 41754), (71, 41886), (83, 41943), (84, 41946), (107, 42036), (141, 42228), (160, 42357), (170, 42408), (177, 42438), (190, 42477), (192, 42486),

Gene: Malthus\_79 Start: 49580, Stop: 50458, Start Num: 40

Candidate Starts for Malthus\_79:

(Start: 40 @49580 has 19 MA's), (52, 49625), (56, 49658), (59, 49688), (65, 49739), (77, 49781), (78, 49787), (82, 49820), (89, 49853), (92, 49862), (107, 49919), (109, 49928), (110, 49931), (112, 49955), (118, 49997), (121, 50018), (141, 50069), (142, 50075), (145, 50099), (146, 50102), (149, 50126), (151, 50135), (156, 50159), (161, 50201), (162, 50207), (166, 50225), (168, 50231), (173, 50258), (175, 50267), (176, 50279), (193, 50354),

Gene: Mangethe\_68 Start: 42487, Stop: 43389, Start Num: 27

Candidate Starts for Mangethe\_68:

(4, 41992), (7, 42283), (18, 42412), (20, 42457), (Start: 27 @42487 has 57 MA's), (31, 42529), (83, 42808), (84, 42811), (107, 42901), (141, 43093), (146, 43126), (155, 43180), (160, 43222), (170, 43273), (177, 43303), (190, 43342), (192, 43351),

Gene: Marcoliusprime\_76 Start: 51116, Stop: 52018, Start Num: 42

Candidate Starts for Marcoliusprime\_76:

(Start: 42 @51116 has 10 MA's), (52, 51158), (69, 51293), (78, 51326), (103, 51428), (104, 51431), (107, 51443), (110, 51455), (130, 51569), (141, 51608), (146, 51641), (156, 51698), (160, 51737), (168, 51770), (171, 51791), (173, 51797), (176, 51818), (181, 51848), (182, 51851), (195, 51896), (211, 51986), (213, 52001),

Gene: Marshawn\_71 Start: 48922, Stop: 49965, Start Num: 23

Candidate Starts for Marshawn\_71:

(Start: 21 @48916 has 6 MA's), (Start: 23 @48922 has 1 MA's), (35, 49000), (Start: 38 @49006 has 21 MA's), (52, 49060), (55, 49084), (58, 49105), (69, 49180), (73, 49198), (87, 49264), (94, 49291), (109, 49360), (110, 49363), (114, 49399), (115, 49402), (120, 49438), (130, 49492), (134, 49510), (151, 49609), (160, 49672), (172, 49729), (173, 49732), (189, 49777), (195, 49798), (214, 49927),

Gene: Megiddo\_65 Start: 43633, Stop: 44535, Start Num: 27

Candidate Starts for Megiddo\_65:

(2, 43114), (7, 43429), (18, 43558), (20, 43603), (Start: 27 @43633 has 57 MA's), (31, 43675), (83, 43954), (84, 43957), (107, 44047), (141, 44239), (146, 44272), (155, 44326), (160, 44368), (170, 44419), (177, 44449), (190, 44488), (192, 44497),

Gene: Milly\_77 Start: 51107, Stop: 52009, Start Num: 42

Candidate Starts for Milly\_77:

(Start: 42 @51107 has 10 MA's), (52, 51149), (69, 51284), (78, 51317), (103, 51419), (104, 51422), (107, 51434), (110, 51446), (130, 51560), (141, 51599), (146, 51632), (160, 51728), (168, 51761), (171, 51782), (172, 51785), (173, 51788), (176, 51809), (181, 51839), (182, 51842), (195, 51887), (211, 51977), (213, 51992),

Gene: Miryou\_71 Start: 50627, Stop: 51463, Start Num: 38

Candidate Starts for Miryou\_71:

(10, 50435), (15, 50468), (26, 50564), (Start: 38 @50627 has 21 MA's), (51, 50669), (54, 50693), (58, 50717), (68, 50783), (69, 50789), (80, 50846), (87, 50876), (101, 50927), (109, 50954), (110, 50957), (115, 50996), (120, 51032), (121, 51044), (127, 51071), (128, 51074), (129, 51080), (134, 51104), (147, 51161), (152, 51197), (160, 51254), (163, 51266), (164, 51272), (173, 51314), (183, 51338), (189, 51356), (193, 51374), (195, 51377), (199, 51386),

Gene: Misha28\_86 Start: 52818, Stop: 53723, Start Num: 27

Candidate Starts for Misha28\_86:

(Start: 27 @52818 has 57 MA's), (47, 52896), (93, 53181), (107, 53232), (114, 53280), (118, 53310), (141, 53424), (151, 53490), (176, 53628), (177, 53634), (185, 53658), (192, 53682), (196, 53691),

Gene: MissDaisy\_75 Start: 48011, Stop: 48889, Start Num: 40

Candidate Starts for MissDaisy\_75:

(Start: 40 @48011 has 19 MA's), (52, 48056), (55, 48080), (56, 48089), (59, 48119), (65, 48170), (77, 48212), (78, 48218), (82, 48251), (89, 48284), (92, 48293), (107, 48350), (109, 48359), (110, 48362), (112, 48386), (118, 48428), (121, 48449), (141, 48500), (142, 48506), (145, 48530), (146, 48533), (149, 48557), (151, 48566), (161, 48632), (165, 48650), (166, 48656), (168, 48662), (173, 48689), (176, 48710), (181, 48740), (193, 48785),

Gene: Mitti\_78 Start: 49771, Stop: 50649, Start Num: 40

Candidate Starts for Mitti\_78:

(Start: 40 @49771 has 19 MA's), (52, 49816), (56, 49849), (59, 49879), (65, 49930), (77, 49972), (78, 49978), (82, 50011), (89, 50044), (92, 50053), (107, 50110), (109, 50119), (110, 50122), (112, 50146), (118, 50188), (121, 50209), (141, 50260), (142, 50266), (145, 50290), (146, 50293), (149, 50317), (151, 50326), (156, 50350), (161, 50392), (162, 50398), (166, 50416), (168, 50422), (173, 50449), (175, 50458), (176, 50470), (193, 50545),

Gene: Mufasa\_76 Start: 50574, Stop: 51476, Start Num: 42

Candidate Starts for Mufasa\_76:

(Start: 42 @50574 has 10 MA's), (52, 50616), (69, 50751), (78, 50784), (103, 50886), (104, 50889), (107, 50901), (110, 50913), (130, 51027), (141, 51066), (146, 51099), (160, 51195), (163, 51207), (168, 51228), (171, 51249), (173, 51255), (176, 51276), (181, 51306), (182, 51309), (195, 51354), (213, 51459),

Gene: Mufasa8\_85 Start: 50444, Stop: 51298, Start Num: 34

Candidate Starts for Mufasa8\_85:

(Start: 34 @50444 has 1 MA's), (62, 50588), (66, 50633), (70, 50642), (81, 50696), (117, 50852), (126, 50897), (128, 50903), (160, 51086), (167, 51119), (169, 51128), (180, 51179), (188, 51203), (194, 51224), (198, 51233),

Gene: Nazo\_68 Start: 43481, Stop: 44383, Start Num: 27

Candidate Starts for Nazo\_68:

(Start: 27 @43481 has 57 MA's), (31, 43523), (75, 43754), (84, 43805), (107, 43895), (114, 43943), (126, 44021), (141, 44087), (170, 44267), (177, 44297),

Gene: Necropolis\_63 Start: 41062, Stop: 41964, Start Num: 27

Candidate Starts for Necropolis\_63:

(2, 40543), (7, 40858), (18, 40987), (20, 41032), (Start: 27 @41062 has 57 MA's), (31, 41104), (53, 41194), (71, 41326), (83, 41383), (84, 41386), (107, 41476), (141, 41668), (160, 41797), (170, 41848), (177, 41878), (190, 41917), (192, 41926),

Gene: Nergal\_65 Start: 45413, Stop: 46264, Start Num: 43

Candidate Starts for Nergal\_65:

(Start: 43 @45413 has 8 MA's), (51, 45452), (55, 45479), (63, 45521), (78, 45605), (81, 45635), (86, 45656), (89, 45671), (97, 45695), (104, 45725), (110, 45749), (112, 45773), (116, 45794), (120, 45824), (122, 45839), (124, 45851), (128, 45863), (141, 45902), (142, 45908), (146, 45935), (147, 45938), (150, 45962), (153, 45977), (160, 46031), (165, 46052), (168, 46064), (173, 46091), (189, 46136), (197, 46163), (212, 46238),

Gene: Nibb\_75 Start: 48740, Stop: 49771, Start Num: 21

Candidate Starts for Nibb\_75:

(Start: 21 @48740 has 6 MA's), (Start: 23 @48746 has 1 MA's), (35, 48824), (54, 48905), (69, 49004), (73, 49022), (78, 49037), (87, 49088), (106, 49172), (109, 49184), (110, 49187), (114, 49223), (120, 49262), (134, 49334), (160, 49496), (168, 49529), (191, 49607), (193, 49619), (214, 49742), (216, 49760),

Gene: OkiRoe\_67 Start: 48299, Stop: 49147, Start Num: 38

Candidate Starts for OkiRoe\_67:

(Start: 38 @48299 has 21 MA's), (51, 48341), (54, 48365), (58, 48389), (69, 48461), (80, 48518), (87, 48548), (101, 48599), (109, 48626), (110, 48629), (115, 48668), (120, 48704), (121, 48716), (128, 48743), (135, 48776), (136, 48779), (140, 48788), (147, 48845), (149, 48866), (152, 48881), (160, 48938), (163, 48950), (164, 48956), (173, 48998), (183, 49022), (189, 49040), (193, 49058), (195, 49061), (199, 49070), (210, 49139),

Gene: OmniCritical\_78 Start: 49773, Stop: 50651, Start Num: 40

Candidate Starts for OmniCritical\_78:

(Start: 40 @49773 has 19 MA's), (52, 49818), (56, 49851), (59, 49881), (65, 49932), (77, 49974), (78, 49980), (79, 50001), (82, 50013), (89, 50046), (92, 50055), (107, 50112), (109, 50121), (110, 50124), (112, 50148), (118, 50190), (121, 50211), (141, 50262), (142, 50268), (145, 50292), (146, 50295), (149, 50319), (151, 50328), (156, 50352), (161, 50394), (162, 50400), (166, 50418), (168, 50424), (173, 50451), (175, 50460), (176, 50472), (193, 50547),

Gene: Omnicron\_70 Start: 48420, Stop: 49313, Start Num: 38

Candidate Starts for Omnicron\_70:

(10, 48228), (15, 48261), (26, 48357), (Start: 36 @48417 has 1 MA's), (Start: 38 @48420 has 21 MA's), (49, 48459), (54, 48498), (58, 48522), (61, 48534), (68, 48588), (69, 48594), (79, 48648), (87, 48681), (88, 48693), (110, 48762), (111, 48765), (118, 48828), (120, 48837), (125, 48876), (152, 49017), (160, 49074), (173, 49134), (184, 49161), (189, 49176), (193, 49194), (203, 49230),

Gene: Oscar\_75 Start: 48959, Stop: 49990, Start Num: 21

Candidate Starts for Oscar\_75:

(14, 48884), (18, 48899), (Start: 21 @48959 has 6 MA's), (Start: 23 @48965 has 1 MA's), (35, 49043), (52, 49103), (54, 49124), (58, 49148), (69, 49223), (73, 49241), (87, 49307), (106, 49391), (109, 49403), (110, 49406), (120, 49481), (129, 49526), (137, 49559), (143, 49598), (149, 49643), (152, 49658), (160, 49715), (168, 49748), (191, 49826), (193, 49838), (214, 49961),

Gene: Paola\_66 Start: 47872, Stop: 48717, Start Num: 38

Candidate Starts for Paola\_66:

(Start: 38 @47872 has 21 MA's), (51, 47914), (54, 47938), (58, 47962), (69, 48034), (80, 48091), (87, 48121), (101, 48172), (109, 48199), (110, 48202), (115, 48241), (120, 48277), (121, 48289), (128, 48316), (135, 48349), (136, 48352), (140, 48361), (147, 48418), (149, 48439), (152, 48454), (160, 48511), (163, 48523), (183, 48595), (184, 48598), (189, 48613), (193, 48631), (199, 48643),

Gene: Patt\_74 Start: 47732, Stop: 48610, Start Num: 40

Candidate Starts for Patt\_74:

(Start: 40 @47732 has 19 MA's), (52, 47777), (55, 47801), (56, 47810), (59, 47840), (65, 47891), (77, 47933), (78, 47939), (82, 47972), (89, 48005), (92, 48014), (107, 48071), (109, 48080), (110, 48083), (112, 48107), (118, 48149), (121, 48170), (141, 48221), (142, 48227), (145, 48251), (146, 48254), (149, 48278), (151, 48287), (161, 48353), (165, 48371), (166, 48377), (168, 48383), (173, 48410), (176, 48431), (181, 48461), (193, 48506),

Gene: Phalm\_66 Start: 43063, Stop: 43965, Start Num: 27

Candidate Starts for Phalm\_66:

(2, 42544), (7, 42859), (18, 42988), (20, 43033), (Start: 27 @43063 has 57 MA's), (31, 43105), (83, 43384), (84, 43387), (107, 43477), (141, 43669), (146, 43702), (155, 43756), (160, 43798), (170, 43849), (177, 43879), (190, 43918), (192, 43927),

Gene: Pharb\_72 Start: 48264, Stop: 49181, Start Num: 37

Candidate Starts for Pharb\_72:

(29, 48225), (37, 48264), (Start: 43 @48273 has 8 MA's), (50, 48309), (58, 48360), (63, 48381), (69, 48432), (85, 48510), (89, 48531), (97, 48555), (110, 48609), (112, 48633), (114, 48645), (117, 48672), (120, 48684), (124, 48711), (142, 48774), (153, 48843), (155, 48855), (160, 48897), (168, 48930), (173, 48957), (174, 48969), (189, 49044),

Gene: Phayonce\_69 Start: 45605, Stop: 46513, Start Num: 27

Candidate Starts for Phayonce\_69:

(1, 45062), (3, 45080), (6, 45269), (7, 45386), (18, 45518), (20, 45575), (Start: 27 @45605 has 57 MA's), (Start: 28 @45620 has 1 MA's), (47, 45683), (53, 45737), (83, 45926), (84, 45929), (85, 45935), (104, 46007), (126, 46145), (141, 46211), (146, 46244), (170, 46391), (177, 46421), (190, 46460),

Gene: Pegasus\_68 Start: 42454, Stop: 43356, Start Num: 27

Candidate Starts for Pegasus\_68:

(4, 41959), (7, 42250), (18, 42379), (20, 42424), (Start: 27 @42454 has 57 MA's), (31, 42496), (83, 42775), (84, 42778), (107, 42868), (141, 43060), (146, 43093), (155, 43147), (160, 43189), (170, 43240), (177, 43270), (190, 43309), (192, 43318),

Gene: Phineas\_66 Start: 42030, Stop: 42932, Start Num: 27

Candidate Starts for Phineas\_66:

(17, 41952), (Start: 27 @42030 has 57 MA's), (31, 42072), (53, 42162), (71, 42294), (83, 42351), (84, 42354), (107, 42444), (141, 42636), (160, 42765), (170, 42816), (177, 42846), (190, 42885), (192, 42894),

Gene: Piper2020\_91 Start: 53066, Stop: 53971, Start Num: 27

Candidate Starts for Piper2020\_91:

(Start: 27 @53066 has 57 MA's), (47, 53144), (93, 53429), (107, 53480), (114, 53528), (118, 53558), (141, 53672), (151, 53738), (176, 53876), (177, 53882), (185, 53906), (192, 53930), (196, 53939),

Gene: Pixie\_73 Start: 48565, Stop: 49482, Start Num: 43

Candidate Starts for Pixie\_73:

(22, 48472), (39, 48559), (Start: 43 @48565 has 8 MA's), (50, 48601), (58, 48652), (69, 48724), (89, 48823), (97, 48847), (110, 48901), (112, 48925), (114, 48937), (120, 48976), (124, 49003), (142, 49066), (146, 49093), (147, 49096), (153, 49135), (155, 49147), (160, 49189), (168, 49222), (174, 49261), (189, 49336),

Gene: Polkaroo\_67 Start: 43777, Stop: 44679, Start Num: 27

Candidate Starts for Polkaroo\_67:

(2, 43258), (7, 43573), (18, 43702), (20, 43747), (Start: 27 @43777 has 57 MA's), (31, 43819), (53, 43909), (83, 44098), (84, 44101), (107, 44191), (141, 44383), (146, 44416), (155, 44470), (160, 44512), (170, 44563), (177, 44593), (190, 44632), (192, 44641),

Gene: Psycho\_66 Start: 46548, Stop: 47402, Start Num: 38

Candidate Starts for Psycho\_66:

(10, 46356), (15, 46389), (26, 46485), (Start: 38 @46548 has 21 MA's), (41, 46551), (50, 46590), (51, 46593), (54, 46617), (58, 46641), (69, 46713), (79, 46767), (87, 46800), (101, 46851), (102, 46857), (109, 46878), (110, 46881), (115, 46920), (127, 46995), (128, 46998), (134, 47028), (149, 47106), (152, 47121), (160, 47178), (163, 47190), (172, 47235), (184, 47265), (189, 47280), (193, 47298), (199, 47310), (203, 47334),

Gene: Purky\_78 Start: 47557, Stop: 48462, Start Num: 27

Candidate Starts for Purky\_78:

(Start: 27 @47557 has 57 MA's), (47, 47635), (75, 47830), (93, 47920), (114, 48019), (141, 48163), (147, 48199), (166, 48322), (177, 48373), (185, 48397), (192, 48421), (196, 48430),

Gene: Pygmy\_68 Start: 43495, Stop: 44397, Start Num: 27

Candidate Starts for Pygmy\_68:

(2, 42976), (7, 43291), (18, 43420), (20, 43465), (Start: 27 @43495 has 57 MA's), (31, 43537), (53, 43627), (71, 43759), (83, 43816), (84, 43819), (107, 43909), (141, 44101), (146, 44134), (155, 44188), (160, 44230), (170, 44281), (177, 44311), (190, 44350), (192, 44359),

Gene: QueenHazel\_61 Start: 41353, Stop: 42255, Start Num: 27

Candidate Starts for QueenHazel\_61:

(11, 41236), (13, 41254), (Start: 27 @41353 has 57 MA's), (83, 41674), (93, 41716), (107, 41767), (141, 41959), (146, 41992), (155, 42046), (160, 42088), (177, 42169), (190, 42208), (192, 42217),

Gene: Rando14\_69 Start: 47204, Stop: 48082, Start Num: 38

Candidate Starts for Rando14\_69:

(26, 47141), (Start: 36 @47201 has 1 MA's), (Start: 38 @47204 has 21 MA's), (49, 47243), (54, 47282), (58, 47306), (61, 47318), (87, 47465), (88, 47477), (105, 47534), (110, 47546), (111, 47549), (118, 47612), (120, 47621), (127, 47660), (128, 47663), (134, 47693), (149, 47771), (152, 47786), (160, 47843), (163, 47855), (184, 47930), (189, 47945), (193, 47963), (195, 47966),

Gene: Reptar3000\_75 Start: 47721, Stop: 48599, Start Num: 40

Candidate Starts for Reptar3000\_75:

(Start: 40 @47721 has 19 MA's), (52, 47766), (55, 47790), (56, 47799), (65, 47880), (77, 47922), (78, 47928), (82, 47961), (89, 47994), (92, 48003), (107, 48060), (109, 48069), (110, 48072), (112, 48096), (118, 48138), (121, 48159), (141, 48210), (142, 48216), (145, 48240), (146, 48243), (149, 48267), (151, 48276), (161, 48342), (165, 48360), (166, 48366), (168, 48372), (173, 48399), (176, 48420), (181, 48450), (193, 48495),

Gene: Ruthiejr\_79 Start: 49661, Stop: 50539, Start Num: 40

Candidate Starts for Ruthiejr\_79:

(Start: 40 @49661 has 19 MA's), (52, 49706), (55, 49730), (56, 49739), (59, 49769), (65, 49820), (77, 49862), (78, 49868), (80, 49892), (82, 49901), (89, 49934), (92, 49943), (107, 50000), (109, 50009), (110, 50012), (112, 50036), (118, 50078), (121, 50099), (141, 50153), (142, 50159), (145, 50183), (146, 50186), (149, 50210), (151, 50219), (156, 50243), (161, 50285), (162, 50291), (166, 50309), (168, 50315), (173, 50342), (175, 50351), (176, 50363), (181, 50393), (193, 50438),

Gene: SamScheppers\_77 Start: 49936, Stop: 50814, Start Num: 40

Candidate Starts for SamScheppers\_77:

(Start: 40 @49936 has 19 MA's), (52, 49981), (56, 50014), (59, 50044), (65, 50095), (77, 50137), (78, 50143), (79, 50164), (82, 50176), (89, 50209), (92, 50218), (107, 50275), (109, 50284), (110, 50287), (112, 50311), (118, 50353), (121, 50374), (141, 50425), (142, 50431), (145, 50455), (146, 50458), (149, 50482), (151, 50491), (156, 50515), (161, 50557), (162, 50563), (166, 50581), (168, 50587), (173, 50614), (175, 50623), (176, 50635), (193, 50710), (212, 50803),

Gene: Sbash\_79 Start: 50602, Stop: 51504, Start Num: 27

Candidate Starts for Sbash\_79:

(12, 50491), (16, 50509), (Start: 27 @50602 has 57 MA's), (Start: 40 @50668 has 19 MA's), (47, 50680), (52, 50725), (53, 50734), (85, 50932), (93, 50965), (107, 51016), (114, 51064), (118, 51094), (141, 51208), (147, 51244), (166, 51367), (170, 51388), (177, 51418), (185, 51442),

Gene: Scarlett\_76 Start: 49295, Stop: 50326, Start Num: 21

Candidate Starts for Scarlett\_76:

(14, 49220), (18, 49235), (Start: 21 @49295 has 6 MA's), (Start: 23 @49301 has 1 MA's), (35, 49379), (52, 49439), (54, 49460), (58, 49484), (69, 49559), (73, 49577), (87, 49643), (106, 49727), (109, 49739), (110, 49742), (120, 49817), (129, 49862), (137, 49895), (143, 49934), (149, 49979), (152, 49994), (160, 50051), (191, 50162), (193, 50174), (214, 50297),

Gene: ShedlockHolmes\_76 Start: 49078, Stop: 49995, Start Num: 43

Candidate Starts for ShedlockHolmes\_76:

(22, 48985), (Start: 43 @49078 has 8 MA's), (50, 49114), (58, 49165), (63, 49186), (69, 49237), (89, 49336), (97, 49360), (110, 49414), (112, 49438), (114, 49450), (120, 49489), (123, 49510), (142,

49579), (146, 49606), (147, 49609), (153, 49648), (155, 49660), (160, 49702), (168, 49735), (174, 49774), (189, 49849),

Gene: Shipwreck\_68 Start: 43470, Stop: 44372, Start Num: 27

Candidate Starts for Shipwreck\_68:

(2, 42951), (7, 43266), (18, 43395), (20, 43440), (Start: 27 @43470 has 57 MA's), (31, 43512), (53, 43602), (71, 43734), (83, 43791), (84, 43794), (107, 43884), (141, 44076), (160, 44205), (170, 44256), (177, 44286), (190, 44325), (192, 44334),

Gene: Slarp\_78 Start: 49635, Stop: 50513, Start Num: 40

Candidate Starts for Slarp\_78:

(Start: 40 @49635 has 19 MA's), (52, 49680), (56, 49713), (59, 49743), (65, 49794), (77, 49836), (78, 49842), (79, 49863), (82, 49875), (89, 49908), (92, 49917), (107, 49974), (109, 49983), (110, 49986), (112, 50010), (118, 50052), (121, 50073), (141, 50124), (142, 50130), (145, 50154), (146, 50157), (149, 50181), (151, 50190), (156, 50214), (161, 50256), (162, 50262), (166, 50280), (168, 50286), (173, 50313), (175, 50322), (176, 50334), (193, 50409),

Gene: SoSeph\_67 Start: 48251, Stop: 49087, Start Num: 38

Candidate Starts for SoSeph\_67:

(10, 48059), (15, 48092), (26, 48188), (Start: 38 @48251 has 21 MA's), (51, 48293), (54, 48317), (58, 48341), (68, 48407), (69, 48413), (80, 48470), (87, 48500), (101, 48551), (109, 48578), (110, 48581), (115, 48620), (120, 48656), (121, 48668), (127, 48695), (128, 48698), (129, 48704), (130, 48713), (134, 48728), (142, 48755), (149, 48806), (152, 48821), (160, 48878), (163, 48890), (164, 48896), (173, 48938), (183, 48962), (189, 48980), (193, 48998), (195, 49001), (199, 49010),

Gene: Sonah\_66 Start: 41167, Stop: 42069, Start Num: 27

Candidate Starts for Sonah\_66:

(2, 40648), (7, 40963), (18, 41092), (20, 41137), (Start: 27 @41167 has 57 MA's), (31, 41209), (71, 41431), (83, 41488), (84, 41491), (107, 41581), (141, 41773), (160, 41902), (170, 41953), (177, 41983), (190, 42022), (192, 42031),

Gene: Sonali\_80 Start: 50220, Stop: 51053, Start Num: 42

Candidate Starts for Sonali\_80:

(Start: 42 @50220 has 10 MA's), (58, 50325), (60, 50343), (70, 50406), (81, 50460), (87, 50484), (95, 50511), (96, 50514), (131, 50688), (198, 51000),

Gene: StevieRay\_70 Start: 44234, Stop: 45136, Start Num: 27

Candidate Starts for StevieRay\_70:

(2, 43715), (7, 44030), (18, 44159), (20, 44204), (Start: 27 @44234 has 57 MA's), (31, 44276), (53, 44366), (83, 44555), (84, 44558), (107, 44648), (141, 44840), (160, 44969), (177, 45050), (192, 45098),

Gene: StressBall\_65 Start: 42765, Stop: 43667, Start Num: 27

Candidate Starts for StressBall\_65:

(2, 42246), (7, 42561), (18, 42690), (20, 42735), (Start: 27 @42765 has 57 MA's), (31, 42807), (83, 43086), (84, 43089), (107, 43179), (141, 43371), (146, 43404), (155, 43458), (160, 43500), (170, 43551), (177, 43581), (190, 43620), (192, 43629),

Gene: Strobilo\_82 Start: 51113, Stop: 52015, Start Num: 42

Candidate Starts for Strobilo\_82:

(Start: 42 @51113 has 10 MA's), (52, 51155), (69, 51290), (78, 51323), (103, 51425), (104, 51428), (107, 51440), (110, 51452), (130, 51566), (141, 51605), (146, 51638), (160, 51734), (168, 51767), (171, 51788), (173, 51794), (176, 51815), (181, 51845), (182, 51848), (195, 51893), (211, 51983),

(213, 51998),

Gene: TBond007\_70 Start: 48564, Stop: 49481, Start Num: 43

Candidate Starts for TBond007\_70:

(39, 48558), (Start: 43 @48564 has 8 MA's), (50, 48600), (58, 48651), (69, 48723), (89, 48822), (97, 48846), (110, 48900), (112, 48924), (114, 48936), (120, 48975), (124, 49002), (142, 49065), (146, 49092), (147, 49095), (153, 49134), (155, 49146), (160, 49188), (168, 49221), (174, 49260), (189, 49335),

Gene: TM4\_75 Start: 45538, Stop: 46449, Start Num: 42

Candidate Starts for TM4\_75:

(Start: 42 @45538 has 10 MA's), (52, 45580), (69, 45715), (78, 45748), (103, 45850), (104, 45853), (110, 45877), (130, 45991), (141, 46030), (146, 46063), (160, 46159), (168, 46192), (171, 46213), (172, 46216), (173, 46219), (176, 46240), (181, 46270), (195, 46318), (213, 46432),

Gene: Taquito\_77 Start: 49669, Stop: 50547, Start Num: 40

Candidate Starts for Taquito\_77:

(Start: 40 @49669 has 19 MA's), (52, 49714), (56, 49747), (59, 49777), (65, 49828), (77, 49870), (78, 49876), (82, 49909), (89, 49942), (92, 49951), (107, 50008), (109, 50017), (110, 50020), (112, 50044), (118, 50086), (121, 50107), (141, 50158), (142, 50164), (145, 50188), (146, 50191), (149, 50215), (151, 50224), (156, 50248), (161, 50290), (162, 50296), (166, 50314), (168, 50320), (173, 50347), (175, 50356), (176, 50368), (193, 50443),

Gene: Techage\_66 Start: 42044, Stop: 42946, Start Num: 27

Candidate Starts for Techage\_66:

(4, 41552), (7, 41840), (18, 41969), (20, 42014), (Start: 27 @42044 has 57 MA's), (31, 42086), (83, 42365), (84, 42368), (107, 42458), (141, 42650), (146, 42683), (155, 42737), (160, 42779), (170, 42830), (177, 42860), (190, 42899), (192, 42908),

Gene: Thespis\_67 Start: 43000, Stop: 43902, Start Num: 27

Candidate Starts for Thespis\_67:

(2, 42481), (7, 42796), (18, 42925), (20, 42970), (Start: 27 @43000 has 57 MA's), (31, 43042), (83, 43321), (84, 43324), (107, 43414), (141, 43606), (160, 43735), (177, 43816), (192, 43864),

Gene: ThulaThula\_73 Start: 47020, Stop: 47925, Start Num: 27

Candidate Starts for ThulaThula\_73:

(3, 46501), (7, 46804), (18, 46933), (20, 46990), (Start: 27 @47020 has 57 MA's), (Start: 28 @47035 has 1 MA's), (47, 47098), (53, 47152), (83, 47341), (93, 47383), (107, 47434), (114, 47482), (118, 47512), (126, 47560), (141, 47626), (147, 47662), (166, 47785), (177, 47836), (185, 47860), (192, 47884), (196, 47893),

Gene: Thyatira\_69 Start: 50243, Stop: 51079, Start Num: 38

Candidate Starts for Thyatira\_69:

(10, 50051), (15, 50084), (26, 50180), (Start: 38 @50243 has 21 MA's), (51, 50285), (54, 50309), (58, 50333), (68, 50399), (69, 50405), (80, 50462), (87, 50492), (101, 50543), (109, 50570), (110, 50573), (115, 50612), (120, 50648), (121, 50660), (127, 50687), (128, 50690), (129, 50696), (134, 50720), (147, 50777), (152, 50813), (160, 50870), (163, 50882), (164, 50888), (173, 50930), (183, 50954), (189, 50972), (193, 50990), (195, 50993), (199, 51002),

Gene: TootsiePop\_86 Start: 52818, Stop: 53723, Start Num: 27

Candidate Starts for TootsiePop\_86:

(Start: 27 @52818 has 57 MA's), (47, 52896), (93, 53181), (107, 53232), (114, 53280), (118, 53310), (141, 53424), (151, 53490), (176, 53628), (177, 53634), (185, 53658), (192, 53682), (196, 53691),



Gene: Tortellini\_71 Start: 46722, Stop: 47627, Start Num: 27

Candidate Starts for Tortellini\_71:

(Start: 27 @46722 has 57 MA's), (47, 46800), (83, 47043), (85, 47052), (93, 47085), (107, 47136), (114, 47184), (118, 47214), (141, 47328), (146, 47361), (151, 47394), (170, 47508), (177, 47538), (185, 47562), (192, 47586), (196, 47595),

Gene: TribelTrouble\_75 Start: 49560, Stop: 50477, Start Num: 43

Candidate Starts for TribelTrouble\_75:

(Start: 43 @49560 has 8 MA's), (50, 49596), (58, 49647), (69, 49719), (77, 49746), (85, 49797), (97, 49842), (110, 49896), (112, 49920), (114, 49932), (117, 49959), (120, 49971), (142, 50061), (153, 50130), (155, 50142), (156, 50145), (160, 50184), (168, 50217), (172, 50241), (174, 50256), (189, 50331),

Gene: Venti\_63 Start: 40452, Stop: 41354, Start Num: 27

Candidate Starts for Venti\_63:

(Start: 27 @40452 has 57 MA's), (83, 40773), (93, 40815), (107, 40866), (141, 41058), (146, 41091), (155, 41145), (160, 41187), (170, 41238), (177, 41268), (190, 41307), (192, 41316),

Gene: Vidya\_64 Start: 41288, Stop: 42190, Start Num: 27

Candidate Starts for Vidya\_64:

(2, 40769), (7, 41084), (18, 41213), (20, 41258), (Start: 27 @41288 has 57 MA's), (31, 41330), (83, 41609), (84, 41612), (107, 41702), (141, 41894), (160, 42023), (177, 42104), (192, 42152),

Gene: Waterfoul\_68 Start: 48313, Stop: 49149, Start Num: 38

Candidate Starts for Waterfoul\_68:

(10, 48121), (15, 48154), (26, 48250), (Start: 38 @48313 has 21 MA's), (51, 48355), (54, 48379), (58, 48403), (68, 48469), (69, 48475), (80, 48532), (87, 48562), (101, 48613), (109, 48640), (110, 48643), (115, 48682), (120, 48718), (121, 48730), (127, 48757), (128, 48760), (129, 48766), (134, 48790), (147, 48847), (152, 48883), (160, 48940), (163, 48952), (164, 48958), (173, 49000), (183, 49024), (189, 49042), (193, 49060), (195, 49063), (199, 49072),

Gene: Willsammy\_67 Start: 43249, Stop: 44151, Start Num: 27

Candidate Starts for Willsammy\_67:

(2, 42730), (7, 43045), (18, 43174), (20, 43219), (Start: 27 @43249 has 57 MA's), (31, 43291), (83, 43570), (84, 43573), (107, 43663), (141, 43855), (146, 43888), (155, 43942), (160, 43984), (170, 44035), (177, 44065), (190, 44104), (192, 44113),

Gene: Wintermute\_78 Start: 49845, Stop: 50723, Start Num: 40

Candidate Starts for Wintermute\_78:

(Start: 40 @49845 has 19 MA's), (52, 49890), (56, 49923), (59, 49953), (65, 50004), (77, 50046), (78, 50052), (79, 50073), (82, 50085), (89, 50118), (92, 50127), (107, 50184), (109, 50193), (110, 50196), (112, 50220), (118, 50262), (121, 50283), (141, 50334), (142, 50340), (145, 50364), (146, 50367), (149, 50391), (151, 50400), (161, 50466), (166, 50490), (168, 50496), (173, 50523), (175, 50532), (176, 50544), (193, 50619),

Gene: Xavia\_67 Start: 47327, Stop: 48229, Start Num: 27

Candidate Starts for Xavia\_67:

(5, 46886), (7, 47123), (18, 47252), (20, 47297), (Start: 27 @47327 has 57 MA's), (31, 47369), (53, 47459), (71, 47591), (83, 47648), (93, 47690), (107, 47741), (114, 47789), (118, 47819), (126, 47867), (133, 47909), (147, 47969), (166, 48092), (177, 48143), (185, 48167), (192, 48191), (196, 48200),

Gene: Xula\_61 Start: 41279, Stop: 42181, Start Num: 27

Candidate Starts for Xula\_61:

(Start: 27 @41279 has 57 MA's), (83, 41600), (84, 41603), (93, 41642), (107, 41693), (141, 41885), (146, 41918), (155, 41972), (160, 42014), (166, 42044), (177, 42095), (192, 42143),

Gene: Y10\_75 Start: 49773, Stop: 50651, Start Num: 40

Candidate Starts for Y10\_75:

(Start: 40 @49773 has 19 MA's), (52, 49818), (56, 49851), (59, 49881), (65, 49932), (77, 49974), (78, 49980), (82, 50013), (89, 50046), (92, 50055), (107, 50112), (109, 50121), (110, 50124), (112, 50148), (118, 50190), (121, 50211), (141, 50262), (142, 50268), (145, 50292), (146, 50295), (149, 50319), (151, 50328), (161, 50394), (162, 50400), (166, 50418), (168, 50424), (173, 50451), (175, 50460), (176, 50472), (193, 50547),

Gene: Y2\_75 Start: 49773, Stop: 50651, Start Num: 40

Candidate Starts for Y2\_75:

(Start: 40 @49773 has 19 MA's), (52, 49818), (56, 49851), (59, 49881), (65, 49932), (77, 49974), (78, 49980), (82, 50013), (89, 50046), (92, 50055), (107, 50112), (109, 50121), (110, 50124), (112, 50148), (118, 50190), (121, 50211), (141, 50262), (142, 50268), (145, 50292), (146, 50295), (149, 50319), (151, 50328), (161, 50394), (162, 50400), (166, 50418), (168, 50424), (173, 50451), (175, 50460), (176, 50472), (193, 50547),

Gene: Zilizebeth\_71 Start: 42809, Stop: 43711, Start Num: 27

Candidate Starts for Zilizebeth\_71:

(7, 42605), (18, 42734), (20, 42779), (Start: 27 @42809 has 57 MA's), (31, 42851), (83, 43130), (84, 43133), (107, 43223), (141, 43415), (146, 43448), (155, 43502), (160, 43544), (170, 43595), (177, 43625), (190, 43664), (192, 43673),

Gene: ZoeJ\_76 Start: 50548, Stop: 51450, Start Num: 42

Candidate Starts for ZoeJ\_76:

(Start: 42 @50548 has 10 MA's), (52, 50590), (69, 50725), (103, 50860), (104, 50863), (107, 50875), (110, 50887), (130, 51001), (146, 51073), (160, 51169), (168, 51202), (171, 51223), (172, 51226), (173, 51229), (176, 51250), (181, 51280), (195, 51328), (213, 51433),