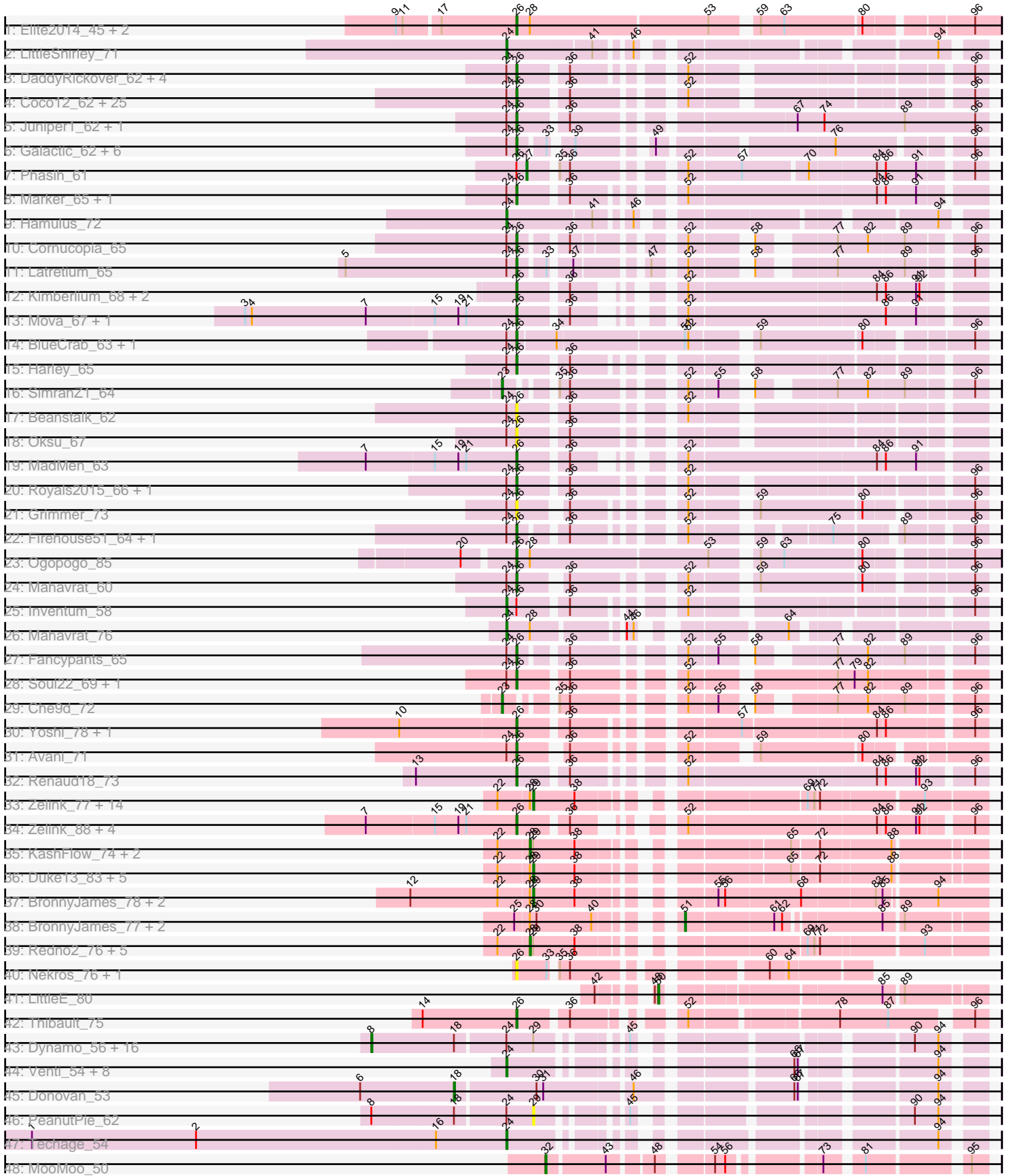


Pham 304766



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 304766 Report

This analysis was run 06/08/26 on database version 649.

Pham number 304766 has 154 members, 22 are drafts.

Phages represented in each track:

- Track 1 : Elite2014\_45, Lilpickle\_45, ChosenOne\_46
- Track 2 : LittleShirley\_71
- Track 3 : DaddyRickover\_62, Sassafras\_61, RedBird\_61, Aubs\_63, Dorothy\_61
- Track 4 : Coco12\_62, Velveteen\_58, Brookers\_60, GUmbie\_61, DRBy19\_66, Eradicator\_56, BuzzLyseyear\_69, Yorick\_62, BigPhil\_59, Lizziana\_69, LilMoolah\_61, IbOuu\_62, Sarma624\_61, Che8\_68, Saal\_65, Guppsters\_63, Gorge\_67, Job42\_65, Cerasum\_59, James\_67, Mattes\_67, Nivrat\_59, Philus\_66, Tchotchke\_62, Kingsley\_60, OlympiaSaint\_65
- Track 5 : Juniper1\_62, Estave1\_66
- Track 6 : Galactic\_62, SeaLumen\_68, NewHope4\_64, LunaBlu\_65, Ibhubesi\_63, Polo2Bam\_69, Enzomatic\_70
- Track 7 : Phasih\_61
- Track 8 : Marker\_65, Topiatin\_70
- Track 9 : Hamulus\_72
- Track 10 : Cornucopia\_65
- Track 11 : Latretium\_65
- Track 12 : Kimberlium\_68, MulchExplorer\_67, QuickMath\_67
- Track 13 : Mova\_67, Madiba\_64
- Track 14 : BlueCrab\_63, ByChance\_55
- Track 15 : Harley\_65
- Track 16 : SimranZ1\_64
- Track 17 : Beanstalk\_62
- Track 18 : Oksu\_67
- Track 19 : MadMen\_63
- Track 20 : Royals2015\_66, Pollywog\_64
- Track 21 : Grimmer\_73
- Track 22 : Firehouse51\_64, Mutaforma13\_67
- Track 23 : Ogopogo\_85
- Track 24 : Mahavrat\_60
- Track 25 : Invention\_58
- Track 26 : Mahavrat\_76
- Track 27 : Fancypants\_65
- Track 28 : Soul22\_69, GigiOuiOui\_59
- Track 29 : Che9d\_72
- Track 30 : Yoshi\_78, ThetaBob\_70
- Track 31 : Avani\_71
- Track 32 : Renaud18\_73

- Track 33 : Zelink\_77, Kalah2\_74, NihilNomen\_80, Ejimix\_79, Beem\_79, Phoebus\_82, JuicyJay\_77, DmpstrDiver\_80, Bombitas\_69, EricMillard\_78, Dallas\_78, ThreeRngTarjay\_77, Bagrid\_80, Odette\_78, Hughesyang\_79
- Track 34 : Zelink\_88, Klein\_91, Constella\_76, Wanda\_95, Xiaokay\_80
- Track 35 : KashFlow\_74, BAKA\_84, Minerva\_82
- Track 36 : Duke13\_83, Xiaokay\_70, Thibault\_67, Pound\_80, Marleymoo\_69, Constella\_66
- Track 37 : BronnyJames\_78, Omega\_83, Shaboozey\_77
- Track 38 : BronnyJames\_77, Omega\_82, Shaboozey\_76
- Track 39 : Redno2\_76, Yeet\_74, Dove\_65, HokkenD\_71, Halley\_81, Schatzie\_75
- Track 40 : Nekros\_76, Nibley\_70
- Track 41 : LittleE\_80
- Track 42 : Thibault\_75
- Track 43 : Dynamo\_56, Malithi\_57, Bogie\_60, Glaske\_55, Willsammy\_56, Brusacoram\_58, Gavriela\_56, Atcoo\_58, Megiddo\_56, KilKor\_56, Bobi\_76, Phalm\_56, HUHilltop\_59, StevieRay\_61, Necropolis\_55, Sonah\_57, StressBall\_56
- Track 44 : Venti\_54, Kari\_53, FirstPlacePfu\_55, Etoile\_53, Langerak\_54, Chubbello\_53, Fishburne\_53, Polkaroo\_56, Bartholomew\_53
- Track 45 : Donovan\_53
- Track 46 : PeanutPie\_62
- Track 47 : Techage\_54
- Track 48 : MooMoo\_50

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

The start number called the most often in the published annotations is 26, it was called in 69 of the 132 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aubs\_63, Avani\_71, Beanstalk\_62, BigPhil\_59, BlueCrab\_63, Brookers\_60, BuzzLyseyear\_69, ByChance\_55, Cerasum\_59, Che8\_68, ChosenOne\_46, Coco12\_62, Constella\_76, Cornucopia\_65, DRBy19\_66, DaddyRickover\_62, Dorothy\_61, Elite2014\_45, Enzomatic\_70, Eradicator\_56, Estave1\_66, Fancypants\_65, Firehouse51\_64, GUMbie\_61, Galactic\_62, GigiOuiOui\_59, Gorge\_67, Grimmer\_73, Guppsters\_63, Harley\_65, IbOuu\_62, Ibhubes\_i\_63, James\_67, Job42\_65, Juniper1\_62, Kimberlium\_68, Kingsley\_60, Klein\_91, Latretium\_65, LilMoolah\_61, Lilpickle\_45, Lizziana\_69, LunaBlu\_65, MadMen\_63, Madiba\_64, Mahavrat\_60, Marker\_65, Mattes\_67, Mova\_67, MulchExplorer\_67, Mutaforma13\_67, Nekros\_76, NewHope4\_64, Nibley\_70, Nivrat\_59, Ogopogo\_85, Oksu\_67, OlympiaSaint\_65, Philus\_66, Pollywog\_64, Polo2Bam\_69, QuickMath\_67, RedBird\_61, Renaud18\_73, Royals2015\_66, Saal\_65, Sarma624\_61, Sassafras\_61, SeaLumen\_68, Soul22\_69, Tchotchke\_62, ThetaBob\_70, Thibault\_75, Topiatin\_70, Velveteen\_58, Wanda\_95, Xiaokay\_80, Yorick\_62, Yoshi\_78, Zelink\_88,

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

- Inventum\_58, Phasih\_61,

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

- Atcoo\_58, BAKA\_84, Bagrid\_80, Bartholomew\_53, Beem\_79, Bobi\_76, Bogie\_60, Bombitas\_69, BronnyJames\_77, BronnyJames\_78, Brusacoram\_58, Che9d\_72,

Chubbello\_53, Constella\_66, Dallas\_78, DmpstrDiver\_80, Donovan\_53, Dove\_65, Duke13\_83, Dynamo\_56, Ejimix\_79, EricMillard\_78, Etoile\_53, FirstPlacePfu\_55, Fishburne\_53, Gavriela\_56, Glaske\_55, HUHilltop\_59, Halley\_81, Hamulus\_72, HokkenD\_71, Hughesyang\_79, JuicyJay\_77, Kalah2\_74, Kari\_53, KashFlow\_74, KilKor\_56, Langerak\_54, LittleE\_80, LittleShirley\_71, Mahavrat\_76, Malithi\_57, Marleymoo\_69, Megiddo\_56, Minerva\_82, MooMoo\_50, Necropolis\_55, NihilNomen\_80, Odette\_78, Omega\_82, Omega\_83, PeanutPie\_62, Phalm\_56, Phoebus\_82, Polkaroo\_56, Pound\_80, Redno2\_76, Schatzie\_75, Shaboozey\_76, Shaboozey\_77, SimranZ1\_64, Sonah\_57, StevieRay\_61, StressBall\_56, Techage\_54, Thibault\_67, ThreeRngTarjay\_77, Venti\_54, Willsammy\_56, Xiaokay\_70, Yeet\_74, Zelink\_77,

### Summary by start number:

#### Start 8:

- Found in 18 of 154 ( 11.7% ) of genes in pham
- Manual Annotations of this start: 17 of 132
- Called 94.4% of time when present
- Phage (with cluster) where this start called: Atcoo\_58 (P1), Bobi\_76 (F1), Bogie\_60 (P1), Brusacoram\_58 (P1), Dynamo\_56 (P1), Gavriela\_56 (P1), Glaske\_55 (P1), HUHilltop\_59 (P1), KilKor\_56 (P1), Malithi\_57 (P1), Megiddo\_56 (P1), Necropolis\_55 (P1), Phalm\_56 (P1), Sonah\_57 (P1), StevieRay\_61 (P1), StressBall\_56 (P1), Willsammy\_56 (P1),

#### Start 18:

- Found in 19 of 154 ( 12.3% ) of genes in pham
- Manual Annotations of this start: 1 of 132
- Called 5.3% of time when present
- Phage (with cluster) where this start called: Donovan\_53 (P1),

#### Start 23:

- Found in 2 of 154 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 2 of 132
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Che9d\_72 (F2), SimranZ1\_64 (F1),

#### Start 24:

- Found in 91 of 154 ( 59.1% ) of genes in pham
- Manual Annotations of this start: 12 of 132
- Called 15.4% of time when present
- Phage (with cluster) where this start called: Bartholomew\_53 (P1), Chubbello\_53 (P1), Etoile\_53 (P1), FirstPlacePfu\_55 (P1), Fishburne\_53 (P1), Hamulus\_72 (F1), Inventum\_58 (F1), Kari\_53 (P1), Langerak\_54 (P1), LittleShirley\_71 (F1), Mahavrat\_76 (F1), Polkaroo\_56 (P1), Techage\_54 (P1), Venti\_54 (P1),

#### Start 26:

- Found in 82 of 154 ( 53.2% ) of genes in pham
- Manual Annotations of this start: 69 of 132
- Called 97.6% of time when present
- Phage (with cluster) where this start called: Aubs\_63 (F1), Avani\_71 (F2), Beanstalk\_62 (F1), BigPhil\_59 (F1), BlueCrab\_63 (F1), Brookers\_60 (F1), BuzzLyseyear\_69 (F1), ByChance\_55 (F1), Cerasum\_59 (F1), Che8\_68 (F1), ChosenOne\_46 (E), Coco12\_62 (F1), Constella\_76 (J), Cornucopia\_65 (F1),

DRBy19\_66 (F1), DaddyRickover\_62 (F1), Dorothy\_61 (F1), Elite2014\_45 (E), Enzomatic\_70 (F1), Eradicator\_56 (F1), Estave1\_66 (F1), Fancypants\_65 (F1), Firehouse51\_64 (F1), GUmbie\_61 (F1), Galactic\_62 (F1), GigiOuiOui\_59 (F1), Gorge\_67 (F1), Grimmer\_73 (F1), Guppsters\_63 (F1), Harley\_65 (F1), IbOuu\_62 (F1), Ibhubesi\_63 (F1), James\_67 (F1), Job42\_65 (F1), Juniper1\_62 (F1), Kimberlium\_68 (F1), Kingsley\_60 (F1), Klein\_91 (J), Latretium\_65 (F1), LilMoolah\_61 (F1), Lilpickle\_45 (E), Lizziana\_69 (F1), LunaBlu\_65 (F1), MadMen\_63 (F1), Madiba\_64 (F1), Mahavrat\_60 (F1), Marker\_65 (F1), Mattes\_67 (F1), Mova\_67 (F1), MulchExplorer\_67 (F1), Mutaforma13\_67 (F1), Nekros\_76 (J), NewHope4\_64 (F1), Nibley\_70 (J), Nivrat\_59 (F1), Ogopogo\_85 (F1), Oksu\_67 (F1), OlympiaSaint\_65 (F1), Philus\_66 (F1), Pollywog\_64 (F1), Polo2Bam\_69 (F1), QuickMath\_67 (F1), RedBird\_61 (F1), Renaud18\_73 (F4), Royals2015\_66 (F1), Saal\_65 (F1), Sarma624\_61 (F1), Sassafras\_61 (F1), SeaLumen\_68 (F1), Soul22\_69 (F2), Tchotchke\_62 (F1), ThetaBob\_70 (F4), Thibault\_75 (J), Topiatin\_70 (F1), Velveteen\_58 (F1), Wanda\_95 (J), Xiaokay\_80 (J), Yorick\_62 (F1), Yoshi\_78 (F2), Zelink\_88 (J),

#### Start 27:

- Found in 1 of 154 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 132
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phasih\_61 (F1),

#### Start 28:

- Found in 41 of 154 ( 26.6% ) of genes in pham
- Manual Annotations of this start: 9 of 132
- Called 22.0% of time when present
- Phage (with cluster) where this start called: BAKA\_84 (J), Dove\_65 (J), Halley\_81 (J), HokkenD\_71 (J), KashFlow\_74 (J), Minerva\_82 (J), Redno2\_76 (J), Schatzie\_75 (J), Yeet\_74 (J),

#### Start 29:

- Found in 51 of 154 ( 33.1% ) of genes in pham
- Manual Annotations of this start: 18 of 132
- Called 49.0% of time when present
- Phage (with cluster) where this start called: Bagrid\_80 (J), Beem\_79 (J), Bombitas\_69 (J), BronnyJames\_78 (J), Constella\_66 (J), Dallas\_78 (J), DmpstrDiver\_80 (J), Duke13\_83 (J), Ejimix\_79 (J), EricMillard\_78 (J), Hughesyang\_79 (J), JuicyJay\_77 (J), Kalah2\_74 (J), Marleymoo\_69 (J), NihilNomen\_80 (J), Odette\_78 (J), Omega\_83 (J), PeanutPie\_62 (P1), Phoebus\_82 (J), Pound\_80 (J), Shaboozey\_77 (J), Thibault\_67 (J), ThreeRngTarjay\_77 (J), Xiaokay\_70 (J), Zelink\_77 (J),

#### Start 32:

- Found in 1 of 154 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 132
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MooMoo\_50 (singleton),

#### Start 50:

- Found in 1 of 154 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 132
- Called 100.0% of time when present

- Phage (with cluster) where this start called: LittleE\_80 (J),

Start 51:

- Found in 5 of 154 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 1 of 132
- Called 60.0% of time when present
- Phage (with cluster) where this start called: BronnyJames\_77 (J), Omega\_82 (J), Shaboozey\_76 (J),

### **Summary by clusters:**

There are 7 clusters represented in this pham: F1, F2, P1, E, J, singleton, F4,

Info for manual annotations of cluster E:

- Start number 26 was manually annotated 3 times for cluster E.

Info for manual annotations of cluster F1:

- Start number 8 was manually annotated 1 time for cluster F1.
- Start number 23 was manually annotated 1 time for cluster F1.
- Start number 24 was manually annotated 4 times for cluster F1.
- Start number 26 was manually annotated 56 times for cluster F1.
- Start number 27 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster F2:

- Start number 23 was manually annotated 1 time for cluster F2.
- Start number 26 was manually annotated 3 times for cluster F2.

Info for manual annotations of cluster F4:

- Start number 26 was manually annotated 2 times for cluster F4.

Info for manual annotations of cluster J:

- Start number 26 was manually annotated 5 times for cluster J.
- Start number 28 was manually annotated 9 times for cluster J.
- Start number 29 was manually annotated 18 times for cluster J.
- Start number 50 was manually annotated 1 time for cluster J.
- Start number 51 was manually annotated 1 time for cluster J.

Info for manual annotations of cluster P1:

- Start number 8 was manually annotated 16 times for cluster P1.
- Start number 18 was manually annotated 1 time for cluster P1.
- Start number 24 was manually annotated 8 times for cluster P1.

### **Gene Information:**

Gene: Atcoo\_58 Start: 40217, Stop: 40654, Start Num: 8

Candidate Starts for Atcoo\_58:

(Start: 8 @40217 has 17 MA's), (Start: 18 @40289 has 1 MA's), (Start: 24 @40331 has 12 MA's), (Start: 29 @40355 has 18 MA's), (45, 40412), (90, 40601), (94, 40622),

Gene: Aubs\_63 Start: 41384, Stop: 41719, Start Num: 26

Candidate Starts for Aubs\_63:

(Start: 24 @41375 has 12 MA's), (Start: 26 @41384 has 69 MA's), (36, 41423), (52, 41495), (96, 41708),

Gene: Avani\_71 Start: 41759, Stop: 42094, Start Num: 26

Candidate Starts for Avani\_71:

(Start: 24 @41750 has 12 MA's), (Start: 26 @41759 has 69 MA's), (36, 41792), (52, 41864), (59, 41912), (80, 41999),

Gene: BAKA\_84 Start: 53281, Stop: 52940, Start Num: 28

Candidate Starts for BAKA\_84:

(22, 53308), (Start: 28 @53281 has 9 MA's), (Start: 29 @53278 has 18 MA's), (38, 53242), (65, 53095), (72, 53074), (88, 53014),

Gene: Bagrid\_80 Start: 51928, Stop: 51584, Start Num: 29

Candidate Starts for Bagrid\_80:

(22, 51958), (Start: 28 @51931 has 9 MA's), (Start: 29 @51928 has 18 MA's), (38, 51892), (69, 51730), (71, 51724), (72, 51721), (93, 51637),

Gene: Bartholomew\_53 Start: 36260, Stop: 36583, Start Num: 24

Candidate Starts for Bartholomew\_53:

(Start: 24 @36260 has 12 MA's), (66, 36449), (67, 36452), (94, 36551),

Gene: Beanstalk\_62 Start: 39767, Stop: 40108, Start Num: 26

Candidate Starts for Beanstalk\_62:

(Start: 24 @39758 has 12 MA's), (Start: 26 @39767 has 69 MA's), (36, 39806), (52, 39884),

Gene: Beem\_79 Start: 52789, Stop: 52445, Start Num: 29

Candidate Starts for Beem\_79:

(22, 52819), (Start: 28 @52792 has 9 MA's), (Start: 29 @52789 has 18 MA's), (38, 52753), (69, 52591), (71, 52585), (72, 52582), (93, 52498),

Gene: BigPhil\_59 Start: 37375, Stop: 37716, Start Num: 26

Candidate Starts for BigPhil\_59:

(Start: 24 @37366 has 12 MA's), (Start: 26 @37375 has 69 MA's), (36, 37414), (52, 37492), (96, 37705),

Gene: BlueCrab\_63 Start: 41722, Stop: 42096, Start Num: 26

Candidate Starts for BlueCrab\_63:

(Start: 24 @41713 has 12 MA's), (Start: 26 @41722 has 69 MA's), (34, 41755), (Start: 51 @41863 has 1 MA's), (52, 41866), (59, 41914), (80, 42001), (96, 42085),

Gene: Bobi\_76 Start: 47153, Stop: 47593, Start Num: 8

Candidate Starts for Bobi\_76:

(Start: 8 @47153 has 17 MA's), (Start: 18 @47225 has 1 MA's), (Start: 24 @47267 has 12 MA's), (Start: 29 @47291 has 18 MA's), (45, 47348), (90, 47540), (94, 47561),

Gene: Bogie\_60 Start: 39977, Stop: 40417, Start Num: 8

Candidate Starts for Bogie\_60:

(Start: 8 @39977 has 17 MA's), (Start: 18 @40049 has 1 MA's), (Start: 24 @40091 has 12 MA's), (Start: 29 @40115 has 18 MA's), (45, 40172), (90, 40364), (94, 40385),

Gene: Bombitas\_69 Start: 49952, Stop: 49608, Start Num: 29

Candidate Starts for Bombitas\_69:

(22, 49982), (Start: 28 @49955 has 9 MA's), (Start: 29 @49952 has 18 MA's), (38, 49916), (69, 49754), (71, 49748), (72, 49745), (93, 49661),

Gene: BronnyJames\_78 Start: 48223, Stop: 47873, Start Num: 29

Candidate Starts for BronnyJames\_78:

(12, 48331), (22, 48253), (Start: 28 @48226 has 9 MA's), (Start: 29 @48223 has 18 MA's), (38, 48187), (55, 48100), (56, 48094), (68, 48028), (83, 47965), (85, 47959), (94, 47917),

Gene: BronnyJames\_77 Start: 47876, Stop: 47634, Start Num: 51

Candidate Starts for BronnyJames\_77:

(25, 47987), (Start: 28 @47975 has 9 MA's), (30, 47969), (40, 47921), (Start: 51 @47876 has 1 MA's), (61, 47801), (62, 47795), (85, 47717), (89, 47702),

Gene: Brookers\_60 Start: 40326, Stop: 40667, Start Num: 26

Candidate Starts for Brookers\_60:

(Start: 24 @40317 has 12 MA's), (Start: 26 @40326 has 69 MA's), (36, 40365), (52, 40443), (96, 40656),

Gene: Brusacoram\_58 Start: 38760, Stop: 39197, Start Num: 8

Candidate Starts for Brusacoram\_58:

(Start: 8 @38760 has 17 MA's), (Start: 18 @38832 has 1 MA's), (Start: 24 @38874 has 12 MA's), (Start: 29 @38898 has 18 MA's), (45, 38955), (90, 39144), (94, 39165),

Gene: BuzzLyseyear\_69 Start: 42383, Stop: 42724, Start Num: 26

Candidate Starts for BuzzLyseyear\_69:

(Start: 24 @42374 has 12 MA's), (Start: 26 @42383 has 69 MA's), (36, 42422), (52, 42500), (96, 42713),

Gene: ByChance\_55 Start: 36650, Stop: 37024, Start Num: 26

Candidate Starts for ByChance\_55:

(Start: 24 @36641 has 12 MA's), (Start: 26 @36650 has 69 MA's), (34, 36683), (Start: 51 @36791 has 1 MA's), (52, 36794), (59, 36842), (80, 36929), (96, 37013),

Gene: Cerasum\_59 Start: 37393, Stop: 37734, Start Num: 26

Candidate Starts for Cerasum\_59:

(Start: 24 @37384 has 12 MA's), (Start: 26 @37393 has 69 MA's), (36, 37432), (52, 37510), (96, 37723),

Gene: Che8\_68 Start: 43879, Stop: 44220, Start Num: 26

Candidate Starts for Che8\_68:

(Start: 24 @43870 has 12 MA's), (Start: 26 @43879 has 69 MA's), (36, 43918), (52, 43996), (96, 44209),

Gene: Che9d\_72 Start: 41100, Stop: 41432, Start Num: 23

Candidate Starts for Che9d\_72:

(Start: 23 @41100 has 2 MA's), (35, 41130), (36, 41139), (52, 41217), (55, 41241), (58, 41259), (77, 41313), (82, 41340), (89, 41370), (96, 41421),

Gene: ChosenOne\_46 Start: 35277, Stop: 34882, Start Num: 26

Candidate Starts for ChosenOne\_46:

(9, 35379), (11, 35373), (17, 35343), (Start: 26 @35277 has 69 MA's), (Start: 28 @35265 has 9 MA's), (53, 35109), (59, 35076), (63, 35055), (80, 34989), (96, 34905),

Gene: Chubbello\_53 Start: 36256, Stop: 36579, Start Num: 24  
Candidate Starts for Chubbello\_53:  
(Start: 24 @36256 has 12 MA's), (66, 36445), (67, 36448), (94, 36547),

Gene: Coco12\_62 Start: 41450, Stop: 41791, Start Num: 26  
Candidate Starts for Coco12\_62:  
(Start: 24 @41441 has 12 MA's), (Start: 26 @41450 has 69 MA's), (36, 41489), (52, 41567), (96, 41780),

Gene: Constella\_76 Start: 51061, Stop: 51402, Start Num: 26  
Candidate Starts for Constella\_76:  
(7, 50929), (15, 50989), (19, 51010), (21, 51016), (Start: 26 @51061 has 69 MA's), (36, 51100), (52, 51154), (84, 51316), (86, 51322), (91, 51349), (92, 51352), (96, 51391),

Gene: Constella\_66 Start: 46926, Stop: 46588, Start Num: 29  
Candidate Starts for Constella\_66:  
(22, 46956), (Start: 28 @46929 has 9 MA's), (Start: 29 @46926 has 18 MA's), (38, 46890), (65, 46743), (72, 46722), (88, 46662),

Gene: Cornucopia\_65 Start: 41687, Stop: 42007, Start Num: 26  
Candidate Starts for Cornucopia\_65:  
(Start: 24 @41678 has 12 MA's), (Start: 26 @41687 has 69 MA's), (36, 41720), (52, 41792), (58, 41834), (77, 41888), (82, 41915), (89, 41945), (96, 41996),

Gene: DRBy19\_66 Start: 42134, Stop: 42475, Start Num: 26  
Candidate Starts for DRBy19\_66:  
(Start: 24 @42125 has 12 MA's), (Start: 26 @42134 has 69 MA's), (36, 42173), (52, 42251), (96, 42464),

Gene: DaddyRickover\_62 Start: 41176, Stop: 41511, Start Num: 26  
Candidate Starts for DaddyRickover\_62:  
(Start: 24 @41167 has 12 MA's), (Start: 26 @41176 has 69 MA's), (36, 41215), (52, 41287), (96, 41500),

Gene: Dallas\_78 Start: 51710, Stop: 51366, Start Num: 29  
Candidate Starts for Dallas\_78:  
(22, 51740), (Start: 28 @51713 has 9 MA's), (Start: 29 @51710 has 18 MA's), (38, 51674), (69, 51512), (71, 51506), (72, 51503), (93, 51419),

Gene: DmpstrDiver\_80 Start: 52136, Stop: 51792, Start Num: 29  
Candidate Starts for DmpstrDiver\_80:  
(22, 52166), (Start: 28 @52139 has 9 MA's), (Start: 29 @52136 has 18 MA's), (38, 52100), (69, 51938), (71, 51932), (72, 51929), (93, 51845),

Gene: Donovan\_53 Start: 36400, Stop: 36801, Start Num: 18  
Candidate Starts for Donovan\_53:  
(6, 36316), (Start: 18 @36400 has 1 MA's), (30, 36469), (31, 36475), (46, 36547), (66, 36667), (67, 36670), (94, 36769),

Gene: Dorothy\_61 Start: 40350, Stop: 40685, Start Num: 26  
Candidate Starts for Dorothy\_61:  
(Start: 24 @40341 has 12 MA's), (Start: 26 @40350 has 69 MA's), (36, 40389), (52, 40461), (96, 40674),

Gene: Dove\_65 Start: 48221, Stop: 47874, Start Num: 28

Candidate Starts for Dove\_65:

(22, 48248), (Start: 28 @48221 has 9 MA's), (Start: 29 @48218 has 18 MA's), (38, 48182), (69, 48020), (71, 48014), (72, 48011), (93, 47927),

Gene: Duke13\_83 Start: 52490, Stop: 52152, Start Num: 29

Candidate Starts for Duke13\_83:

(22, 52520), (Start: 28 @52493 has 9 MA's), (Start: 29 @52490 has 18 MA's), (38, 52454), (65, 52307), (72, 52286), (88, 52226),

Gene: Dynamo\_56 Start: 38011, Stop: 38451, Start Num: 8

Candidate Starts for Dynamo\_56:

(Start: 8 @38011 has 17 MA's), (Start: 18 @38083 has 1 MA's), (Start: 24 @38125 has 12 MA's), (Start: 29 @38149 has 18 MA's), (45, 38206), (90, 38398), (94, 38419),

Gene: Ejimix\_79 Start: 53578, Stop: 53234, Start Num: 29

Candidate Starts for Ejimix\_79:

(22, 53608), (Start: 28 @53581 has 9 MA's), (Start: 29 @53578 has 18 MA's), (38, 53542), (69, 53380), (71, 53374), (72, 53371), (93, 53287),

Gene: Elite2014\_45 Start: 35276, Stop: 34881, Start Num: 26

Candidate Starts for Elite2014\_45:

(9, 35378), (11, 35372), (17, 35342), (Start: 26 @35276 has 69 MA's), (Start: 28 @35264 has 9 MA's), (53, 35108), (59, 35075), (63, 35054), (80, 34988), (96, 34904),

Gene: Enzomatic\_70 Start: 40804, Stop: 41145, Start Num: 26

Candidate Starts for Enzomatic\_70:

(Start: 24 @40795 has 12 MA's), (Start: 26 @40804 has 69 MA's), (33, 40825), (39, 40840), (49, 40891), (76, 41029), (96, 41134),

Gene: Eradicator\_56 Start: 39233, Stop: 39574, Start Num: 26

Candidate Starts for Eradicator\_56:

(Start: 24 @39224 has 12 MA's), (Start: 26 @39233 has 69 MA's), (36, 39272), (52, 39350), (96, 39563),

Gene: EricMillard\_78 Start: 52781, Stop: 52437, Start Num: 29

Candidate Starts for EricMillard\_78:

(22, 52811), (Start: 28 @52784 has 9 MA's), (Start: 29 @52781 has 18 MA's), (38, 52745), (69, 52583), (71, 52577), (72, 52574), (93, 52490),

Gene: Estave1\_66 Start: 42262, Stop: 42642, Start Num: 26

Candidate Starts for Estave1\_66:

(Start: 24 @42253 has 12 MA's), (Start: 26 @42262 has 69 MA's), (36, 42301), (67, 42472), (74, 42496), (89, 42568), (96, 42631),

Gene: Etoile\_53 Start: 36260, Stop: 36583, Start Num: 24

Candidate Starts for Etoile\_53:

(Start: 24 @36260 has 12 MA's), (66, 36449), (67, 36452), (94, 36551),

Gene: Fancypants\_65 Start: 41674, Stop: 42000, Start Num: 26

Candidate Starts for Fancypants\_65:

(Start: 24 @41665 has 12 MA's), (Start: 26 @41674 has 69 MA's), (36, 41707), (52, 41785), (55, 41809), (58, 41827), (77, 41881), (82, 41908), (89, 41938), (96, 41989),

Gene: Firehouse51\_64 Start: 44558, Stop: 44872, Start Num: 26

Candidate Starts for Firehouse51\_64:

(Start: 24 @44549 has 12 MA's), (Start: 26 @44558 has 69 MA's), (36, 44591), (52, 44663), (75, 44762), (89, 44810), (96, 44861),

Gene: FirstPlacePfu\_55 Start: 36292, Stop: 36615, Start Num: 24

Candidate Starts for FirstPlacePfu\_55:

(Start: 24 @36292 has 12 MA's), (66, 36481), (67, 36484), (94, 36583),

Gene: Fishburne\_53 Start: 36260, Stop: 36583, Start Num: 24

Candidate Starts for Fishburne\_53:

(Start: 24 @36260 has 12 MA's), (66, 36449), (67, 36452), (94, 36551),

Gene: GUmbie\_61 Start: 40460, Stop: 40801, Start Num: 26

Candidate Starts for GUmbie\_61:

(Start: 24 @40451 has 12 MA's), (Start: 26 @40460 has 69 MA's), (36, 40499), (52, 40577), (96, 40790),

Gene: Galactic\_62 Start: 40920, Stop: 41261, Start Num: 26

Candidate Starts for Galactic\_62:

(Start: 24 @40911 has 12 MA's), (Start: 26 @40920 has 69 MA's), (33, 40941), (39, 40956), (49, 41007), (76, 41145), (96, 41250),

Gene: Gavriela\_56 Start: 38975, Stop: 39412, Start Num: 8

Candidate Starts for Gavriela\_56:

(Start: 8 @38975 has 17 MA's), (Start: 18 @39047 has 1 MA's), (Start: 24 @39089 has 12 MA's), (Start: 29 @39113 has 18 MA's), (45, 39170), (90, 39359), (94, 39380),

Gene: GigiOuiOui\_59 Start: 39900, Stop: 40250, Start Num: 26

Candidate Starts for GigiOuiOui\_59:

(Start: 24 @39891 has 12 MA's), (Start: 26 @39900 has 69 MA's), (36, 39939), (52, 40017), (77, 40131), (79, 40146), (82, 40158),

Gene: Glaske\_55 Start: 38975, Stop: 39412, Start Num: 8

Candidate Starts for Glaske\_55:

(Start: 8 @38975 has 17 MA's), (Start: 18 @39047 has 1 MA's), (Start: 24 @39089 has 12 MA's), (Start: 29 @39113 has 18 MA's), (45, 39170), (90, 39359), (94, 39380),

Gene: Gorge\_67 Start: 42402, Stop: 42743, Start Num: 26

Candidate Starts for Gorge\_67:

(Start: 24 @42393 has 12 MA's), (Start: 26 @42402 has 69 MA's), (36, 42441), (52, 42519), (96, 42732),

Gene: Grimmer\_73 Start: 42556, Stop: 42891, Start Num: 26

Candidate Starts for Grimmer\_73:

(Start: 24 @42547 has 12 MA's), (Start: 26 @42556 has 69 MA's), (36, 42589), (52, 42661), (59, 42709), (80, 42796), (96, 42880),

Gene: Guppsters\_63 Start: 40585, Stop: 40926, Start Num: 26

Candidate Starts for Guppsters\_63:

(Start: 24 @40576 has 12 MA's), (Start: 26 @40585 has 69 MA's), (36, 40624), (52, 40702), (96, 40915),

Gene: HUHilltop\_59 Start: 38234, Stop: 38674, Start Num: 8

Candidate Starts for HUHilltop\_59:

(Start: 8 @38234 has 17 MA's), (Start: 18 @38306 has 1 MA's), (Start: 24 @38348 has 12 MA's), (Start: 29 @38372 has 18 MA's), (45, 38429), (90, 38621), (94, 38642),

Gene: Halley\_81 Start: 52792, Stop: 52445, Start Num: 28

Candidate Starts for Halley\_81:

(22, 52819), (Start: 28 @52792 has 9 MA's), (Start: 29 @52789 has 18 MA's), (38, 52753), (69, 52591), (71, 52585), (72, 52582), (93, 52498),

Gene: Hamulus\_72 Start: 45640, Stop: 45987, Start Num: 24

Candidate Starts for Hamulus\_72:

(Start: 24 @45640 has 12 MA's), (41, 45712), (46, 45736), (94, 45955),

Gene: Harley\_65 Start: 42034, Stop: 42369, Start Num: 26

Candidate Starts for Harley\_65:

(Start: 24 @42025 has 12 MA's), (Start: 26 @42034 has 69 MA's), (36, 42073),

Gene: HokkenD\_71 Start: 51061, Stop: 50714, Start Num: 28

Candidate Starts for HokkenD\_71:

(22, 51088), (Start: 28 @51061 has 9 MA's), (Start: 29 @51058 has 18 MA's), (38, 51022), (69, 50860), (71, 50854), (72, 50851), (93, 50767),

Gene: Hughesyang\_79 Start: 52747, Stop: 52403, Start Num: 29

Candidate Starts for Hughesyang\_79:

(22, 52777), (Start: 28 @52750 has 9 MA's), (Start: 29 @52747 has 18 MA's), (38, 52711), (69, 52549), (71, 52543), (72, 52540), (93, 52456),

Gene: lbOuu\_62 Start: 41437, Stop: 41772, Start Num: 26

Candidate Starts for lbOuu\_62:

(Start: 24 @41428 has 12 MA's), (Start: 26 @41437 has 69 MA's), (36, 41476), (52, 41548), (96, 41761),

Gene: lbhubesi\_63 Start: 41044, Stop: 41385, Start Num: 26

Candidate Starts for lbhubesi\_63:

(Start: 24 @41035 has 12 MA's), (Start: 26 @41044 has 69 MA's), (33, 41065), (39, 41080), (49, 41131), (76, 41269), (96, 41374),

Gene: Inventum\_58 Start: 40539, Stop: 40883, Start Num: 24

Candidate Starts for Inventum\_58:

(Start: 24 @40539 has 12 MA's), (Start: 26 @40548 has 69 MA's), (36, 40587), (52, 40659), (96, 40872),

Gene: James\_67 Start: 42527, Stop: 42868, Start Num: 26

Candidate Starts for James\_67:

(Start: 24 @42518 has 12 MA's), (Start: 26 @42527 has 69 MA's), (36, 42566), (52, 42644), (96, 42857),

Gene: Job42\_65 Start: 42942, Stop: 43283, Start Num: 26

Candidate Starts for Job42\_65:

(Start: 24 @42933 has 12 MA's), (Start: 26 @42942 has 69 MA's), (36, 42981), (52, 43059), (96, 43272),

Gene: JuicyJay\_77 Start: 53923, Stop: 53579, Start Num: 29

Candidate Starts for JuicyJay\_77:

(22, 53953), (Start: 28 @53926 has 9 MA's), (Start: 29 @53923 has 18 MA's), (38, 53887), (69, 53725), (71, 53719), (72, 53716), (93, 53632),

Gene: Juniper1\_62 Start: 41298, Stop: 41678, Start Num: 26

Candidate Starts for Juniper1\_62:

(Start: 24 @41289 has 12 MA's), (Start: 26 @41298 has 69 MA's), (36, 41337), (67, 41508), (74, 41532), (89, 41604), (96, 41667),

Gene: Kalah2\_74 Start: 52082, Stop: 51738, Start Num: 29

Candidate Starts for Kalah2\_74:

(22, 52112), (Start: 28 @52085 has 9 MA's), (Start: 29 @52082 has 18 MA's), (38, 52046), (69, 51884), (71, 51878), (72, 51875), (93, 51791),

Gene: Kari\_53 Start: 36257, Stop: 36580, Start Num: 24

Candidate Starts for Kari\_53:

(Start: 24 @36257 has 12 MA's), (66, 36446), (67, 36449), (94, 36548),

Gene: KashFlow\_74 Start: 47820, Stop: 47479, Start Num: 28

Candidate Starts for KashFlow\_74:

(22, 47847), (Start: 28 @47820 has 9 MA's), (Start: 29 @47817 has 18 MA's), (38, 47781), (65, 47634), (72, 47613), (88, 47553),

Gene: KilKor\_56 Start: 39668, Stop: 40105, Start Num: 8

Candidate Starts for KilKor\_56:

(Start: 8 @39668 has 17 MA's), (Start: 18 @39740 has 1 MA's), (Start: 24 @39782 has 12 MA's), (Start: 29 @39806 has 18 MA's), (45, 39863), (90, 40052), (94, 40073),

Gene: Kimberlium\_68 Start: 43340, Stop: 43681, Start Num: 26

Candidate Starts for Kimberlium\_68:

(Start: 26 @43340 has 69 MA's), (36, 43379), (52, 43433), (84, 43595), (86, 43601), (91, 43628), (92, 43631),

Gene: Kingsley\_60 Start: 40183, Stop: 40524, Start Num: 26

Candidate Starts for Kingsley\_60:

(Start: 24 @40174 has 12 MA's), (Start: 26 @40183 has 69 MA's), (36, 40222), (52, 40300), (96, 40513),

Gene: Klein\_91 Start: 55893, Stop: 56234, Start Num: 26

Candidate Starts for Klein\_91:

(7, 55761), (15, 55821), (19, 55842), (21, 55848), (Start: 26 @55893 has 69 MA's), (36, 55932), (52, 55986), (84, 56148), (86, 56154), (91, 56181), (92, 56184), (96, 56223),

Gene: Langerak\_54 Start: 36276, Stop: 36599, Start Num: 24

Candidate Starts for Langerak\_54:

(Start: 24 @36276 has 12 MA's), (66, 36465), (67, 36468), (94, 36567),

Gene: Latretium\_65 Start: 41581, Stop: 41904, Start Num: 26

Candidate Starts for Latretium\_65:

(5, 41428), (Start: 24 @41572 has 12 MA's), (Start: 26 @41581 has 69 MA's), (33, 41602), (37, 41617), (47, 41668), (52, 41689), (58, 41731), (77, 41785), (89, 41842), (96, 41893),

Gene: LilMoolah\_61 Start: 40447, Stop: 40788, Start Num: 26

Candidate Starts for LilMoolah\_61:

(Start: 24 @40438 has 12 MA's), (Start: 26 @40447 has 69 MA's), (36, 40486), (52, 40564), (96, 40777),

Gene: Lilpickle\_45 Start: 35276, Stop: 34881, Start Num: 26

Candidate Starts for Lilpickle\_45:

(9, 35378), (11, 35372), (17, 35342), (Start: 26 @35276 has 69 MA's), (Start: 28 @35264 has 9 MA's), (53, 35108), (59, 35075), (63, 35054), (80, 34988), (96, 34904),

Gene: LittleE\_80 Start: 51274, Stop: 51020, Start Num: 50

Candidate Starts for LittleE\_80:

(42, 51304), (48, 51277), (Start: 50 @51274 has 1 MA's), (85, 51103), (89, 51088),

Gene: LittleShirley\_71 Start: 44686, Stop: 45033, Start Num: 24

Candidate Starts for LittleShirley\_71:

(Start: 24 @44686 has 12 MA's), (41, 44758), (46, 44782), (94, 45001),

Gene: Lizziana\_69 Start: 42008, Stop: 42349, Start Num: 26

Candidate Starts for Lizziana\_69:

(Start: 24 @41999 has 12 MA's), (Start: 26 @42008 has 69 MA's), (36, 42047), (52, 42125), (96, 42338),

Gene: LunaBlu\_65 Start: 41579, Stop: 41920, Start Num: 26

Candidate Starts for LunaBlu\_65:

(Start: 24 @41570 has 12 MA's), (Start: 26 @41579 has 69 MA's), (33, 41600), (39, 41615), (49, 41666), (76, 41804), (96, 41909),

Gene: MadMen\_63 Start: 41307, Stop: 41648, Start Num: 26

Candidate Starts for MadMen\_63:

(7, 41175), (15, 41235), (19, 41256), (21, 41262), (Start: 26 @41307 has 69 MA's), (36, 41346), (52, 41400), (84, 41562), (86, 41568), (91, 41595),

Gene: Madiba\_64 Start: 40812, Stop: 41153, Start Num: 26

Candidate Starts for Madiba\_64:

(3, 40572), (4, 40578), (7, 40680), (15, 40740), (19, 40761), (21, 40767), (Start: 26 @40812 has 69 MA's), (36, 40851), (52, 40905), (86, 41073), (91, 41100),

Gene: Mahavrat\_60 Start: 40518, Stop: 40859, Start Num: 26

Candidate Starts for Mahavrat\_60:

(Start: 24 @40509 has 12 MA's), (Start: 26 @40518 has 69 MA's), (36, 40551), (52, 40629), (59, 40677), (80, 40764), (96, 40848),

Gene: Mahavrat\_76 Start: 46252, Stop: 46590, Start Num: 24

Candidate Starts for Mahavrat\_76:

(Start: 24 @46252 has 12 MA's), (Start: 28 @46273 has 9 MA's), (44, 46342), (46, 46348), (64, 46444),

Gene: Malithi\_57 Start: 38149, Stop: 38589, Start Num: 8

Candidate Starts for Malithi\_57:

(Start: 8 @38149 has 17 MA's), (Start: 18 @38221 has 1 MA's), (Start: 24 @38263 has 12 MA's),  
(Start: 29 @38287 has 18 MA's), (45, 38344), (90, 38536), (94, 38557),

Gene: Marker\_65 Start: 41128, Stop: 41487, Start Num: 26

Candidate Starts for Marker\_65:

(Start: 24 @41119 has 12 MA's), (Start: 26 @41128 has 69 MA's), (36, 41167), (52, 41239), (84,  
41401), (86, 41407), (91, 41434),

Gene: Marleymoo\_69 Start: 49698, Stop: 49360, Start Num: 29

Candidate Starts for Marleymoo\_69:

(22, 49728), (Start: 28 @49701 has 9 MA's), (Start: 29 @49698 has 18 MA's), (38, 49662), (65, 49515),  
(72, 49494), (88, 49434),

Gene: Mattes\_67 Start: 42527, Stop: 42868, Start Num: 26

Candidate Starts for Mattes\_67:

(Start: 24 @42518 has 12 MA's), (Start: 26 @42527 has 69 MA's), (36, 42566), (52, 42644), (96,  
42857),

Gene: Megiddo\_56 Start: 38999, Stop: 39439, Start Num: 8

Candidate Starts for Megiddo\_56:

(Start: 8 @38999 has 17 MA's), (Start: 18 @39071 has 1 MA's), (Start: 24 @39113 has 12 MA's),  
(Start: 29 @39137 has 18 MA's), (45, 39194), (90, 39386), (94, 39407),

Gene: Minerva\_82 Start: 52925, Stop: 52584, Start Num: 28

Candidate Starts for Minerva\_82:

(22, 52952), (Start: 28 @52925 has 9 MA's), (Start: 29 @52922 has 18 MA's), (38, 52886), (65, 52739),  
(72, 52718), (88, 52658),

Gene: MooMoo\_50 Start: 36541, Stop: 36855, Start Num: 32

Candidate Starts for MooMoo\_50:

(Start: 32 @36541 has 1 MA's), (43, 36589), (48, 36622), (54, 36661), (56, 36670), (73, 36736), (81,  
36763), (95, 36841),

Gene: Mova\_67 Start: 41316, Stop: 41657, Start Num: 26

Candidate Starts for Mova\_67:

(3, 41076), (4, 41082), (7, 41184), (15, 41244), (19, 41265), (21, 41271), (Start: 26 @41316 has 69  
MA's), (36, 41355), (52, 41409), (86, 41577), (91, 41604),

Gene: MulchExplorer\_67 Start: 43339, Stop: 43680, Start Num: 26

Candidate Starts for MulchExplorer\_67:

(Start: 26 @43339 has 69 MA's), (36, 43378), (52, 43432), (84, 43594), (86, 43600), (91, 43627), (92,  
43630),

Gene: Mutaforma13\_67 Start: 43868, Stop: 44182, Start Num: 26

Candidate Starts for Mutaforma13\_67:

(Start: 24 @43859 has 12 MA's), (Start: 26 @43868 has 69 MA's), (36, 43901), (52, 43973), (75,  
44072), (89, 44120), (96, 44171),

Gene: Necropolis\_55 Start: 37600, Stop: 38040, Start Num: 8

Candidate Starts for Necropolis\_55:

(Start: 8 @37600 has 17 MA's), (Start: 18 @37672 has 1 MA's), (Start: 24 @37714 has 12 MA's),  
(Start: 29 @37738 has 18 MA's), (45, 37795), (90, 37987), (94, 38008),

Gene: Nekros\_76 Start: 50135, Stop: 49875, Start Num: 26  
Candidate Starts for Nekros\_76:  
(Start: 26 @50135 has 69 MA's), (33, 50108), (35, 50105), (36, 50096), (60, 49958), (64, 49943),

Gene: NewHope4\_64 Start: 40950, Stop: 41291, Start Num: 26  
Candidate Starts for NewHope4\_64:  
(Start: 24 @40941 has 12 MA's), (Start: 26 @40950 has 69 MA's), (33, 40971), (39, 40986), (49, 41037), (76, 41175), (96, 41280),

Gene: Nibley\_70 Start: 46983, Stop: 46723, Start Num: 26  
Candidate Starts for Nibley\_70:  
(Start: 26 @46983 has 69 MA's), (33, 46956), (35, 46953), (36, 46944), (60, 46806), (64, 46791),

Gene: NihilNomen\_80 Start: 52876, Stop: 52532, Start Num: 29  
Candidate Starts for NihilNomen\_80:  
(22, 52906), (Start: 28 @52879 has 9 MA's), (Start: 29 @52876 has 18 MA's), (38, 52840), (69, 52678), (71, 52672), (72, 52669), (93, 52585),

Gene: Nivrat\_59 Start: 40320, Stop: 40661, Start Num: 26  
Candidate Starts for Nivrat\_59:  
(Start: 24 @40311 has 12 MA's), (Start: 26 @40320 has 69 MA's), (36, 40359), (52, 40437), (96, 40650),

Gene: Odette\_78 Start: 51918, Stop: 51574, Start Num: 29  
Candidate Starts for Odette\_78:  
(22, 51948), (Start: 28 @51921 has 9 MA's), (Start: 29 @51918 has 18 MA's), (38, 51882), (69, 51720), (71, 51714), (72, 51711), (93, 51627),

Gene: Ogopogo\_85 Start: 48076, Stop: 48471, Start Num: 26  
Candidate Starts for Ogopogo\_85:  
(20, 48034), (Start: 26 @48076 has 69 MA's), (Start: 28 @48088 has 9 MA's), (53, 48244), (59, 48277), (63, 48298), (80, 48364), (96, 48448),

Gene: Oksu\_67 Start: 43933, Stop: 44274, Start Num: 26  
Candidate Starts for Oksu\_67:  
(Start: 24 @43924 has 12 MA's), (Start: 26 @43933 has 69 MA's), (36, 43972),

Gene: OlympiaSaint\_65 Start: 41469, Stop: 41810, Start Num: 26  
Candidate Starts for OlympiaSaint\_65:  
(Start: 24 @41460 has 12 MA's), (Start: 26 @41469 has 69 MA's), (36, 41508), (52, 41586), (96, 41799),

Gene: Omega\_82 Start: 52706, Stop: 52464, Start Num: 51  
Candidate Starts for Omega\_82:  
(25, 52817), (Start: 28 @52805 has 9 MA's), (30, 52799), (40, 52751), (Start: 51 @52706 has 1 MA's), (61, 52631), (62, 52625), (85, 52547), (89, 52532),

Gene: Omega\_83 Start: 53053, Stop: 52703, Start Num: 29  
Candidate Starts for Omega\_83:  
(12, 53161), (22, 53083), (Start: 28 @53056 has 9 MA's), (Start: 29 @53053 has 18 MA's), (38, 53017), (55, 52930), (56, 52924), (68, 52858), (83, 52795), (85, 52789), (94, 52747),

Gene: PeanutPie\_62 Start: 40166, Stop: 40465, Start Num: 29

Candidate Starts for PeanutPie\_62:

(Start: 8 @40028 has 17 MA's), (Start: 18 @40100 has 1 MA's), (Start: 24 @40142 has 12 MA's),  
(Start: 29 @40166 has 18 MA's), (45, 40223), (90, 40412), (94, 40433),

Gene: Phalm\_56 Start: 38975, Stop: 39412, Start Num: 8

Candidate Starts for Phalm\_56:

(Start: 8 @38975 has 17 MA's), (Start: 18 @39047 has 1 MA's), (Start: 24 @39089 has 12 MA's),  
(Start: 29 @39113 has 18 MA's), (45, 39170), (90, 39359), (94, 39380),

Gene: Phasih\_61 Start: 41374, Stop: 41724, Start Num: 27

Candidate Starts for Phasih\_61:

(Start: 26 @41365 has 69 MA's), (Start: 27 @41374 has 1 MA's), (35, 41395), (36, 41404), (52, 41482),  
(57, 41527), (70, 41581), (84, 41638), (86, 41644), (91, 41671), (96, 41713),

Gene: Philus\_66 Start: 42110, Stop: 42451, Start Num: 26

Candidate Starts for Philus\_66:

(Start: 24 @42101 has 12 MA's), (Start: 26 @42110 has 69 MA's), (36, 42149), (52, 42227), (96,  
42440),

Gene: Phoebus\_82 Start: 54058, Stop: 53714, Start Num: 29

Candidate Starts for Phoebus\_82:

(22, 54088), (Start: 28 @54061 has 9 MA's), (Start: 29 @54058 has 18 MA's), (38, 54022), (69, 53860),  
(71, 53854), (72, 53851), (93, 53767),

Gene: Polkaroo\_56 Start: 37599, Stop: 37922, Start Num: 24

Candidate Starts for Polkaroo\_56:

(Start: 24 @37599 has 12 MA's), (66, 37788), (67, 37791), (94, 37890),

Gene: Pollywog\_64 Start: 41787, Stop: 42128, Start Num: 26

Candidate Starts for Pollywog\_64:

(Start: 24 @41778 has 12 MA's), (Start: 26 @41787 has 69 MA's), (36, 41826), (52, 41904), (96,  
42117),

Gene: Polo2Bam\_69 Start: 40804, Stop: 41145, Start Num: 26

Candidate Starts for Polo2Bam\_69:

(Start: 24 @40795 has 12 MA's), (Start: 26 @40804 has 69 MA's), (33, 40825), (39, 40840), (49,  
40891), (76, 41029), (96, 41134),

Gene: Pound\_80 Start: 54194, Stop: 53856, Start Num: 29

Candidate Starts for Pound\_80:

(22, 54224), (Start: 28 @54197 has 9 MA's), (Start: 29 @54194 has 18 MA's), (38, 54158), (65, 54011),  
(72, 53990), (88, 53930),

Gene: QuickMath\_67 Start: 43563, Stop: 43904, Start Num: 26

Candidate Starts for QuickMath\_67:

(Start: 26 @43563 has 69 MA's), (36, 43602), (52, 43656), (84, 43818), (86, 43824), (91, 43851), (92,  
43854),

Gene: RedBird\_61 Start: 40229, Stop: 40564, Start Num: 26

Candidate Starts for RedBird\_61:

(Start: 24 @40220 has 12 MA's), (Start: 26 @40229 has 69 MA's), (36, 40268), (52, 40340), (96,  
40553),

Gene: Redno2\_76 Start: 49675, Stop: 49328, Start Num: 28

Candidate Starts for Redno2\_76:

(22, 49702), (Start: 28 @49675 has 9 MA's), (Start: 29 @49672 has 18 MA's), (38, 49636), (69, 49474), (71, 49468), (72, 49465), (93, 49381),

Gene: Renaud18\_73 Start: 42883, Stop: 43242, Start Num: 26

Candidate Starts for Renaud18\_73:

(13, 42793), (Start: 26 @42883 has 69 MA's), (36, 42922), (52, 42994), (84, 43156), (86, 43162), (91, 43189), (92, 43192), (96, 43231),

Gene: Royals2015\_66 Start: 41205, Stop: 41546, Start Num: 26

Candidate Starts for Royals2015\_66:

(Start: 24 @41196 has 12 MA's), (Start: 26 @41205 has 69 MA's), (36, 41244), (52, 41322), (96, 41535),

Gene: Saal\_65 Start: 42221, Stop: 42562, Start Num: 26

Candidate Starts for Saal\_65:

(Start: 24 @42212 has 12 MA's), (Start: 26 @42221 has 69 MA's), (36, 42260), (52, 42338), (96, 42551),

Gene: Sarma624\_61 Start: 37375, Stop: 37716, Start Num: 26

Candidate Starts for Sarma624\_61:

(Start: 24 @37366 has 12 MA's), (Start: 26 @37375 has 69 MA's), (36, 37414), (52, 37492), (96, 37705),

Gene: Sassafras\_61 Start: 40547, Stop: 40882, Start Num: 26

Candidate Starts for Sassafras\_61:

(Start: 24 @40538 has 12 MA's), (Start: 26 @40547 has 69 MA's), (36, 40586), (52, 40658), (96, 40871),

Gene: Schatzie\_75 Start: 51668, Stop: 51321, Start Num: 28

Candidate Starts for Schatzie\_75:

(22, 51695), (Start: 28 @51668 has 9 MA's), (Start: 29 @51665 has 18 MA's), (38, 51629), (69, 51467), (71, 51461), (72, 51458), (93, 51374),

Gene: SeaLumen\_68 Start: 40804, Stop: 41145, Start Num: 26

Candidate Starts for SeaLumen\_68:

(Start: 24 @40795 has 12 MA's), (Start: 26 @40804 has 69 MA's), (33, 40825), (39, 40840), (49, 40891), (76, 41029), (96, 41134),

Gene: Shaboozey\_76 Start: 47897, Stop: 47655, Start Num: 51

Candidate Starts for Shaboozey\_76:

(25, 48008), (Start: 28 @47996 has 9 MA's), (30, 47990), (40, 47942), (Start: 51 @47897 has 1 MA's), (61, 47822), (62, 47816), (85, 47738), (89, 47723),

Gene: Shaboozey\_77 Start: 48244, Stop: 47894, Start Num: 29

Candidate Starts for Shaboozey\_77:

(12, 48352), (22, 48274), (Start: 28 @48247 has 9 MA's), (Start: 29 @48244 has 18 MA's), (38, 48208), (55, 48121), (56, 48115), (68, 48049), (83, 47986), (85, 47980), (94, 47938),

Gene: SimranZ1\_64 Start: 41403, Stop: 41735, Start Num: 23

Candidate Starts for SimranZ1\_64:

(Start: 23 @41403 has 2 MA's), (35, 41433), (36, 41442), (52, 41520), (55, 41544), (58, 41562), (77, 41616), (82, 41643), (89, 41673), (96, 41724),

Gene: Sonah\_57 Start: 37705, Stop: 38145, Start Num: 8

Candidate Starts for Sonah\_57:

(Start: 8 @37705 has 17 MA's), (Start: 18 @37777 has 1 MA's), (Start: 24 @37819 has 12 MA's), (Start: 29 @37843 has 18 MA's), (45, 37900), (90, 38092), (94, 38113),

Gene: Soul22\_69 Start: 42555, Stop: 42905, Start Num: 26

Candidate Starts for Soul22\_69:

(Start: 24 @42546 has 12 MA's), (Start: 26 @42555 has 69 MA's), (36, 42594), (52, 42672), (77, 42786), (79, 42801), (82, 42813),

Gene: StevieRay\_61 Start: 40026, Stop: 40466, Start Num: 8

Candidate Starts for StevieRay\_61:

(Start: 8 @40026 has 17 MA's), (Start: 18 @40098 has 1 MA's), (Start: 24 @40140 has 12 MA's), (Start: 29 @40164 has 18 MA's), (45, 40221), (90, 40413), (94, 40434),

Gene: StressBall\_56 Start: 38975, Stop: 39412, Start Num: 8

Candidate Starts for StressBall\_56:

(Start: 8 @38975 has 17 MA's), (Start: 18 @39047 has 1 MA's), (Start: 24 @39089 has 12 MA's), (Start: 29 @39113 has 18 MA's), (45, 39170), (90, 39359), (94, 39380),

Gene: Tchotchke\_62 Start: 40712, Stop: 41053, Start Num: 26

Candidate Starts for Tchotchke\_62:

(Start: 24 @40703 has 12 MA's), (Start: 26 @40712 has 69 MA's), (36, 40751), (52, 40829), (96, 41042),

Gene: Techage\_54 Start: 36368, Stop: 36694, Start Num: 24

Candidate Starts for Techage\_54:

(1, 35945), (2, 36092), (16, 36305), (Start: 24 @36368 has 12 MA's), (94, 36662),

Gene: ThetaBob\_70 Start: 42862, Stop: 43218, Start Num: 26

Candidate Starts for ThetaBob\_70:

(10, 42760), (Start: 26 @42862 has 69 MA's), (36, 42901), (57, 43018), (84, 43132), (86, 43138), (96, 43207),

Gene: Thibault\_75 Start: 51674, Stop: 52018, Start Num: 26

Candidate Starts for Thibault\_75:

(14, 51590), (Start: 26 @51674 has 69 MA's), (36, 51713), (52, 51785), (78, 51902), (87, 51944), (96, 52007),

Gene: Thibault\_67 Start: 47871, Stop: 47533, Start Num: 29

Candidate Starts for Thibault\_67:

(22, 47901), (Start: 28 @47874 has 9 MA's), (Start: 29 @47871 has 18 MA's), (38, 47835), (65, 47688), (72, 47667), (88, 47607),

Gene: ThreeRngTarjay\_77 Start: 52950, Stop: 52606, Start Num: 29

Candidate Starts for ThreeRngTarjay\_77:

(22, 52980), (Start: 28 @52953 has 9 MA's), (Start: 29 @52950 has 18 MA's), (38, 52914), (69, 52752), (71, 52746), (72, 52743), (93, 52659),

Gene: Topiatin\_70 Start: 43622, Stop: 43981, Start Num: 26

Candidate Starts for Topiatin\_70:

(Start: 24 @43613 has 12 MA's), (Start: 26 @43622 has 69 MA's), (36, 43661), (52, 43733), (84, 43895), (86, 43901), (91, 43928),

Gene: Velveteen\_58 Start: 37375, Stop: 37716, Start Num: 26

Candidate Starts for Velveteen\_58:

(Start: 24 @37366 has 12 MA's), (Start: 26 @37375 has 69 MA's), (36, 37414), (52, 37492), (96, 37705),

Gene: Venti\_54 Start: 36260, Stop: 36583, Start Num: 24

Candidate Starts for Venti\_54:

(Start: 24 @36260 has 12 MA's), (66, 36449), (67, 36452), (94, 36551),

Gene: Wanda\_95 Start: 56202, Stop: 56543, Start Num: 26

Candidate Starts for Wanda\_95:

(7, 56070), (15, 56130), (19, 56151), (21, 56157), (Start: 26 @56202 has 69 MA's), (36, 56241), (52, 56295), (84, 56457), (86, 56463), (91, 56490), (92, 56493), (96, 56532),

Gene: Willsammy\_56 Start: 39151, Stop: 39588, Start Num: 8

Candidate Starts for Willsammy\_56:

(Start: 8 @39151 has 17 MA's), (Start: 18 @39223 has 1 MA's), (Start: 24 @39265 has 12 MA's), (Start: 29 @39289 has 18 MA's), (45, 39346), (90, 39535), (94, 39556),

Gene: Xiaokay\_70 Start: 48787, Stop: 48449, Start Num: 29

Candidate Starts for Xiaokay\_70:

(22, 48817), (Start: 28 @48790 has 9 MA's), (Start: 29 @48787 has 18 MA's), (38, 48751), (65, 48604), (72, 48583), (88, 48523),

Gene: Xiaokay\_80 Start: 52922, Stop: 53263, Start Num: 26

Candidate Starts for Xiaokay\_80:

(7, 52790), (15, 52850), (19, 52871), (21, 52877), (Start: 26 @52922 has 69 MA's), (36, 52961), (52, 53015), (84, 53177), (86, 53183), (91, 53210), (92, 53213), (96, 53252),

Gene: Yeet\_74 Start: 51170, Stop: 50823, Start Num: 28

Candidate Starts for Yeet\_74:

(22, 51197), (Start: 28 @51170 has 9 MA's), (Start: 29 @51167 has 18 MA's), (38, 51131), (69, 50969), (71, 50963), (72, 50960), (93, 50876),

Gene: Yorick\_62 Start: 41335, Stop: 41676, Start Num: 26

Candidate Starts for Yorick\_62:

(Start: 24 @41326 has 12 MA's), (Start: 26 @41335 has 69 MA's), (36, 41374), (52, 41452), (96, 41665),

Gene: Yoshi\_78 Start: 43126, Stop: 43482, Start Num: 26

Candidate Starts for Yoshi\_78:

(10, 43024), (Start: 26 @43126 has 69 MA's), (36, 43165), (57, 43282), (84, 43396), (86, 43402), (96, 43471),

Gene: Zelink\_77 Start: 53262, Stop: 52918, Start Num: 29

Candidate Starts for Zelink\_77:

(22, 53292), (Start: 28 @53265 has 9 MA's), (Start: 29 @53262 has 18 MA's), (38, 53226), (69, 53064), (71, 53058), (72, 53055), (93, 52971),

Gene: Zelink\_88 Start: 57397, Stop: 57738, Start Num: 26

Candidate Starts for Zelink\_88:

(7, 57265), (15, 57325), (19, 57346), (21, 57352), (Start: 26 @57397 has 69 MA's), (36, 57436), (52, 57490), (84, 57652), (86, 57658), (91, 57685), (92, 57688), (96, 57727),