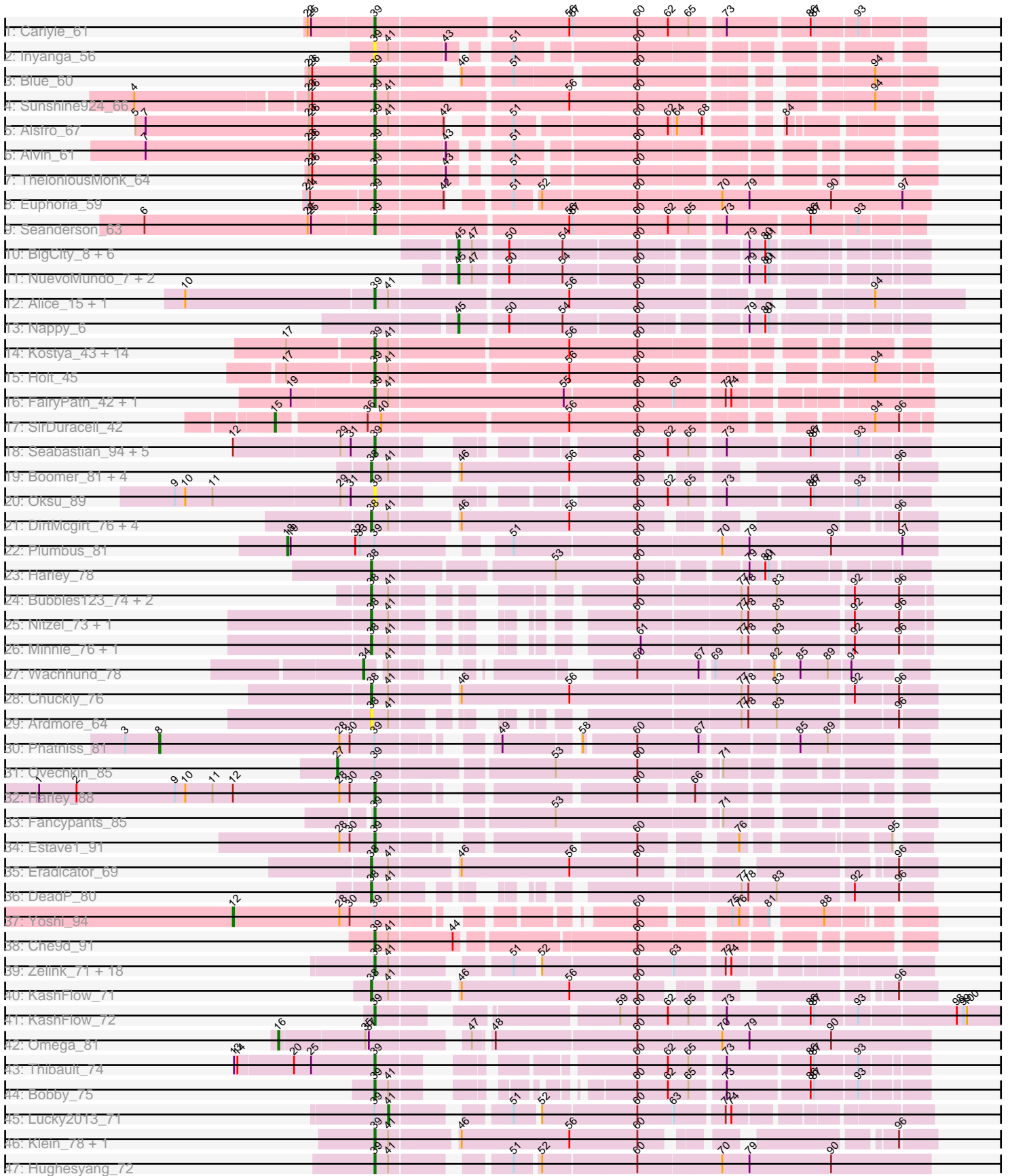


Pham 202815



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 202815 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202815 has 107 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Carlyle\_61
- Track 2 : Inyanga\_56
- Track 3 : Blue\_60
- Track 4 : Sunshine924\_66
- Track 5 : Alsfro\_67
- Track 6 : Alvin\_61
- Track 7 : TheloniousMonk\_64
- Track 8 : Euphoria\_59
- Track 9 : Seanderson\_63
- Track 10 : BigCity\_8, EggyFarm\_8, Grasshills\_8, LolaVinca\_8, Specks\_8, Dandelion\_7, FrayBell\_8
- Track 11 : NuevoMundo\_7, StephanieG\_7, Pier\_7
- Track 12 : Alice\_15, Flabslab\_16
- Track 13 : Nappy\_6
- Track 14 : Kostya\_43, PhatBacter\_45, Nimrod\_45, Phaux\_44, Murica\_44, xkcd\_46, Policronamos\_47, Palpatine\_45, BigBubba\_43, HufflyPuff\_44, Petra64142\_47, FireRed\_45, Misfit\_44, Terminus\_44, BugsBunny\_43
- Track 15 : Holt\_45
- Track 16 : FairyPath\_42, Quallification\_43
- Track 17 : SirDuracell\_42
- Track 18 : Seabastian\_94, Modragons\_91, OfUltron\_94, Jinglebell\_93, Llama\_93, Ochi17\_92
- Track 19 : Boomer\_81, Llij\_73, Rockne\_78, Phatniss\_74, PMC\_74
- Track 20 : Oksu\_89
- Track 21 : DirtMcgirt\_76, UncleRicky\_76, Enby\_78, Drago\_74, Lorde\_77
- Track 22 : Plumbus\_81
- Track 23 : Harley\_78
- Track 24 : Bubbles123\_74, IrishSherpFalk\_79, WillSterrel\_78
- Track 25 : Nitzel\_73, KristaRAM\_77
- Track 26 : Minnie\_76, Sandalphon\_74
- Track 27 : Wachhund\_78
- Track 28 : Chuckly\_76
- Track 29 : Ardmore\_64
- Track 30 : Phatniss\_81
- Track 31 : Ovechkin\_85
- Track 32 : Harley\_88
- Track 33 : Fancypants\_85

- Track 34 : Estave1\_91
- Track 35 : Eradicator\_69
- Track 36 : DeadP\_80
- Track 37 : Yoshi\_94
- Track 38 : Che9d\_91
- Track 39 : Zelink\_71, Superphikiman\_71, Schatzie\_68, Redno2\_70, Kalah2\_68, Ejimix\_73, DmpstrDiver\_73, Squint\_74, Beem\_73, JuicyJay\_72, NihilNomen\_74, Phoebus\_76, Dallas\_72, Odette\_72, HokkenD\_66, Porcelain\_73, MiaZeal\_74, Halley\_75, Ariel\_73
- Track 40 : KashFlow\_71
- Track 41 : KashFlow\_72
- Track 42 : Omega\_81
- Track 43 : Thibault\_74
- Track 44 : Bobby\_75
- Track 45 : Lucky2013\_71
- Track 46 : Klein\_78, Wanda\_82
- Track 47 : Hughesyang\_72

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

The start number called the most often in the published annotations is 39, it was called in 57 of the 95 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alice\_15, Alsfro\_67, Alvin\_61, Ariel\_73, Beem\_73, BigBubba\_43, Blue\_60, Bobby\_75, BugsBunny\_43, Carlyle\_61, Che9d\_91, Dallas\_72, DmpstrDiver\_73, Ejimix\_73, Estave1\_91, Euphoria\_59, FairyPath\_42, Fancypants\_85, FireRed\_45, Flabslab\_16, Halley\_75, Harley\_88, HokkenD\_66, Holt\_45, HufflyPuff\_44, Hughesyang\_72, Inyanga\_56, Jinglebell\_93, JuicyJay\_72, Kalah2\_68, KashFlow\_72, Klein\_78, Kostya\_43, Llama\_93, MiaZeal\_74, Misfit\_44, Modragons\_91, Murica\_44, NihilNomen\_74, Nimrod\_45, Ochi17\_92, Odette\_72, OfUltron\_94, Oksu\_89, Palpatine\_45, Petra64142\_47, PhatBacter\_45, Phaux\_44, Phoebus\_76, Policronamos\_47, Porcelain\_73, Quallification\_43, Redno2\_70, Schatzie\_68, Sebastian\_94, Seanderson\_63, Squint\_74, Sunshine924\_66, Superphikiman\_71, Terminus\_44, TheloniousMonk\_64, Thibault\_74, Wanda\_82, Zelink\_71, xkcd\_46,

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

- Lucky2013\_71, Ovechkin\_85, Phatniss\_81, Plumbus\_81, Yoshi\_94,

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

- Ardmore\_64, BigCity\_8, Boomer\_81, Bubbles123\_74, Chuckly\_76, Dandelion\_7, DeadP\_80, DirtMcgirt\_76, Drago\_74, EggyFarm\_8, Enby\_78, Eradicator\_69, FrayBell\_8, Grasshills\_8, Harley\_78, IrishSherpFalk\_79, KashFlow\_71, KristaRAM\_77, Llij\_73, LolaVinca\_8, Lorde\_77, Minnie\_76, Nappy\_6, Nitzel\_73, NuevoMundo\_7, Omega\_81, PMC\_74, Phatniss\_74, Pier\_7, Rockne\_78, Sandalphon\_74, SirDuracell\_42, Specks\_8, StephanieG\_7, UncleRicky\_76, Wachhund\_78, WillSterrel\_78,

**Summary by start number:**

Start 8:

- Found in 1 of 107 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 95
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phatniss\_81 (F1),

Start 12:

- Found in 8 of 107 ( 7.5% ) of genes in pham
- Manual Annotations of this start: 1 of 95
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Yoshi\_94 (F2),

Start 15:

- Found in 1 of 107 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 95
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SirDuracell\_42 (E),

Start 16:

- Found in 1 of 107 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 95
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Omega\_81 (J),

Start 18:

- Found in 1 of 107 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 95
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Plumbus\_81 (F1),

Start 27:

- Found in 1 of 107 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 95
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ovechkin\_85 (F1),

Start 34:

- Found in 1 of 107 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 95
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Wachhund\_78 (F1),

Start 38:

- Found in 23 of 107 ( 21.5% ) of genes in pham
- Manual Annotations of this start: 22 of 95
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ardmore\_64 (F1), Boomer\_81 (F1), Bubbles123\_74 (F1), Chuckly\_76 (F1), DeadP\_80 (F1), DirtMcgirt\_76 (F1), Drago\_74 (F1), Enby\_78 (F1), Eradicator\_69 (F1), Harley\_78 (F1), IrishSherpFalk\_79 (F1), KashFlow\_71 (J), KristaRAM\_77 (F1), Llij\_73 (F1), Lorde\_77 (F1), Minnie\_76 (F1), Nitzel\_73 (F1), PMC\_74 (F1), Phatniss\_74 (F1), Rockne\_78 (F1), Sandalphon\_74 (F1), UncleRicky\_76 (F1), WillSterrel\_78 (F1),

#### Start 39:

- Found in 70 of 107 ( 65.4% ) of genes in pham
- Manual Annotations of this start: 57 of 95
- Called 92.9% of time when present
- Phage (with cluster) where this start called: Alice\_15 (C1), Alsfro\_67 (A1), Alvin\_61 (A1), Ariel\_73 (J), Beem\_73 (J), BigBubba\_43 (E), Blue\_60 (A1), Bobby\_75 (J), BugsBunny\_43 (E), Carlyle\_61 (A1), Che9d\_91 (F2), Dallas\_72 (J), DmpstrDiver\_73 (J), Ejimix\_73 (J), Estave1\_91 (F1), Euphoria\_59 (A1), FairyPath\_42 (E), Fancypants\_85 (F1), FireRed\_45 (E), Flabslab\_16 (C1), Halley\_75 (J), Harley\_88 (F1), HokkenD\_66 (J), Holt\_45 (E), HuffyPuff\_44 (E), Hughesyang\_72 (J), Inyanga\_56 (A1), Jinglebell\_93 (F1), JuicyJay\_72 (J), Kalah2\_68 (J), KashFlow\_72 (J), Klein\_78 (J), Kostya\_43 (E), Llama\_93 (F1), MiaZeal\_74 (J), Misfit\_44 (E), Modragons\_91 (F1), Murica\_44 (E), NihilNomen\_74 (J), Nimrod\_45 (E), Ochi17\_92 (F1), Odette\_72 (J), OfUltron\_94 (F1), Oksu\_89 (F1), Palpatine\_45 (E), Petra64142\_47 (E), PhatBacter\_45 (E), Phaux\_44 (E), Phoebus\_76 (J), Policronamos\_47 (E), Porcelain\_73 (J), Quallification\_43 (E), Redno2\_70 (J), Schatzie\_68 (J), Seabastian\_94 (F1), Seanderson\_63 (A1), Squint\_74 (J), Sunshine924\_66 (A1), Superphikiman\_71 (J), Terminus\_44 (E), TheloniousMonk\_64 (A1), Thibault\_74 (J), Wanda\_82 (J), Zelink\_71 (J), xkcd\_46 (E),

#### Start 41:

- Found in 71 of 107 ( 66.4% ) of genes in pham
- Manual Annotations of this start: 1 of 95
- Called 1.4% of time when present
- Phage (with cluster) where this start called: Lucky2013\_71 (J),

#### Start 45:

- Found in 11 of 107 ( 10.3% ) of genes in pham
- Manual Annotations of this start: 8 of 95
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BigCity\_8 (C1), Dandelion\_7 (C1), EggFarm\_8 (C1), FrayBell\_8 (C1), Grasshills\_8 (C1), LolaVinca\_8 (C1), Nappy\_6 (C1), NuevoMundo\_7 (C1), Pier\_7 (C1), Specks\_8 (C1), StephanieG\_7 (C1),

### Summary by clusters:

There are 6 clusters represented in this pham: F1, F2, E, J, A1, C1,

Info for manual annotations of cluster A1:

- Start number 39 was manually annotated 8 times for cluster A1.

Info for manual annotations of cluster C1:

- Start number 39 was manually annotated 2 times for cluster C1.
- Start number 45 was manually annotated 8 times for cluster C1.

Info for manual annotations of cluster E:

- Start number 15 was manually annotated 1 time for cluster E.
- Start number 39 was manually annotated 13 times for cluster E.

Info for manual annotations of cluster F1:

- Start number 8 was manually annotated 1 time for cluster F1.
- Start number 18 was manually annotated 1 time for cluster F1.
- Start number 27 was manually annotated 1 time for cluster F1.

- Start number 34 was manually annotated 1 time for cluster F1.
- Start number 38 was manually annotated 21 times for cluster F1.
- Start number 39 was manually annotated 9 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 12 was manually annotated 1 time for cluster F2.
- Start number 39 was manually annotated 1 time for cluster F2.

Info for manual annotations of cluster J:

- Start number 16 was manually annotated 1 time for cluster J.
- Start number 38 was manually annotated 1 time for cluster J.
- Start number 39 was manually annotated 24 times for cluster J.
- Start number 41 was manually annotated 1 time for cluster J.

### **Gene Information:**

Gene: Alice\_15 Start: 5418, Stop: 5885, Start Num: 39

Candidate Starts for Alice\_15:

(10, 5256), (Start: 39 @5418 has 57 MA's), (Start: 41 @5430 has 1 MA's), (56, 5580), (60, 5640), (94, 5811),

Gene: Alsfro\_67 Start: 41490, Stop: 41089, Start Num: 39

Candidate Starts for Alsfro\_67:

(5, 41700), (7, 41691), (23, 41547), (26, 41544), (Start: 39 @41490 has 57 MA's), (Start: 41 @41478 has 1 MA's), (42, 41433), (51, 41394), (60, 41298), (62, 41271), (64, 41265), (68, 41244), (84, 41196),

Gene: Alvin\_61 Start: 40955, Stop: 40545, Start Num: 39

Candidate Starts for Alvin\_61:

(7, 41156), (23, 41012), (26, 41009), (Start: 39 @40955 has 57 MA's), (43, 40898), (51, 40859), (60, 40763),

Gene: Ardmore\_64 Start: 42842, Stop: 43237, Start Num: 38

Candidate Starts for Ardmore\_64:

(Start: 38 @42842 has 22 MA's), (Start: 41 @42857 has 1 MA's), (77, 43079), (78, 43085), (83, 43109), (96, 43208),

Gene: Ariel\_73 Start: 46707, Stop: 46291, Start Num: 39

Candidate Starts for Ariel\_73:

(Start: 39 @46707 has 57 MA's), (Start: 41 @46695 has 1 MA's), (51, 46611), (52, 46593), (60, 46515), (63, 46485), (72, 46446), (74, 46443),

Gene: Beem\_73 Start: 50984, Stop: 50568, Start Num: 39

Candidate Starts for Beem\_73:

(Start: 39 @50984 has 57 MA's), (Start: 41 @50972 has 1 MA's), (51, 50888), (52, 50870), (60, 50792), (63, 50762), (72, 50723), (74, 50720),

Gene: BigBubba\_43 Start: 35101, Stop: 34667, Start Num: 39

Candidate Starts for BigBubba\_43:

(17, 35173), (Start: 39 @35101 has 57 MA's), (Start: 41 @35089 has 1 MA's), (56, 34939), (60, 34879),

Gene: BigCity\_8 Start: 2903, Stop: 3259, Start Num: 45

Candidate Starts for BigCity\_8:

(Start: 45 @2903 has 8 MA's), (47, 2915), (50, 2942), (54, 2987), (60, 3050), (79, 3128), (80, 3140), (81, 3143),

Gene: Blue\_60 Start: 41591, Stop: 41178, Start Num: 39

Candidate Starts for Blue\_60:

(23, 41648), (26, 41645), (Start: 39 @41591 has 57 MA's), (46, 41534), (51, 41495), (60, 41399), (94, 41228),

Gene: Bobby\_75 Start: 51169, Stop: 50789, Start Num: 39

Candidate Starts for Bobby\_75:

(Start: 39 @51169 has 57 MA's), (Start: 41 @51157 has 1 MA's), (60, 51022), (62, 50995), (65, 50977), (73, 50950), (86, 50881), (87, 50878), (93, 50842),

Gene: Boomer\_81 Start: 48708, Stop: 49136, Start Num: 38

Candidate Starts for Boomer\_81:

(Start: 38 @48708 has 22 MA's), (Start: 41 @48723 has 1 MA's), (46, 48777), (56, 48870), (60, 48930), (96, 49107),

Gene: Bubbles123\_74 Start: 48058, Stop: 48471, Start Num: 38

Candidate Starts for Bubbles123\_74:

(Start: 38 @48058 has 22 MA's), (Start: 41 @48073 has 1 MA's), (60, 48229), (77, 48316), (78, 48322), (83, 48346), (92, 48409), (96, 48448),

Gene: BugsBunny\_43 Start: 35586, Stop: 35152, Start Num: 39

Candidate Starts for BugsBunny\_43:

(17, 35658), (Start: 39 @35586 has 57 MA's), (Start: 41 @35574 has 1 MA's), (56, 35424), (60, 35364),

Gene: Carlyle\_61 Start: 39697, Stop: 39242, Start Num: 39

Candidate Starts for Carlyle\_61:

(22, 39754), (25, 39751), (Start: 39 @39697 has 57 MA's), (56, 39535), (57, 39532), (60, 39475), (62, 39448), (65, 39430), (73, 39403), (86, 39334), (87, 39331), (93, 39295),

Gene: Che9d\_91 Start: 48600, Stop: 49028, Start Num: 39

Candidate Starts for Che9d\_91:

(Start: 39 @48600 has 57 MA's), (Start: 41 @48612 has 1 MA's), (44, 48666), (60, 48810),

Gene: Chuckly\_76 Start: 45511, Stop: 45978, Start Num: 38

Candidate Starts for Chuckly\_76:

(Start: 38 @45511 has 22 MA's), (Start: 41 @45526 has 1 MA's), (46, 45580), (56, 45673), (77, 45820), (78, 45826), (83, 45850), (92, 45913), (96, 45949),

Gene: Dallas\_72 Start: 49905, Stop: 49489, Start Num: 39

Candidate Starts for Dallas\_72:

(Start: 39 @49905 has 57 MA's), (Start: 41 @49893 has 1 MA's), (51, 49809), (52, 49791), (60, 49713), (63, 49683), (72, 49644), (74, 49641),

Gene: Dandelion\_7 Start: 2464, Stop: 2820, Start Num: 45

Candidate Starts for Dandelion\_7:

(Start: 45 @2464 has 8 MA's), (47, 2476), (50, 2503), (54, 2548), (60, 2611), (79, 2689), (80, 2701), (81, 2704),

Gene: DeadP\_80 Start: 47212, Stop: 47607, Start Num: 38

Candidate Starts for DeadP\_80:

(Start: 38 @47212 has 22 MA's), (Start: 41 @47227 has 1 MA's), (77, 47449), (78, 47455), (83, 47479), (92, 47542), (96, 47581),

Gene: DirtMcgirt\_76 Start: 45318, Stop: 45746, Start Num: 38

Candidate Starts for DirtMcgirt\_76:

(Start: 38 @45318 has 22 MA's), (Start: 41 @45333 has 1 MA's), (46, 45387), (56, 45480), (60, 45540), (96, 45717),

Gene: DmpstrDiver\_73 Start: 50332, Stop: 49916, Start Num: 39

Candidate Starts for DmpstrDiver\_73:

(Start: 39 @50332 has 57 MA's), (Start: 41 @50320 has 1 MA's), (51, 50236), (52, 50218), (60, 50140), (63, 50110), (72, 50071), (74, 50068),

Gene: Drago\_74 Start: 45321, Stop: 45749, Start Num: 38

Candidate Starts for Drago\_74:

(Start: 38 @45321 has 22 MA's), (Start: 41 @45336 has 1 MA's), (46, 45390), (56, 45483), (60, 45543), (96, 45720),

Gene: EggyFarm\_8 Start: 2903, Stop: 3259, Start Num: 45

Candidate Starts for EggyFarm\_8:

(Start: 45 @2903 has 8 MA's), (47, 2915), (50, 2942), (54, 2987), (60, 3050), (79, 3128), (80, 3140), (81, 3143),

Gene: Ejimix\_73 Start: 51773, Stop: 51354, Start Num: 39

Candidate Starts for Ejimix\_73:

(Start: 39 @51773 has 57 MA's), (Start: 41 @51761 has 1 MA's), (51, 51677), (52, 51659), (60, 51581), (63, 51551), (72, 51512), (74, 51509),

Gene: Enby\_78 Start: 45597, Stop: 46025, Start Num: 38

Candidate Starts for Enby\_78:

(Start: 38 @45597 has 22 MA's), (Start: 41 @45612 has 1 MA's), (46, 45666), (56, 45759), (60, 45819), (96, 45996),

Gene: Eradicator\_69 Start: 46041, Stop: 46469, Start Num: 38

Candidate Starts for Eradicator\_69:

(Start: 38 @46041 has 22 MA's), (Start: 41 @46056 has 1 MA's), (46, 46110), (56, 46203), (60, 46263), (96, 46440),

Gene: Estave1\_91 Start: 53006, Stop: 53392, Start Num: 39

Candidate Starts for Estave1\_91:

(28, 52976), (30, 52985), (Start: 39 @53006 has 57 MA's), (60, 53192), (76, 53258), (95, 53366),

Gene: Euphoria\_59 Start: 40555, Stop: 40109, Start Num: 39

Candidate Starts for Euphoria\_59:

(21, 40612), (24, 40609), (Start: 39 @40555 has 57 MA's), (42, 40498), (51, 40459), (52, 40441), (60, 40363), (70, 40291), (79, 40267), (90, 40195), (97, 40132),

Gene: FairyPath\_42 Start: 35650, Stop: 35204, Start Num: 39

Candidate Starts for FairyPath\_42:

(19, 35722), (Start: 39 @35650 has 57 MA's), (Start: 41 @35638 has 1 MA's), (55, 35488), (60, 35428), (63, 35398), (72, 35359), (74, 35356),



Gene: Fancypants\_85 Start: 50404, Stop: 50835, Start Num: 39

Candidate Starts for Fancypants\_85:

(Start: 39 @50404 has 57 MA's), (53, 50548), (71, 50683),

Gene: FireRed\_45 Start: 36025, Stop: 35591, Start Num: 39

Candidate Starts for FireRed\_45:

(17, 36097), (Start: 39 @36025 has 57 MA's), (Start: 41 @36013 has 1 MA's), (56, 35863), (60, 35803),

Gene: Flabslab\_16 Start: 5015, Stop: 5452, Start Num: 39

Candidate Starts for Flabslab\_16:

(10, 4853), (Start: 39 @5015 has 57 MA's), (Start: 41 @5027 has 1 MA's), (56, 5177), (60, 5237), (94, 5408),

Gene: FrayBell\_8 Start: 2465, Stop: 2821, Start Num: 45

Candidate Starts for FrayBell\_8:

(Start: 45 @2465 has 8 MA's), (47, 2477), (50, 2504), (54, 2549), (60, 2612), (79, 2690), (80, 2702), (81, 2705),

Gene: Grasshills\_8 Start: 2903, Stop: 3259, Start Num: 45

Candidate Starts for Grasshills\_8:

(Start: 45 @2903 has 8 MA's), (47, 2915), (50, 2942), (54, 2987), (60, 3050), (79, 3128), (80, 3140), (81, 3143),

Gene: Halley\_75 Start: 50984, Stop: 50568, Start Num: 39

Candidate Starts for Halley\_75:

(Start: 39 @50984 has 57 MA's), (Start: 41 @50972 has 1 MA's), (51, 50888), (52, 50870), (60, 50792), (63, 50762), (72, 50723), (74, 50720),

Gene: Harley\_78 Start: 47547, Stop: 47975, Start Num: 38

Candidate Starts for Harley\_78:

(Start: 38 @47547 has 22 MA's), (53, 47694), (60, 47766), (79, 47844), (80, 47856), (81, 47859),

Gene: Harley\_88 Start: 50437, Stop: 50829, Start Num: 39

Candidate Starts for Harley\_88:

(1, 50143), (2, 50176), (9, 50263), (10, 50272), (11, 50296), (Start: 12 @50314 has 1 MA's), (28, 50407), (30, 50416), (Start: 39 @50437 has 57 MA's), (60, 50623), (66, 50665),

Gene: HokkenD\_66 Start: 49253, Stop: 48837, Start Num: 39

Candidate Starts for HokkenD\_66:

(Start: 39 @49253 has 57 MA's), (Start: 41 @49241 has 1 MA's), (51, 49157), (52, 49139), (60, 49061), (63, 49031), (72, 48992), (74, 48989),

Gene: Holt\_45 Start: 35325, Stop: 34888, Start Num: 39

Candidate Starts for Holt\_45:

(17, 35397), (Start: 39 @35325 has 57 MA's), (Start: 41 @35313 has 1 MA's), (56, 35163), (60, 35103), (94, 34932),

Gene: HufflyPuff\_44 Start: 35981, Stop: 35547, Start Num: 39

Candidate Starts for HufflyPuff\_44:

(17, 36053), (Start: 39 @35981 has 57 MA's), (Start: 41 @35969 has 1 MA's), (56, 35819), (60, 35759),

Gene: Hughesyang\_72 Start: 50943, Stop: 50497, Start Num: 39

Candidate Starts for Hughesyang\_72:

(Start: 39 @50943 has 57 MA's), (Start: 41 @50931 has 1 MA's), (51, 50847), (52, 50829), (60, 50751), (70, 50679), (79, 50655), (90, 50583),

Gene: Inyanga\_56 Start: 40763, Stop: 40362, Start Num: 39

Candidate Starts for Inyanga\_56:

(Start: 39 @40763 has 57 MA's), (Start: 41 @40751 has 1 MA's), (43, 40706), (51, 40667), (60, 40571),

Gene: IrishSherpFalk\_79 Start: 48781, Stop: 49194, Start Num: 38

Candidate Starts for IrishSherpFalk\_79:

(Start: 38 @48781 has 22 MA's), (Start: 41 @48796 has 1 MA's), (60, 48952), (77, 49039), (78, 49045), (83, 49069), (92, 49132), (96, 49171),

Gene: Jinglebell\_93 Start: 50985, Stop: 51386, Start Num: 39

Candidate Starts for Jinglebell\_93:

(Start: 12 @50862 has 1 MA's), (29, 50955), (31, 50964), (Start: 39 @50985 has 57 MA's), (60, 51153), (62, 51180), (65, 51198), (73, 51225), (86, 51294), (87, 51297), (93, 51333),

Gene: JuicyJay\_72 Start: 52118, Stop: 51702, Start Num: 39

Candidate Starts for JuicyJay\_72:

(Start: 39 @52118 has 57 MA's), (Start: 41 @52106 has 1 MA's), (51, 52022), (52, 52004), (60, 51926), (63, 51896), (72, 51857), (74, 51854),

Gene: Kalah2\_68 Start: 50277, Stop: 49861, Start Num: 39

Candidate Starts for Kalah2\_68:

(Start: 39 @50277 has 57 MA's), (Start: 41 @50265 has 1 MA's), (51, 50181), (52, 50163), (60, 50085), (63, 50055), (72, 50016), (74, 50013),

Gene: KashFlow\_71 Start: 46755, Stop: 46327, Start Num: 38

Candidate Starts for KashFlow\_71:

(Start: 38 @46755 has 22 MA's), (Start: 41 @46740 has 1 MA's), (46, 46686), (56, 46593), (60, 46533), (96, 46356),

Gene: KashFlow\_72 Start: 47258, Stop: 46752, Start Num: 39

Candidate Starts for KashFlow\_72:

(Start: 39 @47258 has 57 MA's), (59, 47087), (60, 47072), (62, 47045), (65, 47027), (73, 47000), (86, 46931), (87, 46928), (93, 46892), (98, 46811), (99, 46805), (100, 46802),

Gene: Klein\_78 Start: 51350, Stop: 50925, Start Num: 39

Candidate Starts for Klein\_78:

(Start: 39 @51350 has 57 MA's), (Start: 41 @51338 has 1 MA's), (46, 51284), (56, 51191), (60, 51131), (96, 50954),

Gene: Kostya\_43 Start: 35472, Stop: 35038, Start Num: 39

Candidate Starts for Kostya\_43:

(17, 35544), (Start: 39 @35472 has 57 MA's), (Start: 41 @35460 has 1 MA's), (56, 35310), (60, 35250),

Gene: KristaRAM\_77 Start: 47329, Stop: 47721, Start Num: 38

Candidate Starts for KristaRAM\_77:

(Start: 38 @47329 has 22 MA's), (Start: 41 @47344 has 1 MA's), (60, 47479), (77, 47566), (78, 47572), (83, 47596), (92, 47659), (96, 47698),

Gene: Llama\_93 Start: 50841, Stop: 51242, Start Num: 39

Candidate Starts for Llama\_93:

(Start: 12 @50718 has 1 MA's), (29, 50811), (31, 50820), (Start: 39 @50841 has 57 MA's), (60, 51009), (62, 51036), (65, 51054), (73, 51081), (86, 51150), (87, 51153), (93, 51189),

Gene: Llij\_73 Start: 45475, Stop: 45903, Start Num: 38

Candidate Starts for Llij\_73:

(Start: 38 @45475 has 22 MA's), (Start: 41 @45490 has 1 MA's), (46, 45544), (56, 45637), (60, 45697), (96, 45874),

Gene: LolaVinca\_8 Start: 2464, Stop: 2820, Start Num: 45

Candidate Starts for LolaVinca\_8:

(Start: 45 @2464 has 8 MA's), (47, 2476), (50, 2503), (54, 2548), (60, 2611), (79, 2689), (80, 2701), (81, 2704),

Gene: Lorde\_77 Start: 44762, Stop: 45190, Start Num: 38

Candidate Starts for Lorde\_77:

(Start: 38 @44762 has 22 MA's), (Start: 41 @44777 has 1 MA's), (46, 44831), (56, 44924), (60, 44984), (96, 45161),

Gene: Lucky2013\_71 Start: 46711, Stop: 46307, Start Num: 41

Candidate Starts for Lucky2013\_71:

(Start: 39 @46723 has 57 MA's), (Start: 41 @46711 has 1 MA's), (51, 46627), (52, 46609), (60, 46531), (63, 46501), (72, 46462), (74, 46459),

Gene: MiaZeal\_74 Start: 47379, Stop: 46963, Start Num: 39

Candidate Starts for MiaZeal\_74:

(Start: 39 @47379 has 57 MA's), (Start: 41 @47367 has 1 MA's), (51, 47283), (52, 47265), (60, 47187), (63, 47157), (72, 47118), (74, 47115),

Gene: Minnie\_76 Start: 50008, Stop: 50400, Start Num: 38

Candidate Starts for Minnie\_76:

(Start: 38 @50008 has 22 MA's), (Start: 41 @50023 has 1 MA's), (61, 50161), (77, 50245), (78, 50251), (83, 50275), (92, 50338), (96, 50377),

Gene: Misfit\_44 Start: 36046, Stop: 35612, Start Num: 39

Candidate Starts for Misfit\_44:

(17, 36118), (Start: 39 @36046 has 57 MA's), (Start: 41 @36034 has 1 MA's), (56, 35884), (60, 35824),

Gene: Modragons\_91 Start: 50829, Stop: 51230, Start Num: 39

Candidate Starts for Modragons\_91:

(Start: 12 @50706 has 1 MA's), (29, 50799), (31, 50808), (Start: 39 @50829 has 57 MA's), (60, 50997), (62, 51024), (65, 51042), (73, 51069), (86, 51138), (87, 51141), (93, 51177),

Gene: Murica\_44 Start: 35981, Stop: 35547, Start Num: 39

Candidate Starts for Murica\_44:

(17, 36053), (Start: 39 @35981 has 57 MA's), (Start: 41 @35969 has 1 MA's), (56, 35819), (60, 35759),

Gene: Nappy\_6 Start: 1987, Stop: 2343, Start Num: 45

Candidate Starts for Nappy\_6:

(Start: 45 @1987 has 8 MA's), (50, 2026), (54, 2071), (60, 2134), (79, 2212), (80, 2224), (81, 2227),

Gene: NihilNomen\_74 Start: 51071, Stop: 50655, Start Num: 39

Candidate Starts for NihilNomen\_74:

(Start: 39 @51071 has 57 MA's), (Start: 41 @51059 has 1 MA's), (51, 50975), (52, 50957), (60, 50879), (63, 50849), (72, 50810), (74, 50807),

Gene: Nimrod\_45 Start: 36239, Stop: 35805, Start Num: 39

Candidate Starts for Nimrod\_45:

(17, 36311), (Start: 39 @36239 has 57 MA's), (Start: 41 @36227 has 1 MA's), (56, 36077), (60, 36017),

Gene: Nitzel\_73 Start: 45555, Stop: 45947, Start Num: 38

Candidate Starts for Nitzel\_73:

(Start: 38 @45555 has 22 MA's), (Start: 41 @45570 has 1 MA's), (60, 45705), (77, 45792), (78, 45798), (83, 45822), (92, 45885), (96, 45924),

Gene: NuevoMundo\_7 Start: 2137, Stop: 2493, Start Num: 45

Candidate Starts for NuevoMundo\_7:

(Start: 45 @2137 has 8 MA's), (47, 2149), (50, 2176), (54, 2221), (60, 2284), (79, 2362), (80, 2374), (81, 2377),

Gene: Ochi17\_92 Start: 50436, Stop: 50837, Start Num: 39

Candidate Starts for Ochi17\_92:

(Start: 12 @50313 has 1 MA's), (29, 50406), (31, 50415), (Start: 39 @50436 has 57 MA's), (60, 50604), (62, 50631), (65, 50649), (73, 50676), (86, 50745), (87, 50748), (93, 50784),

Gene: Odette\_72 Start: 50114, Stop: 49698, Start Num: 39

Candidate Starts for Odette\_72:

(Start: 39 @50114 has 57 MA's), (Start: 41 @50102 has 1 MA's), (51, 50018), (52, 50000), (60, 49922), (63, 49892), (72, 49853), (74, 49850),

Gene: OfUltron\_94 Start: 50985, Stop: 51386, Start Num: 39

Candidate Starts for OfUltron\_94:

(Start: 12 @50862 has 1 MA's), (29, 50955), (31, 50964), (Start: 39 @50985 has 57 MA's), (60, 51153), (62, 51180), (65, 51198), (73, 51225), (86, 51294), (87, 51297), (93, 51333),

Gene: Oksu\_89 Start: 51566, Stop: 51967, Start Num: 39

Candidate Starts for Oksu\_89:

(9, 51392), (10, 51401), (11, 51425), (29, 51536), (31, 51545), (Start: 39 @51566 has 57 MA's), (60, 51734), (62, 51761), (65, 51779), (73, 51806), (86, 51875), (87, 51878), (93, 51914),

Gene: Omega\_81 Start: 52384, Stop: 51857, Start Num: 16

Candidate Starts for Omega\_81:

(Start: 16 @52384 has 1 MA's), (35, 52312), (37, 52309), (47, 52243), (48, 52231), (60, 52111), (70, 52039), (79, 52015), (90, 51943),

Gene: Ovechkin\_85 Start: 49845, Stop: 50309, Start Num: 27

Candidate Starts for Ovechkin\_85:

(Start: 27 @49845 has 1 MA's), (Start: 39 @49878 has 57 MA's), (53, 50022), (60, 50094), (71, 50157),

Gene: PMC\_74 Start: 46932, Stop: 47360, Start Num: 38

Candidate Starts for PMC\_74:

(Start: 38 @46932 has 22 MA's), (Start: 41 @46947 has 1 MA's), (46, 47001), (56, 47094), (60, 47154), (96, 47331),

Gene: Palpatine\_45 Start: 36011, Stop: 35577, Start Num: 39

Candidate Starts for Palpatine\_45:

(17, 36083), (Start: 39 @36011 has 57 MA's), (Start: 41 @35999 has 1 MA's), (56, 35849), (60, 35789),

Gene: Petra64142\_47 Start: 36475, Stop: 36041, Start Num: 39

Candidate Starts for Petra64142\_47:

(17, 36547), (Start: 39 @36475 has 57 MA's), (Start: 41 @36463 has 1 MA's), (56, 36313), (60, 36253),

Gene: PhatBacter\_45 Start: 36025, Stop: 35591, Start Num: 39

Candidate Starts for PhatBacter\_45:

(17, 36097), (Start: 39 @36025 has 57 MA's), (Start: 41 @36013 has 1 MA's), (56, 35863), (60, 35803),

Gene: Phatniss\_81 Start: 48507, Stop: 49100, Start Num: 8

Candidate Starts for Phatniss\_81:

(3, 48477), (Start: 8 @48507 has 1 MA's), (28, 48666), (30, 48675), (Start: 39 @48696 has 57 MA's), (49, 48771), (58, 48828), (60, 48870), (67, 48924), (85, 48999), (89, 49023),

Gene: Phatniss\_74 Start: 46570, Stop: 46998, Start Num: 38

Candidate Starts for Phatniss\_74:

(Start: 38 @46570 has 22 MA's), (Start: 41 @46585 has 1 MA's), (46, 46639), (56, 46732), (60, 46792), (96, 46969),

Gene: Phaux\_44 Start: 36023, Stop: 35589, Start Num: 39

Candidate Starts for Phaux\_44:

(17, 36095), (Start: 39 @36023 has 57 MA's), (Start: 41 @36011 has 1 MA's), (56, 35861), (60, 35801),

Gene: Phoebus\_76 Start: 52253, Stop: 51837, Start Num: 39

Candidate Starts for Phoebus\_76:

(Start: 39 @52253 has 57 MA's), (Start: 41 @52241 has 1 MA's), (51, 52157), (52, 52139), (60, 52061), (63, 52031), (72, 51992), (74, 51989),

Gene: Pier\_7 Start: 2140, Stop: 2496, Start Num: 45

Candidate Starts for Pier\_7:

(Start: 45 @2140 has 8 MA's), (47, 2152), (50, 2179), (54, 2224), (60, 2287), (79, 2365), (80, 2377), (81, 2380),

Gene: Plumbus\_81 Start: 45998, Stop: 46525, Start Num: 18

Candidate Starts for Plumbus\_81:

(Start: 18 @45998 has 1 MA's), (19, 46001), (32, 46058), (33, 46061), (Start: 39 @46073 has 57 MA's), (51, 46163), (60, 46265), (70, 46337), (79, 46361), (90, 46433), (97, 46496),

Gene: Policronamos\_47 Start: 36023, Stop: 35589, Start Num: 39

Candidate Starts for Policronamos\_47:

(17, 36095), (Start: 39 @36023 has 57 MA's), (Start: 41 @36011 has 1 MA's), (56, 35861), (60, 35801),

Gene: Porcelain\_73 Start: 47379, Stop: 46963, Start Num: 39

Candidate Starts for Porcelain\_73:

(Start: 39 @47379 has 57 MA's), (Start: 41 @47367 has 1 MA's), (51, 47283), (52, 47265), (60, 47187), (63, 47157), (72, 47118), (74, 47115),

Gene: Quallification\_43 Start: 35661, Stop: 35215, Start Num: 39

Candidate Starts for Quallification\_43:

(19, 35733), (Start: 39 @35661 has 57 MA's), (Start: 41 @35649 has 1 MA's), (55, 35499), (60, 35439), (63, 35409), (72, 35370), (74, 35367),

Gene: Redno2\_70 Start: 47867, Stop: 47451, Start Num: 39

Candidate Starts for Redno2\_70:

(Start: 39 @47867 has 57 MA's), (Start: 41 @47855 has 1 MA's), (51, 47771), (52, 47753), (60, 47675), (63, 47645), (72, 47606), (74, 47603),

Gene: Rockne\_78 Start: 46944, Stop: 47372, Start Num: 38

Candidate Starts for Rockne\_78:

(Start: 38 @46944 has 22 MA's), (Start: 41 @46959 has 1 MA's), (46, 47013), (56, 47106), (60, 47166), (96, 47343),

Gene: Sandalphon\_74 Start: 47993, Stop: 48385, Start Num: 38

Candidate Starts for Sandalphon\_74:

(Start: 38 @47993 has 22 MA's), (Start: 41 @48008 has 1 MA's), (61, 48146), (77, 48230), (78, 48236), (83, 48260), (92, 48323), (96, 48362),

Gene: Schatzie\_68 Start: 49861, Stop: 49445, Start Num: 39

Candidate Starts for Schatzie\_68:

(Start: 39 @49861 has 57 MA's), (Start: 41 @49849 has 1 MA's), (51, 49765), (52, 49747), (60, 49669), (63, 49639), (72, 49600), (74, 49597),

Gene: Seabastian\_94 Start: 50986, Stop: 51387, Start Num: 39

Candidate Starts for Seabastian\_94:

(Start: 12 @50863 has 1 MA's), (29, 50956), (31, 50965), (Start: 39 @50986 has 57 MA's), (60, 51154), (62, 51181), (65, 51199), (73, 51226), (86, 51295), (87, 51298), (93, 51334),

Gene: Seanderson\_63 Start: 42839, Stop: 42384, Start Num: 39

Candidate Starts for Seanderson\_63:

(6, 43040), (22, 42896), (25, 42893), (Start: 39 @42839 has 57 MA's), (56, 42677), (57, 42674), (60, 42617), (62, 42590), (65, 42572), (73, 42545), (86, 42476), (87, 42473), (93, 42437),

Gene: SirDuracell\_42 Start: 34192, Stop: 33677, Start Num: 15

Candidate Starts for SirDuracell\_42:

(Start: 15 @34192 has 1 MA's), (36, 34120), (40, 34108), (56, 33952), (60, 33892), (94, 33721), (96, 33700),

Gene: Specks\_8 Start: 2464, Stop: 2820, Start Num: 45

Candidate Starts for Specks\_8:

(Start: 45 @2464 has 8 MA's), (47, 2476), (50, 2503), (54, 2548), (60, 2611), (79, 2689), (80, 2701), (81, 2704),

Gene: Squint\_74 Start: 47498, Stop: 47082, Start Num: 39

Candidate Starts for Squint\_74:

(Start: 39 @47498 has 57 MA's), (Start: 41 @47486 has 1 MA's), (51, 47402), (52, 47384), (60, 47306), (63, 47276), (72, 47237), (74, 47234),

Gene: StephanieG\_7 Start: 2140, Stop: 2496, Start Num: 45

Candidate Starts for StephanieG\_7:

(Start: 45 @2140 has 8 MA's), (47, 2152), (50, 2179), (54, 2224), (60, 2287), (79, 2365), (80, 2377), (81, 2380),

Gene: Sunshine924\_66 Start: 41648, Stop: 41211, Start Num: 39

Candidate Starts for Sunshine924\_66:

(4, 41849), (23, 41705), (26, 41702), (Start: 39 @41648 has 57 MA's), (Start: 41 @41636 has 1 MA's), (56, 41486), (60, 41426), (94, 41255),

Gene: Superphikiman\_71 Start: 46589, Stop: 46173, Start Num: 39

Candidate Starts for Superphikiman\_71:

(Start: 39 @46589 has 57 MA's), (Start: 41 @46577 has 1 MA's), (51, 46493), (52, 46475), (60, 46397), (63, 46367), (72, 46328), (74, 46325),

Gene: Terminus\_44 Start: 36046, Stop: 35612, Start Num: 39

Candidate Starts for Terminus\_44:

(17, 36118), (Start: 39 @36046 has 57 MA's), (Start: 41 @36034 has 1 MA's), (56, 35884), (60, 35824),

Gene: TheloniousMonk\_64 Start: 43165, Stop: 42755, Start Num: 39

Candidate Starts for TheloniousMonk\_64:

(23, 43222), (26, 43219), (Start: 39 @43165 has 57 MA's), (43, 43108), (51, 43069), (60, 42973),

Gene: Thibault\_74 Start: 51276, Stop: 51677, Start Num: 39

Candidate Starts for Thibault\_74:

(13, 51156), (14, 51159), (20, 51207), (25, 51222), (Start: 39 @51276 has 57 MA's), (60, 51444), (62, 51471), (65, 51489), (73, 51516), (86, 51585), (87, 51588), (93, 51624),

Gene: UncleRicky\_76 Start: 46818, Stop: 47246, Start Num: 38

Candidate Starts for UncleRicky\_76:

(Start: 38 @46818 has 22 MA's), (Start: 41 @46833 has 1 MA's), (46, 46887), (56, 46980), (60, 47040), (96, 47217),

Gene: Wachhund\_78 Start: 45999, Stop: 46379, Start Num: 34

Candidate Starts for Wachhund\_78:

(Start: 34 @45999 has 1 MA's), (Start: 41 @46014 has 1 MA's), (60, 46149), (67, 46203), (69, 46212), (82, 46260), (85, 46278), (89, 46302), (91, 46320),

Gene: Wanda\_82 Start: 51659, Stop: 51234, Start Num: 39

Candidate Starts for Wanda\_82:

(Start: 39 @51659 has 57 MA's), (Start: 41 @51647 has 1 MA's), (46, 51593), (56, 51500), (60, 51440), (96, 51263),

Gene: WillSterrel\_78 Start: 48814, Stop: 49227, Start Num: 38

Candidate Starts for WillSterrel\_78:

(Start: 38 @48814 has 22 MA's), (Start: 41 @48829 has 1 MA's), (60, 48985), (77, 49072), (78, 49078), (83, 49102), (92, 49165), (96, 49204),

Gene: Yoshi\_94 Start: 49980, Stop: 50474, Start Num: 12

Candidate Starts for Yoshi\_94:

(Start: 12 @49980 has 1 MA's), (28, 50073), (30, 50082), (Start: 39 @50103 has 57 MA's), (60, 50268), (75, 50331), (76, 50337), (81, 50358), (88, 50397),

Gene: Zelink\_71 Start: 51457, Stop: 51044, Start Num: 39

Candidate Starts for Zelink\_71:

(Start: 39 @51457 has 57 MA's), (Start: 41 @51445 has 1 MA's), (51, 51361), (52, 51343), (60, 51265), (63, 51235), (72, 51196), (74, 51193),

Gene: xkcd\_46 Start: 36166, Stop: 35732, Start Num: 39

Candidate Starts for xkcd\_46:

(17, 36238), (Start: 39 @36166 has 57 MA's), (Start: 41 @36154 has 1 MA's), (56, 36004), (60, 35944),