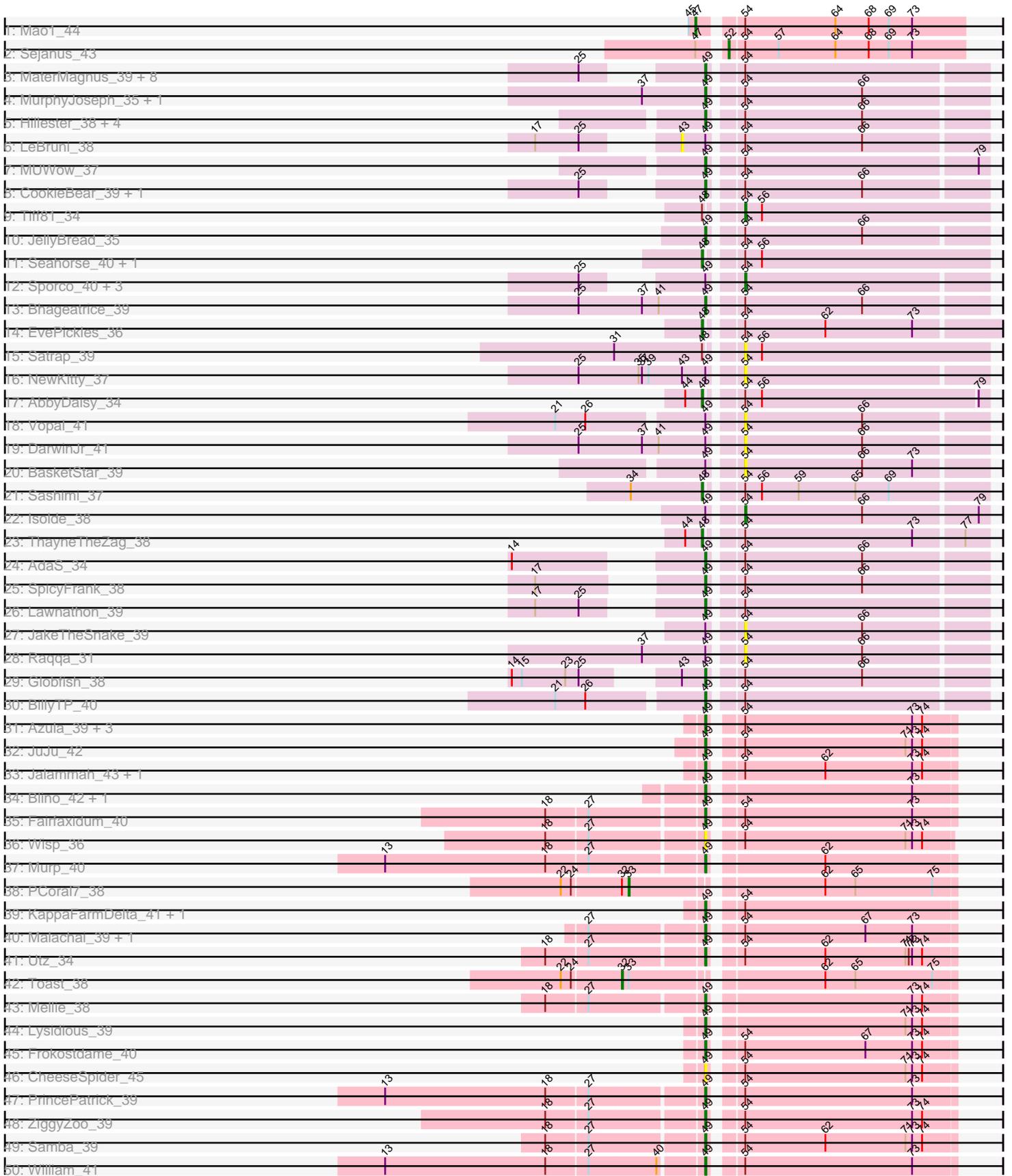
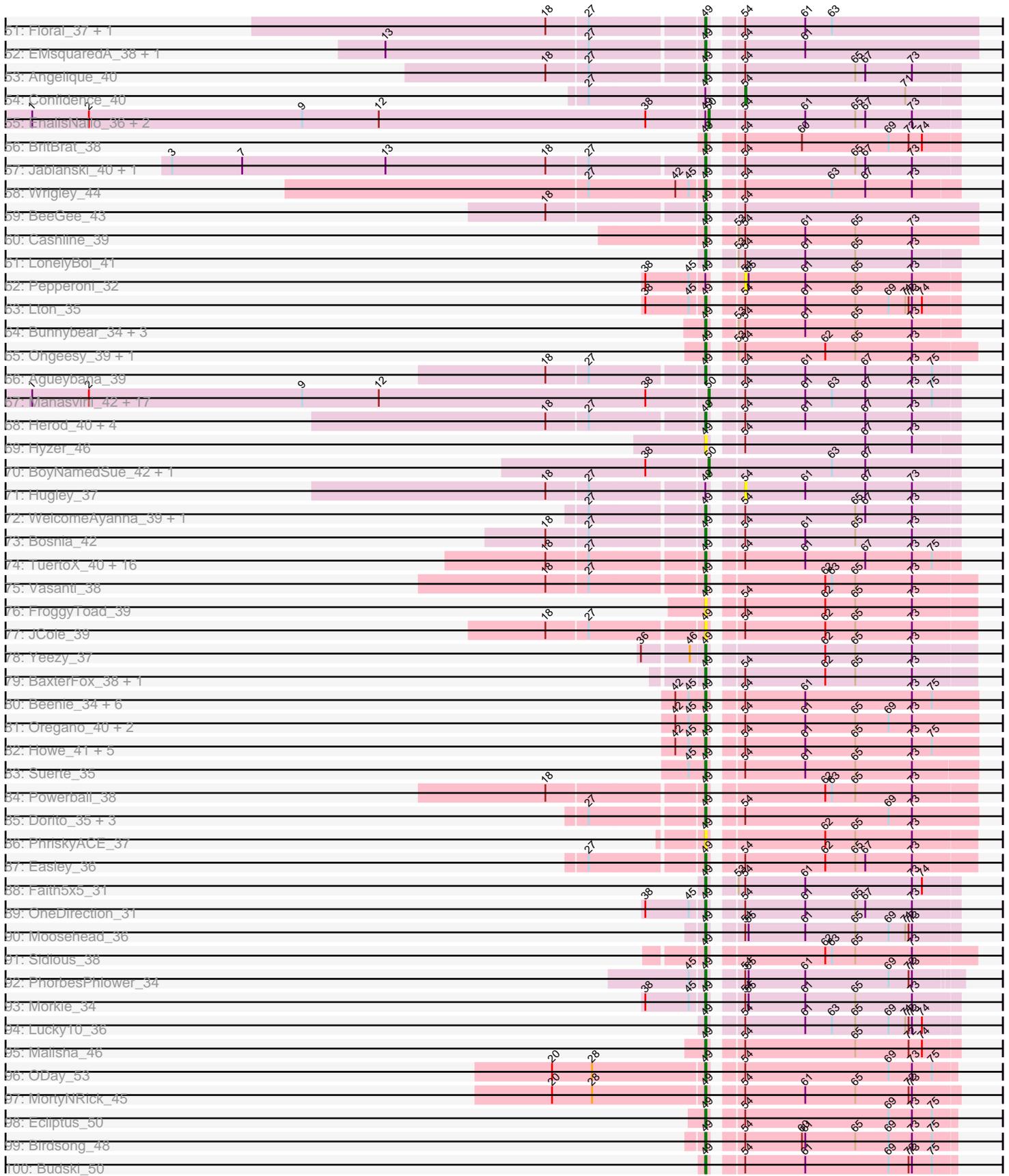


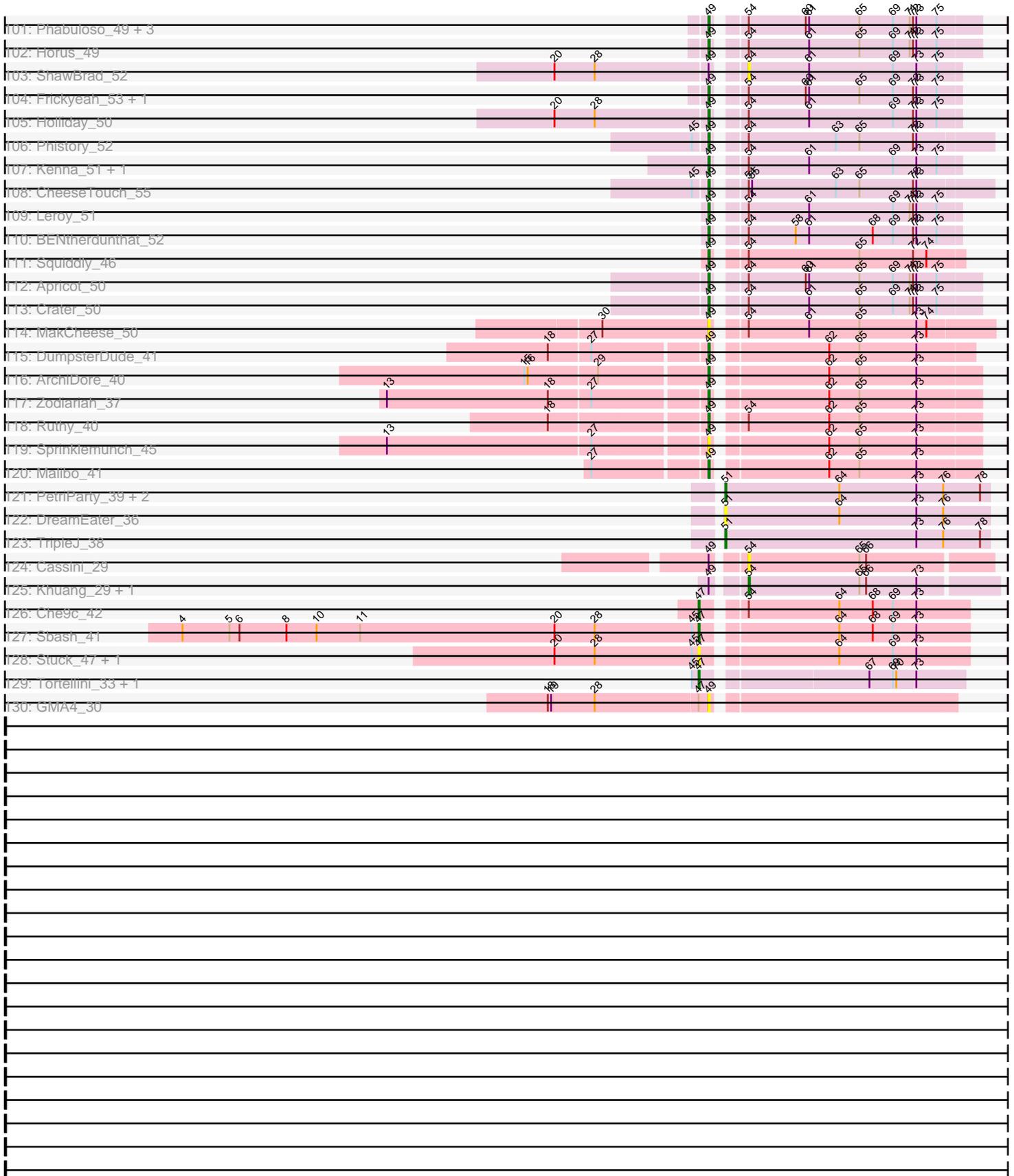
Pham 290822



Pham 290822



Pham 290822



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 290822 Report

This analysis was run 03/28/26 on database version 641.

Pham number 290822 has 230 members, 38 are drafts.

Phages represented in each track:

- Track 1 : Mao1\_44
- Track 2 : Sejanus\_43
- Track 3 : MaterMagnus\_39, Kabloowy\_39, Gorpy\_40, BenchScraper\_38, Richie\_39, Aikyam\_36, Sakai\_39, Raphaella\_39, YoungHarleezy\_39
- Track 4 : MurphyJoseph\_35, Anekin\_36
- Track 5 : Hillester\_38, RadFad\_38, Phrank15\_37, Windest\_38, SonDevVon\_38
- Track 6 : LeBruni\_38
- Track 7 : MUWow\_37
- Track 8 : CookieBear\_39, MidnightRain\_41
- Track 9 : Tiff81\_34
- Track 10 : JellyBread\_35
- Track 11 : Seahorse\_40, Crescenzo\_38
- Track 12 : Sporco\_40, Auxilium\_37, Mapleville\_39, Faja\_38
- Track 13 : Bhageatrice\_39
- Track 14 : EvePickles\_36
- Track 15 : Satrap\_39
- Track 16 : NewKitty\_37
- Track 17 : AbbyDaisy\_34
- Track 18 : Vopal\_41
- Track 19 : DarwinJr\_41
- Track 20 : BasketStar\_39
- Track 21 : Sashimi\_37
- Track 22 : Isolde\_38
- Track 23 : ThayneTheZag\_38
- Track 24 : AdaS\_34
- Track 25 : SpicyFrank\_38
- Track 26 : Lawnathon\_39
- Track 27 : JakeTheSnake\_39
- Track 28 : Raqqa\_31
- Track 29 : Globfish\_38
- Track 30 : BillyTP\_40
- Track 31 : Azula\_39, MissRona\_39, Blueberry\_38, Gambino\_41
- Track 32 : JuJu\_42
- Track 33 : Jalammah\_43, Fenry\_38
- Track 34 : Blino\_42, CarolAnn\_41
- Track 35 : Fairfaxidum\_40
- Track 36 : Wisp\_36

- Track 37 : Murp\_40
- Track 38 : PCoral7\_38
- Track 39 : KappaFarmDelta\_41, Wocket\_40
- Track 40 : Malachai\_39, Begonia\_39
- Track 41 : Utz\_34
- Track 42 : Toast\_38
- Track 43 : Mellie\_38
- Track 44 : Lysidious\_39
- Track 45 : Frokostdame\_40
- Track 46 : CheeseSpider\_45
- Track 47 : PrincePatrick\_39
- Track 48 : ZiggyZoo\_39
- Track 49 : Samba\_39
- Track 50 : William\_41
- Track 51 : Floral\_37, Pollux\_39
- Track 52 : EMSquaredA\_38, Marteena\_37
- Track 53 : Angelique\_40
- Track 54 : Confidence\_40
- Track 55 : EnalisNailo\_36, Bradissa\_37, Lilas\_39
- Track 56 : BritBrat\_38
- Track 57 : Jablanski\_40, Pytheas\_40
- Track 58 : Wrigley\_44
- Track 59 : BeeGee\_43
- Track 60 : Cashline\_39
- Track 61 : LonelyBoi\_41
- Track 62 : Pepperoni\_32
- Track 63 : Lton\_35
- Track 64 : Bunnybear\_34, Posh\_43, Madavieve\_37, Maridalia\_42
- Track 65 : Ohgeesy\_39, Madeline\_36
- Track 66 : Agueybana\_39
- Track 67 : Manasvini\_42, SoilAssassin\_37, Polly\_39, LordFarquaad\_39, Eudoria\_42, EdnaMode\_36, Pickett\_35, Kita\_43, Attis\_37, Bialota\_40, Antonio\_42, Trumpet\_42, Zameen\_42, Yeet412\_37, Zirinka\_39, Suscepit\_42, Tayonia\_42, Neobush\_42
- Track 68 : Herod\_40, Eviarto\_40, BatStarr\_40, Nymphadora\_40, TimTam\_40
- Track 69 : Hyzer\_46
- Track 70 : BoyNamedSue\_42, AlumE\_42
- Track 71 : Hugley\_37
- Track 72 : WelcomeAyanna\_39, ThankyouJordi\_39
- Track 73 : Bosnia\_42
- Track 74 : TuertoX\_40, Ebert\_42, Jalleen\_39, Savage\_40, Lamberg\_36, Sahara\_39, GemG\_40, Whiteclaw\_40, Cynthia\_40, Sproutie\_40, Clap\_40, Haley23\_40, Gizermo\_40, Matteo\_33, Mocha12\_40, Nettuno\_36, Bjanes7\_37
- Track 75 : Vasanti\_38
- Track 76 : FroggyToad\_39
- Track 77 : JCole\_39
- Track 78 : Yeezy\_37
- Track 79 : BaxterFox\_38, PantheRoc\_38
- Track 80 : Beenie\_34, Dolores\_41, Invectra\_42, MichaelScott\_41, Clark\_40, WinkNick\_42, Samman98\_41
- Track 81 : Oregano\_40, Annalisa\_37, Tuti\_40
- Track 82 : Howe\_41, Adora\_38, Sekhmet\_41, Hortense\_41, Twinkle\_40, Shlim410\_39

- Track 83 : Suerte\_35
- Track 84 : Powerball\_38
- Track 85 : Dorito\_35, Thimann\_37, DobbysSock\_32, Mcklovin\_37
- Track 86 : PhriskyACE\_37
- Track 87 : Easley\_36
- Track 88 : Faith5x5\_31
- Track 89 : OneDirection\_31
- Track 90 : Moosehead\_36
- Track 91 : Sidious\_38
- Track 92 : PhorbesPhlower\_34
- Track 93 : Morkie\_34
- Track 94 : Lucky10\_36
- Track 95 : Malisha\_46
- Track 96 : ODay\_53
- Track 97 : MortyNRick\_45
- Track 98 : Ecliptus\_50
- Track 99 : Birdsong\_48
- Track 100 : Budski\_50
- Track 101 : Phabuloso\_49, BotCity\_50, Kamaru\_45, LitninMcQueen\_44
- Track 102 : Horus\_49
- Track 103 : ShawBrad\_52
- Track 104 : Frickyeah\_53, Asapag\_48
- Track 105 : Holliday\_50
- Track 106 : Phistory\_52
- Track 107 : Kenna\_51, Lutum\_52
- Track 108 : CheeseTouch\_55
- Track 109 : Leroy\_51
- Track 110 : BENtherdunthat\_52
- Track 111 : Squiddly\_46
- Track 112 : Apricot\_50
- Track 113 : Crater\_50
- Track 114 : MakCheese\_50
- Track 115 : DumpsterDude\_41
- Track 116 : ArchiDore\_40
- Track 117 : Zodiariah\_37
- Track 118 : Ruthy\_40
- Track 119 : Sprinklemunch\_45
- Track 120 : Malibo\_41
- Track 121 : PetriParty\_39, Kukla\_37, GUPitcher\_35
- Track 122 : DreamEater\_36
- Track 123 : TripleJ\_38
- Track 124 : Cassini\_29
- Track 125 : Khuang\_29, Altostratus\_28
- Track 126 : Che9c\_42
- Track 127 : Sbash\_41
- Track 128 : Stuck\_47, Bluvara\_38
- Track 129 : Tortellini\_33, Xavia\_35
- Track 130 : GMA4\_30

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

The start number called the most often in the published annotations is 49, it was called in 148 of the 192 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AdaS\_34, Adora\_38, Agueybana\_39, Aikyam\_36, Anekin\_36, Angelique\_40, Annalisa\_37, Apricot\_50, ArchiDore\_40, Asapag\_48, Azula\_39, BENtherdunthat\_52, BatStarr\_40, BaxterFox\_38, BeeGee\_43, Beenie\_34, Begonia\_39, BenchScraper\_38, Bhageatrice\_39, BillyTP\_40, Birdsong\_48, Bjanes7\_37, Blino\_42, Blueberry\_38, Bosnia\_42, BotCity\_50, BritBrat\_38, Budski\_50, Bunnybear\_34, CarolAnn\_41, Cashline\_39, CheeseSpider\_45, CheeseTouch\_55, Clap\_40, Clark\_40, CookieBear\_39, Crater\_50, Cynthia\_40, DobbysSock\_32, Dolores\_41, Dorito\_35, DumpsterDude\_41, EMSquaredA\_38, Easley\_36, Ebert\_42, Ecliptus\_50, Eviarto\_40, Fairfaxidum\_40, Faith5x5\_31, Fenry\_38, Floral\_37, Frickyeah\_53, FroggyToad\_39, Frokostdame\_40, GMA4\_30, Gambino\_41, GemG\_40, Gizermo\_40, Globfish\_38, Gorpy\_40, Haley23\_40, Herod\_40, Hillester\_38, Holliday\_50, Hortense\_41, Horus\_49, Howe\_41, Hyzer\_46, Invectra\_42, JCole\_39, Jablanski\_40, Jalammah\_43, Jalleen\_39, JellyBread\_35, JuJu\_42, Kabloowy\_39, Kamaru\_45, KappaFarmDelta\_41, Kenna\_51, Lamberg\_36, Lawnathon\_39, Leroy\_51, LitninMcQueen\_44, LonelyBoi\_41, Lton\_35, Lucky10\_36, Lutum\_52, Lysidious\_39, MUWow\_37, Madavieve\_37, Madeline\_36, MakCheese\_50, Malachai\_39, Malibo\_41, Malisha\_46, Maridalia\_42, Marteena\_37, MaterMagnus\_39, Matteo\_33, Mcklovin\_37, Mellie\_38, MichaelScott\_41, MidnightRain\_41, MissRona\_39, Mocha12\_40, Moosehead\_36, Morkie\_34, MortyNRick\_45, Murp\_40, MurphyJoseph\_35, Nettuno\_36, Nymphadora\_40, ODay\_53, Ohgeesy\_39, OneDirection\_31, Oregano\_40, PantheRoc\_38, Phabuloso\_49, Phistory\_52, PhorbesPhlower\_34, Phrank15\_37, PhriskyACE\_37, Pollux\_39, Posh\_43, Powerball\_38, PrincePatrick\_39, Pytheas\_40, RadFad\_38, Raphaella\_39, Richie\_39, Ruthy\_40, Sahara\_39, Sakai\_39, Samba\_39, Samman98\_41, Savage\_40, Sekhmet\_41, Shlim410\_39, Sidious\_38, SonDevVon\_38, SpicyFrank\_38, Sprinklemunch\_45, Sproutie\_40, Squiddly\_46, Suerte\_35, ThankyouJordi\_39, Thimann\_37, TimTam\_40, TuertoX\_40, Tuti\_40, Twinkle\_40, Utz\_34, Vasanti\_38, WelcomeAyanna\_39, Whiteclaw\_40, William\_41, Windest\_38, WinkNick\_42, Wisp\_36, Wocket\_40, Wrigley\_44, Yeezy\_37, YoungHarleezy\_39, ZiggyZoo\_39, Zodiariah\_37,

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

- Altostratus\_28, Auxilium\_37, BasketStar\_39, Bradissa\_37, Cassini\_29, Confidence\_40, DarwinJr\_41, EnalisNailo\_36, Faja\_38, Hugley\_37, Isolde\_38, JakeTheSnake\_39, Khuang\_29, LeBruni\_38, Lilas\_39, Mapleville\_39, NewKitty\_37, Pepperoni\_32, Raqqa\_31, ShawBrad\_52, Sporco\_40, Vopal\_41,

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

- AbbyDaisy\_34, AlumE\_42, Antonio\_42, Attis\_37, Bialota\_40, Bluvara\_38, BoyNamedSue\_42, Che9c\_42, Crescenzo\_38, DreamEater\_36, EdnaMode\_36, Eudoria\_42, EvePickles\_36, GUPitcher\_35, Kita\_43, Kukla\_37, LordFarquaad\_39, Manasvini\_42, Mao1\_44, Neobush\_42, PCoral7\_38, PetriParty\_39, Pickett\_35, Polly\_39, Sashimi\_37, Satrap\_39, Sbash\_41, Seahorse\_40, Sejanus\_43, SoilAssassin\_37, Stuck\_47, Suscepit\_42, Tayonia\_42, ThayneTheZag\_38, Tiff81\_34, Toast\_38, Tortellini\_33, TripleJ\_38, Trumpet\_42, Xavia\_35, Yeet412\_37, Zameen\_42, Zirinka\_39,

**Summary by start number:**

Start 32:

- Found in 2 of 230 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 192
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Toast\_38 (CV),

Start 33:

- Found in 2 of 230 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 192
- Called 50.0% of time when present
- Phage (with cluster) where this start called: PCoral7\_38 (CV),

Start 43:

- Found in 3 of 230 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: LeBruni\_38 (AY),

Start 47:

- Found in 9 of 230 ( 3.9% ) of genes in pham
- Manual Annotations of this start: 5 of 192
- Called 77.8% of time when present
- Phage (with cluster) where this start called: Bluvara\_38 (I), Che9c\_42 (I2), Mao1\_44 (AD), Sbash\_41 (I2), Stuck\_47 (I2), Tortellini\_33 (P2), Xavia\_35 (P3),

Start 48:

- Found in 8 of 230 ( 3.5% ) of genes in pham
- Manual Annotations of this start: 5 of 192
- Called 75.0% of time when present
- Phage (with cluster) where this start called: AbbyDaisy\_34 (AY), Crescenzo\_38 (AY), EvePickles\_36 (AY), Sashimi\_37 (AY), Seahorse\_40 (AY), ThayneTheZag\_38 (AY),

Start 49:

- Found in 187 of 230 ( 81.3% ) of genes in pham
- Manual Annotations of this start: 148 of 192
- Called 88.2% of time when present
- Phage (with cluster) where this start called: AdaS\_34 (AY), Adora\_38 (CZ4), Agueybana\_39 (CZ1), Aikyam\_36 (AY), Anekin\_36 (AY), Angelique\_40 (CY1), Annalisa\_37 (CZ4), Apricot\_50 (DN3), ArchiDore\_40 (DW), Asapag\_48 (DN1), Azula\_39 (CV), BENtherdunthat\_52 (DN1), BatStarr\_40 (CZ1), BaxterFox\_38 (CZ3), BeeGee\_43 (CY5), Beenie\_34 (CZ4), Begonia\_39 (CV), BenchScraper\_38 (AY), Bhageatrice\_39 (AY), BillyTP\_40 (AY), Birdsong\_48 (DN), Bjanes7\_37 (CZ2), Blino\_42 (CV), Blueberry\_38 (CV), Bosnia\_42 (CZ1), BotCity\_50 (DN), BritBrat\_38 (CY2), Budski\_50 (DN), Bunnybear\_34 (CZ), CarolAnn\_41 (CV), Cashline\_39 (CY6), CheeseSpider\_45 (CV), CheeseTouch\_55 (DN1), Clap\_40 (CZ2), Clark\_40 (CZ4), CookieBear\_39 (AY), Crater\_50 (DN3), Cynthia\_40 (CZ2), DobbysSock\_32 (CZ4), Dolores\_41 (CZ4), Dorito\_35 (CZ4), DumpsterDude\_41 (DW), EMSquaredA\_38 (CY1), Easley\_36 (CZ4), Ebert\_42 (CZ2), Ecliptus\_50 (DN), Eviarto\_40 (CZ1), Fairfaxidum\_40 (CV), Faith5x5\_31 (CZ6), Fenry\_38 (CV), Floral\_37 (CY1), Frickyeah\_53 (DN1), FroggyToad\_39 (CZ2), Frokostdame\_40 (CV), GMA4\_30 (singleton), Gambino\_41 (CV), GemG\_40 (CZ2), Gizermo\_40 (CZ2), Globfish\_38 (AY), Gorpy\_40 (AY), Haley23\_40 (CZ2), Herod\_40 (CZ1), Hillester\_38 (AY),

Holliday\_50 (DN1), Hortense\_41 (CZ4), Horus\_49 (DN1), Howe\_41 (CZ4), Hyzer\_46 (CZ1), Invectra\_42 (CZ4), JCole\_39 (CZ2), Jablanski\_40 (CY3), Jalammah\_43 (CV), Jalleen\_39 (CZ2), JellyBread\_35 (AY), JuJu\_42 (CV), Kabloowy\_39 (AY), Kamaru\_45 (DN1), KappaFarmDelta\_41 (CV), Kenna\_51 (DN1), Lamberg\_36 (CZ2), Lawnathon\_39 (AY), Leroy\_51 (DN1), LitninMcQueen\_44 (DN1), LonelyBoi\_41 (CY7), Lton\_35 (CZ), Lucky10\_36 (DH), Lutum\_52 (DN1), Lysidious\_39 (CV), MUWow\_37 (AY), Madavieve\_37 (CZ1), Madeline\_36 (CZ1), MakCheese\_50 (DW), Malachai\_39 (CV), Malibo\_41 (DW), Malisha\_46 (DN), Maridalia\_42 (CZ1), Marteena\_37 (CY1), MaterMagnus\_39 (AY), Matteo\_33 (CZ2), Mcklovin\_37 (CZ4), Mellie\_38 (CV), MichaelScott\_41 (CZ4), MidnightRain\_41 (AY), MissRona\_39 (CV), Mocha12\_40 (CZ2), Moosehead\_36 (CZ6), Morkie\_34 (DH), MortyNRick\_45 (DN), Murp\_40 (CV), MurphyJoseph\_35 (AY), Nettuno\_36 (CZ2), Nymphadora\_40 (CZ1), ODay\_53 (DN), Ohgeesy\_39 (CZ), OneDirection\_31 (CZ6), Oregano\_40 (CZ4), PantheRoc\_38 (CZ3), Phabuloso\_49 (DN1), Phistory\_52 (DN1), PhorbesPhlower\_34 (DH), Phrank15\_37 (AY), PhriskyACE\_37 (CZ4), Pollux\_39 (CY1), Posh\_43 (CY4), Powerball\_38 (CZ4), PrincePatrick\_39 (CV), Pytheas\_40 (CY3), RadFad\_38 (AY), Raphaella\_39 (AY), Richie\_39 (AY), Ruthy\_40 (DW), Sahara\_39 (CZ2), Sakai\_39 (AY), Samba\_39 (CV), Samman98\_41 (CZ4), Savage\_40 (CZ2), Sekhmet\_41 (CZ4), Shlim410\_39 (CZ4), Sidious\_38 (CZ7), SonDevVon\_38 (AY), SpicyFrank\_38 (AY), Sprinklemunch\_45 (DW), Sproutie\_40 (CZ2), Squiddly\_46 (DN2), Suerte\_35 (CZ4), ThankyouJordi\_39 (CZ1), Thimann\_37 (CZ4), TimTam\_40 (CZ1), TuertoX\_40 (CZ2), Tuti\_40 (CZ4), Twinkle\_40 (CZ4), Utz\_34 (CV), Vasanti\_38 (CZ2), WelcomeAyanna\_39 (CZ1), Whiteclaw\_40 (CZ2), William\_41 (CV), Windest\_38 (AY), WinkNick\_42 (CZ4), Wisp\_36 (CV), Wocket\_40 (CV), Wrigley\_44 (CY4), Yeezy\_37 (CZ3), YoungHarleezy\_39 (AY), ZiggyZoo\_39 (CV), Zodiariah\_37 (DW),

#### Start 50:

- Found in 23 of 230 ( 10.0% ) of genes in pham
- Manual Annotations of this start: 23 of 192
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AlumE\_42 (CZ1), Antonio\_42 (CZ1), Attis\_37 (CZ2), Bialota\_40 (CZ1), BoyNamedSue\_42 (CZ1), Bradissa\_37 (CY1), EdnaMode\_36 (CZ2), EnalisNailo\_36 (CY1), Eudoria\_42 (CZ1), Kita\_43 (CZ1), Lilas\_39 (CY1), LordFarquaad\_39 (CZ2), Manasvini\_42 (CZ1), Neobush\_42 (CZ1), Pickett\_35 (CZ2), Polly\_39 (CZ1), SoilAssassin\_37 (CZ2), Suscepit\_42 (CZ1), Tayonia\_42 (CZ1), Trumpet\_42 (CZ1), Yeet412\_37 (CZ2), Zameen\_42 (CZ1), Zirinka\_39 (CZ1),

#### Start 51:

- Found in 5 of 230 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 2 of 192
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DreamEater\_36 (FJ), GUPitcher\_35 (FJ), Kukla\_37 (FJ), PetriParty\_39 (FJ), TripleJ\_38 (FJ),

#### Start 52:

- Found in 1 of 230 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 192
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sejanus\_43 (AD),

#### Start 54:

- Found in 200 of 230 ( 87.0% ) of genes in pham

- Manual Annotations of this start: 6 of 192
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Altostratus\_28 (FS), Auxilium\_37 (AY), BasketStar\_39 (AY), Cassini\_29 (FN), Confidence\_40 (CY1), DarwinJr\_41 (AY), Faja\_38 (AY), Hugley\_37 (CZ1), Isolde\_38 (AY), JakeTheSnake\_39 (AY), Khuang\_29 (FS), Mapleville\_39 (AY), NewKitty\_37 (AY), Pepperoni\_32 (CZ), Raqqa\_31 (AY), Satrap\_39 (AY), ShawBrad\_52 (DN1), Sporco\_40 (AY), Tiff81\_34 (AY), Vopal\_41 (AY),

### Summary by clusters:

There are 31 clusters represented in this pham: DN, P2, singleton, FS, DH, P3, CZ2, CZ3, CZ1, CZ6, CZ7, CZ4, DW, FJ, FN, CY6, I2, DN1, DN3, DN2, CY3, CY2, CY1, CY7, AD, CY5, CY4, I, CZ, AY, CV,

Info for manual annotations of cluster AD:

- Start number 47 was manually annotated 1 time for cluster AD.
- Start number 52 was manually annotated 1 time for cluster AD.

Info for manual annotations of cluster AY:

- Start number 48 was manually annotated 5 times for cluster AY.
- Start number 49 was manually annotated 22 times for cluster AY.
- Start number 54 was manually annotated 4 times for cluster AY.

Info for manual annotations of cluster CV:

- Start number 32 was manually annotated 1 time for cluster CV.
- Start number 33 was manually annotated 1 time for cluster CV.
- Start number 49 was manually annotated 23 times for cluster CV.

Info for manual annotations of cluster CY1:

- Start number 49 was manually annotated 5 times for cluster CY1.
- Start number 50 was manually annotated 3 times for cluster CY1.
- Start number 54 was manually annotated 1 time for cluster CY1.

Info for manual annotations of cluster CY2:

- Start number 49 was manually annotated 1 time for cluster CY2.

Info for manual annotations of cluster CY3:

- Start number 49 was manually annotated 2 times for cluster CY3.

Info for manual annotations of cluster CY4:

- Start number 49 was manually annotated 2 times for cluster CY4.

Info for manual annotations of cluster CY5:

- Start number 49 was manually annotated 1 time for cluster CY5.

Info for manual annotations of cluster CY6:

- Start number 49 was manually annotated 1 time for cluster CY6.

Info for manual annotations of cluster CY7:

- Start number 49 was manually annotated 1 time for cluster CY7.

Info for manual annotations of cluster CZ:

- Start number 49 was manually annotated 3 times for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 49 was manually annotated 11 times for cluster CZ1.
- Start number 50 was manually annotated 14 times for cluster CZ1.

Info for manual annotations of cluster CZ2:

- Start number 49 was manually annotated 17 times for cluster CZ2.
- Start number 50 was manually annotated 6 times for cluster CZ2.

Info for manual annotations of cluster CZ3:

- Start number 49 was manually annotated 3 times for cluster CZ3.

Info for manual annotations of cluster CZ4:

- Start number 49 was manually annotated 22 times for cluster CZ4.

Info for manual annotations of cluster CZ6:

- Start number 49 was manually annotated 3 times for cluster CZ6.

Info for manual annotations of cluster CZ7:

- Start number 49 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster DH:

- Start number 49 was manually annotated 3 times for cluster DH.

Info for manual annotations of cluster DN:

- Start number 49 was manually annotated 7 times for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 49 was manually annotated 12 times for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 49 was manually annotated 1 time for cluster DN2.

Info for manual annotations of cluster DN3:

- Start number 49 was manually annotated 2 times for cluster DN3.

Info for manual annotations of cluster DW:

- Start number 49 was manually annotated 5 times for cluster DW.

Info for manual annotations of cluster FJ:

- Start number 51 was manually annotated 2 times for cluster FJ.

Info for manual annotations of cluster FS:

- Start number 54 was manually annotated 1 time for cluster FS.

Info for manual annotations of cluster I2:

- Start number 47 was manually annotated 2 times for cluster I2.

Info for manual annotations of cluster P2:

- Start number 47 was manually annotated 1 time for cluster P2.

Info for manual annotations of cluster P3:

•Start number 47 was manually annotated 1 time for cluster P3.

**Gene Information:**

Gene: AbbyDaisy\_34 Start: 26031, Stop: 25792, Start Num: 48

Candidate Starts for AbbyDaisy\_34:

(44, 26046), (Start: 48 @26031 has 5 MA's), (Start: 54 @26007 has 6 MA's), (56, 25992), (79, 25800),

Gene: AdaS\_34 Start: 24505, Stop: 24269, Start Num: 49

Candidate Starts for AdaS\_34:

(14, 24634), (Start: 49 @24505 has 148 MA's), (Start: 54 @24481 has 6 MA's), (66, 24376),

Gene: Adora\_38 Start: 32529, Stop: 32299, Start Num: 49

Candidate Starts for Adora\_38:

(42, 32556), (45, 32544), (Start: 49 @32529 has 148 MA's), (Start: 54 @32508 has 6 MA's), (61, 32454), (65, 32409), (73, 32358), (75, 32340),

Gene: Agueybana\_39 Start: 31672, Stop: 31460, Start Num: 49

Candidate Starts for Agueybana\_39:

(18, 31804), (27, 31768), (Start: 49 @31672 has 148 MA's), (Start: 54 @31651 has 6 MA's), (61, 31597), (67, 31543), (73, 31501), (75, 31483),

Gene: Aikyam\_36 Start: 24436, Stop: 24200, Start Num: 49

Candidate Starts for Aikyam\_36:

(25, 24505), (Start: 49 @24436 has 148 MA's), (Start: 54 @24412 has 6 MA's),

Gene: Altostratus\_28 Start: 22209, Stop: 21991, Start Num: 54

Candidate Starts for Altostratus\_28:

(Start: 49 @22233 has 148 MA's), (Start: 54 @22209 has 6 MA's), (65, 22110), (66, 22104), (73, 22059),

Gene: AlumE\_42 Start: 33458, Stop: 33237, Start Num: 50

Candidate Starts for AlumE\_42:

(38, 33512), (Start: 50 @33458 has 23 MA's), (63, 33350), (67, 33320),

Gene: Anekin\_36 Start: 25783, Stop: 25547, Start Num: 49

Candidate Starts for Anekin\_36:

(37, 25840), (Start: 49 @25783 has 148 MA's), (Start: 54 @25759 has 6 MA's), (66, 25654),

Gene: Angelique\_40 Start: 32245, Stop: 32033, Start Num: 49

Candidate Starts for Angelique\_40:

(18, 32377), (27, 32341), (Start: 49 @32245 has 148 MA's), (Start: 54 @32224 has 6 MA's), (65, 32125), (67, 32116), (73, 32074),

Gene: Annalisa\_37 Start: 29886, Stop: 29656, Start Num: 49

Candidate Starts for Annalisa\_37:

(42, 29913), (45, 29901), (Start: 49 @29886 has 148 MA's), (Start: 54 @29865 has 6 MA's), (61, 29811), (65, 29766), (69, 29736), (73, 29715),

Gene: Antonio\_42 Start: 32731, Stop: 32510, Start Num: 50

Candidate Starts for Antonio\_42:

(1, 33337), (2, 33286), (9, 33094), (12, 33025), (38, 32785), (Start: 50 @32731 has 23 MA's), (Start: 54 @32701 has 6 MA's), (61, 32647), (63, 32623), (67, 32593), (73, 32551), (75, 32533),

Gene: Apricot\_50 Start: 33448, Stop: 33221, Start Num: 49

Candidate Starts for Apricot\_50:

(Start: 49 @33448 has 148 MA's), (Start: 54 @33427 has 6 MA's), (60, 33376), (61, 33373), (65, 33328), (69, 33298), (71, 33283), (72, 33280), (73, 33277), (75, 33259),

Gene: ArchiDore\_40 Start: 34485, Stop: 34258, Start Num: 49

Candidate Starts for ArchiDore\_40:

(15, 34641), (16, 34638), (29, 34578), (Start: 49 @34485 has 148 MA's), (62, 34392), (65, 34365), (73, 34314),

Gene: Asapag\_48 Start: 33812, Stop: 33603, Start Num: 49

Candidate Starts for Asapag\_48:

(Start: 49 @33812 has 148 MA's), (Start: 54 @33791 has 6 MA's), (60, 33740), (61, 33737), (65, 33692), (69, 33662), (72, 33644), (73, 33641), (75, 33623),

Gene: Attis\_37 Start: 29864, Stop: 29643, Start Num: 50

Candidate Starts for Attis\_37:

(1, 30470), (2, 30419), (9, 30227), (12, 30158), (38, 29918), (Start: 50 @29864 has 23 MA's), (Start: 54 @29834 has 6 MA's), (61, 29780), (63, 29756), (67, 29726), (73, 29684), (75, 29666),

Gene: Auxilium\_37 Start: 24114, Stop: 23902, Start Num: 54

Candidate Starts for Auxilium\_37:

(25, 24207), (Start: 49 @24138 has 148 MA's), (Start: 54 @24114 has 6 MA's),

Gene: Azula\_39 Start: 31977, Stop: 31768, Start Num: 49

Candidate Starts for Azula\_39:

(Start: 49 @31977 has 148 MA's), (Start: 54 @31956 has 6 MA's), (73, 31806), (74, 31797),

Gene: BENtherdunthat\_52 Start: 33823, Stop: 33614, Start Num: 49

Candidate Starts for BENtherdunthat\_52:

(Start: 49 @33823 has 148 MA's), (Start: 54 @33802 has 6 MA's), (58, 33760), (61, 33748), (68, 33691), (69, 33673), (72, 33655), (73, 33652), (75, 33634),

Gene: BasketStar\_39 Start: 26475, Stop: 26263, Start Num: 54

Candidate Starts for BasketStar\_39:

(Start: 49 @26499 has 148 MA's), (Start: 54 @26475 has 6 MA's), (66, 26370), (73, 26325),

Gene: BatStarr\_40 Start: 33303, Stop: 33091, Start Num: 49

Candidate Starts for BatStarr\_40:

(18, 33435), (27, 33399), (Start: 49 @33303 has 148 MA's), (Start: 54 @33282 has 6 MA's), (61, 33228), (67, 33174), (73, 33132),

Gene: BaxterFox\_38 Start: 31620, Stop: 31393, Start Num: 49

Candidate Starts for BaxterFox\_38:

(Start: 49 @31620 has 148 MA's), (Start: 54 @31599 has 6 MA's), (62, 31527), (65, 31500), (73, 31449),

Gene: BeeGee\_43 Start: 33143, Stop: 32913, Start Num: 49

Candidate Starts for BeeGee\_43:

(18, 33275), (Start: 49 @33143 has 148 MA's), (Start: 54 @33122 has 6 MA's),

Gene: Beenie\_34 Start: 30514, Stop: 30284, Start Num: 49

Candidate Starts for Beenie\_34:

(42, 30541), (45, 30529), (Start: 49 @30514 has 148 MA's), (Start: 54 @30493 has 6 MA's), (61, 30439), (73, 30343), (75, 30325),

Gene: Begonia\_39 Start: 33474, Stop: 33265, Start Num: 49

Candidate Starts for Begonia\_39:

(27, 33570), (Start: 49 @33474 has 148 MA's), (Start: 54 @33453 has 6 MA's), (67, 33345), (73, 33303),

Gene: BenchScraper\_38 Start: 26096, Stop: 25860, Start Num: 49

Candidate Starts for BenchScraper\_38:

(25, 26165), (Start: 49 @26096 has 148 MA's), (Start: 54 @26072 has 6 MA's),

Gene: Bhageatrice\_39 Start: 27925, Stop: 27689, Start Num: 49

Candidate Starts for Bhageatrice\_39:

(25, 28039), (37, 27982), (41, 27967), (Start: 49 @27925 has 148 MA's), (Start: 54 @27901 has 6 MA's), (66, 27796),

Gene: Bialota\_40 Start: 33483, Stop: 33262, Start Num: 50

Candidate Starts for Bialota\_40:

(1, 34089), (2, 34038), (9, 33846), (12, 33777), (38, 33537), (Start: 50 @33483 has 23 MA's), (Start: 54 @33453 has 6 MA's), (61, 33399), (63, 33375), (67, 33345), (73, 33303), (75, 33285),

Gene: BillyTP\_40 Start: 27334, Stop: 27098, Start Num: 49

Candidate Starts for BillyTP\_40:

(21, 27457), (26, 27430), (Start: 49 @27334 has 148 MA's), (Start: 54 @27310 has 6 MA's),

Gene: Birdsong\_48 Start: 34033, Stop: 33824, Start Num: 49

Candidate Starts for Birdsong\_48:

(Start: 49 @34033 has 148 MA's), (Start: 54 @34012 has 6 MA's), (60, 33961), (61, 33958), (65, 33913), (69, 33883), (73, 33862), (75, 33844),

Gene: Bjaner7\_37 Start: 29854, Stop: 29642, Start Num: 49

Candidate Starts for Bjaner7\_37:

(18, 29986), (27, 29950), (Start: 49 @29854 has 148 MA's), (Start: 54 @29833 has 6 MA's), (61, 29779), (67, 29725), (73, 29683), (75, 29665),

Gene: Blino\_42 Start: 34979, Stop: 34770, Start Num: 49

Candidate Starts for Blino\_42:

(Start: 49 @34979 has 148 MA's), (73, 34808),

Gene: Blueberry\_38 Start: 31977, Stop: 31768, Start Num: 49

Candidate Starts for Blueberry\_38:

(Start: 49 @31977 has 148 MA's), (Start: 54 @31956 has 6 MA's), (73, 31806), (74, 31797),

Gene: Bluvara\_38 Start: 32098, Stop: 31871, Start Num: 47

Candidate Starts for Bluvara\_38:

(20, 32227), (28, 32191), (45, 32104), (Start: 47 @32098 has 5 MA's), (64, 31987), (69, 31939), (73, 31918),

Gene: Bosnia\_42 Start: 35233, Stop: 35021, Start Num: 49

Candidate Starts for Bosnia\_42:

(18, 35365), (27, 35329), (Start: 49 @35233 has 148 MA's), (Start: 54 @35212 has 6 MA's), (61, 35158), (65, 35113), (73, 35062),

Gene: BotCity\_50 Start: 33836, Stop: 33609, Start Num: 49

Candidate Starts for BotCity\_50:

(Start: 49 @33836 has 148 MA's), (Start: 54 @33815 has 6 MA's), (60, 33764), (61, 33761), (65, 33716), (69, 33686), (71, 33671), (72, 33668), (73, 33665), (75, 33647),

Gene: BoyNamedSue\_42 Start: 33458, Stop: 33237, Start Num: 50

Candidate Starts for BoyNamedSue\_42:

(38, 33512), (Start: 50 @33458 has 23 MA's), (63, 33350), (67, 33320),

Gene: Bradissa\_37 Start: 32769, Stop: 32548, Start Num: 50

Candidate Starts for Bradissa\_37:

(1, 33375), (2, 33324), (9, 33132), (12, 33063), (38, 32823), (Start: 49 @32772 has 148 MA's), (Start: 50 @32769 has 23 MA's), (Start: 54 @32739 has 6 MA's), (61, 32685), (65, 32640), (67, 32631), (73, 32589),

Gene: BritBrat\_38 Start: 33111, Stop: 32899, Start Num: 49

Candidate Starts for BritBrat\_38:

(Start: 49 @33111 has 148 MA's), (Start: 54 @33090 has 6 MA's), (60, 33039), (69, 32961), (72, 32943), (74, 32931),

Gene: Budski\_50 Start: 34714, Stop: 34505, Start Num: 49

Candidate Starts for Budski\_50:

(Start: 49 @34714 has 148 MA's), (Start: 54 @34693 has 6 MA's), (61, 34639), (69, 34564), (72, 34546), (73, 34543), (75, 34525),

Gene: Bunnybear\_34 Start: 30987, Stop: 30775, Start Num: 49

Candidate Starts for Bunnybear\_34:

(Start: 49 @30987 has 148 MA's), (53, 30972), (Start: 54 @30966 has 6 MA's), (61, 30912), (65, 30867), (73, 30816),

Gene: CarolAnn\_41 Start: 34978, Stop: 34769, Start Num: 49

Candidate Starts for CarolAnn\_41:

(Start: 49 @34978 has 148 MA's), (73, 34807),

Gene: Cashline\_39 Start: 33424, Stop: 33194, Start Num: 49

Candidate Starts for Cashline\_39:

(Start: 49 @33424 has 148 MA's), (53, 33409), (Start: 54 @33403 has 6 MA's), (61, 33349), (65, 33304), (73, 33253),

Gene: Cassini\_29 Start: 23499, Stop: 23287, Start Num: 54

Candidate Starts for Cassini\_29:

(Start: 49 @23523 has 148 MA's), (Start: 54 @23499 has 6 MA's), (65, 23400), (66, 23394),

Gene: Che9c\_42 Start: 33770, Stop: 33543, Start Num: 47

Candidate Starts for Che9c\_42:

(Start: 47 @33770 has 5 MA's), (Start: 54 @33740 has 6 MA's), (64, 33659), (68, 33629), (69, 33611), (73, 33590),

Gene: CheeseSpider\_45 Start: 31765, Stop: 31556, Start Num: 49  
Candidate Starts for CheeseSpider\_45:  
(Start: 49 @31765 has 148 MA's), (Start: 54 @31744 has 6 MA's), (71, 31600), (73, 31594), (74, 31585),

Gene: CheeseTouch\_55 Start: 32186, Stop: 31950, Start Num: 49  
Candidate Starts for CheeseTouch\_55:  
(45, 32198), (Start: 49 @32186 has 148 MA's), (Start: 54 @32165 has 6 MA's), (55, 32162), (63, 32087), (65, 32066), (72, 32018), (73, 32015),

Gene: Clap\_40 Start: 30033, Stop: 29821, Start Num: 49  
Candidate Starts for Clap\_40:  
(18, 30165), (27, 30129), (Start: 49 @30033 has 148 MA's), (Start: 54 @30012 has 6 MA's), (61, 29958), (67, 29904), (73, 29862), (75, 29844),

Gene: Clark\_40 Start: 30331, Stop: 30101, Start Num: 49  
Candidate Starts for Clark\_40:  
(42, 30358), (45, 30346), (Start: 49 @30331 has 148 MA's), (Start: 54 @30310 has 6 MA's), (61, 30256), (73, 30160), (75, 30142),

Gene: Confidence\_40 Start: 31228, Stop: 31037, Start Num: 54  
Candidate Starts for Confidence\_40:  
(27, 31348), (Start: 49 @31249 has 148 MA's), (Start: 54 @31228 has 6 MA's), (71, 31084),

Gene: CookieBear\_39 Start: 26598, Stop: 26362, Start Num: 49  
Candidate Starts for CookieBear\_39:  
(25, 26667), (Start: 49 @26598 has 148 MA's), (Start: 54 @26574 has 6 MA's), (66, 26469),

Gene: Crater\_50 Start: 33843, Stop: 33616, Start Num: 49  
Candidate Starts for Crater\_50:  
(Start: 49 @33843 has 148 MA's), (Start: 54 @33822 has 6 MA's), (61, 33768), (65, 33723), (69, 33693), (71, 33678), (72, 33675), (73, 33672), (75, 33654),

Gene: Crescenzo\_38 Start: 26520, Stop: 26278, Start Num: 48  
Candidate Starts for Crescenzo\_38:  
(Start: 48 @26520 has 5 MA's), (Start: 54 @26496 has 6 MA's), (56, 26481),

Gene: Cynthia\_40 Start: 30033, Stop: 29821, Start Num: 49  
Candidate Starts for Cynthia\_40:  
(18, 30165), (27, 30129), (Start: 49 @30033 has 148 MA's), (Start: 54 @30012 has 6 MA's), (61, 29958), (67, 29904), (73, 29862), (75, 29844),

Gene: DarwinJr\_41 Start: 27471, Stop: 27259, Start Num: 54  
Candidate Starts for DarwinJr\_41:  
(25, 27609), (37, 27552), (41, 27537), (Start: 49 @27495 has 148 MA's), (Start: 54 @27471 has 6 MA's), (66, 27366),

Gene: DobbysSock\_32 Start: 28836, Stop: 28606, Start Num: 49  
Candidate Starts for DobbysSock\_32:  
(27, 28932), (Start: 49 @28836 has 148 MA's), (Start: 54 @28815 has 6 MA's), (69, 28686), (73, 28665),

Gene: Dolores\_41 Start: 31203, Stop: 30973, Start Num: 49

Candidate Starts for Dolores\_41:

(42, 31230), (45, 31218), (Start: 49 @31203 has 148 MA's), (Start: 54 @31182 has 6 MA's), (61, 31128), (73, 31032), (75, 31014),

Gene: Dorito\_35 Start: 28480, Stop: 28250, Start Num: 49

Candidate Starts for Dorito\_35:

(27, 28576), (Start: 49 @28480 has 148 MA's), (Start: 54 @28459 has 6 MA's), (69, 28330), (73, 28309),

Gene: DreamEater\_36 Start: 28772, Stop: 28536, Start Num: 51

Candidate Starts for DreamEater\_36:

(Start: 51 @28772 has 2 MA's), (64, 28670), (73, 28601), (76, 28577),

Gene: DumpsterDude\_41 Start: 35398, Stop: 35177, Start Num: 49

Candidate Starts for DumpsterDude\_41:

(18, 35530), (27, 35494), (Start: 49 @35398 has 148 MA's), (62, 35305), (65, 35278), (73, 35227),

Gene: EMSquaredA\_38 Start: 31344, Stop: 31114, Start Num: 49

Candidate Starts for EMSquaredA\_38:

(13, 31620), (27, 31440), (Start: 49 @31344 has 148 MA's), (Start: 54 @31323 has 6 MA's), (61, 31269),

Gene: Easley\_36 Start: 28611, Stop: 28384, Start Num: 49

Candidate Starts for Easley\_36:

(27, 28707), (Start: 49 @28611 has 148 MA's), (Start: 54 @28590 has 6 MA's), (62, 28518), (65, 28491), (67, 28482), (73, 28440),

Gene: Ebert\_42 Start: 29957, Stop: 29745, Start Num: 49

Candidate Starts for Ebert\_42:

(18, 30089), (27, 30053), (Start: 49 @29957 has 148 MA's), (Start: 54 @29936 has 6 MA's), (61, 29882), (67, 29828), (73, 29786), (75, 29768),

Gene: Ecliptus\_50 Start: 34943, Stop: 34734, Start Num: 49

Candidate Starts for Ecliptus\_50:

(Start: 49 @34943 has 148 MA's), (Start: 54 @34922 has 6 MA's), (69, 34793), (73, 34772), (75, 34754),

Gene: EdnaMode\_36 Start: 28552, Stop: 28331, Start Num: 50

Candidate Starts for EdnaMode\_36:

(1, 29158), (2, 29107), (9, 28915), (12, 28846), (38, 28606), (Start: 50 @28552 has 23 MA's), (Start: 54 @28522 has 6 MA's), (61, 28468), (63, 28444), (67, 28414), (73, 28372), (75, 28354),

Gene: EnalisNailo\_36 Start: 32303, Stop: 32082, Start Num: 50

Candidate Starts for EnalisNailo\_36:

(1, 32909), (2, 32858), (9, 32666), (12, 32597), (38, 32357), (Start: 49 @32306 has 148 MA's), (Start: 50 @32303 has 23 MA's), (Start: 54 @32273 has 6 MA's), (61, 32219), (65, 32174), (67, 32165), (73, 32123),

Gene: Eudoria\_42 Start: 32731, Stop: 32510, Start Num: 50

Candidate Starts for Eudoria\_42:

(1, 33337), (2, 33286), (9, 33094), (12, 33025), (38, 32785), (Start: 50 @32731 has 23 MA's), (Start: 54 @32701 has 6 MA's), (61, 32647), (63, 32623), (67, 32593), (73, 32551), (75, 32533),

Gene: EvePickles\_36 Start: 27264, Stop: 27016, Start Num: 48

Candidate Starts for EvePickles\_36:

(Start: 48 @27264 has 5 MA's), (Start: 54 @27240 has 6 MA's), (62, 27168), (73, 27090),

Gene: Eviarto\_40 Start: 33279, Stop: 33067, Start Num: 49

Candidate Starts for Eviarto\_40:

(18, 33411), (27, 33375), (Start: 49 @33279 has 148 MA's), (Start: 54 @33258 has 6 MA's), (61, 33204), (67, 33150), (73, 33108),

Gene: Fairfaxidum\_40 Start: 32373, Stop: 32164, Start Num: 49

Candidate Starts for Fairfaxidum\_40:

(18, 32505), (27, 32469), (Start: 49 @32373 has 148 MA's), (Start: 54 @32352 has 6 MA's), (73, 32202),

Gene: Faith5x5\_31 Start: 26354, Stop: 26142, Start Num: 49

Candidate Starts for Faith5x5\_31:

(Start: 49 @26354 has 148 MA's), (53, 26339), (Start: 54 @26333 has 6 MA's), (61, 26279), (73, 26183), (74, 26174),

Gene: Faja\_38 Start: 27848, Stop: 27636, Start Num: 54

Candidate Starts for Faja\_38:

(25, 27941), (Start: 49 @27872 has 148 MA's), (Start: 54 @27848 has 6 MA's),

Gene: Fenry\_38 Start: 32364, Stop: 32155, Start Num: 49

Candidate Starts for Fenry\_38:

(Start: 49 @32364 has 148 MA's), (Start: 54 @32343 has 6 MA's), (62, 32271), (73, 32193), (74, 32184),

Gene: Floral\_37 Start: 33417, Stop: 33187, Start Num: 49

Candidate Starts for Floral\_37:

(18, 33549), (27, 33513), (Start: 49 @33417 has 148 MA's), (Start: 54 @33396 has 6 MA's), (61, 33342), (63, 33318),

Gene: Frickyeah\_53 Start: 33287, Stop: 33078, Start Num: 49

Candidate Starts for Frickyeah\_53:

(Start: 49 @33287 has 148 MA's), (Start: 54 @33266 has 6 MA's), (60, 33215), (61, 33212), (65, 33167), (69, 33137), (72, 33119), (73, 33116), (75, 33098),

Gene: FroggyToad\_39 Start: 30322, Stop: 30095, Start Num: 49

Candidate Starts for FroggyToad\_39:

(Start: 49 @30322 has 148 MA's), (Start: 54 @30301 has 6 MA's), (62, 30229), (65, 30202), (73, 30151),

Gene: Frokostdame\_40 Start: 32300, Stop: 32091, Start Num: 49

Candidate Starts for Frokostdame\_40:

(Start: 49 @32300 has 148 MA's), (Start: 54 @32279 has 6 MA's), (67, 32171), (73, 32129), (74, 32120),

Gene: GMA4\_30 Start: 26648, Stop: 26442, Start Num: 49

Candidate Starts for GMA4\_30:

(18, 26789), (19, 26786), (28, 26747), (Start: 47 @26657 has 5 MA's), (Start: 49 @26648 has 148 MA's),

Gene: GUPitcher\_35 Start: 29003, Stop: 28767, Start Num: 51

Candidate Starts for GUPitcher\_35:

(Start: 51 @29003 has 2 MA's), (64, 28901), (73, 28832), (76, 28808), (78, 28775),

Gene: Gambino\_41 Start: 31977, Stop: 31768, Start Num: 49

Candidate Starts for Gambino\_41:

(Start: 49 @31977 has 148 MA's), (Start: 54 @31956 has 6 MA's), (73, 31806), (74, 31797),

Gene: GemG\_40 Start: 30033, Stop: 29821, Start Num: 49

Candidate Starts for GemG\_40:

(18, 30165), (27, 30129), (Start: 49 @30033 has 148 MA's), (Start: 54 @30012 has 6 MA's), (61, 29958), (67, 29904), (73, 29862), (75, 29844),

Gene: Gizermo\_40 Start: 30033, Stop: 29821, Start Num: 49

Candidate Starts for Gizermo\_40:

(18, 30165), (27, 30129), (Start: 49 @30033 has 148 MA's), (Start: 54 @30012 has 6 MA's), (61, 29958), (67, 29904), (73, 29862), (75, 29844),

Gene: Globfish\_38 Start: 26321, Stop: 26085, Start Num: 49

Candidate Starts for Globfish\_38:

(14, 26456), (15, 26447), (23, 26408), (25, 26396), (43, 26342), (Start: 49 @26321 has 148 MA's), (Start: 54 @26297 has 6 MA's), (66, 26192),

Gene: Gorpy\_40 Start: 27830, Stop: 27594, Start Num: 49

Candidate Starts for Gorpy\_40:

(25, 27899), (Start: 49 @27830 has 148 MA's), (Start: 54 @27806 has 6 MA's),

Gene: Haley23\_40 Start: 30033, Stop: 29821, Start Num: 49

Candidate Starts for Haley23\_40:

(18, 30165), (27, 30129), (Start: 49 @30033 has 148 MA's), (Start: 54 @30012 has 6 MA's), (61, 29958), (67, 29904), (73, 29862), (75, 29844),

Gene: Herod\_40 Start: 33303, Stop: 33091, Start Num: 49

Candidate Starts for Herod\_40:

(18, 33435), (27, 33399), (Start: 49 @33303 has 148 MA's), (Start: 54 @33282 has 6 MA's), (61, 33228), (67, 33174), (73, 33132),

Gene: Hillester\_38 Start: 26084, Stop: 25848, Start Num: 49

Candidate Starts for Hillester\_38:

(Start: 49 @26084 has 148 MA's), (Start: 54 @26060 has 6 MA's), (66, 25955),

Gene: Holliday\_50 Start: 34054, Stop: 33845, Start Num: 49

Candidate Starts for Holliday\_50:

(20, 34189), (28, 34153), (Start: 49 @34054 has 148 MA's), (Start: 54 @34033 has 6 MA's), (61, 33979), (69, 33904), (72, 33886), (73, 33883), (75, 33865),

Gene: Hortense\_41 Start: 33884, Stop: 33654, Start Num: 49

Candidate Starts for Hortense\_41:

(42, 33911), (45, 33899), (Start: 49 @33884 has 148 MA's), (Start: 54 @33863 has 6 MA's), (61, 33809), (65, 33764), (73, 33713), (75, 33695),

Gene: Horus\_49 Start: 34441, Stop: 34214, Start Num: 49

Candidate Starts for Horus\_49:

(Start: 49 @34441 has 148 MA's), (Start: 54 @34420 has 6 MA's), (61, 34366), (65, 34321), (69, 34291), (71, 34276), (72, 34273), (73, 34270), (75, 34252),

Gene: Howe\_41 Start: 33884, Stop: 33654, Start Num: 49

Candidate Starts for Howe\_41:

(42, 33911), (45, 33899), (Start: 49 @33884 has 148 MA's), (Start: 54 @33863 has 6 MA's), (61, 33809), (65, 33764), (73, 33713), (75, 33695),

Gene: Hugley\_37 Start: 33281, Stop: 33090, Start Num: 54

Candidate Starts for Hugley\_37:

(18, 33434), (27, 33398), (Start: 49 @33302 has 148 MA's), (Start: 54 @33281 has 6 MA's), (61, 33227), (67, 33173), (73, 33131),

Gene: Hyzer\_46 Start: 35588, Stop: 35376, Start Num: 49

Candidate Starts for Hyzer\_46:

(Start: 49 @35588 has 148 MA's), (Start: 54 @35567 has 6 MA's), (67, 35459), (73, 35417),

Gene: Invectra\_42 Start: 31905, Stop: 31675, Start Num: 49

Candidate Starts for Invectra\_42:

(42, 31932), (45, 31920), (Start: 49 @31905 has 148 MA's), (Start: 54 @31884 has 6 MA's), (61, 31830), (73, 31734), (75, 31716),

Gene: Isolde\_38 Start: 25826, Stop: 25614, Start Num: 54

Candidate Starts for Isolde\_38:

(Start: 49 @25850 has 148 MA's), (Start: 54 @25826 has 6 MA's), (66, 25721), (79, 25622),

Gene: JCole\_39 Start: 29301, Stop: 29074, Start Num: 49

Candidate Starts for JCole\_39:

(18, 29433), (27, 29397), (Start: 49 @29301 has 148 MA's), (Start: 54 @29280 has 6 MA's), (62, 29208), (65, 29181), (73, 29130),

Gene: Jablanski\_40 Start: 32602, Stop: 32390, Start Num: 49

Candidate Starts for Jablanski\_40:

(3, 33070), (7, 33007), (13, 32878), (18, 32734), (27, 32698), (Start: 49 @32602 has 148 MA's), (Start: 54 @32581 has 6 MA's), (65, 32482), (67, 32473), (73, 32431),

Gene: JakeTheSnake\_39 Start: 26721, Stop: 26509, Start Num: 54

Candidate Starts for JakeTheSnake\_39:

(Start: 49 @26745 has 148 MA's), (Start: 54 @26721 has 6 MA's), (66, 26616),

Gene: Jalammah\_43 Start: 33677, Stop: 33468, Start Num: 49

Candidate Starts for Jalammah\_43:

(Start: 49 @33677 has 148 MA's), (Start: 54 @33656 has 6 MA's), (62, 33584), (73, 33506), (74, 33497),

Gene: Jalleen\_39 Start: 29672, Stop: 29460, Start Num: 49

Candidate Starts for Jalleen\_39:

(18, 29804), (27, 29768), (Start: 49 @29672 has 148 MA's), (Start: 54 @29651 has 6 MA's), (61, 29597), (67, 29543), (73, 29501), (75, 29483),

Gene: JellyBread\_35 Start: 25035, Stop: 24799, Start Num: 49

Candidate Starts for JellyBread\_35:

(Start: 49 @25035 has 148 MA's), (Start: 54 @25011 has 6 MA's), (66, 24906),

Gene: JuJu\_42 Start: 32805, Stop: 32596, Start Num: 49

Candidate Starts for JuJu\_42:

(Start: 49 @32805 has 148 MA's), (Start: 54 @32784 has 6 MA's), (71, 32640), (73, 32634), (74, 32625),

Gene: Kabloowy\_39 Start: 26778, Stop: 26542, Start Num: 49

Candidate Starts for Kabloowy\_39:

(25, 26847), (Start: 49 @26778 has 148 MA's), (Start: 54 @26754 has 6 MA's),

Gene: Kamaru\_45 Start: 32833, Stop: 32606, Start Num: 49

Candidate Starts for Kamaru\_45:

(Start: 49 @32833 has 148 MA's), (Start: 54 @32812 has 6 MA's), (60, 32761), (61, 32758), (65, 32713), (69, 32683), (71, 32668), (72, 32665), (73, 32662), (75, 32644),

Gene: KappaFarmDelta\_41 Start: 31304, Stop: 31095, Start Num: 49

Candidate Starts for KappaFarmDelta\_41:

(Start: 49 @31304 has 148 MA's), (Start: 54 @31283 has 6 MA's),

Gene: Kenna\_51 Start: 34567, Stop: 34358, Start Num: 49

Candidate Starts for Kenna\_51:

(Start: 49 @34567 has 148 MA's), (Start: 54 @34546 has 6 MA's), (61, 34492), (69, 34417), (73, 34396), (75, 34378),

Gene: Khuang\_29 Start: 22977, Stop: 22759, Start Num: 54

Candidate Starts for Khuang\_29:

(Start: 49 @23001 has 148 MA's), (Start: 54 @22977 has 6 MA's), (65, 22878), (66, 22872), (73, 22827),

Gene: Kita\_43 Start: 32740, Stop: 32519, Start Num: 50

Candidate Starts for Kita\_43:

(1, 33346), (2, 33295), (9, 33103), (12, 33034), (38, 32794), (Start: 50 @32740 has 23 MA's), (Start: 54 @32710 has 6 MA's), (61, 32656), (63, 32632), (67, 32602), (73, 32560), (75, 32542),

Gene: Kukla\_37 Start: 28491, Stop: 28255, Start Num: 51

Candidate Starts for Kukla\_37:

(Start: 51 @28491 has 2 MA's), (64, 28389), (73, 28320), (76, 28296), (78, 28263),

Gene: Lamberg\_36 Start: 28542, Stop: 28330, Start Num: 49

Candidate Starts for Lamberg\_36:

(18, 28674), (27, 28638), (Start: 49 @28542 has 148 MA's), (Start: 54 @28521 has 6 MA's), (61, 28467), (67, 28413), (73, 28371), (75, 28353),

Gene: Lawnathon\_39 Start: 26452, Stop: 26216, Start Num: 49

Candidate Starts for Lawnathon\_39:

(17, 26560), (25, 26521), (Start: 49 @26452 has 148 MA's), (Start: 54 @26428 has 6 MA's),

Gene: LeBruni\_38 Start: 25857, Stop: 25600, Start Num: 43

Candidate Starts for LeBruni\_38:

(17, 25944), (25, 25905), (43, 25857), (Start: 49 @25836 has 148 MA's), (Start: 54 @25812 has 6 MA's), (66, 25707),

Gene: Leroy\_51 Start: 34725, Stop: 34516, Start Num: 49

Candidate Starts for Leroy\_51:

(Start: 49 @34725 has 148 MA's), (Start: 54 @34704 has 6 MA's), (61, 34650), (69, 34575), (71, 34560), (72, 34557), (73, 34554), (75, 34536),

Gene: Lilas\_39 Start: 34014, Stop: 33793, Start Num: 50

Candidate Starts for Lilas\_39:

(1, 34620), (2, 34569), (9, 34377), (12, 34308), (38, 34068), (Start: 49 @34017 has 148 MA's), (Start: 50 @34014 has 23 MA's), (Start: 54 @33984 has 6 MA's), (61, 33930), (65, 33885), (67, 33876), (73, 33834),

Gene: LitninMcQueen\_44 Start: 32582, Stop: 32355, Start Num: 49

Candidate Starts for LitninMcQueen\_44:

(Start: 49 @32582 has 148 MA's), (Start: 54 @32561 has 6 MA's), (60, 32510), (61, 32507), (65, 32462), (69, 32432), (71, 32417), (72, 32414), (73, 32411), (75, 32393),

Gene: LonelyBoi\_41 Start: 34681, Stop: 34469, Start Num: 49

Candidate Starts for LonelyBoi\_41:

(Start: 49 @34681 has 148 MA's), (53, 34666), (Start: 54 @34660 has 6 MA's), (61, 34606), (65, 34561), (73, 34510),

Gene: LordFarquaad\_39 Start: 29845, Stop: 29624, Start Num: 50

Candidate Starts for LordFarquaad\_39:

(1, 30451), (2, 30400), (9, 30208), (12, 30139), (38, 29899), (Start: 50 @29845 has 23 MA's), (Start: 54 @29815 has 6 MA's), (61, 29761), (63, 29737), (67, 29707), (73, 29665), (75, 29647),

Gene: Lton\_35 Start: 26508, Stop: 26296, Start Num: 49

Candidate Starts for Lton\_35:

(38, 26559), (45, 26520), (Start: 49 @26508 has 148 MA's), (Start: 54 @26487 has 6 MA's), (61, 26433), (65, 26388), (69, 26358), (71, 26343), (72, 26340), (73, 26337), (74, 26328),

Gene: Lucky10\_36 Start: 29523, Stop: 29311, Start Num: 49

Candidate Starts for Lucky10\_36:

(Start: 49 @29523 has 148 MA's), (Start: 54 @29502 has 6 MA's), (61, 29448), (63, 29424), (65, 29403), (69, 29373), (71, 29358), (72, 29355), (73, 29352), (74, 29343),

Gene: Lutum\_52 Start: 34567, Stop: 34358, Start Num: 49

Candidate Starts for Lutum\_52:

(Start: 49 @34567 has 148 MA's), (Start: 54 @34546 has 6 MA's), (61, 34492), (69, 34417), (73, 34396), (75, 34378),

Gene: Lysidious\_39 Start: 32394, Stop: 32185, Start Num: 49

Candidate Starts for Lysidious\_39:

(Start: 49 @32394 has 148 MA's), (71, 32229), (73, 32223), (74, 32214),

Gene: MUWow\_37 Start: 26106, Stop: 25870, Start Num: 49

Candidate Starts for MUWow\_37:

(Start: 49 @26106 has 148 MA's), (Start: 54 @26082 has 6 MA's), (79, 25878),

Gene: Madavieve\_37 Start: 32401, Stop: 32189, Start Num: 49

Candidate Starts for Madavieve\_37:

(Start: 49 @32401 has 148 MA's), (53, 32386), (Start: 54 @32380 has 6 MA's), (61, 32326), (65, 32281), (73, 32230),

Gene: Madeline\_36 Start: 31782, Stop: 31555, Start Num: 49

Candidate Starts for Madeline\_36:

(Start: 49 @31782 has 148 MA's), (53, 31767), (Start: 54 @31761 has 6 MA's), (62, 31689), (65, 31662), (73, 31611),

Gene: MakCheese\_50 Start: 36547, Stop: 36308, Start Num: 49

Candidate Starts for MakCheese\_50:

(30, 36640), (Start: 49 @36547 has 148 MA's), (Start: 54 @36526 has 6 MA's), (61, 36472), (65, 36427), (73, 36376), (74, 36367),

Gene: Malachai\_39 Start: 33474, Stop: 33265, Start Num: 49

Candidate Starts for Malachai\_39:

(27, 33570), (Start: 49 @33474 has 148 MA's), (Start: 54 @33453 has 6 MA's), (67, 33345), (73, 33303),

Gene: Malibo\_41 Start: 33015, Stop: 32788, Start Num: 49

Candidate Starts for Malibo\_41:

(27, 33111), (Start: 49 @33015 has 148 MA's), (62, 32922), (65, 32895), (73, 32844),

Gene: Malisha\_46 Start: 33324, Stop: 33112, Start Num: 49

Candidate Starts for Malisha\_46:

(Start: 49 @33324 has 148 MA's), (Start: 54 @33303 has 6 MA's), (65, 33204), (72, 33156), (74, 33144),

Gene: Manasvini\_42 Start: 32732, Stop: 32511, Start Num: 50

Candidate Starts for Manasvini\_42:

(1, 33338), (2, 33287), (9, 33095), (12, 33026), (38, 32786), (Start: 50 @32732 has 23 MA's), (Start: 54 @32702 has 6 MA's), (61, 32648), (63, 32624), (67, 32594), (73, 32552), (75, 32534),

Gene: Mao1\_44 Start: 40305, Stop: 40078, Start Num: 47

Candidate Starts for Mao1\_44:

(45, 40311), (Start: 47 @40305 has 5 MA's), (Start: 54 @40275 has 6 MA's), (64, 40194), (68, 40164), (69, 40146), (73, 40125),

Gene: Mapleville\_39 Start: 26507, Stop: 26295, Start Num: 54

Candidate Starts for Mapleville\_39:

(25, 26600), (Start: 49 @26531 has 148 MA's), (Start: 54 @26507 has 6 MA's),

Gene: Maridalia\_42 Start: 32733, Stop: 32521, Start Num: 49

Candidate Starts for Maridalia\_42:

(Start: 49 @32733 has 148 MA's), (53, 32718), (Start: 54 @32712 has 6 MA's), (61, 32658), (65, 32613), (73, 32562),

Gene: Marteena\_37 Start: 31344, Stop: 31114, Start Num: 49

Candidate Starts for Marteena\_37:

(13, 31620), (27, 31440), (Start: 49 @31344 has 148 MA's), (Start: 54 @31323 has 6 MA's), (61, 31269),

Gene: MaterMagnus\_39 Start: 26608, Stop: 26372, Start Num: 49

Candidate Starts for MaterMagnus\_39:

(25, 26677), (Start: 49 @26608 has 148 MA's), (Start: 54 @26584 has 6 MA's),

Gene: Matteo\_33 Start: 27584, Stop: 27372, Start Num: 49  
Candidate Starts for Matteo\_33:  
(18, 27716), (27, 27680), (Start: 49 @27584 has 148 MA's), (Start: 54 @27563 has 6 MA's), (61, 27509), (67, 27455), (73, 27413), (75, 27395),

Gene: Mcklovin\_37 Start: 35252, Stop: 35022, Start Num: 49  
Candidate Starts for Mcklovin\_37:  
(27, 35348), (Start: 49 @35252 has 148 MA's), (Start: 54 @35231 has 6 MA's), (69, 35102), (73, 35081),

Gene: Mellie\_38 Start: 31190, Stop: 30981, Start Num: 49  
Candidate Starts for Mellie\_38:  
(18, 31322), (27, 31286), (Start: 49 @31190 has 148 MA's), (73, 31019), (74, 31010),

Gene: MichaelScott\_41 Start: 31807, Stop: 31577, Start Num: 49  
Candidate Starts for MichaelScott\_41:  
(42, 31834), (45, 31822), (Start: 49 @31807 has 148 MA's), (Start: 54 @31786 has 6 MA's), (61, 31732), (73, 31636), (75, 31618),

Gene: MidnightRain\_41 Start: 27394, Stop: 27158, Start Num: 49  
Candidate Starts for MidnightRain\_41:  
(25, 27463), (Start: 49 @27394 has 148 MA's), (Start: 54 @27370 has 6 MA's), (66, 27265),

Gene: MissRona\_39 Start: 31978, Stop: 31769, Start Num: 49  
Candidate Starts for MissRona\_39:  
(Start: 49 @31978 has 148 MA's), (Start: 54 @31957 has 6 MA's), (73, 31807), (74, 31798),

Gene: Mocha12\_40 Start: 30033, Stop: 29821, Start Num: 49  
Candidate Starts for Mocha12\_40:  
(18, 30165), (27, 30129), (Start: 49 @30033 has 148 MA's), (Start: 54 @30012 has 6 MA's), (61, 29958), (67, 29904), (73, 29862), (75, 29844),

Gene: Moosehead\_36 Start: 26645, Stop: 26433, Start Num: 49  
Candidate Starts for Moosehead\_36:  
(Start: 49 @26645 has 148 MA's), (Start: 54 @26624 has 6 MA's), (55, 26621), (61, 26570), (65, 26525), (69, 26495), (71, 26480), (72, 26477), (73, 26474),

Gene: Morkie\_34 Start: 27463, Stop: 27251, Start Num: 49  
Candidate Starts for Morkie\_34:  
(38, 27514), (45, 27475), (Start: 49 @27463 has 148 MA's), (Start: 54 @27442 has 6 MA's), (55, 27439), (61, 27388), (65, 27343), (73, 27292),

Gene: MortyNRick\_45 Start: 34723, Stop: 34511, Start Num: 49  
Candidate Starts for MortyNRick\_45:  
(20, 34858), (28, 34822), (Start: 49 @34723 has 148 MA's), (Start: 54 @34702 has 6 MA's), (61, 34648), (65, 34603), (72, 34555), (73, 34552),

Gene: Murp\_40 Start: 33776, Stop: 33567, Start Num: 49  
Candidate Starts for Murp\_40:  
(13, 34052), (18, 33908), (27, 33872), (Start: 49 @33776 has 148 MA's), (62, 33683),

Gene: MurphyJoseph\_35 Start: 25336, Stop: 25100, Start Num: 49  
Candidate Starts for MurphyJoseph\_35:

(37, 25393), (Start: 49 @25336 has 148 MA's), (Start: 54 @25312 has 6 MA's), (66, 25207),

Gene: Neobush\_42 Start: 32725, Stop: 32504, Start Num: 50

Candidate Starts for Neobush\_42:

(1, 33331), (2, 33280), (9, 33088), (12, 33019), (38, 32779), (Start: 50 @32725 has 23 MA's), (Start: 54 @32695 has 6 MA's), (61, 32641), (63, 32617), (67, 32587), (73, 32545), (75, 32527),

Gene: Nettuno\_36 Start: 28542, Stop: 28330, Start Num: 49

Candidate Starts for Nettuno\_36:

(18, 28674), (27, 28638), (Start: 49 @28542 has 148 MA's), (Start: 54 @28521 has 6 MA's), (61, 28467), (67, 28413), (73, 28371), (75, 28353),

Gene: NewKitty\_37 Start: 25662, Stop: 25450, Start Num: 54

Candidate Starts for NewKitty\_37:

(25, 25800), (35, 25746), (37, 25743), (39, 25737), (43, 25707), (Start: 49 @25686 has 148 MA's), (Start: 54 @25662 has 6 MA's),

Gene: Nymphadora\_40 Start: 33303, Stop: 33091, Start Num: 49

Candidate Starts for Nymphadora\_40:

(18, 33435), (27, 33399), (Start: 49 @33303 has 148 MA's), (Start: 54 @33282 has 6 MA's), (61, 33228), (67, 33174), (73, 33132),

Gene: ODay\_53 Start: 35209, Stop: 35000, Start Num: 49

Candidate Starts for ODay\_53:

(20, 35344), (28, 35308), (Start: 49 @35209 has 148 MA's), (Start: 54 @35188 has 6 MA's), (69, 35059), (73, 35038), (75, 35020),

Gene: Ohgeesy\_39 Start: 32577, Stop: 32350, Start Num: 49

Candidate Starts for Ohgeesy\_39:

(Start: 49 @32577 has 148 MA's), (53, 32562), (Start: 54 @32556 has 6 MA's), (62, 32484), (65, 32457), (73, 32406),

Gene: OneDirection\_31 Start: 26085, Stop: 25873, Start Num: 49

Candidate Starts for OneDirection\_31:

(38, 26136), (45, 26097), (Start: 49 @26085 has 148 MA's), (Start: 54 @26064 has 6 MA's), (61, 26010), (65, 25965), (67, 25956), (73, 25914),

Gene: Oregano\_40 Start: 30519, Stop: 30289, Start Num: 49

Candidate Starts for Oregano\_40:

(42, 30546), (45, 30534), (Start: 49 @30519 has 148 MA's), (Start: 54 @30498 has 6 MA's), (61, 30444), (65, 30399), (69, 30369), (73, 30348),

Gene: PCoral7\_38 Start: 32016, Stop: 31744, Start Num: 33

Candidate Starts for PCoral7\_38:

(22, 32073), (24, 32064), (Start: 32 @32022 has 1 MA's), (Start: 33 @32016 has 1 MA's), (62, 31860), (65, 31833), (75, 31764),

Gene: PantheRoc\_38 Start: 30595, Stop: 30368, Start Num: 49

Candidate Starts for PantheRoc\_38:

(Start: 49 @30595 has 148 MA's), (Start: 54 @30574 has 6 MA's), (62, 30502), (65, 30475), (73, 30424),

Gene: Pepperoni\_32 Start: 27209, Stop: 27018, Start Num: 54

Candidate Starts for Pepperoni\_32:

(38, 27281), (45, 27242), (Start: 49 @27230 has 148 MA's), (Start: 54 @27209 has 6 MA's), (55, 27206), (61, 27155), (65, 27110), (73, 27059),

Gene: PetriParty\_39 Start: 28728, Stop: 28492, Start Num: 51

Candidate Starts for PetriParty\_39:

(Start: 51 @28728 has 2 MA's), (64, 28626), (73, 28557), (76, 28533), (78, 28500),

Gene: Phabuloso\_49 Start: 33667, Stop: 33440, Start Num: 49

Candidate Starts for Phabuloso\_49:

(Start: 49 @33667 has 148 MA's), (Start: 54 @33646 has 6 MA's), (60, 33595), (61, 33592), (65, 33547), (69, 33517), (71, 33502), (72, 33499), (73, 33496), (75, 33478),

Gene: Phistory\_52 Start: 34395, Stop: 34159, Start Num: 49

Candidate Starts for Phistory\_52:

(45, 34407), (Start: 49 @34395 has 148 MA's), (Start: 54 @34374 has 6 MA's), (63, 34296), (65, 34275), (72, 34227), (73, 34224),

Gene: PhorbesPhlower\_34 Start: 26891, Stop: 26679, Start Num: 49

Candidate Starts for PhorbesPhlower\_34:

(45, 26903), (Start: 49 @26891 has 148 MA's), (Start: 54 @26870 has 6 MA's), (55, 26867), (61, 26816), (69, 26741), (72, 26723), (73, 26720),

Gene: Phrank15\_37 Start: 25445, Stop: 25209, Start Num: 49

Candidate Starts for Phrank15\_37:

(Start: 49 @25445 has 148 MA's), (Start: 54 @25421 has 6 MA's), (66, 25316),

Gene: PhriskyACE\_37 Start: 31215, Stop: 30988, Start Num: 49

Candidate Starts for PhriskyACE\_37:

(Start: 49 @31215 has 148 MA's), (62, 31122), (65, 31095), (73, 31044),

Gene: Pickett\_35 Start: 27028, Stop: 26807, Start Num: 50

Candidate Starts for Pickett\_35:

(1, 27634), (2, 27583), (9, 27391), (12, 27322), (38, 27082), (Start: 50 @27028 has 23 MA's), (Start: 54 @26998 has 6 MA's), (61, 26944), (63, 26920), (67, 26890), (73, 26848), (75, 26830),

Gene: Pollux\_39 Start: 33417, Stop: 33187, Start Num: 49

Candidate Starts for Pollux\_39:

(18, 33549), (27, 33513), (Start: 49 @33417 has 148 MA's), (Start: 54 @33396 has 6 MA's), (61, 33342), (63, 33318),

Gene: Polly\_39 Start: 32174, Stop: 31953, Start Num: 50

Candidate Starts for Polly\_39:

(1, 32780), (2, 32729), (9, 32537), (12, 32468), (38, 32228), (Start: 50 @32174 has 23 MA's), (Start: 54 @32144 has 6 MA's), (61, 32090), (63, 32066), (67, 32036), (73, 31994), (75, 31976),

Gene: Posh\_43 Start: 34266, Stop: 34054, Start Num: 49

Candidate Starts for Posh\_43:

(Start: 49 @34266 has 148 MA's), (53, 34251), (Start: 54 @34245 has 6 MA's), (61, 34191), (65, 34146), (73, 34095),

Gene: Powerball\_38 Start: 30804, Stop: 30577, Start Num: 49

Candidate Starts for Powerball\_38:

(18, 30936), (Start: 49 @30804 has 148 MA's), (62, 30711), (63, 30705), (65, 30684), (73, 30633),

Gene: PrincePatrick\_39 Start: 30997, Stop: 30788, Start Num: 49

Candidate Starts for PrincePatrick\_39:

(13, 31273), (18, 31129), (27, 31093), (Start: 49 @30997 has 148 MA's), (Start: 54 @30976 has 6 MA's), (73, 30826),

Gene: Pytheas\_40 Start: 32601, Stop: 32389, Start Num: 49

Candidate Starts for Pytheas\_40:

(3, 33069), (7, 33006), (13, 32877), (18, 32733), (27, 32697), (Start: 49 @32601 has 148 MA's), (Start: 54 @32580 has 6 MA's), (65, 32481), (67, 32472), (73, 32430),

Gene: RadFad\_38 Start: 26084, Stop: 25848, Start Num: 49

Candidate Starts for RadFad\_38:

(Start: 49 @26084 has 148 MA's), (Start: 54 @26060 has 6 MA's), (66, 25955),

Gene: Raphaella\_39 Start: 26532, Stop: 26296, Start Num: 49

Candidate Starts for Raphaella\_39:

(25, 26601), (Start: 49 @26532 has 148 MA's), (Start: 54 @26508 has 6 MA's),

Gene: Raqqa\_31 Start: 23602, Stop: 23390, Start Num: 54

Candidate Starts for Raqqa\_31:

(37, 23683), (Start: 49 @23626 has 148 MA's), (Start: 54 @23602 has 6 MA's), (66, 23497),

Gene: Richie\_39 Start: 26613, Stop: 26377, Start Num: 49

Candidate Starts for Richie\_39:

(25, 26682), (Start: 49 @26613 has 148 MA's), (Start: 54 @26589 has 6 MA's),

Gene: Ruthy\_40 Start: 33383, Stop: 33156, Start Num: 49

Candidate Starts for Ruthy\_40:

(18, 33515), (Start: 49 @33383 has 148 MA's), (Start: 54 @33362 has 6 MA's), (62, 33290), (65, 33263), (73, 33212),

Gene: Sahara\_39 Start: 29780, Stop: 29568, Start Num: 49

Candidate Starts for Sahara\_39:

(18, 29912), (27, 29876), (Start: 49 @29780 has 148 MA's), (Start: 54 @29759 has 6 MA's), (61, 29705), (67, 29651), (73, 29609), (75, 29591),

Gene: Sakai\_39 Start: 26541, Stop: 26305, Start Num: 49

Candidate Starts for Sakai\_39:

(25, 26610), (Start: 49 @26541 has 148 MA's), (Start: 54 @26517 has 6 MA's),

Gene: Samba\_39 Start: 33583, Stop: 33374, Start Num: 49

Candidate Starts for Samba\_39:

(18, 33715), (27, 33679), (Start: 49 @33583 has 148 MA's), (Start: 54 @33562 has 6 MA's), (62, 33490), (71, 33418), (73, 33412), (74, 33403),

Gene: Samman98\_41 Start: 30434, Stop: 30204, Start Num: 49

Candidate Starts for Samman98\_41:

(42, 30461), (45, 30449), (Start: 49 @30434 has 148 MA's), (Start: 54 @30413 has 6 MA's), (61, 30359), (73, 30263), (75, 30245),

Gene: Sashimi\_37 Start: 27401, Stop: 27165, Start Num: 48

Candidate Starts for Sashimi\_37:

(34, 27464), (Start: 48 @27401 has 5 MA's), (Start: 54 @27377 has 6 MA's), (56, 27362), (59, 27329), (65, 27278), (69, 27248),

Gene: Satrap\_39 Start: 26525, Stop: 26307, Start Num: 54

Candidate Starts for Satrap\_39:

(31, 26627), (Start: 48 @26549 has 5 MA's), (Start: 54 @26525 has 6 MA's), (56, 26510),

Gene: Savage\_40 Start: 30033, Stop: 29821, Start Num: 49

Candidate Starts for Savage\_40:

(18, 30165), (27, 30129), (Start: 49 @30033 has 148 MA's), (Start: 54 @30012 has 6 MA's), (61, 29958), (67, 29904), (73, 29862), (75, 29844),

Gene: Sbash\_41 Start: 34682, Stop: 34455, Start Num: 47

Candidate Starts for Sbash\_41:

(4, 35144), (5, 35102), (6, 35093), (8, 35051), (10, 35024), (11, 34985), (20, 34811), (28, 34775), (45, 34688), (Start: 47 @34682 has 5 MA's), (64, 34571), (68, 34541), (69, 34523), (73, 34502),

Gene: Seahorse\_40 Start: 28057, Stop: 27815, Start Num: 48

Candidate Starts for Seahorse\_40:

(Start: 48 @28057 has 5 MA's), (Start: 54 @28033 has 6 MA's), (56, 28018),

Gene: Sejanus\_43 Start: 40694, Stop: 40485, Start Num: 52

Candidate Starts for Sejanus\_43:

(Start: 47 @40712 has 5 MA's), (Start: 52 @40694 has 1 MA's), (Start: 54 @40682 has 6 MA's), (57, 40652), (64, 40601), (68, 40571), (69, 40553), (73, 40532),

Gene: Sekhmet\_41 Start: 31334, Stop: 31104, Start Num: 49

Candidate Starts for Sekhmet\_41:

(42, 31361), (45, 31349), (Start: 49 @31334 has 148 MA's), (Start: 54 @31313 has 6 MA's), (61, 31259), (65, 31214), (73, 31163), (75, 31145),

Gene: ShawBrad\_52 Start: 33573, Stop: 33385, Start Num: 54

Candidate Starts for ShawBrad\_52:

(20, 33729), (28, 33693), (Start: 49 @33594 has 148 MA's), (Start: 54 @33573 has 6 MA's), (61, 33519), (69, 33444), (73, 33423), (75, 33405),

Gene: Shlim410\_39 Start: 33884, Stop: 33654, Start Num: 49

Candidate Starts for Shlim410\_39:

(42, 33911), (45, 33899), (Start: 49 @33884 has 148 MA's), (Start: 54 @33863 has 6 MA's), (61, 33809), (65, 33764), (73, 33713), (75, 33695),

Gene: Sidious\_38 Start: 32012, Stop: 31785, Start Num: 49

Candidate Starts for Sidious\_38:

(Start: 49 @32012 has 148 MA's), (62, 31919), (63, 31913), (65, 31892), (73, 31841),

Gene: SoilAssassin\_37 Start: 29863, Stop: 29642, Start Num: 50

Candidate Starts for SoilAssassin\_37:

(1, 30469), (2, 30418), (9, 30226), (12, 30157), (38, 29917), (Start: 50 @29863 has 23 MA's), (Start: 54 @29833 has 6 MA's), (61, 29779), (63, 29755), (67, 29725), (73, 29683), (75, 29665),

Gene: SonDevVon\_38 Start: 26429, Stop: 26193, Start Num: 49

Candidate Starts for SonDevVon\_38:

(Start: 49 @26429 has 148 MA's), (Start: 54 @26405 has 6 MA's), (66, 26300),

Gene: SpicyFrank\_38 Start: 26316, Stop: 26080, Start Num: 49

Candidate Starts for SpicyFrank\_38:

(17, 26424), (Start: 49 @26316 has 148 MA's), (Start: 54 @26292 has 6 MA's), (66, 26187),

Gene: Sporco\_40 Start: 26565, Stop: 26353, Start Num: 54

Candidate Starts for Sporco\_40:

(25, 26658), (Start: 49 @26589 has 148 MA's), (Start: 54 @26565 has 6 MA's),

Gene: Sprinklemunch\_45 Start: 34223, Stop: 33996, Start Num: 49

Candidate Starts for Sprinklemunch\_45:

(13, 34499), (27, 34319), (Start: 49 @34223 has 148 MA's), (62, 34130), (65, 34103), (73, 34052),

Gene: Sproutie\_40 Start: 30033, Stop: 29821, Start Num: 49

Candidate Starts for Sproutie\_40:

(18, 30165), (27, 30129), (Start: 49 @30033 has 148 MA's), (Start: 54 @30012 has 6 MA's), (61, 29958), (67, 29904), (73, 29862), (75, 29844),

Gene: Squiddly\_46 Start: 34356, Stop: 34144, Start Num: 49

Candidate Starts for Squiddly\_46:

(Start: 49 @34356 has 148 MA's), (Start: 54 @34335 has 6 MA's), (65, 34236), (72, 34188), (74, 34176),

Gene: Stuck\_47 Start: 36951, Stop: 36724, Start Num: 47

Candidate Starts for Stuck\_47:

(20, 37080), (28, 37044), (45, 36957), (Start: 47 @36951 has 5 MA's), (64, 36840), (69, 36792), (73, 36771),

Gene: Suerte\_35 Start: 29805, Stop: 29578, Start Num: 49

Candidate Starts for Suerte\_35:

(45, 29820), (Start: 49 @29805 has 148 MA's), (Start: 54 @29784 has 6 MA's), (61, 29730), (65, 29685), (73, 29634),

Gene: Suscepit\_42 Start: 32732, Stop: 32511, Start Num: 50

Candidate Starts for Suscepit\_42:

(1, 33338), (2, 33287), (9, 33095), (12, 33026), (38, 32786), (Start: 50 @32732 has 23 MA's), (Start: 54 @32702 has 6 MA's), (61, 32648), (63, 32624), (67, 32594), (73, 32552), (75, 32534),

Gene: Tayonia\_42 Start: 32731, Stop: 32510, Start Num: 50

Candidate Starts for Tayonia\_42:

(1, 33337), (2, 33286), (9, 33094), (12, 33025), (38, 32785), (Start: 50 @32731 has 23 MA's), (Start: 54 @32701 has 6 MA's), (61, 32647), (63, 32623), (67, 32593), (73, 32551), (75, 32533),

Gene: ThankyouJordi\_39 Start: 32830, Stop: 32618, Start Num: 49

Candidate Starts for ThankyouJordi\_39:

(27, 32926), (Start: 49 @32830 has 148 MA's), (Start: 54 @32809 has 6 MA's), (65, 32710), (67, 32701), (73, 32659),

Gene: ThayneTheZag\_38 Start: 26235, Stop: 25999, Start Num: 48

Candidate Starts for ThayneTheZag\_38:

(44, 26250), (Start: 48 @26235 has 5 MA's), (Start: 54 @26211 has 6 MA's), (73, 26061), (77, 26019),

Gene: Thimann\_37 Start: 29362, Stop: 29132, Start Num: 49

Candidate Starts for Thimann\_37:

(27, 29458), (Start: 49 @29362 has 148 MA's), (Start: 54 @29341 has 6 MA's), (69, 29212), (73, 29191),

Gene: Tiff81\_34 Start: 23625, Stop: 23407, Start Num: 54

Candidate Starts for Tiff81\_34:

(Start: 48 @23649 has 5 MA's), (Start: 54 @23625 has 6 MA's), (56, 23610),

Gene: TimTam\_40 Start: 33303, Stop: 33091, Start Num: 49

Candidate Starts for TimTam\_40:

(18, 33435), (27, 33399), (Start: 49 @33303 has 148 MA's), (Start: 54 @33282 has 6 MA's), (61, 33228), (67, 33174), (73, 33132),

Gene: Toast\_38 Start: 32022, Stop: 31744, Start Num: 32

Candidate Starts for Toast\_38:

(22, 32073), (24, 32064), (Start: 32 @32022 has 1 MA's), (Start: 33 @32016 has 1 MA's), (62, 31860), (65, 31833), (75, 31764),

Gene: Tortellini\_33 Start: 31096, Stop: 30878, Start Num: 47

Candidate Starts for Tortellini\_33:

(45, 31102), (Start: 47 @31096 has 5 MA's), (67, 30961), (69, 30940), (70, 30937), (73, 30919),

Gene: TripleJ\_38 Start: 28332, Stop: 28096, Start Num: 51

Candidate Starts for TripleJ\_38:

(Start: 51 @28332 has 2 MA's), (73, 28161), (76, 28137), (78, 28104),

Gene: Trumpet\_42 Start: 32732, Stop: 32511, Start Num: 50

Candidate Starts for Trumpet\_42:

(1, 33338), (2, 33287), (9, 33095), (12, 33026), (38, 32786), (Start: 50 @32732 has 23 MA's), (Start: 54 @32702 has 6 MA's), (61, 32648), (63, 32624), (67, 32594), (73, 32552), (75, 32534),

Gene: TuertoX\_40 Start: 30033, Stop: 29821, Start Num: 49

Candidate Starts for TuertoX\_40:

(18, 30165), (27, 30129), (Start: 49 @30033 has 148 MA's), (Start: 54 @30012 has 6 MA's), (61, 29958), (67, 29904), (73, 29862), (75, 29844),

Gene: Tuti\_40 Start: 30911, Stop: 30681, Start Num: 49

Candidate Starts for Tuti\_40:

(42, 30938), (45, 30926), (Start: 49 @30911 has 148 MA's), (Start: 54 @30890 has 6 MA's), (61, 30836), (65, 30791), (69, 30761), (73, 30740),

Gene: Twinkle\_40 Start: 34943, Stop: 34713, Start Num: 49

Candidate Starts for Twinkle\_40:

(42, 34970), (45, 34958), (Start: 49 @34943 has 148 MA's), (Start: 54 @34922 has 6 MA's), (61, 34868), (65, 34823), (73, 34772), (75, 34754),

Gene: Utz\_34 Start: 32273, Stop: 32064, Start Num: 49

Candidate Starts for Utz\_34:

(18, 32405), (27, 32369), (Start: 49 @32273 has 148 MA's), (Start: 54 @32252 has 6 MA's), (62, 32180), (71, 32108), (72, 32105), (73, 32102), (74, 32093),

Gene: Vasanti\_38 Start: 29298, Stop: 29071, Start Num: 49

Candidate Starts for Vasanti\_38:

(18, 29430), (27, 29394), (Start: 49 @29298 has 148 MA's), (62, 29205), (63, 29199), (65, 29178), (73, 29127),

Gene: Vopal\_41 Start: 28879, Stop: 28667, Start Num: 54

Candidate Starts for Vopal\_41:

(21, 29026), (26, 28999), (Start: 49 @28903 has 148 MA's), (Start: 54 @28879 has 6 MA's), (66, 28774),

Gene: WelcomeAyanna\_39 Start: 32977, Stop: 32765, Start Num: 49

Candidate Starts for WelcomeAyanna\_39:

(27, 33073), (Start: 49 @32977 has 148 MA's), (Start: 54 @32956 has 6 MA's), (65, 32857), (67, 32848), (73, 32806),

Gene: Whiteclaw\_40 Start: 30033, Stop: 29821, Start Num: 49

Candidate Starts for Whiteclaw\_40:

(18, 30165), (27, 30129), (Start: 49 @30033 has 148 MA's), (Start: 54 @30012 has 6 MA's), (61, 29958), (67, 29904), (73, 29862), (75, 29844),

Gene: William\_41 Start: 32683, Stop: 32474, Start Num: 49

Candidate Starts for William\_41:

(13, 32959), (18, 32815), (27, 32779), (40, 32719), (Start: 49 @32683 has 148 MA's), (Start: 54 @32662 has 6 MA's), (73, 32512),

Gene: Windest\_38 Start: 24922, Stop: 24686, Start Num: 49

Candidate Starts for Windest\_38:

(Start: 49 @24922 has 148 MA's), (Start: 54 @24898 has 6 MA's), (66, 24793),

Gene: WinkNick\_42 Start: 31126, Stop: 30896, Start Num: 49

Candidate Starts for WinkNick\_42:

(42, 31153), (45, 31141), (Start: 49 @31126 has 148 MA's), (Start: 54 @31105 has 6 MA's), (61, 31051), (73, 30955), (75, 30937),

Gene: Wisp\_36 Start: 30713, Stop: 30507, Start Num: 49

Candidate Starts for Wisp\_36:

(18, 30845), (27, 30809), (Start: 49 @30713 has 148 MA's), (Start: 54 @30692 has 6 MA's), (71, 30548), (73, 30542), (74, 30533),

Gene: Wocket\_40 Start: 31469, Stop: 31260, Start Num: 49

Candidate Starts for Wocket\_40:

(Start: 49 @31469 has 148 MA's), (Start: 54 @31448 has 6 MA's),

Gene: Wrigley\_44 Start: 33213, Stop: 33001, Start Num: 49

Candidate Starts for Wrigley\_44:

(27, 33312), (42, 33237), (45, 33225), (Start: 49 @33213 has 148 MA's), (Start: 54 @33192 has 6 MA's), (63, 33114), (67, 33084), (73, 33042),

Gene: Xavia\_35 Start: 31783, Stop: 31565, Start Num: 47

Candidate Starts for Xavia\_35:

(45, 31789), (Start: 47 @31783 has 5 MA's), (67, 31648), (69, 31627), (70, 31624), (73, 31606),

Gene: Yeet412\_37 Start: 29864, Stop: 29643, Start Num: 50

Candidate Starts for Yeet412\_37:

(1, 30470), (2, 30419), (9, 30227), (12, 30158), (38, 29918), (Start: 50 @29864 has 23 MA's), (Start: 54 @29834 has 6 MA's), (61, 29780), (63, 29756), (67, 29726), (73, 29684), (75, 29666),

Gene: Yeezy\_37 Start: 30409, Stop: 30182, Start Num: 49

Candidate Starts for Yeezy\_37:

(36, 30460), (46, 30421), (Start: 49 @30409 has 148 MA's), (62, 30316), (65, 30289), (73, 30238),

Gene: YoungHarleezy\_39 Start: 26611, Stop: 26375, Start Num: 49

Candidate Starts for YoungHarleezy\_39:

(25, 26680), (Start: 49 @26611 has 148 MA's), (Start: 54 @26587 has 6 MA's),

Gene: Zameen\_42 Start: 32731, Stop: 32510, Start Num: 50

Candidate Starts for Zameen\_42:

(1, 33337), (2, 33286), (9, 33094), (12, 33025), (38, 32785), (Start: 50 @32731 has 23 MA's), (Start: 54 @32701 has 6 MA's), (61, 32647), (63, 32623), (67, 32593), (73, 32551), (75, 32533),

Gene: ZiggyZoo\_39 Start: 31932, Stop: 31723, Start Num: 49

Candidate Starts for ZiggyZoo\_39:

(18, 32064), (27, 32028), (Start: 49 @31932 has 148 MA's), (Start: 54 @31911 has 6 MA's), (73, 31761), (74, 31752),

Gene: Zirinka\_39 Start: 33471, Stop: 33250, Start Num: 50

Candidate Starts for Zirinka\_39:

(1, 34077), (2, 34026), (9, 33834), (12, 33765), (38, 33525), (Start: 50 @33471 has 23 MA's), (Start: 54 @33441 has 6 MA's), (61, 33387), (63, 33363), (67, 33333), (73, 33291), (75, 33273),

Gene: Zodiariah\_37 Start: 33034, Stop: 32807, Start Num: 49

Candidate Starts for Zodiariah\_37:

(13, 33310), (18, 33166), (27, 33130), (Start: 49 @33034 has 148 MA's), (62, 32941), (65, 32914), (73, 32863),