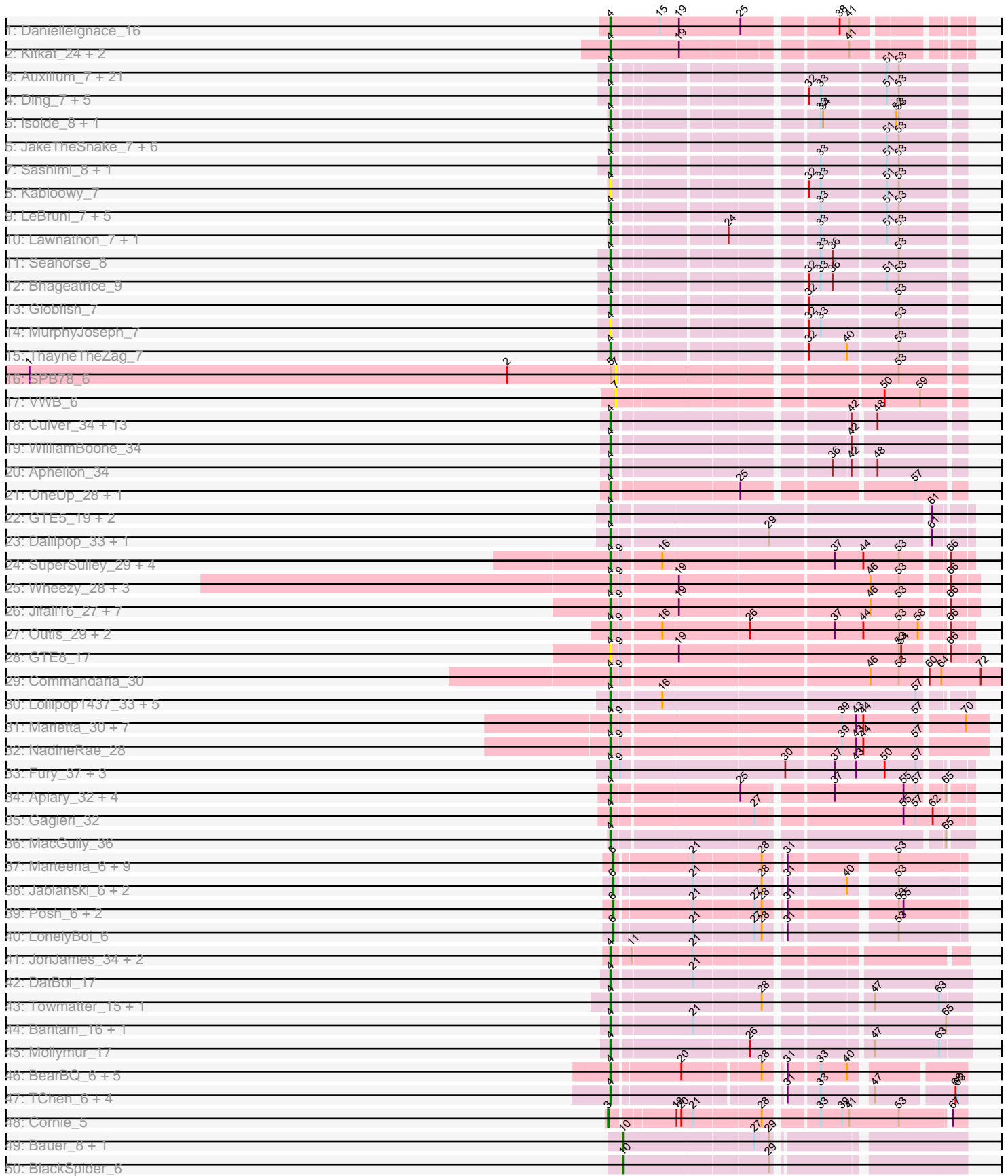
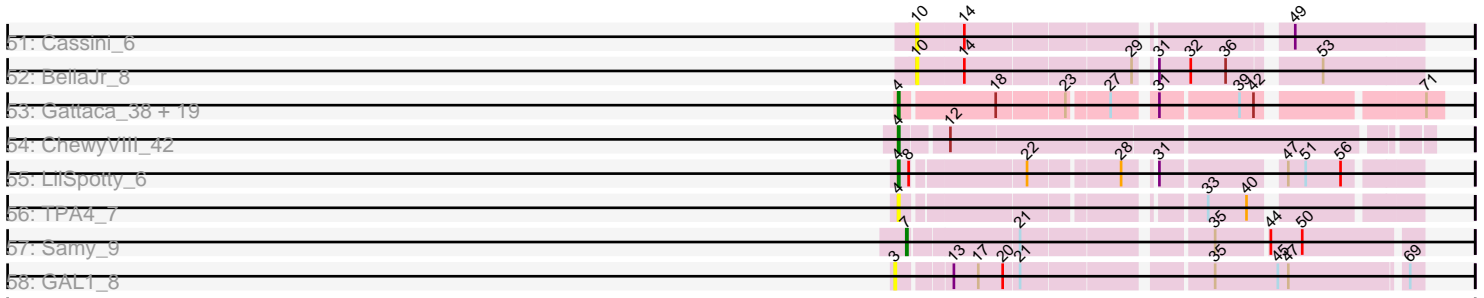


Pham 303110



Pham 303110



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 303110 Report

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

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 303110 has 198 members, 31 are drafts.

Phages represented in each track:

- Track 1 : DanielleIgnace\_16
- Track 2 : Kitkat\_24, BeatusComedenti\_23, KelleEzio\_23
- Track 3 : Auxilium\_7, BenchScraper\_7, Faja\_7, BasketStar\_7, SpicyFrank\_7, YoungHarleezy\_7, MaterMagnus\_7, MUWow\_6, AdaS\_7, Sporco\_8, BillyTP\_7, SonDevVon\_6, CosmicBrownie\_6, Gorpy\_7, Richie\_7, JellyBread\_7, Raphaella\_7, Sakai\_7, Lasker\_7, Aikyam\_7, CookieBear\_7, NewKitty\_8
- Track 4 : Ding\_7, Nyilah\_6, Hestia\_7, Satrap\_7, Shukran\_7, Tiff81\_8
- Track 5 : Isolde\_8, Windest\_8
- Track 6 : JakeTheSnake\_7, GumGum\_7, DarwinJr\_10, Crescenzo\_7, Persistence\_6, Vopal\_8, Anekin\_6
- Track 7 : Sashimi\_8, EvePickles\_7
- Track 8 : Kabloowy\_7
- Track 9 : LeBruni\_7, BlueShadow\_7, MidnightRain\_7, RadFad\_7, Phrank15\_6, Hillester\_7
- Track 10 : Lawnathon\_7, Mapleville\_6
- Track 11 : Seahorse\_8
- Track 12 : Bhageatrice\_9
- Track 13 : Globfish\_7
- Track 14 : MurphyJoseph\_7
- Track 15 : ThayneTheZag\_7
- Track 16 : SPB78\_6
- Track 17 : VWB\_6
- Track 18 : Culver\_34, Miskis\_32, Geeche\_33, Dusty\_33, Lozinak\_34, Abscondus\_33, Norvs\_35, Smoothie\_35, Cucurbita\_36, Engineer\_35, Bachita\_36, Toniann\_34, PhinkBoden\_34, ClubL\_34
- Track 19 : WilliamBoone\_34
- Track 20 : Aphelion\_34
- Track 21 : OneUp\_28, BrutonGaster\_22
- Track 22 : GTE5\_19, Flapper\_32, Turuncu\_32
- Track 23 : Dalilpop\_33, GRU1\_18
- Track 24 : SuperSulley\_29, Bonum\_31, Kabluna\_31, NosilaM\_31, Buggaboo\_29
- Track 25 : Wheezy\_28, GrootJr\_30, Arti\_28, NovumRegina\_28

- Track 26 : Jifall16\_27, Foxboro\_29, NatB6\_28, Kurt\_28, KidneyBean\_28, Phomeo\_27, Emianna\_28, Tracker\_28
- Track 27 : Outis\_29, MerCougar\_29, StarStruck\_29
- Track 28 : GTE8\_17
- Track 29 : Commandaria\_30
- Track 30 : Lollipop1437\_33, Patio\_31, Ennea\_34, RedRaider\_35, Float294\_30, Skysand\_30
- Track 31 : Marietta\_30, Sukkupi\_30, Pemberton\_31, BiPauneto\_31, HubbaBubba\_26, IDyn\_29, Yndexa\_30, WhoseManz\_30
- Track 32 : NadineRae\_28
- Track 33 : Fury\_37, HomeFry\_34, Scuba\_37, Pleakley\_37
- Track 34 : Apiary\_32, Polyuyuki\_32, Maselop\_32, CoffeeBean\_32, Braxoaddie\_32
- Track 35 : Gagieri\_32
- Track 36 : MacGully\_36
- Track 37 : Marteena\_6, EnalisNailo\_6, Cashline\_6, Angelique\_6, EMSquaredA\_6, Wrigley\_6, Floral\_6, BritBrat\_6, Lilas\_6, Pollux\_6
- Track 38 : Jablanski\_6, Bradissa\_6, Pytheas\_6
- Track 39 : Posh\_6, BeeGee\_6, Confidence\_6
- Track 40 : LonelyBoi\_6
- Track 41 : JonJames\_34, Cardigan\_34, Yvonnetastic\_32
- Track 42 : DatBoi\_17
- Track 43 : Towmatter\_15, Daredevil\_16
- Track 44 : Bantam\_16, SpeedDemon\_170
- Track 45 : Mollymur\_17
- Track 46 : BearBQ\_6, MortyNRick\_6, Kuwabara\_6, Crater\_6, Apricot\_6, Birdsong\_6
- Track 47 : TChen\_6, Toron\_6, LunaStella\_6, ThetaBob\_6, Renaud18\_6
- Track 48 : Cornie\_5
- Track 49 : Bauer\_8, Zucker\_7
- Track 50 : BlackSpider\_6
- Track 51 : Cassini\_6
- Track 52 : BellaJr\_8
- Track 53 : Gattaca\_38, RedRaider77\_39, Corazon\_37, GoongGoong\_38, Clarkson\_40, Poise\_39, Tesla\_38, Raela\_39, Lilbit\_38, FeliMaine\_41, Pringar\_39, JoieB\_40, LittleLaf\_39, Beelzebub\_43, Huphlepuuff\_41, Marvin\_37, VasuNzinga\_39, MosMoris\_37, Caprice\_36, Blackbeetle\_39
- Track 54 : ChewyVIII\_42
- Track 55 : LilSpotty\_6
- Track 56 : TPA4\_7
- Track 57 : Samy\_9
- Track 58 : GAL1\_8

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

The start number called the most often in the published annotations is 4, it was called in 145 of the 167 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abscondus\_33, AdaS\_7, Aikyam\_7, Anekin\_6, Aphelion\_34, Apiary\_32, Apricot\_6, Arti\_28, Auxilium\_7, Bachita\_36, Bantam\_16, BasketStar\_7, BearBQ\_6, BeatusComedenti\_23, Beelzebub\_43, BenchScraper\_7, Bhageatrice\_9,

BiPauneto\_31, BillyTP\_7, Birdsong\_6, Blackbeetle\_39, BlueShadow\_7, Bonum\_31, Braxoaddie\_32, BrutonGaster\_22, Buggaboo\_29, Caprice\_36, Cardigan\_34, ChewyVIII\_42, Clarkson\_40, ClubL\_34, CoffeeBean\_32, Commandaria\_30, CookieBear\_7, Corazon\_37, CosmicBrownie\_6, Crater\_6, Crescenzo\_7, Cucurbita\_36, Culver\_34, Dalilpop\_33, DanielleIgnace\_16, Daredevil\_16, DarwinJr\_10, DatBoi\_17, Ding\_7, Dusty\_33, Emianna\_28, Engineer\_35, Ennea\_34, EvePickles\_7, Faja\_7, FeliMaine\_41, Flapper\_32, Float294\_30, Foxboro\_29, Fury\_37, GRU1\_18, GTE5\_19, GTE8\_17, Gagieri\_32, Gattaca\_38, Geeche\_33, Globfish\_7, GoongGoong\_38, Gorpy\_7, GrootJr\_30, GumGum\_7, Hestia\_7, Hillester\_7, HomeFry\_34, HubbaBubba\_26, Huphlepuuff\_41, IDyn\_29, Isolde\_8, JakeTheSnake\_7, JellyBread\_7, Jifall16\_27, JoieB\_40, JonJames\_34, Kabloowy\_7, Kabluna\_31, KellEzio\_23, KidneyBean\_28, Kitkat\_24, Kurt\_28, Kuwabara\_6, Lasker\_7, Lawnathon\_7, LeBruni\_7, LilSpotty\_6, Lilbit\_38, LittleLaf\_39, Lollipop1437\_33, Lozinak\_34, LunaStella\_6, MUWow\_6, MacGully\_36, Mapleville\_6, Marietta\_30, Marvin\_37, Maselop\_32, MaterMagnus\_7, MerCougar\_29, MidnightRain\_7, Miskis\_32, Mollymur\_17, MortyNRick\_6, MosMoris\_37, MurphyJoseph\_7, NadineRae\_28, NatB6\_28, NewKitty\_8, Norvs\_35, NosilaM\_31, NovumRegina\_28, Nyilah\_6, OneUp\_28, Outis\_29, Patio\_31, Pemberton\_31, Persistence\_6, PhinkBoden\_34, Phomeo\_27, Phrank15\_6, Pleakley\_37, Poise\_39, Polyyuki\_32, Pringar\_39, RadFad\_7, Raela\_39, Raphaella\_7, RedRaider77\_39, RedRaider\_35, Renaud18\_6, Richie\_7, Sakai\_7, Sashimi\_8, Satrap\_7, Scuba\_37, Seahorse\_8, Shukran\_7, Skysand\_30, Smoothie\_35, SonDevVon\_6, SpeedDemon\_170, SpicyFrank\_7, Sporco\_8, StarStruck\_29, Sukkupi\_30, SuperSulley\_29, TChen\_6, TPA4\_7, Tesla\_38, ThayneTheZag\_7, ThetaBob\_6, Tiff81\_8, Toniann\_34, Toron\_6, Towmatter\_15, Tracker\_28, Turuncu\_32, VasuNzinga\_39, Vopal\_8, Wheezy\_28, WhoseManz\_30, WilliamBoone\_34, Windest\_8, Yndexa\_30, YoungHarleezy\_7, Yvonnetastic\_32,

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

- 

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

- Angelique\_6, Bauer\_8, BeeGee\_6, BellaJr\_8, BlackSpider\_6, Bradissa\_6, BritBrat\_6, Cashline\_6, Cassini\_6, Confidence\_6, Cornie\_5, EMSquaredA\_6, EnalisNailo\_6, Floral\_6, GAL1\_8, Jablanski\_6, Lilas\_6, LonelyBoi\_6, Marteenaa\_6, Pollux\_6, Posh\_6, Pytheas\_6, SPB78\_6, Samy\_9, VWB\_6, Wrigley\_6, Zucker\_7,

### Summary by start number:

Start 3:

- Found in 2 of 198 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 167
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cornie\_5 (F5), GAL1\_8 (singleton),

Start 4:

- Found in 171 of 198 ( 86.4% ) of genes in pham
- Manual Annotations of this start: 145 of 167
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abscondus\_33 (CQ1), AdaS\_7 (AY), Aikyam\_7 (AY), Anekin\_6 (AY), Aphelion\_34 (CQ1), Apiary\_32 (CR6), Apricot\_6 (DN3), Arti\_28 (CR2), Auxilium\_7 (AY), Bachita\_36 (CQ1), Bantam\_16 (DL), BasketStar\_7 (AY), BearBQ\_6 (DN), BeatusComedenti\_23 (AT), Beelzebub\_43 (S),

BenchScraper\_7 (AY), Bhageatrice\_9 (AY), BiPauneto\_31 (CR4), BillyTP\_7 (AY), Birdsong\_6 (DN), Blackbeetle\_39 (S), BlueShadow\_7 (AY), Bonum\_31 (CR2), Braxoaddie\_32 (CR6), BrutonGaster\_22 (CQ2), Buggaboo\_29 (CR2), Caprice\_36 (S), Cardigan\_34 (DD), ChewyVIII\_42 (singleton), Clarkson\_40 (S), ClubL\_34 (CQ1), CoffeeBean\_32 (CR6), Commandaria\_30 (CR2), CookieBear\_7 (AY), Corazon\_37 (S), CosmicBrownie\_6 (AY), Crater\_6 (DN3), Crescenzo\_7 (AY), Cucurbita\_36 (CQ1), Culver\_34 (CQ1), Dalilpop\_33 (CR1), DanielleIgnace\_16 (AT), Daredevil\_16 (DL), DarwinJr\_10 (AY), DatBoi\_17 (DL), Ding\_7 (AY), Dusty\_33 (CQ1), Emianna\_28 (CR2), Engineer\_35 (CQ1), Ennea\_34 (CR3), EvePickles\_7 (AY), Faja\_7 (AY), FeliMaine\_41 (S), Flapper\_32 (CR1), Float294\_30 (CR3), Foxboro\_29 (CR2), Fury\_37 (CR5), GRU1\_18 (CR1), GTE5\_19 (CR1), GTE8\_17 (CR2), Gagieri\_32 (CR6), Gattaca\_38 (S), Geeche\_33 (CQ1), Globfish\_7 (AY), GoongGoong\_38 (S), Gorpy\_7 (AY), GrootJr\_30 (CR2), GumGum\_7 (AY), Hestia\_7 (AY), Hillester\_7 (AY), HomeFry\_34 (CR5), HubbaBubba\_26 (CR4), Huphlepuuff\_41 (S), IDyn\_29 (CR4), Isolde\_8 (AY), JakeTheSnake\_7 (AY), JellyBread\_7 (AY), Jifall16\_27 (CR2), JoieB\_40 (S), JonJames\_34 (DD), Kabloowy\_7 (AY), Kabluna\_31 (CR2), KellEzio\_23 (AT), KidneyBean\_28 (CR2), Kitkat\_24 (AT), Kurt\_28 (CR2), Kuwabara\_6 (DN4), Lasker\_7 (AY), Lawnathon\_7 (AY), LeBruni\_7 (AY), LilSpotty\_6 (singleton), Lilbit\_38 (S), LittleLaf\_39 (S), Lollipop1437\_33 (CR3), Lozinak\_34 (CQ1), LunaStella\_6 (F4), MUWow\_6 (AY), MacGully\_36 (CR7), Mapleville\_6 (AY), Marietta\_30 (CR4), Marvin\_37 (S), Maselop\_32 (CR6), MaterMagnus\_7 (AY), MerCougar\_29 (CR2), MidnightRain\_7 (AY), Miskis\_32 (CQ1), Mollymur\_17 (DL), MortyNRick\_6 (DN), MosMoris\_37 (S), MurphyJoseph\_7 (AY), NadineRae\_28 (CR4), NatB6\_28 (CR2), NewKitty\_8 (AY), Norvs\_35 (CQ1), NosilaM\_31 (CR2), NovumRegina\_28 (CR2), Nyilah\_6 (AY), OneUp\_28 (CQ2), Outis\_29 (CR2), Patio\_31 (CR3), Pemberton\_31 (CR4), Persistence\_6 (AY), PhinkBoden\_34 (CQ1), Phomeo\_27 (CR2), Phrank15\_6 (AY), Pleakley\_37 (CR5), Poise\_39 (S), Polyuyuki\_32 (CR6), Pringar\_39 (S), RadFad\_7 (AY), Raela\_39 (S), Raphaella\_7 (AY), RedRaider77\_39 (S), RedRaider\_35 (CR3), Renaud18\_6 (F4), Richie\_7 (AY), Sakai\_7 (AY), Sashimi\_8 (AY), Satrap\_7 (AY), Scuba\_37 (CR5), Seahorse\_8 (AY), Shukran\_7 (AY), Skysand\_30 (CR3), Smoothie\_35 (CQ1), SonDevVon\_6 (AY), SpeedDemon\_170 (DL), SpicyFrank\_7 (AY), Sporco\_8 (AY), StarStruck\_29 (CR2), Sukkupi\_30 (CR4), SuperSulley\_29 (CR2), TChen\_6 (F4), TPA4\_7 (singleton), Tesla\_38 (S), ThayneTheZag\_7 (AY), ThetaBob\_6 (F4), Tiff81\_8 (AY), Toniann\_34 (CQ1), Toron\_6 (F6), Towmatter\_15 (DL), Tracker\_28 (CR2), Turuncu\_32 (CR1), VasuNzinga\_39 (S), Vopal\_8 (AY), Wheezy\_28 (CR2), WhoseManz\_30 (CR4), WilliamBoone\_34 (CQ1), Windest\_8 (AY), Yndexa\_30 (CR4), YoungHarleezy\_7 (AY), Yvonetastic\_32 (DD),

#### Start 6:

- Found in 17 of 198 ( 8.6% ) of genes in pham
- Manual Annotations of this start: 17 of 167
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Angelique\_6 (CY1), BeeGee\_6 (CY5), Bradissa\_6 (CY1), BritBrat\_6 (CY2), Cashline\_6 (CY6), Confidence\_6 (CY1), EMSquaredA\_6 (CY1), EnalisNailo\_6 (CY1), Floral\_6 (CY1), Jablanski\_6 (CY3), Lilas\_6 (CY1), LonelyBoi\_6 (CY7), Marteena\_6 (CY1), Pollux\_6 (CY1), Posh\_6 (CY4), Pytheas\_6 (CY3), Wrigley\_6 (CY4),

#### Start 7:

- Found in 3 of 198 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 167
- Called 100.0% of time when present

- Phage (with cluster) where this start called: SPB78\_6 (BA), Samy\_9 (singleton), VWB\_6 (BA),

Start 10:

- Found in 5 of 198 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 3 of 167
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bauer\_8 (FN), BellaJr\_8 (FN), BlackSpider\_6 (FN), Cassini\_6 (FN), Zucker\_7 (FN),

### **Summary by clusters:**

There are 30 clusters represented in this pham: DN, singleton, BA, DD, DL, FN, DN4, DN3, CQ2, CQ1, CY3, CY2, CY1, CR7, CY7, CY6, CY5, CY4, S, AT, AY, CR6, F5, CR2, CR3, CR1, F4, F6, CR4, CR5,

Info for manual annotations of cluster AT:

- Start number 4 was manually annotated 4 times for cluster AT.

Info for manual annotations of cluster AY:

- Start number 4 was manually annotated 37 times for cluster AY.

Info for manual annotations of cluster CQ1:

- Start number 4 was manually annotated 15 times for cluster CQ1.

Info for manual annotations of cluster CQ2:

- Start number 4 was manually annotated 2 times for cluster CQ2.

Info for manual annotations of cluster CR1:

- Start number 4 was manually annotated 3 times for cluster CR1.

Info for manual annotations of cluster CR2:

- Start number 4 was manually annotated 21 times for cluster CR2.

Info for manual annotations of cluster CR3:

- Start number 4 was manually annotated 6 times for cluster CR3.

Info for manual annotations of cluster CR4:

- Start number 4 was manually annotated 8 times for cluster CR4.

Info for manual annotations of cluster CR5:

- Start number 4 was manually annotated 3 times for cluster CR5.

Info for manual annotations of cluster CR6:

- Start number 4 was manually annotated 6 times for cluster CR6.

Info for manual annotations of cluster CR7:

- Start number 4 was manually annotated 1 time for cluster CR7.

Info for manual annotations of cluster CY1:

- Start number 6 was manually annotated 9 times for cluster CY1.

Info for manual annotations of cluster CY2:

- Start number 6 was manually annotated 1 time for cluster CY2.

Info for manual annotations of cluster CY3:

- Start number 6 was manually annotated 2 times for cluster CY3.

Info for manual annotations of cluster CY4:

- Start number 6 was manually annotated 2 times for cluster CY4.

Info for manual annotations of cluster CY5:

- Start number 6 was manually annotated 1 time for cluster CY5.

Info for manual annotations of cluster CY6:

- Start number 6 was manually annotated 1 time for cluster CY6.

Info for manual annotations of cluster CY7:

- Start number 6 was manually annotated 1 time for cluster CY7.

Info for manual annotations of cluster DD:

- Start number 4 was manually annotated 2 times for cluster DD.

Info for manual annotations of cluster DL:

- Start number 4 was manually annotated 6 times for cluster DL.

Info for manual annotations of cluster DN:

- Start number 4 was manually annotated 3 times for cluster DN.

Info for manual annotations of cluster DN3:

- Start number 4 was manually annotated 2 times for cluster DN3.

Info for manual annotations of cluster DN4:

- Start number 4 was manually annotated 1 time for cluster DN4.

Info for manual annotations of cluster F4:

- Start number 4 was manually annotated 4 times for cluster F4.

Info for manual annotations of cluster F5:

- Start number 3 was manually annotated 1 time for cluster F5.

Info for manual annotations of cluster FN:

- Start number 10 was manually annotated 3 times for cluster FN.

Info for manual annotations of cluster S:

- Start number 4 was manually annotated 19 times for cluster S.

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

Gene: Abscondus\_33 Start: 13642, Stop: 14040, Start Num: 4

Candidate Starts for Abscondus\_33:

(Start: 4 @13642 has 145 MA's), (42, 13912), (48, 13936),

Gene: AdaS\_7 Start: 5490, Stop: 5885, Start Num: 4  
Candidate Starts for AdaS\_7:  
(Start: 4 @5490 has 145 MA's), (51, 5793), (53, 5808),

Gene: Aikyam\_7 Start: 5476, Stop: 5871, Start Num: 4  
Candidate Starts for Aikyam\_7:  
(Start: 4 @5476 has 145 MA's), (51, 5779), (53, 5794),

Gene: Anekin\_6 Start: 5629, Stop: 6024, Start Num: 4  
Candidate Starts for Anekin\_6:  
(Start: 4 @5629 has 145 MA's), (51, 5932), (53, 5947),

Gene: Angelique\_6 Start: 5300, Stop: 5683, Start Num: 6  
Candidate Starts for Angelique\_6:  
(Start: 6 @5300 has 17 MA's), (21, 5387), (28, 5468), (31, 5483), (53, 5603),

Gene: Aphelion\_34 Start: 13889, Stop: 14287, Start Num: 4  
Candidate Starts for Aphelion\_34:  
(Start: 4 @13889 has 145 MA's), (36, 14138), (42, 14159), (48, 14183),

Gene: Apiary\_32 Start: 19572, Stop: 19976, Start Num: 4  
Candidate Starts for Apiary\_32:  
(Start: 4 @19572 has 145 MA's), (25, 19722), (37, 19821), (55, 19908), (57, 19923), (65, 19950),

Gene: Apricot\_6 Start: 4848, Stop: 5222, Start Num: 4  
Candidate Starts for Apricot\_6:  
(Start: 4 @4848 has 145 MA's), (20, 4926), (28, 5013), (31, 5028), (33, 5064), (40, 5097),

Gene: Arti\_28 Start: 17591, Stop: 18016, Start Num: 4  
Candidate Starts for Arti\_28:  
(Start: 4 @17591 has 145 MA's), (9, 17600), (19, 17666), (46, 17900), (53, 17936), (66, 17984),

Gene: Auxilium\_7 Start: 5490, Stop: 5885, Start Num: 4  
Candidate Starts for Auxilium\_7:  
(Start: 4 @5490 has 145 MA's), (51, 5793), (53, 5808),

Gene: Bachita\_36 Start: 14322, Stop: 14720, Start Num: 4  
Candidate Starts for Bachita\_36:  
(Start: 4 @14322 has 145 MA's), (42, 14592), (48, 14616),

Gene: Bantam\_16 Start: 11161, Stop: 11574, Start Num: 4  
Candidate Starts for Bantam\_16:  
(Start: 4 @11161 has 145 MA's), (21, 11257), (65, 11542),

Gene: BasketStar\_7 Start: 5529, Stop: 5924, Start Num: 4  
Candidate Starts for BasketStar\_7:  
(Start: 4 @5529 has 145 MA's), (51, 5832), (53, 5847),

Gene: Bauer\_8 Start: 5911, Stop: 6297, Start Num: 10  
Candidate Starts for Bauer\_8:  
(Start: 10 @5911 has 3 MA's), (27, 6067), (29, 6085),

Gene: BearBQ\_6 Start: 4848, Stop: 5222, Start Num: 4  
Candidate Starts for BearBQ\_6:  
(Start: 4 @4848 has 145 MA's), (20, 4926), (28, 5013), (31, 5028), (33, 5064), (40, 5097),

Gene: BeatusComedenti\_23 Start: 12436, Stop: 12837, Start Num: 4  
Candidate Starts for BeatusComedenti\_23:  
(Start: 4 @12436 has 145 MA's), (19, 12523), (41, 12712),

Gene: BeeGee\_6 Start: 5303, Stop: 5686, Start Num: 6  
Candidate Starts for BeeGee\_6:  
(Start: 6 @5303 has 17 MA's), (21, 5390), (27, 5462), (28, 5471), (31, 5486), (53, 5606), (55, 5612),

Gene: Beelzebub\_43 Start: 16130, Stop: 16534, Start Num: 4  
Candidate Starts for Beelzebub\_43:  
(Start: 4 @16130 has 145 MA's), (18, 16208), (23, 16262), (27, 16292), (31, 16322), (39, 16385), (42, 16397), (71, 16520),

Gene: BellaJr\_8 Start: 5974, Stop: 6360, Start Num: 10  
Candidate Starts for BellaJr\_8:  
(Start: 10 @5974 has 3 MA's), (14, 6013), (29, 6148), (31, 6154), (32, 6181), (36, 6211), (53, 6277),

Gene: BenchScraper\_7 Start: 5490, Stop: 5885, Start Num: 4  
Candidate Starts for BenchScraper\_7:  
(Start: 4 @5490 has 145 MA's), (51, 5793), (53, 5808),

Gene: Bhageatrice\_9 Start: 6685, Stop: 7080, Start Num: 4  
Candidate Starts for Bhageatrice\_9:  
(Start: 4 @6685 has 145 MA's), (32, 6895), (33, 6910), (36, 6925), (51, 6988), (53, 7003),

Gene: BiPauneto\_31 Start: 17447, Stop: 17893, Start Num: 4  
Candidate Starts for BiPauneto\_31:  
(Start: 4 @17447 has 145 MA's), (9, 17456), (39, 17720), (43, 17738), (44, 17747), (57, 17813), (70, 17867),

Gene: BillyTP\_7 Start: 5484, Stop: 5879, Start Num: 4  
Candidate Starts for BillyTP\_7:  
(Start: 4 @5484 has 145 MA's), (51, 5787), (53, 5802),

Gene: Birdsong\_6 Start: 4848, Stop: 5222, Start Num: 4  
Candidate Starts for Birdsong\_6:  
(Start: 4 @4848 has 145 MA's), (20, 4926), (28, 5013), (31, 5028), (33, 5064), (40, 5097),

Gene: BlackSpider\_6 Start: 4970, Stop: 5356, Start Num: 10  
Candidate Starts for BlackSpider\_6:  
(Start: 10 @4970 has 3 MA's), (29, 5144),

Gene: Blackbeetle\_39 Start: 15149, Stop: 15553, Start Num: 4  
Candidate Starts for Blackbeetle\_39:  
(Start: 4 @15149 has 145 MA's), (18, 15227), (23, 15281), (27, 15311), (31, 15341), (39, 15404), (42, 15416), (71, 15539),

Gene: BlueShadow\_7 Start: 5476, Stop: 5871, Start Num: 4  
Candidate Starts for BlueShadow\_7:

(Start: 4 @5476 has 145 MA's), (33, 5701), (51, 5779), (53, 5794),

Gene: Bonum\_31 Start: 17932, Stop: 18351, Start Num: 4

Candidate Starts for Bonum\_31:

(Start: 4 @17932 has 145 MA's), (9, 17941), (16, 17989), (37, 18196), (44, 18232), (53, 18277), (66, 18325),

Gene: Bradissa\_6 Start: 5307, Stop: 5690, Start Num: 6

Candidate Starts for Bradissa\_6:

(Start: 6 @5307 has 17 MA's), (21, 5394), (28, 5475), (31, 5490), (40, 5559), (53, 5610),

Gene: Braxoaddie\_32 Start: 19561, Stop: 19965, Start Num: 4

Candidate Starts for Braxoaddie\_32:

(Start: 4 @19561 has 145 MA's), (25, 19711), (37, 19810), (55, 19897), (57, 19912), (65, 19939),

Gene: BritBrat\_6 Start: 5309, Stop: 5692, Start Num: 6

Candidate Starts for BritBrat\_6:

(Start: 6 @5309 has 17 MA's), (21, 5396), (28, 5477), (31, 5492), (53, 5612),

Gene: BrutonGaster\_22 Start: 10580, Stop: 10981, Start Num: 4

Candidate Starts for BrutonGaster\_22:

(Start: 4 @10580 has 145 MA's), (25, 10730), (57, 10925),

Gene: Buggaboo\_29 Start: 18417, Stop: 18836, Start Num: 4

Candidate Starts for Buggaboo\_29:

(Start: 4 @18417 has 145 MA's), (9, 18426), (16, 18474), (37, 18681), (44, 18717), (53, 18762), (66, 18810),

Gene: Caprice\_36 Start: 15219, Stop: 15623, Start Num: 4

Candidate Starts for Caprice\_36:

(Start: 4 @15219 has 145 MA's), (18, 15297), (23, 15351), (27, 15381), (31, 15411), (39, 15474), (42, 15486), (71, 15609),

Gene: Cardigan\_34 Start: 15847, Stop: 16248, Start Num: 4

Candidate Starts for Cardigan\_34:

(Start: 4 @15847 has 145 MA's), (11, 15868), (21, 15943),

Gene: Cashline\_6 Start: 5156, Stop: 5539, Start Num: 6

Candidate Starts for Cashline\_6:

(Start: 6 @5156 has 17 MA's), (21, 5243), (28, 5324), (31, 5339), (53, 5459),

Gene: Cassini\_6 Start: 4944, Stop: 5330, Start Num: 10

Candidate Starts for Cassini\_6:

(Start: 10 @4944 has 3 MA's), (14, 4983), (49, 5223),

Gene: ChewyVIII\_42 Start: 25136, Stop: 25552, Start Num: 4

Candidate Starts for ChewyVIII\_42:

(Start: 4 @25136 has 145 MA's), (12, 25172),

Gene: Clarkson\_40 Start: 15831, Stop: 16235, Start Num: 4

Candidate Starts for Clarkson\_40:

(Start: 4 @15831 has 145 MA's), (18, 15909), (23, 15963), (27, 15993), (31, 16023), (39, 16086), (42, 16098), (71, 16221),

Gene: ClubL\_34 Start: 13823, Stop: 14221, Start Num: 4

Candidate Starts for ClubL\_34:

(Start: 4 @13823 has 145 MA's), (42, 14093), (48, 14117),

Gene: CoffeeBean\_32 Start: 19516, Stop: 19920, Start Num: 4

Candidate Starts for CoffeeBean\_32:

(Start: 4 @19516 has 145 MA's), (25, 19666), (37, 19765), (55, 19852), (57, 19867), (65, 19894),

Gene: Commandaria\_30 Start: 18882, Stop: 19346, Start Num: 4

Candidate Starts for Commandaria\_30:

(Start: 4 @18882 has 145 MA's), (9, 18891), (46, 19191), (53, 19227), (60, 19257), (64, 19272), (72, 19320),

Gene: Confidence\_6 Start: 5303, Stop: 5686, Start Num: 6

Candidate Starts for Confidence\_6:

(Start: 6 @5303 has 17 MA's), (21, 5390), (27, 5462), (28, 5471), (31, 5486), (53, 5606), (55, 5612),

Gene: CookieBear\_7 Start: 5490, Stop: 5885, Start Num: 4

Candidate Starts for CookieBear\_7:

(Start: 4 @5490 has 145 MA's), (51, 5793), (53, 5808),

Gene: Corazon\_37 Start: 15784, Stop: 16188, Start Num: 4

Candidate Starts for Corazon\_37:

(Start: 4 @15784 has 145 MA's), (18, 15862), (23, 15916), (27, 15946), (31, 15976), (39, 16039), (42, 16051), (71, 16174),

Gene: Cornie\_5 Start: 4459, Stop: 4863, Start Num: 3

Candidate Starts for Cornie\_5:

(Start: 3 @4459 has 1 MA's), (18, 4534), (20, 4540), (21, 4552), (28, 4633), (33, 4690), (39, 4717), (41, 4726), (53, 4789), (67, 4846),

Gene: CosmicBrownie\_6 Start: 5607, Stop: 6002, Start Num: 4

Candidate Starts for CosmicBrownie\_6:

(Start: 4 @5607 has 145 MA's), (51, 5910), (53, 5925),

Gene: Crater\_6 Start: 4848, Stop: 5222, Start Num: 4

Candidate Starts for Crater\_6:

(Start: 4 @4848 has 145 MA's), (20, 4926), (28, 5013), (31, 5028), (33, 5064), (40, 5097),

Gene: Crescenzo\_7 Start: 5557, Stop: 5952, Start Num: 4

Candidate Starts for Crescenzo\_7:

(Start: 4 @5557 has 145 MA's), (51, 5860), (53, 5875),

Gene: Cucurbita\_36 Start: 15181, Stop: 15579, Start Num: 4

Candidate Starts for Cucurbita\_36:

(Start: 4 @15181 has 145 MA's), (42, 15451), (48, 15475),

Gene: Culver\_34 Start: 13642, Stop: 14040, Start Num: 4

Candidate Starts for Culver\_34:

(Start: 4 @13642 has 145 MA's), (42, 13912), (48, 13936),

Gene: Dalilpop\_33 Start: 19952, Stop: 20371, Start Num: 4

Candidate Starts for Dalilpop\_33:

(Start: 4 @19952 has 145 MA's), (29, 20138), (61, 20330),

Gene: DanielleIgnace\_16 Start: 11672, Stop: 12079, Start Num: 4

Candidate Starts for DanielleIgnace\_16:

(Start: 4 @11672 has 145 MA's), (15, 11735), (19, 11756), (25, 11834), (38, 11942), (41, 11954),

Gene: Daredevil\_16 Start: 10047, Stop: 10457, Start Num: 4

Candidate Starts for Daredevil\_16:

(Start: 4 @10047 has 145 MA's), (28, 10224), (47, 10338), (63, 10419),

Gene: DarwinJr\_10 Start: 6860, Stop: 7255, Start Num: 4

Candidate Starts for DarwinJr\_10:

(Start: 4 @6860 has 145 MA's), (51, 7163), (53, 7178),

Gene: DatBoi\_17 Start: 11997, Stop: 12410, Start Num: 4

Candidate Starts for DatBoi\_17:

(Start: 4 @11997 has 145 MA's), (21, 12093),

Gene: Ding\_7 Start: 5501, Stop: 5896, Start Num: 4

Candidate Starts for Ding\_7:

(Start: 4 @5501 has 145 MA's), (32, 5711), (33, 5726), (51, 5804), (53, 5819),

Gene: Dusty\_33 Start: 13642, Stop: 14040, Start Num: 4

Candidate Starts for Dusty\_33:

(Start: 4 @13642 has 145 MA's), (42, 13912), (48, 13936),

Gene: EMSquaredA\_6 Start: 5309, Stop: 5692, Start Num: 6

Candidate Starts for EMSquaredA\_6:

(Start: 6 @5309 has 17 MA's), (21, 5396), (28, 5477), (31, 5492), (53, 5612),

Gene: Emianna\_28 Start: 18630, Stop: 19055, Start Num: 4

Candidate Starts for Emianna\_28:

(Start: 4 @18630 has 145 MA's), (9, 18639), (19, 18705), (46, 18939), (53, 18975), (66, 19023),

Gene: EnalisNailo\_6 Start: 5309, Stop: 5692, Start Num: 6

Candidate Starts for EnalisNailo\_6:

(Start: 6 @5309 has 17 MA's), (21, 5396), (28, 5477), (31, 5492), (53, 5612),

Gene: Engineer\_35 Start: 13837, Stop: 14235, Start Num: 4

Candidate Starts for Engineer\_35:

(Start: 4 @13837 has 145 MA's), (42, 14107), (48, 14131),

Gene: Ennea\_34 Start: 19252, Stop: 19671, Start Num: 4

Candidate Starts for Ennea\_34:

(Start: 4 @19252 has 145 MA's), (16, 19309), (57, 19618),

Gene: EvePickles\_7 Start: 5532, Stop: 5927, Start Num: 4

Candidate Starts for EvePickles\_7:

(Start: 4 @5532 has 145 MA's), (33, 5757), (51, 5835), (53, 5850),

Gene: Faja\_7 Start: 5476, Stop: 5871, Start Num: 4

Candidate Starts for Faja\_7:

(Start: 4 @5476 has 145 MA's), (51, 5779), (53, 5794),

Gene: FeliMaine\_41 Start: 15832, Stop: 16236, Start Num: 4

Candidate Starts for FeliMaine\_41:

(Start: 4 @15832 has 145 MA's), (18, 15910), (23, 15964), (27, 15994), (31, 16024), (39, 16087), (42, 16099), (71, 16222),

Gene: Flapper\_32 Start: 19033, Stop: 19452, Start Num: 4

Candidate Starts for Flapper\_32:

(Start: 4 @19033 has 145 MA's), (61, 19411),

Gene: Float294\_30 Start: 18694, Stop: 19113, Start Num: 4

Candidate Starts for Float294\_30:

(Start: 4 @18694 has 145 MA's), (16, 18751), (57, 19060),

Gene: Floral\_6 Start: 5309, Stop: 5692, Start Num: 6

Candidate Starts for Floral\_6:

(Start: 6 @5309 has 17 MA's), (21, 5396), (28, 5477), (31, 5492), (53, 5612),

Gene: Foxboro\_29 Start: 19136, Stop: 19561, Start Num: 4

Candidate Starts for Foxboro\_29:

(Start: 4 @19136 has 145 MA's), (9, 19145), (19, 19211), (46, 19445), (53, 19481), (66, 19529),

Gene: Fury\_37 Start: 18318, Stop: 18737, Start Num: 4

Candidate Starts for Fury\_37:

(Start: 4 @18318 has 145 MA's), (9, 18327), (30, 18525), (37, 18582), (43, 18609), (50, 18645), (57, 18684),

Gene: GAL1\_8 Start: 6396, Stop: 6800, Start Num: 3

Candidate Starts for GAL1\_8:

(Start: 3 @6396 has 1 MA's), (13, 6435), (17, 6456), (20, 6477), (21, 6489), (35, 6633), (45, 6687), (47, 6696), (69, 6789),

Gene: GRU1\_18 Start: 10918, Stop: 11337, Start Num: 4

Candidate Starts for GRU1\_18:

(Start: 4 @10918 has 145 MA's), (29, 11104), (61, 11296),

Gene: GTE5\_19 Start: 11921, Stop: 12340, Start Num: 4

Candidate Starts for GTE5\_19:

(Start: 4 @11921 has 145 MA's), (61, 12299),

Gene: GTE8\_17 Start: 11895, Stop: 12320, Start Num: 4

Candidate Starts for GTE8\_17:

(Start: 4 @11895 has 145 MA's), (9, 11904), (19, 11970), (53, 12240), (54, 12243), (66, 12288),

Gene: Gagieri\_32 Start: 19354, Stop: 19767, Start Num: 4

Candidate Starts for Gagieri\_32:

(Start: 4 @19354 has 145 MA's), (27, 19522), (55, 19690), (57, 19705), (62, 19726),

Gene: Gattaca\_38 Start: 15011, Stop: 15415, Start Num: 4

Candidate Starts for Gattaca\_38:

(Start: 4 @15011 has 145 MA's), (18, 15089), (23, 15143), (27, 15173), (31, 15203), (39, 15266), (42, 15278), (71, 15401),

Gene: Geeche\_33 Start: 13711, Stop: 14109, Start Num: 4  
Candidate Starts for Geeche\_33:  
(Start: 4 @13711 has 145 MA's), (42, 13981), (48, 14005),

Gene: Globfish\_7 Start: 5535, Stop: 5930, Start Num: 4  
Candidate Starts for Globfish\_7:  
(Start: 4 @5535 has 145 MA's), (32, 5745), (53, 5853),

Gene: GoongGoong\_38 Start: 15051, Stop: 15455, Start Num: 4  
Candidate Starts for GoongGoong\_38:  
(Start: 4 @15051 has 145 MA's), (18, 15129), (23, 15183), (27, 15213), (31, 15243), (39, 15306), (42, 15318), (71, 15441),

Gene: Gorpy\_7 Start: 5484, Stop: 5879, Start Num: 4  
Candidate Starts for Gorpy\_7:  
(Start: 4 @5484 has 145 MA's), (51, 5787), (53, 5802),

Gene: GrootJr\_30 Start: 17986, Stop: 18411, Start Num: 4  
Candidate Starts for GrootJr\_30:  
(Start: 4 @17986 has 145 MA's), (9, 17995), (19, 18061), (46, 18295), (53, 18331), (66, 18379),

Gene: GumGum\_7 Start: 5561, Stop: 5956, Start Num: 4  
Candidate Starts for GumGum\_7:  
(Start: 4 @5561 has 145 MA's), (51, 5864), (53, 5879),

Gene: Hestia\_7 Start: 5623, Stop: 6018, Start Num: 4  
Candidate Starts for Hestia\_7:  
(Start: 4 @5623 has 145 MA's), (32, 5833), (33, 5848), (51, 5926), (53, 5941),

Gene: Hillester\_7 Start: 5476, Stop: 5871, Start Num: 4  
Candidate Starts for Hillester\_7:  
(Start: 4 @5476 has 145 MA's), (33, 5701), (51, 5779), (53, 5794),

Gene: HomeFry\_34 Start: 16990, Stop: 17409, Start Num: 4  
Candidate Starts for HomeFry\_34:  
(Start: 4 @16990 has 145 MA's), (9, 16999), (30, 17197), (37, 17254), (43, 17281), (50, 17317), (57, 17356),

Gene: HubbaBubba\_26 Start: 14465, Stop: 14911, Start Num: 4  
Candidate Starts for HubbaBubba\_26:  
(Start: 4 @14465 has 145 MA's), (9, 14474), (39, 14738), (43, 14756), (44, 14765), (57, 14831), (70, 14885),

Gene: Huphlebuff\_41 Start: 15636, Stop: 16040, Start Num: 4  
Candidate Starts for Huphlebuff\_41:  
(Start: 4 @15636 has 145 MA's), (18, 15714), (23, 15768), (27, 15798), (31, 15828), (39, 15891), (42, 15903), (71, 16026),

Gene: IDyn\_29 Start: 15861, Stop: 16307, Start Num: 4  
Candidate Starts for IDyn\_29:  
(Start: 4 @15861 has 145 MA's), (9, 15870), (39, 16134), (43, 16152), (44, 16161), (57, 16227), (70, 16281),

Gene: Isolde\_8 Start: 5547, Stop: 5942, Start Num: 4  
Candidate Starts for Isolde\_8:  
(Start: 4 @5547 has 145 MA's), (33, 5772), (34, 5775), (52, 5862), (53, 5865),

Gene: Jablanski\_6 Start: 5156, Stop: 5539, Start Num: 6  
Candidate Starts for Jablanski\_6:  
(Start: 6 @5156 has 17 MA's), (21, 5243), (28, 5324), (31, 5339), (40, 5408), (53, 5459),

Gene: JakeTheSnake\_7 Start: 5516, Stop: 5911, Start Num: 4  
Candidate Starts for JakeTheSnake\_7:  
(Start: 4 @5516 has 145 MA's), (51, 5819), (53, 5834),

Gene: JellyBread\_7 Start: 5483, Stop: 5878, Start Num: 4  
Candidate Starts for JellyBread\_7:  
(Start: 4 @5483 has 145 MA's), (51, 5786), (53, 5801),

Gene: Jifall16\_27 Start: 18266, Stop: 18691, Start Num: 4  
Candidate Starts for Jifall16\_27:  
(Start: 4 @18266 has 145 MA's), (9, 18275), (19, 18341), (46, 18575), (53, 18611), (66, 18659),

Gene: JoieB\_40 Start: 15855, Stop: 16259, Start Num: 4  
Candidate Starts for JoieB\_40:  
(Start: 4 @15855 has 145 MA's), (18, 15933), (23, 15987), (27, 16017), (31, 16047), (39, 16110), (42, 16122), (71, 16245),

Gene: JonJames\_34 Start: 18062, Stop: 18463, Start Num: 4  
Candidate Starts for JonJames\_34:  
(Start: 4 @18062 has 145 MA's), (11, 18083), (21, 18158),

Gene: Kabloowy\_7 Start: 5558, Stop: 5953, Start Num: 4  
Candidate Starts for Kabloowy\_7:  
(Start: 4 @5558 has 145 MA's), (32, 5768), (33, 5783), (51, 5861), (53, 5876),

Gene: Kabluna\_31 Start: 17332, Stop: 17751, Start Num: 4  
Candidate Starts for Kabluna\_31:  
(Start: 4 @17332 has 145 MA's), (9, 17341), (16, 17389), (37, 17596), (44, 17632), (53, 17677), (66, 17725),

Gene: KellEzio\_23 Start: 12438, Stop: 12839, Start Num: 4  
Candidate Starts for KellEzio\_23:  
(Start: 4 @12438 has 145 MA's), (19, 12525), (41, 12714),

Gene: KidneyBean\_28 Start: 18378, Stop: 18803, Start Num: 4  
Candidate Starts for KidneyBean\_28:  
(Start: 4 @18378 has 145 MA's), (9, 18387), (19, 18453), (46, 18687), (53, 18723), (66, 18771),

Gene: Kitkat\_24 Start: 12556, Stop: 12957, Start Num: 4  
Candidate Starts for Kitkat\_24:  
(Start: 4 @12556 has 145 MA's), (19, 12643), (41, 12832),

Gene: Kurt\_28 Start: 18645, Stop: 19070, Start Num: 4  
Candidate Starts for Kurt\_28:

(Start: 4 @18645 has 145 MA's), (9, 18654), (19, 18720), (46, 18954), (53, 18990), (66, 19038),

Gene: Kuwabara\_6 Start: 4848, Stop: 5222, Start Num: 4

Candidate Starts for Kuwabara\_6:

(Start: 4 @4848 has 145 MA's), (20, 4926), (28, 5013), (31, 5028), (33, 5064), (40, 5097),

Gene: Lasker\_7 Start: 5483, Stop: 5878, Start Num: 4

Candidate Starts for Lasker\_7:

(Start: 4 @5483 has 145 MA's), (51, 5786), (53, 5801),

Gene: Lawnathon\_7 Start: 5559, Stop: 5954, Start Num: 4

Candidate Starts for Lawnathon\_7:

(Start: 4 @5559 has 145 MA's), (24, 5688), (33, 5784), (51, 5862), (53, 5877),

Gene: LeBruni\_7 Start: 5531, Stop: 5926, Start Num: 4

Candidate Starts for LeBruni\_7:

(Start: 4 @5531 has 145 MA's), (33, 5756), (51, 5834), (53, 5849),

Gene: LilSpotty\_6 Start: 4547, Stop: 4921, Start Num: 4

Candidate Starts for LilSpotty\_6:

(Start: 4 @4547 has 145 MA's), (8, 4556), (22, 4643), (28, 4712), (31, 4727), (47, 4817), (51, 4832), (56, 4862),

Gene: Lilas\_6 Start: 5309, Stop: 5692, Start Num: 6

Candidate Starts for Lilas\_6:

(Start: 6 @5309 has 17 MA's), (21, 5396), (28, 5477), (31, 5492), (53, 5612),

Gene: Lilbit\_38 Start: 15832, Stop: 16236, Start Num: 4

Candidate Starts for Lilbit\_38:

(Start: 4 @15832 has 145 MA's), (18, 15910), (23, 15964), (27, 15994), (31, 16024), (39, 16087), (42, 16099), (71, 16222),

Gene: LittleLaf\_39 Start: 15561, Stop: 15965, Start Num: 4

Candidate Starts for LittleLaf\_39:

(Start: 4 @15561 has 145 MA's), (18, 15639), (23, 15693), (27, 15723), (31, 15753), (39, 15816), (42, 15828), (71, 15951),

Gene: Lollipop1437\_33 Start: 19240, Stop: 19659, Start Num: 4

Candidate Starts for Lollipop1437\_33:

(Start: 4 @19240 has 145 MA's), (16, 19297), (57, 19606),

Gene: LonelyBoi\_6 Start: 5156, Stop: 5539, Start Num: 6

Candidate Starts for LonelyBoi\_6:

(Start: 6 @5156 has 17 MA's), (21, 5243), (27, 5315), (28, 5324), (31, 5339), (53, 5459),

Gene: Lozinak\_34 Start: 13892, Stop: 14290, Start Num: 4

Candidate Starts for Lozinak\_34:

(Start: 4 @13892 has 145 MA's), (42, 14162), (48, 14186),

Gene: LunaStella\_6 Start: 5099, Stop: 5473, Start Num: 4

Candidate Starts for LunaStella\_6:

(Start: 4 @5099 has 145 MA's), (31, 5279), (33, 5315), (47, 5369), (68, 5459), (69, 5462),

Gene: MUWow\_6 Start: 5562, Stop: 5957, Start Num: 4  
Candidate Starts for MUWow\_6:  
(Start: 4 @5562 has 145 MA's), (51, 5865), (53, 5880),

Gene: MacGully\_36 Start: 19536, Stop: 19943, Start Num: 4  
Candidate Starts for MacGully\_36:  
(Start: 4 @19536 has 145 MA's), (65, 19914),

Gene: Mapleville\_6 Start: 5629, Stop: 6024, Start Num: 4  
Candidate Starts for Mapleville\_6:  
(Start: 4 @5629 has 145 MA's), (24, 5758), (33, 5854), (51, 5932), (53, 5947),

Gene: Marietta\_30 Start: 15781, Stop: 16227, Start Num: 4  
Candidate Starts for Marietta\_30:  
(Start: 4 @15781 has 145 MA's), (9, 15790), (39, 16054), (43, 16072), (44, 16081), (57, 16147), (70, 16201),

Gene: Marteena\_6 Start: 5309, Stop: 5692, Start Num: 6  
Candidate Starts for Marteena\_6:  
(Start: 6 @5309 has 17 MA's), (21, 5396), (28, 5477), (31, 5492), (53, 5612),

Gene: Marvin\_37 Start: 15831, Stop: 16235, Start Num: 4  
Candidate Starts for Marvin\_37:  
(Start: 4 @15831 has 145 MA's), (18, 15909), (23, 15963), (27, 15993), (31, 16023), (39, 16086), (42, 16098), (71, 16221),

Gene: Maselop\_32 Start: 19592, Stop: 19996, Start Num: 4  
Candidate Starts for Maselop\_32:  
(Start: 4 @19592 has 145 MA's), (25, 19742), (37, 19841), (55, 19928), (57, 19943), (65, 19970),

Gene: MaterMagnus\_7 Start: 5476, Stop: 5871, Start Num: 4  
Candidate Starts for MaterMagnus\_7:  
(Start: 4 @5476 has 145 MA's), (51, 5779), (53, 5794),

Gene: MerCougar\_29 Start: 18538, Stop: 18957, Start Num: 4  
Candidate Starts for MerCougar\_29:  
(Start: 4 @18538 has 145 MA's), (9, 18547), (16, 18595), (26, 18700), (37, 18802), (44, 18838), (53, 18883), (58, 18907), (66, 18931),

Gene: MidnightRain\_7 Start: 5476, Stop: 5871, Start Num: 4  
Candidate Starts for MidnightRain\_7:  
(Start: 4 @5476 has 145 MA's), (33, 5701), (51, 5779), (53, 5794),

Gene: Miskis\_32 Start: 13667, Stop: 14065, Start Num: 4  
Candidate Starts for Miskis\_32:  
(Start: 4 @13667 has 145 MA's), (42, 13937), (48, 13961),

Gene: Mollymur\_17 Start: 12082, Stop: 12492, Start Num: 4  
Candidate Starts for Mollymur\_17:  
(Start: 4 @12082 has 145 MA's), (26, 12244), (47, 12373), (63, 12454),

Gene: MortyNRick\_6 Start: 4848, Stop: 5222, Start Num: 4  
Candidate Starts for MortyNRick\_6:

(Start: 4 @4848 has 145 MA's), (20, 4926), (28, 5013), (31, 5028), (33, 5064), (40, 5097),

Gene: MosMoris\_37 Start: 15011, Stop: 15415, Start Num: 4

Candidate Starts for MosMoris\_37:

(Start: 4 @15011 has 145 MA's), (18, 15089), (23, 15143), (27, 15173), (31, 15203), (39, 15266), (42, 15278), (71, 15401),

Gene: MurphyJoseph\_7 Start: 5487, Stop: 5882, Start Num: 4

Candidate Starts for MurphyJoseph\_7:

(Start: 4 @5487 has 145 MA's), (32, 5697), (33, 5712), (53, 5805),

Gene: NadineRae\_28 Start: 15027, Stop: 15473, Start Num: 4

Candidate Starts for NadineRae\_28:

(Start: 4 @15027 has 145 MA's), (9, 15036), (39, 15300), (43, 15318), (44, 15327), (57, 15393),

Gene: NatB6\_28 Start: 17654, Stop: 18079, Start Num: 4

Candidate Starts for NatB6\_28:

(Start: 4 @17654 has 145 MA's), (9, 17663), (19, 17729), (46, 17963), (53, 17999), (66, 18047),

Gene: NewKitty\_8 Start: 5705, Stop: 6100, Start Num: 4

Candidate Starts for NewKitty\_8:

(Start: 4 @5705 has 145 MA's), (51, 6008), (53, 6023),

Gene: Norvs\_35 Start: 13894, Stop: 14292, Start Num: 4

Candidate Starts for Norvs\_35:

(Start: 4 @13894 has 145 MA's), (42, 14164), (48, 14188),

Gene: NosilaM\_31 Start: 18229, Stop: 18648, Start Num: 4

Candidate Starts for NosilaM\_31:

(Start: 4 @18229 has 145 MA's), (9, 18238), (16, 18286), (37, 18493), (44, 18529), (53, 18574), (66, 18622),

Gene: NovumRegina\_28 Start: 17985, Stop: 18410, Start Num: 4

Candidate Starts for NovumRegina\_28:

(Start: 4 @17985 has 145 MA's), (9, 17994), (19, 18060), (46, 18294), (53, 18330), (66, 18378),

Gene: Nyilah\_6 Start: 5559, Stop: 5954, Start Num: 4

Candidate Starts for Nyilah\_6:

(Start: 4 @5559 has 145 MA's), (32, 5769), (33, 5784), (51, 5862), (53, 5877),

Gene: OneUp\_28 Start: 11666, Stop: 12067, Start Num: 4

Candidate Starts for OneUp\_28:

(Start: 4 @11666 has 145 MA's), (25, 11816), (57, 12011),

Gene: Outis\_29 Start: 18232, Stop: 18651, Start Num: 4

Candidate Starts for Outis\_29:

(Start: 4 @18232 has 145 MA's), (9, 18241), (16, 18289), (26, 18394), (37, 18496), (44, 18532), (53, 18577), (58, 18601), (66, 18625),

Gene: Patio\_31 Start: 18476, Stop: 18895, Start Num: 4

Candidate Starts for Patio\_31:

(Start: 4 @18476 has 145 MA's), (16, 18533), (57, 18842),

Gene: Pemberton\_31 Start: 15764, Stop: 16210, Start Num: 4  
Candidate Starts for Pemberton\_31:  
(Start: 4 @15764 has 145 MA's), (9, 15773), (39, 16037), (43, 16055), (44, 16064), (57, 16130), (70, 16184),

Gene: Persistence\_6 Start: 5584, Stop: 5979, Start Num: 4  
Candidate Starts for Persistence\_6:  
(Start: 4 @5584 has 145 MA's), (51, 5887), (53, 5902),

Gene: PhinkBoden\_34 Start: 14275, Stop: 14673, Start Num: 4  
Candidate Starts for PhinkBoden\_34:  
(Start: 4 @14275 has 145 MA's), (42, 14545), (48, 14569),

Gene: Phomeo\_27 Start: 18280, Stop: 18705, Start Num: 4  
Candidate Starts for Phomeo\_27:  
(Start: 4 @18280 has 145 MA's), (9, 18289), (19, 18355), (46, 18589), (53, 18625), (66, 18673),

Gene: Phrank15\_6 Start: 5630, Stop: 6025, Start Num: 4  
Candidate Starts for Phrank15\_6:  
(Start: 4 @5630 has 145 MA's), (33, 5855), (51, 5933), (53, 5948),

Gene: Pleakley\_37 Start: 18319, Stop: 18738, Start Num: 4  
Candidate Starts for Pleakley\_37:  
(Start: 4 @18319 has 145 MA's), (9, 18328), (30, 18526), (37, 18583), (43, 18610), (50, 18646), (57, 18685),

Gene: Poise\_39 Start: 15149, Stop: 15553, Start Num: 4  
Candidate Starts for Poise\_39:  
(Start: 4 @15149 has 145 MA's), (18, 15227), (23, 15281), (27, 15311), (31, 15341), (39, 15404), (42, 15416), (71, 15539),

Gene: Pollux\_6 Start: 5309, Stop: 5692, Start Num: 6  
Candidate Starts for Pollux\_6:  
(Start: 6 @5309 has 17 MA's), (21, 5396), (28, 5477), (31, 5492), (53, 5612),

Gene: Polyzuki\_32 Start: 19584, Stop: 19988, Start Num: 4  
Candidate Starts for Polyzuki\_32:  
(Start: 4 @19584 has 145 MA's), (25, 19734), (37, 19833), (55, 19920), (57, 19935), (65, 19962),

Gene: Posh\_6 Start: 5303, Stop: 5686, Start Num: 6  
Candidate Starts for Posh\_6:  
(Start: 6 @5303 has 17 MA's), (21, 5390), (27, 5462), (28, 5471), (31, 5486), (53, 5606), (55, 5612),

Gene: Pringar\_39 Start: 15461, Stop: 15865, Start Num: 4  
Candidate Starts for Pringar\_39:  
(Start: 4 @15461 has 145 MA's), (18, 15539), (23, 15593), (27, 15623), (31, 15653), (39, 15716), (42, 15728), (71, 15851),

Gene: Pytheas\_6 Start: 5156, Stop: 5539, Start Num: 6  
Candidate Starts for Pytheas\_6:  
(Start: 6 @5156 has 17 MA's), (21, 5243), (28, 5324), (31, 5339), (40, 5408), (53, 5459),

Gene: RadFad\_7 Start: 5476, Stop: 5871, Start Num: 4

Candidate Starts for RadFad\_7:

(Start: 4 @5476 has 145 MA's), (33, 5701), (51, 5779), (53, 5794),

Gene: Raela\_39 Start: 15704, Stop: 16108, Start Num: 4

Candidate Starts for Raela\_39:

(Start: 4 @15704 has 145 MA's), (18, 15782), (23, 15836), (27, 15866), (31, 15896), (39, 15959), (42, 15971), (71, 16094),

Gene: Raphaella\_7 Start: 5490, Stop: 5885, Start Num: 4

Candidate Starts for Raphaella\_7:

(Start: 4 @5490 has 145 MA's), (51, 5793), (53, 5808),

Gene: RedRaider\_35 Start: 20480, Stop: 20899, Start Num: 4

Candidate Starts for RedRaider\_35:

(Start: 4 @20480 has 145 MA's), (16, 20537), (57, 20846),

Gene: RedRaider77\_39 Start: 15605, Stop: 16009, Start Num: 4

Candidate Starts for RedRaider77\_39:

(Start: 4 @15605 has 145 MA's), (18, 15683), (23, 15737), (27, 15767), (31, 15797), (39, 15860), (42, 15872), (71, 15995),

Gene: Renaud18\_6 Start: 4979, Stop: 5353, Start Num: 4

Candidate Starts for Renaud18\_6:

(Start: 4 @4979 has 145 MA's), (31, 5159), (33, 5195), (47, 5249), (68, 5339), (69, 5342),

Gene: Richie\_7 Start: 5490, Stop: 5885, Start Num: 4

Candidate Starts for Richie\_7:

(Start: 4 @5490 has 145 MA's), (51, 5793), (53, 5808),

Gene: SPB78\_6 Start: 5176, Stop: 5565, Start Num: 7

Candidate Starts for SPB78\_6:

(1, 4432), (2, 5038), (5, 5170), (Start: 7 @5176 has 1 MA's), (53, 5488),

Gene: Sakai\_7 Start: 5484, Stop: 5879, Start Num: 4

Candidate Starts for Sakai\_7:

(Start: 4 @5484 has 145 MA's), (51, 5787), (53, 5802),

Gene: Samy\_9 Start: 6526, Stop: 6921, Start Num: 7

Candidate Starts for Samy\_9:

(Start: 7 @6526 has 1 MA's), (21, 6613), (35, 6757), (44, 6799), (50, 6826),

Gene: Sashimi\_8 Start: 5649, Stop: 6044, Start Num: 4

Candidate Starts for Sashimi\_8:

(Start: 4 @5649 has 145 MA's), (33, 5874), (51, 5952), (53, 5967),

Gene: Satrap\_7 Start: 5487, Stop: 5882, Start Num: 4

Candidate Starts for Satrap\_7:

(Start: 4 @5487 has 145 MA's), (32, 5697), (33, 5712), (51, 5790), (53, 5805),

Gene: Scuba\_37 Start: 18412, Stop: 18831, Start Num: 4

Candidate Starts for Scuba\_37:

(Start: 4 @18412 has 145 MA's), (9, 18421), (30, 18619), (37, 18676), (43, 18703), (50, 18739), (57, 18778),

Gene: Seahorse\_8 Start: 5761, Stop: 6156, Start Num: 4  
Candidate Starts for Seahorse\_8:  
(Start: 4 @5761 has 145 MA's), (33, 5986), (36, 6001), (53, 6079),

Gene: Shukran\_7 Start: 5487, Stop: 5882, Start Num: 4  
Candidate Starts for Shukran\_7:  
(Start: 4 @5487 has 145 MA's), (32, 5697), (33, 5712), (51, 5790), (53, 5805),

Gene: Skysand\_30 Start: 18696, Stop: 19115, Start Num: 4  
Candidate Starts for Skysand\_30:  
(Start: 4 @18696 has 145 MA's), (16, 18753), (57, 19062),

Gene: Smoothie\_35 Start: 13892, Stop: 14290, Start Num: 4  
Candidate Starts for Smoothie\_35:  
(Start: 4 @13892 has 145 MA's), (42, 14162), (48, 14186),

Gene: SonDevVon\_6 Start: 5477, Stop: 5872, Start Num: 4  
Candidate Starts for SonDevVon\_6:  
(Start: 4 @5477 has 145 MA's), (51, 5780), (53, 5795),

Gene: SpeedDemon\_170 Start: 11467, Stop: 11880, Start Num: 4  
Candidate Starts for SpeedDemon\_170:  
(Start: 4 @11467 has 145 MA's), (21, 11563), (65, 11848),

Gene: SpicyFrank\_7 Start: 5538, Stop: 5933, Start Num: 4  
Candidate Starts for SpicyFrank\_7:  
(Start: 4 @5538 has 145 MA's), (51, 5841), (53, 5856),

Gene: Sporco\_8 Start: 5535, Stop: 5930, Start Num: 4  
Candidate Starts for Sporco\_8:  
(Start: 4 @5535 has 145 MA's), (51, 5838), (53, 5853),

Gene: StarStruck\_29 Start: 18232, Stop: 18651, Start Num: 4  
Candidate Starts for StarStruck\_29:  
(Start: 4 @18232 has 145 MA's), (9, 18241), (16, 18289), (26, 18394), (37, 18496), (44, 18532), (53, 18577), (58, 18601), (66, 18625),

Gene: Sukkupi\_30 Start: 17338, Stop: 17784, Start Num: 4  
Candidate Starts for Sukkupi\_30:  
(Start: 4 @17338 has 145 MA's), (9, 17347), (39, 17611), (43, 17629), (44, 17638), (57, 17704), (70, 17758),

Gene: SuperSulley\_29 Start: 18417, Stop: 18836, Start Num: 4  
Candidate Starts for SuperSulley\_29:  
(Start: 4 @18417 has 145 MA's), (9, 18426), (16, 18474), (37, 18681), (44, 18717), (53, 18762), (66, 18810),

Gene: TChen\_6 Start: 5099, Stop: 5473, Start Num: 4  
Candidate Starts for TChen\_6:  
(Start: 4 @5099 has 145 MA's), (31, 5279), (33, 5315), (47, 5369), (68, 5459), (69, 5462),

Gene: TPA4\_7 Start: 5997, Stop: 6371, Start Num: 4

Candidate Starts for TPA4\_7:

(Start: 4 @5997 has 145 MA's), (33, 6213), (40, 6246),

Gene: Tesla\_38 Start: 15454, Stop: 15858, Start Num: 4

Candidate Starts for Tesla\_38:

(Start: 4 @15454 has 145 MA's), (18, 15532), (23, 15586), (27, 15616), (31, 15646), (39, 15709), (42, 15721), (71, 15844),

Gene: ThayneTheZag\_7 Start: 5512, Stop: 5907, Start Num: 4

Candidate Starts for ThayneTheZag\_7:

(Start: 4 @5512 has 145 MA's), (32, 5722), (40, 5770), (53, 5830),

Gene: ThetaBob\_6 Start: 4979, Stop: 5353, Start Num: 4

Candidate Starts for ThetaBob\_6:

(Start: 4 @4979 has 145 MA's), (31, 5159), (33, 5195), (47, 5249), (68, 5339), (69, 5342),

Gene: Tiff81\_8 Start: 5647, Stop: 6042, Start Num: 4

Candidate Starts for Tiff81\_8:

(Start: 4 @5647 has 145 MA's), (32, 5857), (33, 5872), (51, 5950), (53, 5965),

Gene: Toniann\_34 Start: 13837, Stop: 14235, Start Num: 4

Candidate Starts for Toniann\_34:

(Start: 4 @13837 has 145 MA's), (42, 14107), (48, 14131),

Gene: Toron\_6 Start: 5099, Stop: 5473, Start Num: 4

Candidate Starts for Toron\_6:

(Start: 4 @5099 has 145 MA's), (31, 5279), (33, 5315), (47, 5369), (68, 5459), (69, 5462),

Gene: Towmatter\_15 Start: 9869, Stop: 10279, Start Num: 4

Candidate Starts for Towmatter\_15:

(Start: 4 @9869 has 145 MA's), (28, 10046), (47, 10160), (63, 10241),

Gene: Tracker\_28 Start: 17408, Stop: 17833, Start Num: 4

Candidate Starts for Tracker\_28:

(Start: 4 @17408 has 145 MA's), (9, 17417), (19, 17483), (46, 17717), (53, 17753), (66, 17801),

Gene: Turuncu\_32 Start: 18728, Stop: 19147, Start Num: 4

Candidate Starts for Turuncu\_32:

(Start: 4 @18728 has 145 MA's), (61, 19106),

Gene: VWB\_6 Start: 5231, Stop: 5620, Start Num: 7

Candidate Starts for VWB\_6:

(Start: 7 @5231 has 1 MA's), (50, 5525), (59, 5570),

Gene: VasuNzinga\_39 Start: 15038, Stop: 15442, Start Num: 4

Candidate Starts for VasuNzinga\_39:

(Start: 4 @15038 has 145 MA's), (18, 15116), (23, 15170), (27, 15200), (31, 15230), (39, 15293), (42, 15305), (71, 15428),

Gene: Vopal\_8 Start: 5547, Stop: 5942, Start Num: 4

Candidate Starts for Vopal\_8:

(Start: 4 @5547 has 145 MA's), (51, 5850), (53, 5865),

Gene: Wheezy\_28 Start: 17611, Stop: 18036, Start Num: 4  
Candidate Starts for Wheezy\_28:  
(Start: 4 @17611 has 145 MA's), (9, 17620), (19, 17686), (46, 17920), (53, 17956), (66, 18004),

Gene: WhoseManz\_30 Start: 15392, Stop: 15838, Start Num: 4  
Candidate Starts for WhoseManz\_30:  
(Start: 4 @15392 has 145 MA's), (9, 15401), (39, 15665), (43, 15683), (44, 15692), (57, 15758), (70, 15812),

Gene: WilliamBoone\_34 Start: 13226, Stop: 13624, Start Num: 4  
Candidate Starts for WilliamBoone\_34:  
(Start: 4 @13226 has 145 MA's), (42, 13496),

Gene: Windest\_8 Start: 5547, Stop: 5942, Start Num: 4  
Candidate Starts for Windest\_8:  
(Start: 4 @5547 has 145 MA's), (33, 5772), (34, 5775), (52, 5862), (53, 5865),

Gene: Wrigley\_6 Start: 5153, Stop: 5536, Start Num: 6  
Candidate Starts for Wrigley\_6:  
(Start: 6 @5153 has 17 MA's), (21, 5240), (28, 5321), (31, 5336), (53, 5456),

Gene: Yndexa\_30 Start: 17338, Stop: 17784, Start Num: 4  
Candidate Starts for Yndexa\_30:  
(Start: 4 @17338 has 145 MA's), (9, 17347), (39, 17611), (43, 17629), (44, 17638), (57, 17704), (70, 17758),

Gene: YoungHarleezy\_7 Start: 5488, Stop: 5883, Start Num: 4  
Candidate Starts for YoungHarleezy\_7:  
(Start: 4 @5488 has 145 MA's), (51, 5791), (53, 5806),

Gene: Yvonnetastic\_32 Start: 15611, Stop: 16012, Start Num: 4  
Candidate Starts for Yvonnetastic\_32:  
(Start: 4 @15611 has 145 MA's), (11, 15632), (21, 15707),

Gene: Zucker\_7 Start: 5223, Stop: 5609, Start Num: 10  
Candidate Starts for Zucker\_7:  
(Start: 10 @5223 has 3 MA's), (27, 5379), (29, 5397),