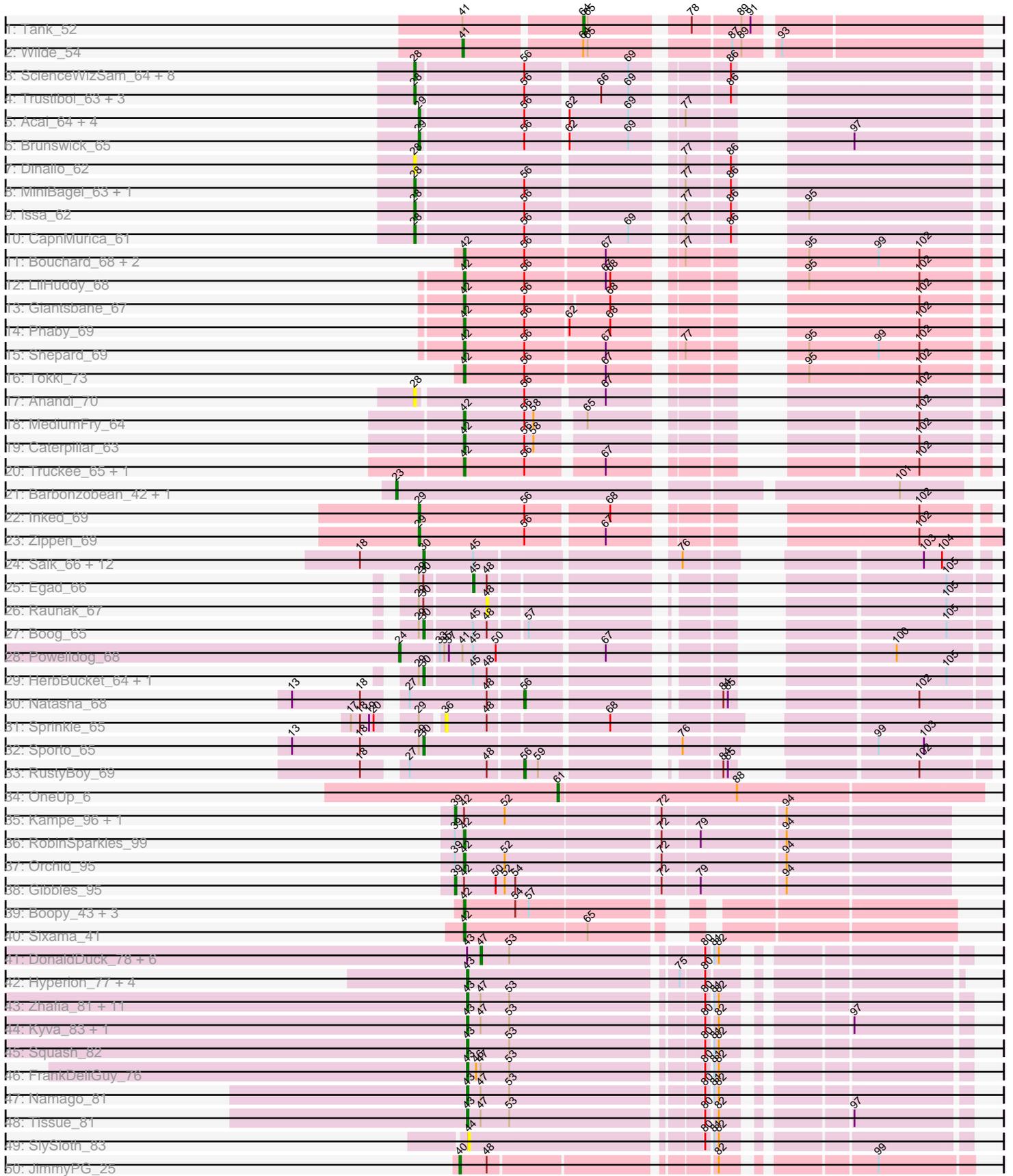


# Pham 290930





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 290930 Report

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

Pham number 290930 has 142 members, 28 are drafts.

Phages represented in each track:

- Track 1 : Tank\_52
- Track 2 : Wilde\_54
- Track 3 : ScienceWizSam\_64, Gordon\_61, Darby\_62, Nivinsha\_66, DevitoJr\_63, Tatanka\_59, Synopsis\_62, AreFloNak\_66, Westerlin\_63
- Track 4 : Trustiboi\_63, Breylor17\_63, Nightmare\_65, CastorTray\_67
- Track 5 : Acai\_64, LucySwiss\_64, Niktson\_64, ElephantMan\_64, Teacup\_65
- Track 6 : Brunswick\_65
- Track 7 : Dinallo\_62
- Track 8 : MiniBagel\_63, Tenno\_64
- Track 9 : Issa\_62
- Track 10 : CapnMurica\_61
- Track 11 : Bouchard\_68, Chlochlo\_68, Tipton\_68
- Track 12 : LilHuddy\_68
- Track 13 : Giantsbane\_67
- Track 14 : Phaby\_69
- Track 15 : Shepard\_69
- Track 16 : Tokki\_73
- Track 17 : Anandi\_70
- Track 18 : MediumFry\_64
- Track 19 : Caterpillar\_63
- Track 20 : Truckee\_65, Makai\_67
- Track 21 : Barbonzobean\_42, Kinny\_39
- Track 22 : Inked\_69
- Track 23 : Zippen\_69
- Track 24 : Salk\_66, BronxBay\_66, Shiba\_65, MrAaronian\_66, DoctorPepper\_65, Sloopyjoe\_66, Linda\_66, Michelle\_66, Jeremy4pt0\_63, Djungelskog\_65, Spain\_66, Stayer\_66, StarLord\_66
- Track 25 : Egad\_66
- Track 26 : Raunak\_67
- Track 27 : Boog\_65
- Track 28 : Powelldog\_68
- Track 29 : HerbBucket\_64, ProfFrink\_66
- Track 30 : Natasha\_68
- Track 31 : Sprinkle\_65
- Track 32 : Sporto\_65
- Track 33 : RustyBoy\_69
- Track 34 : OneUp\_6

- Track 35 : Kampe\_96, PatrickStar\_96
- Track 36 : RobinSparkles\_99
- Track 37 : Orchid\_95
- Track 38 : Gibbles\_95
- Track 39 : Boopy\_43, Mareelih\_41, Forza\_42, BlueNGold\_41
- Track 40 : Sixama\_41
- Track 41 : DonaldDuck\_78, Judebell\_78, Mentos\_82, Wayne3\_80, Rudy\_76, BabyDotz\_77, Zagie\_80
- Track 42 : Hyperion\_77, Blab\_75, Mashley\_79, AluminumJesus\_75, Gazebo\_79
- Track 43 : Zhafia\_81, Viceroy\_77, Phabia\_78, Teehee\_79, Jehoshaphat\_80, StrawberryJamm\_84, Lonelysoil\_76, Quammi\_77, Wheelie\_78, Casend\_79, Sillytadpoles\_79, Llemily\_78
- Track 44 : Kyva\_83, Grassboy\_83
- Track 45 : Squash\_82
- Track 46 : FrankDeliGuy\_76
- Track 47 : Namago\_81
- Track 48 : Tissue\_81
- Track 49 : SlySloth\_83
- Track 50 : JimmyPG\_25
- Track 51 : Ashton\_27, ShyRosie\_26
- Track 52 : Burro\_22
- Track 53 : DoTi\_22
- Track 54 : Araxxi\_22
- Track 55 : Atuin\_254
- Track 56 : LeoJr\_264, ReginaGlobina\_266
- Track 57 : BooTeria\_245
- Track 58 : Panchaali\_236
- Track 59 : Stewart25555\_242
- Track 60 : KSunshine22\_244, Artu\_238, DunneganBoMo\_238, Emmetator\_238
- Track 61 : WaddleDee\_236
- Track 62 : Ellewin\_244
- Track 63 : Sunshine23\_77
- Track 64 : Maruru\_76
- Track 65 : Sonali\_75
- Track 66 : GrimEater\_62, Jankie\_64
- Track 67 : PauloDiaboli\_342
- Track 68 : Dodo\_338
- Track 69 : A3Wally\_342
- Track 70 : Erasmago\_330
- Track 71 : Cece\_218
- Track 72 : AddiRose\_74
- Track 73 : Serenabean\_75
- Track 74 : Daddyjeff\_76
- Track 75 : Sweetclover\_75
- Track 76 : Aegeus\_72, Baudelaire\_72

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

The start number called the most often in the published annotations is 43, it was called in 23 of the 114 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AluminumJesus\_75, Blab\_75, Casend\_79, FrankDeliGuy\_76, Gazebo\_79, Grassboy\_83, Hyperion\_77, Jehoshaphat\_80, Kyva\_83, Llemily\_78, Lonelysoil\_76, Mashley\_79, Namago\_81, Phabia\_78, Quammi\_77, Sillytadpoles\_79, Squash\_82, StrawberryJamm\_84, Teehee\_79, Tissue\_81, Viceroy\_77, Wheelie\_78, Zhafia\_81,

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

- BabyDotz\_77, DonaldDuck\_78, Judebell\_78, Mentos\_82, Rudy\_76, Wayne3\_80, Zagie\_80,

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

- A3Wally\_342, Acai\_64, AddiRose\_74, Aegeus\_72, Anandi\_70, Araxxi\_22, AreFloNak\_66, Artu\_238, Ashton\_27, Atuin\_254, Barbonzobean\_42, Baudelaire\_72, BlueNGold\_41, BooTeria\_245, Boog\_65, Boopy\_43, Bouchard\_68, Breylor17\_63, BronxBay\_66, Brunswick\_65, Burro\_22, CapnMurica\_61, CastorTray\_67, Caterpillar\_63, Cece\_218, Chlochlo\_68, Daddyjeff\_76, Darby\_62, DevitoJr\_63, Dinallo\_62, Djungelskog\_65, DoTi\_22, DoctorPepper\_65, Dodo\_338, DunneganBoMo\_238, Egad\_66, ElephantMan\_64, Ellewin\_244, Emmetator\_238, Erasmago\_330, Forza\_42, Giantsbane\_67, Gibbles\_95, Gordon\_61, GrimEater\_62, HerbBucket\_64, Inked\_69, Issa\_62, Jankie\_64, Jeremy4pt0\_63, JimmyPG\_25, KSunshine22\_244, Kampe\_96, Kinny\_39, LeoJr\_264, LilHuddy\_68, Linda\_66, LucySwiss\_64, Makai\_67, Mareelih\_41, Maruru\_76, MediumFry\_64, Michelle\_66, MiniBagel\_63, MrAaronian\_66, Natasha\_68, Nightmare\_65, Niktson\_64, Nivinsha\_66, OneUp\_6, Orchid\_95, Panchaali\_236, PatrickStar\_96, PauloDiaboli\_342, Phaby\_69, Powelldog\_68, ProfFrink\_66, Raunak\_67, ReginaGlobina\_266, RobinSparkles\_99, RustyBoy\_69, Salk\_66, ScienceWizSam\_64, Serenabean\_75, Shepard\_69, Shiba\_65, ShyRosie\_26, Sixama\_41, Sloopyjoe\_66, SlySloth\_83, Sonali\_75, Spain\_66, Sporto\_65, Sprinkle\_65, StarLord\_66, Stayer\_66, Stewart25555\_242, Sunshine23\_77, Sweetclover\_75, Synepsis\_62, Tank\_52, Tatanka\_59, Teacup\_65, Tenno\_64, Tipton\_68, Tokki\_73, Truckee\_65, Trustiboi\_63, WaddleDee\_236, Westerlin\_63, Wilde\_54, Zippen\_69,

### Summary by start number:

Start 19:

- Found in 4 of 142 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 2 of 114
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Maruru\_76 (FG), Sonali\_75 (FG),

Start 22:

- Found in 3 of 142 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Atuin\_254 (FC), LeoJr\_264 (FC), ReginaGlobina\_266 (FC),

Start 23:

- Found in 2 of 142 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Barbonzobean\_42 (AU6), Kinny\_39 (AU6),

#### Start 24:

- Found in 1 of 142 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Powellldog\_68 (AW),

#### Start 28:

- Found in 20 of 142 ( 14.1% ) of genes in pham
- Manual Annotations of this start: 14 of 114
- Called 95.0% of time when present
- Phage (with cluster) where this start called: Anandi\_70 (AU4), AreFloNak\_66 (AU1), Breylor17\_63 (AU1), CapnMurica\_61 (AU1), CastorTray\_67 (AU1), Darby\_62 (AU1), DevitoJr\_63 (AU1), Dinallo\_62 (AU1), Gordon\_61 (AU1), Issa\_62 (AU1), MiniBage1\_63 (AU1), Nightmare\_65 (AU1), Nivinsha\_66 (AU1), ScienceWizSam\_64 (AU1), Synopsis\_62 (AU1), Tatanka\_59 (AU1), Tenno\_64 (AU1), Trustiboi\_63 (AU1), Westerlin\_63 (AU1),

#### Start 29:

- Found in 15 of 142 ( 10.6% ) of genes in pham
- Manual Annotations of this start: 7 of 114
- Called 53.3% of time when present
- Phage (with cluster) where this start called: Acai\_64 (AU1), Brunswick\_65 (AU1), ElephantMan\_64 (AU1), Inked\_69 (AU7), LucySwiss\_64 (AU1), Niktson\_64 (AU1), Teacup\_65 (AU1), Zippen\_69 (AU7),

#### Start 30:

- Found in 19 of 142 ( 13.4% ) of genes in pham
- Manual Annotations of this start: 14 of 114
- Called 89.5% of time when present
- Phage (with cluster) where this start called: Boog\_65 (AW), BronxBay\_66 (AW), Djungelskog\_65 (AW), DoctorPepper\_65 (AW), HerbBucket\_64 (AW), Jeremy4pt0\_63 (AW), Linda\_66 (AW), Michelle\_66 (AW), MrAaronian\_66 (AW), ProfFrink\_66 (AW), Salk\_66 (AW), Shiba\_65 (AW), Sloopyjoe\_66 (AW), Spain\_66 (AW), Sporto\_65 (AW), StarLord\_66 (AW), Stayer\_66 (AW),

#### Start 31:

- Found in 3 of 142 ( 2.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Sunshine23\_77 (FG),

#### Start 32:

- Found in 1 of 142 ( 0.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Erasmago\_330 (GD2),

#### Start 33:

- Found in 12 of 142 ( 8.5% ) of genes in pham
- Manual Annotations of this start: 1 of 114

- Called 8.3% of time when present
- Phage (with cluster) where this start called: WaddleDee\_236 (FC),

#### Start 36:

- Found in 1 of 142 ( 0.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sprinkle\_65 (AW),

#### Start 38:

- Found in 2 of 142 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 2 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Daddyjeff\_76 (JA), Serenabean\_75 (JA),

#### Start 39:

- Found in 8 of 142 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 4 of 114
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Cece\_218 (GD3), Gibbles\_95 (CX), GrimEater\_62 (FP), Jankie\_64 (FP), Kampe\_96 (CX), PatrickStar\_96 (CX),

#### Start 40:

- Found in 4 of 142 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 4 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ashton\_27 (EK2), JimmyPG\_25 (EK2), ShyRosie\_26 (EK2), Sweetclover\_75 (JA),

#### Start 41:

- Found in 3 of 142 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Wilde\_54 (AP1),

#### Start 42:

- Found in 26 of 142 ( 18.3% ) of genes in pham
- Manual Annotations of this start: 21 of 114
- Called 88.5% of time when present
- Phage (with cluster) where this start called: A3Wally\_342 (GD1), AddiRose\_74 (JA), BlueNGold\_41 (DS), Boopy\_43 (DS), Bouchard\_68 (AU2), Caterpillar\_63 (AU4), Chlochlo\_68 (AU2), Dodo\_338 (GD1), Forza\_42 (DS), Giantsbane\_67 (AU2), LilHuddy\_68 (AU2), Makai\_67 (AU5), Mareelih\_41 (DS), MediumFry\_64 (AU4), Orchid\_95 (CX), PauloDiaboli\_342 (GD1), Phaby\_69 (AU2), RobinSparkles\_99 (CX), Shepard\_69 (AU2), Sixama\_41 (DS), Tipton\_68 (AU2), Tokki\_73 (AU2), Truckee\_65 (AU5),

#### Start 43:

- Found in 30 of 142 ( 21.1% ) of genes in pham
- Manual Annotations of this start: 23 of 114
- Called 76.7% of time when present
- Phage (with cluster) where this start called: AluminumJesus\_75 (EG), Blab\_75 (EG), Casend\_79 (EG), FrankDeliGuy\_76 (EG), Gazebo\_79 (EG), Grassboy\_83 (EG),

Hyperion\_77 (EG), Jehoshaphat\_80 (EG), Kyva\_83 (EG), Llemily\_78 (EG), Lonelysoil\_76 (EG), Mashley\_79 (EG), Namago\_81 (EG), Phabia\_78 (EG), Quammi\_77 (EG), Sillytadpoles\_79 (EG), Squash\_82 (EG), StrawberryJamm\_84 (EG), Teehee\_79 (EG), Tissue\_81 (EG), Viceroy\_77 (EG), Wheelie\_78 (EG), Zhafia\_81 (EG),

Start 44:

- Found in 16 of 142 ( 11.3% ) of genes in pham
- Manual Annotations of this start: 4 of 114
- Called 68.8% of time when present
- Phage (with cluster) where this start called: Aegeus\_72 (L5), Artu\_238 (FC), Baudelaire\_72 (L5), BooTeria\_245 (FC), DunneganBoMo\_238 (FC), Ellewin\_244 (FC), Emmetator\_238 (FC), KSunshine22\_244 (FC), Panchaali\_236 (FC), SlySloth\_83 (EG), Stewart25555\_242 (FC),

Start 45:

- Found in 21 of 142 ( 14.8% ) of genes in pham
- Manual Annotations of this start: 4 of 114
- Called 19.0% of time when present
- Phage (with cluster) where this start called: Araxxi\_22 (EM1), Burro\_22 (EM1), DoTi\_22 (EM1), Egad\_66 (AW),

Start 47:

- Found in 24 of 142 ( 16.9% ) of genes in pham
- Manual Annotations of this start: 6 of 114
- Called 29.2% of time when present
- Phage (with cluster) where this start called: BabyDotz\_77 (EG), DonaldDuck\_78 (EG), Judebell\_78 (EG), Mentos\_82 (EG), Rudy\_76 (EG), Wayne3\_80 (EG), Zagie\_80 (EG),

Start 48:

- Found in 9 of 142 ( 6.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Raunak\_67 (AW),

Start 56:

- Found in 40 of 142 ( 28.2% ) of genes in pham
- Manual Annotations of this start: 2 of 114
- Called 5.0% of time when present
- Phage (with cluster) where this start called: Natasha\_68 (AW), RustyBoy\_69 (AW),

Start 61:

- Found in 1 of 142 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: OneUp\_6 (CQ2),

Start 64:

- Found in 5 of 142 ( 3.5% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Tank\_52 (AP1),

## Summary by clusters:

There are 22 clusters represented in this pham: FP, GD1, GD2, GD3, AP1, FC, FG, JA, DS, AU1, AU2, AU5, AU4, AU7, AU6, CQ2, EG, CX, AW, L5, EM1, EK2,

Info for manual annotations of cluster AP1:

- Start number 41 was manually annotated 1 time for cluster AP1.
- Start number 64 was manually annotated 1 time for cluster AP1.

Info for manual annotations of cluster AU1:

- Start number 28 was manually annotated 14 times for cluster AU1.
- Start number 29 was manually annotated 5 times for cluster AU1.

Info for manual annotations of cluster AU2:

- Start number 42 was manually annotated 7 times for cluster AU2.

Info for manual annotations of cluster AU4:

- Start number 42 was manually annotated 2 times for cluster AU4.

Info for manual annotations of cluster AU5:

- Start number 42 was manually annotated 2 times for cluster AU5.

Info for manual annotations of cluster AU6:

- Start number 23 was manually annotated 1 time for cluster AU6.

Info for manual annotations of cluster AU7:

- Start number 29 was manually annotated 2 times for cluster AU7.

Info for manual annotations of cluster AW:

- Start number 24 was manually annotated 1 time for cluster AW.
- Start number 30 was manually annotated 14 times for cluster AW.
- Start number 45 was manually annotated 1 time for cluster AW.
- Start number 56 was manually annotated 2 times for cluster AW.

Info for manual annotations of cluster CQ2:

- Start number 61 was manually annotated 1 time for cluster CQ2.

Info for manual annotations of cluster CX:

- Start number 39 was manually annotated 3 times for cluster CX.
- Start number 42 was manually annotated 2 times for cluster CX.

Info for manual annotations of cluster DS:

- Start number 42 was manually annotated 5 times for cluster DS.

Info for manual annotations of cluster EG:

- Start number 43 was manually annotated 23 times for cluster EG.
- Start number 47 was manually annotated 6 times for cluster EG.

Info for manual annotations of cluster EK2:

- Start number 40 was manually annotated 3 times for cluster EK2.

Info for manual annotations of cluster EM1:

- Start number 45 was manually annotated 3 times for cluster EM1.

Info for manual annotations of cluster FC:

- Start number 22 was manually annotated 1 time for cluster FC.
- Start number 33 was manually annotated 1 time for cluster FC.
- Start number 44 was manually annotated 2 times for cluster FC.

Info for manual annotations of cluster FG:

- Start number 19 was manually annotated 2 times for cluster FG.

Info for manual annotations of cluster GD1:

- Start number 42 was manually annotated 2 times for cluster GD1.

Info for manual annotations of cluster GD3:

- Start number 39 was manually annotated 1 time for cluster GD3.

Info for manual annotations of cluster JA:

- Start number 38 was manually annotated 2 times for cluster JA.
- Start number 40 was manually annotated 1 time for cluster JA.
- Start number 42 was manually annotated 1 time for cluster JA.

Info for manual annotations of cluster L5:

- Start number 44 was manually annotated 2 times for cluster L5.

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

Gene: A3Wally\_342 Start: 176311, Stop: 176649, Start Num: 42

Candidate Starts for A3Wally\_342:

(Start: 42 @176311 has 21 MA's), (50, 176332), (54, 176344), (55, 176347), (58, 176356), (60, 176362), (Start: 64 @176389 has 1 MA's), (83, 176470), (98, 176563), (99, 176569), (107, 176620),

Gene: Acai\_64 Start: 44756, Stop: 45067, Start Num: 29

Candidate Starts for Acai\_64:

(Start: 29 @44756 has 7 MA's), (Start: 56 @44822 has 2 MA's), (62, 44846), (69, 44885), (77, 44909),

Gene: AddiRose\_74 Start: 47344, Stop: 47628, Start Num: 42

Candidate Starts for AddiRose\_74:

(6, 47176), (11, 47233), (Start: 42 @47344 has 21 MA's), (52, 47371),

Gene: Aegeus\_72 Start: 46824, Stop: 47111, Start Num: 44

Candidate Starts for Aegeus\_72:

(Start: 44 @46824 has 4 MA's), (59, 46863), (65, 46896), (99, 47061),

Gene: AluminumJesus\_75 Start: 51316, Stop: 51035, Start Num: 43

Candidate Starts for AluminumJesus\_75:

(Start: 43 @51316 has 23 MA's), (75, 51187), (80, 51172),

Gene: Anandi\_70 Start: 45261, Stop: 45578, Start Num: 28

Candidate Starts for Anandi\_70:

(Start: 28 @45261 has 14 MA's), (Start: 56 @45327 has 2 MA's), (67, 45375), (102, 45531),

Gene: Araxxi\_22 Start: 16801, Stop: 16511, Start Num: 45

Candidate Starts for Araxxi\_22:

(Start: 45 @16801 has 4 MA's), (51, 16783), (53, 16777), (71, 16687), (90, 16639), (92, 16627), (98, 16570), (100, 16552),

Gene: AreFloNak\_66 Start: 44576, Stop: 44890, Start Num: 28

Candidate Starts for AreFloNak\_66:

(Start: 28 @44576 has 14 MA's), (Start: 56 @44645 has 2 MA's), (69, 44708), (86, 44759),

Gene: Artu\_238 Start: 160801, Stop: 161106, Start Num: 44

Candidate Starts for Artu\_238:

(Start: 33 @160783 has 1 MA's), (Start: 44 @160801 has 4 MA's), (73, 160921), (82, 160951),

Gene: Ashton\_27 Start: 15701, Stop: 15408, Start Num: 40

Candidate Starts for Ashton\_27:

(10, 15821), (15, 15800), (21, 15752), (Start: 40 @15701 has 4 MA's), (78, 15563),

Gene: Atuin\_254 Start: 161281, Stop: 161634, Start Num: 22

Candidate Starts for Atuin\_254:

(Start: 22 @161281 has 1 MA's), (Start: 33 @161311 has 1 MA's), (Start: 44 @161329 has 4 MA's), (73, 161449), (82, 161479),

Gene: BabyDotz\_77 Start: 52957, Stop: 52679, Start Num: 47

Candidate Starts for BabyDotz\_77:

(Start: 43 @52966 has 23 MA's), (Start: 47 @52957 has 6 MA's), (53, 52939), (80, 52822), (81, 52819), (82, 52816),

Gene: Barbonzobean\_42 Start: 30119, Stop: 30469, Start Num: 23

Candidate Starts for Barbonzobean\_42:

(Start: 23 @30119 has 1 MA's), (101, 30428),

Gene: Baudelaire\_72 Start: 46824, Stop: 47111, Start Num: 44

Candidate Starts for Baudelaire\_72:

(Start: 44 @46824 has 4 MA's), (59, 46863), (65, 46896), (99, 47061),

Gene: Blab\_75 Start: 51607, Stop: 51326, Start Num: 43

Candidate Starts for Blab\_75:

(Start: 43 @51607 has 23 MA's), (75, 51478), (80, 51463),

Gene: BlueNGold\_41 Start: 14735, Stop: 14454, Start Num: 42

Candidate Starts for BlueNGold\_41:

(Start: 42 @14735 has 21 MA's), (54, 14702), (57, 14693),

Gene: BooTeria\_245 Start: 159303, Stop: 159608, Start Num: 44

Candidate Starts for BooTeria\_245:

(7, 159174), (9, 159186), (12, 159192), (14, 159201), (27, 159264), (Start: 28 @159267 has 14 MA's), (34, 159285), (Start: 44 @159303 has 4 MA's), (73, 159423), (82, 159453),

Gene: Boog\_65 Start: 42487, Stop: 42786, Start Num: 30

Candidate Starts for Boog\_65:

(Start: 29 @42484 has 7 MA's), (Start: 30 @42487 has 14 MA's), (Start: 45 @42517 has 4 MA's), (48, 42526), (57, 42547), (105, 42760),

Gene: Boopy\_43 Start: 14747, Stop: 14466, Start Num: 42

Candidate Starts for Boopy\_43:

(Start: 42 @14747 has 21 MA's), (54, 14714), (57, 14705),

Gene: Bouchard\_68 Start: 45451, Stop: 45738, Start Num: 42

Candidate Starts for Bouchard\_68:

(Start: 42 @45451 has 21 MA's), (Start: 56 @45490 has 2 MA's), (67, 45541), (77, 45580), (95, 45625), (99, 45670), (102, 45697),

Gene: Breylor17\_63 Start: 45151, Stop: 45465, Start Num: 28

Candidate Starts for Breylor17\_63:

(Start: 28 @45151 has 14 MA's), (Start: 56 @45220 has 2 MA's), (66, 45265), (69, 45283), (86, 45334),

Gene: BronxBay\_66 Start: 42743, Stop: 43054, Start Num: 30

Candidate Starts for BronxBay\_66:

(18, 42701), (Start: 30 @42743 has 14 MA's), (Start: 45 @42776 has 4 MA's), (76, 42893), (103, 43016), (104, 43028),

Gene: Brunswick\_65 Start: 44599, Stop: 44910, Start Num: 29

Candidate Starts for Brunswick\_65:

(Start: 29 @44599 has 7 MA's), (Start: 56 @44665 has 2 MA's), (62, 44689), (69, 44728), (97, 44827),

Gene: Burro\_22 Start: 15917, Stop: 15615, Start Num: 45

Candidate Starts for Burro\_22:

(16, 16013), (Start: 44 @15920 has 4 MA's), (Start: 45 @15917 has 4 MA's), (53, 15893), (54, 15890), (74, 15797), (82, 15767), (90, 15752), (98, 15683),

Gene: CapnMurica\_61 Start: 45337, Stop: 45651, Start Num: 28

Candidate Starts for CapnMurica\_61:

(Start: 28 @45337 has 14 MA's), (Start: 56 @45406 has 2 MA's), (69, 45469), (77, 45493), (86, 45520),

Gene: Casend\_79 Start: 52248, Stop: 51961, Start Num: 43

Candidate Starts for Casend\_79:

(Start: 43 @52248 has 23 MA's), (Start: 47 @52239 has 6 MA's), (53, 52221), (80, 52104), (81, 52101), (82, 52098),

Gene: CastorTray\_67 Start: 45340, Stop: 45654, Start Num: 28

Candidate Starts for CastorTray\_67:

(Start: 28 @45340 has 14 MA's), (Start: 56 @45409 has 2 MA's), (66, 45454), (69, 45472), (86, 45523),

Gene: Caterpillar\_63 Start: 44268, Stop: 44546, Start Num: 42

Candidate Starts for Caterpillar\_63:

(Start: 42 @44268 has 21 MA's), (Start: 56 @44307 has 2 MA's), (58, 44313), (102, 44505),

Gene: Cece\_218 Start: 133451, Stop: 133741, Start Num: 39

Candidate Starts for Cece\_218:

(Start: 39 @133451 has 4 MA's), (67, 133550), (98, 133673), (99, 133679),

Gene: Chlochlo\_68 Start: 44978, Stop: 45265, Start Num: 42

Candidate Starts for Chlochlo\_68:

(Start: 42 @44978 has 21 MA's), (Start: 56 @45017 has 2 MA's), (67, 45068), (77, 45107), (95, 45152), (99, 45197), (102, 45224),

Gene: Daddyjeff\_76 Start: 47745, Stop: 48029, Start Num: 38

Candidate Starts for Daddyjeff\_76:

(6, 47595), (11, 47649), (Start: 38 @47745 has 2 MA's), (52, 47772), (78, 47880),

Gene: Darby\_62 Start: 44386, Stop: 44700, Start Num: 28

Candidate Starts for Darby\_62:

(Start: 28 @44386 has 14 MA's), (Start: 56 @44455 has 2 MA's), (69, 44518), (86, 44569),

Gene: DevitoJr\_63 Start: 44772, Stop: 45086, Start Num: 28

Candidate Starts for DevitoJr\_63:

(Start: 28 @44772 has 14 MA's), (Start: 56 @44841 has 2 MA's), (69, 44904), (86, 44955),

Gene: Dinallo\_62 Start: 45647, Stop: 45961, Start Num: 28

Candidate Starts for Dinallo\_62:

(Start: 28 @45647 has 14 MA's), (77, 45803), (86, 45830),

Gene: Djungelskog\_65 Start: 42742, Stop: 43056, Start Num: 30

Candidate Starts for Djungelskog\_65:

(18, 42700), (Start: 30 @42742 has 14 MA's), (Start: 45 @42775 has 4 MA's), (76, 42895), (103, 43018), (104, 43030),

Gene: DoTi\_22 Start: 16882, Stop: 16592, Start Num: 45

Candidate Starts for DoTi\_22:

(Start: 45 @16882 has 4 MA's), (51, 16864), (53, 16858), (71, 16768), (90, 16720), (92, 16708), (100, 16633),

Gene: DoctorPepper\_65 Start: 42447, Stop: 42758, Start Num: 30

Candidate Starts for DoctorPepper\_65:

(18, 42405), (Start: 30 @42447 has 14 MA's), (Start: 45 @42480 has 4 MA's), (76, 42597), (103, 42720), (104, 42732),

Gene: Dodo\_338 Start: 175376, Stop: 175714, Start Num: 42

Candidate Starts for Dodo\_338:

(Start: 42 @175376 has 21 MA's), (50, 175397), (54, 175409), (55, 175412), (58, 175421), (59, 175424), (60, 175427), (Start: 64 @175454 has 1 MA's), (83, 175535), (98, 175628), (107, 175685),

Gene: DonaldDuck\_78 Start: 51591, Stop: 51313, Start Num: 47

Candidate Starts for DonaldDuck\_78:

(Start: 43 @51600 has 23 MA's), (Start: 47 @51591 has 6 MA's), (53, 51573), (80, 51456), (81, 51453), (82, 51450),

Gene: DunneganBoMo\_238 Start: 159407, Stop: 159712, Start Num: 44

Candidate Starts for DunneganBoMo\_238:

(Start: 33 @159389 has 1 MA's), (Start: 44 @159407 has 4 MA's), (73, 159527), (82, 159557),

Gene: Egad\_66 Start: 42768, Stop: 43037, Start Num: 45

Candidate Starts for Egad\_66:

(Start: 29 @42735 has 7 MA's), (Start: 30 @42738 has 14 MA's), (Start: 45 @42768 has 4 MA's), (48, 42777), (105, 43011),

Gene: ElephantMan\_64 Start: 45229, Stop: 45540, Start Num: 29  
Candidate Starts for ElephantMan\_64:  
(Start: 29 @45229 has 7 MA's), (Start: 56 @45295 has 2 MA's), (62, 45319), (69, 45358), (77, 45382),

Gene: Ellewin\_244 Start: 158948, Stop: 159256, Start Num: 44  
Candidate Starts for Ellewin\_244:  
(8, 158822), (Start: 33 @158930 has 1 MA's), (Start: 44 @158948 has 4 MA's), (73, 159068),

Gene: Emmetator\_238 Start: 158182, Stop: 158487, Start Num: 44  
Candidate Starts for Emmetator\_238:  
(Start: 33 @158164 has 1 MA's), (Start: 44 @158182 has 4 MA's), (73, 158302), (82, 158332),

Gene: Erasmago\_330 Start: 171755, Stop: 172069, Start Num: 32  
Candidate Starts for Erasmago\_330:  
(32, 171755), (71, 171875), (87, 171920), (90, 171926), (99, 172001),

Gene: Forza\_42 Start: 14663, Stop: 14382, Start Num: 42  
Candidate Starts for Forza\_42:  
(Start: 42 @14663 has 21 MA's), (54, 14630), (57, 14621),

Gene: FrankDeliGuy\_76 Start: 51968, Stop: 51681, Start Num: 43  
Candidate Starts for FrankDeliGuy\_76:  
(Start: 43 @51968 has 23 MA's), (46, 51962), (Start: 47 @51959 has 6 MA's), (53, 51941), (80, 51824),  
(81, 51821), (82, 51818),

Gene: Gazebo\_79 Start: 52534, Stop: 52253, Start Num: 43  
Candidate Starts for Gazebo\_79:  
(Start: 43 @52534 has 23 MA's), (75, 52405), (80, 52390),

Gene: Giantsbane\_67 Start: 43961, Stop: 44245, Start Num: 42  
Candidate Starts for Giantsbane\_67:  
(Start: 42 @43961 has 21 MA's), (Start: 56 @44000 has 2 MA's), (68, 44051), (102, 44204),

Gene: Gibbles\_95 Start: 69566, Stop: 69255, Start Num: 39  
Candidate Starts for Gibbles\_95:  
(Start: 39 @69566 has 4 MA's), (Start: 42 @69560 has 21 MA's), (50, 69539), (52, 69533), (54, 69527),  
(72, 69437), (79, 69413), (94, 69359),

Gene: Gordon\_61 Start: 45264, Stop: 45578, Start Num: 28  
Candidate Starts for Gordon\_61:  
(Start: 28 @45264 has 14 MA's), (Start: 56 @45333 has 2 MA's), (69, 45396), (86, 45447),

Gene: Grassboy\_83 Start: 52649, Stop: 52362, Start Num: 43  
Candidate Starts for Grassboy\_83:  
(Start: 43 @52649 has 23 MA's), (Start: 47 @52640 has 6 MA's), (53, 52622), (80, 52505), (82, 52499),  
(97, 52433),

Gene: GrimEater\_62 Start: 40064, Stop: 40342, Start Num: 39  
Candidate Starts for GrimEater\_62:  
(25, 40028), (Start: 39 @40064 has 4 MA's), (63, 40142), (65, 40151), (70, 40181), (71, 40190), (96,  
40244), (106, 40331),

Gene: HerbBucket\_64 Start: 42469, Stop: 42768, Start Num: 30

Candidate Starts for HerbBucket\_64:

(Start: 29 @42466 has 7 MA's), (Start: 30 @42469 has 14 MA's), (Start: 45 @42499 has 4 MA's), (48, 42508), (105, 42742),

Gene: Hyperion\_77 Start: 51797, Stop: 51516, Start Num: 43

Candidate Starts for Hyperion\_77:

(Start: 43 @51797 has 23 MA's), (75, 51668), (80, 51653),

Gene: Inked\_69 Start: 45815, Stop: 46129, Start Num: 29

Candidate Starts for Inked\_69:

(Start: 29 @45815 has 7 MA's), (Start: 56 @45884 has 2 MA's), (68, 45935), (102, 46088),

Gene: Issa\_62 Start: 44432, Stop: 44746, Start Num: 28

Candidate Starts for Issa\_62:

(Start: 28 @44432 has 14 MA's), (Start: 56 @44501 has 2 MA's), (77, 44588), (86, 44615), (95, 44633),

Gene: Jankie\_64 Start: 40246, Stop: 40524, Start Num: 39

Candidate Starts for Jankie\_64:

(25, 40210), (Start: 39 @40246 has 4 MA's), (63, 40324), (65, 40333), (70, 40363), (71, 40372), (96, 40426), (106, 40513),

Gene: Jehoshaphat\_80 Start: 52516, Stop: 52229, Start Num: 43

Candidate Starts for Jehoshaphat\_80:

(Start: 43 @52516 has 23 MA's), (Start: 47 @52507 has 6 MA's), (53, 52489), (80, 52372), (81, 52369), (82, 52366),

Gene: Jeremy4pt0\_63 Start: 42442, Stop: 42753, Start Num: 30

Candidate Starts for Jeremy4pt0\_63:

(18, 42400), (Start: 30 @42442 has 14 MA's), (Start: 45 @42475 has 4 MA's), (76, 42592), (103, 42715), (104, 42727),

Gene: JimmyPG\_25 Start: 15562, Stop: 15272, Start Num: 40

Candidate Starts for JimmyPG\_25:

(Start: 40 @15562 has 4 MA's), (48, 15544), (82, 15412), (99, 15331),

Gene: Judebell\_78 Start: 51731, Stop: 51453, Start Num: 47

Candidate Starts for Judebell\_78:

(Start: 43 @51740 has 23 MA's), (Start: 47 @51731 has 6 MA's), (53, 51713), (80, 51596), (81, 51593), (82, 51590),

Gene: KSunshine22\_244 Start: 158806, Stop: 159111, Start Num: 44

Candidate Starts for KSunshine22\_244:

(Start: 33 @158788 has 1 MA's), (Start: 44 @158806 has 4 MA's), (73, 158926), (82, 158956),

Gene: Kampe\_96 Start: 69516, Stop: 69205, Start Num: 39

Candidate Starts for Kampe\_96:

(Start: 39 @69516 has 4 MA's), (Start: 42 @69510 has 21 MA's), (52, 69483), (72, 69387), (94, 69309),

Gene: Kinny\_39 Start: 30437, Stop: 30787, Start Num: 23

Candidate Starts for Kinny\_39:

(Start: 23 @30437 has 1 MA's), (101, 30746),

Gene: Kyva\_83 Start: 52673, Stop: 52386, Start Num: 43

Candidate Starts for Kyva\_83:

(Start: 43 @52673 has 23 MA's), (Start: 47 @52664 has 6 MA's), (53, 52646), (80, 52529), (82, 52523), (97, 52457),

Gene: LeoJr\_264 Start: 160668, Stop: 161021, Start Num: 22

Candidate Starts for LeoJr\_264:

(Start: 22 @160668 has 1 MA's), (Start: 33 @160698 has 1 MA's), (Start: 44 @160716 has 4 MA's), (73, 160836), (82, 160866),

Gene: LilHuddy\_68 Start: 45074, Stop: 45361, Start Num: 42

Candidate Starts for LilHuddy\_68:

(Start: 42 @45074 has 21 MA's), (Start: 56 @45113 has 2 MA's), (67, 45164), (68, 45167), (95, 45248), (102, 45320),

Gene: Linda\_66 Start: 42740, Stop: 43051, Start Num: 30

Candidate Starts for Linda\_66:

(18, 42698), (Start: 30 @42740 has 14 MA's), (Start: 45 @42773 has 4 MA's), (76, 42890), (103, 43013), (104, 43025),

Gene: Llemily\_78 Start: 51295, Stop: 51008, Start Num: 43

Candidate Starts for Llemily\_78:

(Start: 43 @51295 has 23 MA's), (Start: 47 @51286 has 6 MA's), (53, 51268), (80, 51151), (81, 51148), (82, 51145),

Gene: Lonelysoil\_76 Start: 51052, Stop: 50765, Start Num: 43

Candidate Starts for Lonelysoil\_76:

(Start: 43 @51052 has 23 MA's), (Start: 47 @51043 has 6 MA's), (53, 51025), (80, 50908), (81, 50905), (82, 50902),

Gene: LucySwiss\_64 Start: 44380, Stop: 44691, Start Num: 29

Candidate Starts for LucySwiss\_64:

(Start: 29 @44380 has 7 MA's), (Start: 56 @44446 has 2 MA's), (62, 44470), (69, 44509), (77, 44533),

Gene: Makai\_67 Start: 45228, Stop: 45506, Start Num: 42

Candidate Starts for Makai\_67:

(Start: 42 @45228 has 21 MA's), (Start: 56 @45267 has 2 MA's), (67, 45312), (102, 45465),

Gene: Mareelih\_41 Start: 14165, Stop: 13884, Start Num: 42

Candidate Starts for Mareelih\_41:

(Start: 42 @14165 has 21 MA's), (54, 14132), (57, 14123),

Gene: Maruru\_76 Start: 48335, Stop: 48679, Start Num: 19

Candidate Starts for Maruru\_76:

(Start: 19 @48335 has 2 MA's), (31, 48377), (52, 48413), (57, 48428),

Gene: Mashley\_79 Start: 52319, Stop: 52038, Start Num: 43

Candidate Starts for Mashley\_79:

(Start: 43 @52319 has 23 MA's), (75, 52190), (80, 52175),

Gene: MediumFry\_64 Start: 44564, Stop: 44842, Start Num: 42

Candidate Starts for MediumFry\_64:

(Start: 42 @44564 has 21 MA's), (Start: 56 @44603 has 2 MA's), (58, 44609), (65, 44636), (102, 44801),

Gene: Mentos\_82 Start: 52962, Stop: 52684, Start Num: 47

Candidate Starts for Mentos\_82:

(Start: 43 @52971 has 23 MA's), (Start: 47 @52962 has 6 MA's), (53, 52944), (80, 52827), (81, 52824), (82, 52821),

Gene: Michelle\_66 Start: 42742, Stop: 43053, Start Num: 30

Candidate Starts for Michelle\_66:

(18, 42700), (Start: 30 @42742 has 14 MA's), (Start: 45 @42775 has 4 MA's), (76, 42892), (103, 43015), (104, 43027),

Gene: MiniBagel\_63 Start: 45328, Stop: 45642, Start Num: 28

Candidate Starts for MiniBagel\_63:

(Start: 28 @45328 has 14 MA's), (Start: 56 @45397 has 2 MA's), (77, 45484), (86, 45511),

Gene: MrAaronian\_66 Start: 42742, Stop: 43053, Start Num: 30

Candidate Starts for MrAaronian\_66:

(18, 42700), (Start: 30 @42742 has 14 MA's), (Start: 45 @42775 has 4 MA's), (76, 42892), (103, 43015), (104, 43027),

Gene: Namago\_81 Start: 52020, Stop: 51733, Start Num: 43

Candidate Starts for Namago\_81:

(Start: 43 @52020 has 23 MA's), (Start: 47 @52011 has 6 MA's), (53, 51993), (80, 51876), (81, 51873), (82, 51870),

Gene: Natasha\_68 Start: 42740, Stop: 42982, Start Num: 56

Candidate Starts for Natasha\_68:

(13, 42605), (18, 42650), (27, 42671), (48, 42722), (Start: 56 @42740 has 2 MA's), (84, 42845), (85, 42848), (102, 42938),

Gene: Nightmare\_65 Start: 45626, Stop: 45940, Start Num: 28

Candidate Starts for Nightmare\_65:

(Start: 28 @45626 has 14 MA's), (Start: 56 @45695 has 2 MA's), (66, 45740), (69, 45758), (86, 45809),

Gene: Niktson\_64 Start: 45229, Stop: 45540, Start Num: 29

Candidate Starts for Niktson\_64:

(Start: 29 @45229 has 7 MA's), (Start: 56 @45295 has 2 MA's), (62, 45319), (69, 45358), (77, 45382),

Gene: Nivinsha\_66 Start: 44576, Stop: 44890, Start Num: 28

Candidate Starts for Nivinsha\_66:

(Start: 28 @44576 has 14 MA's), (Start: 56 @44645 has 2 MA's), (69, 44708), (86, 44759),

Gene: OneUp\_6 Start: 1509, Stop: 1234, Start Num: 61

Candidate Starts for OneUp\_6:

(Start: 61 @1509 has 1 MA's), (88, 1392),

Gene: Orchid\_95 Start: 69511, Stop: 69206, Start Num: 42

Candidate Starts for Orchid\_95:

(Start: 39 @69517 has 4 MA's), (Start: 42 @69511 has 21 MA's), (52, 69484), (72, 69388), (94, 69310),

Gene: Panchaali\_236 Start: 159103, Stop: 159411, Start Num: 44

Candidate Starts for Panchaali\_236:

(Start: 33 @159085 has 1 MA's), (Start: 44 @159103 has 4 MA's), (73, 159223), (82, 159253),

Gene: PatrickStar\_96 Start: 69516, Stop: 69205, Start Num: 39  
Candidate Starts for PatrickStar\_96:  
(Start: 39 @69516 has 4 MA's), (Start: 42 @69510 has 21 MA's), (52, 69483), (72, 69387), (94, 69309),

Gene: PauloDiaboli\_342 Start: 173467, Stop: 173805, Start Num: 42  
Candidate Starts for PauloDiaboli\_342:  
(Start: 42 @173467 has 21 MA's), (50, 173488), (55, 173503), (58, 173512), (60, 173518), (Start: 64 @173545 has 1 MA's), (83, 173626), (98, 173719), (99, 173725), (107, 173776),

Gene: Phabia\_78 Start: 51707, Stop: 51420, Start Num: 43  
Candidate Starts for Phabia\_78:  
(Start: 43 @51707 has 23 MA's), (Start: 47 @51698 has 6 MA's), (53, 51680), (80, 51563), (81, 51560), (82, 51557),

Gene: Phaby\_69 Start: 45635, Stop: 45922, Start Num: 42  
Candidate Starts for Phaby\_69:  
(Start: 42 @45635 has 21 MA's), (Start: 56 @45674 has 2 MA's), (62, 45701), (68, 45728), (102, 45881),

Gene: Powelldog\_68 Start: 43177, Stop: 43494, Start Num: 24  
Candidate Starts for Powelldog\_68:  
(Start: 24 @43177 has 1 MA's), (Start: 33 @43201 has 1 MA's), (35, 43204), (37, 43207), (Start: 41 @43216 has 1 MA's), (Start: 45 @43222 has 4 MA's), (50, 43237), (67, 43303), (100, 43438),

Gene: ProfFrink\_66 Start: 42737, Stop: 43036, Start Num: 30  
Candidate Starts for ProfFrink\_66:  
(Start: 29 @42734 has 7 MA's), (Start: 30 @42737 has 14 MA's), (Start: 45 @42767 has 4 MA's), (48, 42776), (105, 43010),

Gene: Quammi\_77 Start: 51407, Stop: 51120, Start Num: 43  
Candidate Starts for Quammi\_77:  
(Start: 43 @51407 has 23 MA's), (Start: 47 @51398 has 6 MA's), (53, 51380), (80, 51263), (81, 51260), (82, 51257),

Gene: Raunak\_67 Start: 42437, Stop: 42697, Start Num: 48  
Candidate Starts for Raunak\_67:  
(Start: 29 @42395 has 7 MA's), (Start: 30 @42398 has 14 MA's), (48, 42437), (105, 42671),

Gene: ReginaGlobina\_266 Start: 161874, Stop: 162227, Start Num: 22  
Candidate Starts for ReginaGlobina\_266:  
(Start: 22 @161874 has 1 MA's), (Start: 33 @161904 has 1 MA's), (Start: 44 @161922 has 4 MA's), (73, 162042), (82, 162072),

Gene: RobinSparkles\_99 Start: 69573, Stop: 69268, Start Num: 42  
Candidate Starts for RobinSparkles\_99:  
(Start: 39 @69579 has 4 MA's), (Start: 42 @69573 has 21 MA's), (72, 69450), (79, 69426), (94, 69372),

Gene: Rudy\_76 Start: 51434, Stop: 51156, Start Num: 47  
Candidate Starts for Rudy\_76:  
(Start: 43 @51443 has 23 MA's), (Start: 47 @51434 has 6 MA's), (53, 51416), (80, 51299), (81, 51296), (82, 51293),

Gene: RustyBoy\_69 Start: 42939, Stop: 43181, Start Num: 56  
Candidate Starts for RustyBoy\_69:  
(18, 42849), (27, 42870), (48, 42921), (Start: 56 @42939 has 2 MA's), (59, 42948), (84, 43044), (85, 43047), (102, 43137),

Gene: Salk\_66 Start: 42740, Stop: 43051, Start Num: 30  
Candidate Starts for Salk\_66:  
(18, 42698), (Start: 30 @42740 has 14 MA's), (Start: 45 @42773 has 4 MA's), (76, 42890), (103, 43013), (104, 43025),

Gene: ScienceWizSam\_64 Start: 44738, Stop: 45052, Start Num: 28  
Candidate Starts for ScienceWizSam\_64:  
(Start: 28 @44738 has 14 MA's), (Start: 56 @44807 has 2 MA's), (69, 44870), (86, 44921),

Gene: Serenabean\_75 Start: 47658, Stop: 47942, Start Num: 38  
Candidate Starts for Serenabean\_75:  
(6, 47508), (11, 47562), (Start: 38 @47658 has 2 MA's), (52, 47685), (78, 47793),

Gene: Shepard\_69 Start: 44933, Stop: 45220, Start Num: 42  
Candidate Starts for Shepard\_69:  
(Start: 42 @44933 has 21 MA's), (Start: 56 @44972 has 2 MA's), (67, 45023), (77, 45062), (95, 45107), (99, 45152), (102, 45179),

Gene: Shiba\_65 Start: 42398, Stop: 42709, Start Num: 30  
Candidate Starts for Shiba\_65:  
(18, 42356), (Start: 30 @42398 has 14 MA's), (Start: 45 @42431 has 4 MA's), (76, 42548), (103, 42671), (104, 42683),

Gene: ShyRosie\_26 Start: 15707, Stop: 15414, Start Num: 40  
Candidate Starts for ShyRosie\_26:  
(10, 15827), (15, 15806), (21, 15758), (Start: 40 @15707 has 4 MA's), (78, 15569),

Gene: Sillytadpoles\_79 Start: 51283, Stop: 50996, Start Num: 43  
Candidate Starts for Sillytadpoles\_79:  
(Start: 43 @51283 has 23 MA's), (Start: 47 @51274 has 6 MA's), (53, 51256), (80, 51139), (81, 51136), (82, 51133),

Gene: Sixama\_41 Start: 13852, Stop: 13571, Start Num: 42  
Candidate Starts for Sixama\_41:  
(Start: 42 @13852 has 21 MA's), (65, 13774),

Gene: Sloopyjoe\_66 Start: 42744, Stop: 43055, Start Num: 30  
Candidate Starts for Sloopyjoe\_66:  
(18, 42702), (Start: 30 @42744 has 14 MA's), (Start: 45 @42777 has 4 MA's), (76, 42894), (103, 43017), (104, 43029),

Gene: SlySloth\_83 Start: 52256, Stop: 51969, Start Num: 44  
Candidate Starts for SlySloth\_83:  
(Start: 44 @52256 has 4 MA's), (80, 52112), (81, 52109), (82, 52106),

Gene: Sonali\_75 Start: 48306, Stop: 48659, Start Num: 19  
Candidate Starts for Sonali\_75:  
(Start: 19 @48306 has 2 MA's), (26, 48330), (31, 48348), (57, 48411),

Gene: Spain\_66 Start: 42742, Stop: 43053, Start Num: 30

Candidate Starts for Spain\_66:

(18, 42700), (Start: 30 @42742 has 14 MA's), (Start: 45 @42775 has 4 MA's), (76, 42892), (103, 43015), (104, 43027),

Gene: Sporto\_65 Start: 43859, Stop: 44170, Start Num: 30

Candidate Starts for Sporto\_65:

(13, 43772), (18, 43817), (Start: 29 @43856 has 7 MA's), (Start: 30 @43859 has 14 MA's), (76, 44009), (99, 44102), (103, 44132),

Gene: Sprinkle\_65 Start: 42929, Stop: 43231, Start Num: 36

Candidate Starts for Sprinkle\_65:

(17, 42884), (18, 42890), (Start: 19 @42896 has 2 MA's), (20, 42899), (Start: 29 @42917 has 7 MA's), (36, 42929), (48, 42956), (68, 43025),

Gene: Squash\_82 Start: 52656, Stop: 52369, Start Num: 43

Candidate Starts for Squash\_82:

(Start: 43 @52656 has 23 MA's), (53, 52629), (80, 52512), (81, 52509), (82, 52506),

Gene: StarLord\_66 Start: 42737, Stop: 43048, Start Num: 30

Candidate Starts for StarLord\_66:

(18, 42695), (Start: 30 @42737 has 14 MA's), (Start: 45 @42770 has 4 MA's), (76, 42887), (103, 43010), (104, 43022),

Gene: Stayer\_66 Start: 42740, Stop: 43051, Start Num: 30

Candidate Starts for Stayer\_66:

(18, 42698), (Start: 30 @42740 has 14 MA's), (Start: 45 @42773 has 4 MA's), (76, 42890), (103, 43013), (104, 43025),

Gene: Stewart25555\_242 Start: 158516, Stop: 158815, Start Num: 44

Candidate Starts for Stewart25555\_242:

(1, 158240), (2, 158255), (3, 158312), (4, 158327), (5, 158330), (Start: 33 @158498 has 1 MA's), (Start: 44 @158516 has 4 MA's), (98, 158753),

Gene: StrawberryJamm\_84 Start: 51823, Stop: 51536, Start Num: 43

Candidate Starts for StrawberryJamm\_84:

(Start: 43 @51823 has 23 MA's), (Start: 47 @51814 has 6 MA's), (53, 51796), (80, 51679), (81, 51676), (82, 51673),

Gene: Sunshine23\_77 Start: 48481, Stop: 48795, Start Num: 31

Candidate Starts for Sunshine23\_77:

(Start: 19 @48439 has 2 MA's), (26, 48463), (31, 48481), (57, 48544), (93, 48676),

Gene: Sweetclover\_75 Start: 46977, Stop: 47273, Start Num: 40

Candidate Starts for Sweetclover\_75:

(6, 46803), (11, 46857), (Start: 40 @46977 has 4 MA's), (49, 46998), (87, 47139), (90, 47145),

Gene: Synopsis\_62 Start: 44739, Stop: 45053, Start Num: 28

Candidate Starts for Synopsis\_62:

(Start: 28 @44739 has 14 MA's), (Start: 56 @44808 has 2 MA's), (69, 44871), (86, 44922),

Gene: Tank\_52 Start: 40878, Stop: 40642, Start Num: 64

Candidate Starts for Tank\_52:

(Start: 41 @40950 has 1 MA's), (Start: 64 @40878 has 1 MA's), (65, 40875), (78, 40818), (89, 40788), (91, 40782),

Gene: Tatanka\_59 Start: 44875, Stop: 45189, Start Num: 28

Candidate Starts for Tatanka\_59:

(Start: 28 @44875 has 14 MA's), (Start: 56 @44944 has 2 MA's), (69, 45007), (86, 45058),

Gene: Teacup\_65 Start: 45308, Stop: 45619, Start Num: 29

Candidate Starts for Teacup\_65:

(Start: 29 @45308 has 7 MA's), (Start: 56 @45374 has 2 MA's), (62, 45398), (69, 45437), (77, 45461),

Gene: Teehee\_79 Start: 52513, Stop: 52226, Start Num: 43

Candidate Starts for Teehee\_79:

(Start: 43 @52513 has 23 MA's), (Start: 47 @52504 has 6 MA's), (53, 52486), (80, 52369), (81, 52366), (82, 52363),

Gene: Tenno\_64 Start: 45392, Stop: 45706, Start Num: 28

Candidate Starts for Tenno\_64:

(Start: 28 @45392 has 14 MA's), (Start: 56 @45461 has 2 MA's), (77, 45548), (86, 45575),

Gene: Tipton\_68 Start: 45472, Stop: 45759, Start Num: 42

Candidate Starts for Tipton\_68:

(Start: 42 @45472 has 21 MA's), (Start: 56 @45511 has 2 MA's), (67, 45562), (77, 45601), (95, 45646), (99, 45691), (102, 45718),

Gene: Tissue\_81 Start: 52280, Stop: 51993, Start Num: 43

Candidate Starts for Tissue\_81:

(Start: 43 @52280 has 23 MA's), (Start: 47 @52271 has 6 MA's), (53, 52253), (80, 52136), (82, 52130), (97, 52064),

Gene: Tokki\_73 Start: 45503, Stop: 45790, Start Num: 42

Candidate Starts for Tokki\_73:

(Start: 42 @45503 has 21 MA's), (Start: 56 @45542 has 2 MA's), (67, 45593), (95, 45677), (102, 45749),

Gene: Truckee\_65 Start: 45012, Stop: 45290, Start Num: 42

Candidate Starts for Truckee\_65:

(Start: 42 @45012 has 21 MA's), (Start: 56 @45051 has 2 MA's), (67, 45096), (102, 45249),

Gene: Trustiboi\_63 Start: 44994, Stop: 45308, Start Num: 28

Candidate Starts for Trustiboi\_63:

(Start: 28 @44994 has 14 MA's), (Start: 56 @45063 has 2 MA's), (66, 45108), (69, 45126), (86, 45177),

Gene: Viceroy\_77 Start: 51416, Stop: 51129, Start Num: 43

Candidate Starts for Viceroy\_77:

(Start: 43 @51416 has 23 MA's), (Start: 47 @51407 has 6 MA's), (53, 51389), (80, 51272), (81, 51269), (82, 51266),

Gene: WaddleDee\_236 Start: 158922, Stop: 159245, Start Num: 33

Candidate Starts for WaddleDee\_236:

(Start: 33 @158922 has 1 MA's), (Start: 44 @158940 has 4 MA's), (73, 159060), (82, 159090),

Gene: Wayne3\_80 Start: 52267, Stop: 51989, Start Num: 47

Candidate Starts for Wayne3\_80:

(Start: 43 @52276 has 23 MA's), (Start: 47 @52267 has 6 MA's), (53, 52249), (80, 52132), (81, 52129), (82, 52126),

Gene: Westerlin\_63 Start: 46083, Stop: 46397, Start Num: 28

Candidate Starts for Westerlin\_63:

(Start: 28 @46083 has 14 MA's), (Start: 56 @46152 has 2 MA's), (69, 46215), (86, 46266),

Gene: Wheelie\_78 Start: 51597, Stop: 51310, Start Num: 43

Candidate Starts for Wheelie\_78:

(Start: 43 @51597 has 23 MA's), (Start: 47 @51588 has 6 MA's), (53, 51570), (80, 51453), (81, 51450), (82, 51447),

Gene: Wilde\_54 Start: 41249, Stop: 40941, Start Num: 41

Candidate Starts for Wilde\_54:

(Start: 41 @41249 has 1 MA's), (Start: 64 @41177 has 1 MA's), (65, 41174), (87, 41093), (89, 41087), (93, 41069),

Gene: Zagie\_80 Start: 52091, Stop: 51813, Start Num: 47

Candidate Starts for Zagie\_80:

(Start: 43 @52100 has 23 MA's), (Start: 47 @52091 has 6 MA's), (53, 52073), (80, 51956), (81, 51953), (82, 51950),

Gene: Zhafia\_81 Start: 52077, Stop: 51790, Start Num: 43

Candidate Starts for Zhafia\_81:

(Start: 43 @52077 has 23 MA's), (Start: 47 @52068 has 6 MA's), (53, 52050), (80, 51933), (81, 51930), (82, 51927),

Gene: Zippen\_69 Start: 45683, Stop: 46003, Start Num: 29

Candidate Starts for Zippen\_69:

(Start: 29 @45683 has 7 MA's), (Start: 56 @45752 has 2 MA's), (67, 45800), (102, 45956),