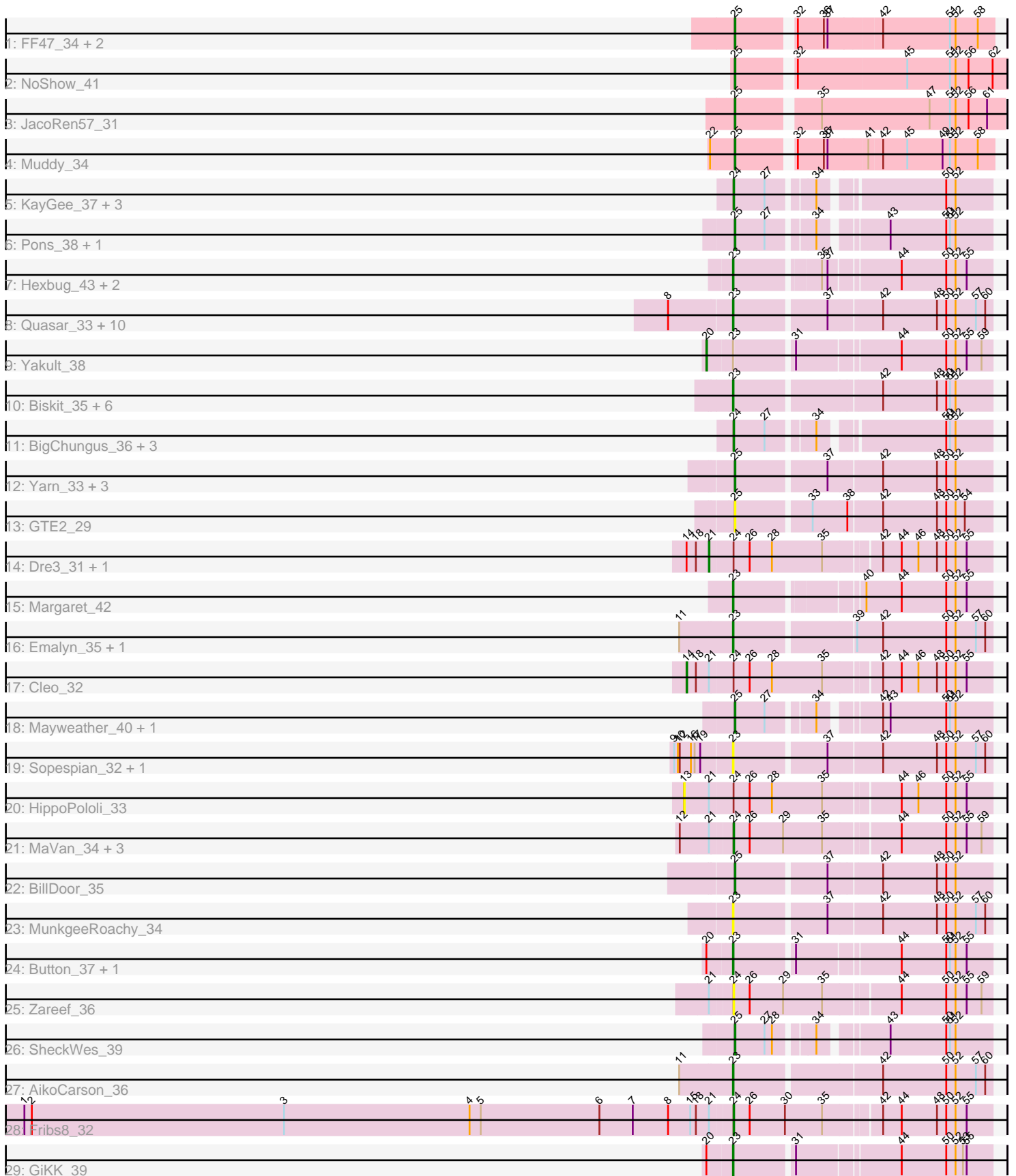


# Pham 1708



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 1708 Report

This analysis was run 04/28/24 on database version 559.

Pham number 1708 has 67 members, 15 are drafts.

Phages represented in each track:

- Track 1 : FF47\_34, 8UZL\_34, Maco6\_32
- Track 2 : NoShow\_41
- Track 3 : JacoRen57\_31
- Track 4 : Muddy\_34
- Track 5 : KayGee\_37, Elinal\_40, Lauer\_34, Vine\_39
- Track 6 : Pons\_38, CherryonLim\_39
- Track 7 : Hexbug\_43, Nodigi\_43, Orla\_43
- Track 8 : Quasar\_33, Elliott\_33, Agatha\_32, SweatNTears\_34, Burnsey\_32, Nina\_33, Cozz\_32, Typhonmarchy\_33, Axym\_32, GoldHunter\_34, RedBaron\_35
- Track 9 : Yakult\_38
- Track 10 : Biskit\_35, SketchMex\_33, Yummy\_34, Horseradish\_34, MScarn\_35, Buttrmlkdreams\_34, Troje\_34
- Track 11 : BigChungus\_36, SummitAcademy\_36, PotPie\_38, Feastonyeet\_36
- Track 12 : Yarn\_33, AndPeggy\_33, Tolls\_36, SteamedHams\_36
- Track 13 : GTE2\_29
- Track 14 : Dre3\_31, Gibbous\_31
- Track 15 : Margaret\_42
- Track 16 : Emalyn\_35, Amok\_36
- Track 17 : Cleo\_32
- Track 18 : Mayweather\_40, MAnor\_38
- Track 19 : Sopespian\_32, PsychoKiller\_32
- Track 20 : HippoPololi\_33
- Track 21 : MaVan\_34, Nibbles\_33, Survivors\_34, Azira\_34
- Track 22 : BillDoor\_35
- Track 23 : MunkgeeRoachy\_34
- Track 24 : Button\_37, Jamzy\_39
- Track 25 : Zareef\_36
- Track 26 : SheckWes\_39
- Track 27 : AikoCarson\_36
- Track 28 : Fribs8\_32
- Track 29 : GiKK\_39

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

The start number called the most often in the published annotations is 23, it was called in 24 of the 52 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agatha\_32, AikoCarson\_36, Amok\_36, Axym\_32, Biskit\_35, Burnsey\_32, Button\_37, Buttrmlkdreams\_34, Cozz\_32, Elliott\_33, Emalyn\_35, GiKK\_39, GoldHunter\_34, Hexbug\_43, Horseradish\_34, Jamzy\_39, MScarn\_35, Margaret\_42, MunkgeeRoachy\_34, Nina\_33, Nodigi\_43, Orla\_43, PsychoKiller\_32, Quasar\_33, RedBaron\_35, SketchMex\_33, Sopeopian\_32, SweatNTears\_34, Troje\_34, Typhonomachy\_33, Yummy\_34,

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

- Yakult\_38,

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

- 8UZL\_34, AndPeggy\_33, Azira\_34, BigChungus\_36, BillDoor\_35, CherryonLim\_39, Cleo\_32, Dre3\_31, Elinal\_40, FF47\_34, Feastonyeet\_36, Fribs8\_32, GTE2\_29, Gibbous\_31, HippoPololi\_33, JacoRen57\_31, KayGee\_37, Lauer\_34, MAnor\_38, MaVan\_34, Maco6\_32, Mayweather\_40, Muddy\_34, Nibbles\_33, NoShow\_41, Pons\_38, PotPie\_38, SheckWes\_39, SteamedHams\_36, SummitAcademy\_36, Survivors\_34, Tolls\_36, Vine\_39, Yarn\_33, Zareef\_36,

### **Summary by start number:**

Start 13:

- Found in 1 of 67 ( 1.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: HippoPololi\_33 (CT),

Start 14:

- Found in 3 of 67 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 1 of 52
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Cleo\_32 (CT),

Start 20:

- Found in 4 of 67 ( 6.0% ) of genes in pham
- Manual Annotations of this start: 1 of 52
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Yakult\_38 (CT),

Start 21:

- Found in 10 of 67 ( 14.9% ) of genes in pham
- Manual Annotations of this start: 2 of 52
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Dre3\_31 (CT), Gibbous\_31 (CT),

Start 23:

- Found in 32 of 67 ( 47.8% ) of genes in pham
- Manual Annotations of this start: 24 of 52
- Called 96.9% of time when present

- Phage (with cluster) where this start called: Agatha\_32 (CT), AikoCarson\_36 (CT), Amok\_36 (CT), Axym\_32 (CT), Biskit\_35 (CT), Burnsey\_32 (CT), Button\_37 (CT), Buttrmlkdreams\_34 (CT), Cozz\_32 (CT), Elliott\_33 (CT), Emalyn\_35 (CT), GiKK\_39 (CT), GoldHunter\_34 (CT), Hexbug\_43 (CT), Horseradish\_34 (CT), Jamzy\_39 (CT), MScarn\_35 (CT), Margaret\_42 (CT), MunkgeeRoachy\_34 (CT), Nina\_33 (CT), Nodigi\_43 (CT), Orla\_43 (CT), PsychoKiller\_32 (CT), Quasar\_33 (CT), RedBaron\_35 (CT), SketchMex\_33 (CT), Sopespian\_32 (CT), SweatNTears\_34 (CT), Troje\_34 (CT), Typhonmacy\_33 (CT), Yummy\_34 (CT),

#### Start 24:

- Found in 18 of 67 ( 26.9% ) of genes in pham
- Manual Annotations of this start: 11 of 52
- Called 77.8% of time when present
- Phage (with cluster) where this start called: Azira\_34 (CT), BigChungus\_36 (CT), Elinal\_40 (CT), Feastonyet\_36 (CT), Fribs8\_32 (CT), KayGee\_37 (CT), Lauer\_34 (CT), MaVan\_34 (CT), Nibbles\_33 (CT), PotPie\_38 (CT), SummitAcademy\_36 (CT), Survivors\_34 (CT), Vine\_39 (CT), Zareef\_36 (CT),

#### Start 25:

- Found in 17 of 67 ( 25.4% ) of genes in pham
- Manual Annotations of this start: 13 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 8UZL\_34 (AB), AndPeggy\_33 (CT), BillDoor\_35 (CT), CherryonLim\_39 (CT), FF47\_34 (AB), GTE2\_29 (CT), JacoRen57\_31 (AB), MAnor\_38 (CT), Maco6\_32 (AB), Mayweather\_40 (CT), Muddy\_34 (AB), NoShow\_41 (AB), Pons\_38 (CT), SheckWes\_39 (CT), SteamedHams\_36 (CT), Tolls\_36 (CT), Yarn\_33 (CT),

### Summary by clusters:

There are 2 clusters represented in this pham: AB, CT,

Info for manual annotations of cluster AB:

- Start number 25 was manually annotated 4 times for cluster AB.

Info for manual annotations of cluster CT:

- Start number 14 was manually annotated 1 time for cluster CT.
- Start number 20 was manually annotated 1 time for cluster CT.
- Start number 21 was manually annotated 2 times for cluster CT.
- Start number 23 was manually annotated 24 times for cluster CT.
- Start number 24 was manually annotated 11 times for cluster CT.
- Start number 25 was manually annotated 9 times for cluster CT.

### Gene Information:

Gene: 8UZL\_34 Start: 26977, Stop: 27366, Start Num: 25

Candidate Starts for 8UZL\_34:

(Start: 25 @26977 has 13 MA's), (32, 27058), (36, 27100), (37, 27106), (42, 27187), (51, 27295), (52, 27304), (58, 27340),

Gene: Agatha\_32 Start: 25507, Stop: 25905, Start Num: 23

Candidate Starts for Agatha\_32:

(8, 25408), (Start: 23 @25507 has 24 MA's), (37, 25645), (42, 25729), (48, 25816), (50, 25831), (52, 25846), (57, 25879), (60, 25894),

Gene: AikoCarson\_36 Start: 26624, Stop: 27019, Start Num: 23

Candidate Starts for AikoCarson\_36:

(11, 26540), (Start: 23 @26624 has 24 MA's), (42, 26843), (50, 26945), (52, 26960), (57, 26993), (60, 27008),

Gene: Amok\_36 Start: 26648, Stop: 27043, Start Num: 23

Candidate Starts for Amok\_36:

(11, 26564), (Start: 23 @26648 has 24 MA's), (39, 26828), (42, 26867), (50, 26969), (52, 26984), (57, 27017), (60, 27032),

Gene: AndPeggy\_33 Start: 26054, Stop: 26446, Start Num: 25

Candidate Starts for AndPeggy\_33:

(Start: 25 @26054 has 13 MA's), (37, 26192), (42, 26270), (48, 26357), (50, 26372), (52, 26387),

Gene: Axym\_32 Start: 25486, Stop: 25884, Start Num: 23

Candidate Starts for Axym\_32:

(8, 25387), (Start: 23 @25486 has 24 MA's), (37, 25624), (42, 25708), (48, 25795), (50, 25810), (52, 25825), (57, 25858), (60, 25873),

Gene: Azira\_34 Start: 26425, Stop: 26826, Start Num: 24

Candidate Starts for Azira\_34:

(12, 26347), (Start: 21 @26392 has 2 MA's), (Start: 24 @26425 has 11 MA's), (26, 26449), (29, 26503), (35, 26566), (44, 26680), (50, 26752), (52, 26767), (55, 26785), (59, 26809),

Gene: BigChungus\_36 Start: 27774, Stop: 28142, Start Num: 24

Candidate Starts for BigChungus\_36:

(Start: 24 @27774 has 11 MA's), (27, 27822), (34, 27888), (50, 28068), (51, 28074), (52, 28083),

Gene: BillDoor\_35 Start: 25731, Stop: 26123, Start Num: 25

Candidate Starts for BillDoor\_35:

(Start: 25 @25731 has 13 MA's), (37, 25869), (42, 25947), (48, 26034), (50, 26049), (52, 26064),

Gene: Biskit\_35 Start: 25820, Stop: 26212, Start Num: 23

Candidate Starts for Biskit\_35:

(Start: 23 @25820 has 24 MA's), (42, 26036), (48, 26123), (50, 26138), (51, 26144), (52, 26153),

Gene: Burnsey\_32 Start: 25499, Stop: 25897, Start Num: 23

Candidate Starts for Burnsey\_32:

(8, 25400), (Start: 23 @25499 has 24 MA's), (37, 25637), (42, 25721), (48, 25808), (50, 25823), (52, 25838), (57, 25871), (60, 25886),

Gene: Button\_37 Start: 26694, Stop: 27080, Start Num: 23

Candidate Starts for Button\_37:

(Start: 20 @26655 has 1 MA's), (Start: 23 @26694 has 24 MA's), (31, 26778), (44, 26934), (50, 27006), (51, 27012), (52, 27021), (55, 27039),

Gene: Buttrmlkdreams\_34 Start: 25802, Stop: 26194, Start Num: 23

Candidate Starts for Buttrmlkdreams\_34:

(Start: 23 @25802 has 24 MA's), (42, 26018), (48, 26105), (50, 26120), (51, 26126), (52, 26135),

Gene: CherryonLim\_39 Start: 28915, Stop: 29286, Start Num: 25

Candidate Starts for CherryonLim\_39:

(Start: 25 @28915 has 13 MA's), (27, 28963), (34, 29029), (43, 29122), (50, 29212), (51, 29218), (52, 29227),

Gene: Cleo\_32 Start: 25762, Stop: 26235, Start Num: 14

Candidate Starts for Cleo\_32:

(Start: 14 @25762 has 1 MA's), (18, 25777), (Start: 21 @25798 has 2 MA's), (Start: 24 @25834 has 11 MA's), (26, 25858), (28, 25894), (35, 25975), (42, 26059), (44, 26089), (46, 26116), (48, 26146), (50, 26161), (52, 26176), (55, 26194),

Gene: Cozz\_32 Start: 25488, Stop: 25886, Start Num: 23

Candidate Starts for Cozz\_32:

(8, 25389), (Start: 23 @25488 has 24 MA's), (37, 25626), (42, 25710), (48, 25797), (50, 25812), (52, 25827), (57, 25860), (60, 25875),

Gene: Dre3\_31 Start: 25541, Stop: 25978, Start Num: 21

Candidate Starts for Dre3\_31:

(Start: 14 @25505 has 1 MA's), (18, 25520), (Start: 21 @25541 has 2 MA's), (Start: 24 @25577 has 11 MA's), (26, 25601), (28, 25637), (35, 25718), (42, 25802), (44, 25832), (46, 25859), (48, 25889), (50, 25904), (52, 25919), (55, 25937),

Gene: Elinal\_40 Start: 28152, Stop: 28520, Start Num: 24

Candidate Starts for Elinal\_40:

(Start: 24 @28152 has 11 MA's), (27, 28200), (34, 28266), (50, 28446), (52, 28461),

Gene: Elliott\_33 Start: 25507, Stop: 25905, Start Num: 23

Candidate Starts for Elliott\_33:

(8, 25408), (Start: 23 @25507 has 24 MA's), (37, 25645), (42, 25729), (48, 25816), (50, 25831), (52, 25846), (57, 25879), (60, 25894),

Gene: Emalyn\_35 Start: 25819, Stop: 26214, Start Num: 23

Candidate Starts for Emalyn\_35:

(11, 25735), (Start: 23 @25819 has 24 MA's), (39, 25999), (42, 26038), (50, 26140), (52, 26155), (57, 26188), (60, 26203),

Gene: FF47\_34 Start: 26904, Stop: 27293, Start Num: 25

Candidate Starts for FF47\_34:

(Start: 25 @26904 has 13 MA's), (32, 26985), (36, 27027), (37, 27033), (42, 27114), (51, 27222), (52, 27231), (58, 27267),

Gene: Feastonyeet\_36 Start: 27774, Stop: 28142, Start Num: 24

Candidate Starts for Feastonyeet\_36:

(Start: 24 @27774 has 11 MA's), (27, 27822), (34, 27888), (50, 28068), (51, 28074), (52, 28083),

Gene: Fribs8\_32 Start: 26003, Stop: 26404, Start Num: 24

Candidate Starts for Fribs8\_32:

(1, 24863), (2, 24875), (3, 25283), (4, 25583), (5, 25601), (6, 25793), (7, 25847), (8, 25904), (15, 25940), (18, 25949), (Start: 21 @25970 has 2 MA's), (Start: 24 @26003 has 11 MA's), (26, 26027), (30, 26084), (35, 26144), (42, 26228), (44, 26258), (48, 26315), (50, 26330), (52, 26345), (55, 26363),

Gene: GTE2\_29 Start: 26057, Stop: 26449, Start Num: 25

Candidate Starts for GTE2\_29:

(Start: 25 @26057 has 13 MA's), (33, 26171), (38, 26225), (42, 26273), (48, 26360), (50, 26375), (52, 26390), (54, 26405),

Gene: GiKK\_39 Start: 27024, Stop: 27410, Start Num: 23

Candidate Starts for GiKK\_39:

(Start: 20 @26985 has 1 MA's), (Start: 23 @27024 has 24 MA's), (31, 27108), (44, 27264), (50, 27336), (52, 27351), (53, 27363), (55, 27369),

Gene: Gibbous\_31 Start: 25541, Stop: 25978, Start Num: 21

Candidate Starts for Gibbous\_31:

(Start: 14 @25505 has 1 MA's), (18, 25520), (Start: 21 @25541 has 2 MA's), (Start: 24 @25577 has 11 MA's), (26, 25601), (28, 25637), (35, 25718), (42, 25802), (44, 25832), (46, 25859), (48, 25889), (50, 25904), (52, 25919), (55, 25937),

Gene: GoldHunter\_34 Start: 25508, Stop: 25906, Start Num: 23

Candidate Starts for GoldHunter\_34:

(8, 25409), (Start: 23 @25508 has 24 MA's), (37, 25646), (42, 25730), (48, 25817), (50, 25832), (52, 25847), (57, 25880), (60, 25895),

Gene: Hexbug\_43 Start: 29127, Stop: 29510, Start Num: 23

Candidate Starts for Hexbug\_43:

(Start: 23 @29127 has 24 MA's), (35, 29250), (37, 29259), (44, 29364), (50, 29436), (52, 29451), (55, 29469),

Gene: HippoPololi\_33 Start: 25955, Stop: 26431, Start Num: 13

Candidate Starts for HippoPololi\_33:

(13, 25955), (Start: 21 @25994 has 2 MA's), (Start: 24 @26030 has 11 MA's), (26, 26054), (28, 26090), (35, 26171), (44, 26285), (46, 26312), (50, 26357), (52, 26372), (55, 26390),

Gene: Horseradish\_34 Start: 25330, Stop: 25722, Start Num: 23

Candidate Starts for Horseradish\_34:

(Start: 23 @25330 has 24 MA's), (42, 25546), (48, 25633), (50, 25648), (51, 25654), (52, 25663),

Gene: JacoRen57\_31 Start: 28234, Stop: 28647, Start Num: 25

Candidate Starts for JacoRen57\_31:

(Start: 25 @28234 has 13 MA's), (35, 28354), (47, 28528), (51, 28561), (52, 28570), (56, 28591), (61, 28621),

Gene: Jamzy\_39 Start: 27007, Stop: 27393, Start Num: 23

Candidate Starts for Jamzy\_39:

(Start: 20 @26968 has 1 MA's), (Start: 23 @27007 has 24 MA's), (31, 27091), (44, 27247), (50, 27319), (51, 27325), (52, 27334), (55, 27352),

Gene: KayGee\_37 Start: 28152, Stop: 28520, Start Num: 24

Candidate Starts for KayGee\_37:

(Start: 24 @28152 has 11 MA's), (27, 28200), (34, 28266), (50, 28446), (52, 28461),

Gene: Lauer\_34 Start: 28979, Stop: 29347, Start Num: 24

Candidate Starts for Lauer\_34:

(Start: 24 @28979 has 11 MA's), (27, 29027), (34, 29093), (50, 29273), (52, 29288),

Gene: MAnor\_38 Start: 28550, Stop: 28921, Start Num: 25

Candidate Starts for MAnor\_38:

(Start: 25 @28550 has 13 MA's), (27, 28598), (34, 28664), (42, 28745), (43, 28757), (50, 28847), (51, 28853), (52, 28862),

Gene: MScarn\_35 Start: 25470, Stop: 25862, Start Num: 23

Candidate Starts for MScarn\_35:

(Start: 23 @25470 has 24 MA's), (42, 25686), (48, 25773), (50, 25788), (51, 25794), (52, 25803),

Gene: MaVan\_34 Start: 26458, Stop: 26859, Start Num: 24

Candidate Starts for MaVan\_34:

(12, 26380), (Start: 21 @26425 has 2 MA's), (Start: 24 @26458 has 11 MA's), (26, 26482), (29, 26536), (35, 26599), (44, 26713), (50, 26785), (52, 26800), (55, 26818), (59, 26842),

Gene: Maco6\_32 Start: 26245, Stop: 26634, Start Num: 25

Candidate Starts for Maco6\_32:

(Start: 25 @26245 has 13 MA's), (32, 26326), (36, 26368), (37, 26374), (42, 26455), (51, 26563), (52, 26572), (58, 26608),

Gene: Margaret\_42 Start: 28072, Stop: 28455, Start Num: 23

Candidate Starts for Margaret\_42:

(Start: 23 @28072 has 24 MA's), (40, 28252), (44, 28309), (50, 28381), (52, 28396), (55, 28414),

Gene: Mayweather\_40 Start: 28774, Stop: 29145, Start Num: 25

Candidate Starts for Mayweather\_40:

(Start: 25 @28774 has 13 MA's), (27, 28822), (34, 28888), (42, 28969), (43, 28981), (50, 29071), (51, 29077), (52, 29086),

Gene: Muddy\_34 Start: 27194, Stop: 27583, Start Num: 25

Candidate Starts for Muddy\_34:

(22, 27155), (Start: 25 @27194 has 13 MA's), (32, 27275), (36, 27317), (37, 27323), (41, 27383), (42, 27404), (45, 27443), (49, 27500), (51, 27512), (52, 27521), (58, 27557),

Gene: MunkgeeRoachy\_34 Start: 25362, Stop: 25760, Start Num: 23

Candidate Starts for MunkgeeRoachy\_34:

(Start: 23 @25362 has 24 MA's), (37, 25500), (42, 25584), (48, 25671), (50, 25686), (52, 25701), (57, 25734), (60, 25749),

Gene: Nibbles\_33 Start: 26142, Stop: 26543, Start Num: 24

Candidate Starts for Nibbles\_33:

(12, 26064), (Start: 21 @26109 has 2 MA's), (Start: 24 @26142 has 11 MA's), (26, 26166), (29, 26220), (35, 26283), (44, 26397), (50, 26469), (52, 26484), (55, 26502), (59, 26526),

Gene: Nina\_33 Start: 26024, Stop: 26422, Start Num: 23

Candidate Starts for Nina\_33:

(8, 25925), (Start: 23 @26024 has 24 MA's), (37, 26162), (42, 26246), (48, 26333), (50, 26348), (52, 26363), (57, 26396), (60, 26411),

Gene: NoShow\_41 Start: 30395, Stop: 30811, Start Num: 25

Candidate Starts for NoShow\_41:

(Start: 25 @30395 has 13 MA's), (32, 30476), (45, 30650), (51, 30719), (52, 30728), (56, 30749), (62, 30788),

Gene: Nodigi\_43 Start: 29116, Stop: 29499, Start Num: 23



Candidate Starts for Nodigi\_43:

(Start: 23 @29116 has 24 MA's), (35, 29239), (37, 29248), (44, 29353), (50, 29425), (52, 29440), (55, 29458),

Gene: Orla\_43 Start: 29089, Stop: 29472, Start Num: 23

Candidate Starts for Orla\_43:

(Start: 23 @29089 has 24 MA's), (35, 29212), (37, 29221), (44, 29326), (50, 29398), (52, 29413), (55, 29431),

Gene: Pons\_38 Start: 28125, Stop: 28496, Start Num: 25

Candidate Starts for Pons\_38:

(Start: 25 @28125 has 13 MA's), (27, 28173), (34, 28239), (43, 28332), (50, 28422), (51, 28428), (52, 28437),

Gene: PotPie\_38 Start: 29065, Stop: 29433, Start Num: 24

Candidate Starts for PotPie\_38:

(Start: 24 @29065 has 11 MA's), (27, 29113), (34, 29179), (50, 29359), (51, 29365), (52, 29374),

Gene: PsychoKiller\_32 Start: 25508, Stop: 25906, Start Num: 23

Candidate Starts for PsychoKiller\_32:

(9, 25418), (10, 25424), (12, 25427), (16, 25445), (17, 25451), (19, 25460), (Start: 23 @25508 has 24 MA's), (37, 25646), (42, 25730), (48, 25817), (50, 25832), (52, 25847), (57, 25880), (60, 25895),

Gene: Quasar\_33 Start: 26110, Stop: 26508, Start Num: 23

Candidate Starts for Quasar\_33:

(8, 26011), (Start: 23 @26110 has 24 MA's), (37, 26248), (42, 26332), (48, 26419), (50, 26434), (52, 26449), (57, 26482), (60, 26497),

Gene: RedBaron\_35 Start: 25743, Stop: 26141, Start Num: 23

Candidate Starts for RedBaron\_35:

(8, 25644), (Start: 23 @25743 has 24 MA's), (37, 25881), (42, 25965), (48, 26052), (50, 26067), (52, 26082), (57, 26115), (60, 26130),

Gene: SheckWes\_39 Start: 27646, Stop: 28017, Start Num: 25

Candidate Starts for SheckWes\_39:

(Start: 25 @27646 has 13 MA's), (27, 27694), (28, 27706), (34, 27760), (43, 27853), (50, 27943), (51, 27949), (52, 27958),

Gene: SketchMex\_33 Start: 25820, Stop: 26212, Start Num: 23

Candidate Starts for SketchMex\_33:

(Start: 23 @25820 has 24 MA's), (42, 26036), (48, 26123), (50, 26138), (51, 26144), (52, 26153),

Gene: Sopespian\_32 Start: 25509, Stop: 25907, Start Num: 23

Candidate Starts for Sopespian\_32:

(9, 25419), (10, 25425), (12, 25428), (16, 25446), (17, 25452), (19, 25461), (Start: 23 @25509 has 24 MA's), (37, 25647), (42, 25731), (48, 25818), (50, 25833), (52, 25848), (57, 25881), (60, 25896),

Gene: SteamedHams\_36 Start: 26200, Stop: 26592, Start Num: 25

Candidate Starts for SteamedHams\_36:

(Start: 25 @26200 has 13 MA's), (37, 26338), (42, 26416), (48, 26503), (50, 26518), (52, 26533),

Gene: SummitAcademy\_36 Start: 27694, Stop: 28062, Start Num: 24

Candidate Starts for SummitAcademy\_36:

(Start: 24 @27694 has 11 MA's), (27, 27742), (34, 27808), (50, 27988), (51, 27994), (52, 28003),

Gene: Survivors\_34 Start: 26351, Stop: 26752, Start Num: 24

Candidate Starts for Survivors\_34:

(12, 26273), (Start: 21 @26318 has 2 MA's), (Start: 24 @26351 has 11 MA's), (26, 26375), (29, 26429), (35, 26492), (44, 26606), (50, 26678), (52, 26693), (55, 26711), (59, 26735),

Gene: SweatNTears\_34 Start: 25405, Stop: 25803, Start Num: 23

Candidate Starts for SweatNTears\_34:

(8, 25306), (Start: 23 @25405 has 24 MA's), (37, 25543), (42, 25627), (48, 25714), (50, 25729), (52, 25744), (57, 25777), (60, 25792),

Gene: Tolls\_36 Start: 26299, Stop: 26691, Start Num: 25

Candidate Starts for Tolls\_36:

(Start: 25 @26299 has 13 MA's), (37, 26437), (42, 26515), (48, 26602), (50, 26617), (52, 26632),

Gene: Troje\_34 Start: 25827, Stop: 26219, Start Num: 23

Candidate Starts for Troje\_34:

(Start: 23 @25827 has 24 MA's), (42, 26043), (48, 26130), (50, 26145), (51, 26151), (52, 26160),

Gene: Typhonomachy\_33 Start: 25519, Stop: 25917, Start Num: 23

Candidate Starts for Typhonomachy\_33:

(8, 25420), (Start: 23 @25519 has 24 MA's), (37, 25657), (42, 25741), (48, 25828), (50, 25843), (52, 25858), (57, 25891), (60, 25906),

Gene: Vine\_39 Start: 28426, Stop: 28794, Start Num: 24

Candidate Starts for Vine\_39:

(Start: 24 @28426 has 11 MA's), (27, 28474), (34, 28540), (50, 28720), (52, 28735),

Gene: Yakult\_38 Start: 27146, Stop: 27571, Start Num: 20

Candidate Starts for Yakult\_38:

(Start: 20 @27146 has 1 MA's), (Start: 23 @27185 has 24 MA's), (31, 27269), (44, 27425), (50, 27497), (52, 27512), (55, 27530), (59, 27554),

Gene: Yarn\_33 Start: 26059, Stop: 26451, Start Num: 25

Candidate Starts for Yarn\_33:

(Start: 25 @26059 has 13 MA's), (37, 26197), (42, 26275), (48, 26362), (50, 26377), (52, 26392),

Gene: Yummy\_34 Start: 25444, Stop: 25836, Start Num: 23

Candidate Starts for Yummy\_34:

(Start: 23 @25444 has 24 MA's), (42, 25660), (48, 25747), (50, 25762), (51, 25768), (52, 25777),

Gene: Zareef\_36 Start: 26445, Stop: 26846, Start Num: 24

Candidate Starts for Zareef\_36:

(Start: 21 @26412 has 2 MA's), (Start: 24 @26445 has 11 MA's), (26, 26469), (29, 26523), (35, 26586), (44, 26700), (50, 26772), (52, 26787), (55, 26805), (59, 26829),