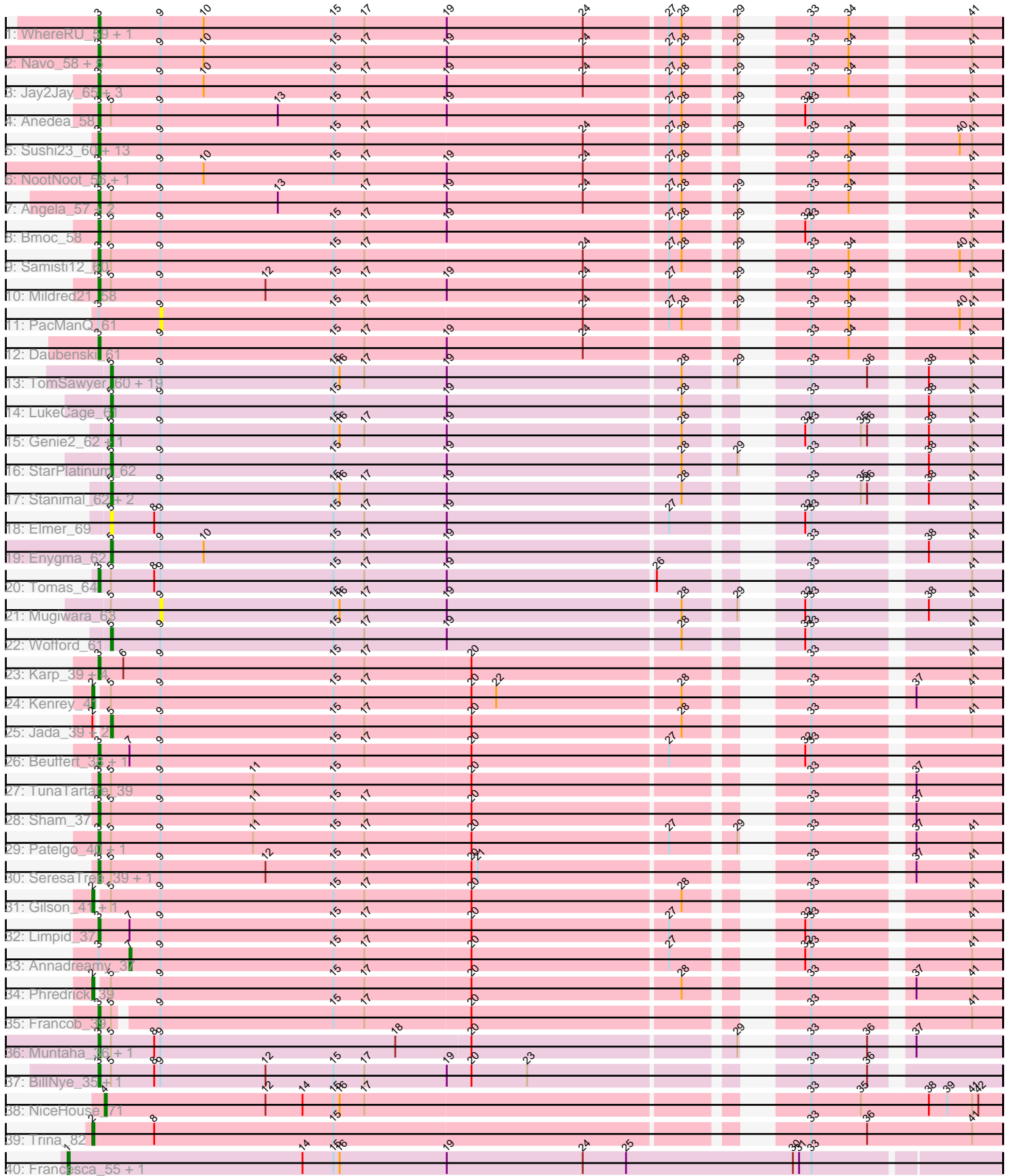


# Pham 1285



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 1285 Report

This analysis was run 07/09/24 on database version 566.

Pham number 1285 has 100 members, 14 are drafts.

Phages represented in each track:

- Track 1 : WhereRU\_59, Persimmon\_56
- Track 2 : Navo\_58, Liandry\_59, Squillium\_59, Bartholomune\_58, Braelyn\_59, PinkiePie\_58
- Track 3 : Jay2Jay\_65, Targaryen\_61, Evy\_61, Warpy\_64
- Track 4 : Anedea\_58
- Track 5 : Sushi23\_60, BlueOtter\_62, Teutsch\_60, Leo04\_61, HangryHippo\_62, EGole\_61, Cross\_60, Watermoore\_60, Peebs\_59, Cursive\_58, Lululemon\_61, Tribute\_58, Larnav\_65, Pepperwood\_60
- Track 6 : NootNoot\_56, Paradiddles\_56
- Track 7 : Angela\_57, MulchMansion\_57, LilMartin\_57
- Track 8 : Bmoc\_58
- Track 9 : Samisti12\_60
- Track 10 : Mildred21\_58
- Track 11 : PacManQ\_61
- Track 12 : Daubenski\_61
- Track 13 : TomSawyer\_60, Wipeout\_60, SaltySpittoon\_62, Amabiko\_62, Birchlyn\_59, Gibbi\_66, Spilled\_63, Spelly\_62, Bordeaux\_60, MindFlayer\_60, JimJam\_62, PumpkinSpice\_61, IchabodCrane\_59, Starbow\_60, KentuckyRacer\_66, Jollison\_67, Battuta\_60, Karimac\_61, CeilingFan\_64, Quarant19\_62
- Track 14 : LukeCage\_61
- Track 15 : Genie2\_62, Sollertia\_62
- Track 16 : StarPlatinum\_62
- Track 17 : Stanimal\_62, Yaboi\_62, BoomerJR\_62
- Track 18 : Elmer\_69
- Track 19 : Enygma\_62
- Track 20 : Tomas\_64
- Track 21 : Mugiwara\_63
- Track 22 : Wofford\_61
- Track 23 : Karp\_39, Stigma\_40, Belfort\_41, Comrade\_40, SparkleGoddess\_40
- Track 24 : Kenrey\_41
- Track 25 : Jada\_39, Forrest\_41, MeganTheeKilla\_39
- Track 26 : Beuffert\_38, Blueeyedbeauty\_39
- Track 27 : TunaTartare\_39
- Track 28 : Sham\_37
- Track 29 : Patelgo\_40, Moab\_40
- Track 30 : SeresaTree\_39, Faust\_40
- Track 31 : Gilson\_41, Emma1919\_41

- Track 32 : Limpid\_37
- Track 33 : Annadreamy\_37
- Track 34 : Phredrick\_39
- Track 35 : Francob\_39
- Track 36 : Muntaha\_36, Wakanda\_36
- Track 37 : BillNye\_35, Circinus\_37
- Track 38 : NiceHouse\_71
- Track 39 : Trina\_82
- Track 40 : Francesca\_55, Dorin\_54

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

The start number called the most often in the published annotations is 3, it was called in 50 of the 86 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Anedea\_58, Angela\_57, Bartholomune\_58, Belfort\_41, Beuffert\_38, BillNye\_35, BlueOtter\_62, Blueeyedbeauty\_39, Bmoc\_58, Braelyn\_59, Circinus\_37, Comrade\_40, Cross\_60, Cursive\_58, Daubenski\_61, EGole\_61, Evy\_61, Faust\_40, Francob\_39, HangryHippo\_62, Jay2Jay\_65, Karp\_39, Larnav\_65, Leo04\_61, Liandry\_59, LilMartin\_57, Limpid\_37, Lululemon\_61, Mildred21\_58, Moab\_40, MulchMansion\_57, Muntaha\_36, Navo\_58, NootNoot\_56, Paradiddles\_56, Patelgo\_40, Peebs\_59, Pepperwood\_60, Persimmon\_56, PinkiePie\_58, Samisti12\_60, SeresaTree\_39, Sham\_37, SparkleGoddess\_40, Squillium\_59, Stigma\_40, Sushi23\_60, Targaryen\_61, Teutsch\_60, Tomas\_64, Tribute\_58, TunaTartare\_39, Wakanda\_36, Warpy\_64, Watermoore\_60, WhereRU\_59,

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

- Annadreamy\_37, PacManQ\_61,

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

- Amabiko\_62, Battuta\_60, Birchlyn\_59, BoomerJR\_62, Bordeaux\_60, CeilingFan\_64, Dorin\_54, Elmer\_69, Emma1919\_41, Enygma\_62, Forrest\_41, Francesca\_55, Genie2\_62, Gibbi\_66, Gilson\_41, IchabodCrane\_59, Jada\_39, JimJam\_62, Jollison\_67, Karimac\_61, Kenrey\_41, KentuckyRacer\_66, LukeCage\_61, MeganTheeKilla\_39, MindFlayer\_60, Mugiwara\_63, NiceHouse\_71, Phredrick\_39, PumpkinSpice\_61, Quaran19\_62, SaltySpittoon\_62, Sollertia\_62, Spelly\_62, Spilled\_63, Stanimal\_62, StarPlatinum\_62, Starbow\_60, TomSawyer\_60, Trina\_82, Wipeout\_60, Wofford\_61, Yaboi\_62,

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

Start 1:

- Found in 2 of 100 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dorin\_54 (CG), Francesca\_55 (CG),

Start 2:

- Found in 8 of 100 ( 8.0% ) of genes in pham

- Manual Annotations of this start: 5 of 86
- Called 62.5% of time when present
- Phage (with cluster) where this start called: Emma1919\_41 (BK1), Gilson\_41 (BK1), Kenrey\_41 (BK1), Phredrick\_39 (BK1), Trina\_82 (CE),

#### Start 3:

- Found in 58 of 100 ( 58.0% ) of genes in pham
- Manual Annotations of this start: 50 of 86
- Called 96.6% of time when present
- Phage (with cluster) where this start called: Anedea\_58 (BE1), Angela\_57 (BE1), Bartholomune\_58 (BE1), Belfort\_41 (BK1), Beuffert\_38 (BK1), BillNye\_35 (BK2), BlueOtter\_62 (BE1), Blueeyedbeauty\_39 (BK1), Bmoc\_58 (BE1), Braelyn\_59 (BE1), Circinus\_37 (BK2), Comrade\_40 (BK1), Cross\_60 (BE1), Cursive\_58 (BE1), Daubenski\_61 (BE1), EGole\_61 (BE1), Evy\_61 (BE1), Faust\_40 (BK1), Francob\_39 (BK1), HangryHippo\_62 (BE1), Jay2Jay\_65 (BE1), Karp\_39 (BK1), Larnav\_65 (BE1), Leo04\_61 (BE1), Liandry\_59 (BE1), LilMartin\_57 (BE1), Limpid\_37 (BK1), Lululemon\_61 (BE1), Mildred21\_58 (BE1), Moab\_40 (BK1), MulchMansion\_57 (BE1), Muntaha\_36 (BK2), Navo\_58 (BE1), NootNoot\_56 (BE1), Paradiddles\_56 (BE1), Patelgo\_40 (BK1), Peebs\_59 (BE1), Pepperwood\_60 (BE1), Persimmon\_56 (BE1), PinkiePie\_58 (BE1), Samisti12\_60 (BE1), SeresaTree\_39 (BK1), Sham\_37 (BK1), SparkleGoddess\_40 (BK1), Squillium\_59 (BE1), Stigma\_40 (BK1), Sushi23\_60 (BE1), Targaryen\_61 (BE1), Teutsch\_60 (BE1), Tomas\_64 (BE2), Tribute\_58 (BE1), TunaTartare\_39 (BK1), Wakanda\_36 (BK2), Warpy\_64 (BE1), Watermoore\_60 (BE1), WhereRU\_59 (BE1),

#### Start 4:

- Found in 1 of 100 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: NiceHouse\_71 (CE),

#### Start 5:

- Found in 57 of 100 ( 57.0% ) of genes in pham
- Manual Annotations of this start: 28 of 86
- Called 57.9% of time when present
- Phage (with cluster) where this start called: Amabiko\_62 (BE2), Battuta\_60 (BE2), Birchlyn\_59 (BE2), BoomerJR\_62 (BE2), Bordeaux\_60 (BE2), CeilingFan\_64 (BE2), Elmer\_69 (BE2), Enygma\_62 (BE2), Forrest\_41 (BK1), Genie2\_62 (BE2), Gibbi\_66 (BE2), IchabodCrane\_59 (BE2), Jada\_39 (BK1), JimJam\_62 (BE2), Jollison\_67 (BE2), Karimac\_61 (BE2), KentuckyRacer\_66 (BE2), LukeCage\_61 (BE2), MeganTheeKilla\_39 (BK1), MindFlayer\_60 (BE2), PumpkinSpice\_61 (BE2), Quaran19\_62 (BE2), SaltySpittoon\_62 (BE2), Sollertia\_62 (BE2), Spelly\_62 (BE2), Spilled\_63 (BE2), Stanimal\_62 (BE2), StarPlatinum\_62 (BE2), Starbow\_60 (BE2), TomSawyer\_60 (BE2), Wipeout\_60 (BE2), Wofford\_61 (BE2), Yaboi\_62 (BE2),

#### Start 7:

- Found in 4 of 100 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Annadreamy\_37 (BK1),

#### Start 9:

- Found in 96 of 100 ( 96.0% ) of genes in pham

- No Manual Annotations of this start.
- Called 2.1% of time when present
- Phage (with cluster) where this start called: Mugiwara\_63 (BE2), PacManQ\_61 (BE1),

### **Summary by clusters:**

There are 6 clusters represented in this pham: CG, CE, BK1, BK2, BE2, BE1,

Info for manual annotations of cluster BE1:

- Start number 3 was manually annotated 31 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 3 was manually annotated 1 time for cluster BE2.
- Start number 5 was manually annotated 25 times for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 2 was manually annotated 4 times for cluster BK1.
- Start number 3 was manually annotated 14 times for cluster BK1.
- Start number 5 was manually annotated 3 times for cluster BK1.
- Start number 7 was manually annotated 1 time for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 3 was manually annotated 4 times for cluster BK2.

Info for manual annotations of cluster CE:

- Start number 2 was manually annotated 1 time for cluster CE.
- Start number 4 was manually annotated 1 time for cluster CE.

Info for manual annotations of cluster CG:

- Start number 1 was manually annotated 1 time for cluster CG.

### **Gene Information:**

Gene: Amabiko\_62 Start: 40092, Stop: 40487, Start Num: 5

Candidate Starts for Amabiko\_62:

(Start: 5 @40092 has 28 MA's), (9, 40116), (15, 40200), (16, 40203), (17, 40215), (19, 40254), (28, 40365), (29, 40386), (33, 40404), (36, 40431), (38, 40452), (41, 40473),

Gene: Anedea\_58 Start: 39639, Stop: 40040, Start Num: 3

Candidate Starts for Anedea\_58:

(Start: 3 @39639 has 50 MA's), (Start: 5 @39645 has 28 MA's), (9, 39669), (13, 39726), (15, 39753), (17, 39768), (19, 39807), (27, 39912), (28, 39918), (29, 39939), (32, 39954), (33, 39957), (41, 40026),

Gene: Angela\_57 Start: 39097, Stop: 39498, Start Num: 3

Candidate Starts for Angela\_57:

(Start: 3 @39097 has 50 MA's), (Start: 5 @39103 has 28 MA's), (9, 39127), (13, 39184), (17, 39226), (19, 39265), (24, 39331), (27, 39370), (28, 39376), (29, 39397), (33, 39415), (34, 39433), (41, 39484),

Gene: Annadreamy\_37 Start: 28783, Stop: 29169, Start Num: 7

Candidate Starts for Annadreamy\_37:

(Start: 3 @28768 has 50 MA's), (Start: 7 @28783 has 1 MA's), (9, 28798), (15, 28882), (17, 28897), (20, 28948), (27, 29041), (32, 29083), (33, 29086), (41, 29155),

Gene: Bartholomune\_58 Start: 39407, Stop: 39808, Start Num: 3

Candidate Starts for Bartholomune\_58:

(Start: 3 @39407 has 50 MA's), (9, 39437), (10, 39458), (15, 39521), (17, 39536), (19, 39575), (24, 39641), (27, 39680), (28, 39686), (29, 39707), (33, 39725), (34, 39743), (41, 39794),

Gene: Battuta\_60 Start: 40066, Stop: 40461, Start Num: 5

Candidate Starts for Battuta\_60:

(Start: 5 @40066 has 28 MA's), (9, 40090), (15, 40174), (16, 40177), (17, 40189), (19, 40228), (28, 40339), (29, 40360), (33, 40378), (36, 40405), (38, 40426), (41, 40447),

Gene: Belfort\_41 Start: 31283, Stop: 31684, Start Num: 3

Candidate Starts for Belfort\_41:

(Start: 3 @31283 has 50 MA's), (6, 31295), (9, 31313), (15, 31397), (17, 31412), (20, 31463), (33, 31601), (41, 31670),

Gene: Beuffert\_38 Start: 29863, Stop: 30264, Start Num: 3

Candidate Starts for Beuffert\_38:

(Start: 3 @29863 has 50 MA's), (Start: 7 @29878 has 1 MA's), (9, 29893), (15, 29977), (17, 29992), (20, 30043), (27, 30136), (32, 30178), (33, 30181),

Gene: BillNye\_35 Start: 32157, Stop: 32558, Start Num: 3

Candidate Starts for BillNye\_35:

(Start: 3 @32157 has 50 MA's), (Start: 5 @32163 has 28 MA's), (8, 32184), (9, 32187), (12, 32238), (15, 32271), (17, 32286), (19, 32325), (20, 32337), (23, 32364), (33, 32475), (36, 32502),

Gene: Birchlyn\_59 Start: 37949, Stop: 38344, Start Num: 5

Candidate Starts for Birchlyn\_59:

(Start: 5 @37949 has 28 MA's), (9, 37973), (15, 38057), (16, 38060), (17, 38072), (19, 38111), (28, 38222), (29, 38243), (33, 38261), (36, 38288), (38, 38309), (41, 38330),

Gene: BlueOtter\_62 Start: 40784, Stop: 41185, Start Num: 3

Candidate Starts for BlueOtter\_62:

(Start: 3 @40784 has 50 MA's), (9, 40814), (15, 40898), (17, 40913), (24, 41018), (27, 41057), (28, 41063), (29, 41084), (33, 41102), (34, 41120), (40, 41165), (41, 41171),

Gene: Blueeyedbeauty\_39 Start: 29256, Stop: 29657, Start Num: 3

Candidate Starts for Blueeyedbeauty\_39:

(Start: 3 @29256 has 50 MA's), (Start: 7 @29271 has 1 MA's), (9, 29286), (15, 29370), (17, 29385), (20, 29436), (27, 29529), (32, 29571), (33, 29574),

Gene: Bmoc\_58 Start: 39424, Stop: 39825, Start Num: 3

Candidate Starts for Bmoc\_58:

(Start: 3 @39424 has 50 MA's), (Start: 5 @39430 has 28 MA's), (9, 39454), (15, 39538), (17, 39553), (19, 39592), (27, 39697), (28, 39703), (29, 39724), (32, 39739), (33, 39742), (41, 39811),

Gene: BoomerJR\_62 Start: 39945, Stop: 40340, Start Num: 5

Candidate Starts for BoomerJR\_62:

(Start: 5 @39945 has 28 MA's), (9, 39969), (15, 40053), (16, 40056), (17, 40068), (19, 40107), (28, 40218), (33, 40257), (35, 40281), (36, 40284), (38, 40305), (41, 40326),

Gene: Bordeaux\_60 Start: 40221, Stop: 40616, Start Num: 5

Candidate Starts for Bordeaux\_60:

(Start: 5 @40221 has 28 MA's), (9, 40245), (15, 40329), (16, 40332), (17, 40344), (19, 40383), (28, 40494), (29, 40515), (33, 40533), (36, 40560), (38, 40581), (41, 40602),

Gene: Braelyn\_59 Start: 40174, Stop: 40575, Start Num: 3

Candidate Starts for Braelyn\_59:

(Start: 3 @40174 has 50 MA's), (9, 40204), (10, 40225), (15, 40288), (17, 40303), (19, 40342), (24, 40408), (27, 40447), (28, 40453), (29, 40474), (33, 40492), (34, 40510), (41, 40561),

Gene: CeilingFan\_64 Start: 39981, Stop: 40376, Start Num: 5

Candidate Starts for CeilingFan\_64:

(Start: 5 @39981 has 28 MA's), (9, 40005), (15, 40089), (16, 40092), (17, 40104), (19, 40143), (28, 40254), (29, 40275), (33, 40293), (36, 40320), (38, 40341), (41, 40362),

Gene: Circinus\_37 Start: 32293, Stop: 32694, Start Num: 3

Candidate Starts for Circinus\_37:

(Start: 3 @32293 has 50 MA's), (Start: 5 @32299 has 28 MA's), (8, 32320), (9, 32323), (12, 32374), (15, 32407), (17, 32422), (19, 32461), (20, 32473), (23, 32500), (33, 32611), (36, 32638),

Gene: Comrade\_40 Start: 30898, Stop: 31299, Start Num: 3

Candidate Starts for Comrade\_40:

(Start: 3 @30898 has 50 MA's), (6, 30910), (9, 30928), (15, 31012), (17, 31027), (20, 31078), (33, 31216), (41, 31285),

Gene: Cross\_60 Start: 40785, Stop: 41186, Start Num: 3

Candidate Starts for Cross\_60:

(Start: 3 @40785 has 50 MA's), (9, 40815), (15, 40899), (17, 40914), (24, 41019), (27, 41058), (28, 41064), (29, 41085), (33, 41103), (34, 41121), (40, 41166), (41, 41172),

Gene: Cursive\_58 Start: 40310, Stop: 40711, Start Num: 3

Candidate Starts for Cursive\_58:

(Start: 3 @40310 has 50 MA's), (9, 40340), (15, 40424), (17, 40439), (24, 40544), (27, 40583), (28, 40589), (29, 40610), (33, 40628), (34, 40646), (40, 40691), (41, 40697),

Gene: Daubenski\_61 Start: 40505, Stop: 40906, Start Num: 3

Candidate Starts for Daubenski\_61:

(Start: 3 @40505 has 50 MA's), (9, 40535), (15, 40619), (17, 40634), (19, 40673), (24, 40739), (33, 40823), (34, 40841), (41, 40892),

Gene: Dorin\_54 Start: 40198, Stop: 40644, Start Num: 1

Candidate Starts for Dorin\_54:

(Start: 1 @40198 has 1 MA's), (14, 40312), (15, 40327), (16, 40330), (19, 40381), (24, 40447), (25, 40468), (30, 40549), (31, 40552), (33, 40558),

Gene: EGole\_61 Start: 41734, Stop: 42135, Start Num: 3

Candidate Starts for EGole\_61:

(Start: 3 @41734 has 50 MA's), (9, 41764), (15, 41848), (17, 41863), (24, 41968), (27, 42007), (28, 42013), (29, 42034), (33, 42052), (34, 42070), (40, 42115), (41, 42121),

Gene: Elmer\_69 Start: 41163, Stop: 41558, Start Num: 5

Candidate Starts for Elmer\_69:

(Start: 5 @41163 has 28 MA's), (8, 41184), (9, 41187), (15, 41271), (17, 41286), (19, 41325), (27, 41430), (32, 41472), (33, 41475), (41, 41544),

Gene: Emma1919\_41 Start: 29663, Stop: 30064, Start Num: 2

Candidate Starts for Emma1919\_41:

(Start: 2 @29663 has 5 MA's), (Start: 5 @29669 has 28 MA's), (9, 29693), (15, 29777), (17, 29792), (20, 29843), (28, 29942), (33, 29981), (41, 30050),

Gene: Enygma\_62 Start: 41893, Stop: 42288, Start Num: 5

Candidate Starts for Enygma\_62:

(Start: 5 @41893 has 28 MA's), (9, 41917), (10, 41938), (15, 42001), (17, 42016), (19, 42055), (33, 42205), (38, 42253), (41, 42274),

Gene: Evy\_61 Start: 40773, Stop: 41174, Start Num: 3

Candidate Starts for Evy\_61:

(Start: 3 @40773 has 50 MA's), (9, 40803), (10, 40824), (15, 40887), (17, 40902), (19, 40941), (24, 41007), (27, 41046), (28, 41052), (29, 41073), (33, 41091), (34, 41109), (41, 41160),

Gene: Faust\_40 Start: 30251, Stop: 30652, Start Num: 3

Candidate Starts for Faust\_40:

(Start: 3 @30251 has 50 MA's), (Start: 5 @30257 has 28 MA's), (9, 30281), (12, 30332), (15, 30365), (17, 30380), (20, 30431), (21, 30434), (33, 30569), (37, 30611), (41, 30638),

Gene: Forrest\_41 Start: 29804, Stop: 30199, Start Num: 5

Candidate Starts for Forrest\_41:

(Start: 2 @29798 has 5 MA's), (Start: 5 @29804 has 28 MA's), (9, 29828), (15, 29912), (17, 29927), (20, 29978), (28, 30077), (33, 30116), (41, 30185),

Gene: Francesca\_55 Start: 40330, Stop: 40776, Start Num: 1

Candidate Starts for Francesca\_55:

(Start: 1 @40330 has 1 MA's), (14, 40444), (15, 40459), (16, 40462), (19, 40513), (24, 40579), (25, 40600), (30, 40681), (31, 40684), (33, 40690),

Gene: Francob\_39 Start: 29804, Stop: 30199, Start Num: 3

Candidate Starts for Francob\_39:

(Start: 3 @29804 has 50 MA's), (Start: 5 @29810 has 28 MA's), (9, 29828), (15, 29912), (17, 29927), (20, 29978), (33, 30116), (41, 30185),

Gene: Genie2\_62 Start: 40059, Stop: 40454, Start Num: 5

Candidate Starts for Genie2\_62:

(Start: 5 @40059 has 28 MA's), (9, 40083), (15, 40167), (16, 40170), (17, 40182), (19, 40221), (28, 40332), (32, 40368), (33, 40371), (35, 40395), (36, 40398), (38, 40419), (41, 40440),

Gene: Gibbi\_66 Start: 40204, Stop: 40599, Start Num: 5

Candidate Starts for Gibbi\_66:

(Start: 5 @40204 has 28 MA's), (9, 40228), (15, 40312), (16, 40315), (17, 40327), (19, 40366), (28, 40477), (29, 40498), (33, 40516), (36, 40543), (38, 40564), (41, 40585),

Gene: Gilson\_41 Start: 29616, Stop: 30017, Start Num: 2

Candidate Starts for Gilson\_41:

(Start: 2 @29616 has 5 MA's), (Start: 5 @29622 has 28 MA's), (9, 29646), (15, 29730), (17, 29745), (20, 29796), (28, 29895), (33, 29934), (41, 30003),



Gene: HangryHippo\_62 Start: 40784, Stop: 41185, Start Num: 3  
Candidate Starts for HangryHippo\_62:  
(Start: 3 @40784 has 50 MA's), (9, 40814), (15, 40898), (17, 40913), (24, 41018), (27, 41057), (28, 41063), (29, 41084), (33, 41102), (34, 41120), (40, 41165), (41, 41171),

Gene: IchabodCrane\_59 Start: 39793, Stop: 40188, Start Num: 5  
Candidate Starts for IchabodCrane\_59:  
(Start: 5 @39793 has 28 MA's), (9, 39817), (15, 39901), (16, 39904), (17, 39916), (19, 39955), (28, 40066), (29, 40087), (33, 40105), (36, 40132), (38, 40153), (41, 40174),

Gene: Jada\_39 Start: 28986, Stop: 29381, Start Num: 5  
Candidate Starts for Jada\_39:  
(Start: 2 @28980 has 5 MA's), (Start: 5 @28986 has 28 MA's), (9, 29010), (15, 29094), (17, 29109), (20, 29160), (28, 29259), (33, 29298), (41, 29367),

Gene: Jay2Jay\_65 Start: 41626, Stop: 42027, Start Num: 3  
Candidate Starts for Jay2Jay\_65:  
(Start: 3 @41626 has 50 MA's), (9, 41656), (10, 41677), (15, 41740), (17, 41755), (19, 41794), (24, 41860), (27, 41899), (28, 41905), (29, 41926), (33, 41944), (34, 41962), (41, 42013),

Gene: JimJam\_62 Start: 40167, Stop: 40562, Start Num: 5  
Candidate Starts for JimJam\_62:  
(Start: 5 @40167 has 28 MA's), (9, 40191), (15, 40275), (16, 40278), (17, 40290), (19, 40329), (28, 40440), (29, 40461), (33, 40479), (36, 40506), (38, 40527), (41, 40548),

Gene: Jollison\_67 Start: 40049, Stop: 40444, Start Num: 5  
Candidate Starts for Jollison\_67:  
(Start: 5 @40049 has 28 MA's), (9, 40073), (15, 40157), (16, 40160), (17, 40172), (19, 40211), (28, 40322), (29, 40343), (33, 40361), (36, 40388), (38, 40409), (41, 40430),

Gene: Karimac\_61 Start: 40198, Stop: 40593, Start Num: 5  
Candidate Starts for Karimac\_61:  
(Start: 5 @40198 has 28 MA's), (9, 40222), (15, 40306), (16, 40309), (17, 40321), (19, 40360), (28, 40471), (29, 40492), (33, 40510), (36, 40537), (38, 40558), (41, 40579),

Gene: Karp\_39 Start: 30498, Stop: 30899, Start Num: 3  
Candidate Starts for Karp\_39:  
(Start: 3 @30498 has 50 MA's), (6, 30510), (9, 30528), (15, 30612), (17, 30627), (20, 30678), (33, 30816), (41, 30885),

Gene: Kenrey\_41 Start: 29809, Stop: 30210, Start Num: 2  
Candidate Starts for Kenrey\_41:  
(Start: 2 @29809 has 5 MA's), (Start: 5 @29815 has 28 MA's), (9, 29839), (15, 29923), (17, 29938), (20, 29989), (22, 30001), (28, 30088), (33, 30127), (37, 30169), (41, 30196),

Gene: KentuckyRacer\_66 Start: 39982, Stop: 40377, Start Num: 5  
Candidate Starts for KentuckyRacer\_66:  
(Start: 5 @39982 has 28 MA's), (9, 40006), (15, 40090), (16, 40093), (17, 40105), (19, 40144), (28, 40255), (29, 40276), (33, 40294), (36, 40321), (38, 40342), (41, 40363),

Gene: Larnav\_65 Start: 40769, Stop: 41170, Start Num: 3  
Candidate Starts for Larnav\_65:

(Start: 3 @40769 has 50 MA's), (9, 40799), (15, 40883), (17, 40898), (24, 41003), (27, 41042), (28, 41048), (29, 41069), (33, 41087), (34, 41105), (40, 41150), (41, 41156),

Gene: Leo04\_61 Start: 41284, Stop: 41685, Start Num: 3

Candidate Starts for Leo04\_61:

(Start: 3 @41284 has 50 MA's), (9, 41314), (15, 41398), (17, 41413), (24, 41518), (27, 41557), (28, 41563), (29, 41584), (33, 41602), (34, 41620), (40, 41665), (41, 41671),

Gene: Liandry\_59 Start: 40156, Stop: 40557, Start Num: 3

Candidate Starts for Liandry\_59:

(Start: 3 @40156 has 50 MA's), (9, 40186), (10, 40207), (15, 40270), (17, 40285), (19, 40324), (24, 40390), (27, 40429), (28, 40435), (29, 40456), (33, 40474), (34, 40492), (41, 40543),

Gene: LilMartin\_57 Start: 39045, Stop: 39446, Start Num: 3

Candidate Starts for LilMartin\_57:

(Start: 3 @39045 has 50 MA's), (Start: 5 @39051 has 28 MA's), (9, 39075), (13, 39132), (17, 39174), (19, 39213), (24, 39279), (27, 39318), (28, 39324), (29, 39345), (33, 39363), (34, 39381), (41, 39432),

Gene: Limpid\_37 Start: 28767, Stop: 29168, Start Num: 3

Candidate Starts for Limpid\_37:

(Start: 3 @28767 has 50 MA's), (Start: 7 @28782 has 1 MA's), (9, 28797), (15, 28881), (17, 28896), (20, 28947), (27, 29040), (32, 29082), (33, 29085), (41, 29154),

Gene: LukeCage\_61 Start: 39957, Stop: 40352, Start Num: 5

Candidate Starts for LukeCage\_61:

(Start: 5 @39957 has 28 MA's), (9, 39981), (15, 40065), (19, 40119), (28, 40230), (33, 40269), (38, 40317), (41, 40338),

Gene: Lululemon\_61 Start: 40165, Stop: 40566, Start Num: 3

Candidate Starts for Lululemon\_61:

(Start: 3 @40165 has 50 MA's), (9, 40195), (15, 40279), (17, 40294), (24, 40399), (27, 40438), (28, 40444), (29, 40465), (33, 40483), (34, 40501), (40, 40546), (41, 40552),

Gene: MeganTheeKilla\_39 Start: 28983, Stop: 29378, Start Num: 5

Candidate Starts for MeganTheeKilla\_39:

(Start: 2 @28977 has 5 MA's), (Start: 5 @28983 has 28 MA's), (9, 29007), (15, 29091), (17, 29106), (20, 29157), (28, 29256), (33, 29295), (41, 29364),

Gene: Mildred21\_58 Start: 39238, Stop: 39639, Start Num: 3

Candidate Starts for Mildred21\_58:

(Start: 3 @39238 has 50 MA's), (Start: 5 @39244 has 28 MA's), (9, 39268), (12, 39319), (15, 39352), (17, 39367), (19, 39406), (24, 39472), (27, 39511), (29, 39538), (33, 39556), (34, 39574), (41, 39625),

Gene: MindFlayer\_60 Start: 39700, Stop: 40095, Start Num: 5

Candidate Starts for MindFlayer\_60:

(Start: 5 @39700 has 28 MA's), (9, 39724), (15, 39808), (16, 39811), (17, 39823), (19, 39862), (28, 39973), (29, 39994), (33, 40012), (36, 40039), (38, 40060), (41, 40081),

Gene: Moab\_40 Start: 30850, Stop: 31251, Start Num: 3

Candidate Starts for Moab\_40:

(Start: 3 @30850 has 50 MA's), (Start: 5 @30856 has 28 MA's), (9, 30880), (11, 30925), (15, 30964), (17, 30979), (20, 31030), (27, 31123), (29, 31150), (33, 31168), (37, 31210), (41, 31237),

Gene: Mugiwara\_63 Start: 40460, Stop: 40831, Start Num: 9

Candidate Starts for Mugiwara\_63:

(Start: 5 @40436 has 28 MA's), (9, 40460), (15, 40544), (16, 40547), (17, 40559), (19, 40598), (28, 40709), (29, 40730), (32, 40745), (33, 40748), (38, 40796), (41, 40817),

Gene: MulchMansion\_57 Start: 39045, Stop: 39446, Start Num: 3

Candidate Starts for MulchMansion\_57:

(Start: 3 @39045 has 50 MA's), (Start: 5 @39051 has 28 MA's), (9, 39075), (13, 39132), (17, 39174), (19, 39213), (24, 39279), (27, 39318), (28, 39324), (29, 39345), (33, 39363), (34, 39381), (41, 39432),

Gene: Muntaha\_36 Start: 30581, Stop: 30982, Start Num: 3

Candidate Starts for Muntaha\_36:

(Start: 3 @30581 has 50 MA's), (Start: 5 @30587 has 28 MA's), (8, 30608), (9, 30611), (18, 30725), (20, 30761), (29, 30881), (33, 30899), (36, 30926), (37, 30941),

Gene: Navo\_58 Start: 40075, Stop: 40476, Start Num: 3

Candidate Starts for Navo\_58:

(Start: 3 @40075 has 50 MA's), (9, 40105), (10, 40126), (15, 40189), (17, 40204), (19, 40243), (24, 40309), (27, 40348), (28, 40354), (29, 40375), (33, 40393), (34, 40411), (41, 40462),

Gene: NiceHouse\_71 Start: 46995, Stop: 47402, Start Num: 4

Candidate Starts for NiceHouse\_71:

(Start: 4 @46995 has 1 MA's), (12, 47073), (14, 47091), (15, 47106), (16, 47109), (17, 47121), (33, 47310), (35, 47334), (38, 47367), (39, 47376), (41, 47388), (42, 47391),

Gene: NootNoot\_56 Start: 39070, Stop: 39471, Start Num: 3

Candidate Starts for NootNoot\_56:

(Start: 3 @39070 has 50 MA's), (9, 39100), (10, 39121), (15, 39184), (17, 39199), (19, 39238), (24, 39304), (27, 39343), (28, 39349), (33, 39388), (34, 39406), (41, 39457),

Gene: PacManQ\_61 Start: 40195, Stop: 40566, Start Num: 9

Candidate Starts for PacManQ\_61:

(Start: 3 @40165 has 50 MA's), (9, 40195), (15, 40279), (17, 40294), (24, 40399), (27, 40438), (28, 40444), (29, 40465), (33, 40483), (34, 40501), (40, 40546), (41, 40552),

Gene: Paradiddles\_56 Start: 39331, Stop: 39732, Start Num: 3

Candidate Starts for Paradiddles\_56:

(Start: 3 @39331 has 50 MA's), (9, 39361), (10, 39382), (15, 39445), (17, 39460), (19, 39499), (24, 39565), (27, 39604), (28, 39610), (33, 39649), (34, 39667), (41, 39718),

Gene: Patelgo\_40 Start: 31040, Stop: 31441, Start Num: 3

Candidate Starts for Patelgo\_40:

(Start: 3 @31040 has 50 MA's), (Start: 5 @31046 has 28 MA's), (9, 31070), (11, 31115), (15, 31154), (17, 31169), (20, 31220), (27, 31313), (29, 31340), (33, 31358), (37, 31400), (41, 31427),

Gene: Peebs\_59 Start: 40522, Stop: 40923, Start Num: 3

Candidate Starts for Peebs\_59:

(Start: 3 @40522 has 50 MA's), (9, 40552), (15, 40636), (17, 40651), (24, 40756), (27, 40795), (28, 40801), (29, 40822), (33, 40840), (34, 40858), (40, 40903), (41, 40909),

Gene: Pepperwood\_60 Start: 40655, Stop: 41056, Start Num: 3

Candidate Starts for Pepperwood\_60:

(Start: 3 @40655 has 50 MA's), (9, 40685), (15, 40769), (17, 40784), (24, 40889), (27, 40928), (28, 40934), (29, 40955), (33, 40973), (34, 40991), (40, 41036), (41, 41042),

Gene: Persimmon\_56 Start: 39000, Stop: 39401, Start Num: 3

Candidate Starts for Persimmon\_56:

(Start: 3 @39000 has 50 MA's), (9, 39030), (10, 39051), (15, 39114), (17, 39129), (19, 39168), (24, 39234), (27, 39273), (28, 39279), (29, 39300), (33, 39318), (34, 39336), (41, 39387),

Gene: Phredrick\_39 Start: 28883, Stop: 29284, Start Num: 2

Candidate Starts for Phredrick\_39:

(Start: 2 @28883 has 5 MA's), (Start: 5 @28889 has 28 MA's), (9, 28913), (15, 28997), (17, 29012), (20, 29063), (28, 29162), (33, 29201), (37, 29243), (41, 29270),

Gene: PinkiePie\_58 Start: 40156, Stop: 40557, Start Num: 3

Candidate Starts for PinkiePie\_58:

(Start: 3 @40156 has 50 MA's), (9, 40186), (10, 40207), (15, 40270), (17, 40285), (19, 40324), (24, 40390), (27, 40429), (28, 40435), (29, 40456), (33, 40474), (34, 40492), (41, 40543),

Gene: PumpkinSpice\_61 Start: 40092, Stop: 40487, Start Num: 5

Candidate Starts for PumpkinSpice\_61:

(Start: 5 @40092 has 28 MA's), (9, 40116), (15, 40200), (16, 40203), (17, 40215), (19, 40254), (28, 40365), (29, 40386), (33, 40404), (36, 40431), (38, 40452), (41, 40473),

Gene: Quaran19\_62 Start: 40083, Stop: 40478, Start Num: 5

Candidate Starts for Quaran19\_62:

(Start: 5 @40083 has 28 MA's), (9, 40107), (15, 40191), (16, 40194), (17, 40206), (19, 40245), (28, 40356), (29, 40377), (33, 40395), (36, 40422), (38, 40443), (41, 40464),

Gene: SaltySpittoon\_62 Start: 40092, Stop: 40487, Start Num: 5

Candidate Starts for SaltySpittoon\_62:

(Start: 5 @40092 has 28 MA's), (9, 40116), (15, 40200), (16, 40203), (17, 40215), (19, 40254), (28, 40365), (29, 40386), (33, 40404), (36, 40431), (38, 40452), (41, 40473),

Gene: Samisti12\_60 Start: 41958, Stop: 42359, Start Num: 3

Candidate Starts for Samisti12\_60:

(Start: 3 @41958 has 50 MA's), (Start: 5 @41964 has 28 MA's), (9, 41988), (15, 42072), (17, 42087), (24, 42192), (27, 42231), (28, 42237), (29, 42258), (33, 42276), (34, 42294), (40, 42339), (41, 42345),

Gene: SeresaTree\_39 Start: 29641, Stop: 30042, Start Num: 3

Candidate Starts for SeresaTree\_39:

(Start: 3 @29641 has 50 MA's), (Start: 5 @29647 has 28 MA's), (9, 29671), (12, 29722), (15, 29755), (17, 29770), (20, 29821), (21, 29824), (33, 29959), (37, 30001), (41, 30028),

Gene: Sham\_37 Start: 30760, Stop: 31161, Start Num: 3

Candidate Starts for Sham\_37:

(Start: 3 @30760 has 50 MA's), (Start: 5 @30766 has 28 MA's), (9, 30790), (11, 30835), (15, 30874), (17, 30889), (20, 30940), (33, 31078), (37, 31120),

Gene: Sollertia\_62 Start: 40059, Stop: 40454, Start Num: 5

Candidate Starts for Sollertia\_62:

(Start: 5 @40059 has 28 MA's), (9, 40083), (15, 40167), (16, 40170), (17, 40182), (19, 40221), (28, 40332), (32, 40368), (33, 40371), (35, 40395), (36, 40398), (38, 40419), (41, 40440),

Gene: SparkleGoddess\_40 Start: 30900, Stop: 31301, Start Num: 3

Candidate Starts for SparkleGoddess\_40:

(Start: 3 @30900 has 50 MA's), (6, 30912), (9, 30930), (15, 31014), (17, 31029), (20, 31080), (33, 31218), (41, 31287),

Gene: Spelly\_62 Start: 40047, Stop: 40442, Start Num: 5

Candidate Starts for Spelly\_62:

(Start: 5 @40047 has 28 MA's), (9, 40071), (15, 40155), (16, 40158), (17, 40170), (19, 40209), (28, 40320), (29, 40341), (33, 40359), (36, 40386), (38, 40407), (41, 40428),

Gene: Spilled\_63 Start: 40164, Stop: 40559, Start Num: 5

Candidate Starts for Spilled\_63:

(Start: 5 @40164 has 28 MA's), (9, 40188), (15, 40272), (16, 40275), (17, 40287), (19, 40326), (28, 40437), (29, 40458), (33, 40476), (36, 40503), (38, 40524), (41, 40545),

Gene: Squillium\_59 Start: 40157, Stop: 40558, Start Num: 3

Candidate Starts for Squillium\_59:

(Start: 3 @40157 has 50 MA's), (9, 40187), (10, 40208), (15, 40271), (17, 40286), (19, 40325), (24, 40391), (27, 40430), (28, 40436), (29, 40457), (33, 40475), (34, 40493), (41, 40544),

Gene: Stanimal\_62 Start: 39948, Stop: 40343, Start Num: 5

Candidate Starts for Stanimal\_62:

(Start: 5 @39948 has 28 MA's), (9, 39972), (15, 40056), (16, 40059), (17, 40071), (19, 40110), (28, 40221), (33, 40260), (35, 40284), (36, 40287), (38, 40308), (41, 40329),

Gene: StarPlatinum\_62 Start: 40597, Stop: 40992, Start Num: 5

Candidate Starts for StarPlatinum\_62:

(Start: 5 @40597 has 28 MA's), (9, 40621), (15, 40705), (19, 40759), (28, 40870), (29, 40891), (33, 40909), (38, 40957), (41, 40978),

Gene: Starbow\_60 Start: 40068, Stop: 40463, Start Num: 5

Candidate Starts for Starbow\_60:

(Start: 5 @40068 has 28 MA's), (9, 40092), (15, 40176), (16, 40179), (17, 40191), (19, 40230), (28, 40341), (29, 40362), (33, 40380), (36, 40407), (38, 40428), (41, 40449),

Gene: Stigma\_40 Start: 30901, Stop: 31302, Start Num: 3

Candidate Starts for Stigma\_40:

(Start: 3 @30901 has 50 MA's), (6, 30913), (9, 30931), (15, 31015), (17, 31030), (20, 31081), (33, 31219), (41, 31288),

Gene: Sushi23\_60 Start: 40880, Stop: 41281, Start Num: 3

Candidate Starts for Sushi23\_60:

(Start: 3 @40880 has 50 MA's), (9, 40910), (15, 40994), (17, 41009), (24, 41114), (27, 41153), (28, 41159), (29, 41180), (33, 41198), (34, 41216), (40, 41261), (41, 41267),

Gene: Targaryen\_61 Start: 41675, Stop: 42076, Start Num: 3

Candidate Starts for Targaryen\_61:

(Start: 3 @41675 has 50 MA's), (9, 41705), (10, 41726), (15, 41789), (17, 41804), (19, 41843), (24, 41909), (27, 41948), (28, 41954), (29, 41975), (33, 41993), (34, 42011), (41, 42062),

Gene: Teutsch\_60 Start: 41143, Stop: 41544, Start Num: 3

Candidate Starts for Teutsch\_60:

(Start: 3 @41143 has 50 MA's), (9, 41173), (15, 41257), (17, 41272), (24, 41377), (27, 41416), (28, 41422), (29, 41443), (33, 41461), (34, 41479), (40, 41524), (41, 41530),

Gene: TomSawyer\_60 Start: 39686, Stop: 40081, Start Num: 5

Candidate Starts for TomSawyer\_60:

(Start: 5 @39686 has 28 MA's), (9, 39710), (15, 39794), (16, 39797), (17, 39809), (19, 39848), (28, 39959), (29, 39980), (33, 39998), (36, 40025), (38, 40046), (41, 40067),

Gene: Tomas\_64 Start: 42399, Stop: 42800, Start Num: 3

Candidate Starts for Tomas\_64:

(Start: 3 @42399 has 50 MA's), (Start: 5 @42405 has 28 MA's), (8, 42426), (9, 42429), (15, 42513), (17, 42528), (19, 42567), (26, 42666), (33, 42717), (41, 42786),

Gene: Tribute\_58 Start: 40349, Stop: 40750, Start Num: 3

Candidate Starts for Tribute\_58:

(Start: 3 @40349 has 50 MA's), (9, 40379), (15, 40463), (17, 40478), (24, 40583), (27, 40622), (28, 40628), (29, 40649), (33, 40667), (34, 40685), (40, 40730), (41, 40736),

Gene: Trina\_82 Start: 50742, Stop: 51155, Start Num: 2

Candidate Starts for Trina\_82:

(Start: 2 @50742 has 5 MA's), (8, 50772), (15, 50859), (33, 51063), (36, 51090), (41, 51141),

Gene: TunaTartare\_39 Start: 31055, Stop: 31456, Start Num: 3

Candidate Starts for TunaTartare\_39:

(Start: 3 @31055 has 50 MA's), (Start: 5 @31061 has 28 MA's), (9, 31085), (11, 31130), (15, 31169), (20, 31235), (33, 31373), (37, 31415),

Gene: Wakanda\_36 Start: 30519, Stop: 30920, Start Num: 3

Candidate Starts for Wakanda\_36:

(Start: 3 @30519 has 50 MA's), (Start: 5 @30525 has 28 MA's), (8, 30546), (9, 30549), (18, 30663), (20, 30699), (29, 30819), (33, 30837), (36, 30864), (37, 30879),

Gene: Warpy\_64 Start: 41139, Stop: 41540, Start Num: 3

Candidate Starts for Warpy\_64:

(Start: 3 @41139 has 50 MA's), (9, 41169), (10, 41190), (15, 41253), (17, 41268), (19, 41307), (24, 41373), (27, 41412), (28, 41418), (29, 41439), (33, 41457), (34, 41475), (41, 41526),

Gene: Watermoore\_60 Start: 41356, Stop: 41757, Start Num: 3

Candidate Starts for Watermoore\_60:

(Start: 3 @41356 has 50 MA's), (9, 41386), (15, 41470), (17, 41485), (24, 41590), (27, 41629), (28, 41635), (29, 41656), (33, 41674), (34, 41692), (40, 41737), (41, 41743),

Gene: WhereRU\_59 Start: 39591, Stop: 39992, Start Num: 3

Candidate Starts for WhereRU\_59:

(Start: 3 @39591 has 50 MA's), (9, 39621), (10, 39642), (15, 39705), (17, 39720), (19, 39759), (24, 39825), (27, 39864), (28, 39870), (29, 39891), (33, 39909), (34, 39927), (41, 39978),

Gene: Wipeout\_60 Start: 40437, Stop: 40832, Start Num: 5

Candidate Starts for Wipeout\_60:

(Start: 5 @40437 has 28 MA's), (9, 40461), (15, 40545), (16, 40548), (17, 40560), (19, 40599), (28, 40710), (29, 40731), (33, 40749), (36, 40776), (38, 40797), (41, 40818),

Gene: Wofford\_61 Start: 41126, Stop: 41521, Start Num: 5

Candidate Starts for Wofford\_61:

(Start: 5 @41126 has 28 MA's), (9, 41150), (15, 41234), (17, 41249), (19, 41288), (28, 41399), (32, 41435), (33, 41438), (41, 41507),

Gene: Yaboi\_62 Start: 40036, Stop: 40431, Start Num: 5

Candidate Starts for Yaboi\_62:

(Start: 5 @40036 has 28 MA's), (9, 40060), (15, 40144), (16, 40147), (17, 40159), (19, 40198), (28, 40309), (33, 40348), (35, 40372), (36, 40375), (38, 40396), (41, 40417),