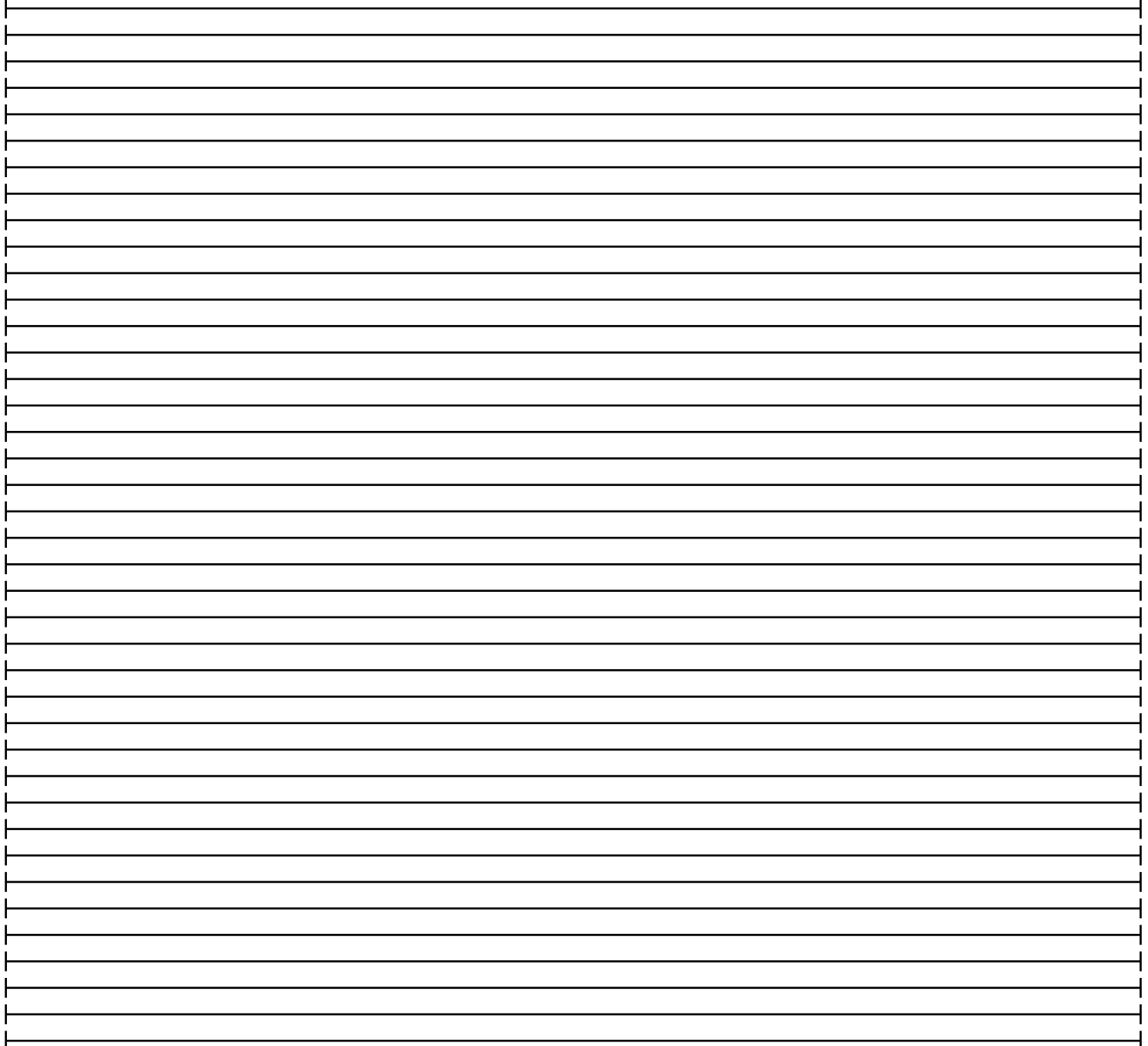
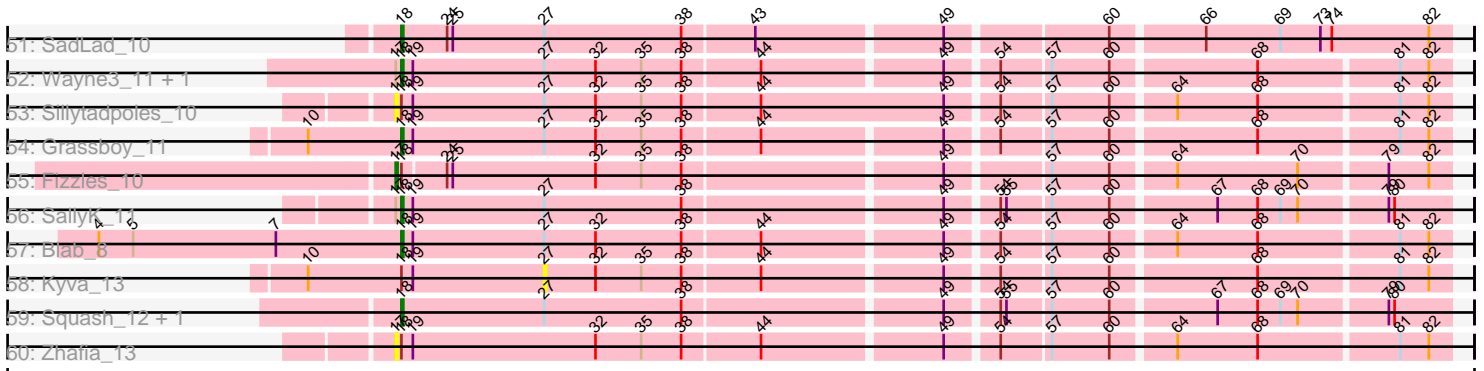


Pham 157686



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 157686 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157686 has 131 members, 22 are drafts.

Phages represented in each track:

- Track 1 : MulchMansion\_88, LilMartin\_88, Angela\_88
- Track 2 : Braelyn\_91
- Track 3 : Jay2Jay\_95, Warpy\_94
- Track 4 : Squillium\_90, PinkiePie\_89, Bartholomune\_89, Liandry\_89, Persimmon\_89, NootNoot\_86
- Track 5 : Cross\_91, PacManQ\_91, Cursive\_89, HangryHippo\_93, Pepperwood\_91, Tribute\_89, Peebs\_90, Leo04\_92, Sushi23\_90, BlueOtter\_93, EGole\_92, Watermoore\_90, Lululemon\_91
- Track 6 : Daubenski\_93
- Track 7 : Mildred21\_89
- Track 8 : Bmoc\_89
- Track 9 : Samisti12\_91, Teutsch\_91
- Track 10 : Paradiddles\_86
- Track 11 : Larnav\_97
- Track 12 : Anedea\_89
- Track 13 : Evy\_91, Targaryen\_91
- Track 14 : IchabodCrane\_91, Spelly\_94, Amabiko\_94, CeilingFan\_96, MindFlayer\_91, Quaran19\_93, SaltySpittoon\_93, PumpkinSpice\_93, Wipeout\_91, Starbow\_92, Gibbi\_98, Spilled\_95, TomSawyer\_92, Karimac\_93, Birchlyn\_91, JimJam\_94, Jollison\_98
- Track 15 : Tomas\_96
- Track 16 : Sollertia\_94, Genie2\_94, Stanimal\_94, BoomerJR\_94, Yaboi\_94
- Track 17 : Enygma\_94
- Track 18 : Battuta\_92, Bordeaux\_92, StarPlatinum\_94
- Track 19 : LukeCage\_93
- Track 20 : Elmer\_101, Wofford\_93
- Track 21 : Mugiwara\_96
- Track 22 : KentuckyRacer\_98
- Track 23 : Patelgo\_75, Moab\_75
- Track 24 : Sham\_72
- Track 25 : TunaTartare\_75
- Track 26 : Gilson\_76, Forrest\_78, Emma1919\_77, MeganTheeKilla\_74, Jada\_76
- Track 27 : Faust\_76, SeresaTree\_76
- Track 28 : Phredrick\_75, Kenrey\_77
- Track 29 : Annadreamy\_73, Limpid\_72
- Track 30 : Francob\_74
- Track 31 : Comrade\_75, Karp\_73, SparkleGoddess\_75, Belfort\_77

- Track 32 : Stigma\_74
- Track 33 : Beuffert\_72
- Track 34 : Blueeyedbeauty\_74
- Track 35 : Circinus\_70, BillNye\_69
- Track 36 : Wakanda\_70, Muntaha\_71
- Track 37 : Mashley\_7, Hyperion\_8
- Track 38 : Namago\_10, Phabia\_10, StrawberryJamm\_12
- Track 39 : Tissue\_9, Jehoshaphat\_12, Teehee\_12
- Track 40 : Fransoyer\_10, RubyRalph\_10
- Track 41 : Viceroy\_9, Quammi\_8, Rudy\_8, Llemily\_10
- Track 42 : AluminumJesus\_8
- Track 43 : Phinky\_14
- Track 44 : BabyDotz\_9
- Track 45 : Judebell\_12
- Track 46 : Zagie\_11, Rowlf\_8
- Track 47 : Lonelysoil\_9
- Track 48 : Gazebo\_8
- Track 49 : DonaldDuck\_10, Wheelie\_9
- Track 50 : Altheas\_12
- Track 51 : SadLad\_10
- Track 52 : Wayne3\_11, Casend\_11
- Track 53 : Sillytadpoles\_10
- Track 54 : Grassboy\_11
- Track 55 : Fizzles\_10
- Track 56 : SallyK\_11
- Track 57 : Blab\_8
- Track 58 : Kyva\_13
- Track 59 : Squash\_12, Nike\_11
- Track 60 : Zhafia\_13

***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 55 of the 109 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Amabiko\_94, Anedeaa\_89, Angela\_88, Bartholomune\_89, Battuta\_92, Birchlyn\_91, BlueOtter\_93, Bmoc\_89, BoomerJR\_94, Bordeaux\_92, Braelyn\_91, CeilingFan\_96, Cross\_91, Cursive\_89, Daubenski\_93, EGole\_92, Elmer\_101, Enygma\_94, Evy\_91, Genie2\_94, Gibbi\_98, HangryHippo\_93, IchabodCrane\_91, Jay2Jay\_95, JimJam\_94, Jollison\_98, Karimac\_93, Larnav\_97, Leo04\_92, Liandry\_89, LilMartin\_88, LukeCage\_93, Lululemon\_91, Mildred21\_89, MindFlayer\_91, MulchMansion\_88, NootNoot\_86, PacManQ\_91, Paradiddles\_86, Peebs\_90, Pepperwood\_91, Persimmon\_89, PinkiePie\_89, PumpkinSpice\_93, Quaran19\_93, SaltySpittoon\_93, Samisti12\_91, Sollertia\_94, Spelly\_94, Spilled\_95, Squillium\_90, Stanimal\_94, StarPlatinum\_94, Starbow\_92, Sushi23\_90, Targaryen\_91, Teutsch\_91, TomSawyer\_92, Tomas\_96, Tribute\_89, Warpy\_94, Watermoore\_90, Wipeout\_91, Wofford\_93, Yaboi\_94,

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

- Fransoyer\_10, KentuckyRacer\_98, Mugiwara\_96, Phinky\_14, RubyRalph\_10,

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

- Altheas\_12, AluminumJesus\_8, Annadreamy\_73, BabyDotz\_9, Belfort\_77, Beuffert\_72, BillNye\_69, Blab\_8, Blueeyedbeauty\_74, Casend\_11, Circinus\_70, Comrade\_75, DonaldDuck\_10, Emma1919\_77, Faust\_76, Fizzles\_10, Forrest\_78, Francob\_74, Gazebo\_8, Gilson\_76, Grassboy\_11, Hyperion\_8, Jada\_76, Jehoshaphat\_12, Judebell\_12, Karp\_73, Kenrey\_77, Kyva\_13, Limpid\_72, Llemily\_10, Lonelysoil\_9, Mashley\_7, MeganTheeKilla\_74, Moab\_75, Muntaha\_71, Namago\_10, Nike\_11, Patelgo\_75, Phabia\_10, Phredrick\_75, Quammi\_8, Rowlf\_8, Rudy\_8, SadLad\_10, SallyK\_11, SeresaTree\_76, Sham\_72, Sillytadpoles\_10, SparkleGoddess\_75, Squash\_12, Stigma\_74, StrawberryJamm\_12, Teehee\_12, Tissue\_9, TunaTartare\_75, Viceroy\_9, Wakanda\_70, Wayne3\_11, Wheelie\_9, Zagie\_11, Zhafia\_13,

### Summary by start number:

Start 17:

- Found in 22 of 131 ( 16.8% ) of genes in pham
- Manual Annotations of this start: 1 of 109
- Called 22.7% of time when present
- Phage (with cluster) where this start called: Altheas\_12 (EG), Fizzles\_10 (EG), Judebell\_12 (EG), Sillytadpoles\_10 (EG), Zhafia\_13 (EG),

Start 18:

- Found in 35 of 131 ( 26.7% ) of genes in pham
- Manual Annotations of this start: 26 of 109
- Called 82.9% of time when present
- Phage (with cluster) where this start called: AluminumJesus\_8 (EG), BabyDotz\_9 (EG), Blab\_8 (EG), Casend\_11 (EG), DonaldDuck\_10 (EG), Fransoyer\_10 (EG), Gazebo\_8 (EG), Grassboy\_11 (EG), Hyperion\_8 (EG), Jehoshaphat\_12 (EG), Llemily\_10 (EG), Lonelysoil\_9 (EG), Mashley\_7 (EG), Namago\_10 (EG), Nike\_11 (EG), Phabia\_10 (EG), Phinky\_14 (EG), Quammi\_8 (EG), RubyRalph\_10 (EG), Rudy\_8 (EG), SadLad\_10 (EG), SallyK\_11 (EG), Squash\_12 (EG), StrawberryJamm\_12 (EG), Teehee\_12 (EG), Tissue\_9 (EG), Viceroy\_9 (EG), Wayne3\_11 (EG), Wheelie\_9 (EG),

Start 19:

- Found in 25 of 131 ( 19.1% ) of genes in pham
- Manual Annotations of this start: 1 of 109
- Called 8.0% of time when present
- Phage (with cluster) where this start called: Rowlf\_8 (EG), Zagie\_11 (EG),

Start 20:

- Found in 2 of 131 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 2 of 109
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Annadreamy\_73 (BK1), Limpid\_72 (BK1),

Start 21:

- Found in 6 of 131 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 5 of 109

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beuffert\_72 (BK1), Blueeyedbeauty\_74 (BK1), Faust\_76 (BK1), SeresaTree\_76 (BK1), Sham\_72 (BK1), TunaTartare\_75 (BK1),

#### Start 22:

- Found in 20 of 131 ( 15.3% ) of genes in pham
- Manual Annotations of this start: 19 of 109
- Called 95.0% of time when present
- Phage (with cluster) where this start called: Belfort\_77 (BK1), BillNye\_69 (BK2), Circinus\_70 (BK2), Comrade\_75 (BK1), Emma1919\_77 (BK1), Forrest\_78 (BK1), Francob\_74 (BK1), Gilson\_76 (BK1), Jada\_76 (BK1), Karp\_73 (BK1), Kenrey\_77 (BK1), MeganTheeKilla\_74 (BK1), Moab\_75 (BK1), Muntaha\_71 (BK2), Patelgo\_75 (BK1), Phredrick\_75 (BK1), SparkleGoddess\_75 (BK1), Stigma\_74 (BK1), Wakanda\_70 (BK2),

#### Start 23:

- Found in 70 of 131 ( 53.4% ) of genes in pham
- Manual Annotations of this start: 55 of 109
- Called 92.9% of time when present
- Phage (with cluster) where this start called: Amabiko\_94 (BE2), Anedea\_89 (BE1), Angela\_88 (BE1), Bartholomune\_89 (BE1), Battuta\_92 (BE2), Birchlyn\_91 (BE2), BlueOtter\_93 (BE1), Bmoc\_89 (BE1), BoomerJR\_94 (BE2), Bordeaux\_92 (BE2), Braelyn\_91 (BE1), CeilingFan\_96 (BE2), Cross\_91 (BE1), Cursive\_89 (BE1), Daubenski\_93 (BE1), EGole\_92 (BE1), Elmer\_101 (BE2), Enygma\_94 (BE2), Evy\_91 (BE1), Genie2\_94 (BE2), Gibbi\_98 (BE2), HangryHippo\_93 (BE1), IchabodCrane\_91 (BE2), Jay2Jay\_95 (BE1), JimJam\_94 (BE2), Jollison\_98 (BE2), Karimac\_93 (BE2), Larnav\_97 (BE1), Leo04\_92 (BE1), Liandry\_89 (BE1), LilMartin\_88 (BE1), LukeCage\_93 (BE2), Lululemon\_91 (BE1), Mildred21\_89 (BE1), MindFlayer\_91 (BE2), MulchMansion\_88 (BE1), NootNoot\_86 (BE1), PacManQ\_91 (BE1), Paradiddles\_86 (BE1), Peebs\_90 (BE1), Pepperwood\_91 (BE1), Persimmon\_89 (BE1), PinkiePie\_89 (BE1), PumpkinSpice\_93 (BE2), Quarant19\_93 (BE2), SaltySpittoon\_93 (BE2), Samisti12\_91 (BE1), Sollertia\_94 (BE2), Spelly\_94 (BE2), Spilled\_95 (BE2), Squillium\_90 (BE1), Stanimal\_94 (BE2), StarPlatinum\_94 (BE2), Starbow\_92 (BE2), Sushi23\_90 (BE1), Targaryen\_91 (BE1), Teutsch\_91 (BE1), TomSawyer\_92 (BE2), Tomas\_96 (BE2), Tribute\_89 (BE1), Warpy\_94 (BE1), Watermoore\_90 (BE1), Wipeout\_91 (BE2), Wofford\_93 (BE2), Yaboi\_94 (BE2),

#### Start 27:

- Found in 32 of 131 ( 24.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 3.1% of time when present
- Phage (with cluster) where this start called: Kyva\_13 (EG),

#### Start 29:

- Found in 22 of 131 ( 16.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 4.5% of time when present
- Phage (with cluster) where this start called: KentuckyRacer\_98 (BE2),

#### Start 33:

- Found in 67 of 131 ( 51.1% ) of genes in pham
- No Manual Annotations of this start.

- Called 1.5% of time when present
- Phage (with cluster) where this start called: Mugiwara\_96 (BE2),

### **Summary by clusters:**

There are 5 clusters represented in this pham: BE2, EG, BE1, BK1, BK2,

Info for manual annotations of cluster BE1:

- Start number 23 was manually annotated 29 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 23 was manually annotated 26 times for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 20 was manually annotated 2 times for cluster BK1.
- Start number 21 was manually annotated 5 times for cluster BK1.
- Start number 22 was manually annotated 15 times for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 22 was manually annotated 4 times for cluster BK2.

Info for manual annotations of cluster EG:

- Start number 17 was manually annotated 1 time for cluster EG.
- Start number 18 was manually annotated 26 times for cluster EG.
- Start number 19 was manually annotated 1 time for cluster EG.

### **Gene Information:**

Gene: Altheas\_12 Start: 4332, Stop: 3808, Start Num: 17

Candidate Starts for Altheas\_12:

(Start: 17 @4332 has 1 MA's), (Start: 18 @4329 has 26 MA's), (25, 4302), (27, 4254), (38, 4182), (43, 4146), (49, 4053), (60, 3975), (68, 3903), (69, 3891), (70, 3882), (79, 3840), (80, 3837),

Gene: AluminumJesus\_8 Start: 3219, Stop: 2698, Start Num: 18

Candidate Starts for AluminumJesus\_8:

(4, 3375), (5, 3357), (7, 3282), (Start: 18 @3219 has 26 MA's), (Start: 19 @3213 has 1 MA's), (27, 3144), (32, 3117), (38, 3072), (44, 3033), (49, 2943), (54, 2919), (57, 2895), (60, 2865), (61, 2862), (68, 2793), (81, 2724), (82, 2709),

Gene: Amabiko\_94 Start: 66326, Stop: 66790, Start Num: 23

Candidate Starts for Amabiko\_94:

(14, 66284), (Start: 23 @66326 has 55 MA's), (29, 66386), (33, 66407), (37, 66434), (41, 66458), (58, 66620), (60, 66644), (65, 66677), (76, 66764), (78, 66773),

Gene: Anedea\_89 Start: 65627, Stop: 66085, Start Num: 23

Candidate Starts for Anedea\_89:

(Start: 23 @65627 has 55 MA's), (33, 65708), (34, 65720), (37, 65735), (41, 65759), (46, 65822), (55, 65891), (60, 65945), (62, 65966), (68, 66014), (71, 66035), (75, 66059), (76, 66062), (78, 66071),

Gene: Angela\_88 Start: 65099, Stop: 65575, Start Num: 23

Candidate Starts for Angela\_88:

(Start: 23 @65099 has 55 MA's), (26, 65129), (33, 65180), (34, 65192), (37, 65207), (41, 65231), (47, 65303), (52, 65351), (55, 65363), (60, 65417), (62, 65438), (65, 65450), (68, 65486), (71, 65507), (72, 65513), (75, 65531), (76, 65534), (78, 65543),

Gene: Annadreamy\_73 Start: 56905, Stop: 57396, Start Num: 20

Candidate Starts for Annadreamy\_73:

(Start: 20 @56905 has 2 MA's), (37, 57025), (48, 57130), (54, 57178), (61, 57238), (62, 57256), (73, 57337),

Gene: BabyDotz\_9 Start: 3868, Stop: 3347, Start Num: 18

Candidate Starts for BabyDotz\_9:

(9, 3916), (Start: 18 @3868 has 26 MA's), (24, 3844), (25, 3841), (27, 3793), (38, 3721), (49, 3592), (54, 3568), (55, 3565), (57, 3544), (60, 3514), (67, 3463), (68, 3442), (69, 3430), (70, 3421), (79, 3379), (80, 3376),

Gene: Bartholomune\_89 Start: 65526, Stop: 65987, Start Num: 23

Candidate Starts for Bartholomune\_89:

(Start: 23 @65526 has 55 MA's), (26, 65556), (33, 65607), (34, 65619), (37, 65634), (41, 65658), (52, 65778), (54, 65787), (60, 65844), (62, 65865), (64, 65874), (68, 65913), (71, 65934), (76, 65961),

Gene: Battuta\_92 Start: 66300, Stop: 66764, Start Num: 23

Candidate Starts for Battuta\_92:

(14, 66258), (Start: 23 @66300 has 55 MA's), (33, 66381), (37, 66408), (41, 66432), (58, 66594), (60, 66618), (65, 66651), (76, 66738), (78, 66747),

Gene: Belfort\_77 Start: 58719, Stop: 59228, Start Num: 22

Candidate Starts for Belfort\_77:

(Start: 22 @58719 has 19 MA's), (24, 58728), (30, 58794), (32, 58800), (41, 58857), (42, 58878), (47, 58929), (49, 58980), (54, 59010), (60, 59067), (64, 59103), (78, 59205),

Gene: Beuffert\_72 Start: 57485, Stop: 57973, Start Num: 21

Candidate Starts for Beuffert\_72:

(Start: 21 @57485 has 5 MA's), (37, 57602), (48, 57707), (53, 57749), (62, 57833),

Gene: BillNye\_69 Start: 59802, Stop: 60308, Start Num: 22

Candidate Starts for BillNye\_69:

(11, 59745), (Start: 22 @59802 has 19 MA's), (42, 59961), (45, 59976), (47, 60012), (49, 60063), (56, 60105), (60, 60150), (78, 60288), (79, 60291),

Gene: Birchlyn\_91 Start: 64183, Stop: 64647, Start Num: 23

Candidate Starts for Birchlyn\_91:

(14, 64141), (Start: 23 @64183 has 55 MA's), (29, 64243), (33, 64264), (37, 64291), (41, 64315), (58, 64477), (60, 64501), (65, 64534), (76, 64621), (78, 64630),

Gene: Blab\_8 Start: 3001, Stop: 2480, Start Num: 18

Candidate Starts for Blab\_8:

(4, 3157), (5, 3139), (7, 3064), (Start: 18 @3001 has 26 MA's), (Start: 19 @2995 has 1 MA's), (27, 2926), (32, 2899), (38, 2854), (44, 2815), (49, 2725), (54, 2701), (57, 2677), (60, 2647), (64, 2617), (68, 2575), (81, 2506), (82, 2491),

Gene: BlueOtter\_93 Start: 66872, Stop: 67330, Start Num: 23

Candidate Starts for BlueOtter\_93:



(Start: 23 @66872 has 55 MA's), (26, 66902), (33, 66953), (34, 66965), (37, 66980), (41, 67004), (55, 67136), (60, 67190), (61, 67193), (64, 67220), (71, 67280), (76, 67307), (78, 67316),

Gene: Blueeyedbeauty\_74 Start: 56878, Stop: 57366, Start Num: 21

Candidate Starts for Blueeyedbeauty\_74:

(Start: 21 @56878 has 5 MA's), (37, 56995), (48, 57100), (54, 57148), (62, 57226),

Gene: Bmoc\_89 Start: 65465, Stop: 65926, Start Num: 23

Candidate Starts for Bmoc\_89:

(Start: 23 @65465 has 55 MA's), (33, 65546), (34, 65558), (37, 65573), (41, 65597), (47, 65669), (55, 65729), (60, 65783), (62, 65804), (68, 65852), (71, 65873), (75, 65897), (76, 65900), (78, 65909),

Gene: BoomerJR\_94 Start: 66168, Stop: 66632, Start Num: 23

Candidate Starts for BoomerJR\_94:

(12, 66120), (14, 66126), (Start: 23 @66168 has 55 MA's), (33, 66249), (37, 66276), (41, 66300), (58, 66462), (60, 66486), (65, 66519), (73, 66588), (75, 66603), (76, 66606), (78, 66615),

Gene: Bordeaux\_92 Start: 66455, Stop: 66919, Start Num: 23

Candidate Starts for Bordeaux\_92:

(14, 66413), (Start: 23 @66455 has 55 MA's), (33, 66536), (37, 66563), (41, 66587), (58, 66749), (60, 66773), (65, 66806), (76, 66893), (78, 66902),

Gene: Braelyn\_91 Start: 66290, Stop: 66751, Start Num: 23

Candidate Starts for Braelyn\_91:

(Start: 23 @66290 has 55 MA's), (26, 66320), (33, 66371), (34, 66383), (37, 66398), (41, 66422), (52, 66542), (55, 66554), (60, 66608), (64, 66638), (68, 66677), (71, 66698), (76, 66725),

Gene: Casend\_11 Start: 3994, Stop: 3473, Start Num: 18

Candidate Starts for Casend\_11:

(Start: 17 @3997 has 1 MA's), (Start: 18 @3994 has 26 MA's), (Start: 19 @3988 has 1 MA's), (27, 3919), (32, 3892), (35, 3868), (38, 3847), (44, 3808), (49, 3718), (54, 3694), (57, 3670), (60, 3640), (68, 3568), (81, 3499), (82, 3484),

Gene: CeilingFan\_96 Start: 66215, Stop: 66679, Start Num: 23

Candidate Starts for CeilingFan\_96:

(14, 66173), (Start: 23 @66215 has 55 MA's), (29, 66275), (33, 66296), (37, 66323), (41, 66347), (58, 66509), (60, 66533), (65, 66566), (76, 66653), (78, 66662),

Gene: Circinus\_70 Start: 59789, Stop: 60295, Start Num: 22

Candidate Starts for Circinus\_70:

(11, 59732), (Start: 22 @59789 has 19 MA's), (42, 59948), (45, 59963), (47, 59999), (49, 60050), (56, 60092), (60, 60137), (78, 60275), (79, 60278),

Gene: Comrade\_75 Start: 58335, Stop: 58844, Start Num: 22

Candidate Starts for Comrade\_75:

(Start: 22 @58335 has 19 MA's), (24, 58344), (30, 58410), (32, 58416), (41, 58473), (42, 58494), (47, 58545), (49, 58596), (54, 58626), (60, 58683), (64, 58719), (78, 58821),

Gene: Cross\_91 Start: 66873, Stop: 67331, Start Num: 23

Candidate Starts for Cross\_91:

(Start: 23 @66873 has 55 MA's), (26, 66903), (33, 66954), (34, 66966), (37, 66981), (41, 67005), (55, 67137), (60, 67191), (61, 67194), (64, 67221), (71, 67281), (76, 67308), (78, 67317),

Gene: Cursive\_89 Start: 66398, Stop: 66856, Start Num: 23

Candidate Starts for Cursive\_89:

(Start: 23 @66398 has 55 MA's), (26, 66428), (33, 66479), (34, 66491), (37, 66506), (41, 66530), (55, 66662), (60, 66716), (61, 66719), (64, 66746), (71, 66806), (76, 66833), (78, 66842),

Gene: Daubenski\_93 Start: 66583, Stop: 67074, Start Num: 23

Candidate Starts for Daubenski\_93:

(Start: 23 @66583 has 55 MA's), (26, 66613), (32, 66658), (33, 66664), (34, 66676), (37, 66691), (41, 66715), (50, 66817), (51, 66823), (52, 66835), (53, 66838), (60, 66901), (64, 66931), (71, 66991), (76, 67018), (78, 67027),

Gene: DonaldDuck\_10 Start: 3340, Stop: 2819, Start Num: 18

Candidate Starts for DonaldDuck\_10:

(Start: 17 @3343 has 1 MA's), (Start: 18 @3340 has 26 MA's), (Start: 19 @3334 has 1 MA's), (27, 3265), (32, 3238), (35, 3214), (38, 3193), (44, 3154), (49, 3064), (54, 3040), (57, 3016), (60, 2986), (64, 2956), (68, 2914), (81, 2845), (82, 2830),

Gene: EGole\_92 Start: 67818, Stop: 68276, Start Num: 23

Candidate Starts for EGole\_92:

(Start: 23 @67818 has 55 MA's), (26, 67848), (33, 67899), (34, 67911), (37, 67926), (41, 67950), (55, 68082), (60, 68136), (61, 68139), (64, 68166), (71, 68226), (76, 68253), (78, 68262),

Gene: Elmer\_101 Start: 67406, Stop: 67870, Start Num: 23

Candidate Starts for Elmer\_101:

(14, 67364), (Start: 23 @67406 has 55 MA's), (33, 67487), (37, 67514), (41, 67538), (58, 67700), (60, 67724), (68, 67793), (76, 67844), (78, 67853),

Gene: Emma1919\_77 Start: 57029, Stop: 57532, Start Num: 22

Candidate Starts for Emma1919\_77:

(Start: 22 @57029 has 19 MA's), (28, 57086), (30, 57104), (32, 57110), (39, 57161), (42, 57188), (47, 57239), (49, 57290), (60, 57377), (63, 57410), (78, 57515),

Gene: Enygma\_94 Start: 68111, Stop: 68575, Start Num: 23

Candidate Starts for Enygma\_94:

(14, 68069), (Start: 23 @68111 has 55 MA's), (29, 68171), (33, 68192), (37, 68219), (41, 68243), (58, 68405), (60, 68429), (65, 68462), (68, 68498), (76, 68549), (78, 68558),

Gene: Evy\_91 Start: 66773, Stop: 67261, Start Num: 23

Candidate Starts for Evy\_91:

(16, 66737), (Start: 23 @66773 has 55 MA's), (26, 66803), (33, 66854), (34, 66866), (37, 66881), (41, 66905), (51, 67013), (55, 67037), (60, 67091), (62, 67112), (64, 67121), (71, 67181), (76, 67208), (78, 67217),

Gene: Faust\_76 Start: 58466, Stop: 58951, Start Num: 21

Candidate Starts for Faust\_76:

(Start: 21 @58466 has 5 MA's), (31, 58544), (37, 58580), (39, 58598), (62, 58811), (73, 58892), (76, 58910),

Gene: Fizzles\_10 Start: 3691, Stop: 3170, Start Num: 17

Candidate Starts for Fizzles\_10:

(Start: 17 @3691 has 1 MA's), (Start: 18 @3688 has 26 MA's), (24, 3667), (25, 3664), (32, 3589), (35, 3565), (38, 3544), (49, 3415), (57, 3367), (60, 3337), (64, 3307), (70, 3244), (79, 3202), (82, 3181),

Gene: Forrest\_78 Start: 58322, Stop: 58825, Start Num: 22

Candidate Starts for Forrest\_78:

(Start: 22 @58322 has 19 MA's), (28, 58379), (30, 58397), (32, 58403), (39, 58454), (42, 58481), (47, 58532), (49, 58583), (60, 58670), (63, 58703), (78, 58808),

Gene: Francob\_74 Start: 57100, Stop: 57585, Start Num: 22

Candidate Starts for Francob\_74:

(Start: 22 @57100 has 19 MA's), (37, 57214), (47, 57310), (49, 57337), (62, 57445), (73, 57526), (77, 57550),

Gene: Fransoyer\_10 Start: 3421, Stop: 2894, Start Num: 18

Candidate Starts for Fransoyer\_10:

(6, 3487), (13, 3439), (Start: 18 @3421 has 26 MA's), (Start: 23 @3400 has 55 MA's), (24, 3397), (25, 3394), (27, 3346), (38, 3274), (43, 3238), (49, 3145), (60, 3067), (66, 3022), (69, 2983), (73, 2962), (74, 2956), (82, 2905),

Gene: Gazebo\_8 Start: 3535, Stop: 3014, Start Num: 18

Candidate Starts for Gazebo\_8:

(Start: 17 @3538 has 1 MA's), (Start: 18 @3535 has 26 MA's), (Start: 19 @3529 has 1 MA's), (27, 3460), (32, 3433), (35, 3409), (38, 3388), (44, 3349), (49, 3259), (57, 3211), (60, 3181), (64, 3151), (68, 3109), (81, 3040), (82, 3025),

Gene: Genie2\_94 Start: 66282, Stop: 66746, Start Num: 23

Candidate Starts for Genie2\_94:

(12, 66234), (14, 66240), (Start: 23 @66282 has 55 MA's), (33, 66363), (37, 66390), (41, 66414), (58, 66576), (60, 66600), (65, 66633), (73, 66702), (75, 66717), (76, 66720), (78, 66729),

Gene: Gibbi\_98 Start: 66438, Stop: 66902, Start Num: 23

Candidate Starts for Gibbi\_98:

(14, 66396), (Start: 23 @66438 has 55 MA's), (29, 66498), (33, 66519), (37, 66546), (41, 66570), (58, 66732), (60, 66756), (65, 66789), (76, 66876), (78, 66885),

Gene: Gilson\_76 Start: 56991, Stop: 57494, Start Num: 22

Candidate Starts for Gilson\_76:

(Start: 22 @56991 has 19 MA's), (28, 57048), (30, 57066), (32, 57072), (39, 57123), (42, 57150), (47, 57201), (49, 57252), (60, 57339), (63, 57372), (78, 57477),

Gene: Grassboy\_11 Start: 4028, Stop: 3507, Start Num: 18

Candidate Starts for Grassboy\_11:

(10, 4076), (Start: 18 @4028 has 26 MA's), (Start: 19 @4022 has 1 MA's), (27, 3953), (32, 3926), (35, 3902), (38, 3881), (44, 3842), (49, 3752), (54, 3728), (57, 3704), (60, 3674), (68, 3602), (81, 3533), (82, 3518),

Gene: HangryHippo\_93 Start: 66872, Stop: 67330, Start Num: 23

Candidate Starts for HangryHippo\_93:

(Start: 23 @66872 has 55 MA's), (26, 66902), (33, 66953), (34, 66965), (37, 66980), (41, 67004), (55, 67136), (60, 67190), (61, 67193), (64, 67220), (71, 67280), (76, 67307), (78, 67316),

Gene: Hyperion\_8 Start: 3333, Stop: 2812, Start Num: 18

Candidate Starts for Hyperion\_8:

(8, 3393), (Start: 18 @3333 has 26 MA's), (Start: 19 @3327 has 1 MA's), (27, 3258), (32, 3231), (38, 3186), (44, 3147), (49, 3057), (54, 3033), (57, 3009), (60, 2979), (64, 2949), (68, 2907), (81, 2838), (82, 2823),

Gene: IchabodCrane\_91 Start: 66027, Stop: 66491, Start Num: 23

Candidate Starts for IchabodCrane\_91:

(14, 65985), (Start: 23 @66027 has 55 MA's), (29, 66087), (33, 66108), (37, 66135), (41, 66159), (58, 66321), (60, 66345), (65, 66378), (76, 66465), (78, 66474),

Gene: Jada\_76 Start: 57504, Stop: 58007, Start Num: 22

Candidate Starts for Jada\_76:

(Start: 22 @57504 has 19 MA's), (28, 57561), (30, 57579), (32, 57585), (39, 57636), (42, 57663), (47, 57714), (49, 57765), (60, 57852), (63, 57885), (78, 57990),

Gene: Jay2Jay\_95 Start: 67625, Stop: 68113, Start Num: 23

Candidate Starts for Jay2Jay\_95:

(Start: 23 @67625 has 55 MA's), (26, 67655), (33, 67706), (34, 67718), (37, 67733), (41, 67757), (50, 67859), (55, 67889), (60, 67943), (62, 67964), (64, 67973), (71, 68033), (76, 68060), (78, 68069),

Gene: Jehoshaphat\_12 Start: 4478, Stop: 3957, Start Num: 18

Candidate Starts for Jehoshaphat\_12:

(1, 4652), (2, 4646), (3, 4640), (Start: 18 @4478 has 26 MA's), (27, 4403), (32, 4376), (35, 4352), (38, 4331), (44, 4292), (49, 4202), (54, 4178), (57, 4154), (60, 4124), (68, 4052), (81, 3983), (82, 3968),

Gene: JimJam\_94 Start: 66401, Stop: 66865, Start Num: 23

Candidate Starts for JimJam\_94:

(14, 66359), (Start: 23 @66401 has 55 MA's), (29, 66461), (33, 66482), (37, 66509), (41, 66533), (58, 66695), (60, 66719), (65, 66752), (76, 66839), (78, 66848),

Gene: Jollison\_98 Start: 66283, Stop: 66747, Start Num: 23

Candidate Starts for Jollison\_98:

(14, 66241), (Start: 23 @66283 has 55 MA's), (29, 66343), (33, 66364), (37, 66391), (41, 66415), (58, 66577), (60, 66601), (65, 66634), (76, 66721), (78, 66730),

Gene: Judebell\_12 Start: 4100, Stop: 3576, Start Num: 17

Candidate Starts for Judebell\_12:

(Start: 17 @4100 has 1 MA's), (Start: 18 @4097 has 26 MA's), (Start: 19 @4091 has 1 MA's), (27, 4022), (35, 3971), (38, 3950), (44, 3911), (49, 3821), (54, 3797), (57, 3773), (60, 3743), (68, 3671), (81, 3602), (82, 3587),

Gene: Karimac\_93 Start: 66432, Stop: 66896, Start Num: 23

Candidate Starts for Karimac\_93:

(14, 66390), (Start: 23 @66432 has 55 MA's), (29, 66492), (33, 66513), (37, 66540), (41, 66564), (58, 66726), (60, 66750), (65, 66783), (76, 66870), (78, 66879),

Gene: Karp\_73 Start: 57928, Stop: 58434, Start Num: 22

Candidate Starts for Karp\_73:

(Start: 22 @57928 has 19 MA's), (24, 57937), (30, 58003), (32, 58009), (41, 58066), (42, 58087), (47, 58138), (49, 58189), (54, 58219), (60, 58276), (64, 58312), (78, 58414),

Gene: Kenrey\_77 Start: 57173, Stop: 57676, Start Num: 22

Candidate Starts for Kenrey\_77:

(Start: 22 @57173 has 19 MA's), (40, 57308), (42, 57332), (47, 57383), (49, 57434), (60, 57521), (64, 57557), (78, 57659),

Gene: KentuckyRacer\_98 Start: 66276, Stop: 66680, Start Num: 29

Candidate Starts for KentuckyRacer\_98:

(14, 66174), (Start: 23 @66216 has 55 MA's), (29, 66276), (33, 66297), (37, 66324), (41, 66348), (58, 66510), (60, 66534), (65, 66567), (76, 66654), (78, 66663),

Gene: Kyva\_13 Start: 3988, Stop: 3542, Start Num: 27

Candidate Starts for Kyva\_13:

(10, 4111), (Start: 18 @4063 has 26 MA's), (Start: 19 @4057 has 1 MA's), (27, 3988), (32, 3961), (35, 3937), (38, 3916), (44, 3877), (49, 3787), (54, 3763), (57, 3739), (60, 3709), (68, 3637), (81, 3568), (82, 3553),

Gene: Larnav\_97 Start: 66857, Stop: 67315, Start Num: 23

Candidate Starts for Larnav\_97:

(Start: 23 @66857 has 55 MA's), (26, 66887), (33, 66938), (34, 66950), (37, 66965), (41, 66989), (55, 67121), (60, 67175), (64, 67205), (71, 67265), (76, 67292), (78, 67301),

Gene: Leo04\_92 Start: 67372, Stop: 67830, Start Num: 23

Candidate Starts for Leo04\_92:

(Start: 23 @67372 has 55 MA's), (26, 67402), (33, 67453), (34, 67465), (37, 67480), (41, 67504), (55, 67636), (60, 67690), (61, 67693), (64, 67720), (71, 67780), (76, 67807), (78, 67816),

Gene: Liandry\_89 Start: 66275, Stop: 66736, Start Num: 23

Candidate Starts for Liandry\_89:

(Start: 23 @66275 has 55 MA's), (26, 66305), (33, 66356), (34, 66368), (37, 66383), (41, 66407), (52, 66527), (54, 66536), (60, 66593), (62, 66614), (64, 66623), (68, 66662), (71, 66683), (76, 66710),

Gene: LilMartin\_88 Start: 65047, Stop: 65523, Start Num: 23

Candidate Starts for LilMartin\_88:

(Start: 23 @65047 has 55 MA's), (26, 65077), (33, 65128), (34, 65140), (37, 65155), (41, 65179), (47, 65251), (52, 65299), (55, 65311), (60, 65365), (62, 65386), (65, 65398), (68, 65434), (71, 65455), (72, 65461), (75, 65479), (76, 65482), (78, 65491),

Gene: Limpid\_72 Start: 56904, Stop: 57395, Start Num: 20

Candidate Starts for Limpid\_72:

(Start: 20 @56904 has 2 MA's), (37, 57024), (48, 57129), (54, 57177), (61, 57237), (62, 57255), (73, 57336),

Gene: Llemily\_10 Start: 3347, Stop: 2820, Start Num: 18

Candidate Starts for Llemily\_10:

(Start: 17 @3350 has 1 MA's), (Start: 18 @3347 has 26 MA's), (Start: 19 @3341 has 1 MA's), (27, 3272), (32, 3245), (35, 3221), (38, 3200), (44, 3161), (49, 3065), (54, 3041), (57, 3017), (60, 2987), (64, 2957), (68, 2915), (81, 2846), (82, 2831),

Gene: Lonelysoil\_9 Start: 3592, Stop: 3065, Start Num: 18

Candidate Starts for Lonelysoil\_9:

(Start: 17 @3595 has 1 MA's), (Start: 18 @3592 has 26 MA's), (Start: 19 @3586 has 1 MA's), (27, 3517), (32, 3490), (35, 3466), (38, 3445), (44, 3406), (49, 3310), (54, 3286), (60, 3232), (64, 3202), (68, 3160), (81, 3091), (82, 3076),

Gene: LukeCage\_93 Start: 66189, Stop: 66653, Start Num: 23

Candidate Starts for LukeCage\_93:

(14, 66147), (Start: 23 @66189 has 55 MA's), (33, 66270), (37, 66297), (41, 66321), (58, 66483), (60, 66507), (65, 66540), (76, 66627), (78, 66636),

Gene: Lululemon\_91 Start: 66253, Stop: 66711, Start Num: 23

Candidate Starts for Lululemon\_91:

(Start: 23 @66253 has 55 MA's), (26, 66283), (33, 66334), (34, 66346), (37, 66361), (41, 66385), (55, 66517), (60, 66571), (61, 66574), (64, 66601), (71, 66661), (76, 66688), (78, 66697),

Gene: Mashley\_7 Start: 3150, Stop: 2629, Start Num: 18

Candidate Starts for Mashley\_7:

(8, 3210), (Start: 18 @3150 has 26 MA's), (Start: 19 @3144 has 1 MA's), (27, 3075), (32, 3048), (38, 3003), (44, 2964), (49, 2874), (54, 2850), (57, 2826), (60, 2796), (64, 2766), (68, 2724), (81, 2655), (82, 2640),

Gene: MeganTheeKilla\_74 Start: 56352, Stop: 56855, Start Num: 22

Candidate Starts for MeganTheeKilla\_74:

(Start: 22 @56352 has 19 MA's), (28, 56409), (30, 56427), (32, 56433), (39, 56484), (42, 56511), (47, 56562), (49, 56613), (60, 56700), (63, 56733), (78, 56838),

Gene: Mildred21\_89 Start: 65270, Stop: 65731, Start Num: 23

Candidate Starts for Mildred21\_89:

(Start: 22 @65264 has 19 MA's), (Start: 23 @65270 has 55 MA's), (26, 65300), (33, 65351), (34, 65363), (36, 65372), (37, 65378), (41, 65402), (50, 65504), (51, 65510), (52, 65522), (60, 65588), (65, 65621), (68, 65660), (72, 65687), (75, 65705), (76, 65708), (78, 65717),

Gene: MindFlayer\_91 Start: 65934, Stop: 66398, Start Num: 23

Candidate Starts for MindFlayer\_91:

(14, 65892), (Start: 23 @65934 has 55 MA's), (29, 65994), (33, 66015), (37, 66042), (41, 66066), (58, 66228), (60, 66252), (65, 66285), (76, 66372), (78, 66381),

Gene: Moab\_75 Start: 58221, Stop: 58739, Start Num: 22

Candidate Starts for Moab\_75:

(Start: 22 @58221 has 19 MA's), (39, 58353), (42, 58380), (47, 58431), (49, 58482), (60, 58569), (78, 58707),

Gene: Mugiwara\_96 Start: 66769, Stop: 67152, Start Num: 33

Candidate Starts for Mugiwara\_96:

(14, 66646), (Start: 23 @66688 has 55 MA's), (29, 66748), (33, 66769), (37, 66796), (41, 66820), (58, 66982), (60, 67006), (65, 67039), (76, 67126), (78, 67135),

Gene: MulchMansion\_88 Start: 65047, Stop: 65523, Start Num: 23

Candidate Starts for MulchMansion\_88:

(Start: 23 @65047 has 55 MA's), (26, 65077), (33, 65128), (34, 65140), (37, 65155), (41, 65179), (47, 65251), (52, 65299), (55, 65311), (60, 65365), (62, 65386), (65, 65398), (68, 65434), (71, 65455), (72, 65461), (75, 65479), (76, 65482), (78, 65491),

Gene: Muntaha\_71 Start: 58138, Stop: 58644, Start Num: 22

Candidate Starts for Muntaha\_71:

(Start: 22 @58138 has 19 MA's), (29, 58204), (32, 58219), (40, 58273), (42, 58297), (47, 58348), (49, 58399), (60, 58486), (78, 58624), (79, 58627),

Gene: Namago\_10 Start: 3404, Stop: 2883, Start Num: 18

Candidate Starts for Namago\_10:

(Start: 17 @3407 has 1 MA's), (Start: 18 @3404 has 26 MA's), (Start: 19 @3398 has 1 MA's), (32, 3302), (35, 3278), (38, 3257), (44, 3218), (49, 3128), (54, 3104), (57, 3080), (60, 3050), (64, 3020), (68, 2978), (81, 2909), (82, 2894),

Gene: Nike\_11 Start: 3917, Stop: 3396, Start Num: 18

Candidate Starts for Nike\_11:

(Start: 18 @3917 has 26 MA's), (27, 3842), (38, 3770), (49, 3641), (54, 3617), (55, 3614), (57, 3593), (60, 3563), (67, 3512), (68, 3491), (69, 3479), (70, 3470), (79, 3428), (80, 3425),

Gene: NootNoot\_86 Start: 65189, Stop: 65650, Start Num: 23

Candidate Starts for NootNoot\_86:

(Start: 23 @65189 has 55 MA's), (26, 65219), (33, 65270), (34, 65282), (37, 65297), (41, 65321), (52, 65441), (54, 65450), (60, 65507), (62, 65528), (64, 65537), (68, 65576), (71, 65597), (76, 65624),

Gene: PacManQ\_91 Start: 66253, Stop: 66711, Start Num: 23

Candidate Starts for PacManQ\_91:

(Start: 23 @66253 has 55 MA's), (26, 66283), (33, 66334), (34, 66346), (37, 66361), (41, 66385), (55, 66517), (60, 66571), (61, 66574), (64, 66601), (71, 66661), (76, 66688), (78, 66697),

Gene: Paradiddles\_86 Start: 65453, Stop: 65914, Start Num: 23

Candidate Starts for Paradiddles\_86:

(Start: 23 @65453 has 55 MA's), (26, 65483), (33, 65534), (34, 65546), (37, 65561), (41, 65585), (52, 65705), (55, 65717), (60, 65771), (68, 65840), (71, 65861), (76, 65888),

Gene: Patelgo\_75 Start: 58384, Stop: 58902, Start Num: 22

Candidate Starts for Patelgo\_75:

(Start: 22 @58384 has 19 MA's), (39, 58516), (42, 58543), (47, 58594), (49, 58645), (60, 58732), (78, 58870),

Gene: Peebs\_90 Start: 66607, Stop: 67065, Start Num: 23

Candidate Starts for Peebs\_90:

(Start: 23 @66607 has 55 MA's), (26, 66637), (33, 66688), (34, 66700), (37, 66715), (41, 66739), (55, 66871), (60, 66925), (61, 66928), (64, 66955), (71, 67015), (76, 67042), (78, 67051),

Gene: Pepperwood\_91 Start: 66740, Stop: 67198, Start Num: 23

Candidate Starts for Pepperwood\_91:

(Start: 23 @66740 has 55 MA's), (26, 66770), (33, 66821), (34, 66833), (37, 66848), (41, 66872), (55, 67004), (60, 67058), (61, 67061), (64, 67088), (71, 67148), (76, 67175), (78, 67184),

Gene: Persimmon\_89 Start: 65122, Stop: 65583, Start Num: 23

Candidate Starts for Persimmon\_89:

(Start: 23 @65122 has 55 MA's), (26, 65152), (33, 65203), (34, 65215), (37, 65230), (41, 65254), (52, 65374), (54, 65383), (60, 65440), (62, 65461), (64, 65470), (68, 65509), (71, 65530), (76, 65557),

Gene: Phabia\_10 Start: 3762, Stop: 3241, Start Num: 18

Candidate Starts for Phabia\_10:

(Start: 17 @3765 has 1 MA's), (Start: 18 @3762 has 26 MA's), (Start: 19 @3756 has 1 MA's), (32, 3660), (35, 3636), (38, 3615), (44, 3576), (49, 3486), (54, 3462), (57, 3438), (60, 3408), (64, 3378), (68, 3336), (81, 3267), (82, 3252),

Gene: Phinky\_14 Start: 4031, Stop: 3516, Start Num: 18

Candidate Starts for Phinky\_14:

(Start: 17 @4034 has 1 MA's), (Start: 18 @4031 has 26 MA's), (Start: 23 @4016 has 55 MA's), (24, 4013), (27, 3962), (32, 3935), (35, 3911), (38, 3890), (44, 3851), (49, 3761), (60, 3683), (68, 3611), (69, 3599), (70, 3590), (79, 3548), (80, 3545), (82, 3527),

Gene: Phredrick\_75 Start: 56253, Stop: 56756, Start Num: 22

Candidate Starts for Phredrick\_75:

(Start: 22 @56253 has 19 MA's), (40, 56388), (42, 56412), (47, 56463), (49, 56514), (60, 56601), (64, 56637), (78, 56739),

Gene: PinkiePie\_89 Start: 66275, Stop: 66736, Start Num: 23

Candidate Starts for PinkiePie\_89:

(Start: 23 @66275 has 55 MA's), (26, 66305), (33, 66356), (34, 66368), (37, 66383), (41, 66407), (52, 66527), (54, 66536), (60, 66593), (62, 66614), (64, 66623), (68, 66662), (71, 66683), (76, 66710),

Gene: PumpkinSpice\_93 Start: 66326, Stop: 66790, Start Num: 23

Candidate Starts for PumpkinSpice\_93:

(14, 66284), (Start: 23 @66326 has 55 MA's), (29, 66386), (33, 66407), (37, 66434), (41, 66458), (58, 66620), (60, 66644), (65, 66677), (76, 66764), (78, 66773),

Gene: Quammi\_8 Start: 3336, Stop: 2809, Start Num: 18

Candidate Starts for Quammi\_8:

(Start: 17 @3339 has 1 MA's), (Start: 18 @3336 has 26 MA's), (Start: 19 @3330 has 1 MA's), (27, 3261), (32, 3234), (35, 3210), (38, 3189), (44, 3150), (49, 3054), (54, 3030), (57, 3006), (60, 2976), (64, 2946), (68, 2904), (81, 2835), (82, 2820),

Gene: Quaran19\_93 Start: 66317, Stop: 66781, Start Num: 23

Candidate Starts for Quaran19\_93:

(14, 66275), (Start: 23 @66317 has 55 MA's), (29, 66377), (33, 66398), (37, 66425), (41, 66449), (58, 66611), (60, 66635), (65, 66668), (76, 66755), (78, 66764),

Gene: Rowlf\_8 Start: 3344, Stop: 2829, Start Num: 19

Candidate Starts for Rowlf\_8:

(Start: 17 @3353 has 1 MA's), (Start: 19 @3344 has 1 MA's), (24, 3326), (25, 3323), (27, 3275), (38, 3203), (49, 3074), (54, 3050), (55, 3047), (57, 3026), (60, 2996), (67, 2945), (68, 2924), (69, 2912), (70, 2903), (79, 2861), (80, 2858),

Gene: RubyRalph\_10 Start: 3355, Stop: 2828, Start Num: 18

Candidate Starts for RubyRalph\_10:

(6, 3421), (13, 3373), (Start: 18 @3355 has 26 MA's), (Start: 23 @3334 has 55 MA's), (24, 3331), (25, 3328), (27, 3280), (38, 3208), (43, 3172), (49, 3079), (60, 3001), (66, 2956), (69, 2917), (73, 2896), (74, 2890), (82, 2839),

Gene: Rudy\_8 Start: 3336, Stop: 2809, Start Num: 18

Candidate Starts for Rudy\_8:

(Start: 17 @3339 has 1 MA's), (Start: 18 @3336 has 26 MA's), (Start: 19 @3330 has 1 MA's), (27, 3261), (32, 3234), (35, 3210), (38, 3189), (44, 3150), (49, 3054), (54, 3030), (57, 3006), (60, 2976), (64, 2946), (68, 2904), (81, 2835), (82, 2820),

Gene: SadLad\_10 Start: 3569, Stop: 3042, Start Num: 18

Candidate Starts for SadLad\_10:

(Start: 18 @3569 has 26 MA's), (24, 3545), (25, 3542), (27, 3494), (38, 3422), (43, 3386), (49, 3293), (60, 3215), (66, 3170), (69, 3131), (73, 3110), (74, 3104), (82, 3053),

Gene: SallyK\_11 Start: 4497, Stop: 3976, Start Num: 18

Candidate Starts for SallyK\_11:

(Start: 17 @4500 has 1 MA's), (Start: 18 @4497 has 26 MA's), (Start: 19 @4491 has 1 MA's), (27, 4422), (38, 4350), (49, 4221), (54, 4197), (55, 4194), (57, 4173), (60, 4143), (67, 4092), (68, 4071),



(69, 4059), (70, 4050), (79, 4008), (80, 4005),

Gene: SaltySpittoon\_93 Start: 66326, Stop: 66790, Start Num: 23

Candidate Starts for SaltySpittoon\_93:

(14, 66284), (Start: 23 @66326 has 55 MA's), (29, 66386), (33, 66407), (37, 66434), (41, 66458), (58, 66620), (60, 66644), (65, 66677), (76, 66764), (78, 66773),

Gene: Samisti12\_91 Start: 68049, Stop: 68507, Start Num: 23

Candidate Starts for Samisti12\_91:

(Start: 23 @68049 has 55 MA's), (26, 68079), (33, 68130), (34, 68142), (37, 68157), (41, 68181), (60, 68367), (64, 68397), (71, 68457), (76, 68484), (78, 68493),

Gene: SeresaTree\_76 Start: 57856, Stop: 58341, Start Num: 21

Candidate Starts for SeresaTree\_76:

(Start: 21 @57856 has 5 MA's), (31, 57934), (37, 57970), (39, 57988), (62, 58201), (73, 58282), (76, 58300),

Gene: Sham\_72 Start: 58531, Stop: 59019, Start Num: 21

Candidate Starts for Sham\_72:

(15, 58498), (Start: 21 @58531 has 5 MA's), (37, 58648), (39, 58666), (62, 58879),

Gene: Sillytadpoles\_10 Start: 3337, Stop: 2807, Start Num: 17

Candidate Starts for Sillytadpoles\_10:

(Start: 17 @3337 has 1 MA's), (Start: 18 @3334 has 26 MA's), (Start: 19 @3328 has 1 MA's), (27, 3259), (32, 3232), (35, 3208), (38, 3187), (44, 3148), (49, 3052), (54, 3028), (57, 3004), (60, 2974), (64, 2944), (68, 2902), (81, 2833), (82, 2818),

Gene: Sollertia\_94 Start: 66282, Stop: 66746, Start Num: 23

Candidate Starts for Sollertia\_94:

(12, 66234), (14, 66240), (Start: 23 @66282 has 55 MA's), (33, 66363), (37, 66390), (41, 66414), (58, 66576), (60, 66600), (65, 66633), (73, 66702), (75, 66717), (76, 66720), (78, 66729),

Gene: SparkleGoddess\_75 Start: 58336, Stop: 58845, Start Num: 22

Candidate Starts for SparkleGoddess\_75:

(Start: 22 @58336 has 19 MA's), (24, 58345), (30, 58411), (32, 58417), (41, 58474), (42, 58495), (47, 58546), (49, 58597), (54, 58627), (60, 58684), (64, 58720), (78, 58822),

Gene: Spelly\_94 Start: 66281, Stop: 66745, Start Num: 23

Candidate Starts for Spelly\_94:

(14, 66239), (Start: 23 @66281 has 55 MA's), (29, 66341), (33, 66362), (37, 66389), (41, 66413), (58, 66575), (60, 66599), (65, 66632), (76, 66719), (78, 66728),

Gene: Spilled\_95 Start: 66398, Stop: 66862, Start Num: 23

Candidate Starts for Spilled\_95:

(14, 66356), (Start: 23 @66398 has 55 MA's), (29, 66458), (33, 66479), (37, 66506), (41, 66530), (58, 66692), (60, 66716), (65, 66749), (76, 66836), (78, 66845),

Gene: Squash\_12 Start: 3972, Stop: 3451, Start Num: 18

Candidate Starts for Squash\_12:

(Start: 18 @3972 has 26 MA's), (27, 3897), (38, 3825), (49, 3696), (54, 3672), (55, 3669), (57, 3648), (60, 3618), (67, 3567), (68, 3546), (69, 3534), (70, 3525), (79, 3483), (80, 3480),

Gene: Squillium\_90 Start: 66276, Stop: 66737, Start Num: 23

Candidate Starts for Squillium\_90:

(Start: 23 @66276 has 55 MA's), (26, 66306), (33, 66357), (34, 66369), (37, 66384), (41, 66408), (52, 66528), (54, 66537), (60, 66594), (62, 66615), (64, 66624), (68, 66663), (71, 66684), (76, 66711),

Gene: Stanimal\_94 Start: 66171, Stop: 66635, Start Num: 23

Candidate Starts for Stanimal\_94:

(12, 66123), (14, 66129), (Start: 23 @66171 has 55 MA's), (33, 66252), (37, 66279), (41, 66303), (58, 66465), (60, 66489), (65, 66522), (73, 66591), (75, 66606), (76, 66609), (78, 66618),

Gene: StarPlatinum\_94 Start: 66834, Stop: 67298, Start Num: 23

Candidate Starts for StarPlatinum\_94:

(14, 66792), (Start: 23 @66834 has 55 MA's), (33, 66915), (37, 66942), (41, 66966), (58, 67128), (60, 67152), (65, 67185), (76, 67272), (78, 67281),

Gene: Starbow\_92 Start: 66302, Stop: 66766, Start Num: 23

Candidate Starts for Starbow\_92:

(14, 66260), (Start: 23 @66302 has 55 MA's), (29, 66362), (33, 66383), (37, 66410), (41, 66434), (58, 66596), (60, 66620), (65, 66653), (76, 66740), (78, 66749),

Gene: Stigma\_74 Start: 58344, Stop: 58853, Start Num: 22

Candidate Starts for Stigma\_74:

(Start: 22 @58344 has 19 MA's), (32, 58425), (41, 58482), (42, 58503), (47, 58554), (49, 58605), (54, 58635), (60, 58692), (64, 58728), (78, 58830),

Gene: StrawberryJamm\_12 Start: 3639, Stop: 3118, Start Num: 18

Candidate Starts for StrawberryJamm\_12:

(Start: 17 @3642 has 1 MA's), (Start: 18 @3639 has 26 MA's), (Start: 19 @3633 has 1 MA's), (32, 3537), (35, 3513), (38, 3492), (44, 3453), (49, 3363), (54, 3339), (57, 3315), (60, 3285), (64, 3255), (68, 3213), (81, 3144), (82, 3129),

Gene: Sushi23\_90 Start: 66965, Stop: 67423, Start Num: 23

Candidate Starts for Sushi23\_90:

(Start: 23 @66965 has 55 MA's), (26, 66995), (33, 67046), (34, 67058), (37, 67073), (41, 67097), (55, 67229), (60, 67283), (61, 67286), (64, 67313), (71, 67373), (76, 67400), (78, 67409),

Gene: Targaryen\_91 Start: 67675, Stop: 68163, Start Num: 23

Candidate Starts for Targaryen\_91:

(16, 67639), (Start: 23 @67675 has 55 MA's), (26, 67705), (33, 67756), (34, 67768), (37, 67783), (41, 67807), (51, 67915), (55, 67939), (60, 67993), (62, 68014), (64, 68023), (71, 68083), (76, 68110), (78, 68119),

Gene: Teehee\_12 Start: 4478, Stop: 3957, Start Num: 18

Candidate Starts for Teehee\_12:

(1, 4652), (2, 4646), (3, 4640), (Start: 18 @4478 has 26 MA's), (27, 4403), (32, 4376), (35, 4352), (38, 4331), (44, 4292), (49, 4202), (54, 4178), (57, 4154), (60, 4124), (68, 4052), (81, 3983), (82, 3968),

Gene: Teutsch\_91 Start: 67228, Stop: 67686, Start Num: 23

Candidate Starts for Teutsch\_91:

(Start: 23 @67228 has 55 MA's), (26, 67258), (33, 67309), (34, 67321), (37, 67336), (41, 67360), (60, 67546), (64, 67576), (71, 67636), (76, 67663), (78, 67672),

Gene: Tissue\_9 Start: 3609, Stop: 3088, Start Num: 18

Candidate Starts for Tissue\_9:

(1, 3783), (2, 3777), (3, 3771), (Start: 18 @3609 has 26 MA's), (27, 3534), (32, 3507), (35, 3483), (38, 3462), (44, 3423), (49, 3333), (54, 3309), (57, 3285), (60, 3255), (68, 3183), (81, 3114), (82, 3099),

Gene: TomSawyer\_92 Start: 65917, Stop: 66381, Start Num: 23

Candidate Starts for TomSawyer\_92:

(14, 65875), (Start: 23 @65917 has 55 MA's), (29, 65977), (33, 65998), (37, 66025), (41, 66049), (58, 66211), (60, 66235), (65, 66268), (76, 66355), (78, 66364),

Gene: Tomas\_96 Start: 69082, Stop: 69549, Start Num: 23

Candidate Starts for Tomas\_96:

(14, 69040), (Start: 23 @69082 has 55 MA's), (26, 69112), (33, 69163), (37, 69190), (41, 69214), (52, 69334), (59, 69385), (60, 69400), (65, 69433), (75, 69514), (76, 69517),

Gene: Tribute\_89 Start: 66434, Stop: 66892, Start Num: 23

Candidate Starts for Tribute\_89:

(Start: 23 @66434 has 55 MA's), (26, 66464), (33, 66515), (34, 66527), (37, 66542), (41, 66566), (55, 66698), (60, 66752), (61, 66755), (64, 66782), (71, 66842), (76, 66869), (78, 66878),

Gene: TunaTartare\_75 Start: 59031, Stop: 59519, Start Num: 21

Candidate Starts for TunaTartare\_75:

(15, 58998), (Start: 21 @59031 has 5 MA's), (32, 59115), (37, 59148), (47, 59244), (50, 59274), (56, 59313), (62, 59379),

Gene: Viceroy\_9 Start: 3336, Stop: 2809, Start Num: 18

Candidate Starts for Viceroy\_9:

(Start: 17 @3339 has 1 MA's), (Start: 18 @3336 has 26 MA's), (Start: 19 @3330 has 1 MA's), (27, 3261), (32, 3234), (35, 3210), (38, 3189), (44, 3150), (49, 3054), (54, 3030), (57, 3006), (60, 2976), (64, 2946), (68, 2904), (81, 2835), (82, 2820),

Gene: Wakanda\_70 Start: 58075, Stop: 58581, Start Num: 22

Candidate Starts for Wakanda\_70:

(Start: 22 @58075 has 19 MA's), (29, 58141), (32, 58156), (40, 58210), (42, 58234), (47, 58285), (49, 58336), (60, 58423), (78, 58561), (79, 58564),

Gene: Warpy\_94 Start: 67138, Stop: 67626, Start Num: 23

Candidate Starts for Warpy\_94:

(Start: 23 @67138 has 55 MA's), (26, 67168), (33, 67219), (34, 67231), (37, 67246), (41, 67270), (50, 67372), (55, 67402), (60, 67456), (62, 67477), (64, 67486), (71, 67546), (76, 67573), (78, 67582),

Gene: Watermoore\_90 Start: 67444, Stop: 67902, Start Num: 23

Candidate Starts for Watermoore\_90:

(Start: 23 @67444 has 55 MA's), (26, 67474), (33, 67525), (34, 67537), (37, 67552), (41, 67576), (55, 67708), (60, 67762), (61, 67765), (64, 67792), (71, 67852), (76, 67879), (78, 67888),

Gene: Wayne3\_11 Start: 3989, Stop: 3468, Start Num: 18

Candidate Starts for Wayne3\_11:

(Start: 17 @3992 has 1 MA's), (Start: 18 @3989 has 26 MA's), (Start: 19 @3983 has 1 MA's), (27, 3914), (32, 3887), (35, 3863), (38, 3842), (44, 3803), (49, 3713), (54, 3689), (57, 3665), (60, 3635), (68, 3563), (81, 3494), (82, 3479),

Gene: Wheelie\_9 Start: 3340, Stop: 2819, Start Num: 18

Candidate Starts for Wheelie\_9:

(Start: 17 @3343 has 1 MA's), (Start: 18 @3340 has 26 MA's), (Start: 19 @3334 has 1 MA's), (27, 3265), (32, 3238), (35, 3214), (38, 3193), (44, 3154), (49, 3064), (54, 3040), (57, 3016), (60, 2986), (64, 2956), (68, 2914), (81, 2845), (82, 2830),

Gene: Wipeout\_91 Start: 66668, Stop: 67132, Start Num: 23

Candidate Starts for Wipeout\_91:

(14, 66626), (Start: 23 @66668 has 55 MA's), (29, 66728), (33, 66749), (37, 66776), (41, 66800), (58, 66962), (60, 66986), (65, 67019), (76, 67106), (78, 67115),

Gene: Wofford\_93 Start: 67369, Stop: 67833, Start Num: 23

Candidate Starts for Wofford\_93:

(14, 67327), (Start: 23 @67369 has 55 MA's), (33, 67450), (37, 67477), (41, 67501), (58, 67663), (60, 67687), (68, 67756), (76, 67807), (78, 67816),

Gene: Yaboi\_94 Start: 66259, Stop: 66723, Start Num: 23

Candidate Starts for Yaboi\_94:

(12, 66211), (14, 66217), (Start: 23 @66259 has 55 MA's), (33, 66340), (37, 66367), (41, 66391), (58, 66553), (60, 66577), (65, 66610), (73, 66679), (75, 66694), (76, 66697), (78, 66706),

Gene: Zagie\_11 Start: 4081, Stop: 3566, Start Num: 19

Candidate Starts for Zagie\_11:

(Start: 17 @4090 has 1 MA's), (Start: 19 @4081 has 1 MA's), (24, 4063), (25, 4060), (27, 4012), (38, 3940), (49, 3811), (54, 3787), (55, 3784), (57, 3763), (60, 3733), (67, 3682), (68, 3661), (69, 3649), (70, 3640), (79, 3598), (80, 3595),

Gene: Zhafia\_13 Start: 4077, Stop: 3553, Start Num: 17

Candidate Starts for Zhafia\_13:

(Start: 17 @4077 has 1 MA's), (Start: 18 @4074 has 26 MA's), (Start: 19 @4068 has 1 MA's), (32, 3972), (35, 3948), (38, 3927), (44, 3888), (49, 3798), (54, 3774), (57, 3750), (60, 3720), (64, 3690), (68, 3648), (81, 3579), (82, 3564),