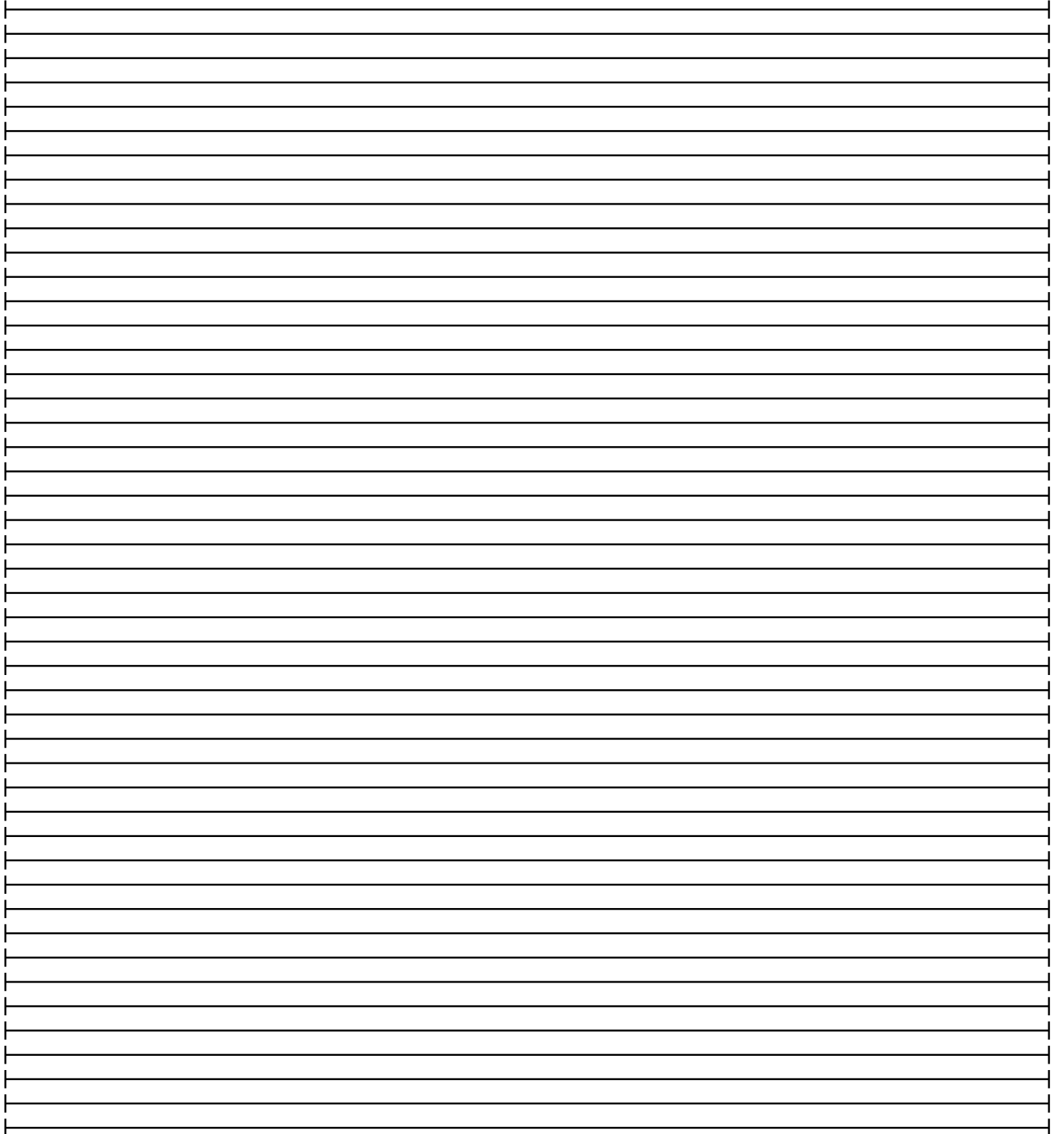
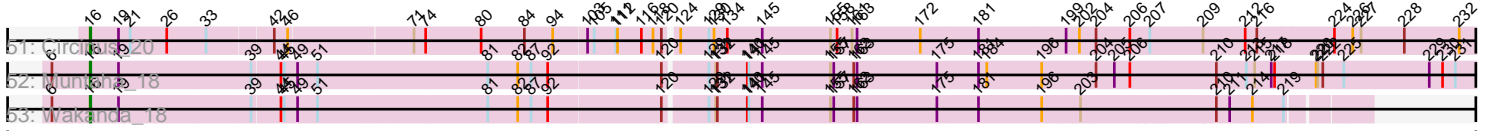




Pham 157773



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 157773 Report

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

Pham number 157773 has 92 members, 13 are drafts.

Phages represented in each track:

- Track 1 : HangryHippo\_47, PacManQ\_46, Cross\_45, BlueOtter\_47, Watermoore\_45, Lululemon\_46, Cursive\_43, Leo04\_46
- Track 2 : Pepperwood\_45
- Track 3 : Tribute\_43
- Track 4 : Deutsch\_45, Samisti12\_45
- Track 5 : Peebs\_44
- Track 6 : NootNoot\_41, Liandry\_44, Squillium\_44, PinkiePie\_43, Braelyn\_44
- Track 7 : Sushi23\_45
- Track 8 : EGole\_46
- Track 9 : Persimmon\_41
- Track 10 : Angela\_42
- Track 11 : Warpy\_49
- Track 12 : Evy\_46
- Track 13 : Bartholomune\_43
- Track 14 : Jay2Jay\_50
- Track 15 : MulchMansion\_42, LilMartin\_42
- Track 16 : Bmoc\_43
- Track 17 : Targaryen\_46
- Track 18 : Larnav\_50
- Track 19 : Mildred21\_43
- Track 20 : Paradiddles\_41
- Track 21 : Anedea\_44
- Track 22 : Daubenski\_46
- Track 23 : SaltySpittoon\_47, Jollison\_52, Bordeaux\_45, Starbow\_45, Quaran19\_47, PumpkinSpice\_46
- Track 24 : Spilled\_48, IchabodCrane\_44
- Track 25 : Karimac\_46
- Track 26 : StarPlatinum\_47
- Track 27 : Gibbi\_51
- Track 28 : Stanimal\_47, Yaboi\_47, Genie2\_47, Sollertia\_47, BoomerJR\_47
- Track 29 : TomSawyer\_45, Amabiko\_47, Wipeout\_45, Birchlyn\_44
- Track 30 : Wofford\_46, Elmer\_54
- Track 31 : Spelly\_47
- Track 32 : JimJam\_47, Battuta\_45
- Track 33 : KentuckyRacer\_51, CeilingFan\_49
- Track 34 : Tomas\_49
- Track 35 : Mugiwara\_48

- Track 36 : MindFlayer\_45
- Track 37 : LukeCage\_46
- Track 38 : Enygma\_44
- Track 39 : Phredrick\_24, Kenrey\_26
- Track 40 : SparkleGoddess\_23, Karp\_22, Belfort\_24, Stigma\_23, Comrade\_23
- Track 41 : MeganTheeKilla\_24, Forrest\_26, Jada\_24, Gilson\_26, Emma1919\_26
- Track 42 : Francob\_22
- Track 43 : Limpid\_22, Annadreamy\_22
- Track 44 : Patelgo\_23
- Track 45 : Faust\_22
- Track 46 : Blueeyedbeauty\_24
- Track 47 : Beuffert\_21
- Track 48 : SeresaTree\_22
- Track 49 : Moab\_23
- Track 50 : BillNye\_18
- Track 51 : Circinus\_20
- Track 52 : Muntaha\_18
- Track 53 : Wakanda\_18

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

The start number called the most often in the published annotations is 16, it was called in 78 of the 79 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amabiko\_47, Anedeaa\_44, Angela\_42, Annadreamy\_22, Bartholomune\_43, Battuta\_45, Belfort\_24, Beuffert\_21, BillNye\_18, Birchlyn\_44, BlueOtter\_47, Bmoc\_43, BoomerJR\_47, Bordeaux\_45, Braelyn\_44, CeilingFan\_49, Circinus\_20, Comrade\_23, Cross\_45, Cursive\_43, Daubenski\_46, EGole\_46, Elmer\_54, Emma1919\_26, Enygma\_44, Evy\_46, Faust\_22, Forrest\_26, Francob\_22, Genie2\_47, Gibbi\_51, Gilson\_26, HangryHippo\_47, IchabodCrane\_44, Jada\_24, Jay2Jay\_50, JimJam\_47, Jollison\_52, Karimac\_46, Karp\_22, Kenrey\_26, KentuckyRacer\_51, Larnav\_50, Leo04\_46, Liandry\_44, LilMartin\_42, Limpid\_22, LukeCage\_46, Lululemon\_46, MeganTheeKilla\_24, Mildred21\_43, MindFlayer\_45, Moab\_23, MulchMansion\_42, Muntaha\_18, NootNoot\_41, PacManQ\_46, Paradiddles\_41, Patelgo\_23, Peebs\_44, Pepperwood\_45, Persimmon\_41, Phredrick\_24, PinkiePie\_43, PumpkinSpice\_46, Quarant19\_47, SaltySpittoon\_47, Samisti12\_45, SeresaTree\_22, Sollertia\_47, SparkleGoddess\_23, Spelly\_47, Spilled\_48, Squillium\_44, Stanimal\_47, StarPlatinum\_47, Starbow\_45, Stigma\_23, Sushi23\_45, Targaryen\_46, Teutsch\_45, TomSawyer\_45, Tomas\_49, Tribute\_43, Wakanda\_18, Warpy\_49, Watermoore\_45, Wipeout\_45, Wofford\_46, Yaboi\_47,

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

- Blueeyedbeauty\_24, Mugiwara\_48,

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

- 

**Summary by start number:**

#### Start 16:

- Found in 92 of 92 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 78 of 79
- Called 97.8% of time when present
- Phage (with cluster) where this start called: Amabiko\_47 (BE2), Anedea\_44 (BE1), Angela\_42 (BE1), Annadreamy\_22 (BK1), Bartholomune\_43 (BE1), Battuta\_45 (BE2), Belfort\_24 (BK1), Beuffert\_21 (BK1), BillNye\_18 (BK2), Birchlyn\_44 (BE2), BlueOtter\_47 (BE1), Bmoc\_43 (BE1), BoomerJR\_47 (BE2), Bordeaux\_45 (BE2), Braelyn\_44 (BE1), CeilingFan\_49 (BE2), Circinus\_20 (BK2), Comrade\_23 (BK1), Cross\_45 (BE1), Cursive\_43 (BE1), Daubenski\_46 (BE1), EGole\_46 (BE1), Elmer\_54 (BE2), Emma1919\_26 (BK1), Enygma\_44 (BE2), Evy\_46 (BE1), Faust\_22 (BK1), Forrest\_26 (BK1), Francob\_22 (BK1), Genie2\_47 (BE2), Gibbi\_51 (BE2), Gilson\_26 (BK1), HangryHippo\_47 (BE1), IchabodCrane\_44 (BE2), Jada\_24 (BK1), Jay2Jay\_50 (BE1), JimJam\_47 (BE2), Jollison\_52 (BE2), Karimac\_46 (BE2), Karp\_22 (BK1), Kenrey\_26 (BK1), KentuckyRacer\_51 (BE2), Larnav\_50 (BE1), Leo04\_46 (BE1), Liandry\_44 (BE1), LilMartin\_42 (BE1), Limpid\_22 (BK1), LukeCage\_46 (BE2), Lululemon\_46 (BE1), MeganTheeKilla\_24 (BK1), Mildred21\_43 (BE1), MindFlayer\_45 (BE2), Moab\_23 (BK1), MulchMansion\_42 (BE1), Muntaha\_18 (BK2), NootNoot\_41 (BE1), PacManQ\_46 (BE1), Paradiddles\_41 (BE1), Patelgo\_23 (BK1), Peebs\_44 (BE1), Pepperwood\_45 (BE1), Persimmon\_41 (BE1), Phredrick\_24 (BK1), PinkiePie\_43 (BE1), PumpkinSpice\_46 (BE2), Quarant19\_47 (BE2), SaltySpittoon\_47 (BE2), Samisti12\_45 (BE1), SeresaTree\_22 (BK1), Sollertia\_47 (BE2), SparkleGoddess\_23 (BK1), Spelly\_47 (BE2), Spilled\_48 (BE2), Squillium\_44 (BE1), Stanimal\_47 (BE2), StarPlatinum\_47 (BE2), Starbow\_45 (BE2), Stigma\_23 (BK1), Sushi23\_45 (BE1), Targaryen\_46 (BE1), Teutsch\_45 (BE1), TomSawyer\_45 (BE2), Tomas\_49 (BE2), Tribute\_43 (BE1), Wakanda\_18 (BK2), Warpy\_49 (BE1), Watermoore\_45 (BE1), Wipeout\_45 (BE2), Wofford\_46 (BE2), Yaboi\_47 (BE2),

#### Start 18:

- Found in 4 of 92 ( 4.3% ) of genes in pham
- Manual Annotations of this start: 1 of 79
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Blueeyedbeauty\_24 (BK1),

#### Start 32:

- Found in 67 of 92 ( 72.8% ) 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\_48 (BE2),

### Summary by clusters:

There are 4 clusters represented in this pham: BE2, BE1, BK1, BK2,

Info for manual annotations of cluster BE1:

- Start number 16 was manually annotated 29 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 16 was manually annotated 26 times for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 16 was manually annotated 19 times for cluster BK1.
- Start number 18 was manually annotated 1 time for cluster BK1.

Info for manual annotations of cluster BK2:

•Start number 16 was manually annotated 4 times for cluster BK2.

**Gene Information:**

Gene: Amabiko\_47 Start: 22589, Stop: 24325, Start Num: 16

Candidate Starts for Amabiko\_47:

(2, 22478), (5, 22511), (7, 22529), (12, 22565), (14, 22571), (Start: 16 @22589 has 78 MA's), (20, 22658), (30, 22757), (32, 22781), (34, 22841), (39, 22877), (48, 22958), (61, 23072), (65, 23120), (83, 23354), (105, 23486), (106, 23492), (107, 23498), (126, 23651), (128, 23672), (129, 23690), (145, 23780), (154, 23855), (159, 23921), (161, 23936), (172, 24056), (190, 24200), (201, 24287),

Gene: Anedea\_44 Start: 22107, Stop: 23849, Start Num: 16

Candidate Starts for Anedea\_44:

(Start: 16 @22107 has 78 MA's), (22, 22200), (24, 22218), (30, 22275), (32, 22299), (34, 22359), (39, 22395), (86, 22890), (101, 22983), (106, 23013), (109, 23037), (111, 23046), (117, 23094), (141, 23286), (156, 23424), (159, 23445), (166, 23520), (168, 23541), (171, 23562), (178, 23643), (183, 23670), (187, 23706), (189, 23715),

Gene: Angela\_42 Start: 21587, Stop: 23329, Start Num: 16

Candidate Starts for Angela\_42:

(Start: 16 @21587 has 78 MA's), (22, 21680), (24, 21698), (30, 21755), (32, 21779), (34, 21839), (37, 21866), (38, 21872), (39, 21875), (58, 22052), (70, 22157), (95, 22418), (111, 22526), (117, 22574), (141, 22766), (159, 22925), (165, 22976), (170, 23036), (171, 23042), (186, 23180), (189, 23195), (194, 23237),

Gene: Annadreamy\_22 Start: 10975, Stop: 12696, Start Num: 16

Candidate Starts for Annadreamy\_22:

(15, 10954), (Start: 16 @10975 has 78 MA's), (Start: 18 @11017 has 1 MA's), (33, 11179), (39, 11254), (50, 11347), (55, 11404), (56, 11410), (58, 11422), (62, 11452), (64, 11458), (67, 11500), (69, 11512), (70, 11518), (73, 11533), (83, 11716), (89, 11749), (109, 11878), (136, 12067), (138, 12088), (149, 12175), (167, 12346), (181, 12496), (188, 12544),

Gene: Bartholomune\_43 Start: 21893, Stop: 23629, Start Num: 16

Candidate Starts for Bartholomune\_43:

(Start: 16 @21893 has 78 MA's), (22, 21986), (24, 22004), (30, 22061), (32, 22085), (38, 22178), (39, 22181), (58, 22358), (59, 22361), (83, 22655), (99, 22733), (106, 22793), (140, 23063), (147, 23123), (150, 23138), (159, 23225), (160, 23231), (171, 23342), (178, 23423), (192, 23525),

Gene: Battuta\_45 Start: 22563, Stop: 24299, Start Num: 16

Candidate Starts for Battuta\_45:

(15, 22545), (Start: 16 @22563 has 78 MA's), (20, 22632), (30, 22731), (32, 22755), (34, 22815), (39, 22851), (61, 23046), (65, 23094), (83, 23328), (105, 23460), (106, 23466), (107, 23472), (126, 23625), (128, 23646), (129, 23664), (141, 23736), (145, 23754), (154, 23829), (159, 23895), (161, 23910), (172, 24030), (190, 24174), (201, 24261),

Gene: Belfort\_24 Start: 11726, Stop: 13420, Start Num: 16

Candidate Starts for Belfort\_24:

(1, 11609), (3, 11615), (4, 11624), (Start: 16 @11726 has 78 MA's), (26, 11861), (29, 11888), (33, 11930), (45, 12059), (50, 12098), (66, 12239), (89, 12500), (98, 12545), (104, 12596), (108, 12626),

(136, 12815), (148, 12920), (149, 12923), (155, 12992), (163, 13040), (173, 13154), (177, 13199), (181, 13241), (188, 13289), (195, 13337),

Gene: Beuffert\_21 Start: 10658, Stop: 12379, Start Num: 16

Candidate Starts for Beuffert\_21:

(15, 10637), (Start: 16 @10658 has 78 MA's), (Start: 18 @10700 has 1 MA's), (33, 10862), (39, 10937), (50, 11030), (58, 11105), (67, 11183), (69, 11195), (70, 11201), (83, 11399), (87, 11420), (100, 11498), (109, 11561), (125, 11669), (127, 11681), (136, 11750), (138, 11771), (150, 11861), (157, 11933), (161, 11966), (171, 12059), (181, 12179), (185, 12200), (188, 12227), (191, 12254),

Gene: BillNye\_18 Start: 10685, Stop: 13117, Start Num: 16

Candidate Starts for BillNye\_18:

(Start: 16 @10685 has 78 MA's), (19, 10736), (26, 10820), (33, 10889), (42, 11000), (46, 11024), (57, 11129), (71, 11228), (74, 11249), (76, 11279), (80, 11348), (84, 11426), (94, 11474), (105, 11540), (111, 11579), (112, 11582), (116, 11621), (118, 11642), (120, 11657), (124, 11675), (129, 11720), (134, 11753), (137, 11762), (142, 11795), (155, 11939), (158, 11951), (161, 11978), (163, 11987), (172, 12101), (181, 12200), (198, 12350), (199, 12353), (204, 12407), (207, 12503), (208, 12533), (209, 12596), (212, 12671), (216, 12689), (223, 12821), (224, 12827), (226, 12860), (227, 12875), (232, 13052),

Gene: Birchlyn\_44 Start: 20446, Stop: 22182, Start Num: 16

Candidate Starts for Birchlyn\_44:

(2, 20335), (5, 20368), (7, 20386), (12, 20422), (14, 20428), (Start: 16 @20446 has 78 MA's), (20, 20515), (30, 20614), (32, 20638), (34, 20698), (39, 20734), (48, 20815), (61, 20929), (65, 20977), (83, 21211), (105, 21343), (106, 21349), (107, 21355), (126, 21508), (128, 21529), (129, 21547), (145, 21637), (154, 21712), (159, 21778), (161, 21793), (172, 21913), (190, 22057), (201, 22144),

Gene: BlueOtter\_47 Start: 23243, Stop: 24979, Start Num: 16

Candidate Starts for BlueOtter\_47:

(Start: 16 @23243 has 78 MA's), (22, 23336), (30, 23411), (32, 23435), (34, 23495), (39, 23531), (59, 23711), (87, 24023), (99, 24083), (132, 24359), (140, 24413), (141, 24416), (152, 24500), (156, 24554), (159, 24575), (169, 24677), (178, 24773), (182, 24797), (184, 24809), (190, 24854), (201, 24941),

Gene: Blueeyedbeauty\_24 Start: 11510, Stop: 13189, Start Num: 18

Candidate Starts for Blueeyedbeauty\_24:

(15, 11447), (Start: 16 @11468 has 78 MA's), (Start: 18 @11510 has 1 MA's), (33, 11672), (39, 11747), (50, 11840), (53, 11867), (58, 11915), (64, 11951), (67, 11993), (69, 12005), (70, 12011), (76, 12071), (83, 12209), (89, 12242), (126, 12485), (127, 12491), (149, 12668), (157, 12743), (163, 12785), (175, 12914), (181, 12989), (188, 13037), (192, 13070),

Gene: Bmoc\_43 Start: 21892, Stop: 23634, Start Num: 16

Candidate Starts for Bmoc\_43:

(Start: 16 @21892 has 78 MA's), (22, 21985), (24, 22003), (30, 22060), (32, 22084), (34, 22144), (39, 22180), (86, 22675), (101, 22768), (106, 22798), (111, 22831), (117, 22879), (122, 22930), (141, 23071), (151, 23146), (156, 23209), (159, 23230), (168, 23326), (171, 23347), (178, 23428), (179, 23434), (183, 23455), (189, 23500), (192, 23530), (195, 23545),

Gene: BoomerJR\_47 Start: 22444, Stop: 24180, Start Num: 16

Candidate Starts for BoomerJR\_47:

(9, 22402), (15, 22426), (Start: 16 @22444 has 78 MA's), (20, 22513), (30, 22612), (32, 22636), (34, 22696), (35, 22705), (39, 22732), (65, 22975), (74, 23044), (83, 23209), (90, 23242), (105, 23341), (119, 23452), (135, 23581), (145, 23635), (156, 23755), (161, 23791), (171, 23893), (176, 23947),

(179, 23980), (190, 24055), (201, 24142),

Gene: Bordeaux\_45 Start: 22718, Stop: 24454, Start Num: 16

Candidate Starts for Bordeaux\_45:

(2, 22607), (5, 22640), (7, 22658), (12, 22694), (14, 22700), (Start: 16 @22718 has 78 MA's), (20, 22787), (30, 22886), (32, 22910), (34, 22970), (39, 23006), (61, 23201), (65, 23249), (83, 23483), (105, 23615), (106, 23621), (107, 23627), (126, 23780), (128, 23801), (129, 23819), (141, 23891), (145, 23909), (154, 23984), (159, 24050), (161, 24065), (172, 24185), (190, 24329), (201, 24416),

Gene: Braelyn\_44 Start: 22660, Stop: 24396, Start Num: 16

Candidate Starts for Braelyn\_44:

(Start: 16 @22660 has 78 MA's), (22, 22753), (24, 22771), (30, 22828), (32, 22852), (34, 22912), (36, 22927), (38, 22945), (39, 22948), (58, 23125), (59, 23128), (83, 23422), (99, 23500), (105, 23554), (140, 23830), (147, 23890), (150, 23905), (159, 23992), (160, 23998), (171, 24109), (178, 24190), (192, 24292),

Gene: CeilingFan\_49 Start: 22478, Stop: 24214, Start Num: 16

Candidate Starts for CeilingFan\_49:

(2, 22367), (5, 22400), (7, 22418), (12, 22454), (14, 22460), (Start: 16 @22478 has 78 MA's), (20, 22547), (30, 22646), (32, 22670), (34, 22730), (39, 22766), (61, 22961), (65, 23009), (83, 23243), (105, 23375), (106, 23381), (107, 23387), (126, 23540), (128, 23561), (129, 23579), (145, 23669), (154, 23744), (159, 23810), (161, 23825), (172, 23945), (190, 24089), (201, 24176),

Gene: Circinus\_20 Start: 10821, Stop: 13253, Start Num: 16

Candidate Starts for Circinus\_20:

(Start: 16 @10821 has 78 MA's), (19, 10872), (21, 10890), (26, 10956), (33, 11025), (42, 11136), (46, 11160), (71, 11364), (74, 11385), (80, 11484), (84, 11562), (94, 11610), (103, 11664), (105, 11676), (111, 11715), (112, 11718), (116, 11757), (118, 11778), (120, 11793), (124, 11811), (129, 11856), (130, 11865), (134, 11889), (145, 11952), (155, 12075), (158, 12087), (161, 12114), (163, 12123), (172, 12237), (181, 12336), (199, 12489), (202, 12513), (204, 12543), (206, 12603), (207, 12639), (209, 12732), (212, 12807), (216, 12825), (224, 12963), (226, 12996), (227, 13011), (228, 13089), (232, 13188),

Gene: Comrade\_23 Start: 11341, Stop: 13035, Start Num: 16

Candidate Starts for Comrade\_23:

(1, 11224), (3, 11230), (4, 11239), (Start: 16 @11341 has 78 MA's), (26, 11476), (29, 11503), (33, 11545), (45, 11674), (50, 11713), (66, 11854), (89, 12115), (98, 12160), (104, 12211), (108, 12241), (136, 12430), (148, 12535), (149, 12538), (155, 12607), (163, 12655), (173, 12769), (177, 12814), (181, 12856), (188, 12904), (195, 12952),

Gene: Cross\_45 Start: 23244, Stop: 24980, Start Num: 16

Candidate Starts for Cross\_45:

(Start: 16 @23244 has 78 MA's), (22, 23337), (30, 23412), (32, 23436), (34, 23496), (39, 23532), (59, 23712), (87, 24024), (99, 24084), (132, 24360), (140, 24414), (141, 24417), (152, 24501), (156, 24555), (159, 24576), (169, 24678), (178, 24774), (182, 24798), (184, 24810), (190, 24855), (201, 24942),

Gene: Cursive\_43 Start: 22769, Stop: 24505, Start Num: 16

Candidate Starts for Cursive\_43:

(Start: 16 @22769 has 78 MA's), (22, 22862), (30, 22937), (32, 22961), (34, 23021), (39, 23057), (59, 23237), (87, 23549), (99, 23609), (132, 23885), (140, 23939), (141, 23942), (152, 24026), (156, 24080), (159, 24101), (169, 24203), (178, 24299), (182, 24323), (184, 24335), (190, 24380), (201, 24467),



Gene: Daubenski\_46 Start: 22995, Stop: 24737, Start Num: 16

Candidate Starts for Daubenski\_46:

(Start: 16 @22995 has 78 MA's), (19, 23046), (24, 23106), (30, 23163), (32, 23187), (34, 23247), (38, 23280), (39, 23283), (101, 23871), (117, 23982), (141, 24174), (148, 24240), (150, 24246), (159, 24333), (164, 24378), (171, 24450), (178, 24531), (190, 24612), (192, 24633), (201, 24699),

Gene: EGole\_46 Start: 24148, Stop: 25884, Start Num: 16

Candidate Starts for EGole\_46:

(Start: 16 @24148 has 78 MA's), (22, 24241), (24, 24259), (27, 24289), (30, 24316), (32, 24340), (37, 24427), (39, 24436), (59, 24616), (87, 24928), (99, 24988), (117, 25129), (132, 25264), (140, 25318), (141, 25321), (152, 25405), (156, 25459), (159, 25480), (169, 25582), (178, 25678), (182, 25702), (184, 25714), (190, 25759), (201, 25846),

Gene: Elmer\_54 Start: 23620, Stop: 25359, Start Num: 16

Candidate Starts for Elmer\_54:

(Start: 16 @23620 has 78 MA's), (20, 23689), (30, 23788), (32, 23812), (39, 23908), (74, 24220), (106, 24526), (107, 24532), (122, 24655), (126, 24685), (159, 24955), (168, 25051), (176, 25126), (200, 25318),

Gene: Emma1919\_26 Start: 11923, Stop: 13617, Start Num: 16

Candidate Starts for Emma1919\_26:

(8, 11875), (10, 11884), (Start: 16 @11923 has 78 MA's), (31, 12103), (33, 12127), (39, 12202), (41, 12229), (42, 12238), (50, 12295), (56, 12358), (83, 12664), (85, 12676), (89, 12697), (98, 12742), (118, 12895), (120, 12910), (142, 13048), (144, 13063), (149, 13120), (153, 13141), (155, 13189), (157, 13195), (173, 13351), (174, 13363), (181, 13438), (188, 13486),

Gene: Enygma\_44 Start: 22539, Stop: 24275, Start Num: 16

Candidate Starts for Enygma\_44:

(Start: 16 @22539 has 78 MA's), (20, 22608), (30, 22707), (32, 22731), (39, 22827), (48, 22908), (60, 23016), (83, 23304), (101, 23412), (105, 23436), (107, 23448), (121, 23568), (141, 23712), (159, 23871), (161, 23886), (178, 24069), (180, 24081), (190, 24150), (191, 24165), (201, 24237),

Gene: Evy\_46 Start: 23255, Stop: 24991, Start Num: 16

Candidate Starts for Evy\_46:

(Start: 16 @23255 has 78 MA's), (22, 23348), (24, 23366), (30, 23423), (32, 23447), (34, 23507), (37, 23534), (39, 23543), (40, 23570), (58, 23720), (101, 24125), (133, 24383), (141, 24428), (153, 24515), (159, 24587), (166, 24662), (178, 24785),

Gene: Faust\_22 Start: 11130, Stop: 12848, Start Num: 16

Candidate Starts for Faust\_22:

(Start: 16 @11130 has 78 MA's), (33, 11334), (42, 11445), (45, 11463), (67, 11655), (69, 11667), (70, 11673), (77, 11736), (78, 11742), (89, 11904), (114, 12051), (139, 12246), (144, 12273), (145, 12279), (149, 12330), (150, 12333), (155, 12399), (175, 12576), (181, 12648), (185, 12669), (191, 12723),

Gene: Forrest\_26 Start: 12046, Stop: 13740, Start Num: 16

Candidate Starts for Forrest\_26:

(8, 11998), (10, 12007), (Start: 16 @12046 has 78 MA's), (31, 12226), (33, 12250), (39, 12325), (41, 12352), (42, 12361), (50, 12418), (56, 12481), (83, 12787), (85, 12799), (89, 12820), (98, 12865), (118, 13018), (120, 13033), (142, 13171), (144, 13186), (149, 13243), (153, 13264), (155, 13312), (157, 13318), (173, 13474), (174, 13486), (181, 13561), (188, 13609),

Gene: Francob\_22 Start: 10713, Stop: 12398, Start Num: 16

Candidate Starts for Francob\_22:

(Start: 16 @10713 has 78 MA's), (33, 10917), (42, 11028), (43, 11034), (52, 11109), (53, 11112), (69, 11241), (70, 11247), (89, 11478), (112, 11619), (139, 11817), (146, 11865), (149, 11901), (155, 11970), (163, 12018), (167, 12072), (173, 12132), (181, 12219), (185, 12240), (188, 12267), (195, 12315),

Gene: Genie2\_47 Start: 22558, Stop: 24294, Start Num: 16

Candidate Starts for Genie2\_47:

(9, 22516), (15, 22540), (Start: 16 @22558 has 78 MA's), (20, 22627), (30, 22726), (32, 22750), (34, 22810), (35, 22819), (39, 22846), (65, 23089), (74, 23158), (83, 23323), (90, 23356), (105, 23455), (119, 23566), (135, 23695), (145, 23749), (156, 23869), (161, 23905), (171, 24007), (176, 24061), (179, 24094), (190, 24169), (201, 24256),

Gene: Gibbi\_51 Start: 22701, Stop: 24437, Start Num: 16

Candidate Starts for Gibbi\_51:

(15, 22683), (Start: 16 @22701 has 78 MA's), (20, 22770), (30, 22869), (32, 22893), (34, 22953), (39, 22989), (48, 23070), (61, 23184), (65, 23232), (83, 23466), (105, 23598), (106, 23604), (107, 23610), (126, 23763), (128, 23784), (129, 23802), (145, 23892), (154, 23967), (159, 24033), (161, 24048), (172, 24168), (190, 24312), (201, 24399),

Gene: Gilson\_26 Start: 11876, Stop: 13570, Start Num: 16

Candidate Starts for Gilson\_26:

(8, 11828), (10, 11837), (Start: 16 @11876 has 78 MA's), (31, 12056), (33, 12080), (39, 12155), (41, 12182), (42, 12191), (50, 12248), (56, 12311), (83, 12617), (85, 12629), (89, 12650), (98, 12695), (118, 12848), (120, 12863), (142, 13001), (144, 13016), (149, 13073), (153, 13094), (155, 13142), (157, 13148), (173, 13304), (174, 13316), (181, 13391), (188, 13439),

Gene: HangryHippo\_47 Start: 23243, Stop: 24979, Start Num: 16

Candidate Starts for HangryHippo\_47:

(Start: 16 @23243 has 78 MA's), (22, 23336), (30, 23411), (32, 23435), (34, 23495), (39, 23531), (59, 23711), (87, 24023), (99, 24083), (132, 24359), (140, 24413), (141, 24416), (152, 24500), (156, 24554), (159, 24575), (169, 24677), (178, 24773), (182, 24797), (184, 24809), (190, 24854), (201, 24941),

Gene: IchabodCrane\_44 Start: 22290, Stop: 24026, Start Num: 16

Candidate Starts for IchabodCrane\_44:

(15, 22272), (Start: 16 @22290 has 78 MA's), (20, 22359), (25, 22413), (30, 22458), (32, 22482), (34, 22542), (39, 22578), (61, 22773), (65, 22821), (83, 23055), (105, 23187), (107, 23199), (128, 23373), (145, 23481), (154, 23556), (159, 23622), (161, 23637), (172, 23757), (180, 23832), (190, 23901), (201, 23988),

Gene: Jada\_24 Start: 11228, Stop: 12922, Start Num: 16

Candidate Starts for Jada\_24:

(8, 11180), (10, 11189), (Start: 16 @11228 has 78 MA's), (31, 11408), (33, 11432), (39, 11507), (41, 11534), (42, 11543), (50, 11600), (56, 11663), (83, 11969), (85, 11981), (89, 12002), (98, 12047), (118, 12200), (120, 12215), (142, 12353), (144, 12368), (149, 12425), (153, 12446), (155, 12494), (157, 12500), (173, 12656), (174, 12668), (181, 12743), (188, 12791),

Gene: Jay2Jay\_50 Start: 24078, Stop: 25814, Start Num: 16

Candidate Starts for Jay2Jay\_50:

(Start: 16 @24078 has 78 MA's), (22, 24171), (24, 24189), (30, 24246), (32, 24270), (34, 24330), (37, 24357), (39, 24366), (40, 24393), (58, 24543), (78, 24711), (86, 24855), (90, 24873), (95, 24903), (101, 24948), (115, 25026), (122, 25110), (133, 25206), (141, 25251), (159, 25410), (166, 25485),

(178, 25608),

Gene: JimJam\_47 Start: 22664, Stop: 24400, Start Num: 16

Candidate Starts for JimJam\_47:

(15, 22646), (Start: 16 @22664 has 78 MA's), (20, 22733), (30, 22832), (32, 22856), (34, 22916), (39, 22952), (61, 23147), (65, 23195), (83, 23429), (105, 23561), (106, 23567), (107, 23573), (126, 23726), (128, 23747), (129, 23765), (141, 23837), (145, 23855), (154, 23930), (159, 23996), (161, 24011), (172, 24131), (190, 24275), (201, 24362),

Gene: Jollison\_52 Start: 22546, Stop: 24282, Start Num: 16

Candidate Starts for Jollison\_52:

(2, 22435), (5, 22468), (7, 22486), (12, 22522), (14, 22528), (Start: 16 @22546 has 78 MA's), (20, 22615), (30, 22714), (32, 22738), (34, 22798), (39, 22834), (61, 23029), (65, 23077), (83, 23311), (105, 23443), (106, 23449), (107, 23455), (126, 23608), (128, 23629), (129, 23647), (141, 23719), (145, 23737), (154, 23812), (159, 23878), (161, 23893), (172, 24013), (190, 24157), (201, 24244),

Gene: Karimac\_46 Start: 22695, Stop: 24431, Start Num: 16

Candidate Starts for Karimac\_46:

(2, 22584), (5, 22617), (7, 22635), (12, 22671), (14, 22677), (Start: 16 @22695 has 78 MA's), (20, 22764), (25, 22818), (30, 22863), (32, 22887), (34, 22947), (39, 22983), (48, 23064), (61, 23178), (65, 23226), (83, 23460), (105, 23592), (107, 23604), (128, 23778), (145, 23886), (154, 23961), (159, 24027), (161, 24042), (172, 24162), (180, 24237), (190, 24306), (201, 24393),

Gene: Karp\_22 Start: 10942, Stop: 12636, Start Num: 16

Candidate Starts for Karp\_22:

(1, 10825), (3, 10831), (4, 10840), (Start: 16 @10942 has 78 MA's), (26, 11077), (29, 11104), (33, 11146), (45, 11275), (50, 11314), (66, 11455), (89, 11716), (98, 11761), (104, 11812), (108, 11842), (136, 12031), (148, 12136), (149, 12139), (155, 12208), (163, 12256), (173, 12370), (177, 12415), (181, 12457), (188, 12505), (195, 12553),

Gene: Kenrey\_26 Start: 11925, Stop: 13619, Start Num: 16

Candidate Starts for Kenrey\_26:

(4, 11826), (8, 11877), (10, 11886), (Start: 16 @11925 has 78 MA's), (33, 12129), (42, 12240), (50, 12297), (59, 12375), (82, 12663), (83, 12666), (89, 12699), (110, 12834), (115, 12852), (116, 12876), (120, 12912), (125, 12936), (138, 13035), (142, 13050), (143, 13059), (145, 13071), (150, 13125), (153, 13143), (155, 13191), (172, 13341), (173, 13353), (174, 13365), (181, 13440), (185, 13461), (188, 13488), (195, 13536),

Gene: KentuckyRacer\_51 Start: 22479, Stop: 24215, Start Num: 16

Candidate Starts for KentuckyRacer\_51:

(2, 22368), (5, 22401), (7, 22419), (12, 22455), (14, 22461), (Start: 16 @22479 has 78 MA's), (20, 22548), (30, 22647), (32, 22671), (34, 22731), (39, 22767), (61, 22962), (65, 23010), (83, 23244), (105, 23376), (106, 23382), (107, 23388), (126, 23541), (128, 23562), (129, 23580), (145, 23670), (154, 23745), (159, 23811), (161, 23826), (172, 23946), (190, 24090), (201, 24177),

Gene: Larnav\_50 Start: 23228, Stop: 24964, Start Num: 16

Candidate Starts for Larnav\_50:

(Start: 16 @23228 has 78 MA's), (22, 23321), (28, 23372), (30, 23396), (32, 23420), (34, 23480), (39, 23516), (59, 23696), (87, 24008), (99, 24068), (132, 24344), (140, 24398), (141, 24401), (152, 24485), (156, 24539), (159, 24560), (169, 24662), (178, 24758), (182, 24782), (184, 24794), (190, 24839), (201, 24926),

Gene: Leo04\_46 Start: 23743, Stop: 25479, Start Num: 16

Candidate Starts for Leo04\_46:

(Start: 16 @23743 has 78 MA's), (22, 23836), (30, 23911), (32, 23935), (34, 23995), (39, 24031), (59, 24211), (87, 24523), (99, 24583), (132, 24859), (140, 24913), (141, 24916), (152, 25000), (156, 25054), (159, 25075), (169, 25177), (178, 25273), (182, 25297), (184, 25309), (190, 25354), (201, 25441),

Gene: Liandry\_44 Start: 22598, Stop: 24334, Start Num: 16

Candidate Starts for Liandry\_44:

(Start: 16 @22598 has 78 MA's), (22, 22691), (24, 22709), (30, 22766), (32, 22790), (34, 22850), (36, 22865), (38, 22883), (39, 22886), (58, 23063), (59, 23066), (83, 23360), (99, 23438), (105, 23492), (140, 23768), (147, 23828), (150, 23843), (159, 23930), (160, 23936), (171, 24047), (178, 24128), (192, 24230),

Gene: LilMartin\_42 Start: 21535, Stop: 23277, Start Num: 16

Candidate Starts for LilMartin\_42:

(Start: 16 @21535 has 78 MA's), (22, 21628), (24, 21646), (30, 21703), (32, 21727), (34, 21787), (37, 21814), (38, 21820), (39, 21823), (58, 22000), (95, 22366), (111, 22474), (117, 22522), (141, 22714), (159, 22873), (165, 22924), (170, 22984), (171, 22990), (186, 23128), (189, 23143), (194, 23185),

Gene: Limpid\_22 Start: 10974, Stop: 12695, Start Num: 16

Candidate Starts for Limpid\_22:

(15, 10953), (Start: 16 @10974 has 78 MA's), (Start: 18 @11016 has 1 MA's), (33, 11178), (39, 11253), (50, 11346), (55, 11403), (56, 11409), (58, 11421), (62, 11451), (64, 11457), (67, 11499), (69, 11511), (70, 11517), (73, 11532), (83, 11715), (89, 11748), (109, 11877), (136, 12066), (138, 12087), (149, 12174), (167, 12345), (181, 12495), (188, 12543),

Gene: LukeCage\_46 Start: 22443, Stop: 24179, Start Num: 16

Candidate Starts for LukeCage\_46:

(13, 22422), (15, 22425), (Start: 16 @22443 has 78 MA's), (20, 22512), (30, 22611), (32, 22635), (39, 22731), (40, 22758), (48, 22812), (53, 22860), (61, 22926), (79, 23088), (83, 23208), (88, 23235), (101, 23316), (105, 23340), (107, 23352), (122, 23475), (125, 23499), (141, 23616), (145, 23634), (154, 23709), (159, 23775), (161, 23790), (178, 23973), (179, 23979), (180, 23985), (190, 24054),

Gene: Lululemon\_46 Start: 22624, Stop: 24360, Start Num: 16

Candidate Starts for Lululemon\_46:

(Start: 16 @22624 has 78 MA's), (22, 22717), (30, 22792), (32, 22816), (34, 22876), (39, 22912), (59, 23092), (87, 23404), (99, 23464), (132, 23740), (140, 23794), (141, 23797), (152, 23881), (156, 23935), (159, 23956), (169, 24058), (178, 24154), (182, 24178), (184, 24190), (190, 24235), (201, 24322),

Gene: MeganTheeKilla\_24 Start: 11237, Stop: 12931, Start Num: 16

Candidate Starts for MeganTheeKilla\_24:

(8, 11189), (10, 11198), (Start: 16 @11237 has 78 MA's), (31, 11417), (33, 11441), (39, 11516), (41, 11543), (42, 11552), (50, 11609), (56, 11672), (83, 11978), (85, 11990), (89, 12011), (98, 12056), (118, 12209), (120, 12224), (142, 12362), (144, 12377), (149, 12434), (153, 12455), (155, 12503), (157, 12509), (173, 12665), (174, 12677), (181, 12752), (188, 12800),

Gene: Mildred21\_43 Start: 21720, Stop: 23462, Start Num: 16

Candidate Starts for Mildred21\_43:

(Start: 16 @21720 has 78 MA's), (22, 21813), (24, 21831), (30, 21888), (32, 21912), (34, 21972), (39, 22008), (83, 22488), (106, 22626), (111, 22659), (123, 22773), (141, 22899), (159, 23058), (165, 23109), (178, 23256), (182, 23280), (189, 23328), (192, 23358), (195, 23373), (201, 23424),

Gene: MindFlyer\_45 Start: 22197, Stop: 23933, Start Num: 16

Candidate Starts for MindFlyer\_45:

(15, 22179), (Start: 16 @22197 has 78 MA's), (20, 22266), (30, 22365), (32, 22389), (34, 22449), (39, 22485), (61, 22680), (65, 22728), (83, 22962), (105, 23094), (106, 23100), (107, 23106), (126, 23259), (128, 23280), (129, 23298), (145, 23388), (154, 23463), (159, 23529), (161, 23544), (172, 23664), (190, 23808), (201, 23895),

Gene: Moab\_23 Start: 11265, Stop: 12956, Start Num: 16

Candidate Starts for Moab\_23:

(11, 11226), (Start: 16 @11265 has 78 MA's), (17, 11286), (26, 11400), (33, 11469), (40, 11565), (50, 11637), (54, 11670), (70, 11808), (89, 12036), (127, 12285), (132, 12327), (155, 12528), (157, 12534), (173, 12690), (181, 12777), (188, 12825), (195, 12873),

Gene: Mugiwara\_48 Start: 23134, Stop: 24678, Start Num: 32

Candidate Starts for Mugiwara\_48:

(13, 22921), (15, 22924), (Start: 16 @22942 has 78 MA's), (20, 23011), (30, 23110), (32, 23134), (34, 23194), (39, 23230), (40, 23257), (48, 23311), (61, 23425), (65, 23473), (74, 23542), (83, 23707), (101, 23815), (107, 23851), (122, 23974), (126, 24004), (145, 24133), (154, 24208), (159, 24274), (161, 24289), (178, 24472), (180, 24484), (190, 24553), (193, 24583), (197, 24613), (201, 24640),

Gene: MulchMansion\_42 Start: 21535, Stop: 23277, Start Num: 16

Candidate Starts for MulchMansion\_42:

(Start: 16 @21535 has 78 MA's), (22, 21628), (24, 21646), (30, 21703), (32, 21727), (34, 21787), (37, 21814), (38, 21820), (39, 21823), (58, 22000), (95, 22366), (111, 22474), (117, 22522), (141, 22714), (159, 22873), (165, 22924), (170, 22984), (171, 22990), (186, 23128), (189, 23143), (194, 23185),

Gene: Muntaha\_18 Start: 10101, Stop: 12536, Start Num: 16

Candidate Starts for Muntaha\_18:

(6, 10032), (Start: 16 @10101 has 78 MA's), (19, 10152), (39, 10383), (44, 10431), (45, 10437), (49, 10461), (51, 10497), (81, 10794), (82, 10848), (87, 10872), (92, 10902), (120, 11094), (129, 11160), (131, 11172), (132, 11175), (140, 11229), (141, 11232), (145, 11256), (155, 11379), (157, 11385), (162, 11421), (163, 11427), (175, 11568), (181, 11640), (184, 11655), (196, 11754), (204, 11850), (205, 11883), (206, 11910), (210, 12051), (213, 12105), (215, 12120), (217, 12150), (218, 12156), (220, 12231), (221, 12234), (222, 12243), (225, 12279), (229, 12426), (230, 12450), (231, 12468),

Gene: NootNoot\_41 Start: 21512, Stop: 23248, Start Num: 16

Candidate Starts for NootNoot\_41:

(Start: 16 @21512 has 78 MA's), (22, 21605), (24, 21623), (30, 21680), (32, 21704), (34, 21764), (36, 21779), (38, 21797), (39, 21800), (58, 21977), (59, 21980), (83, 22274), (99, 22352), (105, 22406), (140, 22682), (147, 22742), (150, 22757), (159, 22844), (160, 22850), (171, 22961), (178, 23042), (192, 23144),

Gene: PacManQ\_46 Start: 22624, Stop: 24360, Start Num: 16

Candidate Starts for PacManQ\_46:

(Start: 16 @22624 has 78 MA's), (22, 22717), (30, 22792), (32, 22816), (34, 22876), (39, 22912), (59, 23092), (87, 23404), (99, 23464), (132, 23740), (140, 23794), (141, 23797), (152, 23881), (156, 23935), (159, 23956), (169, 24058), (178, 24154), (182, 24178), (184, 24190), (190, 24235), (201, 24322),

Gene: Paradiddles\_41 Start: 21772, Stop: 23508, Start Num: 16

Candidate Starts for Paradiddles\_41:

(Start: 16 @21772 has 78 MA's), (22, 21865), (23, 21880), (24, 21883), (30, 21940), (32, 21964), (36, 22039), (39, 22060), (47, 22129), (59, 22240), (60, 22249), (61, 22255), (63, 22273), (68, 22327), (86,

22549), (96, 22600), (102, 22651), (141, 22945), (159, 23104), (165, 23155), (172, 23239), (178, 23302), (184, 23338), (186, 23359), (190, 23383),

Gene: Patelgo\_23 Start: 10879, Stop: 12570, Start Num: 16

Candidate Starts for Patelgo\_23:

(11, 10840), (Start: 16 @10879 has 78 MA's), (17, 10900), (26, 11014), (33, 11083), (40, 11179), (50, 11251), (70, 11422), (89, 11650), (96, 11686), (127, 11899), (132, 11941), (155, 12142), (157, 12148), (173, 12304), (181, 12391), (183, 12397), (185, 12412), (188, 12439), (195, 12487),

Gene: Peebs\_44 Start: 22981, Stop: 24717, Start Num: 16

Candidate Starts for Peebs\_44:

(Start: 16 @22981 has 78 MA's), (22, 23074), (30, 23149), (32, 23173), (34, 23233), (39, 23269), (59, 23449), (87, 23761), (99, 23821), (140, 24151), (141, 24154), (152, 24238), (156, 24292), (159, 24313), (169, 24415), (178, 24511), (182, 24535), (184, 24547), (190, 24592), (192, 24613), (201, 24679),

Gene: Pepperwood\_45 Start: 23114, Stop: 24850, Start Num: 16

Candidate Starts for Pepperwood\_45:

(Start: 16 @23114 has 78 MA's), (22, 23207), (30, 23282), (32, 23306), (34, 23366), (39, 23402), (59, 23582), (83, 23876), (99, 23954), (140, 24284), (141, 24287), (152, 24371), (156, 24425), (159, 24446), (169, 24548), (178, 24644), (182, 24668), (184, 24680), (190, 24725), (201, 24812),

Gene: Persimmon\_41 Start: 21487, Stop: 23223, Start Num: 16

Candidate Starts for Persimmon\_41:

(Start: 16 @21487 has 78 MA's), (22, 21580), (24, 21598), (30, 21655), (32, 21679), (38, 21772), (39, 21775), (58, 21952), (59, 21955), (83, 22249), (99, 22327), (105, 22381), (140, 22657), (147, 22717), (150, 22732), (159, 22819), (160, 22825), (171, 22936), (178, 23017), (192, 23119),

Gene: Phredrick\_24 Start: 11131, Stop: 12825, Start Num: 16

Candidate Starts for Phredrick\_24:

(4, 11032), (8, 11083), (10, 11092), (Start: 16 @11131 has 78 MA's), (33, 11335), (42, 11446), (50, 11503), (59, 11581), (82, 11869), (83, 11872), (89, 11905), (110, 12040), (115, 12058), (116, 12082), (120, 12118), (125, 12142), (138, 12241), (142, 12256), (143, 12265), (145, 12277), (150, 12331), (153, 12349), (155, 12397), (172, 12547), (173, 12559), (174, 12571), (181, 12646), (185, 12667), (188, 12694), (195, 12742),

Gene: PinkiePie\_43 Start: 22598, Stop: 24334, Start Num: 16

Candidate Starts for PinkiePie\_43:

(Start: 16 @22598 has 78 MA's), (22, 22691), (24, 22709), (30, 22766), (32, 22790), (34, 22850), (36, 22865), (38, 22883), (39, 22886), (58, 23063), (59, 23066), (83, 23360), (99, 23438), (105, 23492), (140, 23768), (147, 23828), (150, 23843), (159, 23930), (160, 23936), (171, 24047), (178, 24128), (192, 24230),

Gene: PumpkinSpice\_46 Start: 22589, Stop: 24325, Start Num: 16

Candidate Starts for PumpkinSpice\_46:

(2, 22478), (5, 22511), (7, 22529), (12, 22565), (14, 22571), (Start: 16 @22589 has 78 MA's), (20, 22658), (30, 22757), (32, 22781), (34, 22841), (39, 22877), (61, 23072), (65, 23120), (83, 23354), (105, 23486), (106, 23492), (107, 23498), (126, 23651), (128, 23672), (129, 23690), (141, 23762), (145, 23780), (154, 23855), (159, 23921), (161, 23936), (172, 24056), (190, 24200), (201, 24287),

Gene: Quaran19\_47 Start: 22580, Stop: 24316, Start Num: 16

Candidate Starts for Quaran19\_47:

(2, 22469), (5, 22502), (7, 22520), (12, 22556), (14, 22562), (Start: 16 @22580 has 78 MA's), (20, 22649), (30, 22748), (32, 22772), (34, 22832), (39, 22868), (61, 23063), (65, 23111), (83, 23345), (105, 23477), (106, 23483), (107, 23489), (126, 23642), (128, 23663), (129, 23681), (141, 23753), (145, 23771), (154, 23846), (159, 23912), (161, 23927), (172, 24047), (190, 24191), (201, 24278),

Gene: SaltySpittoon\_47 Start: 22589, Stop: 24325, Start Num: 16

Candidate Starts for SaltySpittoon\_47:

(2, 22478), (5, 22511), (7, 22529), (12, 22565), (14, 22571), (Start: 16 @22589 has 78 MA's), (20, 22658), (30, 22757), (32, 22781), (34, 22841), (39, 22877), (61, 23072), (65, 23120), (83, 23354), (105, 23486), (106, 23492), (107, 23498), (126, 23651), (128, 23672), (129, 23690), (141, 23762), (145, 23780), (154, 23855), (159, 23921), (161, 23936), (172, 24056), (190, 24200), (201, 24287),

Gene: Samisti12\_45 Start: 24417, Stop: 26153, Start Num: 16

Candidate Starts for Samisti12\_45:

(Start: 16 @24417 has 78 MA's), (22, 24510), (30, 24585), (32, 24609), (34, 24669), (39, 24705), (59, 24885), (78, 25050), (83, 25179), (87, 25197), (99, 25257), (132, 25533), (140, 25587), (141, 25590), (152, 25674), (156, 25728), (159, 25749), (169, 25851), (178, 25947), (182, 25971), (184, 25983), (190, 26028), (201, 26115),

Gene: SeresaTree\_22 Start: 10520, Stop: 12238, Start Num: 16

Candidate Starts for SeresaTree\_22:

(Start: 16 @10520 has 78 MA's), (33, 10724), (42, 10835), (45, 10853), (67, 11045), (69, 11057), (70, 11063), (77, 11126), (85, 11273), (91, 11303), (114, 11441), (139, 11636), (144, 11663), (145, 11669), (149, 11720), (150, 11723), (155, 11789), (175, 11966), (181, 12038), (185, 12059), (191, 12113),

Gene: Sollertia\_47 Start: 22558, Stop: 24294, Start Num: 16

Candidate Starts for Sollertia\_47:

(9, 22516), (15, 22540), (Start: 16 @22558 has 78 MA's), (20, 22627), (30, 22726), (32, 22750), (34, 22810), (35, 22819), (39, 22846), (65, 23089), (74, 23158), (83, 23323), (90, 23356), (105, 23455), (119, 23566), (135, 23695), (145, 23749), (156, 23869), (161, 23905), (171, 24007), (176, 24061), (179, 24094), (190, 24169), (201, 24256),

Gene: SparkleGoddess\_23 Start: 11343, Stop: 13037, Start Num: 16

Candidate Starts for SparkleGoddess\_23:

(1, 11226), (3, 11232), (4, 11241), (Start: 16 @11343 has 78 MA's), (26, 11478), (29, 11505), (33, 11547), (45, 11676), (50, 11715), (66, 11856), (89, 12117), (98, 12162), (104, 12213), (108, 12243), (136, 12432), (148, 12537), (149, 12540), (155, 12609), (163, 12657), (173, 12771), (177, 12816), (181, 12858), (188, 12906), (195, 12954),

Gene: Spelly\_47 Start: 22544, Stop: 24280, Start Num: 16

Candidate Starts for Spelly\_47:

(2, 22433), (5, 22466), (7, 22484), (12, 22520), (14, 22526), (Start: 16 @22544 has 78 MA's), (20, 22613), (30, 22712), (32, 22736), (34, 22796), (39, 22832), (60, 23021), (61, 23027), (65, 23075), (83, 23309), (105, 23441), (106, 23447), (107, 23453), (126, 23606), (128, 23627), (129, 23645), (145, 23735), (154, 23810), (159, 23876), (161, 23891), (172, 24011), (190, 24155), (201, 24242),

Gene: Spilled\_48 Start: 22661, Stop: 24397, Start Num: 16

Candidate Starts for Spilled\_48:

(15, 22643), (Start: 16 @22661 has 78 MA's), (20, 22730), (25, 22784), (30, 22829), (32, 22853), (34, 22913), (39, 22949), (61, 23144), (65, 23192), (83, 23426), (105, 23558), (107, 23570), (128, 23744), (145, 23852), (154, 23927), (159, 23993), (161, 24008), (172, 24128), (180, 24203), (190, 24272), (201, 24359),

Gene: Squillium\_44 Start: 22599, Stop: 24335, Start Num: 16

Candidate Starts for Squillium\_44:

(Start: 16 @22599 has 78 MA's), (22, 22692), (24, 22710), (30, 22767), (32, 22791), (34, 22851), (36, 22866), (38, 22884), (39, 22887), (58, 23064), (59, 23067), (83, 23361), (99, 23439), (105, 23493), (140, 23769), (147, 23829), (150, 23844), (159, 23931), (160, 23937), (171, 24048), (178, 24129), (192, 24231),

Gene: Stanimal\_47 Start: 22447, Stop: 24183, Start Num: 16

Candidate Starts for Stanimal\_47:

(9, 22405), (15, 22429), (Start: 16 @22447 has 78 MA's), (20, 22516), (30, 22615), (32, 22639), (34, 22699), (35, 22708), (39, 22735), (65, 22978), (74, 23047), (83, 23212), (90, 23245), (105, 23344), (119, 23455), (135, 23584), (145, 23638), (156, 23758), (161, 23794), (171, 23896), (176, 23950), (179, 23983), (190, 24058), (201, 24145),

Gene: StarPlatinum\_47 Start: 23085, Stop: 24821, Start Num: 16

Candidate Starts for StarPlatinum\_47:

(13, 23064), (15, 23067), (Start: 16 @23085 has 78 MA's), (20, 23154), (30, 23253), (32, 23277), (39, 23373), (40, 23400), (61, 23568), (65, 23616), (83, 23850), (88, 23877), (101, 23958), (105, 23982), (107, 23994), (119, 24093), (122, 24117), (125, 24141), (126, 24147), (135, 24222), (141, 24258), (145, 24276), (156, 24396), (159, 24417), (161, 24432), (178, 24615), (179, 24621), (180, 24627), (190, 24696),

Gene: Starbow\_45 Start: 22565, Stop: 24301, Start Num: 16

Candidate Starts for Starbow\_45:

(2, 22454), (5, 22487), (7, 22505), (12, 22541), (14, 22547), (Start: 16 @22565 has 78 MA's), (20, 22634), (30, 22733), (32, 22757), (34, 22817), (39, 22853), (61, 23048), (65, 23096), (83, 23330), (105, 23462), (106, 23468), (107, 23474), (126, 23627), (128, 23648), (129, 23666), (141, 23738), (145, 23756), (154, 23831), (159, 23897), (161, 23912), (172, 24032), (190, 24176), (201, 24263),

Gene: Stigma\_23 Start: 11344, Stop: 13038, Start Num: 16

Candidate Starts for Stigma\_23:

(1, 11227), (3, 11233), (4, 11242), (Start: 16 @11344 has 78 MA's), (26, 11479), (29, 11506), (33, 11548), (45, 11677), (50, 11716), (66, 11857), (89, 12118), (98, 12163), (104, 12214), (108, 12244), (136, 12433), (148, 12538), (149, 12541), (155, 12610), (163, 12658), (173, 12772), (177, 12817), (181, 12859), (188, 12907), (195, 12955),

Gene: Sushi23\_45 Start: 23339, Stop: 25075, Start Num: 16

Candidate Starts for Sushi23\_45:

(Start: 16 @23339 has 78 MA's), (22, 23432), (30, 23507), (32, 23531), (34, 23591), (39, 23627), (59, 23807), (83, 24101), (99, 24179), (140, 24509), (141, 24512), (152, 24596), (156, 24650), (159, 24671), (169, 24773), (178, 24869), (182, 24893), (184, 24905), (190, 24950), (192, 24971), (201, 25037),

Gene: Targaryen\_46 Start: 24112, Stop: 25848, Start Num: 16

Candidate Starts for Targaryen\_46:

(Start: 16 @24112 has 78 MA's), (22, 24205), (24, 24223), (30, 24280), (32, 24304), (34, 24364), (37, 24391), (39, 24400), (40, 24427), (58, 24577), (86, 24889), (95, 24937), (101, 24982), (128, 25195), (141, 25285), (159, 25444), (166, 25519), (178, 25642),

Gene: Teutsch\_45 Start: 23608, Stop: 25344, Start Num: 16

Candidate Starts for Teutsch\_45:

(Start: 16 @23608 has 78 MA's), (22, 23701), (30, 23776), (32, 23800), (34, 23860), (39, 23896), (59, 24076), (78, 24241), (83, 24370), (87, 24388), (99, 24448), (132, 24724), (140, 24778), (141, 24781),



(152, 24865), (156, 24919), (159, 24940), (169, 25042), (178, 25138), (182, 25162), (184, 25174), (190, 25219), (201, 25306),

Gene: TomSawyer\_45 Start: 22183, Stop: 23919, Start Num: 16

Candidate Starts for TomSawyer\_45:

(2, 22072), (5, 22105), (7, 22123), (12, 22159), (14, 22165), (Start: 16 @22183 has 78 MA's), (20, 22252), (30, 22351), (32, 22375), (34, 22435), (39, 22471), (48, 22552), (61, 22666), (65, 22714), (83, 22948), (105, 23080), (106, 23086), (107, 23092), (126, 23245), (128, 23266), (129, 23284), (145, 23374), (154, 23449), (159, 23515), (161, 23530), (172, 23650), (190, 23794), (201, 23881),

Gene: Tomas\_49 Start: 24898, Stop: 26640, Start Num: 16

Candidate Starts for Tomas\_49:

(Start: 16 @24898 has 78 MA's), (25, 25021), (27, 25039), (30, 25066), (32, 25090), (34, 25150), (39, 25186), (58, 25363), (65, 25429), (72, 25480), (75, 25516), (83, 25666), (93, 25717), (97, 25735), (107, 25810), (113, 25843), (126, 25966), (148, 26143), (176, 26407), (178, 26434), (189, 26506), (190, 26515), (193, 26545), (201, 26602),

Gene: Tribute\_43 Start: 22808, Stop: 24544, Start Num: 16

Candidate Starts for Tribute\_43:

(Start: 16 @22808 has 78 MA's), (22, 22901), (30, 22976), (32, 23000), (34, 23060), (39, 23096), (59, 23276), (83, 23570), (87, 23588), (99, 23648), (132, 23924), (140, 23978), (141, 23981), (152, 24065), (156, 24119), (159, 24140), (169, 24242), (178, 24338), (182, 24362), (184, 24374), (190, 24419), (192, 24440), (201, 24506),

Gene: Wakanda\_18 Start: 10264, Stop: 12462, Start Num: 16

Candidate Starts for Wakanda\_18:

(6, 10195), (Start: 16 @10264 has 78 MA's), (19, 10315), (39, 10546), (44, 10594), (45, 10600), (49, 10624), (51, 10660), (81, 10957), (82, 11011), (87, 11035), (92, 11065), (120, 11257), (129, 11323), (131, 11335), (132, 11338), (140, 11392), (141, 11395), (145, 11419), (155, 11542), (157, 11548), (162, 11584), (163, 11590), (175, 11731), (181, 11803), (196, 11917), (203, 11983), (210, 12217), (211, 12241), (214, 12280), (219, 12334),

Gene: Warpy\_49 Start: 23576, Stop: 25312, Start Num: 16

Candidate Starts for Warpy\_49:

(Start: 16 @23576 has 78 MA's), (22, 23669), (24, 23687), (30, 23744), (32, 23768), (34, 23828), (37, 23855), (39, 23864), (40, 23891), (57, 24038), (58, 24041), (86, 24353), (95, 24401), (101, 24446), (141, 24749), (159, 24908), (166, 24983), (178, 25106),

Gene: Watermoore\_45 Start: 23815, Stop: 25551, Start Num: 16

Candidate Starts for Watermoore\_45:

(Start: 16 @23815 has 78 MA's), (22, 23908), (30, 23983), (32, 24007), (34, 24067), (39, 24103), (59, 24283), (87, 24595), (99, 24655), (132, 24931), (140, 24985), (141, 24988), (152, 25072), (156, 25126), (159, 25147), (169, 25249), (178, 25345), (182, 25369), (184, 25381), (190, 25426), (201, 25513),

Gene: Wipeout\_45 Start: 22934, Stop: 24670, Start Num: 16

Candidate Starts for Wipeout\_45:

(2, 22823), (5, 22856), (7, 22874), (12, 22910), (14, 22916), (Start: 16 @22934 has 78 MA's), (20, 23003), (30, 23102), (32, 23126), (34, 23186), (39, 23222), (48, 23303), (61, 23417), (65, 23465), (83, 23699), (105, 23831), (106, 23837), (107, 23843), (126, 23996), (128, 24017), (129, 24035), (145, 24125), (154, 24200), (159, 24266), (161, 24281), (172, 24401), (190, 24545), (201, 24632),

Gene: Wofford\_46 Start: 23583, Stop: 25322, Start Num: 16

Candidate Starts for Wofford\_46:

(Start: 16 @23583 has 78 MA's), (20, 23652), (30, 23751), (32, 23775), (39, 23871), (74, 24183), (106, 24489), (107, 24495), (122, 24618), (126, 24648), (159, 24918), (168, 25014), (176, 25089), (200, 25281),

Gene: Yaboi\_47 Start: 22535, Stop: 24271, Start Num: 16

Candidate Starts for Yaboi\_47:

(9, 22493), (15, 22517), (Start: 16 @22535 has 78 MA's), (20, 22604), (30, 22703), (32, 22727), (34, 22787), (35, 22796), (39, 22823), (65, 23066), (74, 23135), (83, 23300), (90, 23333), (105, 23432), (119, 23543), (135, 23672), (145, 23726), (156, 23846), (161, 23882), (171, 23984), (176, 24038), (179, 24071), (190, 24146), (201, 24233),