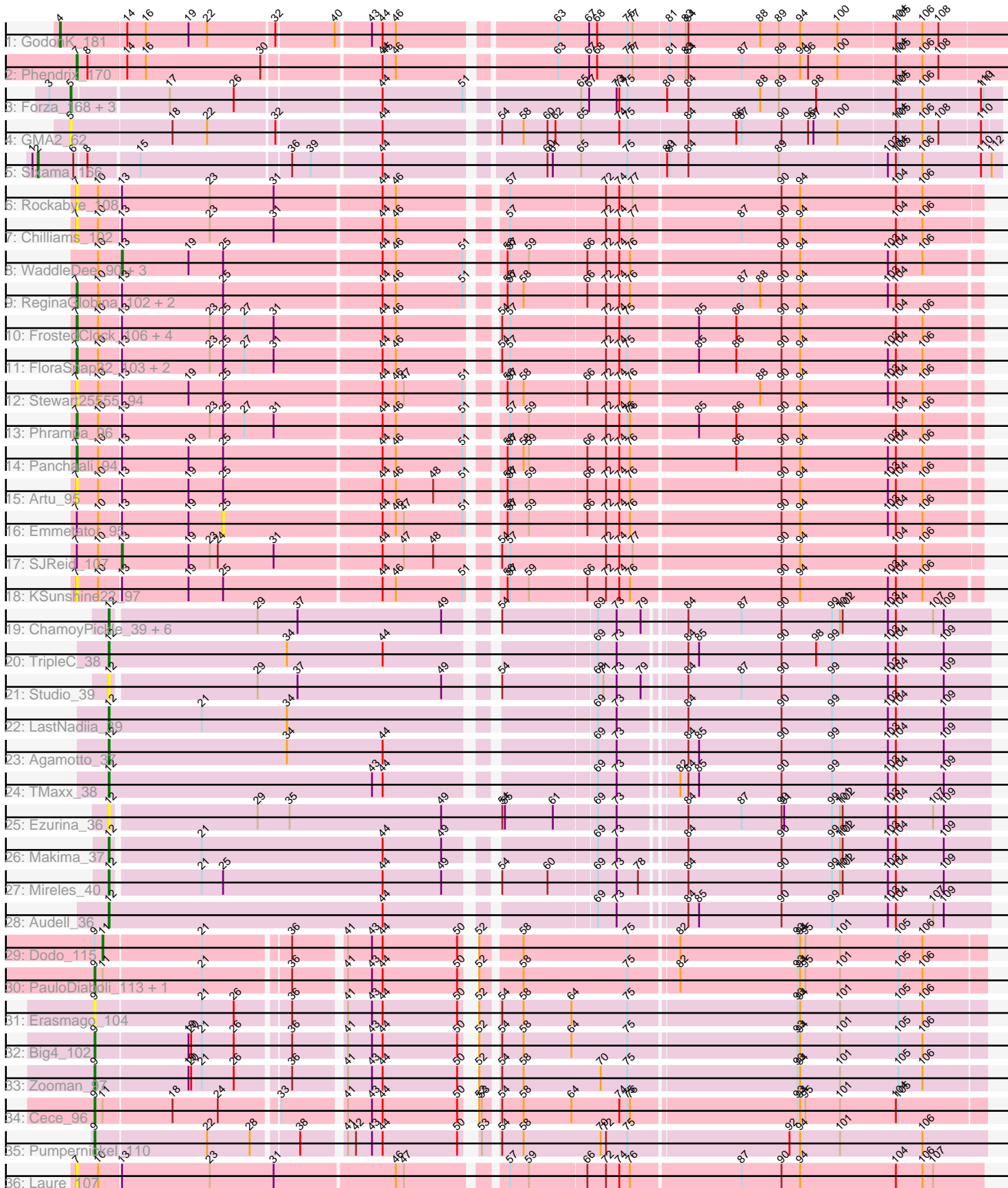


Pham 303406



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 303406 Report

This analysis was run 06/08/26 on database version 649.

Pham number 303406 has 57 members, 20 are drafts.

Phages represented in each track:

- Track 1 : GodonK\_181
- Track 2 : Phendrix\_170
- Track 3 : Forza\_168, Mareelih\_165, Boopy\_167, BlueNGold\_164
- Track 4 : GMA2\_62
- Track 5 : Sixama\_166
- Track 6 : Rockabye\_108
- Track 7 : Chilliams\_102
- Track 8 : WaddleDee\_90, BooTeria\_99, DunneganBoMo\_92, Ellewin\_91
- Track 9 : ReginaGlobina\_102, LeoJr\_102, Atuin\_97
- Track 10 : FrostedClock\_106, Mimi\_103, Talia1610\_103, Racecar\_104, Bloom\_107
- Track 11 : FloraSnap32\_103, GoldenEssence\_89, Patbob\_102
- Track 12 : Stewart25555\_94
- Track 13 : Phrampa\_96
- Track 14 : Panchaali\_94
- Track 15 : Artu\_95
- Track 16 : Emmetator\_95
- Track 17 : SJReid\_107
- Track 18 : KSunshine22\_97
- Track 19 : ChamoyPickle\_39, Neuville\_37, Gerri43\_37, AnnabelLee\_37, Roberts\_37, CardboardBox\_38, ChipsNGuac\_37
- Track 20 : TripleC\_38
- Track 21 : Studio\_39
- Track 22 : LastNadiia\_39
- Track 23 : Agamoto\_37
- Track 24 : TMaxx\_38
- Track 25 : Ezurina\_36
- Track 26 : Makima\_37
- Track 27 : Mireles\_40
- Track 28 : Audell\_36
- Track 29 : Dodo\_115
- Track 30 : PauloDiaboli\_113, A3Wally\_113
- Track 31 : Erasmago\_104
- Track 32 : Big4\_102
- Track 33 : Zooman\_97
- Track 34 : Cece\_96
- Track 35 : Pumpnickel\_110
- Track 36 : Laure\_107

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

The start number called the most often in the published annotations is 12, it was called in 11 of the 37 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agamoto\_37, AnnabelLee\_37, Audell\_36, CardboardBox\_38, ChamoyPickle\_39, ChipsNGuac\_37, Ezurina\_36, Gerri43\_37, LastNadiia\_39, Makima\_37, Mireles\_40, Neuville\_37, Roberts\_37, Studio\_39, TMaxx\_38, TripleC\_38,

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

- 

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

- A3Wally\_113, Artu\_95, Atuin\_97, Big4\_102, Bloom\_107, BlueNGold\_164, BooTeria\_99, Boopy\_167, Cece\_96, Chilliams\_102, Dodo\_115, DunneganBoMo\_92, Ellewin\_91, Emmetator\_95, Erasmago\_104, FloraSnap32\_103, Forza\_168, FrostedClock\_106, GMA2\_62, GodonK\_181, GoldenEssence\_89, KSunshine22\_97, Laure\_107, LeoJr\_102, Mareelih\_165, Mimi\_103, Panchaali\_94, Patbob\_102, PauloDiaboli\_113, Phendrix\_170, Phrampa\_96, Pumpernickel\_110, Racecar\_104, ReginaGlobina\_102, Rockabye\_108, SJReid\_107, Sixama\_166, Stewart25555\_94, Talia1610\_103, WaddleDee\_90, Zooman\_97,

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

Start 2:

- Found in 1 of 57 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sixama\_166 (DS),

Start 4:

- Found in 1 of 57 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GodonK\_181 (DK),

Start 5:

- Found in 5 of 57 ( 8.8% ) of genes in pham
- Manual Annotations of this start: 4 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlueNGold\_164 (DS), Boopy\_167 (DS), Forza\_168 (DS), GMA2\_62 (DS), Mareelih\_165 (DS),

Start 7:

- Found in 22 of 57 ( 38.6% ) of genes in pham
- Manual Annotations of this start: 9 of 37
- Called 90.9% of time when present

- Phage (with cluster) where this start called: Artu\_95 (FC), Atuin\_97 (FC), Bloom\_107 (FC), Chilliams\_102 (FC), FloraSnap32\_103 (FC), FrostedClock\_106 (FC), GoldenEssence\_89 (FC), KSunshine22\_97 (FC), Laure\_107 (UNK), LeoJr\_102 (FC), Mimi\_103 (FC), Panchaali\_94 (FC), Patbob\_102 (FC), Phendrix\_170 (DK), Phrampa\_96 (FC), Racecar\_104 (FC), ReginaGlobina\_102 (FC), Rockabye\_108 (FC), Stewart25555\_94 (FC), Talia1610\_103 (FC),

Start 9:

- Found in 8 of 57 ( 14.0% ) of genes in pham
- Manual Annotations of this start: 6 of 37
- Called 87.5% of time when present
- Phage (with cluster) where this start called: A3Wally\_113 (GD1), Big4\_102 (GD2), Cece\_96 (GD3), Erasmago\_104 (GD2), PauloDiaboli\_113 (GD1), Pumpnickel\_110 (GD4), Zooman\_97 (GD2),

Start 11:

- Found in 4 of 57 ( 7.0% ) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Dodo\_115 (GD1),

Start 12:

- Found in 16 of 57 ( 28.1% ) of genes in pham
- Manual Annotations of this start: 11 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agamoto\_37 (FR), AnnabelleLee\_37 (FR), Audell\_36 (FR), CardboardBox\_38 (FR), ChamoyPickle\_39 (FR), ChipsNGuac\_37 (FR), Ezurina\_36 (FR), Gerri43\_37 (FR), LastNadiia\_39 (FR), Makima\_37 (FR), Mireles\_40 (FR), Neuville\_37 (FR), Roberts\_37 (FR), Studio\_39 (FR), TMaxx\_38 (FR), TripleC\_38 (FR),

Start 13:

- Found in 25 of 57 ( 43.9% ) of genes in pham
- Manual Annotations of this start: 4 of 37
- Called 20.0% of time when present
- Phage (with cluster) where this start called: BooTeria\_99 (FC), DunneganBoMo\_92 (FC), Ellewin\_91 (FC), SJReid\_107 (FC), WaddleDee\_90 (FC),

Start 25:

- Found in 22 of 57 ( 38.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 4.5% of time when present
- Phage (with cluster) where this start called: Emmetator\_95 (FC),

### Summary by clusters:

There are 9 clusters represented in this pham: GD1, FR, GD3, GD4, DK, GD2, FC, UNK, DS,

Info for manual annotations of cluster DK:

- Start number 4 was manually annotated 1 time for cluster DK.
- Start number 7 was manually annotated 1 time for cluster DK.

Info for manual annotations of cluster DS:

- Start number 2 was manually annotated 1 time for cluster DS.
- Start number 5 was manually annotated 4 times for cluster DS.

Info for manual annotations of cluster FC:

- Start number 7 was manually annotated 8 times for cluster FC.
- Start number 13 was manually annotated 4 times for cluster FC.

Info for manual annotations of cluster FR:

- Start number 12 was manually annotated 11 times for cluster FR.

Info for manual annotations of cluster GD1:

- Start number 9 was manually annotated 2 times for cluster GD1.
- Start number 11 was manually annotated 1 time for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 9 was manually annotated 2 times for cluster GD2.

Info for manual annotations of cluster GD3:

- Start number 9 was manually annotated 1 time for cluster GD3.

Info for manual annotations of cluster GD4:

- Start number 9 was manually annotated 1 time for cluster GD4.

### **Gene Information:**

Gene: A3Wally\_113 Start: 77350, Stop: 76415, Start Num: 9

Candidate Starts for A3Wally\_113:

(Start: 9 @77350 has 6 MA's), (Start: 11 @77341 has 1 MA's), (21, 77233), (36, 77143), (41, 77092), (43, 77065), (44, 77053), (50, 76969), (52, 76963), (58, 76924), (75, 76807), (82, 76756), (93, 76624), (94, 76621), (95, 76615), (101, 76576), (105, 76510), (106, 76483),

Gene: Agamoto\_37 Start: 27336, Stop: 26395, Start Num: 12

Candidate Starts for Agamoto\_37:

(Start: 12 @27336 has 11 MA's), (34, 27135), (44, 27027), (69, 26820), (73, 26799), (84, 26733), (85, 26721), (90, 26628), (99, 26571), (103, 26508), (104, 26499), (109, 26445),

Gene: AnnabelLee\_37 Start: 24525, Stop: 23593, Start Num: 12

Candidate Starts for AnnabelLee\_37:

(Start: 12 @24525 has 11 MA's), (29, 24366), (37, 24321), (49, 24159), (54, 24120), (69, 24018), (73, 23997), (79, 23970), (84, 23931), (87, 23871), (90, 23826), (99, 23769), (101, 23760), (102, 23757), (103, 23706), (104, 23697), (107, 23655), (109, 23643),

Gene: Artu\_95 Start: 79854, Stop: 80825, Start Num: 7

Candidate Starts for Artu\_95:

(Start: 7 @79854 has 9 MA's), (10, 79878), (Start: 13 @79899 has 4 MA's), (19, 79974), (25, 80013), (44, 80187), (46, 80202), (48, 80244), (51, 80277), (56, 80304), (57, 80307), (59, 80328), (66, 80391), (72, 80412), (74, 80427), (76, 80439), (90, 80604), (94, 80625), (103, 80724), (104, 80733), (106, 80763),

Gene: Atuin\_97 Start: 83319, Stop: 84290, Start Num: 7

Candidate Starts for Atuin\_97:

(Start: 7 @83319 has 9 MA's), (10, 83343), (Start: 13 @83364 has 4 MA's), (25, 83478), (44, 83652), (46, 83667), (51, 83742), (56, 83769), (57, 83772), (58, 83787), (66, 83856), (72, 83877), (74, 83892), (76, 83904), (87, 84024), (88, 84045), (90, 84069), (94, 84090), (103, 84189), (104, 84198),

Gene: Audell\_36 Start: 26923, Stop: 25982, Start Num: 12

Candidate Starts for Audell\_36:

(Start: 12 @26923 has 11 MA's), (44, 26614), (69, 26407), (73, 26386), (84, 26320), (85, 26308), (90, 26215), (99, 26158), (103, 26095), (104, 26086), (107, 26044), (109, 26032),

Gene: Big4\_102 Start: 76433, Stop: 75498, Start Num: 9

Candidate Starts for Big4\_102:

(Start: 9 @76433 has 6 MA's), (19, 76331), (20, 76328), (21, 76316), (26, 76280), (36, 76226), (41, 76175), (43, 76148), (44, 76136), (50, 76052), (52, 76046), (54, 76031), (58, 76007), (64, 75953), (75, 75890), (93, 75707), (94, 75704), (101, 75659), (105, 75593), (106, 75566),

Gene: Bloom\_107 Start: 83495, Stop: 84466, Start Num: 7

Candidate Starts for Bloom\_107:

(Start: 7 @83495 has 9 MA's), (10, 83519), (Start: 13 @83540 has 4 MA's), (23, 83639), (25, 83654), (27, 83678), (31, 83711), (44, 83828), (46, 83843), (54, 83939), (57, 83948), (72, 84053), (74, 84068), (75, 84077), (85, 84152), (86, 84194), (90, 84245), (94, 84266), (104, 84374), (106, 84404),

Gene: BlueNGold\_164 Start: 94575, Stop: 93583, Start Num: 5

Candidate Starts for BlueNGold\_164:

(3, 94599), (Start: 5 @94575 has 4 MA's), (17, 94473), (26, 94401), (44, 94248), (51, 94158), (65, 94050), (67, 94041), (73, 94011), (74, 94008), (75, 93999), (80, 93954), (84, 93930), (88, 93849), (89, 93828), (98, 93786), (104, 93699), (105, 93696), (106, 93669), (110, 93606), (111, 93603),

Gene: BooTeria\_99 Start: 80012, Stop: 80938, Start Num: 13

Candidate Starts for BooTeria\_99:

(10, 79991), (Start: 13 @80012 has 4 MA's), (19, 80087), (25, 80126), (44, 80300), (46, 80315), (51, 80390), (56, 80417), (57, 80420), (59, 80441), (66, 80504), (72, 80525), (74, 80540), (76, 80552), (90, 80717), (94, 80738), (103, 80837), (104, 80846), (106, 80876),

Gene: Boopy\_167 Start: 94586, Stop: 93594, Start Num: 5

Candidate Starts for Boopy\_167:

(3, 94610), (Start: 5 @94586 has 4 MA's), (17, 94484), (26, 94412), (44, 94259), (51, 94169), (65, 94061), (67, 94052), (73, 94022), (74, 94019), (75, 94010), (80, 93965), (84, 93941), (88, 93860), (89, 93839), (98, 93797), (104, 93710), (105, 93707), (106, 93680), (110, 93617), (111, 93614),

Gene: CardboardBox\_38 Start: 24528, Stop: 23596, Start Num: 12

Candidate Starts for CardboardBox\_38:

(Start: 12 @24528 has 11 MA's), (29, 24369), (37, 24324), (49, 24162), (54, 24123), (69, 24021), (73, 24000), (79, 23973), (84, 23934), (87, 23874), (90, 23829), (99, 23772), (101, 23763), (102, 23760), (103, 23709), (104, 23700), (107, 23658), (109, 23646),

Gene: Cece\_96 Start: 79474, Stop: 78539, Start Num: 9

Candidate Starts for Cece\_96:

(Start: 9 @79474 has 6 MA's), (Start: 11 @79465 has 1 MA's), (18, 79390), (24, 79339), (33, 79279), (41, 79216), (43, 79189), (44, 79177), (50, 79093), (52, 79087), (53, 79084), (54, 79072), (58, 79048), (64, 78994), (74, 78940), (75, 78931), (76, 78928), (93, 78748), (94, 78745), (95, 78739), (101, 78700), (104, 78637), (105, 78634),

Gene: ChamoyPickle\_39 Start: 25068, Stop: 24136, Start Num: 12

Candidate Starts for ChamoyPickle\_39:

(Start: 12 @25068 has 11 MA's), (29, 24909), (37, 24864), (49, 24702), (54, 24663), (69, 24561), (73, 24540), (79, 24513), (84, 24474), (87, 24414), (90, 24369), (99, 24312), (101, 24303), (102, 24300), (103, 24249), (104, 24240), (107, 24198), (109, 24186),

Gene: Chilliams\_102 Start: 76293, Stop: 77267, Start Num: 7

Candidate Starts for Chilliams\_102:

(Start: 7 @76293 has 9 MA's), (10, 76317), (Start: 13 @76338 has 4 MA's), (23, 76437), (31, 76509), (44, 76626), (46, 76641), (57, 76746), (72, 76851), (74, 76866), (77, 76881), (87, 76998), (90, 77043), (94, 77064), (104, 77172), (106, 77202),

Gene: ChipsNGuac\_37 Start: 24528, Stop: 23596, Start Num: 12

Candidate Starts for ChipsNGuac\_37:

(Start: 12 @24528 has 11 MA's), (29, 24369), (37, 24324), (49, 24162), (54, 24123), (69, 24021), (73, 24000), (79, 23973), (84, 23934), (87, 23874), (90, 23829), (99, 23772), (101, 23763), (102, 23760), (103, 23709), (104, 23700), (107, 23658), (109, 23646),

Gene: Dodo\_115 Start: 77651, Stop: 76725, Start Num: 11

Candidate Starts for Dodo\_115:

(Start: 9 @77660 has 6 MA's), (Start: 11 @77651 has 1 MA's), (21, 77543), (36, 77453), (41, 77402), (43, 77375), (44, 77363), (50, 77279), (52, 77273), (58, 77234), (75, 77117), (82, 77066), (93, 76934), (94, 76931), (95, 76925), (101, 76886), (105, 76820), (106, 76793),

Gene: DunneganBoMo\_92 Start: 79281, Stop: 80207, Start Num: 13

Candidate Starts for DunneganBoMo\_92:

(10, 79260), (Start: 13 @79281 has 4 MA's), (19, 79356), (25, 79395), (44, 79569), (46, 79584), (51, 79659), (56, 79686), (57, 79689), (59, 79710), (66, 79773), (72, 79794), (74, 79809), (76, 79821), (90, 79986), (94, 80007), (103, 80106), (104, 80115), (106, 80145),

Gene: Ellewin\_91 Start: 78692, Stop: 79618, Start Num: 13

Candidate Starts for Ellewin\_91:

(10, 78671), (Start: 13 @78692 has 4 MA's), (19, 78767), (25, 78806), (44, 78980), (46, 78995), (51, 79070), (56, 79097), (57, 79100), (59, 79121), (66, 79184), (72, 79205), (74, 79220), (76, 79232), (90, 79397), (94, 79418), (103, 79517), (104, 79526), (106, 79556),

Gene: Emmetator\_95 Start: 79350, Stop: 80162, Start Num: 25

Candidate Starts for Emmetator\_95:

(Start: 7 @79191 has 9 MA's), (10, 79215), (Start: 13 @79236 has 4 MA's), (19, 79311), (25, 79350), (44, 79524), (46, 79539), (47, 79548), (51, 79614), (56, 79641), (57, 79644), (59, 79665), (66, 79728), (72, 79749), (74, 79764), (76, 79776), (90, 79941), (94, 79962), (103, 80061), (104, 80070), (106, 80100),

Gene: Erasmago\_104 Start: 74119, Stop: 73184, Start Num: 9

Candidate Starts for Erasmago\_104:

(Start: 9 @74119 has 6 MA's), (21, 74002), (26, 73966), (36, 73912), (41, 73861), (43, 73834), (44, 73822), (50, 73738), (52, 73732), (54, 73717), (58, 73693), (64, 73639), (75, 73576), (93, 73393), (94, 73390), (101, 73345), (105, 73279), (106, 73252),

Gene: Ezurina\_36 Start: 25615, Stop: 24653, Start Num: 12

Candidate Starts for Ezurina\_36:

(Start: 12 @25615 has 11 MA's), (29, 25456), (35, 25420), (49, 25249), (54, 25180), (55, 25177), (61, 25123), (69, 25078), (73, 25057), (84, 24991), (87, 24931), (90, 24886), (91, 24883), (99, 24829), (101, 24820), (102, 24817), (103, 24766), (104, 24757), (107, 24715), (109, 24703),

Gene: FloraSnap32\_103 Start: 82392, Stop: 83363, Start Num: 7

Candidate Starts for FloraSnap32\_103:

(Start: 7 @82392 has 9 MA's), (10, 82416), (Start: 13 @82437 has 4 MA's), (23, 82536), (25, 82551), (27, 82575), (31, 82608), (44, 82725), (46, 82740), (54, 82836), (57, 82845), (72, 82950), (74, 82965), (75, 82974), (85, 83049), (86, 83091), (90, 83142), (94, 83163), (103, 83262), (104, 83271), (106, 83301),

Gene: Forza\_168 Start: 94503, Stop: 93511, Start Num: 5

Candidate Starts for Forza\_168:

(3, 94527), (Start: 5 @94503 has 4 MA's), (17, 94401), (26, 94329), (44, 94176), (51, 94086), (65, 93978), (67, 93969), (73, 93939), (74, 93936), (75, 93927), (80, 93882), (84, 93858), (88, 93777), (89, 93756), (98, 93714), (104, 93627), (105, 93624), (106, 93597), (110, 93534), (111, 93531),

Gene: FrostedClock\_106 Start: 83692, Stop: 84663, Start Num: 7

Candidate Starts for FrostedClock\_106:

(Start: 7 @83692 has 9 MA's), (10, 83716), (Start: 13 @83737 has 4 MA's), (23, 83836), (25, 83851), (27, 83875), (31, 83908), (44, 84025), (46, 84040), (54, 84136), (57, 84145), (72, 84250), (74, 84265), (75, 84274), (85, 84349), (86, 84391), (90, 84442), (94, 84463), (104, 84571), (106, 84601),

Gene: GMA2\_62 Start: 65413, Stop: 64418, Start Num: 5

Candidate Starts for GMA2\_62:

(Start: 5 @65413 has 4 MA's), (18, 65302), (22, 65263), (32, 65191), (44, 65080), (54, 64966), (58, 64942), (60, 64915), (62, 64906), (65, 64879), (74, 64837), (75, 64828), (84, 64762), (86, 64708), (87, 64702), (90, 64657), (96, 64627), (97, 64621), (100, 64594), (104, 64531), (105, 64528), (106, 64501), (108, 64483), (110, 64438),

Gene: Gerri43\_37 Start: 24528, Stop: 23596, Start Num: 12

Candidate Starts for Gerri43\_37:

(Start: 12 @24528 has 11 MA's), (29, 24369), (37, 24324), (49, 24162), (54, 24123), (69, 24021), (73, 24000), (79, 23973), (84, 23934), (87, 23874), (90, 23829), (99, 23772), (101, 23763), (102, 23760), (103, 23709), (104, 23700), (107, 23658), (109, 23646),

Gene: GodonK\_181 Start: 91029, Stop: 90010, Start Num: 4

Candidate Starts for GodonK\_181:

(Start: 4 @91029 has 1 MA's), (14, 90957), (16, 90936), (19, 90888), (22, 90867), (32, 90795), (40, 90732), (43, 90696), (44, 90684), (46, 90669), (63, 90510), (67, 90477), (68, 90468), (75, 90435), (77, 90429), (81, 90390), (83, 90372), (84, 90369), (88, 90288), (89, 90267), (94, 90243), (100, 90201), (104, 90138), (105, 90135), (106, 90108), (108, 90090),

Gene: GoldenEssence\_89 Start: 77287, Stop: 78258, Start Num: 7

Candidate Starts for GoldenEssence\_89:

(Start: 7 @77287 has 9 MA's), (10, 77311), (Start: 13 @77332 has 4 MA's), (23, 77431), (25, 77446), (27, 77470), (31, 77503), (44, 77620), (46, 77635), (54, 77731), (57, 77740), (72, 77845), (74, 77860), (75, 77869), (85, 77944), (86, 77986), (90, 78037), (94, 78058), (103, 78157), (104, 78166), (106, 78196),

Gene: KSunshine22\_97 Start: 80248, Stop: 81219, Start Num: 7

Candidate Starts for KSunshine22\_97:

(Start: 7 @80248 has 9 MA's), (10, 80272), (Start: 13 @80293 has 4 MA's), (19, 80368), (25, 80407), (44, 80581), (46, 80596), (51, 80671), (56, 80698), (57, 80701), (59, 80722), (66, 80785), (72, 80806), (74, 80821), (76, 80833), (90, 80998), (94, 81019), (103, 81118), (104, 81127), (106, 81157),

Gene: LastNadiia\_39 Start: 26882, Stop: 25941, Start Num: 12

Candidate Starts for LastNadiia\_39:

(Start: 12 @26882 has 11 MA's), (21, 26777), (34, 26681), (69, 26366), (73, 26345), (84, 26279), (90, 26174), (99, 26117), (103, 26054), (104, 26045), (109, 25991),

Gene: Laure\_107 Start: 76210, Stop: 77187, Start Num: 7

Candidate Starts for Laure\_107:

(Start: 7 @76210 has 9 MA's), (10, 76234), (Start: 13 @76255 has 4 MA's), (23, 76354), (31, 76426), (46, 76558), (47, 76567), (57, 76663), (59, 76684), (66, 76747), (72, 76768), (74, 76783), (76, 76795), (87, 76915), (90, 76960), (94, 76981), (104, 77089), (106, 77119), (107, 77131),

Gene: LeoJr\_102 Start: 83555, Stop: 84526, Start Num: 7

Candidate Starts for LeoJr\_102:

(Start: 7 @83555 has 9 MA's), (10, 83579), (Start: 13 @83600 has 4 MA's), (25, 83714), (44, 83888), (46, 83903), (51, 83978), (56, 84005), (57, 84008), (58, 84023), (66, 84092), (72, 84113), (74, 84128), (76, 84140), (87, 84260), (88, 84281), (90, 84305), (94, 84326), (103, 84425), (104, 84434),

Gene: Makima\_37 Start: 25998, Stop: 25066, Start Num: 12

Candidate Starts for Makima\_37:

(Start: 12 @25998 has 11 MA's), (21, 25902), (44, 25698), (49, 25632), (69, 25491), (73, 25470), (84, 25404), (90, 25299), (99, 25242), (101, 25233), (102, 25230), (103, 25179), (104, 25170), (109, 25116),

Gene: Mareelih\_165 Start: 94021, Stop: 93029, Start Num: 5

Candidate Starts for Mareelih\_165:

(3, 94045), (Start: 5 @94021 has 4 MA's), (17, 93919), (26, 93847), (44, 93694), (51, 93604), (65, 93496), (67, 93487), (73, 93457), (74, 93454), (75, 93445), (80, 93400), (84, 93376), (88, 93295), (89, 93274), (98, 93232), (104, 93145), (105, 93142), (106, 93115), (110, 93052), (111, 93049),

Gene: Mimi\_103 Start: 82842, Stop: 83813, Start Num: 7

Candidate Starts for Mimi\_103:

(Start: 7 @82842 has 9 MA's), (10, 82866), (Start: 13 @82887 has 4 MA's), (23, 82986), (25, 83001), (27, 83025), (31, 83058), (44, 83175), (46, 83190), (54, 83286), (57, 83295), (72, 83400), (74, 83415), (75, 83424), (85, 83499), (86, 83541), (90, 83592), (94, 83613), (104, 83721), (106, 83751),

Gene: Mireles\_40 Start: 25556, Stop: 24624, Start Num: 12

Candidate Starts for Mireles\_40:

(Start: 12 @25556 has 11 MA's), (21, 25460), (25, 25436), (44, 25256), (49, 25190), (54, 25151), (60, 25100), (69, 25049), (73, 25028), (78, 25004), (84, 24962), (90, 24857), (99, 24800), (101, 24791), (102, 24788), (103, 24737), (104, 24728), (109, 24674),

Gene: Neuville\_37 Start: 24528, Stop: 23596, Start Num: 12

Candidate Starts for Neuville\_37:

(Start: 12 @24528 has 11 MA's), (29, 24369), (37, 24324), (49, 24162), (54, 24123), (69, 24021), (73, 24000), (79, 23973), (84, 23934), (87, 23874), (90, 23829), (99, 23772), (101, 23763), (102, 23760), (103, 23709), (104, 23700), (107, 23658), (109, 23646),

Gene: Panchaali\_94 Start: 80207, Stop: 81178, Start Num: 7

Candidate Starts for Panchaali\_94:

(Start: 7 @80207 has 9 MA's), (10, 80231), (Start: 13 @80252 has 4 MA's), (19, 80327), (25, 80366), (44, 80540), (46, 80555), (51, 80630), (56, 80657), (57, 80660), (58, 80675), (59, 80681), (66, 80744), (72, 80765), (74, 80780), (76, 80792), (86, 80906), (90, 80957), (94, 80978), (103, 81077), (104, 81086), (106, 81116),

Gene: Patbob\_102 Start: 83577, Stop: 84548, Start Num: 7

Candidate Starts for Patbob\_102:

(Start: 7 @83577 has 9 MA's), (10, 83601), (Start: 13 @83622 has 4 MA's), (23, 83721), (25, 83736), (27, 83760), (31, 83793), (44, 83910), (46, 83925), (54, 84021), (57, 84030), (72, 84135), (74, 84150), (75, 84159), (85, 84234), (86, 84276), (90, 84327), (94, 84348), (103, 84447), (104, 84456), (106, 84486),

Gene: PauloDiaboli\_113 Start: 76695, Stop: 75760, Start Num: 9

Candidate Starts for PauloDiaboli\_113:

(Start: 9 @76695 has 6 MA's), (Start: 11 @76686 has 1 MA's), (21, 76578), (36, 76488), (41, 76437), (43, 76410), (44, 76398), (50, 76314), (52, 76308), (58, 76269), (75, 76152), (82, 76101), (93, 75969), (94, 75966), (95, 75960), (101, 75921), (105, 75855), (106, 75828),

Gene: Phendrix\_170 Start: 90108, Stop: 89107, Start Num: 7

Candidate Starts for Phendrix\_170:

(Start: 7 @90108 has 9 MA's), (8, 90096), (14, 90054), (16, 90033), (30, 89904), (44, 89781), (45, 89778), (46, 89766), (63, 89607), (67, 89574), (68, 89565), (75, 89532), (77, 89526), (81, 89487), (83, 89469), (84, 89466), (87, 89406), (89, 89364), (94, 89340), (96, 89331), (100, 89298), (104, 89235), (105, 89232), (106, 89205), (108, 89187),

Gene: Phrampa\_96 Start: 84980, Stop: 85951, Start Num: 7

Candidate Starts for Phrampa\_96:

(Start: 7 @84980 has 9 MA's), (10, 85004), (Start: 13 @85025 has 4 MA's), (23, 85124), (25, 85139), (27, 85163), (31, 85196), (44, 85313), (46, 85328), (51, 85403), (57, 85433), (59, 85454), (72, 85538), (74, 85553), (75, 85562), (76, 85565), (85, 85637), (86, 85679), (90, 85730), (94, 85751), (104, 85859), (106, 85889),

Gene: Pumpernickel\_110 Start: 78248, Stop: 77310, Start Num: 9

Candidate Starts for Pumpernickel\_110:

(Start: 9 @78248 has 6 MA's), (22, 78125), (28, 78077), (38, 78032), (41, 77990), (42, 77981), (43, 77963), (44, 77951), (50, 77867), (53, 77858), (54, 77846), (58, 77822), (70, 77735), (72, 77729), (75, 77705), (92, 77531), (94, 77519), (101, 77474), (106, 77381),

Gene: Racecar\_104 Start: 83495, Stop: 84466, Start Num: 7

Candidate Starts for Racecar\_104:

(Start: 7 @83495 has 9 MA's), (10, 83519), (Start: 13 @83540 has 4 MA's), (23, 83639), (25, 83654), (27, 83678), (31, 83711), (44, 83828), (46, 83843), (54, 83939), (57, 83948), (72, 84053), (74, 84068), (75, 84077), (85, 84152), (86, 84194), (90, 84245), (94, 84266), (104, 84374), (106, 84404),

Gene: ReginaGlobina\_102 Start: 83120, Stop: 84091, Start Num: 7

Candidate Starts for ReginaGlobina\_102:

(Start: 7 @83120 has 9 MA's), (10, 83144), (Start: 13 @83165 has 4 MA's), (25, 83279), (44, 83453), (46, 83468), (51, 83543), (56, 83570), (57, 83573), (58, 83588), (66, 83657), (72, 83678), (74, 83693), (76, 83705), (87, 83825), (88, 83846), (90, 83870), (94, 83891), (103, 83990), (104, 83999),

Gene: Roberts\_37 Start: 24528, Stop: 23596, Start Num: 12

Candidate Starts for Roberts\_37:

(Start: 12 @24528 has 11 MA's), (29, 24369), (37, 24324), (49, 24162), (54, 24123), (69, 24021), (73, 24000), (79, 23973), (84, 23934), (87, 23874), (90, 23829), (99, 23772), (101, 23763), (102, 23760), (103, 23709), (104, 23700), (107, 23658), (109, 23646),

Gene: Rockabye\_108 Start: 76731, Stop: 77705, Start Num: 7

Candidate Starts for Rockabye\_108:

(Start: 7 @76731 has 9 MA's), (10, 76755), (Start: 13 @76776 has 4 MA's), (23, 76875), (31, 76947), (44, 77064), (46, 77079), (57, 77184), (72, 77289), (74, 77304), (77, 77319), (90, 77481), (94, 77502), (104, 77610), (106, 77640),

Gene: SJReid\_107 Start: 75794, Stop: 76723, Start Num: 13

Candidate Starts for SJReid\_107:

(Start: 7 @75749 has 9 MA's), (10, 75773), (Start: 13 @75794 has 4 MA's), (19, 75869), (23, 75893), (24, 75902), (31, 75965), (44, 76082), (47, 76106), (48, 76139), (54, 76193), (57, 76202), (72, 76307), (74, 76322), (77, 76337), (90, 76499), (94, 76520), (104, 76628), (106, 76658),

Gene: Sixama\_166 Start: 94053, Stop: 93025, Start Num: 2

Candidate Starts for Sixama\_166:

(1, 94059), (Start: 2 @94053 has 1 MA's), (6, 94014), (8, 94002), (15, 93948), (36, 93786), (39, 93765), (44, 93690), (60, 93528), (61, 93522), (65, 93492), (75, 93441), (80, 93399), (81, 93396), (84, 93375), (89, 93273), (103, 93153), (104, 93144), (105, 93141), (106, 93114), (110, 93048), (112, 93036),

Gene: Stewart25555\_94 Start: 79965, Stop: 80936, Start Num: 7

Candidate Starts for Stewart25555\_94:

(Start: 7 @79965 has 9 MA's), (10, 79989), (Start: 13 @80010 has 4 MA's), (19, 80085), (25, 80124), (44, 80298), (46, 80313), (47, 80322), (51, 80388), (56, 80415), (57, 80418), (58, 80433), (66, 80502), (72, 80523), (74, 80538), (76, 80550), (88, 80691), (90, 80715), (94, 80736), (103, 80835), (104, 80844), (106, 80874),

Gene: Studio\_39 Start: 25891, Stop: 24959, Start Num: 12

Candidate Starts for Studio\_39:

(Start: 12 @25891 has 11 MA's), (29, 25732), (37, 25687), (49, 25525), (54, 25486), (69, 25384), (71, 25378), (73, 25363), (79, 25336), (84, 25297), (87, 25237), (90, 25192), (99, 25135), (103, 25072), (104, 25063), (109, 25009),

Gene: TMaxx\_38 Start: 25180, Stop: 24239, Start Num: 12

Candidate Starts for TMaxx\_38:

(Start: 12 @25180 has 11 MA's), (43, 24883), (44, 24871), (69, 24664), (73, 24643), (82, 24586), (84, 24577), (85, 24565), (90, 24472), (99, 24415), (103, 24352), (104, 24343), (109, 24289),

Gene: Talia1610\_103 Start: 82860, Stop: 83831, Start Num: 7

Candidate Starts for Talia1610\_103:

(Start: 7 @82860 has 9 MA's), (10, 82884), (Start: 13 @82905 has 4 MA's), (23, 83004), (25, 83019), (27, 83043), (31, 83076), (44, 83193), (46, 83208), (54, 83304), (57, 83313), (72, 83418), (74, 83433), (75, 83442), (85, 83517), (86, 83559), (90, 83610), (94, 83631), (104, 83739), (106, 83769),

Gene: TripleC\_38 Start: 27531, Stop: 26590, Start Num: 12

Candidate Starts for TripleC\_38:

(Start: 12 @27531 has 11 MA's), (34, 27330), (44, 27222), (69, 27015), (73, 26994), (84, 26928), (85, 26916), (90, 26823), (98, 26784), (99, 26766), (103, 26703), (104, 26694), (109, 26640),

Gene: WaddleDee\_90 Start: 78467, Stop: 79393, Start Num: 13

Candidate Starts for WaddleDee\_90:

(10, 78446), (Start: 13 @78467 has 4 MA's), (19, 78542), (25, 78581), (44, 78755), (46, 78770), (51, 78845), (56, 78872), (57, 78875), (59, 78896), (66, 78959), (72, 78980), (74, 78995), (76, 79007), (90, 79172), (94, 79193), (103, 79292), (104, 79301), (106, 79331),

Gene: Zooman\_97 Start: 74278, Stop: 73343, Start Num: 9

Candidate Starts for Zooman\_97:

(Start: 9 @74278 has 6 MA's), (19, 74176), (20, 74173), (21, 74161), (26, 74125), (36, 74071), (41, 74020), (43, 73993), (44, 73981), (50, 73897), (52, 73891), (54, 73876), (58, 73852), (70, 73765), (75, 73735), (93, 73552), (94, 73549), (101, 73504), (105, 73438), (106, 73411),