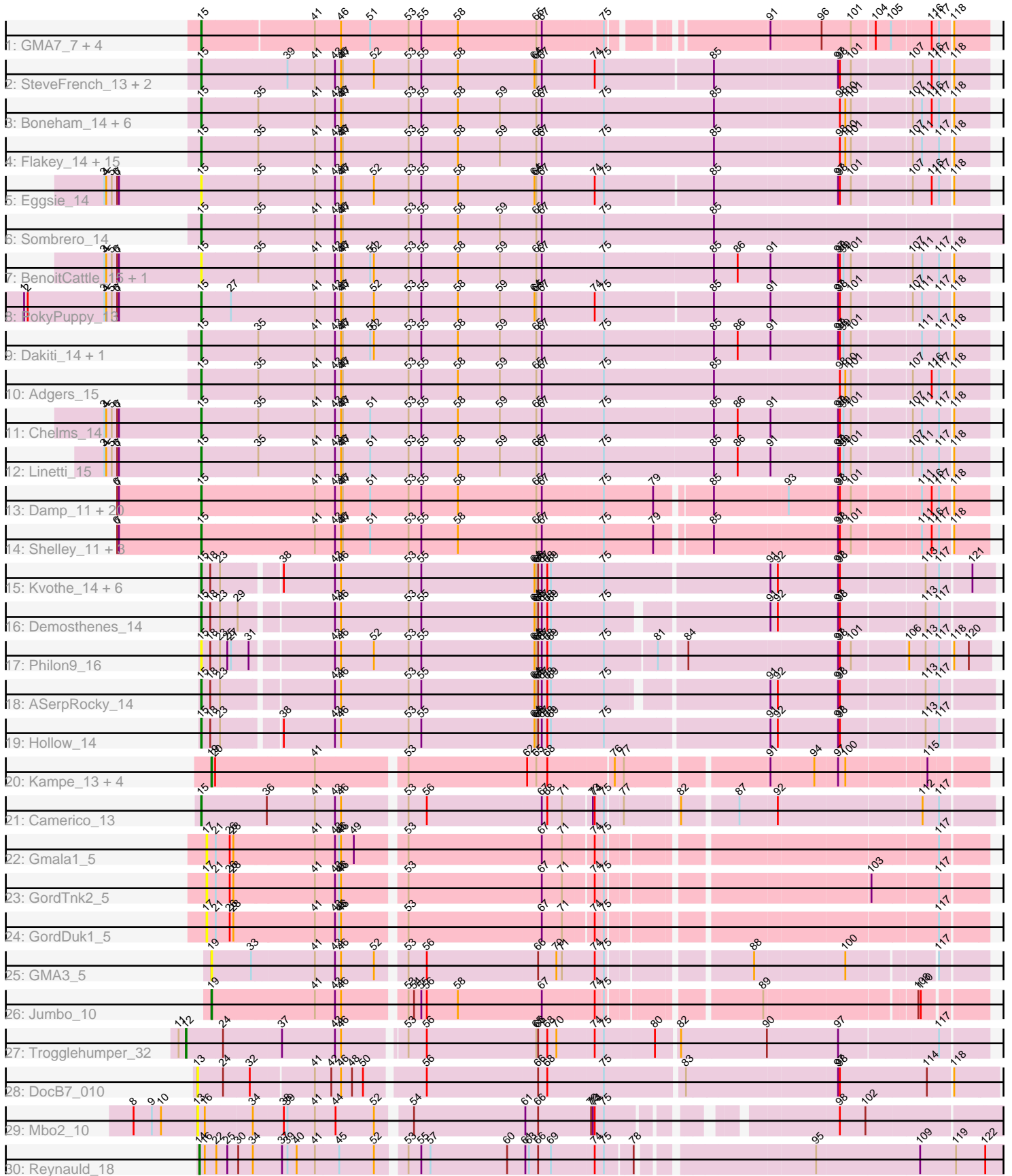


# Pham 1185



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 1185 Report

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

Pham number 1185 has 92 members, 19 are drafts.

Phages represented in each track:

- Track 1 : GMA7\_7, Austin\_16, GTE7\_7, HayZem\_15, Amore2\_16
- Track 2 : SteveFrench\_13, Diabla\_13, RoyalG\_15
- Track 3 : Boneham\_14, BirksAndSocks\_14, Butterball\_14, FelixAlejandro\_15, Msay19\_15, Poland\_17, Jellybones\_14
- Track 4 : Flakey\_14, Gorko\_14, Ekhein\_14, CathyBurgh\_14, Monty\_13, Lizzo\_14, Hotorobo\_14, Exiguo\_14, Breezic\_14, John316\_14, Barbochs\_14, Beaver\_14, Squibbles\_14, Sam12\_14, GourdThymes\_14, RemRem\_15
- Track 5 : Eggsie\_14
- Track 6 : Sombrero\_14
- Track 7 : BenoitCattle\_15, BigShaq\_14
- Track 8 : PokyPuppy\_13
- Track 9 : Dakiti\_14, PierreThree\_14
- Track 10 : Adgers\_15
- Track 11 : Chelms\_14
- Track 12 : Linetti\_15
- Track 13 : Damp\_11, MrWormie\_11, Hail2Pitt\_11, Lahirium\_11, Newt\_11, Anamika\_11, Neevee\_11, Guillaume\_11, Teal\_11, Hello\_11, Woes\_11, Minos\_11, Luker\_11, Bianmat\_11, Jams\_11, Sticker17\_11, Jormungandr\_11, GalacticEye\_11, Harambe\_11, Nimi13\_11, Charianelly\_11
- Track 14 : Shelley\_11, Lidong\_11, Berries\_11, Kaseim\_11
- Track 15 : Kvothe\_14, Niagara\_14, Teech\_14, Teatealatte\_14, Katyusha\_14, Benczkowski14\_14, Tredge\_14
- Track 16 : Demosthenes\_14
- Track 17 : Philon9\_16
- Track 18 : ASerpRocky\_14
- Track 19 : Hollow\_14
- Track 20 : Kampe\_13, Orchid\_13, RobinSparkles\_16, PatrickStar\_13, Gibbles\_12
- Track 21 : Camerico\_13
- Track 22 : Gmala1\_5
- Track 23 : GordTnk2\_5
- Track 24 : GordDuk1\_5
- Track 25 : GMA3\_5
- Track 26 : Jumbo\_10
- Track 27 : Trogglehumper\_32
- Track 28 : DocB7\_010
- Track 29 : Mbo2\_10
- Track 30 : Reynauld\_18

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

The start number called the most often in the published annotations is 15, it was called in 65 of the 73 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ASerpRocky\_14, Adgers\_15, Amore2\_16, Anamika\_11, Austin\_16, Barbochs\_14, Beaver\_14, Benczkowski14\_14, BenoitCattle\_15, Berries\_11, Bianmat\_11, BigShaq\_14, BirksAndSocks\_14, Boneham\_14, Breezic\_14, Butterball\_14, Camerico\_13, CathyBurgh\_14, Charianelly\_11, Chelms\_14, Dakiti\_14, Damp\_11, Demosthenes\_14, Diabla\_13, Eggsie\_14, Ekhein\_14, Exiguo\_14, FelixAlejandro\_15, Flakey\_14, GMA7\_7, GTE7\_7, GalacticEye\_11, Gorko\_14, GourdThymes\_14, Guillaume\_11, Hail2Pitt\_11, Harambe\_11, HayZem\_15, Hello\_11, Hollow\_14, Hotorobo\_14, Jams\_11, Jellybones\_14, John316\_14, Jormungandr\_11, Kaseim\_11, Katyusha\_14, Kvothe\_14, Lahirium\_11, Lidong\_11, Linetti\_15, Lizzo\_14, Luker\_11, Minos\_11, Monty\_13, MrWormie\_11, Msay19\_15, Neoevie\_11, Newt\_11, Niagara\_14, Nimi13\_11, Philon9\_16, PierreThree\_14, PokyPuppy\_13, Poland\_17, RemRem\_15, RoyalG\_15, Sam12\_14, Shelley\_11, Sombrero\_14, Squibbles\_14, SteveFrench\_13, Sticker17\_11, Teal\_11, Teatealatte\_14, Teech\_14, Tredge\_14, Woes\_11,

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

- 

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

- DocB7\_010, GMA3\_5, Gibbles\_12, Gmala1\_5, GordDuk1\_5, GordTnk2\_5, Jumbo\_10, Kampe\_13, Mbo2\_10, Orchid\_13, PatrickStar\_13, Reynauld\_18, RobinSparkles\_16, Trogglehumper\_32,

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

Start 12:

- Found in 1 of 92 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Trogglehumper\_32 (singleton),

Start 13:

- Found in 2 of 92 ( 2.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DocB7\_010 (singleton), Mbo2\_10 (singleton),

Start 14:

- Found in 1 of 92 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Reynauld\_18 (singleton),

Start 15:

- Found in 78 of 92 ( 84.8% ) of genes in pham
- Manual Annotations of this start: 65 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ASerpRocky\_14 (CS4), Adgers\_15 (CS2), Amore2\_16 (CS1), Anamika\_11 (CS3), Austin\_16 (CS1), Barbochs\_14 (CS2), Beaver\_14 (CS2), Benczkowski14\_14 (CS4), BenoitCattle\_15 (CS2), Berries\_11 (CS3), Bianmat\_11 (CS3), BigShaq\_14 (CS2), BirksAndSocks\_14 (CS2), Boneham\_14 (CS2), Breezic\_14 (CS2), Butterball\_14 (CS2), Camerico\_13 (DF), CathyBurgh\_14 (CS2), Charianelly\_11 (CS3), Chelms\_14 (CS2), Dakiti\_14 (CS2), Damp\_11 (CS3), Demosthenes\_14 (CS4), Diabla\_13 (CS2), Eggsie\_14 (CS2), Ekhein\_14 (CS2), Exiguo\_14 (CS2), FelixAlejandro\_15 (CS2), Flakey\_14 (CS2), GMA7\_7 (CS1), GTE7\_7 (CS1), GalacticEye\_11 (CS3), Gorko\_14 (CS2), GourdThymes\_14 (CS2), Guillaume\_11 (CS3), Hail2Pitt\_11 (CS3), Harambe\_11 (CS3), HayZem\_15 (CS1), Hello\_11 (CS3), Hollow\_14 (CS4), Hotorobo\_14 (CS2), Jams\_11 (CS3), Jellybones\_14 (CS2), John316\_14 (CS2), Jormungandr\_11 (CS3), Kaseim\_11 (CS3), Katyusha\_14 (CS4), Kvothe\_14 (CS4), Lahirium\_11 (CS3), Lidong\_11 (CS3), Linetti\_15 (CS2), Lizzo\_14 (CS2), Luker\_11 (CS3), Minos\_11 (CS3), Monty\_13 (CS2), MrWormie\_11 (CS3), Msay19\_15 (CS2), Neoevie\_11 (CS3), Newt\_11 (CS3), Niagara\_14 (CS4), Nimi13\_11 (CS3), Philon9\_16 (CS4), PierreThree\_14 (CS2), PokyPuppy\_13 (CS2), Poland\_17 (CS2), RemRem\_15 (CS2), RoyalG\_15 (CS2), Sam12\_14 (CS2), Shelley\_11 (CS3), Sombrero\_14 (CS2), Squibbles\_14 (CS2), SteveFrench\_13 (CS2), Sticker17\_11 (CS3), Teal\_11 (CS3), Teatealatte\_14 (CS4), Teech\_14 (CS4), Tredge\_14 (CS4), Woes\_11 (CS3),

Start 17:

- Found in 3 of 92 ( 3.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gmala1\_5 (DF1), GordDuk1\_5 (DF1), GordTnk2\_5 (DF1),

Start 19:

- Found in 7 of 92 ( 7.6% ) of genes in pham
- Manual Annotations of this start: 6 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA3\_5 (DF2), Gibbles\_12 (CX), Jumbo\_10 (DF3), Kampe\_13 (CX), Orchid\_13 (CX), PatrickStar\_13 (CX), RobinSparkles\_16 (CX),

**Summary by clusters:**

There are 10 clusters represented in this pham: singleton, DF, DF1, DF3, DF2, CX, CS4, CS1, CS3, CS2,

Info for manual annotations of cluster CS1:

- Start number 15 was manually annotated 3 times for cluster CS1.

Info for manual annotations of cluster CS2:

- Start number 15 was manually annotated 29 times for cluster CS2.

Info for manual annotations of cluster CS3:

- Start number 15 was manually annotated 23 times for cluster CS3.

Info for manual annotations of cluster CS4:

- Start number 15 was manually annotated 9 times for cluster CS4.

Info for manual annotations of cluster CX:

- Start number 19 was manually annotated 5 times for cluster CX.

Info for manual annotations of cluster DF:

- Start number 15 was manually annotated 1 time for cluster DF.

Info for manual annotations of cluster DF3:

- Start number 19 was manually annotated 1 time for cluster DF3.

### ***Gene Information:***

Gene: ASerpRocky\_14 Start: 15280, Stop: 16473, Start Num: 15

Candidate Starts for ASerpRocky\_14:

(Start: 15 @15280 has 65 MA's), (18, 15295), (23, 15310), (43, 15475), (46, 15484), (53, 15595), (55, 15616), (64, 15799), (65, 15802), (66, 15805), (67, 15811), (68, 15820), (69, 15826), (75, 15904), (91, 16138), (92, 16150), (97, 16243), (98, 16246), (113, 16372), (117, 16390),

Gene: Adgers\_15 Start: 12912, Stop: 14147, Start Num: 15

Candidate Starts for Adgers\_15:

(Start: 15 @12912 has 65 MA's), (35, 13002), (41, 13092), (43, 13125), (46, 13134), (47, 13137), (53, 13245), (55, 13266), (58, 13326), (59, 13395), (65, 13452), (67, 13461), (75, 13551), (85, 13728), (98, 13926), (100, 13935), (101, 13944), (107, 14031), (116, 14061), (117, 14073), (118, 14091),

Gene: Amore2\_16 Start: 12820, Stop: 13998, Start Num: 15

Candidate Starts for Amore2\_16:

(Start: 15 @12820 has 65 MA's), (41, 12994), (46, 13036), (51, 13084), (53, 13147), (55, 13168), (58, 13228), (65, 13354), (67, 13363), (75, 13453), (91, 13669), (96, 13750), (101, 13798), (104, 13834), (105, 13858), (116, 13915), (117, 13924), (118, 13942),

Gene: Anamika\_11 Start: 13836, Stop: 15050, Start Num: 15

Candidate Starts for Anamika\_11:

(6, 13698), (7, 13701), (Start: 15 @13836 has 65 MA's), (41, 14016), (43, 14049), (46, 14058), (47, 14061), (51, 14106), (53, 14169), (55, 14190), (58, 14250), (65, 14376), (67, 14385), (75, 14475), (79, 14553), (85, 14631), (93, 14748), (97, 14826), (98, 14829), (101, 14847), (111, 14949), (116, 14964), (117, 14976), (118, 14994),

Gene: Austin\_16 Start: 12820, Stop: 13998, Start Num: 15

Candidate Starts for Austin\_16:

(Start: 15 @12820 has 65 MA's), (41, 12994), (46, 13036), (51, 13084), (53, 13147), (55, 13168), (58, 13228), (65, 13354), (67, 13363), (75, 13453), (91, 13669), (96, 13750), (101, 13798), (104, 13834), (105, 13858), (116, 13915), (117, 13924), (118, 13942),

Gene: Barbochs\_14 Start: 12750, Stop: 13985, Start Num: 15

Candidate Starts for Barbochs\_14:

(Start: 15 @12750 has 65 MA's), (35, 12840), (41, 12930), (43, 12963), (46, 12972), (47, 12975), (53, 13083), (55, 13104), (58, 13164), (59, 13233), (65, 13290), (67, 13299), (75, 13389), (85, 13566), (98, 13764), (100, 13773), (101, 13782), (107, 13869), (111, 13884), (117, 13911), (118, 13929),

Gene: Beaver\_14 Start: 12758, Stop: 13993, Start Num: 15

Candidate Starts for Beaver\_14:

(Start: 15 @12758 has 65 MA's), (35, 12848), (41, 12938), (43, 12971), (46, 12980), (47, 12983), (53, 13091), (55, 13112), (58, 13172), (59, 13241), (65, 13298), (67, 13307), (75, 13397), (85, 13574), (98, 13772), (100, 13781), (101, 13790), (107, 13877), (111, 13892), (117, 13919), (118, 13937),

Gene: Benczkowski14\_14 Start: 15343, Stop: 16554, Start Num: 15

Candidate Starts for Benczkowski14\_14:

(Start: 15 @15343 has 65 MA's), (18, 15358), (23, 15373), (38, 15454), (43, 15538), (46, 15547), (53, 15658), (55, 15679), (64, 15862), (65, 15865), (66, 15868), (67, 15874), (68, 15883), (69, 15889), (75, 15964), (91, 16219), (92, 16231), (97, 16324), (98, 16327), (113, 16453), (117, 16471), (121, 16519),

Gene: BenoitCattle\_15 Start: 12750, Stop: 13979, Start Num: 15

Candidate Starts for BenoitCattle\_15:

(3, 12591), (4, 12594), (5, 12603), (6, 12612), (7, 12615), (Start: 15 @12750 has 65 MA's), (35, 12840), (41, 12930), (43, 12963), (46, 12972), (47, 12975), (51, 13020), (52, 13026), (53, 13083), (55, 13104), (58, 13164), (59, 13233), (65, 13290), (67, 13299), (75, 13389), (85, 13560), (86, 13599), (91, 13650), (97, 13755), (98, 13758), (99, 13764), (101, 13776), (107, 13863), (111, 13878), (117, 13905), (118, 13923),

Gene: Berries\_11 Start: 13821, Stop: 15035, Start Num: 15

Candidate Starts for Berries\_11:

(6, 13683), (7, 13686), (Start: 15 @13821 has 65 MA's), (41, 14001), (43, 14034), (46, 14043), (47, 14046), (51, 14091), (53, 14154), (55, 14175), (58, 14235), (65, 14361), (67, 14370), (75, 14460), (79, 14538), (85, 14616), (97, 14811), (98, 14814), (101, 14832), (111, 14934), (116, 14949), (117, 14961), (118, 14979),

Gene: Bianmat\_11 Start: 13843, Stop: 15057, Start Num: 15

Candidate Starts for Bianmat\_11:

(6, 13705), (7, 13708), (Start: 15 @13843 has 65 MA's), (41, 14023), (43, 14056), (46, 14065), (47, 14068), (51, 14113), (53, 14176), (55, 14197), (58, 14257), (65, 14383), (67, 14392), (75, 14482), (79, 14560), (85, 14638), (93, 14755), (97, 14833), (98, 14836), (101, 14854), (111, 14956), (116, 14971), (117, 14983), (118, 15001),

Gene: BigShaq\_14 Start: 12752, Stop: 13981, Start Num: 15

Candidate Starts for BigShaq\_14:

(3, 12593), (4, 12596), (5, 12605), (6, 12614), (7, 12617), (Start: 15 @12752 has 65 MA's), (35, 12842), (41, 12932), (43, 12965), (46, 12974), (47, 12977), (51, 13022), (52, 13028), (53, 13085), (55, 13106), (58, 13166), (59, 13235), (65, 13292), (67, 13301), (75, 13391), (85, 13562), (86, 13601), (91, 13652), (97, 13757), (98, 13760), (99, 13766), (101, 13778), (107, 13865), (111, 13880), (117, 13907), (118, 13925),

Gene: BirksAndSocks\_14 Start: 12747, Stop: 13982, Start Num: 15

Candidate Starts for BirksAndSocks\_14:

(Start: 15 @12747 has 65 MA's), (35, 12837), (41, 12927), (43, 12960), (46, 12969), (47, 12972), (53, 13080), (55, 13101), (58, 13161), (59, 13230), (65, 13287), (67, 13296), (75, 13386), (85, 13563), (98, 13761), (100, 13770), (101, 13779), (107, 13866), (111, 13881), (116, 13896), (117, 13908), (118, 13926),

Gene: Boneham\_14 Start: 12746, Stop: 13981, Start Num: 15

Candidate Starts for Boneham\_14:

(Start: 15 @12746 has 65 MA's), (35, 12836), (41, 12926), (43, 12959), (46, 12968), (47, 12971), (53, 13079), (55, 13100), (58, 13160), (59, 13229), (65, 13286), (67, 13295), (75, 13385), (85, 13562), (98, 13760), (100, 13769), (101, 13778), (107, 13865), (111, 13880), (116, 13895), (117, 13907), (118, 13925),

Gene: Breezic\_14 Start: 12761, Stop: 13996, Start Num: 15

Candidate Starts for Breezic\_14:

(Start: 15 @12761 has 65 MA's), (35, 12851), (41, 12941), (43, 12974), (46, 12983), (47, 12986), (53, 13094), (55, 13115), (58, 13175), (59, 13244), (65, 13301), (67, 13310), (75, 13400), (85, 13577), (98, 13775), (100, 13784), (101, 13793), (107, 13880), (111, 13895), (117, 13922), (118, 13940),

Gene: Butterball\_14 Start: 12746, Stop: 13981, Start Num: 15

Candidate Starts for Butterball\_14:

(Start: 15 @12746 has 65 MA's), (35, 12836), (41, 12926), (43, 12959), (46, 12968), (47, 12971), (53, 13079), (55, 13100), (58, 13160), (59, 13229), (65, 13286), (67, 13295), (75, 13385), (85, 13562), (98, 13760), (100, 13769), (101, 13778), (107, 13865), (111, 13880), (116, 13895), (117, 13907), (118, 13925),

Gene: Camerico\_13 Start: 12467, Stop: 13657, Start Num: 15

Candidate Starts for Camerico\_13:

(Start: 15 @12467 has 65 MA's), (36, 12569), (41, 12647), (43, 12680), (46, 12689), (53, 12779), (56, 12809), (67, 12995), (68, 13004), (71, 13028), (73, 13070), (74, 13073), (75, 13085), (77, 13109), (82, 13184), (87, 13268), (92, 13328), (112, 13550), (117, 13574),

Gene: CathyBurgh\_14 Start: 13618, Stop: 14853, Start Num: 15

Candidate Starts for CathyBurgh\_14:

(Start: 15 @13618 has 65 MA's), (35, 13708), (41, 13798), (43, 13831), (46, 13840), (47, 13843), (53, 13951), (55, 13972), (58, 14032), (59, 14101), (65, 14158), (67, 14167), (75, 14257), (85, 14434), (98, 14632), (100, 14641), (101, 14650), (107, 14737), (111, 14752), (117, 14779), (118, 14797),

Gene: Charianelly\_11 Start: 13553, Stop: 14767, Start Num: 15

Candidate Starts for Charianelly\_11:

(6, 13415), (7, 13418), (Start: 15 @13553 has 65 MA's), (41, 13733), (43, 13766), (46, 13775), (47, 13778), (51, 13823), (53, 13886), (55, 13907), (58, 13967), (65, 14093), (67, 14102), (75, 14192), (79, 14270), (85, 14348), (93, 14465), (97, 14543), (98, 14546), (101, 14564), (111, 14666), (116, 14681), (117, 14693), (118, 14711),

Gene: Chelms\_14 Start: 12752, Stop: 13981, Start Num: 15

Candidate Starts for Chelms\_14:

(3, 12593), (4, 12596), (5, 12605), (6, 12614), (7, 12617), (Start: 15 @12752 has 65 MA's), (35, 12842), (41, 12932), (43, 12965), (46, 12974), (47, 12977), (51, 13022), (53, 13085), (55, 13106), (58, 13166), (59, 13235), (65, 13292), (67, 13301), (75, 13391), (85, 13562), (86, 13601), (91, 13652), (97, 13757), (98, 13760), (99, 13766), (101, 13778), (107, 13865), (111, 13880), (117, 13907), (118, 13925),

Gene: Dakiti\_14 Start: 13620, Stop: 14849, Start Num: 15

Candidate Starts for Dakiti\_14:

(Start: 15 @13620 has 65 MA's), (35, 13710), (41, 13800), (43, 13833), (46, 13842), (47, 13845), (51, 13890), (52, 13896), (53, 13953), (55, 13974), (58, 14034), (59, 14103), (65, 14160), (67, 14169), (75, 14259), (85, 14430), (86, 14469), (91, 14520), (97, 14625), (98, 14628), (99, 14634), (101, 14646), (111, 14748), (117, 14775), (118, 14793),

Gene: Damp\_11 Start: 12717, Stop: 13931, Start Num: 15

Candidate Starts for Damp\_11:

(6, 12579), (7, 12582), (Start: 15 @12717 has 65 MA's), (41, 12897), (43, 12930), (46, 12939), (47, 12942), (51, 12987), (53, 13050), (55, 13071), (58, 13131), (65, 13257), (67, 13266), (75, 13356), (79, 13434), (85, 13512), (93, 13629), (97, 13707), (98, 13710), (101, 13728), (111, 13830), (116, 13845), (117, 13857), (118, 13875),

Gene: Demosthenes\_14 Start: 15250, Stop: 16446, Start Num: 15

Candidate Starts for Demosthenes\_14:

(Start: 15 @15250 has 65 MA's), (18, 15265), (23, 15280), (29, 15307), (43, 15445), (46, 15454), (53, 15565), (55, 15586), (64, 15769), (65, 15772), (66, 15775), (67, 15781), (68, 15790), (69, 15796), (75, 15874), (91, 16111), (92, 16123), (97, 16216), (98, 16219), (113, 16345), (117, 16363),

Gene: Diabla\_13 Start: 12568, Stop: 13791, Start Num: 15

Candidate Starts for Diabla\_13:

(Start: 15 @12568 has 65 MA's), (39, 12703), (41, 12748), (43, 12781), (46, 12790), (47, 12793), (52, 12844), (53, 12901), (55, 12922), (58, 12982), (64, 13105), (65, 13108), (67, 13117), (74, 13195), (75, 13207), (85, 13372), (97, 13567), (98, 13570), (101, 13588), (107, 13675), (116, 13705), (117, 13717), (118, 13735),

Gene: DocB7\_010 Start: 10515, Stop: 11750, Start Num: 13

Candidate Starts for DocB7\_010:

(13, 10515), (24, 10557), (32, 10599), (41, 10695), (42, 10722), (46, 10737), (48, 10755), (50, 10773), (56, 10860), (66, 11040), (68, 11055), (75, 11139), (83, 11262), (97, 11499), (98, 11502), (114, 11643), (118, 11679),

Gene: Eggsie\_14 Start: 12763, Stop: 13986, Start Num: 15

Candidate Starts for Eggsie\_14:

(3, 12604), (4, 12607), (5, 12616), (6, 12625), (7, 12628), (Start: 15 @12763 has 65 MA's), (35, 12853), (41, 12943), (43, 12976), (46, 12985), (47, 12988), (52, 13039), (53, 13096), (55, 13117), (58, 13177), (64, 13300), (65, 13303), (67, 13312), (74, 13390), (75, 13402), (85, 13567), (97, 13762), (98, 13765), (101, 13783), (107, 13870), (116, 13900), (117, 13912), (118, 13930),

Gene: Ekhein\_14 Start: 12746, Stop: 13981, Start Num: 15

Candidate Starts for Ekhein\_14:

(Start: 15 @12746 has 65 MA's), (35, 12836), (41, 12926), (43, 12959), (46, 12968), (47, 12971), (53, 13079), (55, 13100), (58, 13160), (59, 13229), (65, 13286), (67, 13295), (75, 13385), (85, 13562), (98, 13760), (100, 13769), (101, 13778), (107, 13865), (111, 13880), (117, 13907), (118, 13925),

Gene: Exiguo\_14 Start: 12758, Stop: 13993, Start Num: 15

Candidate Starts for Exiguo\_14:

(Start: 15 @12758 has 65 MA's), (35, 12848), (41, 12938), (43, 12971), (46, 12980), (47, 12983), (53, 13091), (55, 13112), (58, 13172), (59, 13241), (65, 13298), (67, 13307), (75, 13397), (85, 13574), (98, 13772), (100, 13781), (101, 13790), (107, 13877), (111, 13892), (117, 13919), (118, 13937),

Gene: FelixAlejandro\_15 Start: 12944, Stop: 14179, Start Num: 15

Candidate Starts for FelixAlejandro\_15:

(Start: 15 @12944 has 65 MA's), (35, 13034), (41, 13124), (43, 13157), (46, 13166), (47, 13169), (53, 13277), (55, 13298), (58, 13358), (59, 13427), (65, 13484), (67, 13493), (75, 13583), (85, 13760), (98, 13958), (100, 13967), (101, 13976), (107, 14063), (111, 14078), (116, 14093), (117, 14105), (118, 14123),



Gene: Flakey\_14 Start: 13619, Stop: 14854, Start Num: 15

Candidate Starts for Flakey\_14:

(Start: 15 @13619 has 65 MA's), (35, 13709), (41, 13799), (43, 13832), (46, 13841), (47, 13844), (53, 13952), (55, 13973), (58, 14033), (59, 14102), (65, 14159), (67, 14168), (75, 14258), (85, 14435), (98, 14633), (100, 14642), (101, 14651), (107, 14738), (111, 14753), (117, 14780), (118, 14798),

Gene: GMA3\_5 Start: 7211, Stop: 8362, Start Num: 19

Candidate Starts for GMA3\_5:

(Start: 19 @7211 has 6 MA's), (33, 7268), (41, 7367), (43, 7400), (46, 7409), (52, 7463), (53, 7499), (56, 7529), (66, 7709), (70, 7739), (71, 7748), (74, 7802), (75, 7817), (88, 8018), (100, 8159), (117, 8288),

Gene: GMA7\_7 Start: 7009, Stop: 8187, Start Num: 15

Candidate Starts for GMA7\_7:

(Start: 15 @7009 has 65 MA's), (41, 7183), (46, 7225), (51, 7273), (53, 7336), (55, 7357), (58, 7417), (65, 7543), (67, 7552), (75, 7642), (91, 7858), (96, 7939), (101, 7987), (104, 8023), (105, 8047), (116, 8104), (117, 8113), (118, 8131),

Gene: GTE7\_7 Start: 7068, Stop: 8246, Start Num: 15

Candidate Starts for GTE7\_7:

(Start: 15 @7068 has 65 MA's), (41, 7242), (46, 7284), (51, 7332), (53, 7395), (55, 7416), (58, 7476), (65, 7602), (67, 7611), (75, 7701), (91, 7917), (96, 7998), (101, 8046), (104, 8082), (105, 8106), (116, 8163), (117, 8172), (118, 8190),

Gene: GalacticEye\_11 Start: 13542, Stop: 14756, Start Num: 15

Candidate Starts for GalacticEye\_11:

(6, 13404), (7, 13407), (Start: 15 @13542 has 65 MA's), (41, 13722), (43, 13755), (46, 13764), (47, 13767), (51, 13812), (53, 13875), (55, 13896), (58, 13956), (65, 14082), (67, 14091), (75, 14181), (79, 14259), (85, 14337), (93, 14454), (97, 14532), (98, 14535), (101, 14553), (111, 14655), (116, 14670), (117, 14682), (118, 14700),

Gene: Gibbles\_12 Start: 10969, Stop: 12144, Start Num: 19

Candidate Starts for Gibbles\_12:

(Start: 19 @10969 has 6 MA's), (20, 10975), (41, 11131), (53, 11266), (62, 11458), (65, 11473), (68, 11491), (76, 11590), (77, 11605), (91, 11815), (94, 11884), (97, 11920), (100, 11932), (115, 12055),

Gene: Gmala1\_5 Start: 7452, Stop: 8618, Start Num: 17

Candidate Starts for Gmala1\_5:

(17, 7452), (21, 7467), (26, 7488), (28, 7494), (41, 7620), (43, 7653), (45, 7659), (46, 7662), (49, 7683), (53, 7752), (67, 7968), (71, 8001), (74, 8046), (75, 8058), (117, 8544),

Gene: GordDuk1\_5 Start: 7392, Stop: 8558, Start Num: 17

Candidate Starts for GordDuk1\_5:

(17, 7392), (21, 7407), (26, 7428), (28, 7434), (41, 7560), (43, 7593), (45, 7599), (46, 7602), (53, 7692), (67, 7908), (71, 7941), (74, 7986), (75, 7998), (117, 8484),

Gene: GordTnk2\_5 Start: 7359, Stop: 8525, Start Num: 17

Candidate Starts for GordTnk2\_5:

(17, 7359), (21, 7374), (26, 7395), (28, 7401), (41, 7527), (43, 7560), (45, 7566), (46, 7569), (53, 7659), (67, 7875), (71, 7908), (74, 7953), (75, 7965), (103, 8346), (117, 8451),

Gene: Gorko\_14 Start: 12750, Stop: 13985, Start Num: 15

Candidate Starts for Gorko\_14:

(Start: 15 @12750 has 65 MA's), (35, 12840), (41, 12930), (43, 12963), (46, 12972), (47, 12975), (53, 13083), (55, 13104), (58, 13164), (59, 13233), (65, 13290), (67, 13299), (75, 13389), (85, 13566), (98, 13764), (100, 13773), (101, 13782), (107, 13869), (111, 13884), (117, 13911), (118, 13929),

Gene: GourdThymes\_14 Start: 13618, Stop: 14853, Start Num: 15

Candidate Starts for GourdThymes\_14:

(Start: 15 @13618 has 65 MA's), (35, 13708), (41, 13798), (43, 13831), (46, 13840), (47, 13843), (53, 13951), (55, 13972), (58, 14032), (59, 14101), (65, 14158), (67, 14167), (75, 14257), (85, 14434), (98, 14632), (100, 14641), (101, 14650), (107, 14737), (111, 14752), (117, 14779), (118, 14797),

Gene: Guillaume\_11 Start: 13574, Stop: 14788, Start Num: 15

Candidate Starts for Guillaume\_11:

(6, 13436), (7, 13439), (Start: 15 @13574 has 65 MA's), (41, 13754), (43, 13787), (46, 13796), (47, 13799), (51, 13844), (53, 13907), (55, 13928), (58, 13988), (65, 14114), (67, 14123), (75, 14213), (79, 14291), (85, 14369), (93, 14486), (97, 14564), (98, 14567), (101, 14585), (111, 14687), (116, 14702), (117, 14714), (118, 14732),

Gene: Hail2Pitt\_11 Start: 14051, Stop: 15265, Start Num: 15

Candidate Starts for Hail2Pitt\_11:

(6, 13913), (7, 13916), (Start: 15 @14051 has 65 MA's), (41, 14231), (43, 14264), (46, 14273), (47, 14276), (51, 14321), (53, 14384), (55, 14405), (58, 14465), (65, 14591), (67, 14600), (75, 14690), (79, 14768), (85, 14846), (93, 14963), (97, 15041), (98, 15044), (101, 15062), (111, 15164), (116, 15179), (117, 15191), (118, 15209),

Gene: Harambe\_11 Start: 13835, Stop: 15049, Start Num: 15

Candidate Starts for Harambe\_11:

(6, 13697), (7, 13700), (Start: 15 @13835 has 65 MA's), (41, 14015), (43, 14048), (46, 14057), (47, 14060), (51, 14105), (53, 14168), (55, 14189), (58, 14249), (65, 14375), (67, 14384), (75, 14474), (79, 14552), (85, 14630), (93, 14747), (97, 14825), (98, 14828), (101, 14846), (111, 14948), (116, 14963), (117, 14975), (118, 14993),

Gene: HayZem\_15 Start: 12820, Stop: 13998, Start Num: 15

Candidate Starts for HayZem\_15:

(Start: 15 @12820 has 65 MA's), (41, 12994), (46, 13036), (51, 13084), (53, 13147), (55, 13168), (58, 13228), (65, 13354), (67, 13363), (75, 13453), (91, 13669), (96, 13750), (101, 13798), (104, 13834), (105, 13858), (116, 13915), (117, 13924), (118, 13942),

Gene: Hello\_11 Start: 13821, Stop: 15035, Start Num: 15

Candidate Starts for Hello\_11:

(6, 13683), (7, 13686), (Start: 15 @13821 has 65 MA's), (41, 14001), (43, 14034), (46, 14043), (47, 14046), (51, 14091), (53, 14154), (55, 14175), (58, 14235), (65, 14361), (67, 14370), (75, 14460), (79, 14538), (85, 14616), (93, 14733), (97, 14811), (98, 14814), (101, 14832), (111, 14934), (116, 14949), (117, 14961), (118, 14979),

Gene: Hollow\_14 Start: 14509, Stop: 15720, Start Num: 15

Candidate Starts for Hollow\_14:

(Start: 15 @14509 has 65 MA's), (18, 14524), (23, 14539), (38, 14620), (43, 14704), (46, 14713), (53, 14824), (55, 14845), (64, 15028), (65, 15031), (66, 15034), (67, 15040), (68, 15049), (69, 15055), (75, 15130), (91, 15385), (92, 15397), (97, 15490), (98, 15493), (113, 15619), (117, 15637),

Gene: Hotorobo\_14 Start: 13629, Stop: 14864, Start Num: 15

Candidate Starts for Hotorobo\_14:

(Start: 15 @13629 has 65 MA's), (35, 13719), (41, 13809), (43, 13842), (46, 13851), (47, 13854), (53, 13962), (55, 13983), (58, 14043), (59, 14112), (65, 14169), (67, 14178), (75, 14268), (85, 14445), (98, 14643), (100, 14652), (101, 14661), (107, 14748), (111, 14763), (117, 14790), (118, 14808),

Gene: Jams\_11 Start: 13015, Stop: 14229, Start Num: 15

Candidate Starts for Jams\_11:

(6, 12877), (7, 12880), (Start: 15 @13015 has 65 MA's), (41, 13195), (43, 13228), (46, 13237), (47, 13240), (51, 13285), (53, 13348), (55, 13369), (58, 13429), (65, 13555), (67, 13564), (75, 13654), (79, 13732), (85, 13810), (93, 13927), (97, 14005), (98, 14008), (101, 14026), (111, 14128), (116, 14143), (117, 14155), (118, 14173),

Gene: Jellybones\_14 Start: 12781, Stop: 14016, Start Num: 15

Candidate Starts for Jellybones\_14:

(Start: 15 @12781 has 65 MA's), (35, 12871), (41, 12961), (43, 12994), (46, 13003), (47, 13006), (53, 13114), (55, 13135), (58, 13195), (59, 13264), (65, 13321), (67, 13330), (75, 13420), (85, 13597), (98, 13795), (100, 13804), (101, 13813), (107, 13900), (111, 13915), (116, 13930), (117, 13942), (118, 13960),

Gene: John316\_14 Start: 12746, Stop: 13981, Start Num: 15

Candidate Starts for John316\_14:

(Start: 15 @12746 has 65 MA's), (35, 12836), (41, 12926), (43, 12959), (46, 12968), (47, 12971), (53, 13079), (55, 13100), (58, 13160), (59, 13229), (65, 13286), (67, 13295), (75, 13385), (85, 13562), (98, 13760), (100, 13769), (101, 13778), (107, 13865), (111, 13880), (117, 13907), (118, 13925),

Gene: Jormungandr\_11 Start: 13556, Stop: 14770, Start Num: 15

Candidate Starts for Jormungandr\_11:

(6, 13418), (7, 13421), (Start: 15 @13556 has 65 MA's), (41, 13736), (43, 13769), (46, 13778), (47, 13781), (51, 13826), (53, 13889), (55, 13910), (58, 13970), (65, 14096), (67, 14105), (75, 14195), (79, 14273), (85, 14351), (93, 14468), (97, 14546), (98, 14549), (101, 14567), (111, 14669), (116, 14684), (117, 14696), (118, 14714),

Gene: Jumbo\_10 Start: 12341, Stop: 13486, Start Num: 19

Candidate Starts for Jumbo\_10:

(Start: 19 @12341 has 6 MA's), (41, 12503), (43, 12536), (46, 12545), (53, 12635), (54, 12644), (55, 12656), (56, 12665), (58, 12716), (67, 12851), (74, 12935), (75, 12947), (89, 13160), (108, 13388), (110, 13391),

Gene: Kampe\_13 Start: 10827, Stop: 12002, Start Num: 19

Candidate Starts for Kampe\_13:

(Start: 19 @10827 has 6 MA's), (20, 10833), (41, 10989), (53, 11124), (62, 11316), (65, 11331), (68, 11349), (76, 11448), (77, 11463), (91, 11673), (94, 11742), (97, 11778), (100, 11790), (115, 11913),

Gene: Kaseim\_11 Start: 13007, Stop: 14221, Start Num: 15

Candidate Starts for Kaseim\_11:

(6, 12869), (7, 12872), (Start: 15 @13007 has 65 MA's), (41, 13187), (43, 13220), (46, 13229), (47, 13232), (51, 13277), (53, 13340), (55, 13361), (58, 13421), (65, 13547), (67, 13556), (75, 13646), (79, 13724), (85, 13802), (97, 13997), (98, 14000), (101, 14018), (111, 14120), (116, 14135), (117, 14147), (118, 14165),

Gene: Katyusha\_14 Start: 15343, Stop: 16554, Start Num: 15

Candidate Starts for Katyusha\_14:

(Start: 15 @15343 has 65 MA's), (18, 15358), (23, 15373), (38, 15454), (43, 15538), (46, 15547), (53, 15658), (55, 15679), (64, 15862), (65, 15865), (66, 15868), (67, 15874), (68, 15883), (69, 15889), (75,

15964), (91, 16219), (92, 16231), (97, 16324), (98, 16327), (113, 16453), (117, 16471), (121, 16519),

Gene: Kvothe\_14 Start: 15280, Stop: 16491, Start Num: 15

Candidate Starts for Kvothe\_14:

(Start: 15 @15280 has 65 MA's), (18, 15295), (23, 15310), (38, 15391), (43, 15475), (46, 15484), (53, 15595), (55, 15616), (64, 15799), (65, 15802), (66, 15805), (67, 15811), (68, 15820), (69, 15826), (75, 15901), (91, 16156), (92, 16168), (97, 16261), (98, 16264), (113, 16390), (117, 16408), (121, 16456),

Gene: Lahirium\_11 Start: 14072, Stop: 15286, Start Num: 15

Candidate Starts for Lahirium\_11:

(6, 13934), (7, 13937), (Start: 15 @14072 has 65 MA's), (41, 14252), (43, 14285), (46, 14294), (47, 14297), (51, 14342), (53, 14405), (55, 14426), (58, 14486), (65, 14612), (67, 14621), (75, 14711), (79, 14789), (85, 14867), (93, 14984), (97, 15062), (98, 15065), (101, 15083), (111, 15185), (116, 15200), (117, 15212), (118, 15230),

Gene: Lidong\_11 Start: 13821, Stop: 15035, Start Num: 15

Candidate Starts for Lidong\_11:

(6, 13683), (7, 13686), (Start: 15 @13821 has 65 MA's), (41, 14001), (43, 14034), (46, 14043), (47, 14046), (51, 14091), (53, 14154), (55, 14175), (58, 14235), (65, 14361), (67, 14370), (75, 14460), (79, 14538), (85, 14616), (97, 14811), (98, 14814), (101, 14832), (111, 14934), (116, 14949), (117, 14961), (118, 14979),

Gene: Linetti\_15 Start: 13769, Stop: 14998, Start Num: 15

Candidate Starts for Linetti\_15:

(3, 13610), (4, 13613), (5, 13622), (6, 13631), (7, 13634), (Start: 15 @13769 has 65 MA's), (35, 13859), (41, 13949), (43, 13982), (46, 13991), (47, 13994), (51, 14039), (53, 14102), (55, 14123), (58, 14183), (59, 14252), (65, 14309), (67, 14318), (75, 14408), (85, 14579), (86, 14618), (91, 14669), (97, 14774), (98, 14777), (99, 14783), (101, 14795), (107, 14882), (111, 14897), (117, 14924), (118, 14942),

Gene: Lizzo\_14 Start: 13618, Stop: 14853, Start Num: 15

Candidate Starts for Lizzo\_14:

(Start: 15 @13618 has 65 MA's), (35, 13708), (41, 13798), (43, 13831), (46, 13840), (47, 13843), (53, 13951), (55, 13972), (58, 14032), (59, 14101), (65, 14158), (67, 14167), (75, 14257), (85, 14434), (98, 14632), (100, 14641), (101, 14650), (107, 14737), (111, 14752), (117, 14779), (118, 14797),

Gene: Luker\_11 Start: 13536, Stop: 14750, Start Num: 15

Candidate Starts for Luker\_11:

(6, 13398), (7, 13401), (Start: 15 @13536 has 65 MA's), (41, 13716), (43, 13749), (46, 13758), (47, 13761), (51, 13806), (53, 13869), (55, 13890), (58, 13950), (65, 14076), (67, 14085), (75, 14175), (79, 14253), (85, 14331), (93, 14448), (97, 14526), (98, 14529), (101, 14547), (111, 14649), (116, 14664), (117, 14676), (118, 14694),

Gene: Mbo2\_10 Start: 6937, Stop: 8118, Start Num: 13

Candidate Starts for Mbo2\_10:

(8, 6832), (9, 6862), (10, 6877), (13, 6937), (16, 6949), (34, 7021), (38, 7069), (39, 7075), (41, 7120), (44, 7153), (52, 7216), (54, 7261), (61, 7441), (66, 7462), (72, 7543), (73, 7546), (74, 7549), (75, 7561), (98, 7858), (102, 7900),

Gene: Minos\_11 Start: 13542, Stop: 14756, Start Num: 15

Candidate Starts for Minos\_11:

(6, 13404), (7, 13407), (Start: 15 @13542 has 65 MA's), (41, 13722), (43, 13755), (46, 13764), (47, 13767), (51, 13812), (53, 13875), (55, 13896), (58, 13956), (65, 14082), (67, 14091), (75, 14181), (79,

14259), (85, 14337), (93, 14454), (97, 14532), (98, 14535), (101, 14553), (111, 14655), (116, 14670), (117, 14682), (118, 14700),

Gene: Monty\_13 Start: 12762, Stop: 13997, Start Num: 15

Candidate Starts for Monty\_13:

(Start: 15 @12762 has 65 MA's), (35, 12852), (41, 12942), (43, 12975), (46, 12984), (47, 12987), (53, 13095), (55, 13116), (58, 13176), (59, 13245), (65, 13302), (67, 13311), (75, 13401), (85, 13578), (98, 13776), (100, 13785), (101, 13794), (107, 13881), (111, 13896), (117, 13923), (118, 13941),

Gene: MrWormie\_11 Start: 12706, Stop: 13920, Start Num: 15

Candidate Starts for MrWormie\_11:

(6, 12568), (7, 12571), (Start: 15 @12706 has 65 MA's), (41, 12886), (43, 12919), (46, 12928), (47, 12931), (51, 12976), (53, 13039), (55, 13060), (58, 13120), (65, 13246), (67, 13255), (75, 13345), (79, 13423), (85, 13501), (93, 13618), (97, 13696), (98, 13699), (101, 13717), (111, 13819), (116, 13834), (117, 13846), (118, 13864),

Gene: Msay19\_15 Start: 12936, Stop: 14171, Start Num: 15

Candidate Starts for Msay19\_15:

(Start: 15 @12936 has 65 MA's), (35, 13026), (41, 13116), (43, 13149), (46, 13158), (47, 13161), (53, 13269), (55, 13290), (58, 13350), (59, 13419), (65, 13476), (67, 13485), (75, 13575), (85, 13752), (98, 13950), (100, 13959), (101, 13968), (107, 14055), (111, 14070), (116, 14085), (117, 14097), (118, 14115),

Gene: Neoevie\_11 Start: 13812, Stop: 15026, Start Num: 15

Candidate Starts for Neoevie\_11:

(6, 13674), (7, 13677), (Start: 15 @13812 has 65 MA's), (41, 13992), (43, 14025), (46, 14034), (47, 14037), (51, 14082), (53, 14145), (55, 14166), (58, 14226), (65, 14352), (67, 14361), (75, 14451), (79, 14529), (85, 14607), (93, 14724), (97, 14802), (98, 14805), (101, 14823), (111, 14925), (116, 14940), (117, 14952), (118, 14970),

Gene: Newt\_11 Start: 13553, Stop: 14767, Start Num: 15

Candidate Starts for Newt\_11:

(6, 13415), (7, 13418), (Start: 15 @13553 has 65 MA's), (41, 13733), (43, 13766), (46, 13775), (47, 13778), (51, 13823), (53, 13886), (55, 13907), (58, 13967), (65, 14093), (67, 14102), (75, 14192), (79, 14270), (85, 14348), (93, 14465), (97, 14543), (98, 14546), (101, 14564), (111, 14666), (116, 14681), (117, 14693), (118, 14711),

Gene: Niagara\_14 Start: 15300, Stop: 16511, Start Num: 15

Candidate Starts for Niagara\_14:

(Start: 15 @15300 has 65 MA's), (18, 15315), (23, 15330), (38, 15411), (43, 15495), (46, 15504), (53, 15615), (55, 15636), (64, 15819), (65, 15822), (66, 15825), (67, 15831), (68, 15840), (69, 15846), (75, 15921), (91, 16176), (92, 16188), (97, 16281), (98, 16284), (113, 16410), (117, 16428), (121, 16476),

Gene: Nimi13\_11 Start: 13554, Stop: 14768, Start Num: 15

Candidate Starts for Nimi13\_11:

(6, 13416), (7, 13419), (Start: 15 @13554 has 65 MA's), (41, 13734), (43, 13767), (46, 13776), (47, 13779), (51, 13824), (53, 13887), (55, 13908), (58, 13968), (65, 14094), (67, 14103), (75, 14193), (79, 14271), (85, 14349), (93, 14466), (97, 14544), (98, 14547), (101, 14565), (111, 14667), (116, 14682), (117, 14694), (118, 14712),

Gene: Orchid\_13 Start: 10827, Stop: 12002, Start Num: 19

Candidate Starts for Orchid\_13:

(Start: 19 @10827 has 6 MA's), (20, 10833), (41, 10989), (53, 11124), (62, 11316), (65, 11331), (68, 11349), (76, 11448), (77, 11463), (91, 11673), (94, 11742), (97, 11778), (100, 11790), (115, 11913),

Gene: PatrickStar\_13 Start: 10827, Stop: 12002, Start Num: 19

Candidate Starts for PatrickStar\_13:

(Start: 19 @10827 has 6 MA's), (20, 10833), (41, 10989), (53, 11124), (62, 11316), (65, 11331), (68, 11349), (76, 11448), (77, 11463), (91, 11673), (94, 11742), (97, 11778), (100, 11790), (115, 11913),

Gene: Philon9\_16 Start: 17183, Stop: 18385, Start Num: 15

Candidate Starts for Philon9\_16:

(Start: 15 @17183 has 65 MA's), (18, 17198), (23, 17213), (25, 17225), (27, 17231), (31, 17258), (43, 17378), (46, 17387), (52, 17441), (53, 17498), (55, 17519), (64, 17702), (65, 17705), (66, 17708), (67, 17714), (68, 17723), (69, 17729), (75, 17807), (81, 17888), (84, 17924), (97, 18161), (98, 18164), (101, 18182), (106, 18266), (113, 18290), (117, 18308), (118, 18326), (120, 18350),

Gene: PierreThree\_14 Start: 13620, Stop: 14849, Start Num: 15

Candidate Starts for PierreThree\_14:

(Start: 15 @13620 has 65 MA's), (35, 13710), (41, 13800), (43, 13833), (46, 13842), (47, 13845), (51, 13890), (52, 13896), (53, 13953), (55, 13974), (58, 14034), (59, 14103), (65, 14160), (67, 14169), (75, 14259), (85, 14430), (86, 14469), (91, 14520), (97, 14625), (98, 14628), (99, 14634), (101, 14646), (111, 14748), (117, 14775), (118, 14793),

Gene: PokyPuppy\_13 Start: 13511, Stop: 14734, Start Num: 15

Candidate Starts for PokyPuppy\_13:

(1, 13220), (2, 13226), (3, 13352), (4, 13355), (5, 13364), (6, 13373), (7, 13376), (Start: 15 @13511 has 65 MA's), (27, 13559), (41, 13691), (43, 13724), (46, 13733), (47, 13736), (52, 13787), (53, 13844), (55, 13865), (58, 13925), (59, 13994), (64, 14048), (65, 14051), (67, 14060), (74, 14138), (75, 14150), (85, 14315), (91, 14405), (97, 14510), (98, 14513), (101, 14531), (107, 14618), (111, 14633), (117, 14660), (118, 14678),

Gene: Poland\_17 Start: 12912, Stop: 14147, Start Num: 15

Candidate Starts for Poland\_17:

(Start: 15 @12912 has 65 MA's), (35, 13002), (41, 13092), (43, 13125), (46, 13134), (47, 13137), (53, 13245), (55, 13266), (58, 13326), (59, 13395), (65, 13452), (67, 13461), (75, 13551), (85, 13728), (98, 13926), (100, 13935), (101, 13944), (107, 14031), (111, 14046), (116, 14061), (117, 14073), (118, 14091),

Gene: RemRem\_15 Start: 12758, Stop: 13993, Start Num: 15

Candidate Starts for RemRem\_15:

(Start: 15 @12758 has 65 MA's), (35, 12848), (41, 12938), (43, 12971), (46, 12980), (47, 12983), (53, 13091), (55, 13112), (58, 13172), (59, 13241), (65, 13298), (67, 13307), (75, 13397), (85, 13574), (98, 13772), (100, 13781), (101, 13790), (107, 13877), (111, 13892), (117, 13919), (118, 13937),

Gene: Reynauld\_18 Start: 13679, Stop: 14914, Start Num: 14

Candidate Starts for Reynauld\_18:

(Start: 14 @13679 has 1 MA's), (16, 13688), (22, 13706), (25, 13724), (30, 13742), (34, 13766), (37, 13814), (39, 13823), (40, 13838), (41, 13868), (45, 13907), (52, 13964), (53, 14003), (55, 14024), (57, 14039), (60, 14165), (61, 14192), (63, 14198), (66, 14213), (69, 14234), (74, 14300), (75, 14312), (78, 14354), (95, 14606), (109, 14771), (119, 14828), (122, 14876),

Gene: RobinSparkles\_16 Start: 11420, Stop: 12595, Start Num: 19

Candidate Starts for RobinSparkles\_16:

(Start: 19 @11420 has 6 MA's), (20, 11426), (41, 11582), (53, 11717), (62, 11909), (65, 11924), (68, 11942), (76, 12041), (77, 12056), (91, 12266), (94, 12335), (97, 12371), (100, 12383), (115, 12506),

Gene: RoyalG\_15 Start: 13245, Stop: 14468, Start Num: 15

Candidate Starts for RoyalG\_15:

(Start: 15 @13245 has 65 MA's), (39, 13380), (41, 13425), (43, 13458), (46, 13467), (47, 13470), (52, 13521), (53, 13578), (55, 13599), (58, 13659), (64, 13782), (65, 13785), (67, 13794), (74, 13872), (75, 13884), (85, 14049), (97, 14244), (98, 14247), (101, 14265), (107, 14352), (116, 14382), (117, 14394), (118, 14412),

Gene: Sam12\_14 Start: 12758, Stop: 13993, Start Num: 15

Candidate Starts for Sam12\_14:

(Start: 15 @12758 has 65 MA's), (35, 12848), (41, 12938), (43, 12971), (46, 12980), (47, 12983), (53, 13091), (55, 13112), (58, 13172), (59, 13241), (65, 13298), (67, 13307), (75, 13397), (85, 13574), (98, 13772), (100, 13781), (101, 13790), (107, 13877), (111, 13892), (117, 13919), (118, 13937),

Gene: Shelley\_11 Start: 13030, Stop: 14244, Start Num: 15

Candidate Starts for Shelley\_11:

(6, 12892), (7, 12895), (Start: 15 @13030 has 65 MA's), (41, 13210), (43, 13243), (46, 13252), (47, 13255), (51, 13300), (53, 13363), (55, 13384), (58, 13444), (65, 13570), (67, 13579), (75, 13669), (79, 13747), (85, 13825), (97, 14020), (98, 14023), (101, 14041), (111, 14143), (116, 14158), (117, 14170), (118, 14188),

Gene: Sombrero\_14 Start: 12792, Stop: 14069, Start Num: 15

Candidate Starts for Sombrero\_14:

(Start: 15 @12792 has 65 MA's), (35, 12882), (41, 12972), (43, 13005), (46, 13014), (47, 13017), (53, 13125), (55, 13146), (58, 13206), (59, 13275), (65, 13332), (67, 13341), (75, 13431), (85, 13608),

Gene: Squibbles\_14 Start: 13618, Stop: 14853, Start Num: 15

Candidate Starts for Squibbles\_14:

(Start: 15 @13618 has 65 MA's), (35, 13708), (41, 13798), (43, 13831), (46, 13840), (47, 13843), (53, 13951), (55, 13972), (58, 14032), (59, 14101), (65, 14158), (67, 14167), (75, 14257), (85, 14434), (98, 14632), (100, 14641), (101, 14650), (107, 14737), (111, 14752), (117, 14779), (118, 14797),

Gene: SteveFrench\_13 Start: 12839, Stop: 14062, Start Num: 15

Candidate Starts for SteveFrench\_13:

(Start: 15 @12839 has 65 MA's), (39, 12974), (41, 13019), (43, 13052), (46, 13061), (47, 13064), (52, 13115), (53, 13172), (55, 13193), (58, 13253), (64, 13376), (65, 13379), (67, 13388), (74, 13466), (75, 13478), (85, 13643), (97, 13838), (98, 13841), (101, 13859), (107, 13946), (116, 13976), (117, 13988), (118, 14006),

Gene: Sticker17\_11 Start: 13553, Stop: 14767, Start Num: 15

Candidate Starts for Sticker17\_11:

(6, 13415), (7, 13418), (Start: 15 @13553 has 65 MA's), (41, 13733), (43, 13766), (46, 13775), (47, 13778), (51, 13823), (53, 13886), (55, 13907), (58, 13967), (65, 14093), (67, 14102), (75, 14192), (79, 14270), (85, 14348), (93, 14465), (97, 14543), (98, 14546), (101, 14564), (111, 14666), (116, 14681), (117, 14693), (118, 14711),

Gene: Teal\_11 Start: 13530, Stop: 14744, Start Num: 15

Candidate Starts for Teal\_11:

(6, 13392), (7, 13395), (Start: 15 @13530 has 65 MA's), (41, 13710), (43, 13743), (46, 13752), (47, 13755), (51, 13800), (53, 13863), (55, 13884), (58, 13944), (65, 14070), (67, 14079), (75, 14169), (79, 14247), (85, 14325), (93, 14442), (97, 14520), (98, 14523), (101, 14541), (111, 14643), (116, 14658),

(117, 14670), (118, 14688),

Gene: Teatealatte\_14 Start: 15263, Stop: 16474, Start Num: 15

Candidate Starts for Teatealatte\_14:

(Start: 15 @15263 has 65 MA's), (18, 15278), (23, 15293), (38, 15374), (43, 15458), (46, 15467), (53, 15578), (55, 15599), (64, 15782), (65, 15785), (66, 15788), (67, 15794), (68, 15803), (69, 15809), (75, 15884), (91, 16139), (92, 16151), (97, 16244), (98, 16247), (113, 16373), (117, 16391), (121, 16439),

Gene: Teech\_14 Start: 15064, Stop: 16275, Start Num: 15

Candidate Starts for Teech\_14:

(Start: 15 @15064 has 65 MA's), (18, 15079), (23, 15094), (38, 15175), (43, 15259), (46, 15268), (53, 15379), (55, 15400), (64, 15583), (65, 15586), (66, 15589), (67, 15595), (68, 15604), (69, 15610), (75, 15685), (91, 15940), (92, 15952), (97, 16045), (98, 16048), (113, 16174), (117, 16192), (121, 16240),

Gene: Tredge\_14 Start: 15263, Stop: 16474, Start Num: 15

Candidate Starts for Tredge\_14:

(Start: 15 @15263 has 65 MA's), (18, 15278), (23, 15293), (38, 15374), (43, 15458), (46, 15467), (53, 15578), (55, 15599), (64, 15782), (65, 15785), (66, 15788), (67, 15794), (68, 15803), (69, 15809), (75, 15884), (91, 16139), (92, 16151), (97, 16244), (98, 16247), (113, 16373), (117, 16391), (121, 16439),

Gene: Trogglehumper\_32 Start: 20091, Stop: 21329, Start Num: 12

Candidate Starts for Trogglehumper\_32:

(11, 20079), (Start: 12 @20091 has 1 MA's), (24, 20151), (37, 20241), (43, 20328), (46, 20337), (53, 20427), (56, 20457), (65, 20637), (66, 20640), (68, 20655), (70, 20670), (74, 20727), (75, 20739), (80, 20817), (82, 20850), (90, 20988), (97, 21102), (117, 21255),

Gene: Woes\_11 Start: 14082, Stop: 15296, Start Num: 15

Candidate Starts for Woes\_11:

(6, 13944), (7, 13947), (Start: 15 @14082 has 65 MA's), (41, 14262), (43, 14295), (46, 14304), (47, 14307), (51, 14352), (53, 14415), (55, 14436), (58, 14496), (65, 14622), (67, 14631), (75, 14721), (79, 14799), (85, 14877), (93, 14994), (97, 15072), (98, 15075), (101, 15093), (111, 15195), (116, 15210), (117, 15222), (118, 15240),