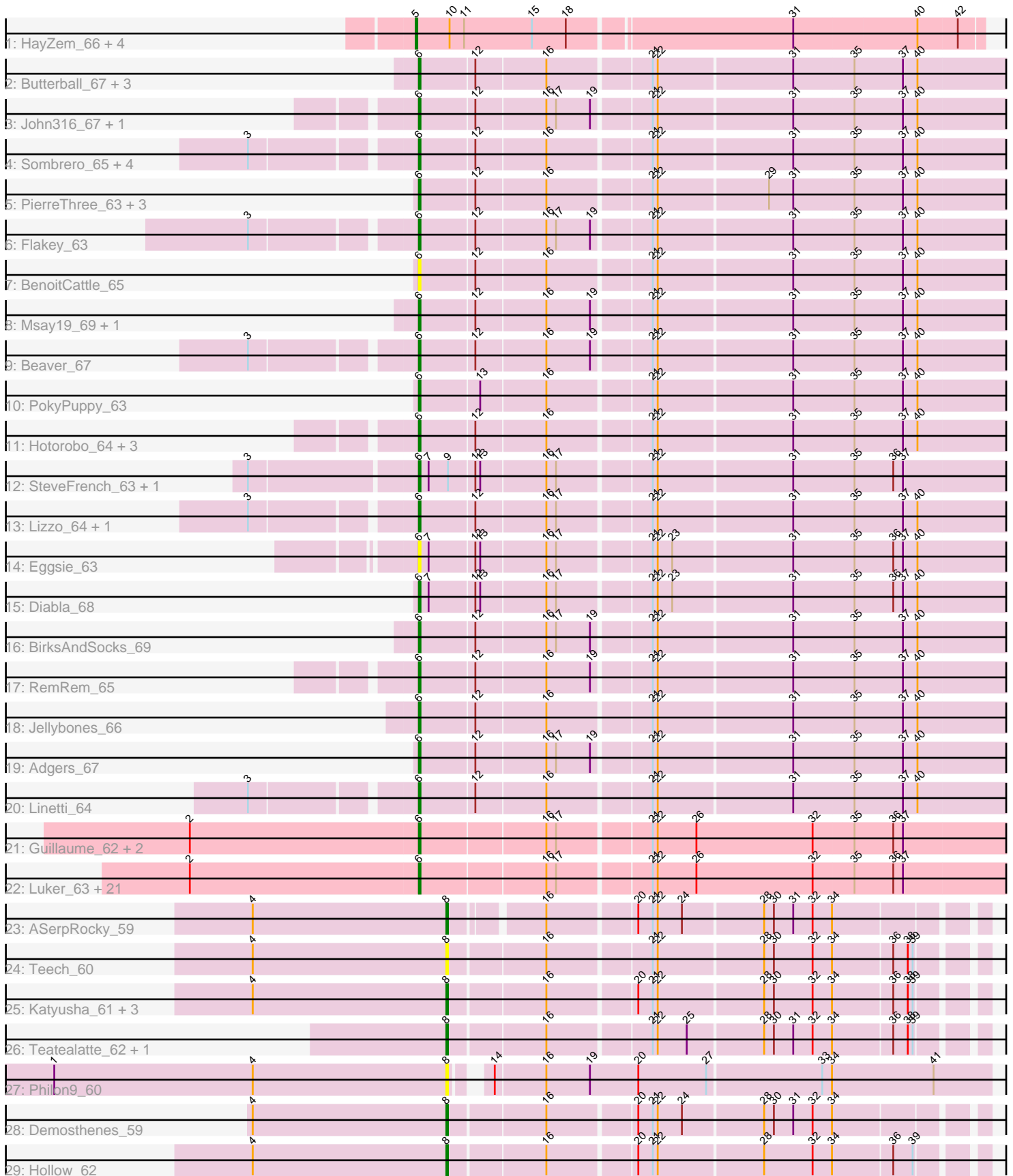


# Pham 171412



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 171412 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171412 has 77 members, 13 are drafts.

Phages represented in each track:

- Track 1 : HayZem\_66, Amore2\_66, GTE7\_54, Austin\_65, GMA7\_55
- Track 2 : Butterball\_67, FelixAlejandro\_69, Boneham\_68, Barbochs\_64
- Track 3 : John316\_67, Monty\_63
- Track 4 : Sombrero\_65, Gorko\_63, Squibbles\_63, Exiguo\_63, Sam12\_63
- Track 5 : PierreThree\_63, BigShaq\_63, Dakiti\_65, Chelms\_64
- Track 6 : Flakey\_63
- Track 7 : BenoitCattle\_65
- Track 8 : Msay19\_69, Poland\_71
- Track 9 : Beaver\_67
- Track 10 : PokyPuppy\_63
- Track 11 : Hotorobo\_64, Ekhein\_64, GourdThymes\_64, Breezic\_64
- Track 12 : SteveFrench\_63, RoyalG\_64
- Track 13 : Lizzo\_64, CathyBurgh\_63
- Track 14 : Eggsie\_63
- Track 15 : Diabla\_68
- Track 16 : BirksAndSocks\_69
- Track 17 : RemRem\_65
- Track 18 : Jellybones\_66
- Track 19 : Adgers\_67
- Track 20 : Linetti\_64
- Track 21 : Guillaume\_62, Lahirium\_62, Nimi13\_62
- Track 22 : Luker\_63, Anamika\_62, Jams\_62, Shelley\_62, Newt\_63, Neoevie\_62, Charianelly\_62, Berries\_62, Harambe\_62, GalacticEye\_62, Jormungandr\_62, Bianmat\_62, Minos\_63, Lidong\_62, Damp\_60, Hail2Pitt\_61, Teal\_62, Kaseim\_62, Woes\_62, Sticker17\_62, Hello\_62, MrWormie\_62
- Track 23 : ASerpRocky\_59
- Track 24 : Teech\_60
- Track 25 : Katyusha\_61, Benczkowski14\_61, Kvothe\_60, Niagara\_61
- Track 26 : Teatealatte\_62, Tredge\_61
- Track 27 : Philon9\_60
- Track 28 : Demosthenes\_59
- Track 29 : Hollow\_62

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

The start number called the most often in the published annotations is 6, it was called in 52 of the 64 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adgers\_67, Anamika\_62, Barbochs\_64, Beaver\_67, BenoitCattle\_65, Berries\_62, Bianmat\_62, BigShaq\_63, BirksAndSocks\_69, Boneham\_68, Breezic\_64, Butterball\_67, CathyBurgh\_63, Charianelly\_62, Chelms\_64, Dakiti\_65, Damp\_60, Diabla\_68, Eggsie\_63, Ekhein\_64, Exiguo\_63, FelixAlejandro\_69, Flakey\_63, GalacticEye\_62, Gorko\_63, GourdThymes\_64, Guillaume\_62, Hail2Pitt\_61, Harambe\_62, Hello\_62, Hotorobo\_64, Jams\_62, Jellybones\_66, John316\_67, Jormungandr\_62, Kaseim\_62, Lahirium\_62, Lidong\_62, Linetti\_64, Lizzo\_64, Luker\_63, Minos\_63, Monty\_63, MrWormie\_62, Msay19\_69, Neoevie\_62, Newt\_63, Nimi13\_62, PierreThree\_63, PokyPuppy\_63, Poland\_71, RemRem\_65, RoyalG\_64, Sam12\_63, Shelley\_62, Sombrero\_65, Squibbles\_63, SteveFrench\_63, Sticker17\_62, Teal\_62, Woes\_62,

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

- 

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

- ASerpRocky\_59, Amore2\_66, Austin\_65, Benczkowski14\_61, Demosthenes\_59, GMA7\_55, GTE7\_54, HayZem\_66, Hollow\_62, Katyusha\_61, Kvothe\_60, Niagara\_61, Philon9\_60, Teatealatte\_62, Teech\_60, Tredge\_61,

### Summary by start number:

Start 5:

- Found in 5 of 77 ( 6.5% ) of genes in pham
- Manual Annotations of this start: 3 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amore2\_66 (CS1), Austin\_65 (CS1), GMA7\_55 (CS1), GTE7\_54 (CS1), HayZem\_66 (CS1),

Start 6:

- Found in 61 of 77 ( 79.2% ) of genes in pham
- Manual Annotations of this start: 52 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adgers\_67 (CS2), Anamika\_62 (CS3), Barbochs\_64 (CS2), Beaver\_67 (CS2), BenoitCattle\_65 (CS2), Berries\_62 (CS3), Bianmat\_62 (CS3), BigShaq\_63 (CS2), BirksAndSocks\_69 (CS2), Boneham\_68 (CS2), Breezic\_64 (CS2), Butterball\_67 (CS2), CathyBurgh\_63 (CS2), Charianelly\_62 (CS3), Chelms\_64 (CS2), Dakiti\_65 (CS2), Damp\_60 (CS3), Diabla\_68 (CS2), Eggsie\_63 (CS2), Ekhein\_64 (CS2), Exiguo\_63 (CS2), FelixAlejandro\_69 (CS2), Flakey\_63 (CS2), GalacticEye\_62 (CS3), Gorko\_63 (CS2), GourdThymes\_64 (CS2), Guillaume\_62 (CS3), Hail2Pitt\_61 (CS3), Harambe\_62 (CS3), Hello\_62 (CS3), Hotorobo\_64 (CS2), Jams\_62 (CS3), Jellybones\_66 (CS2), John316\_67 (CS2), Jormungandr\_62 (CS3), Kaseim\_62 (CS3), Lahirium\_62 (CS3), Lidong\_62 (CS3), Linetti\_64 (CS2), Lizzo\_64 (CS2), Luker\_63 (CS3), Minos\_63 (CS3), Monty\_63 (CS2), MrWormie\_62 (CS3), Msay19\_69 (CS2), Neoevie\_62 (CS3), Newt\_63 (CS3), Nimi13\_62 (CS3), PierreThree\_63 (CS2), PokyPuppy\_63 (CS2), Poland\_71 (CS2), RemRem\_65 (CS2), RoyalG\_64 (CS2), Sam12\_63 (CS2), Shelley\_62 (CS3), Sombrero\_65 (CS2), Squibbles\_63 (CS2), SteveFrench\_63 (CS2),

Sticker17\_62 (CS3), Teal\_62 (CS3), Woes\_62 (CS3),

Start 8:

- Found in 11 of 77 ( 14.3% ) of genes in pham
- Manual Annotations of this start: 9 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ASerpRocky\_59 (CS4), Benczkowski14\_61 (CS4), Demosthenes\_59 (CS4), Hollow\_62 (CS4), Katyusha\_61 (CS4), Kvothe\_60 (CS4), Niagara\_61 (CS4), Philon9\_60 (CS4), Teatealatte\_62 (CS4), Teech\_60 (CS4), Tredge\_61 (CS4),

### **Summary by clusters:**

There are 4 clusters represented in this pham: CS4, CS1, CS3, CS2,

Info for manual annotations of cluster CS1:

- Start number 5 was manually annotated 3 times for cluster CS1.

Info for manual annotations of cluster CS2:

- Start number 6 was manually annotated 29 times for cluster CS2.

Info for manual annotations of cluster CS3:

- Start number 6 was manually annotated 23 times for cluster CS3.

Info for manual annotations of cluster CS4:

- Start number 8 was manually annotated 9 times for cluster CS4.

### **Gene Information:**

Gene: ASerpRocky\_59 Start: 55252, Stop: 54950, Start Num: 8

Candidate Starts for ASerpRocky\_59:

(4, 55372), (Start: 8 @55252 has 9 MA's), (16, 55201), (20, 55150), (21, 55141), (22, 55138), (24, 55123), (28, 55075), (30, 55069), (31, 55057), (32, 55045), (34, 55033),

Gene: Adgers\_67 Start: 55148, Stop: 54795, Start Num: 6

Candidate Starts for Adgers\_67:

(Start: 6 @55148 has 52 MA's), (12, 55115), (16, 55073), (17, 55067), (19, 55046), (21, 55013), (22, 55010), (31, 54929), (35, 54893), (37, 54863), (40, 54854),

Gene: Amore2\_66 Start: 55257, Stop: 54919, Start Num: 5

Candidate Starts for Amore2\_66:

(Start: 5 @55257 has 3 MA's), (10, 55236), (11, 55227), (15, 55185), (18, 55164), (31, 55032), (40, 54957), (42, 54933),

Gene: Anamika\_62 Start: 55494, Stop: 55135, Start Num: 6

Candidate Starts for Anamika\_62:

(2, 55635), (Start: 6 @55494 has 52 MA's), (16, 55419), (17, 55413), (21, 55359), (22, 55356), (26, 55332), (32, 55260), (35, 55236), (36, 55212), (37, 55206),

Gene: Austin\_65 Start: 55255, Stop: 54917, Start Num: 5

Candidate Starts for Austin\_65:

(Start: 5 @55255 has 3 MA's), (10, 55234), (11, 55225), (15, 55183), (18, 55162), (31, 55030), (40, 54955), (42, 54931),

Gene: Barbochs\_64 Start: 54704, Stop: 54351, Start Num: 6

Candidate Starts for Barbochs\_64:

(Start: 6 @54704 has 52 MA's), (12, 54671), (16, 54629), (21, 54569), (22, 54566), (31, 54485), (35, 54449), (37, 54419), (40, 54410),

Gene: Beaver\_67 Start: 56462, Stop: 56109, Start Num: 6

Candidate Starts for Beaver\_67:

(3, 56555), (Start: 6 @56462 has 52 MA's), (12, 56429), (16, 56387), (19, 56360), (21, 56327), (22, 56324), (31, 56243), (35, 56207), (37, 56177), (40, 56168),

Gene: Benczkowski14\_61 Start: 55776, Stop: 55468, Start Num: 8

Candidate Starts for Benczkowski14\_61:

(4, 55896), (Start: 8 @55776 has 9 MA's), (16, 55719), (20, 55668), (21, 55659), (22, 55656), (28, 55593), (30, 55587), (32, 55563), (34, 55551), (36, 55515), (38, 55506), (39, 55503),

Gene: BenoitCattle\_65 Start: 55098, Stop: 54745, Start Num: 6

Candidate Starts for BenoitCattle\_65:

(Start: 6 @55098 has 52 MA's), (12, 55065), (16, 55023), (21, 54963), (22, 54960), (31, 54879), (35, 54843), (37, 54813), (40, 54804),

Gene: Berries\_62 Start: 55466, Stop: 55107, Start Num: 6

Candidate Starts for Berries\_62:

(2, 55607), (Start: 6 @55466 has 52 MA's), (16, 55391), (17, 55385), (21, 55331), (22, 55328), (26, 55304), (32, 55232), (35, 55208), (36, 55184), (37, 55178),

Gene: Bianmat\_62 Start: 55506, Stop: 55147, Start Num: 6

Candidate Starts for Bianmat\_62:

(2, 55647), (Start: 6 @55506 has 52 MA's), (16, 55431), (17, 55425), (21, 55371), (22, 55368), (26, 55344), (32, 55272), (35, 55248), (36, 55224), (37, 55218),

Gene: BigShaq\_63 Start: 55103, Stop: 54750, Start Num: 6

Candidate Starts for BigShaq\_63:

(Start: 6 @55103 has 52 MA's), (12, 55070), (16, 55028), (21, 54968), (22, 54965), (29, 54899), (31, 54884), (35, 54848), (37, 54818), (40, 54809),

Gene: BirksAndSocks\_69 Start: 56788, Stop: 56435, Start Num: 6

Candidate Starts for BirksAndSocks\_69:

(Start: 6 @56788 has 52 MA's), (12, 56755), (16, 56713), (17, 56707), (19, 56686), (21, 56653), (22, 56650), (31, 56569), (35, 56533), (37, 56503), (40, 56494),

Gene: Boneham\_68 Start: 56713, Stop: 56360, Start Num: 6

Candidate Starts for Boneham\_68:

(Start: 6 @56713 has 52 MA's), (12, 56680), (16, 56638), (21, 56578), (22, 56575), (31, 56494), (35, 56458), (37, 56428), (40, 56419),

Gene: Breezic\_64 Start: 54699, Stop: 54346, Start Num: 6

Candidate Starts for Breezic\_64:

(Start: 6 @54699 has 52 MA's), (12, 54666), (16, 54624), (21, 54564), (22, 54561), (31, 54480), (35, 54444), (37, 54414), (40, 54405),

Gene: Butterball\_67 Start: 56718, Stop: 56365, Start Num: 6

Candidate Starts for Butterball\_67:

(Start: 6 @56718 has 52 MA's), (12, 56685), (16, 56643), (21, 56583), (22, 56580), (31, 56499), (35, 56463), (37, 56433), (40, 56424),

Gene: CathyBurgh\_63 Start: 55294, Stop: 54941, Start Num: 6

Candidate Starts for CathyBurgh\_63:

(3, 55387), (Start: 6 @55294 has 52 MA's), (12, 55261), (16, 55219), (17, 55213), (21, 55159), (22, 55156), (31, 55075), (35, 55039), (37, 55009), (40, 55000),

Gene: Charianelly\_62 Start: 55216, Stop: 54857, Start Num: 6

Candidate Starts for Charianelly\_62:

(2, 55357), (Start: 6 @55216 has 52 MA's), (16, 55141), (17, 55135), (21, 55081), (22, 55078), (26, 55054), (32, 54982), (35, 54958), (36, 54934), (37, 54928),

Gene: Chelms\_64 Start: 55229, Stop: 54876, Start Num: 6

Candidate Starts for Chelms\_64:

(Start: 6 @55229 has 52 MA's), (12, 55196), (16, 55154), (21, 55094), (22, 55091), (29, 55025), (31, 55010), (35, 54974), (37, 54944), (40, 54935),

Gene: Dakiti\_65 Start: 56097, Stop: 55744, Start Num: 6

Candidate Starts for Dakiti\_65:

(Start: 6 @56097 has 52 MA's), (12, 56064), (16, 56022), (21, 55962), (22, 55959), (29, 55893), (31, 55878), (35, 55842), (37, 55812), (40, 55803),

Gene: Damp\_60 Start: 54380, Stop: 54021, Start Num: 6

Candidate Starts for Damp\_60:

(2, 54521), (Start: 6 @54380 has 52 MA's), (16, 54305), (17, 54299), (21, 54245), (22, 54242), (26, 54218), (32, 54146), (35, 54122), (36, 54098), (37, 54092),

Gene: Demosthenes\_59 Start: 55228, Stop: 54920, Start Num: 8

Candidate Starts for Demosthenes\_59:

(4, 55348), (Start: 8 @55228 has 9 MA's), (16, 55171), (20, 55120), (21, 55111), (22, 55108), (24, 55093), (28, 55045), (30, 55039), (31, 55027), (32, 55015), (34, 55003),

Gene: Diabla\_68 Start: 56712, Stop: 56359, Start Num: 6

Candidate Starts for Diabla\_68:

(Start: 6 @56712 has 52 MA's), (7, 56706), (12, 56679), (13, 56676), (16, 56637), (17, 56631), (21, 56577), (22, 56574), (23, 56565), (31, 56493), (35, 56457), (36, 56433), (37, 56427), (40, 56418),

Gene: Eggsie\_63 Start: 54516, Stop: 54163, Start Num: 6

Candidate Starts for Eggsie\_63:

(Start: 6 @54516 has 52 MA's), (7, 54510), (12, 54483), (13, 54480), (16, 54441), (17, 54435), (21, 54381), (22, 54378), (23, 54369), (31, 54297), (35, 54261), (36, 54237), (37, 54231), (40, 54222),

Gene: Ekhein\_64 Start: 54404, Stop: 54051, Start Num: 6

Candidate Starts for Ekhein\_64:

(Start: 6 @54404 has 52 MA's), (12, 54371), (16, 54329), (21, 54269), (22, 54266), (31, 54185), (35, 54149), (37, 54119), (40, 54110),

Gene: Exiguo\_63 Start: 54440, Stop: 54087, Start Num: 6

Candidate Starts for Exiguo\_63:

(3, 54533), (Start: 6 @54440 has 52 MA's), (12, 54407), (16, 54365), (21, 54305), (22, 54302), (31, 54221), (35, 54185), (37, 54155), (40, 54146),

Gene: FelixAlejandro\_69 Start: 57116, Stop: 56763, Start Num: 6

Candidate Starts for FelixAlejandro\_69:

(Start: 6 @57116 has 52 MA's), (12, 57083), (16, 57041), (21, 56981), (22, 56978), (31, 56897), (35, 56861), (37, 56831), (40, 56822),

Gene: Flakey\_63 Start: 55280, Stop: 54927, Start Num: 6

Candidate Starts for Flakey\_63:

(3, 55373), (Start: 6 @55280 has 52 MA's), (12, 55247), (16, 55205), (17, 55199), (19, 55178), (21, 55145), (22, 55142), (31, 55061), (35, 55025), (37, 54995), (40, 54986),

Gene: GMA7\_55 Start: 49471, Stop: 49133, Start Num: 5

Candidate Starts for GMA7\_55:

(Start: 5 @49471 has 3 MA's), (10, 49450), (11, 49441), (15, 49399), (18, 49378), (31, 49246), (40, 49171), (42, 49147),

Gene: GTE7\_54 Start: 49502, Stop: 49164, Start Num: 5

Candidate Starts for GTE7\_54:

(Start: 5 @49502 has 3 MA's), (10, 49481), (11, 49472), (15, 49430), (18, 49409), (31, 49277), (40, 49202), (42, 49178),

Gene: GalacticEye\_62 Start: 55177, Stop: 54818, Start Num: 6

Candidate Starts for GalacticEye\_62:

(2, 55318), (Start: 6 @55177 has 52 MA's), (16, 55102), (17, 55096), (21, 55042), (22, 55039), (26, 55015), (32, 54943), (35, 54919), (36, 54895), (37, 54889),

Gene: Gorko\_63 Start: 54426, Stop: 54073, Start Num: 6

Candidate Starts for Gorko\_63:

(3, 54519), (Start: 6 @54426 has 52 MA's), (12, 54393), (16, 54351), (21, 54291), (22, 54288), (31, 54207), (35, 54171), (37, 54141), (40, 54132),

Gene: GourdThymes\_64 Start: 55300, Stop: 54947, Start Num: 6

Candidate Starts for GourdThymes\_64:

(Start: 6 @55300 has 52 MA's), (12, 55267), (16, 55225), (21, 55165), (22, 55162), (31, 55081), (35, 55045), (37, 55015), (40, 55006),

Gene: Guillaume\_62 Start: 55227, Stop: 54868, Start Num: 6

Candidate Starts for Guillaume\_62:

(2, 55368), (Start: 6 @55227 has 52 MA's), (16, 55152), (17, 55146), (21, 55092), (22, 55089), (26, 55065), (32, 54993), (35, 54969), (36, 54945), (37, 54939),

Gene: Hail2Pitt\_61 Start: 55703, Stop: 55344, Start Num: 6

Candidate Starts for Hail2Pitt\_61:

(2, 55844), (Start: 6 @55703 has 52 MA's), (16, 55628), (17, 55622), (21, 55568), (22, 55565), (26, 55541), (32, 55469), (35, 55445), (36, 55421), (37, 55415),

Gene: Harambe\_62 Start: 55494, Stop: 55135, Start Num: 6

Candidate Starts for Harambe\_62:

(2, 55635), (Start: 6 @55494 has 52 MA's), (16, 55419), (17, 55413), (21, 55359), (22, 55356), (26, 55332), (32, 55260), (35, 55236), (36, 55212), (37, 55206),

Gene: HayZem\_66 Start: 55254, Stop: 54916, Start Num: 5

Candidate Starts for HayZem\_66:

(Start: 5 @55254 has 3 MA's), (10, 55233), (11, 55224), (15, 55182), (18, 55161), (31, 55029), (40, 54954), (42, 54930),

Gene: Hello\_62 Start: 55456, Stop: 55097, Start Num: 6

Candidate Starts for Hello\_62:

(2, 55597), (Start: 6 @55456 has 52 MA's), (16, 55381), (17, 55375), (21, 55321), (22, 55318), (26, 55294), (32, 55222), (35, 55198), (36, 55174), (37, 55168),

Gene: Hollow\_62 Start: 55957, Stop: 55649, Start Num: 8

Candidate Starts for Hollow\_62:

(4, 56077), (Start: 8 @55957 has 9 MA's), (16, 55900), (20, 55849), (21, 55840), (22, 55837), (28, 55774), (32, 55744), (34, 55732), (36, 55696), (39, 55684),

Gene: Hotorobo\_64 Start: 55287, Stop: 54934, Start Num: 6

Candidate Starts for Hotorobo\_64:

(Start: 6 @55287 has 52 MA's), (12, 55254), (16, 55212), (21, 55152), (22, 55149), (31, 55068), (35, 55032), (37, 55002), (40, 54993),

Gene: Jams\_62 Start: 54666, Stop: 54307, Start Num: 6

Candidate Starts for Jams\_62:

(2, 54807), (Start: 6 @54666 has 52 MA's), (16, 54591), (17, 54585), (21, 54531), (22, 54528), (26, 54504), (32, 54432), (35, 54408), (36, 54384), (37, 54378),

Gene: Jellybones\_66 Start: 56400, Stop: 56047, Start Num: 6

Candidate Starts for Jellybones\_66:

(Start: 6 @56400 has 52 MA's), (12, 56367), (16, 56325), (21, 56265), (22, 56262), (31, 56181), (35, 56145), (37, 56115), (40, 56106),

Gene: John316\_67 Start: 56445, Stop: 56092, Start Num: 6

Candidate Starts for John316\_67:

(Start: 6 @56445 has 52 MA's), (12, 56412), (16, 56370), (17, 56364), (19, 56343), (21, 56310), (22, 56307), (31, 56226), (35, 56190), (37, 56160), (40, 56151),

Gene: Jormungandr\_62 Start: 55209, Stop: 54850, Start Num: 6

Candidate Starts for Jormungandr\_62:

(2, 55350), (Start: 6 @55209 has 52 MA's), (16, 55134), (17, 55128), (21, 55074), (22, 55071), (26, 55047), (32, 54975), (35, 54951), (36, 54927), (37, 54921),

Gene: Kaseim\_62 Start: 54651, Stop: 54292, Start Num: 6

Candidate Starts for Kaseim\_62:

(2, 54792), (Start: 6 @54651 has 52 MA's), (16, 54576), (17, 54570), (21, 54516), (22, 54513), (26, 54489), (32, 54417), (35, 54393), (36, 54369), (37, 54363),

Gene: Katyusha\_61 Start: 55776, Stop: 55468, Start Num: 8

Candidate Starts for Katyusha\_61:

(4, 55896), (Start: 8 @55776 has 9 MA's), (16, 55719), (20, 55668), (21, 55659), (22, 55656), (28, 55593), (30, 55587), (32, 55563), (34, 55551), (36, 55515), (38, 55506), (39, 55503),

Gene: Kvothe\_60 Start: 55678, Stop: 55370, Start Num: 8

Candidate Starts for Kvothe\_60:



(4, 55798), (Start: 8 @55678 has 9 MA's), (16, 55621), (20, 55570), (21, 55561), (22, 55558), (28, 55495), (30, 55489), (32, 55465), (34, 55453), (36, 55417), (38, 55408), (39, 55405),

Gene: Lahirium\_62 Start: 55731, Stop: 55372, Start Num: 6

Candidate Starts for Lahirium\_62:

(2, 55872), (Start: 6 @55731 has 52 MA's), (16, 55656), (17, 55650), (21, 55596), (22, 55593), (26, 55569), (32, 55497), (35, 55473), (36, 55449), (37, 55443),

Gene: Lidong\_62 Start: 55466, Stop: 55107, Start Num: 6

Candidate Starts for Lidong\_62:

(2, 55607), (Start: 6 @55466 has 52 MA's), (16, 55391), (17, 55385), (21, 55331), (22, 55328), (26, 55304), (32, 55232), (35, 55208), (36, 55184), (37, 55178),

Gene: Linetti\_64 Start: 56091, Stop: 55738, Start Num: 6

Candidate Starts for Linetti\_64:

(3, 56184), (Start: 6 @56091 has 52 MA's), (12, 56058), (16, 56016), (21, 55956), (22, 55953), (31, 55872), (35, 55836), (37, 55806), (40, 55797),

Gene: Lizzo\_64 Start: 55294, Stop: 54941, Start Num: 6

Candidate Starts for Lizzo\_64:

(3, 55387), (Start: 6 @55294 has 52 MA's), (12, 55261), (16, 55219), (17, 55213), (21, 55159), (22, 55156), (31, 55075), (35, 55039), (37, 55009), (40, 55000),

Gene: Luker\_63 Start: 55684, Stop: 55325, Start Num: 6

Candidate Starts for Luker\_63:

(2, 55825), (Start: 6 @55684 has 52 MA's), (16, 55609), (17, 55603), (21, 55549), (22, 55546), (26, 55522), (32, 55450), (35, 55426), (36, 55402), (37, 55396),

Gene: Minos\_63 Start: 55208, Stop: 54849, Start Num: 6

Candidate Starts for Minos\_63:

(2, 55349), (Start: 6 @55208 has 52 MA's), (16, 55133), (17, 55127), (21, 55073), (22, 55070), (26, 55046), (32, 54974), (35, 54950), (36, 54926), (37, 54920),

Gene: Monty\_63 Start: 54426, Stop: 54073, Start Num: 6

Candidate Starts for Monty\_63:

(Start: 6 @54426 has 52 MA's), (12, 54393), (16, 54351), (17, 54345), (19, 54324), (21, 54291), (22, 54288), (31, 54207), (35, 54171), (37, 54141), (40, 54132),

Gene: MrWormie\_62 Start: 54369, Stop: 54010, Start Num: 6

Candidate Starts for MrWormie\_62:

(2, 54510), (Start: 6 @54369 has 52 MA's), (16, 54294), (17, 54288), (21, 54234), (22, 54231), (26, 54207), (32, 54135), (35, 54111), (36, 54087), (37, 54081),

Gene: Msay19\_69 Start: 57002, Stop: 56649, Start Num: 6

Candidate Starts for Msay19\_69:

(Start: 6 @57002 has 52 MA's), (12, 56969), (16, 56927), (19, 56900), (21, 56867), (22, 56864), (31, 56783), (35, 56747), (37, 56717), (40, 56708),

Gene: Neoevie\_62 Start: 55470, Stop: 55111, Start Num: 6

Candidate Starts for Neoevie\_62:

(2, 55611), (Start: 6 @55470 has 52 MA's), (16, 55395), (17, 55389), (21, 55335), (22, 55332), (26, 55308), (32, 55236), (35, 55212), (36, 55188), (37, 55182),

Gene: Newt\_63 Start: 55698, Stop: 55339, Start Num: 6

Candidate Starts for Newt\_63:

(2, 55839), (Start: 6 @55698 has 52 MA's), (16, 55623), (17, 55617), (21, 55563), (22, 55560), (26, 55536), (32, 55464), (35, 55440), (36, 55416), (37, 55410),

Gene: Niagara\_61 Start: 55769, Stop: 55461, Start Num: 8

Candidate Starts for Niagara\_61:

(4, 55889), (Start: 8 @55769 has 9 MA's), (16, 55712), (20, 55661), (21, 55652), (22, 55649), (28, 55586), (30, 55580), (32, 55556), (34, 55544), (36, 55508), (38, 55499), (39, 55496),

Gene: Nimi13\_62 Start: 55217, Stop: 54858, Start Num: 6

Candidate Starts for Nimi13\_62:

(2, 55358), (Start: 6 @55217 has 52 MA's), (16, 55142), (17, 55136), (21, 55082), (22, 55079), (26, 55055), (32, 54983), (35, 54959), (36, 54935), (37, 54929),

Gene: Philon9\_60 Start: 56889, Stop: 56572, Start Num: 8

Candidate Starts for Philon9\_60:

(1, 57132), (4, 57009), (Start: 8 @56889 has 9 MA's), (14, 56874), (16, 56844), (19, 56817), (20, 56787), (27, 56745), (33, 56676), (34, 56670), (41, 56607),

Gene: PierreThree\_63 Start: 55728, Stop: 55375, Start Num: 6

Candidate Starts for PierreThree\_63:

(Start: 6 @55728 has 52 MA's), (12, 55695), (16, 55653), (21, 55593), (22, 55590), (29, 55524), (31, 55509), (35, 55473), (37, 55443), (40, 55434),

Gene: PokyPuppy\_63 Start: 55665, Stop: 55312, Start Num: 6

Candidate Starts for PokyPuppy\_63:

(Start: 6 @55665 has 52 MA's), (13, 55629), (16, 55590), (21, 55530), (22, 55527), (31, 55446), (35, 55410), (37, 55380), (40, 55371),

Gene: Poland\_71 Start: 56981, Stop: 56628, Start Num: 6

Candidate Starts for Poland\_71:

(Start: 6 @56981 has 52 MA's), (12, 56948), (16, 56906), (19, 56879), (21, 56846), (22, 56843), (31, 56762), (35, 56726), (37, 56696), (40, 56687),

Gene: RemRem\_65 Start: 54416, Stop: 54063, Start Num: 6

Candidate Starts for RemRem\_65:

(Start: 6 @54416 has 52 MA's), (12, 54383), (16, 54341), (19, 54314), (21, 54281), (22, 54278), (31, 54197), (35, 54161), (37, 54131), (40, 54122),

Gene: RoyalG\_64 Start: 55137, Stop: 54784, Start Num: 6

Candidate Starts for RoyalG\_64:

(3, 55236), (Start: 6 @55137 has 52 MA's), (7, 55131), (9, 55119), (12, 55104), (13, 55101), (16, 55062), (17, 55056), (21, 55002), (22, 54999), (31, 54918), (35, 54882), (36, 54858), (37, 54852),

Gene: Sam12\_63 Start: 54440, Stop: 54087, Start Num: 6

Candidate Starts for Sam12\_63:

(3, 54533), (Start: 6 @54440 has 52 MA's), (12, 54407), (16, 54365), (21, 54305), (22, 54302), (31, 54221), (35, 54185), (37, 54155), (40, 54146),

Gene: Shelley\_62 Start: 54693, Stop: 54334, Start Num: 6

Candidate Starts for Shelley\_62:

(2, 54834), (Start: 6 @54693 has 52 MA's), (16, 54618), (17, 54612), (21, 54558), (22, 54555), (26, 54531), (32, 54459), (35, 54435), (36, 54411), (37, 54405),

Gene: Sombrero\_65 Start: 55007, Stop: 54654, Start Num: 6

Candidate Starts for Sombrero\_65:

(3, 55100), (Start: 6 @55007 has 52 MA's), (12, 54974), (16, 54932), (21, 54872), (22, 54869), (31, 54788), (35, 54752), (37, 54722), (40, 54713),

Gene: Squibbles\_63 Start: 55279, Stop: 54926, Start Num: 6

Candidate Starts for Squibbles\_63:

(3, 55372), (Start: 6 @55279 has 52 MA's), (12, 55246), (16, 55204), (21, 55144), (22, 55141), (31, 55060), (35, 55024), (37, 54994), (40, 54985),

Gene: SteveFrench\_63 Start: 55377, Stop: 55024, Start Num: 6

Candidate Starts for SteveFrench\_63:

(3, 55476), (Start: 6 @55377 has 52 MA's), (7, 55371), (9, 55359), (12, 55344), (13, 55341), (16, 55302), (17, 55296), (21, 55242), (22, 55239), (31, 55158), (35, 55122), (36, 55098), (37, 55092),

Gene: Sticker17\_62 Start: 55181, Stop: 54822, Start Num: 6

Candidate Starts for Sticker17\_62:

(2, 55322), (Start: 6 @55181 has 52 MA's), (16, 55106), (17, 55100), (21, 55046), (22, 55043), (26, 55019), (32, 54947), (35, 54923), (36, 54899), (37, 54893),

Gene: Teal\_62 Start: 55675, Stop: 55316, Start Num: 6

Candidate Starts for Teal\_62:

(2, 55816), (Start: 6 @55675 has 52 MA's), (16, 55600), (17, 55594), (21, 55540), (22, 55537), (26, 55513), (32, 55441), (35, 55417), (36, 55393), (37, 55387),

Gene: Teatealatte\_62 Start: 55666, Stop: 55358, Start Num: 8

Candidate Starts for Teatealatte\_62:

(Start: 8 @55666 has 9 MA's), (16, 55609), (21, 55549), (22, 55546), (25, 55528), (28, 55483), (30, 55477), (31, 55465), (32, 55453), (34, 55441), (36, 55405), (38, 55396), (39, 55393),

Gene: Teech\_60 Start: 55482, Stop: 55174, Start Num: 8

Candidate Starts for Teech\_60:

(4, 55602), (Start: 8 @55482 has 9 MA's), (16, 55425), (21, 55365), (22, 55362), (28, 55299), (30, 55293), (32, 55269), (34, 55257), (36, 55221), (38, 55212), (39, 55209),

Gene: Tredge\_61 Start: 55666, Stop: 55358, Start Num: 8

Candidate Starts for Tredge\_61:

(Start: 8 @55666 has 9 MA's), (16, 55609), (21, 55549), (22, 55546), (25, 55528), (28, 55483), (30, 55477), (31, 55465), (32, 55453), (34, 55441), (36, 55405), (38, 55396), (39, 55393),

Gene: Woes\_62 Start: 55726, Stop: 55367, Start Num: 6

Candidate Starts for Woes\_62:

(2, 55867), (Start: 6 @55726 has 52 MA's), (16, 55651), (17, 55645), (21, 55591), (22, 55588), (26, 55564), (32, 55492), (35, 55468), (36, 55444), (37, 55438),