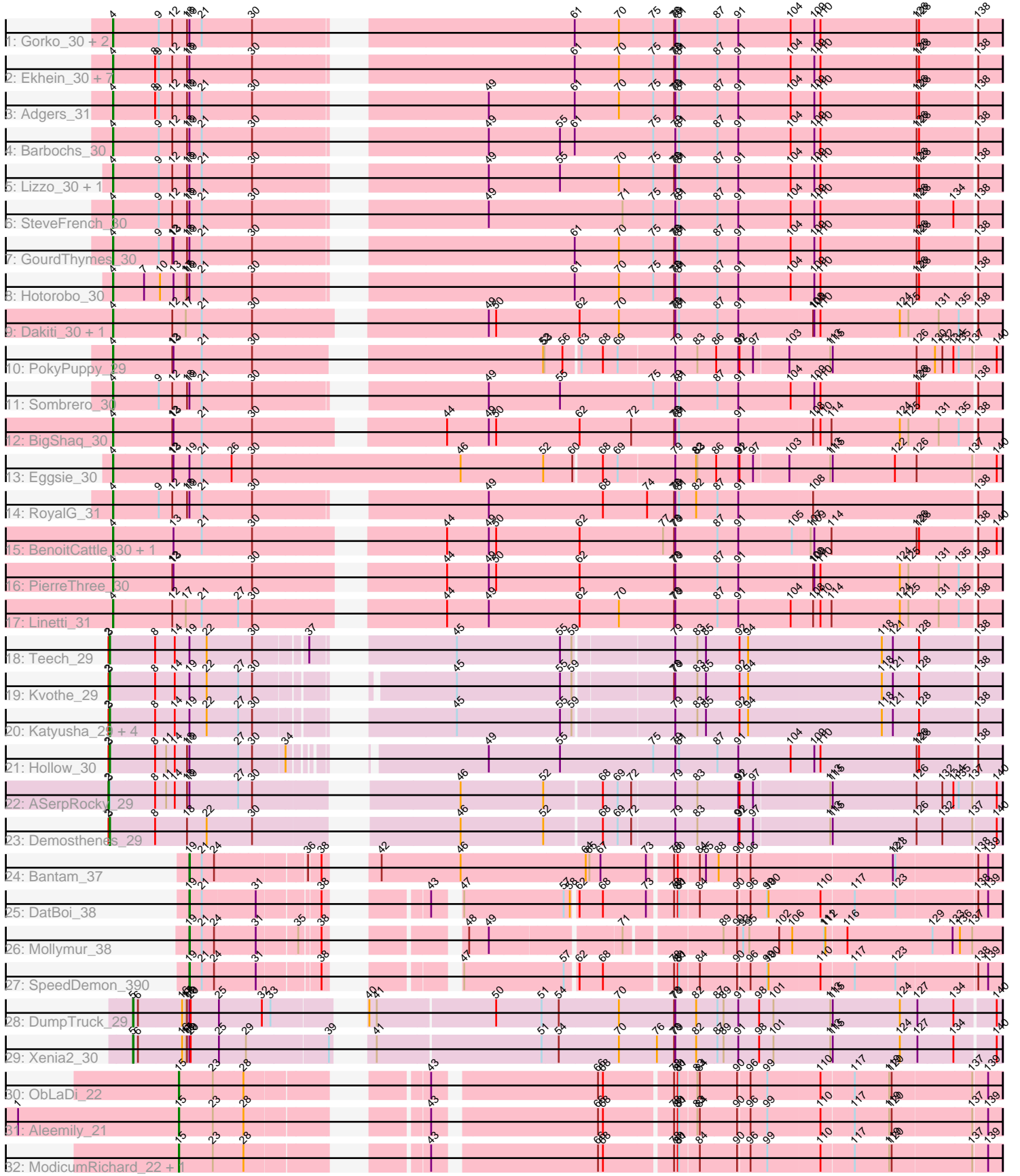


Pham 311703



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 311703 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311703 has 49 members, 3 are drafts.

Phages represented in each track:

- Track 1 : Gorko\_30, Monty\_29, Flakey\_30
- Track 2 : Ekhein\_30, Kelzog\_30, RemRem\_31, Squibbles\_30, Exiguo\_30, Breezic\_30, Sam12\_30, Worcestershire\_30
- Track 3 : Adgers\_31
- Track 4 : Barbochs\_30
- Track 5 : Lizzo\_30, CathyBurgh\_30
- Track 6 : SteveFrench\_30
- Track 7 : GourdThymes\_30
- Track 8 : Hotorobo\_30
- Track 9 : Dakiti\_30, Chelms\_30
- Track 10 : PokyPuppy\_29
- Track 11 : Sombrero\_30
- Track 12 : BigShaq\_30
- Track 13 : Eggsie\_30
- Track 14 : RoyalG\_31
- Track 15 : BenoitCattle\_30, Crete\_31
- Track 16 : PierreThree\_30
- Track 17 : Linetti\_31
- Track 18 : Teech\_29
- Track 19 : Kvothe\_29
- Track 20 : Katyusha\_29, Benczkowski14\_29, Teatealatte\_29, Tredge\_29, Niagara\_29
- Track 21 : Hollow\_30
- Track 22 : ASerpRocky\_29
- Track 23 : Demosthenes\_29
- Track 24 : Bantam\_37
- Track 25 : DatBoi\_38
- Track 26 : Mollymur\_38
- Track 27 : SpeedDemon\_390
- Track 28 : DumpTruck\_29
- Track 29 : Xenia2\_30
- Track 30 : ObLaDi\_22
- Track 31 : Aleemily\_21
- Track 32 : ModicumRichard\_22, Cafasso\_22

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

The start number called the most often in the published annotations is 4, it was called in 26 of the 46 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adgers\_31, Barbochs\_30, BenoitCattle\_30, BigShaq\_30, Breezic\_30, CathyBurgh\_30, Chelms\_30, Crete\_31, Dakiti\_30, Eggsie\_30, Ekhein\_30, Exiguo\_30, Flakey\_30, Gorko\_30, GourdThymes\_30, Hotorobo\_30, Kelzog\_30, Linetti\_31, Lizzo\_30, Monty\_29, PierreThree\_30, PokyPuppy\_29, RemRem\_31, RoyalG\_31, Sam12\_30, Sombrero\_30, Squibbles\_30, SteveFrench\_30, Worcestershire\_30,

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

- 

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

- ASerpRocky\_29, Aleemily\_21, Bantam\_37, Benczkowski14\_29, Cafasso\_22, DatBoi\_38, Demosthenes\_29, DumpTruck\_29, Hollow\_30, Katyusha\_29, Kvothe\_29, ModicumRichard\_22, Mollymur\_38, Niagara\_29, ObLaDi\_22, SpeedDemon\_390, Teatealatte\_29, Teech\_29, Tredge\_29, Xenia2\_30,

## **Summary by start number:**

Start 2:

- Found in 10 of 49 ( 20.4% ) of genes in pham
- Manual Annotations of this start: 1 of 46
- Called 10.0% of time when present
- Phage (with cluster) where this start called: ASerpRocky\_29 (CS4),

Start 3:

- Found in 10 of 49 ( 20.4% ) of genes in pham
- Manual Annotations of this start: 9 of 46
- Called 90.0% of time when present
- Phage (with cluster) where this start called: Benczkowski14\_29 (CS4), Demosthenes\_29 (CS4), Hollow\_30 (CS4), Katyusha\_29 (CS4), Kvothe\_29 (CS4), Niagara\_29 (CS4), Teatealatte\_29 (CS4), Teech\_29 (CS4), Tredge\_29 (CS4),

Start 4:

- Found in 29 of 49 ( 59.2% ) of genes in pham
- Manual Annotations of this start: 26 of 46
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adgers\_31 (CS2), Barbochs\_30 (CS2), BenoitCattle\_30 (CS2), BigShaq\_30 (CS2), Breezic\_30 (CS2), CathyBurgh\_30 (CS2), Chelms\_30 (CS2), Crete\_31 (CS2), Dakiti\_30 (CS2), Eggsie\_30 (CS2), Ekhein\_30 (CS2), Exiguo\_30 (CS2), Flakey\_30 (CS2), Gorko\_30 (CS2), GourdThymes\_30 (CS2), Hotorobo\_30 (CS2), Kelzog\_30 (CS2), Linetti\_31 (CS2), Lizzo\_30 (CS2), Monty\_29 (CS2), PierreThree\_30 (CS2), PokyPuppy\_29 (CS2), RemRem\_31 (CS2), RoyalG\_31 (CS2), Sam12\_30 (CS2), Sombrero\_30 (CS2), Squibbles\_30 (CS2), SteveFrench\_30 (CS2), Worcestershire\_30 (CS2),

Start 5:

- Found in 2 of 49 ( 4.1% ) of genes in pham
- Manual Annotations of this start: 2 of 46
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DumpTruck\_29 (DV), Xenia2\_30 (DV),

Start 15:

- Found in 4 of 49 ( 8.2% ) of genes in pham
- Manual Annotations of this start: 4 of 46
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aleemily\_21 (DZ), Cafasso\_22 (DZ), ModicumRichard\_22 (DZ), ObLaDi\_22 (DZ),

Start 19:

- Found in 36 of 49 ( 73.5% ) of genes in pham
- Manual Annotations of this start: 4 of 46
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Bantam\_37 (DL), DatBoi\_38 (DL), Mollymur\_38 (DL), SpeedDemon\_390 (DL),

### **Summary by clusters:**

There are 5 clusters represented in this pham: DV, CS4, DL, DZ, CS2,

Info for manual annotations of cluster CS2:

- Start number 4 was manually annotated 26 times for cluster CS2.

Info for manual annotations of cluster CS4:

- Start number 2 was manually annotated 1 time for cluster CS4.
- Start number 3 was manually annotated 9 times for cluster CS4.

Info for manual annotations of cluster DL:

- Start number 19 was manually annotated 4 times for cluster DL.

Info for manual annotations of cluster DV:

- Start number 5 was manually annotated 2 times for cluster DV.

Info for manual annotations of cluster DZ:

- Start number 15 was manually annotated 4 times for cluster DZ.

### **Gene Information:**

Gene: ASerpRocky\_29 Start: 36764, Stop: 38752, Start Num: 2

Candidate Starts for ASerpRocky\_29:

(Start: 2 @36764 has 1 MA's), (Start: 3 @36767 has 9 MA's), (8, 36872), (11, 36899), (14, 36917), (18, 36944), (Start: 19 @36950 has 4 MA's), (27, 37064), (30, 37097), (46, 37490), (52, 37688), (68, 37817), (69, 37853), (72, 37886), (79, 37988), (83, 38039), (91, 38138), (92, 38141), (97, 38174), (113, 38351), (115, 38357), (126, 38549), (132, 38612), (134, 38639), (135, 38651), (137, 38684), (140, 38738),

Gene: Adgers\_31 Start: 35244, Stop: 37241, Start Num: 4

Candidate Starts for Adgers\_31:

(Start: 4 @35244 has 26 MA's), (8, 35346), (9, 35355), (12, 35385), (18, 35418), (Start: 19 @35424 has 4 MA's), (21, 35454), (30, 35571), (49, 36033), (61, 36240), (70, 36345), (75, 36426), (78, 36477), (79, 36480), (81, 36489), (87, 36579), (91, 36627), (104, 36753), (109, 36807), (110, 36822), (126, 37047), (128, 37053), (138, 37182),

Gene: Aleemily\_21 Start: 19129, Stop: 20868, Start Num: 15

Candidate Starts for Aleemily\_21:

(1, 18736), (Start: 15 @19129 has 4 MA's), (23, 19210), (28, 19270), (43, 19588), (66, 19954), (68, 19966), (78, 20122), (80, 20131), (81, 20134), (83, 20173), (84, 20179), (90, 20269), (96, 20296), (99, 20332), (110, 20458), (117, 20533), (119, 20611), (120, 20617), (137, 20803), (139, 20836),

Gene: Bantam\_37 Start: 32917, Stop: 34665, Start Num: 19

Candidate Starts for Bantam\_37:

(Start: 19 @32917 has 4 MA's), (21, 32947), (24, 32974), (36, 33163), (38, 33190), (42, 33235), (46, 33424), (64, 33721), (65, 33730), (67, 33757), (73, 33865), (78, 33919), (80, 33928), (84, 33976), (85, 33991), (88, 34021), (90, 34066), (96, 34093), (121, 34417), (123, 34423), (138, 34609), (139, 34633),

Gene: Barbochs\_30 Start: 35082, Stop: 37079, Start Num: 4

Candidate Starts for Barbochs\_30:

(Start: 4 @35082 has 26 MA's), (9, 35193), (12, 35223), (18, 35256), (Start: 19 @35262 has 4 MA's), (21, 35292), (30, 35409), (49, 35871), (55, 36042), (61, 36078), (75, 36264), (79, 36318), (81, 36327), (87, 36417), (91, 36465), (104, 36591), (109, 36645), (110, 36660), (126, 36885), (128, 36891), (138, 37020),

Gene: Benczkowski14\_29 Start: 36845, Stop: 38806, Start Num: 3

Candidate Starts for Benczkowski14\_29:

(Start: 2 @36842 has 1 MA's), (Start: 3 @36845 has 9 MA's), (8, 36950), (14, 36995), (Start: 19 @37028 has 4 MA's), (22, 37070), (27, 37142), (30, 37175), (45, 37538), (55, 37787), (59, 37811), (79, 38042), (83, 38096), (85, 38117), (92, 38198), (94, 38219), (118, 38531), (121, 38558), (128, 38618), (138, 38747),

Gene: BenoitCattle\_30 Start: 35161, Stop: 37176, Start Num: 4

Candidate Starts for BenoitCattle\_30:

(Start: 4 @35161 has 26 MA's), (13, 35305), (21, 35371), (30, 35488), (44, 35872), (49, 35971), (50, 35989), (62, 36190), (77, 36388), (78, 36415), (79, 36418), (87, 36517), (91, 36565), (105, 36694), (107, 36736), (109, 36745), (114, 36787), (126, 36985), (128, 36991), (138, 37117), (140, 37162),

Gene: BigShaq\_30 Start: 35166, Stop: 37181, Start Num: 4

Candidate Starts for BigShaq\_30:

(Start: 4 @35166 has 26 MA's), (12, 35307), (13, 35310), (21, 35376), (30, 35493), (44, 35877), (49, 35976), (50, 35994), (62, 36195), (72, 36318), (78, 36420), (79, 36423), (81, 36432), (91, 36570), (108, 36747), (110, 36765), (114, 36792), (124, 36951), (125, 36972), (131, 37038), (135, 37086), (138, 37122),

Gene: Breezic\_30 Start: 35096, Stop: 37093, Start Num: 4

Candidate Starts for Breezic\_30:

(Start: 4 @35096 has 26 MA's), (8, 35198), (9, 35207), (12, 35237), (18, 35270), (Start: 19 @35276 has 4 MA's), (30, 35423), (61, 36092), (70, 36197), (75, 36278), (78, 36329), (79, 36332), (81, 36341), (87, 36431), (91, 36479), (104, 36605), (109, 36659), (110, 36674), (126, 36899), (128, 36905), (138, 37034),

Gene: Cafasso\_22 Start: 19701, Stop: 21440, Start Num: 15

Candidate Starts for Cafasso\_22:

(Start: 15 @19701 has 4 MA's), (23, 19782), (28, 19842), (43, 20160), (66, 20526), (68, 20538), (78, 20694), (80, 20703), (81, 20706), (84, 20751), (90, 20841), (96, 20868), (99, 20904), (110, 21030), (117, 21105), (119, 21183), (120, 21189), (137, 21375), (139, 21408),

Gene: CathyBurgh\_30 Start: 35950, Stop: 37947, Start Num: 4

Candidate Starts for CathyBurgh\_30:

(Start: 4 @35950 has 26 MA's), (9, 36061), (12, 36091), (18, 36124), (Start: 19 @36130 has 4 MA's), (21, 36160), (30, 36277), (49, 36739), (55, 36910), (70, 37051), (75, 37132), (78, 37183), (79, 37186), (81, 37195), (87, 37285), (91, 37333), (104, 37459), (109, 37513), (110, 37528), (126, 37753), (128, 37759), (138, 37888),

Gene: Chelms\_30 Start: 35169, Stop: 37184, Start Num: 4

Candidate Starts for Chelms\_30:

(Start: 4 @35169 has 26 MA's), (12, 35310), (17, 35340), (21, 35379), (30, 35496), (49, 35979), (50, 35997), (62, 36198), (70, 36291), (78, 36423), (79, 36426), (81, 36435), (87, 36525), (91, 36573), (108, 36750), (109, 36753), (110, 36768), (124, 36954), (125, 36975), (131, 37041), (135, 37089), (138, 37125),

Gene: Crete\_31 Start: 35432, Stop: 37447, Start Num: 4

Candidate Starts for Crete\_31:

(Start: 4 @35432 has 26 MA's), (13, 35576), (21, 35642), (30, 35759), (44, 36143), (49, 36242), (50, 36260), (62, 36461), (77, 36659), (78, 36686), (79, 36689), (87, 36788), (91, 36836), (105, 36965), (107, 37007), (109, 37016), (114, 37058), (126, 37256), (128, 37262), (138, 37388), (140, 37433),

Gene: Dakiti\_30 Start: 36037, Stop: 38052, Start Num: 4

Candidate Starts for Dakiti\_30:

(Start: 4 @36037 has 26 MA's), (12, 36178), (17, 36208), (21, 36247), (30, 36364), (49, 36847), (50, 36865), (62, 37066), (70, 37159), (78, 37291), (79, 37294), (81, 37303), (87, 37393), (91, 37441), (108, 37618), (109, 37621), (110, 37636), (124, 37822), (125, 37843), (131, 37909), (135, 37957), (138, 37993),

Gene: DatBoi\_38 Start: 33647, Stop: 35323, Start Num: 19

Candidate Starts for DatBoi\_38:

(Start: 19 @33647 has 4 MA's), (21, 33677), (31, 33788), (38, 33920), (43, 34061), (47, 34103), (57, 34343), (58, 34358), (62, 34367), (68, 34424), (73, 34526), (78, 34580), (80, 34589), (81, 34592), (84, 34637), (90, 34727), (96, 34754), (99, 34790), (100, 34793), (110, 34916), (117, 34991), (123, 35084), (138, 35267), (139, 35291),

Gene: Demosthenes\_29 Start: 36740, Stop: 38725, Start Num: 3

Candidate Starts for Demosthenes\_29:

(Start: 2 @36737 has 1 MA's), (Start: 3 @36740 has 9 MA's), (8, 36845), (18, 36917), (22, 36965), (30, 37070), (46, 37463), (52, 37661), (68, 37790), (69, 37826), (72, 37859), (79, 37961), (83, 38012), (91, 38111), (92, 38114), (97, 38147), (113, 38324), (115, 38330), (126, 38522), (132, 38585), (137, 38657), (140, 38711),

Gene: DumpTruck\_29 Start: 26034, Stop: 27992, Start Num: 5

Candidate Starts for DumpTruck\_29:

(Start: 5 @26034 has 2 MA's), (6, 26046), (16, 26151), (17, 26160), (18, 26163), (Start: 19 @26169 has 4 MA's), (20, 26172), (25, 26241), (32, 26346), (33, 26367), (40, 26514), (41, 26532), (50, 26811), (51, 26922), (54, 26958), (70, 27099), (78, 27234), (79, 27237), (82, 27285), (87, 27336), (89, 27351), (91, 27384), (98, 27435), (101, 27468), (113, 27603), (115, 27609), (124, 27765), (127, 27804), (134, 27888), (140, 27981),

Gene: Eggsie\_30 Start: 35106, Stop: 37196, Start Num: 4

Candidate Starts for Eggsie\_30:

(Start: 4 @35106 has 26 MA's), (12, 35247), (13, 35250), (Start: 19 @35286 has 4 MA's), (21, 35316), (26, 35385), (30, 35433), (46, 35934), (52, 36132), (60, 36201), (68, 36261), (69, 36297), (79, 36432), (82, 36480), (83, 36483), (86, 36528), (91, 36582), (92, 36585), (97, 36618), (103, 36699), (113, 36795), (115, 36801), (122, 36942), (126, 36993), (137, 37128), (140, 37182),

Gene: Ekhein\_30 Start: 35078, Stop: 37075, Start Num: 4

Candidate Starts for Ekhein\_30:

(Start: 4 @35078 has 26 MA's), (8, 35180), (9, 35189), (12, 35219), (18, 35252), (Start: 19 @35258 has 4 MA's), (30, 35405), (61, 36074), (70, 36179), (75, 36260), (78, 36311), (79, 36314), (81, 36323), (87, 36413), (91, 36461), (104, 36587), (109, 36641), (110, 36656), (126, 36881), (128, 36887), (138, 37016),

Gene: Exiguo\_30 Start: 35090, Stop: 37087, Start Num: 4

Candidate Starts for Exiguo\_30:

(Start: 4 @35090 has 26 MA's), (8, 35192), (9, 35201), (12, 35231), (18, 35264), (Start: 19 @35270 has 4 MA's), (30, 35417), (61, 36086), (70, 36191), (75, 36272), (78, 36323), (79, 36326), (81, 36335), (87, 36425), (91, 36473), (104, 36599), (109, 36653), (110, 36668), (126, 36893), (128, 36899), (138, 37028),

Gene: Flakey\_30 Start: 35954, Stop: 37951, Start Num: 4

Candidate Starts for Flakey\_30:

(Start: 4 @35954 has 26 MA's), (9, 36065), (12, 36095), (18, 36128), (Start: 19 @36134 has 4 MA's), (21, 36164), (30, 36281), (61, 36950), (70, 37055), (75, 37136), (78, 37187), (79, 37190), (81, 37199), (87, 37289), (91, 37337), (104, 37463), (109, 37517), (110, 37532), (126, 37757), (128, 37763), (138, 37892),

Gene: Gorko\_30 Start: 35082, Stop: 37079, Start Num: 4

Candidate Starts for Gorko\_30:

(Start: 4 @35082 has 26 MA's), (9, 35193), (12, 35223), (18, 35256), (Start: 19 @35262 has 4 MA's), (21, 35292), (30, 35409), (61, 36078), (70, 36183), (75, 36264), (78, 36315), (79, 36318), (81, 36327), (87, 36417), (91, 36465), (104, 36591), (109, 36645), (110, 36660), (126, 36885), (128, 36891), (138, 37020),

Gene: GourdThymes\_30 Start: 35956, Stop: 37953, Start Num: 4

Candidate Starts for GourdThymes\_30:

(Start: 4 @35956 has 26 MA's), (9, 36067), (12, 36097), (13, 36100), (18, 36130), (Start: 19 @36136 has 4 MA's), (21, 36166), (30, 36283), (61, 36952), (70, 37057), (75, 37138), (78, 37189), (79, 37192), (81, 37201), (87, 37291), (91, 37339), (104, 37465), (109, 37519), (110, 37534), (126, 37759), (128, 37765), (138, 37894),

Gene: Hollow\_30 Start: 37188, Stop: 39122, Start Num: 3

Candidate Starts for Hollow\_30:

(Start: 2 @37185 has 1 MA's), (Start: 3 @37188 has 9 MA's), (8, 37293), (11, 37320), (14, 37338), (18, 37365), (Start: 19 @37371 has 4 MA's), (27, 37485), (30, 37518), (34, 37590), (49, 37914), (55, 38085), (75, 38307), (79, 38361), (81, 38370), (87, 38460), (91, 38508), (104, 38634), (109, 38688), (110, 38703), (126, 38928), (128, 38934), (138, 39063),

Gene: Hotorobo\_30 Start: 35961, Stop: 37958, Start Num: 4

Candidate Starts for Hotorobo\_30:

(Start: 4 @35961 has 26 MA's), (7, 36036), (10, 36075), (13, 36105), (17, 36132), (18, 36135), (Start: 19 @36141 has 4 MA's), (21, 36171), (30, 36288), (61, 36957), (70, 37062), (75, 37143), (78, 37194),

(79, 37197), (81, 37206), (87, 37296), (91, 37344), (104, 37470), (109, 37524), (110, 37539), (126, 37764), (128, 37770), (138, 37899),

Gene: Katyusha\_29 Start: 36845, Stop: 38806, Start Num: 3

Candidate Starts for Katyusha\_29:

(Start: 2 @36842 has 1 MA's), (Start: 3 @36845 has 9 MA's), (8, 36950), (14, 36995), (Start: 19 @37028 has 4 MA's), (22, 37070), (27, 37142), (30, 37175), (45, 37538), (55, 37787), (59, 37811), (79, 38042), (83, 38096), (85, 38117), (92, 38198), (94, 38219), (118, 38531), (121, 38558), (128, 38618), (138, 38747),

Gene: Kelzog\_30 Start: 35968, Stop: 37965, Start Num: 4

Candidate Starts for Kelzog\_30:

(Start: 4 @35968 has 26 MA's), (8, 36070), (9, 36079), (12, 36109), (18, 36142), (Start: 19 @36148 has 4 MA's), (30, 36295), (61, 36964), (70, 37069), (75, 37150), (78, 37201), (79, 37204), (81, 37213), (87, 37303), (91, 37351), (104, 37477), (109, 37531), (110, 37546), (126, 37771), (128, 37777), (138, 37906),

Gene: Kvothe\_29 Start: 36765, Stop: 38705, Start Num: 3

Candidate Starts for Kvothe\_29:

(Start: 2 @36762 has 1 MA's), (Start: 3 @36765 has 9 MA's), (8, 36870), (14, 36915), (Start: 19 @36948 has 4 MA's), (22, 36990), (27, 37062), (30, 37095), (45, 37437), (55, 37686), (59, 37710), (78, 37938), (79, 37941), (83, 37995), (85, 38016), (92, 38097), (94, 38118), (118, 38430), (121, 38457), (128, 38517), (138, 38646),

Gene: Linetti\_31 Start: 36163, Stop: 38178, Start Num: 4

Candidate Starts for Linetti\_31:

(Start: 4 @36163 has 26 MA's), (12, 36304), (17, 36334), (21, 36373), (27, 36457), (30, 36490), (44, 36874), (49, 36973), (62, 37192), (70, 37285), (78, 37417), (79, 37420), (87, 37519), (91, 37567), (104, 37693), (108, 37744), (110, 37762), (114, 37789), (124, 37948), (125, 37969), (131, 38035), (135, 38083), (138, 38119),

Gene: Lizzo\_30 Start: 35950, Stop: 37947, Start Num: 4

Candidate Starts for Lizzo\_30:

(Start: 4 @35950 has 26 MA's), (9, 36061), (12, 36091), (18, 36124), (Start: 19 @36130 has 4 MA's), (21, 36160), (30, 36277), (49, 36739), (55, 36910), (70, 37051), (75, 37132), (78, 37183), (79, 37186), (81, 37195), (87, 37285), (91, 37333), (104, 37459), (109, 37513), (110, 37528), (126, 37753), (128, 37759), (138, 37888),

Gene: ModicumRichard\_22 Start: 19702, Stop: 21441, Start Num: 15

Candidate Starts for ModicumRichard\_22:

(Start: 15 @19702 has 4 MA's), (23, 19783), (28, 19843), (43, 20161), (66, 20527), (68, 20539), (78, 20695), (80, 20704), (81, 20707), (84, 20752), (90, 20842), (96, 20869), (99, 20905), (110, 21031), (117, 21106), (119, 21184), (120, 21190), (137, 21376), (139, 21409),

Gene: Mollymur\_38 Start: 34128, Stop: 35807, Start Num: 19

Candidate Starts for Mollymur\_38:

(Start: 19 @34128 has 4 MA's), (21, 34158), (24, 34185), (31, 34269), (35, 34359), (38, 34401), (48, 34599), (49, 34644), (71, 34932), (89, 35136), (90, 35169), (93, 35184), (95, 35199), (102, 35271), (106, 35301), (111, 35379), (112, 35382), (116, 35430), (129, 35637), (133, 35685), (136, 35703), (137, 35733),

Gene: Monty\_29 Start: 35100, Stop: 37097, Start Num: 4

Candidate Starts for Monty\_29:

(Start: 4 @35100 has 26 MA's), (9, 35211), (12, 35241), (18, 35274), (Start: 19 @35280 has 4 MA's), (21, 35310), (30, 35427), (61, 36096), (70, 36201), (75, 36282), (78, 36333), (79, 36336), (81, 36345), (87, 36435), (91, 36483), (104, 36609), (109, 36663), (110, 36678), (126, 36903), (128, 36909), (138, 37038),

Gene: Niagara\_29 Start: 36802, Stop: 38763, Start Num: 3

Candidate Starts for Niagara\_29:

(Start: 2 @36799 has 1 MA's), (Start: 3 @36802 has 9 MA's), (8, 36907), (14, 36952), (Start: 19 @36985 has 4 MA's), (22, 37027), (27, 37099), (30, 37132), (45, 37495), (55, 37744), (59, 37768), (79, 37999), (83, 38053), (85, 38074), (92, 38155), (94, 38176), (118, 38488), (121, 38515), (128, 38575), (138, 38704),

Gene: ObLaDi\_22 Start: 19681, Stop: 21420, Start Num: 15

Candidate Starts for ObLaDi\_22:

(Start: 15 @19681 has 4 MA's), (23, 19762), (28, 19822), (43, 20140), (66, 20506), (68, 20518), (78, 20674), (80, 20683), (81, 20686), (83, 20725), (84, 20731), (90, 20821), (96, 20848), (99, 20884), (110, 21010), (117, 21085), (119, 21163), (120, 21169), (137, 21355), (139, 21388),

Gene: PierreThree\_30 Start: 36034, Stop: 38049, Start Num: 4

Candidate Starts for PierreThree\_30:

(Start: 4 @36034 has 26 MA's), (12, 36175), (13, 36178), (30, 36361), (44, 36745), (49, 36844), (50, 36862), (62, 37063), (78, 37288), (79, 37291), (87, 37390), (91, 37438), (108, 37615), (109, 37618), (110, 37633), (124, 37819), (125, 37840), (131, 37906), (135, 37954), (138, 37990),

Gene: PokyPuppy\_29 Start: 35986, Stop: 37971, Start Num: 4

Candidate Starts for PokyPuppy\_29:

(Start: 4 @35986 has 26 MA's), (12, 36127), (13, 36130), (21, 36196), (30, 36313), (52, 36907), (53, 36910), (56, 36952), (63, 36988), (68, 37036), (69, 37072), (79, 37207), (83, 37258), (86, 37303), (91, 37357), (92, 37360), (97, 37393), (103, 37474), (113, 37570), (115, 37576), (126, 37768), (130, 37813), (132, 37831), (134, 37858), (135, 37870), (137, 37903), (140, 37957),

Gene: RemRem\_31 Start: 35090, Stop: 37087, Start Num: 4

Candidate Starts for RemRem\_31:

(Start: 4 @35090 has 26 MA's), (8, 35192), (9, 35201), (12, 35231), (18, 35264), (Start: 19 @35270 has 4 MA's), (30, 35417), (61, 36086), (70, 36191), (75, 36272), (78, 36323), (79, 36326), (81, 36335), (87, 36425), (91, 36473), (104, 36599), (109, 36653), (110, 36668), (126, 36893), (128, 36899), (138, 37028),

Gene: RoyalG\_31 Start: 35588, Stop: 37576, Start Num: 4

Candidate Starts for RoyalG\_31:

(Start: 4 @35588 has 26 MA's), (9, 35699), (12, 35729), (18, 35762), (Start: 19 @35768 has 4 MA's), (21, 35798), (30, 35915), (49, 36377), (68, 36647), (74, 36752), (78, 36818), (79, 36821), (81, 36830), (82, 36869), (87, 36920), (91, 36968), (108, 37145), (138, 37520),

Gene: Sam12\_30 Start: 35090, Stop: 37087, Start Num: 4

Candidate Starts for Sam12\_30:

(Start: 4 @35090 has 26 MA's), (8, 35192), (9, 35201), (12, 35231), (18, 35264), (Start: 19 @35270 has 4 MA's), (30, 35417), (61, 36086), (70, 36191), (75, 36272), (78, 36323), (79, 36326), (81, 36335), (87, 36425), (91, 36473), (104, 36599), (109, 36653), (110, 36668), (126, 36893), (128, 36899), (138, 37028),

Gene: Sombrero\_30 Start: 35092, Stop: 37089, Start Num: 4

Candidate Starts for Sombrero\_30:

(Start: 4 @35092 has 26 MA's), (9, 35203), (12, 35233), (18, 35266), (Start: 19 @35272 has 4 MA's), (21, 35302), (30, 35419), (49, 35881), (55, 36052), (75, 36274), (79, 36328), (81, 36337), (87, 36427), (91, 36475), (104, 36601), (109, 36655), (110, 36670), (126, 36895), (128, 36901), (138, 37030),

Gene: SpeedDemon\_390 Start: 34766, Stop: 36442, Start Num: 19

Candidate Starts for SpeedDemon\_390:

(Start: 19 @34766 has 4 MA's), (21, 34796), (24, 34823), (31, 34907), (38, 35039), (47, 35222), (57, 35462), (62, 35486), (68, 35543), (78, 35699), (80, 35708), (81, 35711), (84, 35756), (90, 35846), (96, 35873), (99, 35909), (100, 35912), (110, 36035), (117, 36110), (123, 36203), (138, 36386), (139, 36410),

Gene: Squibbles\_30 Start: 35953, Stop: 37950, Start Num: 4

Candidate Starts for Squibbles\_30:

(Start: 4 @35953 has 26 MA's), (8, 36055), (9, 36064), (12, 36094), (18, 36127), (Start: 19 @36133 has 4 MA's), (30, 36280), (61, 36949), (70, 37054), (75, 37135), (78, 37186), (79, 37189), (81, 37198), (87, 37288), (91, 37336), (104, 37462), (109, 37516), (110, 37531), (126, 37756), (128, 37762), (138, 37891),

Gene: SteveFrench\_30 Start: 35811, Stop: 37808, Start Num: 4

Candidate Starts for SteveFrench\_30:

(Start: 4 @35811 has 26 MA's), (9, 35922), (12, 35952), (18, 35985), (Start: 19 @35991 has 4 MA's), (21, 36021), (30, 36138), (49, 36600), (71, 36921), (75, 36993), (79, 37047), (81, 37056), (87, 37146), (91, 37194), (104, 37320), (109, 37374), (110, 37389), (126, 37614), (128, 37620), (134, 37701), (138, 37749),

Gene: Teatealatte\_29 Start: 36747, Stop: 38708, Start Num: 3

Candidate Starts for Teatealatte\_29:

(Start: 2 @36744 has 1 MA's), (Start: 3 @36747 has 9 MA's), (8, 36852), (14, 36897), (Start: 19 @36930 has 4 MA's), (22, 36972), (27, 37044), (30, 37077), (45, 37440), (55, 37689), (59, 37713), (79, 37944), (83, 37998), (85, 38019), (92, 38100), (94, 38121), (118, 38433), (121, 38460), (128, 38520), (138, 38649),

Gene: Teech\_29 Start: 36548, Stop: 38509, Start Num: 3

Candidate Starts for Teech\_29:

(Start: 2 @36545 has 1 MA's), (Start: 3 @36548 has 9 MA's), (8, 36653), (14, 36698), (Start: 19 @36731 has 4 MA's), (22, 36773), (30, 36878), (37, 36986), (45, 37241), (55, 37490), (59, 37514), (79, 37745), (83, 37799), (85, 37820), (92, 37901), (94, 37922), (118, 38234), (121, 38261), (128, 38321), (138, 38450),

Gene: Tredge\_29 Start: 36747, Stop: 38708, Start Num: 3

Candidate Starts for Tredge\_29:

(Start: 2 @36744 has 1 MA's), (Start: 3 @36747 has 9 MA's), (8, 36852), (14, 36897), (Start: 19 @36930 has 4 MA's), (22, 36972), (27, 37044), (30, 37077), (45, 37440), (55, 37689), (59, 37713), (79, 37944), (83, 37998), (85, 38019), (92, 38100), (94, 38121), (118, 38433), (121, 38460), (128, 38520), (138, 38649),

Gene: Worcestershire\_30 Start: 35092, Stop: 37089, Start Num: 4

Candidate Starts for Worcestershire\_30:

(Start: 4 @35092 has 26 MA's), (8, 35194), (9, 35203), (12, 35233), (18, 35266), (Start: 19 @35272 has 4 MA's), (30, 35419), (61, 36088), (70, 36193), (75, 36274), (78, 36325), (79, 36328), (81, 36337), (87, 36427), (91, 36475), (104, 36601), (109, 36655), (110, 36670), (126, 36895), (128, 36901), (138, 37030),

Gene: Xenia2\_30 Start: 26076, Stop: 28034, Start Num: 5

Candidate Starts for Xenia2\_30:

(Start: 5 @26076 has 2 MA's), (6, 26088), (16, 26193), (17, 26202), (18, 26205), (Start: 19 @26211 has 4 MA's), (20, 26214), (25, 26283), (29, 26349), (39, 26544), (41, 26574), (51, 26964), (54, 27000), (70, 27141), (76, 27234), (78, 27276), (79, 27279), (82, 27327), (87, 27378), (89, 27393), (91, 27426), (98, 27477), (101, 27510), (113, 27645), (115, 27651), (124, 27807), (127, 27846), (134, 27930), (140, 28023),