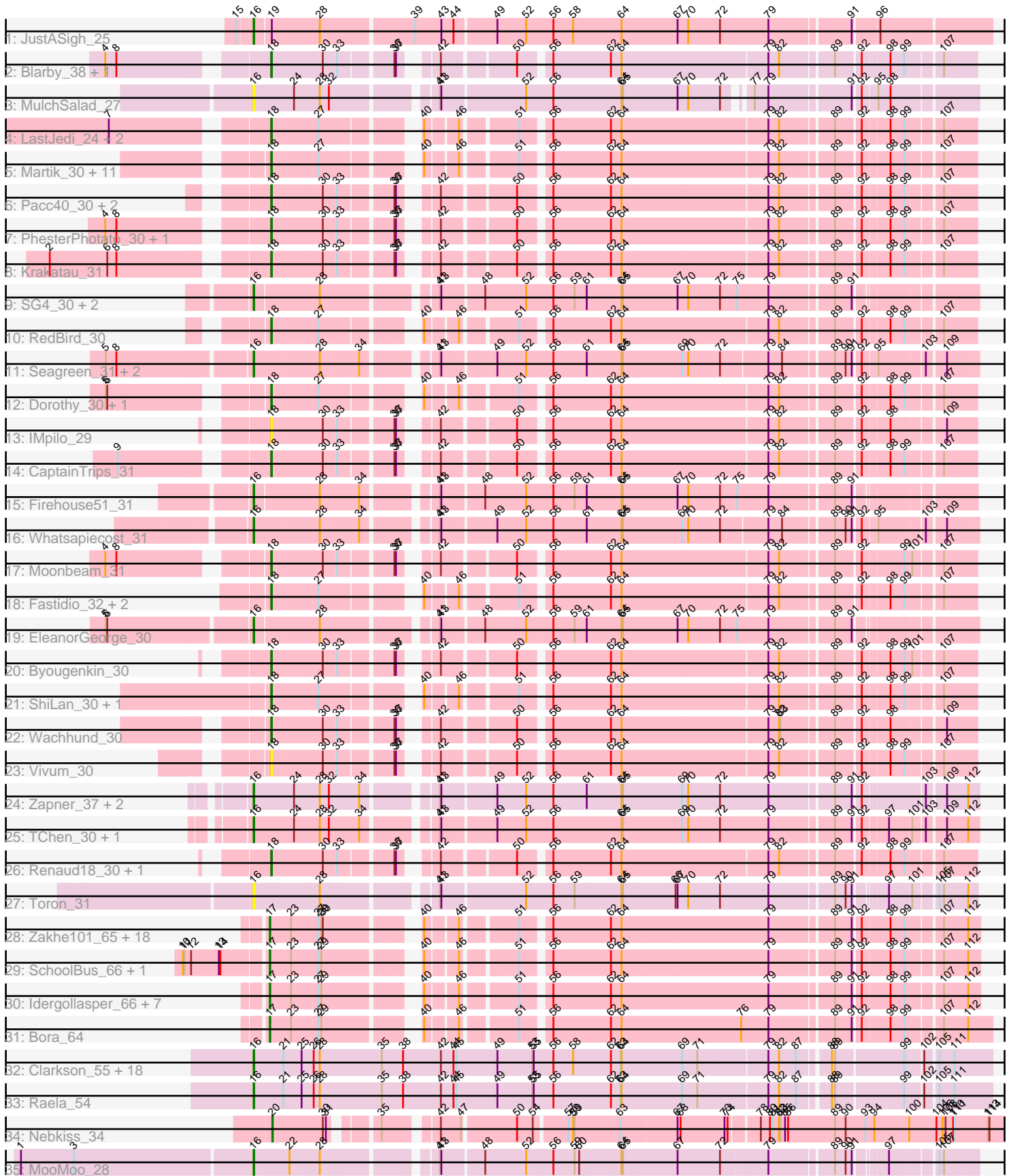


Pham 202814



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 202814 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202814 has 108 members, 11 are drafts.

Phages represented in each track:

- Track 1 : JustASigh\_25
- Track 2 : Blarby\_38, XFactor\_30
- Track 3 : MulchSalad\_27
- Track 4 : LastJedi\_24, Koella\_24, Clifton\_24
- Track 5 : Martik\_30, SwagPiggett\_30, Zizzle\_30, Maravista\_30, NormanBulbieJr\_30, ByChance\_30, Nivrat\_30, ShowerHandel\_30, Yorick\_30, LilMoolah\_30, Burwell21\_30, Lizziana\_30
- Track 6 : Pacc40\_30, Blexus\_30, Leperchaun\_30
- Track 7 : PhesterPhotato\_30, Phalconet\_30
- Track 8 : Krakatau\_31
- Track 9 : SG4\_30, Enby\_31, Lorde\_31
- Track 10 : RedBird\_30
- Track 11 : Seagreen\_31, SassyB\_30, PopTart\_30
- Track 12 : Dorothy\_30, DaddyRickover\_30
- Track 13 : IMpilo\_29
- Track 14 : CaptainTrips\_31
- Track 15 : Firehouse51\_31
- Track 16 : Whatsapiecost\_31
- Track 17 : Moonbeam\_31
- Track 18 : Fastidio\_32, SiSi\_30, DillTech15\_30
- Track 19 : EleanorGeorge\_30
- Track 20 : Byougenkin\_30
- Track 21 : ShiLan\_30, Jarcob\_30
- Track 22 : Wachhund\_30
- Track 23 : Vivum\_30
- Track 24 : Zapner\_37, Jabbawokkie\_38, Demsculpinboyz\_35
- Track 25 : TChen\_30, LunaStella\_32
- Track 26 : Renaud18\_30, Chuckly\_30
- Track 27 : Toron\_31
- Track 28 : Zakhe101\_65, FoulBall\_66, Winget\_67, Vagabond\_66, Wildflower\_66, Firecracker\_67, Dylan\_66, Smooch\_69, Alkhayr\_64, Shida\_66, YungJamal\_71, Ryadel\_70, Corndog\_69, Vorrps\_66, Ashwin\_68, Murai\_67, Krili\_65, Mori\_66, NiebruSaylor\_65
- Track 29 : SchoolBus\_66, Familton\_67
- Track 30 : Idergollasper\_66, Schuy\_67, TelAviv\_63, Blessica\_67, JangDynasty\_66, Catdawg\_66, MadKillah\_67, Zebo\_65
- Track 31 : Bora\_64

- Track 32 : Clarkson\_55, Pringar\_54, Blackbeetle\_54, JoieB\_55, GoongGoong\_53, Marvin\_51, VasuNzinga\_54, Gattaca\_53, MosMoris\_52, Caprice\_51, FeliMaine\_56, Tesla\_52, Poise\_54, LittleLaf\_54, Lilbit\_55, Huphlepuuff\_56, Beelzebub\_58, RedRaider77\_53, Corazon\_52
- Track 33 : Raela\_54
- Track 34 : Nebkiss\_34
- Track 35 : MooMoo\_28

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

The start number called the most often in the published annotations is 18, it was called in 35 of the 97 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Blarby\_38, Blexus\_30, Burwell21\_30, ByChance\_30, Byougenkin\_30, CaptainTrips\_31, Chuckly\_30, Clifton\_24, DaddyRickover\_30, DillTech15\_30, Dorothy\_30, Fastidio\_32, IMpilo\_29, Jarcob\_30, Koella\_24, Krakatau\_31, LastJedi\_24, Leperchaun\_30, LilMoolah\_30, Lizziana\_30, Maravista\_30, Martik\_30, Moonbeam\_31, Nivrat\_30, NormanBulbieJr\_30, Pacc40\_30, Phalconet\_30, PhesterPhotato\_30, RedBird\_30, Renaud18\_30, ShiLan\_30, ShowerHandel\_30, SiSi\_30, SwagPigglett\_30, Vivum\_30, Wachhund\_30, XFactor\_30, Yorick\_30, Zizzle\_30,

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

- 

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

- Alkhayr\_64, Ashwin\_68, Beelzebub\_58, Blackbeetle\_54, Blessica\_67, Bora\_64, Caprice\_51, Catdawg\_66, Clarkson\_55, Corazon\_52, Corndog\_69, Demsculpinboyz\_35, Dylan\_66, EleanorGeorge\_30, Enby\_31, Familton\_67, FeliMaine\_56, Firecracker\_67, Firehouse51\_31, FoulBall\_66, Gattaca\_53, GoongGoong\_53, Huphlepuuff\_56, Idergollasper\_66, Jabbawokkie\_38, JangDynasty\_66, JoieB\_55, JustASigh\_25, Krili\_65, Lilbit\_55, LittleLaf\_54, Lorde\_31, LunaStella\_32, MadKillah\_67, Marvin\_51, MooMoo\_28, Mori\_66, MosMoris\_52, MulchSalad\_27, Murai\_67, Nebkiss\_34, NiebruSaylor\_65, Poise\_54, PopTart\_30, Pringar\_54, Raela\_54, RedRaider77\_53, Ryadel\_70, SG4\_30, SassyB\_30, SchoolBus\_66, Schuy\_67, Seagreen\_31, Shida\_66, Smooch\_69, TChen\_30, TelAviv\_63, Tesla\_52, Toron\_31, Vagabond\_66, VasuNzinga\_54, Vorrps\_66, Whatsapiecost\_31, Wildflower\_66, Winget\_67, YungJamal\_71, Zakhe101\_65, Zapner\_37, Zebo\_65,

**Summary by start number:**

Start 16:

- Found in 38 of 108 ( 35.2% ) of genes in pham
- Manual Annotations of this start: 33 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beelzebub\_58 (S), Blackbeetle\_54 (S), Caprice\_51 (S), Clarkson\_55 (S), Corazon\_52 (S), Demsculpinboyz\_35 (F2), EleanorGeorge\_30 (F1), Enby\_31 (F1), FeliMaine\_56 (S), Firehouse51\_31 (F1),

Gattaca\_53 (S), GoongGoong\_53 (S), Huphlepuuff\_56 (S), Jabbawokkie\_38 (F2), JoieB\_55 (S), JustASigh\_25 (AH), Lilbit\_55 (S), LittleLaf\_54 (S), Lorde\_31 (F1), LunaStella\_32 (F4), Marvin\_51 (S), MooMoo\_28 (singleton), MosMoris\_52 (S), MulchSalad\_27 (F), Poise\_54 (S), PopTart\_30 (F1), Pringar\_54 (S), Raela\_54 (S), RedRaider77\_53 (S), SG4\_30 (F1), SassyB\_30 (F1), Seagreen\_31 (F1), TChen\_30 (F4), Tesla\_52 (S), Toron\_31 (F6), VasuNzinga\_54 (S), Whatsapiecost\_31 (F1), Zapner\_37 (F2),

Start 17:

- Found in 30 of 108 ( 27.8% ) of genes in pham
- Manual Annotations of this start: 28 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alkhayr\_64 (O), Ashwin\_68 (O), Blessica\_67 (O), Bora\_64 (O), Catdawg\_66 (O), Corndog\_69 (O), Dylan\_66 (O), Familton\_67 (O), Firecracker\_67 (O), FoulBall\_66 (O), Idergollasper\_66 (O), JangDynasty\_66 (O), Krili\_65 (O), MadKillah\_67 (O), Mori\_66 (O), Murai\_67 (O), NiebruSaylor\_65 (O), Ryadel\_70 (O), SchoolBus\_66 (O), Schuy\_67 (O), Shida\_66 (O), Smooch\_69 (O), TelAviv\_63 (O), Vagabond\_66 (O), Vorrps\_66 (O), Wildflower\_66 (O), Winget\_67 (O), YungJamal\_71 (O), Zakhe101\_65 (O), Zebo\_65 (O),

Start 18:

- Found in 39 of 108 ( 36.1% ) of genes in pham
- Manual Annotations of this start: 35 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Blarby\_38 (F), Blexus\_30 (F1), Burwell21\_30 (F1), ByChance\_30 (F1), Byougenkin\_30 (F1), CaptainTrips\_31 (F1), Chuckly\_30 (F1), Clifton\_24 (F1), DaddyRickover\_30 (F1), DillTech15\_30 (F1), Dorothy\_30 (F1), Fastidio\_32 (F1), IMpilo\_29 (F1), Jarcob\_30 (F1), Koella\_24 (F1), Krakatau\_31 (F1), LastJedi\_24 (F1), Leperchaun\_30 (F1), LilMoolah\_30 (F1), Lizziana\_30 (F1), Maravista\_30 (F1), Martik\_30 (F1), Moonbeam\_31 (F1), Nivrat\_30 (F1), NormanBulbieJr\_30 (F1), Pacc40\_30 (F1), Phalconet\_30 (F1), PhesterPhotato\_30 (F1), RedBird\_30 (F1), Renaud18\_30 (F4), ShiLan\_30 (F1), ShowerHandel\_30 (F1), SiSi\_30 (F1), SwagPigglett\_30 (F1), Vivum\_30 (F1), Wachhund\_30 (F1), XFactor\_30 (F1), Yorick\_30 (F1), Zizzle\_30 (F1),

Start 20:

- Found in 1 of 108 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Nebkiss\_34 (X),

### Summary by clusters:

There are 10 clusters represented in this pham: F1, F2, F4, F6, F, AH, singleton, O, S, X,

Info for manual annotations of cluster AH:

- Start number 16 was manually annotated 1 time for cluster AH.

Info for manual annotations of cluster F1:

- Start number 16 was manually annotated 9 times for cluster F1.

- Start number 18 was manually annotated 34 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 16 was manually annotated 3 times for cluster F2.

Info for manual annotations of cluster F4:

- Start number 16 was manually annotated 2 times for cluster F4.
- Start number 18 was manually annotated 1 time for cluster F4.

Info for manual annotations of cluster O:

- Start number 17 was manually annotated 28 times for cluster O.

Info for manual annotations of cluster S:

- Start number 16 was manually annotated 17 times for cluster S.

Info for manual annotations of cluster X:

- Start number 20 was manually annotated 1 time for cluster X.

### **Gene Information:**

Gene: Alkhayr\_64 Start: 41911, Stop: 43131, Start Num: 17

Candidate Starts for Alkhayr\_64:

(Start: 17 @41911 has 28 MA's), (23, 41947), (27, 41998), (29, 42004), (30, 42007), (40, 42154), (46, 42208), (51, 42301), (56, 42349), (62, 42457), (64, 42478), (79, 42766), (89, 42883), (91, 42916), (92, 42928), (98, 42979), (99, 43003), (107, 43063), (112, 43108),

Gene: Ashwin\_68 Start: 42681, Stop: 43901, Start Num: 17

Candidate Starts for Ashwin\_68:

(Start: 17 @42681 has 28 MA's), (23, 42717), (27, 42768), (29, 42774), (30, 42777), (40, 42924), (46, 42978), (51, 43071), (56, 43119), (62, 43227), (64, 43248), (79, 43536), (89, 43653), (91, 43686), (92, 43698), (98, 43749), (99, 43773), (107, 43833), (112, 43878),

Gene: Beelzebub\_58 Start: 30975, Stop: 32354, Start Num: 16

Candidate Starts for Beelzebub\_58:

(Start: 16 @30975 has 33 MA's), (21, 31032), (25, 31068), (26, 31092), (28, 31104), (35, 31227), (38, 31269), (42, 31341), (44, 31365), (45, 31371), (49, 31452), (53, 31521), (55, 31524), (56, 31560), (58, 31596), (62, 31668), (63, 31686), (64, 31689), (69, 31806), (71, 31836), (79, 31968), (82, 31989), (87, 32022), (88, 32076), (89, 32082), (99, 32202), (102, 32232), (105, 32253), (111, 32283),

Gene: Blackbeetle\_54 Start: 30021, Stop: 31400, Start Num: 16

Candidate Starts for Blackbeetle\_54:

(Start: 16 @30021 has 33 MA's), (21, 30078), (25, 30114), (26, 30138), (28, 30150), (35, 30273), (38, 30315), (42, 30387), (44, 30411), (45, 30417), (49, 30498), (53, 30567), (55, 30570), (56, 30606), (58, 30642), (62, 30714), (63, 30732), (64, 30735), (69, 30852), (71, 30882), (79, 31014), (82, 31035), (87, 31068), (88, 31122), (89, 31128), (99, 31248), (102, 31278), (105, 31299), (111, 31329),

Gene: Blarby\_38 Start: 26777, Stop: 27985, Start Num: 18

Candidate Starts for Blarby\_38:

(4, 26501), (8, 26522), (Start: 18 @26777 has 35 MA's), (30, 26873), (33, 26897), (36, 26990), (37, 26993), (42, 27038), (50, 27167), (56, 27218), (62, 27329), (64, 27350), (79, 27632), (82, 27653), (89,

27749), (92, 27794), (98, 27839), (99, 27863), (107, 27923),

Gene: Blessica\_67 Start: 42510, Stop: 43730, Start Num: 17

Candidate Starts for Blessica\_67:

(Start: 17 @42510 has 28 MA's), (23, 42546), (27, 42597), (29, 42603), (40, 42753), (46, 42807), (51, 42900), (56, 42948), (62, 43056), (64, 43077), (79, 43365), (89, 43482), (91, 43515), (92, 43527), (98, 43578), (99, 43602), (107, 43662), (112, 43707),

Gene: Blexus\_30 Start: 26628, Stop: 27836, Start Num: 18

Candidate Starts for Blexus\_30:

(Start: 18 @26628 has 35 MA's), (30, 26724), (33, 26748), (36, 26841), (37, 26844), (42, 26889), (50, 27018), (56, 27069), (62, 27180), (64, 27201), (79, 27483), (82, 27504), (89, 27600), (92, 27645), (98, 27690), (99, 27714), (107, 27774),

Gene: Bora\_64 Start: 41867, Stop: 43111, Start Num: 17

Candidate Starts for Bora\_64:

(Start: 17 @41867 has 28 MA's), (23, 41903), (27, 41954), (29, 41960), (40, 42110), (46, 42164), (51, 42257), (56, 42305), (62, 42413), (64, 42434), (76, 42668), (79, 42722), (89, 42839), (91, 42872), (92, 42884), (98, 42935), (99, 42959), (107, 43019), (112, 43064),

Gene: Burwell21\_30 Start: 26501, Stop: 27697, Start Num: 18

Candidate Starts for Burwell21\_30:

(Start: 18 @26501 has 35 MA's), (27, 26585), (40, 26735), (46, 26789), (51, 26882), (56, 26930), (62, 27041), (64, 27062), (79, 27344), (82, 27365), (89, 27461), (92, 27506), (98, 27551), (99, 27575), (107, 27635),

Gene: ByChance\_30 Start: 26478, Stop: 27674, Start Num: 18

Candidate Starts for ByChance\_30:

(Start: 18 @26478 has 35 MA's), (27, 26562), (40, 26712), (46, 26766), (51, 26859), (56, 26907), (62, 27018), (64, 27039), (79, 27321), (82, 27342), (89, 27438), (92, 27483), (98, 27528), (99, 27552), (107, 27612),

Gene: Byougenkin\_30 Start: 26387, Stop: 27595, Start Num: 18

Candidate Starts for Byougenkin\_30:

(Start: 18 @26387 has 35 MA's), (30, 26483), (33, 26507), (36, 26600), (37, 26603), (42, 26648), (50, 26777), (56, 26828), (62, 26939), (64, 26960), (79, 27242), (82, 27263), (89, 27359), (92, 27404), (98, 27449), (99, 27473), (101, 27485), (107, 27533),

Gene: Caprice\_51 Start: 30334, Stop: 31713, Start Num: 16

Candidate Starts for Caprice\_51:

(Start: 16 @30334 has 33 MA's), (21, 30391), (25, 30427), (26, 30451), (28, 30463), (35, 30586), (38, 30628), (42, 30700), (44, 30724), (45, 30730), (49, 30811), (53, 30880), (55, 30883), (56, 30919), (58, 30955), (62, 31027), (63, 31045), (64, 31048), (69, 31165), (71, 31195), (79, 31327), (82, 31348), (87, 31381), (88, 31435), (89, 31441), (99, 31561), (102, 31591), (105, 31612), (111, 31642),

Gene: CaptainTrips\_31 Start: 26707, Stop: 27915, Start Num: 18

Candidate Starts for CaptainTrips\_31:

(9, 26455), (Start: 18 @26707 has 35 MA's), (30, 26803), (33, 26827), (36, 26920), (37, 26923), (42, 26968), (50, 27097), (56, 27148), (62, 27259), (64, 27280), (79, 27562), (82, 27583), (89, 27679), (92, 27724), (98, 27769), (99, 27793), (107, 27853),

Gene: Catdawg\_66 Start: 42246, Stop: 43466, Start Num: 17

Candidate Starts for Catdawg\_66:

(Start: 17 @42246 has 28 MA's), (23, 42282), (27, 42333), (29, 42339), (40, 42489), (46, 42543), (51, 42636), (56, 42684), (62, 42792), (64, 42813), (79, 43101), (89, 43218), (91, 43251), (92, 43263), (98, 43314), (99, 43338), (107, 43398), (112, 43443),

Gene: Chuckly\_30 Start: 26483, Stop: 27691, Start Num: 18

Candidate Starts for Chuckly\_30:

(Start: 18 @26483 has 35 MA's), (30, 26579), (33, 26603), (36, 26696), (37, 26699), (42, 26744), (50, 26873), (56, 26924), (62, 27035), (64, 27056), (79, 27338), (82, 27359), (89, 27455), (92, 27500), (98, 27545), (99, 27569), (107, 27629),

Gene: Clarkson\_55 Start: 30703, Stop: 32082, Start Num: 16

Candidate Starts for Clarkson\_55:

(Start: 16 @30703 has 33 MA's), (21, 30760), (25, 30796), (26, 30820), (28, 30832), (35, 30955), (38, 30997), (42, 31069), (44, 31093), (45, 31099), (49, 31180), (53, 31249), (55, 31252), (56, 31288), (58, 31324), (62, 31396), (63, 31414), (64, 31417), (69, 31534), (71, 31564), (79, 31696), (82, 31717), (87, 31750), (88, 31804), (89, 31810), (99, 31930), (102, 31960), (105, 31981), (111, 32011),

Gene: Clifton\_24 Start: 22465, Stop: 23661, Start Num: 18

Candidate Starts for Clifton\_24:

(7, 22195), (Start: 18 @22465 has 35 MA's), (27, 22549), (40, 22699), (46, 22753), (51, 22846), (56, 22894), (62, 23005), (64, 23026), (79, 23308), (82, 23329), (89, 23425), (92, 23470), (98, 23515), (99, 23539), (107, 23599),

Gene: Corazon\_52 Start: 30897, Stop: 32276, Start Num: 16

Candidate Starts for Corazon\_52:

(Start: 16 @30897 has 33 MA's), (21, 30954), (25, 30990), (26, 31014), (28, 31026), (35, 31149), (38, 31191), (42, 31263), (44, 31287), (45, 31293), (49, 31374), (53, 31443), (55, 31446), (56, 31482), (58, 31518), (62, 31590), (63, 31608), (64, 31611), (69, 31728), (71, 31758), (79, 31890), (82, 31911), (87, 31944), (88, 31998), (89, 32004), (99, 32124), (102, 32154), (105, 32175), (111, 32205),

Gene: Corndog\_69 Start: 43240, Stop: 44460, Start Num: 17

Candidate Starts for Corndog\_69:

(Start: 17 @43240 has 28 MA's), (23, 43276), (27, 43327), (29, 43333), (30, 43336), (40, 43483), (46, 43537), (51, 43630), (56, 43678), (62, 43786), (64, 43807), (79, 44095), (89, 44212), (91, 44245), (92, 44257), (98, 44308), (99, 44332), (107, 44392), (112, 44437),

Gene: DaddyRickover\_30 Start: 26502, Stop: 27698, Start Num: 18

Candidate Starts for DaddyRickover\_30:

(5, 26229), (6, 26232), (Start: 18 @26502 has 35 MA's), (27, 26586), (40, 26736), (46, 26790), (51, 26883), (56, 26931), (62, 27042), (64, 27063), (79, 27345), (82, 27366), (89, 27462), (92, 27507), (98, 27552), (99, 27576), (107, 27636),

Gene: Demsculpinboyz\_35 Start: 25454, Stop: 26752, Start Num: 16

Candidate Starts for Demsculpinboyz\_35:

(Start: 16 @25454 has 33 MA's), (24, 25526), (28, 25574), (32, 25592), (34, 25646), (41, 25763), (43, 25766), (49, 25868), (52, 25925), (56, 25979), (61, 26042), (64, 26105), (65, 26108), (69, 26222), (70, 26234), (72, 26297), (79, 26393), (89, 26510), (91, 26543), (92, 26555), (103, 26660), (109, 26693), (112, 26732),

Gene: DillTech15\_30 Start: 26411, Stop: 27607, Start Num: 18

Candidate Starts for DillTech15\_30:

(Start: 18 @26411 has 35 MA's), (27, 26495), (40, 26645), (46, 26699), (51, 26792), (56, 26840), (62, 26951), (64, 26972), (79, 27254), (82, 27275), (89, 27371), (92, 27416), (98, 27461), (99, 27485), (107,

27545),

Gene: Dorothy\_30 Start: 26287, Stop: 27483, Start Num: 18

Candidate Starts for Dorothy\_30:

(5, 26014), (6, 26017), (Start: 18 @26287 has 35 MA's), (27, 26371), (40, 26521), (46, 26575), (51, 26668), (56, 26716), (62, 26827), (64, 26848), (79, 27130), (82, 27151), (89, 27247), (92, 27292), (98, 27337), (99, 27361), (107, 27421),

Gene: Dylan\_66 Start: 42293, Stop: 43513, Start Num: 17

Candidate Starts for Dylan\_66:

(Start: 17 @42293 has 28 MA's), (23, 42329), (27, 42380), (29, 42386), (30, 42389), (40, 42536), (46, 42590), (51, 42683), (56, 42731), (62, 42839), (64, 42860), (79, 43148), (89, 43265), (91, 43298), (92, 43310), (98, 43361), (99, 43385), (107, 43445), (112, 43490),

Gene: EleanorGeorge\_30 Start: 26637, Stop: 27908, Start Num: 16

Candidate Starts for EleanorGeorge\_30:

(5, 26364), (6, 26367), (Start: 16 @26637 has 33 MA's), (28, 26754), (41, 26943), (43, 26946), (48, 27024), (52, 27105), (56, 27156), (59, 27195), (61, 27219), (64, 27282), (65, 27285), (67, 27390), (70, 27411), (72, 27474), (75, 27504), (79, 27561), (89, 27678), (91, 27711),

Gene: Enby\_31 Start: 26166, Stop: 27437, Start Num: 16

Candidate Starts for Enby\_31:

(Start: 16 @26166 has 33 MA's), (28, 26283), (41, 26472), (43, 26475), (48, 26553), (52, 26634), (56, 26685), (59, 26724), (61, 26748), (64, 26811), (65, 26814), (67, 26919), (70, 26940), (72, 27003), (75, 27033), (79, 27090), (89, 27207), (91, 27240),

Gene: Familton\_67 Start: 42203, Stop: 43423, Start Num: 17

Candidate Starts for Familton\_67:

(10, 42050), (11, 42053), (12, 42065), (13, 42119), (14, 42122), (Start: 17 @42203 has 28 MA's), (23, 42239), (27, 42290), (29, 42296), (40, 42446), (46, 42500), (51, 42593), (56, 42641), (62, 42749), (64, 42770), (79, 43058), (89, 43175), (91, 43208), (92, 43220), (98, 43271), (99, 43295), (107, 43355), (112, 43400),

Gene: Fastidio\_32 Start: 26640, Stop: 27836, Start Num: 18

Candidate Starts for Fastidio\_32:

(Start: 18 @26640 has 35 MA's), (27, 26724), (40, 26874), (46, 26928), (51, 27021), (56, 27069), (62, 27180), (64, 27201), (79, 27483), (82, 27504), (89, 27600), (92, 27645), (98, 27690), (99, 27714), (107, 27774),

Gene: FeliMaine\_56 Start: 30945, Stop: 32324, Start Num: 16

Candidate Starts for FeliMaine\_56:

(Start: 16 @30945 has 33 MA's), (21, 31002), (25, 31038), (26, 31062), (28, 31074), (35, 31197), (38, 31239), (42, 31311), (44, 31335), (45, 31341), (49, 31422), (53, 31491), (55, 31494), (56, 31530), (58, 31566), (62, 31638), (63, 31656), (64, 31659), (69, 31776), (71, 31806), (79, 31938), (82, 31959), (87, 31992), (88, 32046), (89, 32052), (99, 32172), (102, 32202), (105, 32223), (111, 32253),

Gene: Firecracker\_67 Start: 42393, Stop: 43643, Start Num: 17

Candidate Starts for Firecracker\_67:

(Start: 17 @42393 has 28 MA's), (23, 42429), (27, 42480), (29, 42486), (30, 42489), (40, 42636), (46, 42690), (51, 42783), (56, 42831), (62, 42939), (64, 42960), (79, 43248), (89, 43365), (91, 43398), (92, 43410), (98, 43461), (99, 43485), (107, 43545), (112, 43590),

Gene: Firehouse51\_31 Start: 27046, Stop: 28314, Start Num: 16



Candidate Starts for Firehouse51\_31:

(Start: 16 @27046 has 33 MA's), (28, 27163), (34, 27235), (41, 27352), (43, 27355), (48, 27433), (52, 27514), (56, 27565), (59, 27604), (61, 27628), (64, 27691), (65, 27694), (67, 27799), (70, 27820), (72, 27883), (75, 27913), (79, 27970), (89, 28087), (91, 28120),

Gene: FoulBall\_66 Start: 42197, Stop: 43417, Start Num: 17

Candidate Starts for FoulBall\_66:

(Start: 17 @42197 has 28 MA's), (23, 42233), (27, 42284), (29, 42290), (30, 42293), (40, 42440), (46, 42494), (51, 42587), (56, 42635), (62, 42743), (64, 42764), (79, 43052), (89, 43169), (91, 43202), (92, 43214), (98, 43265), (99, 43289), (107, 43349), (112, 43394),

Gene: Gattaca\_53 Start: 30124, Stop: 31503, Start Num: 16

Candidate Starts for Gattaca\_53:

(Start: 16 @30124 has 33 MA's), (21, 30181), (25, 30217), (26, 30241), (28, 30253), (35, 30376), (38, 30418), (42, 30490), (44, 30514), (45, 30520), (49, 30601), (53, 30670), (55, 30673), (56, 30709), (58, 30745), (62, 30817), (63, 30835), (64, 30838), (69, 30955), (71, 30985), (79, 31117), (82, 31138), (87, 31171), (88, 31225), (89, 31231), (99, 31351), (102, 31381), (105, 31402), (111, 31432),

Gene: GoongGoong\_53 Start: 29923, Stop: 31302, Start Num: 16

Candidate Starts for GoongGoong\_53:

(Start: 16 @29923 has 33 MA's), (21, 29980), (25, 30016), (26, 30040), (28, 30052), (35, 30175), (38, 30217), (42, 30289), (44, 30313), (45, 30319), (49, 30400), (53, 30469), (55, 30472), (56, 30508), (58, 30544), (62, 30616), (63, 30634), (64, 30637), (69, 30754), (71, 30784), (79, 30916), (82, 30937), (87, 30970), (88, 31024), (89, 31030), (99, 31150), (102, 31180), (105, 31201), (111, 31231),

Gene: Huphlepuuff\_56 Start: 30508, Stop: 31887, Start Num: 16

Candidate Starts for Huphlepuuff\_56:

(Start: 16 @30508 has 33 MA's), (21, 30565), (25, 30601), (26, 30625), (28, 30637), (35, 30760), (38, 30802), (42, 30874), (44, 30898), (45, 30904), (49, 30985), (53, 31054), (55, 31057), (56, 31093), (58, 31129), (62, 31201), (63, 31219), (64, 31222), (69, 31339), (71, 31369), (79, 31501), (82, 31522), (87, 31555), (88, 31609), (89, 31615), (99, 31735), (102, 31765), (105, 31786), (111, 31816),

Gene: IMpilo\_29 Start: 26117, Stop: 27328, Start Num: 18

Candidate Starts for IMpilo\_29:

(Start: 18 @26117 has 35 MA's), (30, 26213), (33, 26237), (36, 26330), (37, 26333), (42, 26378), (50, 26507), (56, 26558), (62, 26669), (64, 26690), (79, 26972), (82, 26993), (89, 27089), (92, 27134), (98, 27182), (109, 27272),

Gene: Idergollasper\_66 Start: 42197, Stop: 43417, Start Num: 17

Candidate Starts for Idergollasper\_66:

(Start: 17 @42197 has 28 MA's), (23, 42233), (27, 42284), (29, 42290), (40, 42440), (46, 42494), (51, 42587), (56, 42635), (62, 42743), (64, 42764), (79, 43052), (89, 43169), (91, 43202), (92, 43214), (98, 43265), (99, 43289), (107, 43349), (112, 43394),

Gene: Jabbawokkie\_38 Start: 26902, Stop: 28200, Start Num: 16

Candidate Starts for Jabbawokkie\_38:

(Start: 16 @26902 has 33 MA's), (24, 26974), (28, 27022), (32, 27040), (34, 27094), (41, 27211), (43, 27214), (49, 27316), (52, 27373), (56, 27427), (61, 27490), (64, 27553), (65, 27556), (69, 27670), (70, 27682), (72, 27745), (79, 27841), (89, 27958), (91, 27991), (92, 28003), (103, 28108), (109, 28141), (112, 28180),

Gene: JangDynasty\_66 Start: 42283, Stop: 43503, Start Num: 17

Candidate Starts for JangDynasty\_66:

(Start: 17 @42283 has 28 MA's), (23, 42319), (27, 42370), (29, 42376), (40, 42526), (46, 42580), (51, 42673), (56, 42721), (62, 42829), (64, 42850), (79, 43138), (89, 43255), (91, 43288), (92, 43300), (98, 43351), (99, 43375), (107, 43435), (112, 43480),

Gene: Jarcob\_30 Start: 26553, Stop: 27749, Start Num: 18

Candidate Starts for Jarcob\_30:

(Start: 18 @26553 has 35 MA's), (27, 26637), (40, 26787), (46, 26841), (51, 26934), (56, 26982), (62, 27093), (64, 27114), (79, 27396), (82, 27417), (89, 27513), (92, 27558), (98, 27603), (99, 27627), (107, 27687),

Gene: JoieB\_55 Start: 30941, Stop: 32320, Start Num: 16

Candidate Starts for JoieB\_55:

(Start: 16 @30941 has 33 MA's), (21, 30998), (25, 31034), (26, 31058), (28, 31070), (35, 31193), (38, 31235), (42, 31307), (44, 31331), (45, 31337), (49, 31418), (53, 31487), (55, 31490), (56, 31526), (58, 31562), (62, 31634), (63, 31652), (64, 31655), (69, 31772), (71, 31802), (79, 31934), (82, 31955), (87, 31988), (88, 32042), (89, 32048), (99, 32168), (102, 32198), (105, 32219), (111, 32249),

Gene: JustASigh\_25 Start: 24704, Stop: 26068, Start Num: 16

Candidate Starts for JustASigh\_25:

(15, 24677), (Start: 16 @24704 has 33 MA's), (19, 24734), (28, 24821), (39, 24995), (43, 25046), (44, 25070), (49, 25148), (52, 25205), (56, 25259), (58, 25295), (64, 25385), (67, 25493), (70, 25514), (72, 25577), (79, 25673), (91, 25823), (96, 25865),

Gene: Koella\_24 Start: 22477, Stop: 23673, Start Num: 18

Candidate Starts for Koella\_24:

(7, 22207), (Start: 18 @22477 has 35 MA's), (27, 22561), (40, 22711), (46, 22765), (51, 22858), (56, 22906), (62, 23017), (64, 23038), (79, 23320), (82, 23341), (89, 23437), (92, 23482), (98, 23527), (99, 23551), (107, 23611),

Gene: Krakatau\_31 Start: 27006, Stop: 28214, Start Num: 18

Candidate Starts for Krakatau\_31:

(2, 26619), (6, 26733), (8, 26751), (Start: 18 @27006 has 35 MA's), (30, 27102), (33, 27126), (36, 27219), (37, 27222), (42, 27267), (50, 27396), (56, 27447), (62, 27558), (64, 27579), (79, 27861), (82, 27882), (89, 27978), (92, 28023), (98, 28068), (99, 28092), (107, 28152),

Gene: Krili\_65 Start: 41707, Stop: 42927, Start Num: 17

Candidate Starts for Krili\_65:

(Start: 17 @41707 has 28 MA's), (23, 41743), (27, 41794), (29, 41800), (30, 41803), (40, 41950), (46, 42004), (51, 42097), (56, 42145), (62, 42253), (64, 42274), (79, 42562), (89, 42679), (91, 42712), (92, 42724), (98, 42775), (99, 42799), (107, 42859), (112, 42904),

Gene: LastJedi\_24 Start: 22508, Stop: 23704, Start Num: 18

Candidate Starts for LastJedi\_24:

(7, 22238), (Start: 18 @22508 has 35 MA's), (27, 22592), (40, 22742), (46, 22796), (51, 22889), (56, 22937), (62, 23048), (64, 23069), (79, 23351), (82, 23372), (89, 23468), (92, 23513), (98, 23558), (99, 23582), (107, 23642),

Gene: Leperchaun\_30 Start: 26385, Stop: 27593, Start Num: 18

Candidate Starts for Leperchaun\_30:

(Start: 18 @26385 has 35 MA's), (30, 26481), (33, 26505), (36, 26598), (37, 26601), (42, 26646), (50, 26775), (56, 26826), (62, 26937), (64, 26958), (79, 27240), (82, 27261), (89, 27357), (92, 27402), (98, 27447), (99, 27471), (107, 27531),

Gene: LilMoolah\_30 Start: 26601, Stop: 27797, Start Num: 18

Candidate Starts for LilMoolah\_30:

(Start: 18 @26601 has 35 MA's), (27, 26685), (40, 26835), (46, 26889), (51, 26982), (56, 27030), (62, 27141), (64, 27162), (79, 27444), (82, 27465), (89, 27561), (92, 27606), (98, 27651), (99, 27675), (107, 27735),

Gene: Lilbit\_55 Start: 30704, Stop: 32083, Start Num: 16

Candidate Starts for Lilbit\_55:

(Start: 16 @30704 has 33 MA's), (21, 30761), (25, 30797), (26, 30821), (28, 30833), (35, 30956), (38, 30998), (42, 31070), (44, 31094), (45, 31100), (49, 31181), (53, 31250), (55, 31253), (56, 31289), (58, 31325), (62, 31397), (63, 31415), (64, 31418), (69, 31535), (71, 31565), (79, 31697), (82, 31718), (87, 31751), (88, 31805), (89, 31811), (99, 31931), (102, 31961), (105, 31982), (111, 32012),

Gene: LittleLaf\_54 Start: 30433, Stop: 31812, Start Num: 16

Candidate Starts for LittleLaf\_54:

(Start: 16 @30433 has 33 MA's), (21, 30490), (25, 30526), (26, 30550), (28, 30562), (35, 30685), (38, 30727), (42, 30799), (44, 30823), (45, 30829), (49, 30910), (53, 30979), (55, 30982), (56, 31018), (58, 31054), (62, 31126), (63, 31144), (64, 31147), (69, 31264), (71, 31294), (79, 31426), (82, 31447), (87, 31480), (88, 31534), (89, 31540), (99, 31660), (102, 31690), (105, 31711), (111, 31741),

Gene: Lizziana\_30 Start: 26476, Stop: 27672, Start Num: 18

Candidate Starts for Lizziana\_30:

(Start: 18 @26476 has 35 MA's), (27, 26560), (40, 26710), (46, 26764), (51, 26857), (56, 26905), (62, 27016), (64, 27037), (79, 27319), (82, 27340), (89, 27436), (92, 27481), (98, 27526), (99, 27550), (107, 27610),

Gene: Lorde\_31 Start: 26141, Stop: 27412, Start Num: 16

Candidate Starts for Lorde\_31:

(Start: 16 @26141 has 33 MA's), (28, 26258), (41, 26447), (43, 26450), (48, 26528), (52, 26609), (56, 26660), (59, 26699), (61, 26723), (64, 26786), (65, 26789), (67, 26894), (70, 26915), (72, 26978), (75, 27008), (79, 27065), (89, 27182), (91, 27215),

Gene: LunaStella\_32 Start: 26826, Stop: 28124, Start Num: 16

Candidate Starts for LunaStella\_32:

(Start: 16 @26826 has 33 MA's), (24, 26898), (28, 26946), (32, 26964), (34, 27018), (41, 27135), (43, 27138), (49, 27240), (52, 27297), (56, 27351), (64, 27477), (65, 27480), (69, 27594), (70, 27606), (72, 27669), (79, 27765), (89, 27882), (91, 27915), (92, 27927), (97, 27972), (101, 28011), (103, 28032), (109, 28065), (112, 28104),

Gene: MadKillah\_67 Start: 41976, Stop: 43196, Start Num: 17

Candidate Starts for MadKillah\_67:

(Start: 17 @41976 has 28 MA's), (23, 42012), (27, 42063), (29, 42069), (40, 42219), (46, 42273), (51, 42366), (56, 42414), (62, 42522), (64, 42543), (79, 42831), (89, 42948), (91, 42981), (92, 42993), (98, 43044), (99, 43068), (107, 43128), (112, 43173),

Gene: Maravista\_30 Start: 26258, Stop: 27454, Start Num: 18

Candidate Starts for Maravista\_30:

(Start: 18 @26258 has 35 MA's), (27, 26342), (40, 26492), (46, 26546), (51, 26639), (56, 26687), (62, 26798), (64, 26819), (79, 27101), (82, 27122), (89, 27218), (92, 27263), (98, 27308), (99, 27332), (107, 27392),

Gene: Martik\_30 Start: 26503, Stop: 27699, Start Num: 18

Candidate Starts for Martik\_30:

(Start: 18 @26503 has 35 MA's), (27, 26587), (40, 26737), (46, 26791), (51, 26884), (56, 26932), (62, 27043), (64, 27064), (79, 27346), (82, 27367), (89, 27463), (92, 27508), (98, 27553), (99, 27577), (107, 27637),

Gene: Marvin\_51 Start: 30191, Stop: 31570, Start Num: 16

Candidate Starts for Marvin\_51:

(Start: 16 @30191 has 33 MA's), (21, 30248), (25, 30284), (26, 30308), (28, 30320), (35, 30443), (38, 30485), (42, 30557), (44, 30581), (45, 30587), (49, 30668), (53, 30737), (55, 30740), (56, 30776), (58, 30812), (62, 30884), (63, 30902), (64, 30905), (69, 31022), (71, 31052), (79, 31184), (82, 31205), (87, 31238), (88, 31292), (89, 31298), (99, 31418), (102, 31448), (105, 31469), (111, 31499),

Gene: MooMoo\_28 Start: 25459, Stop: 26733, Start Num: 16

Candidate Starts for MooMoo\_28:

(1, 25009), (3, 25114), (Start: 16 @25459 has 33 MA's), (22, 25522), (28, 25579), (41, 25768), (43, 25771), (48, 25849), (52, 25930), (56, 25981), (59, 26020), (60, 26029), (64, 26107), (65, 26110), (67, 26215), (72, 26299), (79, 26386), (89, 26503), (90, 26524), (91, 26536), (97, 26581), (105, 26659), (107, 26668),

Gene: Moonbeam\_31 Start: 26999, Stop: 28207, Start Num: 18

Candidate Starts for Moonbeam\_31:

(4, 26726), (8, 26747), (Start: 18 @26999 has 35 MA's), (30, 27095), (33, 27119), (36, 27212), (37, 27215), (42, 27260), (50, 27389), (56, 27440), (62, 27551), (64, 27572), (79, 27854), (82, 27875), (89, 27971), (92, 28016), (99, 28085), (101, 28097), (107, 28145),

Gene: Mori\_66 Start: 42238, Stop: 43458, Start Num: 17

Candidate Starts for Mori\_66:

(Start: 17 @42238 has 28 MA's), (23, 42274), (27, 42325), (29, 42331), (30, 42334), (40, 42481), (46, 42535), (51, 42628), (56, 42676), (62, 42784), (64, 42805), (79, 43093), (89, 43210), (91, 43243), (92, 43255), (98, 43306), (99, 43330), (107, 43390), (112, 43435),

Gene: MosMoris\_52 Start: 30124, Stop: 31503, Start Num: 16

Candidate Starts for MosMoris\_52:

(Start: 16 @30124 has 33 MA's), (21, 30181), (25, 30217), (26, 30241), (28, 30253), (35, 30376), (38, 30418), (42, 30490), (44, 30514), (45, 30520), (49, 30601), (53, 30670), (55, 30673), (56, 30709), (58, 30745), (62, 30817), (63, 30835), (64, 30838), (69, 30955), (71, 30985), (79, 31117), (82, 31138), (87, 31171), (88, 31225), (89, 31231), (99, 31351), (102, 31381), (105, 31402), (111, 31432),

Gene: MulchSalad\_27 Start: 22629, Stop: 23891, Start Num: 16

Candidate Starts for MulchSalad\_27:

(Start: 16 @22629 has 33 MA's), (24, 22701), (28, 22749), (32, 22767), (41, 22938), (43, 22941), (52, 23100), (56, 23154), (64, 23280), (65, 23283), (67, 23388), (70, 23409), (72, 23472), (77, 23508), (79, 23535), (91, 23685), (92, 23697), (95, 23721), (98, 23745),

Gene: Murai\_67 Start: 42419, Stop: 43639, Start Num: 17

Candidate Starts for Murai\_67:

(Start: 17 @42419 has 28 MA's), (23, 42455), (27, 42506), (29, 42512), (30, 42515), (40, 42662), (46, 42716), (51, 42809), (56, 42857), (62, 42965), (64, 42986), (79, 43274), (89, 43391), (91, 43424), (92, 43436), (98, 43487), (99, 43511), (107, 43571), (112, 43616),

Gene: Nebkiss\_34 Start: 28982, Stop: 30292, Start Num: 20

Candidate Starts for Nebkiss\_34:

(Start: 20 @28982 has 1 MA's), (30, 29072), (31, 29078), (35, 29147), (42, 29234), (47, 29273), (50, 29369), (54, 29399), (57, 29459), (58, 29468), (59, 29471), (63, 29552), (67, 29657), (68, 29663), (73,

29750), (74, 29756), (78, 29807), (80, 29825), (81, 29831), (82, 29843), (83, 29846), (85, 29855), (86, 29861), (89, 29954), (90, 29975), (93, 30014), (94, 30032), (100, 30101), (104, 30155), (106, 30167), (108, 30173), (110, 30188), (111, 30191), (113, 30257), (114, 30260),

Gene: NiebruSaylor\_65 Start: 41626, Stop: 42846, Start Num: 17

Candidate Starts for NiebruSaylor\_65:

(Start: 17 @41626 has 28 MA's), (23, 41662), (27, 41713), (29, 41719), (30, 41722), (40, 41869), (46, 41923), (51, 42016), (56, 42064), (62, 42172), (64, 42193), (79, 42481), (89, 42598), (91, 42631), (92, 42643), (98, 42694), (99, 42718), (107, 42778), (112, 42823),

Gene: Nivrat\_30 Start: 26475, Stop: 27671, Start Num: 18

Candidate Starts for Nivrat\_30:

(Start: 18 @26475 has 35 MA's), (27, 26559), (40, 26709), (46, 26763), (51, 26856), (56, 26904), (62, 27015), (64, 27036), (79, 27318), (82, 27339), (89, 27435), (92, 27480), (98, 27525), (99, 27549), (107, 27609),

Gene: NormanBulbieJr\_30 Start: 26490, Stop: 27686, Start Num: 18

Candidate Starts for NormanBulbieJr\_30:

(Start: 18 @26490 has 35 MA's), (27, 26574), (40, 26724), (46, 26778), (51, 26871), (56, 26919), (62, 27030), (64, 27051), (79, 27333), (82, 27354), (89, 27450), (92, 27495), (98, 27540), (99, 27564), (107, 27624),

Gene: Pacc40\_30 Start: 26481, Stop: 27689, Start Num: 18

Candidate Starts for Pacc40\_30:

(Start: 18 @26481 has 35 MA's), (30, 26577), (33, 26601), (36, 26694), (37, 26697), (42, 26742), (50, 26871), (56, 26922), (62, 27033), (64, 27054), (79, 27336), (82, 27357), (89, 27453), (92, 27498), (98, 27543), (99, 27567), (107, 27627),

Gene: Phalconet\_30 Start: 26423, Stop: 27631, Start Num: 18

Candidate Starts for Phalconet\_30:

(4, 26147), (8, 26168), (Start: 18 @26423 has 35 MA's), (30, 26519), (33, 26543), (36, 26636), (37, 26639), (42, 26684), (50, 26813), (56, 26864), (62, 26975), (64, 26996), (79, 27278), (82, 27299), (89, 27395), (92, 27440), (98, 27485), (99, 27509), (107, 27569),

Gene: PhesterPhotato\_30 Start: 26343, Stop: 27551, Start Num: 18

Candidate Starts for PhesterPhotato\_30:

(4, 26067), (8, 26088), (Start: 18 @26343 has 35 MA's), (30, 26439), (33, 26463), (36, 26556), (37, 26559), (42, 26604), (50, 26733), (56, 26784), (62, 26895), (64, 26916), (79, 27198), (82, 27219), (89, 27315), (92, 27360), (98, 27405), (99, 27429), (107, 27489),

Gene: Poise\_54 Start: 30021, Stop: 31400, Start Num: 16

Candidate Starts for Poise\_54:

(Start: 16 @30021 has 33 MA's), (21, 30078), (25, 30114), (26, 30138), (28, 30150), (35, 30273), (38, 30315), (42, 30387), (44, 30411), (45, 30417), (49, 30498), (53, 30567), (55, 30570), (56, 30606), (58, 30642), (62, 30714), (63, 30732), (64, 30735), (69, 30852), (71, 30882), (79, 31014), (82, 31035), (87, 31068), (88, 31122), (89, 31128), (99, 31248), (102, 31278), (105, 31299), (111, 31329),

Gene: PopTart\_30 Start: 26544, Stop: 27830, Start Num: 16

Candidate Starts for PopTart\_30:

(5, 26271), (8, 26292), (Start: 16 @26544 has 33 MA's), (28, 26664), (34, 26736), (41, 26853), (43, 26856), (49, 26958), (52, 27015), (56, 27069), (61, 27132), (64, 27195), (65, 27198), (69, 27312), (70, 27324), (72, 27387), (79, 27474), (84, 27501), (89, 27591), (90, 27612), (91, 27624), (92, 27636), (95, 27660), (103, 27741), (109, 27774),

Gene: Pringar\_54 Start: 30309, Stop: 31688, Start Num: 16

Candidate Starts for Pringar\_54:

(Start: 16 @30309 has 33 MA's), (21, 30366), (25, 30402), (26, 30426), (28, 30438), (35, 30561), (38, 30603), (42, 30675), (44, 30699), (45, 30705), (49, 30786), (53, 30855), (55, 30858), (56, 30894), (58, 30930), (62, 31002), (63, 31020), (64, 31023), (69, 31140), (71, 31170), (79, 31302), (82, 31323), (87, 31356), (88, 31410), (89, 31416), (99, 31536), (102, 31566), (105, 31587), (111, 31617),

Gene: Raela\_54 Start: 30576, Stop: 31955, Start Num: 16

Candidate Starts for Raela\_54:

(Start: 16 @30576 has 33 MA's), (21, 30633), (25, 30669), (26, 30693), (28, 30705), (35, 30828), (38, 30870), (42, 30942), (44, 30966), (45, 30972), (49, 31053), (53, 31122), (55, 31125), (56, 31161), (62, 31269), (63, 31287), (64, 31290), (69, 31407), (71, 31437), (79, 31569), (82, 31590), (87, 31623), (88, 31677), (89, 31683), (99, 31803), (102, 31833), (105, 31854), (111, 31884),

Gene: RedBird\_30 Start: 26299, Stop: 27495, Start Num: 18

Candidate Starts for RedBird\_30:

(Start: 18 @26299 has 35 MA's), (27, 26383), (40, 26533), (46, 26587), (51, 26680), (56, 26728), (62, 26839), (64, 26860), (79, 27142), (82, 27163), (89, 27259), (92, 27304), (98, 27349), (99, 27373), (107, 27433),

Gene: RedRaider77\_53 Start: 29965, Stop: 31344, Start Num: 16

Candidate Starts for RedRaider77\_53:

(Start: 16 @29965 has 33 MA's), (21, 30022), (25, 30058), (26, 30082), (28, 30094), (35, 30217), (38, 30259), (42, 30331), (44, 30355), (45, 30361), (49, 30442), (53, 30511), (55, 30514), (56, 30550), (58, 30586), (62, 30658), (63, 30676), (64, 30679), (69, 30796), (71, 30826), (79, 30958), (82, 30979), (87, 31012), (88, 31066), (89, 31072), (99, 31192), (102, 31222), (105, 31243), (111, 31273),

Gene: Renaud18\_30 Start: 26514, Stop: 27722, Start Num: 18

Candidate Starts for Renaud18\_30:

(Start: 18 @26514 has 35 MA's), (30, 26610), (33, 26634), (36, 26727), (37, 26730), (42, 26775), (50, 26904), (56, 26955), (62, 27066), (64, 27087), (79, 27369), (82, 27390), (89, 27486), (92, 27531), (98, 27576), (99, 27600), (107, 27660),

Gene: Ryadel\_70 Start: 43007, Stop: 44251, Start Num: 17

Candidate Starts for Ryadel\_70:

(Start: 17 @43007 has 28 MA's), (23, 43043), (27, 43094), (29, 43100), (30, 43103), (40, 43250), (46, 43304), (51, 43397), (56, 43445), (62, 43553), (64, 43574), (79, 43862), (89, 43979), (91, 44012), (92, 44024), (98, 44075), (99, 44099), (107, 44159), (112, 44204),

Gene: SG4\_30 Start: 26651, Stop: 27922, Start Num: 16

Candidate Starts for SG4\_30:

(Start: 16 @26651 has 33 MA's), (28, 26768), (41, 26957), (43, 26960), (48, 27038), (52, 27119), (56, 27170), (59, 27209), (61, 27233), (64, 27296), (65, 27299), (67, 27404), (70, 27425), (72, 27488), (75, 27518), (79, 27575), (89, 27692), (91, 27725),

Gene: SassyB\_30 Start: 26544, Stop: 27830, Start Num: 16

Candidate Starts for SassyB\_30:

(5, 26271), (8, 26292), (Start: 16 @26544 has 33 MA's), (28, 26664), (34, 26736), (41, 26853), (43, 26856), (49, 26958), (52, 27015), (56, 27069), (61, 27132), (64, 27195), (65, 27198), (69, 27312), (70, 27324), (72, 27387), (79, 27474), (84, 27501), (89, 27591), (90, 27612), (91, 27624), (92, 27636), (95, 27660), (103, 27741), (109, 27774),

Gene: SchoolBus\_66 Start: 42191, Stop: 43411, Start Num: 17

Candidate Starts for SchoolBus\_66:

(10, 42038), (11, 42041), (12, 42053), (13, 42107), (14, 42110), (Start: 17 @42191 has 28 MA's), (23, 42227), (27, 42278), (29, 42284), (40, 42434), (46, 42488), (51, 42581), (56, 42629), (62, 42737), (64, 42758), (79, 43046), (89, 43163), (91, 43196), (92, 43208), (98, 43259), (99, 43283), (107, 43343), (112, 43388),

Gene: Schuy\_67 Start: 41982, Stop: 43202, Start Num: 17

Candidate Starts for Schuy\_67:

(Start: 17 @41982 has 28 MA's), (23, 42018), (27, 42069), (29, 42075), (40, 42225), (46, 42279), (51, 42372), (56, 42420), (62, 42528), (64, 42549), (79, 42837), (89, 42954), (91, 42987), (92, 42999), (98, 43050), (99, 43074), (107, 43134), (112, 43179),

Gene: Seagreen\_31 Start: 26351, Stop: 27637, Start Num: 16

Candidate Starts for Seagreen\_31:

(5, 26078), (8, 26099), (Start: 16 @26351 has 33 MA's), (28, 26471), (34, 26543), (41, 26660), (43, 26663), (49, 26765), (52, 26822), (56, 26876), (61, 26939), (64, 27002), (65, 27005), (69, 27119), (70, 27131), (72, 27194), (79, 27281), (84, 27308), (89, 27398), (90, 27419), (91, 27431), (92, 27443), (95, 27467), (103, 27548), (109, 27581),

Gene: ShiLan\_30 Start: 26544, Stop: 27740, Start Num: 18

Candidate Starts for ShiLan\_30:

(Start: 18 @26544 has 35 MA's), (27, 26628), (40, 26778), (46, 26832), (51, 26925), (56, 26973), (62, 27084), (64, 27105), (79, 27387), (82, 27408), (89, 27504), (92, 27549), (98, 27594), (99, 27618), (107, 27678),

Gene: Shida\_66 Start: 41889, Stop: 43109, Start Num: 17

Candidate Starts for Shida\_66:

(Start: 17 @41889 has 28 MA's), (23, 41925), (27, 41976), (29, 41982), (30, 41985), (40, 42132), (46, 42186), (51, 42279), (56, 42327), (62, 42435), (64, 42456), (79, 42744), (89, 42861), (91, 42894), (92, 42906), (98, 42957), (99, 42981), (107, 43041), (112, 43086),

Gene: ShowerHandel\_30 Start: 26503, Stop: 27699, Start Num: 18

Candidate Starts for ShowerHandel\_30:

(Start: 18 @26503 has 35 MA's), (27, 26587), (40, 26737), (46, 26791), (51, 26884), (56, 26932), (62, 27043), (64, 27064), (79, 27346), (82, 27367), (89, 27463), (92, 27508), (98, 27553), (99, 27577), (107, 27637),

Gene: SiSi\_30 Start: 26302, Stop: 27498, Start Num: 18

Candidate Starts for SiSi\_30:

(Start: 18 @26302 has 35 MA's), (27, 26386), (40, 26536), (46, 26590), (51, 26683), (56, 26731), (62, 26842), (64, 26863), (79, 27145), (82, 27166), (89, 27262), (92, 27307), (98, 27352), (99, 27376), (107, 27436),

Gene: Smooch\_69 Start: 43911, Stop: 45155, Start Num: 17

Candidate Starts for Smooch\_69:

(Start: 17 @43911 has 28 MA's), (23, 43947), (27, 43998), (29, 44004), (30, 44007), (40, 44154), (46, 44208), (51, 44301), (56, 44349), (62, 44457), (64, 44478), (79, 44766), (89, 44883), (91, 44916), (92, 44928), (98, 44979), (99, 45003), (107, 45063), (112, 45108),

Gene: SwagPiggett\_30 Start: 26314, Stop: 27510, Start Num: 18

Candidate Starts for SwagPiggett\_30:

(Start: 18 @26314 has 35 MA's), (27, 26398), (40, 26548), (46, 26602), (51, 26695), (56, 26743), (62, 26854), (64, 26875), (79, 27157), (82, 27178), (89, 27274), (92, 27319), (98, 27364), (99, 27388), (107, 27448),

Gene: TChen\_30 Start: 26827, Stop: 28125, Start Num: 16

Candidate Starts for TChen\_30:

(Start: 16 @26827 has 33 MA's), (24, 26899), (28, 26947), (32, 26965), (34, 27019), (41, 27136), (43, 27139), (49, 27241), (52, 27298), (56, 27352), (64, 27478), (65, 27481), (69, 27595), (70, 27607), (72, 27670), (79, 27766), (89, 27883), (91, 27916), (92, 27928), (97, 27973), (101, 28012), (103, 28033), (109, 28066), (112, 28105),

Gene: TelAviv\_63 Start: 42164, Stop: 43384, Start Num: 17

Candidate Starts for TelAviv\_63:

(Start: 17 @42164 has 28 MA's), (23, 42200), (27, 42251), (29, 42257), (40, 42407), (46, 42461), (51, 42554), (56, 42602), (62, 42710), (64, 42731), (79, 43019), (89, 43136), (91, 43169), (92, 43181), (98, 43232), (99, 43256), (107, 43316), (112, 43361),

Gene: Tesla\_52 Start: 29814, Stop: 31193, Start Num: 16

Candidate Starts for Tesla\_52:

(Start: 16 @29814 has 33 MA's), (21, 29871), (25, 29907), (26, 29931), (28, 29943), (35, 30066), (38, 30108), (42, 30180), (44, 30204), (45, 30210), (49, 30291), (53, 30360), (55, 30363), (56, 30399), (58, 30435), (62, 30507), (63, 30525), (64, 30528), (69, 30645), (71, 30675), (79, 30807), (82, 30828), (87, 30861), (88, 30915), (89, 30921), (99, 31041), (102, 31071), (105, 31092), (111, 31122),

Gene: Toron\_31 Start: 26744, Stop: 28024, Start Num: 16

Candidate Starts for Toron\_31:

(Start: 16 @26744 has 33 MA's), (28, 26864), (41, 27053), (43, 27056), (52, 27215), (56, 27266), (59, 27305), (64, 27392), (65, 27395), (66, 27497), (67, 27500), (70, 27521), (72, 27584), (79, 27680), (89, 27797), (90, 27818), (91, 27830), (97, 27875), (101, 27914), (105, 27953), (107, 27962), (112, 28007),

Gene: Vagabond\_66 Start: 42027, Stop: 43247, Start Num: 17

Candidate Starts for Vagabond\_66:

(Start: 17 @42027 has 28 MA's), (23, 42063), (27, 42114), (29, 42120), (30, 42123), (40, 42270), (46, 42324), (51, 42417), (56, 42465), (62, 42573), (64, 42594), (79, 42882), (89, 42999), (91, 43032), (92, 43044), (98, 43095), (99, 43119), (107, 43179), (112, 43224),

Gene: VasuNzinga\_54 Start: 29883, Stop: 31262, Start Num: 16

Candidate Starts for VasuNzinga\_54:

(Start: 16 @29883 has 33 MA's), (21, 29940), (25, 29976), (26, 30000), (28, 30012), (35, 30135), (38, 30177), (42, 30249), (44, 30273), (45, 30279), (49, 30360), (53, 30429), (55, 30432), (56, 30468), (58, 30504), (62, 30576), (63, 30594), (64, 30597), (69, 30714), (71, 30744), (79, 30876), (82, 30897), (87, 30930), (88, 30984), (89, 30990), (99, 31110), (102, 31140), (105, 31161), (111, 31191),

Gene: Vivum\_30 Start: 26313, Stop: 27521, Start Num: 18

Candidate Starts for Vivum\_30:

(Start: 18 @26313 has 35 MA's), (30, 26409), (33, 26433), (36, 26526), (37, 26529), (42, 26574), (50, 26703), (56, 26754), (62, 26865), (64, 26886), (79, 27168), (82, 27189), (89, 27285), (92, 27330), (98, 27375), (99, 27399), (107, 27459),

Gene: Vorrrps\_66 Start: 42239, Stop: 43459, Start Num: 17

Candidate Starts for Vorrrps\_66:

(Start: 17 @42239 has 28 MA's), (23, 42275), (27, 42326), (29, 42332), (30, 42335), (40, 42482), (46, 42536), (51, 42629), (56, 42677), (62, 42785), (64, 42806), (79, 43094), (89, 43211), (91, 43244), (92,



43256), (98, 43307), (99, 43331), (107, 43391), (112, 43436),

Gene: Wachhund\_30 Start: 26486, Stop: 27697, Start Num: 18

Candidate Starts for Wachhund\_30:

(Start: 18 @26486 has 35 MA's), (30, 26582), (33, 26606), (36, 26699), (37, 26702), (42, 26747), (50, 26876), (56, 26927), (62, 27038), (64, 27059), (79, 27341), (82, 27362), (83, 27365), (89, 27458), (92, 27503), (98, 27551), (109, 27641),

Gene: Whatsapiecost\_31 Start: 26670, Stop: 27956, Start Num: 16

Candidate Starts for Whatsapiecost\_31:

(Start: 16 @26670 has 33 MA's), (28, 26790), (34, 26862), (41, 26979), (43, 26982), (49, 27084), (52, 27141), (56, 27195), (61, 27258), (64, 27321), (65, 27324), (69, 27438), (70, 27450), (72, 27513), (79, 27600), (84, 27627), (89, 27717), (90, 27738), (91, 27750), (92, 27762), (95, 27786), (103, 27867), (109, 27900),

Gene: Wildflower\_66 Start: 41751, Stop: 42971, Start Num: 17

Candidate Starts for Wildflower\_66:

(Start: 17 @41751 has 28 MA's), (23, 41787), (27, 41838), (29, 41844), (30, 41847), (40, 41994), (46, 42048), (51, 42141), (56, 42189), (62, 42297), (64, 42318), (79, 42606), (89, 42723), (91, 42756), (92, 42768), (98, 42819), (99, 42843), (107, 42903), (112, 42948),

Gene: Winget\_67 Start: 42457, Stop: 43677, Start Num: 17

Candidate Starts for Winget\_67:

(Start: 17 @42457 has 28 MA's), (23, 42493), (27, 42544), (29, 42550), (30, 42553), (40, 42700), (46, 42754), (51, 42847), (56, 42895), (62, 43003), (64, 43024), (79, 43312), (89, 43429), (91, 43462), (92, 43474), (98, 43525), (99, 43549), (107, 43609), (112, 43654),

Gene: XFactor\_30 Start: 26489, Stop: 27697, Start Num: 18

Candidate Starts for XFactor\_30:

(4, 26213), (8, 26234), (Start: 18 @26489 has 35 MA's), (30, 26585), (33, 26609), (36, 26702), (37, 26705), (42, 26750), (50, 26879), (56, 26930), (62, 27041), (64, 27062), (79, 27344), (82, 27365), (89, 27461), (92, 27506), (98, 27551), (99, 27575), (107, 27635),

Gene: Yorick\_30 Start: 26501, Stop: 27697, Start Num: 18

Candidate Starts for Yorick\_30:

(Start: 18 @26501 has 35 MA's), (27, 26585), (40, 26735), (46, 26789), (51, 26882), (56, 26930), (62, 27041), (64, 27062), (79, 27344), (82, 27365), (89, 27461), (92, 27506), (98, 27551), (99, 27575), (107, 27635),

Gene: YungJamal\_71 Start: 43649, Stop: 44869, Start Num: 17

Candidate Starts for YungJamal\_71:

(Start: 17 @43649 has 28 MA's), (23, 43685), (27, 43736), (29, 43742), (30, 43745), (40, 43892), (46, 43946), (51, 44039), (56, 44087), (62, 44195), (64, 44216), (79, 44504), (89, 44621), (91, 44654), (92, 44666), (98, 44717), (99, 44741), (107, 44801), (112, 44846),

Gene: Zakhe101\_65 Start: 42297, Stop: 43517, Start Num: 17

Candidate Starts for Zakhe101\_65:

(Start: 17 @42297 has 28 MA's), (23, 42333), (27, 42384), (29, 42390), (30, 42393), (40, 42540), (46, 42594), (51, 42687), (56, 42735), (62, 42843), (64, 42864), (79, 43152), (89, 43269), (91, 43302), (92, 43314), (98, 43365), (99, 43389), (107, 43449), (112, 43494),

Gene: Zapner\_37 Start: 26903, Stop: 28201, Start Num: 16

Candidate Starts for Zapner\_37:

(Start: 16 @26903 has 33 MA's), (24, 26975), (28, 27023), (32, 27041), (34, 27095), (41, 27212), (43, 27215), (49, 27317), (52, 27374), (56, 27428), (61, 27491), (64, 27554), (65, 27557), (69, 27671), (70, 27683), (72, 27746), (79, 27842), (89, 27959), (91, 27992), (92, 28004), (103, 28109), (109, 28142), (112, 28181),

Gene: Zebo\_65 Start: 42200, Stop: 43420, Start Num: 17

Candidate Starts for Zebo\_65:

(Start: 17 @42200 has 28 MA's), (23, 42236), (27, 42287), (29, 42293), (40, 42443), (46, 42497), (51, 42590), (56, 42638), (62, 42746), (64, 42767), (79, 43055), (89, 43172), (91, 43205), (92, 43217), (98, 43268), (99, 43292), (107, 43352), (112, 43397),

Gene: Zizzle\_30 Start: 26445, Stop: 27641, Start Num: 18

Candidate Starts for Zizzle\_30:

(Start: 18 @26445 has 35 MA's), (27, 26529), (40, 26679), (46, 26733), (51, 26826), (56, 26874), (62, 26985), (64, 27006), (79, 27288), (82, 27309), (89, 27405), (92, 27450), (98, 27495), (99, 27519), (107, 27579),