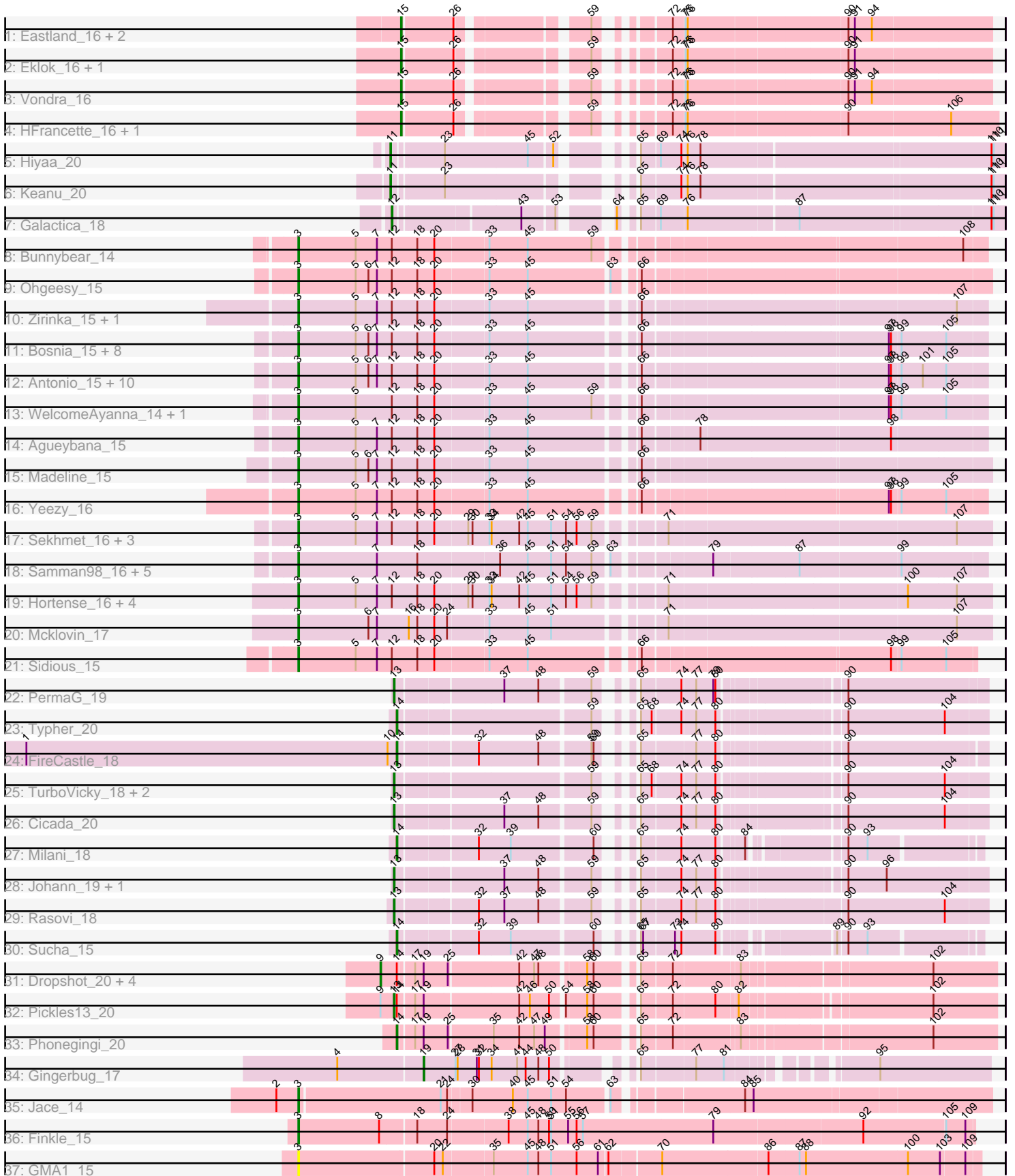


Pham 163552



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 163552 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163552 has 80 members, 1 are drafts.

Phages represented in each track:

- Track 1 : Eastland_16, Piccadilly_16, Cumberbatch_16
- Track 2 : Eklok_16, AxeJC_16
- Track 3 : Vondra_16
- Track 4 : HFrancette_16, Ignacio_16
- Track 5 : Hiya_20
- Track 6 : Keanu_20
- Track 7 : Galactica_18
- Track 8 : Bunnybear_14
- Track 9 : Ohgeesy_15
- Track 10 : Zirinka_15, Bialota_15
- Track 11 : Bosnia_15, Eviarto_15, Herod_15, BatStarr_15, TimTam_15, BaxterFox_14, AlumE_15, BoyNamedSue_15, Nymphadora_15
- Track 12 : Antonio_15, Manasvini_15, Kita_15, Maridalia_84, Zameen_15, Suscepit_15, Polly_15, Eudoria_15, Neobush_15, Tayonia_15, Trumpet_15
- Track 13 : WelcomeAyanna_14, ThankyouJordi_14
- Track 14 : Agueybana_15
- Track 15 : Madeline_15
- Track 16 : Yeezy_16
- Track 17 : Sekhmet_16, Beenie_15, MichaelScott_16, Oregano_16
- Track 18 : Samman98_16, Clark_16, Suerte_15, Dolores_16, Easley_16, Powerball_15
- Track 19 : Hortense_16, Adora_16, Shlim410_16, Howe_16, Twinkle_16
- Track 20 : Mcklovin_17
- Track 21 : Sidious_15
- Track 22 : PermaG_19
- Track 23 : Typher_20
- Track 24 : FireCastle_18
- Track 25 : TurboVicky_18, Zanella_18, SBlackberry_18
- Track 26 : Cicada_20
- Track 27 : Milani_18
- Track 28 : Johann_19, Goodman_19
- Track 29 : Rasovi_18
- Track 30 : Sucha_15
- Track 31 : Dropshot_20, Antuna_21, Blett_21, Appa_20, Warren_21
- Track 32 : Pickles13_20
- Track 33 : Phonegingi_20
- Track 34 : Gingerbug_17

- Track 35 : Jace_14
- Track 36 : Finkle_15
- Track 37 : GMA1_15

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

The start number called the most often in the published annotations is 3, it was called in 48 of the 79 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adora_16, Agueybana_15, AlumE_15, Antonio_15, BatStarr_15, BaxterFox_14, Beenie_15, Bialota_15, Bosnia_15, BoyNamedSue_15, Bunnybear_14, Clark_16, Dolores_16, Easley_16, Eudoria_15, Eviarto_15, Finkle_15, GMA1_15, Herod_15, Hortense_16, Howe_16, Jace_14, Kita_15, Madeline_15, Manasvini_15, Maridalia_84, Mcklovin_17, MichaelScott_16, Neobush_15, Nymphadora_15, Ohgeesy_15, Oregano_16, Polly_15, Powerball_15, Samman98_16, Sekhmet_16, Shlim410_16, Sidious_15, Suerte_15, Suscepit_15, Tayonia_15, ThankyouJordi_14, TimTam_15, Trumpet_15, Twinkle_16, WelcomeAyanna_14, Yeezy_16, Zameen_15, Zirinka_15,

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

-

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

- Antuna_21, Appa_20, AxeJC_16, Blett_21, Cicada_20, Cumberbatch_16, Dropshot_20, Eastland_16, Eklok_16, FireCastle_18, Galactica_18, Gingerbug_17, Goodman_19, HFrancette_16, Hiyaa_20, Ignacio_16, Johann_19, Keanu_20, Milani_18, PermaG_19, Phonegingi_20, Piccadilly_16, Pickles13_20, Rasovi_18, SBlackberry_18, Sucha_15, TurboVicky_18, Typher_20, Vondra_16, Warren_21, Zanella_18,

Summary by start number:

Start 3:

- Found in 49 of 80 (61.3%) of genes in pham
- Manual Annotations of this start: 48 of 79
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adora_16 (CZ4), Agueybana_15 (CZ1), AlumE_15 (CZ1), Antonio_15 (CZ1), BatStarr_15 (CZ1), BaxterFox_14 (CZ3), Beenie_15 (CZ4), Bialota_15 (CZ1), Bosnia_15 (CZ1), BoyNamedSue_15 (CZ1), Bunnybear_14 (CZ), Clark_16 (CZ4), Dolores_16 (CZ4), Easley_16 (CZ4), Eudoria_15 (CZ1), Eviarto_15 (CZ1), Finkle_15 (singleton), GMA1_15 (singleton), Herod_15 (CZ1), Hortense_16 (CZ4), Howe_16 (CZ4), Jace_14 (singleton), Kita_15 (CZ1), Madeline_15 (CZ1), Manasvini_15 (CZ1), Maridalia_84 (CZ1), Mcklovin_17 (CZ4), MichaelScott_16 (CZ4), Neobush_15 (CZ1), Nymphadora_15 (CZ1), Ohgeesy_15 (CZ), Oregano_16 (CZ4), Polly_15 (CZ1), Powerball_15 (CZ4), Samman98_16 (CZ4), Sekhmet_16 (CZ4), Shlim410_16 (CZ4), Sidious_15 (CZ7), Suerte_15 (CZ4), Suscepit_15 (CZ1), Tayonia_15 (CZ1), ThankyouJordi_14 (CZ1), TimTam_15 (CZ1), Trumpet_15 (CZ1), Twinkle_16 (CZ4), WelcomeAyanna_14 (CZ1), Yeezy_16 (CZ3), Zameen_15 (CZ1), Zirinka_15 (CZ1),

Start 9:

- Found in 6 of 80 (7.5%) of genes in pham
- Manual Annotations of this start: 5 of 79
- Called 83.3% of time when present
- Phage (with cluster) where this start called: Antuna_21 (GA), Appa_20 (GA), Blett_21 (GA), Dropshot_20 (GA), Warren_21 (GA),

Start 11:

- Found in 2 of 80 (2.5%) of genes in pham
- Manual Annotations of this start: 2 of 79
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hiyaa_20 (BQ), Keanu_20 (BQ),

Start 12:

- Found in 40 of 80 (50.0%) of genes in pham
- Manual Annotations of this start: 1 of 79
- Called 2.5% of time when present
- Phage (with cluster) where this start called: Galactica_18 (BQ),

Start 13:

- Found in 9 of 80 (11.2%) of genes in pham
- Manual Annotations of this start: 9 of 79
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cicada_20 (EJ), Goodman_19 (EJ), Johann_19 (EJ), PermaG_19 (EJ), Pickles13_20 (GA), Rasovi_18 (EJ), SBlackberry_18 (EJ), TurboVicky_18 (EJ), Zanella_18 (EJ),

Start 14:

- Found in 11 of 80 (13.8%) of genes in pham
- Manual Annotations of this start: 5 of 79
- Called 45.5% of time when present
- Phage (with cluster) where this start called: FireCastle_18 (EJ), Milani_18 (EJ), Phoningi_20 (GA), Sucha_15 (EJ), Typher_20 (EJ),

Start 15:

- Found in 8 of 80 (10.0%) of genes in pham
- Manual Annotations of this start: 8 of 79
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AxeJC_16 (BP), Cumberbatch_16 (BP), Eastland_16 (BP), Eklok_16 (BP), HFrancette_16 (BP), Ignacio_16 (BP), Piccadilly_16 (BP), Vondra_16 (BP),

Start 19:

- Found in 8 of 80 (10.0%) of genes in pham
- Manual Annotations of this start: 1 of 79
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Gingerbug_17 (GF),

Summary by clusters:

There are 11 clusters represented in this pham: singleton, GF, EJ, CZ3, CZ1, CZ7, CZ4, CZ, BP, BQ, GA,

Info for manual annotations of cluster BP:

- Start number 15 was manually annotated 8 times for cluster BP.

Info for manual annotations of cluster BQ:

- Start number 11 was manually annotated 2 times for cluster BQ.
- Start number 12 was manually annotated 1 time for cluster BQ.

Info for manual annotations of cluster CZ:

- Start number 3 was manually annotated 2 times for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 3 was manually annotated 25 times for cluster CZ1.

Info for manual annotations of cluster CZ3:

- Start number 3 was manually annotated 2 times for cluster CZ3.

Info for manual annotations of cluster CZ4:

- Start number 3 was manually annotated 16 times for cluster CZ4.

Info for manual annotations of cluster CZ7:

- Start number 3 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster EJ:

- Start number 13 was manually annotated 8 times for cluster EJ.
- Start number 14 was manually annotated 4 times for cluster EJ.

Info for manual annotations of cluster GA:

- Start number 9 was manually annotated 5 times for cluster GA.
- Start number 13 was manually annotated 1 time for cluster GA.
- Start number 14 was manually annotated 1 time for cluster GA.

Info for manual annotations of cluster GF:

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

Gene Information:

Gene: Adora_16 Start: 8998, Stop: 9920, Start Num: 3

Candidate Starts for Adora_16:

(Start: 3 @8998 has 48 MA's), (5, 9079), (7, 9109), (Start: 12 @9130 has 1 MA's), (18, 9166), (20, 9190), (29, 9235), (30, 9241), (33, 9265), (34, 9268), (42, 9307), (45, 9319), (51, 9352), (54, 9373), (56, 9388), (59, 9409), (71, 9487), (100, 9805), (107, 9871),

Gene: Agueybana_15 Start: 9286, Stop: 10190, Start Num: 3

Candidate Starts for Agueybana_15:

(Start: 3 @9286 has 48 MA's), (5, 9367), (7, 9397), (Start: 12 @9418 has 1 MA's), (18, 9454), (20, 9478), (33, 9550), (45, 9604), (66, 9739), (78, 9811), (98, 10063),

Gene: AlumE_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for AlumE_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (105, 10134),

Gene: Antonio_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Antonio_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (101, 10104), (105, 10134),

Gene: Antuna_21 Start: 10705, Stop: 11480, Start Num: 9

Candidate Starts for Antuna_21:

(Start: 9 @10705 has 5 MA's), (Start: 14 @10726 has 5 MA's), (17, 10744), (Start: 19 @10756 has 1 MA's), (25, 10789), (42, 10882), (47, 10903), (48, 10909), (58, 10966), (60, 10975), (65, 11020), (72, 11059), (83, 11146), (102, 11392),

Gene: Appa_20 Start: 10567, Stop: 11342, Start Num: 9

Candidate Starts for Appa_20:

(Start: 9 @10567 has 5 MA's), (Start: 14 @10588 has 5 MA's), (17, 10606), (Start: 19 @10618 has 1 MA's), (25, 10651), (42, 10744), (47, 10765), (48, 10771), (58, 10828), (60, 10837), (65, 10882), (72, 10921), (83, 11008), (102, 11254),

Gene: AxeJC_16 Start: 9272, Stop: 9981, Start Num: 15

Candidate Starts for AxeJC_16:

(Start: 15 @9272 has 8 MA's), (26, 9341), (59, 9491), (72, 9554), (75, 9569), (76, 9572), (90, 9785), (91, 9794),

Gene: BatStarr_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for BatStarr_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (105, 10134),

Gene: BaxterFox_14 Start: 8633, Stop: 9537, Start Num: 3

Candidate Starts for BaxterFox_14:

(Start: 3 @8633 has 48 MA's), (5, 8714), (6, 8732), (7, 8744), (Start: 12 @8765 has 1 MA's), (18, 8801), (20, 8825), (33, 8897), (45, 8951), (66, 9086), (97, 9407), (98, 9410), (99, 9422), (105, 9482),

Gene: Beenie_15 Start: 8840, Stop: 9762, Start Num: 3

Candidate Starts for Beenie_15:

(Start: 3 @8840 has 48 MA's), (5, 8921), (7, 8951), (Start: 12 @8972 has 1 MA's), (18, 9008), (20, 9032), (29, 9077), (30, 9083), (33, 9107), (34, 9110), (42, 9149), (45, 9161), (51, 9194), (54, 9215), (56, 9230), (59, 9251), (71, 9329), (107, 9713),

Gene: Bialota_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Bialota_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (107, 10149),

Gene: Blett_21 Start: 10720, Stop: 11495, Start Num: 9

Candidate Starts for Blett_21:

(Start: 9 @10720 has 5 MA's), (Start: 14 @10741 has 5 MA's), (17, 10759), (Start: 19 @10771 has 1 MA's), (25, 10804), (42, 10897), (47, 10918), (48, 10924), (58, 10981), (60, 10990), (65, 11035), (72,

11074), (83, 11161), (102, 11407),

Gene: Bosnia_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Bosnia_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (105, 10134),

Gene: BoyNamedSue_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for BoyNamedSue_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (105, 10134),

Gene: Bunnybear_14 Start: 9302, Stop: 10206, Start Num: 3

Candidate Starts for Bunnybear_14:

(Start: 3 @9302 has 48 MA's), (5, 9383), (7, 9413), (Start: 12 @9434 has 1 MA's), (18, 9470), (20, 9494), (33, 9566), (45, 9620), (59, 9710), (108, 10175),

Gene: Cicada_20 Start: 12850, Stop: 13571, Start Num: 13

Candidate Starts for Cicada_20:

(Start: 13 @12850 has 9 MA's), (37, 12988), (48, 13036), (59, 13102), (65, 13129), (74, 13180), (77, 13198), (80, 13225), (90, 13378), (104, 13513),

Gene: Clark_16 Start: 8856, Stop: 9763, Start Num: 3

Candidate Starts for Clark_16:

(Start: 3 @8856 has 48 MA's), (7, 8967), (18, 9024), (36, 9135), (45, 9174), (51, 9207), (54, 9228), (59, 9264), (63, 9282), (79, 9399), (87, 9513), (99, 9648),

Gene: Cumberbatch_16 Start: 9256, Stop: 9965, Start Num: 15

Candidate Starts for Cumberbatch_16:

(Start: 15 @9256 has 8 MA's), (26, 9325), (59, 9475), (72, 9538), (75, 9553), (76, 9556), (90, 9769), (91, 9778), (94, 9802),

Gene: Dolores_16 Start: 8841, Stop: 9748, Start Num: 3

Candidate Starts for Dolores_16:

(Start: 3 @8841 has 48 MA's), (7, 8952), (18, 9009), (36, 9120), (45, 9159), (51, 9192), (54, 9213), (59, 9249), (63, 9267), (79, 9384), (87, 9498), (99, 9633),

Gene: Dropshot_20 Start: 10567, Stop: 11342, Start Num: 9

Candidate Starts for Dropshot_20:

(Start: 9 @10567 has 5 MA's), (Start: 14 @10588 has 5 MA's), (17, 10606), (Start: 19 @10618 has 1 MA's), (25, 10651), (42, 10744), (47, 10765), (48, 10771), (58, 10828), (60, 10837), (65, 10882), (72, 10921), (83, 11008), (102, 11254),

Gene: Easley_16 Start: 8845, Stop: 9752, Start Num: 3

Candidate Starts for Easley_16:

(Start: 3 @8845 has 48 MA's), (7, 8956), (18, 9013), (36, 9124), (45, 9163), (51, 9196), (54, 9217), (59, 9253), (63, 9271), (79, 9388), (87, 9502), (99, 9637),

Gene: Eastland_16 Start: 9257, Stop: 9966, Start Num: 15

Candidate Starts for Eastland_16:

(Start: 15 @9257 has 8 MA's), (26, 9326), (59, 9476), (72, 9539), (75, 9554), (76, 9557), (90, 9770), (91, 9779), (94, 9803),

Gene: Eklok_16 Start: 9272, Stop: 9981, Start Num: 15

Candidate Starts for Eklok_16:

(Start: 15 @9272 has 8 MA's), (26, 9341), (59, 9491), (72, 9554), (75, 9569), (76, 9572), (90, 9785), (91, 9794),

Gene: Eudoria_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Eudoria_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (101, 10104), (105, 10134),

Gene: Eviarto_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Eviarto_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (105, 10134),

Gene: Finkle_15 Start: 8643, Stop: 9571, Start Num: 3

Candidate Starts for Finkle_15:

(Start: 3 @8643 has 48 MA's), (8, 8757), (18, 8805), (24, 8847), (38, 8928), (45, 8955), (48, 8970), (50, 8985), (51, 8988), (55, 9012), (56, 9024), (57, 9033), (79, 9216), (92, 9420), (105, 9534), (109, 9561),

Gene: FireCastle_18 Start: 12516, Stop: 13228, Start Num: 14

Candidate Starts for FireCastle_18:

(1, 11994), (10, 12504), (Start: 14 @12516 has 5 MA's), (32, 12618), (48, 12699), (59, 12765), (60, 12768), (65, 12792), (77, 12861), (80, 12888), (90, 13041),

Gene: GMA1_15 Start: 8784, Stop: 9703, Start Num: 3

Candidate Starts for GMA1_15:

(Start: 3 @8784 has 48 MA's), (20, 8970), (22, 8982), (35, 9048), (45, 9096), (48, 9111), (51, 9129), (56, 9165), (61, 9195), (62, 9204), (70, 9270), (86, 9414), (87, 9456), (88, 9465), (100, 9606), (103, 9651), (109, 9684),

Gene: Galactica_18 Start: 14113, Stop: 14858, Start Num: 12

Candidate Starts for Galactica_18:

(Start: 12 @14113 has 1 MA's), (43, 14272), (53, 14314), (64, 14362), (65, 14374), (69, 14398), (76, 14431), (87, 14578), (110, 14839), (111, 14842),

Gene: Gingerbug_17 Start: 10503, Stop: 11179, Start Num: 19

Candidate Starts for Gingerbug_17:

(4, 10386), (Start: 19 @10503 has 1 MA's), (27, 10548), (28, 10551), (31, 10578), (32, 10581), (34, 10596), (41, 10632), (44, 10644), (48, 10662), (50, 10677), (65, 10755), (77, 10824), (81, 10863), (95, 11025),

Gene: Goodman_19 Start: 12763, Stop: 13484, Start Num: 13

Candidate Starts for Goodman_19:

(Start: 13 @12763 has 9 MA's), (37, 12901), (48, 12949), (59, 13015), (65, 13042), (74, 13093), (77, 13111), (80, 13138), (90, 13291), (96, 13345),

Gene: HFrancette_16 Start: 9271, Stop: 9989, Start Num: 15

Candidate Starts for HFrancette_16:

(Start: 15 @9271 has 8 MA's), (26, 9340), (59, 9490), (72, 9553), (75, 9568), (76, 9571), (90, 9784), (106, 9925),

Gene: Herod_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Herod_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (105, 10134),

Gene: Hiyaa_20 Start: 15134, Stop: 15891, Start Num: 11

Candidate Starts for Hiyaa_20:

(Start: 11 @15134 has 2 MA's), (23, 15197), (45, 15311), (52, 15341), (65, 15404), (69, 15428), (74, 15455), (76, 15461), (78, 15479), (110, 15872), (111, 15875),

Gene: Hortense_16 Start: 9045, Stop: 9967, Start Num: 3

Candidate Starts for Hortense_16:

(Start: 3 @9045 has 48 MA's), (5, 9126), (7, 9156), (Start: 12 @9177 has 1 MA's), (18, 9213), (20, 9237), (29, 9282), (30, 9288), (33, 9312), (34, 9315), (42, 9354), (45, 9366), (51, 9399), (54, 9420), (56, 9435), (59, 9456), (71, 9534), (100, 9852), (107, 9918),

Gene: Howe_16 Start: 9045, Stop: 9967, Start Num: 3

Candidate Starts for Howe_16:

(Start: 3 @9045 has 48 MA's), (5, 9126), (7, 9156), (Start: 12 @9177 has 1 MA's), (18, 9213), (20, 9237), (29, 9282), (30, 9288), (33, 9312), (34, 9315), (42, 9354), (45, 9366), (51, 9399), (54, 9420), (56, 9435), (59, 9456), (71, 9534), (100, 9852), (107, 9918),

Gene: Ignacio_16 Start: 9271, Stop: 9989, Start Num: 15

Candidate Starts for Ignacio_16:

(Start: 15 @9271 has 8 MA's), (26, 9340), (59, 9490), (72, 9553), (75, 9568), (76, 9571), (90, 9784), (106, 9925),

Gene: Jace_14 Start: 8989, Stop: 9902, Start Num: 3

Candidate Starts for Jace_14:

(2, 8959), (Start: 3 @8989 has 48 MA's), (21, 9184), (24, 9193), (30, 9223), (40, 9280), (45, 9301), (51, 9334), (54, 9355), (63, 9409), (84, 9568), (85, 9580),

Gene: Johann_19 Start: 12763, Stop: 13484, Start Num: 13

Candidate Starts for Johann_19:

(Start: 13 @12763 has 9 MA's), (37, 12901), (48, 12949), (59, 13015), (65, 13042), (74, 13093), (77, 13111), (80, 13138), (90, 13291), (96, 13345),

Gene: Keanu_20 Start: 15177, Stop: 15934, Start Num: 11

Candidate Starts for Keanu_20:

(Start: 11 @15177 has 2 MA's), (23, 15240), (65, 15447), (74, 15498), (76, 15504), (78, 15522), (110, 15915), (111, 15918),

Gene: Kita_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Kita_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (101, 10104), (105, 10134),

Gene: Madeline_15 Start: 9287, Stop: 10197, Start Num: 3

Candidate Starts for Madeline_15:

(Start: 3 @9287 has 48 MA's), (5, 9368), (6, 9386), (7, 9398), (Start: 12 @9419 has 1 MA's), (18, 9455), (20, 9479), (33, 9551), (45, 9605), (66, 9740),

Gene: Manasvini_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Manasvini_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (101, 10104), (105, 10134),

Gene: Maridalia_84 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Maridalia_84:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (101, 10104), (105, 10134),

Gene: Mcklovin_17 Start: 10161, Stop: 11080, Start Num: 3

Candidate Starts for Mcklovin_17:

(Start: 3 @10161 has 48 MA's), (6, 10260), (7, 10272), (16, 10317), (18, 10329), (20, 10353), (24, 10371), (33, 10425), (45, 10479), (51, 10512), (71, 10647), (107, 11031),

Gene: MichaelScott_16 Start: 8840, Stop: 9762, Start Num: 3

Candidate Starts for MichaelScott_16:

(Start: 3 @8840 has 48 MA's), (5, 8921), (7, 8951), (Start: 12 @8972 has 1 MA's), (18, 9008), (20, 9032), (29, 9077), (30, 9083), (33, 9107), (34, 9110), (42, 9149), (45, 9161), (51, 9194), (54, 9215), (56, 9230), (59, 9251), (71, 9329), (107, 9713),

Gene: Milani_18 Start: 11474, Stop: 12159, Start Num: 14

Candidate Starts for Milani_18:

(Start: 14 @11474 has 5 MA's), (32, 11576), (39, 11618), (60, 11726), (65, 11750), (74, 11801), (80, 11846), (84, 11876), (90, 11987), (93, 12014),

Gene: Neobush_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Neobush_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (101, 10104), (105, 10134),

Gene: Nymphadora_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Nymphadora_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (105, 10134),

Gene: Ohgeesy_15 Start: 8633, Stop: 9543, Start Num: 3

Candidate Starts for Ohgeesy_15:

(Start: 3 @8633 has 48 MA's), (5, 8714), (6, 8732), (7, 8744), (Start: 12 @8765 has 1 MA's), (18, 8801), (20, 8825), (33, 8897), (45, 8951), (63, 9059), (66, 9086),

Gene: Oregano_16 Start: 8511, Stop: 9433, Start Num: 3

Candidate Starts for Oregano_16:

(Start: 3 @8511 has 48 MA's), (5, 8592), (7, 8622), (Start: 12 @8643 has 1 MA's), (18, 8679), (20, 8703), (29, 8748), (30, 8754), (33, 8778), (34, 8781), (42, 8820), (45, 8832), (51, 8865), (54, 8886), (56, 8901), (59, 8922), (71, 9000), (107, 9384),

Gene: PermaG_19 Start: 12827, Stop: 13545, Start Num: 13

Candidate Starts for PermaG_19:

(Start: 13 @12827 has 9 MA's), (37, 12965), (48, 13013), (59, 13079), (65, 13106), (74, 13157), (77, 13175), (79, 13199), (80, 13202), (90, 13355),

Gene: Phonegingi_20 Start: 10589, Stop: 11340, Start Num: 14

Candidate Starts for Phonegingi_20:

(Start: 14 @10589 has 5 MA's), (17, 10607), (Start: 19 @10619 has 1 MA's), (25, 10652), (35, 10709), (42, 10745), (47, 10766), (49, 10781), (58, 10829), (60, 10838), (65, 10883), (72, 10922), (83, 11009), (102, 11252),

Gene: Piccadilly_16 Start: 9256, Stop: 9965, Start Num: 15

Candidate Starts for Piccadilly_16:

(Start: 15 @9256 has 8 MA's), (26, 9325), (59, 9475), (72, 9538), (75, 9553), (76, 9556), (90, 9769), (91, 9778), (94, 9802),

Gene: Pickles13_20 Start: 10749, Stop: 11503, Start Num: 13

Candidate Starts for Pickles13_20:

(Start: 9 @10731 has 5 MA's), (Start: 13 @10749 has 9 MA's), (Start: 14 @10752 has 5 MA's), (17, 10773), (Start: 19 @10785 has 1 MA's), (42, 10911), (46, 10926), (50, 10953), (54, 10968), (58, 10995), (60, 11004), (65, 11049), (72, 11088), (80, 11145), (82, 11172), (102, 11415),

Gene: Polly_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Polly_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (101, 10104), (105, 10134),

Gene: Powerball_15 Start: 8347, Stop: 9254, Start Num: 3

Candidate Starts for Powerball_15:

(Start: 3 @8347 has 48 MA's), (7, 8458), (18, 8515), (36, 8626), (45, 8665), (51, 8698), (54, 8719), (59, 8755), (63, 8773), (79, 8890), (87, 9004), (99, 9139),

Gene: Rasovi_18 Start: 12781, Stop: 13508, Start Num: 13

Candidate Starts for Rasovi_18:

(Start: 13 @12781 has 9 MA's), (32, 12886), (37, 12919), (48, 12967), (59, 13033), (65, 13060), (74, 13111), (77, 13129), (80, 13156), (90, 13315), (104, 13450),

Gene: SBlackberry_18 Start: 12619, Stop: 13340, Start Num: 13

Candidate Starts for SBlackberry_18:

(Start: 13 @12619 has 9 MA's), (59, 12871), (65, 12898), (68, 12913), (74, 12949), (77, 12967), (80, 12994), (90, 13147), (104, 13282),

Gene: Samman98_16 Start: 8856, Stop: 9763, Start Num: 3

Candidate Starts for Samman98_16:

(Start: 3 @8856 has 48 MA's), (7, 8967), (18, 9024), (36, 9135), (45, 9174), (51, 9207), (54, 9228), (59, 9264), (63, 9282), (79, 9399), (87, 9513), (99, 9648),

Gene: Sekhmet_16 Start: 8840, Stop: 9762, Start Num: 3

Candidate Starts for Sekhmet_16:

(Start: 3 @8840 has 48 MA's), (5, 8921), (7, 8951), (Start: 12 @8972 has 1 MA's), (18, 9008), (20, 9032), (29, 9077), (30, 9083), (33, 9107), (34, 9110), (42, 9149), (45, 9161), (51, 9194), (54, 9215), (56, 9230), (59, 9251), (71, 9329), (107, 9713),

Gene: Shlim410_16 Start: 9045, Stop: 9967, Start Num: 3

Candidate Starts for Shlim410_16:

(Start: 3 @9045 has 48 MA's), (5, 9126), (7, 9156), (Start: 12 @9177 has 1 MA's), (18, 9213), (20, 9237), (29, 9282), (30, 9288), (33, 9312), (34, 9315), (42, 9354), (45, 9366), (51, 9399), (54, 9420), (56, 9435), (59, 9456), (71, 9534), (100, 9852), (107, 9918),

Gene: Sidious_15 Start: 8632, Stop: 9521, Start Num: 3

Candidate Starts for Sidious_15:

(Start: 3 @8632 has 48 MA's), (5, 8713), (7, 8743), (Start: 12 @8764 has 1 MA's), (18, 8800), (20, 8824), (33, 8896), (45, 8950), (66, 9085), (98, 9409), (99, 9421), (105, 9481),

Gene: Sucha_15 Start: 9812, Stop: 10497, Start Num: 14

Candidate Starts for Sucha_15:

(Start: 14 @9812 has 5 MA's), (32, 9914), (39, 9956), (60, 10064), (65, 10088), (67, 10091), (73, 10130), (74, 10139), (80, 10184), (89, 10313), (90, 10325), (93, 10352),

Gene: Suerte_15 Start: 8339, Stop: 9246, Start Num: 3

Candidate Starts for Suerte_15:

(Start: 3 @8339 has 48 MA's), (7, 8450), (18, 8507), (36, 8618), (45, 8657), (51, 8690), (54, 8711), (59, 8747), (63, 8765), (79, 8882), (87, 8996), (99, 9131),

Gene: Suscepit_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Suscepit_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (101, 10104), (105, 10134),

Gene: Tayonia_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Tayonia_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (101, 10104), (105, 10134),

Gene: ThankyouJordi_14 Start: 9309, Stop: 10216, Start Num: 3

Candidate Starts for ThankyouJordi_14:

(Start: 3 @9309 has 48 MA's), (5, 9390), (Start: 12 @9441 has 1 MA's), (18, 9477), (20, 9501), (33, 9573), (45, 9627), (59, 9717), (66, 9762), (97, 10086), (98, 10089), (99, 10101), (105, 10161),

Gene: TimTam_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for TimTam_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (105, 10134),

Gene: Trumpet_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Trumpet_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (101,

10104), (105, 10134),

Gene: TurboVicky_18 Start: 12613, Stop: 13334, Start Num: 13

Candidate Starts for TurboVicky_18:

(Start: 13 @12613 has 9 MA's), (59, 12865), (65, 12892), (68, 12907), (74, 12943), (77, 12961), (80, 12988), (90, 13141), (104, 13276),

Gene: Twinkle_16 Start: 9045, Stop: 9967, Start Num: 3

Candidate Starts for Twinkle_16:

(Start: 3 @9045 has 48 MA's), (5, 9126), (7, 9156), (Start: 12 @9177 has 1 MA's), (18, 9213), (20, 9237), (29, 9282), (30, 9288), (33, 9312), (34, 9315), (42, 9354), (45, 9366), (51, 9399), (54, 9420), (56, 9435), (59, 9456), (71, 9534), (100, 9852), (107, 9918),

Gene: Typher_20 Start: 12746, Stop: 13464, Start Num: 14

Candidate Starts for Typher_20:

(Start: 14 @12746 has 5 MA's), (59, 12995), (65, 13022), (68, 13037), (74, 13073), (77, 13091), (80, 13118), (90, 13271), (104, 13406),

Gene: Vondra_16 Start: 9268, Stop: 9977, Start Num: 15

Candidate Starts for Vondra_16:

(Start: 15 @9268 has 8 MA's), (26, 9337), (59, 9487), (72, 9550), (75, 9565), (76, 9568), (90, 9781), (91, 9790), (94, 9814),

Gene: Warren_21 Start: 10765, Stop: 11540, Start Num: 9

Candidate Starts for Warren_21:

(Start: 9 @10765 has 5 MA's), (Start: 14 @10786 has 5 MA's), (17, 10804), (Start: 19 @10816 has 1 MA's), (25, 10849), (42, 10942), (47, 10963), (48, 10969), (58, 11026), (60, 11035), (65, 11080), (72, 11119), (83, 11206), (102, 11452),

Gene: WelcomeAyanna_14 Start: 9309, Stop: 10216, Start Num: 3

Candidate Starts for WelcomeAyanna_14:

(Start: 3 @9309 has 48 MA's), (5, 9390), (Start: 12 @9441 has 1 MA's), (18, 9477), (20, 9501), (33, 9573), (45, 9627), (59, 9717), (66, 9762), (97, 10086), (98, 10089), (99, 10101), (105, 10161),

Gene: Yeezy_16 Start: 8643, Stop: 9547, Start Num: 3

Candidate Starts for Yeezy_16:

(Start: 3 @8643 has 48 MA's), (5, 8724), (7, 8754), (Start: 12 @8775 has 1 MA's), (18, 8811), (20, 8835), (33, 8907), (45, 8961), (66, 9096), (97, 9417), (98, 9420), (99, 9432), (105, 9492),

Gene: Zameen_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Zameen_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (6, 9384), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (97, 10059), (98, 10062), (99, 10074), (101, 10104), (105, 10134),

Gene: Zanella_18 Start: 12616, Stop: 13337, Start Num: 13

Candidate Starts for Zanella_18:

(Start: 13 @12616 has 9 MA's), (59, 12868), (65, 12895), (68, 12910), (74, 12946), (77, 12964), (80, 12991), (90, 13144), (104, 13279),

Gene: Zirinka_15 Start: 9285, Stop: 10189, Start Num: 3

Candidate Starts for Zirinka_15:

(Start: 3 @9285 has 48 MA's), (5, 9366), (7, 9396), (Start: 12 @9417 has 1 MA's), (18, 9453), (20, 9477), (33, 9549), (45, 9603), (66, 9738), (107, 10149),