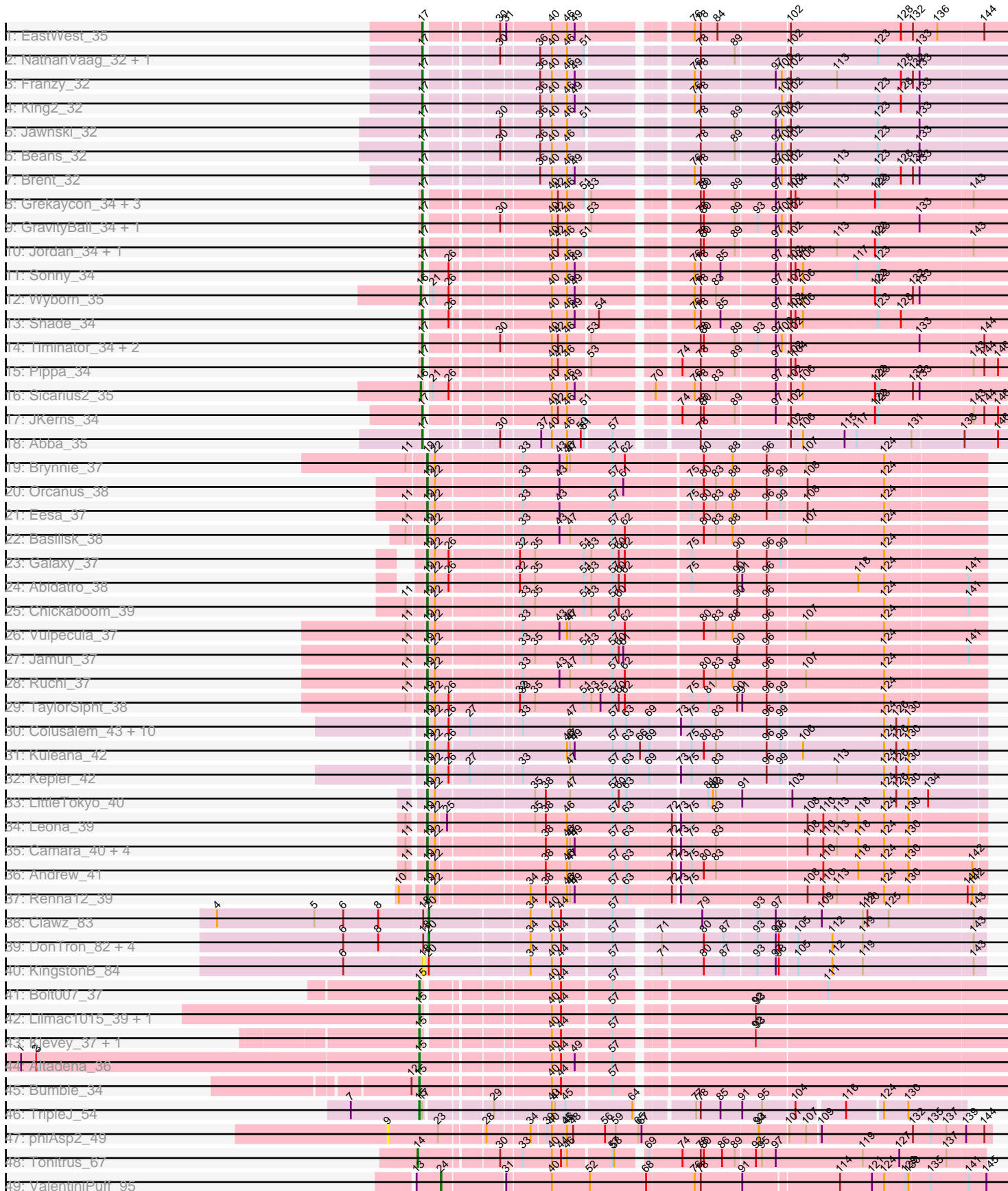


Pham 193954



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 193954 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193954 has 77 members, 12 are drafts.

Phages represented in each track:

- Track 1 : EastWest_35
- Track 2 : NathanVaag_32, Piccoletto_32
- Track 3 : Franzy_32
- Track 4 : King2_32
- Track 5 : Jawnski_32
- Track 6 : Beans_32
- Track 7 : Brent_32
- Track 8 : Grekaycon_34, BossLady_34, Martha_34, TaeYoung_34
- Track 9 : GravityBall_34, StevieBAY_34
- Track 10 : Jordan_34, Zartrosa_34
- Track 11 : Sonny_34
- Track 12 : Wyborn_35
- Track 13 : Shade_34
- Track 14 : Timinator_34, BarretLemon_34, LeeroyJ_34
- Track 15 : Pippa_34
- Track 16 : Sicarius2_35
- Track 17 : JKerns_34
- Track 18 : Abba_35
- Track 19 : Brynnie_37
- Track 20 : Orcanus_38
- Track 21 : Eesa_37
- Track 22 : Basilisk_38
- Track 23 : Galaxy_37
- Track 24 : Abidatro_38
- Track 25 : Chickaboom_39
- Track 26 : Vulpecula_37
- Track 27 : Jamun_37
- Track 28 : Ruchi_37
- Track 29 : TaylorSipht_38
- Track 30 : Colusalem_43, Melons_42, Polka_40, Jerole_50, Daob_42, Lunar_42, Bedetta_45, Coral_40, HannahPhantana_41, Cote_42, Amelia_40
- Track 31 : Kuleana_42
- Track 32 : Kepler_42
- Track 33 : LittleTokyo_40
- Track 34 : Leona_39
- Track 35 : Camara_40, Juno112_39, PhluffyCoco_40, KHumphrey_40, RedFox_40
- Track 36 : Andrew_41

- Track 37 : Renna12_39
- Track 38 : Clawz_83
- Track 39 : DonTron_82, ColdSoup_85, Jollymon_85, Sting_81, Soos_78
- Track 40 : KingstonB_84
- Track 41 : Bolt007_37
- Track 42 : Lilmac1015_39, CalWood4100_39
- Track 43 : Klevey_37, Prairie_36
- Track 44 : Altadena_36
- Track 45 : Bumble_34
- Track 46 : TripleJ_54
- Track 47 : phiAsp2_49
- Track 48 : Tonitrus_67
- Track 49 : ValentiniPuff_95

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

The start number called the most often in the published annotations is 19, it was called in 28 of the 65 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abidatro_38, Amelia_40, Andrew_41, Basilisk_38, Bedetta_45, Brynnie_37, Camara_40, Chickaboom_39, Colusalem_43, Coral_40, Cote_42, Daob_42, Eesa_37, Galaxy_37, HannahPhantana_41, Jamun_37, Jerole_50, Juno112_39, KHumphrey_40, Kepler_42, Kuleana_42, Leona_39, LittleTokyo_40, Lunar_42, Melons_42, Orcanus_38, PhluffyCoco_40, Polka_40, RedFox_40, Renna12_39, Ruchi_37, TaylorSipht_38, Vulpecula_37,

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

-

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

- Abba_35, Altadena_36, BarretLemon_34, Beans_32, Bolt007_37, BossLady_34, Brent_32, Bumble_34, CalWood4100_39, Clawz_83, ColdSoup_85, DonTron_82, EastWest_35, Franzy_32, GravityBall_34, Grekaycon_34, JKerns_34, Jawnski_32, Jollymon_85, Jordan_34, King2_32, KingstonB_84, Klevey_37, LeeroyJ_34, Lilmac1015_39, Martha_34, NathanVaag_32, Piccoletto_32, Pippa_34, Prairie_36, Shade_34, Sicarius2_35, Sonny_34, Soos_78, StevieBAY_34, Sting_81, TaeYoung_34, Timinator_34, Tonitrus_67, TripleJ_54, ValentiniPuff_95, Wyborn_35, Zartrosa_34, phiAsp2_49,

Summary by start number:

Start 9:

- Found in 1 of 77 (1.3%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: phiAsp2_49 (singleton),

Start 14:

- Found in 1 of 77 (1.3%) of genes in pham

- Manual Annotations of this start: 1 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Tonitrus_67 (singleton),

Start 15:

- Found in 8 of 77 (10.4%) of genes in pham
- Manual Annotations of this start: 7 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Altadena_36 (FH), Bolt007_37 (FH), Bumble_34 (FH), CalWood4100_39 (FH), Klevey_37 (FH), Lilmac1015_39 (FH), Prairie_36 (FH), TripleJ_54 (FJ),

Start 16:

- Found in 2 of 77 (2.6%) of genes in pham
- Manual Annotations of this start: 2 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sicarius2_35 (AO2), Wyborn_35 (AO2),

Start 17:

- Found in 25 of 77 (32.5%) of genes in pham
- Manual Annotations of this start: 23 of 65
- Called 96.0% of time when present
- Phage (with cluster) where this start called: Abba_35 (AO3), BarretLemon_34 (AO2), Beans_32 (AO1), BossLady_34 (AO2), Brent_32 (AO1), EastWest_35 (AO), Franzy_32 (AO1), GravityBall_34 (AO2), Grekaycon_34 (AO2), JKerns_34 (AO2), Jawnski_32 (AO1), Jordan_34 (AO2), King2_32 (AO1), LeeroyJ_34 (AO2), Martha_34 (AO2), NathanVaag_32 (AO1), Piccoletto_32 (AO1), Pippa_34 (AO2), Shade_34 (AO2), Sonny_34 (AO2), StevieBAY_34 (AO2), TaeYoung_34 (AO2), Timinator_34 (AO2), Zartrosa_34 (AO2),

Start 18:

- Found in 7 of 77 (9.1%) of genes in pham
- No Manual Annotations of this start.
- Called 14.3% of time when present
- Phage (with cluster) where this start called: KingstonB_84 (CP),

Start 19:

- Found in 33 of 77 (42.9%) of genes in pham
- Manual Annotations of this start: 28 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abidatro_38 (AS1), Amelia_40 (AS2), Andrew_41 (AS3), Basilisk_38 (AS1), Bedetta_45 (AS2), Brynnie_37 (AS1), Camara_40 (AS3), Chickaboom_39 (AS1), Colusalem_43 (AS2), Coral_40 (AS2), Cote_42 (AS2), Daob_42 (AS2), Eesa_37 (AS1), Galaxy_37 (AS1), HannahPhantana_41 (AS2), Jamun_37 (AS1), Jerole_50 (AS2), Juno112_39 (AS3), KHumphrey_40 (AS3), Kepler_42 (AS2), Kuleana_42 (AS2), Leona_39 (AS3), LittleTokyo_40 (AS2), Lunar_42 (AS2), Melons_42 (AS2), Orcanus_38 (AS1), PhluffyCoco_40 (AS3), Polka_40 (AS2), RedFox_40 (AS3), Renna12_39 (AS3), Ruchi_37 (AS1), TaylorSipht_38 (AS1), Vulpecula_37 (AS1),

Start 20:

- Found in 7 of 77 (9.1%) of genes in pham
- Manual Annotations of this start: 3 of 65

- Called 85.7% of time when present
- Phage (with cluster) where this start called: Clawz_83 (CP), ColdSoup_85 (CP), DonTron_82 (CP), Jollymon_85 (CP), Soos_78 (CP), Sting_81 (CP),

Start 24:

- Found in 1 of 77 (1.3%) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ValentiniPuff_95 (singleton),

Summary by clusters:

There are 11 clusters represented in this pham: AS3, AS2, singleton, AS1, AO, AO3, AO2, AO1, FH, FJ, CP,

Info for manual annotations of cluster AO:

- Start number 17 was manually annotated 1 time for cluster AO.

Info for manual annotations of cluster AO1:

- Start number 17 was manually annotated 7 times for cluster AO1.

Info for manual annotations of cluster AO2:

- Start number 16 was manually annotated 2 times for cluster AO2.
- Start number 17 was manually annotated 14 times for cluster AO2.

Info for manual annotations of cluster AO3:

- Start number 17 was manually annotated 1 time for cluster AO3.

Info for manual annotations of cluster AS1:

- Start number 19 was manually annotated 11 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 19 was manually annotated 11 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 19 was manually annotated 6 times for cluster AS3.

Info for manual annotations of cluster CP:

- Start number 20 was manually annotated 3 times for cluster CP.

Info for manual annotations of cluster FH:

- Start number 15 was manually annotated 6 times for cluster FH.

Info for manual annotations of cluster FJ:

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

Gene Information:

Gene: Abba_35 Start: 27714, Stop: 28745, Start Num: 17

Candidate Starts for Abba_35:

(Start: 17 @27714 has 23 MA's), (30, 27831), (37, 27897), (40, 27915), (46, 27945), (50, 27969), (51, 27975), (57, 28023), (78, 28155), (102, 28317), (106, 28341), (115, 28416), (117, 28437), (131, 28542), (138, 28635), (146, 28701),

Gene: Abidatro_38 Start: 25301, Stop: 26326, Start Num: 19

Candidate Starts for Abidatro_38:

(Start: 19 @25301 has 28 MA's), (22, 25316), (26, 25343), (32, 25460), (35, 25490), (51, 25586), (53, 25598), (57, 25640), (60, 25652), (62, 25664), (75, 25778), (90, 25865), (91, 25871), (96, 25919), (118, 26090), (124, 26138), (141, 26291),

Gene: Altadena_36 Start: 26934, Stop: 28001, Start Num: 15

Candidate Starts for Altadena_36:

(1, 26163), (2, 26193), (3, 26196), (Start: 15 @26934 has 7 MA's), (40, 27156), (44, 27174), (49, 27201), (57, 27264),

Gene: Amelia_40 Start: 25064, Stop: 26086, Start Num: 19

Candidate Starts for Amelia_40:

(Start: 19 @25064 has 28 MA's), (22, 25079), (26, 25106), (27, 25142), (33, 25229), (47, 25322), (57, 25403), (63, 25430), (69, 25475), (73, 25523), (75, 25544), (83, 25592), (96, 25688), (99, 25715), (124, 25907), (126, 25928), (130, 25952),

Gene: Andrew_41 Start: 24893, Stop: 25906, Start Num: 19

Candidate Starts for Andrew_41:

(11, 24869), (Start: 19 @24893 has 28 MA's), (22, 24908), (38, 25097), (46, 25139), (47, 25145), (57, 25226), (63, 25253), (72, 25334), (73, 25343), (75, 25364), (80, 25388), (83, 25412), (110, 25613), (118, 25679), (124, 25727), (130, 25772), (142, 25883),

Gene: BarretLemon_34 Start: 28805, Stop: 29824, Start Num: 17

Candidate Starts for BarretLemon_34:

(Start: 17 @28805 has 23 MA's), (30, 28922), (40, 29006), (42, 29018), (46, 29036), (53, 29072), (78, 29246), (80, 29252), (89, 29309), (93, 29348), (97, 29384), (100, 29396), (102, 29408), (133, 29651), (144, 29771),

Gene: Basilisk_38 Start: 25812, Stop: 26840, Start Num: 19

Candidate Starts for Basilisk_38:

(11, 25779), (Start: 19 @25812 has 28 MA's), (22, 25827), (33, 25977), (43, 26049), (47, 26070), (57, 26151), (62, 26175), (80, 26313), (83, 26337), (88, 26370), (107, 26505), (124, 26652),

Gene: Beans_32 Start: 28492, Stop: 29520, Start Num: 17

Candidate Starts for Beans_32:

(Start: 17 @28492 has 23 MA's), (30, 28609), (36, 28675), (40, 28693), (46, 28723), (78, 28933), (89, 28996), (97, 29071), (100, 29083), (102, 29095), (123, 29260), (133, 29338),

Gene: Bedetta_45 Start: 25211, Stop: 26233, Start Num: 19

Candidate Starts for Bedetta_45:

(Start: 19 @25211 has 28 MA's), (22, 25226), (26, 25253), (27, 25289), (33, 25376), (47, 25469), (57, 25550), (63, 25577), (69, 25622), (73, 25670), (75, 25691), (83, 25739), (96, 25835), (99, 25862), (124, 26054), (126, 26075), (130, 26099),

Gene: Bolt007_37 Start: 29435, Stop: 30487, Start Num: 15

Candidate Starts for Bolt007_37:

(Start: 15 @29435 has 7 MA's), (40, 29645), (44, 29663), (57, 29753), (111, 30122),

Gene: BossLady_34 Start: 28774, Stop: 29793, Start Num: 17

Candidate Starts for BossLady_34:

(Start: 17 @28774 has 23 MA's), (40, 28975), (42, 28987), (46, 29005), (51, 29035), (53, 29041), (78, 29215), (80, 29221), (89, 29278), (97, 29353), (102, 29377), (104, 29386), (113, 29464), (122, 29536), (123, 29542), (143, 29719),

Gene: Brent_32 Start: 28455, Stop: 29483, Start Num: 17

Candidate Starts for Brent_32:

(Start: 17 @28455 has 23 MA's), (36, 28638), (40, 28656), (46, 28686), (49, 28701), (76, 28884), (78, 28896), (97, 29034), (100, 29046), (102, 29058), (113, 29145), (123, 29223), (128, 29265), (132, 29289), (133, 29301),

Gene: Brynnie_37 Start: 25690, Stop: 26718, Start Num: 19

Candidate Starts for Brynnie_37:

(11, 25657), (Start: 19 @25690 has 28 MA's), (22, 25705), (33, 25855), (43, 25927), (46, 25942), (47, 25948), (57, 26029), (62, 26053), (80, 26191), (88, 26248), (96, 26311), (107, 26383), (124, 26530),

Gene: Bumble_34 Start: 26999, Stop: 28066, Start Num: 15

Candidate Starts for Bumble_34:

(12, 26987), (Start: 15 @26999 has 7 MA's), (40, 27221), (44, 27239), (57, 27329),

Gene: CalWood4100_39 Start: 28926, Stop: 29978, Start Num: 15

Candidate Starts for CalWood4100_39:

(Start: 15 @28926 has 7 MA's), (40, 29136), (44, 29154), (57, 29244), (92, 29481), (93, 29484),

Gene: Camara_40 Start: 25003, Stop: 26016, Start Num: 19

Candidate Starts for Camara_40:

(11, 24979), (Start: 19 @25003 has 28 MA's), (22, 25018), (38, 25207), (46, 25249), (47, 25255), (49, 25264), (57, 25336), (63, 25363), (72, 25444), (73, 25453), (75, 25474), (83, 25522), (108, 25693), (110, 25723), (113, 25750), (118, 25789), (124, 25837), (130, 25882),

Gene: Chickaboom_39 Start: 25312, Stop: 26337, Start Num: 19

Candidate Starts for Chickaboom_39:

(11, 25279), (Start: 19 @25312 has 28 MA's), (22, 25327), (33, 25477), (35, 25501), (51, 25597), (53, 25609), (57, 25651), (60, 25663), (90, 25876), (96, 25930), (124, 26149), (141, 26302),

Gene: Clawz_83 Start: 52842, Stop: 53858, Start Num: 20

Candidate Starts for Clawz_83:

(4, 52431), (5, 52623), (6, 52680), (8, 52749), (18, 52833), (Start: 20 @52842 has 3 MA's), (34, 53031), (40, 53070), (44, 53088), (57, 53181), (79, 53328), (93, 53430), (97, 53466), (109, 53550), (119, 53628), (120, 53637), (125, 53679), (143, 53835),

Gene: ColdSoup_85 Start: 52837, Stop: 53850, Start Num: 20

Candidate Starts for ColdSoup_85:

(6, 52675), (8, 52744), (18, 52828), (Start: 20 @52837 has 3 MA's), (34, 53023), (40, 53062), (44, 53080), (57, 53173), (71, 53242), (80, 53323), (87, 53362), (93, 53422), (97, 53458), (98, 53464), (105, 53497), (112, 53563), (119, 53620), (143, 53827),

Gene: Colusalem_43 Start: 25041, Stop: 26063, Start Num: 19

Candidate Starts for Colusalem_43:

(Start: 19 @25041 has 28 MA's), (22, 25056), (26, 25083), (27, 25119), (33, 25206), (47, 25299), (57, 25380), (63, 25407), (69, 25452), (73, 25500), (75, 25521), (83, 25569), (96, 25665), (99, 25692), (124, 25884), (126, 25905), (130, 25929),

Gene: Coral_40 Start: 24912, Stop: 25934, Start Num: 19

Candidate Starts for Coral_40:

(Start: 19 @24912 has 28 MA's), (22, 24927), (26, 24954), (27, 24990), (33, 25077), (47, 25170), (57, 25251), (63, 25278), (69, 25323), (73, 25371), (75, 25392), (83, 25440), (96, 25536), (99, 25563), (124, 25755), (126, 25776), (130, 25800),

Gene: Cote_42 Start: 25389, Stop: 26411, Start Num: 19

Candidate Starts for Cote_42:

(Start: 19 @25389 has 28 MA's), (22, 25404), (26, 25431), (27, 25467), (33, 25554), (47, 25647), (57, 25728), (63, 25755), (69, 25800), (73, 25848), (75, 25869), (83, 25917), (96, 26013), (99, 26040), (124, 26232), (126, 26253), (130, 26277),

Gene: Daob_42 Start: 25397, Stop: 26419, Start Num: 19

Candidate Starts for Daob_42:

(Start: 19 @25397 has 28 MA's), (22, 25412), (26, 25439), (27, 25475), (33, 25562), (47, 25655), (57, 25736), (63, 25763), (69, 25808), (73, 25856), (75, 25877), (83, 25925), (96, 26021), (99, 26048), (124, 26240), (126, 26261), (130, 26285),

Gene: DonTron_82 Start: 52715, Stop: 53728, Start Num: 20

Candidate Starts for DonTron_82:

(6, 52553), (8, 52622), (18, 52706), (Start: 20 @52715 has 3 MA's), (34, 52901), (40, 52940), (44, 52958), (57, 53051), (71, 53120), (80, 53201), (87, 53240), (93, 53300), (97, 53336), (98, 53342), (105, 53375), (112, 53441), (119, 53498), (143, 53705),

Gene: EastWest_35 Start: 28014, Stop: 29039, Start Num: 17

Candidate Starts for EastWest_35:

(Start: 17 @28014 has 23 MA's), (30, 28131), (31, 28137), (40, 28215), (46, 28245), (49, 28260), (76, 28443), (78, 28455), (84, 28488), (102, 28617), (128, 28824), (132, 28848), (136, 28893), (144, 28980),

Gene: Eesa_37 Start: 26191, Stop: 27219, Start Num: 19

Candidate Starts for Eesa_37:

(11, 26149), (Start: 19 @26191 has 28 MA's), (22, 26206), (33, 26356), (43, 26428), (57, 26530), (75, 26668), (80, 26692), (83, 26716), (88, 26749), (96, 26812), (99, 26839), (108, 26887), (124, 27031),

Gene: Franzy_32 Start: 28454, Stop: 29482, Start Num: 17

Candidate Starts for Franzy_32:

(Start: 17 @28454 has 23 MA's), (36, 28637), (40, 28655), (46, 28685), (49, 28700), (76, 28883), (78, 28895), (97, 29033), (100, 29045), (102, 29057), (113, 29144), (128, 29264), (132, 29288), (133, 29300),

Gene: Galaxy_37 Start: 25067, Stop: 26092, Start Num: 19

Candidate Starts for Galaxy_37:

(Start: 19 @25067 has 28 MA's), (22, 25082), (26, 25109), (32, 25226), (35, 25256), (51, 25352), (53, 25364), (57, 25406), (60, 25418), (62, 25430), (75, 25544), (90, 25631), (96, 25685), (99, 25712), (124, 25904),

Gene: GravityBall_34 Start: 28804, Stop: 29823, Start Num: 17

Candidate Starts for GravityBall_34:

(Start: 17 @28804 has 23 MA's), (30, 28921), (40, 29005), (42, 29017), (46, 29035), (53, 29071), (78, 29245), (80, 29251), (89, 29308), (93, 29347), (97, 29383), (100, 29395), (102, 29407), (133, 29650),

Gene: Grekaycon_34 Start: 28720, Stop: 29739, Start Num: 17

Candidate Starts for Grekaycon_34:

(Start: 17 @28720 has 23 MA's), (40, 28921), (42, 28933), (46, 28951), (51, 28981), (53, 28987), (78, 29161), (80, 29167), (89, 29224), (97, 29299), (102, 29323), (104, 29332), (113, 29410), (122, 29482), (123, 29488), (143, 29665),

Gene: HannahPhantana_41 Start: 25059, Stop: 26081, Start Num: 19

Candidate Starts for HannahPhantana_41:

(Start: 19 @25059 has 28 MA's), (22, 25074), (26, 25101), (27, 25137), (33, 25224), (47, 25317), (57, 25398), (63, 25425), (69, 25470), (73, 25518), (75, 25539), (83, 25587), (96, 25683), (99, 25710), (124, 25902), (126, 25923), (130, 25947),

Gene: JKerns_34 Start: 28666, Stop: 29685, Start Num: 17

Candidate Starts for JKerns_34:

(Start: 17 @28666 has 23 MA's), (40, 28867), (42, 28879), (46, 28897), (51, 28927), (74, 29071), (78, 29107), (80, 29113), (89, 29170), (97, 29245), (102, 29269), (122, 29428), (123, 29434), (143, 29611), (144, 29632), (146, 29659),

Gene: Jamun_37 Start: 25352, Stop: 26377, Start Num: 19

Candidate Starts for Jamun_37:

(11, 25319), (Start: 19 @25352 has 28 MA's), (22, 25367), (33, 25517), (35, 25541), (51, 25637), (53, 25649), (57, 25691), (60, 25703), (61, 25712), (90, 25916), (96, 25970), (124, 26189), (141, 26342),

Gene: Jawnski_32 Start: 28461, Stop: 29489, Start Num: 17

Candidate Starts for Jawnski_32:

(Start: 17 @28461 has 23 MA's), (30, 28578), (36, 28644), (40, 28662), (46, 28692), (51, 28722), (78, 28902), (89, 28965), (97, 29040), (100, 29052), (102, 29064), (123, 29229), (133, 29307),

Gene: Jerole_50 Start: 25183, Stop: 26205, Start Num: 19

Candidate Starts for Jerole_50:

(Start: 19 @25183 has 28 MA's), (22, 25198), (26, 25225), (27, 25261), (33, 25348), (47, 25441), (57, 25522), (63, 25549), (69, 25594), (73, 25642), (75, 25663), (83, 25711), (96, 25807), (99, 25834), (124, 26026), (126, 26047), (130, 26071),

Gene: Jollymon_85 Start: 52837, Stop: 53850, Start Num: 20

Candidate Starts for Jollymon_85:

(6, 52675), (8, 52744), (18, 52828), (Start: 20 @52837 has 3 MA's), (34, 53023), (40, 53062), (44, 53080), (57, 53173), (71, 53242), (80, 53323), (87, 53362), (93, 53422), (97, 53458), (98, 53464), (105, 53497), (112, 53563), (119, 53620), (143, 53827),

Gene: Jordan_34 Start: 28716, Stop: 29735, Start Num: 17

Candidate Starts for Jordan_34:

(Start: 17 @28716 has 23 MA's), (40, 28917), (42, 28929), (46, 28947), (51, 28977), (78, 29157), (80, 29163), (89, 29220), (97, 29295), (102, 29319), (113, 29406), (122, 29478), (123, 29484), (143, 29661),

Gene: Juno112_39 Start: 25003, Stop: 26016, Start Num: 19

Candidate Starts for Juno112_39:

(11, 24979), (Start: 19 @25003 has 28 MA's), (22, 25018), (38, 25207), (46, 25249), (47, 25255), (49, 25264), (57, 25336), (63, 25363), (72, 25444), (73, 25453), (75, 25474), (83, 25522), (108, 25693), (110, 25723), (113, 25750), (118, 25789), (124, 25837), (130, 25882),

Gene: KHumphrey_40 Start: 25002, Stop: 26015, Start Num: 19

Candidate Starts for KHumphrey_40:

(11, 24978), (Start: 19 @25002 has 28 MA's), (22, 25017), (38, 25206), (46, 25248), (47, 25254), (49, 25263), (57, 25335), (63, 25362), (72, 25443), (73, 25452), (75, 25473), (83, 25521), (108, 25692), (110, 25722), (113, 25749), (118, 25788), (124, 25836), (130, 25881),

Gene: Kepler_42 Start: 25807, Stop: 26829, Start Num: 19

Candidate Starts for Kepler_42:

(Start: 19 @25807 has 28 MA's), (22, 25822), (26, 25849), (27, 25885), (33, 25972), (47, 26065), (57, 26146), (63, 26173), (69, 26218), (73, 26266), (75, 26287), (83, 26335), (96, 26431), (99, 26458), (113, 26563), (124, 26650), (126, 26671), (130, 26695),

Gene: King2_32 Start: 28450, Stop: 29478, Start Num: 17

Candidate Starts for King2_32:

(Start: 17 @28450 has 23 MA's), (36, 28633), (40, 28651), (46, 28681), (49, 28696), (76, 28879), (78, 28891), (100, 29041), (102, 29053), (123, 29218), (128, 29260), (133, 29296),

Gene: KingstonB_84 Start: 52239, Stop: 53261, Start Num: 18

Candidate Starts for KingstonB_84:

(6, 52086), (18, 52239), (Start: 20 @52248 has 3 MA's), (34, 52434), (40, 52473), (44, 52491), (57, 52584), (71, 52653), (80, 52734), (87, 52773), (93, 52833), (97, 52869), (98, 52875), (105, 52908), (112, 52974), (119, 53031), (143, 53238),

Gene: Klevey_37 Start: 28353, Stop: 29405, Start Num: 15

Candidate Starts for Klevey_37:

(Start: 15 @28353 has 7 MA's), (40, 28563), (44, 28581), (57, 28671), (92, 28908), (93, 28911),

Gene: Kuleana_42 Start: 25383, Stop: 26405, Start Num: 19

Candidate Starts for Kuleana_42:

(Start: 19 @25383 has 28 MA's), (22, 25398), (26, 25425), (46, 25635), (47, 25641), (49, 25650), (57, 25722), (63, 25749), (66, 25776), (69, 25794), (75, 25863), (80, 25887), (83, 25911), (96, 26007), (99, 26034), (106, 26073), (124, 26226), (126, 26247), (130, 26271),

Gene: LeeroyJ_34 Start: 28804, Stop: 29823, Start Num: 17

Candidate Starts for LeeroyJ_34:

(Start: 17 @28804 has 23 MA's), (30, 28921), (40, 29005), (42, 29017), (46, 29035), (53, 29071), (78, 29245), (80, 29251), (89, 29308), (93, 29347), (97, 29383), (100, 29395), (102, 29407), (133, 29650), (144, 29770),

Gene: Leona_39 Start: 25074, Stop: 26087, Start Num: 19

Candidate Starts for Leona_39:

(11, 25050), (Start: 19 @25074 has 28 MA's), (22, 25089), (25, 25107), (35, 25257), (38, 25278), (46, 25320), (57, 25407), (63, 25434), (72, 25515), (73, 25524), (75, 25545), (83, 25593), (108, 25764), (110, 25794), (113, 25821), (118, 25860), (124, 25908), (130, 25953),

Gene: Lilmac1015_39 Start: 28926, Stop: 29978, Start Num: 15

Candidate Starts for Lilmac1015_39:

(Start: 15 @28926 has 7 MA's), (40, 29136), (44, 29154), (57, 29244), (92, 29481), (93, 29484),

Gene: LittleTokyo_40 Start: 24933, Stop: 25961, Start Num: 19

Candidate Starts for LittleTokyo_40:

(Start: 19 @24933 has 28 MA's), (22, 24948), (35, 25128), (38, 25149), (47, 25197), (57, 25278), (60, 25290), (63, 25305), (81, 25452), (82, 25461), (83, 25467), (91, 25515), (103, 25608), (124, 25782), (126, 25803), (130, 25827), (134, 25857),

Gene: Lunar_42 Start: 25723, Stop: 26745, Start Num: 19

Candidate Starts for Lunar_42:

(Start: 19 @25723 has 28 MA's), (22, 25738), (26, 25765), (27, 25801), (33, 25888), (47, 25981), (57, 26062), (63, 26089), (69, 26134), (73, 26182), (75, 26203), (83, 26251), (96, 26347), (99, 26374), (124, 26566), (126, 26587), (130, 26611),

Gene: Martha_34 Start: 28721, Stop: 29740, Start Num: 17

Candidate Starts for Martha_34:

(Start: 17 @28721 has 23 MA's), (40, 28922), (42, 28934), (46, 28952), (51, 28982), (53, 28988), (78, 29162), (80, 29168), (89, 29225), (97, 29300), (102, 29324), (104, 29333), (113, 29411), (122, 29483), (123, 29489), (143, 29666),

Gene: Melons_42 Start: 25537, Stop: 26559, Start Num: 19

Candidate Starts for Melons_42:

(Start: 19 @25537 has 28 MA's), (22, 25552), (26, 25579), (27, 25615), (33, 25702), (47, 25795), (57, 25876), (63, 25903), (69, 25948), (73, 25996), (75, 26017), (83, 26065), (96, 26161), (99, 26188), (124, 26380), (126, 26401), (130, 26425),

Gene: NathanVaag_32 Start: 28464, Stop: 29492, Start Num: 17

Candidate Starts for NathanVaag_32:

(Start: 17 @28464 has 23 MA's), (30, 28581), (36, 28647), (40, 28665), (46, 28695), (51, 28725), (78, 28905), (89, 28968), (102, 29067), (123, 29232), (133, 29310),

Gene: Orcanus_38 Start: 25714, Stop: 26742, Start Num: 19

Candidate Starts for Orcanus_38:

(Start: 19 @25714 has 28 MA's), (22, 25729), (33, 25879), (43, 25951), (57, 26053), (61, 26074), (75, 26191), (80, 26215), (83, 26239), (88, 26272), (96, 26335), (99, 26362), (108, 26410), (124, 26554),

Gene: PhluffyCoco_40 Start: 24999, Stop: 26012, Start Num: 19

Candidate Starts for PhluffyCoco_40:

(11, 24975), (Start: 19 @24999 has 28 MA's), (22, 25014), (38, 25203), (46, 25245), (47, 25251), (49, 25260), (57, 25332), (63, 25359), (72, 25440), (73, 25449), (75, 25470), (83, 25518), (108, 25689), (110, 25719), (113, 25746), (118, 25785), (124, 25833), (130, 25878),

Gene: Piccoletto_32 Start: 28465, Stop: 29493, Start Num: 17

Candidate Starts for Piccoletto_32:

(Start: 17 @28465 has 23 MA's), (30, 28582), (36, 28648), (40, 28666), (46, 28696), (51, 28726), (78, 28906), (89, 28969), (102, 29068), (123, 29233), (133, 29311),

Gene: Pippa_34 Start: 28845, Stop: 29864, Start Num: 17

Candidate Starts for Pippa_34:

(Start: 17 @28845 has 23 MA's), (40, 29046), (42, 29058), (46, 29076), (53, 29112), (74, 29250), (78, 29286), (89, 29349), (97, 29424), (102, 29448), (104, 29457), (143, 29790), (144, 29811), (146, 29838),

Gene: Polka_40 Start: 24913, Stop: 25935, Start Num: 19

Candidate Starts for Polka_40:

(Start: 19 @24913 has 28 MA's), (22, 24928), (26, 24955), (27, 24991), (33, 25078), (47, 25171), (57, 25252), (63, 25279), (69, 25324), (73, 25372), (75, 25393), (83, 25441), (96, 25537), (99, 25564), (124, 25756), (126, 25777), (130, 25801),

Gene: Prairie_36 Start: 28272, Stop: 29321, Start Num: 15

Candidate Starts for Prairie_36:

(Start: 15 @28272 has 7 MA's), (40, 28482), (44, 28500), (57, 28590), (92, 28827), (93, 28830),

Gene: RedFox_40 Start: 24998, Stop: 26011, Start Num: 19

Candidate Starts for RedFox_40:

(11, 24974), (Start: 19 @24998 has 28 MA's), (22, 25013), (38, 25202), (46, 25244), (47, 25250), (49, 25259), (57, 25331), (63, 25358), (72, 25439), (73, 25448), (75, 25469), (83, 25517), (108, 25688), (110, 25718), (113, 25745), (118, 25784), (124, 25832), (130, 25877),

Gene: Renna12_39 Start: 25056, Stop: 26069, Start Num: 19

Candidate Starts for Renna12_39:

(10, 25014), (Start: 19 @25056 has 28 MA's), (22, 25071), (34, 25230), (38, 25260), (46, 25302), (47, 25308), (49, 25317), (57, 25389), (63, 25416), (72, 25497), (73, 25506), (75, 25527), (108, 25746), (110, 25776), (113, 25803), (124, 25890), (130, 25935), (140, 26037), (142, 26046),

Gene: Ruchi_37 Start: 25758, Stop: 26786, Start Num: 19

Candidate Starts for Ruchi_37:

(11, 25725), (Start: 19 @25758 has 28 MA's), (22, 25773), (33, 25923), (43, 25995), (47, 26016), (57, 26097), (62, 26121), (80, 26259), (83, 26283), (88, 26316), (96, 26379), (107, 26451), (124, 26598),

Gene: Shade_34 Start: 28686, Stop: 29714, Start Num: 17

Candidate Starts for Shade_34:

(Start: 17 @28686 has 23 MA's), (26, 28722), (40, 28887), (46, 28917), (49, 28932), (54, 28968), (76, 29115), (78, 29127), (85, 29166), (97, 29265), (102, 29289), (104, 29298), (106, 29313), (123, 29454), (128, 29496),

Gene: Sicarius2_35 Start: 28313, Stop: 29347, Start Num: 16

Candidate Starts for Sicarius2_35:

(Start: 16 @28313 has 2 MA's), (21, 28322), (26, 28352), (40, 28520), (46, 28550), (49, 28565), (70, 28685), (76, 28748), (78, 28760), (83, 28790), (97, 28898), (102, 28922), (106, 28946), (122, 29081), (123, 29087), (132, 29153), (133, 29165),

Gene: Sonny_34 Start: 28716, Stop: 29744, Start Num: 17

Candidate Starts for Sonny_34:

(Start: 17 @28716 has 23 MA's), (26, 28752), (40, 28917), (46, 28947), (49, 28962), (76, 29145), (78, 29157), (85, 29196), (97, 29295), (102, 29319), (104, 29328), (106, 29343), (117, 29442), (123, 29484),

Gene: Soos_78 Start: 52041, Stop: 53054, Start Num: 20

Candidate Starts for Soos_78:

(6, 51879), (8, 51948), (18, 52032), (Start: 20 @52041 has 3 MA's), (34, 52227), (40, 52266), (44, 52284), (57, 52377), (71, 52446), (80, 52527), (87, 52566), (93, 52626), (97, 52662), (98, 52668), (105, 52701), (112, 52767), (119, 52824), (143, 53031),

Gene: StevieBAY_34 Start: 28804, Stop: 29823, Start Num: 17

Candidate Starts for StevieBAY_34:

(Start: 17 @28804 has 23 MA's), (30, 28921), (40, 29005), (42, 29017), (46, 29035), (53, 29071), (78, 29245), (80, 29251), (89, 29308), (93, 29347), (97, 29383), (100, 29395), (102, 29407), (133, 29650),

Gene: Sting_81 Start: 52480, Stop: 53493, Start Num: 20

Candidate Starts for Sting_81:

(6, 52318), (8, 52387), (18, 52471), (Start: 20 @52480 has 3 MA's), (34, 52666), (40, 52705), (44, 52723), (57, 52816), (71, 52885), (80, 52966), (87, 53005), (93, 53065), (97, 53101), (98, 53107),

(105, 53140), (112, 53206), (119, 53263), (143, 53470),

Gene: TaeYoung_34 Start: 28721, Stop: 29740, Start Num: 17

Candidate Starts for TaeYoung_34:

(Start: 17 @28721 has 23 MA's), (40, 28922), (42, 28934), (46, 28952), (51, 28982), (53, 28988), (78, 29162), (80, 29168), (89, 29225), (97, 29300), (102, 29324), (104, 29333), (113, 29411), (122, 29483), (123, 29489), (143, 29666),

Gene: TaylorSipht_38 Start: 25131, Stop: 26156, Start Num: 19

Candidate Starts for TaylorSipht_38:

(11, 25098), (Start: 19 @25131 has 28 MA's), (22, 25146), (26, 25173), (32, 25290), (33, 25296), (35, 25320), (51, 25416), (53, 25428), (55, 25446), (57, 25470), (60, 25482), (62, 25494), (75, 25608), (81, 25641), (90, 25695), (91, 25701), (96, 25749), (99, 25776), (124, 25968),

Gene: Timinator_34 Start: 28804, Stop: 29823, Start Num: 17

Candidate Starts for Timinator_34:

(Start: 17 @28804 has 23 MA's), (30, 28921), (40, 29005), (42, 29017), (46, 29035), (53, 29071), (78, 29245), (80, 29251), (89, 29308), (93, 29347), (97, 29383), (100, 29395), (102, 29407), (133, 29650), (144, 29770),

Gene: Tonitrus_67 Start: 48810, Stop: 49829, Start Num: 14

Candidate Starts for Tonitrus_67:

(Start: 14 @48810 has 1 MA's), (30, 48945), (33, 48984), (40, 49038), (44, 49056), (46, 49068), (57, 49146), (58, 49149), (69, 49194), (74, 49254), (78, 49287), (80, 49293), (86, 49329), (89, 49353), (92, 49389), (95, 49401), (97, 49428), (119, 49596), (127, 49668), (137, 49758),

Gene: TripleJ_54 Start: 32997, Stop: 33923, Start Num: 15

Candidate Starts for TripleJ_54:

(7, 32865), (Start: 15 @32997 has 7 MA's), (Start: 17 @33003 has 23 MA's), (29, 33111), (40, 33207), (41, 33213), (45, 33234), (64, 33354), (77, 33441), (78, 33450), (85, 33489), (91, 33528), (95, 33567), (104, 33627), (116, 33711), (124, 33774), (130, 33819),

Gene: ValentiniPuff_95 Start: 54258, Stop: 55337, Start Num: 24

Candidate Starts for ValentiniPuff_95:

(13, 54216), (Start: 24 @54258 has 1 MA's), (31, 54375), (40, 54453), (52, 54528), (68, 54639), (76, 54729), (78, 54741), (91, 54813), (114, 54993), (121, 55053), (124, 55077), (129, 55116), (130, 55122), (135, 55161), (141, 55233), (145, 55266),

Gene: Vulpecula_37 Start: 25435, Stop: 26463, Start Num: 19

Candidate Starts for Vulpecula_37:

(11, 25402), (Start: 19 @25435 has 28 MA's), (22, 25450), (33, 25600), (43, 25672), (46, 25687), (47, 25693), (57, 25774), (62, 25798), (80, 25936), (83, 25960), (88, 25993), (96, 26056), (107, 26128), (124, 26275),

Gene: Wyborn_35 Start: 28951, Stop: 29985, Start Num: 16

Candidate Starts for Wyborn_35:

(Start: 16 @28951 has 2 MA's), (21, 28960), (26, 28990), (40, 29158), (46, 29188), (49, 29203), (76, 29386), (78, 29398), (83, 29428), (97, 29536), (102, 29560), (106, 29584), (122, 29719), (123, 29725), (132, 29791), (133, 29803),

Gene: Zartrosa_34 Start: 28629, Stop: 29648, Start Num: 17

Candidate Starts for Zartrosa_34:

(Start: 17 @28629 has 23 MA's), (40, 28830), (42, 28842), (46, 28860), (51, 28890), (78, 29070), (80, 29076), (89, 29133), (97, 29208), (102, 29232), (113, 29319), (122, 29391), (123, 29397), (143, 29574),

Gene: phiAsp2_49 Start: 37965, Stop: 39083, Start Num: 9

Candidate Starts for phiAsp2_49:

(9, 37965), (23, 38061), (28, 38139), (34, 38214), (39, 38241), (40, 38250), (45, 38277), (46, 38280), (48, 38292), (56, 38346), (59, 38367), (65, 38412), (67, 38418), (93, 38643), (94, 38646), (101, 38700), (107, 38733), (109, 38757), (132, 38928), (135, 38964), (137, 38994), (139, 39033), (144, 39069),