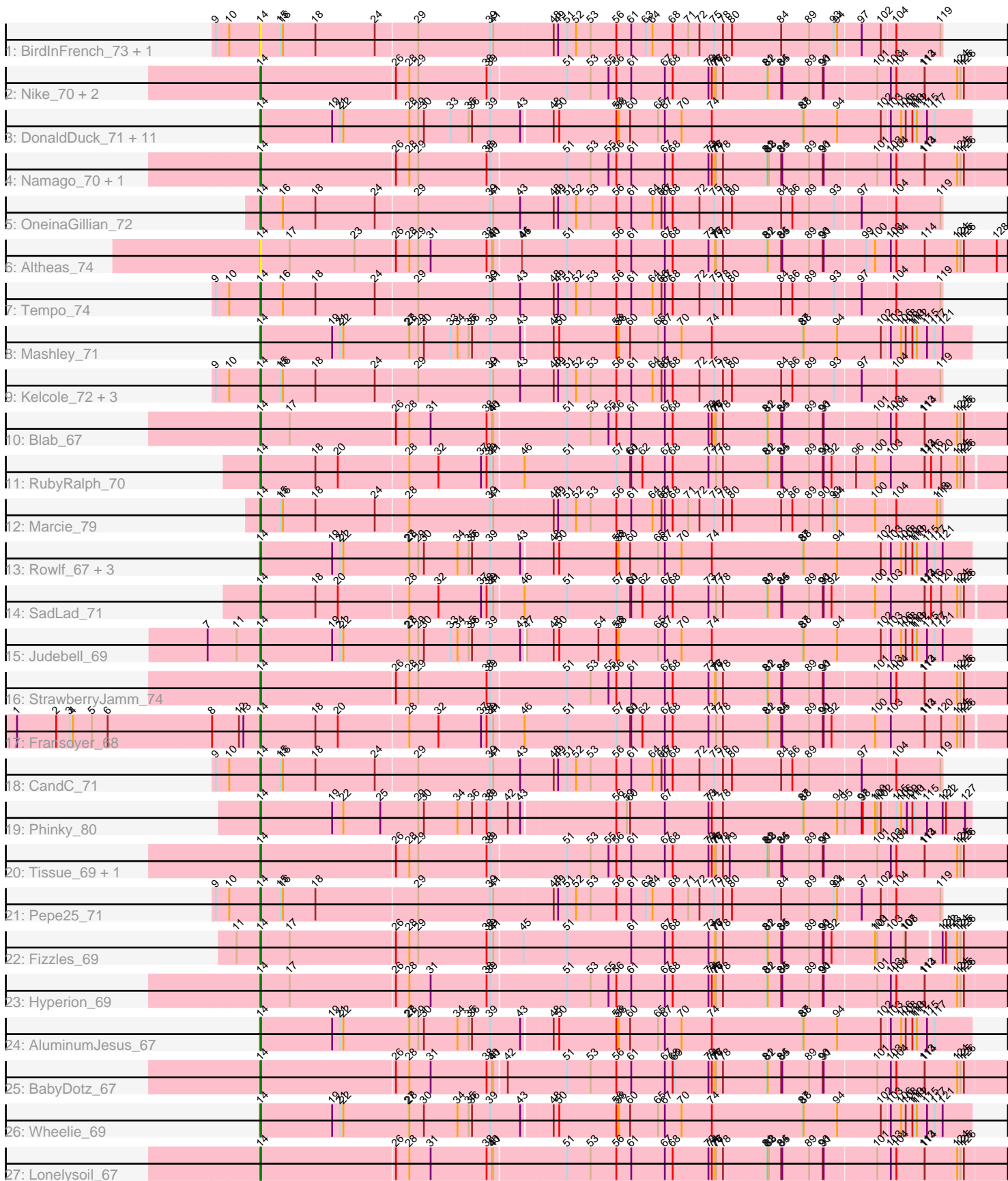


Pham 2444



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 2444 Report

This analysis was run 07/09/24 on database version 566.

Pham number 2444 has 49 members, 11 are drafts.

Phages represented in each track:

- Track 1 : BirdInFrench\_73, Wilca\_73
- Track 2 : Nike\_70, Zagie\_70, Grassboy\_73
- Track 3 : DonaldDuck\_71, Rudy\_67, Casend\_70, Wayne3\_71, Phabia\_69, Quammi\_68, Viceroy\_68, Teehee\_70, Zhafia\_74, Sillytadpoles\_72, Jehoshaphat\_71, Llemily\_71
- Track 4 : Namago\_70, Kyva\_72
- Track 5 : OneinaGillian\_72
- Track 6 : Altheas\_74
- Track 7 : Tempo\_74
- Track 8 : Mashley\_71
- Track 9 : Kelcole\_72, Fregley\_74, RobinRose\_75, Romm\_75
- Track 10 : Blab\_67
- Track 11 : RubyRalph\_70
- Track 12 : Marcie\_79
- Track 13 : Rowlf\_67, SallyK\_72, Statler\_75, Gazebo\_70
- Track 14 : SadLad\_71
- Track 15 : Judebell\_69
- Track 16 : StrawberryJamm\_74
- Track 17 : Fransoyer\_68
- Track 18 : CandC\_71
- Track 19 : Phinky\_80
- Track 20 : Tissue\_69, Squash\_72
- Track 21 : Pepe25\_71
- Track 22 : Fizzles\_69
- Track 23 : Hyperion\_69
- Track 24 : AluminumJesus\_67
- Track 25 : BabyDotz\_67
- Track 26 : Wheelie\_69
- Track 27 : Lonelysoil\_67

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

The start number called the most often in the published annotations is 14, it was called in 38 of the 38 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Altheas\_74, AluminumJesus\_67, BabyDotz\_67, BirdInFrench\_73, Blab\_67, CandC\_71, Casend\_70, DonaldDuck\_71, Fizzles\_69, Fransoyer\_68, Fregley\_74, Gazebo\_70, Grassboy\_73, Hyperion\_69, Jehoshaphat\_71, Judebell\_69, Kelcole\_72, Kyva\_72, Llemily\_71, Lonelysoil\_67, Marcie\_79, Mashley\_71, Namago\_70, Nike\_70, OneinaGillian\_72, Pepe25\_71, Phabia\_69, Phinky\_80, Quammi\_68, RobinRose\_75, Romm\_75, Rowlf\_67, RubyRalph\_70, Rudy\_67, SadLad\_71, SallyK\_72, Sillytadpoles\_72, Squash\_72, Statler\_75, StrawberryJamm\_74, Teehee\_70, Tempo\_74, Tissue\_69, Viceroy\_68, Wayne3\_71, Wheelie\_69, Wilca\_73, Zagie\_70, Zhafia\_74,

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

- 

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

- 

### Summary by start number:

Start 14:

- Found in 49 of 49 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 38 of 38
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Altheas\_74 (EG), AluminumJesus\_67 (EG), BabyDotz\_67 (EG), BirdInFrench\_73 (EG), Blab\_67 (EG), CandC\_71 (EG), Casend\_70 (EG), DonaldDuck\_71 (EG), Fizzles\_69 (EG), Fransoyer\_68 (EG), Fregley\_74 (EG), Gazebo\_70 (EG), Grassboy\_73 (EG), Hyperion\_69 (EG), Jehoshaphat\_71 (EG), Judebell\_69 (EG), Kelcole\_72 (EG), Kyva\_72 (EG), Llemily\_71 (EG), Lonelysoil\_67 (EG), Marcie\_79 (EG), Mashley\_71 (EG), Namago\_70 (EG), Nike\_70 (EG), OneinaGillian\_72 (EG), Pepe25\_71 (EG), Phabia\_69 (EG), Phinky\_80 (EG), Quammi\_68 (EG), RobinRose\_75 (EG), Romm\_75 (EG), Rowlf\_67 (EG), RubyRalph\_70 (EG), Rudy\_67 (EG), SadLad\_71 (EG), SallyK\_72 (EG), Sillytadpoles\_72 (EG), Squash\_72 (EG), Statler\_75 (EG), StrawberryJamm\_74 (EG), Teehee\_70 (EG), Tempo\_74 (EG), Tissue\_69 (EG), Viceroy\_68 (EG), Wayne3\_71 (EG), Wheelie\_69 (EG), Wilca\_73 (EG), Zagie\_70 (EG), Zhafia\_74 (EG),

### Summary by clusters:

There is one cluster represented in this pham: EG

Info for manual annotations of cluster EG:

- Start number 14 was manually annotated 38 times for cluster EG.

### Gene Information:

Gene: Altheas\_74 Start: 48847, Stop: 46859, Start Num: 14

Candidate Starts for Altheas\_74:

(Start: 14 @48847 has 38 MA's), (17, 48769), (23, 48595), (26, 48493), (28, 48460), (29, 48436), (31, 48403), (38, 48253), (40, 48238), (41, 48235), (44, 48166), (45, 48163), (51, 48049), (56, 47917), (61,

47878), (67, 47791), (68, 47770), (73, 47674), (76, 47656), (77, 47653), (78, 47635), (81, 47521), (82, 47518), (84, 47482), (85, 47479), (89, 47407), (90, 47371), (91, 47368), (99, 47269), (100, 47245), (103, 47203), (104, 47188), (114, 47113), (124, 47029), (125, 47020), (126, 47011), (128, 46924),

Gene: AluminumJesus\_67 Start: 47539, Stop: 45671, Start Num: 14

Candidate Starts for AluminumJesus\_67:

(Start: 14 @47539 has 38 MA's), (19, 47347), (21, 47326), (22, 47317), (27, 47143), (28, 47140), (29, 47116), (30, 47101), (34, 47011), (35, 46981), (36, 46972), (39, 46924), (43, 46843), (48, 46774), (50, 46759), (56, 46606), (58, 46600), (60, 46570), (65, 46495), (67, 46480), (70, 46435), (74, 46357), (87, 46117), (88, 46114), (94, 46024), (102, 45907), (103, 45886), (106, 45859), (108, 45847), (110, 45829), (111, 45823), (112, 45817), (115, 45790), (117, 45769),

Gene: BabyDotz\_67 Start: 48392, Stop: 46410, Start Num: 14

Candidate Starts for BabyDotz\_67:

(Start: 14 @48392 has 38 MA's), (26, 48038), (28, 48005), (31, 47948), (38, 47798), (40, 47783), (41, 47780), (42, 47750), (51, 47594), (53, 47531), (56, 47462), (61, 47423), (67, 47336), (68, 47315), (69, 47309), (73, 47219), (74, 47210), (76, 47201), (77, 47198), (78, 47180), (81, 47066), (82, 47063), (84, 47027), (85, 47024), (89, 46952), (90, 46916), (91, 46913), (101, 46784), (103, 46748), (104, 46733), (113, 46661), (114, 46658), (124, 46574), (125, 46565), (126, 46556),

Gene: BirdInFrench\_73 Start: 47869, Stop: 46091, Start Num: 14

Candidate Starts for BirdInFrench\_73:

(9, 47989), (10, 47953), (Start: 14 @47869 has 38 MA's), (15, 47818), (16, 47812), (18, 47725), (24, 47566), (29, 47458), (39, 47266), (41, 47257), (48, 47101), (49, 47089), (51, 47065), (52, 47041), (53, 47002), (56, 46933), (61, 46894), (63, 46855), (64, 46837), (68, 46786), (71, 46744), (72, 46714), (75, 46678), (78, 46654), (80, 46630), (84, 46498), (89, 46423), (93, 46357), (94, 46348), (97, 46297), (102, 46246), (104, 46210), (119, 46096),

Gene: Blab\_67 Start: 47828, Stop: 45846, Start Num: 14

Candidate Starts for Blab\_67:

(Start: 14 @47828 has 38 MA's), (17, 47750), (26, 47474), (28, 47441), (31, 47384), (38, 47234), (40, 47219), (41, 47216), (51, 47030), (53, 46967), (55, 46919), (56, 46898), (61, 46859), (67, 46772), (68, 46751), (73, 46655), (74, 46646), (76, 46637), (77, 46634), (78, 46616), (81, 46502), (82, 46499), (84, 46463), (85, 46460), (89, 46388), (90, 46352), (91, 46349), (101, 46220), (103, 46184), (104, 46169), (113, 46097), (114, 46094), (124, 46010), (125, 46001), (126, 45992),

Gene: CandC\_71 Start: 47060, Stop: 45282, Start Num: 14

Candidate Starts for CandC\_71:

(9, 47180), (10, 47144), (Start: 14 @47060 has 38 MA's), (15, 47009), (16, 47003), (18, 46916), (24, 46757), (29, 46649), (39, 46457), (41, 46448), (43, 46376), (48, 46292), (49, 46280), (51, 46256), (52, 46232), (53, 46193), (56, 46124), (61, 46085), (64, 46028), (66, 46004), (67, 45998), (68, 45977), (72, 45905), (75, 45869), (78, 45845), (80, 45821), (84, 45689), (86, 45659), (89, 45614), (97, 45488), (104, 45401), (119, 45287),

Gene: Casend\_70 Start: 48326, Stop: 46458, Start Num: 14

Candidate Starts for Casend\_70:

(Start: 14 @48326 has 38 MA's), (19, 48134), (21, 48113), (22, 48104), (28, 47927), (29, 47903), (30, 47888), (33, 47816), (35, 47768), (36, 47759), (39, 47711), (43, 47630), (48, 47561), (50, 47546), (56, 47393), (58, 47387), (60, 47357), (65, 47282), (67, 47267), (70, 47222), (74, 47144), (87, 46904), (88, 46901), (94, 46811), (102, 46694), (103, 46673), (106, 46646), (108, 46634), (110, 46616), (111, 46610), (112, 46604), (115, 46577), (117, 46556),

Gene: DonaldDuck\_71 Start: 47675, Stop: 45807, Start Num: 14

Candidate Starts for DonaldDuck\_71:

(Start: 14 @47675 has 38 MA's), (19, 47483), (21, 47462), (22, 47453), (28, 47276), (29, 47252), (30, 47237), (33, 47165), (35, 47117), (36, 47108), (39, 47060), (43, 46979), (48, 46910), (50, 46895), (56, 46742), (58, 46736), (60, 46706), (65, 46631), (67, 46616), (70, 46571), (74, 46493), (87, 46253), (88, 46250), (94, 46160), (102, 46043), (103, 46022), (106, 45995), (108, 45983), (110, 45965), (111, 45959), (112, 45953), (115, 45926), (117, 45905),

Gene: Fizzles\_69 Start: 47954, Stop: 45981, Start Num: 14

Candidate Starts for Fizzles\_69:

(11, 48014), (Start: 14 @47954 has 38 MA's), (17, 47879), (26, 47603), (28, 47570), (29, 47546), (38, 47363), (39, 47354), (41, 47345), (45, 47273), (51, 47159), (61, 46988), (67, 46901), (68, 46880), (73, 46784), (76, 46766), (77, 46763), (78, 46745), (81, 46631), (82, 46628), (84, 46592), (85, 46589), (89, 46517), (90, 46481), (91, 46478), (92, 46457), (100, 46355), (101, 46349), (103, 46313), (107, 46277), (108, 46274), (121, 46190), (122, 46181), (123, 46172), (124, 46151), (125, 46142), (126, 46133),

Gene: Fransoyer\_68 Start: 49093, Stop: 47114, Start Num: 14

Candidate Starts for Fransoyer\_68:

(1, 49738), (2, 49633), (3, 49597), (4, 49588), (5, 49537), (6, 49495), (8, 49216), (12, 49144), (13, 49132), (Start: 14 @49093 has 38 MA's), (18, 48946), (20, 48886), (28, 48706), (32, 48628), (37, 48514), (38, 48499), (39, 48490), (41, 48481), (46, 48406), (51, 48295), (57, 48163), (60, 48127), (61, 48124), (62, 48094), (67, 48034), (68, 48013), (73, 47917), (77, 47896), (78, 47878), (81, 47764), (82, 47761), (84, 47725), (85, 47722), (89, 47650), (90, 47614), (91, 47611), (92, 47590), (100, 47488), (103, 47446), (113, 47359), (114, 47356), (120, 47314), (124, 47272), (125, 47263), (126, 47254),

Gene: Fregley\_74 Start: 47409, Stop: 45631, Start Num: 14

Candidate Starts for Fregley\_74:

(9, 47529), (10, 47493), (Start: 14 @47409 has 38 MA's), (15, 47358), (16, 47352), (18, 47265), (24, 47106), (29, 46998), (39, 46806), (41, 46797), (43, 46725), (48, 46641), (49, 46629), (51, 46605), (52, 46581), (53, 46542), (56, 46473), (61, 46434), (64, 46377), (66, 46353), (67, 46347), (68, 46326), (72, 46254), (75, 46218), (78, 46194), (80, 46170), (84, 46038), (86, 46008), (89, 45963), (93, 45897), (97, 45837), (104, 45750), (119, 45636),

Gene: Gazebo\_70 Start: 48487, Stop: 46619, Start Num: 14

Candidate Starts for Gazebo\_70:

(Start: 14 @48487 has 38 MA's), (19, 48295), (21, 48274), (22, 48265), (27, 48091), (28, 48088), (29, 48064), (30, 48049), (34, 47959), (35, 47929), (36, 47920), (39, 47872), (43, 47791), (48, 47722), (50, 47707), (56, 47554), (58, 47548), (60, 47518), (65, 47443), (67, 47428), (70, 47383), (74, 47305), (87, 47065), (88, 47062), (94, 46972), (102, 46855), (103, 46834), (106, 46807), (108, 46795), (110, 46777), (111, 46771), (112, 46765), (115, 46738), (117, 46717), (121, 46696),

Gene: Grassboy\_73 Start: 48454, Stop: 46472, Start Num: 14

Candidate Starts for Grassboy\_73:

(Start: 14 @48454 has 38 MA's), (26, 48100), (28, 48067), (29, 48043), (38, 47860), (39, 47851), (51, 47656), (53, 47593), (55, 47545), (56, 47524), (61, 47485), (67, 47398), (68, 47377), (73, 47281), (74, 47272), (76, 47263), (77, 47260), (78, 47242), (81, 47128), (82, 47125), (84, 47089), (85, 47086), (89, 47014), (90, 46978), (91, 46975), (101, 46846), (103, 46810), (104, 46795), (113, 46723), (114, 46720), (124, 46636), (125, 46627), (126, 46618),

Gene: Hyperion\_69 Start: 48016, Stop: 46034, Start Num: 14

Candidate Starts for Hyperion\_69:

(Start: 14 @48016 has 38 MA's), (17, 47938), (26, 47662), (28, 47629), (31, 47572), (38, 47422), (39, 47413), (51, 47218), (53, 47155), (55, 47107), (56, 47086), (61, 47047), (67, 46960), (68, 46939), (73, 46843), (74, 46834), (76, 46825), (77, 46822), (78, 46804), (81, 46690), (82, 46687), (84, 46651), (85,

46648), (89, 46576), (90, 46540), (91, 46537), (101, 46408), (103, 46372), (104, 46357), (113, 46285), (114, 46282), (124, 46198), (125, 46189), (126, 46180),

Gene: Jehoshaphat\_71 Start: 48594, Stop: 46726, Start Num: 14

Candidate Starts for Jehoshaphat\_71:

(Start: 14 @48594 has 38 MA's), (19, 48402), (21, 48381), (22, 48372), (28, 48195), (29, 48171), (30, 48156), (33, 48084), (35, 48036), (36, 48027), (39, 47979), (43, 47898), (48, 47829), (50, 47814), (56, 47661), (58, 47655), (60, 47625), (65, 47550), (67, 47535), (70, 47490), (74, 47412), (87, 47172), (88, 47169), (94, 47079), (102, 46962), (103, 46941), (106, 46914), (108, 46902), (110, 46884), (111, 46878), (112, 46872), (115, 46845), (117, 46824),

Gene: Judebell\_69 Start: 47826, Stop: 45958, Start Num: 14

Candidate Starts for Judebell\_69:

(7, 47964), (11, 47886), (Start: 14 @47826 has 38 MA's), (19, 47634), (21, 47613), (22, 47604), (27, 47430), (28, 47427), (29, 47403), (30, 47388), (33, 47316), (34, 47298), (35, 47268), (36, 47259), (39, 47211), (43, 47130), (47, 47121), (48, 47061), (50, 47046), (54, 46941), (56, 46893), (58, 46887), (65, 46782), (67, 46767), (70, 46722), (74, 46644), (87, 46404), (88, 46401), (94, 46311), (102, 46194), (103, 46173), (106, 46146), (108, 46134), (110, 46116), (111, 46110), (112, 46104), (115, 46077), (117, 46056), (121, 46035),

Gene: Kelcole\_72 Start: 47632, Stop: 45854, Start Num: 14

Candidate Starts for Kelcole\_72:

(9, 47752), (10, 47716), (Start: 14 @47632 has 38 MA's), (15, 47581), (16, 47575), (18, 47488), (24, 47329), (29, 47221), (39, 47029), (41, 47020), (43, 46948), (48, 46864), (49, 46852), (51, 46828), (52, 46804), (53, 46765), (56, 46696), (61, 46657), (64, 46600), (66, 46576), (67, 46570), (68, 46549), (72, 46477), (75, 46441), (78, 46417), (80, 46393), (84, 46261), (86, 46231), (89, 46186), (93, 46120), (97, 46060), (104, 45973), (119, 45859),

Gene: Kyva\_72 Start: 48477, Stop: 46495, Start Num: 14

Candidate Starts for Kyva\_72:

(Start: 14 @48477 has 38 MA's), (26, 48123), (28, 48090), (29, 48066), (38, 47883), (39, 47874), (51, 47679), (53, 47616), (55, 47568), (56, 47547), (61, 47508), (67, 47421), (68, 47400), (73, 47304), (74, 47295), (76, 47286), (77, 47283), (78, 47265), (81, 47151), (82, 47148), (83, 47145), (84, 47112), (85, 47109), (89, 47037), (90, 47001), (91, 46998), (101, 46869), (103, 46833), (104, 46818), (113, 46746), (114, 46743), (124, 46659), (125, 46650), (126, 46641),

Gene: Llemily\_71 Start: 47370, Stop: 45502, Start Num: 14

Candidate Starts for Llemily\_71:

(Start: 14 @47370 has 38 MA's), (19, 47178), (21, 47157), (22, 47148), (28, 46971), (29, 46947), (30, 46932), (33, 46860), (35, 46812), (36, 46803), (39, 46755), (43, 46674), (48, 46605), (50, 46590), (56, 46437), (58, 46431), (60, 46401), (65, 46326), (67, 46311), (70, 46266), (74, 46188), (87, 45948), (88, 45945), (94, 45855), (102, 45738), (103, 45717), (106, 45690), (108, 45678), (110, 45660), (111, 45654), (112, 45648), (115, 45621), (117, 45600),

Gene: Lonelysoil\_67 Start: 47126, Stop: 45144, Start Num: 14

Candidate Starts for Lonelysoil\_67:

(Start: 14 @47126 has 38 MA's), (26, 46772), (28, 46739), (31, 46682), (38, 46532), (40, 46517), (41, 46514), (51, 46328), (53, 46265), (56, 46196), (61, 46157), (67, 46070), (68, 46049), (73, 45953), (74, 45944), (76, 45935), (77, 45932), (78, 45914), (81, 45800), (82, 45797), (83, 45794), (84, 45761), (85, 45758), (89, 45686), (90, 45650), (91, 45647), (101, 45518), (103, 45482), (104, 45467), (113, 45395), (114, 45392), (124, 45308), (125, 45299), (126, 45290),

Gene: Marcie\_79 Start: 48547, Stop: 46769, Start Num: 14

Candidate Starts for Marcie\_79:

(Start: 14 @48547 has 38 MA's), (15, 48496), (16, 48490), (18, 48403), (24, 48244), (28, 48160), (39, 47944), (41, 47935), (48, 47779), (49, 47767), (51, 47743), (52, 47719), (53, 47680), (56, 47611), (61, 47572), (64, 47515), (66, 47491), (67, 47485), (68, 47464), (71, 47422), (72, 47392), (75, 47356), (78, 47332), (80, 47308), (84, 47176), (86, 47146), (89, 47101), (90, 47065), (93, 47035), (94, 47026), (100, 46939), (104, 46888), (118, 46783), (119, 46774),

Gene: Mashley\_71 Start: 48540, Stop: 46672, Start Num: 14

Candidate Starts for Mashley\_71:

(Start: 14 @48540 has 38 MA's), (19, 48348), (21, 48327), (22, 48318), (27, 48144), (28, 48141), (29, 48117), (30, 48102), (33, 48030), (34, 48012), (35, 47982), (36, 47973), (39, 47925), (43, 47844), (48, 47775), (50, 47760), (56, 47607), (58, 47601), (60, 47571), (65, 47496), (67, 47481), (70, 47436), (74, 47358), (87, 47118), (88, 47115), (94, 47025), (102, 46908), (103, 46887), (106, 46860), (108, 46848), (110, 46830), (111, 46824), (112, 46818), (115, 46791), (117, 46770), (121, 46749),

Gene: Namago\_70 Start: 47432, Stop: 45450, Start Num: 14

Candidate Starts for Namago\_70:

(Start: 14 @47432 has 38 MA's), (26, 47078), (28, 47045), (29, 47021), (38, 46838), (39, 46829), (51, 46634), (53, 46571), (55, 46523), (56, 46502), (61, 46463), (67, 46376), (68, 46355), (73, 46259), (74, 46250), (76, 46241), (77, 46238), (78, 46220), (81, 46106), (82, 46103), (83, 46100), (84, 46067), (85, 46064), (89, 45992), (90, 45956), (91, 45953), (101, 45824), (103, 45788), (104, 45773), (113, 45701), (114, 45698), (124, 45614), (125, 45605), (126, 45596),

Gene: Nike\_70 Start: 48730, Stop: 46748, Start Num: 14

Candidate Starts for Nike\_70:

(Start: 14 @48730 has 38 MA's), (26, 48376), (28, 48343), (29, 48319), (38, 48136), (39, 48127), (51, 47932), (53, 47869), (55, 47821), (56, 47800), (61, 47761), (67, 47674), (68, 47653), (73, 47557), (74, 47548), (76, 47539), (77, 47536), (78, 47518), (81, 47404), (82, 47401), (84, 47365), (85, 47362), (89, 47290), (90, 47254), (91, 47251), (101, 47122), (103, 47086), (104, 47071), (113, 46999), (114, 46996), (124, 46912), (125, 46903), (126, 46894),

Gene: OneinaGillian\_72 Start: 47167, Stop: 45389, Start Num: 14

Candidate Starts for OneinaGillian\_72:

(Start: 14 @47167 has 38 MA's), (16, 47110), (18, 47023), (24, 46864), (29, 46756), (39, 46564), (41, 46555), (43, 46483), (48, 46399), (49, 46387), (51, 46363), (52, 46339), (53, 46300), (56, 46231), (61, 46192), (64, 46135), (66, 46111), (67, 46105), (68, 46084), (72, 46012), (75, 45976), (78, 45952), (80, 45928), (84, 45796), (86, 45766), (89, 45721), (93, 45655), (97, 45595), (104, 45508), (119, 45394),

Gene: Pepe25\_71 Start: 46788, Stop: 45010, Start Num: 14

Candidate Starts for Pepe25\_71:

(9, 46908), (10, 46872), (Start: 14 @46788 has 38 MA's), (15, 46737), (16, 46731), (18, 46644), (29, 46377), (39, 46185), (41, 46176), (48, 46020), (49, 46008), (51, 45984), (52, 45960), (53, 45921), (56, 45852), (61, 45813), (63, 45774), (64, 45756), (68, 45705), (71, 45663), (72, 45633), (75, 45597), (78, 45573), (80, 45549), (84, 45417), (89, 45342), (93, 45276), (94, 45267), (97, 45216), (102, 45165), (104, 45129), (119, 45015),

Gene: Phabia\_69 Start: 47785, Stop: 45917, Start Num: 14

Candidate Starts for Phabia\_69:

(Start: 14 @47785 has 38 MA's), (19, 47593), (21, 47572), (22, 47563), (28, 47386), (29, 47362), (30, 47347), (33, 47275), (35, 47227), (36, 47218), (39, 47170), (43, 47089), (48, 47020), (50, 47005), (56, 46852), (58, 46846), (60, 46816), (65, 46741), (67, 46726), (70, 46681), (74, 46603), (87, 46363), (88, 46360), (94, 46270), (102, 46153), (103, 46132), (106, 46105), (108, 46093), (110, 46075), (111, 46069), (112, 46063), (115, 46036), (117, 46015),

Gene: Phinky\_80 Start: 50665, Stop: 48797, Start Num: 14

Candidate Starts for Phinky\_80:

(Start: 14 @50665 has 38 MA's), (19, 50473), (22, 50443), (25, 50344), (29, 50242), (30, 50227), (34, 50137), (36, 50098), (38, 50059), (39, 50050), (42, 50002), (43, 49969), (56, 49732), (59, 49705), (60, 49696), (67, 49606), (73, 49492), (74, 49483), (78, 49453), (87, 49243), (88, 49240), (94, 49150), (95, 49129), (97, 49084), (98, 49081), (100, 49048), (101, 49042), (102, 49033), (105, 48997), (106, 48985), (109, 48970), (110, 48955), (111, 48949), (115, 48916), (121, 48874), (122, 48865), (127, 48814),

Gene: Quammi\_68 Start: 47485, Stop: 45617, Start Num: 14

Candidate Starts for Quammi\_68:

(Start: 14 @47485 has 38 MA's), (19, 47293), (21, 47272), (22, 47263), (28, 47086), (29, 47062), (30, 47047), (33, 46975), (35, 46927), (36, 46918), (39, 46870), (43, 46789), (48, 46720), (50, 46705), (56, 46552), (58, 46546), (60, 46516), (65, 46441), (67, 46426), (70, 46381), (74, 46303), (87, 46063), (88, 46060), (94, 45970), (102, 45853), (103, 45832), (106, 45805), (108, 45793), (110, 45775), (111, 45769), (112, 45763), (115, 45736), (117, 45715),

Gene: RobinRose\_75 Start: 47816, Stop: 46038, Start Num: 14

Candidate Starts for RobinRose\_75:

(9, 47936), (10, 47900), (Start: 14 @47816 has 38 MA's), (15, 47765), (16, 47759), (18, 47672), (24, 47513), (29, 47405), (39, 47213), (41, 47204), (43, 47132), (48, 47048), (49, 47036), (51, 47012), (52, 46988), (53, 46949), (56, 46880), (61, 46841), (64, 46784), (66, 46760), (67, 46754), (68, 46733), (72, 46661), (75, 46625), (78, 46601), (80, 46577), (84, 46445), (86, 46415), (89, 46370), (93, 46304), (97, 46244), (104, 46157), (119, 46043),

Gene: Romm\_75 Start: 47813, Stop: 46035, Start Num: 14

Candidate Starts for Romm\_75:

(9, 47933), (10, 47897), (Start: 14 @47813 has 38 MA's), (15, 47762), (16, 47756), (18, 47669), (24, 47510), (29, 47402), (39, 47210), (41, 47201), (43, 47129), (48, 47045), (49, 47033), (51, 47009), (52, 46985), (53, 46946), (56, 46877), (61, 46838), (64, 46781), (66, 46757), (67, 46751), (68, 46730), (72, 46658), (75, 46622), (78, 46598), (80, 46574), (84, 46442), (86, 46412), (89, 46367), (93, 46301), (97, 46241), (104, 46154), (119, 46040),

Gene: Rowlf\_67 Start: 47691, Stop: 45823, Start Num: 14

Candidate Starts for Rowlf\_67:

(Start: 14 @47691 has 38 MA's), (19, 47499), (21, 47478), (22, 47469), (27, 47295), (28, 47292), (29, 47268), (30, 47253), (34, 47163), (35, 47133), (36, 47124), (39, 47076), (43, 46995), (48, 46926), (50, 46911), (56, 46758), (58, 46752), (60, 46722), (65, 46647), (67, 46632), (70, 46587), (74, 46509), (87, 46269), (88, 46266), (94, 46176), (102, 46059), (103, 46038), (106, 46011), (108, 45999), (110, 45981), (111, 45975), (112, 45969), (115, 45942), (117, 45921), (121, 45900),

Gene: RubyRalph\_70 Start: 49298, Stop: 47319, Start Num: 14

Candidate Starts for RubyRalph\_70:

(Start: 14 @49298 has 38 MA's), (18, 49151), (20, 49091), (28, 48911), (32, 48833), (37, 48719), (38, 48704), (39, 48695), (41, 48686), (46, 48611), (51, 48500), (57, 48368), (60, 48332), (61, 48329), (62, 48299), (67, 48239), (68, 48218), (73, 48122), (77, 48101), (78, 48083), (81, 47969), (82, 47966), (84, 47930), (85, 47927), (89, 47855), (90, 47819), (91, 47816), (92, 47795), (96, 47741), (100, 47693), (103, 47651), (113, 47564), (114, 47561), (116, 47546), (120, 47519), (124, 47477), (125, 47468), (126, 47459),

Gene: Rudy\_67 Start: 47521, Stop: 45653, Start Num: 14

Candidate Starts for Rudy\_67:



(Start: 14 @47521 has 38 MA's), (19, 47329), (21, 47308), (22, 47299), (28, 47122), (29, 47098), (30, 47083), (33, 47011), (35, 46963), (36, 46954), (39, 46906), (43, 46825), (48, 46756), (50, 46741), (56, 46588), (58, 46582), (60, 46552), (65, 46477), (67, 46462), (70, 46417), (74, 46339), (87, 46099), (88, 46096), (94, 46006), (102, 45889), (103, 45868), (106, 45841), (108, 45829), (110, 45811), (111, 45805), (112, 45799), (115, 45772), (117, 45751),

Gene: SadLad\_71 Start: 50204, Stop: 48225, Start Num: 14

Candidate Starts for SadLad\_71:

(Start: 14 @50204 has 38 MA's), (18, 50057), (20, 49997), (28, 49817), (32, 49739), (37, 49625), (38, 49610), (39, 49601), (41, 49592), (46, 49517), (51, 49406), (57, 49274), (60, 49238), (61, 49235), (62, 49205), (67, 49145), (68, 49124), (73, 49028), (77, 49007), (78, 48989), (81, 48875), (82, 48872), (84, 48836), (85, 48833), (89, 48761), (90, 48725), (91, 48722), (92, 48701), (100, 48599), (103, 48557), (113, 48470), (114, 48467), (116, 48452), (120, 48425), (124, 48383), (125, 48374), (126, 48365),

Gene: SallyK\_72 Start: 49223, Stop: 47355, Start Num: 14

Candidate Starts for SallyK\_72:

(Start: 14 @49223 has 38 MA's), (19, 49031), (21, 49010), (22, 49001), (27, 48827), (28, 48824), (29, 48800), (30, 48785), (34, 48695), (35, 48665), (36, 48656), (39, 48608), (43, 48527), (48, 48458), (50, 48443), (56, 48290), (58, 48284), (60, 48254), (65, 48179), (67, 48164), (70, 48119), (74, 48041), (87, 47801), (88, 47798), (94, 47708), (102, 47591), (103, 47570), (106, 47543), (108, 47531), (110, 47513), (111, 47507), (112, 47501), (115, 47474), (117, 47453), (121, 47432),

Gene: Sillytadpoles\_72 Start: 47358, Stop: 45490, Start Num: 14

Candidate Starts for Sillytadpoles\_72:

(Start: 14 @47358 has 38 MA's), (19, 47166), (21, 47145), (22, 47136), (28, 46959), (29, 46935), (30, 46920), (33, 46848), (35, 46800), (36, 46791), (39, 46743), (43, 46662), (48, 46593), (50, 46578), (56, 46425), (58, 46419), (60, 46389), (65, 46314), (67, 46299), (70, 46254), (74, 46176), (87, 45936), (88, 45933), (94, 45843), (102, 45726), (103, 45705), (106, 45678), (108, 45666), (110, 45648), (111, 45642), (112, 45636), (115, 45609), (117, 45588),

Gene: Squash\_72 Start: 48458, Stop: 46476, Start Num: 14

Candidate Starts for Squash\_72:

(Start: 14 @48458 has 38 MA's), (26, 48104), (28, 48071), (29, 48047), (38, 47864), (39, 47855), (51, 47660), (53, 47597), (55, 47549), (56, 47528), (61, 47489), (67, 47402), (68, 47381), (73, 47285), (74, 47276), (76, 47267), (77, 47264), (78, 47246), (79, 47228), (81, 47132), (82, 47129), (83, 47126), (84, 47093), (85, 47090), (89, 47018), (90, 46982), (91, 46979), (101, 46850), (103, 46814), (104, 46799), (113, 46727), (114, 46724), (124, 46640), (125, 46631), (126, 46622),

Gene: Statler\_75 Start: 48407, Stop: 46539, Start Num: 14

Candidate Starts for Statler\_75:

(Start: 14 @48407 has 38 MA's), (19, 48215), (21, 48194), (22, 48185), (27, 48011), (28, 48008), (29, 47984), (30, 47969), (34, 47879), (35, 47849), (36, 47840), (39, 47792), (43, 47711), (48, 47642), (50, 47627), (56, 47474), (58, 47468), (60, 47438), (65, 47363), (67, 47348), (70, 47303), (74, 47225), (87, 46985), (88, 46982), (94, 46892), (102, 46775), (103, 46754), (106, 46727), (108, 46715), (110, 46697), (111, 46691), (112, 46685), (115, 46658), (117, 46637), (121, 46616),

Gene: StrawberryJamm\_74 Start: 47624, Stop: 45642, Start Num: 14

Candidate Starts for StrawberryJamm\_74:

(Start: 14 @47624 has 38 MA's), (26, 47270), (28, 47237), (29, 47213), (38, 47030), (39, 47021), (51, 46826), (53, 46763), (55, 46715), (56, 46694), (61, 46655), (67, 46568), (68, 46547), (73, 46451), (76, 46433), (77, 46430), (78, 46412), (81, 46298), (82, 46295), (84, 46259), (85, 46256), (89, 46184), (90, 46148), (91, 46145), (101, 46016), (103, 45980), (104, 45965), (113, 45893), (114, 45890), (124, 45806), (125, 45797), (126, 45788),

Gene: Teehee\_70 Start: 48591, Stop: 46723, Start Num: 14

Candidate Starts for Teehee\_70:

(Start: 14 @48591 has 38 MA's), (19, 48399), (21, 48378), (22, 48369), (28, 48192), (29, 48168), (30, 48153), (33, 48081), (35, 48033), (36, 48024), (39, 47976), (43, 47895), (48, 47826), (50, 47811), (56, 47658), (58, 47652), (60, 47622), (65, 47547), (67, 47532), (70, 47487), (74, 47409), (87, 47169), (88, 47166), (94, 47076), (102, 46959), (103, 46938), (106, 46911), (108, 46899), (110, 46881), (111, 46875), (112, 46869), (115, 46842), (117, 46821),

Gene: Tempo\_74 Start: 47756, Stop: 45978, Start Num: 14

Candidate Starts for Tempo\_74:

(9, 47876), (10, 47840), (Start: 14 @47756 has 38 MA's), (16, 47699), (18, 47612), (24, 47453), (29, 47345), (39, 47153), (41, 47144), (43, 47072), (48, 46988), (49, 46976), (51, 46952), (52, 46928), (53, 46889), (56, 46820), (61, 46781), (64, 46724), (66, 46700), (67, 46694), (68, 46673), (72, 46601), (75, 46565), (78, 46541), (80, 46517), (84, 46385), (86, 46355), (89, 46310), (93, 46244), (97, 46184), (104, 46097), (119, 45983),

Gene: Tissue\_69 Start: 48084, Stop: 46102, Start Num: 14

Candidate Starts for Tissue\_69:

(Start: 14 @48084 has 38 MA's), (26, 47730), (28, 47697), (29, 47673), (38, 47490), (39, 47481), (51, 47286), (53, 47223), (55, 47175), (56, 47154), (61, 47115), (67, 47028), (68, 47007), (73, 46911), (74, 46902), (76, 46893), (77, 46890), (78, 46872), (79, 46854), (81, 46758), (82, 46755), (83, 46752), (84, 46719), (85, 46716), (89, 46644), (90, 46608), (91, 46605), (101, 46476), (103, 46440), (104, 46425), (113, 46353), (114, 46350), (124, 46266), (125, 46257), (126, 46248),

Gene: Viceroy\_68 Start: 47491, Stop: 45623, Start Num: 14

Candidate Starts for Viceroy\_68:

(Start: 14 @47491 has 38 MA's), (19, 47299), (21, 47278), (22, 47269), (28, 47092), (29, 47068), (30, 47053), (33, 46981), (35, 46933), (36, 46924), (39, 46876), (43, 46795), (48, 46726), (50, 46711), (56, 46558), (58, 46552), (60, 46522), (65, 46447), (67, 46432), (70, 46387), (74, 46309), (87, 46069), (88, 46066), (94, 45976), (102, 45859), (103, 45838), (106, 45811), (108, 45799), (110, 45781), (111, 45775), (112, 45769), (115, 45742), (117, 45721),

Gene: Wayne3\_71 Start: 48354, Stop: 46486, Start Num: 14

Candidate Starts for Wayne3\_71:

(Start: 14 @48354 has 38 MA's), (19, 48162), (21, 48141), (22, 48132), (28, 47955), (29, 47931), (30, 47916), (33, 47844), (35, 47796), (36, 47787), (39, 47739), (43, 47658), (48, 47589), (50, 47574), (56, 47421), (58, 47415), (60, 47385), (65, 47310), (67, 47295), (70, 47250), (74, 47172), (87, 46932), (88, 46929), (94, 46839), (102, 46722), (103, 46701), (106, 46674), (108, 46662), (110, 46644), (111, 46638), (112, 46632), (115, 46605), (117, 46584),

Gene: Wheelie\_69 Start: 47675, Stop: 45807, Start Num: 14

Candidate Starts for Wheelie\_69:

(Start: 14 @47675 has 38 MA's), (19, 47483), (21, 47462), (22, 47453), (27, 47279), (28, 47276), (30, 47237), (34, 47147), (35, 47117), (36, 47108), (39, 47060), (43, 46979), (48, 46910), (50, 46895), (56, 46742), (58, 46736), (60, 46706), (65, 46631), (67, 46616), (70, 46571), (74, 46493), (87, 46253), (88, 46250), (94, 46160), (102, 46043), (103, 46022), (106, 45995), (108, 45983), (110, 45965), (111, 45959), (112, 45953), (115, 45926), (117, 45905), (121, 45884),

Gene: Wilca\_73 Start: 47869, Stop: 46091, Start Num: 14

Candidate Starts for Wilca\_73:

(9, 47989), (10, 47953), (Start: 14 @47869 has 38 MA's), (15, 47818), (16, 47812), (18, 47725), (24, 47566), (29, 47458), (39, 47266), (41, 47257), (48, 47101), (49, 47089), (51, 47065), (52, 47041), (53,

47002), (56, 46933), (61, 46894), (63, 46855), (64, 46837), (68, 46786), (71, 46744), (72, 46714), (75, 46678), (78, 46654), (80, 46630), (84, 46498), (89, 46423), (93, 46357), (94, 46348), (97, 46297), (102, 46246), (104, 46210), (119, 46096),

Gene: Zagie\_70 Start: 47898, Stop: 45916, Start Num: 14

Candidate Starts for Zagie\_70:

(Start: 14 @47898 has 38 MA's), (26, 47544), (28, 47511), (29, 47487), (38, 47304), (39, 47295), (51, 47100), (53, 47037), (55, 46989), (56, 46968), (61, 46929), (67, 46842), (68, 46821), (73, 46725), (74, 46716), (76, 46707), (77, 46704), (78, 46686), (81, 46572), (82, 46569), (84, 46533), (85, 46530), (89, 46458), (90, 46422), (91, 46419), (101, 46290), (103, 46254), (104, 46239), (113, 46167), (114, 46164), (124, 46080), (125, 46071), (126, 46062),

Gene: Zhafia\_74 Start: 48155, Stop: 46287, Start Num: 14

Candidate Starts for Zhafia\_74:

(Start: 14 @48155 has 38 MA's), (19, 47963), (21, 47942), (22, 47933), (28, 47756), (29, 47732), (30, 47717), (33, 47645), (35, 47597), (36, 47588), (39, 47540), (43, 47459), (48, 47390), (50, 47375), (56, 47222), (58, 47216), (60, 47186), (65, 47111), (67, 47096), (70, 47051), (74, 46973), (87, 46733), (88, 46730), (94, 46640), (102, 46523), (103, 46502), (106, 46475), (108, 46463), (110, 46445), (111, 46439), (112, 46433), (115, 46406), (117, 46385),