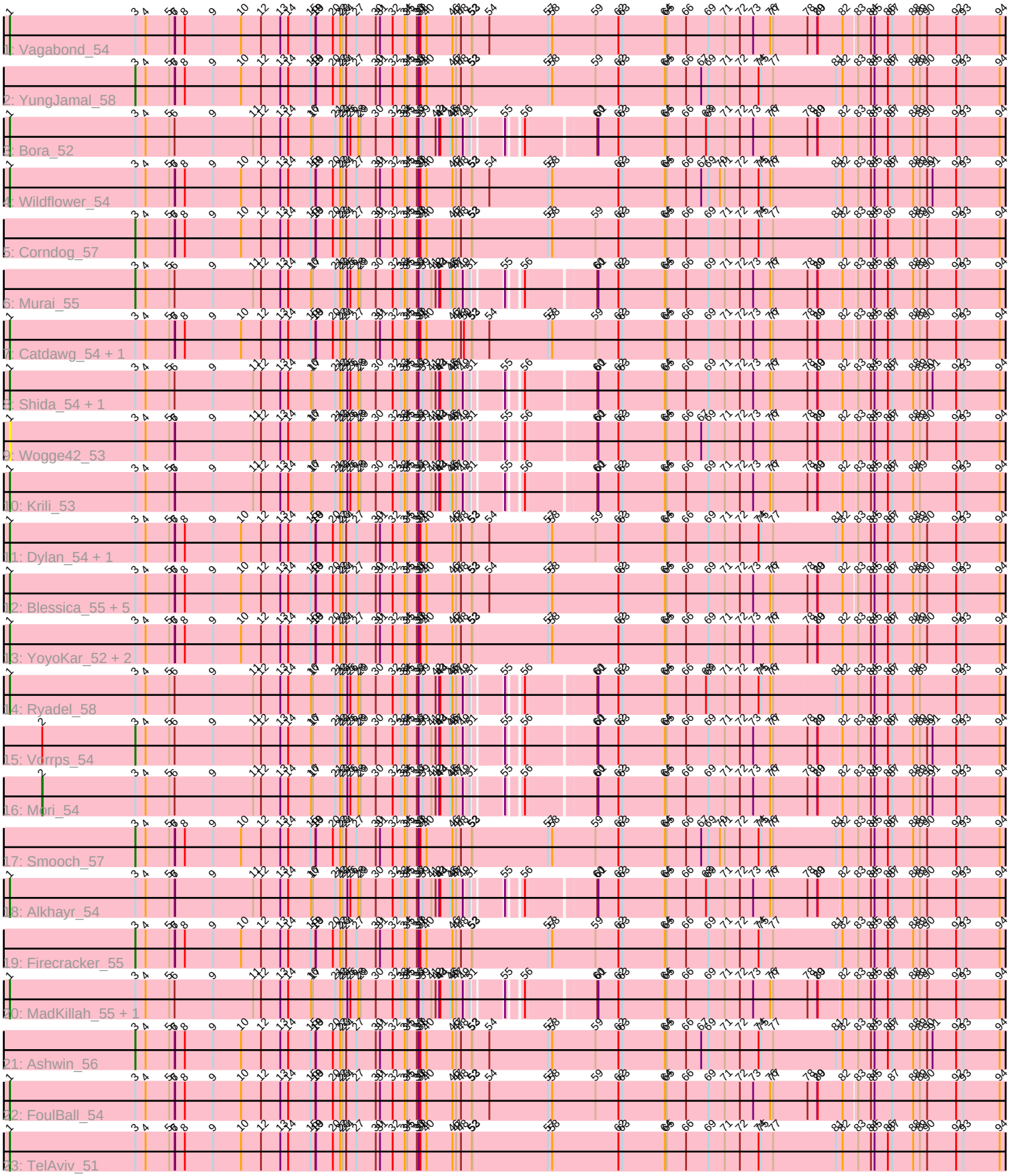
Pham 347872


1: Vagabond_54
2: YungJamal_58
3: Bora_52
4: Wildflower_54
5: Corndog_57
6: Murai_55
7: Catdawg_54 + 1
8: Shida_54 + 1
9: Wogge42_53
10: Krili_53
11: Dylan_54 + 1
12: Blessica_55 + 5
13: YoyoKar_52 + 2
14: Ryadel_58
15: Vorrps_54
16: Mori_54
17: Smooch_57
18: Alkhayr_54
19: Firecracker_55
20: MadKillah_55 + 1
21: Ashwin_56
22: FoulBall_54
23: TelAviv_51

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 347872 Report

This analysis was run 11/14/26 on database version 672.

Pham number 347872 has 34 members, 2 are drafts.

Phages represented in each track:
• Track 1 : Vagabond_54
• Track 2 : YungJamal_58
• Track 3 : Bora_52
• Track 4 : Wildflower_54
• Track 5 : Corndog_57
• Track 6 : Murai_55
• Track 7 : Catdawg_54, Idergollasper_54
• Track 8 : Shida_54, Schuy_55
• Track 9 : Wogge42_53
• Track 10 : Krili_53
• Track 11 : Dylan_54, Zakhe101_54
• Track 12 : Blessica_55, SchoolBus_54, Imara_54, JangDynasty_54, KingPhillip3_54, Zebo_54
• Track 13 : YoyoKar_52, Familton_55, Winget_55
• Track 14 : Ryadel_58
• Track 15 : Vorrps_54
• Track 16 : Mori_54
• Track 17 : Smooch_57
• Track 18 : Alkhayr_54
• Track 19 : Firecracker_55
• Track 20 : MadKillah_55, NiebruSaylor_53
• Track 21 : Ashwin_56
• Track 22 : FoulBall_54
• Track 23 : TelAviv_51

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

The start number called the most often in the published annotations is 1, it was called in 24 of the 32 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Alkhayr_54, Blessica_55, Bora_52, Catdawg_54, Dylan_54, Familton_55, FoulBall_54, Idergollasper_54, Imara_54, JangDynasty_54, KingPhillip3_54, Krili_53, MadKillah_55, NiebruSaylor_53, Ryadel_58, SchoolBus_54, Schuy_55, Shida_54,

TelAviv_51, Vagabond_54, Wildflower_54, Winget_55, Wogge42_53, YoyoKar_52, Zakhe101_54, Zebo_54,

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

Genes that do not have the "Most Annotated" start:
• Ashwin_56, Corndog_57, Firecracker_55, Mori_54, Murai_55, Smooch_57, Vorrps_54, YungJamal_58,

Summary by start number:

Start 1:
• Found in 26 of 34 (76.5%) of genes in pham
• Manual Annotations of this start: 24 of 32
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Alkhayr_54 (O), Blessica_55 (O), Bora_52 (O), Catdawg_54 (O), Dylan_54 (O), Familton_55 (O), FoulBall_54 (O), Idergollasper_54 (O), Imara_54 (O), JangDynasty_54 (O), KingPhillip3_54 (O), Krili_53 (O), MadKillah_55 (O), NiebruSaylor_53 (O), Ryadel_58 (O), SchoolBus_54 (O), Schuy_55 (O), Shida_54 (O), TelAviv_51 (O), Vagabond_54 (O), Wildflower_54 (O), Winget_55 (O), Wogge42_53 (O), YoyoKar_52 (O), Zakhe101_54 (O), Zebo_54 (O),

Start 2:
• Found in 2 of 34 (5.9%) of genes in pham
• Manual Annotations of this start: 1 of 32
• Called 50.0% of time when present
• Phage (with cluster) where this start called: Mori_54 (O),

Start 3:
• Found in 34 of 34 (100.0%) of genes in pham
• Manual Annotations of this start: 7 of 32
• Called 20.6% of time when present
• Phage (with cluster) where this start called: Ashwin_56 (O), Corndog_57 (O), Firecracker_55 (O), Murai_55 (O), Smooch_57 (O), Vorrps_54 (O), YungJamal_58 (O),

Summary by clusters:

There is one cluster represented in this pham: O

Info for manual annotations of cluster O:
•Start number 1 was manually annotated 24 times for cluster O.
•Start number 2 was manually annotated 1 time for cluster O.
•Start number 3 was manually annotated 7 times for cluster O.

Gene Information:

Gene: Alkhayr_54 Start: 26610, Stop: 31436, Start Num: 1
Candidate Starts for Alkhayr_54:

(Start: 1 @26610 has 24 MA's), (Start: 3 @27228 has 7 MA's), (4, 27279), (5, 27396), (6, 27423), (7, 27426), (9, 27615), (11, 27813), (12, 27852), (13, 27948), (14, 27987), (16, 28101), (17, 28110), (21, 28221), (22, 28245), (23, 28257), (25, 28281), (26, 28296), (28, 28335), (29, 28347), (30, 28422), (32, 28506), (33, 28548), (34, 28566), (35, 28578), (36, 28626), (37, 28635), (39, 28656), (41, 28698), (42, 28719), (43, 28737), (44, 28743), (45, 28794), (46, 28803), (47, 28821), (49, 28854), (51, 28875), (55, 28986), (56, 29040), (60, 29313), (61, 29319), (62, 29418), (63, 29436), (64, 29649), (65, 29658), (66, 29754), (68, 29853), (69, 29865), (71, 29946), (72, 30021), (73, 30087), (76, 30171), (77, 30186), (78, 30357), (79, 30405), (80, 30408), (82, 30513), (83, 30585), (84, 30648), (85, 30666), (86, 30732), (87, 30753), (88, 30858), (89, 30891), (90, 30927), (92, 31071), (93, 31107), (94, 31287),

Gene: Ashwin_56 Start: 27830, Stop: 32206, Start Num: 3
Candidate Starts for Ashwin_56:
(Start: 3 @27830 has 7 MA's), (4, 27881), (5, 27998), (6, 28025), (7, 28028), (8, 28076), (9, 28217), (10, 28355), (12, 28454), (13, 28550), (14, 28589), (15, 28700), (18, 28724), (19, 28727), (20, 28811), (22, 28847), (23, 28859), (24, 28877), (27, 28928), (30, 29024), (31, 29045), (32, 29108), (34, 29168), (35, 29180), (36, 29228), (37, 29237), (38, 29246), (40, 29276), (46, 29405), (47, 29423), (48, 29447), (52, 29501), (53, 29504), (54, 29579), (57, 29870), (58, 29891), (59, 30104), (62, 30218), (63, 30236), (64, 30449), (65, 30458), (66, 30554), (67, 30629), (69, 30665), (71, 30746), (72, 30821), (74, 30896), (75, 30908), (77, 30968), (81, 31250), (82, 31283), (83, 31355), (84, 31418), (85, 31436), (86, 31502), (87, 31523), (88, 31628), (89, 31661), (90, 31697), (91, 31724), (92, 31841), (93, 31877), (94, 32057),

Gene: Blessica_55 Start: 27011, Stop: 32035, Start Num: 1
Candidate Starts for Blessica_55:
(Start: 1 @27011 has 24 MA's), (Start: 3 @27629 has 7 MA's), (4, 27680), (5, 27797), (6, 27824), (7, 27827), (8, 27875), (9, 28016), (10, 28154), (12, 28253), (13, 28349), (14, 28388), (15, 28499), (18, 28523), (19, 28526), (20, 28610), (22, 28646), (23, 28658), (24, 28676), (27, 28727), (30, 28823), (31, 28844), (32, 28907), (34, 28967), (35, 28979), (36, 29027), (37, 29036), (38, 29045), (40, 29075), (46, 29204), (47, 29222), (48, 29246), (52, 29300), (53, 29303), (54, 29387), (57, 29678), (58, 29699), (62, 30026), (63, 30044), (64, 30257), (65, 30266), (66, 30362), (69, 30473), (71, 30554), (72, 30629), (73, 30695), (76, 30779), (77, 30794), (78, 30965), (79, 31013), (80, 31016), (82, 31121), (83, 31184), (84, 31247), (85, 31265), (86, 31331), (87, 31352), (88, 31457), (89, 31490), (90, 31526), (92, 31670), (93, 31706), (94, 31886),

Gene: Bora_52 Start: 26572, Stop: 31392, Start Num: 1
Candidate Starts for Bora_52:
(Start: 1 @26572 has 24 MA's), (Start: 3 @27190 has 7 MA's), (4, 27241), (5, 27358), (6, 27385), (9, 27577), (11, 27775), (12, 27814), (13, 27910), (14, 27949), (16, 28063), (17, 28072), (21, 28183), (22, 28207), (23, 28219), (25, 28243), (26, 28258), (28, 28297), (29, 28309), (30, 28384), (32, 28468), (33, 28510), (34, 28528), (35, 28540), (36, 28588), (37, 28597), (39, 28618), (42, 28681), (43, 28699), (44, 28705), (45, 28756), (46, 28765), (47, 28783), (49, 28816), (51, 28837), (55, 28948), (56, 29002), (60, 29275), (61, 29281), (62, 29380), (63, 29398), (64, 29611), (65, 29620), (66, 29716), (68, 29815), (69, 29827), (71, 29908), (72, 29977), (73, 30043), (76, 30127), (77, 30142), (78, 30313), (79, 30361), (80, 30364), (82, 30469), (83, 30541), (84, 30604), (85, 30622), (86, 30688), (87, 30709), (88, 30814), (89, 30847), (90, 30883), (92, 31027), (93, 31063), (94, 31243),

Gene: Catdawg_54 Start: 26700, Stop: 31724, Start Num: 1
Candidate Starts for Catdawg_54:
(Start: 1 @26700 has 24 MA's), (Start: 3 @27318 has 7 MA's), (4, 27369), (5, 27486), (6, 27513), (7, 27516), (8, 27564), (9, 27705), (10, 27843), (12, 27942), (13, 28038), (14, 28077), (15, 28188), (18, 28212), (19, 28215), (20, 28299), (22, 28335), (23, 28347), (24, 28365), (27, 28416), (30, 28512), (31, 28533), (32, 28596), (34, 28656), (35, 28668), (36, 28716), (37, 28725), (38, 28734), (40, 28764), (46, 28893), (47, 28911), (48, 28935), (50, 28950), (52, 28989), (53, 28992), (54, 29076), (57, 29367), (58, 29388), (59, 29601), (62, 29715), (63, 29733), (64, 29946), (65, 29955), (66, 30051), (69, 30162), (71,

30243), (72, 30318), (73, 30384), (76, 30468), (77, 30483), (78, 30654), (79, 30702), (80, 30705), (82, 30810), (83, 30873), (84, 30936), (85, 30954), (86, 31020), (87, 31041), (88, 31146), (89, 31179), (90, 31215), (92, 31359), (93, 31395), (94, 31575),

Gene: Corndog_57 Start: 28380, Stop: 32765, Start Num: 3
Candidate Starts for Corndog_57:
(Start: 3 @28380 has 7 MA's), (4, 28431), (5, 28548), (6, 28575), (7, 28578), (8, 28626), (9, 28767), (10, 28905), (12, 29004), (13, 29100), (14, 29139), (15, 29250), (18, 29274), (19, 29277), (20, 29361), (22, 29397), (23, 29409), (24, 29427), (27, 29478), (30, 29574), (31, 29595), (32, 29658), (34, 29718), (35, 29730), (36, 29778), (37, 29787), (38, 29796), (40, 29826), (46, 29955), (47, 29973), (48, 29997), (52, 30051), (53, 30054), (57, 30429), (58, 30450), (59, 30663), (62, 30777), (63, 30795), (64, 31008), (65, 31017), (66, 31113), (69, 31224), (71, 31305), (72, 31380), (74, 31455), (75, 31467), (77, 31527), (81, 31809), (82, 31842), (83, 31914), (84, 31977), (85, 31995), (86, 32061), (88, 32187), (89, 32220), (90, 32256), (92, 32400), (93, 32436), (94, 32616),

Gene: Dylan_54 Start: 26822, Stop: 31816, Start Num: 1
Candidate Starts for Dylan_54:
(Start: 1 @26822 has 24 MA's), (Start: 3 @27440 has 7 MA's), (4, 27491), (5, 27608), (6, 27635), (7, 27638), (8, 27686), (9, 27827), (10, 27965), (12, 28064), (13, 28160), (14, 28199), (15, 28310), (18, 28334), (19, 28337), (20, 28421), (22, 28457), (23, 28469), (24, 28487), (27, 28538), (30, 28634), (31, 28655), (32, 28718), (34, 28778), (35, 28790), (36, 28838), (37, 28847), (38, 28856), (40, 28886), (46, 29015), (47, 29033), (48, 29057), (52, 29111), (53, 29114), (54, 29189), (57, 29480), (58, 29501), (59, 29714), (62, 29828), (63, 29846), (64, 30059), (65, 30068), (66, 30164), (69, 30275), (71, 30356), (72, 30431), (74, 30506), (75, 30518), (77, 30578), (81, 30860), (82, 30893), (83, 30965), (84, 31028), (85, 31046), (86, 31112), (87, 31133), (88, 31238), (89, 31271), (90, 31307), (92, 31451), (93, 31487), (94, 31667),

Gene: Familton_55 Start: 26704, Stop: 31728, Start Num: 1
Candidate Starts for Familton_55:
(Start: 1 @26704 has 24 MA's), (Start: 3 @27322 has 7 MA's), (4, 27373), (5, 27490), (6, 27517), (7, 27520), (8, 27568), (9, 27709), (10, 27847), (12, 27946), (13, 28042), (14, 28081), (15, 28192), (18, 28216), (19, 28219), (20, 28303), (22, 28339), (23, 28351), (24, 28369), (27, 28420), (30, 28516), (31, 28537), (32, 28600), (34, 28660), (35, 28672), (36, 28720), (37, 28729), (38, 28738), (40, 28768), (46, 28897), (47, 28915), (48, 28939), (52, 28993), (53, 28996), (57, 29371), (58, 29392), (62, 29719), (63, 29737), (64, 29950), (65, 29959), (66, 30055), (69, 30166), (71, 30247), (72, 30322), (73, 30388), (76, 30472), (77, 30487), (78, 30658), (79, 30706), (80, 30709), (82, 30814), (83, 30877), (84, 30940), (85, 30958), (86, 31024), (87, 31045), (88, 31150), (89, 31183), (90, 31219), (92, 31363), (93, 31399), (94, 31579),

Gene: Firecracker_55 Start: 27533, Stop: 31918, Start Num: 3
Candidate Starts for Firecracker_55:
(Start: 3 @27533 has 7 MA's), (4, 27584), (5, 27701), (6, 27728), (7, 27731), (8, 27779), (9, 27920), (10, 28058), (12, 28157), (13, 28253), (14, 28292), (15, 28403), (18, 28427), (19, 28430), (20, 28514), (22, 28550), (23, 28562), (24, 28580), (27, 28631), (30, 28727), (31, 28748), (32, 28811), (34, 28871), (35, 28883), (36, 28931), (37, 28940), (38, 28949), (40, 28979), (46, 29108), (47, 29126), (48, 29150), (52, 29204), (53, 29207), (57, 29582), (58, 29603), (59, 29816), (62, 29930), (63, 29948), (64, 30161), (65, 30170), (66, 30266), (69, 30377), (71, 30458), (72, 30533), (74, 30608), (75, 30620), (77, 30680), (81, 30962), (82, 30995), (83, 31067), (84, 31130), (85, 31148), (86, 31214), (87, 31235), (88, 31340), (89, 31373), (90, 31409), (92, 31553), (93, 31589), (94, 31769),

Gene: FoulBall_54 Start: 26698, Stop: 31722, Start Num: 1
Candidate Starts for FoulBall_54:

(Start: 1 @26698 has 24 MA's), (Start: 3 @27316 has 7 MA's), (4, 27367), (5, 27484), (6, 27511), (7, 27514), (8, 27562), (9, 27703), (10, 27841), (12, 27940), (13, 28036), (14, 28075), (15, 28186), (18, 28210), (19, 28213), (20, 28297), (22, 28333), (23, 28345), (24, 28363), (27, 28414), (30, 28510), (31, 28531), (32, 28594), (34, 28654), (35, 28666), (36, 28714), (37, 28723), (38, 28732), (40, 28762), (46, 28891), (47, 28909), (48, 28933), (52, 28987), (53, 28990), (54, 29074), (57, 29365), (58, 29386), (59, 29599), (62, 29713), (63, 29731), (64, 29944), (65, 29953), (66, 30049), (69, 30160), (71, 30241), (72, 30316), (73, 30382), (76, 30466), (77, 30481), (78, 30652), (79, 30700), (80, 30703), (82, 30808), (83, 30871), (84, 30934), (85, 30952), (87, 31039), (88, 31144), (89, 31177), (90, 31213), (92, 31357), (93, 31393), (94, 31573),

Gene: Idergollasper_54 Start: 26698, Stop: 31722, Start Num: 1
Candidate Starts for Idergollasper_54:
(Start: 1 @26698 has 24 MA's), (Start: 3 @27316 has 7 MA's), (4, 27367), (5, 27484), (6, 27511), (7, 27514), (8, 27562), (9, 27703), (10, 27841), (12, 27940), (13, 28036), (14, 28075), (15, 28186), (18, 28210), (19, 28213), (20, 28297), (22, 28333), (23, 28345), (24, 28363), (27, 28414), (30, 28510), (31, 28531), (32, 28594), (34, 28654), (35, 28666), (36, 28714), (37, 28723), (38, 28732), (40, 28762), (46, 28891), (47, 28909), (48, 28933), (50, 28948), (52, 28987), (53, 28990), (54, 29074), (57, 29365), (58, 29386), (59, 29599), (62, 29713), (63, 29731), (64, 29944), (65, 29953), (66, 30049), (69, 30160), (71, 30241), (72, 30316), (73, 30382), (76, 30466), (77, 30481), (78, 30652), (79, 30700), (80, 30703), (82, 30808), (83, 30871), (84, 30934), (85, 30952), (86, 31018), (87, 31039), (88, 31144), (89, 31177), (90, 31213), (92, 31357), (93, 31393), (94, 31573),

Gene: Imara_54 Start: 26507, Stop: 31522, Start Num: 1
Candidate Starts for Imara_54:
(Start: 1 @26507 has 24 MA's), (Start: 3 @27125 has 7 MA's), (4, 27176), (5, 27293), (6, 27320), (7, 27323), (8, 27371), (9, 27512), (10, 27650), (12, 27749), (13, 27845), (14, 27884), (15, 27995), (18, 28019), (19, 28022), (20, 28106), (22, 28142), (23, 28154), (24, 28172), (27, 28223), (30, 28319), (31, 28340), (32, 28403), (34, 28463), (35, 28475), (36, 28523), (37, 28532), (38, 28541), (40, 28571), (46, 28700), (47, 28718), (48, 28742), (52, 28796), (53, 28799), (54, 28874), (57, 29165), (58, 29186), (62, 29513), (63, 29531), (64, 29744), (65, 29753), (66, 29849), (69, 29960), (71, 30041), (72, 30116), (73, 30182), (76, 30266), (77, 30281), (78, 30452), (79, 30500), (80, 30503), (82, 30608), (83, 30671), (84, 30734), (85, 30752), (86, 30818), (87, 30839), (88, 30944), (89, 30977), (90, 31013), (92, 31157), (93, 31193), (94, 31373),

Gene: JangDynasty_54 Start: 26793, Stop: 31808, Start Num: 1
Candidate Starts for JangDynasty_54:
(Start: 1 @26793 has 24 MA's), (Start: 3 @27411 has 7 MA's), (4, 27462), (5, 27579), (6, 27606), (7, 27609), (8, 27657), (9, 27798), (10, 27936), (12, 28035), (13, 28131), (14, 28170), (15, 28281), (18, 28305), (19, 28308), (20, 28392), (22, 28428), (23, 28440), (24, 28458), (27, 28509), (30, 28605), (31, 28626), (32, 28689), (34, 28749), (35, 28761), (36, 28809), (37, 28818), (38, 28827), (40, 28857), (46, 28986), (47, 29004), (48, 29028), (52, 29082), (53, 29085), (54, 29160), (57, 29451), (58, 29472), (62, 29799), (63, 29817), (64, 30030), (65, 30039), (66, 30135), (69, 30246), (71, 30327), (72, 30402), (73, 30468), (76, 30552), (77, 30567), (78, 30738), (79, 30786), (80, 30789), (82, 30894), (83, 30957), (84, 31020), (85, 31038), (86, 31104), (87, 31125), (88, 31230), (89, 31263), (90, 31299), (92, 31443), (93, 31479), (94, 31659),

Gene: KingPhillip3_54 Start: 26698, Stop: 31737, Start Num: 1
Candidate Starts for KingPhillip3_54:
(Start: 1 @26698 has 24 MA's), (Start: 3 @27316 has 7 MA's), (4, 27367), (5, 27484), (6, 27511), (7, 27514), (8, 27562), (9, 27703), (10, 27841), (12, 27940), (13, 28036), (14, 28075), (15, 28186), (18, 28210), (19, 28213), (20, 28297), (22, 28333), (23, 28345), (24, 28363), (27, 28414), (30, 28510), (31, 28531), (32, 28594), (34, 28654), (35, 28666), (36, 28714), (37, 28723), (38, 28732), (40, 28762), (46, 28891), (47, 28909), (48, 28933), (52, 28987), (53, 28990), (54, 29074), (57, 29365), (58, 29386), (62,

29713), (63, 29731), (64, 29944), (65, 29953), (66, 30049), (69, 30160), (71, 30241), (72, 30316), (73, 30382), (76, 30466), (77, 30481), (78, 30652), (79, 30700), (80, 30703), (82, 30808), (83, 30886), (84, 30949), (85, 30967), (86, 31033), (87, 31054), (88, 31159), (89, 31192), (90, 31228), (92, 31372), (93, 31408), (94, 31588),

Gene: Krili_53 Start: 26415, Stop: 31232, Start Num: 1
Candidate Starts for Krili_53:
(Start: 1 @26415 has 24 MA's), (Start: 3 @27033 has 7 MA's), (4, 27084), (5, 27201), (6, 27228), (7, 27231), (9, 27420), (11, 27618), (12, 27657), (13, 27753), (14, 27792), (16, 27906), (17, 27915), (21, 28026), (22, 28050), (23, 28062), (25, 28086), (26, 28101), (28, 28140), (29, 28152), (30, 28227), (32, 28311), (33, 28353), (34, 28371), (35, 28383), (36, 28431), (37, 28440), (39, 28461), (41, 28503), (42, 28524), (43, 28542), (44, 28548), (45, 28599), (46, 28608), (47, 28626), (49, 28659), (51, 28680), (55, 28791), (56, 28845), (60, 29118), (61, 29124), (62, 29223), (63, 29241), (64, 29454), (65, 29463), (66, 29559), (69, 29670), (71, 29751), (72, 29826), (73, 29892), (76, 29976), (77, 29991), (78, 30162), (79, 30210), (80, 30213), (82, 30318), (83, 30381), (84, 30444), (85, 30462), (86, 30528), (87, 30549), (88, 30654), (89, 30687), (92, 30867), (93, 30903), (94, 31083),

Gene: MadKillah_55 Start: 26637, Stop: 31454, Start Num: 1
Candidate Starts for MadKillah_55:
(Start: 1 @26637 has 24 MA's), (Start: 3 @27255 has 7 MA's), (4, 27306), (5, 27423), (6, 27450), (9, 27642), (11, 27840), (12, 27879), (13, 27975), (14, 28014), (16, 28128), (17, 28137), (21, 28248), (22, 28272), (23, 28284), (25, 28308), (26, 28323), (28, 28362), (29, 28374), (30, 28449), (32, 28533), (33, 28575), (34, 28593), (35, 28605), (36, 28653), (37, 28662), (39, 28683), (41, 28725), (42, 28746), (43, 28764), (44, 28770), (45, 28821), (46, 28830), (47, 28848), (49, 28881), (51, 28902), (55, 29013), (56, 29067), (60, 29340), (61, 29346), (62, 29445), (63, 29463), (64, 29676), (65, 29685), (66, 29781), (69, 29892), (71, 29973), (72, 30048), (73, 30114), (76, 30198), (77, 30213), (78, 30384), (79, 30432), (80, 30435), (82, 30540), (83, 30603), (84, 30666), (85, 30684), (86, 30750), (87, 30771), (88, 30876), (89, 30909), (90, 30945), (92, 31089), (93, 31125), (94, 31305),

Gene: Mori_54 Start: 27046, Stop: 31716, Start Num: 2
Candidate Starts for Mori_54:
(Start: 2 @27046 has 1 MA's), (Start: 3 @27508 has 7 MA's), (4, 27559), (5, 27676), (6, 27703), (9, 27895), (11, 28093), (12, 28132), (13, 28228), (14, 28267), (16, 28381), (17, 28390), (21, 28501), (22, 28525), (23, 28537), (25, 28561), (26, 28576), (28, 28615), (29, 28627), (30, 28702), (32, 28786), (33, 28828), (34, 28846), (35, 28858), (36, 28906), (37, 28915), (39, 28936), (41, 28978), (42, 28999), (43, 29017), (44, 29023), (45, 29074), (46, 29083), (47, 29101), (49, 29134), (51, 29155), (55, 29266), (56, 29320), (60, 29593), (61, 29599), (62, 29698), (63, 29716), (64, 29929), (65, 29938), (66, 30034), (69, 30145), (71, 30226), (72, 30301), (73, 30367), (76, 30451), (77, 30466), (78, 30637), (79, 30685), (80, 30688), (82, 30793), (83, 30865), (84, 30928), (85, 30946), (86, 31012), (87, 31033), (88, 31138), (89, 31171), (90, 31207), (91, 31234), (92, 31351), (93, 31387), (94, 31567),

Gene: Murai_55 Start: 27698, Stop: 31897, Start Num: 3
Candidate Starts for Murai_55:
(Start: 3 @27698 has 7 MA's), (4, 27749), (5, 27866), (6, 27893), (9, 28085), (11, 28283), (12, 28322), (13, 28418), (14, 28457), (16, 28571), (17, 28580), (21, 28691), (22, 28715), (23, 28727), (25, 28751), (26, 28766), (28, 28805), (29, 28817), (30, 28892), (32, 28976), (33, 29018), (34, 29036), (35, 29048), (36, 29096), (37, 29105), (39, 29126), (41, 29168), (42, 29189), (43, 29207), (44, 29213), (45, 29264), (46, 29273), (47, 29291), (49, 29324), (51, 29345), (55, 29456), (56, 29510), (60, 29783), (61, 29789), (62, 29888), (63, 29906), (64, 30119), (65, 30128), (66, 30224), (69, 30335), (71, 30416), (72, 30491), (73, 30557), (76, 30641), (77, 30656), (78, 30827), (79, 30875), (80, 30878), (82, 30983), (83, 31046), (84, 31109), (85, 31127), (86, 31193), (87, 31214), (88, 31319), (89, 31352), (90, 31388), (92, 31532), (93, 31568), (94, 31748),

Gene: NiebruSaylor_53 Start: 26287, Stop: 31104, Start Num: 1
Candidate Starts for NiebruSaylor_53:
(Start: 1 @26287 has 24 MA's), (Start: 3 @26905 has 7 MA's), (4, 26956), (5, 27073), (6, 27100), (9, 27292), (11, 27490), (12, 27529), (13, 27625), (14, 27664), (16, 27778), (17, 27787), (21, 27898), (22, 27922), (23, 27934), (25, 27958), (26, 27973), (28, 28012), (29, 28024), (30, 28099), (32, 28183), (33, 28225), (34, 28243), (35, 28255), (36, 28303), (37, 28312), (39, 28333), (41, 28375), (42, 28396), (43, 28414), (44, 28420), (45, 28471), (46, 28480), (47, 28498), (49, 28531), (51, 28552), (55, 28663), (56, 28717), (60, 28990), (61, 28996), (62, 29095), (63, 29113), (64, 29326), (65, 29335), (66, 29431), (69, 29542), (71, 29623), (72, 29698), (73, 29764), (76, 29848), (77, 29863), (78, 30034), (79, 30082), (80, 30085), (82, 30190), (83, 30253), (84, 30316), (85, 30334), (86, 30400), (87, 30421), (88, 30526), (89, 30559), (90, 30595), (92, 30739), (93, 30775), (94, 30955),

Gene: Ryadel_58 Start: 27751, Stop: 32532, Start Num: 1
Candidate Starts for Ryadel_58:
(Start: 1 @27751 has 24 MA's), (Start: 3 @28369 has 7 MA's), (4, 28420), (5, 28537), (6, 28564), (9, 28756), (11, 28954), (12, 28993), (13, 29089), (14, 29128), (16, 29242), (17, 29251), (21, 29362), (22, 29386), (23, 29398), (25, 29422), (26, 29437), (28, 29476), (29, 29488), (30, 29563), (32, 29647), (33, 29689), (34, 29707), (35, 29719), (36, 29767), (37, 29776), (39, 29797), (42, 29860), (43, 29878), (44, 29884), (45, 29935), (46, 29944), (47, 29962), (49, 29995), (51, 30016), (55, 30127), (56, 30181), (60, 30454), (61, 30460), (62, 30559), (63, 30577), (64, 30790), (65, 30799), (66, 30895), (68, 30994), (69, 31006), (71, 31087), (72, 31156), (74, 31231), (75, 31243), (76, 31288), (77, 31303), (81, 31585), (82, 31618), (83, 31684), (84, 31747), (85, 31765), (86, 31831), (87, 31852), (88, 31954), (89, 31987), (92, 32167), (93, 32203), (94, 32383),

Gene: SchoolBus_54 Start: 26701, Stop: 31716, Start Num: 1
Candidate Starts for SchoolBus_54:
(Start: 1 @26701 has 24 MA's), (Start: 3 @27319 has 7 MA's), (4, 27370), (5, 27487), (6, 27514), (7, 27517), (8, 27565), (9, 27706), (10, 27844), (12, 27943), (13, 28039), (14, 28078), (15, 28189), (18, 28213), (19, 28216), (20, 28300), (22, 28336), (23, 28348), (24, 28366), (27, 28417), (30, 28513), (31, 28534), (32, 28597), (34, 28657), (35, 28669), (36, 28717), (37, 28726), (38, 28735), (40, 28765), (46, 28894), (47, 28912), (48, 28936), (52, 28990), (53, 28993), (54, 29068), (57, 29359), (58, 29380), (62, 29707), (63, 29725), (64, 29938), (65, 29947), (66, 30043), (69, 30154), (71, 30235), (72, 30310), (73, 30376), (76, 30460), (77, 30475), (78, 30646), (79, 30694), (80, 30697), (82, 30802), (83, 30865), (84, 30928), (85, 30946), (86, 31012), (87, 31033), (88, 31138), (89, 31171), (90, 31207), (92, 31351), (93, 31387), (94, 31567),

Gene: Schuy_55 Start: 26634, Stop: 31460, Start Num: 1
Candidate Starts for Schuy_55:
(Start: 1 @26634 has 24 MA's), (Start: 3 @27252 has 7 MA's), (4, 27303), (5, 27420), (6, 27447), (9, 27639), (11, 27837), (12, 27876), (13, 27972), (14, 28011), (16, 28125), (17, 28134), (21, 28245), (22, 28269), (23, 28281), (25, 28305), (26, 28320), (28, 28359), (29, 28371), (30, 28446), (32, 28530), (33, 28572), (34, 28590), (35, 28602), (36, 28650), (37, 28659), (39, 28680), (41, 28722), (42, 28743), (43, 28761), (44, 28767), (45, 28818), (46, 28827), (47, 28845), (49, 28878), (51, 28899), (55, 29010), (56, 29064), (60, 29337), (61, 29343), (62, 29442), (63, 29460), (64, 29673), (65, 29682), (66, 29778), (69, 29889), (71, 29970), (72, 30045), (73, 30111), (76, 30195), (77, 30210), (78, 30381), (79, 30429), (80, 30432), (82, 30537), (83, 30609), (84, 30672), (85, 30690), (86, 30756), (87, 30777), (88, 30882), (89, 30915), (90, 30951), (91, 30978), (92, 31095), (93, 31131), (94, 31311),

Gene: Shida_54 Start: 26541, Stop: 31367, Start Num: 1
Candidate Starts for Shida_54:
(Start: 1 @26541 has 24 MA's), (Start: 3 @27159 has 7 MA's), (4, 27210), (5, 27327), (6, 27354), (9, 27546), (11, 27744), (12, 27783), (13, 27879), (14, 27918), (16, 28032), (17, 28041), (21, 28152), (22, 28176), (23, 28188), (25, 28212), (26, 28227), (28, 28266), (29, 28278), (30, 28353), (32, 28437), (33,

28479), (34, 28497), (35, 28509), (36, 28557), (37, 28566), (39, 28587), (41, 28629), (42, 28650), (43, 28668), (44, 28674), (45, 28725), (46, 28734), (47, 28752), (49, 28785), (51, 28806), (55, 28917), (56, 28971), (60, 29244), (61, 29250), (62, 29349), (63, 29367), (64, 29580), (65, 29589), (66, 29685), (69, 29796), (71, 29877), (72, 29952), (73, 30018), (76, 30102), (77, 30117), (78, 30288), (79, 30336), (80, 30339), (82, 30444), (83, 30516), (84, 30579), (85, 30597), (86, 30663), (87, 30684), (88, 30789), (89, 30822), (90, 30858), (91, 30885), (92, 31002), (93, 31038), (94, 31218),

Gene: Smooch_57 Start: 29051, Stop: 33436, Start Num: 3
Candidate Starts for Smooch_57:
(Start: 3 @29051 has 7 MA's), (4, 29102), (5, 29219), (6, 29246), (7, 29249), (8, 29297), (9, 29438), (10, 29576), (12, 29675), (13, 29771), (14, 29810), (15, 29921), (18, 29945), (19, 29948), (20, 30032), (22, 30068), (23, 30080), (24, 30098), (27, 30149), (30, 30245), (31, 30266), (32, 30329), (34, 30389), (35, 30401), (36, 30449), (37, 30458), (38, 30467), (40, 30497), (46, 30626), (47, 30644), (48, 30668), (52, 30722), (53, 30725), (57, 31100), (58, 31121), (59, 31334), (62, 31448), (63, 31466), (64, 31679), (65, 31688), (66, 31784), (67, 31859), (69, 31895), (70, 31952), (71, 31976), (72, 32051), (74, 32126), (75, 32138), (76, 32183), (77, 32198), (81, 32480), (82, 32513), (83, 32585), (84, 32648), (85, 32666), (86, 32732), (87, 32753), (88, 32858), (89, 32891), (90, 32927), (92, 33071), (93, 33107), (94, 33287),

Gene: TelAviv_51 Start: 26695, Stop: 31689, Start Num: 1
Candidate Starts for TelAviv_51:
(Start: 1 @26695 has 24 MA's), (Start: 3 @27313 has 7 MA's), (4, 27364), (5, 27481), (6, 27508), (7, 27511), (8, 27559), (9, 27700), (10, 27838), (12, 27937), (13, 28033), (14, 28072), (15, 28183), (18, 28207), (19, 28210), (20, 28294), (22, 28330), (23, 28342), (24, 28360), (27, 28411), (30, 28507), (31, 28528), (32, 28591), (34, 28651), (35, 28663), (36, 28711), (37, 28720), (38, 28729), (40, 28759), (46, 28888), (47, 28906), (48, 28930), (52, 28984), (53, 28987), (57, 29353), (58, 29374), (62, 29701), (63, 29719), (64, 29932), (65, 29941), (66, 30037), (69, 30148), (71, 30229), (72, 30304), (74, 30379), (75, 30391), (77, 30451), (81, 30733), (82, 30766), (83, 30838), (84, 30901), (85, 30919), (86, 30985), (87, 31006), (88, 31111), (89, 31144), (90, 31180), (92, 31324), (93, 31360), (94, 31540),

Gene: Vagabond_54 Start: 26528, Stop: 31552, Start Num: 1
Candidate Starts for Vagabond_54:
(Start: 1 @26528 has 24 MA's), (Start: 3 @27146 has 7 MA's), (4, 27197), (5, 27314), (6, 27341), (7, 27344), (8, 27392), (9, 27533), (10, 27671), (12, 27770), (13, 27866), (14, 27905), (15, 28016), (18, 28040), (19, 28043), (20, 28127), (22, 28163), (23, 28175), (24, 28193), (27, 28244), (30, 28340), (31, 28361), (32, 28424), (34, 28484), (35, 28496), (36, 28544), (37, 28553), (38, 28562), (40, 28592), (46, 28721), (47, 28739), (48, 28763), (52, 28817), (53, 28820), (54, 28904), (57, 29195), (58, 29216), (59, 29429), (62, 29543), (63, 29561), (64, 29774), (65, 29783), (66, 29879), (69, 29990), (71, 30071), (72, 30146), (73, 30212), (76, 30296), (77, 30311), (78, 30482), (79, 30530), (80, 30533), (82, 30638), (83, 30701), (84, 30764), (85, 30782), (86, 30848), (87, 30869), (88, 30974), (89, 31007), (90, 31043), (92, 31187), (93, 31223), (94, 31403),

Gene: Vorrps_54 Start: 27509, Stop: 31717, Start Num: 3
Candidate Starts for Vorrps_54:
(Start: 2 @27047 has 1 MA's), (Start: 3 @27509 has 7 MA's), (4, 27560), (5, 27677), (6, 27704), (9, 27896), (11, 28094), (12, 28133), (13, 28229), (14, 28268), (16, 28382), (17, 28391), (21, 28502), (22, 28526), (23, 28538), (25, 28562), (26, 28577), (28, 28616), (29, 28628), (30, 28703), (32, 28787), (33, 28829), (34, 28847), (35, 28859), (36, 28907), (37, 28916), (39, 28937), (41, 28979), (42, 29000), (43, 29018), (44, 29024), (45, 29075), (46, 29084), (47, 29102), (49, 29135), (51, 29156), (55, 29267), (56, 29321), (60, 29594), (61, 29600), (62, 29699), (63, 29717), (64, 29930), (65, 29939), (66, 30035), (69, 30146), (71, 30227), (72, 30302), (73, 30368), (76, 30452), (77, 30467), (78, 30638), (79, 30686), (80, 30689), (82, 30794), (83, 30866), (84, 30929), (85, 30947), (86, 31013), (87, 31034), (88, 31139), (89, 31172), (90, 31208), (91, 31235), (92, 31352), (93, 31388), (94, 31568),

Gene: Wildflower_54 Start: 26273, Stop: 31276, Start Num: 1
Candidate Starts for Wildflower_54:
(Start: 1 @26273 has 24 MA's), (Start: 3 @26891 has 7 MA's), (4, 26942), (5, 27059), (6, 27086), (7, 27089), (8, 27137), (9, 27278), (10, 27416), (12, 27515), (13, 27611), (14, 27650), (15, 27761), (18, 27785), (19, 27788), (20, 27872), (22, 27908), (23, 27920), (24, 27938), (27, 27989), (30, 28085), (31, 28106), (32, 28169), (34, 28229), (35, 28241), (36, 28289), (37, 28298), (38, 28307), (40, 28337), (46, 28466), (47, 28484), (48, 28508), (52, 28562), (53, 28565), (54, 28649), (57, 28940), (58, 28961), (62, 29288), (63, 29306), (64, 29519), (65, 29528), (66, 29624), (67, 29699), (69, 29735), (70, 29792), (71, 29816), (72, 29891), (74, 29966), (75, 29978), (76, 30023), (77, 30038), (81, 30320), (82, 30353), (83, 30425), (84, 30488), (85, 30506), (86, 30572), (87, 30593), (88, 30698), (89, 30731), (90, 30767), (91, 30794), (92, 30911), (93, 30947), (94, 31127),

Gene: Winget_55 Start: 26967, Stop: 31982, Start Num: 1
Candidate Starts for Winget_55:
(Start: 1 @26967 has 24 MA's), (Start: 3 @27585 has 7 MA's), (4, 27636), (5, 27753), (6, 27780), (7, 27783), (8, 27831), (9, 27972), (10, 28110), (12, 28209), (13, 28305), (14, 28344), (15, 28455), (18, 28479), (19, 28482), (20, 28566), (22, 28602), (23, 28614), (24, 28632), (27, 28683), (30, 28779), (31, 28800), (32, 28863), (34, 28923), (35, 28935), (36, 28983), (37, 28992), (38, 29001), (40, 29031), (46, 29160), (47, 29178), (48, 29202), (52, 29256), (53, 29259), (57, 29625), (58, 29646), (62, 29973), (63, 29991), (64, 30204), (65, 30213), (66, 30309), (69, 30420), (71, 30501), (72, 30576), (73, 30642), (76, 30726), (77, 30741), (78, 30912), (79, 30960), (80, 30963), (82, 31068), (83, 31131), (84, 31194), (85, 31212), (86, 31278), (87, 31299), (88, 31404), (89, 31437), (90, 31473), (92, 31617), (93, 31653), (94, 31833),

Gene: Wogge42_53 Start: 26606, Stop: 31423, Start Num: 1
Candidate Starts for Wogge42_53:
(Start: 1 @26606 has 24 MA's), (Start: 3 @27224 has 7 MA's), (4, 27275), (5, 27392), (6, 27419), (7, 27422), (9, 27611), (11, 27809), (12, 27848), (13, 27944), (14, 27983), (16, 28097), (17, 28106), (21, 28217), (22, 28241), (23, 28253), (25, 28277), (26, 28292), (28, 28331), (29, 28343), (30, 28418), (32, 28502), (33, 28544), (34, 28562), (35, 28574), (36, 28622), (37, 28631), (39, 28652), (41, 28694), (42, 28715), (43, 28733), (44, 28739), (45, 28790), (46, 28799), (47, 28817), (49, 28850), (51, 28871), (55, 28982), (56, 29036), (60, 29309), (61, 29315), (62, 29414), (63, 29432), (64, 29645), (65, 29654), (66, 29750), (67, 29825), (69, 29861), (71, 29942), (72, 30017), (73, 30083), (76, 30167), (77, 30182), (78, 30353), (79, 30401), (80, 30404), (82, 30509), (83, 30572), (84, 30635), (85, 30653), (86, 30719), (87, 30740), (88, 30845), (89, 30878), (90, 30914), (92, 31058), (93, 31094), (94, 31274),

Gene: YoyoKar_52 Start: 26251, Stop: 31266, Start Num: 1
Candidate Starts for YoyoKar_52:
(Start: 1 @26251 has 24 MA's), (Start: 3 @26869 has 7 MA's), (4, 26920), (5, 27037), (6, 27064), (7, 27067), (8, 27115), (9, 27256), (10, 27394), (12, 27493), (13, 27589), (14, 27628), (15, 27739), (18, 27763), (19, 27766), (20, 27850), (22, 27886), (23, 27898), (24, 27916), (27, 27967), (30, 28063), (31, 28084), (32, 28147), (34, 28207), (35, 28219), (36, 28267), (37, 28276), (38, 28285), (40, 28315), (46, 28444), (47, 28462), (48, 28486), (52, 28540), (53, 28543), (57, 28909), (58, 28930), (62, 29257), (63, 29275), (64, 29488), (65, 29497), (66, 29593), (69, 29704), (71, 29785), (72, 29860), (73, 29926), (76, 30010), (77, 30025), (78, 30196), (79, 30244), (80, 30247), (82, 30352), (83, 30415), (84, 30478), (85, 30496), (86, 30562), (87, 30583), (88, 30688), (89, 30721), (90, 30757), (92, 30901), (93, 30937), (94, 31117),

Gene: YungJamal_58 Start: 28228, Stop: 32613, Start Num: 3
Candidate Starts for YungJamal_58:
(Start: 3 @28228 has 7 MA's), (4, 28279), (5, 28396), (6, 28423), (7, 28426), (8, 28474), (9, 28615), (10, 28753), (12, 28852), (13, 28948), (14, 28987), (15, 29098), (18, 29122), (19, 29125), (20, 29209), (22, 29245), (23, 29257), (24, 29275), (27, 29326), (30, 29422), (31, 29443), (32, 29506), (34, 29566),

(35, 29578), (36, 29626), (37, 29635), (38, 29644), (40, 29674), (46, 29803), (47, 29821), (48, 29845), (52, 29899), (53, 29902), (57, 30277), (58, 30298), (59, 30511), (62, 30625), (63, 30643), (64, 30856), (65, 30865), (66, 30961), (67, 31036), (69, 31072), (71, 31153), (72, 31228), (74, 31303), (75, 31315), (77, 31375), (81, 31657), (82, 31690), (83, 31762), (84, 31825), (85, 31843), (86, 31909), (87, 31930), (88, 32035), (89, 32068), (90, 32104), (92, 32248), (93, 32284), (94, 32464),

Gene: Zakhe101_54 Start: 26826, Stop: 31820, Start Num: 1
Candidate Starts for Zakhe101_54:
(Start: 1 @26826 has 24 MA's), (Start: 3 @27444 has 7 MA's), (4, 27495), (5, 27612), (6, 27639), (7, 27642), (8, 27690), (9, 27831), (10, 27969), (12, 28068), (13, 28164), (14, 28203), (15, 28314), (18, 28338), (19, 28341), (20, 28425), (22, 28461), (23, 28473), (24, 28491), (27, 28542), (30, 28638), (31, 28659), (32, 28722), (34, 28782), (35, 28794), (36, 28842), (37, 28851), (38, 28860), (40, 28890), (46, 29019), (47, 29037), (48, 29061), (52, 29115), (53, 29118), (54, 29193), (57, 29484), (58, 29505), (59, 29718), (62, 29832), (63, 29850), (64, 30063), (65, 30072), (66, 30168), (69, 30279), (71, 30360), (72, 30435), (74, 30510), (75, 30522), (77, 30582), (81, 30864), (82, 30897), (83, 30969), (84, 31032), (85, 31050), (86, 31116), (87, 31137), (88, 31242), (89, 31275), (90, 31311), (92, 31455), (93, 31491), (94, 31671),

Gene: Zebo_54 Start: 26701, Stop: 31725, Start Num: 1
Candidate Starts for Zebo_54:
(Start: 1 @26701 has 24 MA's), (Start: 3 @27319 has 7 MA's), (4, 27370), (5, 27487), (6, 27514), (7, 27517), (8, 27565), (9, 27706), (10, 27844), (12, 27943), (13, 28039), (14, 28078), (15, 28189), (18, 28213), (19, 28216), (20, 28300), (22, 28336), (23, 28348), (24, 28366), (27, 28417), (30, 28513), (31, 28534), (32, 28597), (34, 28657), (35, 28669), (36, 28717), (37, 28726), (38, 28735), (40, 28765), (46, 28894), (47, 28912), (48, 28936), (52, 28990), (53, 28993), (54, 29077), (57, 29368), (58, 29389), (62, 29716), (63, 29734), (64, 29947), (65, 29956), (66, 30052), (69, 30163), (71, 30244), (72, 30319), (73, 30385), (76, 30469), (77, 30484), (78, 30655), (79, 30703), (80, 30706), (82, 30811), (83, 30874), (84, 30937), (85, 30955), (86, 31021), (87, 31042), (88, 31147), (89, 31180), (90, 31216), (92, 31360), (93, 31396), (94, 31576),