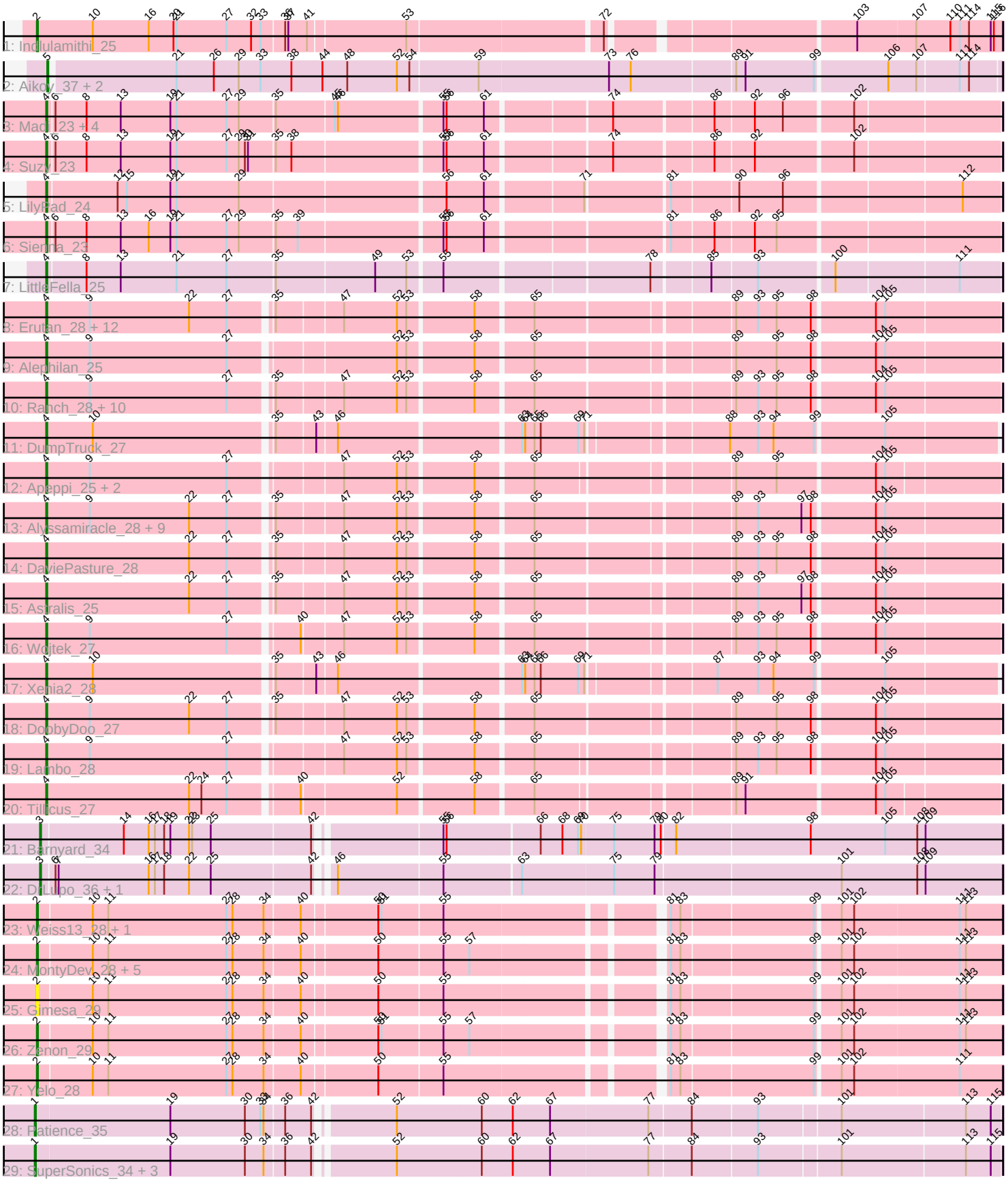
Pham 347538


1: Indulamithi_25
2: Aikov_37 + 2
3: Madi_23 + 4
4: Suzy_23
5: LilyRad_24
6: Sienna_23
7: LittleFella_25
8: Erutan_28 + 12
9: Alephilan_25
10: Ranch_28 + 10
11: DumpTruck_27
12: Apeppi_25 + 2
13: Alyssamiracle_28 + 9
14: DaviePasture_28
15: Astralis_25
16: Wojtek_27
17: Xenia2_28
18: DobbyDoo_27
19: Lambo_28
20: Tillicus_27
21: Barnyard_34
22: DrLupo_36 + 1
23: Weiss13_28 + 1
24: MontyDev_28 + 5
25: Gimesa_28
26: Zenon_29
27: Yelo_28
28: Patience_35
29: SuperSonics_34 + 3

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 347538 Report

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

Pham number 347538 has 78 members, 9 are drafts.

Phages represented in each track:
• Track 1 : Indlulamithi_25
• Track 2 : Aikoy_37, Leopard_37, Onyinye_38
• Track 3 : Madi_23, Beyoncage_23, Terapin_23, BiteSize_23, Djokovic_23
• Track 4 : Suzy_23
• Track 5 : LilyPad_24
• Track 6 : Sienna_23
• Track 7 : LittleFella_25
• Track 8 : Erutan_28, LavAbarElk_26, Mima20_26, Rukungu_28, GretelLyn_28, Nettle_28, Sadboi_28, Pywacket_27, Yikes_29, BirthdayBoy_29, MoiGyank_30, Fulcrum_29, GOATification_29
• Track 9 : Alephilan_25
• Track 10 : Ranch_28, Gibbin_29, OtterstedtS21_28, Lila22_27, Sampudon_28, ParvusTarda_28, Patos_29, NorManre_29, Rota_27, Jalebi_27, Zany_27
• Track 11 : DumpTruck_27
• Track 12 : Apeppi_25, Aaravos_25, LuckyLeo_27
• Track 13 : Alyssamiracle_28, Stormer_26, Riduram_25, Avian_25, Charminar_25, Genamy16_28, NovaSharks_27, Rumi_27, Jamemuya19_25, RazorC_26
• Track 14 : DaviePasture_28
• Track 15 : Astralis_25
• Track 16 : Wojtek_27
• Track 17 : Xenia2_28
• Track 18 : DoobyDoo_27
• Track 19 : Lambo_28
• Track 20 : Tillicus_27
• Track 21 : Barnyard_34
• Track 22 : DrLupo_36, AmandaPanda_35
• Track 23 : Weiss13_28, Riparian_28
• Track 24 : MontyDev_28, Candle_28, Nilo_29, Send513_28, Rope_28, Papyrus_28
• Track 25 : Gimesa_29
• Track 26 : Zenon_29
• Track 27 : Yelo_28
• Track 28 : Patience_35
• Track 29 : SuperSonics_34, Demikore_35, Labelle_34, Madruga_33

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

The start number called the most often in the published annotations is 4, it was called in 49 of the 69 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Aaravos_25, Alephilan_25, Alyssamiracle_28, Apeppi_25, Astralis_25, Avian_25, Beyoncage_23, BirthdayBoy_29, BiteSize_23, Charminar_25, DaviePasture_28, Djokovic_23, DoobyDoo_27, DumpTruck_27, Erutan_28, Fulcrum_29, GOATification_29, Genamy16_28, Gibbin_29, GretelLyn_28, Jalebi_27, Jamemuya19_25, Lambo_28, LavAbarElk_26, Lila22_27, LilyPad_24, LittleFella_25, LuckyLeo_27, Madi_23, Mima20_26, MoiGyank_30, Nettle_28, NorManre_29, NovaSharks_27, OtterstedtS21_28, ParvusTarda_28, Patos_29, Pywacket_27, Ranch_28, RazorC_26, Riduram_25, Rota_27, Rukungu_28, Rumi_27, Sadboi_28, Sampudon_28, Sienna_23, Stormer_26, Suzy_23, Terapin_23, Tillicus_27, Wojtek_27, Xenia2_28, Yikes_29, Zany_27,

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

Genes that do not have the "Most Annotated" start:
• Aikoy_37, AmandaPanda_35, Barnyard_34, Candle_28, Demikore_35, DrLupo_36, Gimesa_29, Indlulamithi_25, Labelle_34, Leopard_37, Madruga_33, MontyDev_28, Nilo_29, Onyinye_38, Papyrus_28, Patience_35, Riparian_28, Rope_28, Send513_28, SuperSonics_34, Weiss13_28, Yelo_28, Zenon_29,

Summary by start number:

Start 1:
• Found in 5 of 78 (6.4%) of genes in pham
• Manual Annotations of this start: 4 of 69
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Demikore_35 (U), Labelle_34 (U), Madruga_33 (U), Patience_35 (U), SuperSonics_34 (U),

Start 2:
• Found in 12 of 78 (15.4%) of genes in pham
• Manual Annotations of this start: 11 of 69
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Candle_28 (R), Gimesa_29 (R), Indlulamithi_25 (AC), MontyDev_28 (R), Nilo_29 (R), Papyrus_28 (R), Riparian_28 (R), Rope_28 (R), Send513_28 (R), Weiss13_28 (R), Yelo_28 (R), Zenon_29 (R),

Start 3:
• Found in 3 of 78 (3.8%) of genes in pham
• Manual Annotations of this start: 2 of 69
• Called 100.0% of time when present
• Phage (with cluster) where this start called: AmandaPanda_35 (H2), Barnyard_34 (H2), DrLupo_36 (H2),

Start 4:
• Found in 55 of 78 (70.5%) of genes in pham
• Manual Annotations of this start: 49 of 69
• Called 100.0% of time when present

• Phage (with cluster) where this start called: Aaravos_25 (DV), Alephilan_25 (DV), Alyssamiracle_28 (DV), Apeppi_25 (DV), Astralis_25 (DV), Avian_25 (DV), Beyoncage_23 (DG1), BirthdayBoy_29 (DV), BiteSize_23 (DG1), Charminar_25 (DV), DaviePasture_28 (DV), Djokovic_23 (DG1), DoobyDoo_27 (DV), DumpTruck_27 (DV), Erutan_28 (DV), Fulcrum_29 (DV), GOATification_29 (DV), Genamy16_28 (DV), Gibbin_29 (DV), GretelLyn_28 (DV), Jalebi_27 (DV), Jamemuya19_25 (DV), Lambo_28 (DV), LavAbarElk_26 (DV), Lila22_27 (DV), LilyPad_24 (DG1), LittleFella_25 (DG2), LuckyLeo_27 (DV), Madi_23 (DG1), Mima20_26 (DV), MoiGyank_30 (DV), Nettle_28 (DV), NorManre_29 (DV), NovaSharks_27 (DV), OtterstedtS21_28 (DV), ParvusTarda_28 (DV), Patos_29 (DV), Pywacket_27 (DV), Ranch_28 (DV), RazorC_26 (DV), Riduram_25 (DV), Rota_27 (DV), Rukungu_28 (DV), Rumi_27 (DV), Sadboi_28 (DV), Sampudon_28 (DV), Sienna_23 (DG1), Stormer_26 (DV), Suzy_23 (DG1), Terapin_23 (DG1), Tillicus_27 (DV), Wojtek_27 (DV), Xenia2_28 (DV), Yikes_29 (DV), Zany_27 (DV),

Start 5:
• Found in 3 of 78 (3.8%) of genes in pham
• Manual Annotations of this start: 3 of 69
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Aikoy_37 (AE), Leopard_37 (AE), Onyinye_38 (AE),

Summary by clusters:

There are 8 clusters represented in this pham: AC, AE, H2, DG2, DG1, U, DV, R,

Info for manual annotations of cluster AC:
•Start number 2 was manually annotated 1 time for cluster AC.

Info for manual annotations of cluster AE:
•Start number 5 was manually annotated 3 times for cluster AE.

Info for manual annotations of cluster DG1:
•Start number 4 was manually annotated 8 times for cluster DG1.

Info for manual annotations of cluster DG2:
•Start number 4 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:
•Start number 4 was manually annotated 40 times for cluster DV.

Info for manual annotations of cluster H2:
•Start number 3 was manually annotated 2 times for cluster H2.

Info for manual annotations of cluster R:
•Start number 2 was manually annotated 10 times for cluster R.

Info for manual annotations of cluster U:
•Start number 1 was manually annotated 4 times for cluster U.

Gene Information:

Gene: Aaravos_25 Start: 24028, Stop: 24885, Start Num: 4
Candidate Starts for Aaravos_25:
(Start: 4 @24028 has 49 MA's), (9, 24070), (27, 24202), (47, 24298), (52, 24349), (53, 24358), (58, 24418), (65, 24469), (89, 24643), (95, 24682), (104, 24772), (105, 24781),

Gene: Aikoy_37 Start: 27354, Stop: 28244, Start Num: 5
Candidate Starts for Aikoy_37:
(Start: 5 @27354 has 3 MA's), (21, 27471), (26, 27507), (29, 27531), (33, 27552), (38, 27582), (44, 27612), (48, 27636), (52, 27684), (54, 27696), (59, 27759), (73, 27882), (76, 27903), (89, 27999), (91, 28008), (99, 28074), (106, 28140), (107, 28167), (111, 28206), (114, 28215),

Gene: Alephilan_25 Start: 23941, Stop: 24804, Start Num: 4
Candidate Starts for Alephilan_25:
(Start: 4 @23941 has 49 MA's), (9, 23983), (27, 24115), (52, 24262), (53, 24271), (58, 24331), (65, 24382), (89, 24559), (95, 24598), (98, 24631), (104, 24688), (105, 24697),

Gene: Alyssamiracle_28 Start: 22751, Stop: 23614, Start Num: 4
Candidate Starts for Alyssamiracle_28:
(Start: 4 @22751 has 49 MA's), (9, 22793), (22, 22889), (27, 22925), (35, 22961), (47, 23021), (52, 23072), (53, 23081), (58, 23141), (65, 23192), (89, 23369), (93, 23390), (97, 23432), (98, 23441), (104, 23498), (105, 23507),

Gene: AmandaPanda_35 Start: 24651, Stop: 25535, Start Num: 3
Candidate Starts for AmandaPanda_35:
(Start: 3 @24651 has 2 MA's), (6, 24663), (7, 24666), (16, 24753), (17, 24759), (18, 24768), (22, 24792), (25, 24813), (42, 24906), (46, 24915), (55, 25014), (63, 25083), (75, 25170), (79, 25209), (101, 25383), (108, 25455), (109, 25461),

Gene: Apeppi_25 Start: 24090, Stop: 24947, Start Num: 4
Candidate Starts for Apeppi_25:
(Start: 4 @24090 has 49 MA's), (9, 24132), (27, 24264), (47, 24360), (52, 24411), (53, 24420), (58, 24480), (65, 24531), (89, 24705), (95, 24744), (104, 24834), (105, 24843),

Gene: Astralis_25 Start: 22341, Stop: 23204, Start Num: 4
Candidate Starts for Astralis_25:
(Start: 4 @22341 has 49 MA's), (22, 22479), (27, 22515), (35, 22551), (47, 22611), (52, 22662), (53, 22671), (58, 22731), (65, 22782), (89, 22959), (93, 22980), (97, 23022), (98, 23031), (104, 23088), (105, 23097),

Gene: Avian_25 Start: 22733, Stop: 23596, Start Num: 4
Candidate Starts for Avian_25:
(Start: 4 @22733 has 49 MA's), (9, 22775), (22, 22871), (27, 22907), (35, 22943), (47, 23003), (52, 23054), (53, 23063), (58, 23123), (65, 23174), (89, 23351), (93, 23372), (97, 23414), (98, 23423), (104, 23480), (105, 23489),

Gene: Barnyard_34 Start: 24251, Stop: 25135, Start Num: 3
Candidate Starts for Barnyard_34:
(Start: 3 @24251 has 2 MA's), (14, 24329), (16, 24353), (17, 24359), (18, 24368), (19, 24374), (22, 24392), (23, 24395), (25, 24413), (42, 24506), (55, 24614), (56, 24617), (66, 24701), (68, 24722), (69, 24737), (70, 24740), (75, 24770), (79, 24809), (80, 24815), (82, 24827), (98, 24953), (105, 25025), (108, 25055), (109, 25061),

Gene: Beyoncage_23 Start: 19319, Stop: 20188, Start Num: 4

Candidate Starts for Beyoncage_23:
(Start: 4 @19319 has 49 MA's), (6, 19325), (8, 19355), (13, 19388), (19, 19436), (21, 19442), (27, 19490), (29, 19502), (35, 19535), (45, 19589), (46, 19592), (55, 19688), (56, 19691), (61, 19727), (74, 19838), (86, 19928), (92, 19964), (96, 19991), (102, 20054),

Gene: BirthdayBoy_29 Start: 24794, Stop: 25657, Start Num: 4
Candidate Starts for BirthdayBoy_29:
(Start: 4 @24794 has 49 MA's), (9, 24836), (22, 24932), (27, 24968), (35, 25004), (47, 25064), (52, 25115), (53, 25124), (58, 25184), (65, 25235), (89, 25412), (93, 25433), (95, 25451), (98, 25484), (104, 25541), (105, 25550),

Gene: BiteSize_23 Start: 19319, Stop: 20188, Start Num: 4
Candidate Starts for BiteSize_23:
(Start: 4 @19319 has 49 MA's), (6, 19325), (8, 19355), (13, 19388), (19, 19436), (21, 19442), (27, 19490), (29, 19502), (35, 19535), (45, 19589), (46, 19592), (55, 19688), (56, 19691), (61, 19727), (74, 19838), (86, 19928), (92, 19964), (96, 19991), (102, 20054),

Gene: Candle_28 Start: 22572, Stop: 23444, Start Num: 2
Candidate Starts for Candle_28:
(Start: 2 @22572 has 11 MA's), (10, 22623), (11, 22638), (27, 22752), (28, 22758), (34, 22788), (40, 22821), (50, 22890), (55, 22950), (57, 22974), (81, 23139), (83, 23148), (99, 23271), (101, 23292), (102, 23304), (111, 23403), (113, 23409),

Gene: Charminar_25 Start: 22344, Stop: 23207, Start Num: 4
Candidate Starts for Charminar_25:
(Start: 4 @22344 has 49 MA's), (9, 22386), (22, 22482), (27, 22518), (35, 22554), (47, 22614), (52, 22665), (53, 22674), (58, 22734), (65, 22785), (89, 22962), (93, 22983), (97, 23025), (98, 23034), (104, 23091), (105, 23100),

Gene: DaviePasture_28 Start: 24560, Stop: 25423, Start Num: 4
Candidate Starts for DaviePasture_28:
(Start: 4 @24560 has 49 MA's), (22, 24698), (27, 24734), (35, 24770), (47, 24830), (52, 24881), (53, 24890), (58, 24950), (65, 25001), (89, 25178), (93, 25199), (95, 25217), (98, 25250), (104, 25307), (105, 25316),

Gene: Demikore_35 Start: 26209, Stop: 27099, Start Num: 1
Candidate Starts for Demikore_35:
(Start: 1 @26209 has 4 MA's), (19, 26338), (30, 26410), (34, 26428), (36, 26446), (42, 26470), (52, 26536), (60, 26617), (62, 26647), (67, 26683), (77, 26776), (84, 26815), (93, 26875), (101, 26950), (113, 27067), (115, 27091),

Gene: Djokovic_23 Start: 19319, Stop: 20188, Start Num: 4
Candidate Starts for Djokovic_23:
(Start: 4 @19319 has 49 MA's), (6, 19325), (8, 19355), (13, 19388), (19, 19436), (21, 19442), (27, 19490), (29, 19502), (35, 19535), (45, 19589), (46, 19592), (55, 19688), (56, 19691), (61, 19727), (74, 19838), (86, 19928), (92, 19964), (96, 19991), (102, 20054),

Gene: DoobyDoo_27 Start: 23716, Stop: 24579, Start Num: 4
Candidate Starts for DoobyDoo_27:
(Start: 4 @23716 has 49 MA's), (9, 23758), (22, 23854), (27, 23890), (35, 23926), (47, 23986), (52, 24037), (53, 24046), (58, 24106), (65, 24157), (89, 24334), (95, 24373), (98, 24406), (104, 24463), (105, 24472),

Gene: DrLupo_36 Start: 24651, Stop: 25535, Start Num: 3
Candidate Starts for DrLupo_36:
(Start: 3 @24651 has 2 MA's), (6, 24663), (7, 24666), (16, 24753), (17, 24759), (18, 24768), (22, 24792), (25, 24813), (42, 24906), (46, 24915), (55, 25014), (63, 25083), (75, 25170), (79, 25209), (101, 25383), (108, 25455), (109, 25461),

Gene: DumpTruck_27 Start: 24026, Stop: 24886, Start Num: 4
Candidate Starts for DumpTruck_27:
(Start: 4 @24026 has 49 MA's), (10, 24071), (35, 24236), (43, 24272), (46, 24290), (63, 24455), (64, 24458), (65, 24467), (66, 24473), (69, 24509), (71, 24515), (88, 24638), (93, 24665), (94, 24680), (99, 24719), (105, 24782),

Gene: Erutan_28 Start: 24238, Stop: 25101, Start Num: 4
Candidate Starts for Erutan_28:
(Start: 4 @24238 has 49 MA's), (9, 24280), (22, 24376), (27, 24412), (35, 24448), (47, 24508), (52, 24559), (53, 24568), (58, 24628), (65, 24679), (89, 24856), (93, 24877), (95, 24895), (98, 24928), (104, 24985), (105, 24994),

Gene: Fulcrum_29 Start: 24762, Stop: 25625, Start Num: 4
Candidate Starts for Fulcrum_29:
(Start: 4 @24762 has 49 MA's), (9, 24804), (22, 24900), (27, 24936), (35, 24972), (47, 25032), (52, 25083), (53, 25092), (58, 25152), (65, 25203), (89, 25380), (93, 25401), (95, 25419), (98, 25452), (104, 25509), (105, 25518),

Gene: GOATification_29 Start: 24762, Stop: 25625, Start Num: 4
Candidate Starts for GOATification_29:
(Start: 4 @24762 has 49 MA's), (9, 24804), (22, 24900), (27, 24936), (35, 24972), (47, 25032), (52, 25083), (53, 25092), (58, 25152), (65, 25203), (89, 25380), (93, 25401), (95, 25419), (98, 25452), (104, 25509), (105, 25518),

Gene: Genamy16_28 Start: 22751, Stop: 23614, Start Num: 4
Candidate Starts for Genamy16_28:
(Start: 4 @22751 has 49 MA's), (9, 22793), (22, 22889), (27, 22925), (35, 22961), (47, 23021), (52, 23072), (53, 23081), (58, 23141), (65, 23192), (89, 23369), (93, 23390), (97, 23432), (98, 23441), (104, 23498), (105, 23507),

Gene: Gibbin_29 Start: 24843, Stop: 25706, Start Num: 4
Candidate Starts for Gibbin_29:
(Start: 4 @24843 has 49 MA's), (9, 24885), (27, 25017), (35, 25053), (47, 25113), (52, 25164), (53, 25173), (58, 25233), (65, 25284), (89, 25461), (93, 25482), (95, 25500), (98, 25533), (104, 25590), (105, 25599),

Gene: Gimesa_29 Start: 22365, Stop: 23237, Start Num: 2
Candidate Starts for Gimesa_29:
(Start: 2 @22365 has 11 MA's), (10, 22416), (11, 22431), (27, 22545), (28, 22551), (34, 22581), (40, 22614), (50, 22683), (55, 22743), (81, 22932), (83, 22941), (99, 23064), (101, 23085), (102, 23097), (111, 23196), (113, 23202),

Gene: GretelLyn_28 Start: 25105, Stop: 25968, Start Num: 4
Candidate Starts for GretelLyn_28:
(Start: 4 @25105 has 49 MA's), (9, 25147), (22, 25243), (27, 25279), (35, 25315), (47, 25375), (52, 25426), (53, 25435), (58, 25495), (65, 25546), (89, 25723), (93, 25744), (95, 25762), (98, 25795), (104, 25852), (105, 25861),

Gene: Indlulamithi_25 Start: 20028, Stop: 20903, Start Num: 2
Candidate Starts for Indlulamithi_25:
(Start: 2 @20028 has 11 MA's), (10, 20082), (16, 20136), (20, 20160), (21, 20163), (27, 20211), (32, 20235), (33, 20244), (36, 20265), (37, 20268), (41, 20286), (53, 20376), (72, 20553), (103, 20766), (107, 20820), (110, 20853), (111, 20862), (114, 20871), (115, 20892), (116, 20895),

Gene: Jalebi_27 Start: 25272, Stop: 26135, Start Num: 4
Candidate Starts for Jalebi_27:
(Start: 4 @25272 has 49 MA's), (9, 25314), (27, 25446), (35, 25482), (47, 25542), (52, 25593), (53, 25602), (58, 25662), (65, 25713), (89, 25890), (93, 25911), (95, 25929), (98, 25962), (104, 26019), (105, 26028),

Gene: Jamemuya19_25 Start: 22341, Stop: 23204, Start Num: 4
Candidate Starts for Jamemuya19_25:
(Start: 4 @22341 has 49 MA's), (9, 22383), (22, 22479), (27, 22515), (35, 22551), (47, 22611), (52, 22662), (53, 22671), (58, 22731), (65, 22782), (89, 22959), (93, 22980), (97, 23022), (98, 23031), (104, 23088), (105, 23097),

Gene: Labelle_34 Start: 26211, Stop: 27101, Start Num: 1
Candidate Starts for Labelle_34:
(Start: 1 @26211 has 4 MA's), (19, 26340), (30, 26412), (34, 26430), (36, 26448), (42, 26472), (52, 26538), (60, 26619), (62, 26649), (67, 26685), (77, 26778), (84, 26817), (93, 26877), (101, 26952), (113, 27069), (115, 27093),

Gene: Lambo_28 Start: 24780, Stop: 25640, Start Num: 4
Candidate Starts for Lambo_28:
(Start: 4 @24780 has 49 MA's), (9, 24822), (27, 24954), (47, 25050), (52, 25101), (53, 25110), (58, 25170), (65, 25221), (89, 25395), (93, 25416), (95, 25434), (98, 25467), (104, 25524), (105, 25533),

Gene: LavAbarElk_26 Start: 23211, Stop: 24074, Start Num: 4
Candidate Starts for LavAbarElk_26:
(Start: 4 @23211 has 49 MA's), (9, 23253), (22, 23349), (27, 23385), (35, 23421), (47, 23481), (52, 23532), (53, 23541), (58, 23601), (65, 23652), (89, 23829), (93, 23850), (95, 23868), (98, 23901), (104, 23958), (105, 23967),

Gene: Leopard_37 Start: 27642, Stop: 28532, Start Num: 5
Candidate Starts for Leopard_37:
(Start: 5 @27642 has 3 MA's), (21, 27759), (26, 27795), (29, 27819), (33, 27840), (38, 27870), (44, 27900), (48, 27924), (52, 27972), (54, 27984), (59, 28047), (73, 28170), (76, 28191), (89, 28287), (91, 28296), (99, 28362), (106, 28428), (107, 28455), (111, 28494), (114, 28503),

Gene: Lila22_27 Start: 24732, Stop: 25595, Start Num: 4
Candidate Starts for Lila22_27:
(Start: 4 @24732 has 49 MA's), (9, 24774), (27, 24906), (35, 24942), (47, 25002), (52, 25053), (53, 25062), (58, 25122), (65, 25173), (89, 25350), (93, 25371), (95, 25389), (98, 25422), (104, 25479), (105, 25488),

Gene: LilyPad_24 Start: 19902, Stop: 20771, Start Num: 4
Candidate Starts for LilyPad_24:
(Start: 4 @19902 has 49 MA's), (12, 19968), (15, 19977), (19, 20019), (21, 20025), (29, 20085), (56, 20274), (61, 20310), (71, 20397), (81, 20472), (90, 20532), (96, 20574), (112, 20736),

Gene: LittleFella_25 Start: 21778, Stop: 22647, Start Num: 4
Candidate Starts for LittleFella_25:
(Start: 4 @21778 has 49 MA's), (8, 21814), (13, 21847), (21, 21901), (27, 21949), (35, 21994), (49, 22087), (53, 22117), (55, 22147), (78, 22333), (85, 22384), (93, 22426), (100, 22495), (111, 22609),

Gene: LuckyLeo_27 Start: 24090, Stop: 24947, Start Num: 4
Candidate Starts for LuckyLeo_27:
(Start: 4 @24090 has 49 MA's), (9, 24132), (27, 24264), (47, 24360), (52, 24411), (53, 24420), (58, 24480), (65, 24531), (89, 24705), (95, 24744), (104, 24834), (105, 24843),

Gene: Madi_23 Start: 19319, Stop: 20188, Start Num: 4
Candidate Starts for Madi_23:
(Start: 4 @19319 has 49 MA's), (6, 19325), (8, 19355), (13, 19388), (19, 19436), (21, 19442), (27, 19490), (29, 19502), (35, 19535), (45, 19589), (46, 19592), (55, 19688), (56, 19691), (61, 19727), (74, 19838), (86, 19928), (92, 19964), (96, 19991), (102, 20054),

Gene: Madruga_33 Start: 25880, Stop: 26770, Start Num: 1
Candidate Starts for Madruga_33:
(Start: 1 @25880 has 4 MA's), (19, 26009), (30, 26081), (34, 26099), (36, 26117), (42, 26141), (52, 26207), (60, 26288), (62, 26318), (67, 26354), (77, 26447), (84, 26486), (93, 26546), (101, 26621), (113, 26738), (115, 26762),

Gene: Mima20_26 Start: 24461, Stop: 25324, Start Num: 4
Candidate Starts for Mima20_26:
(Start: 4 @24461 has 49 MA's), (9, 24503), (22, 24599), (27, 24635), (35, 24671), (47, 24731), (52, 24782), (53, 24791), (58, 24851), (65, 24902), (89, 25079), (93, 25100), (95, 25118), (98, 25151), (104, 25208), (105, 25217),

Gene: MoiGyank_30 Start: 25142, Stop: 26005, Start Num: 4
Candidate Starts for MoiGyank_30:
(Start: 4 @25142 has 49 MA's), (9, 25184), (22, 25280), (27, 25316), (35, 25352), (47, 25412), (52, 25463), (53, 25472), (58, 25532), (65, 25583), (89, 25760), (93, 25781), (95, 25799), (98, 25832), (104, 25889), (105, 25898),

Gene: MontyDev_28 Start: 22213, Stop: 23085, Start Num: 2
Candidate Starts for MontyDev_28:
(Start: 2 @22213 has 11 MA's), (10, 22264), (11, 22279), (27, 22393), (28, 22399), (34, 22429), (40, 22462), (50, 22531), (55, 22591), (57, 22615), (81, 22780), (83, 22789), (99, 22912), (101, 22933), (102, 22945), (111, 23044), (113, 23050),

Gene: Nettle_28 Start: 24996, Stop: 25859, Start Num: 4
Candidate Starts for Nettle_28:
(Start: 4 @24996 has 49 MA's), (9, 25038), (22, 25134), (27, 25170), (35, 25206), (47, 25266), (52, 25317), (53, 25326), (58, 25386), (65, 25437), (89, 25614), (93, 25635), (95, 25653), (98, 25686), (104, 25743), (105, 25752),

Gene: Nilo_29 Start: 22569, Stop: 23441, Start Num: 2
Candidate Starts for Nilo_29:
(Start: 2 @22569 has 11 MA's), (10, 22620), (11, 22635), (27, 22749), (28, 22755), (34, 22785), (40, 22818), (50, 22887), (55, 22947), (57, 22971), (81, 23136), (83, 23145), (99, 23268), (101, 23289), (102, 23301), (111, 23400), (113, 23406),

Gene: NorManre_29 Start: 24349, Stop: 25212, Start Num: 4

Candidate Starts for NorManre_29:
(Start: 4 @24349 has 49 MA's), (9, 24391), (27, 24523), (35, 24559), (47, 24619), (52, 24670), (53, 24679), (58, 24739), (65, 24790), (89, 24967), (93, 24988), (95, 25006), (98, 25039), (104, 25096), (105, 25105),

Gene: NovaSharks_27 Start: 22341, Stop: 23204, Start Num: 4
Candidate Starts for NovaSharks_27:
(Start: 4 @22341 has 49 MA's), (9, 22383), (22, 22479), (27, 22515), (35, 22551), (47, 22611), (52, 22662), (53, 22671), (58, 22731), (65, 22782), (89, 22959), (93, 22980), (97, 23022), (98, 23031), (104, 23088), (105, 23097),

Gene: Onyinye_38 Start: 27521, Stop: 28411, Start Num: 5
Candidate Starts for Onyinye_38:
(Start: 5 @27521 has 3 MA's), (21, 27638), (26, 27674), (29, 27698), (33, 27719), (38, 27749), (44, 27779), (48, 27803), (52, 27851), (54, 27863), (59, 27926), (73, 28049), (76, 28070), (89, 28166), (91, 28175), (99, 28241), (106, 28307), (107, 28334), (111, 28373), (114, 28382),

Gene: OtterstedtS21_28 Start: 24427, Stop: 25290, Start Num: 4
Candidate Starts for OtterstedtS21_28:
(Start: 4 @24427 has 49 MA's), (9, 24469), (27, 24601), (35, 24637), (47, 24697), (52, 24748), (53, 24757), (58, 24817), (65, 24868), (89, 25045), (93, 25066), (95, 25084), (98, 25117), (104, 25174), (105, 25183),

Gene: Papyrus_28 Start: 22234, Stop: 23106, Start Num: 2
Candidate Starts for Papyrus_28:
(Start: 2 @22234 has 11 MA's), (10, 22285), (11, 22300), (27, 22414), (28, 22420), (34, 22450), (40, 22483), (50, 22552), (55, 22612), (57, 22636), (81, 22801), (83, 22810), (99, 22933), (101, 22954), (102, 22966), (111, 23065), (113, 23071),

Gene: ParvusTarda_28 Start: 23909, Stop: 24772, Start Num: 4
Candidate Starts for ParvusTarda_28:
(Start: 4 @23909 has 49 MA's), (9, 23951), (27, 24083), (35, 24119), (47, 24179), (52, 24230), (53, 24239), (58, 24299), (65, 24350), (89, 24527), (93, 24548), (95, 24566), (98, 24599), (104, 24656), (105, 24665),

Gene: Patience_35 Start: 26761, Stop: 27651, Start Num: 1
Candidate Starts for Patience_35:
(Start: 1 @26761 has 4 MA's), (19, 26890), (30, 26962), (33, 26977), (34, 26980), (36, 26998), (42, 27022), (52, 27088), (60, 27169), (62, 27199), (67, 27235), (77, 27328), (84, 27367), (93, 27427), (101, 27502), (113, 27619), (115, 27643),

Gene: Patos_29 Start: 24349, Stop: 25212, Start Num: 4
Candidate Starts for Patos_29:
(Start: 4 @24349 has 49 MA's), (9, 24391), (27, 24523), (35, 24559), (47, 24619), (52, 24670), (53, 24679), (58, 24739), (65, 24790), (89, 24967), (93, 24988), (95, 25006), (98, 25039), (104, 25096), (105, 25105),

Gene: Pywacket_27 Start: 25257, Stop: 26120, Start Num: 4
Candidate Starts for Pywacket_27:
(Start: 4 @25257 has 49 MA's), (9, 25299), (22, 25395), (27, 25431), (35, 25467), (47, 25527), (52, 25578), (53, 25587), (58, 25647), (65, 25698), (89, 25875), (93, 25896), (95, 25914), (98, 25947), (104, 26004), (105, 26013),

Gene: Ranch_28 Start: 23263, Stop: 24126, Start Num: 4
Candidate Starts for Ranch_28:
(Start: 4 @23263 has 49 MA's), (9, 23305), (27, 23437), (35, 23473), (47, 23533), (52, 23584), (53, 23593), (58, 23653), (65, 23704), (89, 23881), (93, 23902), (95, 23920), (98, 23953), (104, 24010), (105, 24019),

Gene: RazorC_26 Start: 22733, Stop: 23596, Start Num: 4
Candidate Starts for RazorC_26:
(Start: 4 @22733 has 49 MA's), (9, 22775), (22, 22871), (27, 22907), (35, 22943), (47, 23003), (52, 23054), (53, 23063), (58, 23123), (65, 23174), (89, 23351), (93, 23372), (97, 23414), (98, 23423), (104, 23480), (105, 23489),

Gene: Riduram_25 Start: 22311, Stop: 23174, Start Num: 4
Candidate Starts for Riduram_25:
(Start: 4 @22311 has 49 MA's), (9, 22353), (22, 22449), (27, 22485), (35, 22521), (47, 22581), (52, 22632), (53, 22641), (58, 22701), (65, 22752), (89, 22929), (93, 22950), (97, 22992), (98, 23001), (104, 23058), (105, 23067),

Gene: Riparian_28 Start: 22030, Stop: 22902, Start Num: 2
Candidate Starts for Riparian_28:
(Start: 2 @22030 has 11 MA's), (10, 22081), (11, 22096), (27, 22210), (28, 22216), (34, 22246), (40, 22279), (50, 22348), (51, 22351), (55, 22408), (81, 22597), (83, 22606), (99, 22729), (101, 22750), (102, 22762), (111, 22861), (113, 22867),

Gene: Rope_28 Start: 22216, Stop: 23088, Start Num: 2
Candidate Starts for Rope_28:
(Start: 2 @22216 has 11 MA's), (10, 22267), (11, 22282), (27, 22396), (28, 22402), (34, 22432), (40, 22465), (50, 22534), (55, 22594), (57, 22618), (81, 22783), (83, 22792), (99, 22915), (101, 22936), (102, 22948), (111, 23047), (113, 23053),

Gene: Rota_27 Start: 24616, Stop: 25479, Start Num: 4
Candidate Starts for Rota_27:
(Start: 4 @24616 has 49 MA's), (9, 24658), (27, 24790), (35, 24826), (47, 24886), (52, 24937), (53, 24946), (58, 25006), (65, 25057), (89, 25234), (93, 25255), (95, 25273), (98, 25306), (104, 25363), (105, 25372),

Gene: Rukungu_28 Start: 24965, Stop: 25828, Start Num: 4
Candidate Starts for Rukungu_28:
(Start: 4 @24965 has 49 MA's), (9, 25007), (22, 25103), (27, 25139), (35, 25175), (47, 25235), (52, 25286), (53, 25295), (58, 25355), (65, 25406), (89, 25583), (93, 25604), (95, 25622), (98, 25655), (104, 25712), (105, 25721),

Gene: Rumi_27 Start: 22344, Stop: 23207, Start Num: 4
Candidate Starts for Rumi_27:
(Start: 4 @22344 has 49 MA's), (9, 22386), (22, 22482), (27, 22518), (35, 22554), (47, 22614), (52, 22665), (53, 22674), (58, 22734), (65, 22785), (89, 22962), (93, 22983), (97, 23025), (98, 23034), (104, 23091), (105, 23100),

Gene: Sadboi_28 Start: 25105, Stop: 25968, Start Num: 4
Candidate Starts for Sadboi_28:
(Start: 4 @25105 has 49 MA's), (9, 25147), (22, 25243), (27, 25279), (35, 25315), (47, 25375), (52, 25426), (53, 25435), (58, 25495), (65, 25546), (89, 25723), (93, 25744), (95, 25762), (98, 25795), (104, 25852), (105, 25861),

Gene: Sampudon_28 Start: 25272, Stop: 26135, Start Num: 4
Candidate Starts for Sampudon_28:
(Start: 4 @25272 has 49 MA's), (9, 25314), (27, 25446), (35, 25482), (47, 25542), (52, 25593), (53, 25602), (58, 25662), (65, 25713), (89, 25890), (93, 25911), (95, 25929), (98, 25962), (104, 26019), (105, 26028),

Gene: Send513_28 Start: 22572, Stop: 23444, Start Num: 2
Candidate Starts for Send513_28:
(Start: 2 @22572 has 11 MA's), (10, 22623), (11, 22638), (27, 22752), (28, 22758), (34, 22788), (40, 22821), (50, 22890), (55, 22950), (57, 22974), (81, 23139), (83, 23148), (99, 23271), (101, 23292), (102, 23304), (111, 23403), (113, 23409),

Gene: Sienna_23 Start: 19319, Stop: 20188, Start Num: 4
Candidate Starts for Sienna_23:
(Start: 4 @19319 has 49 MA's), (6, 19325), (8, 19355), (13, 19388), (16, 19415), (19, 19436), (21, 19442), (27, 19490), (29, 19502), (35, 19535), (39, 19556), (55, 19688), (56, 19691), (61, 19727), (81, 19889), (86, 19928), (92, 19964), (95, 19985),

Gene: Stormer_26 Start: 22344, Stop: 23207, Start Num: 4
Candidate Starts for Stormer_26:
(Start: 4 @22344 has 49 MA's), (9, 22386), (22, 22482), (27, 22518), (35, 22554), (47, 22614), (52, 22665), (53, 22674), (58, 22734), (65, 22785), (89, 22962), (93, 22983), (97, 23025), (98, 23034), (104, 23091), (105, 23100),

Gene: SuperSonics_34 Start: 25937, Stop: 26827, Start Num: 1
Candidate Starts for SuperSonics_34:
(Start: 1 @25937 has 4 MA's), (19, 26066), (30, 26138), (34, 26156), (36, 26174), (42, 26198), (52, 26264), (60, 26345), (62, 26375), (67, 26411), (77, 26504), (84, 26543), (93, 26603), (101, 26678), (113, 26795), (115, 26819),

Gene: Suzy_23 Start: 20480, Stop: 21349, Start Num: 4
Candidate Starts for Suzy_23:
(Start: 4 @20480 has 49 MA's), (6, 20486), (8, 20516), (13, 20549), (19, 20597), (21, 20603), (27, 20651), (29, 20663), (30, 20669), (31, 20672), (35, 20696), (38, 20711), (55, 20849), (56, 20852), (61, 20888), (74, 20999), (86, 21089), (92, 21125), (102, 21215),

Gene: Terapin_23 Start: 19319, Stop: 20188, Start Num: 4
Candidate Starts for Terapin_23:
(Start: 4 @19319 has 49 MA's), (6, 19325), (8, 19355), (13, 19388), (19, 19436), (21, 19442), (27, 19490), (29, 19502), (35, 19535), (45, 19589), (46, 19592), (55, 19688), (56, 19691), (61, 19727), (74, 19838), (86, 19928), (92, 19964), (96, 19991), (102, 20054),

Gene: Tillicus_27 Start: 23684, Stop: 24541, Start Num: 4
Candidate Starts for Tillicus_27:
(Start: 4 @23684 has 49 MA's), (22, 23822), (24, 23834), (27, 23858), (40, 23918), (52, 24005), (58, 24074), (65, 24125), (89, 24299), (91, 24308), (104, 24428), (105, 24437),

Gene: Weiss13_28 Start: 22262, Stop: 23134, Start Num: 2
Candidate Starts for Weiss13_28:
(Start: 2 @22262 has 11 MA's), (10, 22313), (11, 22328), (27, 22442), (28, 22448), (34, 22478), (40, 22511), (50, 22580), (51, 22583), (55, 22640), (81, 22829), (83, 22838), (99, 22961), (101, 22982), (102, 22994), (111, 23093), (113, 23099),

Gene: Wojtek_27 Start: 23982, Stop: 24845, Start Num: 4
Candidate Starts for Wojtek_27:
(Start: 4 @23982 has 49 MA's), (9, 24024), (27, 24156), (40, 24216), (47, 24252), (52, 24303), (53, 24312), (58, 24372), (65, 24423), (89, 24600), (93, 24621), (95, 24639), (98, 24672), (104, 24729), (105, 24738),

Gene: Xenia2_28 Start: 24068, Stop: 24928, Start Num: 4
Candidate Starts for Xenia2_28:
(Start: 4 @24068 has 49 MA's), (10, 24113), (35, 24278), (43, 24314), (46, 24332), (63, 24497), (64, 24500), (65, 24509), (66, 24515), (69, 24551), (71, 24557), (87, 24668), (93, 24707), (94, 24722), (99, 24761), (105, 24824),

Gene: Yelo_28 Start: 22555, Stop: 23427, Start Num: 2
Candidate Starts for Yelo_28:
(Start: 2 @22555 has 11 MA's), (10, 22606), (11, 22621), (27, 22735), (28, 22741), (34, 22771), (40, 22804), (50, 22873), (55, 22933), (81, 23122), (83, 23131), (99, 23254), (101, 23275), (102, 23287), (111, 23386),

Gene: Yikes_29 Start: 25357, Stop: 26220, Start Num: 4
Candidate Starts for Yikes_29:
(Start: 4 @25357 has 49 MA's), (9, 25399), (22, 25495), (27, 25531), (35, 25567), (47, 25627), (52, 25678), (53, 25687), (58, 25747), (65, 25798), (89, 25975), (93, 25996), (95, 26014), (98, 26047), (104, 26104), (105, 26113),

Gene: Zany_27 Start: 24878, Stop: 25741, Start Num: 4
Candidate Starts for Zany_27:
(Start: 4 @24878 has 49 MA's), (9, 24920), (27, 25052), (35, 25088), (47, 25148), (52, 25199), (53, 25208), (58, 25268), (65, 25319), (89, 25496), (93, 25517), (95, 25535), (98, 25568), (104, 25625), (105, 25634),

Gene: Zenon_29 Start: 22574, Stop: 23446, Start Num: 2
Candidate Starts for Zenon_29:
(Start: 2 @22574 has 11 MA's), (10, 22625), (11, 22640), (27, 22754), (28, 22760), (34, 22790), (40, 22823), (50, 22892), (51, 22895), (55, 22952), (57, 22976), (81, 23141), (83, 23150), (99, 23273), (101, 23294), (102, 23306), (111, 23405), (113, 23411),