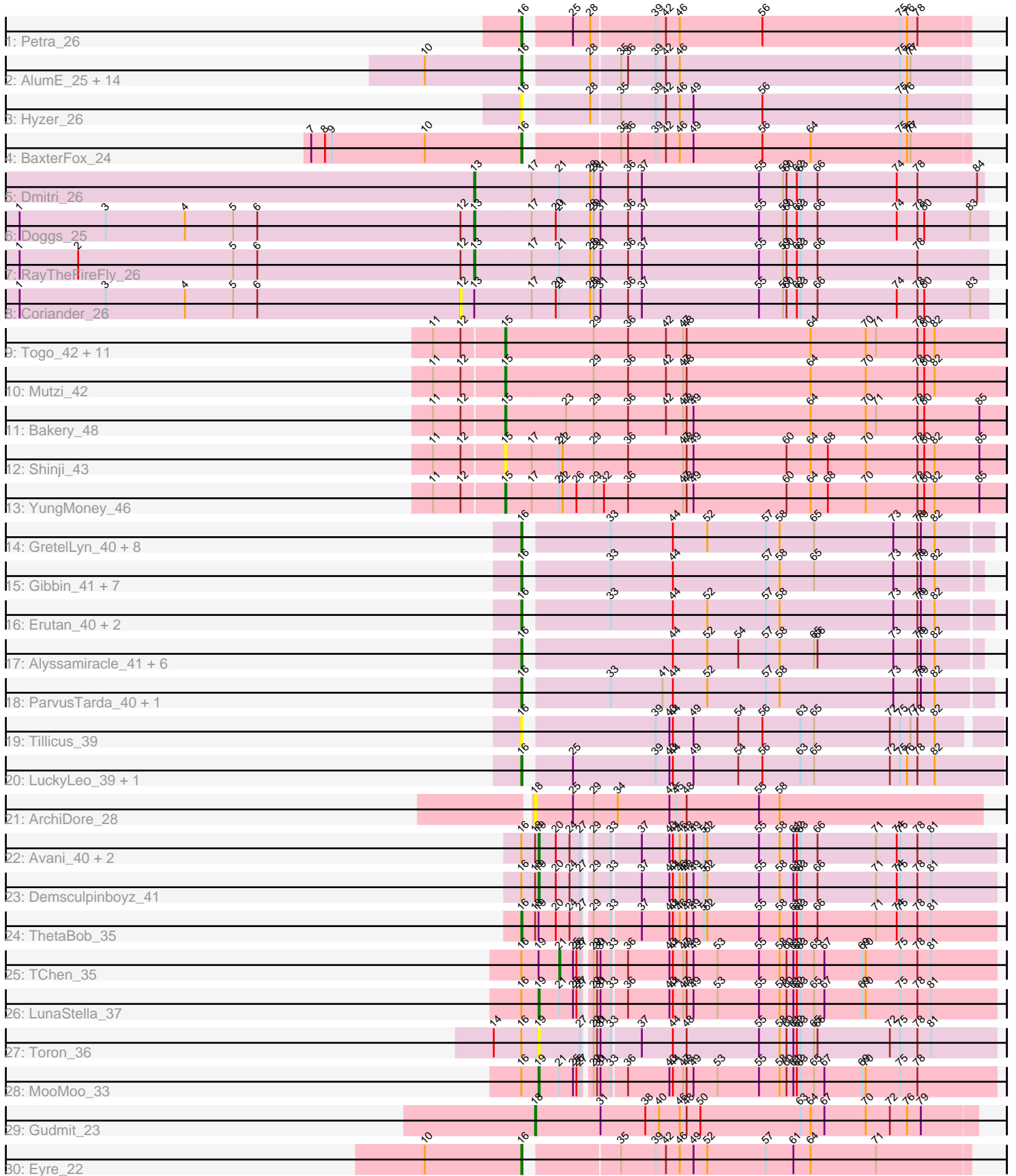


Pham 216093



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 216093 Report

This analysis was run 02/22/25 on database version 588.

Pham number 216093 has 82 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Petra_26
- Track 2 : AlumE_25, Yeezy_26, Eudoria_26, Antonio_26, Maridalia_25, Trumpet_26, Neobush_26, Tayonia_26, Zameen_26, Susceptit_26, PantheRoc_25, BoyNamedSue_25, Agueybana_25, Manasvini_26, Kita_26
- Track 3 : Hyzer_26
- Track 4 : BaxterFox_24
- Track 5 : Dmitri_26
- Track 6 : Doggs_25
- Track 7 : RayTheFireFly_26
- Track 8 : Coriander_26
- Track 9 : Togo_42, Fireball_44, Barb_45, Phlop_42, Fugax_46, Egi03_45, PinkCoffee_45, Nubi_43, ClamChowder_45, TillyBobJoe_43, SmokingBunny_43, PullumCavea_42
- Track 10 : Mutzi_42
- Track 11 : Bakery_48
- Track 12 : Shinji_43
- Track 13 : YungMoney_46
- Track 14 : GretelLyn_40, MoiGyank_42, Jalebi_39, Sadboi_41, Sampudon_40, Yikes_41, Lambo_40, OtterstedtS21_40, Ranch_40
- Track 15 : Gibbin_41, Patos_41, DoobyDoo_39, GOATification_41, DaviePasture_40, NorManre_41, Zany_39, Fulcrum_41
- Track 16 : Erutan_40, Lila22_39, Wojtek_39
- Track 17 : Alyssamiracle_41, Stormer_40, Rumi_40, Jamemuya19_40, Genamy16_41, NovaSharks_40, RazorC_39
- Track 18 : ParvusTarda_40, BirthdayBoy_41
- Track 19 : Tillicus_39
- Track 20 : LuckyLeo_39, Apeppi_37
- Track 21 : ArchiDore_28
- Track 22 : Avani_40, Zapner_42, Jabbawokkie_43
- Track 23 : Demsculpinboyz_41
- Track 24 : ThetaBob_35
- Track 25 : TChen_35
- Track 26 : LunaStella_37
- Track 27 : Toron_36
- Track 28 : MooMoo_33
- Track 29 : Gudmit_23
- Track 30 : Eyre_22

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

The start number called the most often in the published annotations is 16, it was called in 47 of the 72 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agueybana_25, AlumE_25, Alyssamiracle_41, Antonio_26, Apeppi_37, BaxterFox_24, BirthdayBoy_41, BoyNamedSue_25, DaviePasture_40, DoobyDoo_39, Erutan_40, Eudoria_26, Eyre_22, Fulcrum_41, GOATification_41, Genamy16_41, Gibbin_41, GretelLyn_40, Hyzer_26, Jalebi_39, Jamemuya19_40, Kita_26, Lambo_40, Lila22_39, LuckyLeo_39, Manasvini_26, Maridalia_25, MoiGyank_42, Neobush_26, NorManre_41, NovaSharks_40, OtterstedtS21_40, PantheRoc_25, ParvusTarda_40, Patos_41, Petra_26, Ranch_40, RazorC_39, Rumi_40, Sadboi_41, Sampudon_40, Stormer_40, Suscepit_26, Tayonia_26, ThetaBob_35, Tillicus_39, Trumpet_26, Wojtek_39, Yeezy_26, Yikes_41, Zameen_26, Zany_39,

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

- Avani_40, Demsculpinboyz_41, Jabbawokkie_43, LunaStella_37, MooMoo_33, TChen_35, Toron_36, Zapner_42,

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

- ArchiDore_28, Bakery_48, Barb_45, ClamChowder_45, Coriander_26, Dmitri_26, Doggs_25, Egi03_45, Fireball_44, Fugax_46, Gudmit_23, Mutzi_42, Nubi_43, Phlop_42, PinkCoffee_45, PullumCavea_42, RayTheFireFly_26, Shinji_43, SmokingBunny_43, TillyBobJoe_43, Togo_42, YungMoney_46,

Summary by start number:

Start 12:

- Found in 19 of 82 (23.2%) of genes in pham
- No Manual Annotations of this start.
- Called 5.3% of time when present
- Phage (with cluster) where this start called: Coriander_26 (DB),

Start 13:

- Found in 4 of 82 (4.9%) of genes in pham
- Manual Annotations of this start: 3 of 72
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Dmitri_26 (DB), Doggs_25 (DB), RayTheFireFly_26 (DB),

Start 15:

- Found in 16 of 82 (19.5%) of genes in pham
- Manual Annotations of this start: 14 of 72
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bakery_48 (DC1), Barb_45 (DC1), ClamChowder_45 (DC1), Egi03_45 (DC1), Fireball_44 (DC1), Fugax_46 (DC1), Mutzi_42 (DC1), Nubi_43 (DC1), Phlop_42 (DC1), PinkCoffee_45 (DC1),

PullumCavea_42 (DC1), Shinji_43 (DC1), SmokingBunny_43 (DC1), TillyBobJoe_43 (DC1), Togo_42 (DC1), YungMoney_46 (DC1),

Start 16:

- Found in 60 of 82 (73.2%) of genes in pham
- Manual Annotations of this start: 47 of 72
- Called 86.7% of time when present
- Phage (with cluster) where this start called: Agueybana_25 (CZ1), AlumE_25 (CZ1), Alyssamiracle_41 (DV), Antonio_26 (CZ1), Apeppi_37 (DV), BaxterFox_24 (CZ3), BirthdayBoy_41 (DV), BoyNamedSue_25 (CZ1), DaviePasture_40 (DV), DoobyDoo_39 (DV), Erutan_40 (DV), Eudoria_26 (CZ1), Eyre_22 (singleton), Fulcrum_41 (DV), GOATification_41 (DV), Genamy16_41 (DV), Gibbin_41 (DV), Gretellyn_40 (DV), Hyzer_26 (CZ1), Jalebi_39 (DV), Jamemuya19_40 (DV), Kita_26 (CZ1), Lambo_40 (DV), Lila22_39 (DV), LuckyLeo_39 (DV), Manasvini_26 (CZ1), Maridalia_25 (CZ1), MoiGyank_42 (DV), Neobush_26 (CZ1), NorManre_41 (DV), NovaSharks_40 (DV), OtterstedtS21_40 (DV), PantheRoc_25 (CZ3), ParvusTarda_40 (DV), Patos_41 (DV), Petra_26 (CV), Ranch_40 (DV), RazorC_39 (DV), Rumi_40 (DV), Sadboi_41 (DV), Sampudon_40 (DV), Stormer_40 (DV), Suscepit_26 (CZ1), Tayonia_26 (CZ1), ThetaBob_35 (F4), Tillicus_39 (DV), Trumpet_26 (CZ1), Wojtek_39 (DV), Yeezy_26 (CZ3), Yikes_41 (DV), Zameen_26 (CZ1), Zany_39 (DV),

Start 18:

- Found in 7 of 82 (8.5%) of genes in pham
- Manual Annotations of this start: 1 of 72
- Called 28.6% of time when present
- Phage (with cluster) where this start called: ArchiDore_28 (DW), Gudmit_23 (singleton),

Start 19:

- Found in 9 of 82 (11.0%) of genes in pham
- Manual Annotations of this start: 6 of 72
- Called 77.8% of time when present
- Phage (with cluster) where this start called: Avani_40 (F2), Demsculpinboyz_41 (F2), Jabbawokkie_43 (F2), LunaStella_37 (F4), MooMoo_33 (singleton), Toron_36 (F6), Zapner_42 (F2),

Start 21:

- Found in 9 of 82 (11.0%) of genes in pham
- Manual Annotations of this start: 1 of 72
- Called 11.1% of time when present
- Phage (with cluster) where this start called: TChen_35 (F4),

Summary by clusters:

There are 11 clusters represented in this pham: singleton, F4, F6, CZ3, CZ1, DB, F2, DV, DW, CV, DC1,

Info for manual annotations of cluster CV:

- Start number 16 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster CZ1:

- Start number 16 was manually annotated 13 times for cluster CZ1.

Info for manual annotations of cluster CZ3:

- Start number 16 was manually annotated 3 times for cluster CZ3.

Info for manual annotations of cluster DB:

- Start number 13 was manually annotated 3 times for cluster DB.

Info for manual annotations of cluster DC1:

- Start number 15 was manually annotated 14 times for cluster DC1.

Info for manual annotations of cluster DV:

- Start number 16 was manually annotated 28 times for cluster DV.

Info for manual annotations of cluster F2:

- Start number 19 was manually annotated 4 times for cluster F2.

Info for manual annotations of cluster F4:

- Start number 16 was manually annotated 1 time for cluster F4.
- Start number 19 was manually annotated 1 time for cluster F4.
- Start number 21 was manually annotated 1 time for cluster F4.

Gene Information:

Gene: Agueybana_25 Start: 21812, Stop: 22186, Start Num: 16

Candidate Starts for Agueybana_25:

(10, 21728), (Start: 16 @21812 has 47 MA's), (28, 21860), (35, 21884), (36, 21890), (39, 21914), (42, 21923), (46, 21935), (75, 22127), (76, 22133), (77, 22136),

Gene: AlumE_25 Start: 21811, Stop: 22185, Start Num: 16

Candidate Starts for AlumE_25:

(10, 21727), (Start: 16 @21811 has 47 MA's), (28, 21859), (35, 21883), (36, 21889), (39, 21913), (42, 21922), (46, 21934), (75, 22126), (76, 22132), (77, 22135),

Gene: Alyssamiracle_41 Start: 31366, Stop: 31752, Start Num: 16

Candidate Starts for Alyssamiracle_41:

(Start: 16 @31366 has 47 MA's), (44, 31486), (52, 31516), (54, 31543), (57, 31567), (58, 31579), (65, 31609), (66, 31612), (73, 31678), (78, 31699), (79, 31702), (82, 31714),

Gene: Antonio_26 Start: 21932, Stop: 22306, Start Num: 16

Candidate Starts for Antonio_26:

(10, 21848), (Start: 16 @21932 has 47 MA's), (28, 21980), (35, 22004), (36, 22010), (39, 22034), (42, 22043), (46, 22055), (75, 22247), (76, 22253), (77, 22256),

Gene: Apeppi_37 Start: 32448, Stop: 32855, Start Num: 16

Candidate Starts for Apeppi_37:

(Start: 16 @32448 has 47 MA's), (25, 32481), (39, 32553), (43, 32565), (44, 32568), (49, 32586), (54, 32625), (56, 32646), (63, 32679), (65, 32691), (72, 32757), (75, 32766), (76, 32772), (78, 32781), (82, 32796),

Gene: ArchiDore_28 Start: 24132, Stop: 24521, Start Num: 18

Candidate Starts for ArchiDore_28:

(Start: 18 @24132 has 1 MA's), (25, 24165), (29, 24183), (34, 24204), (43, 24249), (45, 24255), (48, 24264), (55, 24327), (58, 24345),

Gene: Avani_40 Start: 28789, Stop: 29178, Start Num: 19

Candidate Starts for Avani_40:

(Start: 16 @28774 has 47 MA's), (Start: 18 @28786 has 1 MA's), (Start: 19 @28789 has 6 MA's), (20, 28804), (24, 28816), (27, 28825), (29, 28831), (33, 28846), (37, 28870), (43, 28894), (44, 28897), (46, 28903), (48, 28909), (49, 28915), (51, 28924), (52, 28927), (55, 28972), (58, 28990), (61, 29002), (62, 29005), (63, 29008), (66, 29023), (71, 29074), (74, 29092), (75, 29095), (78, 29110), (81, 29122),

Gene: Bakery_48 Start: 37078, Stop: 37512, Start Num: 15

Candidate Starts for Bakery_48:

(11, 37018), (12, 37042), (Start: 15 @37078 has 14 MA's), (23, 37129), (29, 37153), (36, 37183), (42, 37216), (47, 37231), (48, 37234), (49, 37240), (64, 37342), (70, 37390), (71, 37399), (78, 37435), (80, 37441), (85, 37489),

Gene: Barb_45 Start: 36050, Stop: 36484, Start Num: 15

Candidate Starts for Barb_45:

(11, 35990), (12, 36014), (Start: 15 @36050 has 14 MA's), (29, 36125), (36, 36155), (42, 36188), (47, 36203), (48, 36206), (64, 36314), (70, 36362), (71, 36371), (78, 36407), (80, 36413), (82, 36422),

Gene: BaxterFox_24 Start: 21132, Stop: 21506, Start Num: 16

Candidate Starts for BaxterFox_24:

(7, 20949), (8, 20961), (9, 20967), (10, 21048), (Start: 16 @21132 has 47 MA's), (35, 21204), (36, 21210), (39, 21234), (42, 21243), (46, 21255), (49, 21267), (56, 21327), (64, 21369), (75, 21447), (76, 21453), (77, 21456),

Gene: BirthdayBoy_41 Start: 33095, Stop: 33490, Start Num: 16

Candidate Starts for BirthdayBoy_41:

(Start: 16 @33095 has 47 MA's), (33, 33161), (41, 33206), (44, 33215), (52, 33245), (57, 33296), (58, 33308), (73, 33407), (78, 33428), (79, 33431), (82, 33443),

Gene: BoyNamedSue_25 Start: 21811, Stop: 22185, Start Num: 16

Candidate Starts for BoyNamedSue_25:

(10, 21727), (Start: 16 @21811 has 47 MA's), (28, 21859), (35, 21883), (36, 21889), (39, 21913), (42, 21922), (46, 21934), (75, 22126), (76, 22132), (77, 22135),

Gene: ClamChowder_45 Start: 36050, Stop: 36484, Start Num: 15

Candidate Starts for ClamChowder_45:

(11, 35990), (12, 36014), (Start: 15 @36050 has 14 MA's), (29, 36125), (36, 36155), (42, 36188), (47, 36203), (48, 36206), (64, 36314), (70, 36362), (71, 36371), (78, 36407), (80, 36413), (82, 36422),

Gene: Coriander_26 Start: 22086, Stop: 22541, Start Num: 12

Candidate Starts for Coriander_26:

(1, 21702), (3, 21777), (4, 21846), (5, 21888), (6, 21909), (12, 22086), (Start: 13 @22098 has 3 MA's), (17, 22146), (20, 22167), (Start: 21 @22170 has 1 MA's), (28, 22197), (29, 22200), (31, 22206), (36, 22230), (37, 22242), (55, 22344), (59, 22365), (60, 22368), (62, 22377), (63, 22380), (66, 22395), (74, 22464), (78, 22482), (80, 22488), (83, 22527),

Gene: DaviePasture_40 Start: 32896, Stop: 33291, Start Num: 16

Candidate Starts for DaviePasture_40:

(Start: 16 @32896 has 47 MA's), (33, 32962), (44, 33016), (57, 33097), (58, 33109), (65, 33139), (73, 33208), (78, 33229), (79, 33232), (82, 33244),

Gene: Demsculpinboyz_41 Start: 28731, Stop: 29120, Start Num: 19

Candidate Starts for Demsculpinboyz_41:

(Start: 16 @28716 has 47 MA's), (Start: 18 @28728 has 1 MA's), (Start: 19 @28731 has 6 MA's), (20, 28746), (24, 28758), (27, 28767), (29, 28773), (33, 28788), (37, 28812), (43, 28836), (44, 28839), (46, 28845), (47, 28848), (48, 28851), (49, 28857), (51, 28866), (52, 28869), (55, 28914), (58, 28932), (61, 28944), (62, 28947), (63, 28950), (66, 28965), (71, 29016), (74, 29034), (75, 29037), (78, 29052), (81, 29064),

Gene: Dmitri_26 Start: 22153, Stop: 22593, Start Num: 13

Candidate Starts for Dmitri_26:

(Start: 13 @22153 has 3 MA's), (17, 22201), (Start: 21 @22225 has 1 MA's), (28, 22252), (29, 22255), (31, 22261), (36, 22285), (37, 22297), (55, 22399), (59, 22420), (60, 22423), (62, 22432), (63, 22435), (66, 22450), (74, 22519), (78, 22537), (84, 22588),

Gene: Doggs_25 Start: 21797, Stop: 22240, Start Num: 13

Candidate Starts for Doggs_25:

(1, 21401), (3, 21476), (4, 21545), (5, 21587), (6, 21608), (12, 21785), (Start: 13 @21797 has 3 MA's), (17, 21845), (20, 21866), (Start: 21 @21869 has 1 MA's), (28, 21896), (29, 21899), (31, 21905), (36, 21929), (37, 21941), (55, 22043), (59, 22064), (60, 22067), (62, 22076), (63, 22079), (66, 22094), (74, 22163), (78, 22181), (80, 22187), (83, 22226),

Gene: DoobyDoo_39 Start: 32046, Stop: 32441, Start Num: 16

Candidate Starts for DoobyDoo_39:

(Start: 16 @32046 has 47 MA's), (33, 32112), (44, 32166), (57, 32247), (58, 32259), (65, 32289), (73, 32358), (78, 32379), (79, 32382), (82, 32394),

Gene: Egi03_45 Start: 35531, Stop: 35965, Start Num: 15

Candidate Starts for Egi03_45:

(11, 35471), (12, 35495), (Start: 15 @35531 has 14 MA's), (29, 35606), (36, 35636), (42, 35669), (47, 35684), (48, 35687), (64, 35795), (70, 35843), (71, 35852), (78, 35888), (80, 35894), (82, 35903),

Gene: Erutan_40 Start: 32554, Stop: 32949, Start Num: 16

Candidate Starts for Erutan_40:

(Start: 16 @32554 has 47 MA's), (33, 32620), (44, 32674), (52, 32704), (57, 32755), (58, 32767), (73, 32866), (78, 32887), (79, 32890), (82, 32902),

Gene: Eudoria_26 Start: 21932, Stop: 22306, Start Num: 16

Candidate Starts for Eudoria_26:

(10, 21848), (Start: 16 @21932 has 47 MA's), (28, 21980), (35, 22004), (36, 22010), (39, 22034), (42, 22043), (46, 22055), (75, 22247), (76, 22253), (77, 22256),

Gene: Eyre_22 Start: 19166, Stop: 19540, Start Num: 16

Candidate Starts for Eyre_22:

(10, 19082), (Start: 16 @19166 has 47 MA's), (35, 19238), (39, 19268), (42, 19277), (46, 19289), (49, 19301), (52, 19313), (57, 19364), (61, 19388), (64, 19403), (71, 19460),

Gene: Fireball_44 Start: 35995, Stop: 36429, Start Num: 15

Candidate Starts for Fireball_44:

(11, 35935), (12, 35959), (Start: 15 @35995 has 14 MA's), (29, 36070), (36, 36100), (42, 36133), (47, 36148), (48, 36151), (64, 36259), (70, 36307), (71, 36316), (78, 36352), (80, 36358), (82, 36367),

Gene: Fugax_46 Start: 36042, Stop: 36476, Start Num: 15

Candidate Starts for Fugax_46:

(11, 35982), (12, 36006), (Start: 15 @36042 has 14 MA's), (29, 36117), (36, 36147), (42, 36180), (47, 36195), (48, 36198), (64, 36306), (70, 36354), (71, 36363), (78, 36399), (80, 36405), (82, 36414),

Gene: Fulcrum_41 Start: 33075, Stop: 33470, Start Num: 16

Candidate Starts for Fulcrum_41:

(Start: 16 @33075 has 47 MA's), (33, 33141), (44, 33195), (57, 33276), (58, 33288), (65, 33318), (73, 33387), (78, 33408), (79, 33411), (82, 33423),

Gene: GOATification_41 Start: 33075, Stop: 33470, Start Num: 16

Candidate Starts for GOATification_41:

(Start: 16 @33075 has 47 MA's), (33, 33141), (44, 33195), (57, 33276), (58, 33288), (65, 33318), (73, 33387), (78, 33408), (79, 33411), (82, 33423),

Gene: Genamy16_41 Start: 31366, Stop: 31752, Start Num: 16

Candidate Starts for Genamy16_41:

(Start: 16 @31366 has 47 MA's), (44, 31486), (52, 31516), (54, 31543), (57, 31567), (58, 31579), (65, 31609), (66, 31612), (73, 31678), (78, 31699), (79, 31702), (82, 31714),

Gene: Gibbin_41 Start: 33173, Stop: 33559, Start Num: 16

Candidate Starts for Gibbin_41:

(Start: 16 @33173 has 47 MA's), (33, 33239), (44, 33293), (57, 33374), (58, 33386), (65, 33416), (73, 33485), (78, 33506), (79, 33509), (82, 33521),

Gene: Gretellyn_40 Start: 33439, Stop: 33834, Start Num: 16

Candidate Starts for Gretellyn_40:

(Start: 16 @33439 has 47 MA's), (33, 33505), (44, 33559), (52, 33589), (57, 33640), (58, 33652), (65, 33682), (73, 33751), (78, 33772), (79, 33775), (82, 33787),

Gene: Gudmit_23 Start: 19228, Stop: 19611, Start Num: 18

Candidate Starts for Gudmit_23:

(Start: 18 @19228 has 1 MA's), (31, 19285), (38, 19324), (40, 19336), (46, 19354), (48, 19360), (50, 19372), (63, 19459), (64, 19468), (67, 19480), (70, 19516), (72, 19537), (76, 19552), (79, 19564),

Gene: Hyzer_26 Start: 22472, Stop: 22846, Start Num: 16

Candidate Starts for Hyzer_26:

(Start: 16 @22472 has 47 MA's), (28, 22520), (35, 22544), (39, 22574), (42, 22583), (46, 22595), (49, 22607), (56, 22667), (75, 22787), (76, 22793),

Gene: Jabbawokkie_43 Start: 30179, Stop: 30568, Start Num: 19

Candidate Starts for Jabbawokkie_43:

(Start: 16 @30164 has 47 MA's), (Start: 18 @30176 has 1 MA's), (Start: 19 @30179 has 6 MA's), (20, 30194), (24, 30206), (27, 30215), (29, 30221), (33, 30236), (37, 30260), (43, 30284), (44, 30287), (46, 30293), (48, 30299), (49, 30305), (51, 30314), (52, 30317), (55, 30362), (58, 30380), (61, 30392), (62, 30395), (63, 30398), (66, 30413), (71, 30464), (74, 30482), (75, 30485), (78, 30500), (81, 30512),

Gene: Jalebi_39 Start: 33608, Stop: 34003, Start Num: 16

Candidate Starts for Jalebi_39:

(Start: 16 @33608 has 47 MA's), (33, 33674), (44, 33728), (52, 33758), (57, 33809), (58, 33821), (65, 33851), (73, 33920), (78, 33941), (79, 33944), (82, 33956),

Gene: Jamemuya19_40 Start: 30956, Stop: 31342, Start Num: 16

Candidate Starts for Jamemuya19_40:

(Start: 16 @30956 has 47 MA's), (44, 31076), (52, 31106), (54, 31133), (57, 31157), (58, 31169), (65, 31199), (66, 31202), (73, 31268), (78, 31289), (79, 31292), (82, 31304),

Gene: Kita_26 Start: 21932, Stop: 22306, Start Num: 16

Candidate Starts for Kita_26:

(10, 21848), (Start: 16 @21932 has 47 MA's), (28, 21980), (35, 22004), (36, 22010), (39, 22034), (42, 22043), (46, 22055), (75, 22247), (76, 22253), (77, 22256),

Gene: Lambo_40 Start: 33093, Stop: 33488, Start Num: 16

Candidate Starts for Lambo_40:

(Start: 16 @33093 has 47 MA's), (33, 33159), (44, 33213), (52, 33243), (57, 33294), (58, 33306), (65, 33336), (73, 33405), (78, 33426), (79, 33429), (82, 33441),

Gene: Lila22_39 Start: 33048, Stop: 33443, Start Num: 16

Candidate Starts for Lila22_39:

(Start: 16 @33048 has 47 MA's), (33, 33114), (44, 33168), (52, 33198), (57, 33249), (58, 33261), (73, 33360), (78, 33381), (79, 33384), (82, 33396),

Gene: LuckyLeo_39 Start: 32448, Stop: 32855, Start Num: 16

Candidate Starts for LuckyLeo_39:

(Start: 16 @32448 has 47 MA's), (25, 32481), (39, 32553), (43, 32565), (44, 32568), (49, 32586), (54, 32625), (56, 32646), (63, 32679), (65, 32691), (72, 32757), (75, 32766), (76, 32772), (78, 32781), (82, 32796),

Gene: LunaStella_37 Start: 30071, Stop: 30460, Start Num: 19

Candidate Starts for LunaStella_37:

(Start: 16 @30056 has 47 MA's), (Start: 19 @30071 has 6 MA's), (Start: 21 @30089 has 1 MA's), (25, 30101), (26, 30104), (27, 30107), (29, 30113), (30, 30116), (31, 30119), (33, 30128), (36, 30140), (43, 30176), (44, 30179), (47, 30188), (48, 30191), (49, 30197), (53, 30218), (55, 30254), (58, 30272), (60, 30278), (61, 30284), (62, 30287), (63, 30290), (65, 30302), (67, 30311), (69, 30344), (70, 30347), (75, 30377), (78, 30392), (81, 30404),

Gene: Manasvini_26 Start: 21932, Stop: 22306, Start Num: 16

Candidate Starts for Manasvini_26:

(10, 21848), (Start: 16 @21932 has 47 MA's), (28, 21980), (35, 22004), (36, 22010), (39, 22034), (42, 22043), (46, 22055), (75, 22247), (76, 22253), (77, 22256),

Gene: Maridalia_25 Start: 21932, Stop: 22306, Start Num: 16

Candidate Starts for Maridalia_25:

(10, 21848), (Start: 16 @21932 has 47 MA's), (28, 21980), (35, 22004), (36, 22010), (39, 22034), (42, 22043), (46, 22055), (75, 22247), (76, 22253), (77, 22256),

Gene: MoiGyank_42 Start: 33478, Stop: 33873, Start Num: 16

Candidate Starts for MoiGyank_42:

(Start: 16 @33478 has 47 MA's), (33, 33544), (44, 33598), (52, 33628), (57, 33679), (58, 33691), (65, 33721), (73, 33790), (78, 33811), (79, 33814), (82, 33826),

Gene: MooMoo_33 Start: 28618, Stop: 29007, Start Num: 19

Candidate Starts for MooMoo_33:

(Start: 16 @28603 has 47 MA's), (Start: 19 @28618 has 6 MA's), (Start: 21 @28636 has 1 MA's), (25, 28648), (26, 28651), (27, 28654), (29, 28660), (30, 28663), (31, 28666), (33, 28675), (36, 28687), (43,

28723), (44, 28726), (47, 28735), (48, 28738), (49, 28744), (53, 28765), (55, 28801), (58, 28819), (60, 28825), (61, 28831), (62, 28834), (63, 28837), (65, 28849), (67, 28858), (69, 28891), (70, 28894), (75, 28924), (78, 28939),

Gene: Mutzi_42 Start: 36730, Stop: 37164, Start Num: 15

Candidate Starts for Mutzi_42:

(11, 36670), (12, 36694), (Start: 15 @36730 has 14 MA's), (29, 36805), (36, 36835), (42, 36868), (47, 36883), (48, 36886), (64, 36994), (70, 37042), (78, 37087), (80, 37093), (82, 37102),

Gene: Neobush_26 Start: 21932, Stop: 22306, Start Num: 16

Candidate Starts for Neobush_26:

(10, 21848), (Start: 16 @21932 has 47 MA's), (28, 21980), (35, 22004), (36, 22010), (39, 22034), (42, 22043), (46, 22055), (75, 22247), (76, 22253), (77, 22256),

Gene: NorManre_41 Start: 32684, Stop: 33079, Start Num: 16

Candidate Starts for NorManre_41:

(Start: 16 @32684 has 47 MA's), (33, 32750), (44, 32804), (57, 32885), (58, 32897), (65, 32927), (73, 32996), (78, 33017), (79, 33020), (82, 33032),

Gene: NovaSharks_40 Start: 30956, Stop: 31342, Start Num: 16

Candidate Starts for NovaSharks_40:

(Start: 16 @30956 has 47 MA's), (44, 31076), (52, 31106), (54, 31133), (57, 31157), (58, 31169), (65, 31199), (66, 31202), (73, 31268), (78, 31289), (79, 31292), (82, 31304),

Gene: Nubi_43 Start: 35875, Stop: 36309, Start Num: 15

Candidate Starts for Nubi_43:

(11, 35815), (12, 35839), (Start: 15 @35875 has 14 MA's), (29, 35950), (36, 35980), (42, 36013), (47, 36028), (48, 36031), (64, 36139), (70, 36187), (71, 36196), (78, 36232), (80, 36238), (82, 36247),

Gene: OtterstedtS21_40 Start: 32755, Stop: 33150, Start Num: 16

Candidate Starts for OtterstedtS21_40:

(Start: 16 @32755 has 47 MA's), (33, 32821), (44, 32875), (52, 32905), (57, 32956), (58, 32968), (65, 32998), (73, 33067), (78, 33088), (79, 33091), (82, 33103),

Gene: PantheRoc_25 Start: 21130, Stop: 21504, Start Num: 16

Candidate Starts for PantheRoc_25:

(10, 21046), (Start: 16 @21130 has 47 MA's), (28, 21178), (35, 21202), (36, 21208), (39, 21232), (42, 21241), (46, 21253), (75, 21445), (76, 21451), (77, 21454),

Gene: ParvusTarda_40 Start: 32223, Stop: 32618, Start Num: 16

Candidate Starts for ParvusTarda_40:

(Start: 16 @32223 has 47 MA's), (33, 32289), (41, 32334), (44, 32343), (52, 32373), (57, 32424), (58, 32436), (73, 32535), (78, 32556), (79, 32559), (82, 32571),

Gene: Patos_41 Start: 32684, Stop: 33079, Start Num: 16

Candidate Starts for Patos_41:

(Start: 16 @32684 has 47 MA's), (33, 32750), (44, 32804), (57, 32885), (58, 32897), (65, 32927), (73, 32996), (78, 33017), (79, 33020), (82, 33032),

Gene: Petra_26 Start: 20781, Stop: 21155, Start Num: 16

Candidate Starts for Petra_26:

(Start: 16 @20781 has 47 MA's), (25, 20814), (28, 20829), (39, 20883), (42, 20892), (46, 20904), (56, 20976), (75, 21096), (76, 21102), (78, 21111),

Gene: Phlop_42 Start: 35956, Stop: 36390, Start Num: 15

Candidate Starts for Phlop_42:

(11, 35896), (12, 35920), (Start: 15 @35956 has 14 MA's), (29, 36031), (36, 36061), (42, 36094), (47, 36109), (48, 36112), (64, 36220), (70, 36268), (71, 36277), (78, 36313), (80, 36319), (82, 36328),

Gene: PinkCoffee_45 Start: 36059, Stop: 36493, Start Num: 15

Candidate Starts for PinkCoffee_45:

(11, 35999), (12, 36023), (Start: 15 @36059 has 14 MA's), (29, 36134), (36, 36164), (42, 36197), (47, 36212), (48, 36215), (64, 36323), (70, 36371), (71, 36380), (78, 36416), (80, 36422), (82, 36431),

Gene: PullumCavea_42 Start: 35956, Stop: 36390, Start Num: 15

Candidate Starts for PullumCavea_42:

(11, 35896), (12, 35920), (Start: 15 @35956 has 14 MA's), (29, 36031), (36, 36061), (42, 36094), (47, 36109), (48, 36112), (64, 36220), (70, 36268), (71, 36277), (78, 36313), (80, 36319), (82, 36328),

Gene: Ranch_40 Start: 31581, Stop: 31976, Start Num: 16

Candidate Starts for Ranch_40:

(Start: 16 @31581 has 47 MA's), (33, 31647), (44, 31701), (52, 31731), (57, 31782), (58, 31794), (65, 31824), (73, 31893), (78, 31914), (79, 31917), (82, 31929),

Gene: RayTheFireFly_26 Start: 22130, Stop: 22573, Start Num: 13

Candidate Starts for RayTheFireFly_26:

(1, 21734), (2, 21785), (5, 21920), (6, 21941), (12, 22118), (Start: 13 @22130 has 3 MA's), (17, 22178), (Start: 21 @22202 has 1 MA's), (28, 22229), (29, 22232), (31, 22238), (36, 22262), (37, 22274), (55, 22376), (59, 22397), (60, 22400), (62, 22409), (63, 22412), (66, 22427), (78, 22514),

Gene: RazorC_39 Start: 31348, Stop: 31734, Start Num: 16

Candidate Starts for RazorC_39:

(Start: 16 @31348 has 47 MA's), (44, 31468), (52, 31498), (54, 31525), (57, 31549), (58, 31561), (65, 31591), (66, 31594), (73, 31660), (78, 31681), (79, 31684), (82, 31696),

Gene: Rumi_40 Start: 30959, Stop: 31345, Start Num: 16

Candidate Starts for Rumi_40:

(Start: 16 @30959 has 47 MA's), (44, 31079), (52, 31109), (54, 31136), (57, 31160), (58, 31172), (65, 31202), (66, 31205), (73, 31271), (78, 31292), (79, 31295), (82, 31307),

Gene: Sadboi_41 Start: 33440, Stop: 33835, Start Num: 16

Candidate Starts for Sadboi_41:

(Start: 16 @33440 has 47 MA's), (33, 33506), (44, 33560), (52, 33590), (57, 33641), (58, 33653), (65, 33683), (73, 33752), (78, 33773), (79, 33776), (82, 33788),

Gene: Sampudon_40 Start: 33608, Stop: 34003, Start Num: 16

Candidate Starts for Sampudon_40:

(Start: 16 @33608 has 47 MA's), (33, 33674), (44, 33728), (52, 33758), (57, 33809), (58, 33821), (65, 33851), (73, 33920), (78, 33941), (79, 33944), (82, 33956),

Gene: Shinji_43 Start: 35312, Stop: 35746, Start Num: 15

Candidate Starts for Shinji_43:

(11, 35252), (12, 35276), (Start: 15 @35312 has 14 MA's), (17, 35333), (Start: 21 @35357 has 1 MA's), (22, 35360), (29, 35387), (36, 35417), (47, 35465), (48, 35468), (49, 35474), (60, 35555), (64, 35576), (68, 35591), (70, 35624), (78, 35669), (80, 35675), (82, 35684), (85, 35723),

Gene: SmokingBunny_43 Start: 35861, Stop: 36295, Start Num: 15

Candidate Starts for SmokingBunny_43:

(11, 35801), (12, 35825), (Start: 15 @35861 has 14 MA's), (29, 35936), (36, 35966), (42, 35999), (47, 36014), (48, 36017), (64, 36125), (70, 36173), (71, 36182), (78, 36218), (80, 36224), (82, 36233),

Gene: Stormer_40 Start: 30962, Stop: 31348, Start Num: 16

Candidate Starts for Stormer_40:

(Start: 16 @30962 has 47 MA's), (44, 31082), (52, 31112), (54, 31139), (57, 31163), (58, 31175), (65, 31205), (66, 31208), (73, 31274), (78, 31295), (79, 31298), (82, 31310),

Gene: Susceptit_26 Start: 21932, Stop: 22306, Start Num: 16

Candidate Starts for Susceptit_26:

(10, 21848), (Start: 16 @21932 has 47 MA's), (28, 21980), (35, 22004), (36, 22010), (39, 22034), (42, 22043), (46, 22055), (75, 22247), (76, 22253), (77, 22256),

Gene: TChen_35 Start: 30090, Stop: 30461, Start Num: 21

Candidate Starts for TChen_35:

(Start: 16 @30057 has 47 MA's), (Start: 19 @30072 has 6 MA's), (Start: 21 @30090 has 1 MA's), (25, 30102), (26, 30105), (27, 30108), (29, 30114), (30, 30117), (31, 30120), (33, 30129), (36, 30141), (43, 30177), (44, 30180), (47, 30189), (48, 30192), (49, 30198), (53, 30219), (55, 30255), (58, 30273), (60, 30279), (61, 30285), (62, 30288), (63, 30291), (65, 30303), (67, 30312), (69, 30345), (70, 30348), (75, 30378), (78, 30393), (81, 30405),

Gene: Tayonia_26 Start: 21932, Stop: 22306, Start Num: 16

Candidate Starts for Tayonia_26:

(10, 21848), (Start: 16 @21932 has 47 MA's), (28, 21980), (35, 22004), (36, 22010), (39, 22034), (42, 22043), (46, 22055), (75, 22247), (76, 22253), (77, 22256),

Gene: ThetaBob_35 Start: 29008, Stop: 29412, Start Num: 16

Candidate Starts for ThetaBob_35:

(Start: 16 @29008 has 47 MA's), (Start: 18 @29020 has 1 MA's), (Start: 19 @29023 has 6 MA's), (20, 29038), (24, 29050), (27, 29059), (29, 29065), (33, 29080), (37, 29104), (43, 29128), (44, 29131), (46, 29137), (48, 29143), (49, 29149), (51, 29158), (52, 29161), (55, 29206), (58, 29224), (61, 29236), (62, 29239), (63, 29242), (66, 29257), (71, 29308), (74, 29326), (75, 29329), (78, 29344), (81, 29356),

Gene: Tillicus_39 Start: 32042, Stop: 32440, Start Num: 16

Candidate Starts for Tillicus_39:

(Start: 16 @32042 has 47 MA's), (39, 32147), (43, 32159), (44, 32162), (49, 32180), (54, 32219), (56, 32240), (63, 32273), (65, 32285), (72, 32351), (75, 32360), (77, 32369), (78, 32375), (82, 32390),

Gene: TillyBobJoe_43 Start: 35665, Stop: 36099, Start Num: 15

Candidate Starts for TillyBobJoe_43:

(11, 35605), (12, 35629), (Start: 15 @35665 has 14 MA's), (29, 35740), (36, 35770), (42, 35803), (47, 35818), (48, 35821), (64, 35929), (70, 35977), (71, 35986), (78, 36022), (80, 36028), (82, 36037),

Gene: Togo_42 Start: 35861, Stop: 36295, Start Num: 15

Candidate Starts for Togo_42:

(11, 35801), (12, 35825), (Start: 15 @35861 has 14 MA's), (29, 35936), (36, 35966), (42, 35999), (47, 36014), (48, 36017), (64, 36125), (70, 36173), (71, 36182), (78, 36218), (80, 36224), (82, 36233),

Gene: Toron_36 Start: 29915, Stop: 30304, Start Num: 19

Candidate Starts for Toron_36:

(14, 29876), (Start: 16 @29900 has 47 MA's), (Start: 19 @29915 has 6 MA's), (27, 29951), (29, 29957), (30, 29960), (31, 29963), (33, 29972), (37, 29996), (44, 30023), (48, 30035), (55, 30098), (58, 30116), (60, 30122), (61, 30128), (62, 30131), (63, 30134), (65, 30146), (66, 30149), (72, 30212), (75, 30221), (78, 30236), (81, 30248),

Gene: Trumpet_26 Start: 21932, Stop: 22306, Start Num: 16

Candidate Starts for Trumpet_26:

(10, 21848), (Start: 16 @21932 has 47 MA's), (28, 21980), (35, 22004), (36, 22010), (39, 22034), (42, 22043), (46, 22055), (75, 22247), (76, 22253), (77, 22256),

Gene: Wojtek_39 Start: 32308, Stop: 32703, Start Num: 16

Candidate Starts for Wojtek_39:

(Start: 16 @32308 has 47 MA's), (33, 32374), (44, 32428), (52, 32458), (57, 32509), (58, 32521), (73, 32620), (78, 32641), (79, 32644), (82, 32656),

Gene: Yeezy_26 Start: 21154, Stop: 21528, Start Num: 16

Candidate Starts for Yeezy_26:

(10, 21070), (Start: 16 @21154 has 47 MA's), (28, 21202), (35, 21226), (36, 21232), (39, 21256), (42, 21265), (46, 21277), (75, 21469), (76, 21475), (77, 21478),

Gene: Yikes_41 Start: 33687, Stop: 34082, Start Num: 16

Candidate Starts for Yikes_41:

(Start: 16 @33687 has 47 MA's), (33, 33753), (44, 33807), (52, 33837), (57, 33888), (58, 33900), (65, 33930), (73, 33999), (78, 34020), (79, 34023), (82, 34035),

Gene: YungMoney_46 Start: 38304, Stop: 38738, Start Num: 15

Candidate Starts for YungMoney_46:

(11, 38244), (12, 38268), (Start: 15 @38304 has 14 MA's), (17, 38325), (Start: 21 @38349 has 1 MA's), (22, 38352), (26, 38364), (29, 38379), (32, 38388), (36, 38409), (47, 38457), (48, 38460), (49, 38466), (60, 38547), (64, 38568), (68, 38583), (70, 38616), (78, 38661), (80, 38667), (82, 38676), (85, 38715),

Gene: Zameen_26 Start: 21932, Stop: 22306, Start Num: 16

Candidate Starts for Zameen_26:

(10, 21848), (Start: 16 @21932 has 47 MA's), (28, 21980), (35, 22004), (36, 22010), (39, 22034), (42, 22043), (46, 22055), (75, 22247), (76, 22253), (77, 22256),

Gene: Zany_39 Start: 33212, Stop: 33607, Start Num: 16

Candidate Starts for Zany_39:

(Start: 16 @33212 has 47 MA's), (33, 33278), (44, 33332), (57, 33413), (58, 33425), (65, 33455), (73, 33524), (78, 33545), (79, 33548), (82, 33560),

Gene: Zapner_42 Start: 30180, Stop: 30569, Start Num: 19

Candidate Starts for Zapner_42:

(Start: 16 @30165 has 47 MA's), (Start: 18 @30177 has 1 MA's), (Start: 19 @30180 has 6 MA's), (20, 30195), (24, 30207), (27, 30216), (29, 30222), (33, 30237), (37, 30261), (43, 30285), (44, 30288), (46, 30294), (48, 30300), (49, 30306), (51, 30315), (52, 30318), (55, 30363), (58, 30381), (61, 30393), (62, 30396), (63, 30399), (66, 30414), (71, 30465), (74, 30483), (75, 30486), (78, 30501), (81, 30513),