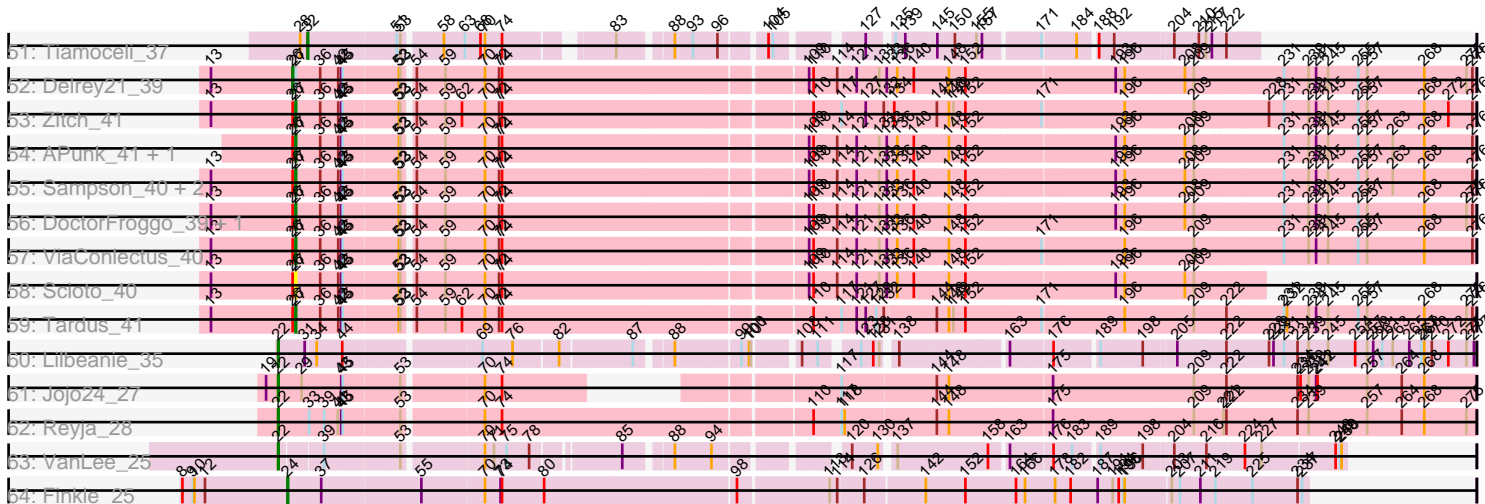




Pham 193854



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 193854 Report

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

Pham number 193854 has 117 members, 10 are drafts.

Phages represented in each track:

- Track 1 : PotPie\_28
- Track 2 : William\_32
- Track 3 : PCoral7\_32, Toast\_32
- Track 4 : Fairfaxidum\_31
- Track 5 : Ohgeesy\_28
- Track 6 : Polly\_27, Zameen\_30, Tayonia\_30, Antonio\_30
- Track 7 : Bialota\_28, Zirinka\_28
- Track 8 : BatStarr\_28, Nymphadora\_28, Eviarto\_28, Herod\_28, TimTam\_28, Bosnia\_28
- Track 9 : Hyzer\_31
- Track 10 : ThankyouJordi\_27
- Track 11 : Manasvini\_30, Kita\_30, Eudoria\_30, Trumpet\_30, Neobush\_30
- Track 12 : WelcomeAyanna\_27
- Track 13 : BoyNamedSue\_29
- Track 14 : AlumE\_29
- Track 15 : Madeline\_28
- Track 16 : Maridalia\_29
- Track 17 : Hugley\_27
- Track 18 : Agueybana\_29
- Track 19 : Suscepit\_30
- Track 20 : LordFarquaad\_28, Attis\_28, Yeet412\_28, Bjaner7\_28, SoilAssassin\_28
- Track 21 : Nettuno\_26, Lamberg\_26, EdnaMode\_26
- Track 22 : Savage\_28, Haley23\_28, GemG\_28, Gizermo\_28, Cynthia\_28, Sproutie\_28, Whiteclaw\_28, Mocha12\_28, TuertoX\_28, Clap\_28
- Track 23 : PantheRoc\_29
- Track 24 : BaxterFox\_28
- Track 25 : Yeezy\_30
- Track 26 : Powerball\_26
- Track 27 : Sidious\_30
- Track 28 : Portcullis\_36, Twister6\_38
- Track 29 : VanDeWege\_39, CoveyB\_39
- Track 30 : Wizard\_35, SmokingBunny\_35, Gezellig\_36, Halo3\_36, PullumCavea\_35, Jambalaya\_35, KimmyK\_37, Fireball\_36, Phlop\_35, Salvador\_35, Togo\_35, Evamon\_35, Savbucketdawg\_35
- Track 31 : TillyBobJoe\_35
- Track 32 : ClamChowder\_38, PinkCoffee\_38, Barb\_38
- Track 33 : Fugax\_38

- Track 34 : Shinji\_36
- Track 35 : RogerDodger\_39
- Track 36 : Valary\_38
- Track 37 : Danyall\_38
- Track 38 : Arri\_39
- Track 39 : Belphegor\_39
- Track 40 : Leonard\_38, Phinally\_38
- Track 41 : EMOore\_36
- Track 42 : Inspectinfecti\_39, Phauci\_31
- Track 43 : Hans\_40
- Track 44 : Ali17\_36
- Track 45 : MelBins\_39
- Track 46 : Kwekel\_36
- Track 47 : RoadKill\_34, EdmundFerry\_35, Twonlo\_34
- Track 48 : GTE6\_36
- Track 49 : Dextert\_37
- Track 50 : Chickadee\_36
- Track 51 : Tiamoceli\_37
- Track 52 : Delrey21\_39
- Track 53 : Zitch\_41
- Track 54 : APunk\_41, Zipp\_39
- Track 55 : Sampson\_40, Abblin\_40, Natkenzie\_40
- Track 56 : DoctorFroggo\_39, Verity\_39
- Track 57 : ViaConlectus\_40
- Track 58 : Scioto\_40
- Track 59 : Tardus\_41
- Track 60 : Lilbeanie\_35
- Track 61 : Jojo24\_27
- Track 62 : Reyja\_28
- Track 63 : VanLee\_25
- Track 64 : Finkle\_25

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

The start number called the most often in the published annotations is 22, it was called in 58 of the 107 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Agueybana\_29, Arri\_39, Barb\_38, BatStarr\_28, BaxterFox\_28, Bialota\_28, Bosnia\_28, BoyNamedSue\_29, ClamChowder\_38, CoveyB\_39, Danyall\_38, EdnaMode\_26, Eudoria\_30, Evamon\_35, Eviarto\_28, Fairfaxidum\_31, Fireball\_36, Fugax\_38, Gezellig\_36, Halo3\_36, Herod\_28, Hyzer\_31, Jambalaya\_35, Jojo24\_27, KimmyK\_37, Kita\_30, Lamberg\_26, Lilbeanie\_35, Madeline\_28, Manasvini\_30, Maridalia\_29, Neobush\_30, Nettuno\_26, Nymphadora\_28, Ohgeesy\_28, PCoral7\_32, PantheRoc\_29, Phlop\_35, PinkCoffee\_38, Portcullis\_36, Powerball\_26, PullumCavea\_35, Reyja\_28, RogerDodger\_39, Salvador\_35, Savbucketdawg\_35, Shinji\_36, Sidious\_30, SmokingBunny\_35, TillyBobJoe\_35, TimTam\_28, Toast\_32, Togo\_35, Trumpet\_30, Twister6\_38, Valary\_38, VanDeWege\_39, VanLee\_25, WelcomeAyanna\_27, William\_32, Wizard\_35, Zirinka\_28,

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

- AlumE\_29, Antonio\_30, Polly\_27, Tayonia\_30, ThankyouJordi\_27, Yeezy\_30, Zameen\_30,

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

- APunk\_41, Abblin\_40, Ali17\_36, Attis\_28, Belphegor\_39, Bjaner7\_28, Chickadee\_36, Clap\_28, Cynthia\_28, Delrey21\_39, Dexdert\_37, DoctorFroggo\_39, EMOore\_36, EdmundFerry\_35, Finkle\_25, GTE6\_36, GemG\_28, Gizermo\_28, Haley23\_28, Hans\_40, Hugley\_27, Inspectinfecti\_39, Kwekel\_36, Leonard\_38, LordFarquaad\_28, MelBins\_39, Mocha12\_28, Natkenzie\_40, Phauci\_31, Phinally\_38, PotPie\_28, RoadKill\_34, Sampson\_40, Savage\_28, Scioto\_40, SoilAssassin\_28, Sproutie\_28, Suscepit\_30, Tardus\_41, Tiamoceli\_37, TuertoX\_28, Twonlo\_34, Verity\_39, ViaConlectus\_40, Whiteclaw\_28, Yeet412\_28, Zipp\_39, Zitch\_41,

### Summary by start number:

Start 4:

- Found in 1 of 117 ( 0.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hugley\_27 (CZ1),

Start 22:

- Found in 69 of 117 ( 59.0% ) of genes in pham
- Manual Annotations of this start: 58 of 107
- Called 89.9% of time when present
- Phage (with cluster) where this start called: Agueybana\_29 (CZ1), Arri\_39 (DC1), Barb\_38 (DC1), BatStarr\_28 (CZ1), BaxterFox\_28 (CZ3), Bialota\_28 (CZ1), Bosnia\_28 (CZ1), BoyNamedSue\_29 (CZ1), ClamChowder\_38 (DC1), CoveyB\_39 (DC1), Danyall\_38 (DC1), EdnaMode\_26 (CZ2), Eudoria\_30 (CZ1), Evamon\_35 (DC1), Eviarto\_28 (CZ1), Fairfaxidum\_31 (CV), Fireball\_36 (DC1), Fugax\_38 (DC1), Gezellig\_36 (DC1), Halo3\_36 (DC1), Herod\_28 (CZ1), Hyzer\_31 (CZ1), Jambalaya\_35 (DC1), Jojo24\_27 (DY), KimmyK\_37 (DC1), Kita\_30 (CZ1), Lamberg\_26 (CZ2), Lilbeanie\_35 (DE5), Madeline\_28 (CZ1), Manasvini\_30 (CZ1), Maridalia\_29 (CZ1), Neobush\_30 (CZ1), Nettuno\_26 (CZ2), Nymphadora\_28 (CZ1), Ohgeesy\_28 (CZ), PCoral7\_32 (CV), PantheRoc\_29 (CZ3), Phlop\_35 (DC1), PinkCoffee\_38 (DC1), Portcullis\_36 (DC1), Powerball\_26 (CZ4), PullumCavea\_35 (DC1), Reyja\_28 (DY), RogerDodger\_39 (DC1), Salvador\_35 (DC1), Savbucketdawg\_35 (DC1), Shinji\_36 (DC1), Sidious\_30 (CZ7), SmokingBunny\_35 (DC1), TillyBobJoe\_35 (DC1), TimTam\_28 (CZ1), Toast\_32 (CV), Togo\_35 (DC1), Trumpet\_30 (CZ1), Twister6\_38 (DC1), Valary\_38 (DC1), VanDeWege\_39 (DC1), VanLee\_25 (singleton), WelcomeAyanna\_27 (CZ1), William\_32 (CV), Wizard\_35 (DC1), Zirinka\_28 (CZ1),

Start 23:

- Found in 15 of 117 ( 12.8% ) of genes in pham
- Manual Annotations of this start: 15 of 107
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Attis\_28 (CZ2), Bjaner7\_28 (CZ2), Clap\_28 (CZ2), Cynthia\_28 (CZ2), GemG\_28 (CZ2), Gizermo\_28 (CZ2), Haley23\_28 (CZ2), LordFarquaad\_28 (CZ2), Mocha12\_28 (CZ2), Savage\_28 (CZ2), SoilAssassin\_28 (CZ2), Sproutie\_28 (CZ2), TuertoX\_28 (CZ2), Whiteclaw\_28 (CZ2),

Yeet412\_28 (CZ2),

Start 24:

- Found in 1 of 117 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 107
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Finkle\_25 (singleton),

Start 25:

- Found in 32 of 117 ( 27.4% ) of genes in pham
- Manual Annotations of this start: 8 of 107
- Called 25.0% of time when present
- Phage (with cluster) where this start called: AlumE\_29 (CZ1), Antonio\_30 (CZ1), Polly\_27 (CZ1), Suscepit\_30 (CZ1), Tayonia\_30 (CZ1), ThankyouJordi\_27 (CZ1), Yeezy\_30 (CZ3), Zameen\_30 (CZ1),

Start 26:

- Found in 22 of 117 ( 18.8% ) of genes in pham
- Manual Annotations of this start: 2 of 107
- Called 9.1% of time when present
- Phage (with cluster) where this start called: Delrey21\_39 (DE4), PotPie\_28 (CT),

Start 27:

- Found in 21 of 117 ( 17.9% ) of genes in pham
- Manual Annotations of this start: 16 of 107
- Called 95.2% of time when present
- Phage (with cluster) where this start called: APunk\_41 (DE4), Abblin\_40 (DE4), Ali17\_36 (DE2), Belphegor\_39 (DE), DoctorFroggo\_39 (DE4), EMoore\_36 (DE2), Hans\_40 (DE2), Inspectinfecti\_39 (DE2), Leonard\_38 (DE2), MelBins\_39 (DE2), Natkenzie\_40 (DE4), Phauci\_31 (DE2), Phinally\_38 (DE2), Sampson\_40 (DE4), Scioto\_40 (DE4), Tardus\_41 (DE4), Verity\_39 (DE4), ViaConlectus\_40 (DE4), Zipp\_39 (DE4), Zitch\_41 (DE4),

Start 28:

- Found in 8 of 117 ( 6.8% ) of genes in pham
- Manual Annotations of this start: 6 of 107
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Chickadee\_36 (DE3), Dextert\_37 (DE3), EdmundFerry\_35 (DE3), GTE6\_36 (DE3), Kwekel\_36 (DE3), RoadKill\_34 (DE3), Twonlo\_34 (DE3),

Start 32:

- Found in 7 of 117 ( 6.0% ) of genes in pham
- Manual Annotations of this start: 1 of 107
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Tiamoceli\_37 (DE3),

### **Summary by clusters:**

There are 16 clusters represented in this pham: singleton, CZ1, CZ2, CZ3, DE2, DE3, DE4, CZ7, CZ4, DE, CZ, DE5, DY, CT, CV, DC1,

Info for manual annotations of cluster CT:

- Start number 26 was manually annotated 1 time for cluster CT.

Info for manual annotations of cluster CV:

- Start number 22 was manually annotated 4 times for cluster CV.

Info for manual annotations of cluster CZ:

- Start number 22 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 22 was manually annotated 18 times for cluster CZ1.
- Start number 25 was manually annotated 7 times for cluster CZ1.

Info for manual annotations of cluster CZ2:

- Start number 22 was manually annotated 3 times for cluster CZ2.
- Start number 23 was manually annotated 15 times for cluster CZ2.

Info for manual annotations of cluster CZ3:

- Start number 22 was manually annotated 2 times for cluster CZ3.
- Start number 25 was manually annotated 1 time for cluster CZ3.

Info for manual annotations of cluster CZ4:

- Start number 22 was manually annotated 1 time for cluster CZ4.

Info for manual annotations of cluster CZ7:

- Start number 22 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster DC1:

- Start number 22 was manually annotated 24 times for cluster DC1.

Info for manual annotations of cluster DE2:

- Start number 27 was manually annotated 8 times for cluster DE2.

Info for manual annotations of cluster DE3:

- Start number 28 was manually annotated 6 times for cluster DE3.
- Start number 32 was manually annotated 1 time for cluster DE3.

Info for manual annotations of cluster DE4:

- Start number 26 was manually annotated 1 time for cluster DE4.
- Start number 27 was manually annotated 8 times for cluster DE4.

Info for manual annotations of cluster DE5:

- Start number 22 was manually annotated 1 time for cluster DE5.

Info for manual annotations of cluster DY:

- Start number 22 was manually annotated 2 times for cluster DY.

### ***Gene Information:***

Gene: APunk\_41 Start: 34218, Stop: 36455, Start Num: 27

Candidate Starts for APunk\_41:

(Start: 26 @34212 has 2 MA's), (Start: 27 @34218 has 16 MA's), (36, 34263), (42, 34296), (43, 34302), (45, 34305), (52, 34407), (53, 34410), (54, 34425), (59, 34482), (70, 34560), (72, 34584), (74, 34590), (109, 35163), (110, 35172), (114, 35217), (121, 35250), (131, 35295), (133, 35310), (136, 35331), (140, 35364), (148, 35430), (152, 35463), (193, 35751), (196, 35769), (208, 35886), (209, 35904), (231, 36078), (239, 36126), (241, 36141), (245, 36165), (255, 36225), (257, 36243), (263, 36294), (268, 36357), (276, 36450),

Gene: Abblin\_40 Start: 34761, Stop: 36998, Start Num: 27

Candidate Starts for Abblin\_40:

(13, 34596), (Start: 26 @34755 has 2 MA's), (Start: 27 @34761 has 16 MA's), (36, 34806), (42, 34839), (43, 34845), (45, 34848), (52, 34950), (53, 34953), (54, 34968), (59, 35025), (70, 35103), (72, 35127), (74, 35133), (109, 35706), (110, 35715), (114, 35760), (121, 35793), (131, 35838), (133, 35853), (136, 35874), (140, 35907), (148, 35973), (152, 36006), (193, 36294), (196, 36312), (208, 36429), (209, 36447), (231, 36621), (239, 36669), (241, 36684), (245, 36708), (255, 36768), (257, 36786), (263, 36837), (268, 36900), (276, 36993),

Gene: Aqueybana\_29 Start: 24666, Stop: 26948, Start Num: 22

Candidate Starts for Aqueybana\_29:

(Start: 22 @24666 has 58 MA's), (Start: 25 @24681 has 8 MA's), (35, 24738), (43, 24777), (50, 24876), (60, 24963), (63, 24996), (68, 25020), (70, 25029), (72, 25053), (79, 25134), (104, 25563), (115, 25701), (116, 25704), (117, 25707), (136, 25818), (202, 26337), (222, 26451), (236, 26598), (239, 26613), (257, 26730), (264, 26799), (267, 26838), (268, 26844),

Gene: Ali17\_36 Start: 32497, Stop: 34722, Start Num: 27

Candidate Starts for Ali17\_36:

(13, 32332), (Start: 26 @32491 has 2 MA's), (Start: 27 @32497 has 16 MA's), (36, 32542), (38, 32545), (43, 32581), (45, 32584), (64, 32806), (65, 32812), (70, 32839), (84, 33103), (89, 33217), (110, 33451), (117, 33493), (127, 33541), (132, 33577), (147, 33682), (151, 33727), (171, 33880), (208, 34153), (209, 34171), (222, 34231), (228, 34315), (231, 34345), (235, 34375), (239, 34393), (255, 34492), (268, 34624), (273, 34672), (275, 34705), (276, 34717),

Gene: AlumE\_29 Start: 24680, Stop: 26926, Start Num: 25

Candidate Starts for AlumE\_29:

(Start: 22 @24665 has 58 MA's), (Start: 25 @24680 has 8 MA's), (35, 24737), (43, 24776), (50, 24875), (60, 24962), (63, 24995), (68, 25019), (70, 25028), (72, 25052), (103, 25550), (110, 25640), (112, 25655), (119, 25700), (125, 25727), (143, 25868), (148, 25895), (149, 25904), (151, 25925), (171, 26078), (185, 26150), (186, 26156), (202, 26315), (222, 26429), (236, 26576), (239, 26591), (257, 26708), (261, 26738), (263, 26759), (265, 26792), (267, 26816), (268, 26822), (273, 26873), (274, 26876),

Gene: Antonio\_30 Start: 24801, Stop: 27047, Start Num: 25

Candidate Starts for Antonio\_30:

(Start: 22 @24786 has 58 MA's), (Start: 25 @24801 has 8 MA's), (35, 24858), (43, 24897), (50, 24996), (60, 25083), (63, 25116), (68, 25140), (70, 25149), (72, 25173), (103, 25671), (110, 25761), (112, 25776), (119, 25821), (125, 25848), (143, 25989), (148, 26016), (149, 26025), (151, 26046), (171, 26199), (185, 26271), (202, 26436), (222, 26550), (236, 26697), (239, 26712), (257, 26829), (264, 26898), (267, 26937), (268, 26943),

Gene: Arri\_39 Start: 30622, Stop: 32889, Start Num: 22

Candidate Starts for Arri\_39:

(Start: 22 @30622 has 58 MA's), (41, 30727), (43, 30733), (45, 30736), (52, 30838), (53, 30841), (55, 30865), (65, 30964), (66, 30967), (70, 30991), (90, 31378), (106, 31561), (110, 31603), (112, 31618), (127, 31696), (133, 31738), (136, 31759), (143, 31831), (152, 31891), (171, 32041), (185, 32113),



(186, 32119), (200, 32257), (202, 32278), (222, 32392), (239, 32554), (241, 32569), (242, 32572), (256, 32665), (257, 32671), (264, 32740), (265, 32755), (267, 32779), (268, 32785),

Gene: Attis\_28 Start: 22589, Stop: 24844, Start Num: 23

Candidate Starts for Attis\_28:

(18, 22556), (Start: 23 @22589 has 15 MA's), (30, 22625), (41, 22688), (47, 22724), (49, 22772), (53, 22805), (70, 22955), (103, 23477), (110, 23567), (117, 23609), (122, 23645), (140, 23747), (141, 23753), (143, 23786), (148, 23813), (149, 23822), (151, 23843), (171, 23996), (185, 24068), (186, 24074), (202, 24233), (222, 24347), (236, 24494), (239, 24509), (257, 24626), (264, 24695), (267, 24734), (268, 24740),

Gene: Barb\_38 Start: 30640, Stop: 32907, Start Num: 22

Candidate Starts for Barb\_38:

(Start: 22 @30640 has 58 MA's), (41, 30745), (43, 30751), (45, 30754), (52, 30856), (53, 30859), (55, 30883), (65, 30982), (66, 30985), (70, 31009), (90, 31396), (106, 31579), (110, 31621), (112, 31636), (127, 31714), (133, 31756), (136, 31777), (143, 31849), (152, 31909), (171, 32059), (185, 32131), (200, 32275), (202, 32296), (222, 32410), (239, 32572), (241, 32587), (242, 32590), (257, 32689), (264, 32758), (265, 32773), (267, 32797), (268, 32803),

Gene: BatStarr\_28 Start: 24789, Stop: 27047, Start Num: 22

Candidate Starts for BatStarr\_28:

(Start: 22 @24789 has 58 MA's), (Start: 25 @24804 has 8 MA's), (35, 24861), (43, 24900), (50, 24999), (60, 25086), (63, 25119), (68, 25143), (70, 25152), (72, 25176), (103, 25674), (110, 25764), (112, 25779), (119, 25824), (125, 25851), (143, 25992), (148, 26019), (149, 26028), (151, 26049), (171, 26202), (185, 26274), (202, 26439), (222, 26553), (236, 26700), (239, 26715), (257, 26832), (261, 26859), (263, 26880), (265, 26913), (267, 26937), (268, 26943),

Gene: BaxterFox\_28 Start: 23989, Stop: 26247, Start Num: 22

Candidate Starts for BaxterFox\_28:

(Start: 22 @23989 has 58 MA's), (Start: 25 @24004 has 8 MA's), (35, 24061), (43, 24100), (50, 24199), (60, 24286), (63, 24319), (68, 24343), (70, 24352), (72, 24376), (79, 24457), (103, 24874), (110, 24964), (112, 24979), (119, 25024), (125, 25051), (143, 25192), (148, 25219), (149, 25228), (151, 25249), (171, 25402), (185, 25474), (186, 25480), (202, 25639), (222, 25753), (236, 25900), (239, 25915), (257, 26032), (261, 26059), (263, 26080), (265, 26113), (267, 26137),

Gene: Belphegor\_39 Start: 34687, Stop: 36918, Start Num: 27

Candidate Starts for Belphegor\_39:

(Start: 26 @34681 has 2 MA's), (Start: 27 @34687 has 16 MA's), (36, 34732), (38, 34735), (43, 34771), (64, 34996), (65, 35002), (67, 35017), (70, 35029), (84, 35293), (89, 35407), (110, 35641), (117, 35686), (127, 35734), (132, 35770), (144, 35866), (148, 35890), (149, 35899), (151, 35920), (152, 35923), (154, 35941), (173, 36082), (177, 36091), (185, 36145), (209, 36364), (221, 36418), (222, 36424), (228, 36508), (232, 36544), (239, 36586), (241, 36601), (245, 36625), (251, 36655), (255, 36685), (257, 36703), (268, 36817), (273, 36865), (275, 36898),

Gene: Bialota\_28 Start: 24801, Stop: 27074, Start Num: 22

Candidate Starts for Bialota\_28:

(Start: 22 @24801 has 58 MA's), (Start: 25 @24816 has 8 MA's), (35, 24873), (43, 24912), (50, 25011), (60, 25098), (63, 25131), (68, 25155), (70, 25164), (72, 25188), (103, 25698), (110, 25788), (112, 25803), (119, 25848), (125, 25875), (143, 26016), (148, 26043), (149, 26052), (151, 26073), (171, 26226), (185, 26298), (200, 26442), (202, 26463), (220, 26559), (222, 26577), (236, 26724), (239, 26739), (241, 26754), (254, 26832), (257, 26856), (264, 26925), (265, 26940), (267, 26964), (268, 26970),

Gene: Bjanest7\_28 Start: 22589, Stop: 24844, Start Num: 23

Candidate Starts for Bjanest7\_28:

(18, 22556), (Start: 23 @22589 has 15 MA's), (30, 22625), (41, 22688), (47, 22724), (49, 22772), (53, 22805), (70, 22955), (103, 23477), (110, 23567), (117, 23609), (122, 23645), (140, 23747), (141, 23753), (143, 23786), (148, 23813), (149, 23822), (151, 23843), (171, 23996), (185, 24068), (186, 24074), (202, 24233), (222, 24347), (236, 24494), (239, 24509), (257, 24626), (264, 24695), (267, 24734), (268, 24740),

Gene: Bosnia\_28 Start: 24789, Stop: 27047, Start Num: 22

Candidate Starts for Bosnia\_28:

(Start: 22 @24789 has 58 MA's), (Start: 25 @24804 has 8 MA's), (35, 24861), (43, 24900), (50, 24999), (60, 25086), (63, 25119), (68, 25143), (70, 25152), (72, 25176), (103, 25674), (110, 25764), (112, 25779), (119, 25824), (125, 25851), (143, 25992), (148, 26019), (149, 26028), (151, 26049), (171, 26202), (185, 26274), (202, 26439), (222, 26553), (236, 26700), (239, 26715), (257, 26832), (261, 26859), (263, 26880), (265, 26913), (267, 26937), (268, 26943),

Gene: BoyNamedSue\_29 Start: 24665, Stop: 26926, Start Num: 22

Candidate Starts for BoyNamedSue\_29:

(Start: 22 @24665 has 58 MA's), (Start: 25 @24680 has 8 MA's), (35, 24737), (43, 24776), (50, 24875), (60, 24962), (63, 24995), (68, 25019), (70, 25028), (72, 25052), (103, 25550), (110, 25640), (112, 25655), (119, 25700), (125, 25727), (143, 25868), (148, 25895), (149, 25904), (151, 25925), (171, 26078), (185, 26150), (186, 26156), (202, 26315), (222, 26429), (236, 26576), (239, 26591), (257, 26708), (261, 26738), (263, 26759), (265, 26792), (267, 26816), (268, 26822), (273, 26873), (274, 26876),

Gene: Chickadee\_36 Start: 31511, Stop: 33088, Start Num: 28

Candidate Starts for Chickadee\_36:

(Start: 28 @31511 has 6 MA's), (Start: 32 @31526 has 1 MA's), (51, 31694), (53, 31700), (58, 31769), (63, 31811), (68, 31835), (70, 31844), (74, 31874), (83, 32051), (85, 32063), (88, 32141), (93, 32171), (96, 32213), (127, 32420), (135, 32456), (139, 32474), (145, 32531), (150, 32561), (155, 32600), (157, 32609), (171, 32708), (184, 32765), (188, 32795), (192, 32825), (204, 32930), (210, 32978), (215, 32990), (217, 33002), (222, 33026),

Gene: ClamChowder\_38 Start: 30640, Stop: 32907, Start Num: 22

Candidate Starts for ClamChowder\_38:

(Start: 22 @30640 has 58 MA's), (41, 30745), (43, 30751), (45, 30754), (52, 30856), (53, 30859), (55, 30883), (65, 30982), (66, 30985), (70, 31009), (90, 31396), (106, 31579), (110, 31621), (112, 31636), (127, 31714), (133, 31756), (136, 31777), (143, 31849), (152, 31909), (171, 32059), (185, 32131), (200, 32275), (202, 32296), (222, 32410), (239, 32572), (241, 32587), (242, 32590), (257, 32689), (264, 32758), (265, 32773), (267, 32797), (268, 32803),

Gene: Clap\_28 Start: 22596, Stop: 24848, Start Num: 23

Candidate Starts for Clap\_28:

(18, 22563), (Start: 23 @22596 has 15 MA's), (41, 22695), (47, 22731), (53, 22812), (55, 22836), (70, 22962), (103, 23484), (110, 23574), (117, 23616), (122, 23652), (140, 23754), (141, 23760), (143, 23793), (148, 23820), (149, 23829), (166, 23970), (199, 24204), (208, 24276), (220, 24336), (222, 24354), (234, 24495), (236, 24501), (239, 24516), (241, 24531), (257, 24633), (260, 24660), (267, 24738), (268, 24744),

Gene: CoveyB\_39 Start: 30440, Stop: 32707, Start Num: 22

Candidate Starts for CoveyB\_39:

(Start: 22 @30440 has 58 MA's), (41, 30545), (43, 30551), (45, 30554), (52, 30656), (53, 30659), (55, 30683), (65, 30782), (66, 30785), (70, 30809), (90, 31196), (106, 31379), (110, 31421), (112, 31436),

(127, 31514), (133, 31556), (136, 31577), (143, 31649), (152, 31709), (171, 31859), (185, 31931), (200, 32075), (202, 32096), (222, 32210), (234, 32351), (239, 32372), (241, 32387), (242, 32390), (257, 32489), (264, 32558), (265, 32573), (267, 32597), (268, 32603),

Gene: Cynthia\_28 Start: 22596, Stop: 24848, Start Num: 23

Candidate Starts for Cynthia\_28:

(18, 22563), (Start: 23 @22596 has 15 MA's), (41, 22695), (47, 22731), (53, 22812), (55, 22836), (70, 22962), (103, 23484), (110, 23574), (117, 23616), (122, 23652), (140, 23754), (141, 23760), (143, 23793), (148, 23820), (149, 23829), (166, 23970), (199, 24204), (208, 24276), (220, 24336), (222, 24354), (234, 24495), (236, 24501), (239, 24516), (241, 24531), (257, 24633), (260, 24660), (267, 24738), (268, 24744),

Gene: Danyall\_38 Start: 30442, Stop: 32709, Start Num: 22

Candidate Starts for Danyall\_38:

(Start: 22 @30442 has 58 MA's), (43, 30553), (45, 30556), (52, 30658), (53, 30661), (55, 30685), (65, 30784), (66, 30787), (70, 30811), (90, 31198), (102, 31330), (106, 31381), (110, 31423), (112, 31438), (127, 31516), (133, 31558), (136, 31579), (143, 31651), (152, 31711), (171, 31861), (185, 31933), (200, 32077), (202, 32098), (222, 32212), (239, 32374), (241, 32389), (242, 32392), (257, 32491), (264, 32560), (265, 32575), (267, 32599), (268, 32605), (271, 32623),

Gene: Delrey21\_39 Start: 34942, Stop: 37185, Start Num: 26

Candidate Starts for Delrey21\_39:

(13, 34783), (Start: 26 @34942 has 2 MA's), (Start: 27 @34948 has 16 MA's), (36, 34993), (42, 35026), (43, 35032), (45, 35035), (52, 35137), (53, 35140), (54, 35155), (59, 35212), (70, 35290), (72, 35314), (74, 35320), (109, 35893), (110, 35902), (114, 35947), (121, 35980), (131, 36025), (133, 36040), (136, 36061), (140, 36094), (148, 36160), (152, 36193), (193, 36481), (196, 36499), (208, 36616), (209, 36634), (231, 36808), (239, 36856), (241, 36871), (245, 36895), (255, 36955), (257, 36973), (268, 37087), (275, 37168), (276, 37180),

Gene: Dxdert\_37 Start: 31954, Stop: 33417, Start Num: 28

Candidate Starts for Dxdert\_37:

(Start: 28 @31954 has 6 MA's), (Start: 32 @31969 has 1 MA's), (51, 32137), (58, 32212), (63, 32254), (68, 32278), (70, 32287), (74, 32317), (83, 32494), (88, 32584), (93, 32614), (96, 32656), (104, 32728), (127, 32863), (135, 32899), (139, 32917), (145, 32974), (149, 33004), (150, 33007), (155, 33046), (157, 33055), (184, 33211), (188, 33241), (192, 33271), (197, 33298), (201, 33331), (206, 33355), (212, 33397), (214, 33403),

Gene: DoctorFroggo\_39 Start: 34948, Stop: 37185, Start Num: 27

Candidate Starts for DoctorFroggo\_39:

(13, 34783), (Start: 26 @34942 has 2 MA's), (Start: 27 @34948 has 16 MA's), (36, 34993), (42, 35026), (43, 35032), (45, 35035), (52, 35137), (53, 35140), (54, 35155), (59, 35212), (70, 35290), (72, 35314), (74, 35320), (109, 35893), (110, 35902), (114, 35947), (121, 35980), (131, 36025), (133, 36040), (136, 36061), (140, 36094), (148, 36160), (152, 36193), (193, 36481), (196, 36499), (208, 36616), (209, 36634), (231, 36808), (239, 36856), (241, 36871), (245, 36895), (255, 36955), (257, 36973), (268, 37087), (275, 37168), (276, 37180),

Gene: EMoore\_36 Start: 33669, Stop: 35897, Start Num: 27

Candidate Starts for EMoore\_36:

(Start: 26 @33663 has 2 MA's), (Start: 27 @33669 has 16 MA's), (36, 33714), (38, 33717), (43, 33753), (45, 33756), (61, 33942), (64, 33978), (65, 33984), (70, 34011), (72, 34035), (86, 34296), (104, 34545), (110, 34623), (132, 34752), (144, 34848), (148, 34872), (149, 34881), (160, 34968), (186, 35133), (196, 35211), (208, 35328), (209, 35346), (218, 35382), (226, 35472), (228, 35490), (231, 35520), (235, 35550), (239, 35568), (251, 35637), (255, 35667), (268, 35799), (273, 35847),

(276, 35892),

Gene: EdmundFerry\_35 Start: 31540, Stop: 33117, Start Num: 28

Candidate Starts for EdmundFerry\_35:

(Start: 28 @31540 has 6 MA's), (Start: 32 @31555 has 1 MA's), (51, 31723), (53, 31729), (58, 31798), (63, 31840), (68, 31864), (70, 31873), (74, 31903), (83, 32080), (88, 32170), (93, 32200), (96, 32242), (105, 32323), (127, 32449), (135, 32485), (139, 32503), (145, 32560), (150, 32590), (155, 32629), (157, 32638), (171, 32737), (184, 32794), (188, 32824), (192, 32854), (204, 32959), (210, 33007), (215, 33019), (217, 33031), (222, 33055),

Gene: EdnaMode\_26 Start: 21283, Stop: 23532, Start Num: 22

Candidate Starts for EdnaMode\_26:

(Start: 22 @21283 has 58 MA's), (39, 21361), (41, 21385), (43, 21391), (45, 21394), (48, 21424), (52, 21496), (53, 21499), (55, 21523), (70, 21643), (90, 22030), (110, 22255), (144, 22477), (148, 22501), (180, 22729), (202, 22921), (209, 22975), (213, 22993), (234, 23176), (239, 23197), (241, 23212), (257, 23314), (264, 23383), (267, 23422), (268, 23428),

Gene: Eudoria\_30 Start: 24786, Stop: 27047, Start Num: 22

Candidate Starts for Eudoria\_30:

(Start: 22 @24786 has 58 MA's), (Start: 25 @24801 has 8 MA's), (35, 24858), (43, 24897), (50, 24996), (60, 25083), (63, 25116), (68, 25140), (70, 25149), (72, 25173), (103, 25671), (110, 25761), (112, 25776), (119, 25821), (125, 25848), (143, 25989), (148, 26016), (149, 26025), (151, 26046), (171, 26199), (185, 26271), (202, 26436), (222, 26550), (236, 26697), (239, 26712), (257, 26829), (264, 26898), (267, 26937), (268, 26943),

Gene: Evamon\_35 Start: 30464, Stop: 32728, Start Num: 22

Candidate Starts for Evamon\_35:

(Start: 22 @30464 has 58 MA's), (41, 30566), (43, 30572), (45, 30575), (53, 30680), (55, 30704), (65, 30803), (66, 30806), (70, 30830), (90, 31217), (106, 31400), (110, 31442), (112, 31457), (127, 31535), (133, 31577), (136, 31598), (143, 31670), (152, 31730), (171, 31880), (185, 31952), (200, 32096), (202, 32117), (222, 32231), (234, 32372), (239, 32393), (241, 32408), (242, 32411), (257, 32510), (264, 32579), (265, 32594), (267, 32618), (268, 32624),

Gene: Eviarto\_28 Start: 24789, Stop: 27023, Start Num: 22

Candidate Starts for Eviarto\_28:

(Start: 22 @24789 has 58 MA's), (Start: 25 @24804 has 8 MA's), (35, 24861), (43, 24900), (50, 24999), (60, 25086), (63, 25119), (68, 25143), (70, 25152), (72, 25176), (103, 25650), (110, 25740), (112, 25755), (119, 25800), (125, 25827), (143, 25968), (148, 25995), (149, 26004), (151, 26025), (171, 26178), (185, 26250), (202, 26415), (222, 26529), (236, 26676), (239, 26691), (257, 26808), (261, 26835), (263, 26856), (265, 26889), (267, 26913), (268, 26919),

Gene: Fairfaxidum\_31 Start: 25639, Stop: 27933, Start Num: 22

Candidate Starts for Fairfaxidum\_31:

(2, 25222), (11, 25480), (Start: 22 @25639 has 58 MA's), (51, 25864), (56, 25906), (66, 25990), (70, 26014), (72, 26038), (107, 26599), (115, 26686), (116, 26689), (117, 26692), (136, 26803), (146, 26884), (148, 26902), (149, 26911), (156, 26959), (164, 27034), (167, 27055), (174, 27100), (189, 27196), (209, 27379), (222, 27439), (230, 27541), (239, 27601), (245, 27640), (251, 27670), (257, 27718), (261, 27748), (263, 27769), (264, 27787), (276, 27928),

Gene: Finkle\_25 Start: 21614, Stop: 23530, Start Num: 24

Candidate Starts for Finkle\_25:

(8, 21404), (9, 21425), (10, 21428), (12, 21449), (Start: 24 @21614 has 1 MA's), (37, 21677), (55, 21866), (70, 21986), (73, 22013), (74, 22016), (80, 22100), (98, 22469), (113, 22640), (114, 22649),

(126, 22697), (142, 22811), (152, 22886), (164, 22985), (166, 23003), (178, 23063), (182, 23093), (187, 23147), (191, 23177), (194, 23189), (195, 23198), (196, 23201), (203, 23279), (207, 23294), (211, 23333), (219, 23360), (225, 23423), (234, 23510), (237, 23519),

Gene: Fireball\_36 Start: 30587, Stop: 32851, Start Num: 22

Candidate Starts for Fireball\_36:

(Start: 22 @30587 has 58 MA's), (41, 30689), (43, 30695), (45, 30698), (53, 30803), (55, 30827), (65, 30926), (66, 30929), (70, 30953), (90, 31340), (106, 31523), (110, 31565), (112, 31580), (127, 31658), (133, 31700), (136, 31721), (143, 31793), (152, 31853), (171, 32003), (185, 32075), (200, 32219), (202, 32240), (222, 32354), (234, 32495), (239, 32516), (241, 32531), (242, 32534), (257, 32633), (264, 32702), (265, 32717), (267, 32741), (268, 32747),

Gene: Fugax\_38 Start: 30640, Stop: 32571, Start Num: 22

Candidate Starts for Fugax\_38:

(Start: 22 @30640 has 58 MA's), (41, 30745), (43, 30751), (45, 30754), (52, 30856), (53, 30859), (55, 30883), (65, 30982), (66, 30985), (70, 31009), (90, 31396), (106, 31579), (110, 31621), (112, 31636), (127, 31714), (133, 31756), (136, 31777), (143, 31849), (152, 31909), (171, 32059), (185, 32131), (200, 32275), (202, 32296), (222, 32410),

Gene: GTE6\_36 Start: 32032, Stop: 33609, Start Num: 28

Candidate Starts for GTE6\_36:

(Start: 28 @32032 has 6 MA's), (Start: 32 @32047 has 1 MA's), (51, 32215), (53, 32221), (58, 32290), (63, 32332), (68, 32356), (70, 32365), (74, 32395), (83, 32572), (88, 32662), (93, 32692), (96, 32734), (104, 32806), (105, 32815), (127, 32941), (135, 32977), (139, 32995), (145, 33052), (150, 33082), (155, 33121), (157, 33130), (171, 33229), (184, 33286), (188, 33316), (192, 33346), (204, 33451), (210, 33499), (215, 33511), (222, 33547),

Gene: GemG\_28 Start: 22596, Stop: 24848, Start Num: 23

Candidate Starts for GemG\_28:

(18, 22563), (Start: 23 @22596 has 15 MA's), (41, 22695), (47, 22731), (53, 22812), (55, 22836), (70, 22962), (103, 23484), (110, 23574), (117, 23616), (122, 23652), (140, 23754), (141, 23760), (143, 23793), (148, 23820), (149, 23829), (166, 23970), (199, 24204), (208, 24276), (220, 24336), (222, 24354), (234, 24495), (236, 24501), (239, 24516), (241, 24531), (257, 24633), (260, 24660), (267, 24738), (268, 24744),

Gene: Gezellig\_36 Start: 30596, Stop: 32860, Start Num: 22

Candidate Starts for Gezellig\_36:

(Start: 22 @30596 has 58 MA's), (41, 30698), (43, 30704), (45, 30707), (53, 30812), (55, 30836), (65, 30935), (66, 30938), (70, 30962), (90, 31349), (106, 31532), (110, 31574), (112, 31589), (127, 31667), (133, 31709), (136, 31730), (143, 31802), (152, 31862), (171, 32012), (185, 32084), (200, 32228), (202, 32249), (222, 32363), (234, 32504), (239, 32525), (241, 32540), (242, 32543), (257, 32642), (264, 32711), (265, 32726), (267, 32750), (268, 32756),

Gene: Gizermo\_28 Start: 22596, Stop: 24848, Start Num: 23

Candidate Starts for Gizermo\_28:

(18, 22563), (Start: 23 @22596 has 15 MA's), (41, 22695), (47, 22731), (53, 22812), (55, 22836), (70, 22962), (103, 23484), (110, 23574), (117, 23616), (122, 23652), (140, 23754), (141, 23760), (143, 23793), (148, 23820), (149, 23829), (166, 23970), (199, 24204), (208, 24276), (220, 24336), (222, 24354), (234, 24495), (236, 24501), (239, 24516), (241, 24531), (257, 24633), (260, 24660), (267, 24738), (268, 24744),

Gene: Haley23\_28 Start: 22596, Stop: 24848, Start Num: 23

Candidate Starts for Haley23\_28:

(18, 22563), (Start: 23 @22596 has 15 MA's), (41, 22695), (47, 22731), (53, 22812), (55, 22836), (70, 22962), (103, 23484), (110, 23574), (117, 23616), (122, 23652), (140, 23754), (141, 23760), (143, 23793), (148, 23820), (149, 23829), (166, 23970), (199, 24204), (208, 24276), (220, 24336), (222, 24354), (234, 24495), (236, 24501), (239, 24516), (241, 24531), (257, 24633), (260, 24660), (267, 24738), (268, 24744),

Gene: Halo3\_36 Start: 30889, Stop: 33153, Start Num: 22

Candidate Starts for Halo3\_36:

(Start: 22 @30889 has 58 MA's), (41, 30991), (43, 30997), (45, 31000), (53, 31105), (55, 31129), (65, 31228), (66, 31231), (70, 31255), (90, 31642), (106, 31825), (110, 31867), (112, 31882), (127, 31960), (133, 32002), (136, 32023), (143, 32095), (152, 32155), (171, 32305), (185, 32377), (200, 32521), (202, 32542), (222, 32656), (234, 32797), (239, 32818), (241, 32833), (242, 32836), (257, 32935), (264, 33004), (265, 33019), (267, 33043), (268, 33049),

Gene: Hans\_40 Start: 33137, Stop: 35362, Start Num: 27

Candidate Starts for Hans\_40:

(13, 32972), (Start: 26 @33131 has 2 MA's), (Start: 27 @33137 has 16 MA's), (36, 33182), (38, 33185), (45, 33224), (64, 33446), (65, 33452), (70, 33479), (84, 33743), (89, 33857), (110, 34091), (117, 34133), (132, 34217), (146, 34319), (147, 34322), (151, 34367), (171, 34520), (209, 34811), (222, 34871), (228, 34955), (231, 34985), (235, 35015), (239, 35033), (255, 35132), (268, 35264), (273, 35312), (275, 35345), (276, 35357),

Gene: Herod\_28 Start: 24789, Stop: 27047, Start Num: 22

Candidate Starts for Herod\_28:

(Start: 22 @24789 has 58 MA's), (Start: 25 @24804 has 8 MA's), (35, 24861), (43, 24900), (50, 24999), (60, 25086), (63, 25119), (68, 25143), (70, 25152), (72, 25176), (103, 25674), (110, 25764), (112, 25779), (119, 25824), (125, 25851), (143, 25992), (148, 26019), (149, 26028), (151, 26049), (171, 26202), (185, 26274), (202, 26439), (222, 26553), (236, 26700), (239, 26715), (257, 26832), (261, 26859), (263, 26880), (265, 26913), (267, 26937), (268, 26943),

Gene: Hugley\_27 Start: 24431, Stop: 27046, Start Num: 4

Candidate Starts for Hugley\_27:

(1, 24281), (3, 24428), (4, 24431), (6, 24563), (15, 24662), (16, 24686), (20, 24767), (21, 24782), (Start: 25 @24803 has 8 MA's), (35, 24860), (43, 24899), (50, 24998), (60, 25085), (63, 25118), (68, 25142), (70, 25151), (72, 25175), (103, 25673), (110, 25763), (112, 25778), (119, 25823), (125, 25850), (143, 25991), (148, 26018), (149, 26027), (151, 26048), (171, 26201), (185, 26273), (202, 26438), (222, 26552), (236, 26699), (239, 26714), (257, 26831), (261, 26858), (263, 26879), (265, 26912), (267, 26936), (268, 26942),

Gene: Hyzer\_31 Start: 25865, Stop: 28147, Start Num: 22

Candidate Starts for Hyzer\_31:

(Start: 22 @25865 has 58 MA's), (Start: 25 @25880 has 8 MA's), (35, 25937), (50, 26075), (53, 26084), (60, 26162), (63, 26195), (65, 26201), (68, 26219), (70, 26228), (72, 26252), (104, 26762), (115, 26900), (117, 26906), (136, 27017), (146, 27098), (202, 27536), (208, 27572), (222, 27650), (233, 27779), (234, 27791), (236, 27797), (239, 27812), (261, 27959), (263, 27980), (267, 28037), (268, 28043), (273, 28094), (274, 28097),

Gene: Inspectinfecti\_39 Start: 33583, Stop: 35808, Start Num: 27

Candidate Starts for Inspectinfecti\_39:

(13, 33418), (Start: 26 @33577 has 2 MA's), (Start: 27 @33583 has 16 MA's), (36, 33628), (38, 33631), (43, 33667), (45, 33670), (64, 33892), (65, 33898), (70, 33925), (84, 34189), (89, 34303), (110, 34537), (117, 34579), (132, 34663), (146, 34765), (147, 34768), (151, 34813), (161, 34891), (171, 34966), (196, 35122), (208, 35239), (209, 35257), (222, 35317), (228, 35401), (231, 35431),

(235, 35461), (239, 35479), (255, 35578), (268, 35710), (273, 35758), (275, 35791), (276, 35803),

Gene: Jambalaya\_35 Start: 30243, Stop: 32507, Start Num: 22

Candidate Starts for Jambalaya\_35:

(Start: 22 @30243 has 58 MA's), (41, 30345), (43, 30351), (45, 30354), (53, 30459), (55, 30483), (65, 30582), (66, 30585), (70, 30609), (90, 30996), (106, 31179), (110, 31221), (112, 31236), (127, 31314), (133, 31356), (136, 31377), (143, 31449), (152, 31509), (171, 31659), (185, 31731), (200, 31875), (202, 31896), (222, 32010), (234, 32151), (239, 32172), (241, 32187), (242, 32190), (257, 32289), (264, 32358), (265, 32373), (267, 32397), (268, 32403),

Gene: Jojo24\_27 Start: 21710, Stop: 23770, Start Num: 22

Candidate Starts for Jojo24\_27:

(19, 21686), (Start: 22 @21710 has 58 MA's), (29, 21746), (43, 21818), (45, 21821), (53, 21926), (70, 22070), (74, 22100), (117, 22535), (144, 22715), (148, 22739), (175, 22937), (209, 23213), (222, 23273), (234, 23414), (236, 23420), (239, 23435), (241, 23450), (242, 23453), (257, 23552), (264, 23621), (268, 23666),

Gene: KimmyK\_37 Start: 31178, Stop: 33442, Start Num: 22

Candidate Starts for KimmyK\_37:

(Start: 22 @31178 has 58 MA's), (41, 31280), (43, 31286), (45, 31289), (53, 31394), (55, 31418), (65, 31517), (66, 31520), (70, 31544), (90, 31931), (106, 32114), (110, 32156), (112, 32171), (127, 32249), (133, 32291), (136, 32312), (143, 32384), (152, 32444), (171, 32594), (185, 32666), (200, 32810), (202, 32831), (222, 32945), (234, 33086), (239, 33107), (241, 33122), (242, 33125), (257, 33224), (264, 33293), (265, 33308), (267, 33332), (268, 33338),

Gene: Kita\_30 Start: 24786, Stop: 27056, Start Num: 22

Candidate Starts for Kita\_30:

(Start: 22 @24786 has 58 MA's), (Start: 25 @24801 has 8 MA's), (35, 24858), (43, 24897), (50, 24996), (60, 25083), (63, 25116), (68, 25140), (70, 25149), (72, 25173), (103, 25680), (110, 25770), (112, 25785), (119, 25830), (125, 25857), (143, 25998), (148, 26025), (149, 26034), (151, 26055), (171, 26208), (185, 26280), (202, 26445), (222, 26559), (236, 26706), (239, 26721), (257, 26838), (264, 26907), (267, 26946), (268, 26952),

Gene: Kwekel\_36 Start: 31469, Stop: 33049, Start Num: 28

Candidate Starts for Kwekel\_36:

(5, 31139), (7, 31238), (14, 31304), (Start: 28 @31469 has 6 MA's), (37, 31511), (51, 31652), (58, 31727), (63, 31769), (68, 31793), (70, 31802), (74, 31832), (83, 32009), (85, 32021), (88, 32099), (93, 32129), (96, 32171), (104, 32243), (127, 32378), (135, 32414), (139, 32432), (145, 32489), (149, 32519), (150, 32522), (155, 32561), (157, 32570), (171, 32669), (184, 32726), (188, 32756), (192, 32786), (204, 32891), (210, 32939), (215, 32951), (217, 32963), (222, 32987),

Gene: Lamberg\_26 Start: 21283, Stop: 23532, Start Num: 22

Candidate Starts for Lamberg\_26:

(Start: 22 @21283 has 58 MA's), (39, 21361), (41, 21385), (43, 21391), (45, 21394), (48, 21424), (52, 21496), (53, 21499), (55, 21523), (70, 21643), (90, 22030), (110, 22255), (144, 22477), (148, 22501), (180, 22729), (202, 22921), (209, 22975), (213, 22993), (234, 23176), (239, 23197), (241, 23212), (257, 23314), (264, 23383), (267, 23422), (268, 23428),

Gene: Leonard\_38 Start: 33219, Stop: 35447, Start Num: 27

Candidate Starts for Leonard\_38:

(13, 33054), (Start: 26 @33213 has 2 MA's), (Start: 27 @33219 has 16 MA's), (36, 33264), (38, 33267), (43, 33303), (45, 33306), (64, 33528), (65, 33534), (67, 33549), (70, 33561), (84, 33825), (89, 33939), (110, 34173), (117, 34218), (121, 34248), (127, 34266), (129, 34287), (132, 34302), (134,

34317), (144, 34398), (148, 34422), (149, 34431), (152, 34455), (171, 34605), (196, 34761), (209, 34896), (222, 34956), (231, 35070), (232, 35076), (239, 35118), (241, 35133), (245, 35157), (255, 35217), (257, 35235), (268, 35349), (272, 35394), (275, 35430), (276, 35442),

Gene: Lilbeanie\_35 Start: 28340, Stop: 30439, Start Num: 22

Candidate Starts for Lilbeanie\_35:

(Start: 22 @28340 has 58 MA's), (31, 28385), (34, 28400), (44, 28448), (69, 28691), (76, 28748), (82, 28832), (87, 28970), (88, 29027), (99, 29141), (100, 29156), (101, 29159), (108, 29231), (111, 29261), (123, 29318), (128, 29342), (131, 29354), (138, 29372), (163, 29570), (176, 29645), (189, 29720), (198, 29795), (205, 29852), (222, 29942), (228, 30026), (229, 30035), (231, 30056), (234, 30083), (239, 30104), (245, 30143), (254, 30197), (257, 30221), (259, 30233), (261, 30251), (263, 30272), (265, 30305), (267, 30329), (268, 30335), (270, 30350), (272, 30383), (275, 30419), (277, 30434),

Gene: LordFarquaad\_28 Start: 22589, Stop: 24844, Start Num: 23

Candidate Starts for LordFarquaad\_28:

(18, 22556), (Start: 23 @22589 has 15 MA's), (30, 22625), (41, 22688), (47, 22724), (49, 22772), (53, 22805), (70, 22955), (103, 23477), (110, 23567), (117, 23609), (122, 23645), (140, 23747), (141, 23753), (143, 23786), (148, 23813), (149, 23822), (151, 23843), (171, 23996), (185, 24068), (186, 24074), (202, 24233), (222, 24347), (236, 24494), (239, 24509), (257, 24626), (264, 24695), (267, 24734), (268, 24740),

Gene: Madeline\_28 Start: 25087, Stop: 27345, Start Num: 22

Candidate Starts for Madeline\_28:

(Start: 22 @25087 has 58 MA's), (Start: 25 @25102 has 8 MA's), (35, 25159), (43, 25198), (50, 25297), (60, 25384), (63, 25417), (68, 25441), (70, 25450), (72, 25474), (103, 25972), (110, 26062), (112, 26077), (119, 26122), (125, 26149), (143, 26290), (148, 26317), (149, 26326), (151, 26347), (171, 26500), (185, 26572), (186, 26578), (192, 26635), (202, 26737), (220, 26833), (222, 26851), (236, 26998), (239, 27013), (257, 27130), (261, 27157), (263, 27178), (264, 27196), (265, 27211), (267, 27235),

Gene: Manasvini\_30 Start: 24786, Stop: 27047, Start Num: 22

Candidate Starts for Manasvini\_30:

(Start: 22 @24786 has 58 MA's), (Start: 25 @24801 has 8 MA's), (35, 24858), (43, 24897), (50, 24996), (60, 25083), (63, 25116), (68, 25140), (70, 25149), (72, 25173), (103, 25671), (110, 25761), (112, 25776), (119, 25821), (125, 25848), (143, 25989), (148, 26016), (149, 26025), (151, 26046), (171, 26199), (185, 26271), (202, 26436), (222, 26550), (236, 26697), (239, 26712), (257, 26829), (264, 26898), (267, 26937), (268, 26943),

Gene: Maridalia\_29 Start: 24786, Stop: 27047, Start Num: 22

Candidate Starts for Maridalia\_29:

(Start: 22 @24786 has 58 MA's), (Start: 25 @24801 has 8 MA's), (35, 24858), (43, 24897), (50, 24996), (60, 25083), (63, 25116), (68, 25140), (70, 25149), (72, 25173), (81, 25266), (103, 25671), (110, 25761), (112, 25776), (119, 25821), (125, 25848), (143, 25989), (148, 26016), (149, 26025), (151, 26046), (171, 26199), (185, 26271), (202, 26436), (222, 26550), (236, 26697), (239, 26712), (257, 26829), (264, 26898), (267, 26937), (268, 26943),

Gene: MelBins\_39 Start: 33368, Stop: 35593, Start Num: 27

Candidate Starts for MelBins\_39:

(13, 33203), (Start: 26 @33362 has 2 MA's), (Start: 27 @33368 has 16 MA's), (36, 33413), (38, 33416), (43, 33452), (45, 33455), (64, 33677), (65, 33683), (70, 33710), (84, 33974), (89, 34088), (110, 34322), (117, 34364), (132, 34448), (134, 34463), (146, 34550), (147, 34553), (151, 34598), (171, 34751), (196, 34907), (208, 35024), (209, 35042), (222, 35102), (228, 35186), (231, 35216), (235, 35246), (239, 35264), (255, 35363), (268, 35495), (273, 35543), (275, 35576), (276, 35588),



Gene: Mocha12\_28 Start: 22596, Stop: 24848, Start Num: 23

Candidate Starts for Mocha12\_28:

(18, 22563), (Start: 23 @22596 has 15 MA's), (41, 22695), (47, 22731), (53, 22812), (55, 22836), (70, 22962), (103, 23484), (110, 23574), (117, 23616), (122, 23652), (140, 23754), (141, 23760), (143, 23793), (148, 23820), (149, 23829), (166, 23970), (199, 24204), (208, 24276), (220, 24336), (222, 24354), (234, 24495), (236, 24501), (239, 24516), (241, 24531), (257, 24633), (260, 24660), (267, 24738), (268, 24744),

Gene: Natkenzie\_40 Start: 34761, Stop: 36998, Start Num: 27

Candidate Starts for Natkenzie\_40:

(13, 34596), (Start: 26 @34755 has 2 MA's), (Start: 27 @34761 has 16 MA's), (36, 34806), (42, 34839), (43, 34845), (45, 34848), (52, 34950), (53, 34953), (54, 34968), (59, 35025), (70, 35103), (72, 35127), (74, 35133), (109, 35706), (110, 35715), (114, 35760), (121, 35793), (131, 35838), (133, 35853), (136, 35874), (140, 35907), (148, 35973), (152, 36006), (193, 36294), (196, 36312), (208, 36429), (209, 36447), (231, 36621), (239, 36669), (241, 36684), (245, 36708), (255, 36768), (257, 36786), (263, 36837), (268, 36900), (276, 36993),

Gene: Neobush\_30 Start: 24786, Stop: 27047, Start Num: 22

Candidate Starts for Neobush\_30:

(Start: 22 @24786 has 58 MA's), (Start: 25 @24801 has 8 MA's), (35, 24858), (43, 24897), (50, 24996), (60, 25083), (63, 25116), (68, 25140), (70, 25149), (72, 25173), (103, 25671), (110, 25761), (112, 25776), (119, 25821), (125, 25848), (143, 25989), (148, 26016), (149, 26025), (151, 26046), (171, 26199), (185, 26271), (202, 26436), (222, 26550), (236, 26697), (239, 26712), (257, 26829), (264, 26898), (267, 26937), (268, 26943),

Gene: Nettuno\_26 Start: 21283, Stop: 23532, Start Num: 22

Candidate Starts for Nettuno\_26:

(Start: 22 @21283 has 58 MA's), (39, 21361), (41, 21385), (43, 21391), (45, 21394), (48, 21424), (52, 21496), (53, 21499), (55, 21523), (70, 21643), (90, 22030), (110, 22255), (144, 22477), (148, 22501), (180, 22729), (202, 22921), (209, 22975), (213, 22993), (234, 23176), (239, 23197), (241, 23212), (257, 23314), (264, 23383), (267, 23422), (268, 23428),

Gene: Nymphadora\_28 Start: 24789, Stop: 27047, Start Num: 22

Candidate Starts for Nymphadora\_28:

(Start: 22 @24789 has 58 MA's), (Start: 25 @24804 has 8 MA's), (35, 24861), (43, 24900), (50, 24999), (60, 25086), (63, 25119), (68, 25143), (70, 25152), (72, 25176), (103, 25674), (110, 25764), (112, 25779), (119, 25824), (125, 25851), (143, 25992), (148, 26019), (149, 26028), (151, 26049), (171, 26202), (185, 26274), (202, 26439), (222, 26553), (236, 26700), (239, 26715), (257, 26832), (261, 26859), (263, 26880), (265, 26913), (267, 26937), (268, 26943),

Gene: Ohgeesy\_28 Start: 24412, Stop: 26673, Start Num: 22

Candidate Starts for Ohgeesy\_28:

(Start: 22 @24412 has 58 MA's), (Start: 25 @24427 has 8 MA's), (35, 24484), (43, 24523), (50, 24622), (60, 24709), (63, 24742), (68, 24766), (70, 24775), (72, 24799), (103, 25297), (110, 25387), (112, 25402), (119, 25447), (125, 25474), (143, 25615), (148, 25642), (149, 25651), (151, 25672), (153, 25678), (162, 25750), (171, 25825), (185, 25897), (186, 25903), (202, 26062), (208, 26098), (220, 26158), (222, 26176), (234, 26317), (236, 26323), (239, 26338), (241, 26353), (257, 26455), (264, 26524), (267, 26563), (268, 26569),

Gene: PCoral7\_32 Start: 25556, Stop: 27817, Start Num: 22

Candidate Starts for PCoral7\_32:

(2, 25139), (11, 25397), (Start: 22 @25556 has 58 MA's), (51, 25781), (56, 25823), (70, 25931), (72, 25955), (103, 26453), (110, 26543), (117, 26585), (122, 26621), (140, 26723), (141, 26729), (143, 26762), (148, 26789), (149, 26798), (163, 26909), (166, 26939), (202, 27209), (208, 27245), (222, 27323), (228, 27407), (231, 27437), (239, 27485), (245, 27524), (257, 27602), (261, 27632), (263, 27653), (264, 27671), (276, 27812),

Gene: PantheRoc\_29 Start: 23984, Stop: 26245, Start Num: 22

Candidate Starts for PantheRoc\_29:

(Start: 22 @23984 has 58 MA's), (Start: 25 @23999 has 8 MA's), (35, 24056), (43, 24095), (50, 24194), (60, 24281), (63, 24314), (68, 24338), (70, 24347), (72, 24371), (103, 24869), (110, 24959), (112, 24974), (119, 25019), (125, 25046), (143, 25187), (148, 25214), (149, 25223), (151, 25244), (171, 25397), (185, 25469), (186, 25475), (202, 25634), (222, 25748), (236, 25895), (239, 25910), (257, 26027), (264, 26096), (267, 26135), (268, 26141),

Gene: Phauci\_31 Start: 29808, Stop: 32033, Start Num: 27

Candidate Starts for Phauci\_31:

(13, 29643), (Start: 26 @29802 has 2 MA's), (Start: 27 @29808 has 16 MA's), (36, 29853), (38, 29856), (43, 29892), (45, 29895), (64, 30117), (65, 30123), (70, 30150), (84, 30414), (89, 30528), (110, 30762), (117, 30804), (132, 30888), (146, 30990), (147, 30993), (151, 31038), (161, 31116), (171, 31191), (196, 31347), (208, 31464), (209, 31482), (222, 31542), (228, 31626), (231, 31656), (235, 31686), (239, 31704), (255, 31803), (268, 31935), (273, 31983), (275, 32016), (276, 32028),

Gene: Phinally\_38 Start: 33216, Stop: 35444, Start Num: 27

Candidate Starts for Phinally\_38:

(13, 33051), (Start: 26 @33210 has 2 MA's), (Start: 27 @33216 has 16 MA's), (36, 33261), (38, 33264), (43, 33300), (45, 33303), (64, 33525), (65, 33531), (67, 33546), (70, 33558), (84, 33822), (89, 33936), (110, 34170), (117, 34215), (121, 34245), (127, 34263), (129, 34284), (132, 34299), (134, 34314), (144, 34395), (148, 34419), (149, 34428), (152, 34452), (171, 34602), (196, 34758), (209, 34893), (222, 34953), (231, 35067), (232, 35073), (239, 35115), (241, 35130), (245, 35154), (255, 35214), (257, 35232), (268, 35346), (272, 35391), (275, 35427), (276, 35439),

Gene: Phlop\_35 Start: 30548, Stop: 32812, Start Num: 22

Candidate Starts for Phlop\_35:

(Start: 22 @30548 has 58 MA's), (41, 30650), (43, 30656), (45, 30659), (53, 30764), (55, 30788), (65, 30887), (66, 30890), (70, 30914), (90, 31301), (106, 31484), (110, 31526), (112, 31541), (127, 31619), (133, 31661), (136, 31682), (143, 31754), (152, 31814), (171, 31964), (185, 32036), (200, 32180), (202, 32201), (222, 32315), (234, 32456), (239, 32477), (241, 32492), (242, 32495), (257, 32594), (264, 32663), (265, 32678), (267, 32702), (268, 32708),

Gene: PinkCoffee\_38 Start: 30649, Stop: 32916, Start Num: 22

Candidate Starts for PinkCoffee\_38:

(Start: 22 @30649 has 58 MA's), (41, 30754), (43, 30760), (45, 30763), (52, 30865), (53, 30868), (55, 30892), (65, 30991), (66, 30994), (70, 31018), (90, 31405), (106, 31588), (110, 31630), (112, 31645), (127, 31723), (133, 31765), (136, 31786), (143, 31858), (152, 31918), (171, 32068), (185, 32140), (200, 32284), (202, 32305), (222, 32419), (239, 32581), (241, 32596), (242, 32599), (257, 32698), (264, 32767), (265, 32782), (267, 32806), (268, 32812),

Gene: Polly\_27 Start: 24244, Stop: 26490, Start Num: 25

Candidate Starts for Polly\_27:

(Start: 22 @24229 has 58 MA's), (Start: 25 @24244 has 8 MA's), (35, 24301), (43, 24340), (50, 24439), (60, 24526), (63, 24559), (68, 24583), (70, 24592), (72, 24616), (103, 25114), (110, 25204), (112, 25219), (119, 25264), (125, 25291), (143, 25432), (148, 25459), (149, 25468), (151, 25489), (171, 25642), (185, 25714), (202, 25879), (222, 25993), (236, 26140), (239, 26155), (257, 26272),

(264, 26341), (267, 26380), (268, 26386),

Gene: Portcullis\_36 Start: 29961, Stop: 32228, Start Num: 22

Candidate Starts for Portcullis\_36:

(Start: 22 @29961 has 58 MA's), (43, 30072), (45, 30075), (52, 30177), (53, 30180), (55, 30204), (65, 30303), (66, 30306), (70, 30330), (90, 30717), (106, 30900), (110, 30942), (112, 30957), (127, 31035), (133, 31077), (136, 31098), (143, 31170), (152, 31230), (171, 31380), (185, 31452), (200, 31596), (202, 31617), (222, 31731), (239, 31893), (241, 31908), (242, 31911), (257, 32010), (264, 32079), (265, 32094), (267, 32118), (268, 32124), (271, 32142),

Gene: PotPie\_28 Start: 22694, Stop: 24688, Start Num: 26

Candidate Starts for PotPie\_28:

(Start: 26 @22694 has 2 MA's), (37, 22751), (40, 22778), (46, 22796), (52, 22898), (55, 22925), (57, 22949), (64, 23018), (77, 23123), (89, 23396), (91, 23414), (92, 23423), (95, 23468), (97, 23489), (124, 23684), (165, 23957), (168, 23975), (170, 23984), (179, 24029), (181, 24050), (227, 24410), (236, 24485), (238, 24491), (240, 24509), (243, 24530), (247, 24548), (253, 24581), (255, 24593), (258, 24617), (262, 24644), (264, 24677),

Gene: Powerball\_26 Start: 22581, Stop: 24839, Start Num: 22

Candidate Starts for Powerball\_26:

(Start: 22 @22581 has 58 MA's), (41, 22680), (43, 22686), (52, 22791), (53, 22794), (55, 22818), (70, 22938), (72, 22965), (110, 23553), (133, 23682), (142, 23760), (144, 23778), (146, 23784), (148, 23802), (151, 23832), (159, 23886), (169, 23961), (172, 23991), (174, 24003), (185, 24066), (189, 24102), (190, 24117), (200, 24210), (223, 24372), (228, 24429), (231, 24459), (239, 24507), (246, 24555), (252, 24579), (255, 24606), (257, 24624), (258, 24630), (263, 24675), (265, 24708), (267, 24732), (268, 24738), (276, 24831),

Gene: PullumCavea\_35 Start: 30548, Stop: 32812, Start Num: 22

Candidate Starts for PullumCavea\_35:

(Start: 22 @30548 has 58 MA's), (41, 30650), (43, 30656), (45, 30659), (53, 30764), (55, 30788), (65, 30887), (66, 30890), (70, 30914), (90, 31301), (106, 31484), (110, 31526), (112, 31541), (127, 31619), (133, 31661), (136, 31682), (143, 31754), (152, 31814), (171, 31964), (185, 32036), (200, 32180), (202, 32201), (222, 32315), (234, 32456), (239, 32477), (241, 32492), (242, 32495), (257, 32594), (264, 32663), (265, 32678), (267, 32702), (268, 32708),

Gene: Reyja\_28 Start: 21885, Stop: 24134, Start Num: 22

Candidate Starts for Reyja\_28:

(Start: 22 @21885 has 58 MA's), (33, 21933), (39, 21963), (41, 21987), (43, 21993), (45, 21996), (53, 22101), (70, 22245), (74, 22275), (110, 22857), (117, 22899), (118, 22905), (144, 23079), (148, 23103), (175, 23301), (209, 23577), (221, 23631), (222, 23637), (234, 23778), (239, 23799), (257, 23916), (264, 23985), (268, 24030), (275, 24114),

Gene: RoadKill\_34 Start: 31035, Stop: 32612, Start Num: 28

Candidate Starts for RoadKill\_34:

(Start: 28 @31035 has 6 MA's), (Start: 32 @31050 has 1 MA's), (51, 31218), (53, 31224), (58, 31293), (63, 31335), (68, 31359), (70, 31368), (74, 31398), (83, 31575), (88, 31665), (93, 31695), (96, 31737), (105, 31818), (127, 31944), (135, 31980), (139, 31998), (145, 32055), (150, 32085), (155, 32124), (157, 32133), (171, 32232), (184, 32289), (188, 32319), (192, 32349), (204, 32454), (210, 32502), (215, 32514), (217, 32526), (222, 32550),

Gene: RogerDodger\_39 Start: 30790, Stop: 33057, Start Num: 22

Candidate Starts for RogerDodger\_39:

(Start: 22 @30790 has 58 MA's), (43, 30901), (45, 30904), (52, 31006), (53, 31009), (55, 31033), (65, 31132), (66, 31135), (70, 31159), (90, 31546), (106, 31729), (110, 31771), (112, 31786), (127, 31864), (133, 31906), (136, 31927), (143, 31999), (152, 32059), (171, 32209), (185, 32281), (186, 32287), (200, 32425), (202, 32446), (222, 32560), (239, 32722), (241, 32737), (242, 32740), (256, 32833), (257, 32839), (264, 32908), (265, 32923), (267, 32947), (268, 32953),

Gene: Salvador\_35 Start: 30462, Stop: 32726, Start Num: 22

Candidate Starts for Salvador\_35:

(Start: 22 @30462 has 58 MA's), (41, 30564), (43, 30570), (45, 30573), (53, 30678), (55, 30702), (65, 30801), (66, 30804), (70, 30828), (90, 31215), (106, 31398), (110, 31440), (112, 31455), (127, 31533), (133, 31575), (136, 31596), (143, 31668), (152, 31728), (171, 31878), (185, 31950), (200, 32094), (202, 32115), (222, 32229), (234, 32370), (239, 32391), (241, 32406), (242, 32409), (257, 32508), (264, 32577), (265, 32592), (267, 32616), (268, 32622),

Gene: Sampson\_40 Start: 34706, Stop: 36943, Start Num: 27

Candidate Starts for Sampson\_40:

(13, 34541), (Start: 26 @34700 has 2 MA's), (Start: 27 @34706 has 16 MA's), (36, 34751), (42, 34784), (43, 34790), (45, 34793), (52, 34895), (53, 34898), (54, 34913), (59, 34970), (70, 35048), (72, 35072), (74, 35078), (109, 35651), (110, 35660), (114, 35705), (121, 35738), (131, 35783), (133, 35798), (136, 35819), (140, 35852), (148, 35918), (152, 35951), (193, 36239), (196, 36257), (208, 36374), (209, 36392), (231, 36566), (239, 36614), (241, 36629), (245, 36653), (255, 36713), (257, 36731), (263, 36782), (268, 36845), (276, 36938),

Gene: Savage\_28 Start: 22596, Stop: 24848, Start Num: 23

Candidate Starts for Savage\_28:

(18, 22563), (Start: 23 @22596 has 15 MA's), (41, 22695), (47, 22731), (53, 22812), (55, 22836), (70, 22962), (103, 23484), (110, 23574), (117, 23616), (122, 23652), (140, 23754), (141, 23760), (143, 23793), (148, 23820), (149, 23829), (166, 23970), (199, 24204), (208, 24276), (220, 24336), (222, 24354), (234, 24495), (236, 24501), (239, 24516), (241, 24531), (257, 24633), (260, 24660), (267, 24738), (268, 24744),

Gene: Savbucketdawg\_35 Start: 30243, Stop: 32507, Start Num: 22

Candidate Starts for Savbucketdawg\_35:

(Start: 22 @30243 has 58 MA's), (41, 30345), (43, 30351), (45, 30354), (53, 30459), (55, 30483), (65, 30582), (66, 30585), (70, 30609), (90, 30996), (106, 31179), (110, 31221), (112, 31236), (127, 31314), (133, 31356), (136, 31377), (143, 31449), (152, 31509), (171, 31659), (185, 31731), (200, 31875), (202, 31896), (222, 32010), (234, 32151), (239, 32172), (241, 32187), (242, 32190), (257, 32289), (264, 32358), (265, 32373), (267, 32397), (268, 32403),

Gene: Scioto\_40 Start: 34761, Stop: 36584, Start Num: 27

Candidate Starts for Scioto\_40:

(13, 34596), (Start: 26 @34755 has 2 MA's), (Start: 27 @34761 has 16 MA's), (36, 34806), (42, 34839), (43, 34845), (45, 34848), (52, 34950), (53, 34953), (54, 34968), (59, 35025), (70, 35103), (72, 35127), (74, 35133), (109, 35706), (110, 35715), (114, 35760), (121, 35793), (131, 35838), (133, 35853), (136, 35874), (140, 35907), (148, 35973), (152, 36006), (193, 36294), (196, 36312), (208, 36429), (209, 36447),

Gene: Shinji\_36 Start: 29902, Stop: 32169, Start Num: 22

Candidate Starts for Shinji\_36:

(Start: 22 @29902 has 58 MA's), (43, 30013), (45, 30016), (52, 30118), (53, 30121), (55, 30145), (65, 30244), (66, 30247), (70, 30271), (90, 30658), (110, 30883), (112, 30898), (127, 30976), (133, 31018), (136, 31039), (152, 31171), (171, 31321), (196, 31477), (208, 31594), (222, 31672), (234, 31813), (239, 31834), (241, 31849), (242, 31852), (257, 31951), (258, 31957), (264, 32020), (265, 32035),

(267, 32059), (268, 32065),

Gene: Sidious\_30 Start: 25196, Stop: 27475, Start Num: 22

Candidate Starts for Sidious\_30:

(Start: 22 @25196 has 58 MA's), (Start: 25 @25211 has 8 MA's), (35, 25268), (60, 25493), (63, 25526), (65, 25532), (68, 25550), (70, 25559), (72, 25583), (104, 26093), (115, 26231), (116, 26234), (117, 26237), (136, 26348), (146, 26429), (202, 26867), (208, 26903), (222, 26981), (234, 27122), (236, 27128), (239, 27143), (257, 27260), (261, 27287), (265, 27341), (267, 27365), (268, 27371), (269, 27383), (273, 27422),

Gene: SmokingBunny\_35 Start: 30453, Stop: 32717, Start Num: 22

Candidate Starts for SmokingBunny\_35:

(Start: 22 @30453 has 58 MA's), (41, 30555), (43, 30561), (45, 30564), (53, 30669), (55, 30693), (65, 30792), (66, 30795), (70, 30819), (90, 31206), (106, 31389), (110, 31431), (112, 31446), (127, 31524), (133, 31566), (136, 31587), (143, 31659), (152, 31719), (171, 31869), (185, 31941), (200, 32085), (202, 32106), (222, 32220), (234, 32361), (239, 32382), (241, 32397), (242, 32400), (257, 32499), (264, 32568), (265, 32583), (267, 32607), (268, 32613),

Gene: SoilAssassin\_28 Start: 22589, Stop: 24844, Start Num: 23

Candidate Starts for SoilAssassin\_28:

(18, 22556), (Start: 23 @22589 has 15 MA's), (30, 22625), (41, 22688), (47, 22724), (49, 22772), (53, 22805), (70, 22955), (103, 23477), (110, 23567), (117, 23609), (122, 23645), (140, 23747), (141, 23753), (143, 23786), (148, 23813), (149, 23822), (151, 23843), (171, 23996), (185, 24068), (186, 24074), (202, 24233), (222, 24347), (236, 24494), (239, 24509), (257, 24626), (264, 24695), (267, 24734), (268, 24740),

Gene: Sproutie\_28 Start: 22596, Stop: 24848, Start Num: 23

Candidate Starts for Sproutie\_28:

(18, 22563), (Start: 23 @22596 has 15 MA's), (41, 22695), (47, 22731), (53, 22812), (55, 22836), (70, 22962), (103, 23484), (110, 23574), (117, 23616), (122, 23652), (140, 23754), (141, 23760), (143, 23793), (148, 23820), (149, 23829), (166, 23970), (199, 24204), (208, 24276), (220, 24336), (222, 24354), (234, 24495), (236, 24501), (239, 24516), (241, 24531), (257, 24633), (260, 24660), (267, 24738), (268, 24744),

Gene: Suscepit\_30 Start: 24802, Stop: 27048, Start Num: 25

Candidate Starts for Suscepit\_30:

(17, 24721), (Start: 25 @24802 has 8 MA's), (35, 24859), (43, 24898), (50, 24997), (60, 25084), (63, 25117), (68, 25141), (70, 25150), (72, 25174), (103, 25672), (110, 25762), (112, 25777), (119, 25822), (125, 25849), (143, 25990), (148, 26017), (149, 26026), (151, 26047), (171, 26200), (185, 26272), (202, 26437), (222, 26551), (236, 26698), (239, 26713), (257, 26830), (264, 26899), (267, 26938), (268, 26944),

Gene: Tardus\_41 Start: 34125, Stop: 36353, Start Num: 27

Candidate Starts for Tardus\_41:

(13, 33960), (Start: 26 @34119 has 2 MA's), (Start: 27 @34125 has 16 MA's), (36, 34170), (42, 34203), (43, 34209), (45, 34212), (52, 34314), (53, 34317), (54, 34332), (59, 34389), (62, 34422), (70, 34467), (72, 34491), (74, 34497), (110, 35079), (117, 35124), (121, 35154), (127, 35172), (129, 35193), (132, 35208), (144, 35304), (148, 35328), (149, 35337), (152, 35361), (171, 35511), (196, 35667), (209, 35802), (222, 35862), (231, 35976), (232, 35982), (239, 36024), (241, 36039), (245, 36063), (255, 36123), (257, 36141), (268, 36255), (275, 36336), (276, 36348),

Gene: Tayonia\_30 Start: 24801, Stop: 27047, Start Num: 25

Candidate Starts for Tayonia\_30:

(Start: 22 @24786 has 58 MA's), (Start: 25 @24801 has 8 MA's), (35, 24858), (43, 24897), (50, 24996), (60, 25083), (63, 25116), (68, 25140), (70, 25149), (72, 25173), (103, 25671), (110, 25761), (112, 25776), (119, 25821), (125, 25848), (143, 25989), (148, 26016), (149, 26025), (151, 26046), (171, 26199), (185, 26271), (202, 26436), (222, 26550), (236, 26697), (239, 26712), (257, 26829), (264, 26898), (267, 26937), (268, 26943),

Gene: ThankyouJordi\_27 Start: 24782, Stop: 26872, Start Num: 25

Candidate Starts for ThankyouJordi\_27:

(Start: 22 @24767 has 58 MA's), (Start: 25 @24782 has 8 MA's), (35, 24839), (50, 24977), (60, 25064), (63, 25097), (68, 25121), (70, 25130), (72, 25154), (90, 25370), (106, 25553), (110, 25595), (133, 25721), (144, 25817), (148, 25841), (166, 25991), (208, 26297), (222, 26375), (236, 26522), (239, 26537), (241, 26552), (244, 26570), (257, 26654), (261, 26684), (263, 26705), (266, 26747), (267, 26762), (268, 26768), (269, 26780), (273, 26819), (274, 26822), (276, 26864),

Gene: Tiamoceli\_37 Start: 32383, Stop: 33945, Start Num: 32

Candidate Starts for Tiamoceli\_37:

(Start: 28 @32368 has 6 MA's), (Start: 32 @32383 has 1 MA's), (51, 32551), (53, 32557), (58, 32626), (63, 32668), (68, 32692), (70, 32701), (74, 32731), (83, 32908), (88, 32998), (93, 33028), (96, 33070), (104, 33142), (105, 33151), (127, 33277), (135, 33313), (139, 33331), (145, 33388), (150, 33418), (155, 33457), (157, 33466), (171, 33565), (184, 33622), (188, 33652), (192, 33682), (204, 33787), (210, 33835), (215, 33847), (217, 33859), (222, 33883),

Gene: TillyBobJoe\_35 Start: 30257, Stop: 32521, Start Num: 22

Candidate Starts for TillyBobJoe\_35:

(Start: 22 @30257 has 58 MA's), (41, 30359), (43, 30365), (45, 30368), (53, 30473), (55, 30497), (65, 30596), (66, 30599), (70, 30623), (90, 31010), (106, 31193), (110, 31235), (112, 31250), (127, 31328), (133, 31370), (136, 31391), (143, 31463), (152, 31523), (171, 31673), (185, 31745), (186, 31751), (200, 31889), (202, 31910), (222, 32024), (234, 32165), (239, 32186), (241, 32201), (257, 32303), (264, 32372), (265, 32387), (267, 32411), (268, 32417),

Gene: TimTam\_28 Start: 24789, Stop: 27047, Start Num: 22

Candidate Starts for TimTam\_28:

(Start: 22 @24789 has 58 MA's), (Start: 25 @24804 has 8 MA's), (35, 24861), (43, 24900), (50, 24999), (60, 25086), (63, 25119), (68, 25143), (70, 25152), (72, 25176), (103, 25674), (110, 25764), (112, 25779), (119, 25824), (125, 25851), (143, 25992), (148, 26019), (149, 26028), (151, 26049), (171, 26202), (185, 26274), (202, 26439), (222, 26553), (236, 26700), (239, 26715), (257, 26832), (261, 26859), (263, 26880), (265, 26913), (267, 26937), (268, 26943),

Gene: Toast\_32 Start: 25556, Stop: 27817, Start Num: 22

Candidate Starts for Toast\_32:

(2, 25139), (11, 25397), (Start: 22 @25556 has 58 MA's), (51, 25781), (56, 25823), (70, 25931), (72, 25955), (103, 26453), (110, 26543), (117, 26585), (122, 26621), (140, 26723), (141, 26729), (143, 26762), (148, 26789), (149, 26798), (163, 26909), (166, 26939), (202, 27209), (208, 27245), (222, 27323), (228, 27407), (231, 27437), (239, 27485), (245, 27524), (257, 27602), (261, 27632), (263, 27653), (264, 27671), (276, 27812),

Gene: Togo\_35 Start: 30453, Stop: 32717, Start Num: 22

Candidate Starts for Togo\_35:

(Start: 22 @30453 has 58 MA's), (41, 30555), (43, 30561), (45, 30564), (53, 30669), (55, 30693), (65, 30792), (66, 30795), (70, 30819), (90, 31206), (106, 31389), (110, 31431), (112, 31446), (127, 31524), (133, 31566), (136, 31587), (143, 31659), (152, 31719), (171, 31869), (185, 31941), (200, 32085), (202, 32106), (222, 32220), (234, 32361), (239, 32382), (241, 32397), (242, 32400), (257, 32499), (264, 32568), (265, 32583), (267, 32607), (268, 32613),

Gene: Trumpet\_30 Start: 24787, Stop: 27048, Start Num: 22

Candidate Starts for Trumpet\_30:

(Start: 22 @24787 has 58 MA's), (Start: 25 @24802 has 8 MA's), (35, 24859), (43, 24898), (50, 24997), (60, 25084), (63, 25117), (68, 25141), (70, 25150), (72, 25174), (103, 25672), (110, 25762), (112, 25777), (119, 25822), (125, 25849), (143, 25990), (148, 26017), (149, 26026), (151, 26047), (171, 26200), (185, 26272), (202, 26437), (222, 26551), (236, 26698), (239, 26713), (257, 26830), (264, 26899), (267, 26938), (268, 26944),

Gene: TuertoX\_28 Start: 22596, Stop: 24848, Start Num: 23

Candidate Starts for TuertoX\_28:

(18, 22563), (Start: 23 @22596 has 15 MA's), (41, 22695), (47, 22731), (53, 22812), (55, 22836), (70, 22962), (103, 23484), (110, 23574), (117, 23616), (122, 23652), (140, 23754), (141, 23760), (143, 23793), (148, 23820), (149, 23829), (166, 23970), (199, 24204), (208, 24276), (220, 24336), (222, 24354), (234, 24495), (236, 24501), (239, 24516), (241, 24531), (257, 24633), (260, 24660), (267, 24738), (268, 24744),

Gene: Twister6\_38 Start: 30353, Stop: 32620, Start Num: 22

Candidate Starts for Twister6\_38:

(Start: 22 @30353 has 58 MA's), (43, 30464), (45, 30467), (52, 30569), (53, 30572), (55, 30596), (65, 30695), (66, 30698), (70, 30722), (90, 31109), (106, 31292), (110, 31334), (112, 31349), (127, 31427), (133, 31469), (136, 31490), (143, 31562), (152, 31622), (171, 31772), (185, 31844), (200, 31988), (202, 32009), (222, 32123), (239, 32285), (241, 32300), (242, 32303), (257, 32402), (264, 32471), (265, 32486), (267, 32510), (268, 32516), (271, 32534),

Gene: Twonlo\_34 Start: 30986, Stop: 32563, Start Num: 28

Candidate Starts for Twonlo\_34:

(Start: 28 @30986 has 6 MA's), (Start: 32 @31001 has 1 MA's), (51, 31169), (53, 31175), (58, 31244), (63, 31286), (68, 31310), (70, 31319), (74, 31349), (83, 31526), (88, 31616), (93, 31646), (96, 31688), (105, 31769), (127, 31895), (135, 31931), (139, 31949), (145, 32006), (150, 32036), (155, 32075), (157, 32084), (171, 32183), (184, 32240), (188, 32270), (192, 32300), (204, 32405), (210, 32453), (215, 32465), (217, 32477), (222, 32501),

Gene: Valary\_38 Start: 31398, Stop: 33662, Start Num: 22

Candidate Starts for Valary\_38:

(Start: 22 @31398 has 58 MA's), (41, 31500), (43, 31506), (45, 31509), (53, 31614), (55, 31638), (65, 31737), (66, 31740), (70, 31764), (90, 32151), (106, 32334), (110, 32376), (112, 32391), (127, 32469), (133, 32511), (136, 32532), (143, 32604), (152, 32664), (171, 32814), (185, 32886), (186, 32892), (200, 33030), (202, 33051), (222, 33165), (239, 33327), (241, 33342), (242, 33345), (256, 33438), (257, 33444), (264, 33513), (265, 33528), (267, 33552), (268, 33558),

Gene: VanDeWege\_39 Start: 30687, Stop: 32954, Start Num: 22

Candidate Starts for VanDeWege\_39:

(Start: 22 @30687 has 58 MA's), (41, 30792), (43, 30798), (45, 30801), (52, 30903), (53, 30906), (55, 30930), (65, 31029), (66, 31032), (70, 31056), (90, 31443), (106, 31626), (110, 31668), (112, 31683), (127, 31761), (133, 31803), (136, 31824), (143, 31896), (152, 31956), (171, 32106), (185, 32178), (200, 32322), (202, 32343), (222, 32457), (234, 32598), (239, 32619), (241, 32634), (242, 32637), (257, 32736), (264, 32805), (265, 32820), (267, 32844), (268, 32850),

Gene: VanLee\_25 Start: 21022, Stop: 22797, Start Num: 22

Candidate Starts for VanLee\_25:

(Start: 22 @21022 has 58 MA's), (39, 21094), (53, 21229), (70, 21373), (71, 21388), (75, 21412), (78, 21457), (85, 21613), (88, 21691), (94, 21754), (120, 21955), (130, 22006), (137, 22024), (158, 22195),

(163, 22225), (176, 22300), (183, 22333), (189, 22375), (198, 22450), (204, 22495), (216, 22549),  
(224, 22615), (227, 22648), (248, 22777), (249, 22786), (250, 22789),

Gene: Verity\_39 Start: 34948, Stop: 37185, Start Num: 27

Candidate Starts for Verity\_39:

(13, 34783), (Start: 26 @34942 has 2 MA's), (Start: 27 @34948 has 16 MA's), (36, 34993), (42, 35026), (43, 35032), (45, 35035), (52, 35137), (53, 35140), (54, 35155), (59, 35212), (70, 35290), (72, 35314), (74, 35320), (109, 35893), (110, 35902), (114, 35947), (121, 35980), (131, 36025), (133, 36040), (136, 36061), (140, 36094), (148, 36160), (152, 36193), (193, 36481), (196, 36499), (208, 36616), (209, 36634), (231, 36808), (239, 36856), (241, 36871), (245, 36895), (255, 36955), (257, 36973), (268, 37087), (275, 37168), (276, 37180),

Gene: ViaConlectus\_40 Start: 33397, Stop: 35634, Start Num: 27

Candidate Starts for ViaConlectus\_40:

(13, 33232), (Start: 26 @33391 has 2 MA's), (Start: 27 @33397 has 16 MA's), (36, 33442), (42, 33475), (43, 33481), (45, 33484), (52, 33586), (53, 33589), (54, 33604), (59, 33661), (70, 33739), (72, 33763), (74, 33769), (109, 34342), (110, 34351), (114, 34396), (121, 34429), (131, 34474), (133, 34489), (136, 34510), (140, 34543), (148, 34609), (152, 34642), (171, 34792), (196, 34948), (209, 35083), (231, 35257), (239, 35305), (241, 35320), (245, 35344), (255, 35404), (257, 35422), (268, 35536), (276, 35629),

Gene: WelcomeAyanna\_27 Start: 24767, Stop: 27019, Start Num: 22

Candidate Starts for WelcomeAyanna\_27:

(Start: 22 @24767 has 58 MA's), (Start: 25 @24782 has 8 MA's), (35, 24839), (50, 24977), (60, 25064), (63, 25097), (68, 25121), (70, 25130), (72, 25154), (90, 25517), (106, 25700), (110, 25742), (133, 25868), (144, 25964), (148, 25988), (166, 26138), (208, 26444), (222, 26522), (236, 26669), (239, 26684), (241, 26699), (244, 26717), (257, 26801), (261, 26831), (263, 26852), (266, 26894), (267, 26909), (268, 26915), (269, 26927), (273, 26966), (274, 26969), (276, 27011),

Gene: Whiteclaw\_28 Start: 22596, Stop: 24848, Start Num: 23

Candidate Starts for Whiteclaw\_28:

(18, 22563), (Start: 23 @22596 has 15 MA's), (41, 22695), (47, 22731), (53, 22812), (55, 22836), (70, 22962), (103, 23484), (110, 23574), (117, 23616), (122, 23652), (140, 23754), (141, 23760), (143, 23793), (148, 23820), (149, 23829), (166, 23970), (199, 24204), (208, 24276), (220, 24336), (222, 24354), (234, 24495), (236, 24501), (239, 24516), (241, 24531), (257, 24633), (260, 24660), (267, 24738), (268, 24744),

Gene: William\_32 Start: 25382, Stop: 27646, Start Num: 22

Candidate Starts for William\_32:

(Start: 22 @25382 has 58 MA's), (39, 25469), (51, 25607), (56, 25649), (70, 25757), (72, 25781), (103, 26279), (110, 26369), (113, 26399), (117, 26411), (127, 26459), (144, 26591), (148, 26615), (174, 26813), (199, 27002), (209, 27092), (222, 27152), (228, 27236), (231, 27266), (234, 27293), (239, 27314), (251, 27383), (257, 27431), (261, 27461), (264, 27500), (276, 27641),

Gene: Wizard\_35 Start: 30596, Stop: 32860, Start Num: 22

Candidate Starts for Wizard\_35:

(Start: 22 @30596 has 58 MA's), (41, 30698), (43, 30704), (45, 30707), (53, 30812), (55, 30836), (65, 30935), (66, 30938), (70, 30962), (90, 31349), (106, 31532), (110, 31574), (112, 31589), (127, 31667), (133, 31709), (136, 31730), (143, 31802), (152, 31862), (171, 32012), (185, 32084), (200, 32228), (202, 32249), (222, 32363), (234, 32504), (239, 32525), (241, 32540), (242, 32543), (257, 32642), (264, 32711), (265, 32726), (267, 32750), (268, 32756),

Gene: Yeet412\_28 Start: 22589, Stop: 24844, Start Num: 23



Candidate Starts for Yeet412\_28:

(18, 22556), (Start: 23 @22589 has 15 MA's), (30, 22625), (41, 22688), (47, 22724), (49, 22772), (53, 22805), (70, 22955), (103, 23477), (110, 23567), (117, 23609), (122, 23645), (140, 23747), (141, 23753), (143, 23786), (148, 23813), (149, 23822), (151, 23843), (171, 23996), (185, 24068), (186, 24074), (202, 24233), (222, 24347), (236, 24494), (239, 24509), (257, 24626), (264, 24695), (267, 24734), (268, 24740),

Gene: Yeezy\_30 Start: 24023, Stop: 26269, Start Num: 25

Candidate Starts for Yeezy\_30:

(Start: 22 @24008 has 58 MA's), (Start: 25 @24023 has 8 MA's), (35, 24080), (43, 24119), (50, 24218), (60, 24305), (63, 24338), (68, 24362), (70, 24371), (72, 24395), (103, 24893), (110, 24983), (112, 24998), (119, 25043), (143, 25211), (148, 25238), (149, 25247), (151, 25268), (171, 25421), (185, 25493), (186, 25499), (202, 25658), (220, 25754), (222, 25772), (236, 25919), (239, 25934), (257, 26051), (264, 26120), (267, 26159), (268, 26165),

Gene: Zameen\_30 Start: 24801, Stop: 27047, Start Num: 25

Candidate Starts for Zameen\_30:

(Start: 22 @24786 has 58 MA's), (Start: 25 @24801 has 8 MA's), (35, 24858), (43, 24897), (50, 24996), (60, 25083), (63, 25116), (68, 25140), (70, 25149), (72, 25173), (103, 25671), (110, 25761), (112, 25776), (119, 25821), (125, 25848), (143, 25989), (148, 26016), (149, 26025), (151, 26046), (171, 26199), (185, 26271), (202, 26436), (222, 26550), (236, 26697), (239, 26712), (257, 26829), (264, 26898), (267, 26937), (268, 26943),

Gene: Zipp\_39 Start: 34851, Stop: 37088, Start Num: 27

Candidate Starts for Zipp\_39:

(Start: 26 @34845 has 2 MA's), (Start: 27 @34851 has 16 MA's), (36, 34896), (42, 34929), (43, 34935), (45, 34938), (52, 35040), (53, 35043), (54, 35058), (59, 35115), (70, 35193), (72, 35217), (74, 35223), (109, 35796), (110, 35805), (114, 35850), (121, 35883), (131, 35928), (133, 35943), (136, 35964), (140, 35997), (148, 36063), (152, 36096), (193, 36384), (196, 36402), (208, 36519), (209, 36537), (231, 36711), (239, 36759), (241, 36774), (245, 36798), (255, 36858), (257, 36876), (263, 36927), (268, 36990), (276, 37083),

Gene: Zirinka\_28 Start: 24801, Stop: 27062, Start Num: 22

Candidate Starts for Zirinka\_28:

(Start: 22 @24801 has 58 MA's), (Start: 25 @24816 has 8 MA's), (35, 24873), (43, 24912), (50, 25011), (60, 25098), (63, 25131), (68, 25155), (70, 25164), (72, 25188), (103, 25686), (110, 25776), (112, 25791), (119, 25836), (125, 25863), (143, 26004), (148, 26031), (149, 26040), (151, 26061), (171, 26214), (185, 26286), (200, 26430), (202, 26451), (220, 26547), (222, 26565), (236, 26712), (239, 26727), (241, 26742), (254, 26820), (257, 26844), (264, 26913), (265, 26928), (267, 26952), (268, 26958),

Gene: Zitch\_41 Start: 32654, Stop: 34882, Start Num: 27

Candidate Starts for Zitch\_41:

(13, 32489), (Start: 26 @32648 has 2 MA's), (Start: 27 @32654 has 16 MA's), (36, 32699), (42, 32732), (43, 32738), (45, 32741), (52, 32843), (53, 32846), (54, 32861), (59, 32918), (62, 32951), (70, 32996), (72, 33020), (74, 33026), (110, 33608), (117, 33653), (127, 33701), (132, 33737), (134, 33752), (144, 33833), (148, 33857), (149, 33866), (152, 33890), (171, 34040), (196, 34196), (209, 34331), (228, 34475), (231, 34505), (239, 34553), (241, 34568), (245, 34592), (255, 34652), (257, 34670), (268, 34784), (272, 34829), (276, 34877),