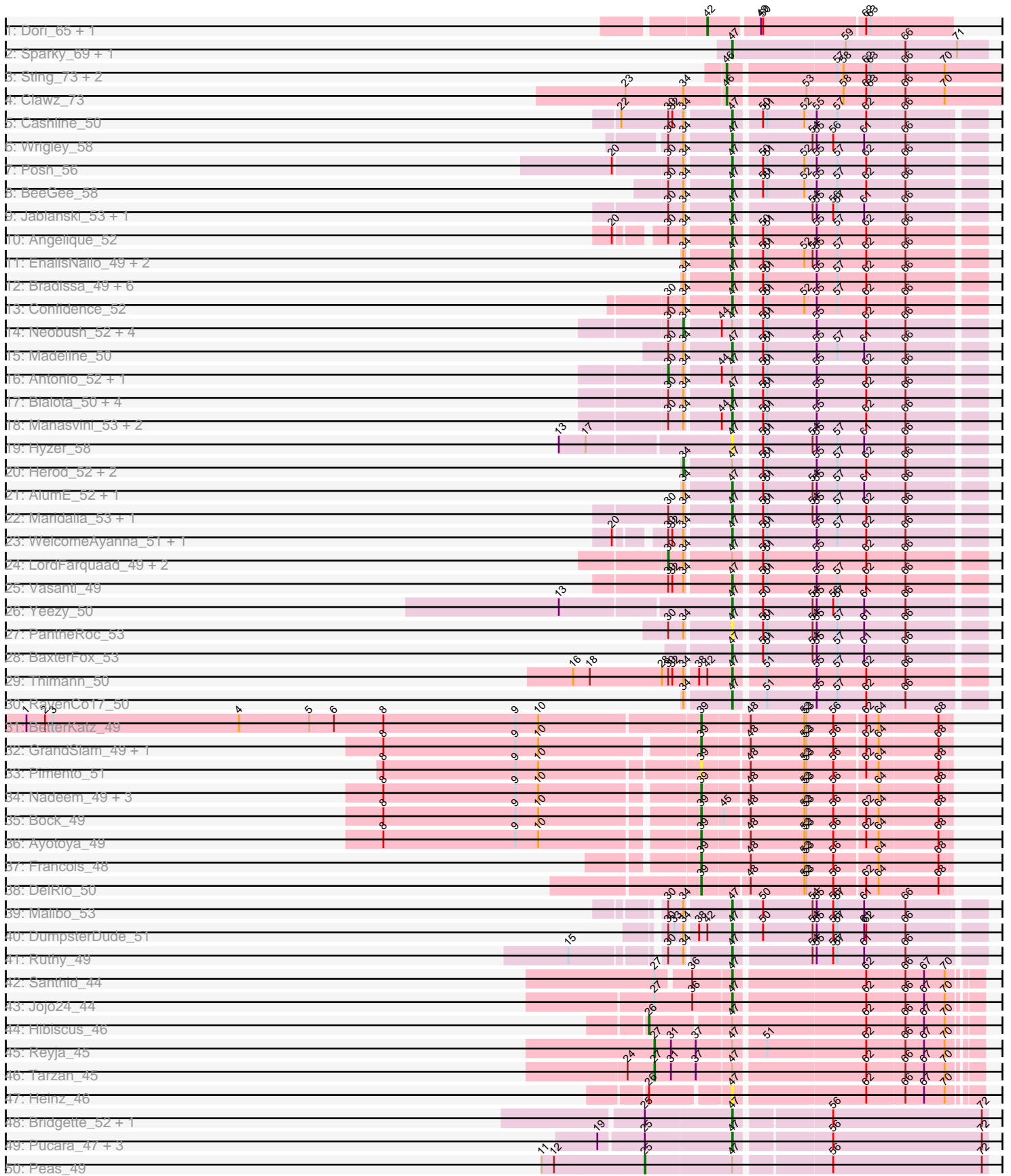
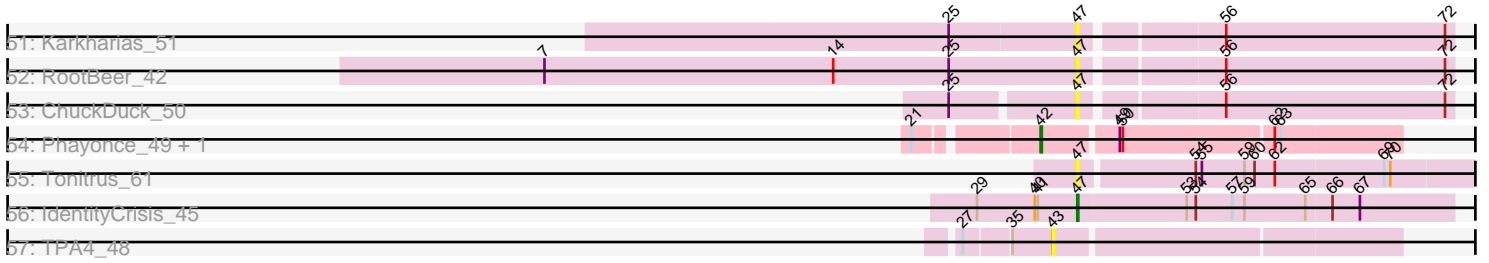


Pham 157761



Pham 157761



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 157761 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157761 has 97 members, 16 are drafts.

Phages represented in each track:

- Track 1 : Dori_65, Mask_65
- Track 2 : Sparky_69, Farewell_71
- Track 3 : Sting_73, DonTron_73, Soos_69
- Track 4 : Clawz_73
- Track 5 : Cashline_50
- Track 6 : Wrigley_58
- Track 7 : Posh_56
- Track 8 : BeeGee_58
- Track 9 : Jablanski_53, Pytheas_53
- Track 10 : Angelique_52
- Track 11 : EnalisNailo_49, Pollux_52, Floral_50
- Track 12 : Bradissa_49, Eviarto_53, Marteenaa_49, Lilas_51, Hugley_49, TimTam_53, EMSquaredA_50
- Track 13 : Confidence_52
- Track 14 : Neobush_52, Suscepit_52, Trumpet_52, Tayonia_52, Zameen_52
- Track 15 : Madeline_50
- Track 16 : Antonio_52, Kita_53
- Track 17 : Bialota_50, Pickett_45, Yeet412_47, Zirinka_49, EdnaMode_46
- Track 18 : Manasvini_53, Eudoria_52, Polly_49
- Track 19 : Hyzer_58
- Track 20 : Herod_52, BatStarr_52, Nymphadora_53
- Track 21 : AlumE_52, BoyNamedSue_52
- Track 22 : Maridalia_53, Bunnybear_45
- Track 23 : WelcomeAyanna_51, ThankyouJordi_51
- Track 24 : LordFarquaad_49, SoilAssassin_47, Attis_47
- Track 25 : Vasanti_49
- Track 26 : Yeezy_50
- Track 27 : PantheRoc_53
- Track 28 : BaxterFox_53
- Track 29 : Thimann_50
- Track 30 : RavenCo17_50
- Track 31 : BetterKatz_49
- Track 32 : GrandSlam_49, Chop_49
- Track 33 : Pimento_51
- Track 34 : Nadeem_49, Mulch_49, Parada_49, Brylie_49
- Track 35 : Bock_49
- Track 36 : Ayotoya_49

- Track 37 : Francois_48
- Track 38 : DelRio_50
- Track 39 : Malibo_53
- Track 40 : DumpsterDude_51
- Track 41 : Ruthy_49
- Track 42 : Santhid_44
- Track 43 : Jojo24_44
- Track 44 : Hibiscus_46
- Track 45 : Reyja_45
- Track 46 : Tarzan_45
- Track 47 : Heinz_46
- Track 48 : Bridgette_52, Constance_50
- Track 49 : Pucara_47, PeggyLeg03_50, Judy_53, GlobiWarming_52
- Track 50 : Peas_49
- Track 51 : Karkharias_51
- Track 52 : RootBeer_42
- Track 53 : ChuckDuck_50
- Track 54 : Phayonce_49, Mao1_69
- Track 55 : Tonitrus_61
- Track 56 : IdentityCrisis_45
- Track 57 : TPA4_48

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

The start number called the most often in the published annotations is 47, it was called in 48 of the 81 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AlumE_52, Angelique_52, BaxterFox_53, BeeGee_58, Bialota_50, BoyNamedSue_52, Bradissa_49, Bridgette_52, Bunnybear_45, Cashline_50, ChuckDuck_50, Confidence_52, Constance_50, DumpsterDude_51, EMSquaredA_50, EdnaMode_46, EnalisNailo_49, Eudoria_52, Eviarto_53, Farewell_71, Floral_50, GlobiWarming_52, Heinz_46, Hugley_49, Hyzer_58, IdentityCrisis_45, Jablanski_53, Jojo24_44, Judy_53, Karkharias_51, Lilas_51, Madeline_50, Malibo_53, Manasvini_53, Maridalia_53, Marteena_49, PantheRoc_53, PeggyLeg03_50, Pickett_45, Pollux_52, Polly_49, Posh_56, Pucara_47, Pytheas_53, RavenCo17_50, RootBeer_42, Ruthy_49, Santhid_44, Sparky_69, ThankyouJordi_51, Thimann_50, TimTam_53, Tonitrus_61, Vasanti_49, WelcomeAyanna_51, Wrigley_58, Yeet412_47, Yeezy_50, Zirinka_49,

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

- Antonio_52, Attis_47, BatStarr_52, Herod_52, Hibiscus_46, Kita_53, LordFarquaad_49, Neobush_52, Nymphadora_53, Peas_49, Reyja_45, SoilAssassin_47, Susceptit_52, Tarzan_45, Tayonia_52, Trumpet_52, Zameen_52,

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

- Ayotoya_49, BetterKatz_49, Bock_49, Brylie_49, Chop_49, Clawz_73, DelRio_50, DonTron_73, Dori_65, Francois_48, GrandSlam_49, Mao1_69, Mask_65, Mulch_49, Nadeem_49, Parada_49, Phayonce_49, Pimento_51, Soos_69, Sting_73, TPA4_48,

Summary by start number:

Start 25:

- Found in 10 of 97 (10.3%) of genes in pham
- Manual Annotations of this start: 1 of 81
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Peas_49 (FA),

Start 26:

- Found in 2 of 97 (2.1%) of genes in pham
- Manual Annotations of this start: 1 of 81
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Hibiscus_46 (DY),

Start 27:

- Found in 5 of 97 (5.2%) of genes in pham
- Manual Annotations of this start: 2 of 81
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Reyja_45 (DY), Tarzan_45 (DY),

Start 30:

- Found in 37 of 97 (38.1%) of genes in pham
- Manual Annotations of this start: 5 of 81
- Called 13.5% of time when present
- Phage (with cluster) where this start called: Antonio_52 (CZ1), Attis_47 (CZ2), Kita_53 (CZ1), LordFarquaad_49 (CZ2), SoilAssassin_47 (CZ2),

Start 34:

- Found in 54 of 97 (55.7%) of genes in pham
- Manual Annotations of this start: 8 of 81
- Called 14.8% of time when present
- Phage (with cluster) where this start called: BatStarr_52 (CZ1), Herod_52 (CZ1), Neobush_52 (CZ1), Nymphadora_53 (CZ1), Suscepit_52 (CZ1), Tayonia_52 (CZ1), Trumpet_52 (CZ1), Zameen_52 (CZ1),

Start 39:

- Found in 12 of 97 (12.4%) of genes in pham
- Manual Annotations of this start: 11 of 81
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ayotoya_49 (DI), BetterKatz_49 (DI), Bock_49 (DI), Brylie_49 (DI), Chop_49 (DI), DelRio_50 (DI), Francois_48 (DI), GrandSlam_49 (DI), Mulch_49 (DI), Nadeem_49 (DI), Parada_49 (DI), Pimento_51 (DI),

Start 42:

- Found in 6 of 97 (6.2%) of genes in pham
- Manual Annotations of this start: 3 of 81
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Dori_65 (AD), Mao1_69 (AD), Mask_65 (AD), Phayonce_49 (P5),

Start 43:

- Found in 1 of 97 (1.0%) of genes in pham

- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TPA4_48 (singleton),

Start 46:

- Found in 4 of 97 (4.1%) of genes in pham
- Manual Annotations of this start: 2 of 81
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Clawz_73 (CP), DonTron_73 (CP), Soos_69 (CP), Sting_73 (CP),

Start 47:

- Found in 76 of 97 (78.4%) of genes in pham
- Manual Annotations of this start: 48 of 81
- Called 77.6% of time when present
- Phage (with cluster) where this start called: AlumE_52 (CZ1), Angelique_52 (CY1), BaxterFox_53 (CZ3), BeeGee_58 (CY), Bialota_50 (CZ1), BoyNamedSue_52 (CZ1), Bradissa_49 (CY1), Bridgette_52 (FA), Bunnybear_45 (CZ), Cashline_50 (CY), ChuckDuck_50 (FA), Confidence_52 (CY1), Constance_50 (FA), DumpsterDude_51 (DW), EMSquaredA_50 (CY1), EdnaMode_46 (CZ2), EnalisNailo_49 (CY1), Eudoria_52 (CZ1), Eviarto_53 (CZ1), Farewell_71 (AF), Floral_50 (CY1), GlobiWarming_52 (FA), Heinz_46 (DY), Hugley_49 (CZ1), Hyzer_58 (CZ1), IdentityCrisis_45 (singleton), Jablanski_53 (CY), Jojo24_44 (DY), Judy_53 (FA), Karkharias_51 (FA), Lilas_51 (CY1), Madeline_50 (CZ1), Malibo_53 (DW), Manasvini_53 (CZ1), Maridalia_53 (CZ1), Marteena_49 (CY1), PantheRoc_53 (CZ3), PeggyLeg03_50 (FA), Pickett_45 (CZ2), Pollux_52 (CY1), Polly_49 (CZ1), Posh_56 (CY), Pucara_47 (FA), Pytheas_53 (CY), RavenCo17_50 (CZ8), RootBeer_42 (FA), Ruthy_49 (DW), Santhid_44 (DY), Sparky_69 (AF), ThankyouJordi_51 (CZ1), Thimann_50 (CZ4), TimTam_53 (CZ1), Tonitrus_61 (singleton), Vasanti_49 (CZ2), WelcomeAyanna_51 (CZ1), Wrigley_58 (CY), Yeet412_47 (CZ2), Yeezy_50 (CZ3), Zirinka_49 (CZ1),

Summary by clusters:

There are 17 clusters represented in this pham: CZ8, AD, DI, CZ2, CZ3, CZ1, CY1, CZ4, FA, CY, AF, DY, CZ, DW, singleton, CP, P5,

Info for manual annotations of cluster AD:

- Start number 42 was manually annotated 2 times for cluster AD.

Info for manual annotations of cluster AF:

- Start number 47 was manually annotated 1 time for cluster AF.

Info for manual annotations of cluster CP:

- Start number 46 was manually annotated 2 times for cluster CP.

Info for manual annotations of cluster CY:

- Start number 47 was manually annotated 6 times for cluster CY.

Info for manual annotations of cluster CY1:

- Start number 47 was manually annotated 9 times for cluster CY1.

Info for manual annotations of cluster CZ:

- Start number 47 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 30 was manually annotated 2 times for cluster CZ1.
- Start number 34 was manually annotated 8 times for cluster CZ1.
- Start number 47 was manually annotated 13 times for cluster CZ1.

Info for manual annotations of cluster CZ2:

- Start number 30 was manually annotated 3 times for cluster CZ2.
- Start number 47 was manually annotated 3 times for cluster CZ2.

Info for manual annotations of cluster CZ3:

- Start number 47 was manually annotated 2 times for cluster CZ3.

Info for manual annotations of cluster CZ4:

- Start number 47 was manually annotated 1 time for cluster CZ4.

Info for manual annotations of cluster CZ8:

- Start number 47 was manually annotated 1 time for cluster CZ8.

Info for manual annotations of cluster DI:

- Start number 39 was manually annotated 11 times for cluster DI.

Info for manual annotations of cluster DW:

- Start number 47 was manually annotated 3 times for cluster DW.

Info for manual annotations of cluster DY:

- Start number 26 was manually annotated 1 time for cluster DY.
- Start number 27 was manually annotated 2 times for cluster DY.
- Start number 47 was manually annotated 2 times for cluster DY.

Info for manual annotations of cluster FA:

- Start number 25 was manually annotated 1 time for cluster FA.
- Start number 47 was manually annotated 5 times for cluster FA.

Info for manual annotations of cluster P5:

- Start number 42 was manually annotated 1 time for cluster P5.

Gene Information:

Gene: AlumE_52 Start: 37713, Stop: 38051, Start Num: 47

Candidate Starts for AlumE_52:

(Start: 34 @37653 has 8 MA's), (Start: 47 @37713 has 48 MA's), (50, 37746), (51, 37752), (54, 37818), (55, 37821), (57, 37851), (61, 37890), (66, 37947),

Gene: Angelique_52 Start: 38928, Stop: 39269, Start Num: 47

Candidate Starts for Angelique_52:

(20, 38796), (Start: 30 @38847 has 5 MA's), (Start: 34 @38868 has 8 MA's), (Start: 47 @38928 has 48 MA's), (50, 38961), (51, 38967), (55, 39036), (57, 39066), (62, 39108), (66, 39162),

Gene: Antonio_52 Start: 36902, Stop: 37324, Start Num: 30

Candidate Starts for Antonio_52:

(Start: 30 @36902 has 5 MA's), (Start: 34 @36923 has 8 MA's), (44, 36968), (Start: 47 @36983 has 48 MA's), (50, 37016), (51, 37022), (55, 37091), (62, 37163), (66, 37217),

Gene: Attis_47 Start: 34035, Stop: 34457, Start Num: 30

Candidate Starts for Attis_47:

(Start: 30 @34035 has 5 MA's), (Start: 34 @34056 has 8 MA's), (Start: 47 @34116 has 48 MA's), (50, 34149), (51, 34155), (55, 34224), (62, 34296), (66, 34350),

Gene: Ayotoya_49 Start: 36009, Stop: 36353, Start Num: 39

Candidate Starts for Ayotoya_49:

(8, 35574), (9, 35766), (10, 35799), (Start: 39 @36009 has 11 MA's), (48, 36072), (52, 36150), (53, 36153), (56, 36192), (62, 36234), (64, 36252), (68, 36336),

Gene: BatStarr_52 Start: 38896, Stop: 39297, Start Num: 34

Candidate Starts for BatStarr_52:

(Start: 34 @38896 has 8 MA's), (Start: 47 @38956 has 48 MA's), (50, 38989), (51, 38995), (55, 39064), (57, 39094), (62, 39136), (66, 39190),

Gene: BaxterFox_53 Start: 38788, Stop: 39126, Start Num: 47

Candidate Starts for BaxterFox_53:

(Start: 47 @38788 has 48 MA's), (50, 38821), (51, 38827), (54, 38893), (55, 38896), (57, 38926), (61, 38965), (66, 39022),

Gene: BeeGee_58 Start: 38868, Stop: 39209, Start Num: 47

Candidate Starts for BeeGee_58:

(Start: 30 @38787 has 5 MA's), (Start: 34 @38808 has 8 MA's), (Start: 47 @38868 has 48 MA's), (50, 38901), (51, 38907), (52, 38961), (55, 38976), (57, 39006), (62, 39048), (66, 39102),

Gene: BetterKatz_49 Start: 35495, Stop: 35839, Start Num: 39

Candidate Starts for BetterKatz_49:

(1, 34529), (2, 34556), (3, 34568), (4, 34838), (5, 34940), (6, 34976), (8, 35048), (9, 35240), (10, 35273), (Start: 39 @35495 has 11 MA's), (48, 35558), (52, 35636), (53, 35639), (56, 35678), (62, 35720), (64, 35738), (68, 35822),

Gene: Bialota_50 Start: 37615, Stop: 37956, Start Num: 47

Candidate Starts for Bialota_50:

(Start: 30 @37534 has 5 MA's), (Start: 34 @37555 has 8 MA's), (Start: 47 @37615 has 48 MA's), (50, 37648), (51, 37654), (55, 37723), (62, 37795), (66, 37849),

Gene: Bock_49 Start: 35232, Stop: 35576, Start Num: 39

Candidate Starts for Bock_49:

(8, 34797), (9, 34989), (10, 35022), (Start: 39 @35232 has 11 MA's), (45, 35262), (48, 35295), (52, 35373), (53, 35376), (56, 35415), (62, 35457), (64, 35475), (68, 35559),

Gene: BoyNamedSue_52 Start: 37713, Stop: 38051, Start Num: 47

Candidate Starts for BoyNamedSue_52:

(Start: 34 @37653 has 8 MA's), (Start: 47 @37713 has 48 MA's), (50, 37746), (51, 37752), (54, 37818), (55, 37821), (57, 37851), (61, 37890), (66, 37947),

Gene: Bradissa_49 Start: 38078, Stop: 38419, Start Num: 47

Candidate Starts for Bradissa_49:

(Start: 34 @38018 has 8 MA's), (Start: 47 @38078 has 48 MA's), (50, 38111), (51, 38117), (55, 38186), (57, 38216), (62, 38258), (66, 38312),

Gene: Bridgette_52 Start: 33338, Stop: 33688, Start Num: 47

Candidate Starts for Bridgette_52:

(Start: 25 @33215 has 1 MA's), (Start: 47 @33338 has 48 MA's), (56, 33464), (72, 33680),

Gene: Brylie_49 Start: 35279, Stop: 35623, Start Num: 39

Candidate Starts for Brylie_49:

(8, 34844), (9, 35036), (10, 35069), (Start: 39 @35279 has 11 MA's), (48, 35342), (52, 35420), (53, 35423), (56, 35462), (64, 35522), (68, 35606),

Gene: Bunnybear_45 Start: 35410, Stop: 35751, Start Num: 47

Candidate Starts for Bunnybear_45:

(Start: 30 @35329 has 5 MA's), (Start: 34 @35350 has 8 MA's), (Start: 47 @35410 has 48 MA's), (50, 35443), (51, 35449), (54, 35515), (55, 35518), (57, 35548), (62, 35590), (66, 35644),

Gene: Cashline_50 Start: 38219, Stop: 38560, Start Num: 47

Candidate Starts for Cashline_50:

(22, 38072), (Start: 30 @38138 has 5 MA's), (32, 38144), (Start: 34 @38159 has 8 MA's), (Start: 47 @38219 has 48 MA's), (50, 38252), (51, 38258), (52, 38312), (55, 38327), (57, 38357), (62, 38399), (66, 38453),

Gene: Chop_49 Start: 35762, Stop: 36106, Start Num: 39

Candidate Starts for Chop_49:

(8, 35321), (9, 35513), (10, 35546), (Start: 39 @35762 has 11 MA's), (48, 35825), (52, 35903), (53, 35906), (56, 35945), (62, 35987), (64, 36005), (68, 36089),

Gene: ChuckDuck_50 Start: 32348, Stop: 32698, Start Num: 47

Candidate Starts for ChuckDuck_50:

(Start: 25 @32234 has 1 MA's), (Start: 47 @32348 has 48 MA's), (56, 32474), (72, 32690),

Gene: Clawz_73 Start: 48376, Stop: 48753, Start Num: 46

Candidate Starts for Clawz_73:

(23, 48235), (Start: 34 @48319 has 8 MA's), (Start: 46 @48376 has 2 MA's), (53, 48478), (58, 48529), (62, 48562), (63, 48568), (66, 48616), (70, 48673),

Gene: Confidence_52 Start: 36375, Stop: 36716, Start Num: 47

Candidate Starts for Confidence_52:

(Start: 30 @36294 has 5 MA's), (Start: 34 @36315 has 8 MA's), (Start: 47 @36375 has 48 MA's), (50, 36408), (51, 36414), (52, 36468), (55, 36483), (57, 36513), (62, 36555), (66, 36609),

Gene: Constance_50 Start: 32973, Stop: 33323, Start Num: 47

Candidate Starts for Constance_50:

(Start: 25 @32850 has 1 MA's), (Start: 47 @32973 has 48 MA's), (56, 33099), (72, 33315),

Gene: DelRio_50 Start: 36473, Stop: 36817, Start Num: 39

Candidate Starts for DelRio_50:

(Start: 39 @36473 has 11 MA's), (48, 36536), (52, 36614), (53, 36617), (56, 36656), (62, 36698), (64, 36716), (68, 36800),

Gene: DonTron_73 Start: 48616, Stop: 48993, Start Num: 46

Candidate Starts for DonTron_73:

(Start: 46 @48616 has 2 MA's), (57, 48760), (58, 48769), (62, 48802), (63, 48808), (66, 48856), (70, 48913),

Gene: Dori_65 Start: 51304, Stop: 51642, Start Num: 42

Candidate Starts for Dori_65:

(Start: 42 @51304 has 3 MA's), (49, 51373), (50, 51376), (62, 51520), (63, 51526),

Gene: DumpsterDude_51 Start: 40243, Stop: 40581, Start Num: 47

Candidate Starts for DumpsterDude_51:

(Start: 30 @40162 has 5 MA's), (33, 40171), (Start: 34 @40183 has 8 MA's), (38, 40198), (Start: 42 @40207 has 3 MA's), (Start: 47 @40243 has 48 MA's), (50, 40276), (54, 40348), (55, 40351), (56, 40375), (57, 40381), (61, 40420), (62, 40423), (66, 40477),

Gene: EMSquaredA_50 Start: 36879, Stop: 37220, Start Num: 47

Candidate Starts for EMSquaredA_50:

(Start: 34 @36819 has 8 MA's), (Start: 47 @36879 has 48 MA's), (50, 36912), (51, 36918), (55, 36987), (57, 37017), (62, 37059), (66, 37113),

Gene: EdnaMode_46 Start: 32804, Stop: 33145, Start Num: 47

Candidate Starts for EdnaMode_46:

(Start: 30 @32723 has 5 MA's), (Start: 34 @32744 has 8 MA's), (Start: 47 @32804 has 48 MA's), (50, 32837), (51, 32843), (55, 32912), (62, 32984), (66, 33038),

Gene: EnalisNailo_49 Start: 37591, Stop: 37932, Start Num: 47

Candidate Starts for EnalisNailo_49:

(Start: 34 @37531 has 8 MA's), (Start: 47 @37591 has 48 MA's), (50, 37624), (51, 37630), (52, 37684), (54, 37696), (55, 37699), (57, 37729), (62, 37771), (66, 37825),

Gene: Eudoria_52 Start: 36983, Stop: 37324, Start Num: 47

Candidate Starts for Eudoria_52:

(Start: 30 @36902 has 5 MA's), (Start: 34 @36923 has 8 MA's), (44, 36968), (Start: 47 @36983 has 48 MA's), (50, 37016), (51, 37022), (55, 37091), (62, 37163), (66, 37217),

Gene: Eviarto_53 Start: 38931, Stop: 39272, Start Num: 47

Candidate Starts for Eviarto_53:

(Start: 34 @38871 has 8 MA's), (Start: 47 @38931 has 48 MA's), (50, 38964), (51, 38970), (55, 39039), (57, 39069), (62, 39111), (66, 39165),

Gene: Farewell_71 Start: 47627, Stop: 47992, Start Num: 47

Candidate Starts for Farewell_71:

(Start: 47 @47627 has 48 MA's), (59, 47789), (66, 47873), (71, 47948),

Gene: Floral_50 Start: 38339, Stop: 38680, Start Num: 47

Candidate Starts for Floral_50:

(Start: 34 @38279 has 8 MA's), (Start: 47 @38339 has 48 MA's), (50, 38372), (51, 38378), (52, 38432), (54, 38444), (55, 38447), (57, 38477), (62, 38519), (66, 38573),

Gene: Francois_48 Start: 35275, Stop: 35625, Start Num: 39

Candidate Starts for Francois_48:

(Start: 39 @35275 has 11 MA's), (48, 35344), (52, 35422), (53, 35425), (56, 35464), (64, 35524), (68, 35608),

Gene: GlobiWarming_52 Start: 32737, Stop: 33087, Start Num: 47

Candidate Starts for GlobiWarming_52:

(19, 32554), (Start: 25 @32614 has 1 MA's), (Start: 47 @32737 has 48 MA's), (56, 32863), (72, 33079),

Gene: GrandSlam_49 Start: 35762, Stop: 36106, Start Num: 39

Candidate Starts for GrandSlam_49:

(8, 35321), (9, 35513), (10, 35546), (Start: 39 @35762 has 11 MA's), (48, 35825), (52, 35903), (53, 35906), (56, 35945), (62, 35987), (64, 36005), (68, 36089),

Gene: Heinz_46 Start: 29468, Stop: 29800, Start Num: 47

Candidate Starts for Heinz_46:

(Start: 26 @29363 has 1 MA's), (Start: 47 @29468 has 48 MA's), (62, 29648), (66, 29702), (67, 29729), (70, 29759),

Gene: Herod_52 Start: 38896, Stop: 39297, Start Num: 34

Candidate Starts for Herod_52:

(Start: 34 @38896 has 8 MA's), (Start: 47 @38956 has 48 MA's), (50, 38989), (51, 38995), (55, 39064), (57, 39094), (62, 39136), (66, 39190),

Gene: Hibiscus_46 Start: 29312, Stop: 29749, Start Num: 26

Candidate Starts for Hibiscus_46:

(Start: 26 @29312 has 1 MA's), (Start: 47 @29417 has 48 MA's), (62, 29597), (66, 29651), (67, 29678), (70, 29708),

Gene: Hugley_49 Start: 38955, Stop: 39296, Start Num: 47

Candidate Starts for Hugley_49:

(Start: 34 @38895 has 8 MA's), (Start: 47 @38955 has 48 MA's), (50, 38988), (51, 38994), (55, 39063), (57, 39093), (62, 39135), (66, 39189),

Gene: Hyzer_58 Start: 40287, Stop: 40625, Start Num: 47

Candidate Starts for Hyzer_58:

(13, 40050), (17, 40089), (Start: 47 @40287 has 48 MA's), (50, 40320), (51, 40326), (54, 40392), (55, 40395), (57, 40425), (61, 40464), (66, 40521),

Gene: IdentityCrisis_45 Start: 29783, Stop: 30145, Start Num: 47

Candidate Starts for IdentityCrisis_45:

(29, 29684), (40, 29741), (41, 29744), (Start: 47 @29783 has 48 MA's), (53, 29888), (54, 29897), (57, 29930), (59, 29942), (65, 30002), (66, 30026), (67, 30053),

Gene: Jablanski_53 Start: 39971, Stop: 40309, Start Num: 47

Candidate Starts for Jablanski_53:

(Start: 30 @39890 has 5 MA's), (Start: 34 @39911 has 8 MA's), (Start: 47 @39971 has 48 MA's), (54, 40076), (55, 40079), (56, 40103), (57, 40109), (61, 40148), (66, 40205),

Gene: Jojo24_44 Start: 30101, Stop: 30433, Start Num: 47

Candidate Starts for Jojo24_44:

(Start: 27 @29999 has 2 MA's), (36, 30053), (Start: 47 @30101 has 48 MA's), (62, 30281), (66, 30335), (67, 30362), (70, 30392),

Gene: Judy_53 Start: 33805, Stop: 34155, Start Num: 47

Candidate Starts for Judy_53:

(19, 33622), (Start: 25 @33682 has 1 MA's), (Start: 47 @33805 has 48 MA's), (56, 33931), (72, 34147),

Gene: Karkharias_51 Start: 32879, Stop: 33229, Start Num: 47

Candidate Starts for Karkharias_51:

(Start: 25 @32756 has 1 MA's), (Start: 47 @32879 has 48 MA's), (56, 33005), (72, 33221),

Gene: Kita_53 Start: 36911, Stop: 37333, Start Num: 30

Candidate Starts for Kita_53:

(Start: 30 @36911 has 5 MA's), (Start: 34 @36932 has 8 MA's), (44, 36977), (Start: 47 @36992 has 48 MA's), (50, 37025), (51, 37031), (55, 37100), (62, 37172), (66, 37226),

Gene: Lilas_51 Start: 39323, Stop: 39664, Start Num: 47

Candidate Starts for Lilas_51:

(Start: 34 @39263 has 8 MA's), (Start: 47 @39323 has 48 MA's), (50, 39356), (51, 39362), (55, 39431), (57, 39461), (62, 39503), (66, 39557),

Gene: LordFarquaad_49 Start: 34016, Stop: 34438, Start Num: 30

Candidate Starts for LordFarquaad_49:

(Start: 30 @34016 has 5 MA's), (Start: 34 @34037 has 8 MA's), (Start: 47 @34097 has 48 MA's), (50, 34130), (51, 34136), (55, 34205), (62, 34277), (66, 34331),

Gene: Madeline_50 Start: 37918, Stop: 38256, Start Num: 47

Candidate Starts for Madeline_50:

(Start: 30 @37837 has 5 MA's), (Start: 34 @37858 has 8 MA's), (Start: 47 @37918 has 48 MA's), (50, 37951), (51, 37957), (55, 38026), (57, 38056), (61, 38095), (66, 38152),

Gene: Malibo_53 Start: 37659, Stop: 37997, Start Num: 47

Candidate Starts for Malibo_53:

(Start: 30 @37578 has 5 MA's), (Start: 34 @37599 has 8 MA's), (Start: 47 @37659 has 48 MA's), (50, 37692), (54, 37764), (55, 37767), (56, 37791), (57, 37797), (61, 37836), (66, 37893),

Gene: Manasvini_53 Start: 37007, Stop: 37348, Start Num: 47

Candidate Starts for Manasvini_53:

(Start: 30 @36926 has 5 MA's), (Start: 34 @36947 has 8 MA's), (44, 36992), (Start: 47 @37007 has 48 MA's), (50, 37040), (51, 37046), (55, 37115), (62, 37187), (66, 37241),

Gene: Mao1_69 Start: 49765, Stop: 50103, Start Num: 42

Candidate Starts for Mao1_69:

(21, 49660), (Start: 42 @49765 has 3 MA's), (49, 49834), (50, 49837), (62, 49981), (63, 49987),

Gene: Maridalia_53 Start: 37156, Stop: 37497, Start Num: 47

Candidate Starts for Maridalia_53:

(Start: 30 @37075 has 5 MA's), (Start: 34 @37096 has 8 MA's), (Start: 47 @37156 has 48 MA's), (50, 37189), (51, 37195), (54, 37261), (55, 37264), (57, 37294), (62, 37336), (66, 37390),

Gene: Marteena_49 Start: 36879, Stop: 37220, Start Num: 47

Candidate Starts for Marteena_49:

(Start: 34 @36819 has 8 MA's), (Start: 47 @36879 has 48 MA's), (50, 36912), (51, 36918), (55, 36987), (57, 37017), (62, 37059), (66, 37113),

Gene: Mask_65 Start: 52047, Stop: 52385, Start Num: 42

Candidate Starts for Mask_65:

(Start: 42 @52047 has 3 MA's), (49, 52116), (50, 52119), (62, 52263), (63, 52269),

Gene: Mulch_49 Start: 35279, Stop: 35623, Start Num: 39

Candidate Starts for Mulch_49:

(8, 34844), (9, 35036), (10, 35069), (Start: 39 @35279 has 11 MA's), (48, 35342), (52, 35420), (53, 35423), (56, 35462), (64, 35522), (68, 35606),

Gene: Nadeem_49 Start: 35279, Stop: 35623, Start Num: 39

Candidate Starts for Nadeem_49:

(8, 34844), (9, 35036), (10, 35069), (Start: 39 @35279 has 11 MA's), (48, 35342), (52, 35420), (53, 35423), (56, 35462), (64, 35522), (68, 35606),

Gene: Neobush_52 Start: 36917, Stop: 37318, Start Num: 34

Candidate Starts for Neobush_52:

(Start: 30 @36896 has 5 MA's), (Start: 34 @36917 has 8 MA's), (44, 36962), (Start: 47 @36977 has 48 MA's), (50, 37010), (51, 37016), (55, 37085), (62, 37157), (66, 37211),

Gene: Nymphadora_53 Start: 38895, Stop: 39296, Start Num: 34

Candidate Starts for Nymphadora_53:

(Start: 34 @38895 has 8 MA's), (Start: 47 @38955 has 48 MA's), (50, 38988), (51, 38994), (55, 39063), (57, 39093), (62, 39135), (66, 39189),

Gene: PantheRoc_53 Start: 37764, Stop: 38102, Start Num: 47

Candidate Starts for PantheRoc_53:

(Start: 30 @37683 has 5 MA's), (Start: 34 @37704 has 8 MA's), (Start: 47 @37764 has 48 MA's), (50, 37797), (51, 37803), (54, 37869), (55, 37872), (57, 37902), (61, 37941), (66, 37998),

Gene: Parada_49 Start: 35279, Stop: 35623, Start Num: 39

Candidate Starts for Parada_49:

(8, 34844), (9, 35036), (10, 35069), (Start: 39 @35279 has 11 MA's), (48, 35342), (52, 35420), (53, 35423), (56, 35462), (64, 35522), (68, 35606),

Gene: Peas_49 Start: 34119, Stop: 34592, Start Num: 25

Candidate Starts for Peas_49:

(11, 33972), (12, 33990), (Start: 25 @34119 has 1 MA's), (Start: 47 @34242 has 48 MA's), (56, 34368), (72, 34584),

Gene: PeggyLeg03_50 Start: 32983, Stop: 33333, Start Num: 47

Candidate Starts for PeggyLeg03_50:

(19, 32800), (Start: 25 @32860 has 1 MA's), (Start: 47 @32983 has 48 MA's), (56, 33109), (72, 33325),

Gene: Phayonce_49 Start: 35927, Stop: 36265, Start Num: 42

Candidate Starts for Phayonce_49:

(21, 35822), (Start: 42 @35927 has 3 MA's), (49, 35996), (50, 35999), (62, 36143), (63, 36149),

Gene: Pickett_45 Start: 31280, Stop: 31621, Start Num: 47

Candidate Starts for Pickett_45:

(Start: 30 @31199 has 5 MA's), (Start: 34 @31220 has 8 MA's), (Start: 47 @31280 has 48 MA's), (50, 31313), (51, 31319), (55, 31388), (62, 31460), (66, 31514),

Gene: Pimento_51 Start: 34876, Stop: 35220, Start Num: 39

Candidate Starts for Pimento_51:

(8, 34435), (9, 34627), (10, 34660), (Start: 39 @34876 has 11 MA's), (48, 34939), (52, 35017), (53, 35020), (56, 35059), (62, 35101), (64, 35119), (68, 35203),

Gene: Pollux_52 Start: 38339, Stop: 38680, Start Num: 47

Candidate Starts for Pollux_52:

(Start: 34 @38279 has 8 MA's), (Start: 47 @38339 has 48 MA's), (50, 38372), (51, 38378), (52, 38432), (54, 38444), (55, 38447), (57, 38477), (62, 38519), (66, 38573),

Gene: Polly_49 Start: 36426, Stop: 36767, Start Num: 47

Candidate Starts for Polly_49:

(Start: 30 @36345 has 5 MA's), (Start: 34 @36366 has 8 MA's), (44, 36411), (Start: 47 @36426 has 48 MA's), (50, 36459), (51, 36465), (55, 36534), (62, 36606), (66, 36660),

Gene: Posh_56 Start: 39701, Stop: 40042, Start Num: 47

Candidate Starts for Posh_56:

(20, 39548), (Start: 30 @39620 has 5 MA's), (Start: 34 @39641 has 8 MA's), (Start: 47 @39701 has 48 MA's), (50, 39734), (51, 39740), (52, 39794), (55, 39809), (57, 39839), (62, 39881), (66, 39935),

Gene: Pucara_47 Start: 32588, Stop: 32938, Start Num: 47

Candidate Starts for Pucara_47:

(19, 32405), (Start: 25 @32465 has 1 MA's), (Start: 47 @32588 has 48 MA's), (56, 32714), (72, 32930),

Gene: Pytheas_53 Start: 39970, Stop: 40308, Start Num: 47

Candidate Starts for Pytheas_53:

(Start: 30 @39889 has 5 MA's), (Start: 34 @39910 has 8 MA's), (Start: 47 @39970 has 48 MA's), (54, 40075), (55, 40078), (56, 40102), (57, 40108), (61, 40147), (66, 40204),

Gene: RavenCo17_50 Start: 37160, Stop: 37501, Start Num: 47

Candidate Starts for RavenCo17_50:

(Start: 34 @37100 has 8 MA's), (Start: 47 @37160 has 48 MA's), (51, 37199), (55, 37268), (57, 37298), (62, 37340), (66, 37394),

Gene: Reyja_45 Start: 30436, Stop: 30870, Start Num: 27

Candidate Starts for Reyja_45:

(Start: 27 @30436 has 2 MA's), (31, 30460), (37, 30496), (Start: 47 @30538 has 48 MA's), (51, 30577), (62, 30718), (66, 30772), (67, 30799), (70, 30829),

Gene: RootBeer_42 Start: 28714, Stop: 29064, Start Num: 47

Candidate Starts for RootBeer_42:

(7, 28189), (14, 28474), (Start: 25 @28588 has 1 MA's), (Start: 47 @28714 has 48 MA's), (56, 28840), (72, 29056),

Gene: Ruthy_49 Start: 37599, Stop: 37937, Start Num: 47

Candidate Starts for Ruthy_49:

(15, 37404), (Start: 30 @37518 has 5 MA's), (Start: 34 @37539 has 8 MA's), (Start: 47 @37599 has 48 MA's), (54, 37704), (55, 37707), (56, 37731), (57, 37737), (61, 37776), (66, 37833),

Gene: Santhid_44 Start: 28817, Stop: 29149, Start Num: 47

Candidate Starts for Santhid_44:

(Start: 27 @28724 has 2 MA's), (36, 28769), (Start: 47 @28817 has 48 MA's), (62, 28997), (66, 29051), (67, 29078), (70, 29108),

Gene: SoilAssassin_47 Start: 34034, Stop: 34456, Start Num: 30

Candidate Starts for SoilAssassin_47:

(Start: 30 @34034 has 5 MA's), (Start: 34 @34055 has 8 MA's), (Start: 47 @34115 has 48 MA's), (50, 34148), (51, 34154), (55, 34223), (62, 34295), (66, 34349),

Gene: Soos_69 Start: 47783, Stop: 48160, Start Num: 46

Candidate Starts for Soos_69:

(Start: 46 @47783 has 2 MA's), (57, 47927), (58, 47936), (62, 47969), (63, 47975), (66, 48023), (70, 48080),

Gene: Sparky_69 Start: 49221, Stop: 49586, Start Num: 47

Candidate Starts for Sparky_69:

(Start: 47 @49221 has 48 MA's), (59, 49383), (66, 49467), (71, 49542),

Gene: Sting_73 Start: 48222, Stop: 48599, Start Num: 46

Candidate Starts for Sting_73:

(Start: 46 @48222 has 2 MA's), (57, 48366), (58, 48375), (62, 48408), (63, 48414), (66, 48462), (70, 48519),

Gene: Susceptit_52 Start: 36924, Stop: 37325, Start Num: 34

Candidate Starts for Susceptit_52:

(Start: 30 @36903 has 5 MA's), (Start: 34 @36924 has 8 MA's), (44, 36969), (Start: 47 @36984 has 48 MA's), (50, 37017), (51, 37023), (55, 37092), (62, 37164), (66, 37218),

Gene: TPA4_48 Start: 36926, Stop: 37252, Start Num: 43

Candidate Starts for TPA4_48:

(Start: 27 @36851 has 2 MA's), (35, 36887), (43, 36926),

Gene: Tarzan_45 Start: 29828, Stop: 30262, Start Num: 27

Candidate Starts for Tarzan_45:

(24, 29789), (Start: 27 @29828 has 2 MA's), (31, 29852), (37, 29888), (Start: 47 @29930 has 48 MA's), (62, 30110), (66, 30164), (67, 30191), (70, 30221),

Gene: Tayonia_52 Start: 36923, Stop: 37324, Start Num: 34

Candidate Starts for Tayonia_52:

(Start: 30 @36902 has 5 MA's), (Start: 34 @36923 has 8 MA's), (44, 36968), (Start: 47 @36983 has 48 MA's), (50, 37016), (51, 37022), (55, 37091), (62, 37163), (66, 37217),

Gene: ThankyouJordi_51 Start: 38831, Stop: 39172, Start Num: 47

Candidate Starts for ThankyouJordi_51:

(20, 38699), (Start: 30 @38750 has 5 MA's), (32, 38756), (Start: 34 @38771 has 8 MA's), (Start: 47 @38831 has 48 MA's), (50, 38864), (51, 38870), (55, 38939), (57, 38969), (62, 39011), (66, 39065),

Gene: Thimann_50 Start: 35140, Stop: 35481, Start Num: 47

Candidate Starts for Thimann_50:

(16, 34921), (18, 34945), (28, 35050), (Start: 30 @35059 has 5 MA's), (32, 35065), (Start: 34 @35080 has 8 MA's), (38, 35095), (Start: 42 @35104 has 3 MA's), (Start: 47 @35140 has 48 MA's), (51, 35179), (55, 35248), (57, 35278), (62, 35320), (66, 35374),

Gene: TimTam_53 Start: 38955, Stop: 39296, Start Num: 47

Candidate Starts for TimTam_53:

(Start: 34 @38895 has 8 MA's), (Start: 47 @38955 has 48 MA's), (50, 38988), (51, 38994), (55, 39063), (57, 39093), (62, 39135), (66, 39189),

Gene: Tonitrus_61 Start: 44575, Stop: 44943, Start Num: 47

Candidate Starts for Tonitrus_61:

(Start: 47 @44575 has 48 MA's), (54, 44683), (55, 44686), (59, 44728), (60, 44737), (62, 44755), (69, 44860), (70, 44866),

Gene: Trumpet_52 Start: 36924, Stop: 37325, Start Num: 34

Candidate Starts for Trumpet_52:

(Start: 30 @36903 has 5 MA's), (Start: 34 @36924 has 8 MA's), (44, 36969), (Start: 47 @36984 has 48 MA's), (50, 37017), (51, 37023), (55, 37092), (62, 37164), (66, 37218),

Gene: Vasanti_49 Start: 33529, Stop: 33870, Start Num: 47

Candidate Starts for Vasanti_49:

(Start: 30 @33448 has 5 MA's), (32, 33454), (Start: 34 @33469 has 8 MA's), (Start: 47 @33529 has 48 MA's), (50, 33562), (51, 33568), (55, 33637), (57, 33667), (62, 33709), (66, 33763),

Gene: WelcomeAyanna_51 Start: 38978, Stop: 39319, Start Num: 47

Candidate Starts for WelcomeAyanna_51:

(20, 38846), (Start: 30 @38897 has 5 MA's), (32, 38903), (Start: 34 @38918 has 8 MA's), (Start: 47 @38978 has 48 MA's), (50, 39011), (51, 39017), (55, 39086), (57, 39116), (62, 39158), (66, 39212),

Gene: Wrigley_58 Start: 39293, Stop: 39631, Start Num: 47

Candidate Starts for Wrigley_58:

(Start: 30 @39212 has 5 MA's), (Start: 34 @39233 has 8 MA's), (Start: 47 @39293 has 48 MA's), (54, 39398), (55, 39401), (56, 39425), (61, 39470), (66, 39527),

Gene: Yeet412_47 Start: 34116, Stop: 34457, Start Num: 47

Candidate Starts for Yeet412_47:

(Start: 30 @34035 has 5 MA's), (Start: 34 @34056 has 8 MA's), (Start: 47 @34116 has 48 MA's), (50, 34149), (51, 34155), (55, 34224), (62, 34296), (66, 34350),

Gene: Yeezy_50 Start: 35894, Stop: 36232, Start Num: 47

Candidate Starts for Yeezy_50:

(13, 35657), (Start: 47 @35894 has 48 MA's), (50, 35927), (54, 35999), (55, 36002), (56, 36026), (57, 36032), (61, 36071), (66, 36128),

Gene: Zameen_52 Start: 36923, Stop: 37324, Start Num: 34

Candidate Starts for Zameen_52:

(Start: 30 @36902 has 5 MA's), (Start: 34 @36923 has 8 MA's), (44, 36968), (Start: 47 @36983 has 48 MA's), (50, 37016), (51, 37022), (55, 37091), (62, 37163), (66, 37217),

Gene: Zirinka_49 Start: 37603, Stop: 37944, Start Num: 47

Candidate Starts for Zirinka_49:

(Start: 30 @37522 has 5 MA's), (Start: 34 @37543 has 8 MA's), (Start: 47 @37603 has 48 MA's), (50, 37636), (51, 37642), (55, 37711), (62, 37783), (66, 37837),