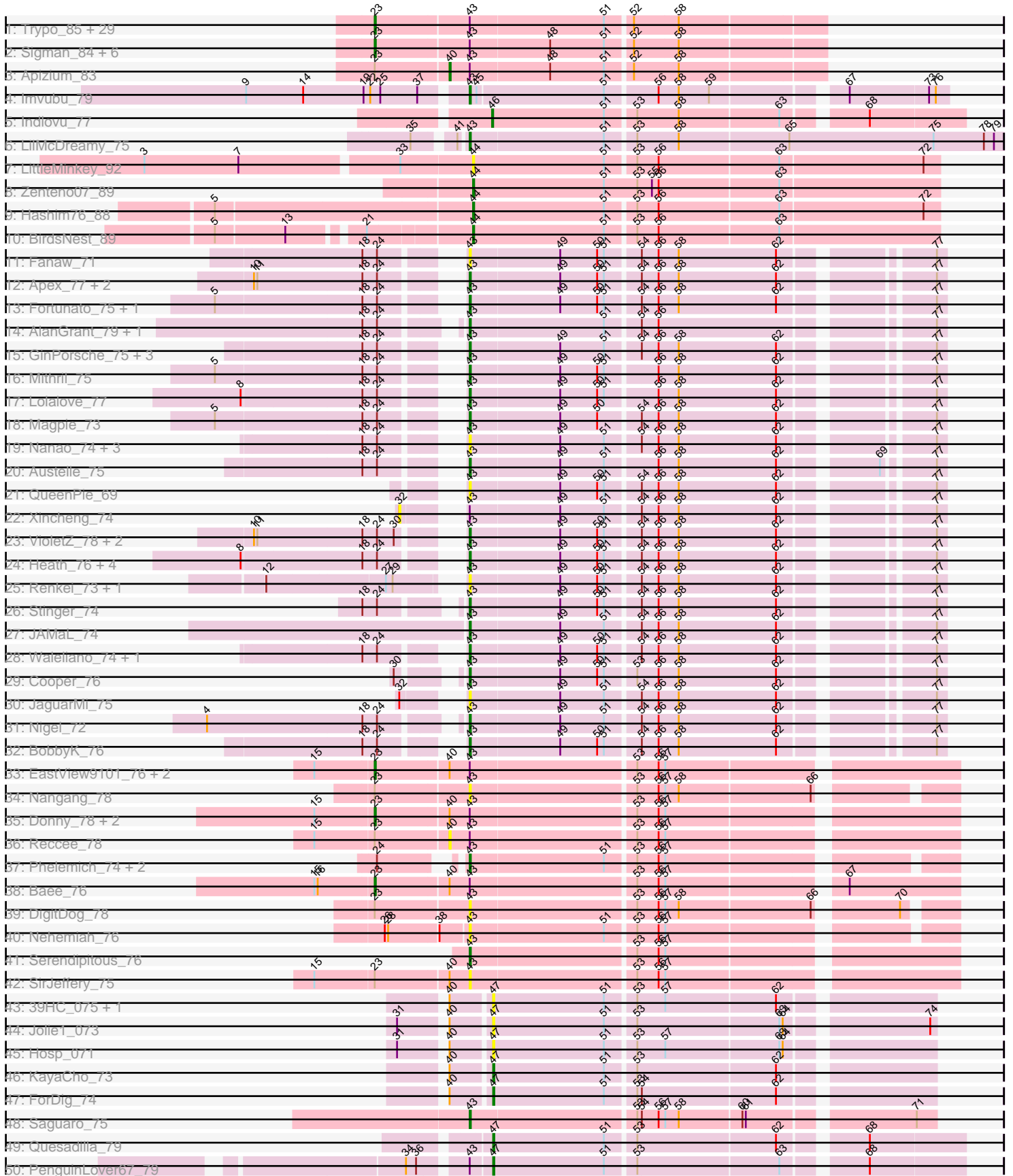


Pham 296391



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 296391 Report

This analysis was run 04/25/26 on database version 644.

Pham number 296391 has 114 members, 28 are drafts.

Phages represented in each track:

- Track 1 : Trypo_85, LeeLot_83, Zonia_85, Gwilliam_85, Newman_82, Toni_84, Derpp_84, Flake_86, FriarPreacher_82, Hertubise_84, Morgushi_82, Pops_82, UncleHowie_81, Suffolk_81, Larson_86, CheetO_81, Roy17_82, Nacho_0087, Eremos_83, Mosaic_82, PG1_83, Vortex_83, Puhltonio_81, Orion_83, Serendipity_84, Lulumae_81, Murdoc_81, Xavier_84, Mesh1_85, Chunky_84
- Track 2 : Sigman_84, Doddsville_82, SilverBell_85, DuchessDung_82, Hartsy_83, PhrankReynolds_83, PhatCats2014_84
- Track 3 : Apizium_83
- Track 4 : Imvubu_79
- Track 5 : Indlovu_77
- Track 6 : LilMcDreamy_75
- Track 7 : LittleMinkey_92
- Track 8 : Zenteno07_89
- Track 9 : Hashim76_88
- Track 10 : BirdsNest_89
- Track 11 : Fanaw_71
- Track 12 : Apex_77, JoyceMaria_76, Prince_75
- Track 13 : Fortunato_75, ChrisnMich_75
- Track 14 : AlanGrant_79, Vincenzo_78
- Track 15 : GinPorsche_75, Ahwei_73, Epah_73, Antihero_73
- Track 16 : Mithril_75
- Track 17 : Lolalove_77
- Track 18 : Magpie_73
- Track 19 : Nanao_74, Poster_73, Hally898_73, Lambano_73
- Track 20 : Austelle_75
- Track 21 : QueenPie_69
- Track 22 : Xincheng_74
- Track 23 : VioletZ_78, Mudslide_75, Hangman_77
- Track 24 : Heath_76, Frederick_77, Hydro_76, Zemanar_75, RawrgerThat_75
- Track 25 : Renkei_73, LittleDigger_73
- Track 26 : Stinger_74
- Track 27 : JAMaL_74
- Track 28 : Waleliano_74, BrownCNA_76
- Track 29 : Cooper_76
- Track 30 : JaguarMi_75
- Track 31 : Nigel_72
- Track 32 : BobbyK_76

- Track 33 : EastView9101_76, Acadian_77, Rita130_76
- Track 34 : Nangang_78
- Track 35 : Donny_78, Rich_75, Suigeneris_78
- Track 36 : Reccee_78
- Track 37 : Phelemich_74, Mysterious_75, Reprobate_76
- Track 38 : Bae_76
- Track 39 : DigitDog_78
- Track 40 : Nehemiah_76
- Track 41 : Serendipitous_76
- Track 42 : SirJeffery_75
- Track 43 : 39HC_075, 40BC_075
- Track 44 : Jolie1_073
- Track 45 : Hosp_071
- Track 46 : KayaCho_73
- Track 47 : ForDig_74
- Track 48 : Saguario_75
- Track 49 : Quesadilla_79
- Track 50 : PenguinLover67_79
- Track 51 : Rinkes_75
- Track 52 : CRB2_79
- Track 53 : Knocker_78
- Track 54 : Funsized_79

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

The start number called the most often in the published annotations is 23, it was called in 40 of the 86 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acadian_77, Bae_76, CheetO_81, Chunky_84, Derpp_84, Doddsville_82, Donny_78, DuchessDung_82, EastView9101_76, Eremos_83, Flake_86, FriarPreacher_82, Gwilliam_85, Hartsy_83, Hertubise_84, Larson_86, LeeLot_83, Lulumae_81, Mesh1_85, Morgushi_82, Mosaic_82, Murdoc_81, Nacho_0087, Newman_82, Orion_83, PG1_83, PhatCats2014_84, PhrankReynolds_83, Pops_82, Puhltonio_81, Rich_75, Rita130_76, Roy17_82, Serendipity_84, Sigman_84, SilverBell_85, Suffolk_81, Suigeneris_78, Toni_84, Trypo_85, UncleHowie_81, Vortex_83, Xavier_84, Zonia_85,

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

- Apizium_83, DigitDog_78, Nangang_78, Reccee_78, SirJeffery_75,

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

- 39HC_075, 40BC_075, Ahwei_73, AlanGrant_79, Antihero_73, Apex_77, Austelle_75, BirdsNest_89, BobbyK_76, BrownCNA_76, CRB2_79, ChrisnMich_75, Cooper_76, Epah_73, Fanaw_71, ForDig_74, Fortunato_75, Frederick_77, Funsized_79, GinPorsche_75, Hally898_73, Hangman_77, Hashim76_88, Heath_76, Hosp_071, Hydro_76, Imvubu_79, Indlovu_77, JAMaL_74, JaguarMi_75, Jolie1_073, JoyceMaria_76, KayaCho_73, Knocker_78, Lambano_73, LilMcDreamy_75, LittleDigger_73, LittleMinkey_92, Lolalove_77, Magpie_73, Mithril_75, Mudslide_75, Mysterious_75, Nanao_74, Nehemiah_76, Nigel_72, PenguinLover67_79,

Phelemich_74, Poster_73, Prince_75, QueenPie_69, Quesadilla_79, RawrgerThat_75, Renkei_73, Reprobate_76, Rinkes_75, Saguaro_75, Serendipitous_76, Stinger_74, Vincenzo_78, VioletZ_78, Waleliano_74, Xincheng_74, Zemanar_75, Zenteno07_89,

Summary by start number:

Start 23:

- Found in 49 of 114 (43.0%) of genes in pham
- Manual Annotations of this start: 40 of 86
- Called 89.8% of time when present
- Phage (with cluster) where this start called: Acadian_77 (B5), Bae_76 (B5), CheetO_81 (B1), Chunky_84 (B1), Derpp_84 (B1), Doddsville_82 (B1), Donny_78 (B5), DuchessDung_82 (B1), EastView9101_76 (B5), Eremos_83 (B1), Flake_86 (B1), FriarPreacher_82 (B1), Gwilliam_85 (B1), Hartsy_83 (B1), Hertubise_84 (B1), Larson_86 (B1), LeeLot_83 (B1), Lulumae_81 (B1), Mesh1_85 (B1), Morgushi_82 (B1), Mosaic_82 (B1), Murdoc_81 (B1), Nacho_0087 (B1), Newman_82 (B1), Orion_83 (B1), PG1_83 (B1), PhatCats2014_84 (B1), PhrankReynolds_83 (B1), Pops_82 (B1), Puhltonio_81 (B1), Rich_75 (B5), Rita130_76 (B5), Roy17_82 (B1), Serendipity_84 (B1), Sigman_84 (B1), SilverBell_85 (B1), Suffolk_81 (B1), Suigeneris_78 (B5), Toni_84 (B1), Trypo_85 (B1), UncleHowie_81 (B1), Vortex_83 (B1), Xavier_84 (B1), Zonia_85 (B1),

Start 32:

- Found in 2 of 114 (1.8%) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Xincheng_74 (B4),

Start 39:

- Found in 2 of 114 (1.8%) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Funsized_79 (B9),

Start 40:

- Found in 16 of 114 (14.0%) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Apizium_83 (B1), Reccee_78 (B5),

Start 41:

- Found in 2 of 114 (1.8%) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Rinkes_75 (B9),

Start 42:

- Found in 1 of 114 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Knocker_78 (B9),

Start 43:

- Found in 100 of 114 (87.7%) of genes in pham
- Manual Annotations of this start: 33 of 86
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Ahwei_73 (B4), AlanGrant_79 (B4), Antihero_73 (B4), Apex_77 (B4), Austelle_75 (B4), BobbyK_76 (B4), BrownCNA_76 (B4), ChrisnMich_75 (B4), Cooper_76 (B4), DigitDog_78 (B5), Epah_73 (B4), Fanaw_71 (B4), Fortunato_75 (B4), Frederick_77 (B4), GinPorsche_75 (B4), Hally898_73 (B4), Hangman_77 (B4), Heath_76 (B4), Hydro_76 (B4), Imvubu_79 (B10), JAMaL_74 (B4), JaguarMi_75 (B4), JoyceMaria_76 (B4), Lambano_73 (B4), LilMcDreamy_75 (B12), LittleDigger_73 (B4), Lolalove_77 (B4), Magpie_73 (B4), Mithril_75 (B4), Mudslide_75 (B4), Mysterious_75 (B5), Nanao_74 (B4), Nangang_78 (B5), Nehemiah_76 (B5), Nigel_72 (B4), Phelemich_74 (B5), Poster_73 (B4), Prince_75 (B4), QueenPie_69 (B4), RawrgerThat_75 (B4), Renkei_73 (B4), Reprobate_76 (B5), Saguaro_75 (B7), Serendipitous_76 (B5), SirJeffery_75 (B5), Stinger_74 (B4), Vincenzo_78 (B4), VioletZ_78 (B4), Waleliano_74 (B4), Zemanar_75 (B4),

Start 44:

- Found in 4 of 114 (3.5%) of genes in pham
- Manual Annotations of this start: 3 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BirdsNest_89 (B13), Hashim76_88 (B13), LittleMinkey_92 (B13), Zenteno07_89 (B13),

Start 46:

- Found in 1 of 114 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Indlovu_77 (B11),

Start 47:

- Found in 9 of 114 (7.9%) of genes in pham
- Manual Annotations of this start: 5 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 39HC_075 (B6), 40BC_075 (B6), CRB2_79 (B9), ForDig_74 (B6), Hosp_071 (B6), Jolie1_073 (B6), KayaCho_73 (B6), PenguinLover67_79 (B9), Quesadilla_79 (B9),

Summary by clusters:

There are 10 clusters represented in this pham: B4, B5, B6, B7, B12, B1, B10, B11, B9, B13,

Info for manual annotations of cluster B1:

- Start number 23 was manually annotated 34 times for cluster B1.
- Start number 40 was manually annotated 1 time for cluster B1.

Info for manual annotations of cluster B10:

- Start number 43 was manually annotated 1 time for cluster B10.

Info for manual annotations of cluster B11:

- Start number 46 was manually annotated 1 time for cluster B11.

Info for manual annotations of cluster B12:

- Start number 43 was manually annotated 1 time for cluster B12.

Info for manual annotations of cluster B13:

- Start number 44 was manually annotated 3 times for cluster B13.

Info for manual annotations of cluster B4:

- Start number 43 was manually annotated 26 times for cluster B4.

Info for manual annotations of cluster B5:

- Start number 23 was manually annotated 6 times for cluster B5.
- Start number 43 was manually annotated 4 times for cluster B5.

Info for manual annotations of cluster B6:

- Start number 47 was manually annotated 2 times for cluster B6.

Info for manual annotations of cluster B7:

- Start number 43 was manually annotated 1 time for cluster B7.

Info for manual annotations of cluster B9:

- Start number 39 was manually annotated 1 time for cluster B9.
- Start number 41 was manually annotated 1 time for cluster B9.
- Start number 42 was manually annotated 1 time for cluster B9.
- Start number 47 was manually annotated 3 times for cluster B9.

Gene Information:

Gene: 39HC_075 Start: 62227, Stop: 61859, Start Num: 47

Candidate Starts for 39HC_075:

(Start: 40 @62260 has 1 MA's), (Start: 47 @62227 has 5 MA's), (51, 62128), (53, 62104), (57, 62080), (62, 61984),

Gene: 40BC_075 Start: 62227, Stop: 61859, Start Num: 47

Candidate Starts for 40BC_075:

(Start: 40 @62260 has 1 MA's), (Start: 47 @62227 has 5 MA's), (51, 62128), (53, 62104), (57, 62080), (62, 61984),

Gene: Acadian_77 Start: 62254, Stop: 61766, Start Num: 23

Candidate Starts for Acadian_77:

(15, 62305), (Start: 23 @62254 has 40 MA's), (Start: 40 @62191 has 1 MA's), (Start: 43 @62173 has 33 MA's), (53, 62032), (56, 62014), (57, 62008),

Gene: Ahwei_73 Start: 62187, Stop: 61801, Start Num: 43

Candidate Starts for Ahwei_73:

(18, 62247), (24, 62235), (Start: 43 @62187 has 33 MA's), (49, 62109), (51, 62070), (54, 62043), (56, 62028), (58, 62010), (62, 61923), (77, 61809),

Gene: AlanGrant_79 Start: 64544, Stop: 64158, Start Num: 43

Candidate Starts for AlanGrant_79:

(18, 64610), (24, 64598), (Start: 43 @64544 has 33 MA's), (51, 64427), (54, 64400), (56, 64385), (77, 64166),

Gene: Antihero_73 Start: 62122, Stop: 61736, Start Num: 43

Candidate Starts for Antihero_73:

(18, 62182), (24, 62170), (Start: 43 @62122 has 33 MA's), (49, 62044), (51, 62005), (54, 61978), (56, 61963), (58, 61945), (62, 61858), (77, 61744),

Gene: Apex_77 Start: 63483, Stop: 63097, Start Num: 43

Candidate Starts for Apex_77:

(10, 63639), (11, 63636), (18, 63543), (24, 63531), (Start: 43 @63483 has 33 MA's), (49, 63405), (50, 63372), (51, 63366), (54, 63339), (56, 63324), (58, 63306), (62, 63219), (77, 63105),

Gene: Apizium_83 Start: 62557, Stop: 62237, Start Num: 40

Candidate Starts for Apizium_83:

(Start: 23 @62620 has 40 MA's), (Start: 40 @62557 has 1 MA's), (Start: 43 @62539 has 33 MA's), (48, 62470), (51, 62422), (52, 62401), (58, 62362),

Gene: Austelle_75 Start: 63800, Stop: 63414, Start Num: 43

Candidate Starts for Austelle_75:

(18, 63860), (24, 63848), (Start: 43 @63800 has 33 MA's), (49, 63722), (51, 63683), (56, 63641), (58, 63623), (62, 63536), (69, 63461), (77, 63422),

Gene: Bae_76 Start: 62953, Stop: 62465, Start Num: 23

Candidate Starts for Bae_76:

(15, 63004), (16, 63001), (Start: 23 @62953 has 40 MA's), (Start: 40 @62890 has 1 MA's), (Start: 43 @62872 has 33 MA's), (53, 62731), (56, 62713), (57, 62707), (67, 62563),

Gene: BirdsNest_89 Start: 65386, Stop: 64982, Start Num: 44

Candidate Starts for BirdsNest_89:

(5, 65590), (13, 65530), (21, 65473), (Start: 44 @65386 has 3 MA's), (51, 65269), (53, 65245), (56, 65227), (63, 65122),

Gene: BobbyK_76 Start: 62954, Stop: 62568, Start Num: 43

Candidate Starts for BobbyK_76:

(18, 63014), (24, 63002), (Start: 43 @62954 has 33 MA's), (49, 62876), (50, 62843), (51, 62837), (54, 62810), (56, 62795), (58, 62777), (62, 62690), (77, 62576),

Gene: BrownCNA_76 Start: 63158, Stop: 62772, Start Num: 43

Candidate Starts for BrownCNA_76:

(18, 63218), (24, 63206), (Start: 43 @63158 has 33 MA's), (49, 63080), (50, 63047), (51, 63041), (54, 63014), (56, 62999), (58, 62981), (62, 62894), (77, 62780),

Gene: CRB2_79 Start: 65196, Stop: 64804, Start Num: 47

Candidate Starts for CRB2_79:

(2, 65547), (6, 65421), (34, 65259), (36, 65250), (Start: 43 @65214 has 33 MA's), (Start: 47 @65196 has 5 MA's), (51, 65097), (53, 65073), (62, 64953), (67, 64905), (68, 64887),

Gene: CheetO_81 Start: 63368, Stop: 62985, Start Num: 23

Candidate Starts for CheetO_81:

(Start: 23 @63368 has 40 MA's), (Start: 43 @63287 has 33 MA's), (51, 63170), (52, 63149), (58, 63110),

Gene: ChrisnMich_75 Start: 62154, Stop: 61768, Start Num: 43

Candidate Starts for ChrisnMich_75:

(5, 62343), (18, 62214), (24, 62202), (Start: 43 @62154 has 33 MA's), (49, 62076), (50, 62043), (51, 62037), (54, 62010), (56, 61995), (58, 61977), (62, 61890), (77, 61776),

Gene: Chunky_84 Start: 62964, Stop: 62581, Start Num: 23

Candidate Starts for Chunky_84:

(Start: 23 @62964 has 40 MA's), (Start: 43 @62883 has 33 MA's), (51, 62766), (52, 62745), (58, 62706),

Gene: Cooper_76 Start: 62632, Stop: 62246, Start Num: 43

Candidate Starts for Cooper_76:

(30, 62671), (Start: 43 @62632 has 33 MA's), (49, 62554), (50, 62521), (51, 62515), (53, 62491), (56, 62473), (58, 62455), (62, 62368), (77, 62254),

Gene: Derpp_84 Start: 63027, Stop: 62644, Start Num: 23

Candidate Starts for Derpp_84:

(Start: 23 @63027 has 40 MA's), (Start: 43 @62946 has 33 MA's), (51, 62829), (52, 62808), (58, 62769),

Gene: DigitDog_78 Start: 62457, Stop: 62062, Start Num: 43

Candidate Starts for DigitDog_78:

(Start: 23 @62538 has 40 MA's), (Start: 43 @62457 has 33 MA's), (53, 62316), (56, 62298), (57, 62292), (58, 62280), (66, 62166), (70, 62103),

Gene: Doddsville_82 Start: 63109, Stop: 62726, Start Num: 23

Candidate Starts for Doddsville_82:

(Start: 23 @63109 has 40 MA's), (Start: 43 @63028 has 33 MA's), (48, 62959), (51, 62911), (52, 62890), (58, 62851),

Gene: Donny_78 Start: 62294, Stop: 61806, Start Num: 23

Candidate Starts for Donny_78:

(15, 62345), (Start: 23 @62294 has 40 MA's), (Start: 40 @62231 has 1 MA's), (Start: 43 @62213 has 33 MA's), (53, 62072), (56, 62054), (57, 62048),

Gene: DuchessDung_82 Start: 62625, Stop: 62242, Start Num: 23

Candidate Starts for DuchessDung_82:

(Start: 23 @62625 has 40 MA's), (Start: 43 @62544 has 33 MA's), (48, 62475), (51, 62427), (52, 62406), (58, 62367),

Gene: EastView9101_76 Start: 61998, Stop: 61510, Start Num: 23

Candidate Starts for EastView9101_76:

(15, 62049), (Start: 23 @61998 has 40 MA's), (Start: 40 @61935 has 1 MA's), (Start: 43 @61917 has 33 MA's), (53, 61776), (56, 61758), (57, 61752),

Gene: Epah_73 Start: 62122, Stop: 61736, Start Num: 43

Candidate Starts for Epah_73:

(18, 62182), (24, 62170), (Start: 43 @62122 has 33 MA's), (49, 62044), (51, 62005), (54, 61978), (56, 61963), (58, 61945), (62, 61858), (77, 61744),

Gene: Eremos_83 Start: 63331, Stop: 62948, Start Num: 23

Candidate Starts for Eremos_83:

(Start: 23 @63331 has 40 MA's), (Start: 43 @63250 has 33 MA's), (51, 63133), (52, 63112), (58, 63073),

Gene: Fanaw_71 Start: 62994, Stop: 62608, Start Num: 43

Candidate Starts for Fanaw_71:

(18, 63054), (24, 63042), (Start: 43 @62994 has 33 MA's), (49, 62916), (50, 62883), (51, 62877), (54, 62850), (56, 62835), (58, 62817), (62, 62730), (77, 62616),

Gene: Flake_86 Start: 63231, Stop: 62848, Start Num: 23

Candidate Starts for Flake_86:

(Start: 23 @63231 has 40 MA's), (Start: 43 @63150 has 33 MA's), (51, 63033), (52, 63012), (58, 62973),

Gene: ForDig_74 Start: 61622, Stop: 61254, Start Num: 47

Candidate Starts for ForDig_74:

(Start: 40 @61655 has 1 MA's), (Start: 47 @61622 has 5 MA's), (51, 61523), (53, 61499), (54, 61496), (62, 61379),

Gene: Fortunato_75 Start: 62924, Stop: 62538, Start Num: 43

Candidate Starts for Fortunato_75:

(5, 63113), (18, 62984), (24, 62972), (Start: 43 @62924 has 33 MA's), (49, 62846), (50, 62813), (51, 62807), (54, 62780), (56, 62765), (58, 62747), (62, 62660), (77, 62546),

Gene: Frederick_77 Start: 63228, Stop: 62842, Start Num: 43

Candidate Starts for Frederick_77:

(8, 63393), (18, 63288), (24, 63276), (Start: 43 @63228 has 33 MA's), (49, 63150), (50, 63117), (51, 63111), (54, 63084), (56, 63069), (58, 63051), (62, 62964), (77, 62850),

Gene: FriarPreacher_82 Start: 63028, Stop: 62645, Start Num: 23

Candidate Starts for FriarPreacher_82:

(Start: 23 @63028 has 40 MA's), (Start: 43 @62947 has 33 MA's), (51, 62830), (52, 62809), (58, 62770),

Gene: Funsized_79 Start: 65641, Stop: 65243, Start Num: 39

Candidate Starts for Funsized_79:

(17, 65701), (18, 65698), (Start: 39 @65641 has 1 MA's), (49, 65563), (51, 65524), (56, 65482), (58, 65464), (62, 65377), (72, 65263),

Gene: GinPorsche_75 Start: 62119, Stop: 61733, Start Num: 43

Candidate Starts for GinPorsche_75:

(18, 62179), (24, 62167), (Start: 43 @62119 has 33 MA's), (49, 62041), (51, 62002), (54, 61975), (56, 61960), (58, 61942), (62, 61855), (77, 61741),

Gene: Gwilliam_85 Start: 64012, Stop: 63629, Start Num: 23

Candidate Starts for Gwilliam_85:

(Start: 23 @64012 has 40 MA's), (Start: 43 @63931 has 33 MA's), (51, 63814), (52, 63793), (58, 63754),

Gene: Hally898_73 Start: 62200, Stop: 61814, Start Num: 43

Candidate Starts for Hally898_73:

(18, 62260), (24, 62248), (Start: 43 @62200 has 33 MA's), (49, 62122), (51, 62083), (54, 62056), (56, 62041), (58, 62023), (62, 61936), (77, 61822),

Gene: Hangman_77 Start: 63694, Stop: 63308, Start Num: 43

Candidate Starts for Hangman_77:

(10, 63850), (11, 63847), (18, 63754), (24, 63742), (30, 63727), (Start: 43 @63694 has 33 MA's), (49, 63616), (50, 63583), (51, 63577), (54, 63550), (56, 63535), (58, 63517), (62, 63430), (77, 63316),

Gene: Hartsy_83 Start: 63145, Stop: 62762, Start Num: 23

Candidate Starts for Hartsy_83:

(Start: 23 @63145 has 40 MA's), (Start: 43 @63064 has 33 MA's), (48, 62995), (51, 62947), (52, 62926), (58, 62887),

Gene: Hashim76_88 Start: 65419, Stop: 65015, Start Num: 44

Candidate Starts for Hashim76_88:

(5, 65641), (Start: 44 @65419 has 3 MA's), (51, 65302), (53, 65278), (56, 65260), (63, 65155), (72, 65029),

Gene: Heath_76 Start: 63439, Stop: 63053, Start Num: 43

Candidate Starts for Heath_76:

(8, 63604), (18, 63499), (24, 63487), (Start: 43 @63439 has 33 MA's), (49, 63361), (50, 63328), (51, 63322), (54, 63295), (56, 63280), (58, 63262), (62, 63175), (77, 63061),

Gene: Hertubise_84 Start: 63287, Stop: 62904, Start Num: 23

Candidate Starts for Hertubise_84:

(Start: 23 @63287 has 40 MA's), (Start: 43 @63206 has 33 MA's), (51, 63089), (52, 63068), (58, 63029),

Gene: Hosp_071 Start: 59697, Stop: 59329, Start Num: 47

Candidate Starts for Hosp_071:

(31, 59766), (Start: 40 @59730 has 1 MA's), (Start: 47 @59697 has 5 MA's), (51, 59598), (53, 59574), (57, 59550), (63, 59451), (64, 59448),

Gene: Hydro_76 Start: 63357, Stop: 62971, Start Num: 43

Candidate Starts for Hydro_76:

(8, 63522), (18, 63417), (24, 63405), (Start: 43 @63357 has 33 MA's), (49, 63279), (50, 63246), (51, 63240), (54, 63213), (56, 63198), (58, 63180), (62, 63093), (77, 62979),

Gene: Imvubu_79 Start: 62691, Stop: 62296, Start Num: 43

Candidate Starts for Imvubu_79:

(9, 62880), (14, 62829), (19, 62775), (22, 62769), (25, 62760), (37, 62727), (Start: 43 @62691 has 33 MA's), (45, 62685), (51, 62574), (56, 62532), (58, 62514), (59, 62487), (67, 62382), (73, 62313), (76, 62307),

Gene: Indlovu_77 Start: 63524, Stop: 63132, Start Num: 46

Candidate Starts for Indlovu_77:

(Start: 46 @63524 has 1 MA's), (51, 63425), (53, 63401), (58, 63365), (63, 63278), (68, 63215),

Gene: JAMaL_74 Start: 62677, Stop: 62291, Start Num: 43

Candidate Starts for JAMaL_74:

(Start: 43 @62677 has 33 MA's), (49, 62599), (51, 62560), (54, 62533), (56, 62518), (58, 62500), (62, 62413), (77, 62299),

Gene: JaguarMi_75 Start: 64365, Stop: 63979, Start Num: 43

Candidate Starts for JaguarMi_75:

(32, 64398), (Start: 43 @64365 has 33 MA's), (49, 64287), (51, 64248), (54, 64221), (56, 64206), (58, 64188), (62, 64101), (77, 63987),

Gene: Jolie1_073 Start: 61731, Stop: 61363, Start Num: 47

Candidate Starts for Jolie1_073:

(31, 61800), (Start: 40 @61764 has 1 MA's), (Start: 47 @61731 has 5 MA's), (51, 61632), (53, 61608), (63, 61485), (64, 61482), (74, 61368),

Gene: JoyceMaria_76 Start: 63520, Stop: 63134, Start Num: 43

Candidate Starts for JoyceMaria_76:

(10, 63676), (11, 63673), (18, 63580), (24, 63568), (Start: 43 @63520 has 33 MA's), (49, 63442), (50, 63409), (51, 63403), (54, 63376), (56, 63361), (58, 63343), (62, 63256), (77, 63142),

Gene: KayaCho_73 Start: 61898, Stop: 61530, Start Num: 47

Candidate Starts for KayaCho_73:

(Start: 40 @61931 has 1 MA's), (Start: 47 @61898 has 5 MA's), (51, 61799), (53, 61775), (62, 61655),

Gene: Knocker_78 Start: 64121, Stop: 63720, Start Num: 42

Candidate Starts for Knocker_78:

(1, 64493), (17, 64208), (18, 64205), (20, 64202), (Start: 42 @64121 has 1 MA's), (Start: 43 @64118 has 33 MA's), (49, 64040), (50, 64007), (51, 64001), (53, 63977), (56, 63959), (58, 63941), (61, 63881), (62, 63854),

Gene: Lambano_73 Start: 62200, Stop: 61814, Start Num: 43

Candidate Starts for Lambano_73:

(18, 62260), (24, 62248), (Start: 43 @62200 has 33 MA's), (49, 62122), (51, 62083), (54, 62056), (56, 62041), (58, 62023), (62, 61936), (77, 61822),

Gene: Larson_86 Start: 63291, Stop: 62908, Start Num: 23

Candidate Starts for Larson_86:

(Start: 23 @63291 has 40 MA's), (Start: 43 @63210 has 33 MA's), (51, 63093), (52, 63072), (58, 63033),

Gene: LeeLot_83 Start: 63532, Stop: 63149, Start Num: 23

Candidate Starts for LeeLot_83:

(Start: 23 @63532 has 40 MA's), (Start: 43 @63451 has 33 MA's), (51, 63334), (52, 63313), (58, 63274),

Gene: LilMcDreamy_75 Start: 62248, Stop: 61784, Start Num: 43

Candidate Starts for LilMcDreamy_75:

(35, 62284), (Start: 41 @62254 has 1 MA's), (Start: 43 @62248 has 33 MA's), (51, 62131), (53, 62107), (58, 62071), (65, 61975), (75, 61846), (78, 61801), (79, 61792),

Gene: LittleDigger_73 Start: 62053, Stop: 61667, Start Num: 43

Candidate Starts for LittleDigger_73:

(12, 62200), (27, 62098), (29, 62092), (Start: 43 @62053 has 33 MA's), (49, 61975), (50, 61942), (51, 61936), (54, 61909), (56, 61894), (58, 61876), (62, 61789), (77, 61675),

Gene: LittleMinkey_92 Start: 65026, Stop: 64622, Start Num: 44

Candidate Starts for LittleMinkey_92:

(3, 65308), (7, 65224), (33, 65089), (Start: 44 @65026 has 3 MA's), (51, 64909), (53, 64885), (56, 64867), (63, 64762), (72, 64636),

Gene: Lolalove_77 Start: 63280, Stop: 62894, Start Num: 43

Candidate Starts for Lolalove_77:

(8, 63445), (18, 63340), (24, 63328), (Start: 43 @63280 has 33 MA's), (49, 63202), (50, 63169), (51, 63163), (56, 63121), (58, 63103), (62, 63016), (77, 62902),

Gene: Lulumae_81 Start: 62668, Stop: 62285, Start Num: 23

Candidate Starts for Lulumae_81:

(Start: 23 @62668 has 40 MA's), (Start: 43 @62587 has 33 MA's), (51, 62470), (52, 62449), (58, 62410),

Gene: Magpie_73 Start: 62892, Stop: 62506, Start Num: 43

Candidate Starts for Magpie_73:

(5, 63081), (18, 62952), (24, 62940), (Start: 43 @62892 has 33 MA's), (49, 62814), (50, 62781), (54, 62748), (56, 62733), (58, 62715), (62, 62628), (77, 62514),

Gene: Mesh1_85 Start: 63667, Stop: 63284, Start Num: 23

Candidate Starts for Mesh1_85:

(Start: 23 @63667 has 40 MA's), (Start: 43 @63586 has 33 MA's), (51, 63469), (52, 63448), (58, 63409),

Gene: Mithril_75 Start: 63279, Stop: 62893, Start Num: 43

Candidate Starts for Mithril_75:

(5, 63468), (18, 63339), (24, 63327), (Start: 43 @63279 has 33 MA's), (49, 63201), (50, 63168), (51, 63162), (56, 63120), (58, 63102), (62, 63015), (77, 62901),

Gene: Morgushi_82 Start: 62919, Stop: 62536, Start Num: 23

Candidate Starts for Morgushi_82:

(Start: 23 @62919 has 40 MA's), (Start: 43 @62838 has 33 MA's), (51, 62721), (52, 62700), (58, 62661),

Gene: Mosaic_82 Start: 63101, Stop: 62718, Start Num: 23

Candidate Starts for Mosaic_82:

(Start: 23 @63101 has 40 MA's), (Start: 43 @63020 has 33 MA's), (51, 62903), (52, 62882), (58, 62843),

Gene: Mudslide_75 Start: 63316, Stop: 62930, Start Num: 43

Candidate Starts for Mudslide_75:

(10, 63472), (11, 63469), (18, 63376), (24, 63364), (30, 63349), (Start: 43 @63316 has 33 MA's), (49, 63238), (50, 63205), (51, 63199), (54, 63172), (56, 63157), (58, 63139), (62, 63052), (77, 62938),

Gene: Murdoc_81 Start: 63212, Stop: 62829, Start Num: 23

Candidate Starts for Murdoc_81:

(Start: 23 @63212 has 40 MA's), (Start: 43 @63131 has 33 MA's), (51, 63014), (52, 62993), (58, 62954),

Gene: Mysterious_75 Start: 62158, Stop: 61763, Start Num: 43

Candidate Starts for Mysterious_75:

(24, 62212), (Start: 43 @62158 has 33 MA's), (51, 62041), (53, 62017), (56, 61999), (57, 61993),

Gene: Nacho_0087 Start: 64177, Stop: 63794, Start Num: 23

Candidate Starts for Nacho_0087:

(Start: 23 @64177 has 40 MA's), (Start: 43 @64096 has 33 MA's), (51, 63979), (52, 63958), (58, 63919),

Gene: Nanao_74 Start: 62190, Stop: 61804, Start Num: 43

Candidate Starts for Nanao_74:

(18, 62250), (24, 62238), (Start: 43 @62190 has 33 MA's), (49, 62112), (51, 62073), (54, 62046), (56, 62031), (58, 62013), (62, 61926), (77, 61812),

Gene: Nangang_78 Start: 62728, Stop: 62333, Start Num: 43

Candidate Starts for Nangang_78:

(Start: 23 @62809 has 40 MA's), (Start: 43 @62728 has 33 MA's), (53, 62587), (56, 62569), (57, 62563), (58, 62551), (66, 62437),

Gene: Nehemiah_76 Start: 62221, Stop: 61826, Start Num: 43

Candidate Starts for Nehemiah_76:

(26, 62290), (28, 62287), (38, 62245), (Start: 43 @62221 has 33 MA's), (51, 62104), (53, 62080), (56, 62062), (57, 62056),

Gene: Newman_82 Start: 63454, Stop: 63071, Start Num: 23

Candidate Starts for Newman_82:

(Start: 23 @63454 has 40 MA's), (Start: 43 @63373 has 33 MA's), (51, 63256), (52, 63235), (58, 63196),

Gene: Nigel_72 Start: 61700, Stop: 61314, Start Num: 43

Candidate Starts for Nigel_72:

(4, 61904), (18, 61766), (24, 61754), (Start: 43 @61700 has 33 MA's), (49, 61622), (51, 61583), (54, 61556), (56, 61541), (58, 61523), (62, 61436), (77, 61322),

Gene: Orion_83 Start: 63039, Stop: 62656, Start Num: 23

Candidate Starts for Orion_83:

(Start: 23 @63039 has 40 MA's), (Start: 43 @62958 has 33 MA's), (51, 62841), (52, 62820), (58, 62781),

Gene: PG1_83 Start: 63611, Stop: 63228, Start Num: 23

Candidate Starts for PG1_83:

(Start: 23 @63611 has 40 MA's), (Start: 43 @63530 has 33 MA's), (51, 63413), (52, 63392), (58, 63353),

Gene: PenguinLover67_79 Start: 62948, Stop: 62556, Start Num: 47

Candidate Starts for PenguinLover67_79:

(34, 63011), (36, 63002), (Start: 43 @62966 has 33 MA's), (Start: 47 @62948 has 5 MA's), (51, 62849), (53, 62825), (63, 62702), (68, 62639),

Gene: PhatCats2014_84 Start: 63611, Stop: 63228, Start Num: 23

Candidate Starts for PhatCats2014_84:

(Start: 23 @63611 has 40 MA's), (Start: 43 @63530 has 33 MA's), (48, 63461), (51, 63413), (52, 63392), (58, 63353),

Gene: Phelemich_74 Start: 62284, Stop: 61889, Start Num: 43

Candidate Starts for Phelemich_74:

(24, 62338), (Start: 43 @62284 has 33 MA's), (51, 62167), (53, 62143), (56, 62125), (57, 62119),

Gene: PhrankReynolds_83 Start: 63110, Stop: 62727, Start Num: 23

Candidate Starts for PhrankReynolds_83:

(Start: 23 @63110 has 40 MA's), (Start: 43 @63029 has 33 MA's), (48, 62960), (51, 62912), (52, 62891), (58, 62852),

Gene: Pops_82 Start: 63120, Stop: 62737, Start Num: 23

Candidate Starts for Pops_82:

(Start: 23 @63120 has 40 MA's), (Start: 43 @63039 has 33 MA's), (51, 62922), (52, 62901), (58, 62862),

Gene: Poster_73 Start: 62191, Stop: 61805, Start Num: 43

Candidate Starts for Poster_73:

(18, 62251), (24, 62239), (Start: 43 @62191 has 33 MA's), (49, 62113), (51, 62074), (54, 62047), (56, 62032), (58, 62014), (62, 61927), (77, 61813),

Gene: Prince_75 Start: 63386, Stop: 63000, Start Num: 43

Candidate Starts for Prince_75:

(10, 63542), (11, 63539), (18, 63446), (24, 63434), (Start: 43 @63386 has 33 MA's), (49, 63308), (50, 63275), (51, 63269), (54, 63242), (56, 63227), (58, 63209), (62, 63122), (77, 63008),

Gene: Puhltonio_81 Start: 63213, Stop: 62830, Start Num: 23

Candidate Starts for Puhltonio_81:

(Start: 23 @63213 has 40 MA's), (Start: 43 @63132 has 33 MA's), (51, 63015), (52, 62994), (58, 62955),

Gene: QueenPie_69 Start: 61924, Stop: 61538, Start Num: 43

Candidate Starts for QueenPie_69:

(Start: 43 @61924 has 33 MA's), (49, 61846), (50, 61813), (51, 61807), (54, 61780), (56, 61765), (58, 61747), (62, 61660), (77, 61546),

Gene: Quesadilla_79 Start: 63413, Stop: 63021, Start Num: 47

Candidate Starts for Quesadilla_79:

(Start: 47 @63413 has 5 MA's), (51, 63314), (53, 63290), (62, 63170), (68, 63104),

Gene: RawrgerThat_75 Start: 62971, Stop: 62585, Start Num: 43

Candidate Starts for RawrgerThat_75:

(8, 63136), (18, 63031), (24, 63019), (Start: 43 @62971 has 33 MA's), (49, 62893), (50, 62860), (51, 62854), (54, 62827), (56, 62812), (58, 62794), (62, 62707), (77, 62593),

Gene: Reccee_78 Start: 62495, Stop: 62070, Start Num: 40

Candidate Starts for Reccee_78:

(15, 62609), (Start: 23 @62558 has 40 MA's), (Start: 40 @62495 has 1 MA's), (Start: 43 @62477 has 33 MA's), (53, 62336), (56, 62318), (57, 62312),

Gene: Renkei_73 Start: 62047, Stop: 61661, Start Num: 43

Candidate Starts for Renkei_73:

(12, 62194), (27, 62092), (29, 62086), (Start: 43 @62047 has 33 MA's), (49, 61969), (50, 61936), (51, 61930), (54, 61903), (56, 61888), (58, 61870), (62, 61783), (77, 61669),

Gene: Reprobate_76 Start: 62289, Stop: 61894, Start Num: 43

Candidate Starts for Reprobate_76:

(24, 62343), (Start: 43 @62289 has 33 MA's), (51, 62172), (53, 62148), (56, 62130), (57, 62124),

Gene: Rich_75 Start: 62998, Stop: 62510, Start Num: 23

Candidate Starts for Rich_75:

(15, 63049), (Start: 23 @62998 has 40 MA's), (Start: 40 @62935 has 1 MA's), (Start: 43 @62917 has 33 MA's), (53, 62776), (56, 62758), (57, 62752),

Gene: Rinkes_75 Start: 63331, Stop: 62945, Start Num: 41

Candidate Starts for Rinkes_75:

(Start: 39 @63343 has 1 MA's), (Start: 41 @63331 has 1 MA's), (51, 63226), (53, 63202), (56, 63184), (58, 63166), (62, 63079), (72, 62965),

Gene: Rita130_76 Start: 62228, Stop: 61740, Start Num: 23

Candidate Starts for Rita130_76:

(15, 62279), (Start: 23 @62228 has 40 MA's), (Start: 40 @62165 has 1 MA's), (Start: 43 @62147 has 33 MA's), (53, 62006), (56, 61988), (57, 61982),

Gene: Roy17_82 Start: 62668, Stop: 62285, Start Num: 23

Candidate Starts for Roy17_82:

(Start: 23 @62668 has 40 MA's), (Start: 43 @62587 has 33 MA's), (51, 62470), (52, 62449), (58, 62410),

Gene: Saguaro_75 Start: 62202, Stop: 61816, Start Num: 43

Candidate Starts for Saguaro_75:

(Start: 43 @62202 has 33 MA's), (53, 62061), (54, 62058), (56, 62043), (57, 62037), (58, 62025), (60, 61971), (61, 61968), (71, 61833),

Gene: Serendipitous_76 Start: 61875, Stop: 61468, Start Num: 43

Candidate Starts for Serendipitous_76:

(Start: 43 @61875 has 33 MA's), (53, 61734), (56, 61716), (57, 61710),

Gene: Serendipity_84 Start: 63416, Stop: 63033, Start Num: 23

Candidate Starts for Serendipity_84:

(Start: 23 @63416 has 40 MA's), (Start: 43 @63335 has 33 MA's), (51, 63218), (52, 63197), (58, 63158),

Gene: Sigman_84 Start: 62924, Stop: 62541, Start Num: 23

Candidate Starts for Sigman_84:

(Start: 23 @62924 has 40 MA's), (Start: 43 @62843 has 33 MA's), (48, 62774), (51, 62726), (52, 62705), (58, 62666),

Gene: SilverBell_85 Start: 63378, Stop: 62995, Start Num: 23

Candidate Starts for SilverBell_85:

(Start: 23 @63378 has 40 MA's), (Start: 43 @63297 has 33 MA's), (48, 63228), (51, 63180), (52, 63159), (58, 63120),

Gene: SirJeffery_75 Start: 61957, Stop: 61550, Start Num: 43

Candidate Starts for SirJeffery_75:

(15, 62089), (Start: 23 @62038 has 40 MA's), (Start: 40 @61975 has 1 MA's), (Start: 43 @61957 has 33 MA's), (53, 61816), (56, 61798), (57, 61792),

Gene: Stinger_74 Start: 61821, Stop: 61435, Start Num: 43

Candidate Starts for Stinger_74:

(18, 61887), (24, 61875), (Start: 43 @61821 has 33 MA's), (49, 61743), (50, 61710), (51, 61704), (54, 61677), (56, 61662), (58, 61644), (62, 61557), (77, 61443),

Gene: Suffolk_81 Start: 62932, Stop: 62549, Start Num: 23

Candidate Starts for Suffolk_81:

(Start: 23 @62932 has 40 MA's), (Start: 43 @62851 has 33 MA's), (51, 62734), (52, 62713), (58, 62674),

Gene: Suigeneris_78 Start: 62476, Stop: 61988, Start Num: 23

Candidate Starts for Suigeneris_78:

(15, 62527), (Start: 23 @62476 has 40 MA's), (Start: 40 @62413 has 1 MA's), (Start: 43 @62395 has 33 MA's), (53, 62254), (56, 62236), (57, 62230),

Gene: Toni_84 Start: 63397, Stop: 63014, Start Num: 23

Candidate Starts for Toni_84:

(Start: 23 @63397 has 40 MA's), (Start: 43 @63316 has 33 MA's), (51, 63199), (52, 63178), (58, 63139),

Gene: Trypo_85 Start: 63665, Stop: 63282, Start Num: 23

Candidate Starts for Trypo_85:

(Start: 23 @63665 has 40 MA's), (Start: 43 @63584 has 33 MA's), (51, 63467), (52, 63446), (58, 63407),

Gene: UncleHowie_81 Start: 62631, Stop: 62248, Start Num: 23

Candidate Starts for UncleHowie_81:

(Start: 23 @62631 has 40 MA's), (Start: 43 @62550 has 33 MA's), (51, 62433), (52, 62412), (58, 62373),

Gene: Vincenzo_78 Start: 64574, Stop: 64188, Start Num: 43

Candidate Starts for Vincenzo_78:

(18, 64640), (24, 64628), (Start: 43 @64574 has 33 MA's), (51, 64457), (54, 64430), (56, 64415), (77, 64196),

Gene: VioletZ_78 Start: 63482, Stop: 63096, Start Num: 43

Candidate Starts for VioletZ_78:

(10, 63638), (11, 63635), (18, 63542), (24, 63530), (30, 63515), (Start: 43 @63482 has 33 MA's), (49, 63404), (50, 63371), (51, 63365), (54, 63338), (56, 63323), (58, 63305), (62, 63218), (77, 63104),

Gene: Vortex_83 Start: 63213, Stop: 62830, Start Num: 23

Candidate Starts for Vortex_83:

(Start: 23 @63213 has 40 MA's), (Start: 43 @63132 has 33 MA's), (51, 63015), (52, 62994), (58, 62955),

Gene: Waleliano_74 Start: 62911, Stop: 62525, Start Num: 43

Candidate Starts for Waleliano_74:

(18, 62971), (24, 62959), (Start: 43 @62911 has 33 MA's), (49, 62833), (50, 62800), (51, 62794), (54, 62767), (56, 62752), (58, 62734), (62, 62647), (77, 62533),

Gene: Xavier_84 Start: 63105, Stop: 62722, Start Num: 23

Candidate Starts for Xavier_84:

(Start: 23 @63105 has 40 MA's), (Start: 43 @63024 has 33 MA's), (51, 62907), (52, 62886), (58, 62847),

Gene: Xincheng_74 Start: 64349, Stop: 63930, Start Num: 32

Candidate Starts for Xincheng_74:

(32, 64349), (Start: 43 @64316 has 33 MA's), (49, 64238), (51, 64199), (54, 64172), (56, 64157), (58, 64139), (62, 64052), (77, 63938),

Gene: Zemanar_75 Start: 63148, Stop: 62762, Start Num: 43

Candidate Starts for Zemanar_75:

(8, 63313), (18, 63208), (24, 63196), (Start: 43 @63148 has 33 MA's), (49, 63070), (50, 63037), (51, 63031), (54, 63004), (56, 62989), (58, 62971), (62, 62884), (77, 62770),

Gene: Zenteno07_89 Start: 65034, Stop: 64624, Start Num: 44

Candidate Starts for Zenteno07_89:

(Start: 44 @65034 has 3 MA's), (51, 64917), (53, 64887), (55, 64875), (56, 64869), (63, 64764),

Gene: Zonia_85 Start: 63662, Stop: 63279, Start Num: 23

Candidate Starts for Zonia_85:

(Start: 23 @63662 has 40 MA's), (Start: 43 @63581 has 33 MA's), (51, 63464), (52, 63443), (58, 63404),