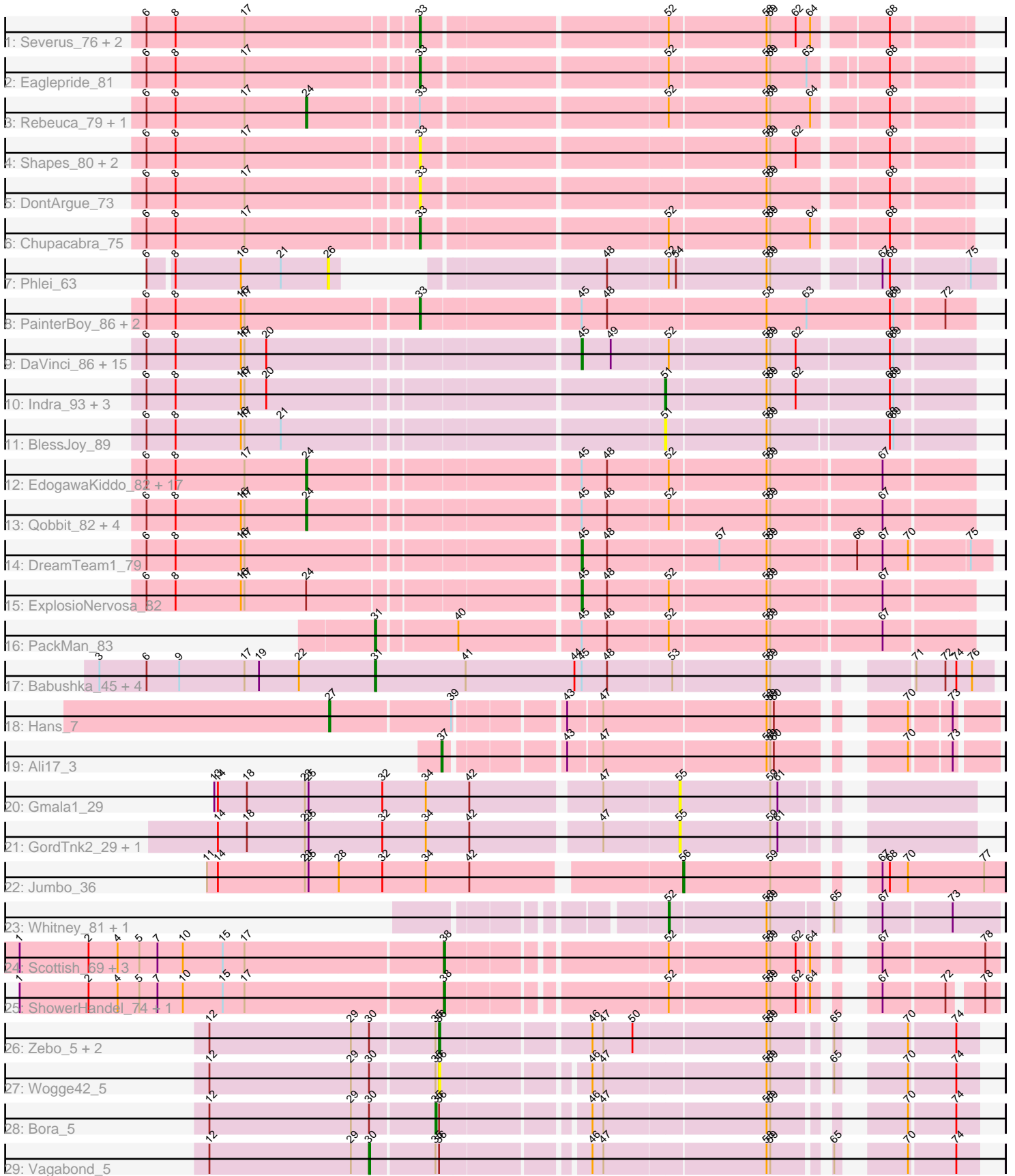


Pham 219632



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 219632 Report

This analysis was run 03/28/25 on database version 593.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 219632 has 87 members, 29 are drafts.

Phages represented in each track:

- Track 1 : Severus_76, PeaceMeal1_75, Poompha_75
- Track 2 : Eaglepride_81
- Track 3 : Rebeuca_79, Twister_78
- Track 4 : Shapes_80, DustyMartin_80, Rowdy_80
- Track 5 : DontArgue_73
- Track 6 : Chupacabra_75
- Track 7 : Phlei_63
- Track 8 : PainterBoy_86, Lucyedi_87, EagleEye_88
- Track 9 : DaVinci_86, Pmask_87, Chartreuse_86, McFly_88, SuperCallie99_84, Zulu_91, EricB_86, Neeharika16_87, Polyphemus_80, SuperAwesome_88, Candra_86, GreedyLawyer_81, Kipper29_88, Priamo_89, Newrala_87, VohminGhazi_88
- Track 10 : Indra_93, Temprado_91, Helmet_91, Garak_91
- Track 11 : BlessJoy_89
- Track 12 : EdogawaKiddo_82, Onglai_82, HortumSL17_85, Scherzo_82, Phonnegut_84, Fayely_82, Jiawan_81, Tubs_84, Sachima_80, Pioneer_84, Catalina_86, RyeScarlet_85, Beemo_84, Myxus_84, Halex_82, Phaeder_84, Hanray_82, Lilleskat_81
- Track 13 : Qobbit_82, Conquerage_82, Alma_82, Eidsmoe_82, EmyBug_81
- Track 14 : DreamTeam1_79
- Track 15 : ExplosioNervosa_82
- Track 16 : PackMan_83
- Track 17 : Babushka_45, Camara_43, Glotell_45, Renna12_42, KHumphrey_43
- Track 18 : Hans_7
- Track 19 : Ali17_3
- Track 20 : Gmala1_29
- Track 21 : GordTnk2_29, GordDuk1_29
- Track 22 : Jumbo_36
- Track 23 : Whitney_81, Getalong_86
- Track 24 : Scottish_69, KingMidas_70, Inventum_69, Sassafras_72
- Track 25 : ShowerHandel_74, ByChance_64
- Track 26 : Zebo_5, Murai_5, KingPhillip3_5
- Track 27 : Wogge42_5

- Track 28 : Bora_5
- Track 29 : Vagabond_5

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

The start number called the most often in the published annotations is 24, it was called in 17 of the 58 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alma_82, Beemo_84, Catalina_86, Conquerage_82, EdogawaKiddo_82, Eidsmoe_82, EmyBug_81, Fayely_82, Hanray_82, Horex_82, HortumSL17_85, Jiawan_81, Lilleskat_81, Myxus_84, Onglai_82, Phaeder_84, Phonnegut_84, Pioneer_84, Qobbit_82, Rebeuca_79, RyeScarlet_85, Sachima_80, Scherzo_82, Tubs_84, Twister_78,

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

- ExplosioNervosa_82,

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

- Ali17_3, Babushka_45, BlessJoy_89, Bora_5, ByChance_64, Camara_43, Candra_86, Chartreuse_86, Chupacabra_75, DaVinci_86, DontArgue_73, DreamTeam1_79, DustyMartin_80, EagleEye_88, Eaglepride_81, EricB_86, Garak_91, Getalong_86, Glotell_45, Gmala1_29, GordDuk1_29, GordTnk2_29, GreedyLawyer_81, Hans_7, Helmet_91, Indra_93, Inventum_69, Jumbo_36, KHumphrey_43, KingMidas_70, KingPhillip3_5, Kipper29_88, Lucyedi_87, McFly_88, Murai_5, Neeharika16_87, Newrala_87, PackMan_83, PainterBoy_86, PeaceMeal1_75, Phlei_63, Pmask_87, Polyphemus_80, Poompha_75, Priamo_89, Renna12_42, Rowdy_80, Sassafras_72, Scottish_69, Severus_76, Shapes_80, ShowerHandel_74, SuperAwesome_88, SuperCallie99_84, Temprado_91, Vagabond_5, VohminGhazi_88, Whitney_81, Wogge42_5, Zebo_5, Zulu_91,

Summary by start number:

Start 24:

- Found in 26 of 87 (29.9%) of genes in pham
- Manual Annotations of this start: 17 of 58
- Called 96.2% of time when present
- Phage (with cluster) where this start called: Alma_82 (A9), Beemo_84 (A9), Catalina_86 (A9), Conquerage_82 (A9), EdogawaKiddo_82 (A9), Eidsmoe_82 (A9), EmyBug_81 (A9), Fayely_82 (A9), Hanray_82 (A9), Horex_82 (A9), HortumSL17_85 (A9), Jiawan_81 (A9), Lilleskat_81 (A9), Myxus_84 (A9), Onglai_82 (A9), Phaeder_84 (A9), Phonnegut_84 (A9), Pioneer_84 (A9), Qobbit_82 (A9), Rebeuca_79 (A10), RyeScarlet_85 (A9), Sachima_80 (A9), Scherzo_82 (A9), Tubs_84 (A9), Twister_78 (A10),

Start 26:

- Found in 1 of 87 (1.1%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phlei_63 (A13),

Start 27:

- Found in 1 of 87 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hans_7 (DE2),

Start 30:

- Found in 6 of 87 (6.9%) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Vagabond_5 (O),

Start 31:

- Found in 6 of 87 (6.9%) of genes in pham
- Manual Annotations of this start: 3 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Babushka_45 (AS3), Camara_43 (AS3), Glotell_45 (AS3), KHumphrey_43 (AS3), PackMan_83 (A9), Renna12_42 (AS3),

Start 33:

- Found in 14 of 87 (16.1%) of genes in pham
- Manual Annotations of this start: 8 of 58
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Chupacabra_75 (A10), DontArgue_73 (A10), DustyMartin_80 (A10), EagleEye_88 (A16), Eaglepride_81 (A10), Lucyedi_87 (A16), PainterBoy_86 (A16), PeaceMeal1_75 (A10), Poompha_75 (A10), Rowdy_80 (A10), Severus_76 (A10), Shapes_80 (A10),

Start 35:

- Found in 6 of 87 (6.9%) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Bora_5 (O),

Start 36:

- Found in 6 of 87 (6.9%) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 66.7% of time when present
- Phage (with cluster) where this start called: KingPhillip3_5 (O), Murai_5 (O), Wogge42_5 (O), Zebo_5 (O),

Start 37:

- Found in 1 of 87 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ali17_3 (DE2),

Start 38:

- Found in 6 of 87 (6.9%) of genes in pham
- Manual Annotations of this start: 6 of 58
- Called 100.0% of time when present

- Phage (with cluster) where this start called: ByChance_64 (F1), Inventum_69 (F1), KingMidas_70 (F1), Sassafras_72 (F1), Scottish_69 (F1), ShowerHandel_74 (F1),

Start 45:

- Found in 50 of 87 (57.5%) of genes in pham
- Manual Annotations of this start: 15 of 58
- Called 36.0% of time when present
- Phage (with cluster) where this start called: Candra_86 (A6), Chartreuse_86 (A6), DaVinci_86 (A6), DreamTeam1_79 (A9), EricB_86 (A6), ExplosioNervosa_82 (A9), GreedyLawyer_81 (A6), Kipper29_88 (A6), McFly_88 (A6), Neeharika16_87 (A6), Newrala_87 (A6), Pmask_87 (A6), Polyphemus_80 (A6), Priamo_89 (A6), SuperAwesome_88 (A6), SuperCallie99_84 (A6), VohminGhazi_88 (A6), Zulu_91 (A6),

Start 51:

- Found in 5 of 87 (5.7%) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlessJoy_89 (A6), Garak_91 (A6), Helmet_91 (A6), Indra_93 (A6), Temprado_91 (A6),

Start 52:

- Found in 57 of 87 (65.5%) of genes in pham
- Manual Annotations of this start: 2 of 58
- Called 3.5% of time when present
- Phage (with cluster) where this start called: Getalong_86 (DN1), Whitney_81 (DN1),

Start 55:

- Found in 3 of 87 (3.4%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gmala1_29 (DF1), GordDuk1_29 (DF1), GordTnk2_29 (DF1),

Start 56:

- Found in 1 of 87 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jumbo_36 (DF3),

Summary by clusters:

There are 12 clusters represented in this pham: AS3, F1, A16, A10, A13, DE2, DF1, O, DN1, DF3, A6, A9,

Info for manual annotations of cluster A10:

- Start number 24 was manually annotated 2 times for cluster A10.
- Start number 33 was manually annotated 5 times for cluster A10.

Info for manual annotations of cluster A16:

- Start number 33 was manually annotated 3 times for cluster A16.

Info for manual annotations of cluster A6:

- Start number 45 was manually annotated 13 times for cluster A6.
- Start number 51 was manually annotated 1 time for cluster A6.

Info for manual annotations of cluster A9:

- Start number 24 was manually annotated 15 times for cluster A9.
- Start number 31 was manually annotated 1 time for cluster A9.
- Start number 45 was manually annotated 2 times for cluster A9.

Info for manual annotations of cluster AS3:

- Start number 31 was manually annotated 2 times for cluster AS3.

Info for manual annotations of cluster DE2:

- Start number 27 was manually annotated 1 time for cluster DE2.
- Start number 37 was manually annotated 1 time for cluster DE2.

Info for manual annotations of cluster DF3:

- Start number 56 was manually annotated 1 time for cluster DF3.

Info for manual annotations of cluster DN1:

- Start number 52 was manually annotated 2 times for cluster DN1.

Info for manual annotations of cluster F1:

- Start number 38 was manually annotated 6 times for cluster F1.

Info for manual annotations of cluster O:

- Start number 30 was manually annotated 1 time for cluster O.
- Start number 35 was manually annotated 1 time for cluster O.
- Start number 36 was manually annotated 1 time for cluster O.

Gene Information:

Gene: Ali17_3 Start: 3303, Stop: 3692, Start Num: 37

Candidate Starts for Ali17_3:

(Start: 37 @3303 has 1 MA's), (43, 3387), (47, 3414), (58, 3546), (59, 3549), (60, 3552), (70, 3630), (73, 3660),

Gene: Alma_82 Start: 46797, Stop: 46282, Start Num: 24

Candidate Starts for Alma_82:

(6, 46929), (8, 46905), (16, 46851), (17, 46848), (Start: 24 @46797 has 17 MA's), (Start: 45 @46590 has 15 MA's), (48, 46569), (Start: 52 @46521 has 2 MA's), (58, 46443), (59, 46440), (67, 46353),

Gene: Babushka_45 Start: 27331, Stop: 27798, Start Num: 31

Candidate Starts for Babushka_45:

(3, 27103), (6, 27142), (9, 27169), (17, 27223), (19, 27235), (22, 27268), (Start: 31 @27331 has 3 MA's), (41, 27406), (44, 27496), (Start: 45 @27502 has 15 MA's), (48, 27523), (53, 27574), (58, 27649), (59, 27652), (71, 27736), (72, 27760), (74, 27769), (76, 27781),

Gene: Beemo_84 Start: 46790, Stop: 46275, Start Num: 24

Candidate Starts for Beemo_84:

(6, 46922), (8, 46898), (17, 46841), (Start: 24 @46790 has 17 MA's), (Start: 45 @46583 has 15 MA's), (48, 46562), (Start: 52 @46514 has 2 MA's), (58, 46436), (59, 46433), (67, 46346),

Gene: BlessJoy_89 Start: 47321, Stop: 47079, Start Num: 51

Candidate Starts for BlessJoy_89:

(6, 47726), (8, 47702), (16, 47648), (17, 47645), (21, 47615), (Start: 51 @47321 has 1 MA's), (58, 47240), (59, 47237), (68, 47144), (69, 47141),

Gene: Bora_5 Start: 1666, Stop: 1286, Start Num: 35

Candidate Starts for Bora_5:

(12, 1849), (29, 1732), (Start: 30 @1717 has 1 MA's), (Start: 35 @1666 has 1 MA's), (Start: 36 @1663 has 1 MA's), (46, 1555), (47, 1546), (58, 1417), (59, 1414), (70, 1339), (74, 1303),

Gene: ByChance_64 Start: 42129, Stop: 42512, Start Num: 38

Candidate Starts for ByChance_64:

(1, 41784), (2, 41841), (4, 41865), (5, 41883), (7, 41898), (10, 41919), (15, 41952), (17, 41970), (Start: 38 @42129 has 6 MA's), (Start: 52 @42291 has 2 MA's), (58, 42369), (59, 42372), (62, 42393), (64, 42402), (67, 42429), (72, 42477), (78, 42501),

Gene: Camara_43 Start: 27400, Stop: 27867, Start Num: 31

Candidate Starts for Camara_43:

(3, 27172), (6, 27211), (9, 27238), (17, 27292), (19, 27304), (22, 27337), (Start: 31 @27400 has 3 MA's), (41, 27475), (44, 27565), (Start: 45 @27571 has 15 MA's), (48, 27592), (53, 27643), (58, 27718), (59, 27721), (71, 27805), (72, 27829), (74, 27838), (76, 27850),

Gene: Candra_86 Start: 46902, Stop: 46591, Start Num: 45

Candidate Starts for Candra_86:

(6, 47241), (8, 47217), (16, 47163), (17, 47160), (20, 47142), (Start: 45 @46902 has 15 MA's), (49, 46878), (Start: 52 @46833 has 2 MA's), (58, 46755), (59, 46752), (62, 46731), (68, 46656), (69, 46653),

Gene: Catalina_86 Start: 46900, Stop: 46385, Start Num: 24

Candidate Starts for Catalina_86:

(6, 47032), (8, 47008), (17, 46951), (Start: 24 @46900 has 17 MA's), (Start: 45 @46693 has 15 MA's), (48, 46672), (Start: 52 @46624 has 2 MA's), (58, 46546), (59, 46543), (67, 46456),

Gene: Chartreuse_86 Start: 46203, Stop: 45892, Start Num: 45

Candidate Starts for Chartreuse_86:

(6, 46542), (8, 46518), (16, 46464), (17, 46461), (20, 46443), (Start: 45 @46203 has 15 MA's), (49, 46179), (Start: 52 @46134 has 2 MA's), (58, 46056), (59, 46053), (62, 46032), (68, 45957), (69, 45954),

Gene: Chupacabra_75 Start: 46471, Stop: 46052, Start Num: 33

Candidate Starts for Chupacabra_75:

(6, 46687), (8, 46663), (17, 46606), (Start: 33 @46471 has 8 MA's), (Start: 52 @46282 has 2 MA's), (58, 46204), (59, 46201), (64, 46168), (68, 46114),

Gene: Conquerage_82 Start: 46566, Stop: 46051, Start Num: 24

Candidate Starts for Conquerage_82:

(6, 46698), (8, 46674), (16, 46620), (17, 46617), (Start: 24 @46566 has 17 MA's), (Start: 45 @46359 has 15 MA's), (48, 46338), (Start: 52 @46290 has 2 MA's), (58, 46212), (59, 46209), (67, 46122),

Gene: DaVinci_86 Start: 46257, Stop: 45946, Start Num: 45

Candidate Starts for DaVinci_86:

(6, 46596), (8, 46572), (16, 46518), (17, 46515), (20, 46497), (Start: 45 @46257 has 15 MA's), (49, 46233), (Start: 52 @46188 has 2 MA's), (58, 46110), (59, 46107), (62, 46086), (68, 46011), (69, 46008),

Gene: DontArgue_73 Start: 45331, Stop: 44912, Start Num: 33

Candidate Starts for DontArgue_73:

(6, 45547), (8, 45523), (17, 45466), (Start: 33 @45331 has 8 MA's), (58, 45064), (59, 45061), (68, 44974),

Gene: DreamTeam1_79 Start: 45877, Stop: 45557, Start Num: 45

Candidate Starts for DreamTeam1_79:

(6, 46216), (8, 46192), (16, 46138), (17, 46135), (Start: 45 @45877 has 15 MA's), (48, 45856), (57, 45769), (58, 45730), (59, 45727), (66, 45661), (67, 45640), (70, 45619), (75, 45574),

Gene: DustyMartin_80 Start: 46614, Stop: 46195, Start Num: 33

Candidate Starts for DustyMartin_80:

(6, 46830), (8, 46806), (17, 46749), (Start: 33 @46614 has 8 MA's), (58, 46347), (59, 46344), (62, 46323), (68, 46257),

Gene: EagleEye_88 Start: 48605, Stop: 48168, Start Num: 33

Candidate Starts for EagleEye_88:

(6, 48824), (8, 48800), (16, 48746), (17, 48743), (Start: 33 @48605 has 8 MA's), (Start: 45 @48482 has 15 MA's), (48, 48461), (58, 48335), (63, 48302), (68, 48233), (69, 48230), (72, 48191),

Gene: Eaglepride_81 Start: 46551, Stop: 46135, Start Num: 33

Candidate Starts for Eaglepride_81:

(6, 46767), (8, 46743), (17, 46686), (Start: 33 @46551 has 8 MA's), (Start: 52 @46362 has 2 MA's), (58, 46284), (59, 46281), (63, 46251), (68, 46197),

Gene: EdogawaKiddo_82 Start: 46868, Stop: 46353, Start Num: 24

Candidate Starts for EdogawaKiddo_82:

(6, 47000), (8, 46976), (17, 46919), (Start: 24 @46868 has 17 MA's), (Start: 45 @46661 has 15 MA's), (48, 46640), (Start: 52 @46592 has 2 MA's), (58, 46514), (59, 46511), (67, 46424),

Gene: Eidsmoe_82 Start: 46558, Stop: 46043, Start Num: 24

Candidate Starts for Eidsmoe_82:

(6, 46690), (8, 46666), (16, 46612), (17, 46609), (Start: 24 @46558 has 17 MA's), (Start: 45 @46351 has 15 MA's), (48, 46330), (Start: 52 @46282 has 2 MA's), (58, 46204), (59, 46201), (67, 46114),

Gene: EmyBug_81 Start: 46560, Stop: 46045, Start Num: 24

Candidate Starts for EmyBug_81:

(6, 46692), (8, 46668), (16, 46614), (17, 46611), (Start: 24 @46560 has 17 MA's), (Start: 45 @46353 has 15 MA's), (48, 46332), (Start: 52 @46284 has 2 MA's), (58, 46206), (59, 46203), (67, 46116),

Gene: EricB_86 Start: 46400, Stop: 46089, Start Num: 45

Candidate Starts for EricB_86:

(6, 46739), (8, 46715), (16, 46661), (17, 46658), (20, 46640), (Start: 45 @46400 has 15 MA's), (49, 46376), (Start: 52 @46331 has 2 MA's), (58, 46253), (59, 46250), (62, 46229), (68, 46154), (69, 46151),

Gene: ExplosioNervosa_82 Start: 46419, Stop: 46111, Start Num: 45

Candidate Starts for ExplosioNervosa_82:

(6, 46758), (8, 46734), (16, 46680), (17, 46677), (Start: 24 @46626 has 17 MA's), (Start: 45 @46419 has 15 MA's), (48, 46398), (Start: 52 @46350 has 2 MA's), (58, 46272), (59, 46269), (67, 46182),

Gene: Fayely_82 Start: 46533, Stop: 46018, Start Num: 24

Candidate Starts for Fayely_82:

(6, 46665), (8, 46641), (17, 46584), (Start: 24 @46533 has 17 MA's), (Start: 45 @46326 has 15 MA's), (48, 46305), (Start: 52 @46257 has 2 MA's), (58, 46179), (59, 46176), (67, 46089),

Gene: Garak_91 Start: 47274, Stop: 47029, Start Num: 51

Candidate Starts for Garak_91:

(6, 47679), (8, 47655), (16, 47601), (17, 47598), (20, 47580), (Start: 51 @47274 has 1 MA's), (58, 47193), (59, 47190), (62, 47169), (68, 47094), (69, 47091),

Gene: Getalong_86 Start: 49030, Stop: 49260, Start Num: 52

Candidate Starts for Getalong_86:

(Start: 52 @49030 has 2 MA's), (58, 49108), (59, 49111), (65, 49150), (67, 49168), (73, 49222),

Gene: Glotell_45 Start: 27556, Stop: 28023, Start Num: 31

Candidate Starts for Glotell_45:

(3, 27328), (6, 27367), (9, 27394), (17, 27448), (19, 27460), (22, 27493), (Start: 31 @27556 has 3 MA's), (41, 27631), (44, 27721), (Start: 45 @27727 has 15 MA's), (48, 27748), (53, 27799), (58, 27874), (59, 27877), (71, 27961), (72, 27985), (74, 27994), (76, 28006),

Gene: Gmala1_29 Start: 35756, Stop: 35965, Start Num: 55

Candidate Starts for Gmala1_29:

(13, 35387), (14, 35390), (18, 35414), (23, 35462), (25, 35465), (32, 35525), (34, 35561), (42, 35597), (47, 35696), (55, 35756), (59, 35831), (61, 35837),

Gene: GordDuk1_29 Start: 35694, Stop: 35903, Start Num: 55

Candidate Starts for GordDuk1_29:

(14, 35328), (18, 35352), (23, 35400), (25, 35403), (32, 35463), (34, 35499), (42, 35535), (47, 35634), (55, 35694), (59, 35769), (61, 35775),

Gene: GordTnk2_29 Start: 35663, Stop: 35872, Start Num: 55

Candidate Starts for GordTnk2_29:

(14, 35297), (18, 35321), (23, 35369), (25, 35372), (32, 35432), (34, 35468), (42, 35504), (47, 35603), (55, 35663), (59, 35738), (61, 35744),

Gene: GreedyLawyer_81 Start: 46833, Stop: 46522, Start Num: 45

Candidate Starts for GreedyLawyer_81:

(6, 47172), (8, 47148), (16, 47094), (17, 47091), (20, 47073), (Start: 45 @46833 has 15 MA's), (49, 46809), (Start: 52 @46764 has 2 MA's), (58, 46686), (59, 46683), (62, 46662), (68, 46587), (69, 46584),

Gene: Hanray_82 Start: 46844, Stop: 46329, Start Num: 24

Candidate Starts for Hanray_82:

(6, 46976), (8, 46952), (17, 46895), (Start: 24 @46844 has 17 MA's), (Start: 45 @46637 has 15 MA's), (48, 46616), (Start: 52 @46568 has 2 MA's), (58, 46490), (59, 46487), (67, 46400),

Gene: Hans_7 Start: 4390, Stop: 4869, Start Num: 27

Candidate Starts for Hans_7:

(Start: 27 @4390 has 1 MA's), (39, 4486), (43, 4564), (47, 4591), (58, 4723), (59, 4726), (60, 4729), (70, 4807), (73, 4837),

Gene: Helmet_91 Start: 47274, Stop: 47029, Start Num: 51

Candidate Starts for Helmet_91:

(6, 47679), (8, 47655), (16, 47601), (17, 47598), (20, 47580), (Start: 51 @47274 has 1 MA's), (58, 47193), (59, 47190), (62, 47169), (68, 47094), (69, 47091),

Gene: Holec_82 Start: 46860, Stop: 46345, Start Num: 24

Candidate Starts for Holec_82:

(6, 46992), (8, 46968), (17, 46911), (Start: 24 @46860 has 17 MA's), (Start: 45 @46653 has 15 MA's), (48, 46632), (Start: 52 @46584 has 2 MA's), (58, 46506), (59, 46503), (67, 46416),

Gene: HortumSL17_85 Start: 46898, Stop: 46383, Start Num: 24

Candidate Starts for HortumSL17_85:

(6, 47030), (8, 47006), (17, 46949), (Start: 24 @46898 has 17 MA's), (Start: 45 @46691 has 15 MA's), (48, 46670), (Start: 52 @46622 has 2 MA's), (58, 46544), (59, 46541), (67, 46454),

Gene: Indra_93 Start: 47275, Stop: 47030, Start Num: 51

Candidate Starts for Indra_93:

(6, 47680), (8, 47656), (16, 47602), (17, 47599), (20, 47581), (Start: 51 @47275 has 1 MA's), (58, 47194), (59, 47191), (62, 47170), (68, 47095), (69, 47092),

Gene: Inventum_69 Start: 45166, Stop: 45558, Start Num: 38

Candidate Starts for Inventum_69:

(1, 44821), (2, 44878), (4, 44902), (5, 44920), (7, 44935), (10, 44956), (15, 44989), (17, 45007), (Start: 38 @45166 has 6 MA's), (Start: 52 @45328 has 2 MA's), (58, 45406), (59, 45409), (62, 45430), (64, 45439), (67, 45466), (78, 45547),

Gene: Jiawan_81 Start: 46876, Stop: 46361, Start Num: 24

Candidate Starts for Jiawan_81:

(6, 47008), (8, 46984), (17, 46927), (Start: 24 @46876 has 17 MA's), (Start: 45 @46669 has 15 MA's), (48, 46648), (Start: 52 @46600 has 2 MA's), (58, 46522), (59, 46519), (67, 46432),

Gene: Jumbo_36 Start: 42029, Stop: 42262, Start Num: 56

Candidate Starts for Jumbo_36:

(11, 41654), (14, 41663), (23, 41735), (25, 41738), (28, 41762), (32, 41798), (34, 41834), (42, 41870), (Start: 56 @42029 has 1 MA's), (59, 42101), (67, 42161), (68, 42167), (70, 42182), (77, 42245),

Gene: KHumphrey_43 Start: 27399, Stop: 27866, Start Num: 31

Candidate Starts for KHumphrey_43:

(3, 27171), (6, 27210), (9, 27237), (17, 27291), (19, 27303), (22, 27336), (Start: 31 @27399 has 3 MA's), (41, 27474), (44, 27564), (Start: 45 @27570 has 15 MA's), (48, 27591), (53, 27642), (58, 27717), (59, 27720), (71, 27804), (72, 27828), (74, 27837), (76, 27849),

Gene: KingMidas_70 Start: 45569, Stop: 45961, Start Num: 38

Candidate Starts for KingMidas_70:

(1, 45224), (2, 45281), (4, 45305), (5, 45323), (7, 45338), (10, 45359), (15, 45392), (17, 45410), (Start: 38 @45569 has 6 MA's), (Start: 52 @45731 has 2 MA's), (58, 45809), (59, 45812), (62, 45833), (64, 45842), (67, 45869), (78, 45950),

Gene: KingPhillip3_5 Start: 1579, Stop: 1196, Start Num: 36

Candidate Starts for KingPhillip3_5:

(12, 1765), (29, 1648), (Start: 30 @1633 has 1 MA's), (Start: 35 @1582 has 1 MA's), (Start: 36 @1579 has 1 MA's), (46, 1465), (47, 1456), (50, 1432), (58, 1327), (59, 1324), (65, 1288), (70, 1249), (74,

1213),

Gene: Kipper29_88 Start: 46875, Stop: 46564, Start Num: 45

Candidate Starts for Kipper29_88:

(6, 47214), (8, 47190), (16, 47136), (17, 47133), (20, 47115), (Start: 45 @46875 has 15 MA's), (49, 46851), (Start: 52 @46806 has 2 MA's), (58, 46728), (59, 46725), (62, 46704), (68, 46629), (69, 46626),

Gene: Lilleskat_81 Start: 46857, Stop: 46342, Start Num: 24

Candidate Starts for Lilleskat_81:

(6, 46989), (8, 46965), (17, 46908), (Start: 24 @46857 has 17 MA's), (Start: 45 @46650 has 15 MA's), (48, 46629), (Start: 52 @46581 has 2 MA's), (58, 46503), (59, 46500), (67, 46413),

Gene: Lucyedi_87 Start: 48804, Stop: 48367, Start Num: 33

Candidate Starts for Lucyedi_87:

(6, 49023), (8, 48999), (16, 48945), (17, 48942), (Start: 33 @48804 has 8 MA's), (Start: 45 @48681 has 15 MA's), (48, 48660), (58, 48534), (63, 48501), (68, 48432), (69, 48429), (72, 48390),

Gene: McFly_88 Start: 47211, Stop: 46900, Start Num: 45

Candidate Starts for McFly_88:

(6, 47550), (8, 47526), (16, 47472), (17, 47469), (20, 47451), (Start: 45 @47211 has 15 MA's), (49, 47187), (Start: 52 @47142 has 2 MA's), (58, 47064), (59, 47061), (62, 47040), (68, 46965), (69, 46962),

Gene: Murai_5 Start: 1530, Stop: 1147, Start Num: 36

Candidate Starts for Murai_5:

(12, 1716), (29, 1599), (Start: 30 @1584 has 1 MA's), (Start: 35 @1533 has 1 MA's), (Start: 36 @1530 has 1 MA's), (46, 1416), (47, 1407), (50, 1383), (58, 1278), (59, 1275), (65, 1239), (70, 1200), (74, 1164),

Gene: Myxus_84 Start: 46898, Stop: 46383, Start Num: 24

Candidate Starts for Myxus_84:

(6, 47030), (8, 47006), (17, 46949), (Start: 24 @46898 has 17 MA's), (Start: 45 @46691 has 15 MA's), (48, 46670), (Start: 52 @46622 has 2 MA's), (58, 46544), (59, 46541), (67, 46454),

Gene: Neeharika16_87 Start: 46962, Stop: 46651, Start Num: 45

Candidate Starts for Neeharika16_87:

(6, 47301), (8, 47277), (16, 47223), (17, 47220), (20, 47202), (Start: 45 @46962 has 15 MA's), (49, 46938), (Start: 52 @46893 has 2 MA's), (58, 46815), (59, 46812), (62, 46791), (68, 46716), (69, 46713),

Gene: Newrala_87 Start: 47308, Stop: 46997, Start Num: 45

Candidate Starts for Newrala_87:

(6, 47647), (8, 47623), (16, 47569), (17, 47566), (20, 47548), (Start: 45 @47308 has 15 MA's), (49, 47284), (Start: 52 @47239 has 2 MA's), (58, 47161), (59, 47158), (62, 47137), (68, 47062), (69, 47059),

Gene: Onglai_82 Start: 45048, Stop: 44533, Start Num: 24

Candidate Starts for Onglai_82:

(6, 45180), (8, 45156), (17, 45099), (Start: 24 @45048 has 17 MA's), (Start: 45 @44841 has 15 MA's), (48, 44820), (Start: 52 @44772 has 2 MA's), (58, 44694), (59, 44691), (67, 44604),

Gene: PackMan_83 Start: 46722, Stop: 46258, Start Num: 31

Candidate Starts for PackMan_83:

(Start: 31 @46722 has 3 MA's), (40, 46662), (Start: 45 @46566 has 15 MA's), (48, 46545), (Start: 52 @46497 has 2 MA's), (58, 46419), (59, 46416), (67, 46329),

Gene: PainterBoy_86 Start: 48515, Stop: 48078, Start Num: 33

Candidate Starts for PainterBoy_86:

(6, 48734), (8, 48710), (16, 48656), (17, 48653), (Start: 33 @48515 has 8 MA's), (Start: 45 @48392 has 15 MA's), (48, 48371), (58, 48245), (63, 48212), (68, 48143), (69, 48140), (72, 48101),

Gene: PeaceMeal1_75 Start: 45639, Stop: 45220, Start Num: 33

Candidate Starts for PeaceMeal1_75:

(6, 45855), (8, 45831), (17, 45774), (Start: 33 @45639 has 8 MA's), (Start: 52 @45450 has 2 MA's), (58, 45372), (59, 45369), (62, 45348), (64, 45336), (68, 45282),

Gene: Phaeder_84 Start: 46773, Stop: 46258, Start Num: 24

Candidate Starts for Phaeder_84:

(6, 46905), (8, 46881), (17, 46824), (Start: 24 @46773 has 17 MA's), (Start: 45 @46566 has 15 MA's), (48, 46545), (Start: 52 @46497 has 2 MA's), (58, 46419), (59, 46416), (67, 46329),

Gene: Phlei_63 Start: 43732, Stop: 43292, Start Num: 26

Candidate Starts for Phlei_63:

(6, 43876), (8, 43858), (16, 43804), (21, 43771), (26, 43732), (48, 43588), (Start: 52 @43540 has 2 MA's), (54, 43534), (58, 43462), (59, 43459), (67, 43378), (68, 43372), (75, 43312),

Gene: Phonnegut_84 Start: 46789, Stop: 46274, Start Num: 24

Candidate Starts for Phonnegut_84:

(6, 46921), (8, 46897), (17, 46840), (Start: 24 @46789 has 17 MA's), (Start: 45 @46582 has 15 MA's), (48, 46561), (Start: 52 @46513 has 2 MA's), (58, 46435), (59, 46432), (67, 46345),

Gene: Pioneer_84 Start: 46789, Stop: 46274, Start Num: 24

Candidate Starts for Pioneer_84:

(6, 46921), (8, 46897), (17, 46840), (Start: 24 @46789 has 17 MA's), (Start: 45 @46582 has 15 MA's), (48, 46561), (Start: 52 @46513 has 2 MA's), (58, 46435), (59, 46432), (67, 46345),

Gene: Pmask_87 Start: 47509, Stop: 47198, Start Num: 45

Candidate Starts for Pmask_87:

(6, 47848), (8, 47824), (16, 47770), (17, 47767), (20, 47749), (Start: 45 @47509 has 15 MA's), (49, 47485), (Start: 52 @47440 has 2 MA's), (58, 47362), (59, 47359), (62, 47338), (68, 47263), (69, 47260),

Gene: Polyphemus_80 Start: 45280, Stop: 44969, Start Num: 45

Candidate Starts for Polyphemus_80:

(6, 45619), (8, 45595), (16, 45541), (17, 45538), (20, 45520), (Start: 45 @45280 has 15 MA's), (49, 45256), (Start: 52 @45211 has 2 MA's), (58, 45133), (59, 45130), (62, 45109), (68, 45034), (69, 45031),

Gene: Poompha_75 Start: 45637, Stop: 45218, Start Num: 33

Candidate Starts for Poompha_75:

(6, 45853), (8, 45829), (17, 45772), (Start: 33 @45637 has 8 MA's), (Start: 52 @45448 has 2 MA's), (58, 45370), (59, 45367), (62, 45346), (64, 45334), (68, 45280),

Gene: Priamo_89 Start: 46752, Stop: 46441, Start Num: 45

Candidate Starts for Priamo_89:

(6, 47091), (8, 47067), (16, 47013), (17, 47010), (20, 46992), (Start: 45 @46752 has 15 MA's), (49, 46728), (Start: 52 @46683 has 2 MA's), (58, 46605), (59, 46602), (62, 46581), (68, 46506), (69, 46503),

Gene: Qobbit_82 Start: 46523, Stop: 46008, Start Num: 24

Candidate Starts for Qobbit_82:

(6, 46655), (8, 46631), (16, 46577), (17, 46574), (Start: 24 @46523 has 17 MA's), (Start: 45 @46316 has 15 MA's), (48, 46295), (Start: 52 @46247 has 2 MA's), (58, 46169), (59, 46166), (67, 46079),

Gene: Rebeuca_79 Start: 46991, Stop: 46488, Start Num: 24

Candidate Starts for Rebeuca_79:

(6, 47123), (8, 47099), (17, 47042), (Start: 24 @46991 has 17 MA's), (Start: 33 @46907 has 8 MA's), (Start: 52 @46718 has 2 MA's), (58, 46640), (59, 46637), (64, 46604), (68, 46550),

Gene: Renna12_42 Start: 27456, Stop: 27923, Start Num: 31

Candidate Starts for Renna12_42:

(3, 27228), (6, 27267), (9, 27294), (17, 27348), (19, 27360), (22, 27393), (Start: 31 @27456 has 3 MA's), (41, 27531), (44, 27621), (Start: 45 @27627 has 15 MA's), (48, 27648), (53, 27699), (58, 27774), (59, 27777), (71, 27861), (72, 27885), (74, 27894), (76, 27906),

Gene: Rowdy_80 Start: 46614, Stop: 46195, Start Num: 33

Candidate Starts for Rowdy_80:

(6, 46830), (8, 46806), (17, 46749), (Start: 33 @46614 has 8 MA's), (58, 46347), (59, 46344), (62, 46323), (68, 46257),

Gene: RyeScarlet_85 Start: 46764, Stop: 46249, Start Num: 24

Candidate Starts for RyeScarlet_85:

(6, 46896), (8, 46872), (17, 46815), (Start: 24 @46764 has 17 MA's), (Start: 45 @46557 has 15 MA's), (48, 46536), (Start: 52 @46488 has 2 MA's), (58, 46410), (59, 46407), (67, 46320),

Gene: Sachima_80 Start: 46801, Stop: 46286, Start Num: 24

Candidate Starts for Sachima_80:

(6, 46933), (8, 46909), (17, 46852), (Start: 24 @46801 has 17 MA's), (Start: 45 @46594 has 15 MA's), (48, 46573), (Start: 52 @46525 has 2 MA's), (58, 46447), (59, 46444), (67, 46357),

Gene: Sassafras_72 Start: 45165, Stop: 45557, Start Num: 38

Candidate Starts for Sassafras_72:

(1, 44820), (2, 44877), (4, 44901), (5, 44919), (7, 44934), (10, 44955), (15, 44988), (17, 45006), (Start: 38 @45165 has 6 MA's), (Start: 52 @45327 has 2 MA's), (58, 45405), (59, 45408), (62, 45429), (64, 45438), (67, 45465), (78, 45546),

Gene: Scherzo_82 Start: 46821, Stop: 46306, Start Num: 24

Candidate Starts for Scherzo_82:

(6, 46953), (8, 46929), (17, 46872), (Start: 24 @46821 has 17 MA's), (Start: 45 @46614 has 15 MA's), (48, 46593), (Start: 52 @46545 has 2 MA's), (58, 46467), (59, 46464), (67, 46377),

Gene: Scottish_69 Start: 44824, Stop: 45216, Start Num: 38

Candidate Starts for Scottish_69:

(1, 44479), (2, 44536), (4, 44560), (5, 44578), (7, 44593), (10, 44614), (15, 44647), (17, 44665), (Start: 38 @44824 has 6 MA's), (Start: 52 @44986 has 2 MA's), (58, 45064), (59, 45067), (62, 45088), (64, 45097), (67, 45124), (78, 45205),

Gene: Severus_76 Start: 45637, Stop: 45218, Start Num: 33

Candidate Starts for Severus_76:

(6, 45853), (8, 45829), (17, 45772), (Start: 33 @45637 has 8 MA's), (Start: 52 @45448 has 2 MA's), (58, 45370), (59, 45367), (62, 45346), (64, 45334), (68, 45280),

Gene: Shapes_80 Start: 46614, Stop: 46195, Start Num: 33

Candidate Starts for Shapes_80:

(6, 46830), (8, 46806), (17, 46749), (Start: 33 @46614 has 8 MA's), (58, 46347), (59, 46344), (62, 46323), (68, 46257),

Gene: ShowerHandel_74 Start: 46069, Stop: 46452, Start Num: 38

Candidate Starts for ShowerHandel_74:

(1, 45724), (2, 45781), (4, 45805), (5, 45823), (7, 45838), (10, 45859), (15, 45892), (17, 45910), (Start: 38 @46069 has 6 MA's), (Start: 52 @46231 has 2 MA's), (58, 46309), (59, 46312), (62, 46333), (64, 46342), (67, 46369), (72, 46417), (78, 46441),

Gene: SuperAwesome_88 Start: 47548, Stop: 47237, Start Num: 45

Candidate Starts for SuperAwesome_88:

(6, 47887), (8, 47863), (16, 47809), (17, 47806), (20, 47788), (Start: 45 @47548 has 15 MA's), (49, 47524), (Start: 52 @47479 has 2 MA's), (58, 47401), (59, 47398), (62, 47377), (68, 47302), (69, 47299),

Gene: SuperCallie99_84 Start: 46929, Stop: 46618, Start Num: 45

Candidate Starts for SuperCallie99_84:

(6, 47268), (8, 47244), (16, 47190), (17, 47187), (20, 47169), (Start: 45 @46929 has 15 MA's), (49, 46905), (Start: 52 @46860 has 2 MA's), (58, 46782), (59, 46779), (62, 46758), (68, 46683), (69, 46680),

Gene: Temprado_91 Start: 47274, Stop: 47029, Start Num: 51

Candidate Starts for Temprado_91:

(6, 47679), (8, 47655), (16, 47601), (17, 47598), (20, 47580), (Start: 51 @47274 has 1 MA's), (58, 47193), (59, 47190), (62, 47169), (68, 47094), (69, 47091),

Gene: Tubs_84 Start: 46773, Stop: 46258, Start Num: 24

Candidate Starts for Tubs_84:

(6, 46905), (8, 46881), (17, 46824), (Start: 24 @46773 has 17 MA's), (Start: 45 @46566 has 15 MA's), (48, 46545), (Start: 52 @46497 has 2 MA's), (58, 46419), (59, 46416), (67, 46329),

Gene: Twister_78 Start: 46549, Stop: 46046, Start Num: 24

Candidate Starts for Twister_78:

(6, 46681), (8, 46657), (17, 46600), (Start: 24 @46549 has 17 MA's), (Start: 33 @46465 has 8 MA's), (Start: 52 @46276 has 2 MA's), (58, 46198), (59, 46195), (64, 46162), (68, 46108),

Gene: Vagabond_5 Start: 1719, Stop: 1288, Start Num: 30

Candidate Starts for Vagabond_5:

(12, 1851), (29, 1734), (Start: 30 @1719 has 1 MA's), (Start: 35 @1668 has 1 MA's), (Start: 36 @1665 has 1 MA's), (46, 1557), (47, 1548), (58, 1419), (59, 1416), (65, 1380), (70, 1341), (74, 1305),

Gene: VohminGhazi_88 Start: 46867, Stop: 46556, Start Num: 45

Candidate Starts for VohminGhazi_88:

(6, 47206), (8, 47182), (16, 47128), (17, 47125), (20, 47107), (Start: 45 @46867 has 15 MA's), (49, 46843), (Start: 52 @46798 has 2 MA's), (58, 46720), (59, 46717), (62, 46696), (68, 46621), (69, 46618),

Gene: Whitney_81 Start: 48351, Stop: 48581, Start Num: 52

Candidate Starts for Whitney_81:

(Start: 52 @48351 has 2 MA's), (58, 48429), (59, 48432), (65, 48471), (67, 48489), (73, 48543),

Gene: Wogge42_5 Start: 1668, Stop: 1291, Start Num: 36

Candidate Starts for Wogge42_5:

(12, 1854), (29, 1737), (Start: 30 @1722 has 1 MA's), (Start: 35 @1671 has 1 MA's), (Start: 36 @1668 has 1 MA's), (46, 1560), (47, 1551), (58, 1422), (59, 1419), (65, 1383), (70, 1344), (74, 1308),

Gene: Zebo_5 Start: 1579, Stop: 1196, Start Num: 36

Candidate Starts for Zebo_5:

(12, 1765), (29, 1648), (Start: 30 @1633 has 1 MA's), (Start: 35 @1582 has 1 MA's), (Start: 36 @1579 has 1 MA's), (46, 1465), (47, 1456), (50, 1432), (58, 1327), (59, 1324), (65, 1288), (70, 1249), (74, 1213),

Gene: Zulu_91 Start: 47348, Stop: 47037, Start Num: 45

Candidate Starts for Zulu_91:

(6, 47687), (8, 47663), (16, 47609), (17, 47606), (20, 47588), (Start: 45 @47348 has 15 MA's), (49, 47324), (Start: 52 @47279 has 2 MA's), (58, 47201), (59, 47198), (62, 47177), (68, 47102), (69, 47099),