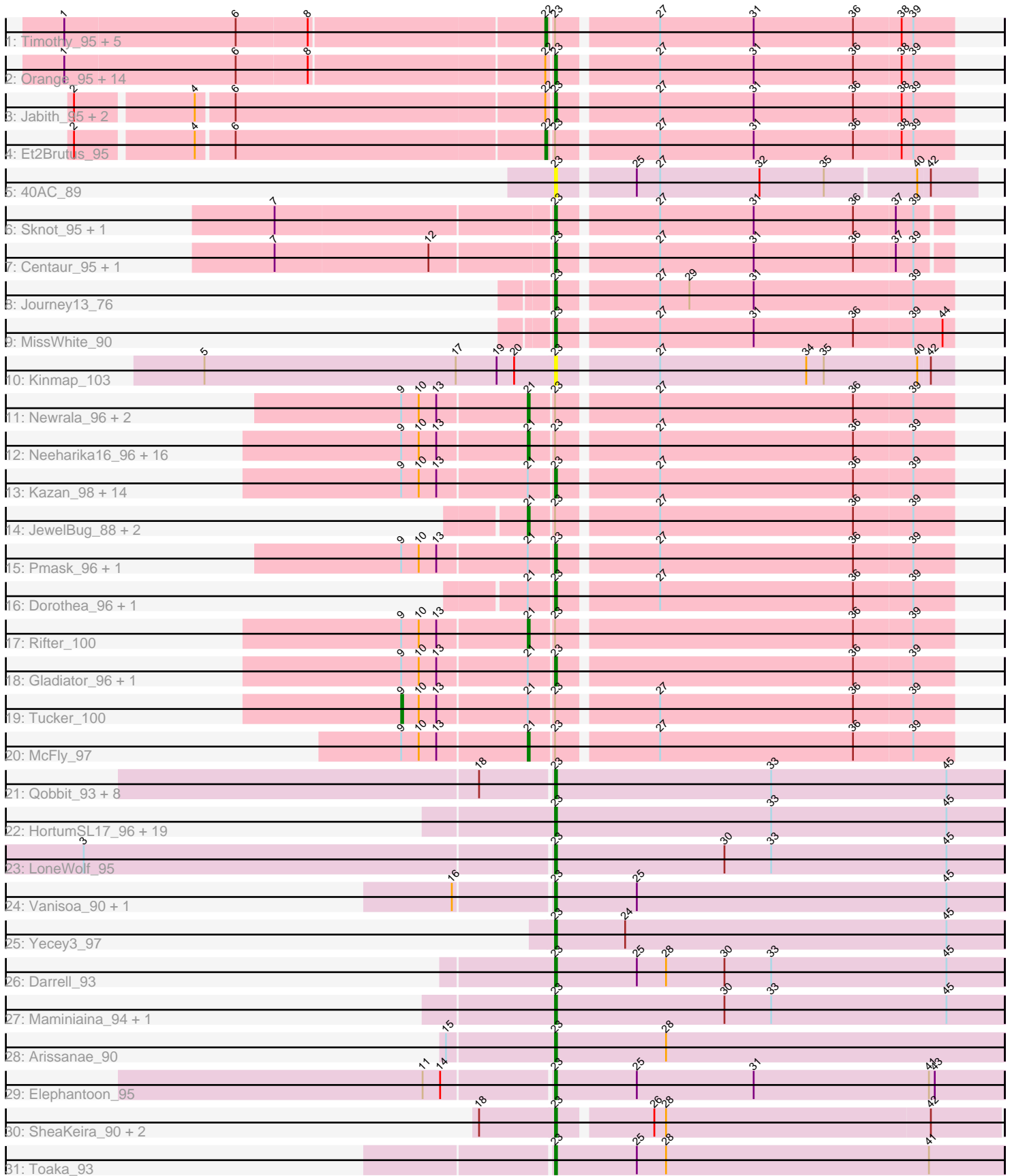


Pham 224407



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 224407 Report

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

Pham number 224407 has 122 members, 20 are drafts.

Phages represented in each track:

- Track 1 : Timothy_95, Aneem_96, Munch_94, Lucivia_96, Insomnia_95, Sham4_92
- Track 2 : Orange_95, Joselito_93, Gilberta_93, TinyTimmy_93, Bachome_93, Ebony_94, Mulciber_94, Flaverint_96, Petersenfast_89, Bud_88, Mabel_95, Snape_95, Bowtie_91, MaCh_95, Fibonacci_95
- Track 3 : Jabith_95, Salz_91, Hutc2_92
- Track 4 : Et2Brutus_95
- Track 5 : 40AC_89
- Track 6 : Sknot_95, Baehexic_94
- Track 7 : Centaur_95, Terrific_96
- Track 8 : Journey13_76
- Track 9 : MissWhite_90
- Track 10 : Kinmap_103
- Track 11 : Newrala_96, Hoot_92, SuperAwesome_97
- Track 12 : Neeharika16_96, Zaka_100, EricB_95, Indra_102, VohminGhazi_97, Hexamo_99, Zulu_101, BABullseye_90, Lilbunny_96, Gruunaga_100, Cookiedough_97, Wiks_99, Koko_101, Artemis2UCLA_99, SmellyB_97, Isiphiwo_94, CloudWang3_100
- Track 13 : Kazan_98, DaVinci_95, Chartreuse_95, Hammer_100, Roksolana_100, BlessJoy_99, Yokurt_99, Candra_95, Jeffabunny_88, Blue7_101, ToneTone_96, Helmet_101, Priamo_97, Garak_101, Temprado_101
- Track 14 : JewelBug_88, Jordennis_94, Kipper29_96
- Track 15 : Pmask_96, GreedyLawyer_87
- Track 16 : Dorothea_96, Polyphemus_88
- Track 17 : Rifter_100
- Track 18 : Gladiator_96, SuperCallie99_94
- Track 19 : Tucker_100
- Track 20 : McFly_97
- Track 21 : Qobbit_93, EmyBug_92, Alma_93, Fayely_93, Conquerage_93, ExplosioNervosa_93, Priya_93, Eidsmoe_93, Spouty_93
- Track 22 : HortumSL17_96, Catalina_97, Aliter_88, Onglai_93, Scherzo_93, Phonnegut_95, Tubs_95, Sachima_91, Lilleskat_92, Pioneer_95, Phaeder_95, Jiawan_93, Hanray_93, Beemo_95, Myxus_95, Holecx_94, RyeScarlet_96, Ugenie5_82, PackMan_90, EdogawaKiddo_94
- Track 23 : LoneWolf_95
- Track 24 : Vanisoa_90, Rahalelujah_94
- Track 25 : Yecey3_97
- Track 26 : Darrell_93

- Track 27 : Maminaiaina_94, BogosyJay_94
- Track 28 : Arissanae_90
- Track 29 : Elephantoon_95
- Track 30 : SheaKeira_90, Charm_90, DreamTeam1_91
- Track 31 : Toaka_93

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 69 of the 102 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 40AC_89, Aliter_88, Alma_93, Arissanae_90, Bachome_93, Baehexic_94, Beemo_95, BlessJoy_99, Blue7_101, BogosyJay_94, Bowtie_91, Bud_88, Candra_95, Catalina_97, Centaur_95, Charm_90, Chartreuse_95, Conquerage_93, DaVinci_95, Darrell_93, Dorothea_96, DreamTeam1_91, Ebony_94, EdogawaKiddo_94, Eidsmoe_93, Elephantoon_95, EmyBug_92, ExplosioNervosa_93, Fayely_93, Fibonacci_95, Flaverint_96, Garak_101, Gilberta_93, Gladiator_96, GreedyLawyer_87, Hammer_100, Hanray_93, Helmet_101, Halex_94, HortumSL17_96, Hutc2_92, Jabith_95, Jeffabunny_88, Jiawan_93, Joselito_93, Journey13_76, Kazan_98, Kinmap_103, Lilleskat_92, LoneWolf_95, MaCh_95, Mabel_95, Maminaiaina_94, MissWhite_90, Mulciber_94, Myxus_95, Onglai_93, Orange_95, PackMan_90, Petersenfast_89, Phaeder_95, Phonnegut_95, Pioneer_95, Pmask_96, Polyphemos_88, Priamo_97, Priya_93, Qobbit_93, Rahalelujah_94, Roksolana_100, RyeScarlet_96, Sachima_91, Salz_91, Scherzo_93, SheaKeira_90, Sknot_95, Snape_95, Spouty_93, SuperCallie99_94, Temprado_101, Terrific_96, TinyTimmy_93, Toaka_93, ToneTone_96, Tubs_95, Ugenie5_82, Vanisoa_90, Yecy3_97, Yokurt_99,

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

- Aneem_96, Artemis2UCLA_99, BABullseye_90, CloudWang3_100, Cookiedough_97, EricB_95, Et2Brutus_95, Gruunaga_100, Hexamo_99, Hoot_92, Indra_102, Insomnia_95, Isiphiwo_94, JewelBug_88, Jordennis_94, Kipper29_96, Koko_101, Lilbunny_96, Lucivia_96, McFly_97, Munch_94, Neeharika16_96, Newrala_96, Rifter_100, Sham4_92, SmellyB_97, SuperAwesome_97, Timothy_95, Tucker_100, VohminGhazi_97, Wiks_99, Zaka_100, Zulu_101,

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

-

Summary by start number:

Start 9:

- Found in 42 of 122 (34.4%) of genes in pham
- Manual Annotations of this start: 1 of 102
- Called 2.4% of time when present
- Phage (with cluster) where this start called: Tucker_100 (A6),

Start 21:

- Found in 47 of 122 (38.5%) of genes in pham

- Manual Annotations of this start: 25 of 102
- Called 53.2% of time when present
- Phage (with cluster) where this start called: Artemis2UCLA_99 (A6), BABullseye_90 (A6), CloudWang3_100 (A6), Cookiedough_97 (A6), EricB_95 (A6), Gruunaga_100 (A6), Hexamo_99 (A6), Hoot_92 (A6), Indra_102 (A6), Isiphiwo_94 (A6), JewelBug_88 (A6), Jordennis_94 (A6), Kipper29_96 (A6), Koko_101 (A6), Lilbunny_96 (A6), McFly_97 (A6), Neeharika16_96 (A6), Newrala_96 (A6), Rifter_100 (A6), SmellyB_97 (A6), SuperAwesome_97 (A6), VohminGhazi_97 (A6), Wiks_99 (A6), Zaka_100 (A6), Zulu_101 (A6),

Start 22:

- Found in 25 of 122 (20.5%) of genes in pham
- Manual Annotations of this start: 7 of 102
- Called 28.0% of time when present
- Phage (with cluster) where this start called: Aneem_96 (A11), Et2Brutus_95 (A11), Insomnia_95 (A11), Lucivia_96 (A11), Munch_94 (A11), Sham4_92 (A11), Timothy_95 (A11),

Start 23:

- Found in 122 of 122 (100.0%) of genes in pham
- Manual Annotations of this start: 69 of 102
- Called 73.0% of time when present
- Phage (with cluster) where this start called: 40AC_89 (A17), Aliter_88 (A9), Alma_93 (A9), Arissanae_90 (A9), Bachome_93 (A11), Baehexic_94 (A2), Beemo_95 (A9), BlessJoy_99 (A6), Blue7_101 (A6), BogosyJay_94 (A9), Bowtie_91 (A11), Bud_88 (A11), Candra_95 (A6), Catalina_97 (A9), Centaur_95 (A2), Charm_90 (A9), Chartreuse_95 (A6), Conquerage_93 (A9), DaVinci_95 (A6), Darrell_93 (A9), Dorothea_96 (A6), DreamTeam1_91 (A9), Ebony_94 (A11), EdogawaKiddo_94 (A9), Eidsmoe_93 (A9), Elephantoon_95 (A9), EmyBug_92 (A9), ExplosioNervosa_93 (A9), Fayely_93 (A9), Fibonacci_95 (A11), Flaverint_96 (A11), Garak_101 (A6), Gilberta_93 (A11), Gladiator_96 (A6), GreedyLawyer_87 (A6), Hammer_100 (A6), Hanray_93 (A9), Helmet_101 (A6), Halex_94 (A9), HortumSL17_96 (A9), Hutc2_92 (A11), Jabith_95 (A11), Jeffabunny_88 (A6), Jiawan_93 (A9), Joselito_93 (A11), Journey13_76 (A2), Kazan_98 (A6), Kinmap_103 (A21), Lilleskat_92 (A9), LoneWolf_95 (A9), MaCh_95 (A11), Mabel_95 (A11), Maminiaina_94 (A9), MissWhite_90 (A2), Mulciber_94 (A11), Myxus_95 (A9), Onglai_93 (A9), Orange_95 (A11), PackMan_90 (A9), Petersenfast_89 (A11), Phaeder_95 (A9), Phonnegut_95 (A9), Pioneer_95 (A9), Pmask_96 (A6), Polyphemus_88 (A6), Priamo_97 (A6), Priya_93 (A9), Qobbit_93 (A9), Rahalelujah_94 (A9), Roksolana_100 (A6), RyeScarlet_96 (A9), Sachima_91 (A9), Salz_91 (A11), Scherzo_93 (A9), SheaKeira_90 (A9), Sknot_95 (A2), Snape_95 (A11), Spouty_93 (A9), SuperCallie99_94 (A6), Temprado_101 (A6), Terrific_96 (A2), TinyTimmy_93 (A11), Toaka_93 (A9), ToneTone_96 (A6), Tubs_95 (A9), Ugenie5_82 (A9), Vanisoa_90 (A9), Yecey3_97 (A9), Yokurt_99 (A6),

Summary by clusters:

There are 6 clusters represented in this pham: A21, A17, A11, A2, A6, A9,

Info for manual annotations of cluster A11:

- Start number 22 was manually annotated 7 times for cluster A11.
- Start number 23 was manually annotated 17 times for cluster A11.

Info for manual annotations of cluster A2:

- Start number 23 was manually annotated 4 times for cluster A2.

Info for manual annotations of cluster A6:

- Start number 9 was manually annotated 1 time for cluster A6.
- Start number 21 was manually annotated 25 times for cluster A6.
- Start number 23 was manually annotated 14 times for cluster A6.

Info for manual annotations of cluster A9:

- Start number 23 was manually annotated 34 times for cluster A9.

Gene Information:

Gene: 40AC_89 Start: 50824, Stop: 50618, Start Num: 23

Candidate Starts for 40AC_89:

(Start: 23 @50824 has 69 MA's), (25, 50788), (27, 50776), (32, 50725), (35, 50692), (40, 50647), (42, 50641),

Gene: Aliter_88 Start: 47544, Stop: 47314, Start Num: 23

Candidate Starts for Aliter_88:

(Start: 23 @47544 has 69 MA's), (33, 47433), (45, 47343),

Gene: Alma_93 Start: 50375, Stop: 50145, Start Num: 23

Candidate Starts for Alma_93:

(18, 50411), (Start: 23 @50375 has 69 MA's), (33, 50264), (45, 50174),

Gene: Aneem_96 Start: 49808, Stop: 49608, Start Num: 22

Candidate Starts for Aneem_96:

(1, 50048), (6, 49961), (8, 49925), (Start: 22 @49808 has 7 MA's), (Start: 23 @49805 has 69 MA's), (27, 49757), (31, 49709), (36, 49658), (38, 49634), (39, 49628),

Gene: Arissanae_90 Start: 50239, Stop: 50009, Start Num: 23

Candidate Starts for Arissanae_90:

(15, 50293), (Start: 23 @50239 has 69 MA's), (28, 50182),

Gene: Artemis2UCLA_99 Start: 49409, Stop: 49200, Start Num: 21

Candidate Starts for Artemis2UCLA_99:

(Start: 9 @49472 has 1 MA's), (10, 49463), (13, 49454), (Start: 21 @49409 has 25 MA's), (Start: 23 @49397 has 69 MA's), (27, 49349), (36, 49250), (39, 49220),

Gene: BABullseye_90 Start: 47547, Stop: 47338, Start Num: 21

Candidate Starts for BABullseye_90:

(Start: 9 @47610 has 1 MA's), (10, 47601), (13, 47592), (Start: 21 @47547 has 25 MA's), (Start: 23 @47535 has 69 MA's), (27, 47487), (36, 47388), (39, 47358),

Gene: Bachome_93 Start: 48853, Stop: 48656, Start Num: 23

Candidate Starts for Bachome_93:

(1, 49096), (6, 49009), (8, 48973), (Start: 22 @48856 has 7 MA's), (Start: 23 @48853 has 69 MA's), (27, 48805), (31, 48757), (36, 48706), (38, 48682), (39, 48676),

Gene: Baehexic_94 Start: 50815, Stop: 50621, Start Num: 23

Candidate Starts for Baehexic_94:

(7, 50953), (Start: 23 @50815 has 69 MA's), (27, 50767), (31, 50719), (36, 50668), (37, 50647), (39, 50638),

Gene: Beemo_95 Start: 50377, Stop: 50147, Start Num: 23

Candidate Starts for Beemo_95:

(Start: 23 @50377 has 69 MA's), (33, 50266), (45, 50176),

Gene: BlessJoy_99 Start: 49921, Stop: 49724, Start Num: 23

Candidate Starts for BlessJoy_99:

(Start: 9 @49996 has 1 MA's), (10, 49987), (13, 49978), (Start: 21 @49933 has 25 MA's), (Start: 23 @49921 has 69 MA's), (27, 49873), (36, 49774), (39, 49744),

Gene: Blue7_101 Start: 49631, Stop: 49434, Start Num: 23

Candidate Starts for Blue7_101:

(Start: 9 @49706 has 1 MA's), (10, 49697), (13, 49688), (Start: 21 @49643 has 25 MA's), (Start: 23 @49631 has 69 MA's), (27, 49583), (36, 49484), (39, 49454),

Gene: BogosyJay_94 Start: 50379, Stop: 50149, Start Num: 23

Candidate Starts for BogosyJay_94:

(Start: 23 @50379 has 69 MA's), (30, 50292), (33, 50268), (45, 50178),

Gene: Bowtie_91 Start: 48412, Stop: 48215, Start Num: 23

Candidate Starts for Bowtie_91:

(1, 48655), (6, 48568), (8, 48532), (Start: 22 @48415 has 7 MA's), (Start: 23 @48412 has 69 MA's), (27, 48364), (31, 48316), (36, 48265), (38, 48241), (39, 48235),

Gene: Bud_88 Start: 48511, Stop: 48314, Start Num: 23

Candidate Starts for Bud_88:

(1, 48754), (6, 48667), (8, 48631), (Start: 22 @48514 has 7 MA's), (Start: 23 @48511 has 69 MA's), (27, 48463), (31, 48415), (36, 48364), (38, 48340), (39, 48334),

Gene: Candra_95 Start: 49243, Stop: 49046, Start Num: 23

Candidate Starts for Candra_95:

(Start: 9 @49318 has 1 MA's), (10, 49309), (13, 49300), (Start: 21 @49255 has 25 MA's), (Start: 23 @49243 has 69 MA's), (27, 49195), (36, 49096), (39, 49066),

Gene: Catalina_97 Start: 50491, Stop: 50261, Start Num: 23

Candidate Starts for Catalina_97:

(Start: 23 @50491 has 69 MA's), (33, 50380), (45, 50290),

Gene: Centaur_95 Start: 50682, Stop: 50488, Start Num: 23

Candidate Starts for Centaur_95:

(7, 50820), (12, 50742), (Start: 23 @50682 has 69 MA's), (27, 50634), (31, 50586), (36, 50535), (37, 50514), (39, 50505),

Gene: Charm_90 Start: 49777, Stop: 49556, Start Num: 23

Candidate Starts for Charm_90:

(18, 49813), (Start: 23 @49777 has 69 MA's), (26, 49732), (28, 49726), (42, 49591),

Gene: Chartreuse_95 Start: 48544, Stop: 48347, Start Num: 23

Candidate Starts for Chartreuse_95:

(Start: 9 @48619 has 1 MA's), (10, 48610), (13, 48601), (Start: 21 @48556 has 25 MA's), (Start: 23 @48544 has 69 MA's), (27, 48496), (36, 48397), (39, 48367),

Gene: CloudWang3_100 Start: 49938, Stop: 49729, Start Num: 21

Candidate Starts for CloudWang3_100:

(Start: 9 @50001 has 1 MA's), (10, 49992), (13, 49983), (Start: 21 @49938 has 25 MA's), (Start: 23 @49926 has 69 MA's), (27, 49878), (36, 49779), (39, 49749),

Gene: Conquerage_93 Start: 50151, Stop: 49921, Start Num: 23

Candidate Starts for Conquerage_93:

(18, 50187), (Start: 23 @50151 has 69 MA's), (33, 50040), (45, 49950),

Gene: Cookiedough_97 Start: 49866, Stop: 49657, Start Num: 21

Candidate Starts for Cookiedough_97:

(Start: 9 @49929 has 1 MA's), (10, 49920), (13, 49911), (Start: 21 @49866 has 25 MA's), (Start: 23 @49854 has 69 MA's), (27, 49806), (36, 49707), (39, 49677),

Gene: DaVinci_95 Start: 48598, Stop: 48401, Start Num: 23

Candidate Starts for DaVinci_95:

(Start: 9 @48673 has 1 MA's), (10, 48664), (13, 48655), (Start: 21 @48610 has 25 MA's), (Start: 23 @48598 has 69 MA's), (27, 48550), (36, 48451), (39, 48421),

Gene: Darrell_93 Start: 49542, Stop: 49312, Start Num: 23

Candidate Starts for Darrell_93:

(Start: 23 @49542 has 69 MA's), (25, 49500), (28, 49485), (30, 49455), (33, 49431), (45, 49341),

Gene: Dorothea_96 Start: 49734, Stop: 49537, Start Num: 23

Candidate Starts for Dorothea_96:

(Start: 21 @49746 has 25 MA's), (Start: 23 @49734 has 69 MA's), (27, 49686), (36, 49587), (39, 49557),

Gene: DreamTeam1_91 Start: 49748, Stop: 49527, Start Num: 23

Candidate Starts for DreamTeam1_91:

(18, 49784), (Start: 23 @49748 has 69 MA's), (26, 49703), (28, 49697), (42, 49562),

Gene: Ebony_94 Start: 49376, Stop: 49179, Start Num: 23

Candidate Starts for Ebony_94:

(1, 49619), (6, 49532), (8, 49496), (Start: 22 @49379 has 7 MA's), (Start: 23 @49376 has 69 MA's), (27, 49328), (31, 49280), (36, 49229), (38, 49205), (39, 49199),

Gene: EdogawaKiddo_94 Start: 50453, Stop: 50223, Start Num: 23

Candidate Starts for EdogawaKiddo_94:

(Start: 23 @50453 has 69 MA's), (33, 50342), (45, 50252),

Gene: Eidsmoe_93 Start: 50144, Stop: 49914, Start Num: 23

Candidate Starts for Eidsmoe_93:

(18, 50180), (Start: 23 @50144 has 69 MA's), (33, 50033), (45, 49943),

Gene: Elephantoon_95 Start: 50266, Stop: 50036, Start Num: 23

Candidate Starts for Elephantoon_95:

(11, 50329), (14, 50320), (Start: 23 @50266 has 69 MA's), (25, 50224), (31, 50164), (41, 50074), (43, 50071),

Gene: EmyBug_92 Start: 50146, Stop: 49916, Start Num: 23
Candidate Starts for EmyBug_92:
(18, 50182), (Start: 23 @50146 has 69 MA's), (33, 50035), (45, 49945),

Gene: EricB_95 Start: 48755, Stop: 48546, Start Num: 21
Candidate Starts for EricB_95:
(Start: 9 @48818 has 1 MA's), (10, 48809), (13, 48800), (Start: 21 @48755 has 25 MA's), (Start: 23 @48743 has 69 MA's), (27, 48695), (36, 48596), (39, 48566),

Gene: Et2Brutus_95 Start: 49656, Stop: 49456, Start Num: 22
Candidate Starts for Et2Brutus_95:
(2, 49887), (4, 49830), (6, 49812), (Start: 22 @49656 has 7 MA's), (Start: 23 @49653 has 69 MA's), (27, 49605), (31, 49557), (36, 49506), (38, 49482), (39, 49476),

Gene: ExplosioNervosa_93 Start: 50212, Stop: 49982, Start Num: 23
Candidate Starts for ExplosioNervosa_93:
(18, 50248), (Start: 23 @50212 has 69 MA's), (33, 50101), (45, 50011),

Gene: Fayely_93 Start: 50120, Stop: 49890, Start Num: 23
Candidate Starts for Fayely_93:
(18, 50156), (Start: 23 @50120 has 69 MA's), (33, 50009), (45, 49919),

Gene: Fibonacci_95 Start: 49659, Stop: 49462, Start Num: 23
Candidate Starts for Fibonacci_95:
(1, 49902), (6, 49815), (8, 49779), (Start: 22 @49662 has 7 MA's), (Start: 23 @49659 has 69 MA's), (27, 49611), (31, 49563), (36, 49512), (38, 49488), (39, 49482),

Gene: Flaverint_96 Start: 49803, Stop: 49606, Start Num: 23
Candidate Starts for Flaverint_96:
(1, 50046), (6, 49959), (8, 49923), (Start: 22 @49806 has 7 MA's), (Start: 23 @49803 has 69 MA's), (27, 49755), (31, 49707), (36, 49656), (38, 49632), (39, 49626),

Gene: Garak_101 Start: 49871, Stop: 49674, Start Num: 23
Candidate Starts for Garak_101:
(Start: 9 @49946 has 1 MA's), (10, 49937), (13, 49928), (Start: 21 @49883 has 25 MA's), (Start: 23 @49871 has 69 MA's), (27, 49823), (36, 49724), (39, 49694),

Gene: Gilberta_93 Start: 48679, Stop: 48482, Start Num: 23
Candidate Starts for Gilberta_93:
(1, 48922), (6, 48835), (8, 48799), (Start: 22 @48682 has 7 MA's), (Start: 23 @48679 has 69 MA's), (27, 48631), (31, 48583), (36, 48532), (38, 48508), (39, 48502),

Gene: Gladiator_96 Start: 49591, Stop: 49394, Start Num: 23
Candidate Starts for Gladiator_96:
(Start: 9 @49666 has 1 MA's), (10, 49657), (13, 49648), (Start: 21 @49603 has 25 MA's), (Start: 23 @49591 has 69 MA's), (36, 49444), (39, 49414),

Gene: GreedyLawyer_87 Start: 49176, Stop: 48979, Start Num: 23
Candidate Starts for GreedyLawyer_87:
(Start: 9 @49251 has 1 MA's), (10, 49242), (13, 49233), (Start: 21 @49188 has 25 MA's), (Start: 23 @49176 has 69 MA's), (27, 49128), (36, 49029), (39, 48999),

Gene: Gruunaga_100 Start: 49559, Stop: 49350, Start Num: 21
Candidate Starts for Gruunaga_100:
(Start: 9 @49622 has 1 MA's), (10, 49613), (13, 49604), (Start: 21 @49559 has 25 MA's), (Start: 23 @49547 has 69 MA's), (27, 49499), (36, 49400), (39, 49370),

Gene: Hammer_100 Start: 49244, Stop: 49047, Start Num: 23
Candidate Starts for Hammer_100:
(Start: 9 @49319 has 1 MA's), (10, 49310), (13, 49301), (Start: 21 @49256 has 25 MA's), (Start: 23 @49244 has 69 MA's), (27, 49196), (36, 49097), (39, 49067),

Gene: Hanray_93 Start: 50442, Stop: 50212, Start Num: 23
Candidate Starts for Hanray_93:
(Start: 23 @50442 has 69 MA's), (33, 50331), (45, 50241),

Gene: Helmet_101 Start: 49871, Stop: 49674, Start Num: 23
Candidate Starts for Helmet_101:
(Start: 9 @49946 has 1 MA's), (10, 49937), (13, 49928), (Start: 21 @49883 has 25 MA's), (Start: 23 @49871 has 69 MA's), (27, 49823), (36, 49724), (39, 49694),

Gene: Hexamo_99 Start: 49424, Stop: 49215, Start Num: 21
Candidate Starts for Hexamo_99:
(Start: 9 @49487 has 1 MA's), (10, 49478), (13, 49469), (Start: 21 @49424 has 25 MA's), (Start: 23 @49412 has 69 MA's), (27, 49364), (36, 49265), (39, 49235),

Gene: Horex_94 Start: 50455, Stop: 50225, Start Num: 23
Candidate Starts for Horex_94:
(Start: 23 @50455 has 69 MA's), (33, 50344), (45, 50254),

Gene: Hoot_92 Start: 47072, Stop: 46863, Start Num: 21
Candidate Starts for Hoot_92:
(Start: 9 @47135 has 1 MA's), (10, 47126), (13, 47117), (Start: 21 @47072 has 25 MA's), (Start: 23 @47060 has 69 MA's), (27, 47012), (36, 46913), (39, 46883),

Gene: HortumSL17_96 Start: 50489, Stop: 50259, Start Num: 23
Candidate Starts for HortumSL17_96:
(Start: 23 @50489 has 69 MA's), (33, 50378), (45, 50288),

Gene: Hutc2_92 Start: 48543, Stop: 48346, Start Num: 23
Candidate Starts for Hutc2_92:
(2, 48777), (4, 48720), (6, 48702), (Start: 22 @48546 has 7 MA's), (Start: 23 @48543 has 69 MA's), (27, 48495), (31, 48447), (36, 48396), (38, 48372), (39, 48366),

Gene: Indra_102 Start: 49884, Stop: 49675, Start Num: 21
Candidate Starts for Indra_102:
(Start: 9 @49947 has 1 MA's), (10, 49938), (13, 49929), (Start: 21 @49884 has 25 MA's), (Start: 23 @49872 has 69 MA's), (27, 49824), (36, 49725), (39, 49695),

Gene: Insomnia_95 Start: 49840, Stop: 49640, Start Num: 22
Candidate Starts for Insomnia_95:
(1, 50080), (6, 49993), (8, 49957), (Start: 22 @49840 has 7 MA's), (Start: 23 @49837 has 69 MA's), (27, 49789), (31, 49741), (36, 49690), (38, 49666), (39, 49660),

Gene: Isiphiwo_94 Start: 48974, Stop: 48765, Start Num: 21

Candidate Starts for Isiphiwo_94:

(Start: 9 @49037 has 1 MA's), (10, 49028), (13, 49019), (Start: 21 @48974 has 25 MA's), (Start: 23 @48962 has 69 MA's), (27, 48914), (36, 48815), (39, 48785),

Gene: Jabith_95 Start: 49851, Stop: 49654, Start Num: 23

Candidate Starts for Jabith_95:

(2, 50085), (4, 50028), (6, 50010), (Start: 22 @49854 has 7 MA's), (Start: 23 @49851 has 69 MA's), (27, 49803), (31, 49755), (36, 49704), (38, 49680), (39, 49674),

Gene: Jeffabunny_88 Start: 46015, Stop: 45818, Start Num: 23

Candidate Starts for Jeffabunny_88:

(Start: 9 @46090 has 1 MA's), (10, 46081), (13, 46072), (Start: 21 @46027 has 25 MA's), (Start: 23 @46015 has 69 MA's), (27, 45967), (36, 45868), (39, 45838),

Gene: JewelBug_88 Start: 47439, Stop: 47230, Start Num: 21

Candidate Starts for JewelBug_88:

(Start: 21 @47439 has 25 MA's), (Start: 23 @47427 has 69 MA's), (27, 47379), (36, 47280), (39, 47250),

Gene: Jiawan_93 Start: 50472, Stop: 50242, Start Num: 23

Candidate Starts for Jiawan_93:

(Start: 23 @50472 has 69 MA's), (33, 50361), (45, 50271),

Gene: Jordennis_94 Start: 49343, Stop: 49134, Start Num: 21

Candidate Starts for Jordennis_94:

(Start: 21 @49343 has 25 MA's), (Start: 23 @49331 has 69 MA's), (27, 49283), (36, 49184), (39, 49154),

Gene: Joselito_93 Start: 49557, Stop: 49360, Start Num: 23

Candidate Starts for Joselito_93:

(1, 49800), (6, 49713), (8, 49677), (Start: 22 @49560 has 7 MA's), (Start: 23 @49557 has 69 MA's), (27, 49509), (31, 49461), (36, 49410), (38, 49386), (39, 49380),

Gene: Journey13_76 Start: 45895, Stop: 45698, Start Num: 23

Candidate Starts for Journey13_76:

(Start: 23 @45895 has 69 MA's), (27, 45847), (29, 45832), (31, 45799), (39, 45718),

Gene: Kazan_98 Start: 49213, Stop: 49016, Start Num: 23

Candidate Starts for Kazan_98:

(Start: 9 @49288 has 1 MA's), (10, 49279), (13, 49270), (Start: 21 @49225 has 25 MA's), (Start: 23 @49213 has 69 MA's), (27, 49165), (36, 49066), (39, 49036),

Gene: Kinmap_103 Start: 51048, Stop: 50851, Start Num: 23

Candidate Starts for Kinmap_103:

(5, 51225), (17, 51096), (19, 51075), (20, 51066), (Start: 23 @51048 has 69 MA's), (27, 51000), (34, 50925), (35, 50916), (40, 50868), (42, 50862),

Gene: Kipper29_96 Start: 49118, Stop: 48909, Start Num: 21

Candidate Starts for Kipper29_96:

(Start: 21 @49118 has 25 MA's), (Start: 23 @49106 has 69 MA's), (27, 49058), (36, 48959), (39, 48929),

Gene: Koko_101 Start: 50273, Stop: 50064, Start Num: 21

Candidate Starts for Koko_101:

(Start: 9 @50336 has 1 MA's), (10, 50327), (13, 50318), (Start: 21 @50273 has 25 MA's), (Start: 23 @50261 has 69 MA's), (27, 50213), (36, 50114), (39, 50084),

Gene: Lilbunny_96 Start: 48131, Stop: 47922, Start Num: 21

Candidate Starts for Lilbunny_96:

(Start: 9 @48194 has 1 MA's), (10, 48185), (13, 48176), (Start: 21 @48131 has 25 MA's), (Start: 23 @48119 has 69 MA's), (27, 48071), (36, 47972), (39, 47942),

Gene: Lilleskat_92 Start: 50443, Stop: 50213, Start Num: 23

Candidate Starts for Lilleskat_92:

(Start: 23 @50443 has 69 MA's), (33, 50332), (45, 50242),

Gene: LoneWolf_95 Start: 50480, Stop: 50250, Start Num: 23

Candidate Starts for LoneWolf_95:

(3, 50717), (Start: 23 @50480 has 69 MA's), (30, 50393), (33, 50369), (45, 50279),

Gene: Lucivia_96 Start: 49839, Stop: 49639, Start Num: 22

Candidate Starts for Lucivia_96:

(1, 50079), (6, 49992), (8, 49956), (Start: 22 @49839 has 7 MA's), (Start: 23 @49836 has 69 MA's), (27, 49788), (31, 49740), (36, 49689), (38, 49665), (39, 49659),

Gene: MaCh_95 Start: 49800, Stop: 49603, Start Num: 23

Candidate Starts for MaCh_95:

(1, 50043), (6, 49956), (8, 49920), (Start: 22 @49803 has 7 MA's), (Start: 23 @49800 has 69 MA's), (27, 49752), (31, 49704), (36, 49653), (38, 49629), (39, 49623),

Gene: Mabel_95 Start: 49801, Stop: 49604, Start Num: 23

Candidate Starts for Mabel_95:

(1, 50044), (6, 49957), (8, 49921), (Start: 22 @49804 has 7 MA's), (Start: 23 @49801 has 69 MA's), (27, 49753), (31, 49705), (36, 49654), (38, 49630), (39, 49624),

Gene: Maminiaina_94 Start: 50361, Stop: 50131, Start Num: 23

Candidate Starts for Maminiaina_94:

(Start: 23 @50361 has 69 MA's), (30, 50274), (33, 50250), (45, 50160),

Gene: McFly_97 Start: 49564, Stop: 49355, Start Num: 21

Candidate Starts for McFly_97:

(Start: 9 @49627 has 1 MA's), (10, 49618), (13, 49609), (Start: 21 @49564 has 25 MA's), (Start: 23 @49552 has 69 MA's), (27, 49504), (36, 49405), (39, 49375),

Gene: MissWhite_90 Start: 47674, Stop: 47477, Start Num: 23

Candidate Starts for MissWhite_90:

(Start: 23 @47674 has 69 MA's), (27, 47626), (31, 47578), (36, 47527), (39, 47497), (44, 47482),

Gene: Mulciber_94 Start: 49656, Stop: 49459, Start Num: 23

Candidate Starts for Mulciber_94:

(1, 49899), (6, 49812), (8, 49776), (Start: 22 @49659 has 7 MA's), (Start: 23 @49656 has 69 MA's), (27, 49608), (31, 49560), (36, 49509), (38, 49485), (39, 49479),

Gene: Munch_94 Start: 49808, Stop: 49608, Start Num: 22

Candidate Starts for Munch_94:

(1, 50048), (6, 49961), (8, 49925), (Start: 22 @49808 has 7 MA's), (Start: 23 @49805 has 69 MA's), (27, 49757), (31, 49709), (36, 49658), (38, 49634), (39, 49628),

Gene: Myxus_95 Start: 50489, Stop: 50259, Start Num: 23
Candidate Starts for Myxus_95:
(Start: 23 @50489 has 69 MA's), (33, 50378), (45, 50288),

Gene: Neeharika16_96 Start: 49317, Stop: 49108, Start Num: 21
Candidate Starts for Neeharika16_96:
(Start: 9 @49380 has 1 MA's), (10, 49371), (13, 49362), (Start: 21 @49317 has 25 MA's), (Start: 23 @49305 has 69 MA's), (27, 49257), (36, 49158), (39, 49128),

Gene: Newrala_96 Start: 49663, Stop: 49454, Start Num: 21
Candidate Starts for Newrala_96:
(Start: 9 @49726 has 1 MA's), (10, 49717), (13, 49708), (Start: 21 @49663 has 25 MA's), (Start: 23 @49651 has 69 MA's), (27, 49603), (36, 49504), (39, 49474),

Gene: Onglai_93 Start: 48644, Stop: 48414, Start Num: 23
Candidate Starts for Onglai_93:
(Start: 23 @48644 has 69 MA's), (33, 48533), (45, 48443),

Gene: Orange_95 Start: 49355, Stop: 49158, Start Num: 23
Candidate Starts for Orange_95:
(1, 49598), (6, 49511), (8, 49475), (Start: 22 @49358 has 7 MA's), (Start: 23 @49355 has 69 MA's), (27, 49307), (31, 49259), (36, 49208), (38, 49184), (39, 49178),

Gene: PackMan_90 Start: 48403, Stop: 48173, Start Num: 23
Candidate Starts for PackMan_90:
(Start: 23 @48403 has 69 MA's), (33, 48292), (45, 48202),

Gene: Petersenfast_89 Start: 48236, Stop: 48039, Start Num: 23
Candidate Starts for Petersenfast_89:
(1, 48479), (6, 48392), (8, 48356), (Start: 22 @48239 has 7 MA's), (Start: 23 @48236 has 69 MA's), (27, 48188), (31, 48140), (36, 48089), (38, 48065), (39, 48059),

Gene: Phaeder_95 Start: 50364, Stop: 50134, Start Num: 23
Candidate Starts for Phaeder_95:
(Start: 23 @50364 has 69 MA's), (33, 50253), (45, 50163),

Gene: Phonnegut_95 Start: 50376, Stop: 50146, Start Num: 23
Candidate Starts for Phonnegut_95:
(Start: 23 @50376 has 69 MA's), (33, 50265), (45, 50175),

Gene: Pioneer_95 Start: 50376, Stop: 50146, Start Num: 23
Candidate Starts for Pioneer_95:
(Start: 23 @50376 has 69 MA's), (33, 50265), (45, 50175),

Gene: Pmask_96 Start: 49852, Stop: 49655, Start Num: 23
Candidate Starts for Pmask_96:
(Start: 9 @49927 has 1 MA's), (10, 49918), (13, 49909), (Start: 21 @49864 has 25 MA's), (Start: 23 @49852 has 69 MA's), (27, 49804), (36, 49705), (39, 49675),

Gene: Polyphemus_88 Start: 47511, Stop: 47314, Start Num: 23

Candidate Starts for Polyphemus_88:

(Start: 21 @47523 has 25 MA's), (Start: 23 @47511 has 69 MA's), (27, 47463), (36, 47364), (39, 47334),

Gene: Priamo_97 Start: 48895, Stop: 48698, Start Num: 23

Candidate Starts for Priamo_97:

(Start: 9 @48970 has 1 MA's), (10, 48961), (13, 48952), (Start: 21 @48907 has 25 MA's), (Start: 23 @48895 has 69 MA's), (27, 48847), (36, 48748), (39, 48718),

Gene: Priya_93 Start: 50147, Stop: 49917, Start Num: 23

Candidate Starts for Priya_93:

(18, 50183), (Start: 23 @50147 has 69 MA's), (33, 50036), (45, 49946),

Gene: Qobbit_93 Start: 50109, Stop: 49879, Start Num: 23

Candidate Starts for Qobbit_93:

(18, 50145), (Start: 23 @50109 has 69 MA's), (33, 49998), (45, 49908),

Gene: Rahalelujah_94 Start: 49952, Stop: 49722, Start Num: 23

Candidate Starts for Rahalelujah_94:

(16, 50000), (Start: 23 @49952 has 69 MA's), (25, 49910), (45, 49751),

Gene: Rifter_100 Start: 49051, Stop: 48842, Start Num: 21

Candidate Starts for Rifter_100:

(Start: 9 @49114 has 1 MA's), (10, 49105), (13, 49096), (Start: 21 @49051 has 25 MA's), (Start: 23 @49039 has 69 MA's), (36, 48892), (39, 48862),

Gene: Roksolana_100 Start: 49755, Stop: 49558, Start Num: 23

Candidate Starts for Roksolana_100:

(Start: 9 @49830 has 1 MA's), (10, 49821), (13, 49812), (Start: 21 @49767 has 25 MA's), (Start: 23 @49755 has 69 MA's), (27, 49707), (36, 49608), (39, 49578),

Gene: RyeScarlet_96 Start: 50362, Stop: 50132, Start Num: 23

Candidate Starts for RyeScarlet_96:

(Start: 23 @50362 has 69 MA's), (33, 50251), (45, 50161),

Gene: Sachima_91 Start: 50390, Stop: 50160, Start Num: 23

Candidate Starts for Sachima_91:

(Start: 23 @50390 has 69 MA's), (33, 50279), (45, 50189),

Gene: Salz_91 Start: 48465, Stop: 48268, Start Num: 23

Candidate Starts for Salz_91:

(2, 48699), (4, 48642), (6, 48624), (Start: 22 @48468 has 7 MA's), (Start: 23 @48465 has 69 MA's), (27, 48417), (31, 48369), (36, 48318), (38, 48294), (39, 48288),

Gene: Scherzo_93 Start: 50407, Stop: 50177, Start Num: 23

Candidate Starts for Scherzo_93:

(Start: 23 @50407 has 69 MA's), (33, 50296), (45, 50206),

Gene: Sham4_92 Start: 48554, Stop: 48354, Start Num: 22

Candidate Starts for Sham4_92:

(1, 48794), (6, 48707), (8, 48671), (Start: 22 @48554 has 7 MA's), (Start: 23 @48551 has 69 MA's), (27, 48503), (31, 48455), (36, 48404), (38, 48380), (39, 48374),

Gene: SheaKeira_90 Start: 49660, Stop: 49439, Start Num: 23
Candidate Starts for SheaKeira_90:
(18, 49696), (Start: 23 @49660 has 69 MA's), (26, 49615), (28, 49609), (42, 49474),

Gene: Sknot_95 Start: 50729, Stop: 50535, Start Num: 23
Candidate Starts for Sknot_95:
(7, 50867), (Start: 23 @50729 has 69 MA's), (27, 50681), (31, 50633), (36, 50582), (37, 50561), (39, 50552),

Gene: SmellyB_97 Start: 49219, Stop: 49010, Start Num: 21
Candidate Starts for SmellyB_97:
(Start: 9 @49282 has 1 MA's), (10, 49273), (13, 49264), (Start: 21 @49219 has 25 MA's), (Start: 23 @49207 has 69 MA's), (27, 49159), (36, 49060), (39, 49030),

Gene: Snape_95 Start: 49344, Stop: 49147, Start Num: 23
Candidate Starts for Snape_95:
(1, 49587), (6, 49500), (8, 49464), (Start: 22 @49347 has 7 MA's), (Start: 23 @49344 has 69 MA's), (27, 49296), (31, 49248), (36, 49197), (38, 49173), (39, 49167),

Gene: Spouty_93 Start: 50146, Stop: 49916, Start Num: 23
Candidate Starts for Spouty_93:
(18, 50182), (Start: 23 @50146 has 69 MA's), (33, 50035), (45, 49945),

Gene: SuperAwesome_97 Start: 49903, Stop: 49694, Start Num: 21
Candidate Starts for SuperAwesome_97:
(Start: 9 @49966 has 1 MA's), (10, 49957), (13, 49948), (Start: 21 @49903 has 25 MA's), (Start: 23 @49891 has 69 MA's), (27, 49843), (36, 49744), (39, 49714),

Gene: SuperCallie99_94 Start: 49463, Stop: 49266, Start Num: 23
Candidate Starts for SuperCallie99_94:
(Start: 9 @49538 has 1 MA's), (10, 49529), (13, 49520), (Start: 21 @49475 has 25 MA's), (Start: 23 @49463 has 69 MA's), (36, 49316), (39, 49286),

Gene: Temprado_101 Start: 49871, Stop: 49674, Start Num: 23
Candidate Starts for Temprado_101:
(Start: 9 @49946 has 1 MA's), (10, 49937), (13, 49928), (Start: 21 @49883 has 25 MA's), (Start: 23 @49871 has 69 MA's), (27, 49823), (36, 49724), (39, 49694),

Gene: Terrific_96 Start: 50697, Stop: 50503, Start Num: 23
Candidate Starts for Terrific_96:
(7, 50835), (12, 50757), (Start: 23 @50697 has 69 MA's), (27, 50649), (31, 50601), (36, 50550), (37, 50529), (39, 50520),

Gene: Timothy_95 Start: 49324, Stop: 49124, Start Num: 22
Candidate Starts for Timothy_95:
(1, 49564), (6, 49477), (8, 49441), (Start: 22 @49324 has 7 MA's), (Start: 23 @49321 has 69 MA's), (27, 49273), (31, 49225), (36, 49174), (38, 49150), (39, 49144),

Gene: TinyTimmy_93 Start: 49050, Stop: 48853, Start Num: 23
Candidate Starts for TinyTimmy_93:
(1, 49293), (6, 49206), (8, 49170), (Start: 22 @49053 has 7 MA's), (Start: 23 @49050 has 69 MA's), (27, 49002), (31, 48954), (36, 48903), (38, 48879), (39, 48873),

Gene: Toaka_93 Start: 50289, Stop: 50059, Start Num: 23
Candidate Starts for Toaka_93:
(Start: 23 @50289 has 69 MA's), (25, 50247), (28, 50232), (41, 50097),

Gene: ToneTone_96 Start: 49422, Stop: 49225, Start Num: 23
Candidate Starts for ToneTone_96:
(Start: 9 @49497 has 1 MA's), (10, 49488), (13, 49479), (Start: 21 @49434 has 25 MA's), (Start: 23 @49422 has 69 MA's), (27, 49374), (36, 49275), (39, 49245),

Gene: Tubs_95 Start: 50364, Stop: 50134, Start Num: 23
Candidate Starts for Tubs_95:
(Start: 23 @50364 has 69 MA's), (33, 50253), (45, 50163),

Gene: Tucker_100 Start: 49700, Stop: 49428, Start Num: 9
Candidate Starts for Tucker_100:
(Start: 9 @49700 has 1 MA's), (10, 49691), (13, 49682), (Start: 21 @49637 has 25 MA's), (Start: 23 @49625 has 69 MA's), (27, 49577), (36, 49478), (39, 49448),

Gene: Ugenie5_82 Start: 47851, Stop: 47621, Start Num: 23
Candidate Starts for Ugenie5_82:
(Start: 23 @47851 has 69 MA's), (33, 47740), (45, 47650),

Gene: Vanisoa_90 Start: 50582, Stop: 50352, Start Num: 23
Candidate Starts for Vanisoa_90:
(16, 50630), (Start: 23 @50582 has 69 MA's), (25, 50540), (45, 50381),

Gene: VohminGhazi_97 Start: 49220, Stop: 49011, Start Num: 21
Candidate Starts for VohminGhazi_97:
(Start: 9 @49283 has 1 MA's), (10, 49274), (13, 49265), (Start: 21 @49220 has 25 MA's), (Start: 23 @49208 has 69 MA's), (27, 49160), (36, 49061), (39, 49031),

Gene: Wiks_99 Start: 49514, Stop: 49305, Start Num: 21
Candidate Starts for Wiks_99:
(Start: 9 @49577 has 1 MA's), (10, 49568), (13, 49559), (Start: 21 @49514 has 25 MA's), (Start: 23 @49502 has 69 MA's), (27, 49454), (36, 49355), (39, 49325),

Gene: Yecey3_97 Start: 50292, Stop: 50062, Start Num: 23
Candidate Starts for Yecey3_97:
(Start: 23 @50292 has 69 MA's), (24, 50256), (45, 50091),

Gene: Yokurt_99 Start: 49502, Stop: 49305, Start Num: 23
Candidate Starts for Yokurt_99:
(Start: 9 @49577 has 1 MA's), (10, 49568), (13, 49559), (Start: 21 @49514 has 25 MA's), (Start: 23 @49502 has 69 MA's), (27, 49454), (36, 49355), (39, 49325),

Gene: Zaka_100 Start: 49514, Stop: 49305, Start Num: 21
Candidate Starts for Zaka_100:
(Start: 9 @49577 has 1 MA's), (10, 49568), (13, 49559), (Start: 21 @49514 has 25 MA's), (Start: 23 @49502 has 69 MA's), (27, 49454), (36, 49355), (39, 49325),

Gene: Zulu_101 Start: 49891, Stop: 49682, Start Num: 21
Candidate Starts for Zulu_101:

(Start: 9 @49954 has 1 MA's), (10, 49945), (13, 49936), (Start: 21 @49891 has 25 MA's), (Start: 23 @49879 has 69 MA's), (27, 49831), (36, 49732), (39, 49702),