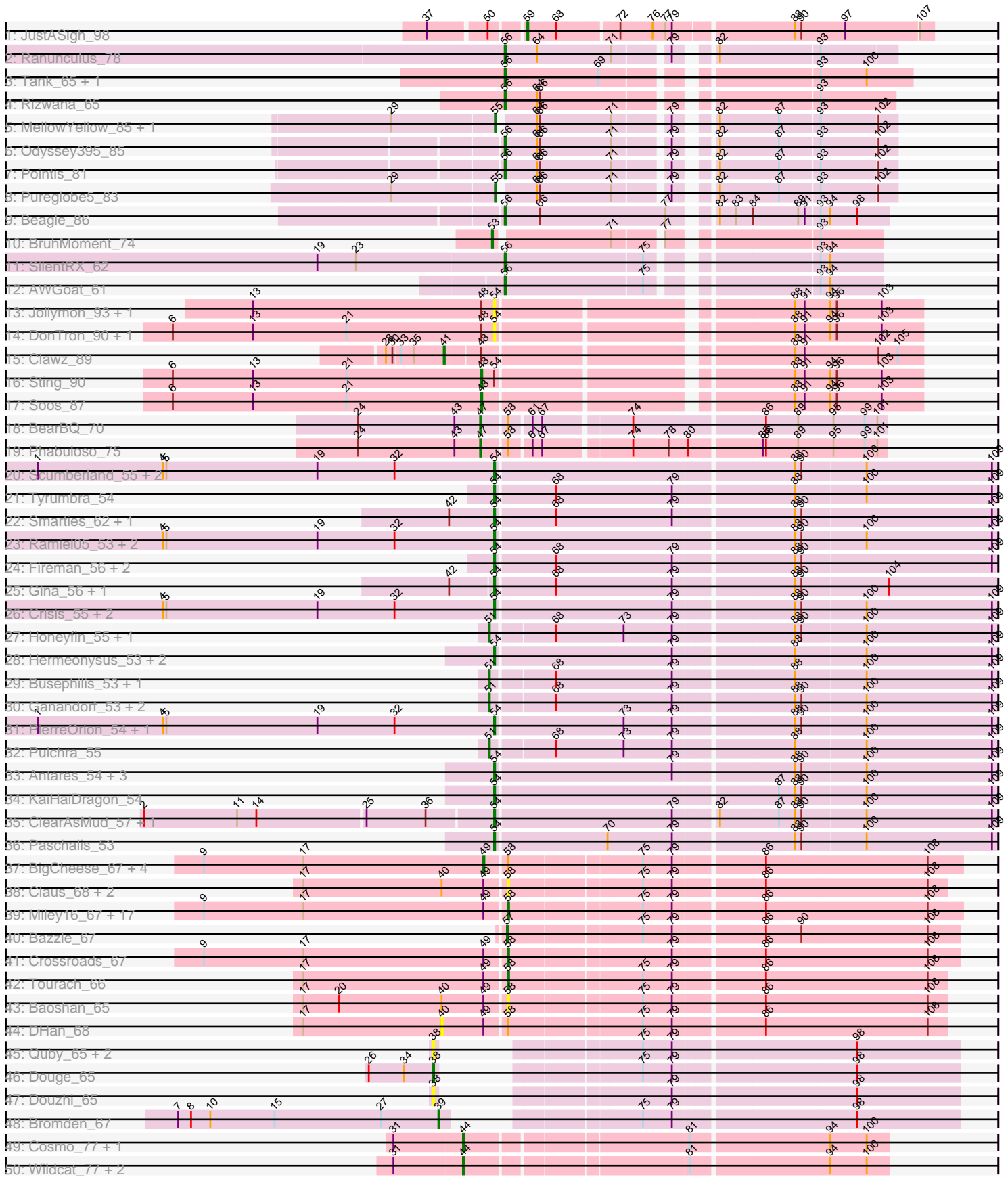
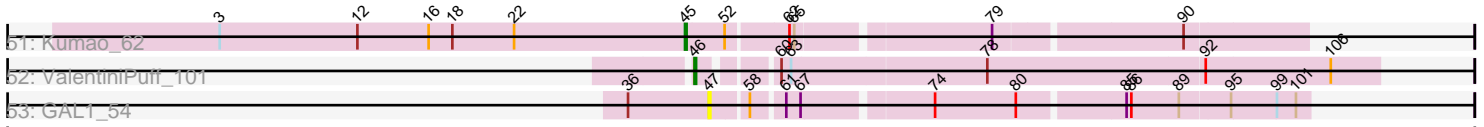


Pham 196416



Pham 196416



A series of horizontal lines, some solid and some dashed, providing a template for notes or further analysis.

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 196416 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196416 has 106 members, 18 are drafts.

Phages represented in each track:

- Track 1 : JustASigh_98
- Track 2 : Ranunculus_78
- Track 3 : Tank_65, Wilde_67
- Track 4 : Rizwana_65
- Track 5 : MellowYellow_85, NyleyClemson_84
- Track 6 : Odyssey395_85
- Track 7 : Pointis_81
- Track 8 : Pureglobe5_83
- Track 9 : Beagle_86
- Track 10 : BruhMoment_74
- Track 11 : SilentRX_62
- Track 12 : AWGoat_61
- Track 13 : Jollymon_93, ColdSoup_93
- Track 14 : DonTron_90, KingstonB_93
- Track 15 : Clawz_89
- Track 16 : Sting_90
- Track 17 : Soos_87
- Track 18 : BearBQ_70
- Track 19 : Phabuloso_75
- Track 20 : Scumberland_55, LittleFortune_55, Cranjis_55
- Track 21 : Tyumbra_54
- Track 22 : Smarties_62, Ariadne_62
- Track 23 : Ramiel05_53, Kowalski_53, BrazzalePHS_53
- Track 24 : Fireman_56, RobsFeet_57, Metamorphoo_56
- Track 25 : Gina_56, Teamocil_56
- Track 26 : Crisis_55, Jefe_54, CrazyRich_53
- Track 27 : Honeyfin_55, Yeti_54
- Track 28 : Hermeonysus_53, Onika_53, PiperSansNom_54
- Track 29 : Busephilis_53, Phrancesco_54
- Track 30 : Ganandorf_53, Piperis_54, Phorgeous_53
- Track 31 : PierreOrion_54, Jollipop_54
- Track 32 : Pulchra_55
- Track 33 : Antares_54, Quhwah_57, Shotgun_53, Savannah_53
- Track 34 : KaiHaiDragon_54
- Track 35 : ClearAsMud_57, NoodlelyBoi_55
- Track 36 : Paschalis_53
- Track 37 : BigCheese_67, Lewan_68, BobsGarage_67, Nicholasp3_67, Vetric_67

- Track 38 : Claus_68, ZhongYanYuan_66, DanBing_68
- Track 39 : Miley16_67, Wigglewiggles_67, Zakai_68, Finemlucis_67, GuuelaD_66, Gardann_68, MkaliMitinis3_68, Breezona_67, Sarshaun_68, Kahlid_67, Itos_66, LilDestine_67, Rumpelstiltskin_66, Wilder_68, Loadrie_66, Gabriela_64, Hafay_69, Winky_67
- Track 40 : Bazzle_67
- Track 41 : Crossroads_67
- Track 42 : Tourach_66
- Track 43 : Baoshan_65
- Track 44 : DHan_68
- Track 45 : Quby_65, PYPDinur_63, FarmResident_67
- Track 46 : Douge_65
- Track 47 : Douzhi_65
- Track 48 : Bromden_67
- Track 49 : Cosmo_77, Azrael100_76
- Track 50 : Wildcat_77, EniyanLRS_168, MaryV_77
- Track 51 : Kumao_62
- Track 52 : ValentiniPuff_101
- Track 53 : GAL1_54

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

The start number called the most often in the published annotations is 54, it was called in 29 of the 88 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Antares_54, Ariadne_62, BrazzalePHS_53, ClearAsMud_57, ColdSoup_93, Cranjiss_55, CrazyRich_53, Crisis_55, DonTron_90, Fireman_56, Gina_56, Hermeonysus_53, Jefe_54, Jollipop_54, Jollymon_93, KaiHaiDragon_54, KingstonB_93, Kowalski_53, LittleFortune_55, Metamorphoo_56, NoodlelyBoi_55, Onika_53, Paschalis_53, PierreOrion_54, PiperSansNom_54, Quhwah_57, Ramiel05_53, RobsFeet_57, Savannah_53, Scumberland_55, Shotgun_53, Smarties_62, Teamocil_56, Tyumbra_54,

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

- Sting_90,

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

- AWGoat_61, Azrael100_76, Baoshan_65, Bazzle_67, Beagle_86, BearBQ_70, BigCheese_67, BobsGarage_67, Breezona_67, Bromden_67, BruhMoment_74, Busephilis_53, Claus_68, Clawz_89, Cosmo_77, Crossroads_67, DHan_68, DanBing_68, Douge_65, Douzhi_65, EniyanLRS_168, FarmResident_67, Finemlucis_67, GAL1_54, Gabriela_64, Ganandorf_53, Gardann_68, GuuelaD_66, Hafay_69, Honeyfin_55, Itos_66, JustASigh_98, Kahlid_67, Kumao_62, Lewan_68, LilDestine_67, Loadrie_66, MaryV_77, MellowYellow_85, Miley16_67, MkaliMitinis3_68, Nicholasp3_67, NyleyClemson_84, Odyssey395_85, PYPDinur_63, Phabuloso_75, Phorgeous_53, Phrancesco_54, Piperis_54, Pointis_81, Pulchra_55, Pureglobe5_83, Quby_65, Ranunculus_78, Rizwana_65, Rumpelstiltskin_66, Sarshaun_68, SilentRX_62, Soos_87, Tank_65, Tourach_66, ValentiniPuff_101, Vetric_67, Wigglewiggles_67, Wildcat_77, Wilde_67, Wilder_68, Winky_67, Yeti_54,

Zakai_68, ZhongYanYuan_66,

Summary by start number:

Start 38:

- Found in 5 of 106 (4.7%) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Douge_65 (L4), Douzhi_65 (L4), FarmResident_67 (L4), PYPDinur_63 (L4), Quby_65 (L4),

Start 39:

- Found in 1 of 106 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bromden_67 (L4),

Start 40:

- Found in 5 of 106 (4.7%) of genes in pham
- No Manual Annotations of this start.
- Called 20.0% of time when present
- Phage (with cluster) where this start called: DHan_68 (L2),

Start 41:

- Found in 1 of 106 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Clawz_89 (CP),

Start 44:

- Found in 5 of 106 (4.7%) of genes in pham
- Manual Annotations of this start: 5 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Azrael100_76 (V), Cosmo_77 (V), EniyanLRS_168 (V), MaryV_77 (V), Wildcat_77 (V),

Start 45:

- Found in 1 of 106 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kumao_62 (singleton),

Start 46:

- Found in 1 of 106 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ValentiniPuff_101 (singleton),

Start 47:

- Found in 3 of 106 (2.8%) of genes in pham
- Manual Annotations of this start: 2 of 88
- Called 100.0% of time when present

- Phage (with cluster) where this start called: BearBQ_70 (DN), GAL1_54 (singleton), Phabuloso_75 (DN1),

Start 48:

- Found in 7 of 106 (6.6%) of genes in pham
- Manual Annotations of this start: 2 of 88
- Called 28.6% of time when present
- Phage (with cluster) where this start called: Soos_87 (CP), Sting_90 (CP),

Start 49:

- Found in 30 of 106 (28.3%) of genes in pham
- Manual Annotations of this start: 5 of 88
- Called 16.7% of time when present
- Phage (with cluster) where this start called: BigCheese_67 (L2), BobsGarage_67 (L2), Lewan_68 (L2), Nicholasp3_67 (L2), Vetrix_67 (L2),

Start 51:

- Found in 8 of 106 (7.5%) of genes in pham
- Manual Annotations of this start: 8 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Busephilis_53 (EC), Ganandorf_53 (EC), Honeyfin_55 (EC), Phorgeous_53 (EC), Phrancesco_54 (EC), Piperis_54 (EC), Pulchra_55 (EC), Yeti_54 (EC),

Start 53:

- Found in 1 of 106 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BruhMoment_74 (AP3),

Start 54:

- Found in 35 of 106 (33.0%) of genes in pham
- Manual Annotations of this start: 29 of 88
- Called 97.1% of time when present
- Phage (with cluster) where this start called: Antares_54 (EC), Ariadne_62 (EC), BrazzalePHS_53 (EC), ClearAsMud_57 (EC), ColdSoup_93 (CP), Cranjis_55 (EC), CrazyRich_53 (EC), Crisis_55 (EC), DonTron_90 (CP), Fireman_56 (EC), Gina_56 (EC), Hermeonysus_53 (EC), Jefe_54 (EC), Jollipop_54 (EC), Jollymon_93 (CP), KaiHaiDragon_54 (EC), KingstonB_93 (CP), Kowalski_53 (EC), LittleFortune_55 (EC), Metamorphoo_56 (EC), NoodlelyBoi_55 (EC), Onika_53 (EC), Paschalis_53 (EC), PierreOrion_54 (EC), PiperSansNom_54 (EC), Quhwah_57 (EC), Ramiel05_53 (EC), RobsFeet_57 (EC), Savannah_53 (EC), Scumberland_55 (EC), Shotgun_53 (EC), Smarties_62 (EC), Teamocil_56 (EC), Tyrumbra_54 (EC),

Start 55:

- Found in 3 of 106 (2.8%) of genes in pham
- Manual Annotations of this start: 2 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MellowYellow_85 (AP2), NyleyClemson_84 (AP2), Pureglobe5_83 (AP2),

Start 56:

- Found in 9 of 106 (8.5%) of genes in pham

- Manual Annotations of this start: 9 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AWGoat_61 (AP4), Beagle_86 (AP2), Odyssey395_85 (AP2), Pointis_81 (AP2), Ranunculus_78 (AP), Rizwana_65 (AP1), SilentRX_62 (AP4), Tank_65 (AP1), Wilde_67 (AP1),

Start 57:

- Found in 1 of 106 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bazzle_67 (L2),

Start 58:

- Found in 33 of 106 (31.1%) of genes in pham
- Manual Annotations of this start: 18 of 88
- Called 72.7% of time when present
- Phage (with cluster) where this start called: Baoshan_65 (L2), Breezona_67 (L2), Claus_68 (L2), Crossroads_67 (L2), DanBing_68 (L2), Finemlucis_67 (L2), Gabriela_64 (L2), Gardann_68 (L2), GuuelaD_66 (L2), Hafay_69 (L2), Itos_66 (L2), Kahlid_67 (L2), LilDestine_67 (L2), Loadrie_66 (L2), Miley16_67 (L2), MkaliMinitis3_68 (L2), Rumpelstiltskin_66 (L2), Sarshaun_68 (L2), Tourach_66 (L2), Wigglewiggles_67 (L2), Wilder_68 (L2), Winky_67 (L2), Zakai_68 (L2), ZhongYanYuan_66 (L2),

Start 59:

- Found in 1 of 106 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JustASigh_98 (AH),

Summary by clusters:

There are 14 clusters represented in this pham: DN, singleton, AP3, AP2, AH, AP1, EC, AP, L4, L2, AP4, V, DN1, CP,

Info for manual annotations of cluster AH:

- Start number 59 was manually annotated 1 time for cluster AH.

Info for manual annotations of cluster AP:

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

Info for manual annotations of cluster AP1:

- Start number 56 was manually annotated 3 times for cluster AP1.

Info for manual annotations of cluster AP2:

- Start number 55 was manually annotated 2 times for cluster AP2.
- Start number 56 was manually annotated 3 times for cluster AP2.

Info for manual annotations of cluster AP3:

- Start number 53 was manually annotated 1 time for cluster AP3.

Info for manual annotations of cluster AP4:

- Start number 56 was manually annotated 2 times for cluster AP4.

Info for manual annotations of cluster CP:

- Start number 41 was manually annotated 1 time for cluster CP.
- Start number 48 was manually annotated 2 times for cluster CP.

Info for manual annotations of cluster DN:

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

Info for manual annotations of cluster DN1:

- Start number 47 was manually annotated 1 time for cluster DN1.

Info for manual annotations of cluster EC:

- Start number 51 was manually annotated 8 times for cluster EC.
- Start number 54 was manually annotated 29 times for cluster EC.

Info for manual annotations of cluster L2:

- Start number 49 was manually annotated 5 times for cluster L2.
- Start number 57 was manually annotated 1 time for cluster L2.
- Start number 58 was manually annotated 18 times for cluster L2.

Info for manual annotations of cluster L4:

- Start number 38 was manually annotated 1 time for cluster L4.
- Start number 39 was manually annotated 1 time for cluster L4.

Info for manual annotations of cluster V:

- Start number 44 was manually annotated 5 times for cluster V.

Gene Information:

Gene: AWGoat_61 Start: 44482, Stop: 44168, Start Num: 56

Candidate Starts for AWGoat_61:

(Start: 56 @44482 has 9 MA's), (75, 44356), (93, 44224), (94, 44215),

Gene: Antares_54 Start: 35918, Stop: 36367, Start Num: 54

Candidate Starts for Antares_54:

(Start: 54 @35918 has 29 MA's), (79, 36077), (88, 36182), (90, 36188), (100, 36245), (109, 36362),

Gene: Ariadne_62 Start: 37502, Stop: 37951, Start Num: 54

Candidate Starts for Ariadne_62:

(42, 37460), (Start: 54 @37502 has 29 MA's), (68, 37553), (79, 37661), (88, 37766), (90, 37772), (109, 37946),

Gene: Azrael100_76 Start: 48787, Stop: 49152, Start Num: 44

Candidate Starts for Azrael100_76:

(31, 48724), (Start: 44 @48787 has 5 MA's), (81, 48979), (94, 49099), (100, 49132),

Gene: Baoshan_65 Start: 46306, Stop: 46692, Start Num: 58

Candidate Starts for Baoshan_65:

(17, 46120), (20, 46153), (40, 46249), (Start: 49 @46288 has 5 MA's), (Start: 58 @46306 has 18 MA's), (75, 46423), (79, 46450), (86, 46528), (108, 46675),

Gene: Bazzle_67 Start: 46701, Stop: 47099, Start Num: 57
Candidate Starts for Bazzle_67:
(Start: 57 @46701 has 1 MA's), (75, 46818), (79, 46845), (86, 46923), (90, 46956), (108, 47070),

Gene: Beagle_86 Start: 50592, Stop: 50260, Start Num: 56
Candidate Starts for Beagle_86:
(Start: 56 @50592 has 9 MA's), (66, 50559), (77, 50442), (82, 50412), (83, 50397), (84, 50382), (89, 50340), (91, 50334), (93, 50322), (94, 50313), (98, 50289),

Gene: BearBQ_70 Start: 44365, Stop: 44712, Start Num: 47
Candidate Starts for BearBQ_70:
(24, 44251), (43, 44341), (Start: 47 @44365 has 2 MA's), (Start: 58 @44386 has 18 MA's), (61, 44404), (67, 44413), (74, 44488), (86, 44605), (89, 44635), (95, 44665), (99, 44692), (101, 44704),

Gene: BigCheese_67 Start: 46345, Stop: 46764, Start Num: 49
Candidate Starts for BigCheese_67:
(9, 46084), (17, 46177), (Start: 49 @46345 has 5 MA's), (Start: 58 @46363 has 18 MA's), (75, 46480), (79, 46507), (86, 46585), (108, 46732),

Gene: BobsGarage_67 Start: 46345, Stop: 46764, Start Num: 49
Candidate Starts for BobsGarage_67:
(9, 46084), (17, 46177), (Start: 49 @46345 has 5 MA's), (Start: 58 @46363 has 18 MA's), (75, 46480), (79, 46507), (86, 46585), (108, 46732),

Gene: BrazzalePHS_53 Start: 35714, Stop: 36163, Start Num: 54
Candidate Starts for BrazzalePHS_53:
(4, 35405), (5, 35408), (19, 35549), (32, 35621), (Start: 54 @35714 has 29 MA's), (88, 35978), (90, 35984), (100, 36041), (109, 36158),

Gene: Breezona_67 Start: 46363, Stop: 46764, Start Num: 58
Candidate Starts for Breezona_67:
(9, 46084), (17, 46177), (Start: 49 @46345 has 5 MA's), (Start: 58 @46363 has 18 MA's), (75, 46480), (79, 46507), (86, 46585), (108, 46732),

Gene: Bromden_67 Start: 46292, Stop: 46696, Start Num: 39
Candidate Starts for Bromden_67:
(7, 46049), (8, 46061), (10, 46079), (15, 46139), (27, 46238), (Start: 39 @46292 has 1 MA's), (75, 46415), (79, 46442), (98, 46601),

Gene: BruhMoment_74 Start: 49610, Stop: 49293, Start Num: 53
Candidate Starts for BruhMoment_74:
(Start: 53 @49610 has 1 MA's), (71, 49508), (77, 49469), (93, 49349),

Gene: Busephilis_53 Start: 35622, Stop: 36074, Start Num: 51
Candidate Starts for Busephilis_53:
(Start: 51 @35622 has 8 MA's), (68, 35676), (79, 35784), (88, 35889), (100, 35952), (109, 36069),

Gene: Claus_68 Start: 46444, Stop: 46830, Start Num: 58
Candidate Starts for Claus_68:
(17, 46258), (40, 46387), (Start: 49 @46426 has 5 MA's), (Start: 58 @46444 has 18 MA's), (75, 46561), (79, 46588), (86, 46666), (108, 46813),

Gene: Clawz_89 Start: 57153, Stop: 57563, Start Num: 41

Candidate Starts for Clawz_89:

(28, 57102), (30, 57108), (33, 57114), (35, 57126), (Start: 41 @57153 has 1 MA's), (Start: 48 @57183 has 2 MA's), (88, 57444), (91, 57453), (102, 57522), (105, 57540),

Gene: ClearAsMud_57 Start: 36175, Stop: 36624, Start Num: 54

Candidate Starts for ClearAsMud_57:

(2, 35857), (11, 35944), (14, 35962), (25, 36061), (36, 36115), (Start: 54 @36175 has 29 MA's), (79, 36334), (82, 36370), (87, 36424), (88, 36439), (90, 36445), (100, 36502), (109, 36619),

Gene: ColdSoup_93 Start: 57604, Stop: 57972, Start Num: 54

Candidate Starts for ColdSoup_93:

(13, 57379), (Start: 48 @57592 has 2 MA's), (Start: 54 @57604 has 29 MA's), (88, 57853), (91, 57862), (94, 57886), (96, 57892), (103, 57934),

Gene: Cosmo_77 Start: 48788, Stop: 49153, Start Num: 44

Candidate Starts for Cosmo_77:

(31, 48725), (Start: 44 @48788 has 5 MA's), (81, 48980), (94, 49100), (100, 49133),

Gene: Cranjis_55 Start: 35873, Stop: 36322, Start Num: 54

Candidate Starts for Cranjis_55:

(1, 35447), (4, 35564), (5, 35567), (19, 35708), (32, 35780), (Start: 54 @35873 has 29 MA's), (88, 36137), (90, 36143), (100, 36200), (109, 36317),

Gene: CrazyRich_53 Start: 35682, Stop: 36131, Start Num: 54

Candidate Starts for CrazyRich_53:

(4, 35373), (5, 35376), (19, 35517), (32, 35589), (Start: 54 @35682 has 29 MA's), (79, 35841), (88, 35946), (90, 35952), (100, 36009), (109, 36126),

Gene: Crisis_55 Start: 35673, Stop: 36122, Start Num: 54

Candidate Starts for Crisis_55:

(4, 35364), (5, 35367), (19, 35508), (32, 35580), (Start: 54 @35673 has 29 MA's), (79, 35832), (88, 35937), (90, 35943), (100, 36000), (109, 36117),

Gene: Crossroads_67 Start: 46441, Stop: 46839, Start Num: 58

Candidate Starts for Crossroads_67:

(9, 46162), (17, 46255), (Start: 49 @46423 has 5 MA's), (Start: 58 @46441 has 18 MA's), (79, 46585), (86, 46663), (108, 46810),

Gene: DHan_68 Start: 46287, Stop: 46730, Start Num: 40

Candidate Starts for DHan_68:

(17, 46158), (40, 46287), (Start: 49 @46326 has 5 MA's), (Start: 58 @46344 has 18 MA's), (75, 46461), (79, 46488), (86, 46566), (108, 46713),

Gene: DanBing_68 Start: 46313, Stop: 46699, Start Num: 58

Candidate Starts for DanBing_68:

(17, 46127), (40, 46256), (Start: 49 @46295 has 5 MA's), (Start: 58 @46313 has 18 MA's), (75, 46430), (79, 46457), (86, 46535), (108, 46682),

Gene: DonTron_90 Start: 57720, Stop: 58088, Start Num: 54

Candidate Starts for DonTron_90:

(6, 57420), (13, 57495), (21, 57582), (Start: 48 @57708 has 2 MA's), (Start: 54 @57720 has 29 MA's), (88, 57969), (91, 57978), (94, 58002), (96, 58008), (103, 58050),

Gene: Douge_65 Start: 45034, Stop: 45432, Start Num: 38
Candidate Starts for Douge_65:
(26, 44974), (34, 45007), (Start: 38 @45034 has 1 MA's), (75, 45151), (79, 45178), (98, 45337),

Gene: Douzhi_65 Start: 45087, Stop: 45485, Start Num: 38
Candidate Starts for Douzhi_65:
(Start: 38 @45087 has 1 MA's), (79, 45231), (98, 45390),

Gene: EniyanLRS_168 Start: 48527, Stop: 48892, Start Num: 44
Candidate Starts for EniyanLRS_168:
(31, 48464), (Start: 44 @48527 has 5 MA's), (81, 48719), (94, 48839), (100, 48872),

Gene: FarmResident_67 Start: 45043, Stop: 45441, Start Num: 38
Candidate Starts for FarmResident_67:
(Start: 38 @45043 has 1 MA's), (75, 45160), (79, 45187), (98, 45346),

Gene: Finemlucis_67 Start: 46684, Stop: 47085, Start Num: 58
Candidate Starts for Finemlucis_67:
(9, 46405), (17, 46498), (Start: 49 @46666 has 5 MA's), (Start: 58 @46684 has 18 MA's), (75, 46801),
(79, 46828), (86, 46906), (108, 47053),

Gene: Fireman_56 Start: 37569, Stop: 38018, Start Num: 54
Candidate Starts for Fireman_56:
(Start: 54 @37569 has 29 MA's), (68, 37620), (79, 37728), (88, 37833), (90, 37839), (109, 38013),

Gene: GAL1_54 Start: 37553, Stop: 37900, Start Num: 47
Candidate Starts for GAL1_54:
(36, 37502), (Start: 47 @37553 has 2 MA's), (Start: 58 @37574 has 18 MA's), (61, 37592), (67,
37601), (74, 37676), (80, 37727), (85, 37790), (86, 37793), (89, 37823), (95, 37853), (99, 37880),
(101, 37892),

Gene: Gabriela_64 Start: 44813, Stop: 45211, Start Num: 58
Candidate Starts for Gabriela_64:
(9, 44534), (17, 44627), (Start: 49 @44795 has 5 MA's), (Start: 58 @44813 has 18 MA's), (75, 44930),
(79, 44957), (86, 45035), (108, 45182),

Gene: Ganandorf_53 Start: 35703, Stop: 36155, Start Num: 51
Candidate Starts for Ganandorf_53:
(Start: 51 @35703 has 8 MA's), (68, 35757), (79, 35865), (88, 35970), (90, 35976), (100, 36033), (109,
36150),

Gene: Gardann_68 Start: 46399, Stop: 46797, Start Num: 58
Candidate Starts for Gardann_68:
(9, 46120), (17, 46213), (Start: 49 @46381 has 5 MA's), (Start: 58 @46399 has 18 MA's), (75, 46516),
(79, 46543), (86, 46621), (108, 46768),

Gene: Gina_56 Start: 35677, Stop: 36126, Start Num: 54
Candidate Starts for Gina_56:
(42, 35638), (Start: 54 @35677 has 29 MA's), (68, 35728), (79, 35836), (88, 35941), (90, 35947), (104,
36025),

Gene: GuuelaD_66 Start: 46478, Stop: 46879, Start Num: 58
Candidate Starts for GuuelaD_66:

(9, 46199), (17, 46292), (Start: 49 @46460 has 5 MA's), (Start: 58 @46478 has 18 MA's), (75, 46595), (79, 46622), (86, 46700), (108, 46847),

Gene: Hafay_69 Start: 46467, Stop: 46868, Start Num: 58

Candidate Starts for Hafay_69:

(9, 46188), (17, 46281), (Start: 49 @46449 has 5 MA's), (Start: 58 @46467 has 18 MA's), (75, 46584), (79, 46611), (86, 46689), (108, 46836),

Gene: Hermeonysus_53 Start: 35602, Stop: 36051, Start Num: 54

Candidate Starts for Hermeonysus_53:

(Start: 54 @35602 has 29 MA's), (79, 35761), (88, 35866), (100, 35929), (109, 36046),

Gene: Honeyfin_55 Start: 35891, Stop: 36343, Start Num: 51

Candidate Starts for Honeyfin_55:

(Start: 51 @35891 has 8 MA's), (68, 35945), (73, 36008), (79, 36053), (88, 36158), (90, 36164), (100, 36221), (109, 36338),

Gene: Itos_66 Start: 45269, Stop: 45670, Start Num: 58

Candidate Starts for Itos_66:

(9, 44990), (17, 45083), (Start: 49 @45251 has 5 MA's), (Start: 58 @45269 has 18 MA's), (75, 45386), (79, 45413), (86, 45491), (108, 45638),

Gene: Jefe_54 Start: 35660, Stop: 36109, Start Num: 54

Candidate Starts for Jefe_54:

(4, 35351), (5, 35354), (19, 35495), (32, 35567), (Start: 54 @35660 has 29 MA's), (79, 35819), (88, 35924), (90, 35930), (100, 35987), (109, 36104),

Gene: Jollipop_54 Start: 35999, Stop: 36448, Start Num: 54

Candidate Starts for Jollipop_54:

(1, 35573), (4, 35690), (5, 35693), (19, 35834), (32, 35906), (Start: 54 @35999 has 29 MA's), (73, 36113), (79, 36158), (88, 36263), (90, 36269), (100, 36326), (109, 36443),

Gene: Jollymon_93 Start: 57604, Stop: 57972, Start Num: 54

Candidate Starts for Jollymon_93:

(13, 57379), (Start: 48 @57592 has 2 MA's), (Start: 54 @57604 has 29 MA's), (88, 57853), (91, 57862), (94, 57886), (96, 57892), (103, 57934),

Gene: JustASigh_98 Start: 55410, Stop: 55766, Start Num: 59

Candidate Starts for JustASigh_98:

(37, 55332), (50, 55383), (Start: 59 @55410 has 1 MA's), (68, 55437), (72, 55491), (76, 55521), (77, 55533), (79, 55539), (88, 55644), (90, 55650), (97, 55689), (107, 55755),

Gene: Kahlid_67 Start: 46369, Stop: 46770, Start Num: 58

Candidate Starts for Kahlid_67:

(9, 46090), (17, 46183), (Start: 49 @46351 has 5 MA's), (Start: 58 @46369 has 18 MA's), (75, 46486), (79, 46513), (86, 46591), (108, 46738),

Gene: KaiHaiDragon_54 Start: 35596, Stop: 36045, Start Num: 54

Candidate Starts for KaiHaiDragon_54:

(Start: 54 @35596 has 29 MA's), (87, 35845), (88, 35860), (90, 35866), (100, 35923), (109, 36040),

Gene: KingstonB_93 Start: 57137, Stop: 57505, Start Num: 54

Candidate Starts for KingstonB_93:

(6, 56837), (13, 56912), (21, 56999), (Start: 48 @57125 has 2 MA's), (Start: 54 @57137 has 29 MA's), (88, 57386), (91, 57395), (94, 57419), (96, 57425), (103, 57467),

Gene: Kowalski_53 Start: 35709, Stop: 36158, Start Num: 54

Candidate Starts for Kowalski_53:

(4, 35400), (5, 35403), (19, 35544), (32, 35616), (Start: 54 @35709 has 29 MA's), (88, 35973), (90, 35979), (100, 36036), (109, 36153),

Gene: Kumao_62 Start: 44058, Stop: 44420, Start Num: 45

Candidate Starts for Kumao_62:

(3, 43764), (12, 43851), (16, 43896), (18, 43911), (22, 43950), (Start: 45 @44058 has 1 MA's), (52, 44082), (62, 44118), (65, 44121), (79, 44235), (90, 44346),

Gene: Lewan_68 Start: 46405, Stop: 46821, Start Num: 49

Candidate Starts for Lewan_68:

(9, 46144), (17, 46237), (Start: 49 @46405 has 5 MA's), (Start: 58 @46423 has 18 MA's), (75, 46540), (79, 46567), (86, 46645), (108, 46792),

Gene: LilDestine_67 Start: 46396, Stop: 46797, Start Num: 58

Candidate Starts for LilDestine_67:

(9, 46117), (17, 46210), (Start: 49 @46378 has 5 MA's), (Start: 58 @46396 has 18 MA's), (75, 46513), (79, 46540), (86, 46618), (108, 46765),

Gene: LittleFortune_55 Start: 35965, Stop: 36414, Start Num: 54

Candidate Starts for LittleFortune_55:

(1, 35539), (4, 35656), (5, 35659), (19, 35800), (32, 35872), (Start: 54 @35965 has 29 MA's), (88, 36229), (90, 36235), (100, 36292), (109, 36409),

Gene: Loadrie_66 Start: 46451, Stop: 46849, Start Num: 58

Candidate Starts for Loadrie_66:

(9, 46172), (17, 46265), (Start: 49 @46433 has 5 MA's), (Start: 58 @46451 has 18 MA's), (75, 46568), (79, 46595), (86, 46673), (108, 46820),

Gene: MaryV_77 Start: 48609, Stop: 48974, Start Num: 44

Candidate Starts for MaryV_77:

(31, 48546), (Start: 44 @48609 has 5 MA's), (81, 48801), (94, 48921), (100, 48954),

Gene: MellowYellow_85 Start: 50209, Stop: 49883, Start Num: 55

Candidate Starts for MellowYellow_85:

(29, 50302), (Start: 55 @50209 has 2 MA's), (64, 50179), (66, 50176), (71, 50110), (79, 50065), (82, 50041), (87, 49987), (93, 49951), (102, 49900),

Gene: Metamorphoo_56 Start: 36831, Stop: 37280, Start Num: 54

Candidate Starts for Metamorphoo_56:

(Start: 54 @36831 has 29 MA's), (68, 36882), (79, 36990), (88, 37095), (90, 37101), (109, 37275),

Gene: Miley16_67 Start: 46363, Stop: 46764, Start Num: 58

Candidate Starts for Miley16_67:

(9, 46084), (17, 46177), (Start: 49 @46345 has 5 MA's), (Start: 58 @46363 has 18 MA's), (75, 46480), (79, 46507), (86, 46585), (108, 46732),

Gene: MkaliMitinis3_68 Start: 46435, Stop: 46833, Start Num: 58

Candidate Starts for MkaliMitinis3_68:

(9, 46156), (17, 46249), (Start: 49 @46417 has 5 MA's), (Start: 58 @46435 has 18 MA's), (75, 46552), (79, 46579), (86, 46657), (108, 46804),

Gene: Nicholasp3_67 Start: 46381, Stop: 46797, Start Num: 49

Candidate Starts for Nicholasp3_67:

(9, 46120), (17, 46213), (Start: 49 @46381 has 5 MA's), (Start: 58 @46399 has 18 MA's), (75, 46516), (79, 46543), (86, 46621), (108, 46768),

Gene: NoodlelyBoi_55 Start: 36387, Stop: 36836, Start Num: 54

Candidate Starts for NoodlelyBoi_55:

(2, 36069), (11, 36156), (14, 36174), (25, 36273), (36, 36327), (Start: 54 @36387 has 29 MA's), (79, 36546), (82, 36582), (87, 36636), (88, 36651), (90, 36657), (100, 36714), (109, 36831),

Gene: NyleyClemson_84 Start: 49827, Stop: 49501, Start Num: 55

Candidate Starts for NyleyClemson_84:

(29, 49920), (Start: 55 @49827 has 2 MA's), (64, 49797), (66, 49794), (71, 49728), (79, 49683), (82, 49659), (87, 49605), (93, 49569), (102, 49518),

Gene: Odyssey395_85 Start: 50318, Stop: 49992, Start Num: 56

Candidate Starts for Odyssey395_85:

(Start: 56 @50318 has 9 MA's), (64, 50288), (66, 50285), (71, 50219), (79, 50174), (82, 50150), (87, 50096), (93, 50060), (102, 50009),

Gene: Onika_53 Start: 35684, Stop: 36133, Start Num: 54

Candidate Starts for Onika_53:

(Start: 54 @35684 has 29 MA's), (79, 35843), (88, 35948), (100, 36011), (109, 36128),

Gene: PYPDinur_63 Start: 45117, Stop: 45515, Start Num: 38

Candidate Starts for PYPDinur_63:

(Start: 38 @45117 has 1 MA's), (75, 45234), (79, 45261), (98, 45420),

Gene: Paschalis_53 Start: 35691, Stop: 36140, Start Num: 54

Candidate Starts for Paschalis_53:

(Start: 54 @35691 has 29 MA's), (70, 35790), (79, 35850), (88, 35955), (90, 35961), (100, 36018), (109, 36135),

Gene: Phabuloso_75 Start: 43819, Stop: 44166, Start Num: 47

Candidate Starts for Phabuloso_75:

(24, 43705), (43, 43795), (Start: 47 @43819 has 2 MA's), (Start: 58 @43840 has 18 MA's), (61, 43858), (67, 43867), (74, 43942), (78, 43975), (80, 43993), (85, 44056), (86, 44059), (89, 44089), (95, 44119), (99, 44146), (101, 44158),

Gene: Phorgeous_53 Start: 35522, Stop: 35974, Start Num: 51

Candidate Starts for Phorgeous_53:

(Start: 51 @35522 has 8 MA's), (68, 35576), (79, 35684), (88, 35789), (90, 35795), (100, 35852), (109, 35969),

Gene: Phrancesco_54 Start: 35812, Stop: 36264, Start Num: 51

Candidate Starts for Phrancesco_54:

(Start: 51 @35812 has 8 MA's), (68, 35866), (79, 35974), (88, 36079), (100, 36142), (109, 36259),

Gene: PierreOrion_54 Start: 35858, Stop: 36307, Start Num: 54

Candidate Starts for PierreOrion_54:

(1, 35432), (4, 35549), (5, 35552), (19, 35693), (32, 35765), (Start: 54 @35858 has 29 MA's), (73, 35972), (79, 36017), (88, 36122), (90, 36128), (100, 36185), (109, 36302),

Gene: PiperSansNom_54 Start: 35998, Stop: 36447, Start Num: 54

Candidate Starts for PiperSansNom_54:

(Start: 54 @35998 has 29 MA's), (79, 36157), (88, 36262), (100, 36325), (109, 36442),

Gene: Piperis_54 Start: 35645, Stop: 36097, Start Num: 51

Candidate Starts for Piperis_54:

(Start: 51 @35645 has 8 MA's), (68, 35699), (79, 35807), (88, 35912), (90, 35918), (100, 35975), (109, 36092),

Gene: Pointis_81 Start: 49894, Stop: 49568, Start Num: 56

Candidate Starts for Pointis_81:

(Start: 56 @49894 has 9 MA's), (64, 49864), (66, 49861), (71, 49795), (79, 49750), (82, 49726), (87, 49672), (93, 49636), (102, 49585),

Gene: Pulchra_55 Start: 36042, Stop: 36494, Start Num: 51

Candidate Starts for Pulchra_55:

(Start: 51 @36042 has 8 MA's), (68, 36096), (73, 36159), (79, 36204), (88, 36309), (100, 36372), (109, 36489),

Gene: Pureglobe5_83 Start: 50341, Stop: 50015, Start Num: 55

Candidate Starts for Pureglobe5_83:

(29, 50434), (Start: 55 @50341 has 2 MA's), (64, 50311), (66, 50308), (71, 50242), (79, 50197), (82, 50173), (87, 50119), (93, 50083), (102, 50032),

Gene: Quby_65 Start: 45009, Stop: 45407, Start Num: 38

Candidate Starts for Quby_65:

(Start: 38 @45009 has 1 MA's), (75, 45126), (79, 45153), (98, 45312),

Gene: Quhwah_57 Start: 36306, Stop: 36755, Start Num: 54

Candidate Starts for Quhwah_57:

(Start: 54 @36306 has 29 MA's), (79, 36465), (88, 36570), (90, 36576), (100, 36633), (109, 36750),

Gene: Ramiel05_53 Start: 35709, Stop: 36158, Start Num: 54

Candidate Starts for Ramiel05_53:

(4, 35400), (5, 35403), (19, 35544), (32, 35616), (Start: 54 @35709 has 29 MA's), (88, 35973), (90, 35979), (100, 36036), (109, 36153),

Gene: Ranunculus_78 Start: 52647, Stop: 52321, Start Num: 56

Candidate Starts for Ranunculus_78:

(Start: 56 @52647 has 9 MA's), (64, 52617), (71, 52548), (79, 52503), (82, 52479), (93, 52389),

Gene: Rizwana_65 Start: 46684, Stop: 46358, Start Num: 56

Candidate Starts for Rizwana_65:

(Start: 56 @46684 has 9 MA's), (64, 46654), (66, 46651), (93, 46426),

Gene: RobsFeet_57 Start: 37130, Stop: 37579, Start Num: 54

Candidate Starts for RobsFeet_57:

(Start: 54 @37130 has 29 MA's), (68, 37181), (79, 37289), (88, 37394), (90, 37400), (109, 37574),

Gene: Rumpelstiltskin_66 Start: 45792, Stop: 46190, Start Num: 58

Candidate Starts for Rumpelstiltskin_66:

(9, 45513), (17, 45606), (Start: 49 @45774 has 5 MA's), (Start: 58 @45792 has 18 MA's), (75, 45909), (79, 45936), (86, 46014), (108, 46161),

Gene: Sarshaun_68 Start: 46459, Stop: 46857, Start Num: 58

Candidate Starts for Sarshaun_68:

(9, 46180), (17, 46273), (Start: 49 @46441 has 5 MA's), (Start: 58 @46459 has 18 MA's), (75, 46576), (79, 46603), (86, 46681), (108, 46828),

Gene: Savannah_53 Start: 35736, Stop: 36185, Start Num: 54

Candidate Starts for Savannah_53:

(Start: 54 @35736 has 29 MA's), (79, 35895), (88, 36000), (90, 36006), (100, 36063), (109, 36180),

Gene: Scumberland_55 Start: 35931, Stop: 36380, Start Num: 54

Candidate Starts for Scumberland_55:

(1, 35505), (4, 35622), (5, 35625), (19, 35766), (32, 35838), (Start: 54 @35931 has 29 MA's), (88, 36195), (90, 36201), (100, 36258), (109, 36375),

Gene: Shotgun_53 Start: 35535, Stop: 35984, Start Num: 54

Candidate Starts for Shotgun_53:

(Start: 54 @35535 has 29 MA's), (79, 35694), (88, 35799), (90, 35805), (100, 35862), (109, 35979),

Gene: SilentRX_62 Start: 45416, Stop: 45102, Start Num: 56

Candidate Starts for SilentRX_62:

(19, 45581), (23, 45545), (Start: 56 @45416 has 9 MA's), (75, 45290), (93, 45158), (94, 45149),

Gene: Smarties_62 Start: 37502, Stop: 37951, Start Num: 54

Candidate Starts for Smarties_62:

(42, 37460), (Start: 54 @37502 has 29 MA's), (68, 37553), (79, 37661), (88, 37766), (90, 37772), (109, 37946),

Gene: Soos_87 Start: 57034, Stop: 57414, Start Num: 48

Candidate Starts for Soos_87:

(6, 56746), (13, 56821), (21, 56908), (Start: 48 @57034 has 2 MA's), (88, 57295), (91, 57304), (94, 57328), (96, 57334), (103, 57376),

Gene: Sting_90 Start: 57473, Stop: 57853, Start Num: 48

Candidate Starts for Sting_90:

(6, 57185), (13, 57260), (21, 57347), (Start: 48 @57473 has 2 MA's), (Start: 54 @57485 has 29 MA's), (88, 57734), (91, 57743), (94, 57767), (96, 57773), (103, 57815),

Gene: Tank_65 Start: 46679, Stop: 46338, Start Num: 56

Candidate Starts for Tank_65:

(Start: 56 @46679 has 9 MA's), (69, 46592), (93, 46421), (100, 46379),

Gene: Teamocil_56 Start: 35776, Stop: 36225, Start Num: 54

Candidate Starts for Teamocil_56:

(42, 35737), (Start: 54 @35776 has 29 MA's), (68, 35827), (79, 35935), (88, 36040), (90, 36046), (104, 36124),

Gene: Tourach_66 Start: 46445, Stop: 46831, Start Num: 58

Candidate Starts for Tourach_66:

(17, 46259), (Start: 49 @46427 has 5 MA's), (Start: 58 @46445 has 18 MA's), (75, 46562), (79, 46589), (86, 46667), (108, 46814),

Gene: Tyrumbra_54 Start: 36909, Stop: 37358, Start Num: 54

Candidate Starts for Tyrumbra_54:

(Start: 54 @36909 has 29 MA's), (68, 36960), (79, 37068), (88, 37173), (100, 37236), (109, 37353),

Gene: ValentiniPuff_101 Start: 57583, Stop: 57990, Start Num: 46

Candidate Starts for ValentiniPuff_101:

(Start: 46 @57583 has 1 MA's), (60, 57622), (63, 57628), (78, 57748), (92, 57883), (106, 57961),

Gene: Vetrrix_67 Start: 46385, Stop: 46804, Start Num: 49

Candidate Starts for Vetrrix_67:

(9, 46124), (17, 46217), (Start: 49 @46385 has 5 MA's), (Start: 58 @46403 has 18 MA's), (75, 46520), (79, 46547), (86, 46625), (108, 46772),

Gene: Wigglewigggle_67 Start: 46423, Stop: 46821, Start Num: 58

Candidate Starts for Wigglewigggle_67:

(9, 46144), (17, 46237), (Start: 49 @46405 has 5 MA's), (Start: 58 @46423 has 18 MA's), (75, 46540), (79, 46567), (86, 46645), (108, 46792),

Gene: Wildcat_77 Start: 48619, Stop: 48984, Start Num: 44

Candidate Starts for Wildcat_77:

(31, 48556), (Start: 44 @48619 has 5 MA's), (81, 48811), (94, 48931), (100, 48964),

Gene: Wilde_67 Start: 46978, Stop: 46637, Start Num: 56

Candidate Starts for Wilde_67:

(Start: 56 @46978 has 9 MA's), (69, 46891), (93, 46720), (100, 46678),

Gene: Wilder_68 Start: 46369, Stop: 46770, Start Num: 58

Candidate Starts for Wilder_68:

(9, 46090), (17, 46183), (Start: 49 @46351 has 5 MA's), (Start: 58 @46369 has 18 MA's), (75, 46486), (79, 46513), (86, 46591), (108, 46738),

Gene: Winky_67 Start: 46363, Stop: 46764, Start Num: 58

Candidate Starts for Winky_67:

(9, 46084), (17, 46177), (Start: 49 @46345 has 5 MA's), (Start: 58 @46363 has 18 MA's), (75, 46480), (79, 46507), (86, 46585), (108, 46732),

Gene: Yeti_54 Start: 35678, Stop: 36130, Start Num: 51

Candidate Starts for Yeti_54:

(Start: 51 @35678 has 8 MA's), (68, 35732), (73, 35795), (79, 35840), (88, 35945), (90, 35951), (100, 36008), (109, 36125),

Gene: Zakai_68 Start: 46689, Stop: 47090, Start Num: 58

Candidate Starts for Zakai_68:

(9, 46410), (17, 46503), (Start: 49 @46671 has 5 MA's), (Start: 58 @46689 has 18 MA's), (75, 46806), (79, 46833), (86, 46911), (108, 47058),

Gene: ZhongYanYuan_66 Start: 46258, Stop: 46644, Start Num: 58

Candidate Starts for ZhongYanYuan_66:

(17, 46072), (40, 46201), (Start: 49 @46240 has 5 MA's), (Start: 58 @46258 has 18 MA's), (75, 46375), (79, 46402), (86, 46480), (108, 46627),

