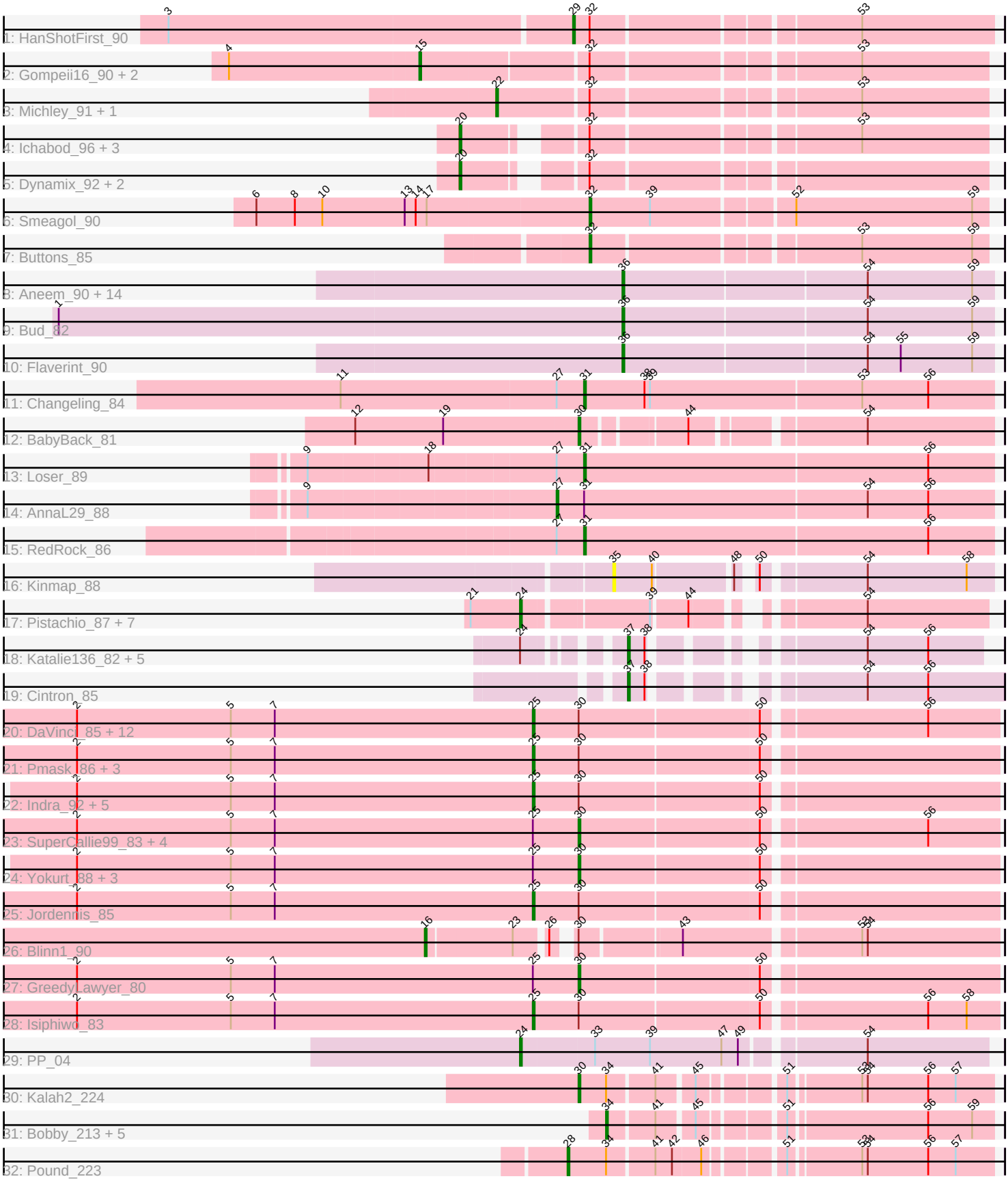
Pham 280289


1: HanShotFirst_90
2: Gompeii16_90 + 2
3: Michley_91 + 1
4: Ichabod_96 + 3
5: Dynamix_92 + 2
6: Smeagol_90
7: Buttons_85
8: Aneem_90 + 14
9: Bud_82
10: Flaverint_90
11: Changeling_84
12: BabyBack_81
13: Loser_89
14: AnnaL29_88
15: RedRock_86
16: Kinmap_88
17: Pistachio_87 + 7
18: Katalie136_82 + 5
19: Cintron_85
20: DaVinci_85 + 12
21: Pmask_86 + 3
22: Indra_92 + 5
23: SuperCallie99_83 + 4
24: Yokurt_88 + 3
25: Jordennis_85
26: Blinn1_90
27: GreedyLawyer_80
28: Isiphiwo_83
29: PP_04
30: Kalah2_224
31: Bobby_213 + 5
32: Pound_223

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 280289 Report

This analysis was run 02/07/26 on database version 634.

Pham number 280289 has 98 members, 12 are drafts.

Phages represented in each track:
• Track 1 : HanShotFirst_90
• Track 2 : Gompeii16_90, Bircsak_90, Gwendoluna_91
• Track 3 : Michley_91, Graduation_93
• Track 4 : Ichabod_96, Thor_98, SarFire_98, BPBiebs31_97
• Track 5 : Dynamix_92, Briton15_95, Switzer_91
• Track 6 : Smeagol_90
• Track 7 : Buttons_85
• Track 8 : Aneem_90, MaCh_89, TinyTimmy_87, Munch_88, Joselito_87, Kimba_86, Lucivia_90, Orange_89, Ebony_88, Petersenfast_83, Gilberta_87, Bowtie_85, Timothy_89, Mabel_89, Snape_89
• Track 9 : Bud_82
• Track 10 : Flaverint_90
• Track 11 : Changeling_84
• Track 12 : BabyBack_81
• Track 13 : Loser_89
• Track 14 : AnnaL29_88
• Track 15 : RedRock_86
• Track 16 : Kinmap_88
• Track 17 : Pistachio_87, SaturnRing_88, Clammy_88, TNguyen7_88, BlueBird_89, Puppy_88, Giroux_90, Bugatti_88
• Track 18 : Katalie136_82, PetiteSangsue_82, Perplexer_82, Morpher26_82, Bumblebee11_81, AbbysRanger_82
• Track 19 : Cintron_85
• Track 20 : DaVinci_85, Chartreuse_86, McFly_87, Kazan_88, Zulu_90, Dorothea_87, Polyphemus_80, Hoot_82, SmellyB_87, BABullseye_80, Cookiedough_87, Kipper29_87, VohminGhazi_87
• Track 21 : Pmask_86, SuperAwesome_87, JewelBug_79, Newrala_86
• Track 22 : Indra_92, Wiks_88, Koko_90, Blue7_90, Helmet_91, Temprado_90
• Track 23 : SuperCallie99_83, EricB_85, Neeharika16_86, Candra_85, Priamo_88
• Track 24 : Yokurt_88, Zaka_89, BennyP_88, Garak_90
• Track 25 : Jordennis_85
• Track 26 : Blinn1_90
• Track 27 : GreedyLawyer_80
• Track 28 : Isiphiwo_83
• Track 29 : PP_04
• Track 30 : Kalah2_224

• Track 31 : Bobby_213, Hidrated_220, Marleymoo_215, Thibault_209, Constella_224, Xiaokay_220
• Track 32 : Pound_223

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

The start number called the most often in the published annotations is 25, it was called in 25 of the 86 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• BABullseye_80, Blue7_90, Chartreuse_86, Cookiedough_87, DaVinci_85, Dorothea_87, Helmet_91, Hoot_82, Indra_92, Isiphiwo_83, JewelBug_79, Jordennis_85, Kazan_88, Kipper29_87, Koko_90, McFly_87, Newrala_86, Pmask_86, Polyphemus_80, SmellyB_87, SuperAwesome_87, Temprado_90, VohminGhazi_87, Wiks_88, Zulu_90,

Genes that have the "Most Annotated" start but do not call it:
• BennyP_88, Candra_85, EricB_85, Garak_90, GreedyLawyer_80, Neeharika16_86, Priamo_88, SuperCallie99_83, Yokurt_88, Zaka_89,

Genes that do not have the "Most Annotated" start:
• AbbysRanger_82, Aneem_90, AnnaL29_88, BPBiebs31_97, BabyBack_81, Bircsak_90, Blinn1_90, BlueBird_89, Bobby_213, Bowtie_85, Briton15_95, Bud_82, Bugatti_88, Bumblebee11_81, Buttons_85, Changeling_84, Cintron_85, Clammy_88, Constella_224, Dynamix_92, Ebony_88, Flaverint_90, Gilberta_87, Giroux_90, Gompeii16_90, Graduation_93, Gwendoluna_91, HanShotFirst_90, Hidrated_220, Ichabod_96, Joselito_87, Kalah2_224, Katalie136_82, Kimba_86, Kinmap_88, Loser_89, Lucivia_90, MaCh_89, Mabel_89, Marleymoo_215, Michley_91, Morpher26_82, Munch_88, Orange_89, PP_04, Perplexer_82, Petersenfast_83, PetiteSangsue_82, Pistachio_87, Pound_223, Puppy_88, RedRock_86, SarFire_98, SaturnRing_88, Smeagol_90, Snape_89, Switzer_91, TNguyen7_88, Thibault_209, Thor_98, Timothy_89, TinyTimmy_87, Xiaokay_220,

Summary by start number:

Start 15:
• Found in 3 of 98 (3.1%) of genes in pham
• Manual Annotations of this start: 3 of 86
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Bircsak_90 (A1), Gompeii16_90 (A1), Gwendoluna_91 (A1),

Start 16:
• Found in 1 of 98 (1.0%) of genes in pham
• Manual Annotations of this start: 1 of 86
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Blinn1_90 (A6),

Start 20:
• Found in 7 of 98 (7.1%) of genes in pham

• Manual Annotations of this start: 7 of 86
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BPBiebs31_97 (A1), Briton15_95 (A1), Dynamix_92 (A1), Ichabod_96 (A1), SarFire_98 (A1), Switzer_91 (A1), Thor_98 (A1),

Start 22:
• Found in 2 of 98 (2.0%) of genes in pham
• Manual Annotations of this start: 2 of 86
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Graduation_93 (A1), Michley_91 (A1),

Start 24:
• Found in 15 of 98 (15.3%) of genes in pham
• Manual Annotations of this start: 6 of 86
• Called 60.0% of time when present
• Phage (with cluster) where this start called: BlueBird_89 (A3), Bugatti_88 (A3), Clammy_88 (A3), Giroux_90 (A3), PP_04 (A7), Pistachio_87 (A3), Puppy_88 (A3), SaturnRing_88 (A3), TNguyen7_88 (A3),

Start 25:
• Found in 35 of 98 (35.7%) of genes in pham
• Manual Annotations of this start: 25 of 86
• Called 71.4% of time when present
• Phage (with cluster) where this start called: BABullseye_80 (A6), Blue7_90 (A6), Chartreuse_86 (A6), Cookiedough_87 (A6), DaVinci_85 (A6), Dorothea_87 (A6), Helmet_91 (A6), Hoot_82 (A6), Indra_92 (A6), Isiphiwo_83 (A6), JewelBug_79 (A6), Jordennis_85 (A6), Kazan_88 (A6), Kipper29_87 (A6), Koko_90 (A6), McFly_87 (A6), Newrala_86 (A6), Pmask_86 (A6), Polyphemus_80 (A6), SmellyB_87 (A6), SuperAwesome_87 (A6), Temprado_90 (A6), VohminGhazi_87 (A6), Wiks_88 (A6), Zulu_90 (A6),

Start 27:
• Found in 4 of 98 (4.1%) of genes in pham
• Manual Annotations of this start: 1 of 86
• Called 25.0% of time when present
• Phage (with cluster) where this start called: AnnaL29_88 (A2),

Start 28:
• Found in 1 of 98 (1.0%) of genes in pham
• Manual Annotations of this start: 1 of 86
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Pound_223 (J),

Start 29:
• Found in 1 of 98 (1.0%) of genes in pham
• Manual Annotations of this start: 1 of 86
• Called 100.0% of time when present
• Phage (with cluster) where this start called: HanShotFirst_90 (A1),

Start 30:
• Found in 38 of 98 (38.8%) of genes in pham
• Manual Annotations of this start: 9 of 86
• Called 31.6% of time when present

• Phage (with cluster) where this start called: BabyBack_81 (A2), BennyP_88 (A6), Candra_85 (A6), EricB_85 (A6), Garak_90 (A6), GreedyLawyer_80 (A6), Kalah2_224 (J), Neeharika16_86 (A6), Priamo_88 (A6), SuperCallie99_83 (A6), Yokurt_88 (A6), Zaka_89 (A6),

Start 31:
• Found in 4 of 98 (4.1%) of genes in pham
• Manual Annotations of this start: 3 of 86
• Called 75.0% of time when present
• Phage (with cluster) where this start called: Changeling_84 (A2), Loser_89 (A2), RedRock_86 (A2),

Start 32:
• Found in 15 of 98 (15.3%) of genes in pham
• Manual Annotations of this start: 2 of 86
• Called 13.3% of time when present
• Phage (with cluster) where this start called: Buttons_85 (A1), Smeagol_90 (A1),

Start 34:
• Found in 8 of 98 (8.2%) of genes in pham
• Manual Annotations of this start: 3 of 86
• Called 75.0% of time when present
• Phage (with cluster) where this start called: Bobby_213 (J), Constella_224 (J), Hidrated_220 (J), Marleymoo_215 (J), Thibault_209 (J), Xiaokay_220 (J),

Start 35:
• Found in 1 of 98 (1.0%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Kinmap_88 (A21),

Start 36:
• Found in 17 of 98 (17.3%) of genes in pham
• Manual Annotations of this start: 15 of 86
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Aneem_90 (A11), Bowtie_85 (A11), Bud_82 (A11), Ebony_88 (A11), Flaverint_90 (A11), Gilberta_87 (A11), Joselito_87 (A11), Kimba_86 (A11), Lucivia_90 (A11), MaCh_89 (A11), Mabel_89 (A11), Munch_88 (A11), Orange_89 (A11), Petersenfast_83 (A11), Snape_89 (A11), Timothy_89 (A11), TinyTimmy_87 (A11),

Start 37:
• Found in 7 of 98 (7.1%) of genes in pham
• Manual Annotations of this start: 7 of 86
• Called 100.0% of time when present
• Phage (with cluster) where this start called: AbbysRanger_82 (A4), Bumblebee11_81 (A4), Cintron_85 (A4), Katalie136_82 (A4), Morpher26_82 (A4), Perplexer_82 (A4), PetiteSangsue_82 (A4),

Summary by clusters:

There are 9 clusters represented in this pham: A21, A11, J, A1, A3, A2, A4, A7, A6,

Info for manual annotations of cluster A1:
•Start number 15 was manually annotated 3 times for cluster A1.
•Start number 20 was manually annotated 7 times for cluster A1.
•Start number 22 was manually annotated 2 times for cluster A1.
•Start number 29 was manually annotated 1 time for cluster A1.
•Start number 32 was manually annotated 2 times for cluster A1.

Info for manual annotations of cluster A11:
•Start number 36 was manually annotated 15 times for cluster A11.

Info for manual annotations of cluster A2:
•Start number 27 was manually annotated 1 time for cluster A2.
•Start number 30 was manually annotated 1 time for cluster A2.
•Start number 31 was manually annotated 3 times for cluster A2.

Info for manual annotations of cluster A3:
•Start number 24 was manually annotated 5 times for cluster A3.

Info for manual annotations of cluster A4:
•Start number 37 was manually annotated 7 times for cluster A4.

Info for manual annotations of cluster A6:
•Start number 16 was manually annotated 1 time for cluster A6.
•Start number 25 was manually annotated 25 times for cluster A6.
•Start number 30 was manually annotated 7 times for cluster A6.

Info for manual annotations of cluster A7:
•Start number 24 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster J:
•Start number 28 was manually annotated 1 time for cluster J.
•Start number 30 was manually annotated 1 time for cluster J.
•Start number 34 was manually annotated 3 times for cluster J.

Gene Information:

Gene: AbbysRanger_82 Start: 48599, Stop: 48441, Start Num: 37
Candidate Starts for AbbysRanger_82:
(Start: 24 @48638 has 6 MA's), (Start: 37 @48599 has 7 MA's), (38, 48590), (54, 48503), (56, 48470),

Gene: Aneem_90 Start: 48299, Stop: 48102, Start Num: 36
Candidate Starts for Aneem_90:
(Start: 36 @48299 has 15 MA's), (54, 48170), (59, 48113),

Gene: AnnaL29_88 Start: 49242, Stop: 49006, Start Num: 27
Candidate Starts for AnnaL29_88:
(9, 49371), (Start: 27 @49242 has 1 MA's), (Start: 31 @49227 has 3 MA's), (54, 49074), (56, 49041),

Gene: BABullseye_80 Start: 44890, Stop: 44648, Start Num: 25
Candidate Starts for BABullseye_80:

(2, 45139), (5, 45055), (7, 45031), (Start: 25 @44890 has 25 MA's), (Start: 30 @44866 has 9 MA's), (50, 44770), (56, 44686),

Gene: BPBiebs31_97 Start: 52824, Stop: 52570, Start Num: 20
Candidate Starts for BPBiebs31_97:
(Start: 20 @52824 has 7 MA's), (Start: 32 @52773 has 2 MA's), (53, 52638),

Gene: BabyBack_81 Start: 48271, Stop: 48068, Start Num: 30
Candidate Starts for BabyBack_81:
(12, 48391), (19, 48343), (Start: 30 @48271 has 9 MA's), (44, 48220), (54, 48136),

Gene: BennyP_88 Start: 46711, Stop: 46493, Start Num: 30
Candidate Starts for BennyP_88:
(2, 46984), (5, 46900), (7, 46876), (Start: 25 @46735 has 25 MA's), (Start: 30 @46711 has 9 MA's), (50, 46615),

Gene: Bircsak_90 Start: 52909, Stop: 52619, Start Num: 15
Candidate Starts for Bircsak_90:
(4, 53011), (Start: 15 @52909 has 3 MA's), (Start: 32 @52822 has 2 MA's), (53, 52687),

Gene: Blinn1_90 Start: 47426, Stop: 47145, Start Num: 16
Candidate Starts for Blinn1_90:
(Start: 16 @47426 has 1 MA's), (23, 47381), (26, 47366), (Start: 30 @47360 has 9 MA's), (43, 47309), (53, 47219), (54, 47216),

Gene: Blue7_90 Start: 46789, Stop: 46547, Start Num: 25
Candidate Starts for Blue7_90:
(2, 47038), (5, 46954), (7, 46930), (Start: 25 @46789 has 25 MA's), (Start: 30 @46765 has 9 MA's), (50, 46669),

Gene: BlueBird_89 Start: 48203, Stop: 47985, Start Num: 24
Candidate Starts for BlueBird_89:
(21, 48230), (Start: 24 @48203 has 6 MA's), (39, 48140), (44, 48122), (54, 48050),

Gene: Bobby_213 Start: 108407, Stop: 108219, Start Num: 34
Candidate Starts for Bobby_213:
(Start: 34 @108407 has 3 MA's), (41, 108383), (45, 108365), (51, 108326), (56, 108254), (59, 108230),

Gene: Bowtie_85 Start: 46906, Stop: 46709, Start Num: 36
Candidate Starts for Bowtie_85:
(Start: 36 @46906 has 15 MA's), (54, 46777), (59, 46720),

Gene: Briton15_95 Start: 52689, Stop: 52435, Start Num: 20
Candidate Starts for Briton15_95:
(Start: 20 @52689 has 7 MA's), (Start: 32 @52638 has 2 MA's),

Gene: Bud_82 Start: 46736, Stop: 46539, Start Num: 36
Candidate Starts for Bud_82:
(1, 47042), (Start: 36 @46736 has 15 MA's), (54, 46607), (59, 46550),

Gene: Bugatti_88 Start: 48203, Stop: 47985, Start Num: 24
Candidate Starts for Bugatti_88:
(21, 48230), (Start: 24 @48203 has 6 MA's), (39, 48140), (44, 48122), (54, 48050),

Gene: Bumblebee11_81 Start: 48581, Stop: 48423, Start Num: 37
Candidate Starts for Bumblebee11_81:
(Start: 24 @48620 has 6 MA's), (Start: 37 @48581 has 7 MA's), (38, 48572), (54, 48485), (56, 48452),

Gene: Buttons_85 Start: 48633, Stop: 48430, Start Num: 32
Candidate Starts for Buttons_85:
(Start: 32 @48633 has 2 MA's), (53, 48498), (59, 48438),

Gene: Candra_85 Start: 46570, Stop: 46352, Start Num: 30
Candidate Starts for Candra_85:
(2, 46843), (5, 46759), (7, 46735), (Start: 25 @46594 has 25 MA's), (Start: 30 @46570 has 9 MA's), (50, 46474), (56, 46390),

Gene: Changeling_84 Start: 49033, Stop: 48812, Start Num: 31
Candidate Starts for Changeling_84:
(11, 49165), (Start: 27 @49048 has 1 MA's), (Start: 31 @49033 has 3 MA's), (38, 49000), (39, 48997), (53, 48883), (56, 48847),

Gene: Chartreuse_86 Start: 45895, Stop: 45653, Start Num: 25
Candidate Starts for Chartreuse_86:
(2, 46144), (5, 46060), (7, 46036), (Start: 25 @45895 has 25 MA's), (Start: 30 @45871 has 9 MA's), (50, 45775), (56, 45691),

Gene: Cintron_85 Start: 48872, Stop: 48702, Start Num: 37
Candidate Starts for Cintron_85:
(Start: 37 @48872 has 7 MA's), (38, 48863), (54, 48776), (56, 48743),

Gene: Clammy_88 Start: 48203, Stop: 47985, Start Num: 24
Candidate Starts for Clammy_88:
(21, 48230), (Start: 24 @48203 has 6 MA's), (39, 48140), (44, 48122), (54, 48050),

Gene: Constella_224 Start: 108319, Stop: 108131, Start Num: 34
Candidate Starts for Constella_224:
(Start: 34 @108319 has 3 MA's), (41, 108295), (45, 108277), (51, 108238), (56, 108166), (59, 108142),

Gene: Cookiedough_87 Start: 47203, Stop: 46961, Start Num: 25
Candidate Starts for Cookiedough_87:
(2, 47452), (5, 47368), (7, 47344), (Start: 25 @47203 has 25 MA's), (Start: 30 @47179 has 9 MA's), (50, 47083), (56, 46999),

Gene: DaVinci_85 Start: 45949, Stop: 45707, Start Num: 25
Candidate Starts for DaVinci_85:
(2, 46198), (5, 46114), (7, 46090), (Start: 25 @45949 has 25 MA's), (Start: 30 @45925 has 9 MA's), (50, 45829), (56, 45745),

Gene: Dorothea_87 Start: 47195, Stop: 46953, Start Num: 25
Candidate Starts for Dorothea_87:
(2, 47444), (5, 47360), (7, 47336), (Start: 25 @47195 has 25 MA's), (Start: 30 @47171 has 9 MA's), (50, 47075), (56, 46991),

Gene: Dynamix_92 Start: 50284, Stop: 50030, Start Num: 20
Candidate Starts for Dynamix_92:

(Start: 20 @50284 has 7 MA's), (Start: 32 @50233 has 2 MA's),

Gene: Ebony_88 Start: 47870, Stop: 47673, Start Num: 36
Candidate Starts for Ebony_88:
(Start: 36 @47870 has 15 MA's), (54, 47741), (59, 47684),

Gene: EricB_85 Start: 46068, Stop: 45850, Start Num: 30
Candidate Starts for EricB_85:
(2, 46341), (5, 46257), (7, 46233), (Start: 25 @46092 has 25 MA's), (Start: 30 @46068 has 9 MA's), (50, 45972), (56, 45888),

Gene: Flaverint_90 Start: 48297, Stop: 48100, Start Num: 36
Candidate Starts for Flaverint_90:
(Start: 36 @48297 has 15 MA's), (54, 48168), (55, 48150), (59, 48111),

Gene: Garak_90 Start: 47008, Stop: 46790, Start Num: 30
Candidate Starts for Garak_90:
(2, 47281), (5, 47197), (7, 47173), (Start: 25 @47032 has 25 MA's), (Start: 30 @47008 has 9 MA's), (50, 46912),

Gene: Gilberta_87 Start: 47173, Stop: 46976, Start Num: 36
Candidate Starts for Gilberta_87:
(Start: 36 @47173 has 15 MA's), (54, 47044), (59, 46987),

Gene: Giroux_90 Start: 48202, Stop: 47984, Start Num: 24
Candidate Starts for Giroux_90:
(21, 48229), (Start: 24 @48202 has 6 MA's), (39, 48139), (44, 48121), (54, 48049),

Gene: Gompeii16_90 Start: 52910, Stop: 52620, Start Num: 15
Candidate Starts for Gompeii16_90:
(4, 53012), (Start: 15 @52910 has 3 MA's), (Start: 32 @52823 has 2 MA's), (53, 52688),

Gene: Graduation_93 Start: 51162, Stop: 50911, Start Num: 22
Candidate Starts for Graduation_93:
(Start: 22 @51162 has 2 MA's), (Start: 32 @51114 has 2 MA's), (53, 50979),

Gene: GreedyLawyer_80 Start: 46501, Stop: 46283, Start Num: 30
Candidate Starts for GreedyLawyer_80:
(2, 46774), (5, 46690), (7, 46666), (Start: 25 @46525 has 25 MA's), (Start: 30 @46501 has 9 MA's), (50, 46405),

Gene: Gwendoluna_91 Start: 51399, Stop: 51109, Start Num: 15
Candidate Starts for Gwendoluna_91:
(4, 51501), (Start: 15 @51399 has 3 MA's), (Start: 32 @51312 has 2 MA's), (53, 51177),

Gene: HanShotFirst_90 Start: 51379, Stop: 51594, Start Num: 29
Candidate Starts for HanShotFirst_90:
(3, 51163), (Start: 29 @51379 has 1 MA's), (Start: 32 @51388 has 2 MA's), (53, 51523),

Gene: Helmet_91 Start: 47032, Stop: 46790, Start Num: 25
Candidate Starts for Helmet_91:
(2, 47281), (5, 47197), (7, 47173), (Start: 25 @47032 has 25 MA's), (Start: 30 @47008 has 9 MA's), (50, 46912),

Gene: Hidrated_220 Start: 109826, Stop: 109638, Start Num: 34
Candidate Starts for Hidrated_220:
(Start: 34 @109826 has 3 MA's), (41, 109802), (45, 109784), (51, 109745), (56, 109673), (59, 109649),

Gene: Hoot_82 Start: 44409, Stop: 44167, Start Num: 25
Candidate Starts for Hoot_82:
(2, 44658), (5, 44574), (7, 44550), (Start: 25 @44409 has 25 MA's), (Start: 30 @44385 has 9 MA's), (50, 44289), (56, 44205),

Gene: Ichabod_96 Start: 52974, Stop: 52720, Start Num: 20
Candidate Starts for Ichabod_96:
(Start: 20 @52974 has 7 MA's), (Start: 32 @52923 has 2 MA's), (53, 52788),

Gene: Indra_92 Start: 47033, Stop: 46791, Start Num: 25
Candidate Starts for Indra_92:
(2, 47282), (5, 47198), (7, 47174), (Start: 25 @47033 has 25 MA's), (Start: 30 @47009 has 9 MA's), (50, 46913),

Gene: Isiphiwo_83 Start: 46120, Stop: 45878, Start Num: 25
Candidate Starts for Isiphiwo_83:
(2, 46369), (5, 46285), (7, 46261), (Start: 25 @46120 has 25 MA's), (Start: 30 @46096 has 9 MA's), (50, 46000), (56, 45916), (58, 45895),

Gene: JewelBug_79 Start: 44888, Stop: 44646, Start Num: 25
Candidate Starts for JewelBug_79:
(2, 45137), (5, 45053), (7, 45029), (Start: 25 @44888 has 25 MA's), (Start: 30 @44864 has 9 MA's), (50, 44768),

Gene: Jordennis_85 Start: 46792, Stop: 46550, Start Num: 25
Candidate Starts for Jordennis_85:
(2, 47041), (5, 46957), (7, 46933), (Start: 25 @46792 has 25 MA's), (Start: 30 @46768 has 9 MA's), (50, 46672),

Gene: Joselito_87 Start: 48051, Stop: 47854, Start Num: 36
Candidate Starts for Joselito_87:
(Start: 36 @48051 has 15 MA's), (54, 47922), (59, 47865),

Gene: Kalah2_224 Start: 108578, Stop: 108375, Start Num: 30
Candidate Starts for Kalah2_224:
(Start: 30 @108578 has 9 MA's), (Start: 34 @108563 has 3 MA's), (41, 108539), (45, 108521), (51, 108482), (53, 108446), (54, 108443), (56, 108410), (57, 108395),

Gene: Katalie136_82 Start: 48581, Stop: 48423, Start Num: 37
Candidate Starts for Katalie136_82:
(Start: 24 @48620 has 6 MA's), (Start: 37 @48581 has 7 MA's), (38, 48572), (54, 48485), (56, 48452),

Gene: Kazan_88 Start: 46564, Stop: 46322, Start Num: 25
Candidate Starts for Kazan_88:
(2, 46813), (5, 46729), (7, 46705), (Start: 25 @46564 has 25 MA's), (Start: 30 @46540 has 9 MA's), (50, 46444), (56, 46360),

Gene: Kimba_86 Start: 47354, Stop: 47157, Start Num: 36

Candidate Starts for Kimba_86:
(Start: 36 @47354 has 15 MA's), (54, 47225), (59, 47168),

Gene: Kinmap_88 Start: 46506, Stop: 46321, Start Num: 35
Candidate Starts for Kinmap_88:
(35, 46506), (40, 46485), (48, 46446), (50, 46440), (54, 46389), (58, 46335),

Gene: Kipper29_87 Start: 46567, Stop: 46325, Start Num: 25
Candidate Starts for Kipper29_87:
(2, 46816), (5, 46732), (7, 46708), (Start: 25 @46567 has 25 MA's), (Start: 30 @46543 has 9 MA's), (50, 46447), (56, 46363),

Gene: Koko_90 Start: 47422, Stop: 47180, Start Num: 25
Candidate Starts for Koko_90:
(2, 47671), (5, 47587), (7, 47563), (Start: 25 @47422 has 25 MA's), (Start: 30 @47398 has 9 MA's), (50, 47302),

Gene: Loser_89 Start: 49477, Stop: 49256, Start Num: 31
Candidate Starts for Loser_89:
(9, 49621), (18, 49558), (Start: 27 @49492 has 1 MA's), (Start: 31 @49477 has 3 MA's), (56, 49291),

Gene: Lucivia_90 Start: 48330, Stop: 48133, Start Num: 36
Candidate Starts for Lucivia_90:
(Start: 36 @48330 has 15 MA's), (54, 48201), (59, 48144),

Gene: MaCh_89 Start: 48294, Stop: 48097, Start Num: 36
Candidate Starts for MaCh_89:
(Start: 36 @48294 has 15 MA's), (54, 48165), (59, 48108),

Gene: Mabel_89 Start: 48295, Stop: 48098, Start Num: 36
Candidate Starts for Mabel_89:
(Start: 36 @48295 has 15 MA's), (54, 48166), (59, 48109),

Gene: Marleymoo_215 Start: 106507, Stop: 106319, Start Num: 34
Candidate Starts for Marleymoo_215:
(Start: 34 @106507 has 3 MA's), (41, 106483), (45, 106465), (51, 106426), (56, 106354), (59, 106330),

Gene: McFly_87 Start: 46903, Stop: 46661, Start Num: 25
Candidate Starts for McFly_87:
(2, 47152), (5, 47068), (7, 47044), (Start: 25 @46903 has 25 MA's), (Start: 30 @46879 has 9 MA's), (50, 46783), (56, 46699),

Gene: Michley_91 Start: 50597, Stop: 50346, Start Num: 22
Candidate Starts for Michley_91:
(Start: 22 @50597 has 2 MA's), (Start: 32 @50549 has 2 MA's), (53, 50414),

Gene: Morpher26_82 Start: 48602, Stop: 48444, Start Num: 37
Candidate Starts for Morpher26_82:
(Start: 24 @48641 has 6 MA's), (Start: 37 @48602 has 7 MA's), (38, 48593), (54, 48506), (56, 48473),

Gene: Munch_88 Start: 48299, Stop: 48102, Start Num: 36
Candidate Starts for Munch_88:
(Start: 36 @48299 has 15 MA's), (54, 48170), (59, 48113),

Gene: Neeharika16_86 Start: 46630, Stop: 46412, Start Num: 30
Candidate Starts for Neeharika16_86:
(2, 46903), (5, 46819), (7, 46795), (Start: 25 @46654 has 25 MA's), (Start: 30 @46630 has 9 MA's), (50, 46534), (56, 46450),

Gene: Newrala_86 Start: 47000, Stop: 46758, Start Num: 25
Candidate Starts for Newrala_86:
(2, 47249), (5, 47165), (7, 47141), (Start: 25 @47000 has 25 MA's), (Start: 30 @46976 has 9 MA's), (50, 46880),

Gene: Orange_89 Start: 47849, Stop: 47652, Start Num: 36
Candidate Starts for Orange_89:
(Start: 36 @47849 has 15 MA's), (54, 47720), (59, 47663),

Gene: PP_04 Start: 1143, Stop: 901, Start Num: 24
Candidate Starts for PP_04:
(Start: 24 @1143 has 6 MA's), (33, 1104), (39, 1074), (47, 1035), (49, 1026), (54, 966),

Gene: Perplexer_82 Start: 48582, Stop: 48424, Start Num: 37
Candidate Starts for Perplexer_82:
(Start: 24 @48621 has 6 MA's), (Start: 37 @48582 has 7 MA's), (38, 48573), (54, 48486), (56, 48453),

Gene: Petersenfast_83 Start: 46730, Stop: 46533, Start Num: 36
Candidate Starts for Petersenfast_83:
(Start: 36 @46730 has 15 MA's), (54, 46601), (59, 46544),

Gene: PetiteSangsue_82 Start: 48585, Stop: 48427, Start Num: 37
Candidate Starts for PetiteSangsue_82:
(Start: 24 @48624 has 6 MA's), (Start: 37 @48585 has 7 MA's), (38, 48576), (54, 48489), (56, 48456),

Gene: Pistachio_87 Start: 47750, Stop: 47532, Start Num: 24
Candidate Starts for Pistachio_87:
(21, 47777), (Start: 24 @47750 has 6 MA's), (39, 47687), (44, 47669), (54, 47597),

Gene: Pmask_86 Start: 47201, Stop: 46959, Start Num: 25
Candidate Starts for Pmask_86:
(2, 47450), (5, 47366), (7, 47342), (Start: 25 @47201 has 25 MA's), (Start: 30 @47177 has 9 MA's), (50, 47081),

Gene: Polyphemus_80 Start: 44972, Stop: 44730, Start Num: 25
Candidate Starts for Polyphemus_80:
(2, 45221), (5, 45137), (7, 45113), (Start: 25 @44972 has 25 MA's), (Start: 30 @44948 has 9 MA's), (50, 44852), (56, 44768),

Gene: Pound_223 Start: 107829, Stop: 107617, Start Num: 28
Candidate Starts for Pound_223:
(Start: 28 @107829 has 1 MA's), (Start: 34 @107808 has 3 MA's), (41, 107784), (42, 107775), (46, 107760), (51, 107724), (53, 107688), (54, 107685), (56, 107652), (57, 107637),

Gene: Priamo_88 Start: 46420, Stop: 46202, Start Num: 30
Candidate Starts for Priamo_88:

(2, 46693), (5, 46609), (7, 46585), (Start: 25 @46444 has 25 MA's), (Start: 30 @46420 has 9 MA's), (50, 46324), (56, 46240),

Gene: Puppy_88 Start: 47820, Stop: 47602, Start Num: 24
Candidate Starts for Puppy_88:
(21, 47847), (Start: 24 @47820 has 6 MA's), (39, 47757), (44, 47739), (54, 47667),

Gene: RedRock_86 Start: 49130, Stop: 48909, Start Num: 31
Candidate Starts for RedRock_86:
(Start: 27 @49145 has 1 MA's), (Start: 31 @49130 has 3 MA's), (56, 48944),

Gene: SarFire_98 Start: 53353, Stop: 53099, Start Num: 20
Candidate Starts for SarFire_98:
(Start: 20 @53353 has 7 MA's), (Start: 32 @53302 has 2 MA's), (53, 53167),

Gene: SaturnRing_88 Start: 48203, Stop: 47985, Start Num: 24
Candidate Starts for SaturnRing_88:
(21, 48230), (Start: 24 @48203 has 6 MA's), (39, 48140), (44, 48122), (54, 48050),

Gene: Smeagol_90 Start: 52545, Stop: 52336, Start Num: 32
Candidate Starts for Smeagol_90:
(6, 52725), (8, 52704), (10, 52689), (13, 52644), (14, 52638), (17, 52632), (Start: 32 @52545 has 2 MA's), (39, 52512), (52, 52440), (59, 52344),

Gene: SmellyB_87 Start: 46558, Stop: 46316, Start Num: 25
Candidate Starts for SmellyB_87:
(2, 46807), (5, 46723), (7, 46699), (Start: 25 @46558 has 25 MA's), (Start: 30 @46534 has 9 MA's), (50, 46438), (56, 46354),

Gene: Snape_89 Start: 47838, Stop: 47641, Start Num: 36
Candidate Starts for Snape_89:
(Start: 36 @47838 has 15 MA's), (54, 47709), (59, 47652),

Gene: SuperAwesome_87 Start: 47240, Stop: 46998, Start Num: 25
Candidate Starts for SuperAwesome_87:
(2, 47489), (5, 47405), (7, 47381), (Start: 25 @47240 has 25 MA's), (Start: 30 @47216 has 9 MA's), (50, 47120),

Gene: SuperCallie99_83 Start: 46597, Stop: 46379, Start Num: 30
Candidate Starts for SuperCallie99_83:
(2, 46870), (5, 46786), (7, 46762), (Start: 25 @46621 has 25 MA's), (Start: 30 @46597 has 9 MA's), (50, 46501), (56, 46417),

Gene: Switzer_91 Start: 51956, Stop: 51702, Start Num: 20
Candidate Starts for Switzer_91:
(Start: 20 @51956 has 7 MA's), (Start: 32 @51905 has 2 MA's),

Gene: TNguyen7_88 Start: 48161, Stop: 47943, Start Num: 24
Candidate Starts for TNguyen7_88:
(21, 48188), (Start: 24 @48161 has 6 MA's), (39, 48098), (44, 48080), (54, 48008),

Gene: Temprado_90 Start: 47032, Stop: 46790, Start Num: 25
Candidate Starts for Temprado_90:

(2, 47281), (5, 47197), (7, 47173), (Start: 25 @47032 has 25 MA's), (Start: 30 @47008 has 9 MA's), (50, 46912),

Gene: Thibault_209 Start: 104098, Stop: 103910, Start Num: 34
Candidate Starts for Thibault_209:
(Start: 34 @104098 has 3 MA's), (41, 104074), (45, 104056), (51, 104017), (56, 103945), (59, 103921),

Gene: Thor_98 Start: 52711, Stop: 52457, Start Num: 20
Candidate Starts for Thor_98:
(Start: 20 @52711 has 7 MA's), (Start: 32 @52660 has 2 MA's), (53, 52525),

Gene: Timothy_89 Start: 47815, Stop: 47618, Start Num: 36
Candidate Starts for Timothy_89:
(Start: 36 @47815 has 15 MA's), (54, 47686), (59, 47629),

Gene: TinyTimmy_87 Start: 47544, Stop: 47347, Start Num: 36
Candidate Starts for TinyTimmy_87:
(Start: 36 @47544 has 15 MA's), (54, 47415), (59, 47358),

Gene: VohminGhazi_87 Start: 46559, Stop: 46317, Start Num: 25
Candidate Starts for VohminGhazi_87:
(2, 46808), (5, 46724), (7, 46700), (Start: 25 @46559 has 25 MA's), (Start: 30 @46535 has 9 MA's), (50, 46439), (56, 46355),

Gene: Wiks_88 Start: 46663, Stop: 46421, Start Num: 25
Candidate Starts for Wiks_88:
(2, 46912), (5, 46828), (7, 46804), (Start: 25 @46663 has 25 MA's), (Start: 30 @46639 has 9 MA's), (50, 46543),

Gene: Xiaokay_220 Start: 108420, Stop: 108232, Start Num: 34
Candidate Starts for Xiaokay_220:
(Start: 34 @108420 has 3 MA's), (41, 108396), (45, 108378), (51, 108339), (56, 108267), (59, 108243),

Gene: Yokurt_88 Start: 46639, Stop: 46421, Start Num: 30
Candidate Starts for Yokurt_88:
(2, 46912), (5, 46828), (7, 46804), (Start: 25 @46663 has 25 MA's), (Start: 30 @46639 has 9 MA's), (50, 46543),

Gene: Zaka_89 Start: 46639, Stop: 46421, Start Num: 30
Candidate Starts for Zaka_89:
(2, 46912), (5, 46828), (7, 46804), (Start: 25 @46663 has 25 MA's), (Start: 30 @46639 has 9 MA's), (50, 46543),

Gene: Zulu_90 Start: 47040, Stop: 46798, Start Num: 25
Candidate Starts for Zulu_90:
(2, 47289), (5, 47205), (7, 47181), (Start: 25 @47040 has 25 MA's), (Start: 30 @47016 has 9 MA's), (50, 46920), (56, 46836),