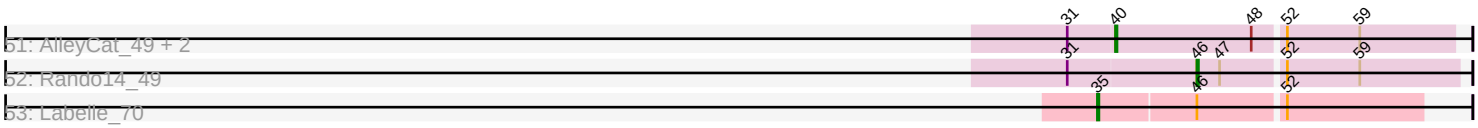
Pham 336547


1: MalagasyRose_55
2: GTE5_51 + 1
3: GRU1_51
4: Turuncu_65
5: Dallpop_66
6: Bonum_66 + 1
7: Phomeo_61 + 12
8: Outis_63 + 2
9: Commandaria_63
10: NosilaM_64
11: SuperSulley_64 + 1
12: Float294_63
13: RedRaider_69
14: Skysand_64
15: Lollipop1437_66
16: Patio_64 + 1
17: IDyn_61 + 2
18: Sukkupi_63 + 3
19: Marietta_63
20: NadineRae_62
21: Scuba_71
22: Pleakley_71 + 1
23: HomeFry_67
24: CoffeeBean_60 + 4
25: Gagleri_59
26: MacGully_69
27: Lila22_92
28: Fulcrum_91 + 18
29: Mima20_90
30: Rumi_90 + 5
31: Stormer_90 + 4
32: ParvusTarda_91
33: Lambo_91
34: LuckyLeo_89
35: DaviePasture_92
36: DumpTruck_94
37: Tilicus_85
38: Wojtek_83
39: DoobyDoo_91
40: MolGyank_94
41: Erutan_91
42: Konstantine_60 + 2
43: Thumb_57 + 2
44: Nish23_59 + 1
45: Puissant_54
46: Phreeze_55 + 1
47: Efra2_57 + 2
48: TingHuaYa_55
49: LastHope_57
50: Curiosium_55

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51: AlleyCat_49 + 2
52: Rando14_49
53: Labelle_70
31
40
48
52
59
31
46
47
52
59
35
46
52

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 336547 Report

This analysis was run 11/14/26 on database version 672.

Pham number 336547 has 118 members, 10 are drafts.

Phages represented in each track:
- Track 1 : MalagasyRose_55
- Track 2 : GTE5_51, Flapper_65
- Track 3 : GRU1_51
- Track 4 : Turuncu_65
- Track 5 : Dalilpop_66
- Track 6 : Bonum_66, Kabluna_65
- Track 7 : Phomeo_61, Emianna_62, GTE8_51, Wheezy_62, Jifall16_61, Tracker_62, Arti_61, Foxboro_63, NatB6_62, Kurt_62, GrootJr_64, KidneyBean_62, NovumRegina_62
- Track 8 : Outis_63, StarStruck_63, MerCougar_64
- Track 9 : Commandaria_63
- Track 10 : NosilaM_64
- Track 11 : SuperSulley_64, Buggaboo_64
- Track 12 : Float294_63
- Track 13 : RedRaider_69
- Track 14 : Skysand_64
- Track 15 : Lollipop1437_66
- Track 16 : Patio_64, Ennea_69
- Track 17 : IDyn_61, WhoseManz_62, HubbaBubba_57
- Track 18 : Sukkupi_63, Yndexa_63, Pemberton_64, BiPauneto_65
- Track 19 : Marietta_63
- Track 20 : NadineRae_62
- Track 21 : Scuba_71
- Track 22 : Pleakley_71, Fury_71
- Track 23 : HomeFry_67
- Track 24 : CoffeeBean_60, Apiary_60, Braxoaddie_60, Polyyuki_60, Maselop_60
- Track 25 : Gagieri_59
- Track 26 : MacGully_69
- Track 27 : Lila22_92
- Track 28 : Fulcrum_91, OtterstedtS21_92, Gibbin_93, Patos_96, Sampudon_93, Alephilan_94, LavAbarElk_91, Sadboi_91, Nettle_93, Jalebi_91, GretelLyn_91, Pywacket_89, Rukungu_92, Zany_90, GOATification_91, Rota_90, Yikes_92, BirthdayBoy_94, NorManre_96
- Track 29 : Mima20_90
- Track 30 : Rumi_90, Alyssamiracle_92, Riduram_88, Jamemuya19_87, RazorC_89, NovaSharks_91
- Track 31 : Stormer_90, Genamy16_92, Avian_87, Astralis_89, Charminar_88

• Track 32 : ParvusTarda_91
• Track 33 : Lambo_91
• Track 34 : LuckyLeo_89
• Track 35 : DaviePasture_92
• Track 36 : DumpTruck_94
• Track 37 : Tillicus_85
• Track 38 : Wojtek_83
• Track 39 : DoobyDoo_91
• Track 40 : MoiGyank_94
• Track 41 : Erutan_91
• Track 42 : Konstantine_60, BobtimousPrime_58, Cborch11_58
• Track 43 : Thumb_57, Oaker_56, Megatron06_58
• Track 44 : Nish23_59, Beckerton_56
• Track 45 : Puissant_54
• Track 46 : Phreeze_55, Damien_57
• Track 47 : Efra2_57, Yunkel11_56, Guanica15_56
• Track 48 : TingHuaYa_55
• Track 49 : LastHope_57
• Track 50 : Curiosium_55
• Track 51 : AlleyCat_49, Psycho_47, Dadosky_49
• Track 52 : Rando14_49
• Track 53 : Labelle_70

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

The start number called the most often in the published annotations is 35, it was called in 46 of the 108 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Apiary_60, Arti_61, Bonum_66, Braxoaddie_60, Buggaboo_64, CoffeeBean_60, Commandaria_63, Curiosium_55, Dalilpop_66, Efra2_57, Emianna_62, Ennea_69, Flapper_65, Float294_63, Foxboro_63, Fury_71, GRU1_51, GTE5_51, GTE8_51, Gagieri_59, GrootJr_64, Guanica15_56, HomeFry_67, Jifall16_61, Kabluna_65, KidneyBean_62, Kurt_62, Labelle_70, LastHope_57, Lollipop1437_66, MacGully_69, Maselop_60, MerCougar_64, NatB6_62, NovumRegina_62, Outis_63, Patio_64, Phomeo_61, Pleakley_71, Polyyuki_60, RedRaider_69, Scuba_71, Skysand_64, StarStruck_63, SuperSulley_64, TingHuaYa_55, Tracker_62, Turuncu_65, Wheezy_62, Yunkel11_56,

Genes that have the "Most Annotated" start but do not call it:
• NosilaM_64,

Genes that do not have the "Most Annotated" start:
• Alephilan_94, AlleyCat_49, Alyssamiracle_92, Astralis_89, Avian_87, Beckerton_56, BiPauneto_65, BirthdayBoy_94, BobtimousPrime_58, Cborch11_58, Charminar_88, Dadosky_49, Damien_57, DaviePasture_92, DoobyDoo_91, DumpTruck_94, Erutan_91, Fulcrum_91, GOATification_91, Genamy16_92, Gibbin_93, GretelLyn_91, HubbaBubba_57, IDyn_61, Jalebi_91, Jamemuya19_87, Konstantine_60, Lambo_91, LavAbarElk_91, Lila22_92, LuckyLeo_89, MalagasyRose_55, Marietta_63, Megatron06_58, Mima20_90, MoiGyank_94, NadineRae_62, Nettle_93, Nish23_59,

NorManre_96, NovaSharks_91, Oaker_56, OtterstedtS21_92, ParvusTarda_91, Patos_96, Pemberton_64, Phreeze_55, Psycho_47, Puissant_54, Pywacket_89, Rando14_49, RazorC_89, Riduram_88, Rota_90, Rukungu_92, Rumi_90, Sadboi_91, Sampudon_93, Stormer_90, Sukkupi_63, Thumb_57, Tillicus_85, WhoseManz_62, Wojtek_83, Yikes_92, Yndexa_63, Zany_90,

Summary by start number:

Start 33:
• Found in 9 of 118 (7.6%) of genes in pham
• Manual Annotations of this start: 9 of 108
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BiPauneto_65 (CR4), HubbaBubba_57 (CR4), IDyn_61 (CR4), Marietta_63 (CR4), NadineRae_62 (CR4), Pemberton_64 (CR4), Sukkupi_63 (CR4), WhoseManz_62 (CR4), Yndexa_63 (CR4),

Start 34:
• Found in 11 of 118 (9.3%) of genes in pham
• Manual Annotations of this start: 7 of 108
• Called 63.6% of time when present
• Phage (with cluster) where this start called: BobtimousPrime_58 (H1), Cborch11_58 (H1), Konstantine_60 (H1), Megatron06_58 (H1), Oaker_56 (H1), Puissant_54 (H1), Thumb_57 (H1),

Start 35:
• Found in 51 of 118 (43.2%) of genes in pham
• Manual Annotations of this start: 46 of 108
• Called 98.0% of time when present
• Phage (with cluster) where this start called: Apiary_60 (CR6), Arti_61 (CR2), Bonum_66 (CR2), Braxoaddie_60 (CR6), Buggaboo_64 (CR2), CoffeeBean_60 (CR6), Commandaria_63 (CR2), Curiosium_55 (K1), Dalilpop_66 (CR1), Efra2_57 (K1), Emianna_62 (CR2), Ennea_69 (CR3), Flapper_65 (CR1), Float294_63 (CR3), Foxboro_63 (CR2), Fury_71 (CR5), GRU1_51 (CR1), GTE5_51 (CR1), GTE8_51 (CR2), Gagieri_59 (CR6), GrootJr_64 (CR2), Guanica15_56 (K1), HomeFry_67 (CR5), Jifall16_61 (CR2), Kabluna_65 (CR2), KidneyBean_62 (CR2), Kurt_62 (CR2), Labelle_70 (U), LastHope_57 (K1), Lollipop1437_66 (CR3), MacGully_69 (CR7), Maselop_60 (CR6), MerCougar_64 (CR2), NatB6_62 (CR2), NovumRegina_62 (CR2), Outis_63 (CR2), Patio_64 (CR3), Phomeo_61 (CR2), Pleakley_71 (CR5), Polyyuki_60 (CR6), RedRaider_69 (CR3), Scuba_71 (CR5), Skysand_64 (CR3), StarStruck_63 (CR2), SuperSulley_64 (CR2), TingHuaYa_55 (K1), Tracker_62 (CR2), Turuncu_65 (CR1), Wheezy_62 (CR2), Yunkel11_56 (K1),

Start 36:
• Found in 42 of 118 (35.6%) of genes in pham
• Manual Annotations of this start: 37 of 108
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Alephilan_94 (DV), Alyssamiracle_92 (DV), Astralis_89 (DV), Avian_87 (DV), BirthdayBoy_94 (DV), Charminar_88 (DV), DaviePasture_92 (DV), DoobyDoo_91 (DV), DumpTruck_94 (DV), Erutan_91 (DV), Fulcrum_91 (DV), GOATification_91 (DV), Genamy16_92 (DV), Gibbin_93 (DV), GretelLyn_91 (DV), Jalebi_91 (DV), Jamemuya19_87 (DV), Lambo_91 (DV), LavAbarElk_91 (DV), Lila22_92 (DV), LuckyLeo_89 (DV), Mima20_90 (DV), MoiGyank_94 (DV), Nettle_93 (DV), NorManre_96 (DV), NovaSharks_91 (DV),

OtterstedtS21_92 (DV), ParvusTarda_91 (DV), Patos_96 (DV), Pywacket_89 (DV), RazorC_89 (DV), Riduram_88 (DV), Rota_90 (DV), Rukungu_92 (DV), Rumi_90 (DV), Sadboi_91 (DV), Sampudon_93 (DV), Stormer_90 (DV), Tillicus_85 (DV), Wojtek_83 (DV), Yikes_92 (DV), Zany_90 (DV),

Start 40:
• Found in 4 of 118 (3.4%) of genes in pham
• Manual Annotations of this start: 3 of 108
• Called 75.0% of time when present
• Phage (with cluster) where this start called: AlleyCat_49 (K5), Dadosky_49 (K5), Psycho_47 (K5),

Start 43:
• Found in 26 of 118 (22.0%) of genes in pham
• Manual Annotations of this start: 1 of 108
• Called 3.8% of time when present
• Phage (with cluster) where this start called: NosilaM_64 (CR2),

Start 44:
• Found in 11 of 118 (9.3%) of genes in pham
• Manual Annotations of this start: 3 of 108
• Called 36.4% of time when present
• Phage (with cluster) where this start called: Beckerton_56 (H1), Damien_57 (H1), Nish23_59 (H1), Phreeze_55 (H1),

Start 46:
• Found in 33 of 118 (28.0%) of genes in pham
• Manual Annotations of this start: 2 of 108
• Called 6.1% of time when present
• Phage (with cluster) where this start called: MalagasyRose_55 (AG), Rando14_49 (K5),

Summary by clusters:

There are 13 clusters represented in this pham: CR2, CR3, CR1, CR6, CR7, CR4, CR5, H1, K1, U, K5, DV, AG,

Info for manual annotations of cluster AG:
•Start number 46 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster CR1:
•Start number 35 was manually annotated 3 times for cluster CR1.

Info for manual annotations of cluster CR2:
•Start number 35 was manually annotated 20 times for cluster CR2.
•Start number 43 was manually annotated 1 time for cluster CR2.

Info for manual annotations of cluster CR3:
•Start number 35 was manually annotated 6 times for cluster CR3.

Info for manual annotations of cluster CR4:
•Start number 33 was manually annotated 9 times for cluster CR4.

Info for manual annotations of cluster CR5:
•Start number 35 was manually annotated 4 times for cluster CR5.

Info for manual annotations of cluster CR6:
•Start number 35 was manually annotated 6 times for cluster CR6.

Info for manual annotations of cluster CR7:
•Start number 35 was manually annotated 1 time for cluster CR7.

Info for manual annotations of cluster DV:
•Start number 36 was manually annotated 37 times for cluster DV.

Info for manual annotations of cluster H1:
•Start number 34 was manually annotated 7 times for cluster H1.
•Start number 44 was manually annotated 3 times for cluster H1.

Info for manual annotations of cluster K1:
•Start number 35 was manually annotated 5 times for cluster K1.

Info for manual annotations of cluster K5:
•Start number 40 was manually annotated 3 times for cluster K5.
•Start number 46 was manually annotated 1 time for cluster K5.

Info for manual annotations of cluster U:
•Start number 35 was manually annotated 1 time for cluster U.

Gene Information:

Gene: Alephilan_94 Start: 64646, Stop: 64846, Start Num: 36
Candidate Starts for Alephilan_94:
(Start: 36 @64646 has 37 MA's), (52, 64760), (60, 64820),

Gene: AlleyCat_49 Start: 36887, Stop: 37105, Start Num: 40
Candidate Starts for AlleyCat_49:
(31, 36857), (Start: 40 @36887 has 3 MA's), (48, 36977), (52, 36995), (59, 37043),

Gene: Alyssamiracle_92 Start: 62607, Stop: 62807, Start Num: 36
Candidate Starts for Alyssamiracle_92:
(Start: 36 @62607 has 37 MA's), (39, 62613), (Start: 46 @62670 has 2 MA's), (52, 62721), (60, 62781),

Gene: Apiary_60 Start: 45998, Stop: 45786, Start Num: 35
Candidate Starts for Apiary_60:
(Start: 35 @45998 has 46 MA's), (42, 45974), (Start: 46 @45932 has 2 MA's), (53, 45872), (56, 45857), (59, 45830), (62, 45803),

Gene: Arti_61 Start: 48483, Stop: 48253, Start Num: 35
Candidate Starts for Arti_61:
(Start: 35 @48483 has 46 MA's), (Start: 43 @48447 has 1 MA's), (59, 48315),

Gene: Astralis_89 Start: 62134, Stop: 62334, Start Num: 36
Candidate Starts for Astralis_89:

(Start: 36 @62134 has 37 MA's), (39, 62140), (52, 62248), (60, 62308),

Gene: Avian_87 Start: 62369, Stop: 62569, Start Num: 36
Candidate Starts for Avian_87:
(Start: 36 @62369 has 37 MA's), (39, 62375), (52, 62483), (60, 62543),

Gene: Beckerton_56 Start: 44938, Stop: 45120, Start Num: 44
Candidate Starts for Beckerton_56:
(Start: 34 @44890 has 7 MA's), (37, 44899), (Start: 44 @44938 has 3 MA's), (50, 45004),

Gene: BiPauneto_65 Start: 48080, Stop: 47850, Start Num: 33
Candidate Starts for BiPauneto_65:
(Start: 33 @48080 has 9 MA's), (Start: 46 @48014 has 2 MA's), (59, 47924),

Gene: BirthdayBoy_94 Start: 64659, Stop: 64859, Start Num: 36
Candidate Starts for BirthdayBoy_94:
(Start: 36 @64659 has 37 MA's), (52, 64773), (60, 64833),

Gene: BobtimousPrime_58 Start: 44853, Stop: 45083, Start Num: 34
Candidate Starts for BobtimousPrime_58:
(Start: 34 @44853 has 7 MA's), (37, 44862), (Start: 44 @44901 has 3 MA's), (50, 44967),

Gene: Bonum_66 Start: 49270, Stop: 49049, Start Num: 35
Candidate Starts for Bonum_66:
(8, 49546), (Start: 35 @49270 has 46 MA's), (Start: 43 @49234 has 1 MA's), (54, 49138), (56, 49129), (59, 49102),

Gene: Braxoaddie_60 Start: 45987, Stop: 45775, Start Num: 35
Candidate Starts for Braxoaddie_60:
(Start: 35 @45987 has 46 MA's), (42, 45963), (Start: 46 @45921 has 2 MA's), (53, 45861), (56, 45846), (59, 45819), (62, 45792),

Gene: Buggaboo_64 Start: 49827, Stop: 49606, Start Num: 35
Candidate Starts for Buggaboo_64:
(Start: 35 @49827 has 46 MA's), (Start: 43 @49791 has 1 MA's), (54, 49695), (56, 49686), (59, 49659),

Gene: Cborch11_58 Start: 44408, Stop: 44638, Start Num: 34
Candidate Starts for Cborch11_58:
(Start: 34 @44408 has 7 MA's), (37, 44417), (Start: 44 @44456 has 3 MA's), (50, 44522),

Gene: Charminar_88 Start: 61926, Stop: 62126, Start Num: 36
Candidate Starts for Charminar_88:
(Start: 36 @61926 has 37 MA's), (39, 61932), (52, 62040), (60, 62100),

Gene: CoffeeBean_60 Start: 45945, Stop: 45733, Start Num: 35
Candidate Starts for CoffeeBean_60:
(Start: 35 @45945 has 46 MA's), (42, 45921), (Start: 46 @45879 has 2 MA's), (53, 45819), (56, 45804), (59, 45777), (62, 45750),

Gene: Commandaria_63 Start: 49702, Stop: 49472, Start Num: 35
Candidate Starts for Commandaria_63:
(Start: 35 @49702 has 46 MA's), (48, 49600), (51, 49585), (59, 49534),

Gene: Curiosium_55 Start: 37814, Stop: 38038, Start Num: 35
Candidate Starts for Curiosium_55:
(10, 37562), (17, 37652), (19, 37703), (Start: 35 @37814 has 46 MA's), (38, 37820), (Start: 46 @37880 has 2 MA's), (59, 37982),

Gene: Dadosky_49 Start: 36889, Stop: 37107, Start Num: 40
Candidate Starts for Dadosky_49:
(31, 36859), (Start: 40 @36889 has 3 MA's), (48, 36979), (52, 36997), (59, 37045),

Gene: Dalilpop_66 Start: 50690, Stop: 50466, Start Num: 35
Candidate Starts for Dalilpop_66:
(25, 50738), (Start: 35 @50690 has 46 MA's), (56, 50546), (59, 50519),

Gene: Damien_57 Start: 44418, Stop: 44600, Start Num: 44
Candidate Starts for Damien_57:
(6, 44058), (7, 44067), (9, 44115), (14, 44199), (16, 44211), (18, 44238), (23, 44313), (28, 44337), (Start: 34 @44370 has 7 MA's), (37, 44379), (Start: 44 @44418 has 3 MA's), (50, 44484),

Gene: DaviePasture_92 Start: 64175, Stop: 64375, Start Num: 36
Candidate Starts for DaviePasture_92:
(Start: 36 @64175 has 37 MA's), (48, 64274), (52, 64289), (60, 64349),

Gene: DoobyDoo_91 Start: 62959, Stop: 63159, Start Num: 36
Candidate Starts for DoobyDoo_91:
(Start: 36 @62959 has 37 MA's), (41, 62971), (52, 63073), (60, 63133),

Gene: DumpTruck_94 Start: 64144, Stop: 64362, Start Num: 36
Candidate Starts for DumpTruck_94:
(Start: 36 @64144 has 37 MA's), (Start: 40 @64153 has 3 MA's), (54, 64267), (60, 64324),

Gene: Efra2_57 Start: 38957, Stop: 39178, Start Num: 35
Candidate Starts for Efra2_57:
(17, 38795), (19, 38846), (20, 38855), (26, 38915), (Start: 35 @38957 has 46 MA's), (38, 38963), (Start: 46 @39023 has 2 MA's), (59, 39125),

Gene: Emianna_62 Start: 49726, Stop: 49496, Start Num: 35
Candidate Starts for Emianna_62:
(Start: 35 @49726 has 46 MA's), (Start: 43 @49690 has 1 MA's), (59, 49558),

Gene: Ennea_69 Start: 50721, Stop: 50494, Start Num: 35
Candidate Starts for Ennea_69:
(Start: 35 @50721 has 46 MA's), (Start: 43 @50685 has 1 MA's), (55, 50583),

Gene: Erutan_91 Start: 64022, Stop: 64222, Start Num: 36
Candidate Starts for Erutan_91:
(Start: 36 @64022 has 37 MA's), (39, 64028), (48, 64121), (49, 64124), (52, 64136), (60, 64196), (64, 64211),

Gene: Flapper_65 Start: 49880, Stop: 49656, Start Num: 35
Candidate Starts for Flapper_65:
(30, 49904), (Start: 35 @49880 has 46 MA's), (56, 49736), (59, 49709),

Gene: Float294_63 Start: 50556, Stop: 50329, Start Num: 35

Candidate Starts for Float294_63:
(Start: 35 @50556 has 46 MA's), (Start: 43 @50520 has 1 MA's), (55, 50418),

Gene: Foxboro_63 Start: 50235, Stop: 50005, Start Num: 35
Candidate Starts for Foxboro_63:
(Start: 35 @50235 has 46 MA's), (Start: 43 @50199 has 1 MA's), (59, 50067),

Gene: Fulcrum_91 Start: 64168, Stop: 64368, Start Num: 36
Candidate Starts for Fulcrum_91:
(Start: 36 @64168 has 37 MA's), (52, 64282), (60, 64342),

Gene: Fury_71 Start: 48990, Stop: 48769, Start Num: 35
Candidate Starts for Fury_71:
(2, 49554), (30, 49014), (Start: 35 @48990 has 46 MA's), (49, 48885), (52, 48867), (59, 48822),

Gene: GOATification_91 Start: 64168, Stop: 64368, Start Num: 36
Candidate Starts for GOATification_91:
(Start: 36 @64168 has 37 MA's), (52, 64282), (60, 64342),

Gene: GRU1_51 Start: 41731, Stop: 41507, Start Num: 35
Candidate Starts for GRU1_51:
(Start: 35 @41731 has 46 MA's), (56, 41587), (59, 41560),

Gene: GTE5_51 Start: 42757, Stop: 42533, Start Num: 35
Candidate Starts for GTE5_51:
(30, 42781), (Start: 35 @42757 has 46 MA's), (56, 42613), (59, 42586),

Gene: GTE8_51 Start: 42940, Stop: 42710, Start Num: 35
Candidate Starts for GTE8_51:
(Start: 35 @42940 has 46 MA's), (Start: 43 @42904 has 1 MA's), (59, 42772),

Gene: Gagieri_59 Start: 46181, Stop: 45966, Start Num: 35
Candidate Starts for Gagieri_59:
(Start: 35 @46181 has 46 MA's), (42, 46157), (53, 46055), (56, 46040), (59, 46013), (62, 45986),

Gene: Genamy16_92 Start: 62656, Stop: 62856, Start Num: 36
Candidate Starts for Genamy16_92:
(Start: 36 @62656 has 37 MA's), (39, 62662), (52, 62770), (60, 62830),

Gene: Gibbin_93 Start: 64345, Stop: 64545, Start Num: 36
Candidate Starts for Gibbin_93:
(Start: 36 @64345 has 37 MA's), (52, 64459), (60, 64519),

Gene: GretelLyn_91 Start: 64171, Stop: 64371, Start Num: 36
Candidate Starts for GretelLyn_91:
(Start: 36 @64171 has 37 MA's), (52, 64285), (60, 64345),

Gene: GrootJr_64 Start: 49108, Stop: 48878, Start Num: 35
Candidate Starts for GrootJr_64:
(Start: 35 @49108 has 46 MA's), (Start: 43 @49072 has 1 MA's), (59, 48940),

Gene: Guanica15_56 Start: 38702, Stop: 38920, Start Num: 35
Candidate Starts for Guanica15_56:

(17, 38540), (19, 38591), (20, 38600), (26, 38660), (Start: 35 @38702 has 46 MA's), (38, 38708), (Start: 46 @38768 has 2 MA's), (59, 38870),

Gene: HomeFry_67 Start: 47684, Stop: 47466, Start Num: 35
Candidate Starts for HomeFry_67:
(30, 47708), (Start: 35 @47684 has 46 MA's), (49, 47579), (52, 47561), (59, 47516),

Gene: HubbaBubba_57 Start: 44587, Stop: 44357, Start Num: 33
Candidate Starts for HubbaBubba_57:
(Start: 33 @44587 has 9 MA's), (Start: 46 @44521 has 2 MA's), (59, 44431),

Gene: IDyn_61 Start: 46010, Stop: 45780, Start Num: 33
Candidate Starts for IDyn_61:
(Start: 33 @46010 has 9 MA's), (Start: 46 @45944 has 2 MA's), (59, 45854),

Gene: Jalebi_91 Start: 65112, Stop: 65312, Start Num: 36
Candidate Starts for Jalebi_91:
(Start: 36 @65112 has 37 MA's), (52, 65226), (60, 65286),

Gene: Jamemuya19_87 Start: 62281, Stop: 62481, Start Num: 36
Candidate Starts for Jamemuya19_87:
(Start: 36 @62281 has 37 MA's), (39, 62287), (Start: 46 @62344 has 2 MA's), (52, 62395), (60, 62455),

Gene: Jifall16_61 Start: 49380, Stop: 49150, Start Num: 35
Candidate Starts for Jifall16_61:
(Start: 35 @49380 has 46 MA's), (Start: 43 @49344 has 1 MA's), (59, 49212),

Gene: Kabluna_65 Start: 48605, Stop: 48384, Start Num: 35
Candidate Starts for Kabluna_65:
(8, 48881), (Start: 35 @48605 has 46 MA's), (Start: 43 @48569 has 1 MA's), (54, 48473), (56, 48464), (59, 48437),

Gene: KidneyBean_62 Start: 49504, Stop: 49274, Start Num: 35
Candidate Starts for KidneyBean_62:
(Start: 35 @49504 has 46 MA's), (Start: 43 @49468 has 1 MA's), (59, 49336),

Gene: Konstantine_60 Start: 45201, Stop: 45431, Start Num: 34
Candidate Starts for Konstantine_60:
(Start: 34 @45201 has 7 MA's), (37, 45210), (Start: 44 @45249 has 3 MA's), (50, 45315),

Gene: Kurt_62 Start: 49741, Stop: 49511, Start Num: 35
Candidate Starts for Kurt_62:
(Start: 35 @49741 has 46 MA's), (Start: 43 @49705 has 1 MA's), (59, 49573),

Gene: Labelle_70 Start: 46820, Stop: 47026, Start Num: 35
Candidate Starts for Labelle_70:
(Start: 35 @46820 has 46 MA's), (Start: 46 @46883 has 2 MA's), (52, 46937),

Gene: Lambo_91 Start: 64248, Stop: 64448, Start Num: 36
Candidate Starts for Lambo_91:
(Start: 36 @64248 has 37 MA's), (48, 64347), (49, 64350), (52, 64362), (60, 64422), (64, 64437),

Gene: LastHope_57 Start: 38346, Stop: 38567, Start Num: 35

Candidate Starts for LastHope_57:
(Start: 35 @38346 has 46 MA's), (38, 38352), (Start: 46 @38412 has 2 MA's), (59, 38514),

Gene: LavAbarElk_91 Start: 63290, Stop: 63490, Start Num: 36
Candidate Starts for LavAbarElk_91:
(Start: 36 @63290 has 37 MA's), (52, 63404), (60, 63464),

Gene: Lila22_92 Start: 64603, Stop: 64803, Start Num: 36
Candidate Starts for Lila22_92:
(Start: 36 @64603 has 37 MA's), (48, 64702), (49, 64705), (52, 64717), (60, 64777), (64, 64792),

Gene: Lollipop1437_66 Start: 50521, Stop: 50294, Start Num: 35
Candidate Starts for Lollipop1437_66:
(5, 50875), (11, 50767), (Start: 35 @50521 has 46 MA's), (Start: 43 @50485 has 1 MA's), (Start: 46 @50455 has 2 MA's), (55, 50383),

Gene: LuckyLeo_89 Start: 63837, Stop: 64037, Start Num: 36
Candidate Starts for LuckyLeo_89:
(12, 63636), (Start: 36 @63837 has 37 MA's), (Start: 46 @63900 has 2 MA's), (48, 63936), (49, 63939), (52, 63951), (60, 64011), (64, 64026),

Gene: MacGully_69 Start: 49142, Stop: 48924, Start Num: 35
Candidate Starts for MacGully_69:
(22, 49208), (Start: 35 @49142 has 46 MA's), (42, 49118), (Start: 46 @49076 has 2 MA's), (59, 48974), (62, 48947),

Gene: MalagasyRose_55 Start: 38193, Stop: 38360, Start Num: 46
Candidate Starts for MalagasyRose_55:
(29, 38097), (32, 38118), (Start: 46 @38193 has 2 MA's), (57, 38271), (61, 38319), (63, 38325), (65, 38352),

Gene: Marietta_63 Start: 46140, Stop: 45910, Start Num: 33
Candidate Starts for Marietta_63:
(4, 46635), (15, 46299), (Start: 33 @46140 has 9 MA's), (Start: 46 @46074 has 2 MA's), (59, 45984),

Gene: Maselop_60 Start: 46021, Stop: 45809, Start Num: 35
Candidate Starts for Maselop_60:
(Start: 35 @46021 has 46 MA's), (42, 45997), (Start: 46 @45955 has 2 MA's), (53, 45895), (56, 45880), (59, 45853), (62, 45826),

Gene: Megatron06_58 Start: 44947, Stop: 45177, Start Num: 34
Candidate Starts for Megatron06_58:
(6, 44635), (7, 44644), (9, 44692), (14, 44776), (16, 44788), (18, 44815), (23, 44890), (28, 44914), (Start: 34 @44947 has 7 MA's), (37, 44956), (Start: 44 @44995 has 3 MA's), (50, 45061),

Gene: MerCougar_64 Start: 50026, Stop: 49796, Start Num: 35
Candidate Starts for MerCougar_64:
(Start: 35 @50026 has 46 MA's), (Start: 43 @49990 has 1 MA's), (54, 49894), (56, 49885), (59, 49858),

Gene: Mima20_90 Start: 63914, Stop: 64114, Start Num: 36
Candidate Starts for Mima20_90:
(Start: 36 @63914 has 37 MA's), (52, 64028),

Gene: MoiGyank_94 Start: 64426, Stop: 64626, Start Num: 36
Candidate Starts for MoiGyank_94:
(Start: 36 @64426 has 37 MA's), (52, 64540),

Gene: NadineRae_62 Start: 45743, Stop: 45513, Start Num: 33
Candidate Starts for NadineRae_62:
(Start: 33 @45743 has 9 MA's), (Start: 46 @45677 has 2 MA's), (59, 45587),

Gene: NatB6_62 Start: 48798, Stop: 48568, Start Num: 35
Candidate Starts for NatB6_62:
(Start: 35 @48798 has 46 MA's), (Start: 43 @48762 has 1 MA's), (59, 48630),

Gene: Nettle_93 Start: 64824, Stop: 65024, Start Num: 36
Candidate Starts for Nettle_93:
(Start: 36 @64824 has 37 MA's), (52, 64938), (60, 64998),

Gene: Nish23_59 Start: 44456, Stop: 44638, Start Num: 44
Candidate Starts for Nish23_59:
(Start: 34 @44408 has 7 MA's), (37, 44417), (Start: 44 @44456 has 3 MA's), (50, 44522),

Gene: NorManre_96 Start: 65444, Stop: 65644, Start Num: 36
Candidate Starts for NorManre_96:
(Start: 36 @65444 has 37 MA's), (52, 65558), (60, 65618),

Gene: NosilaM_64 Start: 49246, Stop: 49061, Start Num: 43
Candidate Starts for NosilaM_64:
(Start: 35 @49282 has 46 MA's), (Start: 43 @49246 has 1 MA's), (56, 49141), (59, 49114),

Gene: NovaSharks_91 Start: 62356, Stop: 62556, Start Num: 36
Candidate Starts for NovaSharks_91:
(Start: 36 @62356 has 37 MA's), (39, 62362), (Start: 46 @62419 has 2 MA's), (52, 62470), (60, 62530),

Gene: NovumRegina_62 Start: 49107, Stop: 48877, Start Num: 35
Candidate Starts for NovumRegina_62:
(Start: 35 @49107 has 46 MA's), (Start: 43 @49071 has 1 MA's), (59, 48939),

Gene: Oaker_56 Start: 44662, Stop: 44892, Start Num: 34
Candidate Starts for Oaker_56:
(6, 44350), (7, 44359), (9, 44407), (14, 44491), (16, 44503), (18, 44530), (23, 44605), (28, 44629),
(Start: 34 @44662 has 7 MA's), (37, 44671), (Start: 44 @44710 has 3 MA's), (50, 44776),

Gene: OtterstedtS21_92 Start: 64255, Stop: 64455, Start Num: 36
Candidate Starts for OtterstedtS21_92:
(Start: 36 @64255 has 37 MA's), (52, 64369), (60, 64429),

Gene: Outis_63 Start: 49539, Stop: 49309, Start Num: 35
Candidate Starts for Outis_63:
(Start: 35 @49539 has 46 MA's), (Start: 43 @49503 has 1 MA's), (54, 49407), (56, 49398), (59, 49371),

Gene: ParvusTarda_91 Start: 63529, Stop: 63729, Start Num: 36
Candidate Starts for ParvusTarda_91:
(12, 63328), (Start: 36 @63529 has 37 MA's), (39, 63535), (52, 63643), (60, 63703), (64, 63718),

Gene: Patio_64 Start: 49476, Stop: 49249, Start Num: 35
Candidate Starts for Patio_64:
(Start: 35 @49476 has 46 MA's), (Start: 43 @49440 has 1 MA's), (55, 49338),

Gene: Patos_96 Start: 65443, Stop: 65643, Start Num: 36
Candidate Starts for Patos_96:
(Start: 36 @65443 has 37 MA's), (52, 65557), (60, 65617),

Gene: Pemberton_64 Start: 46487, Stop: 46257, Start Num: 33
Candidate Starts for Pemberton_64:
(Start: 33 @46487 has 9 MA's), (Start: 46 @46421 has 2 MA's), (59, 46331),

Gene: Phomeo_61 Start: 49376, Stop: 49146, Start Num: 35
Candidate Starts for Phomeo_61:
(Start: 35 @49376 has 46 MA's), (Start: 43 @49340 has 1 MA's), (59, 49208),

Gene: Phreeze_55 Start: 44015, Stop: 44197, Start Num: 44
Candidate Starts for Phreeze_55:
(6, 43655), (7, 43664), (9, 43712), (14, 43796), (16, 43808), (18, 43835), (23, 43910), (28, 43934),
(Start: 34 @43967 has 7 MA's), (37, 43976), (Start: 44 @44015 has 3 MA's), (50, 44081),

Gene: Pleakley_71 Start: 48991, Stop: 48770, Start Num: 35
Candidate Starts for Pleakley_71:
(2, 49555), (30, 49015), (Start: 35 @48991 has 46 MA's), (49, 48886), (52, 48868), (59, 48823),

Gene: Polyyuki_60 Start: 46010, Stop: 45798, Start Num: 35
Candidate Starts for Polyyuki_60:
(Start: 35 @46010 has 46 MA's), (42, 45986), (Start: 46 @45944 has 2 MA's), (53, 45884), (56, 45869),
(59, 45842), (62, 45815),

Gene: Psycho_47 Start: 36886, Stop: 37104, Start Num: 40
Candidate Starts for Psycho_47:
(31, 36856), (Start: 40 @36886 has 3 MA's), (48, 36976), (52, 36994), (59, 37042),

Gene: Puissant_54 Start: 44067, Stop: 44297, Start Num: 34
Candidate Starts for Puissant_54:
(13, 43890), (14, 43896), (16, 43908), (18, 43935), (23, 44010), (28, 44034), (Start: 34 @44067 has 7
MA's), (Start: 44 @44115 has 3 MA's), (57, 44211),

Gene: Pywacket_89 Start: 64257, Stop: 64457, Start Num: 36
Candidate Starts for Pywacket_89:
(Start: 36 @64257 has 37 MA's), (52, 64371), (60, 64431),

Gene: Rando14_49 Start: 35934, Stop: 36101, Start Num: 46
Candidate Starts for Rando14_49:
(31, 35850), (Start: 46 @35934 has 2 MA's), (47, 35949), (52, 35988), (59, 36036),

Gene: RazorC_89 Start: 62289, Stop: 62489, Start Num: 36
Candidate Starts for RazorC_89:
(Start: 36 @62289 has 37 MA's), (39, 62295), (Start: 46 @62352 has 2 MA's), (52, 62403), (60, 62463),

Gene: RedRaider_69 Start: 51797, Stop: 51570, Start Num: 35
Candidate Starts for RedRaider_69:

(24, 51854), (27, 51836), (Start: 35 @51797 has 46 MA's), (55, 51659),

Gene: Riduram_88 Start: 61996, Stop: 62196, Start Num: 36
Candidate Starts for Riduram_88:
(Start: 36 @61996 has 37 MA's), (39, 62002), (Start: 46 @62059 has 2 MA's), (52, 62110), (60, 62170),

Gene: Rota_90 Start: 64356, Stop: 64556, Start Num: 36
Candidate Starts for Rota_90:
(Start: 36 @64356 has 37 MA's), (52, 64470), (60, 64530),

Gene: Rukungu_92 Start: 64833, Stop: 65033, Start Num: 36
Candidate Starts for Rukungu_92:
(Start: 36 @64833 has 37 MA's), (52, 64947), (60, 65007),

Gene: Rumi_90 Start: 61951, Stop: 62151, Start Num: 36
Candidate Starts for Rumi_90:
(Start: 36 @61951 has 37 MA's), (39, 61957), (Start: 46 @62014 has 2 MA's), (52, 62065), (60, 62125),

Gene: Sadboi_91 Start: 64051, Stop: 64251, Start Num: 36
Candidate Starts for Sadboi_91:
(Start: 36 @64051 has 37 MA's), (52, 64165), (60, 64225),

Gene: Sampudon_93 Start: 65111, Stop: 65311, Start Num: 36
Candidate Starts for Sampudon_93:
(Start: 36 @65111 has 37 MA's), (52, 65225), (60, 65285),

Gene: Scuba_71 Start: 49084, Stop: 48863, Start Num: 35
Candidate Starts for Scuba_71:
(1, 49777), (30, 49108), (Start: 35 @49084 has 46 MA's), (49, 48979), (52, 48961), (59, 48916),

Gene: Skysand_64 Start: 49975, Stop: 49748, Start Num: 35
Candidate Starts for Skysand_64:
(25, 50023), (27, 50014), (Start: 35 @49975 has 46 MA's), (Start: 43 @49939 has 1 MA's), (55, 49837), (58, 49807),

Gene: StarStruck_63 Start: 49539, Stop: 49309, Start Num: 35
Candidate Starts for StarStruck_63:
(Start: 35 @49539 has 46 MA's), (Start: 43 @49503 has 1 MA's), (54, 49407), (56, 49398), (59, 49371),

Gene: Stormer_90 Start: 62063, Stop: 62263, Start Num: 36
Candidate Starts for Stormer_90:
(Start: 36 @62063 has 37 MA's), (39, 62069), (52, 62177), (60, 62237),

Gene: Sukkupi_63 Start: 47971, Stop: 47741, Start Num: 33
Candidate Starts for Sukkupi_63:
(Start: 33 @47971 has 9 MA's), (Start: 46 @47905 has 2 MA's), (59, 47815),

Gene: SuperSulley_64 Start: 49827, Stop: 49606, Start Num: 35
Candidate Starts for SuperSulley_64:
(Start: 35 @49827 has 46 MA's), (Start: 43 @49791 has 1 MA's), (54, 49695), (56, 49686), (59, 49659),

Gene: Thumb_57 Start: 44402, Stop: 44632, Start Num: 34
Candidate Starts for Thumb_57:

(6, 44090), (7, 44099), (9, 44147), (14, 44231), (16, 44243), (18, 44270), (23, 44345), (28, 44369), (Start: 34 @44402 has 7 MA's), (37, 44411), (Start: 44 @44450 has 3 MA's), (50, 44516),

Gene: Tillicus_85 Start: 63638, Stop: 63838, Start Num: 36
Candidate Starts for Tillicus_85:
(12, 63437), (Start: 36 @63638 has 37 MA's), (Start: 46 @63701 has 2 MA's), (49, 63740), (52, 63752), (60, 63812), (64, 63827),

Gene: TingHuaYa_55 Start: 38208, Stop: 38429, Start Num: 35
Candidate Starts for TingHuaYa_55:
(Start: 35 @38208 has 46 MA's), (38, 38214), (59, 38376),

Gene: Tracker_62 Start: 48549, Stop: 48319, Start Num: 35
Candidate Starts for Tracker_62:
(Start: 35 @48549 has 46 MA's), (Start: 43 @48513 has 1 MA's), (59, 48381),

Gene: Turuncu_65 Start: 49569, Stop: 49345, Start Num: 35
Candidate Starts for Turuncu_65:
(3, 50088), (30, 49593), (Start: 35 @49569 has 46 MA's), (56, 49425), (59, 49398),

Gene: Wheezy_62 Start: 48757, Stop: 48527, Start Num: 35
Candidate Starts for Wheezy_62:
(Start: 35 @48757 has 46 MA's), (Start: 43 @48721 has 1 MA's), (59, 48589),

Gene: WhoseManz_62 Start: 45753, Stop: 45523, Start Num: 33
Candidate Starts for WhoseManz_62:
(Start: 33 @45753 has 9 MA's), (Start: 46 @45687 has 2 MA's), (59, 45597),

Gene: Wojtek_83 Start: 64184, Stop: 64384, Start Num: 36
Candidate Starts for Wojtek_83:
(21, 64097), (Start: 36 @64184 has 37 MA's), (45, 64244), (Start: 46 @64247 has 2 MA's), (48, 64283), (49, 64286), (52, 64298), (60, 64358), (64, 64373),

Gene: Yikes_92 Start: 64716, Stop: 64916, Start Num: 36
Candidate Starts for Yikes_92:
(Start: 36 @64716 has 37 MA's), (52, 64830), (60, 64890),

Gene: Yndexa_63 Start: 47971, Stop: 47741, Start Num: 33
Candidate Starts for Yndexa_63:
(Start: 33 @47971 has 9 MA's), (Start: 46 @47905 has 2 MA's), (59, 47815),

Gene: Yunkel11_56 Start: 38701, Stop: 38919, Start Num: 35
Candidate Starts for Yunkel11_56:
(17, 38539), (19, 38590), (20, 38599), (26, 38659), (Start: 35 @38701 has 46 MA's), (38, 38707), (Start: 46 @38767 has 2 MA's), (59, 38869),

Gene: Zany_90 Start: 64855, Stop: 65055, Start Num: 36
Candidate Starts for Zany_90:
(Start: 36 @64855 has 37 MA's), (52, 64969), (60, 65029),