Pham 347330


1: Pelletreau_33 + 6
2: TaylorSipht_30
3: Orcanus_30
4: Eesa_29
5: Niblet_29
6: Jamun_29
7: Chicken_29
8: PhluffyCoco_31 + 14
9: KHumphrey_31
10: Jalammah_54
11: Hitter_51 + 1
12: Henry_49
13: Lysidious_52 + 1
14: Barco_49 + 8
15: JasperJr_48 + 1
16: Malachai_49 + 1
17: Mellie_49
18: Wisp_48
19: ZiggyZoo_51
20: RayTheFireFly_61
21: Chipilo_58
22: DirtyBoi_56
23: Hedwig_57
24: Dmitri_53
25: Moonflower_54
26: PatriciaStar_53
27: Squiddly_84
28: Forza_5 + 2
29: Mareelin_3
30: Stormageddon_88 + 1
31: Quico_68 + 7
32: Whatsaplecost_60 + 5
33: SassyB_54 + 16
34: Seagreen_58 + 24
35: Seagreen_59 + 24
36: Medindi_56 + 1
37: Juniper1_56 + 1
38: Harley_62
39: DotProduct_53
40: Phalconet_58 + 1
41: IMpilo_55
42: Tchotchke_61
43: TChen_58 + 3
44: Renaud18_63

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 347330 Report

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

Pham number 347330 has 161 members, 22 are drafts.

Phages represented in each track:
• Track 1 : Pelletreau_33, Toad24_32, KendraB23_34, Gravel_33, Zixiang_29, Westrich_33, Amanises_32
• Track 2 : TaylorSipht_30
• Track 3 : Orcanus_30
• Track 4 : Eesa_29
• Track 5 : Niblet_29
• Track 6 : Jamun_29
• Track 7 : Chicken_29
• Track 8 : PhluffyCoco_31, Atlantica_31, RedFox_31, HamCheese_31, AdoptaAdorbs_30, Camara_31, Glotell_32, Oppalora_30, Laphuphu24k_29, Rattail_31, Amphitrite_31, Fingolfin_31, AmiCi24_30, Juno112_30, DanHam62_31
• Track 9 : KHumphrey_31
• Track 10 : Jalammah_54
• Track 11 : Hitter_51, Samba_50
• Track 12 : Fenry_49
• Track 13 : Lysidious_52, Utz_44
• Track 14 : Barco_49, CaptainKirk2_51, Zarbodnamra_50, MintFen_51, Archis_54, Zilla_49, BlingBling_48, Melba_50, Delian_54
• Track 15 : JasperJr_48, Guacamole_48
• Track 16 : Malachai_49, Begonia_49
• Track 17 : Mellie_49
• Track 18 : Wisp_48
• Track 19 : ZiggyZoo_51
• Track 20 : RayTheFireFly_61
• Track 21 : Chipko_58
• Track 22 : DirtyBoi_56
• Track 23 : Hedwig_57
• Track 24 : Dmitri_53
• Track 25 : Moonflower_54
• Track 26 : PatriciaStar_53
• Track 27 : Squiddly_84
• Track 28 : Forza_5, BlueNGold_4, Boopy_5
• Track 29 : Mareelih_3
• Track 30 : Stormageddon_88, RedWattleHog_91
• Track 31 : Quico_68, Minnie_63, Girafales_69, Florinda_71, Bipolar_58, Fruitloop_57, Sandalphon_61, Okabe_55

• Track 32 : Whatsapiecost_60, Hamulus_61, Akhila_51, Flathead_60, Ogopogo_65, MilanaBonita_50
• Track 33 : SassyB_54, SilverChicken_70, Phanphagia_57, Beakin_61, DLane_55, Ardmore_52, Kenuha5_57, Melissauren88_58, Bobi_65, PopTart_54, Chevrolet_65, SuperGrey_63, TDanisky_67, Sparkdehlily_67, ArcusAngelus_62, Ms6_55, Tweety_59
• Track 34 : Seagreen_58, Sarma624_56, Cornie_53, BigPhil_54, Demsculpinboyz_68, JalFarm20_71, Kingsley_55, Topiatin_65, Harley_61, Starcevich_57, Velveteen_53, Jant_62, Cheesepuff_64, Brookers_55, Kimberlium_60, Che8_63, Che9d_66, Coco12_57, Royals2015_61, Juice456_59, DoRead_60, Cerasum_54, Ovechkin_57, MulchExplorer_60, QuickMath_59
• Track 35 : Seagreen_59, Sarma624_57, QuickMath_60, Che8_64, Jant_63, Kimberlium_61, BigPhil_55, Cornie_54, Kingsley_56, JalFarm20_72, Starcevich_58, Velveteen_54, Juniper1_57, Cheesepuff_65, MulchExplorer_61, Brookers_56, DotProduct_54, Che9d_67, Royals2015_62, Juice456_60, DoRead_61, Cerasum_55, Ovechkin_58, Coco12_58, Topiatin_66
• Track 36 : Medindi_56, StAnnes_58
• Track 37 : Juniper1_56, IMpilo_54
• Track 38 : Harley_62
• Track 39 : DotProduct_53
• Track 40 : Phalconet_58, PhesterPhotato_60
• Track 41 : IMpilo_55
• Track 42 : Tchotchke_61
• Track 43 : TChen_58, LunaStella_56, ThetaBob_62, Yoshi_70
• Track 44 : Renaud18_63

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

The start number called the most often in the published annotations is 19, it was called in 31 of the 139 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Akhila_51, ArcusAngelus_62, Ardmore_52, Beakin_61, Bipolar_58, Bobi_65, Chevrolet_65, DLane_55, Flathead_60, Florinda_71, Fruitloop_57, Girafales_69, Hamulus_61, Kenuha5_57, Medindi_56, Melissauren88_58, MilanaBonita_50, Minnie_63, Ms6_55, Ogopogo_65, Okabe_55, Phalconet_58, Phanphagia_57, PhesterPhotato_60, PopTart_54, Quico_68, Sandalphon_61, SassyB_54, SilverChicken_70, Sparkdehlily_67, StAnnes_58, SuperGrey_63, TDanisky_67, Tchotchke_61, Tweety_59, Whatsapiecost_60,

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

Genes that do not have the "Most Annotated" start:
• AdoptaAdorbs_30, Amanises_32, AmiCi24_30, Amphitrite_31, Archis_54, Atlantica_31, Barco_49, Begonia_49, BigPhil_54, BigPhil_55, BlingBling_48, BlueNGold_4, Boopy_5, Brookers_55, Brookers_56, Camara_31, CaptainKirk2_51, Cerasum_54, Cerasum_55, Che8_63, Che8_64, Che9d_66, Che9d_67, Cheesepuff_64, Cheesepuff_65, Chicken_29, Chipko_58, Coco12_57, Coco12_58, Cornie_53, Cornie_54, DanHam62_31, Delian_54, Demsculpinboyz_68, DirtyBoi_56,

Dmitri_53, DoRead_60, DoRead_61, DotProduct_53, DotProduct_54, Eesa_29, Fenry_49, Fingolfin_31, Forza_5, Glotell_32, Gravel_33, Guacamole_48, HamCheese_31, Harley_61, Harley_62, Hedwig_57, Hitter_51, IMpilo_54, IMpilo_55, JalFarm20_71, JalFarm20_72, Jalammah_54, Jamun_29, Jant_62, Jant_63, JasperJr_48, Juice456_59, Juice456_60, Juniper1_56, Juniper1_57, Juno112_30, KHumphrey_31, KendraB23_34, Kimberlium_60, Kimberlium_61, Kingsley_55, Kingsley_56, Laphuphu24k_29, LunaStella_56, Lysidious_52, Malachai_49, Mareelih_3, Melba_50, Mellie_49, MintFen_51, Moonflower_54, MulchExplorer_60, MulchExplorer_61, Niblet_29, Oppalora_30, Orcanus_30, Ovechkin_57, Ovechkin_58, PatriciaStar_53, Pelletreau_33, PhluffyCoco_31, QuickMath_59, QuickMath_60, Rattail_31, RayTheFireFly_61, RedFox_31, RedWattleHog_91, Renaud18_63, Royals2015_61, Royals2015_62, Samba_50, Sarma624_56, Sarma624_57, Seagreen_58, Seagreen_59, Squiddly_84, Starcevich_57, Starcevich_58, Stormageddon_88, TChen_58, TaylorSipht_30, ThetaBob_62, Toad24_32, Topiatin_65, Topiatin_66, Utz_44, Velveteen_53, Velveteen_54, Westrich_33, Wisp_48, Yoshi_70, Zarbodnamra_50, ZiggyZoo_51, Zilla_49, Zixiang_29,

Summary by start number:

Start 14:
• Found in 1 of 161 (0.6%) of genes in pham
• Manual Annotations of this start: 1 of 139
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Mellie_49 (CV),

Start 15:
• Found in 29 of 161 (18.0%) of genes in pham
• Manual Annotations of this start: 25 of 139
• Called 96.6% of time when present
• Phage (with cluster) where this start called: Archis_54 (CV), Barco_49 (CV), Begonia_49 (CV), BlingBling_48 (CV), CaptainKirk2_51 (CV), Chipko_58 (DB), Delian_54 (CV), DirtyBoi_56 (DB), Dmitri_53 (DB), Fenry_49 (CV), Guacamole_48 (CV), Hedwig_57 (DB), Hitter_51 (CV), Jalammah_54 (CV), JasperJr_48 (CV), Lysidious_52 (CV), Malachai_49 (CV), Melba_50 (CV), MintFen_51 (CV), Moonflower_54 (DB), PatriciaStar_53 (DB), RayTheFireFly_61 (DB), Samba_50 (CV), Utz_44 (CV), Wisp_48 (CV), Zarbodnamra_50 (CV), ZiggyZoo_51 (CV), Zilla_49 (CV),

Start 17:
• Found in 1 of 161 (0.6%) of genes in pham
• Manual Annotations of this start: 1 of 139
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Squiddly_84 (DN2),

Start 18:
• Found in 31 of 161 (19.3%) of genes in pham
• Manual Annotations of this start: 22 of 139
• Called 96.8% of time when present
• Phage (with cluster) where this start called: AdoptaAdorbs_30 (AS3), Amanises_32 (AS1), AmiCi24_30 (AS3), Amphitrite_31 (AS3), Atlantica_31 (AS3), Camara_31 (AS3), Chicken_29 (AS1), DanHam62_31 (AS3), Eesa_29 (AS1), Fingolfin_31 (AS3), Glotell_32 (AS3), Gravel_33 (AS1), HamCheese_31 (AS3), Jamun_29 (AS1),

Juno112_30 (AS3), KendraB23_34 (AS1), Laphuphu24k_29 (AS3), Niblet_29 (AS1), Oppalora_30 (AS3), Orcanus_30 (AS1), Pelletreau_33 (AS1), PhluffyCoco_31 (AS3), Rattail_31 (AS3), RedFox_31 (AS3), RedWattleHog_91 (DX), Stormageddon_88 (DX), TaylorSipht_30 (AS1), Toad24_32 (AS1), Westrich_33 (AS1), Zixiang_29 (AS1),

Start 19:
• Found in 36 of 161 (22.4%) of genes in pham
• Manual Annotations of this start: 31 of 139
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Akhila_51 (F1), ArcusAngelus_62 (F1), Ardmore_52 (F1), Beakin_61 (F1), Bipolar_58 (F1), Bobi_65 (F1), Chevrolet_65 (F1), DLane_55 (F1), Flathead_60 (F1), Florinda_71 (F1), Fruitloop_57 (F1), Girafales_69 (F1), Hamulus_61 (F1), Kenuha5_57 (F1), Medindi_56 (F1), Melissauren88_58 (F1), MilanaBonita_50 (F1), Minnie_63 (F1), Ms6_55 (F1), Ogopogo_65 (F1), Okabe_55 (F8), Phalconet_58 (F1), Phanphagia_57 (F1), PhesterPhotato_60 (F1), PopTart_54 (F1), Quico_68 (F1), Sandalphon_61 (F1), SassyB_54 (F1), SilverChicken_70 (F2), Sparkdehlily_67 (F1), StAnnes_58 (F1), SuperGrey_63 (F1), TDanisky_67 (F1), Tchotchke_61 (F1), Tweety_59 (F1), Whatsapiecost_60 (F1),

Start 20:
• Found in 27 of 161 (16.8%) of genes in pham
• Manual Annotations of this start: 24 of 139
• Called 96.3% of time when present
• Phage (with cluster) where this start called: BigPhil_55 (F1), Brookers_56 (F1), Cerasum_55 (F1), Che8_64 (F1), Che9d_67 (F2), Cheesepuff_65 (F1), Coco12_58 (F1), Cornie_54 (F5), DoRead_61 (F1), DotProduct_54 (F1), Harley_62 (F1), JalFarm20_72 (F1), Jant_63 (F1), Juice456_60 (F1), Juniper1_57 (F1), Kimberlium_61 (F1), Kingsley_56 (F1), MulchExplorer_61 (F1), Ovechkin_58 (F1), QuickMath_60 (F1), Royals2015_62 (F1), Sarma624_57 (F1), Seagreen_59 (F1), Starcevich_58 (F1), Topiatin_66 (F1), Velveteen_54 (F1),

Start 21:
• Found in 33 of 161 (20.5%) of genes in pham
• Manual Annotations of this start: 30 of 139
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BigPhil_54 (F1), Brookers_55 (F1), Cerasum_54 (F1), Che8_63 (F1), Che9d_66 (F2), Cheesepuff_64 (F1), Coco12_57 (F1), Cornie_53 (F5), Demsculpinboyz_68 (F2), DoRead_60 (F1), DotProduct_53 (F1), Harley_61 (F1), IMpilo_54 (F1), JalFarm20_71 (F1), Jant_62 (F1), Juice456_59 (F1), Juniper1_56 (F1), Kimberlium_60 (F1), Kingsley_55 (F1), LunaStella_56 (F4), MulchExplorer_60 (F1), Ovechkin_57 (F1), QuickMath_59 (F1), Renaud18_63 (F4), Royals2015_61 (F1), Sarma624_56 (F1), Seagreen_58 (F1), Starcevich_57 (F1), TChen_58 (F4), ThetaBob_62 (F4), Topiatin_65 (F1), Velveteen_53 (F1), Yoshi_70 (F2),

Start 24:
• Found in 17 of 161 (10.6%) of genes in pham
• Manual Annotations of this start: 1 of 139
• Called 5.9% of time when present
• Phage (with cluster) where this start called: KHumphrey_31 (AS3),

Start 26:

• Found in 97 of 161 (60.2%) of genes in pham
• No Manual Annotations of this start.
• Called 1.0% of time when present
• Phage (with cluster) where this start called: IMpilo_55 (F1),

Start 34:
• Found in 41 of 161 (25.5%) of genes in pham
• Manual Annotations of this start: 1 of 139
• Called 2.4% of time when present
• Phage (with cluster) where this start called: Mareelih_3 (DS),

Start 45:
• Found in 4 of 161 (2.5%) of genes in pham
• Manual Annotations of this start: 3 of 139
• Called 75.0% of time when present
• Phage (with cluster) where this start called: BlueNGold_4 (DS), Boopy_5 (DS), Forza_5 (DS),

Summary by clusters:

There are 12 clusters represented in this pham: AS3, F1, F2, F4, F5, F8, DB, AS1, DS, DX, DN2, CV,

Info for manual annotations of cluster AS1:
•Start number 18 was manually annotated 9 times for cluster AS1.

Info for manual annotations of cluster AS3:
•Start number 18 was manually annotated 11 times for cluster AS3.
•Start number 24 was manually annotated 1 time for cluster AS3.

Info for manual annotations of cluster CV:
•Start number 14 was manually annotated 1 time for cluster CV.
•Start number 15 was manually annotated 21 times for cluster CV.

Info for manual annotations of cluster DB:
•Start number 15 was manually annotated 4 times for cluster DB.

Info for manual annotations of cluster DN2:
•Start number 17 was manually annotated 1 time for cluster DN2.

Info for manual annotations of cluster DS:
•Start number 34 was manually annotated 1 time for cluster DS.
•Start number 45 was manually annotated 3 times for cluster DS.

Info for manual annotations of cluster DX:
•Start number 18 was manually annotated 2 times for cluster DX.

Info for manual annotations of cluster F1:
•Start number 19 was manually annotated 31 times for cluster F1.
•Start number 20 was manually annotated 22 times for cluster F1.
•Start number 21 was manually annotated 22 times for cluster F1.

Info for manual annotations of cluster F2:

•Start number 20 was manually annotated 1 time for cluster F2.
•Start number 21 was manually annotated 3 times for cluster F2.

Info for manual annotations of cluster F4:
•Start number 21 was manually annotated 4 times for cluster F4.

Info for manual annotations of cluster F5:
•Start number 20 was manually annotated 1 time for cluster F5.
•Start number 21 was manually annotated 1 time for cluster F5.

Gene Information:

Gene: AdoptaAdorbs_30 Start: 21209, Stop: 20868, Start Num: 18
Candidate Starts for AdoptaAdorbs_30:
(Start: 18 @21209 has 22 MA's), (Start: 24 @21191 has 1 MA's),

Gene: Akhila_51 Start: 36387, Stop: 36752, Start Num: 19
Candidate Starts for Akhila_51:
(Start: 19 @36387 has 31 MA's), (26, 36420), (27, 36426), (30, 36438), (Start: 34 @36480 has 1 MA's), (38, 36510), (42, 36534), (43, 36537), (52, 36636), (53, 36642), (57, 36717), (58, 36720), (60, 36723),

Gene: Amanises_32 Start: 22613, Stop: 22260, Start Num: 18
Candidate Starts for Amanises_32:
(Start: 18 @22613 has 22 MA's), (35, 22514), (58, 22277),

Gene: AmiCi24_30 Start: 21208, Stop: 20867, Start Num: 18
Candidate Starts for AmiCi24_30:
(Start: 18 @21208 has 22 MA's), (Start: 24 @21190 has 1 MA's),

Gene: Amphitrite_31 Start: 21207, Stop: 20866, Start Num: 18
Candidate Starts for Amphitrite_31:
(Start: 18 @21207 has 22 MA's), (Start: 24 @21189 has 1 MA's),

Gene: Archis_54 Start: 35570, Stop: 35932, Start Num: 15
Candidate Starts for Archis_54:
(9, 35426), (10, 35462), (11, 35501), (Start: 15 @35570 has 25 MA's), (37, 35699), (40, 35723),

Gene: ArcusAngelus_62 Start: 40946, Stop: 41311, Start Num: 19
Candidate Starts for ArcusAngelus_62:
(Start: 19 @40946 has 31 MA's), (26, 40979), (27, 40985), (30, 40997), (Start: 34 @41039 has 1 MA's), (38, 41069), (42, 41093), (43, 41096), (52, 41195), (53, 41201), (57, 41276),

Gene: Ardmore_52 Start: 38473, Stop: 38838, Start Num: 19
Candidate Starts for Ardmore_52:
(Start: 19 @38473 has 31 MA's), (26, 38506), (27, 38512), (30, 38524), (Start: 34 @38566 has 1 MA's), (38, 38596), (42, 38620), (43, 38623), (52, 38722), (53, 38728), (57, 38803),

Gene: Atlantica_31 Start: 21209, Stop: 20868, Start Num: 18
Candidate Starts for Atlantica_31:
(Start: 18 @21209 has 22 MA's), (Start: 24 @21191 has 1 MA's),

Gene: Barco_49 Start: 34620, Stop: 34982, Start Num: 15
Candidate Starts for Barco_49:
(9, 34476), (10, 34512), (11, 34551), (Start: 15 @34620 has 25 MA's), (37, 34749), (40, 34773),

Gene: Beakin_61 Start: 39476, Stop: 39841, Start Num: 19
Candidate Starts for Beakin_61:
(Start: 19 @39476 has 31 MA's), (26, 39509), (27, 39515), (30, 39527), (Start: 34 @39569 has 1 MA's), (38, 39599), (42, 39623), (43, 39626), (52, 39725), (53, 39731), (57, 39806),

Gene: Begonia_49 Start: 37159, Stop: 37521, Start Num: 15
Candidate Starts for Begonia_49:
(11, 37090), (Start: 15 @37159 has 25 MA's), (33, 37258), (36, 37285), (37, 37288), (40, 37312), (64, 37507),

Gene: BigPhil_54 Start: 35652, Stop: 35999, Start Num: 21
Candidate Starts for BigPhil_54:
(13, 35625), (16, 35643), (Start: 21 @35652 has 30 MA's), (26, 35682), (28, 35691), (31, 35709), (36, 35763), (41, 35790), (49, 35847), (51, 35877), (52, 35889),

Gene: BigPhil_55 Start: 35996, Stop: 36349, Start Num: 20
Candidate Starts for BigPhil_55:
(12, 35960), (Start: 20 @35996 has 24 MA's), (25, 36026), (26, 36029), (29, 36041), (30, 36047), (36, 36110), (38, 36119), (39, 36125), (52, 36239), (54, 36260), (56, 36317), (62, 36329),

Gene: Bipolar_58 Start: 40097, Stop: 40462, Start Num: 19
Candidate Starts for Bipolar_58:
(Start: 19 @40097 has 31 MA's), (26, 40130), (28, 40139), (30, 40148), (Start: 34 @40190 has 1 MA's), (38, 40220), (42, 40244), (43, 40247), (52, 40346), (53, 40352), (57, 40427),

Gene: BlingBling_48 Start: 35583, Stop: 35945, Start Num: 15
Candidate Starts for BlingBling_48:
(9, 35439), (10, 35475), (11, 35514), (Start: 15 @35583 has 25 MA's), (37, 35712), (40, 35736),

Gene: BlueNGold_4 Start: 2408, Stop: 2202, Start Num: 45
Candidate Starts for BlueNGold_4:
(Start: 45 @2408 has 3 MA's), (50, 2345), (59, 2243),

Gene: Bobi_65 Start: 41950, Stop: 42315, Start Num: 19
Candidate Starts for Bobi_65:
(Start: 19 @41950 has 31 MA's), (26, 41983), (27, 41989), (30, 42001), (Start: 34 @42043 has 1 MA's), (38, 42073), (42, 42097), (43, 42100), (52, 42199), (53, 42205), (57, 42280),

Gene: Boopy_5 Start: 2419, Stop: 2213, Start Num: 45
Candidate Starts for Boopy_5:
(Start: 45 @2419 has 3 MA's), (50, 2356), (59, 2254),

Gene: Brookers_55 Start: 38603, Stop: 38950, Start Num: 21
Candidate Starts for Brookers_55:
(13, 38576), (16, 38594), (Start: 21 @38603 has 30 MA's), (26, 38633), (28, 38642), (31, 38660), (36, 38714), (41, 38741), (49, 38798), (51, 38828), (52, 38840),

Gene: Brookers_56 Start: 38947, Stop: 39300, Start Num: 20

Candidate Starts for Brookers_56:
(12, 38911), (Start: 20 @38947 has 24 MA's), (25, 38977), (26, 38980), (29, 38992), (30, 38998), (36, 39061), (38, 39070), (39, 39076), (52, 39190), (54, 39211), (56, 39268), (62, 39280),

Gene: Camara_31 Start: 21210, Stop: 20869, Start Num: 18
Candidate Starts for Camara_31:
(Start: 18 @21210 has 22 MA's), (Start: 24 @21192 has 1 MA's),

Gene: CaptainKirk2_51 Start: 34868, Stop: 35230, Start Num: 15
Candidate Starts for CaptainKirk2_51:
(9, 34724), (10, 34760), (11, 34799), (Start: 15 @34868 has 25 MA's), (37, 34997), (40, 35021),

Gene: Cerasum_55 Start: 36014, Stop: 36367, Start Num: 20
Candidate Starts for Cerasum_55:
(12, 35978), (Start: 20 @36014 has 24 MA's), (25, 36044), (26, 36047), (29, 36059), (30, 36065), (36, 36128), (38, 36137), (39, 36143), (52, 36257), (54, 36278), (56, 36335), (62, 36347),

Gene: Cerasum_54 Start: 35670, Stop: 36017, Start Num: 21
Candidate Starts for Cerasum_54:
(13, 35643), (16, 35661), (Start: 21 @35670 has 30 MA's), (26, 35700), (28, 35709), (31, 35727), (36, 35781), (41, 35808), (49, 35865), (51, 35895), (52, 35907),

Gene: Che8_64 Start: 42503, Stop: 42856, Start Num: 20
Candidate Starts for Che8_64:
(12, 42467), (Start: 20 @42503 has 24 MA's), (25, 42533), (26, 42536), (29, 42548), (30, 42554), (36, 42617), (38, 42626), (39, 42632), (52, 42746), (54, 42767), (56, 42824), (62, 42836),

Gene: Che8_63 Start: 42159, Stop: 42506, Start Num: 21
Candidate Starts for Che8_63:
(13, 42132), (16, 42150), (Start: 21 @42159 has 30 MA's), (26, 42189), (28, 42198), (31, 42216), (36, 42270), (41, 42297), (49, 42354), (51, 42384), (52, 42396),

Gene: Che9d_67 Start: 39585, Stop: 39938, Start Num: 20
Candidate Starts for Che9d_67:
(12, 39549), (Start: 20 @39585 has 24 MA's), (25, 39615), (26, 39618), (29, 39630), (30, 39636), (36, 39699), (38, 39708), (39, 39714), (52, 39828), (54, 39849), (56, 39906), (62, 39918),

Gene: Che9d_66 Start: 39241, Stop: 39588, Start Num: 21
Candidate Starts for Che9d_66:
(13, 39214), (16, 39232), (Start: 21 @39241 has 30 MA's), (26, 39271), (28, 39280), (31, 39298), (36, 39352), (41, 39379), (49, 39436), (51, 39466), (52, 39478),

Gene: Cheesepuff_65 Start: 41627, Stop: 41980, Start Num: 20
Candidate Starts for Cheesepuff_65:
(12, 41591), (Start: 20 @41627 has 24 MA's), (25, 41657), (26, 41660), (29, 41672), (30, 41678), (36, 41741), (38, 41750), (39, 41756), (52, 41870), (54, 41891), (56, 41948), (62, 41960),

Gene: Cheesepuff_64 Start: 41283, Stop: 41630, Start Num: 21
Candidate Starts for Cheesepuff_64:
(13, 41256), (16, 41274), (Start: 21 @41283 has 30 MA's), (26, 41313), (28, 41322), (31, 41340), (36, 41394), (41, 41421), (49, 41478), (51, 41508), (52, 41520),

Gene: Chevrolet_65 Start: 40947, Stop: 41312, Start Num: 19

Candidate Starts for Chevrolet_65:
(Start: 19 @40947 has 31 MA's), (26, 40980), (27, 40986), (30, 40998), (Start: 34 @41040 has 1 MA's), (38, 41070), (42, 41094), (43, 41097), (52, 41196), (53, 41202), (57, 41277),

Gene: Chicken_29 Start: 22015, Stop: 21665, Start Num: 18
Candidate Starts for Chicken_29:
(Start: 18 @22015 has 22 MA's), (35, 21916), (54, 21742), (57, 21682),

Gene: Chipko_58 Start: 39692, Stop: 40057, Start Num: 15
Candidate Starts for Chipko_58:
(2, 39188), (3, 39230), (6, 39395), (Start: 15 @39692 has 25 MA's), (36, 39818), (54, 39965),

Gene: Coco12_57 Start: 39727, Stop: 40074, Start Num: 21
Candidate Starts for Coco12_57:
(13, 39700), (16, 39718), (Start: 21 @39727 has 30 MA's), (26, 39757), (28, 39766), (31, 39784), (36, 39838), (41, 39865), (49, 39922), (51, 39952), (52, 39964),

Gene: Coco12_58 Start: 40071, Stop: 40424, Start Num: 20
Candidate Starts for Coco12_58:
(12, 40035), (Start: 20 @40071 has 24 MA's), (25, 40101), (26, 40104), (29, 40116), (30, 40122), (36, 40185), (38, 40194), (39, 40200), (52, 40314), (54, 40335), (56, 40392), (62, 40404),

Gene: Cornie_53 Start: 37745, Stop: 38092, Start Num: 21
Candidate Starts for Cornie_53:
(13, 37718), (16, 37736), (Start: 21 @37745 has 30 MA's), (26, 37775), (28, 37784), (31, 37802), (36, 37856), (41, 37883), (49, 37940), (51, 37970), (52, 37982),

Gene: Cornie_54 Start: 38089, Stop: 38442, Start Num: 20
Candidate Starts for Cornie_54:
(12, 38053), (Start: 20 @38089 has 24 MA's), (25, 38119), (26, 38122), (29, 38134), (30, 38140), (36, 38203), (38, 38212), (39, 38218), (52, 38332), (54, 38353), (56, 38410), (62, 38422),

Gene: DLane_55 Start: 38997, Stop: 39362, Start Num: 19
Candidate Starts for DLane_55:
(Start: 19 @38997 has 31 MA's), (26, 39030), (27, 39036), (30, 39048), (Start: 34 @39090 has 1 MA's), (38, 39120), (42, 39144), (43, 39147), (52, 39246), (53, 39252), (57, 39327),

Gene: DanHam62_31 Start: 21209, Stop: 20868, Start Num: 18
Candidate Starts for DanHam62_31:
(Start: 18 @21209 has 22 MA's), (Start: 24 @21191 has 1 MA's),

Gene: Delian_54 Start: 34866, Stop: 35228, Start Num: 15
Candidate Starts for Delian_54:
(9, 34722), (10, 34758), (11, 34797), (Start: 15 @34866 has 25 MA's), (37, 34995), (40, 35019),

Gene: Demsculpinboyz_68 Start: 39242, Stop: 39589, Start Num: 21
Candidate Starts for Demsculpinboyz_68:
(13, 39215), (16, 39233), (Start: 21 @39242 has 30 MA's), (26, 39272), (28, 39281), (31, 39299), (36, 39353), (41, 39380), (49, 39437), (51, 39467), (52, 39479),

Gene: DirtyBoi_56 Start: 37313, Stop: 37675, Start Num: 15
Candidate Starts for DirtyBoi_56:
(Start: 15 @37313 has 25 MA's), (36, 37436),

Gene: Dmitri_53 Start: 39335, Stop: 39700, Start Num: 15
Candidate Starts for Dmitri_53:
(Start: 15 @39335 has 25 MA's), (36, 39461),

Gene: DoRead_60 Start: 38654, Stop: 39001, Start Num: 21
Candidate Starts for DoRead_60:
(13, 38627), (16, 38645), (Start: 21 @38654 has 30 MA's), (26, 38684), (28, 38693), (31, 38711), (36, 38765), (41, 38792), (49, 38849), (51, 38879), (52, 38891),

Gene: DoRead_61 Start: 38998, Stop: 39351, Start Num: 20
Candidate Starts for DoRead_61:
(12, 38962), (Start: 20 @38998 has 24 MA's), (25, 39028), (26, 39031), (29, 39043), (30, 39049), (36, 39112), (38, 39121), (39, 39127), (52, 39241), (54, 39262), (56, 39319), (62, 39331),

Gene: DotProduct_53 Start: 38248, Stop: 38595, Start Num: 21
Candidate Starts for DotProduct_53:
(13, 38221), (16, 38239), (Start: 21 @38248 has 30 MA's), (22, 38260), (23, 38263), (26, 38278), (28, 38287), (31, 38305), (36, 38359), (41, 38386), (49, 38443), (51, 38473), (52, 38485), (65, 38587),

Gene: DotProduct_54 Start: 38592, Stop: 38945, Start Num: 20
Candidate Starts for DotProduct_54:
(12, 38556), (Start: 20 @38592 has 24 MA's), (25, 38622), (26, 38625), (29, 38637), (30, 38643), (36, 38706), (38, 38715), (39, 38721), (52, 38835), (54, 38856), (56, 38913), (62, 38925),

Gene: Eesa_29 Start: 22456, Stop: 22103, Start Num: 18
Candidate Starts for Eesa_29:
(Start: 18 @22456 has 22 MA's), (35, 22357), (58, 22120),

Gene: Fenry_49 Start: 36364, Stop: 36726, Start Num: 15
Candidate Starts for Fenry_49:
(1, 35836), (5, 36049), (7, 36202), (9, 36220), (10, 36256), (11, 36295), (Start: 15 @36364 has 25 MA's), (37, 36493), (40, 36517), (64, 36712),

Gene: Fingolfin_31 Start: 21210, Stop: 20869, Start Num: 18
Candidate Starts for Fingolfin_31:
(Start: 18 @21210 has 22 MA's), (Start: 24 @21192 has 1 MA's),

Gene: Flathead_60 Start: 40766, Stop: 41131, Start Num: 19
Candidate Starts for Flathead_60:
(Start: 19 @40766 has 31 MA's), (26, 40799), (27, 40805), (30, 40817), (Start: 34 @40859 has 1 MA's), (38, 40889), (42, 40913), (43, 40916), (52, 41015), (53, 41021), (57, 41096), (58, 41099), (60, 41102),

Gene: Florinda_71 Start: 42396, Stop: 42761, Start Num: 19
Candidate Starts for Florinda_71:
(Start: 19 @42396 has 31 MA's), (26, 42429), (28, 42438), (30, 42447), (Start: 34 @42489 has 1 MA's), (38, 42519), (42, 42543), (43, 42546), (52, 42645), (53, 42651), (57, 42726),

Gene: Forza_5 Start: 2456, Stop: 2250, Start Num: 45
Candidate Starts for Forza_5:
(Start: 45 @2456 has 3 MA's), (50, 2393), (59, 2291),

Gene: Fruitloop_57 Start: 40613, Stop: 40978, Start Num: 19

Candidate Starts for Fruitloop_57:
(Start: 19 @40613 has 31 MA's), (26, 40646), (28, 40655), (30, 40664), (Start: 34 @40706 has 1 MA's), (38, 40736), (42, 40760), (43, 40763), (52, 40862), (53, 40868), (57, 40943),

Gene: Girafales_69 Start: 42187, Stop: 42552, Start Num: 19
Candidate Starts for Girafales_69:
(Start: 19 @42187 has 31 MA's), (26, 42220), (28, 42229), (30, 42238), (Start: 34 @42280 has 1 MA's), (38, 42310), (42, 42334), (43, 42337), (52, 42436), (53, 42442), (57, 42517),

Gene: Glotell_32 Start: 21366, Stop: 21025, Start Num: 18
Candidate Starts for Glotell_32:
(Start: 18 @21366 has 22 MA's), (Start: 24 @21348 has 1 MA's),

Gene: Gravel_33 Start: 22425, Stop: 22072, Start Num: 18
Candidate Starts for Gravel_33:
(Start: 18 @22425 has 22 MA's), (35, 22326), (58, 22089),

Gene: Guacamole_48 Start: 35005, Stop: 35367, Start Num: 15
Candidate Starts for Guacamole_48:
(9, 34861), (10, 34897), (11, 34936), (Start: 15 @35005 has 25 MA's), (33, 35104), (36, 35131), (37, 35134), (40, 35158), (64, 35353),

Gene: HamCheese_31 Start: 21194, Stop: 20853, Start Num: 18
Candidate Starts for HamCheese_31:
(Start: 18 @21194 has 22 MA's), (Start: 24 @21176 has 1 MA's),

Gene: Hamulus_61 Start: 40756, Stop: 41121, Start Num: 19
Candidate Starts for Hamulus_61:
(Start: 19 @40756 has 31 MA's), (26, 40789), (27, 40795), (30, 40807), (Start: 34 @40849 has 1 MA's), (38, 40879), (42, 40903), (43, 40906), (52, 41005), (53, 41011), (57, 41086), (58, 41089), (60, 41092),

Gene: Harley_61 Start: 40314, Stop: 40661, Start Num: 21
Candidate Starts for Harley_61:
(13, 40287), (16, 40305), (Start: 21 @40314 has 30 MA's), (26, 40344), (28, 40353), (31, 40371), (36, 40425), (41, 40452), (49, 40509), (51, 40539), (52, 40551),

Gene: Harley_62 Start: 40658, Stop: 41011, Start Num: 20
Candidate Starts for Harley_62:
(12, 40622), (Start: 20 @40658 has 24 MA's), (25, 40688), (26, 40691), (29, 40703), (30, 40709), (36, 40772), (38, 40781), (52, 40901), (54, 40922), (56, 40979), (62, 40991),

Gene: Hedwig_57 Start: 38509, Stop: 38871, Start Num: 15
Candidate Starts for Hedwig_57:
(4, 38158), (Start: 15 @38509 has 25 MA's), (36, 38632),

Gene: Hitter_51 Start: 34662, Stop: 35024, Start Num: 15
Candidate Starts for Hitter_51:
(9, 34518), (10, 34554), (11, 34593), (Start: 15 @34662 has 25 MA's), (37, 34791), (40, 34815), (64, 35010),

Gene: IMpilo_54 Start: 37409, Stop: 37756, Start Num: 21
Candidate Starts for IMpilo_54:

(13, 37382), (16, 37400), (Start: 21 @37409 has 30 MA's), (22, 37421), (23, 37424), (26, 37439), (28, 37448), (31, 37466), (36, 37520), (41, 37547), (49, 37604), (51, 37634), (52, 37646),

Gene: IMpilo_55 Start: 37786, Stop: 38106, Start Num: 26
Candidate Starts for IMpilo_55:
(12, 37717), (Start: 20 @37753 has 24 MA's), (25, 37783), (26, 37786), (29, 37798), (30, 37804), (36, 37867), (38, 37876), (39, 37882), (52, 37996), (54, 38017), (56, 38074), (62, 38086),

Gene: JalFarm20_71 Start: 43462, Stop: 43809, Start Num: 21
Candidate Starts for JalFarm20_71:
(13, 43435), (16, 43453), (Start: 21 @43462 has 30 MA's), (26, 43492), (28, 43501), (31, 43519), (36, 43573), (41, 43600), (49, 43657), (51, 43687), (52, 43699),

Gene: JalFarm20_72 Start: 43806, Stop: 44159, Start Num: 20
Candidate Starts for JalFarm20_72:
(12, 43770), (Start: 20 @43806 has 24 MA's), (25, 43836), (26, 43839), (29, 43851), (30, 43857), (36, 43920), (38, 43929), (39, 43935), (52, 44049), (54, 44070), (56, 44127), (62, 44139),

Gene: Jalammah_54 Start: 37665, Stop: 38027, Start Num: 15
Candidate Starts for Jalammah_54:
(9, 37521), (10, 37557), (11, 37596), (Start: 15 @37665 has 25 MA's), (37, 37794), (40, 37818), (64, 38013),

Gene: Jamun_29 Start: 21575, Stop: 21234, Start Num: 18
Candidate Starts for Jamun_29:
(Start: 18 @21575 has 22 MA's), (35, 21482), (54, 21311), (57, 21251), (58, 21248),

Gene: Jant_63 Start: 41384, Stop: 41737, Start Num: 20
Candidate Starts for Jant_63:
(12, 41348), (Start: 20 @41384 has 24 MA's), (25, 41414), (26, 41417), (29, 41429), (30, 41435), (36, 41498), (38, 41507), (39, 41513), (52, 41627), (54, 41648), (56, 41705), (62, 41717),

Gene: Jant_62 Start: 41040, Stop: 41387, Start Num: 21
Candidate Starts for Jant_62:
(13, 41013), (16, 41031), (Start: 21 @41040 has 30 MA's), (26, 41070), (28, 41079), (31, 41097), (36, 41151), (41, 41178), (49, 41235), (51, 41265), (52, 41277),

Gene: JasperJr_48 Start: 35005, Stop: 35367, Start Num: 15
Candidate Starts for JasperJr_48:
(9, 34861), (10, 34897), (11, 34936), (Start: 15 @35005 has 25 MA's), (33, 35104), (36, 35131), (37, 35134), (40, 35158), (64, 35353),

Gene: Juice456_60 Start: 41762, Stop: 42115, Start Num: 20
Candidate Starts for Juice456_60:
(12, 41726), (Start: 20 @41762 has 24 MA's), (25, 41792), (26, 41795), (29, 41807), (30, 41813), (36, 41876), (38, 41885), (39, 41891), (52, 42005), (54, 42026), (56, 42083), (62, 42095),

Gene: Juice456_59 Start: 41418, Stop: 41765, Start Num: 21
Candidate Starts for Juice456_59:
(13, 41391), (16, 41409), (Start: 21 @41418 has 30 MA's), (26, 41448), (28, 41457), (31, 41475), (36, 41529), (41, 41556), (49, 41613), (51, 41643), (52, 41655),

Gene: Juniper1_56 Start: 39354, Stop: 39701, Start Num: 21

Candidate Starts for Juniper1_56:
(13, 39327), (16, 39345), (Start: 21 @39354 has 30 MA's), (22, 39366), (23, 39369), (26, 39384), (28, 39393), (31, 39411), (36, 39465), (41, 39492), (49, 39549), (51, 39579), (52, 39591),

Gene: Juniper1_57 Start: 39698, Stop: 40051, Start Num: 20
Candidate Starts for Juniper1_57:
(12, 39662), (Start: 20 @39698 has 24 MA's), (25, 39728), (26, 39731), (29, 39743), (30, 39749), (36, 39812), (38, 39821), (39, 39827), (52, 39941), (54, 39962), (56, 40019), (62, 40031),

Gene: Juno112_30 Start: 21210, Stop: 20869, Start Num: 18
Candidate Starts for Juno112_30:
(Start: 18 @21210 has 22 MA's), (Start: 24 @21192 has 1 MA's),

Gene: KHumphrey_31 Start: 21190, Stop: 20867, Start Num: 24
Candidate Starts for KHumphrey_31:
(Start: 18 @21208 has 22 MA's), (Start: 24 @21190 has 1 MA's),

Gene: KendraB23_34 Start: 22613, Stop: 22260, Start Num: 18
Candidate Starts for KendraB23_34:
(Start: 18 @22613 has 22 MA's), (35, 22514), (58, 22277),

Gene: Kenuha5_57 Start: 38874, Stop: 39239, Start Num: 19
Candidate Starts for Kenuha5_57:
(Start: 19 @38874 has 31 MA's), (26, 38907), (27, 38913), (30, 38925), (Start: 34 @38967 has 1 MA's), (38, 38997), (42, 39021), (43, 39024), (52, 39123), (53, 39129), (57, 39204),

Gene: Kimberlium_61 Start: 41461, Stop: 41814, Start Num: 20
Candidate Starts for Kimberlium_61:
(12, 41425), (Start: 20 @41461 has 24 MA's), (25, 41491), (26, 41494), (29, 41506), (30, 41512), (36, 41575), (38, 41584), (39, 41590), (52, 41704), (54, 41725), (56, 41782), (62, 41794),

Gene: Kimberlium_60 Start: 41117, Stop: 41464, Start Num: 21
Candidate Starts for Kimberlium_60:
(13, 41090), (16, 41108), (Start: 21 @41117 has 30 MA's), (26, 41147), (28, 41156), (31, 41174), (36, 41228), (41, 41255), (49, 41312), (51, 41342), (52, 41354),

Gene: Kingsley_56 Start: 38804, Stop: 39157, Start Num: 20
Candidate Starts for Kingsley_56:
(12, 38768), (Start: 20 @38804 has 24 MA's), (25, 38834), (26, 38837), (29, 38849), (30, 38855), (36, 38918), (38, 38927), (39, 38933), (52, 39047), (54, 39068), (56, 39125), (62, 39137),

Gene: Kingsley_55 Start: 38460, Stop: 38807, Start Num: 21
Candidate Starts for Kingsley_55:
(13, 38433), (16, 38451), (Start: 21 @38460 has 30 MA's), (26, 38490), (28, 38499), (31, 38517), (36, 38571), (41, 38598), (49, 38655), (51, 38685), (52, 38697),

Gene: Laphuphu24k_29 Start: 21194, Stop: 20853, Start Num: 18
Candidate Starts for Laphuphu24k_29:
(Start: 18 @21194 has 22 MA's), (Start: 24 @21176 has 1 MA's),

Gene: LunaStella_56 Start: 38713, Stop: 39060, Start Num: 21
Candidate Starts for LunaStella_56:

(13, 38686), (16, 38704), (Start: 21 @38713 has 30 MA's), (22, 38725), (26, 38743), (28, 38752), (Start: 34 @38803 has 1 MA's), (36, 38824), (46, 38887), (49, 38908), (51, 38938),

Gene: Lysidious_52 Start: 36936, Stop: 37298, Start Num: 15
Candidate Starts for Lysidious_52:
(8, 36786), (9, 36792), (10, 36828), (11, 36867), (Start: 15 @36936 has 25 MA's), (37, 37065), (40, 37089),

Gene: Malachai_49 Start: 37159, Stop: 37521, Start Num: 15
Candidate Starts for Malachai_49:
(11, 37090), (Start: 15 @37159 has 25 MA's), (33, 37258), (36, 37285), (37, 37288), (40, 37312), (64, 37507),

Gene: Mareelih_3 Start: 1867, Stop: 1583, Start Num: 34
Candidate Starts for Mareelih_3:
(26, 1927), (27, 1921), (Start: 34 @1867 has 1 MA's), (Start: 45 @1801 has 3 MA's), (50, 1738), (59, 1636), (61, 1627), (63, 1621),

Gene: Medindi_56 Start: 37651, Stop: 38016, Start Num: 19
Candidate Starts for Medindi_56:
(Start: 19 @37651 has 31 MA's), (26, 37684), (27, 37690), (30, 37702), (Start: 34 @37744 has 1 MA's), (38, 37774), (42, 37798), (43, 37801), (52, 37900), (53, 37906), (57, 37981), (58, 37984),

Gene: Melba_50 Start: 35408, Stop: 35770, Start Num: 15
Candidate Starts for Melba_50:
(9, 35264), (10, 35300), (11, 35339), (Start: 15 @35408 has 25 MA's), (37, 35537), (40, 35561),

Gene: Melissauren88_58 Start: 39794, Stop: 40159, Start Num: 19
Candidate Starts for Melissauren88_58:
(Start: 19 @39794 has 31 MA's), (26, 39827), (27, 39833), (30, 39845), (Start: 34 @39887 has 1 MA's), (38, 39917), (42, 39941), (43, 39944), (52, 40043), (53, 40049), (57, 40124),

Gene: Mellie_49 Start: 35048, Stop: 35410, Start Num: 14
Candidate Starts for Mellie_49:
(10, 34943), (Start: 14 @35048 has 1 MA's), (33, 35147), (36, 35174), (37, 35177), (40, 35201),

Gene: MilanaBonita_50 Start: 36387, Stop: 36752, Start Num: 19
Candidate Starts for MilanaBonita_50:
(Start: 19 @36387 has 31 MA's), (26, 36420), (27, 36426), (30, 36438), (Start: 34 @36480 has 1 MA's), (38, 36510), (42, 36534), (43, 36537), (52, 36636), (53, 36642), (57, 36717), (58, 36720), (60, 36723),

Gene: Minnie_63 Start: 41784, Stop: 42149, Start Num: 19
Candidate Starts for Minnie_63:
(Start: 19 @41784 has 31 MA's), (26, 41817), (28, 41826), (30, 41835), (Start: 34 @41877 has 1 MA's), (38, 41907), (42, 41931), (43, 41934), (52, 42033), (53, 42039), (57, 42114),

Gene: MintFen_51 Start: 35482, Stop: 35844, Start Num: 15
Candidate Starts for MintFen_51:
(9, 35338), (10, 35374), (11, 35413), (Start: 15 @35482 has 25 MA's), (37, 35611), (40, 35635),

Gene: Moonflower_54 Start: 39482, Stop: 39844, Start Num: 15
Candidate Starts for Moonflower_54:
(Start: 15 @39482 has 25 MA's), (36, 39605),

Gene: Ms6_55 Start: 35525, Stop: 35890, Start Num: 19
Candidate Starts for Ms6_55:
(Start: 19 @35525 has 31 MA's), (26, 35558), (27, 35564), (30, 35576), (Start: 34 @35618 has 1 MA's), (38, 35648), (42, 35672), (43, 35675), (52, 35774), (53, 35780), (57, 35855),

Gene: MulchExplorer_61 Start: 41460, Stop: 41813, Start Num: 20
Candidate Starts for MulchExplorer_61:
(12, 41424), (Start: 20 @41460 has 24 MA's), (25, 41490), (26, 41493), (29, 41505), (30, 41511), (36, 41574), (38, 41583), (39, 41589), (52, 41703), (54, 41724), (56, 41781), (62, 41793),

Gene: MulchExplorer_60 Start: 41116, Stop: 41463, Start Num: 21
Candidate Starts for MulchExplorer_60:
(13, 41089), (16, 41107), (Start: 21 @41116 has 30 MA's), (26, 41146), (28, 41155), (31, 41173), (36, 41227), (41, 41254), (49, 41311), (51, 41341), (52, 41353),

Gene: Niblet_29 Start: 22015, Stop: 21665, Start Num: 18
Candidate Starts for Niblet_29:
(Start: 18 @22015 has 22 MA's), (35, 21916), (57, 21682),

Gene: Ogopogo_65 Start: 40778, Stop: 41143, Start Num: 19
Candidate Starts for Ogopogo_65:
(Start: 19 @40778 has 31 MA's), (26, 40811), (27, 40817), (30, 40829), (Start: 34 @40871 has 1 MA's), (38, 40901), (42, 40925), (43, 40928), (52, 41027), (53, 41033), (57, 41108), (58, 41111), (60, 41114),

Gene: Okabe_55 Start: 36707, Stop: 37072, Start Num: 19
Candidate Starts for Okabe_55:
(Start: 19 @36707 has 31 MA's), (26, 36740), (28, 36749), (30, 36758), (Start: 34 @36800 has 1 MA's), (38, 36830), (42, 36854), (43, 36857), (52, 36956), (53, 36962), (57, 37037),

Gene: Oppalora_30 Start: 21208, Stop: 20867, Start Num: 18
Candidate Starts for Oppalora_30:
(Start: 18 @21208 has 22 MA's), (Start: 24 @21190 has 1 MA's),

Gene: Orcanus_30 Start: 22223, Stop: 21873, Start Num: 18
Candidate Starts for Orcanus_30:
(Start: 18 @22223 has 22 MA's), (35, 22124), (58, 21890),

Gene: Ovechkin_57 Start: 39962, Stop: 40309, Start Num: 21
Candidate Starts for Ovechkin_57:
(13, 39935), (16, 39953), (Start: 21 @39962 has 30 MA's), (26, 39992), (28, 40001), (31, 40019), (36, 40073), (41, 40100), (49, 40157), (51, 40187), (52, 40199),

Gene: Ovechkin_58 Start: 40306, Stop: 40659, Start Num: 20
Candidate Starts for Ovechkin_58:
(12, 40270), (Start: 20 @40306 has 24 MA's), (25, 40336), (26, 40339), (29, 40351), (30, 40357), (36, 40420), (38, 40429), (39, 40435), (52, 40549), (54, 40570), (56, 40627), (62, 40639),

Gene: PatriciaStar_53 Start: 39194, Stop: 39559, Start Num: 15
Candidate Starts for PatriciaStar_53:
(Start: 15 @39194 has 25 MA's), (36, 39320),

Gene: Pelletreau_33 Start: 22425, Stop: 22072, Start Num: 18

Candidate Starts for Pelletreau_33:
(Start: 18 @22425 has 22 MA's), (35, 22326), (58, 22089),

Gene: Phalconet_58 Start: 39065, Stop: 39430, Start Num: 19
Candidate Starts for Phalconet_58:
(Start: 19 @39065 has 31 MA's), (26, 39098), (27, 39104), (30, 39116), (32, 39131), (Start: 34 @39158 has 1 MA's), (38, 39188), (42, 39212), (43, 39215), (52, 39314), (53, 39320), (57, 39395),

Gene: Phanphagia_57 Start: 40656, Stop: 41021, Start Num: 19
Candidate Starts for Phanphagia_57:
(Start: 19 @40656 has 31 MA's), (26, 40689), (27, 40695), (30, 40707), (Start: 34 @40749 has 1 MA's), (38, 40779), (42, 40803), (43, 40806), (52, 40905), (53, 40911), (57, 40986),

Gene: PhesterPhotato_60 Start: 39882, Stop: 40247, Start Num: 19
Candidate Starts for PhesterPhotato_60:
(Start: 19 @39882 has 31 MA's), (26, 39915), (27, 39921), (30, 39933), (32, 39948), (Start: 34 @39975 has 1 MA's), (38, 40005), (42, 40029), (43, 40032), (52, 40131), (53, 40137), (57, 40212),

Gene: PhluffyCoco_31 Start: 21194, Stop: 20853, Start Num: 18
Candidate Starts for PhluffyCoco_31:
(Start: 18 @21194 has 22 MA's), (Start: 24 @21176 has 1 MA's),

Gene: PopTart_54 Start: 38690, Stop: 39055, Start Num: 19
Candidate Starts for PopTart_54:
(Start: 19 @38690 has 31 MA's), (26, 38723), (27, 38729), (30, 38741), (Start: 34 @38783 has 1 MA's), (38, 38813), (42, 38837), (43, 38840), (52, 38939), (53, 38945), (57, 39020),

Gene: QuickMath_60 Start: 41684, Stop: 42037, Start Num: 20
Candidate Starts for QuickMath_60:
(12, 41648), (Start: 20 @41684 has 24 MA's), (25, 41714), (26, 41717), (29, 41729), (30, 41735), (36, 41798), (38, 41807), (39, 41813), (52, 41927), (54, 41948), (56, 42005), (62, 42017),

Gene: QuickMath_59 Start: 41340, Stop: 41687, Start Num: 21
Candidate Starts for QuickMath_59:
(13, 41313), (16, 41331), (Start: 21 @41340 has 30 MA's), (26, 41370), (28, 41379), (31, 41397), (36, 41451), (41, 41478), (49, 41535), (51, 41565), (52, 41577),

Gene: Quico_68 Start: 42216, Stop: 42581, Start Num: 19
Candidate Starts for Quico_68:
(Start: 19 @42216 has 31 MA's), (26, 42249), (28, 42258), (30, 42267), (Start: 34 @42309 has 1 MA's), (38, 42339), (42, 42363), (43, 42366), (52, 42465), (53, 42471), (57, 42546),

Gene: Rattail_31 Start: 21290, Stop: 20949, Start Num: 18
Candidate Starts for Rattail_31:
(Start: 18 @21290 has 22 MA's), (Start: 24 @21272 has 1 MA's),

Gene: RayTheFireFly_61 Start: 39688, Stop: 40050, Start Num: 15
Candidate Starts for RayTheFireFly_61:
(Start: 15 @39688 has 25 MA's), (36, 39811), (47, 39877),

Gene: RedFox_31 Start: 21207, Stop: 20866, Start Num: 18
Candidate Starts for RedFox_31:
(Start: 18 @21207 has 22 MA's), (Start: 24 @21189 has 1 MA's),

Gene: RedWattleHog_91 Start: 82425, Stop: 82775, Start Num: 18
Candidate Starts for RedWattleHog_91:
(Start: 18 @82425 has 22 MA's), (28, 82461), (44, 82572), (47, 82599), (49, 82617), (55, 82707),

Gene: Renaud18_63 Start: 40118, Stop: 40465, Start Num: 21
Candidate Starts for Renaud18_63:
(13, 40091), (16, 40109), (Start: 21 @40118 has 30 MA's), (22, 40130), (26, 40148), (28, 40157), (36, 40229), (46, 40292), (49, 40313), (51, 40343),

Gene: Royals2015_62 Start: 39826, Stop: 40179, Start Num: 20
Candidate Starts for Royals2015_62:
(12, 39790), (Start: 20 @39826 has 24 MA's), (25, 39856), (26, 39859), (29, 39871), (30, 39877), (36, 39940), (38, 39949), (39, 39955), (52, 40069), (54, 40090), (56, 40147), (62, 40159),

Gene: Royals2015_61 Start: 39482, Stop: 39829, Start Num: 21
Candidate Starts for Royals2015_61:
(13, 39455), (16, 39473), (Start: 21 @39482 has 30 MA's), (26, 39512), (28, 39521), (31, 39539), (36, 39593), (41, 39620), (49, 39677), (51, 39707), (52, 39719),

Gene: Samba_50 Start: 37695, Stop: 38057, Start Num: 15
Candidate Starts for Samba_50:
(9, 37551), (10, 37587), (11, 37626), (Start: 15 @37695 has 25 MA's), (37, 37824), (40, 37848), (64, 38043),

Gene: Sandalphon_61 Start: 40762, Stop: 41127, Start Num: 19
Candidate Starts for Sandalphon_61:
(Start: 19 @40762 has 31 MA's), (26, 40795), (28, 40804), (30, 40813), (Start: 34 @40855 has 1 MA's), (38, 40885), (42, 40909), (43, 40912), (52, 41011), (53, 41017), (57, 41092),

Gene: Sarma624_56 Start: 35652, Stop: 35999, Start Num: 21
Candidate Starts for Sarma624_56:
(13, 35625), (16, 35643), (Start: 21 @35652 has 30 MA's), (26, 35682), (28, 35691), (31, 35709), (36, 35763), (41, 35790), (49, 35847), (51, 35877), (52, 35889),

Gene: Sarma624_57 Start: 35996, Stop: 36349, Start Num: 20
Candidate Starts for Sarma624_57:
(12, 35960), (Start: 20 @35996 has 24 MA's), (25, 36026), (26, 36029), (29, 36041), (30, 36047), (36, 36110), (38, 36119), (39, 36125), (52, 36239), (54, 36260), (56, 36317), (62, 36329),

Gene: SassyB_54 Start: 38690, Stop: 39055, Start Num: 19
Candidate Starts for SassyB_54:
(Start: 19 @38690 has 31 MA's), (26, 38723), (27, 38729), (30, 38741), (Start: 34 @38783 has 1 MA's), (38, 38813), (42, 38837), (43, 38840), (52, 38939), (53, 38945), (57, 39020),

Gene: Seagreen_58 Start: 39051, Stop: 39398, Start Num: 21
Candidate Starts for Seagreen_58:
(13, 39024), (16, 39042), (Start: 21 @39051 has 30 MA's), (26, 39081), (28, 39090), (31, 39108), (36, 39162), (41, 39189), (49, 39246), (51, 39276), (52, 39288),

Gene: Seagreen_59 Start: 39395, Stop: 39748, Start Num: 20
Candidate Starts for Seagreen_59:

(12, 39359), (Start: 20 @39395 has 24 MA's), (25, 39425), (26, 39428), (29, 39440), (30, 39446), (36, 39509), (38, 39518), (39, 39524), (52, 39638), (54, 39659), (56, 39716), (62, 39728),

Gene: SilverChicken_70 Start: 40345, Stop: 40710, Start Num: 19
Candidate Starts for SilverChicken_70:
(Start: 19 @40345 has 31 MA's), (26, 40378), (27, 40384), (30, 40396), (Start: 34 @40438 has 1 MA's), (38, 40468), (42, 40492), (43, 40495), (52, 40594), (53, 40600), (57, 40675),

Gene: Sparkdehlily_67 Start: 41576, Stop: 41941, Start Num: 19
Candidate Starts for Sparkdehlily_67:
(Start: 19 @41576 has 31 MA's), (26, 41609), (27, 41615), (30, 41627), (Start: 34 @41669 has 1 MA's), (38, 41699), (42, 41723), (43, 41726), (52, 41825), (53, 41831), (57, 41906),

Gene: Squiddly_84 Start: 50073, Stop: 50414, Start Num: 17
Candidate Starts for Squiddly_84:
(Start: 15 @50064 has 25 MA's), (Start: 17 @50073 has 1 MA's), (56, 50388),

Gene: StAnnes_58 Start: 40743, Stop: 41108, Start Num: 19
Candidate Starts for StAnnes_58:
(Start: 19 @40743 has 31 MA's), (26, 40776), (27, 40782), (30, 40794), (Start: 34 @40836 has 1 MA's), (38, 40866), (42, 40890), (43, 40893), (52, 40992), (53, 40998), (57, 41073), (58, 41076),

Gene: Starcevich_57 Start: 39411, Stop: 39758, Start Num: 21
Candidate Starts for Starcevich_57:
(13, 39384), (16, 39402), (Start: 21 @39411 has 30 MA's), (26, 39441), (28, 39450), (31, 39468), (36, 39522), (41, 39549), (49, 39606), (51, 39636), (52, 39648),

Gene: Starcevich_58 Start: 39755, Stop: 40108, Start Num: 20
Candidate Starts for Starcevich_58:
(12, 39719), (Start: 20 @39755 has 24 MA's), (25, 39785), (26, 39788), (29, 39800), (30, 39806), (36, 39869), (38, 39878), (39, 39884), (52, 39998), (54, 40019), (56, 40076), (62, 40088),

Gene: Stormageddon_88 Start: 82406, Stop: 82756, Start Num: 18
Candidate Starts for Stormageddon_88:
(Start: 18 @82406 has 22 MA's), (28, 82442), (44, 82553), (47, 82580), (49, 82598), (55, 82688),

Gene: SuperGrey_63 Start: 42051, Stop: 42416, Start Num: 19
Candidate Starts for SuperGrey_63:
(Start: 19 @42051 has 31 MA's), (26, 42084), (27, 42090), (30, 42102), (Start: 34 @42144 has 1 MA's), (38, 42174), (42, 42198), (43, 42201), (52, 42300), (53, 42306), (57, 42381),

Gene: TChen_58 Start: 40664, Stop: 41011, Start Num: 21
Candidate Starts for TChen_58:
(13, 40637), (16, 40655), (Start: 21 @40664 has 30 MA's), (22, 40676), (26, 40694), (28, 40703), (Start: 34 @40754 has 1 MA's), (36, 40775), (46, 40838), (49, 40859), (51, 40889),

Gene: TDanisky_67 Start: 41576, Stop: 41941, Start Num: 19
Candidate Starts for TDanisky_67:
(Start: 19 @41576 has 31 MA's), (26, 41609), (27, 41615), (30, 41627), (Start: 34 @41669 has 1 MA's), (38, 41699), (42, 41723), (43, 41726), (52, 41825), (53, 41831), (57, 41906),

Gene: TaylorSipht_30 Start: 21627, Stop: 21286, Start Num: 18
Candidate Starts for TaylorSipht_30:

(Start: 18 @21627 has 22 MA's), (Start: 24 @21606 has 1 MA's), (35, 21534), (54, 21363), (57, 21303),

Gene: Tchotchke_61 Start: 39968, Stop: 40333, Start Num: 19
Candidate Starts for Tchotchke_61:
(Start: 19 @39968 has 31 MA's), (26, 40001), (27, 40007), (30, 40019), (Start: 34 @40061 has 1 MA's), (42, 40115), (43, 40118), (52, 40217), (53, 40223), (57, 40298),

Gene: ThetaBob_62 Start: 40738, Stop: 41085, Start Num: 21
Candidate Starts for ThetaBob_62:
(13, 40711), (16, 40729), (Start: 21 @40738 has 30 MA's), (22, 40750), (26, 40768), (28, 40777), (Start: 34 @40828 has 1 MA's), (36, 40849), (46, 40912), (49, 40933), (51, 40963),

Gene: Toad24_32 Start: 22672, Stop: 22322, Start Num: 18
Candidate Starts for Toad24_32:
(Start: 18 @22672 has 22 MA's), (35, 22573), (58, 22339),

Gene: Topiatin_65 Start: 41903, Stop: 42250, Start Num: 21
Candidate Starts for Topiatin_65:
(13, 41876), (16, 41894), (Start: 21 @41903 has 30 MA's), (26, 41933), (28, 41942), (31, 41960), (36, 42014), (41, 42041), (49, 42098), (51, 42128), (52, 42140),

Gene: Topiatin_66 Start: 42247, Stop: 42600, Start Num: 20
Candidate Starts for Topiatin_66:
(12, 42211), (Start: 20 @42247 has 24 MA's), (25, 42277), (26, 42280), (29, 42292), (30, 42298), (36, 42361), (38, 42370), (39, 42376), (52, 42490), (54, 42511), (56, 42568), (62, 42580),

Gene: Tweety_59 Start: 41367, Stop: 41732, Start Num: 19
Candidate Starts for Tweety_59:
(Start: 19 @41367 has 31 MA's), (26, 41400), (27, 41406), (30, 41418), (Start: 34 @41460 has 1 MA's), (38, 41490), (42, 41514), (43, 41517), (52, 41616), (53, 41622), (57, 41697),

Gene: Utz_44 Start: 35948, Stop: 36310, Start Num: 15
Candidate Starts for Utz_44:
(8, 35798), (9, 35804), (10, 35840), (11, 35879), (Start: 15 @35948 has 25 MA's), (37, 36077), (40, 36101),

Gene: Velveteen_53 Start: 35652, Stop: 35999, Start Num: 21
Candidate Starts for Velveteen_53:
(13, 35625), (16, 35643), (Start: 21 @35652 has 30 MA's), (26, 35682), (28, 35691), (31, 35709), (36, 35763), (41, 35790), (49, 35847), (51, 35877), (52, 35889),

Gene: Velveteen_54 Start: 35996, Stop: 36349, Start Num: 20
Candidate Starts for Velveteen_54:
(12, 35960), (Start: 20 @35996 has 24 MA's), (25, 36026), (26, 36029), (29, 36041), (30, 36047), (36, 36110), (38, 36119), (39, 36125), (52, 36239), (54, 36260), (56, 36317), (62, 36329),

Gene: Westrich_33 Start: 22349, Stop: 21999, Start Num: 18
Candidate Starts for Westrich_33:
(Start: 18 @22349 has 22 MA's), (35, 22250), (58, 22016),

Gene: Whatsapiecost_60 Start: 39457, Stop: 39822, Start Num: 19
Candidate Starts for Whatsapiecost_60:

(Start: 19 @39457 has 31 MA's), (26, 39490), (27, 39496), (30, 39508), (Start: 34 @39550 has 1 MA's), (38, 39580), (42, 39604), (43, 39607), (52, 39706), (53, 39712), (57, 39787), (58, 39790), (60, 39793),

Gene: Wisp_48 Start: 36176, Stop: 36538, Start Num: 15
Candidate Starts for Wisp_48:
(10, 36068), (11, 36107), (Start: 15 @36176 has 25 MA's), (33, 36275), (36, 36302), (37, 36305), (40, 36329), (48, 36374),

Gene: Yoshi_70 Start: 41002, Stop: 41349, Start Num: 21
Candidate Starts for Yoshi_70:
(13, 40975), (16, 40993), (Start: 21 @41002 has 30 MA's), (22, 41014), (26, 41032), (28, 41041), (Start: 34 @41092 has 1 MA's), (36, 41113), (46, 41176), (49, 41197), (51, 41227),

Gene: Zarbodnamra_50 Start: 34890, Stop: 35252, Start Num: 15
Candidate Starts for Zarbodnamra_50:
(9, 34746), (10, 34782), (11, 34821), (Start: 15 @34890 has 25 MA's), (37, 35019), (40, 35043),

Gene: ZiggyZoo_51 Start: 37223, Stop: 37585, Start Num: 15
Candidate Starts for ZiggyZoo_51:
(10, 37115), (11, 37154), (Start: 15 @37223 has 25 MA's), (33, 37322), (36, 37349), (37, 37352), (40, 37376),

Gene: Zilla_49 Start: 34637, Stop: 34999, Start Num: 15
Candidate Starts for Zilla_49:
(9, 34493), (10, 34529), (11, 34568), (Start: 15 @34637 has 25 MA's), (37, 34766), (40, 34790),

Gene: Zixiang_29 Start: 22031, Stop: 21678, Start Num: 18
Candidate Starts for Zixiang_29:
(Start: 18 @22031 has 22 MA's), (35, 21932), (58, 21695),