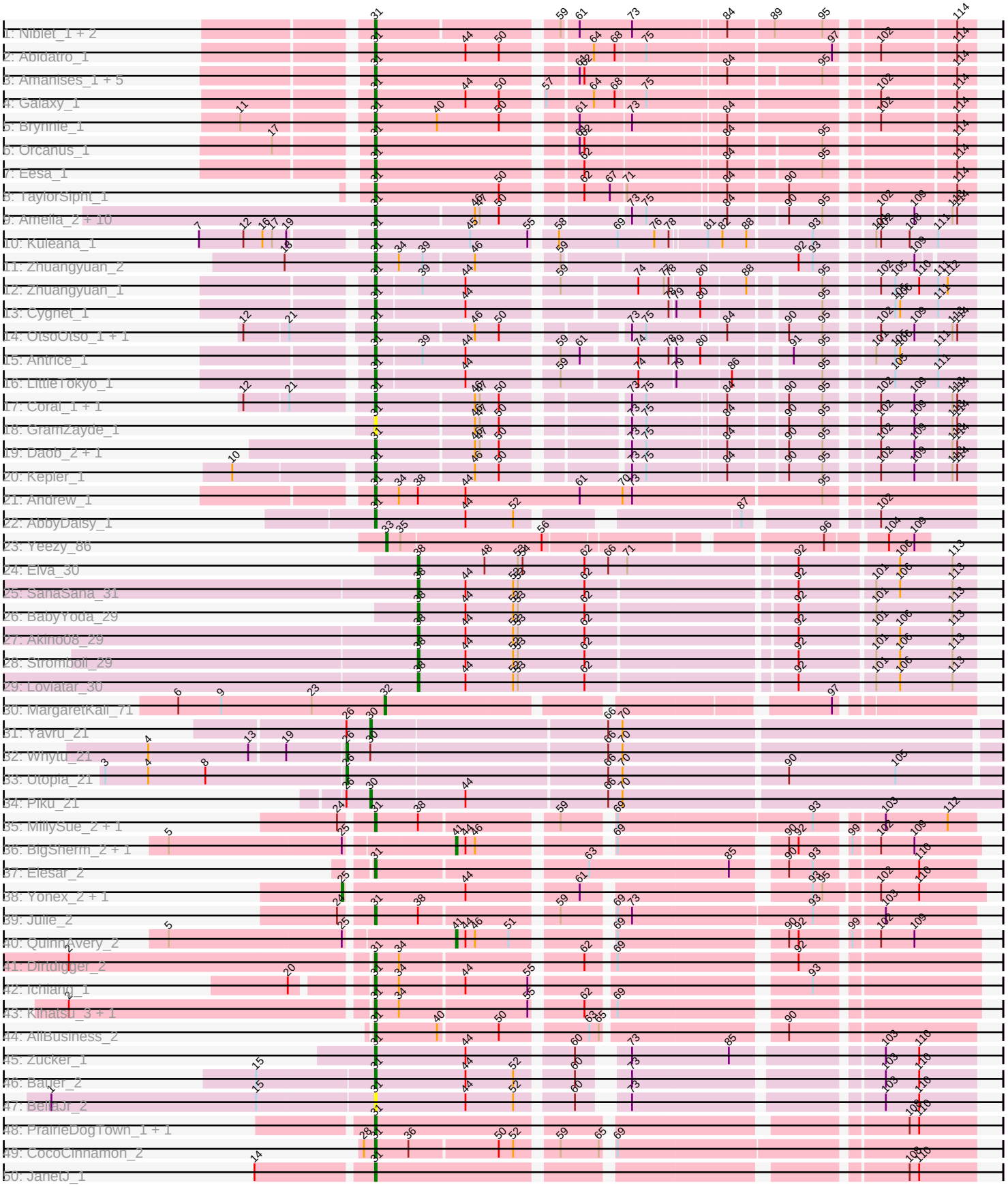
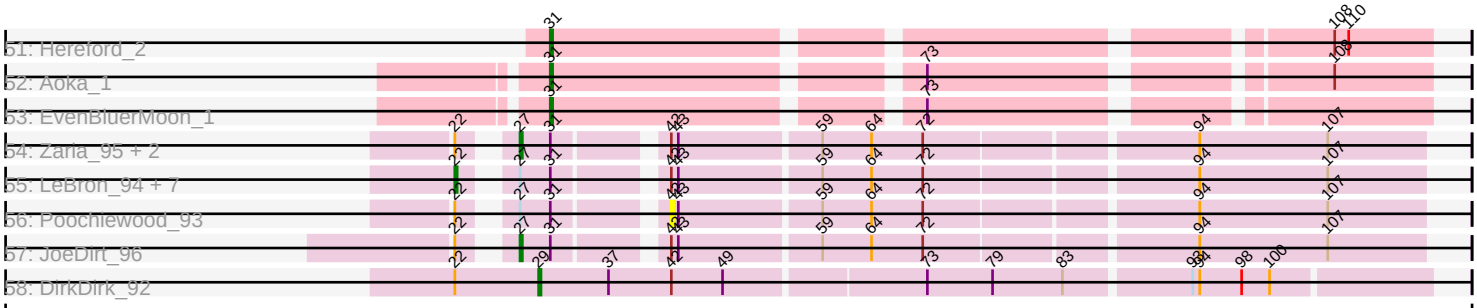
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1: Niblet_1 + 2
2: Abidatro_1
3: Amanises_1 + 5
4: Galaxy_1
5: Brynnie_1
6: Orcanus_1
7: Eesa_1
8: TaylorSipht_1
9: Amelia_2 + 10
10: Kuleana_1
11: Zhuangyuan_2
12: Zhuangyuan_1
13: Cygnet_1
14: OtsoOtso_1 + 1
15: Antrice_1
16: LittleTokyo_1
17: Coral_1 + 1
18: GramZayde_1
19: Daob_2 + 1
20: Kepler_1
21: Andrew_1
22: AbbyDaisy_1
23: Yeezy_86
24: Elva_30
25: SanaSana_31
26: BabyYoda_29
27: Akino08_29
28: Stromboli_29
29: Loviatar_30
30: MargaretKali_71
31: Yavru_21
32: Whytu_21
33: Utopia_21
34: Piku_21
35: MillySue_2 + 1
36: BigSherm_2 + 1
37: Elesar_2
38: Yonex_2 + 1
39: Julie_2
40: QuinnAvery_2
41: Dirtdigger_2
42: Ichiany_1
43: Kinatsu_3 + 1
44: AllBusiness_2
45: Zucker_1
46: Bauer_2
47: Benasr_2
48: PrairieDogTown_1 + 1
49: CocoCinnamon_2
50: JanetJ_1

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51: Hereford_2
52: Aoka_1
53: EvenBluerMoon_1
54: Zaria_95 + 2
55: LeBron_94 + 7
56: Poochiewood_93
57: JoeDirt_96
58: DirkDirk_92

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 347480 Report

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

Pham number 347480 has 92 members, 14 are drafts.

Phages represented in each track:
- Track 1 : Niblet_1, Chicken_1, Zixiang_1
- Track 2 : Abidatro_1
- Track 3 : Amanises_1, Shen_1, Pelletreau_1, Gravel_1, KendraB23_1, Westrich_1
- Track 4 : Galaxy_1
- Track 5 : Brynnie_1
- Track 6 : Orcanus_1
- Track 7 : Eesa_1
- Track 8 : TaylorSipht_1
- Track 9 : Amelia_2, Jerole_2, BadWillHunting_2, Lunar_2, Pineda_2, Melons_2, Cote_2, Bedetta_2, Bibble12_2, HannahPhantana_2, Damocles_2
- Track 10 : Kuleana_1
- Track 11 : Zhuangyuan_2
- Track 12 : Zhuangyuan_1
- Track 13 : Cygnet_1
- Track 14 : OtsoOtso_1, Polka_1
- Track 15 : Antrice_1
- Track 16 : LittleTokyo_1
- Track 17 : Coral_1, Colusalem_1
- Track 18 : GramZayde_1
- Track 19 : Daob_2, PhirstandPhine_2
- Track 20 : Kepler_1
- Track 21 : Andrew_1
- Track 22 : AbbyDaisy_1
- Track 23 : Yeezy_86
- Track 24 : Elva_30
- Track 25 : SanaSana_31
- Track 26 : BabyYoda_29
- Track 27 : Akino08_29
- Track 28 : Stromboli_29
- Track 29 : Loviatar_30
- Track 30 : MargaretKali_71
- Track 31 : Yavru_21
- Track 32 : Whytu_21
- Track 33 : Utopia_21
- Track 34 : Piku_21
- Track 35 : MillySue_2, IsHungry_2
- Track 36 : BigSherm_2, Saintcarr_2

• Track 37 : Elesar_2
• Track 38 : Yonex_2, Ryan_2
• Track 39 : Julie_2
• Track 40 : QuinnAvery_2
• Track 41 : Dirtdigger_2
• Track 42 : Ichiang_1
• Track 43 : Kihatsu_3, ToastyOats_3
• Track 44 : AllBusiness_2
• Track 45 : Zucker_1
• Track 46 : Bauer_2
• Track 47 : BellaJr_2
• Track 48 : PrairieDogTown_1, Morrey_1
• Track 49 : CocoCinnamon_2
• Track 50 : JanetJ_1
• Track 51 : Hereford_2
• Track 52 : Aoka_1
• Track 53 : EvenBluerMoon_1
• Track 54 : Zaria_95, Appletree2_94, Wamburgrxpress_94
• Track 55 : LeBron_94, Rose5_96, Tyson_96, CicholasNage_92, Halena_92, MAckerman_93, OhShagHennessy_91, Calm_96
• Track 56 : Poochiewood_93
• Track 57 : JoeDirt_96
• Track 58 : DirkDirk_92

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

The start number called the most often in the published annotations is 31, it was called in 50 of the 78 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• AbbyDaisy_1, Abidatro_1, AllBusiness_2, Amanises_1, Amelia_2, Andrew_1, Antrice_1, Aoka_1, BadWillHunting_2, Bauer_2, Bedetta_2, BellaJr_2, Bibble12_2, Brynnie_1, Chicken_1, CocoCinnamon_2, Colusalem_1, Coral_1, Cote_2, Cygnet_1, Damocles_2, Daob_2, Dirtdigger_2, Eesa_1, Elesar_2, EvenBluerMoon_1, Galaxy_1, GramZayde_1, Gravel_1, HannahPhantana_2, Hereford_2, Ichiang_1, IsHungry_2, JanetJ_1, Jerole_2, Julie_2, KendraB23_1, Kepler_1, Kihatsu_3, Kuleana_1, LittleTokyo_1, Lunar_2, Melons_2, MillySue_2, Morrey_1, Niblet_1, Orcanus_1, OtsoOtso_1, Pelletreau_1, PhirstandPhine_2, Pineda_2, Polka_1, PrairieDogTown_1, Shen_1, TaylorSipht_1, ToastyOats_3, Westrich_1, Zhuangyuan_1, Zhuangyuan_2, Zixiang_1, Zucker_1,

Genes that have the "Most Annotated" start but do not call it:
• Appletree2_94, Calm_96, CicholasNage_92, Halena_92, JoeDirt_96, LeBron_94, MAckerman_93, OhShagHennessy_91, Poochiewood_93, Rose5_96, Tyson_96, Wamburgrxpress_94, Zaria_95,

Genes that do not have the "Most Annotated" start:
• Akino08_29, BabyYoda_29, BigSherm_2, DirkDirk_92, Elva_30, Loviatar_30, MargaretKali_71, Piku_21, QuinnAvery_2, Ryan_2, Saintcarr_2, SanaSana_31, Stromboli_29, Utopia_21, Whytu_21, Yavru_21, Yeezy_86, Yonex_2,

Summary by start number:

Start 22:
• Found in 14 of 92 (15.2%) of genes in pham
• Manual Annotations of this start: 8 of 78
• Called 57.1% of time when present
• Phage (with cluster) where this start called: Calm_96 (L1), CicholasNage_92 (L1), Halena_92 (L1), LeBron_94 (L1), MAckerman_93 (L1), OhShagHennessy_91 (L1), Rose5_96 (L1), Tyson_96 (L1),

Start 25:
• Found in 5 of 92 (5.4%) of genes in pham
• Manual Annotations of this start: 1 of 78
• Called 40.0% of time when present
• Phage (with cluster) where this start called: Ryan_2 (FF), Yonex_2 (FF),

Start 26:
• Found in 4 of 92 (4.3%) of genes in pham
• Manual Annotations of this start: 2 of 78
• Called 50.0% of time when present
• Phage (with cluster) where this start called: Utopia_21 (FE), Whytu_21 (FE),

Start 27:
• Found in 13 of 92 (14.1%) of genes in pham
• Manual Annotations of this start: 4 of 78
• Called 30.8% of time when present
• Phage (with cluster) where this start called: Appletree2_94 (L1), JoeDirt_96 (L1), Wamburgrxpress_94 (L1), Zaria_95 (L1),

Start 29:
• Found in 1 of 92 (1.1%) of genes in pham
• Manual Annotations of this start: 1 of 78
• Called 100.0% of time when present
• Phage (with cluster) where this start called: DirkDirk_92 (L1),

Start 30:
• Found in 3 of 92 (3.3%) of genes in pham
• Manual Annotations of this start: 2 of 78
• Called 66.7% of time when present
• Phage (with cluster) where this start called: Piku_21 (FE), Yavru_21 (FE),

Start 31:
• Found in 74 of 92 (80.4%) of genes in pham
• Manual Annotations of this start: 50 of 78
• Called 82.4% of time when present
• Phage (with cluster) where this start called: AbbyDaisy_1 (AY), Abidatro_1 (AS1), AllBusiness_2 (FF), Amanises_1 (AS1), Amelia_2 (AS2), Andrew_1 (AS3), Antrice_1 (AS2), Aoka_1 (FO), BadWillHunting_2 (AS2), Bauer_2 (FN), Bedetta_2 (AS2), BellaJr_2 (FN), Bibble12_2 (AS2), Brynnie_1 (AS1), Chicken_1 (AS1), CocoCinnamon_2 (FO), Colusalem_1 (AS2), Coral_1 (AS2), Cote_2 (AS2), Cygnet_1 (AS2), Damocles_2 (AS2), Daob_2 (AS2), Dirtdigger_2 (FF), Eesa_1 (AS1), Elesar_2 (FF), EvenBluerMoon_1 (FO), Galaxy_1 (AS1), GramZayde_1 (AS2), Gravel_1

(AS1), HannahPhantana_2 (AS2), Hereford_2 (FO), Ichiang_1 (FF), IsHungry_2 (FF), JanetJ_1 (FO), Jerole_2 (AS2), Julie_2 (FF), KendraB23_1 (AS1), Kepler_1 (AS2), Kihatsu_3 (FF), Kuleana_1 (AS2), LittleTokyo_1 (AS2), Lunar_2 (AS2), Melons_2 (AS2), MillySue_2 (FF), Morrey_1 (FO), Niblet_1 (AS1), Orcanus_1 (AS1), OtsoOtso_1 (AS2), Pelletreau_1 (AS1), PhirstandPhine_2 (AS2), Pineda_2 (AS2), Polka_1 (AS2), PrairieDogTown_1 (FO), Shen_1 (AS1), TaylorSipht_1 (AS1), ToastyOats_3 (FF), Westrich_1 (AS1), Zhuangyuan_1 (AS2), Zhuangyuan_2 (AS2), Zixiang_1 (AS1), Zucker_1 (FN),

Start 32:
• Found in 1 of 92 (1.1%) of genes in pham
• Manual Annotations of this start: 1 of 78
• Called 100.0% of time when present
• Phage (with cluster) where this start called: MargaretKali_71 (FB),

Start 33:
• Found in 1 of 92 (1.1%) of genes in pham
• Manual Annotations of this start: 1 of 78
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Yeezy_86 (CZ3),

Start 38:
• Found in 10 of 92 (10.9%) of genes in pham
• Manual Annotations of this start: 6 of 78
• Called 60.0% of time when present
• Phage (with cluster) where this start called: Akino08_29 (EB), BabyYoda_29 (EB), Elva_30 (EB), Loviatar_30 (EB), SanaSana_31 (EB), Stromboli_29 (EB),

Start 41:
• Found in 3 of 92 (3.3%) of genes in pham
• Manual Annotations of this start: 2 of 78
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BigSherm_2 (FF), QuinnAvery_2 (FF), Saintcarr_2 (FF),

Start 42:
• Found in 14 of 92 (15.2%) of genes in pham
• No Manual Annotations of this start.
• Called 7.1% of time when present
• Phage (with cluster) where this start called: Poochiewood_93 (L1),

Summary by clusters:

There are 12 clusters represented in this pham: AS3, AS2, AS1, CZ3, EB, FB, FE, FF, L1, AY, FN, FO,

Info for manual annotations of cluster AS1:
•Start number 31 was manually annotated 11 times for cluster AS1.

Info for manual annotations of cluster AS2:
•Start number 31 was manually annotated 20 times for cluster AS2.

Info for manual annotations of cluster AS3:

•Start number 31 was manually annotated 1 time for cluster AS3.

Info for manual annotations of cluster AY:
•Start number 31 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster CZ3:
•Start number 33 was manually annotated 1 time for cluster CZ3.

Info for manual annotations of cluster EB:
•Start number 38 was manually annotated 6 times for cluster EB.

Info for manual annotations of cluster FB:
•Start number 32 was manually annotated 1 time for cluster FB.

Info for manual annotations of cluster FE:
•Start number 26 was manually annotated 2 times for cluster FE.
•Start number 30 was manually annotated 2 times for cluster FE.

Info for manual annotations of cluster FF:
•Start number 25 was manually annotated 1 time for cluster FF.
•Start number 31 was manually annotated 9 times for cluster FF.
•Start number 41 was manually annotated 2 times for cluster FF.

Info for manual annotations of cluster FN:
•Start number 31 was manually annotated 2 times for cluster FN.

Info for manual annotations of cluster FO:
•Start number 31 was manually annotated 6 times for cluster FO.

Info for manual annotations of cluster L1:
•Start number 22 was manually annotated 8 times for cluster L1.
•Start number 27 was manually annotated 4 times for cluster L1.
•Start number 29 was manually annotated 1 time for cluster L1.

Gene Information:

Gene: AbbyDaisy_1 Start: 69, Stop: 401, Start Num: 31
Candidate Starts for AbbyDaisy_1:
(Start: 31 @69 has 50 MA's), (44, 126), (52, 156), (87, 273), (102, 342),

Gene: Abidatro_1 Start: 98, Stop: 442, Start Num: 31
Candidate Starts for Abidatro_1:
(Start: 31 @98 has 50 MA's), (44, 155), (50, 176), (64, 224), (68, 236), (75, 254), (97, 365), (102, 386), (114, 431),

Gene: Akino08_29 Start: 23558, Stop: 23893, Start Num: 38
Candidate Starts for Akino08_29:
(Start: 38 @23558 has 6 MA's), (44, 23588), (52, 23618), (53, 23621), (62, 23663), (92, 23786), (101, 23831), (106, 23846), (113, 23879),

Gene: AllBusiness_2 Start: 425, Stop: 763, Start Num: 31

Candidate Starts for AllBusiness_2:
(Start: 31 @425 has 50 MA's), (40, 464), (50, 500), (63, 548), (65, 554), (90, 656),

Gene: Amanises_1 Start: 97, Stop: 435, Start Num: 31
Candidate Starts for Amanises_1:
(Start: 31 @97 has 50 MA's), (61, 214), (62, 217), (84, 298), (95, 352), (114, 424),

Gene: Amelia_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for Amelia_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: Andrew_1 Start: 98, Stop: 463, Start Num: 31
Candidate Starts for Andrew_1:
(Start: 31 @98 has 50 MA's), (34, 113), (Start: 38 @125 has 6 MA's), (44, 155), (61, 227), (70, 254), (73, 260), (95, 377),

Gene: Antrice_1 Start: 92, Stop: 430, Start Num: 31
Candidate Starts for Antrice_1:
(Start: 31 @92 has 50 MA's), (39, 119), (44, 146), (59, 197), (61, 209), (74, 242), (78, 260), (79, 263), (80, 278), (91, 326), (95, 344), (101, 368), (105, 380), (106, 383), (111, 407),

Gene: Aoka_1 Start: 69, Stop: 407, Start Num: 31
Candidate Starts for Aoka_1:
(Start: 31 @69 has 50 MA's), (73, 213), (108, 366),

Gene: Appletree2_94 Start: 59026, Stop: 59382, Start Num: 27
Candidate Starts for Appletree2_94:
(Start: 22 @59011 has 8 MA's), (Start: 27 @59026 has 4 MA's), (Start: 31 @59038 has 50 MA's), (42, 59077), (43, 59080), (59, 59137), (64, 59158), (72, 59179), (94, 59287), (107, 59341),

Gene: BabyYoda_29 Start: 22760, Stop: 23095, Start Num: 38
Candidate Starts for BabyYoda_29:
(Start: 38 @22760 has 6 MA's), (44, 22790), (52, 22820), (53, 22823), (62, 22865), (92, 22988), (101, 23033), (113, 23081),

Gene: BadWillHunting_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for BadWillHunting_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: Bauer_2 Start: 736, Stop: 1071, Start Num: 31
Candidate Starts for Bauer_2:
(15, 664), (Start: 31 @736 has 50 MA's), (44, 793), (52, 823), (60, 853), (73, 874), (103, 1015), (110, 1036),

Gene: Bedetta_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for Bedetta_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: BellaJr_2 Start: 735, Stop: 1070, Start Num: 31
Candidate Starts for BellaJr_2:

(1, 534), (15, 663), (Start: 31 @735 has 50 MA's), (44, 792), (52, 822), (60, 852), (73, 873), (103, 1014), (110, 1035),

Gene: Bibble12_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for Bibble12_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: BigSherm_2 Start: 377, Stop: 667, Start Num: 41
Candidate Starts for BigSherm_2:
(5, 206), (Start: 25 @314 has 1 MA's), (Start: 41 @377 has 2 MA's), (44, 383), (46, 389), (69, 461), (90, 557), (92, 563), (99, 590), (102, 605), (109, 626),

Gene: Brynnie_1 Start: 98, Stop: 439, Start Num: 31
Candidate Starts for Brynnie_1:
(11, 26), (Start: 31 @98 has 50 MA's), (40, 137), (50, 176), (61, 215), (73, 245), (84, 299), (102, 383), (114, 428),

Gene: Calm_96 Start: 59262, Stop: 59633, Start Num: 22
Candidate Starts for Calm_96:
(Start: 22 @59262 has 8 MA's), (Start: 27 @59277 has 4 MA's), (Start: 31 @59289 has 50 MA's), (42, 59328), (43, 59331), (59, 59388), (64, 59409), (72, 59430), (94, 59538), (107, 59592),

Gene: Chicken_1 Start: 98, Stop: 439, Start Num: 31
Candidate Starts for Chicken_1:
(Start: 31 @98 has 50 MA's), (59, 203), (61, 212), (73, 245), (84, 299), (89, 326), (95, 356), (114, 428),

Gene: CicholasNage_92 Start: 58915, Stop: 59286, Start Num: 22
Candidate Starts for CicholasNage_92:
(Start: 22 @58915 has 8 MA's), (Start: 27 @58930 has 4 MA's), (Start: 31 @58942 has 50 MA's), (42, 58981), (43, 58984), (59, 59041), (64, 59062), (72, 59083), (94, 59191), (107, 59245),

Gene: CocoCinnamon_2 Start: 287, Stop: 631, Start Num: 31
Candidate Starts for CocoCinnamon_2:
(28, 281), (Start: 31 @287 has 50 MA's), (36, 308), (50, 362), (52, 371), (59, 392), (65, 416), (69, 419),

Gene: Colusalem_1 Start: 100, Stop: 432, Start Num: 31
Candidate Starts for Colusalem_1:
(12, 28), (21, 55), (Start: 31 @100 has 50 MA's), (46, 160), (47, 163), (50, 175), (73, 241), (75, 250), (84, 295), (90, 328), (95, 349), (102, 376), (109, 397), (113, 418), (114, 421),

Gene: Coral_1 Start: 100, Stop: 432, Start Num: 31
Candidate Starts for Coral_1:
(12, 28), (21, 55), (Start: 31 @100 has 50 MA's), (46, 160), (47, 163), (50, 175), (73, 241), (75, 250), (84, 295), (90, 328), (95, 349), (102, 376), (109, 397), (113, 418), (114, 421),

Gene: Cote_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for Cote_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: Cygnet_1 Start: 92, Stop: 430, Start Num: 31
Candidate Starts for Cygnet_1:

(Start: 31 @92 has 50 MA's), (44, 146), (78, 260), (79, 263), (80, 278), (95, 344), (105, 380), (106, 383), (111, 407),

Gene: Damocles_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for Damocles_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: Daob_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for Daob_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: DirkDirk_92 Start: 58630, Stop: 58995, Start Num: 29
Candidate Starts for DirkDirk_92:
(Start: 22 @58594 has 8 MA's), (Start: 29 @58630 has 1 MA's), (37, 58660), (42, 58687), (49, 58708), (73, 58789), (79, 58816), (83, 58846), (93, 58897), (94, 58900), (98, 58918), (100, 58930),

Gene: Dirtdigger_2 Start: 468, Stop: 809, Start Num: 31
Candidate Starts for Dirtdigger_2:
(2, 285), (Start: 31 @468 has 50 MA's), (34, 483), (62, 588), (69, 603), (92, 705),

Gene: Eesa_1 Start: 97, Stop: 435, Start Num: 31
Candidate Starts for Eesa_1:
(Start: 31 @97 has 50 MA's), (62, 217), (84, 298), (95, 352), (114, 424),

Gene: Elesar_2 Start: 346, Stop: 690, Start Num: 31
Candidate Starts for Elesar_2:
(Start: 31 @346 has 50 MA's), (63, 469), (85, 556), (90, 583), (93, 598), (110, 655),

Gene: Elva_30 Start: 22711, Stop: 23049, Start Num: 38
Candidate Starts for Elva_30:
(Start: 38 @22711 has 6 MA's), (48, 22753), (53, 22774), (54, 22777), (62, 22816), (66, 22831), (71, 22843), (92, 22942), (106, 23002), (113, 23035),

Gene: EvenBluerMoon_1 Start: 69, Stop: 407, Start Num: 31
Candidate Starts for EvenBluerMoon_1:
(Start: 31 @69 has 50 MA's), (73, 213),

Gene: Galaxy_1 Start: 98, Stop: 442, Start Num: 31
Candidate Starts for Galaxy_1:
(Start: 31 @98 has 50 MA's), (44, 155), (50, 176), (57, 197), (64, 224), (68, 236), (75, 254), (102, 386), (114, 431),

Gene: GramZayde_1 Start: 101, Stop: 433, Start Num: 31
Candidate Starts for GramZayde_1:
(Start: 31 @101 has 50 MA's), (46, 161), (47, 164), (50, 176), (73, 242), (75, 251), (84, 296), (90, 329), (95, 350), (102, 377), (109, 398), (113, 419), (114, 422),

Gene: Gravel_1 Start: 97, Stop: 435, Start Num: 31
Candidate Starts for Gravel_1:
(Start: 31 @97 has 50 MA's), (61, 214), (62, 217), (84, 298), (95, 352), (114, 424),

Gene: Halena_92 Start: 58178, Stop: 58549, Start Num: 22
Candidate Starts for Halena_92:
(Start: 22 @58178 has 8 MA's), (Start: 27 @58193 has 4 MA's), (Start: 31 @58205 has 50 MA's), (42, 58244), (43, 58247), (59, 58304), (64, 58325), (72, 58346), (94, 58454), (107, 58508),

Gene: HannahPhantana_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for HannahPhantana_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: Hereford_2 Start: 250, Stop: 588, Start Num: 31
Candidate Starts for Hereford_2:
(Start: 31 @250 has 50 MA's), (108, 547), (110, 553),

Gene: Ichiang_1 Start: 90, Stop: 431, Start Num: 31
Candidate Starts for Ichiang_1:
(20, 51), (Start: 31 @90 has 50 MA's), (34, 105), (44, 144), (55, 183), (93, 336),

Gene: IsHungry_2 Start: 328, Stop: 672, Start Num: 31
Candidate Starts for IsHungry_2:
(24, 310), (Start: 31 @328 has 50 MA's), (Start: 38 @355 has 6 MA's), (59, 433), (69, 460), (93, 580), (103, 616), (112, 655),

Gene: JanetJ_1 Start: 70, Stop: 408, Start Num: 31
Candidate Starts for JanetJ_1:
(14, 1), (Start: 31 @70 has 50 MA's), (108, 367), (110, 373),

Gene: Jerole_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for Jerole_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: JoeDirt_96 Start: 59868, Stop: 60224, Start Num: 27
Candidate Starts for JoeDirt_96:
(Start: 22 @59853 has 8 MA's), (Start: 27 @59868 has 4 MA's), (Start: 31 @59880 has 50 MA's), (42, 59919), (43, 59922), (59, 59979), (64, 60000), (72, 60021), (94, 60129), (107, 60183),

Gene: Julie_2 Start: 328, Stop: 672, Start Num: 31
Candidate Starts for Julie_2:
(24, 310), (Start: 31 @328 has 50 MA's), (Start: 38 @355 has 6 MA's), (59, 433), (69, 460), (73, 469), (93, 580), (103, 616),

Gene: KendraB23_1 Start: 97, Stop: 435, Start Num: 31
Candidate Starts for KendraB23_1:
(Start: 31 @97 has 50 MA's), (61, 214), (62, 217), (84, 298), (95, 352), (114, 424),

Gene: Kepler_1 Start: 99, Stop: 431, Start Num: 31
Candidate Starts for Kepler_1:
(10, 21), (Start: 31 @99 has 50 MA's), (46, 159), (50, 174), (73, 240), (75, 249), (84, 294), (90, 327), (95, 348), (102, 375), (109, 396), (113, 417), (114, 420),

Gene: Kihatsu_3 Start: 685, Stop: 1026, Start Num: 31
Candidate Starts for Kihatsu_3:

(2, 502), (Start: 31 @685 has 50 MA's), (34, 700), (55, 778), (62, 805), (69, 820),

Gene: Kuleana_1 Start: 97, Stop: 444, Start Num: 31
Candidate Starts for Kuleana_1:
(7, 1), (12, 28), (16, 40), (17, 46), (19, 55), (Start: 31 @97 has 50 MA's), (45, 157), (55, 190), (58, 202), (69, 238), (76, 259), (78, 268), (81, 289), (82, 298), (88, 313), (93, 352), (101, 382), (102, 385), (108, 403), (111, 421),

Gene: LeBron_94 Start: 58485, Stop: 58856, Start Num: 22
Candidate Starts for LeBron_94:
(Start: 22 @58485 has 8 MA's), (Start: 27 @58500 has 4 MA's), (Start: 31 @58512 has 50 MA's), (42, 58551), (43, 58554), (59, 58611), (64, 58632), (72, 58653), (94, 58761), (107, 58815),

Gene: LittleTokyo_1 Start: 92, Stop: 430, Start Num: 31
Candidate Starts for LittleTokyo_1:
(Start: 31 @92 has 50 MA's), (44, 146), (59, 197), (74, 242), (79, 263), (86, 296), (95, 344), (105, 380), (111, 407),

Gene: Loviatar_30 Start: 23573, Stop: 23908, Start Num: 38
Candidate Starts for Loviatar_30:
(Start: 38 @23573 has 6 MA's), (44, 23603), (52, 23633), (53, 23636), (62, 23678), (92, 23801), (101, 23846), (106, 23861), (113, 23894),

Gene: Lunar_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for Lunar_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: MAckerman_93 Start: 58171, Stop: 58542, Start Num: 22
Candidate Starts for MAckerman_93:
(Start: 22 @58171 has 8 MA's), (Start: 27 @58186 has 4 MA's), (Start: 31 @58198 has 50 MA's), (42, 58237), (43, 58240), (59, 58297), (64, 58318), (72, 58339), (94, 58447), (107, 58501),

Gene: MargaretKali_71 Start: 38297, Stop: 38623, Start Num: 32
Candidate Starts for MargaretKali_71:
(6, 38168), (9, 38195), (23, 38252), (Start: 32 @38297 has 1 MA's), (97, 38546),

Gene: Melons_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for Melons_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: MillySue_2 Start: 328, Stop: 672, Start Num: 31
Candidate Starts for MillySue_2:
(24, 310), (Start: 31 @328 has 50 MA's), (Start: 38 @355 has 6 MA's), (59, 433), (69, 460), (93, 580), (103, 616), (112, 655),

Gene: Morrey_1 Start: 71, Stop: 409, Start Num: 31
Candidate Starts for Morrey_1:
(Start: 31 @71 has 50 MA's), (108, 368), (110, 374),

Gene: Niblet_1 Start: 98, Stop: 439, Start Num: 31
Candidate Starts for Niblet_1:

(Start: 31 @98 has 50 MA's), (59, 203), (61, 212), (73, 245), (84, 299), (89, 326), (95, 356), (114, 428),

Gene: OhShagHennessy_91 Start: 58428, Stop: 58799, Start Num: 22
Candidate Starts for OhShagHennessy_91:
(Start: 22 @58428 has 8 MA's), (Start: 27 @58443 has 4 MA's), (Start: 31 @58455 has 50 MA's), (42, 58494), (43, 58497), (59, 58554), (64, 58575), (72, 58596), (94, 58704), (107, 58758),

Gene: Orcanus_1 Start: 97, Stop: 435, Start Num: 31
Candidate Starts for Orcanus_1:
(17, 46), (Start: 31 @97 has 50 MA's), (61, 214), (62, 217), (84, 298), (95, 352), (114, 424),

Gene: OtsoOtso_1 Start: 100, Stop: 432, Start Num: 31
Candidate Starts for OtsoOtso_1:
(12, 28), (21, 55), (Start: 31 @100 has 50 MA's), (46, 160), (50, 175), (73, 241), (75, 250), (84, 295), (90, 328), (95, 349), (102, 376), (109, 397), (113, 418), (114, 421),

Gene: Pelletreau_1 Start: 97, Stop: 435, Start Num: 31
Candidate Starts for Pelletreau_1:
(Start: 31 @97 has 50 MA's), (61, 214), (62, 217), (84, 298), (95, 352), (114, 424),

Gene: PhirstandPhine_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for PhirstandPhine_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: Piku_21 Start: 15071, Stop: 15454, Start Num: 30
Candidate Starts for Piku_21:
(Start: 26 @15056 has 2 MA's), (Start: 30 @15071 has 2 MA's), (44, 15128), (66, 15215), (70, 15224),

Gene: Pineda_2 Start: 264, Stop: 596, Start Num: 31
Candidate Starts for Pineda_2:
(Start: 31 @264 has 50 MA's), (46, 324), (47, 327), (50, 339), (73, 405), (75, 414), (84, 459), (90, 492), (95, 513), (102, 540), (109, 561), (113, 582), (114, 585),

Gene: Polka_1 Start: 100, Stop: 432, Start Num: 31
Candidate Starts for Polka_1:
(12, 28), (21, 55), (Start: 31 @100 has 50 MA's), (46, 160), (50, 175), (73, 241), (75, 250), (84, 295), (90, 328), (95, 349), (102, 376), (109, 397), (113, 418), (114, 421),

Gene: Poochiewood_93 Start: 59891, Stop: 60196, Start Num: 42
Candidate Starts for Poochiewood_93:
(Start: 22 @59825 has 8 MA's), (Start: 27 @59840 has 4 MA's), (Start: 31 @59852 has 50 MA's), (42, 59891), (43, 59894), (59, 59951), (64, 59972), (72, 59993), (94, 60101), (107, 60155),

Gene: PrairieDogTown_1 Start: 71, Stop: 409, Start Num: 31
Candidate Starts for PrairieDogTown_1:
(Start: 31 @71 has 50 MA's), (108, 368), (110, 374),

Gene: QuinnAvery_2 Start: 377, Stop: 667, Start Num: 41
Candidate Starts for QuinnAvery_2:
(5, 206), (Start: 25 @314 has 1 MA's), (Start: 41 @377 has 2 MA's), (44, 383), (46, 389), (51, 410), (69, 461), (90, 557), (92, 563), (99, 590), (102, 605), (109, 626),

Gene: Rose5_96 Start: 59695, Stop: 60066, Start Num: 22
Candidate Starts for Rose5_96:
(Start: 22 @59695 has 8 MA's), (Start: 27 @59710 has 4 MA's), (Start: 31 @59722 has 50 MA's), (42, 59761), (43, 59764), (59, 59821), (64, 59842), (72, 59863), (94, 59971), (107, 60025),

Gene: Ryan_2 Start: 306, Stop: 668, Start Num: 25
Candidate Starts for Ryan_2:
(Start: 25 @306 has 1 MA's), (44, 378), (61, 441), (93, 567), (95, 573), (102, 603), (110, 627),

Gene: Saintcarr_2 Start: 377, Stop: 667, Start Num: 41
Candidate Starts for Saintcarr_2:
(5, 206), (Start: 25 @314 has 1 MA's), (Start: 41 @377 has 2 MA's), (44, 383), (46, 389), (69, 461), (90, 557), (92, 563), (99, 590), (102, 605), (109, 626),

Gene: SanaSana_31 Start: 23223, Stop: 23558, Start Num: 38
Candidate Starts for SanaSana_31:
(Start: 38 @23223 has 6 MA's), (44, 23253), (52, 23283), (53, 23286), (62, 23328), (92, 23451), (101, 23496), (106, 23511), (113, 23544),

Gene: Shen_1 Start: 97, Stop: 435, Start Num: 31
Candidate Starts for Shen_1:
(Start: 31 @97 has 50 MA's), (61, 214), (62, 217), (84, 298), (95, 352), (114, 424),

Gene: Stromboli_29 Start: 22757, Stop: 23092, Start Num: 38
Candidate Starts for Stromboli_29:
(Start: 38 @22757 has 6 MA's), (44, 22787), (52, 22817), (53, 22820), (62, 22862), (92, 22985), (101, 23030), (106, 23045), (113, 23078),

Gene: TaylorSipht_1 Start: 118, Stop: 459, Start Num: 31
Candidate Starts for TaylorSipht_1:
(Start: 31 @118 has 50 MA's), (50, 196), (62, 238), (67, 253), (71, 262), (84, 319), (90, 355), (114, 448),

Gene: ToastyOats_3 Start: 685, Stop: 1026, Start Num: 31
Candidate Starts for ToastyOats_3:
(2, 502), (Start: 31 @685 has 50 MA's), (34, 700), (55, 778), (62, 805), (69, 820),

Gene: Tyson_96 Start: 59588, Stop: 59959, Start Num: 22
Candidate Starts for Tyson_96:
(Start: 22 @59588 has 8 MA's), (Start: 27 @59603 has 4 MA's), (Start: 31 @59615 has 50 MA's), (42, 59654), (43, 59657), (59, 59714), (64, 59735), (72, 59756), (94, 59864), (107, 59918),

Gene: Utopia_21 Start: 14585, Stop: 14977, Start Num: 26
Candidate Starts for Utopia_21:
(3, 14435), (4, 14462), (8, 14498), (Start: 26 @14585 has 2 MA's), (66, 14744), (70, 14753), (90, 14852), (105, 14918),

Gene: Wamburgrxpress_94 Start: 59327, Stop: 59683, Start Num: 27
Candidate Starts for Wamburgrxpress_94:
(Start: 22 @59312 has 8 MA's), (Start: 27 @59327 has 4 MA's), (Start: 31 @59339 has 50 MA's), (42, 59378), (43, 59381), (59, 59438), (64, 59459), (72, 59480), (94, 59588), (107, 59642),

Gene: Westrich_1 Start: 97, Stop: 435, Start Num: 31

Candidate Starts for Westrich_1:
(Start: 31 @97 has 50 MA's), (61, 214), (62, 217), (84, 298), (95, 352), (114, 424),

Gene: Whytu_21 Start: 14626, Stop: 15018, Start Num: 26
Candidate Starts for Whytu_21:
(4, 14506), (13, 14569), (19, 14590), (Start: 26 @14626 has 2 MA's), (Start: 30 @14641 has 2 MA's), (66, 14785), (70, 14794),

Gene: Yavru_21 Start: 14451, Stop: 14828, Start Num: 30
Candidate Starts for Yavru_21:
(Start: 26 @14436 has 2 MA's), (Start: 30 @14451 has 2 MA's), (66, 14595), (70, 14604),

Gene: Yeezy_86 Start: 51123, Stop: 51428, Start Num: 33
Candidate Starts for Yeezy_86:
(Start: 33 @51123 has 1 MA's), (35, 51132), (56, 51219), (96, 51372), (104, 51405), (109, 51420),

Gene: Yonex_2 Start: 306, Stop: 668, Start Num: 25
Candidate Starts for Yonex_2:
(Start: 25 @306 has 1 MA's), (44, 378), (61, 441), (93, 567), (95, 573), (102, 603), (110, 627),

Gene: Zaria_95 Start: 58742, Stop: 59098, Start Num: 27
Candidate Starts for Zaria_95:
(Start: 22 @58727 has 8 MA's), (Start: 27 @58742 has 4 MA's), (Start: 31 @58754 has 50 MA's), (42, 58793), (43, 58796), (59, 58853), (64, 58874), (72, 58895), (94, 59003), (107, 59057),

Gene: Zhuangyuan_2 Start: 439, Stop: 780, Start Num: 31
Candidate Starts for Zhuangyuan_2:
(18, 382), (Start: 31 @439 has 50 MA's), (34, 454), (39, 469), (46, 499), (59, 544), (92, 685), (93, 694), (109, 748),

Gene: Zhuangyuan_1 Start: 92, Stop: 430, Start Num: 31
Candidate Starts for Zhuangyuan_1:
(Start: 31 @92 has 50 MA's), (39, 119), (44, 146), (59, 197), (74, 242), (77, 257), (78, 260), (80, 278), (88, 305), (95, 344), (102, 371), (105, 380), (110, 395), (111, 407), (112, 413),

Gene: Zixiang_1 Start: 98, Stop: 439, Start Num: 31
Candidate Starts for Zixiang_1:
(Start: 31 @98 has 50 MA's), (59, 203), (61, 212), (73, 245), (84, 299), (89, 326), (95, 356), (114, 428),

Gene: Zucker_1 Start: 39, Stop: 374, Start Num: 31
Candidate Starts for Zucker_1:
(Start: 31 @39 has 50 MA's), (44, 96), (60, 156), (73, 177), (85, 237), (103, 318), (110, 339),