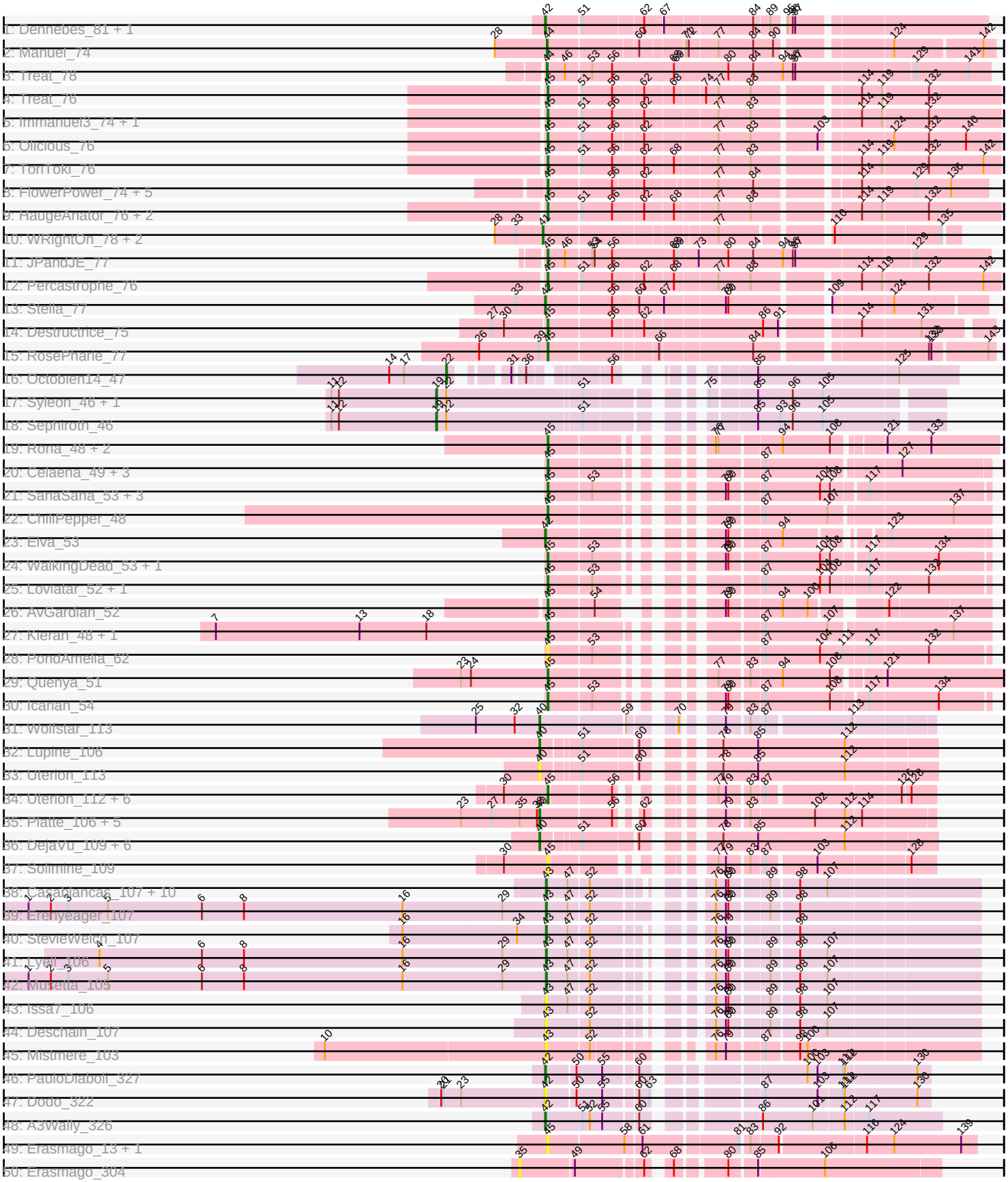
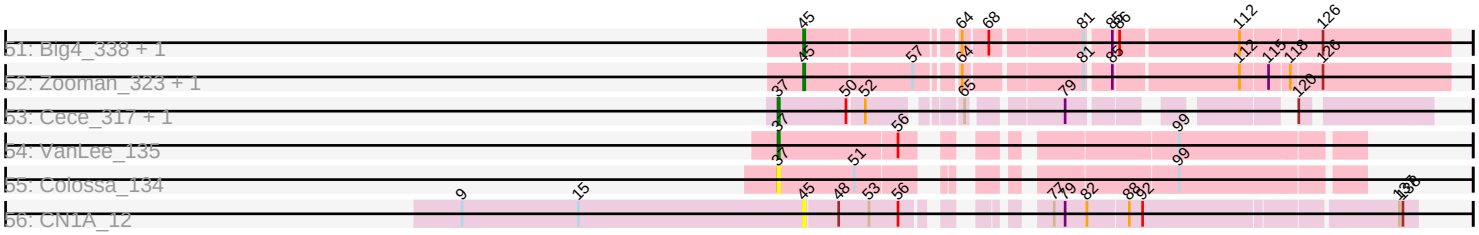
Pham 291000


1: Dennebes_81 + 1
2: Manuel_74
3: Treat_78
4: Treat_76
5: Immanuel3_74 + 1
6: Olicious_76
7: TomToki_76
8: FlowerPower_74 + 5
9: HaugeAnator_76 + 2
10: WRightOn_78 + 2
11: JPandJE_77
12: Percastrophe_76
13: Stella_77
14: Destructrice_75
15: RosePharie_77
16: Octobien14_47
17: Syleon_46 + 1
18: Sephiroth_46
19: Rona_48 + 2
20: Celaena_49 + 3
21: SanaSana_53 + 3
22: ChiliPepper_48
23: Elva_53
24: WalkingDead_53 + 1
25: Loviatar_52 + 1
26: AvGardian_52
27: Kieran_48 + 1
28: PondAmelia_62
29: Quenya_51
30: Icarian_54
31: Wolfstar_113
32: Lupine_106
33: Uterion_113
34: Uterion_112 + 6
35: Platte_106 + 5
36: DejaVu_109 + 6
37: Solimine_109
38: Casablancas_107 + 10
39: Erchyeager_107
40: StevieWelch_107
41: Cyell_106
42: Musetta_105
43: Issa7_106
44: Deschain_107
45: Mistmere_103
46: PauloDiaboli_327
47: Dodo_322
48: A3Wally_326
49: Erasmago_13 + 1
50: Erasmago_304

Pham 291000


51: Big4_338 + 1
52: Zooman_323 + 1
53: Cece_317 + 1
54: VanLee_135
55: Colossa_134
56: CN1A_12

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 291000 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291000 has 110 members, 22 are drafts.

Phages represented in each track:
- Track 1 : Dennebes_81, Rideau_80
- Track 2 : Manuel_74
- Track 3 : Treat_78
- Track 4 : Treat_76
- Track 5 : Immanuel3_74, Romero_76
- Track 6 : Olicious_76
- Track 7 : ToriToki_76
- Track 8 : FlowerPower_74, Fabian_73, Geostin_69, RetrieverFever_74, Gremlin23_74, Vorvolakos_75
- Track 9 : HaugeAnator_76, JPandJE_75, ZooBear_76
- Track 10 : WRightOn_78, Kumquat_74, Zeigle_74
- Track 11 : JPandJE_77
- Track 12 : Percastrophe_76
- Track 13 : Stella_77
- Track 14 : Destructrice_75
- Track 15 : RosePharie_77
- Track 16 : Octobien14_47
- Track 17 : Syleon_46, Kudefre_45
- Track 18 : Sephiroth_46
- Track 19 : Rona_48, Sharkboy_49, Dismas_48
- Track 20 : Celaena_49, Bachaco_49, Katzastrophic_50, FlameThrower_48
- Track 21 : SanaSana_53, BabyYoda_51, DirtyBubble_50, Stromboli_51
- Track 22 : ChiliPepper_48
- Track 23 : Elva_53
- Track 24 : WalkingDead_53, Stoor_51
- Track 25 : Loviatar_52, Akino08_52
- Track 26 : AvGardian_52
- Track 27 : Kieran_48, Kamdara_48
- Track 28 : PondAmelia_62
- Track 29 : Quenya_51
- Track 30 : Icarian_54
- Track 31 : Wolfstar_113
- Track 32 : Lupine_106
- Track 33 : Uterion_113
- Track 34 : Uterion_112, DejaVu_108, Pavlo_108, Roman_109, Saradis_109, PhillyPhilly_105, Hubbs_107

• Track 35 : Platte_106, OlinDD_107, Hortus1_107, Alleb_103, Tandem_107, Pioneer3_107
• Track 36 : DejaVu_109, Pavlo_109, Solimine_110, Roman_110, Saradis_110, PhillyPhilly_106, Hubbs_108
• Track 37 : Solimine_109
• Track 38 : Casablancas_107, DustyDino_110, HollowPurple_108, Yuma_105, Fork_103, Welcome_109, Necrophoxinus_109, ASegato_105, Shroomer_110, RunningBrook_108, SteakFry_106
• Track 39 : Erenyeager_107
• Track 40 : StevieWelch_107
• Track 41 : Lyell_106
• Track 42 : Musetta_105
• Track 43 : Issa7_106
• Track 44 : Deschain_107
• Track 45 : Mistmere_103
• Track 46 : PauloDiaboli_327
• Track 47 : Dodo_322
• Track 48 : A3Wally_326
• Track 49 : Erasmago_13, Erasmago_351
• Track 50 : Erasmago_304
• Track 51 : Big4_338, Big4_12
• Track 52 : Zooman_323, Zooman_10
• Track 53 : Cece_317, Cece_15
• Track 54 : VanLee_135
• Track 55 : Colossa_134
• Track 56 : CN1A_12

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

The start number called the most often in the published annotations is 45, it was called in 46 of the 88 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Akino08_52, AvGardian_52, BabyYoda_51, Bachaco_49, Big4_12, Big4_338, CN1A_12, Celaena_49, ChiliPepper_48, DejaVu_108, Destructrice_75, DirtyBubble_50, Dismas_48, Erasmago_13, Erasmago_351, Fabian_73, FlameThrower_48, FlowerPower_74, Geostin_69, Gremlin23_74, HaugeAnator_76, Hubbs_107, Icarian_54, Immanuel3_74, JPandJE_75, JPandJE_77, Kamdara_48, Katzastrophic_50, Kieran_48, Loviatar_52, Olicious_76, Pavlo_108, Percastrophe_76, PhillyPhilly_105, PondAmelia_62, Quenya_51, RetrieverFever_74, Roman_109, Romero_76, Rona_48, RosePharie_77, SanaSana_53, Saradis_109, Sharkboy_49, Solimine_109, Stoor_51, Stromboli_51, ToriToki_76, Treat_76, Uterion_112, Vorvolakos_75, WalkingDead_53, ZooBear_76, Zooman_10, Zooman_323,

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

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

• A3Wally_326, ASegato_105, Alleb_103, Casablancas_107, Cece_15, Cece_317, Colossa_134, DejaVu_109, Dennebes_81, Deschain_107, Dodo_322, DustyDino_110, Elva_53, Erasmago_304, Erenyeager_107, Fork_103, HollowPurple_108, Hortus1_107, Hubbs_108, Issa7_106, Kudefre_45, Kumquat_74, Lupine_106, Lyell_106, Manuel_74, Mistmere_103, Musetta_105, Necrophoxinus_109, Octobien14_47, OlinDD_107, PauloDiaboli_327, Pavlo_109, PhillyPhilly_106, Pioneer3_107, Platte_106, Rideau_80, Roman_110, RunningBrook_108, Saradis_110, Sephiroth_46, Shroomer_110, Solimine_110, SteakFry_106, Stella_77, StevieWelch_107, Syleon_46, Tandem_107, Treat_78, Uterion_113, VanLee_135, WRightOn_78, Welcome_109, Wolfstar_113, Yuma_105, Zeigle_74,

Summary by start number:

Start 19:
• Found in 3 of 110 (2.7%) of genes in pham
• Manual Annotations of this start: 3 of 88
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Kudefre_45 (DU1), Sephiroth_46 (DU1), Syleon_46 (DU1),

Start 22:
• Found in 4 of 110 (3.6%) of genes in pham
• Manual Annotations of this start: 1 of 88
• Called 25.0% of time when present
• Phage (with cluster) where this start called: Octobien14_47 (DU1),

Start 35:
• Found in 7 of 110 (6.4%) of genes in pham
• No Manual Annotations of this start.
• Called 14.3% of time when present
• Phage (with cluster) where this start called: Erasmago_304 (GD2),

Start 37:
• Found in 4 of 110 (3.6%) of genes in pham
• Manual Annotations of this start: 3 of 88
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Cece_15 (GD3), Cece_317 (GD3), Colossa_134 (KA), VanLee_135 (KA),

Start 40:
• Found in 16 of 110 (14.5%) of genes in pham
• Manual Annotations of this start: 13 of 88
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Alleb_103 (ED1), DejaVu_109 (ED1), Hortus1_107 (ED1), Hubbs_108 (ED1), Lupine_106 (ED1), OlinDD_107 (ED1), Pavlo_109 (ED1), PhillyPhilly_106 (ED1), Pioneer3_107 (ED1), Platte_106 (ED1), Roman_110 (ED1), Saradis_110 (ED1), Solimine_110 (ED1), Tandem_107 (ED1), Uterion_113 (ED1), Wolfstar_113 (ED),

Start 41:
• Found in 3 of 110 (2.7%) of genes in pham
• Manual Annotations of this start: 3 of 88

• Called 100.0% of time when present
• Phage (with cluster) where this start called: Kumquat_74 (BF), WRightOn_78 (BF), Zeigle_74 (BF),

Start 42:
• Found in 7 of 110 (6.4%) of genes in pham
• Manual Annotations of this start: 5 of 88
• Called 100.0% of time when present
• Phage (with cluster) where this start called: A3Wally_326 (GD1), Dennebes_81 (BF), Dodo_322 (GD1), Elva_53 (EB), PauloDiaboli_327 (GD1), Rideau_80 (BF), Stella_77 (BF),

Start 43:
• Found in 18 of 110 (16.4%) of genes in pham
• Manual Annotations of this start: 12 of 88
• Called 100.0% of time when present
• Phage (with cluster) where this start called: ASegato_105 (ED2), Casablancas_107 (ED2), Deschain_107 (ED2), DustyDino_110 (ED2), Erenyeager_107 (ED2), Fork_103 (ED2), HollowPurple_108 (ED2), Issa7_106 (ED2), Lyell_106 (ED2), Mistmere_103 (ED3), Musetta_105 (ED2), Necrophoxinus_109 (ED2), RunningBrook_108 (ED2), Shroomer_110 (ED2), SteakFry_106 (ED2), StevieWelch_107 (ED2), Welcome_109 (ED2), Yuma_105 (ED2),

Start 44:
• Found in 2 of 110 (1.8%) of genes in pham
• Manual Annotations of this start: 2 of 88
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Manuel_74 (BF), Treat_78 (BF),

Start 45:
• Found in 55 of 110 (50.0%) of genes in pham
• Manual Annotations of this start: 46 of 88
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Akino08_52 (EB), AvGardian_52 (EB), BabyYoda_51 (EB), Bachaco_49 (EB), Big4_12 (GD2), Big4_338 (GD2), CN1A_12 (singleton), Celaena_49 (EB), ChiliPepper_48 (EB), DejaVu_108 (ED1), Destructrice_75 (BF), DirtyBubble_50 (EB), Dismas_48 (EB), Erasmago_13 (GD2), Erasmago_351 (GD2), Fabian_73 (BF), FlameThrower_48 (EB), FlowerPower_74 (BF), Geostin_69 (BF), Gremlin23_74 (BF), HaugeAnator_76 (BF), Hubbs_107 (ED1), Icarian_54 (EB), Immanuel3_74 (BF), JPandJE_75 (BF), JPandJE_77 (BF), Kamdara_48 (EB), Katzastrophic_50 (EB), Kieran_48 (EB), Loviatar_52 (EB), Olicious_76 (BF), Pavlo_108 (ED1), Percastrophe_76 (BF), PhillyPhilly_105 (ED1), PondAmelia_62 (EB), Quenya_51 (EB), RetrieverFever_74 (BF), Roman_109 (ED1), Romero_76 (BF), Rona_48 (EB), RosePharie_77 (BF), SanaSana_53 (EB), Saradis_109 (ED1), Sharkboy_49 (EB), Solimine_109 (ED1), Stoor_51 (EB), Stromboli_51 (EB), ToriToki_76 (BF), Treat_76 (BF), Uterion_112 (ED1), Vorvolakos_75 (BF), WalkingDead_53 (EB), ZooBear_76 (BF), Zooman_10 (GD2), Zooman_323 (GD2),

Summary by clusters:

There are 12 clusters represented in this pham: GD1, BF, GD3, ED, GD2, EB, ED2, ED3, ED1, DU1, singleton, KA,

Info for manual annotations of cluster BF:
•Start number 41 was manually annotated 3 times for cluster BF.
•Start number 42 was manually annotated 2 times for cluster BF.
•Start number 44 was manually annotated 2 times for cluster BF.
•Start number 45 was manually annotated 18 times for cluster BF.

Info for manual annotations of cluster DU1:
•Start number 19 was manually annotated 3 times for cluster DU1.
•Start number 22 was manually annotated 1 time for cluster DU1.

Info for manual annotations of cluster EB:
•Start number 42 was manually annotated 1 time for cluster EB.
•Start number 45 was manually annotated 19 times for cluster EB.

Info for manual annotations of cluster ED:
•Start number 40 was manually annotated 1 time for cluster ED.

Info for manual annotations of cluster ED1:
•Start number 40 was manually annotated 12 times for cluster ED1.
•Start number 45 was manually annotated 5 times for cluster ED1.

Info for manual annotations of cluster ED2:
•Start number 43 was manually annotated 12 times for cluster ED2.

Info for manual annotations of cluster GD1:
•Start number 42 was manually annotated 2 times for cluster GD1.

Info for manual annotations of cluster GD2:
•Start number 45 was manually annotated 4 times for cluster GD2.

Info for manual annotations of cluster GD3:
•Start number 37 was manually annotated 2 times for cluster GD3.

Info for manual annotations of cluster KA:
•Start number 37 was manually annotated 1 time for cluster KA.

Gene Information:

Gene: A3Wally_326 Start: 170993, Stop: 171403, Start Num: 42
Candidate Starts for A3Wally_326:
(Start: 42 @170993 has 5 MA's), (51, 171035), (52, 171044), (55, 171059), (60, 171095), (86, 171203), (101, 171257), (112, 171293), (117, 171320),

Gene: ASegato_105 Start: 56034, Stop: 55597, Start Num: 43
Candidate Starts for ASegato_105:
(Start: 43 @56034 has 12 MA's), (47, 56010), (52, 55989), (76, 55893), (79, 55881), (80, 55878), (89, 55836), (98, 55806), (107, 55773),

Gene: Akino08_52 Start: 36189, Stop: 36629, Start Num: 45

Candidate Starts for Akino08_52:
(Start: 45 @36189 has 46 MA's), (53, 36237), (87, 36375), (104, 36438), (108, 36450), (117, 36492), (132, 36561),

Gene: Alleb_103 Start: 57500, Stop: 57114, Start Num: 40
Candidate Starts for Alleb_103:
(23, 57593), (27, 57557), (35, 57524), (38, 57503), (Start: 40 @57500 has 13 MA's), (56, 57419), (62, 57401), (79, 57347), (83, 57323), (102, 57251), (112, 57215), (114, 57197),

Gene: AvGardian_52 Start: 34737, Stop: 35147, Start Num: 45
Candidate Starts for AvGardian_52:
(Start: 45 @34737 has 46 MA's), (54, 34788), (79, 34878), (80, 34881), (94, 34935), (100, 34965), (122, 35037),

Gene: BabyYoda_51 Start: 35131, Stop: 35568, Start Num: 45
Candidate Starts for BabyYoda_51:
(Start: 45 @35131 has 46 MA's), (53, 35179), (79, 35278), (80, 35281), (87, 35317), (104, 35380), (108, 35392), (117, 35431),

Gene: Bachaco_49 Start: 35861, Stop: 36301, Start Num: 45
Candidate Starts for Bachaco_49:
(Start: 45 @35861 has 46 MA's), (87, 36050), (127, 36200),

Gene: Big4_338 Start: 180229, Stop: 180705, Start Num: 45
Candidate Starts for Big4_338:
(Start: 45 @180229 has 46 MA's), (64, 180340), (68, 180358), (81, 180427), (85, 180445), (86, 180448), (112, 180541), (126, 180601),

Gene: Big4_12 Start: 5535, Stop: 6011, Start Num: 45
Candidate Starts for Big4_12:
(Start: 45 @5535 has 46 MA's), (64, 5646), (68, 5664), (81, 5733), (85, 5751), (86, 5754), (112, 5847), (126, 5907),

Gene: CN1A_12 Start: 5964, Stop: 6377, Start Num: 45
Candidate Starts for CN1A_12:
(9, 5682), (15, 5778), (Start: 45 @5964 has 46 MA's), (48, 5988), (53, 6012), (56, 6036), (77, 6102), (79, 6111), (82, 6129), (88, 6159), (92, 6168), (137, 6363), (138, 6366),

Gene: Casablancas_107 Start: 55664, Stop: 55227, Start Num: 43
Candidate Starts for Casablancas_107:
(Start: 43 @55664 has 12 MA's), (47, 55640), (52, 55619), (76, 55523), (79, 55511), (80, 55508), (89, 55466), (98, 55436), (107, 55403),

Gene: Cece_317 Start: 173852, Stop: 174274, Start Num: 37
Candidate Starts for Cece_317:
(Start: 37 @173852 has 3 MA's), (50, 173906), (52, 173918), (65, 173978), (79, 174041), (120, 174176),

Gene: Cece_15 Start: 5418, Stop: 5840, Start Num: 37
Candidate Starts for Cece_15:
(Start: 37 @5418 has 3 MA's), (50, 5472), (52, 5484), (65, 5544), (79, 5607), (120, 5742),

Gene: Celaena_49 Start: 35623, Stop: 36063, Start Num: 45

Candidate Starts for Celaena_49:
(Start: 45 @35623 has 46 MA's), (87, 35812), (127, 35962),

Gene: ChiliPepper_48 Start: 34921, Stop: 35364, Start Num: 45
Candidate Starts for ChiliPepper_48:
(Start: 45 @34921 has 46 MA's), (87, 35110), (107, 35182), (137, 35320),

Gene: Colossa_134 Start: 73240, Stop: 72845, Start Num: 37
Candidate Starts for Colossa_134:
(Start: 37 @73240 has 3 MA's), (51, 73177), (99, 72985),

Gene: DejaVu_108 Start: 57205, Stop: 56840, Start Num: 45
Candidate Starts for DejaVu_108:
(30, 57256), (Start: 45 @57205 has 46 MA's), (56, 57136), (77, 57076), (79, 57067), (83, 57043), (87, 57028), (126, 56878), (128, 56869),

Gene: DejaVu_109 Start: 57612, Stop: 57202, Start Num: 40
Candidate Starts for DejaVu_109:
(Start: 40 @57612 has 13 MA's), (51, 57570), (60, 57510), (78, 57450), (85, 57408), (112, 57306),

Gene: Dennebes_81 Start: 39474, Stop: 38989, Start Num: 42
Candidate Starts for Dennebes_81:
(Start: 42 @39474 has 5 MA's), (51, 39435), (62, 39366), (67, 39345), (84, 39243), (89, 39225), (95, 39213), (96, 39207), (97, 39204),

Gene: Deschain_107 Start: 56328, Stop: 55891, Start Num: 43
Candidate Starts for Deschain_107:
(Start: 43 @56328 has 12 MA's), (52, 56283), (76, 56187), (79, 56175), (80, 56172), (89, 56130), (98, 56100), (107, 56067),

Gene: Destructrice_75 Start: 38837, Stop: 38355, Start Num: 45
Candidate Starts for Destructrice_75:
(27, 38900), (30, 38885), (Start: 45 @38837 has 46 MA's), (56, 38765), (62, 38732), (86, 38597), (91, 38579), (114, 38501), (131, 38432),

Gene: DirtyBubble_50 Start: 34799, Stop: 35236, Start Num: 45
Candidate Starts for DirtyBubble_50:
(Start: 45 @34799 has 46 MA's), (53, 34847), (79, 34946), (80, 34949), (87, 34985), (104, 35048), (108, 35060), (117, 35099),

Gene: Dismas_48 Start: 34843, Stop: 35286, Start Num: 45
Candidate Starts for Dismas_48:
(Start: 45 @34843 has 46 MA's), (76, 34978), (77, 34981), (94, 35047), (108, 35104), (121, 35155), (133, 35206),

Gene: Dodo_322 Start: 170077, Stop: 170469, Start Num: 42
Candidate Starts for Dodo_322:
(20, 169951), (21, 169954), (23, 169975), (Start: 42 @170077 has 5 MA's), (50, 170110), (55, 170140), (60, 170176), (63, 170188), (87, 170287), (103, 170344), (111, 170371), (112, 170374), (130, 170455),

Gene: DustyDino_110 Start: 56887, Stop: 56450, Start Num: 43
Candidate Starts for DustyDino_110:

(Start: 43 @56887 has 12 MA's), (47, 56863), (52, 56842), (76, 56746), (79, 56734), (80, 56731), (89, 56689), (98, 56659), (107, 56626),

Gene: Elva_53 Start: 35217, Stop: 35639, Start Num: 42
Candidate Starts for Elva_53:
(Start: 42 @35217 has 5 MA's), (79, 35367), (80, 35370), (94, 35424), (123, 35523),

Gene: Erasmago_13 Start: 4541, Stop: 5020, Start Num: 45
Candidate Starts for Erasmago_13:
(Start: 45 @4541 has 46 MA's), (58, 4628), (61, 4646), (81, 4751), (83, 4760), (92, 4790), (116, 4889), (124, 4922), (139, 5003),

Gene: Erasmago_304 Start: 162654, Stop: 163103, Start Num: 35
Candidate Starts for Erasmago_304:
(35, 162654), (49, 162717), (62, 162792), (68, 162810), (80, 162861), (85, 162891), (106, 162966),

Gene: Erasmago_351 Start: 179050, Stop: 179529, Start Num: 45
Candidate Starts for Erasmago_351:
(Start: 45 @179050 has 46 MA's), (58, 179137), (61, 179155), (81, 179260), (83, 179269), (92, 179299), (116, 179398), (124, 179431), (139, 179512),

Gene: Erenyeager_107 Start: 55997, Stop: 55551, Start Num: 43
Candidate Starts for Erenyeager_107:
(1, 56621), (2, 56594), (3, 56573), (5, 56525), (6, 56411), (8, 56360), (16, 56168), (29, 56048), (Start: 43 @55997 has 12 MA's), (47, 55973), (52, 55952), (76, 55847), (79, 55835), (80, 55832), (89, 55790), (98, 55760),

Gene: Fabian_73 Start: 38951, Stop: 38469, Start Num: 45
Candidate Starts for Fabian_73:
(Start: 45 @38951 has 46 MA's), (56, 38879), (62, 38846), (77, 38768), (84, 38726), (114, 38618), (129, 38555), (136, 38513),

Gene: FlameThrower_48 Start: 34660, Stop: 35100, Start Num: 45
Candidate Starts for FlameThrower_48:
(Start: 45 @34660 has 46 MA's), (87, 34849), (127, 34999),

Gene: FlowerPower_74 Start: 38621, Stop: 38139, Start Num: 45
Candidate Starts for FlowerPower_74:
(Start: 45 @38621 has 46 MA's), (56, 38549), (62, 38516), (77, 38438), (84, 38396), (114, 38288), (129, 38225), (136, 38183),

Gene: Fork_103 Start: 55912, Stop: 55475, Start Num: 43
Candidate Starts for Fork_103:
(Start: 43 @55912 has 12 MA's), (47, 55888), (52, 55867), (76, 55771), (79, 55759), (80, 55756), (89, 55714), (98, 55684), (107, 55651),

Gene: Geostin_69 Start: 38621, Stop: 38139, Start Num: 45
Candidate Starts for Geostin_69:
(Start: 45 @38621 has 46 MA's), (56, 38549), (62, 38516), (77, 38438), (84, 38396), (114, 38288), (129, 38225), (136, 38183),

Gene: Gremlin23_74 Start: 38621, Stop: 38139, Start Num: 45
Candidate Starts for Gremlin23_74:

(Start: 45 @38621 has 46 MA's), (56, 38549), (62, 38516), (77, 38438), (84, 38396), (114, 38288), (129, 38225), (136, 38183),

Gene: HaugeAnator_76 Start: 38999, Stop: 38496, Start Num: 45
Candidate Starts for HaugeAnator_76:
(Start: 45 @38999 has 46 MA's), (51, 38963), (56, 38927), (62, 38891), (68, 38858), (77, 38810), (83, 38771), (114, 38660), (119, 38636), (132, 38582),

Gene: HollowPurple_108 Start: 56575, Stop: 56138, Start Num: 43
Candidate Starts for HollowPurple_108:
(Start: 43 @56575 has 12 MA's), (47, 56551), (52, 56530), (76, 56434), (79, 56422), (80, 56419), (89, 56377), (98, 56347), (107, 56314),

Gene: Hortus1_107 Start: 58256, Stop: 57870, Start Num: 40
Candidate Starts for Hortus1_107:
(23, 58349), (27, 58313), (35, 58280), (38, 58259), (Start: 40 @58256 has 13 MA's), (56, 58175), (62, 58157), (79, 58103), (83, 58079), (102, 58007), (112, 57971), (114, 57953),

Gene: Hubbs_108 Start: 57876, Stop: 57466, Start Num: 40
Candidate Starts for Hubbs_108:
(Start: 40 @57876 has 13 MA's), (51, 57834), (60, 57774), (78, 57714), (85, 57672), (112, 57570),

Gene: Hubbs_107 Start: 57469, Stop: 57104, Start Num: 45
Candidate Starts for Hubbs_107:
(30, 57520), (Start: 45 @57469 has 46 MA's), (56, 57400), (77, 57340), (79, 57331), (83, 57307), (87, 57292), (126, 57142), (128, 57133),

Gene: Icarian_54 Start: 35804, Stop: 36241, Start Num: 45
Candidate Starts for Icarian_54:
(Start: 45 @35804 has 46 MA's), (53, 35852), (79, 35951), (80, 35954), (87, 35990), (108, 36065), (117, 36104), (134, 36185),

Gene: Immanuel3_74 Start: 39005, Stop: 38502, Start Num: 45
Candidate Starts for Immanuel3_74:
(Start: 45 @39005 has 46 MA's), (51, 38969), (56, 38933), (62, 38897), (77, 38816), (83, 38777), (114, 38666), (119, 38642), (132, 38588),

Gene: Issa7_106 Start: 55958, Stop: 55521, Start Num: 43
Candidate Starts for Issa7_106:
(Start: 43 @55958 has 12 MA's), (47, 55934), (52, 55913), (76, 55817), (79, 55805), (80, 55802), (89, 55760), (98, 55730), (107, 55697),

Gene: JPandJE_75 Start: 39350, Stop: 38847, Start Num: 45
Candidate Starts for JPandJE_75:
(Start: 45 @39350 has 46 MA's), (51, 39314), (56, 39278), (62, 39242), (68, 39209), (77, 39161), (83, 39122), (114, 39011), (119, 38987), (132, 38933),

Gene: JPandJE_77 Start: 40528, Stop: 40007, Start Num: 45
Candidate Starts for JPandJE_77:
(Start: 45 @40528 has 46 MA's), (46, 40507), (53, 40480), (54, 40477), (56, 40456), (68, 40381), (69, 40378), (73, 40351), (80, 40315), (84, 40285), (94, 40249), (96, 40237), (97, 40234), (129, 40096),

Gene: Kamdara_48 Start: 34881, Stop: 35324, Start Num: 45

Candidate Starts for Kamdara_48:
(7, 34479), (13, 34653), (18, 34734), (Start: 45 @34881 has 46 MA's), (87, 35070), (107, 35142), (137, 35280),

Gene: Katzastrophic_50 Start: 35170, Stop: 35610, Start Num: 45
Candidate Starts for Katzastrophic_50:
(Start: 45 @35170 has 46 MA's), (87, 35359), (127, 35509),

Gene: Kieran_48 Start: 34884, Stop: 35327, Start Num: 45
Candidate Starts for Kieran_48:
(7, 34482), (13, 34656), (18, 34737), (Start: 45 @34884 has 46 MA's), (87, 35073), (107, 35145), (137, 35283),

Gene: Kudefre_45 Start: 34124, Stop: 34657, Start Num: 19
Candidate Starts for Kudefre_45:
(11, 33998), (12, 34007), (Start: 19 @34124 has 3 MA's), (Start: 22 @34136 has 1 MA's), (51, 34295), (75, 34397), (85, 34448), (96, 34490), (105, 34526),

Gene: Kumquat_74 Start: 38229, Stop: 37786, Start Num: 41
Candidate Starts for Kumquat_74:
(28, 38286), (33, 38262), (Start: 41 @38229 has 3 MA's), (77, 38040), (110, 37926), (135, 37803),

Gene: Loviatar_52 Start: 36204, Stop: 36644, Start Num: 45
Candidate Starts for Loviatar_52:
(Start: 45 @36204 has 46 MA's), (53, 36252), (87, 36390), (104, 36453), (108, 36465), (117, 36507), (132, 36576),

Gene: Lupine_106 Start: 57058, Stop: 56648, Start Num: 40
Candidate Starts for Lupine_106:
(Start: 40 @57058 has 13 MA's), (51, 57016), (60, 56956), (78, 56896), (85, 56854), (112, 56752),

Gene: Lyell_106 Start: 55834, Stop: 55397, Start Num: 43
Candidate Starts for Lyell_106:
(4, 56371), (6, 56248), (8, 56197), (16, 56005), (29, 55885), (Start: 43 @55834 has 12 MA's), (47, 55810), (52, 55789), (76, 55693), (79, 55681), (80, 55678), (89, 55636), (98, 55606), (107, 55573),

Gene: Manuel_74 Start: 38664, Stop: 38179, Start Num: 44
Candidate Starts for Manuel_74:
(28, 38724), (Start: 44 @38664 has 2 MA's), (60, 38565), (71, 38517), (72, 38514), (77, 38481), (84, 38439), (90, 38415), (124, 38295), (142, 38193),

Gene: Mistmere_103 Start: 54853, Stop: 54416, Start Num: 43
Candidate Starts for Mistmere_103:
(10, 55114), (Start: 43 @54853 has 12 MA's), (52, 54808), (76, 54709), (79, 54697), (87, 54658), (98, 54622), (100, 54613),

Gene: Musetta_105 Start: 56187, Stop: 55750, Start Num: 43
Candidate Starts for Musetta_105:
(1, 56811), (2, 56784), (3, 56763), (5, 56715), (6, 56601), (8, 56550), (16, 56358), (29, 56238), (Start: 43 @56187 has 12 MA's), (47, 56163), (52, 56142), (76, 56046), (79, 56034), (80, 56031), (89, 55989), (98, 55959), (107, 55926),

Gene: Necrophoxinus_109 Start: 56843, Stop: 56406, Start Num: 43

Candidate Starts for Necrophoxinus_109:
(Start: 43 @56843 has 12 MA's), (47, 56819), (52, 56798), (76, 56702), (79, 56690), (80, 56687), (89, 56645), (98, 56615), (107, 56582),

Gene: Octobien14_47 Start: 34822, Stop: 35292, Start Num: 22
Candidate Starts for Octobien14_47:
(14, 34765), (17, 34783), (Start: 22 @34822 has 1 MA's), (31, 34867), (36, 34879), (56, 34957), (85, 35053), (125, 35221),

Gene: Olicious_76 Start: 39002, Stop: 38499, Start Num: 45
Candidate Starts for Olicious_76:
(Start: 45 @39002 has 46 MA's), (51, 38966), (56, 38930), (62, 38897), (77, 38813), (83, 38774), (103, 38702), (124, 38627), (132, 38585), (140, 38540),

Gene: OlinDD_107 Start: 58261, Stop: 57875, Start Num: 40
Candidate Starts for OlinDD_107:
(23, 58354), (27, 58318), (35, 58285), (38, 58264), (Start: 40 @58261 has 13 MA's), (56, 58180), (62, 58162), (79, 58108), (83, 58084), (102, 58012), (112, 57976), (114, 57958),

Gene: PauloDiaboli_327 Start: 168500, Stop: 168892, Start Num: 42
Candidate Starts for PauloDiaboli_327:
(Start: 42 @168500 has 5 MA's), (50, 168533), (55, 168563), (60, 168599), (100, 168755), (103, 168767), (111, 168794), (112, 168797), (130, 168878),

Gene: Pavlo_108 Start: 57864, Stop: 57499, Start Num: 45
Candidate Starts for Pavlo_108:
(30, 57915), (Start: 45 @57864 has 46 MA's), (56, 57795), (77, 57735), (79, 57726), (83, 57702), (87, 57687), (126, 57537), (128, 57528),

Gene: Pavlo_109 Start: 58271, Stop: 57861, Start Num: 40
Candidate Starts for Pavlo_109:
(Start: 40 @58271 has 13 MA's), (51, 58229), (60, 58169), (78, 58109), (85, 58067), (112, 57965),

Gene: Percastrophe_76 Start: 38934, Stop: 38431, Start Num: 45
Candidate Starts for Percastrophe_76:
(Start: 45 @38934 has 46 MA's), (51, 38898), (56, 38862), (62, 38826), (68, 38793), (77, 38745), (83, 38706), (114, 38595), (119, 38571), (132, 38517), (142, 38451),

Gene: PhillyPhilly_105 Start: 56853, Stop: 56488, Start Num: 45
Candidate Starts for PhillyPhilly_105:
(30, 56904), (Start: 45 @56853 has 46 MA's), (56, 56784), (77, 56724), (79, 56715), (83, 56691), (87, 56676), (126, 56526), (128, 56517),

Gene: PhillyPhilly_106 Start: 57260, Stop: 56850, Start Num: 40
Candidate Starts for PhillyPhilly_106:
(Start: 40 @57260 has 13 MA's), (51, 57218), (60, 57158), (78, 57098), (85, 57056), (112, 56954),

Gene: Pioneer3_107 Start: 58059, Stop: 57673, Start Num: 40
Candidate Starts for Pioneer3_107:
(23, 58152), (27, 58116), (35, 58083), (38, 58062), (Start: 40 @58059 has 13 MA's), (56, 57978), (62, 57960), (79, 57906), (83, 57882), (102, 57810), (112, 57774), (114, 57756),

Gene: Platte_106 Start: 57843, Stop: 57457, Start Num: 40

Candidate Starts for Platte_106:
(23, 57936), (27, 57900), (35, 57867), (38, 57846), (Start: 40 @57843 has 13 MA's), (56, 57762), (62, 57744), (79, 57690), (83, 57666), (102, 57594), (112, 57558), (114, 57540),

Gene: PondAmelia_62 Start: 35004, Stop: 35447, Start Num: 45
Candidate Starts for PondAmelia_62:
(Start: 45 @35004 has 46 MA's), (53, 35052), (87, 35190), (104, 35253), (111, 35280), (117, 35310), (132, 35379),

Gene: Quenya_51 Start: 35296, Stop: 35745, Start Num: 45
Candidate Starts for Quenya_51:
(23, 35191), (24, 35203), (Start: 45 @35296 has 46 MA's), (77, 35434), (83, 35467), (94, 35500), (108, 35557), (121, 35608),

Gene: RetrieverFever_74 Start: 38621, Stop: 38139, Start Num: 45
Candidate Starts for RetrieverFever_74:
(Start: 45 @38621 has 46 MA's), (56, 38549), (62, 38516), (77, 38438), (84, 38396), (114, 38288), (129, 38225), (136, 38183),

Gene: Rideau_80 Start: 39365, Stop: 38880, Start Num: 42
Candidate Starts for Rideau_80:
(Start: 42 @39365 has 5 MA's), (51, 39326), (62, 39257), (67, 39236), (84, 39134), (89, 39116), (95, 39104), (96, 39098), (97, 39095),

Gene: Roman_109 Start: 57913, Stop: 57548, Start Num: 45
Candidate Starts for Roman_109:
(30, 57964), (Start: 45 @57913 has 46 MA's), (56, 57844), (77, 57784), (79, 57775), (83, 57751), (87, 57736), (126, 57586), (128, 57577),

Gene: Roman_110 Start: 58320, Stop: 57910, Start Num: 40
Candidate Starts for Roman_110:
(Start: 40 @58320 has 13 MA's), (51, 58278), (60, 58218), (78, 58158), (85, 58116), (112, 58014),

Gene: Romero_76 Start: 38995, Stop: 38492, Start Num: 45
Candidate Starts for Romero_76:
(Start: 45 @38995 has 46 MA's), (51, 38959), (56, 38923), (62, 38887), (77, 38806), (83, 38767), (114, 38656), (119, 38632), (132, 38578),

Gene: Rona_48 Start: 34834, Stop: 35277, Start Num: 45
Candidate Starts for Rona_48:
(Start: 45 @34834 has 46 MA's), (76, 34969), (77, 34972), (94, 35038), (108, 35095), (121, 35146), (133, 35197),

Gene: RosePharie_77 Start: 39114, Stop: 38629, Start Num: 45
Candidate Starts for RosePharie_77:
(26, 39192), (39, 39123), (Start: 45 @39114 has 46 MA's), (66, 38994), (84, 38889), (132, 38703), (133, 38700), (143, 38637),

Gene: RunningBrook_108 Start: 56887, Stop: 56450, Start Num: 43
Candidate Starts for RunningBrook_108:
(Start: 43 @56887 has 12 MA's), (47, 56863), (52, 56842), (76, 56746), (79, 56734), (80, 56731), (89, 56689), (98, 56659), (107, 56626),

Gene: SanaSana_53 Start: 35511, Stop: 35948, Start Num: 45
Candidate Starts for SanaSana_53:
(Start: 45 @35511 has 46 MA's), (53, 35559), (79, 35658), (80, 35661), (87, 35697), (104, 35760), (108, 35772), (117, 35811),

Gene: Saradis_109 Start: 56880, Stop: 56515, Start Num: 45
Candidate Starts for Saradis_109:
(30, 56931), (Start: 45 @56880 has 46 MA's), (56, 56811), (77, 56751), (79, 56742), (83, 56718), (87, 56703), (126, 56553), (128, 56544),

Gene: Saradis_110 Start: 57287, Stop: 56877, Start Num: 40
Candidate Starts for Saradis_110:
(Start: 40 @57287 has 13 MA's), (51, 57245), (60, 57185), (78, 57125), (85, 57083), (112, 56981),

Gene: Sephiroth_46 Start: 34293, Stop: 34826, Start Num: 19
Candidate Starts for Sephiroth_46:
(11, 34167), (12, 34176), (Start: 19 @34293 has 3 MA's), (Start: 22 @34305 has 1 MA's), (51, 34464), (85, 34617), (93, 34644), (96, 34659), (105, 34695),

Gene: Sharkboy_49 Start: 34933, Stop: 35376, Start Num: 45
Candidate Starts for Sharkboy_49:
(Start: 45 @34933 has 46 MA's), (76, 35068), (77, 35071), (94, 35137), (108, 35194), (121, 35245), (133, 35296),

Gene: Shroomer_110 Start: 56444, Stop: 56007, Start Num: 43
Candidate Starts for Shroomer_110:
(Start: 43 @56444 has 12 MA's), (47, 56420), (52, 56399), (76, 56303), (79, 56291), (80, 56288), (89, 56246), (98, 56216), (107, 56183),

Gene: Solimine_110 Start: 58195, Stop: 57785, Start Num: 40
Candidate Starts for Solimine_110:
(Start: 40 @58195 has 13 MA's), (51, 58153), (60, 58093), (78, 58033), (85, 57991), (112, 57889),

Gene: Solimine_109 Start: 57788, Stop: 57423, Start Num: 45
Candidate Starts for Solimine_109:
(30, 57839), (Start: 45 @57788 has 46 MA's), (77, 57659), (79, 57650), (83, 57626), (87, 57611), (103, 57557), (128, 57452),

Gene: SteakFry_106 Start: 56575, Stop: 56138, Start Num: 43
Candidate Starts for SteakFry_106:
(Start: 43 @56575 has 12 MA's), (47, 56551), (52, 56530), (76, 56434), (79, 56422), (80, 56419), (89, 56377), (98, 56347), (107, 56314),

Gene: Stella_77 Start: 39604, Stop: 39116, Start Num: 42
Candidate Starts for Stella_77:
(33, 39637), (Start: 42 @39604 has 5 MA's), (56, 39529), (60, 39499), (67, 39469), (79, 39400), (80, 39397), (109, 39292), (124, 39223),

Gene: StevieWelch_107 Start: 56127, Stop: 55690, Start Num: 43
Candidate Starts for StevieWelch_107:
(16, 56298), (34, 56160), (Start: 43 @56127 has 12 MA's), (47, 56103), (52, 56082), (76, 55986), (79, 55974), (98, 55899),

Gene: Stoor_51 Start: 35304, Stop: 35735, Start Num: 45
Candidate Starts for Stoor_51:
(Start: 45 @35304 has 46 MA's), (53, 35352), (79, 35451), (80, 35454), (87, 35490), (104, 35553), (108, 35565), (117, 35598), (134, 35679),

Gene: Stromboli_51 Start: 35169, Stop: 35606, Start Num: 45
Candidate Starts for Stromboli_51:
(Start: 45 @35169 has 46 MA's), (53, 35217), (79, 35316), (80, 35319), (87, 35355), (104, 35418), (108, 35430), (117, 35469),

Gene: Syleon_46 Start: 34218, Stop: 34751, Start Num: 19
Candidate Starts for Syleon_46:
(11, 34092), (12, 34101), (Start: 19 @34218 has 3 MA's), (Start: 22 @34230 has 1 MA's), (51, 34389), (75, 34491), (85, 34542), (96, 34584), (105, 34620),

Gene: Tandem_107 Start: 58139, Stop: 57753, Start Num: 40
Candidate Starts for Tandem_107:
(23, 58232), (27, 58196), (35, 58163), (38, 58142), (Start: 40 @58139 has 13 MA's), (56, 58058), (62, 58040), (79, 57986), (83, 57962), (102, 57890), (112, 57854), (114, 57836),

Gene: ToriToki_76 Start: 38998, Stop: 38495, Start Num: 45
Candidate Starts for ToriToki_76:
(Start: 45 @38998 has 46 MA's), (51, 38962), (56, 38926), (62, 38890), (68, 38857), (77, 38809), (83, 38770), (114, 38659), (119, 38635), (132, 38581), (142, 38515),

Gene: Treat_78 Start: 40051, Stop: 39530, Start Num: 44
Candidate Starts for Treat_78:
(Start: 44 @40051 has 2 MA's), (46, 40030), (53, 40003), (56, 39979), (68, 39904), (69, 39901), (80, 39838), (84, 39808), (94, 39772), (96, 39760), (97, 39757), (129, 39619), (141, 39556),

Gene: Treat_76 Start: 38873, Stop: 38370, Start Num: 45
Candidate Starts for Treat_76:
(Start: 45 @38873 has 46 MA's), (51, 38837), (56, 38801), (62, 38765), (68, 38732), (74, 38699), (77, 38684), (83, 38645), (114, 38534), (119, 38510), (132, 38456),

Gene: Uterion_113 Start: 57717, Stop: 57307, Start Num: 40
Candidate Starts for Uterion_113:
(Start: 40 @57717 has 13 MA's), (51, 57675), (60, 57615), (78, 57555), (85, 57513), (112, 57411),

Gene: Uterion_112 Start: 57310, Stop: 56945, Start Num: 45
Candidate Starts for Uterion_112:
(30, 57361), (Start: 45 @57310 has 46 MA's), (56, 57241), (77, 57181), (79, 57172), (83, 57148), (87, 57133), (126, 56983), (128, 56974),

Gene: VanLee_135 Start: 73104, Stop: 72706, Start Num: 37
Candidate Starts for VanLee_135:
(Start: 37 @73104 has 3 MA's), (56, 73008), (99, 72846),

Gene: Vorvolakos_75 Start: 38620, Stop: 38138, Start Num: 45
Candidate Starts for Vorvolakos_75:
(Start: 45 @38620 has 46 MA's), (56, 38548), (62, 38515), (77, 38437), (84, 38395), (114, 38287), (129, 38224), (136, 38182),

Gene: WRightOn_78 Start: 38385, Stop: 37942, Start Num: 41
Candidate Starts for WRightOn_78:
(28, 38442), (33, 38418), (Start: 41 @38385 has 3 MA's), (77, 38196), (110, 38082), (135, 37959),

Gene: WalkingDead_53 Start: 35918, Stop: 36355, Start Num: 45
Candidate Starts for WalkingDead_53:
(Start: 45 @35918 has 46 MA's), (53, 35966), (79, 36065), (80, 36068), (87, 36104), (104, 36167), (108, 36179), (117, 36218), (134, 36299),

Gene: Welcome_109 Start: 56727, Stop: 56290, Start Num: 43
Candidate Starts for Welcome_109:
(Start: 43 @56727 has 12 MA's), (47, 56703), (52, 56682), (76, 56586), (79, 56574), (80, 56571), (89, 56529), (98, 56499), (107, 56466),

Gene: Wolfstar_113 Start: 59574, Stop: 59188, Start Num: 40
Candidate Starts for Wolfstar_113:
(25, 59646), (32, 59601), (Start: 40 @59574 has 13 MA's), (59, 59481), (70, 59442), (79, 59409), (83, 59385), (87, 59373), (113, 59277),

Gene: Yuma_105 Start: 55848, Stop: 55411, Start Num: 43
Candidate Starts for Yuma_105:
(Start: 43 @55848 has 12 MA's), (47, 55824), (52, 55803), (76, 55707), (79, 55695), (80, 55692), (89, 55650), (98, 55620), (107, 55587),

Gene: Zeigle_74 Start: 38229, Stop: 37786, Start Num: 41
Candidate Starts for Zeigle_74:
(28, 38286), (33, 38262), (Start: 41 @38229 has 3 MA's), (77, 38040), (110, 37926), (135, 37803),

Gene: ZooBear_76 Start: 38999, Stop: 38496, Start Num: 45
Candidate Starts for ZooBear_76:
(Start: 45 @38999 has 46 MA's), (51, 38963), (56, 38927), (62, 38891), (68, 38858), (77, 38810), (83, 38771), (114, 38660), (119, 38636), (132, 38582),

Gene: Zooman_323 Start: 180374, Stop: 180850, Start Num: 45
Candidate Starts for Zooman_323:
(Start: 45 @180374 has 46 MA's), (57, 180458), (64, 180485), (81, 180572), (85, 180590), (112, 180686), (115, 180707), (118, 180722), (126, 180746),

Gene: Zooman_10 Start: 4723, Stop: 5199, Start Num: 45
Candidate Starts for Zooman_10:
(Start: 45 @4723 has 46 MA's), (57, 4807), (64, 4834), (81, 4921), (85, 4939), (112, 5035), (115, 5056), (118, 5071), (126, 5095),