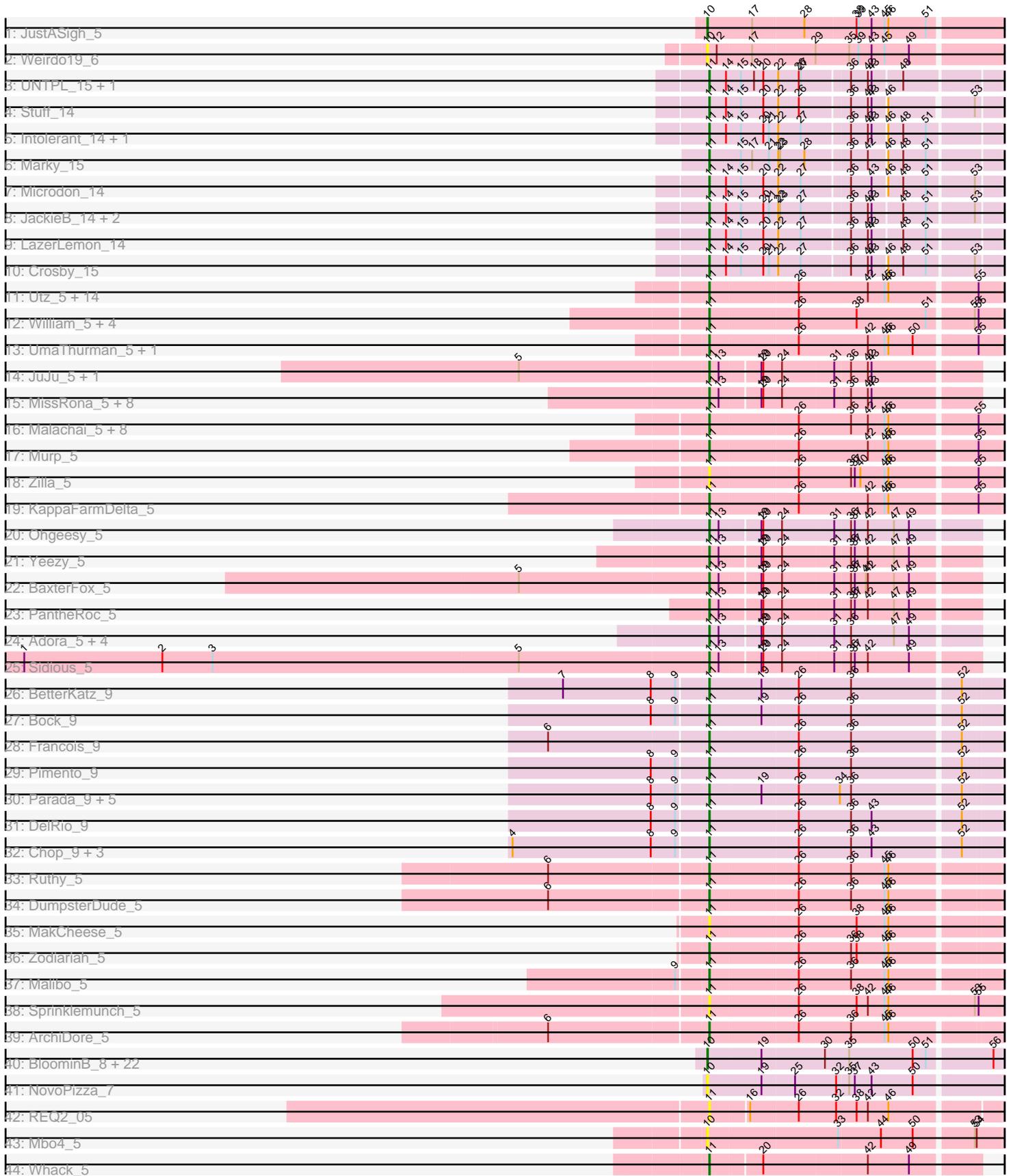# Pham 282085

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 282085 Report

This analysis was run 02/23/26 on database version 636.

Pham number 282085 has 118 members, 11 are drafts.

Phages represented in each track:
• Track 1 : JustASigh_5
• Track 2 : Weirdo19_6
• Track 3 : UNTPL_15, Bogota_15
• Track 4 : Stuff_14
• Track 5 : Intolerant_14, Shynx_15
• Track 6 : Marky_15
• Track 7 : Microdon_14
• Track 8 : JackieB_14, Henoccus_15, Araceli_15
• Track 9 : LazerLemon_14
• Track 10 : Crosby_15
• Track 11 : Utz_5, MintFen_5, Guacamole_5, Zarbodnamra_5, Lysidious_5, Jalammah_5, Melba_5, Mellie_5, Barco_5, Archis_5, BlingBling_5, JasperJr_5, CaptainKirk2_5, Hitter_5, Delian_5
• Track 12 : William_5, Fairfaxidum_5, PCoral7_5, PrincePatrick_5, Toast_5
• Track 13 : UmaThurman_5, Pipp_5
• Track 14 : JuJu_5, CheeseSpider_5
• Track 15 : MissRona_5, Walrus_5, CarolAnn_5, Petra_5, Azula_5, Blueberry_5, Frokostdame_5, Gambino_5, Blino_5
• Track 16 : Malachai_5, Wocket_5, Fenry_5, PhrostedPhlake_5, Begonia_5, ZiggyZoo_5, Samba_5, Wisp_5, Obliviate_5
• Track 17 : Murp_5
• Track 18 : Zilla_5
• Track 19 : KappaFarmDelta_5
• Track 20 : Ohgeesy_5
• Track 21 : Yeezy_5
• Track 22 : BaxterFox_5
• Track 23 : PantheRoc_5
• Track 24 : Adora_5, Shlim410_5, Hortense_5, Howe_5, Twinkle_5
• Track 25 : Sidious_5
• Track 26 : BetterKatz_9
• Track 27 : Bock_9
• Track 28 : Francois_9
• Track 29 : Pimento_9
• Track 30 : Parada_9, Nadeem_9, Brylie_9, NancyRae_9, WheatThin_9, Mulch_9
• Track 31 : DelRio_9
• Track 32 : Chop_9, Ayotoya_9, GrandSlam_9, Hamood_9
• Track 33 : Ruthy_5

• Track 34 : DumpsterDude_5
• Track 35 : MakCheese_5
• Track 36 : Zodiariah_5
• Track 37 : Malibo_5
• Track 38 : Sprinklemunch_5
• Track 39 : ArchiDore_5
• Track 40 : BloominB_8, Luna22_8, Daegal_9, Wishmaker_8, Dewey_8, Amymech_8, Giles_8, Luke_8, Ubuntu_8, Hadrien_8, Forge_8, LilHazelnut_8, HH92_8, DeepSoil15_8, Webster2_8, Gravaillia_8, OBUpride_8, Ein37_8, Gancho_7, Evanesce_8, Hail_8, Kinbote_8, Amochick_8
• Track 41 : NovoPizza_7
• Track 42 : REQ2_05
• Track 43 : Mbo4_5
• Track 44 : Whack_5

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

The start number called the most often in the published annotations is 11, it was called in 84 of the 107 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Adora_5, Araceli_15, ArchiDore_5, Archis_5, Ayotoya_9, Azula_5, Barco_5, BaxterFox_5, Begonia_5, BetterKatz_9, BlingBling_5, Blino_5, Blueberry_5, Bock_9, Bogota_15, Brylie_9, CaptainKirk2_5, CarolAnn_5, CheeseSpider_5, Chop_9, Crosby_15, DelRio_9, Delian_5, DumpsterDude_5, Fairfaxidum_5, Fenry_5, Francois_9, Frokostdame_5, Gambino_5, GrandSlam_9, Guacamole_5, Hamood_9, Henoccus_15, Hitter_5, Hortense_5, Howe_5, Intolerant_14, JackieB_14, Jalammah_5, JasperJr_5, JuJu_5, KappaFarmDelta_5, LazerLemon_14, Lysidious_5, MakCheese_5, Malachai_5, Malibo_5, Marky_15, Melba_5, Mellie_5, Microdon_14, MintFen_5, MissRona_5, Mulch_9, Murp_5, Nadeem_9, NancyRae_9, Obliviate_5, Ohgeesy_5, PCoral7_5, PantheRoc_5, Parada_9, Petra_5, PhrostedPhlake_5, Pimento_9, Pipp_5, PrincePatrick_5, REQ2_05, Ruthy_5, Samba_5, Shlim410_5, Shynx_15, Sidious_5, Sprinklemunch_5, Stuff_14, Toast_5, Twinkle_5, UNTPL_15, UmaThurman_5, Utz_5, Walrus_5, Whack_5, WheatThin_9, William_5, Wisp_5, Wocket_5, Yeezy_5, Zarbodnamra_5, ZiggyZoo_5, Zilla_5, Zodiariah_5,

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

Genes that do not have the "Most Annotated" start:
• Amochick_8, Amymech_8, BloominB_8, Daegal_9, DeepSoil15_8, Dewey_8, Ein37_8, Evanesce_8, Forge_8, Gancho_7, Giles_8, Gravaillia_8, HH92_8, Hadrien_8, Hail_8, JustASigh_5, Kinbote_8, LilHazelnut_8, Luke_8, Luna22_8, Mbo4_5, NovoPizza_7, OBUpride_8, Ubuntu_8, Webster2_8, Weirdo19_6, Wishmaker_8,

Summary by start number:

Start 10:

• Found in 27 of 118 (22.9%) of genes in pham
• Manual Annotations of this start: 23 of 107
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Amochick_8 (Q), Amymech_8 (Q), BloominB_8 (Q), Daegal_9 (Q), DeepSoil15_8 (Q), Dewey_8 (Q), Ein37_8 (Q), Evanesce_8 (Q), Forge_8 (Q), Gancho_7 (Q), Giles_8 (Q), Gravaillia_8 (Q), HH92_8 (Q), Hadrien_8 (Q), Hail_8 (Q), JustASigh_5 (AH), Kinbote_8 (Q), LilHazelnut_8 (Q), Luke_8 (Q), Luna22_8 (Q), Mbo4_5 (singleton), NovoPizza_7 (Q), OBUpride_8 (Q), Ubuntu_8 (Q), Webster2_8 (Q), Weirdo19_6 (AH), Wishmaker_8 (Q),

Start 11:
• Found in 91 of 118 (77.1%) of genes in pham
• Manual Annotations of this start: 84 of 107
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Adora_5 (CZ4), Araceli_15 (BH), ArchiDore_5 (DW), Archis_5 (CV), Ayotoya_9 (DI), Azula_5 (CV), Barco_5 (CV), BaxterFox_5 (CZ3), Begonia_5 (CV), BetterKatz_9 (DI), BlingBling_5 (CV), Blino_5 (CV), Blueberry_5 (CV), Bock_9 (DI), Bogota_15 (BH), Brylie_9 (DI), CaptainKirk2_5 (CV), CarolAnn_5 (CV), CheeseSpider_5 (CV), Chop_9 (DI), Crosby_15 (BH), DelRio_9 (DI), Delian_5 (CV), DumpsterDude_5 (DW), Fairfaxidum_5 (CV), Fenry_5 (CV), Francois_9 (DI), Frokostdame_5 (CV), Gambino_5 (CV), GrandSlam_9 (DI), Guacamole_5 (CV), Hamood_9 (DI), Henoccus_15 (BH), Hitter_5 (CV), Hortense_5 (CZ4), Howe_5 (CZ4), Intolerant_14 (BH), JackieB_14 (BH), Jalammah_5 (CV), JasperJr_5 (CV), JuJu_5 (CV), KappaFarmDelta_5 (CV), LazerLemon_14 (BH), Lysidious_5 (CV), MakCheese_5 (DW), Malachai_5 (CV), Malibo_5 (DW), Marky_15 (BH), Melba_5 (CV), Mellie_5 (CV), Microdon_14 (BH), MintFen_5 (CV), MissRona_5 (CV), Mulch_9 (DI), Murp_5 (CV), Nadeem_9 (DI), NancyRae_9 (DI), Obliviate_5 (CV), Ohgeesy_5 (CZ), PCoral7_5 (CV), PantheRoc_5 (CZ3), Parada_9 (DI), Petra_5 (CV), PhrostedPhlake_5 (CV), Pimento_9 (DI), Pipp_5 (CV), PrincePatrick_5 (CV), REQ2_05 (singleton), Ruthy_5 (DW), Samba_5 (CV), Shlim410_5 (CZ4), Shynx_15 (BH), Sidious_5 (CZ7), Sprinklemunch_5 (DW), Stuff_14 (BH), Toast_5 (CV), Twinkle_5 (CZ4), UNTPL_15 (BH), UmaThurman_5 (CV), Utz_5 (CV), Walrus_5 (CV), Whack_5 (singleton), WheatThin_9 (DI), William_5 (CV), Wisp_5 (CV), Wocket_5 (CV), Yeezy_5 (CZ3), Zarbodnamra_5 (CV), ZiggyZoo_5 (CV), Zilla_5 (CV), Zodiariah_5 (DW),

Summary by clusters:

There are 11 clusters represented in this pham: singleton, DI, CZ3, BH, CZ7, CZ4, Q, CZ, AH, DW, CV,

Info for manual annotations of cluster AH:
•Start number 10 was manually annotated 1 time for cluster AH.

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

Info for manual annotations of cluster CV:
•Start number 11 was manually annotated 42 times for cluster CV.

Info for manual annotations of cluster CZ:
•Start number 11 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ3:
•Start number 11 was manually annotated 3 times for cluster CZ3.

Info for manual annotations of cluster CZ4:
•Start number 11 was manually annotated 5 times for cluster CZ4.

Info for manual annotations of cluster CZ7:
•Start number 11 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster DI:
•Start number 11 was manually annotated 15 times for cluster DI.

Info for manual annotations of cluster DW:
•Start number 11 was manually annotated 5 times for cluster DW.

Info for manual annotations of cluster Q:
•Start number 10 was manually annotated 22 times for cluster Q.

Gene Information:

Gene: Adora_5 Start: 4490, Stop: 4900, Start Num: 11
Candidate Starts for Adora_5:
(Start: 11 @4490 has 84 MA's), (13, 4505), (19, 4565), (20, 4568), (24, 4598), (31, 4679), (36, 4703), (47, 4772), (49, 4796),

Gene: Amochick_8 Start: 6094, Stop: 6546, Start Num: 10
Candidate Starts for Amochick_8:
(Start: 10 @6094 has 23 MA's), (19, 6175), (30, 6274), (35, 6313), (50, 6415), (51, 6436), (56, 6532),

Gene: Amymech_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Amymech_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Araceli_15 Start: 11201, Stop: 11638, Start Num: 11
Candidate Starts for Araceli_15:
(Start: 11 @11201 has 84 MA's), (14, 11228), (15, 11252), (20, 11288), (21, 11297), (22, 11309), (23, 11312), (27, 11345), (36, 11417), (42, 11444), (43, 11450), (48, 11495), (51, 11531), (53, 11600),

Gene: ArchiDore_5 Start: 4941, Stop: 5387, Start Num: 11
Candidate Starts for ArchiDore_5:
(6, 4695), (Start: 11 @4941 has 84 MA's), (26, 5079), (36, 5163), (45, 5217), (46, 5223),

Gene: Archis_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for Archis_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: Ayotoya_9 Start: 6663, Stop: 7109, Start Num: 11
Candidate Starts for Ayotoya_9:
(4, 6360), (8, 6582), (9, 6618), (Start: 11 @6663 has 84 MA's), (26, 6801), (36, 6885), (43, 6918), (52, 7050),

Gene: Azula_5 Start: 4627, Stop: 5037, Start Num: 11
Candidate Starts for Azula_5:
(Start: 11 @4627 has 84 MA's), (13, 4642), (19, 4702), (20, 4705), (24, 4735), (31, 4816), (36, 4840), (42, 4867), (43, 4873),

Gene: Barco_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for Barco_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: BaxterFox_5 Start: 4481, Stop: 4891, Start Num: 11
Candidate Starts for BaxterFox_5:
(5, 4181), (Start: 11 @4481 has 84 MA's), (13, 4496), (19, 4556), (20, 4559), (24, 4589), (31, 4670), (36, 4694), (37, 4700), (41, 4718), (42, 4721), (47, 4763), (49, 4787),

Gene: Begonia_5 Start: 4733, Stop: 5185, Start Num: 11
Candidate Starts for Begonia_5:
(Start: 11 @4733 has 84 MA's), (26, 4871), (36, 4955), (42, 4982), (45, 5009), (46, 5015), (55, 5147),

Gene: BetterKatz_9 Start: 6631, Stop: 7077, Start Num: 11
Candidate Starts for BetterKatz_9:
(7, 6409), (8, 6550), (9, 6586), (Start: 11 @6631 has 84 MA's), (19, 6712), (26, 6769), (36, 6853), (52, 7018),

Gene: BlingBling_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for BlingBling_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: Blino_5 Start: 4630, Stop: 5040, Start Num: 11
Candidate Starts for Blino_5:
(Start: 11 @4630 has 84 MA's), (13, 4645), (19, 4705), (20, 4708), (24, 4738), (31, 4819), (36, 4843), (42, 4870), (43, 4876),

Gene: BloominB_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for BloominB_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Blueberry_5 Start: 4627, Stop: 5037, Start Num: 11
Candidate Starts for Blueberry_5:
(Start: 11 @4627 has 84 MA's), (13, 4642), (19, 4702), (20, 4705), (24, 4735), (31, 4816), (36, 4840), (42, 4867), (43, 4873),

Gene: Bock_9 Start: 6381, Stop: 6827, Start Num: 11
Candidate Starts for Bock_9:
(8, 6300), (9, 6336), (Start: 11 @6381 has 84 MA's), (19, 6462), (26, 6519), (36, 6603), (52, 6768),

Gene: Bogota_15 Start: 11330, Stop: 11767, Start Num: 11
Candidate Starts for Bogota_15:
(Start: 11 @11330 has 84 MA's), (14, 11357), (15, 11381), (18, 11402), (20, 11417), (22, 11438), (26, 11471), (27, 11474), (36, 11546), (42, 11573), (43, 11579), (48, 11624),

Gene: Brylie_9 Start: 6378, Stop: 6824, Start Num: 11
Candidate Starts for Brylie_9:

(8, 6297), (9, 6333), (Start: 11 @6378 has 84 MA's), (19, 6459), (26, 6516), (34, 6582), (36, 6600), (52, 6765),

Gene: CaptainKirk2_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for CaptainKirk2_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: CarolAnn_5 Start: 4629, Stop: 5039, Start Num: 11
Candidate Starts for CarolAnn_5:
(Start: 11 @4629 has 84 MA's), (13, 4644), (19, 4704), (20, 4707), (24, 4737), (31, 4818), (36, 4842), (42, 4869), (43, 4875),

Gene: CheeseSpider_5 Start: 4627, Stop: 5037, Start Num: 11
Candidate Starts for CheeseSpider_5:
(5, 4327), (Start: 11 @4627 has 84 MA's), (13, 4642), (19, 4702), (20, 4705), (24, 4735), (31, 4816), (36, 4840), (42, 4867), (43, 4873),

Gene: Chop_9 Start: 6411, Stop: 6857, Start Num: 11
Candidate Starts for Chop_9:
(4, 6108), (8, 6330), (9, 6366), (Start: 11 @6411 has 84 MA's), (26, 6549), (36, 6633), (43, 6666), (52, 6798),

Gene: Crosby_15 Start: 11315, Stop: 11752, Start Num: 11
Candidate Starts for Crosby_15:
(Start: 11 @11315 has 84 MA's), (14, 11342), (15, 11366), (20, 11402), (21, 11411), (22, 11423), (27, 11459), (36, 11531), (42, 11558), (43, 11564), (46, 11585), (48, 11609), (51, 11645), (53, 11714),

Gene: Daegal_9 Start: 6391, Stop: 6843, Start Num: 10
Candidate Starts for Daegal_9:
(Start: 10 @6391 has 23 MA's), (19, 6472), (30, 6571), (35, 6610), (50, 6712), (51, 6733), (56, 6829),

Gene: DeepSoil15_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for DeepSoil15_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: DelRio_9 Start: 6675, Stop: 7121, Start Num: 11
Candidate Starts for DelRio_9:
(8, 6594), (9, 6630), (Start: 11 @6675 has 84 MA's), (26, 6813), (36, 6897), (43, 6930), (52, 7062),

Gene: Delian_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for Delian_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: Dewey_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Dewey_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: DumpsterDude_5 Start: 4950, Stop: 5396, Start Num: 11
Candidate Starts for DumpsterDude_5:
(6, 4704), (Start: 11 @4950 has 84 MA's), (26, 5088), (36, 5172), (45, 5226), (46, 5232),

Gene: Ein37_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Ein37_8:

(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Evanesce_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Evanesce_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Fairfaxidum_5 Start: 4725, Stop: 5177, Start Num: 11
Candidate Starts for Fairfaxidum_5:
(Start: 11 @4725 has 84 MA's), (26, 4863), (38, 4956), (51, 5067), (53, 5133), (55, 5139),

Gene: Fenry_5 Start: 4731, Stop: 5183, Start Num: 11
Candidate Starts for Fenry_5:
(Start: 11 @4731 has 84 MA's), (26, 4869), (36, 4953), (42, 4980), (45, 5007), (46, 5013), (55, 5145),

Gene: Forge_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Forge_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Francois_9 Start: 6380, Stop: 6826, Start Num: 11
Candidate Starts for Francois_9:
(6, 6134), (Start: 11 @6380 has 84 MA's), (26, 6518), (36, 6602), (52, 6767),

Gene: Frokostdame_5 Start: 4698, Stop: 5108, Start Num: 11
Candidate Starts for Frokostdame_5:
(Start: 11 @4698 has 84 MA's), (13, 4713), (19, 4773), (20, 4776), (24, 4806), (31, 4887), (36, 4911), (42, 4938), (43, 4944),

Gene: Gambino_5 Start: 4627, Stop: 5037, Start Num: 11
Candidate Starts for Gambino_5:
(Start: 11 @4627 has 84 MA's), (13, 4642), (19, 4702), (20, 4705), (24, 4735), (31, 4816), (36, 4840), (42, 4867), (43, 4873),

Gene: Gancho_7 Start: 5800, Stop: 6252, Start Num: 10
Candidate Starts for Gancho_7:
(Start: 10 @5800 has 23 MA's), (19, 5881), (30, 5980), (35, 6019), (50, 6121), (51, 6142), (56, 6238),

Gene: Giles_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Giles_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: GrandSlam_9 Start: 6411, Stop: 6857, Start Num: 11
Candidate Starts for GrandSlam_9:
(4, 6108), (8, 6330), (9, 6366), (Start: 11 @6411 has 84 MA's), (26, 6549), (36, 6633), (43, 6666), (52, 6798),

Gene: Gravaillia_8 Start: 5833, Stop: 6285, Start Num: 10
Candidate Starts for Gravaillia_8:
(Start: 10 @5833 has 23 MA's), (19, 5914), (30, 6013), (35, 6052), (50, 6154), (51, 6175), (56, 6271),

Gene: Guacamole_5 Start: 4734, Stop: 5186, Start Num: 11
Candidate Starts for Guacamole_5:
(Start: 11 @4734 has 84 MA's), (26, 4872), (42, 4983), (45, 5010), (46, 5016), (55, 5148),

Gene: HH92_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for HH92_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Hadrien_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Hadrien_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Hail_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Hail_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Hamood_9 Start: 6411, Stop: 6857, Start Num: 11
Candidate Starts for Hamood_9:
(4, 6108), (8, 6330), (9, 6366), (Start: 11 @6411 has 84 MA's), (26, 6549), (36, 6633), (43, 6666), (52, 6798),

Gene: Henoccus_15 Start: 11211, Stop: 11648, Start Num: 11
Candidate Starts for Henoccus_15:
(Start: 11 @11211 has 84 MA's), (14, 11238), (15, 11262), (20, 11298), (21, 11307), (22, 11319), (23, 11322), (27, 11355), (36, 11427), (42, 11454), (43, 11460), (48, 11505), (51, 11541), (53, 11610),

Gene: Hitter_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for Hitter_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: Hortense_5 Start: 4490, Stop: 4900, Start Num: 11
Candidate Starts for Hortense_5:
(Start: 11 @4490 has 84 MA's), (13, 4505), (19, 4565), (20, 4568), (24, 4598), (31, 4679), (36, 4703), (47, 4772), (49, 4796),

Gene: Howe_5 Start: 4490, Stop: 4900, Start Num: 11
Candidate Starts for Howe_5:
(Start: 11 @4490 has 84 MA's), (13, 4505), (19, 4565), (20, 4568), (24, 4598), (31, 4679), (36, 4703), (47, 4772), (49, 4796),

Gene: Intolerant_14 Start: 11194, Stop: 11631, Start Num: 11
Candidate Starts for Intolerant_14:
(Start: 11 @11194 has 84 MA's), (14, 11221), (15, 11245), (20, 11281), (21, 11290), (22, 11302), (27, 11338), (36, 11410), (42, 11437), (43, 11443), (46, 11464), (48, 11488), (51, 11524),

Gene: JackieB_14 Start: 11066, Stop: 11503, Start Num: 11
Candidate Starts for JackieB_14:
(Start: 11 @11066 has 84 MA's), (14, 11093), (15, 11117), (20, 11153), (21, 11162), (22, 11174), (23, 11177), (27, 11210), (36, 11282), (42, 11309), (43, 11315), (48, 11360), (51, 11396), (53, 11465),

Gene: Jalammah_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for Jalammah_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: JasperJr_5 Start: 4734, Stop: 5186, Start Num: 11
Candidate Starts for JasperJr_5:
(Start: 11 @4734 has 84 MA's), (26, 4872), (42, 4983), (45, 5010), (46, 5016), (55, 5148),

Gene: JuJu_5 Start: 4640, Stop: 5050, Start Num: 11
Candidate Starts for JuJu_5:
(5, 4340), (Start: 11 @4640 has 84 MA's), (13, 4655), (19, 4715), (20, 4718), (24, 4748), (31, 4829), (36, 4853), (42, 4880), (43, 4886),

Gene: JustASigh_5 Start: 5107, Stop: 5562, Start Num: 10
Candidate Starts for JustASigh_5:
(Start: 10 @5107 has 23 MA's), (17, 5176), (28, 5257), (38, 5338), (39, 5341), (43, 5362), (45, 5383), (46, 5389), (51, 5449),

Gene: KappaFarmDelta_5 Start: 4715, Stop: 5167, Start Num: 11
Candidate Starts for KappaFarmDelta_5:
(Start: 11 @4715 has 84 MA's), (26, 4853), (42, 4964), (45, 4991), (46, 4997), (55, 5129),

Gene: Kinbote_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Kinbote_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: LazerLemon_14 Start: 11402, Stop: 11839, Start Num: 11
Candidate Starts for LazerLemon_14:
(Start: 11 @11402 has 84 MA's), (14, 11429), (15, 11453), (20, 11489), (22, 11510), (27, 11546), (36, 11618), (42, 11645), (43, 11651), (48, 11696), (51, 11732),

Gene: LilHazelnut_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for LilHazelnut_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Luke_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Luke_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Luna22_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Luna22_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Lysidious_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for Lysidious_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: MakCheese_5 Start: 4940, Stop: 5386, Start Num: 11
Candidate Starts for MakCheese_5:
(Start: 11 @4940 has 84 MA's), (26, 5078), (38, 5171), (45, 5216), (46, 5222),

Gene: Malachai_5 Start: 4733, Stop: 5185, Start Num: 11
Candidate Starts for Malachai_5:
(Start: 11 @4733 has 84 MA's), (26, 4871), (36, 4955), (42, 4982), (45, 5009), (46, 5015), (55, 5147),

Gene: Malibo_5 Start: 4956, Stop: 5402, Start Num: 11
Candidate Starts for Malibo_5:
(9, 4911), (Start: 11 @4956 has 84 MA's), (26, 5094), (36, 5178), (45, 5232), (46, 5238),

Gene: Marky_15 Start: 11238, Stop: 11675, Start Num: 11

Candidate Starts for Marky_15:
(Start: 11 @11238 has 84 MA's), (15, 11289), (17, 11307), (21, 11334), (22, 11346), (23, 11349), (28, 11388), (36, 11454), (42, 11481), (46, 11508), (48, 11532), (51, 11568),

Gene: Mbo4_5 Start: 4975, Stop: 5424, Start Num: 10
Candidate Starts for Mbo4_5:
(Start: 10 @4975 has 23 MA's), (33, 5176), (44, 5242), (50, 5293), (53, 5380), (54, 5383),

Gene: Melba_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for Melba_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: Mellie_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for Mellie_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: Microdon_14 Start: 11000, Stop: 11437, Start Num: 11
Candidate Starts for Microdon_14:
(Start: 11 @11000 has 84 MA's), (14, 11027), (15, 11051), (20, 11087), (22, 11108), (27, 11144), (36, 11216), (43, 11249), (46, 11270), (48, 11294), (51, 11330), (53, 11399),

Gene: MintFen_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for MintFen_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: MissRona_5 Start: 4627, Stop: 5037, Start Num: 11
Candidate Starts for MissRona_5:
(Start: 11 @4627 has 84 MA's), (13, 4642), (19, 4702), (20, 4705), (24, 4735), (31, 4816), (36, 4840), (42, 4867), (43, 4873),

Gene: Mulch_9 Start: 6378, Stop: 6824, Start Num: 11
Candidate Starts for Mulch_9:
(8, 6297), (9, 6333), (Start: 11 @6378 has 84 MA's), (19, 6459), (26, 6516), (34, 6582), (36, 6600), (52, 6765),

Gene: Murp_5 Start: 4718, Stop: 5170, Start Num: 11
Candidate Starts for Murp_5:
(Start: 11 @4718 has 84 MA's), (26, 4856), (42, 4967), (45, 4994), (46, 5000), (55, 5132),

Gene: Nadeem_9 Start: 6378, Stop: 6824, Start Num: 11
Candidate Starts for Nadeem_9:
(8, 6297), (9, 6333), (Start: 11 @6378 has 84 MA's), (19, 6459), (26, 6516), (34, 6582), (36, 6600), (52, 6765),

Gene: NancyRae_9 Start: 6378, Stop: 6824, Start Num: 11
Candidate Starts for NancyRae_9:
(8, 6297), (9, 6333), (Start: 11 @6378 has 84 MA's), (19, 6459), (26, 6516), (34, 6582), (36, 6600), (52, 6765),

Gene: NovoPizza_7 Start: 6225, Stop: 6674, Start Num: 10
Candidate Starts for NovoPizza_7:
(Start: 10 @6225 has 23 MA's), (19, 6306), (25, 6357), (32, 6423), (35, 6441), (37, 6450), (43, 6477), (50, 6543),

Gene: OBUpride_8 Start: 6094, Stop: 6546, Start Num: 10
Candidate Starts for OBUpride_8:
(Start: 10 @6094 has 23 MA's), (19, 6175), (30, 6274), (35, 6313), (50, 6415), (51, 6436), (56, 6532),

Gene: Obliviate_5 Start: 4754, Stop: 5206, Start Num: 11
Candidate Starts for Obliviate_5:
(Start: 11 @4754 has 84 MA's), (26, 4892), (36, 4976), (42, 5003), (45, 5030), (46, 5036), (55, 5168),

Gene: Ohgeesy_5 Start: 4481, Stop: 4891, Start Num: 11
Candidate Starts for Ohgeesy_5:
(Start: 11 @4481 has 84 MA's), (13, 4496), (19, 4556), (20, 4559), (24, 4589), (31, 4670), (36, 4694), (37, 4700), (42, 4721), (47, 4763), (49, 4787),

Gene: PCoral7_5 Start: 4725, Stop: 5177, Start Num: 11
Candidate Starts for PCoral7_5:
(Start: 11 @4725 has 84 MA's), (26, 4863), (38, 4956), (51, 5067), (53, 5133), (55, 5139),

Gene: PantheRoc_5 Start: 4481, Stop: 4891, Start Num: 11
Candidate Starts for PantheRoc_5:
(Start: 11 @4481 has 84 MA's), (13, 4496), (19, 4556), (20, 4559), (24, 4589), (31, 4670), (36, 4694), (37, 4700), (42, 4721), (47, 4763), (49, 4787),

Gene: Parada_9 Start: 6378, Stop: 6824, Start Num: 11
Candidate Starts for Parada_9:
(8, 6297), (9, 6333), (Start: 11 @6378 has 84 MA's), (19, 6459), (26, 6516), (34, 6582), (36, 6600), (52, 6765),

Gene: Petra_5 Start: 4627, Stop: 5037, Start Num: 11
Candidate Starts for Petra_5:
(Start: 11 @4627 has 84 MA's), (13, 4642), (19, 4702), (20, 4705), (24, 4735), (31, 4816), (36, 4840), (42, 4867), (43, 4873),

Gene: PhrostedPhlake_5 Start: 4752, Stop: 5204, Start Num: 11
Candidate Starts for PhrostedPhlake_5:
(Start: 11 @4752 has 84 MA's), (26, 4890), (36, 4974), (42, 5001), (45, 5028), (46, 5034), (55, 5166),

Gene: Pimento_9 Start: 6375, Stop: 6821, Start Num: 11
Candidate Starts for Pimento_9:
(8, 6294), (9, 6330), (Start: 11 @6375 has 84 MA's), (26, 6513), (36, 6597), (52, 6762),

Gene: Pipp_5 Start: 4753, Stop: 5205, Start Num: 11
Candidate Starts for Pipp_5:
(Start: 11 @4753 has 84 MA's), (26, 4891), (42, 5002), (45, 5029), (46, 5035), (50, 5074), (55, 5167),

Gene: PrincePatrick_5 Start: 4726, Stop: 5178, Start Num: 11
Candidate Starts for PrincePatrick_5:
(Start: 11 @4726 has 84 MA's), (26, 4864), (38, 4957), (51, 5068), (53, 5134), (55, 5140),

Gene: REQ2_05 Start: 4445, Stop: 4885, Start Num: 11
Candidate Starts for REQ2_05:
(Start: 11 @4445 has 84 MA's), (16, 4502), (26, 4577), (32, 4637), (38, 4670), (42, 4688), (46, 4721),

Gene: Ruthy_5 Start: 5019, Stop: 5465, Start Num: 11
Candidate Starts for Ruthy_5:
(6, 4773), (Start: 11 @5019 has 84 MA's), (26, 5157), (36, 5241), (45, 5295), (46, 5301),

Gene: Samba_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for Samba_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (36, 4952), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: Shlim410_5 Start: 4490, Stop: 4900, Start Num: 11
Candidate Starts for Shlim410_5:
(Start: 11 @4490 has 84 MA's), (13, 4505), (19, 4565), (20, 4568), (24, 4598), (31, 4679), (36, 4703), (47, 4772), (49, 4796),

Gene: Shynx_15 Start: 11462, Stop: 11899, Start Num: 11
Candidate Starts for Shynx_15:
(Start: 11 @11462 has 84 MA's), (14, 11489), (15, 11513), (20, 11549), (21, 11558), (22, 11570), (27, 11606), (36, 11678), (42, 11705), (43, 11711), (46, 11732), (48, 11756), (51, 11792),

Gene: Sidious_5 Start: 4484, Stop: 4894, Start Num: 11
Candidate Starts for Sidious_5:
(1, 3392), (2, 3614), (3, 3695), (5, 4184), (Start: 11 @4484 has 84 MA's), (13, 4499), (19, 4559), (20, 4562), (24, 4592), (31, 4673), (36, 4697), (37, 4703), (42, 4724), (49, 4790),

Gene: Sprinklemunch_5 Start: 4941, Stop: 5405, Start Num: 11
Candidate Starts for Sprinklemunch_5:
(Start: 11 @4941 has 84 MA's), (26, 5079), (38, 5172), (42, 5190), (45, 5217), (46, 5223), (53, 5361), (55, 5367),

Gene: Stuff_14 Start: 11197, Stop: 11631, Start Num: 11
Candidate Starts for Stuff_14:
(Start: 11 @11197 has 84 MA's), (14, 11224), (15, 11248), (20, 11284), (22, 11305), (26, 11338), (36, 11413), (42, 11440), (43, 11446), (46, 11467), (53, 11593),

Gene: Toast_5 Start: 4725, Stop: 5177, Start Num: 11
Candidate Starts for Toast_5:
(Start: 11 @4725 has 84 MA's), (26, 4863), (38, 4956), (51, 5067), (53, 5133), (55, 5139),

Gene: Twinkle_5 Start: 4490, Stop: 4900, Start Num: 11
Candidate Starts for Twinkle_5:
(Start: 11 @4490 has 84 MA's), (13, 4505), (19, 4565), (20, 4568), (24, 4598), (31, 4679), (36, 4703), (47, 4772), (49, 4796),

Gene: UNTPL_15 Start: 11314, Stop: 11751, Start Num: 11
Candidate Starts for UNTPL_15:
(Start: 11 @11314 has 84 MA's), (14, 11341), (15, 11365), (18, 11386), (20, 11401), (22, 11422), (26, 11455), (27, 11458), (36, 11530), (42, 11557), (43, 11563), (48, 11608),

Gene: Ubuntu_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Ubuntu_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: UmaThurman_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for UmaThurman_5:

(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (50, 5051), (55, 5144),

Gene: Utz_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for Utz_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: Walrus_5 Start: 4630, Stop: 5040, Start Num: 11
Candidate Starts for Walrus_5:
(Start: 11 @4630 has 84 MA's), (13, 4645), (19, 4705), (20, 4708), (24, 4738), (31, 4819), (36, 4843), (42, 4870), (43, 4876),

Gene: Webster2_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Webster2_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Weirdo19_6 Start: 4950, Stop: 5405, Start Num: 10
Candidate Starts for Weirdo19_6:
(Start: 10 @4950 has 23 MA's), (12, 4962), (17, 5016), (29, 5115), (35, 5169), (39, 5184), (43, 5205), (45, 5226), (49, 5265),

Gene: Whack_5 Start: 4499, Stop: 4909, Start Num: 11
Candidate Starts for Whack_5:
(Start: 11 @4499 has 84 MA's), (20, 4577), (42, 4739), (49, 4805),

Gene: WheatThin_9 Start: 6378, Stop: 6824, Start Num: 11
Candidate Starts for WheatThin_9:
(8, 6297), (9, 6333), (Start: 11 @6378 has 84 MA's), (19, 6459), (26, 6516), (34, 6582), (36, 6600), (52, 6765),

Gene: William_5 Start: 4725, Stop: 5177, Start Num: 11
Candidate Starts for William_5:
(Start: 11 @4725 has 84 MA's), (26, 4863), (38, 4956), (51, 5067), (53, 5133), (55, 5139),

Gene: Wishmaker_8 Start: 6100, Stop: 6552, Start Num: 10
Candidate Starts for Wishmaker_8:
(Start: 10 @6100 has 23 MA's), (19, 6181), (30, 6280), (35, 6319), (50, 6421), (51, 6442), (56, 6538),

Gene: Wisp_5 Start: 4730, Stop: 5182, Start Num: 11
Candidate Starts for Wisp_5:
(Start: 11 @4730 has 84 MA's), (26, 4868), (36, 4952), (42, 4979), (45, 5006), (46, 5012), (55, 5144),

Gene: Wocket_5 Start: 4721, Stop: 5173, Start Num: 11
Candidate Starts for Wocket_5:
(Start: 11 @4721 has 84 MA's), (26, 4859), (36, 4943), (42, 4970), (45, 4997), (46, 5003), (55, 5135),

Gene: Yeezy_5 Start: 4481, Stop: 4891, Start Num: 11
Candidate Starts for Yeezy_5:
(Start: 11 @4481 has 84 MA's), (13, 4496), (19, 4556), (20, 4559), (24, 4589), (31, 4670), (36, 4694), (37, 4700), (42, 4721), (47, 4763), (49, 4787),

Gene: Zarbodnamra_5 Start: 4729, Stop: 5181, Start Num: 11
Candidate Starts for Zarbodnamra_5:
(Start: 11 @4729 has 84 MA's), (26, 4867), (42, 4978), (45, 5005), (46, 5011), (55, 5143),

Gene: ZiggyZoo_5 Start: 4754, Stop: 5206, Start Num: 11
Candidate Starts for ZiggyZoo_5:
(Start: 11 @4754 has 84 MA's), (26, 4892), (36, 4976), (42, 5003), (45, 5030), (46, 5036), (55, 5168),

Gene: Zilla_5 Start: 4721, Stop: 5173, Start Num: 11
Candidate Starts for Zilla_5:
(Start: 11 @4721 has 84 MA's), (26, 4859), (36, 4943), (37, 4949), (40, 4958), (45, 4997), (46, 5003), (55, 5135),

Gene: Zodiariah_5 Start: 4945, Stop: 5391, Start Num: 11
Candidate Starts for Zodiariah_5:
(Start: 11 @4945 has 84 MA's), (26, 5083), (36, 5167), (38, 5176), (45, 5221), (46, 5227),