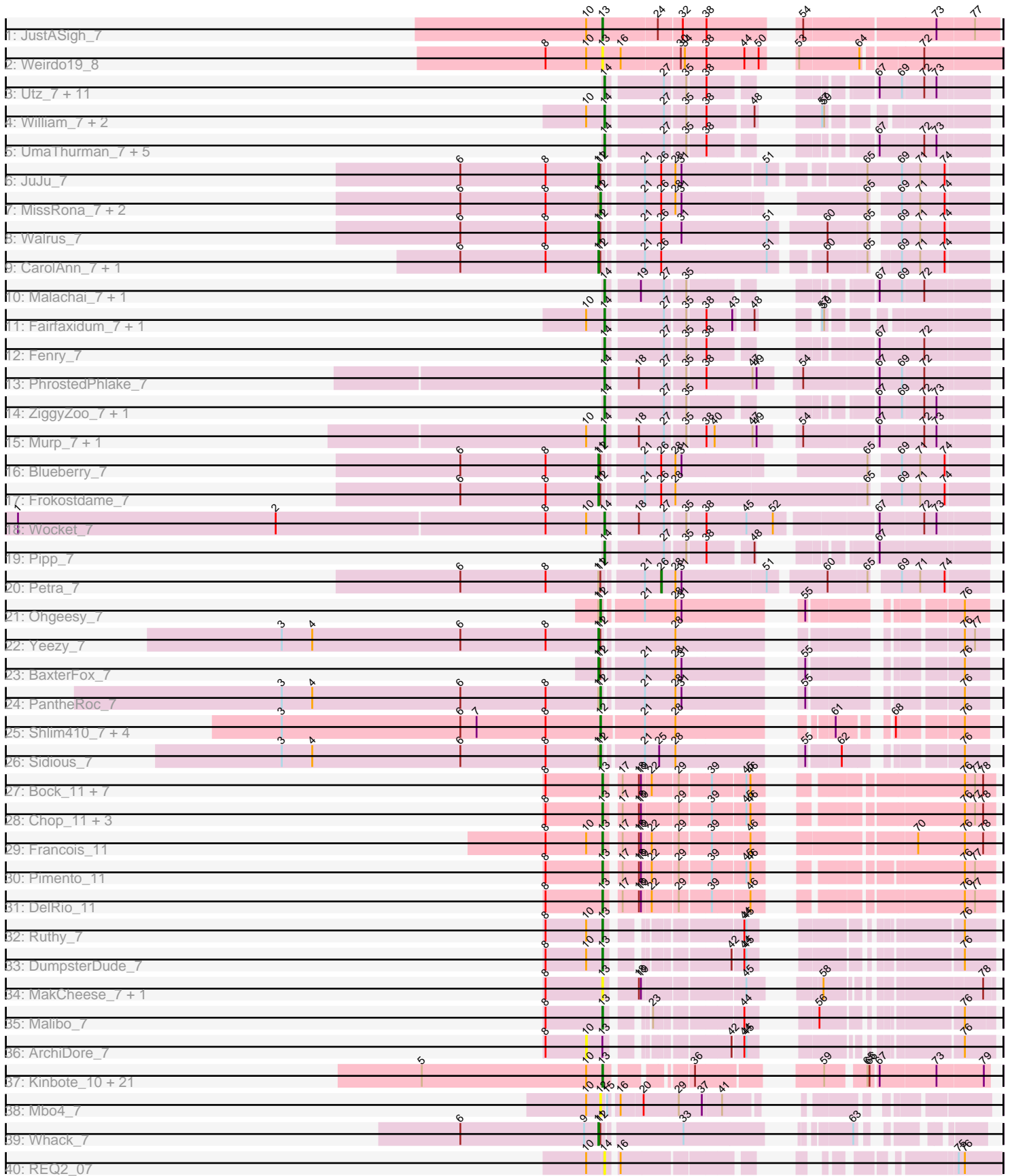


Pham 223038



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 223038 Report

This analysis was run 03/28/25 on database version 593.

Pham number 223038 has 101 members, 7 are drafts.

Phages represented in each track:

- Track 1 : JustASigh_7
- Track 2 : Weirido19_8
- Track 3 : Utz_7, MintFen_7, Guacamole_7, CaptainKirk2_7, Zarbodnamra_7, Lysidious_7, Melba_7, Barco_7, Wisp_7, BlingBling_7, JasperJr_7, Delian_7
- Track 4 : William_7, PCoral7_7, Toast_7
- Track 5 : UmaThurman_7, Jalammah_7, Mellie_7, Samba_7, Archis_7, Hitter_7
- Track 6 : JuJu_7
- Track 7 : MissRona_7, Azula_7, Gambino_7
- Track 8 : Walrus_7
- Track 9 : CarolAnn_7, Blino_7
- Track 10 : Malachai_7, Begonia_7
- Track 11 : Fairfaxidum_7, PrincePatrick_7
- Track 12 : Fenry_7
- Track 13 : PhrostedPhlake_7
- Track 14 : ZiggyZoo_7, Obliviate_7
- Track 15 : Murp_7, KappaFarmDelta_7
- Track 16 : Blueberry_7
- Track 17 : Frokostdame_7
- Track 18 : Wocket_7
- Track 19 : Pipp_7
- Track 20 : Petra_7
- Track 21 : Ohgeesy_7
- Track 22 : Yeezy_7
- Track 23 : BaxterFox_7
- Track 24 : PantheRoc_7
- Track 25 : Shlim410_7, Hortense_7, Howe_7, Twinkle_7, Adora_7
- Track 26 : Sidious_7
- Track 27 : Bock_11, Mulch_11, WheatThin_11, Nadeem_11, BetterKatz_11, Brylie_11, Parada_11, NancyRae_11
- Track 28 : Chop_11, Ayotoya_11, GrandSlam_11, Hamood_11
- Track 29 : Francois_11
- Track 30 : Pimento_11
- Track 31 : DelRio_11
- Track 32 : Ruthy_7
- Track 33 : DumpsterDude_7
- Track 34 : MakCheese_7, Zodiariah_7
- Track 35 : Malibo_7

- Track 36 : ArchiDore_7
- Track 37 : Kinbote_10, HH92_10, Ein37_10, OBUpride_10, Daegal_11, Amochick_10, Luna22_10, Ubuntu_10, Evanesce_10, DeepSoil15_10, Dewey_10, Amymech_10, Gravaillia_10, Webster2_10, Giles_10, Wishmaker_10, Luke_10, Gancho_9, Hail_10, LilHazelNut_10, Hadrien_10, Forge_10
- Track 38 : Mbo4_7
- Track 39 : Whack_7
- Track 40 : REQ2_07

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

The start number called the most often in the published annotations is 13, it was called in 41 of the 94 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amochick_10, Amymech_10, Ayotoya_11, BetterKatz_11, Bock_11, Brylie_11, Chop_11, Daegal_11, DeepSoil15_10, DelRio_11, Dewey_10, DumpsterDude_7, Ein37_10, Evanesce_10, Forge_10, Francois_11, Gancho_9, Giles_10, GrandSlam_11, Gravaillia_10, HH92_10, Hadrien_10, Hail_10, Hamood_11, JustASigh_7, Kinbote_10, LilHazelNut_10, Luke_10, Luna22_10, MakCheese_7, Malibo_7, Mulch_11, Nadeem_11, NancyRae_11, OBUpride_10, Parada_11, Pimento_11, Ruthy_7, Ubuntu_10, Webster2_10, Weirido19_8, WheatThin_11, Wishmaker_10, Zodiariah_7,

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

- ArchiDore_7,

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

- Adora_7, Archis_7, Azula_7, Barco_7, BaxterFox_7, Begonia_7, BlingBling_7, Blino_7, Blueberry_7, CaptainKirk2_7, CarolAnn_7, Delian_7, Fairfaxidum_7, Fenry_7, Frokostdame_7, Gambino_7, Guacamole_7, Hitter_7, Hortense_7, Howe_7, Jalammah_7, JasperJr_7, JuJu_7, KappaFarmDelta_7, Lysidious_7, Malachai_7, Mbo4_7, Melba_7, Mellie_7, MintFen_7, MissRona_7, Murp_7, Obliviate_7, Ohgeesy_7, PCoral7_7, PantheRoc_7, Petra_7, PhrostedPhlake_7, Pipp_7, PrincePatrick_7, REQ2_07, Samba_7, Shlim410_7, Sidious_7, Toast_7, Twinkle_7, UmaThurman_7, Utz_7, Walrus_7, Whack_7, William_7, Wisp_7, Wocket_7, Yeezy_7, Zarbodnamra_7, ZiggyZoo_7,

Summary by start number:

Start 10:

- Found in 38 of 101 (37.6%) of genes in pham
- No Manual Annotations of this start.
- Called 2.6% of time when present
- Phage (with cluster) where this start called: ArchiDore_7 (DW),

Start 11:

- Found in 16 of 101 (15.8%) of genes in pham
- Manual Annotations of this start: 9 of 94
- Called 56.2% of time when present

- Phage (with cluster) where this start called: BaxterFox_7 (CZ3), Blino_7 (CV), Blueberry_7 (CV), CarolAnn_7 (CV), Frokostdame_7 (CV), JuJu_7 (CV), Walrus_7 (CV), Whack_7 (singleton), Yeezy_7 (CZ3),

Start 12:

- Found in 22 of 101 (21.8%) of genes in pham
- Manual Annotations of this start: 11 of 94
- Called 54.5% of time when present
- Phage (with cluster) where this start called: Adora_7 (CZ4), Azula_7 (CV), Gambino_7 (CV), Hortense_7 (CZ4), Howe_7 (CZ4), Mbo4_7 (singleton), MissRona_7 (CV), Ohgeesy_7 (CZ), PantheRoc_7 (CZ3), Shlim410_7 (CZ4), Sidious_7 (CZ7), Twinkle_7 (CZ4),

Start 13:

- Found in 45 of 101 (44.6%) of genes in pham
- Manual Annotations of this start: 41 of 94
- Called 97.8% of time when present
- Phage (with cluster) where this start called: Amochick_10 (Q), Amymech_10 (Q), Ayotoya_11 (DI), BetterKatz_11 (DI), Bock_11 (DI), Brylie_11 (DI), Chop_11 (DI), Daegal_11 (Q), DeepSoil15_10 (Q), DelRio_11 (DI), Dewey_10 (Q), DumpsterDude_7 (DW), Ein37_10 (Q), Evanesce_10 (Q), Forge_10 (Q), Francois_11 (DI), Gancho_9 (Q), Giles_10 (Q), GrandSlam_11 (DI), Gravallia_10 (Q), HH92_10 (Q), Hadrien_10 (Q), Hail_10 (Q), Hamood_11 (DI), JustASigh_7 (AH), Kinbote_10 (Q), LilHazelNut_10 (Q), Luke_10 (Q), Luna22_10 (Q), MakCheese_7 (DW), Malibo_7 (DW), Mulch_11 (DI), Nadeem_11 (DI), NancyRae_11 (DI), OBUpride_10 (Q), Parada_11 (DI), Pimento_11 (DI), Ruthy_7 (DW), Ubuntu_10 (Q), Webster2_10 (Q), Weirdo19_8 (AH), WheatThin_11 (DI), Wishmaker_10 (Q), Zodiariah_7 (DW),

Start 14:

- Found in 34 of 101 (33.7%) of genes in pham
- Manual Annotations of this start: 32 of 94
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Archis_7 (CV), Barco_7 (CV), Begonia_7 (CV), BlingBling_7 (CV), CaptainKirk2_7 (CV), Delian_7 (CV), Fairfaxidum_7 (CV), Ferry_7 (CV), Guacamole_7 (CV), Hitter_7 (CV), Jalammah_7 (CV), JasperJr_7 (CV), KappaFarmDelta_7 (CV), Lysidious_7 (CV), Malachai_7 (CV), Melba_7 (CV), Mellie_7 (CV), MintFen_7 (CV), Murp_7 (CV), Oblivate_7 (CV), PCoral7_7 (CV), PhrostedPhlake_7 (CV), Pipp_7 (CV), PrincePatrick_7 (CV), REQ2_07 (singleton), Samba_7 (CV), Toast_7 (CV), UmaThurman_7 (CV), Utz_7 (CV), William_7 (CV), Wisp_7 (CV), Wocket_7 (CV), Zarbodnamra_7 (CV), ZiggyZoo_7 (CV),

Start 26:

- Found in 10 of 101 (9.9%) of genes in pham
- Manual Annotations of this start: 1 of 94
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Petra_7 (CV),

Summary by clusters:

There are 10 clusters represented in this pham: singleton, DI, CZ3, CZ7, CZ4, Q, CZ, AH, DW, CV,

Info for manual annotations of cluster AH:

- Start number 13 was manually annotated 1 time for cluster AH.

Info for manual annotations of cluster CV:

- Start number 11 was manually annotated 6 times for cluster CV.
- Start number 12 was manually annotated 3 times for cluster CV.
- Start number 14 was manually annotated 32 times for cluster CV.
- Start number 26 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster CZ:

- Start number 12 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ3:

- Start number 11 was manually annotated 2 times for cluster CZ3.
- Start number 12 was manually annotated 1 time for cluster CZ3.

Info for manual annotations of cluster CZ4:

- Start number 12 was manually annotated 5 times for cluster CZ4.

Info for manual annotations of cluster CZ7:

- Start number 12 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster DI:

- Start number 13 was manually annotated 15 times for cluster DI.

Info for manual annotations of cluster DW:

- Start number 13 was manually annotated 3 times for cluster DW.

Info for manual annotations of cluster Q:

- Start number 13 was manually annotated 22 times for cluster Q.

Gene Information:

Gene: Adora_7 Start: 5836, Stop: 6276, Start Num: 12

Candidate Starts for Adora_7:

(3, 5365), (6, 5629), (7, 5653), (8, 5755), (Start: 12 @5836 has 11 MA's), (21, 5896), (28, 5941), (61, 6106), (68, 6157), (76, 6241),

Gene: Amochick_10 Start: 7533, Stop: 7973, Start Num: 13

Candidate Starts for Amochick_10:

(5, 7266), (10, 7509), (Start: 13 @7533 has 41 MA's), (36, 7629), (59, 7758), (65, 7806), (66, 7809), (67, 7818), (73, 7899), (79, 7965),

Gene: Amymech_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Amymech_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: ArchiDore_7 Start: 6321, Stop: 6746, Start Num: 10

Candidate Starts for ArchiDore_7:

(8, 6261), (10, 6321), (Start: 13 @6345 has 41 MA's), (42, 6480), (44, 6495), (45, 6498), (76, 6702),

Gene: Archis_7 Start: 6142, Stop: 6570, Start Num: 14
Candidate Starts for Archis_7:
(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (72, 6481), (73, 6499),

Gene: Ayotoya_11 Start: 8058, Stop: 8519, Start Num: 13
Candidate Starts for Ayotoya_11:
(8, 7974), (Start: 13 @8058 has 41 MA's), (17, 8073), (18, 8097), (19, 8100), (29, 8148), (39, 8190),
(45, 8235), (46, 8241), (76, 8475), (77, 8490), (78, 8502),

Gene: Azula_7 Start: 5970, Stop: 6446, Start Num: 12
Candidate Starts for Azula_7:
(6, 5763), (8, 5889), (Start: 11 @5967 has 9 MA's), (Start: 12 @5970 has 11 MA's), (21, 6021), (Start:
26 @6045 has 1 MA's), (28, 6066), (31, 6075), (65, 6291), (69, 6324), (71, 6351), (74, 6387),

Gene: Barco_7 Start: 6142, Stop: 6570, Start Num: 14
Candidate Starts for Barco_7:
(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (69, 6451), (72, 6481),
(73, 6499),

Gene: BaxterFox_7 Start: 5821, Stop: 6270, Start Num: 11
Candidate Starts for BaxterFox_7:
(Start: 11 @5821 has 9 MA's), (Start: 12 @5824 has 11 MA's), (21, 5875), (28, 5920), (31, 5929), (55,
6058), (76, 6235),

Gene: Begonia_7 Start: 6145, Stop: 6573, Start Num: 14
Candidate Starts for Begonia_7:
(Start: 14 @6145 has 32 MA's), (19, 6187), (27, 6220), (35, 6247), (67, 6421), (69, 6454), (72, 6484),

Gene: BetterKatz_11 Start: 8026, Stop: 8487, Start Num: 13
Candidate Starts for BetterKatz_11:
(8, 7942), (Start: 13 @8026 has 41 MA's), (17, 8041), (18, 8065), (19, 8068), (22, 8080), (29, 8116),
(39, 8158), (45, 8203), (46, 8209), (76, 8443), (77, 8458), (78, 8470),

Gene: BlingBling_7 Start: 6142, Stop: 6570, Start Num: 14
Candidate Starts for BlingBling_7:
(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (69, 6451), (72, 6481),
(73, 6499),

Gene: Blino_7 Start: 5970, Stop: 6470, Start Num: 11
Candidate Starts for Blino_7:
(6, 5766), (8, 5892), (Start: 11 @5970 has 9 MA's), (Start: 12 @5973 has 11 MA's), (21, 6024), (Start:
26 @6048 has 1 MA's), (51, 6201), (60, 6264), (65, 6318), (69, 6348), (71, 6375), (74, 6411),

Gene: Blueberry_7 Start: 5967, Stop: 6446, Start Num: 11
Candidate Starts for Blueberry_7:
(6, 5763), (8, 5889), (Start: 11 @5967 has 9 MA's), (Start: 12 @5970 has 11 MA's), (21, 6021), (Start:
26 @6045 has 1 MA's), (28, 6066), (31, 6075), (65, 6291), (69, 6324), (71, 6351), (74, 6387),

Gene: Bock_11 Start: 7776, Stop: 8237, Start Num: 13
Candidate Starts for Bock_11:
(8, 7692), (Start: 13 @7776 has 41 MA's), (17, 7791), (18, 7815), (19, 7818), (22, 7830), (29, 7866),
(39, 7908), (45, 7953), (46, 7959), (76, 8193), (77, 8208), (78, 8220),

Gene: Brylie_11 Start: 7773, Stop: 8234, Start Num: 13

Candidate Starts for Brylie_11:

(8, 7689), (Start: 13 @7773 has 41 MA's), (17, 7788), (18, 7812), (19, 7815), (22, 7827), (29, 7863), (39, 7905), (45, 7950), (46, 7956), (76, 8190), (77, 8205), (78, 8217),

Gene: CaptainKirk2_7 Start: 6142, Stop: 6570, Start Num: 14

Candidate Starts for CaptainKirk2_7:

(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (69, 6451), (72, 6481), (73, 6499),

Gene: CarolAnn_7 Start: 5969, Stop: 6469, Start Num: 11

Candidate Starts for CarolAnn_7:

(6, 5765), (8, 5891), (Start: 11 @5969 has 9 MA's), (Start: 12 @5972 has 11 MA's), (21, 6023), (Start: 26 @6047 has 1 MA's), (51, 6200), (60, 6263), (65, 6317), (69, 6347), (71, 6374), (74, 6410),

Gene: Chop_11 Start: 7806, Stop: 8267, Start Num: 13

Candidate Starts for Chop_11:

(8, 7722), (Start: 13 @7806 has 41 MA's), (17, 7821), (18, 7845), (19, 7848), (29, 7896), (39, 7938), (45, 7983), (46, 7989), (76, 8223), (77, 8238), (78, 8250),

Gene: Daegal_11 Start: 7830, Stop: 8270, Start Num: 13

Candidate Starts for Daegal_11:

(5, 7563), (10, 7806), (Start: 13 @7830 has 41 MA's), (36, 7926), (59, 8055), (65, 8103), (66, 8106), (67, 8115), (73, 8196), (79, 8262),

Gene: DeepSoil15_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for DeepSoil15_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: DelRio_11 Start: 8070, Stop: 8531, Start Num: 13

Candidate Starts for DelRio_11:

(8, 7986), (Start: 13 @8070 has 41 MA's), (17, 8085), (18, 8109), (19, 8112), (22, 8124), (29, 8160), (39, 8202), (46, 8253), (76, 8487), (77, 8502),

Gene: Delian_7 Start: 6142, Stop: 6570, Start Num: 14

Candidate Starts for Delian_7:

(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (69, 6451), (72, 6481), (73, 6499),

Gene: Dewey_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Dewey_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: DumpsterDude_7 Start: 6346, Stop: 6756, Start Num: 13

Candidate Starts for DumpsterDude_7:

(8, 6262), (10, 6322), (Start: 13 @6346 has 41 MA's), (42, 6481), (44, 6496), (45, 6499), (76, 6712),

Gene: Ein37_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Ein37_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: Evanesce_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Evanesce_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: Fairfaxidum_7 Start: 6141, Stop: 6554, Start Num: 14

Candidate Starts for Fairfaxidum_7:

(10, 6114), (Start: 14 @6141 has 32 MA's), (27, 6216), (35, 6243), (38, 6267), (43, 6303), (48, 6327), (57, 6354), (59, 6357),

Gene: Fenry_7 Start: 6145, Stop: 6579, Start Num: 14

Candidate Starts for Fenry_7:

(Start: 14 @6145 has 32 MA's), (27, 6220), (35, 6247), (38, 6271), (67, 6427), (72, 6490),

Gene: Forge_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Forge_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: Francois_11 Start: 7775, Stop: 8248, Start Num: 13

Candidate Starts for Francois_11:

(8, 7691), (10, 7751), (Start: 13 @7775 has 41 MA's), (17, 7790), (18, 7814), (19, 7817), (22, 7829), (29, 7865), (39, 7907), (46, 7958), (70, 8135), (76, 8204), (78, 8231),

Gene: Frokostdame_7 Start: 6038, Stop: 6565, Start Num: 11

Candidate Starts for Frokostdame_7:

(6, 5834), (8, 5960), (Start: 11 @6038 has 9 MA's), (Start: 12 @6041 has 11 MA's), (21, 6092), (Start: 26 @6116 has 1 MA's), (28, 6137), (65, 6410), (69, 6443), (71, 6470), (74, 6506),

Gene: Gambino_7 Start: 5970, Stop: 6446, Start Num: 12

Candidate Starts for Gambino_7:

(6, 5763), (8, 5889), (Start: 11 @5967 has 9 MA's), (Start: 12 @5970 has 11 MA's), (21, 6021), (Start: 26 @6045 has 1 MA's), (28, 6066), (31, 6075), (65, 6291), (69, 6324), (71, 6351), (74, 6387),

Gene: Gancho_9 Start: 7239, Stop: 7679, Start Num: 13

Candidate Starts for Gancho_9:

(5, 6972), (10, 7215), (Start: 13 @7239 has 41 MA's), (36, 7335), (59, 7464), (65, 7512), (66, 7515), (67, 7524), (73, 7605), (79, 7671),

Gene: Giles_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Giles_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: GrandSlam_11 Start: 7806, Stop: 8267, Start Num: 13

Candidate Starts for GrandSlam_11:

(8, 7722), (Start: 13 @7806 has 41 MA's), (17, 7821), (18, 7845), (19, 7848), (29, 7896), (39, 7938), (45, 7983), (46, 7989), (76, 8223), (77, 8238), (78, 8250),

Gene: Gravaillia_10 Start: 7272, Stop: 7712, Start Num: 13

Candidate Starts for Gravaillia_10:

(5, 7005), (10, 7248), (Start: 13 @7272 has 41 MA's), (36, 7368), (59, 7497), (65, 7545), (66, 7548), (67, 7557), (73, 7638), (79, 7704),

Gene: Guacamole_7 Start: 6146, Stop: 6574, Start Num: 14

Candidate Starts for Guacamole_7:

(Start: 14 @6146 has 32 MA's), (27, 6221), (35, 6248), (38, 6272), (67, 6422), (69, 6455), (72, 6485), (73, 6503),

Gene: HH92_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for HH92_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: Hadrien_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Hadrien_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: Hail_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Hail_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: Hamood_11 Start: 7806, Stop: 8267, Start Num: 13

Candidate Starts for Hamood_11:

(8, 7722), (Start: 13 @7806 has 41 MA's), (17, 7821), (18, 7845), (19, 7848), (29, 7896), (39, 7938), (45, 7983), (46, 7989), (76, 8223), (77, 8238), (78, 8250),

Gene: Hitter_7 Start: 6142, Stop: 6570, Start Num: 14

Candidate Starts for Hitter_7:

(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (72, 6481), (73, 6499),

Gene: Hortense_7 Start: 5836, Stop: 6276, Start Num: 12

Candidate Starts for Hortense_7:

(3, 5365), (6, 5629), (7, 5653), (8, 5755), (Start: 12 @5836 has 11 MA's), (21, 5896), (28, 5941), (61, 6106), (68, 6157), (76, 6241),

Gene: Howe_7 Start: 5836, Stop: 6276, Start Num: 12

Candidate Starts for Howe_7:

(3, 5365), (6, 5629), (7, 5653), (8, 5755), (Start: 12 @5836 has 11 MA's), (21, 5896), (28, 5941), (61, 6106), (68, 6157), (76, 6241),

Gene: Jalamah_7 Start: 6142, Stop: 6570, Start Num: 14

Candidate Starts for Jalamah_7:

(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (72, 6481), (73, 6499),

Gene: JasperJr_7 Start: 6146, Stop: 6574, Start Num: 14

Candidate Starts for JasperJr_7:

(Start: 14 @6146 has 32 MA's), (27, 6221), (35, 6248), (38, 6272), (67, 6422), (69, 6455), (72, 6485), (73, 6503),

Gene: JuJu_7 Start: 5980, Stop: 6495, Start Num: 11

Candidate Starts for JuJu_7:

(6, 5776), (8, 5902), (Start: 11 @5980 has 9 MA's), (Start: 12 @5983 has 11 MA's), (21, 6034), (Start: 26 @6058 has 1 MA's), (28, 6079), (31, 6088), (51, 6205), (65, 6322), (69, 6373), (71, 6400), (74, 6436),

Gene: JustASigh_7 Start: 6534, Stop: 7046, Start Num: 13

Candidate Starts for JustASigh_7:

(10, 6510), (Start: 13 @6534 has 41 MA's), (24, 6612), (32, 6645), (38, 6678), (54, 6774), (73, 6957), (77, 7011),

Gene: KappaFarmDelta_7 Start: 6123, Stop: 6608, Start Num: 14

Candidate Starts for KappaFarmDelta_7:

(10, 6099), (Start: 14 @6123 has 32 MA's), (18, 6162), (27, 6198), (35, 6225), (38, 6249), (40, 6261), (47, 6315), (49, 6321), (54, 6354), (67, 6456), (72, 6519), (73, 6537),

Gene: Kinbote_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Kinbote_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: LilHazelnut_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for LilHazelnut_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: Luke_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Luke_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: Luna22_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Luna22_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: Lysidious_7 Start: 6142, Stop: 6570, Start Num: 14

Candidate Starts for Lysidious_7:

(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (69, 6451), (72, 6481), (73, 6499),

Gene: MakCheese_7 Start: 6342, Stop: 6779, Start Num: 13

Candidate Starts for MakCheese_7:

(8, 6258), (Start: 13 @6342 has 41 MA's), (18, 6381), (19, 6384), (45, 6519), (58, 6579), (78, 6765),

Gene: Malachai_7 Start: 6145, Stop: 6573, Start Num: 14

Candidate Starts for Malachai_7:

(Start: 14 @6145 has 32 MA's), (19, 6187), (27, 6220), (35, 6247), (67, 6421), (69, 6454), (72, 6484),

Gene: Malibo_7 Start: 6358, Stop: 6762, Start Num: 13

Candidate Starts for Malibo_7:

(8, 6274), (Start: 13 @6358 has 41 MA's), (23, 6397), (44, 6508), (56, 6556), (76, 6721),

Gene: Mbo4_7 Start: 6382, Stop: 6798, Start Num: 12

Candidate Starts for Mbo4_7:

(10, 6361), (Start: 12 @6382 has 11 MA's), (15, 6388), (16, 6400), (20, 6430), (29, 6481), (37, 6514), (41, 6541),

Gene: Melba_7 Start: 6142, Stop: 6570, Start Num: 14

Candidate Starts for Melba_7:

(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (69, 6451), (72, 6481), (73, 6499),

Gene: Mellie_7 Start: 6142, Stop: 6570, Start Num: 14

Candidate Starts for Mellie_7:

(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (72, 6481), (73, 6499),

Gene: MintFen_7 Start: 6142, Stop: 6570, Start Num: 14

Candidate Starts for MintFen_7:

(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (69, 6451), (72, 6481), (73, 6499),

Gene: MissRona_7 Start: 5970, Stop: 6446, Start Num: 12

Candidate Starts for MissRona_7:

(6, 5763), (8, 5889), (Start: 11 @5967 has 9 MA's), (Start: 12 @5970 has 11 MA's), (21, 6021), (Start: 26 @6045 has 1 MA's), (28, 6066), (31, 6075), (65, 6291), (69, 6324), (71, 6351), (74, 6387),

Gene: Mulch_11 Start: 7773, Stop: 8234, Start Num: 13

Candidate Starts for Mulch_11:

(8, 7689), (Start: 13 @7773 has 41 MA's), (17, 7788), (18, 7812), (19, 7815), (22, 7827), (29, 7863), (39, 7905), (45, 7950), (46, 7956), (76, 8190), (77, 8205), (78, 8217),

Gene: Murp_7 Start: 6126, Stop: 6611, Start Num: 14

Candidate Starts for Murp_7:

(10, 6102), (Start: 14 @6126 has 32 MA's), (18, 6165), (27, 6201), (35, 6228), (38, 6252), (40, 6264), (47, 6318), (49, 6324), (54, 6357), (67, 6459), (72, 6522), (73, 6540),

Gene: Nadeem_11 Start: 7773, Stop: 8234, Start Num: 13

Candidate Starts for Nadeem_11:

(8, 7689), (Start: 13 @7773 has 41 MA's), (17, 7788), (18, 7812), (19, 7815), (22, 7827), (29, 7863), (39, 7905), (45, 7950), (46, 7956), (76, 8190), (77, 8205), (78, 8217),

Gene: NancyRae_11 Start: 7773, Stop: 8234, Start Num: 13

Candidate Starts for NancyRae_11:

(8, 7689), (Start: 13 @7773 has 41 MA's), (17, 7788), (18, 7812), (19, 7815), (22, 7827), (29, 7863), (39, 7905), (45, 7950), (46, 7956), (76, 8190), (77, 8205), (78, 8217),

Gene: OBUpride_10 Start: 7533, Stop: 7973, Start Num: 13

Candidate Starts for OBUpride_10:

(5, 7266), (10, 7509), (Start: 13 @7533 has 41 MA's), (36, 7629), (59, 7758), (65, 7806), (66, 7809), (67, 7818), (73, 7899), (79, 7965),

Gene: Obliviate_7 Start: 6166, Stop: 6594, Start Num: 14

Candidate Starts for Obliviate_7:

(Start: 14 @6166 has 32 MA's), (27, 6241), (35, 6268), (67, 6442), (69, 6475), (72, 6505), (73, 6523),

Gene: Ohgeesy_7 Start: 5824, Stop: 6270, Start Num: 12

Candidate Starts for Ohgeesy_7:

(Start: 11 @5821 has 9 MA's), (Start: 12 @5824 has 11 MA's), (21, 5875), (28, 5920), (31, 5929), (55, 6058), (76, 6235),

Gene: PCoral7_7 Start: 6141, Stop: 6554, Start Num: 14

Candidate Starts for PCoral7_7:

(10, 6114), (Start: 14 @6141 has 32 MA's), (27, 6216), (35, 6243), (38, 6267), (48, 6327), (57, 6354), (59, 6357),

Gene: PantheRoc_7 Start: 5824, Stop: 6270, Start Num: 12

Candidate Starts for PantheRoc_7:

(3, 5353), (4, 5398), (6, 5617), (8, 5743), (Start: 11 @5821 has 9 MA's), (Start: 12 @5824 has 11 MA's), (21, 5875), (28, 5920), (31, 5929), (55, 6058), (76, 6235),

Gene: Parada_11 Start: 7773, Stop: 8234, Start Num: 13

Candidate Starts for Parada_11:

(8, 7689), (Start: 13 @7773 has 41 MA's), (17, 7788), (18, 7812), (19, 7815), (22, 7827), (29, 7863), (39, 7905), (45, 7950), (46, 7956), (76, 8190), (77, 8205), (78, 8217),

Gene: Petra_7 Start: 6045, Stop: 6476, Start Num: 26

Candidate Starts for Petra_7:

(6, 5763), (8, 5889), (Start: 11 @5967 has 9 MA's), (Start: 12 @5970 has 11 MA's), (21, 6021), (Start: 26 @6045 has 1 MA's), (28, 6066), (31, 6075), (51, 6195), (60, 6267), (65, 6321), (69, 6354), (71, 6381), (74, 6417),

Gene: PhrostedPhlake_7 Start: 6160, Stop: 6651, Start Num: 14

Candidate Starts for PhrostedPhlake_7:

(Start: 14 @6160 has 32 MA's), (18, 6199), (27, 6235), (35, 6262), (38, 6286), (47, 6352), (49, 6358), (54, 6397), (67, 6499), (69, 6532), (72, 6562),

Gene: Pimento_11 Start: 7770, Stop: 8225, Start Num: 13

Candidate Starts for Pimento_11:

(8, 7686), (Start: 13 @7770 has 41 MA's), (17, 7785), (18, 7809), (19, 7812), (22, 7824), (29, 7860), (39, 7902), (45, 7947), (46, 7953), (76, 8181), (77, 8196),

Gene: Pipp_7 Start: 6166, Stop: 6594, Start Num: 14

Candidate Starts for Pipp_7:

(Start: 14 @6166 has 32 MA's), (27, 6241), (35, 6268), (38, 6292), (48, 6349), (67, 6442),

Gene: PrincePatrick_7 Start: 6142, Stop: 6555, Start Num: 14

Candidate Starts for PrincePatrick_7:

(10, 6115), (Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (43, 6304), (48, 6328), (57, 6355), (59, 6358),

Gene: REQ2_07 Start: 5849, Stop: 6256, Start Num: 14

Candidate Starts for REQ2_07:

(10, 5825), (Start: 14 @5849 has 32 MA's), (16, 5861), (75, 6194), (76, 6203),

Gene: Ruthy_7 Start: 6423, Stop: 6830, Start Num: 13

Candidate Starts for Ruthy_7:

(8, 6339), (10, 6399), (Start: 13 @6423 has 41 MA's), (44, 6573), (45, 6576), (76, 6786),

Gene: Samba_7 Start: 6143, Stop: 6571, Start Num: 14

Candidate Starts for Samba_7:

(Start: 14 @6143 has 32 MA's), (27, 6218), (35, 6245), (38, 6269), (67, 6419), (72, 6482), (73, 6500),

Gene: Shlim410_7 Start: 5836, Stop: 6276, Start Num: 12

Candidate Starts for Shlim410_7:

(3, 5365), (6, 5629), (7, 5653), (8, 5755), (Start: 12 @5836 has 11 MA's), (21, 5896), (28, 5941), (61, 6106), (68, 6157), (76, 6241),

Gene: Sidious_7 Start: 5827, Stop: 6273, Start Num: 12

Candidate Starts for Sidious_7:

(3, 5356), (4, 5401), (6, 5620), (8, 5746), (Start: 11 @5824 has 9 MA's), (Start: 12 @5827 has 11 MA's), (21, 5878), (25, 5899), (28, 5923), (55, 6061), (62, 6106), (76, 6238),

Gene: Toast_7 Start: 6141, Stop: 6554, Start Num: 14

Candidate Starts for Toast_7:

(10, 6114), (Start: 14 @6141 has 32 MA's), (27, 6216), (35, 6243), (38, 6267), (48, 6327), (57, 6354), (59, 6357),

Gene: Twinkle_7 Start: 5836, Stop: 6276, Start Num: 12

Candidate Starts for Twinkle_7:

(3, 5365), (6, 5629), (7, 5653), (8, 5755), (Start: 12 @5836 has 11 MA's), (21, 5896), (28, 5941), (61, 6106), (68, 6157), (76, 6241),

Gene: Ubuntu_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Ubuntu_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: UmaThurman_7 Start: 6142, Stop: 6570, Start Num: 14

Candidate Starts for UmaThurman_7:

(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (72, 6481), (73, 6499),

Gene: Utz_7 Start: 6142, Stop: 6570, Start Num: 14

Candidate Starts for Utz_7:

(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (69, 6451), (72, 6481), (73, 6499),

Gene: Walrus_7 Start: 5970, Stop: 6482, Start Num: 11

Candidate Starts for Walrus_7:

(6, 5766), (8, 5892), (Start: 11 @5970 has 9 MA's), (Start: 12 @5973 has 11 MA's), (21, 6024), (Start: 26 @6048 has 1 MA's), (31, 6078), (51, 6201), (60, 6273), (65, 6327), (69, 6360), (71, 6387), (74, 6423),

Gene: Webster2_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Webster2_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: Weirido19_8 Start: 6377, Stop: 6886, Start Num: 13

Candidate Starts for Weirido19_8:

(8, 6293), (10, 6353), (Start: 13 @6377 has 41 MA's), (16, 6404), (30, 6485), (34, 6491), (38, 6521), (44, 6575), (50, 6596), (53, 6611), (64, 6695), (72, 6773),

Gene: Whack_7 Start: 5839, Stop: 6255, Start Num: 11

Candidate Starts for Whack_7:

(6, 5635), (9, 5818), (Start: 11 @5839 has 9 MA's), (Start: 12 @5842 has 11 MA's), (33, 5950), (63, 6127),

Gene: WheatThin_11 Start: 7773, Stop: 8234, Start Num: 13

Candidate Starts for WheatThin_11:

(8, 7689), (Start: 13 @7773 has 41 MA's), (17, 7788), (18, 7812), (19, 7815), (22, 7827), (29, 7863), (39, 7905), (45, 7950), (46, 7956), (76, 8190), (77, 8205), (78, 8217),

Gene: William_7 Start: 6141, Stop: 6569, Start Num: 14

Candidate Starts for William_7:

(10, 6114), (Start: 14 @6141 has 32 MA's), (27, 6216), (35, 6243), (38, 6267), (48, 6327), (57, 6369), (59, 6372),

Gene: Wishmaker_10 Start: 7539, Stop: 7979, Start Num: 13

Candidate Starts for Wishmaker_10:

(5, 7272), (10, 7515), (Start: 13 @7539 has 41 MA's), (36, 7635), (59, 7764), (65, 7812), (66, 7815), (67, 7824), (73, 7905), (79, 7971),

Gene: Wisp_7 Start: 6142, Stop: 6570, Start Num: 14

Candidate Starts for Wisp_7:

(Start: 14 @6142 has 32 MA's), (27, 6217), (35, 6244), (38, 6268), (67, 6418), (69, 6451), (72, 6481), (73, 6499),

Gene: Wocket_7 Start: 6129, Stop: 6635, Start Num: 14

Candidate Starts for Wocket_7:

(1, 5271), (2, 5652), (8, 6045), (10, 6105), (Start: 14 @6129 has 32 MA's), (18, 6168), (27, 6204), (35, 6231), (38, 6255), (45, 6312), (52, 6351), (67, 6483), (72, 6546), (73, 6564),

Gene: Yeezy_7 Start: 5821, Stop: 6270, Start Num: 11

Candidate Starts for Yeezy_7:

(3, 5353), (4, 5398), (6, 5617), (8, 5743), (Start: 11 @5821 has 9 MA's), (Start: 12 @5824 has 11 MA's), (28, 5920), (76, 6235), (77, 6250),

Gene: Zarbodnamra_7 Start: 6141, Stop: 6569, Start Num: 14

Candidate Starts for Zarbodnamra_7:

(Start: 14 @6141 has 32 MA's), (27, 6216), (35, 6243), (38, 6267), (67, 6417), (69, 6450), (72, 6480), (73, 6498),

Gene: ZiggyZoo_7 Start: 6166, Stop: 6594, Start Num: 14

Candidate Starts for ZiggyZoo_7:

(Start: 14 @6166 has 32 MA's), (27, 6241), (35, 6268), (67, 6442), (69, 6475), (72, 6505), (73, 6523),

Gene: Zodiariah_7 Start: 6347, Stop: 6769, Start Num: 13

Candidate Starts for Zodiariah_7:

(8, 6263), (Start: 13 @6347 has 41 MA's), (18, 6386), (19, 6389), (45, 6524), (58, 6569), (78, 6755),