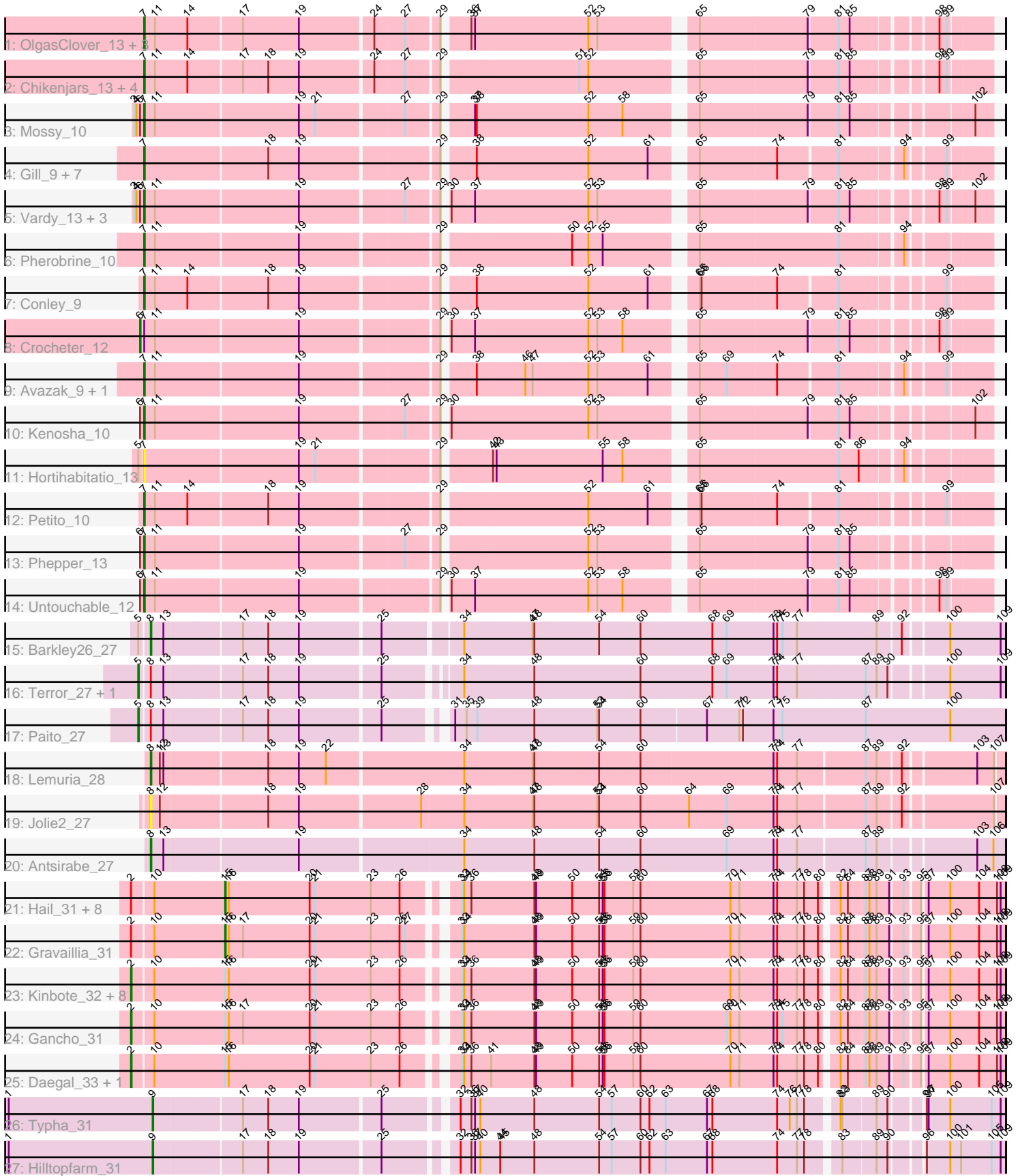


Pham 163611



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 163611 Report

This analysis was run 05/04/24 on database version 560.

Pham number 163611 has 63 members, 3 are drafts.

Phages represented in each track:

- Track 1 : OlgasClover_13, Jodelie19_13, Aflac_13, Figliar_13
- Track 2 : Chikensjars_13, EndAve_13, Duffington_13, Nithya_13, AlainaMarie_13
- Track 3 : Mossy_10
- Track 4 : Gill_9, Capybara_9, Odesza_9, Magel_9, Roney_9, Kerry_9, Gravy_9, Tanis_9
- Track 5 : Vardy_13, Burley_13, Nadmeg_13, Runhaar_13
- Track 6 : Pherobrine_10
- Track 7 : Conley_9
- Track 8 : Crocheter_12
- Track 9 : Avazak_9, Artorias_9
- Track 10 : Kenosha_10
- Track 11 : Hortihabitatio_13
- Track 12 : Petito_10
- Track 13 : Phepper_13
- Track 14 : Untouchable_12
- Track 15 : Barkley26_27
- Track 16 : Terror_27, Taheera_27
- Track 17 : Paito_27
- Track 18 : Lemuria_28
- Track 19 : Jolie2_27
- Track 20 : Antsirabe_27
- Track 21 : Hail_31, Hadrien_32, Giles_31, Wishmaker_31, Dewey_31, Forge_31, Luna22_31, Luke_32, Ubuntu_32
- Track 22 : Gravaillia_31
- Track 23 : Kinbote_32, Evanesce_31, Amymech_32, Webster2_32, DeepSoil15_32, Ein37_32, HH92_31, OBUpride_32, LilHazelNut_32
- Track 24 : Gancho_31
- Track 25 : Daegal_33, Amochick_32
- Track 26 : Typha_31
- Track 27 : Hilltopfarm_31

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

The start number called the most often in the published annotations is 7, it was called in 29 of the 60 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aflac_13, AlainaMarie_13, Artorias_9, Avazak_9, Burley_13, Capybara_9, Chickenjars_13, Conley_9, Duffington_13, EndAve_13, Figliar_13, Gill_9, Gravy_9, Hortihabitatio_13, Jodelie19_13, Kenosha_10, Kerry_9, Magel_9, Mossy_10, Nadmeg_13, Nithya_13, Odesza_9, OlgasClover_13, Petite_10, Phepper_13, Pherobrine_10, Roney_9, Runhaar_13, Tanis_9, Untouchable_12, Vardy_13,

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

- Crocheter_12,

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

- Amochick_32, Amymech_32, Antsirabe_27, Barkley26_27, Daegal_33, DeepSoil15_32, Dewey_31, Ein37_32, Evanesce_31, Forge_31, Gancho_31, Giles_31, Gravallia_31, HH92_31, Hadrien_32, Hail_31, Hilltopfarm_31, Jolie2_27, Kinbote_32, Lemuria_28, LilHazelNut_32, Luke_32, Luna22_31, OBUpride_32, Paito_27, Taheera_27, Terror_27, Typha_31, Ubuntu_32, Webster2_32, Wishmaker_31,

Summary by start number:

Start 2:

- Found in 22 of 63 (34.9%) of genes in pham
- Manual Annotations of this start: 12 of 60
- Called 54.5% of time when present
- Phage (with cluster) where this start called: Amochick_32 (Q), Amymech_32 (Q), Daegal_33 (Q), DeepSoil15_32 (Q), Ein37_32 (Q), Evanesce_31 (Q), Gancho_31 (Q), HH92_31 (Q), Kinbote_32 (Q), LilHazelNut_32 (Q), OBUpride_32 (Q), Webster2_32 (Q),

Start 5:

- Found in 5 of 63 (7.9%) of genes in pham
- Manual Annotations of this start: 3 of 60
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Paito_27 (G1), Taheera_27 (G1), Terror_27 (G1),

Start 6:

- Found in 9 of 63 (14.3%) of genes in pham
- Manual Annotations of this start: 1 of 60
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Crocheter_12 (DJ),

Start 7:

- Found in 32 of 63 (50.8%) of genes in pham
- Manual Annotations of this start: 29 of 60
- Called 96.9% of time when present
- Phage (with cluster) where this start called: Aflac_13 (DJ), AlainaMarie_13 (DJ), Artorias_9 (DJ), Avazak_9 (DJ), Burley_13 (DJ), Capybara_9 (DJ), Chickenjars_13 (DJ), Conley_9 (DJ), Duffington_13 (DJ), EndAve_13 (DJ), Figliar_13 (DJ), Gill_9 (DJ), Gravy_9 (DJ), Hortihabitatio_13 (DJ), Jodelie19_13 (DJ), Kenosha_10 (DJ),

Kerry_9 (DJ), Magel_9 (DJ), Mossy_10 (DJ), Nadmeg_13 (DJ), Nithya_13 (DJ), Odesza_9 (DJ), OlgasClover_13 (DJ), Petito_10 (DJ), Phepper_13 (DJ), Pherobrine_10 (DJ), Roney_9 (DJ), Runhaar_13 (DJ), Tanis_9 (DJ), Untouchable_12 (DJ), Vardy_13 (DJ),

Start 8:

- Found in 7 of 63 (11.1%) of genes in pham
- Manual Annotations of this start: 3 of 60
- Called 57.1% of time when present
- Phage (with cluster) where this start called: Antsirabe_27 (G5), Barkley26_27 (G1), Jolie2_27 (G4), Lemuria_28 (G4),

Start 9:

- Found in 2 of 63 (3.2%) of genes in pham
- Manual Annotations of this start: 2 of 60
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hilltopfarm_31 (Y), Typha_31 (Y),

Start 15:

- Found in 22 of 63 (34.9%) of genes in pham
- Manual Annotations of this start: 10 of 60
- Called 45.5% of time when present
- Phage (with cluster) where this start called: Dewey_31 (Q), Forge_31 (Q), Giles_31 (Q), Gravaillia_31 (Q), Hadrien_32 (Q), Hail_31 (Q), Luke_32 (Q), Luna22_31 (Q), Ubuntu_32 (Q), Wishmaker_31 (Q),

Summary by clusters:

There are 6 clusters represented in this pham: G5, G4, DJ, G1, Q, Y,

Info for manual annotations of cluster DJ:

- Start number 6 was manually annotated 1 time for cluster DJ.
- Start number 7 was manually annotated 29 times for cluster DJ.

Info for manual annotations of cluster G1:

- Start number 5 was manually annotated 3 times for cluster G1.
- Start number 8 was manually annotated 1 time for cluster G1.

Info for manual annotations of cluster G4:

- Start number 8 was manually annotated 1 time for cluster G4.

Info for manual annotations of cluster G5:

- Start number 8 was manually annotated 1 time for cluster G5.

Info for manual annotations of cluster Q:

- Start number 2 was manually annotated 12 times for cluster Q.
- Start number 15 was manually annotated 10 times for cluster Q.

Info for manual annotations of cluster Y:

- Start number 9 was manually annotated 2 times for cluster Y.

Gene Information:

Gene: Aflac_13 Start: 6653, Stop: 7939, Start Num: 7

Candidate Starts for Aflac_13:

(Start: 7 @6653 has 29 MA's), (11, 6671), (14, 6725), (17, 6809), (19, 6902), (24, 7016), (27, 7064), (29, 7115), (36, 7151), (37, 7157), (52, 7343), (53, 7358), (65, 7496), (79, 7673), (81, 7718), (85, 7736), (98, 7859), (99, 7871),

Gene: AlainaMarie_13 Start: 6643, Stop: 7929, Start Num: 7

Candidate Starts for AlainaMarie_13:

(Start: 7 @6643 has 29 MA's), (11, 6661), (14, 6715), (17, 6799), (18, 6841), (19, 6892), (24, 7006), (27, 7054), (29, 7105), (51, 7318), (52, 7333), (65, 7486), (79, 7663), (81, 7708), (85, 7726), (98, 7849), (99, 7861),

Gene: Amochick_32 Start: 26987, Stop: 28345, Start Num: 2

Candidate Starts for Amochick_32:

(Start: 2 @26987 has 12 MA's), (10, 27020), (Start: 15 @27137 has 10 MA's), (16, 27143), (20, 27278), (21, 27287), (23, 27380), (26, 27428), (33, 27497), (34, 27500), (36, 27512), (41, 27542), (48, 27614), (49, 27617), (50, 27674), (54, 27719), (55, 27725), (56, 27728), (59, 27776), (60, 27788), (70, 27938), (71, 27953), (73, 28010), (74, 28016), (77, 28049), (78, 28061), (80, 28082), (82, 28103), (84, 28115), (87, 28142), (88, 28148), (89, 28160), (91, 28178), (93, 28196), (95, 28217), (97, 28223), (100, 28259), (104, 28304), (108, 28334), (109, 28337),

Gene: Amymech_32 Start: 26981, Stop: 28339, Start Num: 2

Candidate Starts for Amymech_32:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Antsirabe_27 Start: 25537, Stop: 26892, Start Num: 8

Candidate Starts for Antsirabe_27:

(Start: 8 @25537 has 3 MA's), (13, 25558), (19, 25771), (34, 26029), (48, 26143), (54, 26248), (60, 26317), (69, 26461), (73, 26539), (74, 26545), (77, 26578), (87, 26686), (89, 26704), (103, 26848), (106, 26875),

Gene: Artorias_9 Start: 3802, Stop: 5085, Start Num: 7

Candidate Starts for Artorias_9:

(Start: 7 @3802 has 29 MA's), (11, 3820), (19, 4051), (29, 4264), (38, 4309), (46, 4387), (47, 4399), (52, 4492), (53, 4507), (61, 4591), (65, 4645), (69, 4690), (74, 4771), (81, 4864), (94, 4960), (99, 5017),

Gene: Avazak_9 Start: 3805, Stop: 5088, Start Num: 7

Candidate Starts for Avazak_9:

(Start: 7 @3805 has 29 MA's), (11, 3823), (19, 4054), (29, 4267), (38, 4312), (46, 4390), (47, 4402), (52, 4495), (53, 4510), (61, 4594), (65, 4648), (69, 4693), (74, 4774), (81, 4867), (94, 4963), (99, 5020),

Gene: Barkley26_27 Start: 23877, Stop: 25223, Start Num: 8

Candidate Starts for Barkley26_27:

(Start: 5 @23862 has 3 MA's), (Start: 8 @23877 has 3 MA's), (13, 23898), (17, 24018), (18, 24060), (19, 24111), (25, 24237), (34, 24357), (47, 24468), (48, 24471), (54, 24576), (60, 24645), (68, 24765), (69, 24789), (73, 24867), (74, 24873), (75, 24882), (77, 24906), (89, 25035), (92, 25068), (100, 25134), (109, 25215),

Gene: Burley_13 Start: 6444, Stop: 7730, Start Num: 7

Candidate Starts for Burley_13:

(3, 6432), (4, 6435), (Start: 6 @6441 has 1 MA's), (Start: 7 @6444 has 29 MA's), (11, 6462), (19, 6693), (27, 6855), (29, 6906), (30, 6909), (37, 6948), (52, 7134), (53, 7149), (65, 7287), (79, 7464), (81, 7509), (85, 7527), (98, 7650), (99, 7662), (102, 7701),

Gene: Capybara_9 Start: 3518, Stop: 4801, Start Num: 7

Candidate Starts for Capybara_9:

(Start: 7 @3518 has 29 MA's), (18, 3716), (19, 3767), (29, 3980), (38, 4025), (52, 4208), (61, 4307), (65, 4361), (74, 4487), (81, 4580), (94, 4676), (99, 4733),

Gene: Chikenjars_13 Start: 6643, Stop: 7929, Start Num: 7

Candidate Starts for Chikenjars_13:

(Start: 7 @6643 has 29 MA's), (11, 6661), (14, 6715), (17, 6799), (18, 6841), (19, 6892), (24, 7006), (27, 7054), (29, 7105), (51, 7318), (52, 7333), (65, 7486), (79, 7663), (81, 7708), (85, 7726), (98, 7849), (99, 7861),

Gene: Conley_9 Start: 3832, Stop: 5115, Start Num: 7

Candidate Starts for Conley_9:

(Start: 7 @3832 has 29 MA's), (11, 3850), (14, 3904), (18, 4030), (19, 4081), (29, 4294), (38, 4339), (52, 4522), (61, 4621), (65, 4675), (66, 4678), (74, 4801), (81, 4894), (99, 5047),

Gene: Crocheter_12 Start: 5368, Stop: 6657, Start Num: 6

Candidate Starts for Crocheter_12:

(Start: 6 @5368 has 1 MA's), (Start: 7 @5371 has 29 MA's), (11, 5389), (19, 5620), (29, 5833), (30, 5836), (37, 5875), (52, 6061), (53, 6076), (58, 6118), (65, 6214), (79, 6391), (81, 6436), (85, 6454), (98, 6577), (99, 6589),

Gene: Daegal_33 Start: 27275, Stop: 28633, Start Num: 2

Candidate Starts for Daegal_33:

(Start: 2 @27275 has 12 MA's), (10, 27308), (Start: 15 @27425 has 10 MA's), (16, 27431), (20, 27566), (21, 27575), (23, 27668), (26, 27716), (33, 27785), (34, 27788), (36, 27800), (41, 27830), (48, 27902), (49, 27905), (50, 27962), (54, 28007), (55, 28013), (56, 28016), (59, 28064), (60, 28076), (70, 28226), (71, 28241), (73, 28298), (74, 28304), (77, 28337), (78, 28349), (80, 28370), (82, 28391), (84, 28403), (87, 28430), (88, 28436), (89, 28448), (91, 28466), (93, 28484), (95, 28505), (97, 28511), (100, 28547), (104, 28592), (108, 28622), (109, 28625),

Gene: DeepSoil15_32 Start: 26981, Stop: 28339, Start Num: 2

Candidate Starts for DeepSoil15_32:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Dewey_31 Start: 27131, Stop: 28339, Start Num: 15

Candidate Starts for Dewey_31:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Duffington_13 Start: 6628, Stop: 7914, Start Num: 7

Candidate Starts for Duffington_13:

(Start: 7 @6628 has 29 MA's), (11, 6646), (14, 6700), (17, 6784), (18, 6826), (19, 6877), (24, 6991), (27, 7039), (29, 7090), (51, 7303), (52, 7318), (65, 7471), (79, 7648), (81, 7693), (85, 7711), (98, 7834), (99, 7846),

Gene: Ein37_32 Start: 26981, Stop: 28339, Start Num: 2

Candidate Starts for Ein37_32:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: EndAve_13 Start: 6643, Stop: 7929, Start Num: 7

Candidate Starts for EndAve_13:

(Start: 7 @6643 has 29 MA's), (11, 6661), (14, 6715), (17, 6799), (18, 6841), (19, 6892), (24, 7006), (27, 7054), (29, 7105), (51, 7318), (52, 7333), (65, 7486), (79, 7663), (81, 7708), (85, 7726), (98, 7849), (99, 7861),

Gene: Evanescce_31 Start: 26981, Stop: 28339, Start Num: 2

Candidate Starts for Evanescce_31:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Figliar_13 Start: 6653, Stop: 7939, Start Num: 7

Candidate Starts for Figliar_13:

(Start: 7 @6653 has 29 MA's), (11, 6671), (14, 6725), (17, 6809), (19, 6902), (24, 7016), (27, 7064), (29, 7115), (36, 7151), (37, 7157), (52, 7343), (53, 7358), (65, 7496), (79, 7673), (81, 7718), (85, 7736), (98, 7859), (99, 7871),

Gene: Forge_31 Start: 27131, Stop: 28339, Start Num: 15

Candidate Starts for Forge_31:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Gancho_31 Start: 26704, Stop: 28062, Start Num: 2

Candidate Starts for Gancho_31:

(Start: 2 @26704 has 12 MA's), (10, 26737), (Start: 15 @26854 has 10 MA's), (16, 26860), (17, 26884), (20, 26995), (21, 27004), (23, 27097), (26, 27145), (33, 27214), (34, 27217), (36, 27229), (48, 27331), (49, 27334), (50, 27391), (54, 27436), (55, 27442), (56, 27445), (59, 27493), (60, 27505), (69, 27649), (70, 27655), (71, 27670), (73, 27727), (74, 27733), (75, 27742), (77, 27766), (78, 27778), (80, 27799), (82, 27820), (84, 27832), (87, 27859), (88, 27865), (89, 27877), (91, 27895), (93, 27913), (95, 27934), (97, 27940), (100, 27976), (104, 28021), (108, 28051), (109, 28054),

Gene: Giles_31 Start: 27131, Stop: 28339, Start Num: 15

Candidate Starts for Giles_31:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Gill_9 Start: 3518, Stop: 4801, Start Num: 7

Candidate Starts for Gill_9:

(Start: 7 @3518 has 29 MA's), (18, 3716), (19, 3767), (29, 3980), (38, 4025), (52, 4208), (61, 4307), (65, 4361), (74, 4487), (81, 4580), (94, 4676), (99, 4733),

Gene: Gravaillia_31 Start: 26860, Stop: 28068, Start Num: 15

Candidate Starts for Gravaillia_31:

(Start: 2 @26710 has 12 MA's), (10, 26743), (Start: 15 @26860 has 10 MA's), (16, 26866), (17, 26890), (20, 27001), (21, 27010), (23, 27103), (26, 27151), (27, 27160), (33, 27220), (34, 27223), (48, 27337), (49, 27340), (50, 27397), (54, 27442), (55, 27448), (56, 27451), (59, 27499), (60, 27511), (70, 27661), (71, 27676), (73, 27733), (74, 27739), (77, 27772), (78, 27784), (80, 27805), (82, 27826), (84, 27838), (87, 27865), (88, 27871), (89, 27883), (91, 27901), (93, 27919), (95, 27940), (97, 27946), (100, 27982), (104, 28027), (108, 28057), (109, 28060),

Gene: Gravy_9 Start: 3518, Stop: 4801, Start Num: 7

Candidate Starts for Gravy_9:

(Start: 7 @3518 has 29 MA's), (18, 3716), (19, 3767), (29, 3980), (38, 4025), (52, 4208), (61, 4307), (65, 4361), (74, 4487), (81, 4580), (94, 4676), (99, 4733),

Gene: HH92_31 Start: 26981, Stop: 28339, Start Num: 2

Candidate Starts for HH92_31:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Hadrien_32 Start: 27131, Stop: 28339, Start Num: 15

Candidate Starts for Hadrien_32:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Hail_31 Start: 27131, Stop: 28339, Start Num: 15

Candidate Starts for Hail_31:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Hilltopfarm_31 Start: 27809, Stop: 29119, Start Num: 9

Candidate Starts for Hilltopfarm_31:

(1, 27569), (Start: 9 @27809 has 2 MA's), (17, 27947), (18, 27989), (19, 28040), (25, 28166), (32, 28268), (36, 28286), (37, 28292), (40, 28301), (44, 28334), (45, 28337), (48, 28391), (54, 28499), (57, 28520), (60, 28568), (62, 28583), (63, 28610), (67, 28679), (68, 28688), (74, 28796), (77, 28829), (78, 28838), (83, 28880), (89, 28931), (90, 28946), (96, 28991), (100, 29030), (101, 29048), (105, 29099), (109, 29111),

Gene: Hortihabitatio_13 Start: 5735, Stop: 7024, Start Num: 7

Candidate Starts for Hortihabitatio_13:

(Start: 5 @5729 has 3 MA's), (Start: 7 @5735 has 29 MA's), (19, 5984), (21, 6008), (29, 6197), (42, 6266), (43, 6272), (55, 6449), (58, 6482), (65, 6578), (81, 6803), (86, 6836), (94, 6899),

Gene: Jodelie19_13 Start: 6647, Stop: 7933, Start Num: 7

Candidate Starts for Jodelie19_13:

(Start: 7 @6647 has 29 MA's), (11, 6665), (14, 6719), (17, 6803), (19, 6896), (24, 7010), (27, 7058), (29, 7109), (36, 7145), (37, 7151), (52, 7337), (53, 7352), (65, 7490), (79, 7667), (81, 7712), (85, 7730), (98, 7853), (99, 7865),

Gene: Jolie2_27 Start: 24367, Stop: 25716, Start Num: 8

Candidate Starts for Jolie2_27:

(Start: 8 @24367 has 3 MA's), (12, 24382), (18, 24550), (19, 24601), (28, 24793), (34, 24859), (47, 24970), (48, 24973), (53, 25075), (54, 25078), (60, 25147), (64, 25228), (69, 25291), (73, 25369), (74, 25375), (77, 25408), (87, 25516), (89, 25534), (92, 25567), (107, 25705),

Gene: Kenosha_10 Start: 4230, Stop: 5516, Start Num: 7

Candidate Starts for Kenosha_10:

(Start: 6 @4227 has 1 MA's), (Start: 7 @4230 has 29 MA's), (11, 4248), (19, 4479), (27, 4641), (29, 4692), (30, 4695), (52, 4920), (53, 4935), (65, 5073), (79, 5250), (81, 5295), (85, 5313), (102, 5487),

Gene: Kerry_9 Start: 3518, Stop: 4801, Start Num: 7

Candidate Starts for Kerry_9:

(Start: 7 @3518 has 29 MA's), (18, 3716), (19, 3767), (29, 3980), (38, 4025), (52, 4208), (61, 4307), (65, 4361), (74, 4487), (81, 4580), (94, 4676), (99, 4733),

Gene: Kinbote_32 Start: 26981, Stop: 28339, Start Num: 2

Candidate Starts for Kinbote_32:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Lemuria_28 Start: 25522, Stop: 26871, Start Num: 8

Candidate Starts for Lemuria_28:

(Start: 8 @25522 has 3 MA's), (12, 25537), (13, 25543), (18, 25705), (19, 25756), (22, 25798), (34, 26017), (47, 26128), (48, 26131), (54, 26236), (60, 26305), (73, 26524), (74, 26530), (77, 26563), (87, 26671), (89, 26689), (92, 26722), (103, 26833), (107, 26860),

Gene: LilHazelNut_32 Start: 26981, Stop: 28339, Start Num: 2

Candidate Starts for LilHazelNut_32:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Luke_32 Start: 27086, Stop: 28294, Start Num: 15

Candidate Starts for Luke_32:

(Start: 2 @26936 has 12 MA's), (10, 26969), (Start: 15 @27086 has 10 MA's), (16, 27092), (20, 27227), (21, 27236), (23, 27329), (26, 27377), (33, 27446), (34, 27449), (36, 27461), (48, 27563), (49, 27566), (50, 27623), (54, 27668), (55, 27674), (56, 27677), (59, 27725), (60, 27737), (70, 27887), (71, 27902), (73, 27959), (74, 27965), (77, 27998), (78, 28010), (80, 28031), (82, 28052), (84, 28064), (87, 28091), (88, 28097), (89, 28109), (91, 28127), (93, 28145), (95, 28166), (97, 28172), (100, 28208), (104, 28253), (108, 28283), (109, 28286),

Gene: Luna22_31 Start: 27131, Stop: 28339, Start Num: 15

Candidate Starts for Luna22_31:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Magel_9 Start: 3518, Stop: 4801, Start Num: 7

Candidate Starts for Magel_9:

(Start: 7 @3518 has 29 MA's), (18, 3716), (19, 3767), (29, 3980), (38, 4025), (52, 4208), (61, 4307), (65, 4361), (74, 4487), (81, 4580), (94, 4676), (99, 4733),

Gene: Mossy_10 Start: 4506, Stop: 5792, Start Num: 7

Candidate Starts for Mossy_10:

(3, 4494), (4, 4497), (Start: 6 @4503 has 1 MA's), (Start: 7 @4506 has 29 MA's), (11, 4524), (19, 4755), (21, 4779), (27, 4917), (29, 4968), (37, 5010), (38, 5013), (52, 5196), (58, 5253), (65, 5349), (79, 5526), (81, 5571), (85, 5589), (102, 5763),

Gene: Nadmeg_13 Start: 6445, Stop: 7731, Start Num: 7

Candidate Starts for Nadmeg_13:

(3, 6433), (4, 6436), (Start: 6 @6442 has 1 MA's), (Start: 7 @6445 has 29 MA's), (11, 6463), (19, 6694), (27, 6856), (29, 6907), (30, 6910), (37, 6949), (52, 7135), (53, 7150), (65, 7288), (79, 7465), (81, 7510), (85, 7528), (98, 7651), (99, 7663), (102, 7702),

Gene: Nithya_13 Start: 6643, Stop: 7929, Start Num: 7

Candidate Starts for Nithya_13:

(Start: 7 @6643 has 29 MA's), (11, 6661), (14, 6715), (17, 6799), (18, 6841), (19, 6892), (24, 7006), (27, 7054), (29, 7105), (51, 7318), (52, 7333), (65, 7486), (79, 7663), (81, 7708), (85, 7726), (98, 7849), (99, 7861),

Gene: OBUpride_32 Start: 26975, Stop: 28333, Start Num: 2

Candidate Starts for OBUpride_32:

(Start: 2 @26975 has 12 MA's), (10, 27008), (Start: 15 @27125 has 10 MA's), (16, 27131), (20, 27266), (21, 27275), (23, 27368), (26, 27416), (33, 27485), (34, 27488), (36, 27500), (48, 27602), (49, 27605), (50, 27662), (54, 27707), (55, 27713), (56, 27716), (59, 27764), (60, 27776), (70, 27926), (71, 27941), (73, 27998), (74, 28004), (77, 28037), (78, 28049), (80, 28070), (82, 28091), (84, 28103), (87, 28130), (88, 28136), (89, 28148), (91, 28166), (93, 28184), (95, 28205), (97, 28211), (100, 28247), (104, 28292), (108, 28322), (109, 28325),

Gene: Odesza_9 Start: 3518, Stop: 4801, Start Num: 7

Candidate Starts for Odesza_9:

(Start: 7 @3518 has 29 MA's), (18, 3716), (19, 3767), (29, 3980), (38, 4025), (52, 4208), (61, 4307), (65, 4361), (74, 4487), (81, 4580), (94, 4676), (99, 4733),

Gene: OlgasClover_13 Start: 6644, Stop: 7930, Start Num: 7

Candidate Starts for OlgasClover_13:

(Start: 7 @6644 has 29 MA's), (11, 6662), (14, 6716), (17, 6800), (19, 6893), (24, 7007), (27, 7055), (29, 7106), (36, 7142), (37, 7148), (52, 7334), (53, 7349), (65, 7487), (79, 7664), (81, 7709), (85, 7727), (98, 7850), (99, 7862),

Gene: Paito_27 Start: 24076, Stop: 25437, Start Num: 5

Candidate Starts for Paito_27:

(Start: 5 @24076 has 3 MA's), (Start: 8 @24091 has 3 MA's), (13, 24112), (17, 24232), (18, 24274), (19, 24325), (25, 24451), (31, 24535), (35, 24553), (39, 24571), (48, 24664), (53, 24769), (54, 24772), (60, 24841), (67, 24946), (71, 25000), (72, 25006), (73, 25057), (75, 25072), (87, 25207), (100, 25348),

Gene: Petito_10 Start: 4026, Stop: 5309, Start Num: 7

Candidate Starts for Petito_10:

(Start: 7 @4026 has 29 MA's), (11, 4044), (14, 4098), (18, 4224), (19, 4275), (29, 4488), (52, 4716), (61, 4815), (65, 4869), (66, 4872), (74, 4995), (81, 5088), (99, 5241),

Gene: Phepper_13 Start: 6443, Stop: 7729, Start Num: 7

Candidate Starts for Phepper_13:

(Start: 6 @6440 has 1 MA's), (Start: 7 @6443 has 29 MA's), (11, 6461), (19, 6692), (27, 6854), (29, 6905), (52, 7133), (53, 7148), (65, 7286), (79, 7463), (81, 7508), (85, 7526),

Gene: Pherobrine_10 Start: 4207, Stop: 5496, Start Num: 7

Candidate Starts for Pherobrine_10:

(Start: 7 @4207 has 29 MA's), (11, 4225), (19, 4456), (29, 4669), (50, 4870), (52, 4897), (55, 4921), (65, 5050), (81, 5275), (94, 5371),

Gene: Roney_9 Start: 3518, Stop: 4801, Start Num: 7

Candidate Starts for Roney_9:

(Start: 7 @3518 has 29 MA's), (18, 3716), (19, 3767), (29, 3980), (38, 4025), (52, 4208), (61, 4307), (65, 4361), (74, 4487), (81, 4580), (94, 4676), (99, 4733),

Gene: Runhaar_13 Start: 6445, Stop: 7731, Start Num: 7

Candidate Starts for Runhaar_13:

(3, 6433), (4, 6436), (Start: 6 @6442 has 1 MA's), (Start: 7 @6445 has 29 MA's), (11, 6463), (19, 6694), (27, 6856), (29, 6907), (30, 6910), (37, 6949), (52, 7135), (53, 7150), (65, 7288), (79, 7465), (81, 7510), (85, 7528), (98, 7651), (99, 7663), (102, 7702),

Gene: Taheera_27 Start: 23964, Stop: 25310, Start Num: 5

Candidate Starts for Taheera_27:

(Start: 5 @23964 has 3 MA's), (Start: 8 @23979 has 3 MA's), (13, 24000), (17, 24120), (18, 24162), (19, 24213), (25, 24339), (34, 24444), (48, 24558), (60, 24732), (68, 24852), (69, 24876), (73, 24954), (74, 24960), (77, 24993), (87, 25104), (89, 25122), (90, 25137), (100, 25221), (109, 25302),

Gene: Tanis_9 Start: 3368, Stop: 4651, Start Num: 7

Candidate Starts for Tanis_9:

(Start: 7 @3368 has 29 MA's), (18, 3566), (19, 3617), (29, 3830), (38, 3875), (52, 4058), (61, 4157), (65, 4211), (74, 4337), (81, 4430), (94, 4526), (99, 4583),

Gene: Terror_27 Start: 23964, Stop: 25310, Start Num: 5

Candidate Starts for Terror_27:

(Start: 5 @23964 has 3 MA's), (Start: 8 @23979 has 3 MA's), (13, 24000), (17, 24120), (18, 24162), (19, 24213), (25, 24339), (34, 24444), (48, 24558), (60, 24732), (68, 24852), (69, 24876), (73, 24954), (74, 24960), (77, 24993), (87, 25104), (89, 25122), (90, 25137), (100, 25221), (109, 25302),

Gene: Typha_31 Start: 27779, Stop: 29089, Start Num: 9

Candidate Starts for Typha_31:

(1, 27539), (Start: 9 @27779 has 2 MA's), (17, 27917), (18, 27959), (19, 28010), (25, 28136), (32, 28238), (36, 28256), (37, 28262), (40, 28271), (48, 28361), (54, 28469), (57, 28490), (60, 28538), (62, 28553), (63, 28580), (67, 28649), (68, 28658), (74, 28766), (76, 28787), (77, 28799), (78, 28808), (82, 28847), (83, 28850), (89, 28901), (90, 28916), (96, 28961), (97, 28964), (100, 29000), (105, 29069), (109, 29081),

Gene: Ubuntu_32 Start: 27131, Stop: 28339, Start Num: 15

Candidate Starts for Ubuntu_32:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Untouchable_12 Start: 5370, Stop: 6656, Start Num: 7

Candidate Starts for Untouchable_12:

(Start: 6 @5367 has 1 MA's), (Start: 7 @5370 has 29 MA's), (11, 5388), (19, 5619), (29, 5832), (30, 5835), (37, 5874), (52, 6060), (53, 6075), (58, 6117), (65, 6213), (79, 6390), (81, 6435), (85, 6453), (98, 6576), (99, 6588),

Gene: Vardy_13 Start: 6443, Stop: 7729, Start Num: 7

Candidate Starts for Vardy_13:

(3, 6431), (4, 6434), (Start: 6 @6440 has 1 MA's), (Start: 7 @6443 has 29 MA's), (11, 6461), (19, 6692), (27, 6854), (29, 6905), (30, 6908), (37, 6947), (52, 7133), (53, 7148), (65, 7286), (79, 7463), (81, 7508), (85, 7526), (98, 7649), (99, 7661), (102, 7700),

Gene: Webster2_32 Start: 26981, Stop: 28339, Start Num: 2

Candidate Starts for Webster2_32:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),

Gene: Wishmaker_31 Start: 27131, Stop: 28339, Start Num: 15

Candidate Starts for Wishmaker_31:

(Start: 2 @26981 has 12 MA's), (10, 27014), (Start: 15 @27131 has 10 MA's), (16, 27137), (20, 27272), (21, 27281), (23, 27374), (26, 27422), (33, 27491), (34, 27494), (36, 27506), (48, 27608), (49, 27611), (50, 27668), (54, 27713), (55, 27719), (56, 27722), (59, 27770), (60, 27782), (70, 27932), (71, 27947), (73, 28004), (74, 28010), (77, 28043), (78, 28055), (80, 28076), (82, 28097), (84, 28109), (87, 28136), (88, 28142), (89, 28154), (91, 28172), (93, 28190), (95, 28211), (97, 28217), (100, 28253), (104, 28298), (108, 28328), (109, 28331),