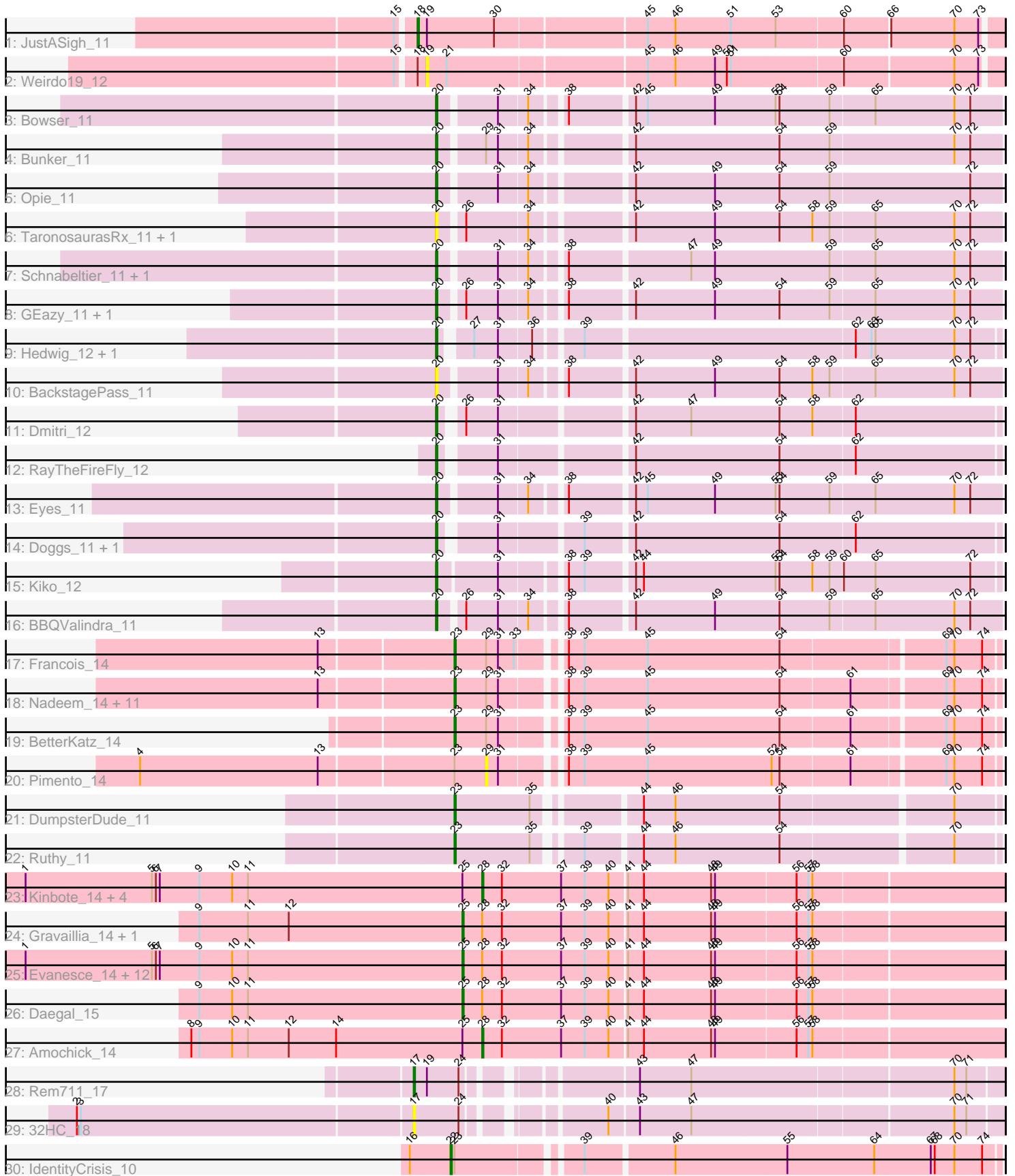


Pham 161859



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 161859 Report

This analysis was run 04/28/24 on database version 559.

Pham number 161859 has 63 members, 8 are drafts.

Phages represented in each track:

- Track 1 : JustASigh_11
- Track 2 : Weirido19_12
- Track 3 : Bowser_11
- Track 4 : Bunker_11
- Track 5 : Opie_11
- Track 6 : TaronosaurusRx_11, ZAYM_11
- Track 7 : Schnabeltier_11, MagicMan_11
- Track 8 : GEazy_11, HannahD_11
- Track 9 : Hedwig_12, DirtyBoi_12
- Track 10 : BackstagePass_11
- Track 11 : Dmitri_12
- Track 12 : RayTheFireFly_12
- Track 13 : Eyes_11
- Track 14 : Doggs_11, Coriander_12
- Track 15 : Kiko_12
- Track 16 : BBQValindra_11
- Track 17 : Francois_14
- Track 18 : Nadeem_14, Bock_14, Brylie_14, Chop_14, Parada_14, Hamood_14, Mulch_14, WheatThin_14, Ayotoya_14, DelRio_15, NancyRae_14, GrandSlam_14
- Track 19 : BetterKatz_14
- Track 20 : Pimento_14
- Track 21 : DumpsterDude_11
- Track 22 : Ruthy_11
- Track 23 : Kinbote_14, LilHazelnut_14, Webster2_14, Wishmaker_14, HH92_14
- Track 24 : Gravallia_14, Gancho_13
- Track 25 : Evanesce_14, Hadrien_14, Ein37_14, Amymech_14, Giles_14, DeepSoil15_14, OBUpride_14, Dewey_14, Forge_14, Luke_14, Luna22_14, Hail_14, Ubuntu_14
- Track 26 : Daegal_15
- Track 27 : Amochick_14
- Track 28 : Rem711_17
- Track 29 : 32HC_18
- Track 30 : IdentityCrisis_10

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

The start number called the most often in the published annotations is 25, it was called in 16 of the 55 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amymech_14, Daegal_15, DeepSoil15_14, Dewey_14, Ein37_14, Evanesce_14, Forge_14, Gancho_13, Giles_14, Gravaillia_14, Hadrien_14, Hail_14, Luke_14, Luna22_14, OBUpride_14, Ubuntu_14,

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

- Amochick_14, HH92_14, Kinbote_14, LilHazelNut_14, Webster2_14, Wishmaker_14,

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

- 32HC_18, Ayotoya_14, BBQValindra_11, BackstagePass_11, BetterKatz_14, Bock_14, Bowser_11, Brylie_14, Bunker_11, Chop_14, Coriander_12, DelRio_15, DirtyBoi_12, Dmitri_12, Doggs_11, DumpsterDude_11, Eyes_11, Francois_14, GEazy_11, GrandSlam_14, Hamood_14, HannahD_11, Hedwig_12, IdentityCrisis_10, JustASigh_11, Kiko_12, MagicMan_11, Mulch_14, Nadeem_14, NancyRae_14, Opie_11, Parada_14, Pimento_14, RayTheFireFly_12, Rem711_17, Ruthy_11, Schnabeltier_11, TaronosaurusRx_11, Weirido19_12, WheatThin_14, ZAYM_11,

Summary by start number:

Start 17:

- Found in 2 of 63 (3.2%) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 32HC_18 (Z), Rem711_17 (Z),

Start 18:

- Found in 2 of 63 (3.2%) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 50.0% of time when present
- Phage (with cluster) where this start called: JustASigh_11 (AH),

Start 19:

- Found in 3 of 63 (4.8%) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Weirido19_12 (AH),

Start 20:

- Found in 19 of 63 (30.2%) of genes in pham
- Manual Annotations of this start: 15 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BBQValindra_11 (DB), BackstagePass_11 (DB), Bowser_11 (DB), Bunker_11 (DB), Coriander_12 (DB), DirtyBoi_12 (DB), Dmitri_12 (DB), Doggs_11 (DB), Eyes_11 (DB), GEazy_11 (DB), HannahD_11 (DB), Hedwig_12 (DB), Kiko_12 (DB), MagicMan_11 (DB), Opie_11 (DB), RayTheFireFly_12 (DB), Schnabeltier_11 (DB), TaronosaurusRx_11 (DB), ZAYM_11 (DB),

Start 22:

- Found in 1 of 63 (1.6%) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: IdentityCrisis_10 (singleton),

Start 23:

- Found in 18 of 63 (28.6%) of genes in pham
- Manual Annotations of this start: 15 of 55
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Ayotoya_14 (DI), BetterKatz_14 (DI), Bock_14 (DI), Brylie_14 (DI), Chop_14 (DI), DelRio_15 (DI), DumpsterDude_11 (DW), Francois_14 (DI), GrandSlam_14 (DI), Hamood_14 (DI), Mulch_14 (DI), Nadeem_14 (DI), NancyRae_14 (DI), Parada_14 (DI), Ruthy_11 (DW), WheatThin_14 (DI),

Start 25:

- Found in 22 of 63 (34.9%) of genes in pham
- Manual Annotations of this start: 16 of 55
- Called 72.7% of time when present
- Phage (with cluster) where this start called: Amymech_14 (Q), Daegal_15 (Q), DeepSoil15_14 (Q), Dewey_14 (Q), Ein37_14 (Q), Evanesce_14 (Q), Forge_14 (Q), Gancho_13 (Q), Giles_14 (Q), Gravaillia_14 (Q), Hadrien_14 (Q), Hail_14 (Q), Luke_14 (Q), Luna22_14 (Q), OBUpride_14 (Q), Ubuntu_14 (Q),

Start 28:

- Found in 22 of 63 (34.9%) of genes in pham
- Manual Annotations of this start: 6 of 55
- Called 27.3% of time when present
- Phage (with cluster) where this start called: Amochick_14 (Q), HH92_14 (Q), Kinbote_14 (Q), LilHazelNut_14 (Q), Webster2_14 (Q), Wishmaker_14 (Q),

Start 29:

- Found in 16 of 63 (25.4%) of genes in pham
- No Manual Annotations of this start.
- Called 6.2% of time when present
- Phage (with cluster) where this start called: Pimento_14 (DI),

Summary by clusters:

There are 7 clusters represented in this pham: singleton, DI, AH, DB, Q, DW, Z,

Info for manual annotations of cluster AH:

- Start number 18 was manually annotated 1 time for cluster AH.

Info for manual annotations of cluster DB:

- Start number 20 was manually annotated 15 times for cluster DB.

Info for manual annotations of cluster DI:

- Start number 23 was manually annotated 13 times for cluster DI.

Info for manual annotations of cluster DW:

- Start number 23 was manually annotated 2 times for cluster DW.

Info for manual annotations of cluster Q:

- Start number 25 was manually annotated 16 times for cluster Q.
- Start number 28 was manually annotated 6 times for cluster Q.

Info for manual annotations of cluster Z:

- Start number 17 was manually annotated 1 time for cluster Z.

Gene Information:

Gene: 32HC_18 Start: 11044, Stop: 11448, Start Num: 17

Candidate Starts for 32HC_18:

(2, 10795), (3, 10798), (Start: 17 @11044 has 1 MA's), (24, 11077), (40, 11161), (43, 11182), (47, 11221), (70, 11413), (71, 11422),

Gene: Amochick_14 Start: 9530, Stop: 9916, Start Num: 28

Candidate Starts for Amochick_14:

(8, 9311), (9, 9317), (10, 9341), (11, 9353), (12, 9383), (14, 9419), (Start: 25 @9515 has 16 MA's), (Start: 28 @9530 has 6 MA's), (32, 9545), (37, 9590), (39, 9608), (40, 9626), (41, 9638), (44, 9650), (48, 9701), (49, 9704), (56, 9764), (57, 9773), (58, 9776),

Gene: Amymech_14 Start: 9521, Stop: 9922, Start Num: 25

Candidate Starts for Amymech_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: Ayotoya_14 Start: 9234, Stop: 9620, Start Num: 23

Candidate Starts for Ayotoya_14:

(13, 9138), (Start: 23 @9234 has 15 MA's), (29, 9258), (31, 9267), (38, 9306), (39, 9318), (45, 9366), (54, 9465), (61, 9516), (69, 9582), (70, 9588), (74, 9609),

Gene: BBQValindra_11 Start: 7497, Stop: 7895, Start Num: 20

Candidate Starts for BBQValindra_11:

(Start: 20 @7497 has 15 MA's), (26, 7512), (31, 7536), (34, 7557), (38, 7578), (42, 7623), (49, 7683), (54, 7731), (59, 7767), (65, 7800), (70, 7860), (72, 7872),

Gene: BackstagePass_11 Start: 7474, Stop: 7872, Start Num: 20

Candidate Starts for BackstagePass_11:

(Start: 20 @7474 has 15 MA's), (31, 7513), (34, 7534), (38, 7555), (42, 7600), (49, 7660), (54, 7708), (58, 7732), (59, 7744), (65, 7777), (70, 7837), (72, 7849),

Gene: BetterKatz_14 Start: 9202, Stop: 9588, Start Num: 23

Candidate Starts for BetterKatz_14:

(Start: 23 @9202 has 15 MA's), (29, 9226), (31, 9235), (38, 9274), (39, 9286), (45, 9334), (54, 9433), (61, 9484), (69, 9550), (70, 9556), (74, 9577),

Gene: Bock_14 Start: 8952, Stop: 9338, Start Num: 23

Candidate Starts for Bock_14:

(13, 8856), (Start: 23 @8952 has 15 MA's), (29, 8976), (31, 8985), (38, 9024), (39, 9036), (45, 9084), (54, 9183), (61, 9234), (69, 9300), (70, 9306), (74, 9327),

Gene: Bowser_11 Start: 7495, Stop: 7893, Start Num: 20

Candidate Starts for Bowser_11:

(Start: 20 @7495 has 15 MA's), (31, 7534), (34, 7555), (38, 7576), (42, 7621), (45, 7630), (49, 7681), (53, 7726), (54, 7729), (59, 7765), (65, 7798), (70, 7858), (72, 7870),

Gene: Brylie_14 Start: 8949, Stop: 9335, Start Num: 23

Candidate Starts for Brylie_14:

(13, 8853), (Start: 23 @8949 has 15 MA's), (29, 8973), (31, 8982), (38, 9021), (39, 9033), (45, 9081), (54, 9180), (61, 9231), (69, 9297), (70, 9303), (74, 9324),

Gene: Bunker_11 Start: 7497, Stop: 7895, Start Num: 20

Candidate Starts for Bunker_11:

(Start: 20 @7497 has 15 MA's), (29, 7527), (31, 7536), (34, 7557), (42, 7623), (54, 7731), (59, 7767), (70, 7860), (72, 7872),

Gene: Chop_14 Start: 8982, Stop: 9368, Start Num: 23

Candidate Starts for Chop_14:

(13, 8886), (Start: 23 @8982 has 15 MA's), (29, 9006), (31, 9015), (38, 9054), (39, 9066), (45, 9114), (54, 9213), (61, 9264), (69, 9330), (70, 9336), (74, 9357),

Gene: Coriander_12 Start: 7873, Stop: 8268, Start Num: 20

Candidate Starts for Coriander_12:

(Start: 20 @7873 has 15 MA's), (31, 7909), (39, 7966), (42, 7999), (54, 8107), (62, 8161),

Gene: Daegal_15 Start: 9812, Stop: 10213, Start Num: 25

Candidate Starts for Daegal_15:

(9, 9614), (10, 9638), (11, 9650), (Start: 25 @9812 has 16 MA's), (Start: 28 @9827 has 6 MA's), (32, 9842), (37, 9887), (39, 9905), (40, 9923), (41, 9935), (44, 9947), (48, 9998), (49, 10001), (56, 10061), (57, 10070), (58, 10073),

Gene: DeepSoil15_14 Start: 9521, Stop: 9922, Start Num: 25

Candidate Starts for DeepSoil15_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: DelRio_15 Start: 9459, Stop: 9845, Start Num: 23

Candidate Starts for DelRio_15:

(13, 9363), (Start: 23 @9459 has 15 MA's), (29, 9483), (31, 9492), (38, 9531), (39, 9543), (45, 9591), (54, 9690), (61, 9741), (69, 9807), (70, 9813), (74, 9834),

Gene: Dewey_14 Start: 9521, Stop: 9922, Start Num: 25

Candidate Starts for Dewey_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: DirtyBoi_12 Start: 7867, Stop: 8259, Start Num: 20

Candidate Starts for DirtyBoi_12:

(Start: 20 @7867 has 15 MA's), (27, 7885), (31, 7903), (36, 7927), (39, 7957), (62, 8152), (63, 8164), (65, 8167), (70, 8227), (72, 8239),

Gene: Dmitri_12 Start: 7855, Stop: 8250, Start Num: 20

Candidate Starts for Dmitri_12:

(Start: 20 @7855 has 15 MA's), (26, 7867), (31, 7891), (42, 7981), (47, 8023), (54, 8089), (58, 8113), (62, 8143),

Gene: Doggs_11 Start: 7570, Stop: 7965, Start Num: 20

Candidate Starts for Doggs_11:

(Start: 20 @7570 has 15 MA's), (31, 7606), (39, 7663), (42, 7696), (54, 7804), (62, 7858),

Gene: DumpsterDude_11 Start: 7693, Stop: 8073, Start Num: 23

Candidate Starts for DumpsterDude_11:

(Start: 23 @7693 has 15 MA's), (35, 7750), (44, 7816), (46, 7840), (54, 7918), (70, 8041),

Gene: Ein37_14 Start: 9521, Stop: 9922, Start Num: 25

Candidate Starts for Ein37_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: Evanesce_14 Start: 9521, Stop: 9922, Start Num: 25

Candidate Starts for Evanesce_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: Eyes_11 Start: 7504, Stop: 7902, Start Num: 20

Candidate Starts for Eyes_11:

(Start: 20 @7504 has 15 MA's), (31, 7543), (34, 7564), (38, 7585), (42, 7630), (45, 7639), (49, 7690), (53, 7735), (54, 7738), (59, 7774), (65, 7807), (70, 7867), (72, 7879),

Gene: Forge_14 Start: 9521, Stop: 9922, Start Num: 25

Candidate Starts for Forge_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: Francois_14 Start: 8963, Stop: 9349, Start Num: 23

Candidate Starts for Francois_14:

(13, 8867), (Start: 23 @8963 has 15 MA's), (29, 8987), (31, 8996), (33, 9008), (38, 9035), (39, 9047), (45, 9095), (54, 9194), (69, 9311), (70, 9317), (74, 9338),

Gene: GEazy_11 Start: 7506, Stop: 7904, Start Num: 20

Candidate Starts for GEazy_11:

(Start: 20 @7506 has 15 MA's), (26, 7521), (31, 7545), (34, 7566), (38, 7587), (42, 7632), (49, 7692), (54, 7740), (59, 7776), (65, 7809), (70, 7869), (72, 7881),

Gene: Gancho_13 Start: 9221, Stop: 9622, Start Num: 25

Candidate Starts for Gancho_13:

(9, 9023), (11, 9059), (12, 9089), (Start: 25 @9221 has 16 MA's), (Start: 28 @9236 has 6 MA's), (32, 9251), (37, 9296), (39, 9314), (40, 9332), (41, 9344), (44, 9356), (48, 9407), (49, 9410), (56, 9470),

(57, 9479), (58, 9482),

Gene: Giles_14 Start: 9521, Stop: 9922, Start Num: 25

Candidate Starts for Giles_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: GrandSlam_14 Start: 8982, Stop: 9368, Start Num: 23

Candidate Starts for GrandSlam_14:

(13, 8886), (Start: 23 @8982 has 15 MA's), (29, 9006), (31, 9015), (38, 9054), (39, 9066), (45, 9114), (54, 9213), (61, 9264), (69, 9330), (70, 9336), (74, 9357),

Gene: Gravaillia_14 Start: 9254, Stop: 9655, Start Num: 25

Candidate Starts for Gravaillia_14:

(9, 9056), (11, 9092), (12, 9122), (Start: 25 @9254 has 16 MA's), (Start: 28 @9269 has 6 MA's), (32, 9284), (37, 9329), (39, 9347), (40, 9365), (41, 9377), (44, 9389), (48, 9440), (49, 9443), (56, 9503), (57, 9512), (58, 9515),

Gene: HH92_14 Start: 9536, Stop: 9922, Start Num: 28

Candidate Starts for HH92_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: Hadrien_14 Start: 9521, Stop: 9922, Start Num: 25

Candidate Starts for Hadrien_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: Hail_14 Start: 9521, Stop: 9922, Start Num: 25

Candidate Starts for Hail_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: Hamood_14 Start: 8982, Stop: 9368, Start Num: 23

Candidate Starts for Hamood_14:

(13, 8886), (Start: 23 @8982 has 15 MA's), (29, 9006), (31, 9015), (38, 9054), (39, 9066), (45, 9114), (54, 9213), (61, 9264), (69, 9330), (70, 9336), (74, 9357),

Gene: HannahD_11 Start: 7506, Stop: 7904, Start Num: 20

Candidate Starts for HannahD_11:

(Start: 20 @7506 has 15 MA's), (26, 7521), (31, 7545), (34, 7566), (38, 7587), (42, 7632), (49, 7692), (54, 7740), (59, 7776), (65, 7809), (70, 7869), (72, 7881),

Gene: Hedwig_12 Start: 7867, Stop: 8259, Start Num: 20

Candidate Starts for Hedwig_12:

(Start: 20 @7867 has 15 MA's), (27, 7885), (31, 7903), (36, 7927), (39, 7957), (62, 8152), (63, 8164), (65, 8167), (70, 8227), (72, 8239),

Gene: IdentityCrisis_10 Start: 7775, Stop: 8167, Start Num: 22

Candidate Starts for IdentityCrisis_10:

(16, 7748), (Start: 22 @7775 has 1 MA's), (Start: 23 @7778 has 15 MA's), (39, 7862), (46, 7925), (55, 8009), (64, 8075), (67, 8117), (68, 8120), (70, 8135), (74, 8156),

Gene: JustASigh_11 Start: 8496, Stop: 8918, Start Num: 18

Candidate Starts for JustASigh_11:

(15, 8484), (Start: 18 @8496 has 1 MA's), (19, 8502), (30, 8553), (45, 8661), (46, 8682), (51, 8724), (53, 8757), (60, 8805), (66, 8838), (70, 8886), (73, 8904),

Gene: Kiko_12 Start: 7703, Stop: 8101, Start Num: 20

Candidate Starts for Kiko_12:

(Start: 20 @7703 has 15 MA's), (31, 7745), (38, 7787), (39, 7799), (42, 7832), (44, 7838), (53, 7937), (54, 7940), (58, 7964), (59, 7976), (60, 7985), (65, 8009), (72, 8081),

Gene: Kinbote_14 Start: 9536, Stop: 9922, Start Num: 28

Candidate Starts for Kinbote_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: LilHazelnut_14 Start: 9536, Stop: 9922, Start Num: 28

Candidate Starts for LilHazelnut_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: Luke_14 Start: 9521, Stop: 9922, Start Num: 25

Candidate Starts for Luke_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: Luna22_14 Start: 9521, Stop: 9922, Start Num: 25

Candidate Starts for Luna22_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: MagicMan_11 Start: 7834, Stop: 8232, Start Num: 20

Candidate Starts for MagicMan_11:

(Start: 20 @7834 has 15 MA's), (31, 7873), (34, 7894), (38, 7915), (47, 8002), (49, 8020), (59, 8104), (65, 8137), (70, 8197), (72, 8209),

Gene: Mulch_14 Start: 8949, Stop: 9335, Start Num: 23

Candidate Starts for Mulch_14:

(13, 8853), (Start: 23 @8949 has 15 MA's), (29, 8973), (31, 8982), (38, 9021), (39, 9033), (45, 9081), (54, 9180), (61, 9231), (69, 9297), (70, 9303), (74, 9324),

Gene: Nadeem_14 Start: 8949, Stop: 9335, Start Num: 23

Candidate Starts for Nadeem_14:

(13, 8853), (Start: 23 @8949 has 15 MA's), (29, 8973), (31, 8982), (38, 9021), (39, 9033), (45, 9081), (54, 9180), (61, 9231), (69, 9297), (70, 9303), (74, 9324),

Gene: NancyRae_14 Start: 8949, Stop: 9335, Start Num: 23

Candidate Starts for NancyRae_14:

(13, 8853), (Start: 23 @8949 has 15 MA's), (29, 8973), (31, 8982), (38, 9021), (39, 9033), (45, 9081), (54, 9180), (61, 9231), (69, 9297), (70, 9303), (74, 9324),

Gene: OBUpride_14 Start: 9515, Stop: 9916, Start Num: 25

Candidate Starts for OBUpride_14:

(1, 9185), (5, 9281), (6, 9284), (7, 9287), (9, 9317), (10, 9341), (11, 9353), (Start: 25 @9515 has 16 MA's), (Start: 28 @9530 has 6 MA's), (32, 9545), (37, 9590), (39, 9608), (40, 9626), (41, 9638), (44, 9650), (48, 9701), (49, 9704), (56, 9764), (57, 9773), (58, 9776),

Gene: Opie_11 Start: 7849, Stop: 8247, Start Num: 20

Candidate Starts for Opie_11:

(Start: 20 @7849 has 15 MA's), (31, 7888), (34, 7909), (42, 7975), (49, 8035), (54, 8083), (59, 8119), (72, 8224),

Gene: Parada_14 Start: 8949, Stop: 9335, Start Num: 23

Candidate Starts for Parada_14:

(13, 8853), (Start: 23 @8949 has 15 MA's), (29, 8973), (31, 8982), (38, 9021), (39, 9033), (45, 9081), (54, 9180), (61, 9231), (69, 9297), (70, 9303), (74, 9324),

Gene: Pimento_14 Start: 9177, Stop: 9539, Start Num: 29

Candidate Starts for Pimento_14:

(4, 8922), (13, 9057), (Start: 23 @9153 has 15 MA's), (29, 9177), (31, 9186), (38, 9225), (39, 9237), (45, 9285), (52, 9378), (54, 9384), (61, 9435), (69, 9501), (70, 9507), (74, 9528),

Gene: RayTheFireFly_12 Start: 7879, Stop: 8274, Start Num: 20

Candidate Starts for RayTheFireFly_12:

(Start: 20 @7879 has 15 MA's), (31, 7915), (42, 8005), (54, 8113), (62, 8167),

Gene: Rem711_17 Start: 11092, Stop: 11496, Start Num: 17

Candidate Starts for Rem711_17:

(Start: 17 @11092 has 1 MA's), (19, 11101), (24, 11125), (43, 11230), (47, 11269), (70, 11461), (71, 11470),

Gene: Ruthy_11 Start: 7764, Stop: 8144, Start Num: 23

Candidate Starts for Ruthy_11:

(Start: 23 @7764 has 15 MA's), (35, 7821), (39, 7848), (44, 7887), (46, 7911), (54, 7989), (70, 8112),

Gene: Schnabeltier_11 Start: 7835, Stop: 8233, Start Num: 20

Candidate Starts for Schnabeltier_11:

(Start: 20 @7835 has 15 MA's), (31, 7874), (34, 7895), (38, 7916), (47, 8003), (49, 8021), (59, 8105), (65, 8138), (70, 8198), (72, 8210),

Gene: TaronosaurusRx_11 Start: 7848, Stop: 8246, Start Num: 20

Candidate Starts for TaronosaurusRx_11:

(Start: 20 @7848 has 15 MA's), (26, 7863), (34, 7908), (42, 7974), (49, 8034), (54, 8082), (58, 8106), (59, 8118), (65, 8151), (70, 8211), (72, 8223),

Gene: Ubuntu_14 Start: 9521, Stop: 9922, Start Num: 25

Candidate Starts for Ubuntu_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44,

9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: Webster2_14 Start: 9536, Stop: 9922, Start Num: 28

Candidate Starts for Webster2_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: Weirido19_12 Start: 8274, Stop: 8690, Start Num: 19

Candidate Starts for Weirido19_12:

(15, 8256), (Start: 18 @8268 has 1 MA's), (19, 8274), (21, 8289), (45, 8433), (46, 8454), (49, 8484), (50, 8493), (51, 8496), (60, 8577), (70, 8658), (73, 8676),

Gene: WheatThin_14 Start: 8949, Stop: 9335, Start Num: 23

Candidate Starts for WheatThin_14:

(13, 8853), (Start: 23 @8949 has 15 MA's), (29, 8973), (31, 8982), (38, 9021), (39, 9033), (45, 9081), (54, 9180), (61, 9231), (69, 9297), (70, 9303), (74, 9324),

Gene: Wishmaker_14 Start: 9536, Stop: 9922, Start Num: 28

Candidate Starts for Wishmaker_14:

(1, 9191), (5, 9287), (6, 9290), (7, 9293), (9, 9323), (10, 9347), (11, 9359), (Start: 25 @9521 has 16 MA's), (Start: 28 @9536 has 6 MA's), (32, 9551), (37, 9596), (39, 9614), (40, 9632), (41, 9644), (44, 9656), (48, 9707), (49, 9710), (56, 9770), (57, 9779), (58, 9782),

Gene: ZAYM_11 Start: 7841, Stop: 8239, Start Num: 20

Candidate Starts for ZAYM_11:

(Start: 20 @7841 has 15 MA's), (26, 7856), (34, 7901), (42, 7967), (49, 8027), (54, 8075), (58, 8099), (59, 8111), (65, 8144), (70, 8204), (72, 8216),