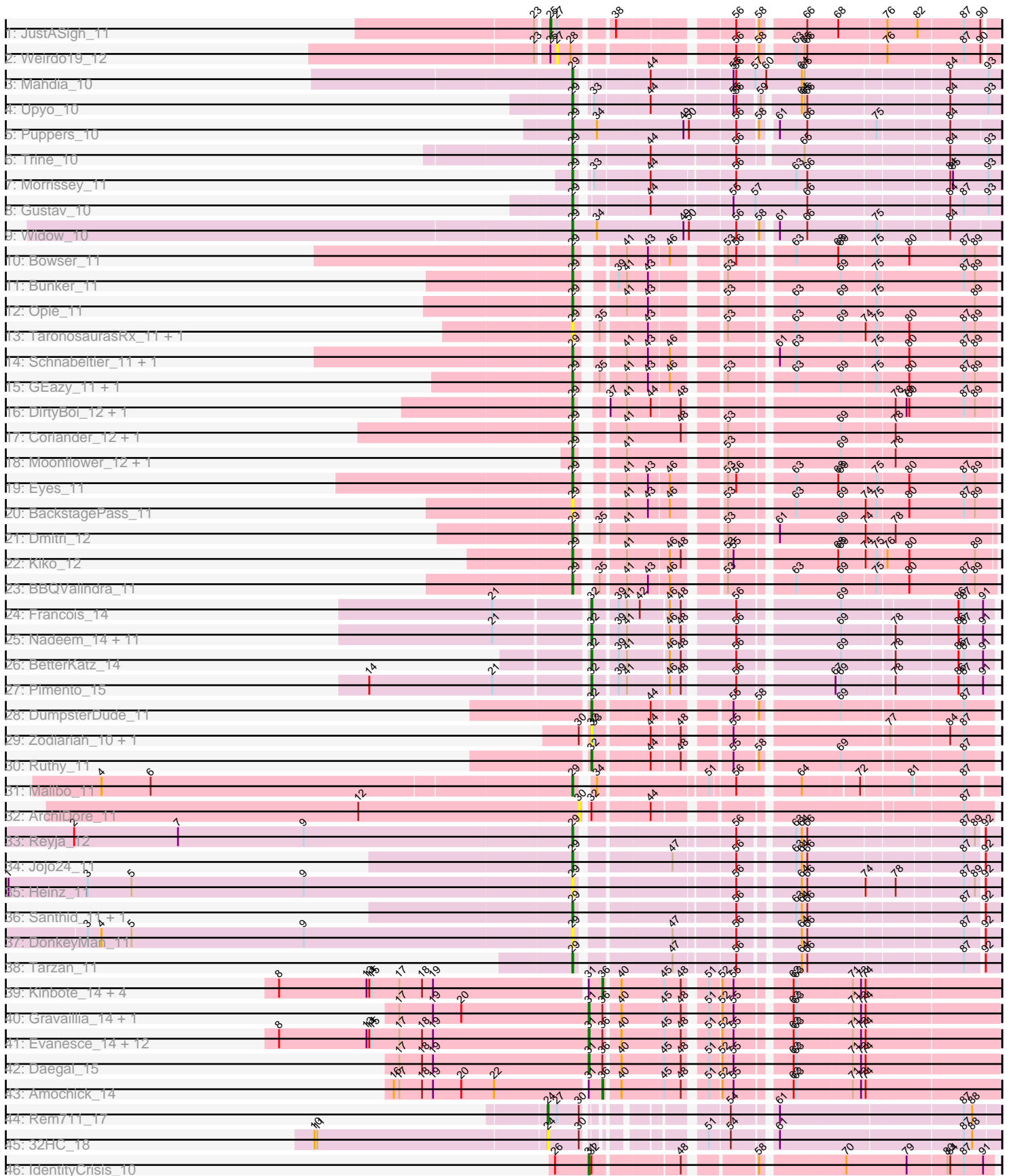


Pham 224509



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 224509 Report

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

Pham number 224509 has 82 members, 12 are drafts.

Phages represented in each track:

- Track 1 : JustASigh_11
- Track 2 : Weirdo19_12
- Track 3 : Mahdia_10
- Track 4 : Upyo_10
- Track 5 : Puppies_10
- Track 6 : Trine_10
- Track 7 : Morrissey_11
- Track 8 : Gustav_10
- Track 9 : Widow_10
- Track 10 : Bowser_11
- Track 11 : Bunker_11
- Track 12 : Opie_11
- Track 13 : TaronosaurusRx_11, ZAYM_11
- Track 14 : Schnabeltier_11, MagicMan_11
- Track 15 : GEazy_11, HannahD_11
- Track 16 : DirtyBoi_12, Hedwig_12
- Track 17 : Coriander_12, Doggs_11
- Track 18 : Moonflower_12, RayTheFireFly_12
- Track 19 : Eyes_11
- Track 20 : BackstagePass_11
- Track 21 : Dmitri_12
- Track 22 : Kiko_12
- Track 23 : BBQValindra_11
- Track 24 : Francois_14
- Track 25 : 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 26 : BetterKatz_14
- Track 27 : Pimento_15
- Track 28 : DumpsterDude_11
- Track 29 : Zodiariah_10, MakCheese_11
- Track 30 : Ruthy_11
- Track 31 : Malibo_11
- Track 32 : ArchiDore_11
- Track 33 : Reyja_12
- Track 34 : Jojo24_11
- Track 35 : Heinz_11
- Track 36 : Santhid_11, Hibiscus_11

- Track 37 : DonkeyMan_11
- Track 38 : Tarzan_11
- Track 39 : Kinbote_14, LilHazelNut_14, Webster2_14, Wishmaker_14, HH92_14
- Track 40 : Gravaillia_14, Gancho_13
- Track 41 : 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 42 : Daegal_15
- Track 43 : Amochick_14
- Track 44 : Rem711_17
- Track 45 : 32HC_18
- Track 46 : 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 29, it was called in 28 of the 70 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- BBQValindra_11, BackstagePass_11, Bowser_11, Bunker_11, Coriander_12, DirtyBoi_12, Dmitri_12, Doggs_11, DonkeyMan_11, Eyes_11, GEazy_11, Gustav_10, HannahD_11, Hedwig_12, Heinz_11, Hibiscus_11, Jojo24_11, Kiko_12, MagicMan_11, Mahdia_10, Malibo_11, Moonflower_12, Morrissey_11, Opie_11, Puppies_10, RayTheFireFly_12, Reyja_12, Santhid_11, Schnabeltier_11, TaronosaurusRx_11, Tarzan_11, Trine_10, Upyo_10, Widow_10, ZAYM_11,

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

-

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

- 32HC_18, Amochick_14, Amymech_14, ArchiDore_11, Ayotoya_14, BetterKatz_14, Bock_14, Brylie_14, Chop_14, Daegal_15, DeepSoil15_14, DelRio_15, Dewey_14, DumpsterDude_11, Ein37_14, Evanesce_14, Forge_14, Francois_14, Gancho_13, Giles_14, GrandSlam_14, Gravaillia_14, HH92_14, Hadrien_14, Hail_14, Hamood_14, IdentityCrisis_10, JustASigh_11, Kinbote_14, LilHazelNut_14, Luke_14, Luna22_14, MakCheese_11, Mulch_14, Nadeem_14, NancyRae_14, OBUpride_14, Parada_14, Pimento_15, Rem711_17, Ruthy_11, Ubuntu_14, Webster2_14, Weirido19_12, WheatThin_14, Wishmaker_14, Zodiariah_10,

Summary by start number:

Start 24:

- Found in 2 of 82 (2.4%) of genes in pham
- Manual Annotations of this start: 1 of 70
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 32HC_18 (Z), Rem711_17 (Z),

Start 25:

- Found in 2 of 82 (2.4%) of genes in pham
- Manual Annotations of this start: 1 of 70

- Called 50.0% of time when present
- Phage (with cluster) where this start called: JustASigh_11 (AH),

Start 27:

- Found in 3 of 82 (3.7%) 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 29:

- Found in 35 of 82 (42.7%) of genes in pham
- Manual Annotations of this start: 28 of 70
- 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), DonkeyMan_11 (DY), Eyes_11 (DB), GEazy_11 (DB), Gustav_10 (CD), HannahD_11 (DB), Hedwig_12 (DB), Heinz_11 (DY), Hibiscus_11 (DY), Jojo24_11 (DY), Kiko_12 (DB), MagicMan_11 (DB), Mahdia_10 (CD), Malibo_11 (DW), Moonflower_12 (DB), Morrissey_11 (CD), Opie_11 (DB), Puppies_10 (CD), RayTheFireFly_12 (DB), Reyja_12 (DY), Santhid_11 (DY), Schnabeltier_11 (DB), TaronosaurusRx_11 (DB), Tarzan_11 (DY), Trine_10 (CD), Upyo_10 (CD), Widow_10 (CD), ZAYM_11 (DB),

Start 30:

- Found in 5 of 82 (6.1%) of genes in pham
- No Manual Annotations of this start.
- Called 20.0% of time when present
- Phage (with cluster) where this start called: ArchiDore_11 (DW),

Start 31:

- Found in 23 of 82 (28.0%) of genes in pham
- Manual Annotations of this start: 17 of 70
- Called 73.9% 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), IdentityCrisis_10 (singleton), Luke_14 (Q), Luna22_14 (Q), OBUpride_14 (Q), Ubuntu_14 (Q),

Start 32:

- Found in 21 of 82 (25.6%) of genes in pham
- Manual Annotations of this start: 17 of 70
- Called 90.5% 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), MakCheese_11 (DW), Mulch_14 (DI), Nadeem_14 (DI), NancyRae_14 (DI), Parada_14 (DI), Pimento_15 (DI), Ruthy_11 (DW), WheatThin_14 (DI), Zodiariah_10 (DW),

Start 36:

- Found in 22 of 82 (26.8%) of genes in pham
- Manual Annotations of this start: 6 of 70
- 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),

Summary by clusters:

There are 9 clusters represented in this pham: singleton, DI, AH, DB, CD, Q, DY, DW, Z,

Info for manual annotations of cluster AH:

- Start number 25 was manually annotated 1 time for cluster AH.

Info for manual annotations of cluster CD:

- Start number 29 was manually annotated 7 times for cluster CD.

Info for manual annotations of cluster DB:

- Start number 29 was manually annotated 15 times for cluster DB.

Info for manual annotations of cluster DI:

- Start number 32 was manually annotated 15 times for cluster DI.

Info for manual annotations of cluster DW:

- Start number 29 was manually annotated 1 time for cluster DW.
- Start number 32 was manually annotated 2 times for cluster DW.

Info for manual annotations of cluster DY:

- Start number 29 was manually annotated 5 times for cluster DY.

Info for manual annotations of cluster Q:

- Start number 31 was manually annotated 16 times for cluster Q.
- Start number 36 was manually annotated 6 times for cluster Q.

Info for manual annotations of cluster Z:

- Start number 24 was manually annotated 1 time for cluster Z.

Gene Information:

Gene: 32HC_18 Start: 11044, Stop: 11448, Start Num: 24

Candidate Starts for 32HC_18:

(10, 10795), (11, 10798), (Start: 24 @11044 has 1 MA's), (30, 11077), (51, 11161), (54, 11182), (61, 11221), (87, 11413), (88, 11422),

Gene: Amochick_14 Start: 9530, Stop: 9916, Start Num: 36

Candidate Starts for Amochick_14:

(16, 9311), (17, 9317), (18, 9341), (19, 9353), (20, 9383), (22, 9419), (Start: 31 @9515 has 17 MA's), (Start: 36 @9530 has 6 MA's), (40, 9545), (45, 9590), (48, 9608), (51, 9626), (52, 9638), (55, 9650), (62, 9701), (63, 9704), (71, 9764), (73, 9773), (74, 9776),

Gene: Amymech_14 Start: 9521, Stop: 9922, Start Num: 31

Candidate Starts for Amymech_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55,

9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: ArchiDore_11 Start: 7674, Stop: 8060, Start Num: 30

Candidate Starts for ArchiDore_11:

(12, 7434), (30, 7674), (Start: 32 @7680 has 17 MA's), (44, 7737), (87, 8028),

Gene: Ayotoya_14 Start: 9234, Stop: 9620, Start Num: 32

Candidate Starts for Ayotoya_14:

(21, 9138), (Start: 32 @9234 has 17 MA's), (39, 9258), (41, 9267), (46, 9306), (48, 9318), (56, 9366), (69, 9465), (78, 9516), (86, 9582), (87, 9588), (91, 9609),

Gene: BBQValindra_11 Start: 7497, Stop: 7895, Start Num: 29

Candidate Starts for BBQValindra_11:

(Start: 29 @7497 has 28 MA's), (35, 7512), (41, 7536), (43, 7557), (46, 7578), (53, 7623), (63, 7683), (69, 7731), (75, 7767), (80, 7800), (87, 7860), (89, 7872),

Gene: BackstagePass_11 Start: 7474, Stop: 7872, Start Num: 29

Candidate Starts for BackstagePass_11:

(Start: 29 @7474 has 28 MA's), (41, 7513), (43, 7534), (46, 7555), (53, 7600), (63, 7660), (69, 7708), (74, 7732), (75, 7744), (80, 7777), (87, 7837), (89, 7849),

Gene: BetterKatz_14 Start: 9202, Stop: 9588, Start Num: 32

Candidate Starts for BetterKatz_14:

(Start: 32 @9202 has 17 MA's), (39, 9226), (41, 9235), (46, 9274), (48, 9286), (56, 9334), (69, 9433), (78, 9484), (86, 9550), (87, 9556), (91, 9577),

Gene: Bock_14 Start: 8952, Stop: 9338, Start Num: 32

Candidate Starts for Bock_14:

(21, 8856), (Start: 32 @8952 has 17 MA's), (39, 8976), (41, 8985), (46, 9024), (48, 9036), (56, 9084), (69, 9183), (78, 9234), (86, 9300), (87, 9306), (91, 9327),

Gene: Bowser_11 Start: 7495, Stop: 7893, Start Num: 29

Candidate Starts for Bowser_11:

(Start: 29 @7495 has 28 MA's), (41, 7534), (43, 7555), (46, 7576), (53, 7621), (56, 7630), (63, 7681), (68, 7726), (69, 7729), (75, 7765), (80, 7798), (87, 7858), (89, 7870),

Gene: Brylie_14 Start: 8949, Stop: 9335, Start Num: 32

Candidate Starts for Brylie_14:

(21, 8853), (Start: 32 @8949 has 17 MA's), (39, 8973), (41, 8982), (46, 9021), (48, 9033), (56, 9081), (69, 9180), (78, 9231), (86, 9297), (87, 9303), (91, 9324),

Gene: Bunker_11 Start: 7497, Stop: 7895, Start Num: 29

Candidate Starts for Bunker_11:

(Start: 29 @7497 has 28 MA's), (39, 7527), (41, 7536), (43, 7557), (53, 7623), (69, 7731), (75, 7767), (87, 7860), (89, 7872),

Gene: Chop_14 Start: 8982, Stop: 9368, Start Num: 32

Candidate Starts for Chop_14:

(21, 8886), (Start: 32 @8982 has 17 MA's), (39, 9006), (41, 9015), (46, 9054), (48, 9066), (56, 9114), (69, 9213), (78, 9264), (86, 9330), (87, 9336), (91, 9357),

Gene: Coriander_12 Start: 7873, Stop: 8268, Start Num: 29

Candidate Starts for Coriander_12:

(Start: 29 @7873 has 28 MA's), (41, 7909), (48, 7966), (53, 7999), (69, 8107), (78, 8161),

Gene: Daegal_15 Start: 9812, Stop: 10213, Start Num: 31

Candidate Starts for Daegal_15:

(17, 9614), (18, 9638), (19, 9650), (Start: 31 @9812 has 17 MA's), (Start: 36 @9827 has 6 MA's), (40, 9842), (45, 9887), (48, 9905), (51, 9923), (52, 9935), (55, 9947), (62, 9998), (63, 10001), (71, 10061), (73, 10070), (74, 10073),

Gene: DeepSoil15_14 Start: 9521, Stop: 9922, Start Num: 31

Candidate Starts for DeepSoil15_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: DelRio_15 Start: 9459, Stop: 9845, Start Num: 32

Candidate Starts for DelRio_15:

(21, 9363), (Start: 32 @9459 has 17 MA's), (39, 9483), (41, 9492), (46, 9531), (48, 9543), (56, 9591), (69, 9690), (78, 9741), (86, 9807), (87, 9813), (91, 9834),

Gene: Dewey_14 Start: 9521, Stop: 9922, Start Num: 31

Candidate Starts for Dewey_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: DirtyBoi_12 Start: 7867, Stop: 8259, Start Num: 29

Candidate Starts for DirtyBoi_12:

(Start: 29 @7867 has 28 MA's), (37, 7885), (41, 7903), (44, 7927), (48, 7957), (78, 8152), (79, 8164), (80, 8167), (87, 8227), (89, 8239),

Gene: Dmitri_12 Start: 7855, Stop: 8250, Start Num: 29

Candidate Starts for Dmitri_12:

(Start: 29 @7855 has 28 MA's), (35, 7867), (41, 7891), (53, 7981), (61, 8023), (69, 8089), (74, 8113), (78, 8143),

Gene: Doggs_11 Start: 7570, Stop: 7965, Start Num: 29

Candidate Starts for Doggs_11:

(Start: 29 @7570 has 28 MA's), (41, 7606), (48, 7663), (53, 7696), (69, 7804), (78, 7858),

Gene: DonkeyMan_11 Start: 7427, Stop: 7831, Start Num: 29

Candidate Starts for DonkeyMan_11:

(3, 6899), (4, 6914), (5, 6947), (9, 7136), (Start: 29 @7427 has 28 MA's), (47, 7517), (56, 7577), (64, 7634), (66, 7640), (87, 7799), (92, 7817),

Gene: DumpsterDude_11 Start: 7693, Stop: 8073, Start Num: 32

Candidate Starts for DumpsterDude_11:

(Start: 32 @7693 has 17 MA's), (44, 7750), (55, 7816), (58, 7840), (69, 7918), (87, 8041),

Gene: Ein37_14 Start: 9521, Stop: 9922, Start Num: 31

Candidate Starts for Ein37_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: Evanesce_14 Start: 9521, Stop: 9922, Start Num: 31

Candidate Starts for Evanesce_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: Eyes_11 Start: 7504, Stop: 7902, Start Num: 29

Candidate Starts for Eyes_11:

(Start: 29 @7504 has 28 MA's), (41, 7543), (43, 7564), (46, 7585), (53, 7630), (56, 7639), (63, 7690), (68, 7735), (69, 7738), (75, 7774), (80, 7807), (87, 7867), (89, 7879),

Gene: Forge_14 Start: 9521, Stop: 9922, Start Num: 31

Candidate Starts for Forge_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: Francois_14 Start: 8963, Stop: 9349, Start Num: 32

Candidate Starts for Francois_14:

(21, 8867), (Start: 32 @8963 has 17 MA's), (39, 8987), (41, 8996), (42, 9008), (46, 9035), (48, 9047), (56, 9095), (69, 9194), (86, 9311), (87, 9317), (91, 9338),

Gene: GEazy_11 Start: 7506, Stop: 7904, Start Num: 29

Candidate Starts for GEazy_11:

(Start: 29 @7506 has 28 MA's), (35, 7521), (41, 7545), (43, 7566), (46, 7587), (53, 7632), (63, 7692), (69, 7740), (75, 7776), (80, 7809), (87, 7869), (89, 7881),

Gene: Gancho_13 Start: 9221, Stop: 9622, Start Num: 31

Candidate Starts for Gancho_13:

(17, 9023), (19, 9059), (20, 9089), (Start: 31 @9221 has 17 MA's), (Start: 36 @9236 has 6 MA's), (40, 9251), (45, 9296), (48, 9314), (51, 9332), (52, 9344), (55, 9356), (62, 9407), (63, 9410), (71, 9470), (73, 9479), (74, 9482),

Gene: Giles_14 Start: 9521, Stop: 9922, Start Num: 31

Candidate Starts for Giles_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: GrandSlam_14 Start: 8982, Stop: 9368, Start Num: 32

Candidate Starts for GrandSlam_14:

(21, 8886), (Start: 32 @8982 has 17 MA's), (39, 9006), (41, 9015), (46, 9054), (48, 9066), (56, 9114), (69, 9213), (78, 9264), (86, 9330), (87, 9336), (91, 9357),

Gene: Gravaillia_14 Start: 9254, Stop: 9655, Start Num: 31

Candidate Starts for Gravaillia_14:

(17, 9056), (19, 9092), (20, 9122), (Start: 31 @9254 has 17 MA's), (Start: 36 @9269 has 6 MA's), (40, 9284), (45, 9329), (48, 9347), (51, 9365), (52, 9377), (55, 9389), (62, 9440), (63, 9443), (71, 9503), (73, 9512), (74, 9515),

Gene: Gustav_10 Start: 7169, Stop: 7594, Start Num: 29

Candidate Starts for Gustav_10:

(Start: 29 @7169 has 28 MA's), (44, 7235), (55, 7313), (57, 7337), (66, 7394), (84, 7538), (87, 7553), (93, 7580),

Gene: HH92_14 Start: 9536, Stop: 9922, Start Num: 36

Candidate Starts for HH92_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: Hadrien_14 Start: 9521, Stop: 9922, Start Num: 31

Candidate Starts for Hadrien_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: Hail_14 Start: 9521, Stop: 9922, Start Num: 31

Candidate Starts for Hail_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: Hamood_14 Start: 8982, Stop: 9368, Start Num: 32

Candidate Starts for Hamood_14:

(21, 8886), (Start: 32 @8982 has 17 MA's), (39, 9006), (41, 9015), (46, 9054), (48, 9066), (56, 9114), (69, 9213), (78, 9264), (86, 9330), (87, 9336), (91, 9357),

Gene: HannahD_11 Start: 7506, Stop: 7904, Start Num: 29

Candidate Starts for HannahD_11:

(Start: 29 @7506 has 28 MA's), (35, 7521), (41, 7545), (43, 7566), (46, 7587), (53, 7632), (63, 7692), (69, 7740), (75, 7776), (80, 7809), (87, 7869), (89, 7881),

Gene: Hedwig_12 Start: 7867, Stop: 8259, Start Num: 29

Candidate Starts for Hedwig_12:

(Start: 29 @7867 has 28 MA's), (37, 7885), (41, 7903), (44, 7927), (48, 7957), (78, 8152), (79, 8164), (80, 8167), (87, 8227), (89, 8239),

Gene: Heinz_11 Start: 7463, Stop: 7867, Start Num: 29

Candidate Starts for Heinz_11:

(1, 6851), (3, 6938), (5, 6986), (9, 7175), (Start: 29 @7463 has 28 MA's), (56, 7613), (64, 7670), (66, 7676), (74, 7736), (78, 7766), (87, 7835), (89, 7847), (92, 7853),

Gene: Hibiscus_11 Start: 7440, Stop: 7844, Start Num: 29

Candidate Starts for Hibiscus_11:

(Start: 29 @7440 has 28 MA's), (56, 7590), (63, 7641), (64, 7647), (66, 7653), (87, 7812), (92, 7830),

Gene: IdentityCrisis_10 Start: 7775, Stop: 8167, Start Num: 31

Candidate Starts for IdentityCrisis_10:

(26, 7748), (Start: 31 @7775 has 17 MA's), (Start: 32 @7778 has 17 MA's), (48, 7862), (58, 7925), (70, 8009), (79, 8075), (83, 8117), (84, 8120), (87, 8135), (91, 8156),

Gene: Jojo24_11 Start: 7435, Stop: 7839, Start Num: 29

Candidate Starts for Jojo24_11:

(Start: 29 @7435 has 28 MA's), (47, 7525), (56, 7585), (63, 7636), (64, 7642), (66, 7648), (87, 7807), (92, 7825),

Gene: JustASigh_11 Start: 8496, Stop: 8918, Start Num: 25

Candidate Starts for JustASigh_11:

(23, 8484), (Start: 25 @8496 has 1 MA's), (27, 8502), (38, 8553), (56, 8661), (58, 8682), (66, 8724), (68, 8757), (76, 8805), (82, 8838), (87, 8886), (90, 8904),

Gene: Kiko_12 Start: 7703, Stop: 8101, Start Num: 29

Candidate Starts for Kiko_12:

(Start: 29 @7703 has 28 MA's), (41, 7745), (46, 7787), (48, 7799), (53, 7832), (55, 7838), (68, 7937), (69, 7940), (74, 7964), (75, 7976), (76, 7985), (80, 8009), (89, 8081),

Gene: Kinbote_14 Start: 9536, Stop: 9922, Start Num: 36

Candidate Starts for Kinbote_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: LilHazelnut_14 Start: 9536, Stop: 9922, Start Num: 36

Candidate Starts for LilHazelnut_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: Luke_14 Start: 9521, Stop: 9922, Start Num: 31

Candidate Starts for Luke_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: Luna22_14 Start: 9521, Stop: 9922, Start Num: 31

Candidate Starts for Luna22_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: MagicMan_11 Start: 7834, Stop: 8232, Start Num: 29

Candidate Starts for MagicMan_11:

(Start: 29 @7834 has 28 MA's), (41, 7873), (43, 7894), (46, 7915), (61, 8002), (63, 8020), (75, 8104), (80, 8137), (87, 8197), (89, 8209),

Gene: Mahdia_10 Start: 7171, Stop: 7596, Start Num: 29

Candidate Starts for Mahdia_10:

(Start: 29 @7171 has 28 MA's), (44, 7237), (55, 7315), (56, 7318), (57, 7339), (60, 7351), (64, 7390), (65, 7393), (84, 7540), (93, 7582),

Gene: MakCheese_11 Start: 7500, Stop: 7880, Start Num: 32

Candidate Starts for MakCheese_11:

(30, 7494), (Start: 32 @7500 has 17 MA's), (33, 7503), (44, 7557), (48, 7584), (55, 7623), (77, 7773), (84, 7833), (87, 7848),

Gene: Malibo_11 Start: 7740, Stop: 8135, Start Num: 29

Candidate Starts for Malibo_11:

(4, 7233), (6, 7287), (Start: 29 @7740 has 28 MA's), (34, 7752), (51, 7860), (56, 7884), (64, 7944), (72, 8001), (81, 8052), (87, 8103),

Gene: Moonflower_12 Start: 7878, Stop: 8273, Start Num: 29

Candidate Starts for Moonflower_12:

(Start: 29 @7878 has 28 MA's), (41, 7914), (53, 8004), (69, 8112), (78, 8166),

Gene: Morrissey_11 Start: 7567, Stop: 7992, Start Num: 29

Candidate Starts for Morrissey_11:

(Start: 29 @7567 has 28 MA's), (33, 7576), (44, 7633), (56, 7714), (63, 7780), (66, 7792), (84, 7936), (85, 7939), (93, 7978),

Gene: Mulch_14 Start: 8949, Stop: 9335, Start Num: 32

Candidate Starts for Mulch_14:

(21, 8853), (Start: 32 @8949 has 17 MA's), (39, 8973), (41, 8982), (46, 9021), (48, 9033), (56, 9081), (69, 9180), (78, 9231), (86, 9297), (87, 9303), (91, 9324),

Gene: Nadeem_14 Start: 8949, Stop: 9335, Start Num: 32

Candidate Starts for Nadeem_14:

(21, 8853), (Start: 32 @8949 has 17 MA's), (39, 8973), (41, 8982), (46, 9021), (48, 9033), (56, 9081), (69, 9180), (78, 9231), (86, 9297), (87, 9303), (91, 9324),

Gene: NancyRae_14 Start: 8949, Stop: 9335, Start Num: 32

Candidate Starts for NancyRae_14:

(21, 8853), (Start: 32 @8949 has 17 MA's), (39, 8973), (41, 8982), (46, 9021), (48, 9033), (56, 9081), (69, 9180), (78, 9231), (86, 9297), (87, 9303), (91, 9324),

Gene: OBUpride_14 Start: 9515, Stop: 9916, Start Num: 31

Candidate Starts for OBUpride_14:

(8, 9185), (13, 9281), (14, 9284), (15, 9287), (17, 9317), (18, 9341), (19, 9353), (Start: 31 @9515 has 17 MA's), (Start: 36 @9530 has 6 MA's), (40, 9545), (45, 9590), (48, 9608), (51, 9626), (52, 9638), (55, 9650), (62, 9701), (63, 9704), (71, 9764), (73, 9773), (74, 9776),

Gene: Opie_11 Start: 7849, Stop: 8247, Start Num: 29

Candidate Starts for Opie_11:

(Start: 29 @7849 has 28 MA's), (41, 7888), (43, 7909), (53, 7975), (63, 8035), (69, 8083), (75, 8119), (89, 8224),

Gene: Parada_14 Start: 8949, Stop: 9335, Start Num: 32

Candidate Starts for Parada_14:

(21, 8853), (Start: 32 @8949 has 17 MA's), (39, 8973), (41, 8982), (46, 9021), (48, 9033), (56, 9081), (69, 9180), (78, 9231), (86, 9297), (87, 9303), (91, 9324),

Gene: Pimento_15 Start: 9153, Stop: 9539, Start Num: 32

Candidate Starts for Pimento_15:

(14, 8922), (21, 9057), (Start: 32 @9153 has 17 MA's), (39, 9177), (41, 9186), (46, 9225), (48, 9237), (56, 9285), (67, 9378), (69, 9384), (78, 9435), (86, 9501), (87, 9507), (91, 9528),

Gene: Puppies_10 Start: 7091, Stop: 7525, Start Num: 29

Candidate Starts for Puppies_10:

(Start: 29 @7091 has 28 MA's), (34, 7118), (49, 7211), (50, 7217), (56, 7265), (58, 7286), (61, 7298), (66, 7328), (75, 7400), (84, 7472),

Gene: RayTheFireFly_12 Start: 7879, Stop: 8274, Start Num: 29
Candidate Starts for RayTheFireFly_12:
(Start: 29 @7879 has 28 MA's), (41, 7915), (53, 8005), (69, 8113), (78, 8167),

Gene: Rem711_17 Start: 11092, Stop: 11496, Start Num: 24
Candidate Starts for Rem711_17:
(Start: 24 @11092 has 1 MA's), (27, 11101), (30, 11125), (54, 11230), (61, 11269), (87, 11461), (88, 11470),

Gene: Reyja_12 Start: 7576, Stop: 7980, Start Num: 29
Candidate Starts for Reyja_12:
(2, 7033), (7, 7147), (9, 7285), (Start: 29 @7576 has 28 MA's), (56, 7726), (63, 7777), (64, 7783), (66, 7789), (87, 7948), (89, 7960), (92, 7966),

Gene: Ruthy_11 Start: 7764, Stop: 8144, Start Num: 32
Candidate Starts for Ruthy_11:
(Start: 32 @7764 has 17 MA's), (44, 7821), (48, 7848), (55, 7887), (58, 7911), (69, 7989), (87, 8112),

Gene: Santhid_11 Start: 7444, Stop: 7848, Start Num: 29
Candidate Starts for Santhid_11:
(Start: 29 @7444 has 28 MA's), (56, 7594), (63, 7645), (64, 7651), (66, 7657), (87, 7816), (92, 7834),

Gene: Schnabeltier_11 Start: 7835, Stop: 8233, Start Num: 29
Candidate Starts for Schnabeltier_11:
(Start: 29 @7835 has 28 MA's), (41, 7874), (43, 7895), (46, 7916), (61, 8003), (63, 8021), (75, 8105), (80, 8138), (87, 8198), (89, 8210),

Gene: TaronosaurusRx_11 Start: 7848, Stop: 8246, Start Num: 29
Candidate Starts for TaronosaurusRx_11:
(Start: 29 @7848 has 28 MA's), (35, 7863), (43, 7908), (53, 7974), (63, 8034), (69, 8082), (74, 8106), (75, 8118), (80, 8151), (87, 8211), (89, 8223),

Gene: Tarzan_11 Start: 7432, Stop: 7836, Start Num: 29
Candidate Starts for Tarzan_11:
(Start: 29 @7432 has 28 MA's), (47, 7522), (56, 7582), (64, 7639), (66, 7645), (87, 7804), (92, 7822),

Gene: Trine_10 Start: 7087, Stop: 7506, Start Num: 29
Candidate Starts for Trine_10:
(Start: 29 @7087 has 28 MA's), (44, 7156), (56, 7240), (65, 7303), (84, 7450), (93, 7492),

Gene: Ubuntu_14 Start: 9521, Stop: 9922, Start Num: 31
Candidate Starts for Ubuntu_14:
(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: Upyo_10 Start: 7111, Stop: 7524, Start Num: 29
Candidate Starts for Upyo_10:
(Start: 29 @7111 has 28 MA's), (33, 7120), (44, 7177), (55, 7258), (56, 7261), (59, 7282), (64, 7318), (65, 7321), (66, 7324), (84, 7468), (93, 7510),

Gene: Webster2_14 Start: 9536, Stop: 9922, Start Num: 36

Candidate Starts for Webster2_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: Weirido19_12 Start: 8274, Stop: 8690, Start Num: 27

Candidate Starts for Weirido19_12:

(23, 8256), (Start: 25 @8268 has 1 MA's), (27, 8274), (28, 8289), (56, 8433), (58, 8454), (63, 8484), (65, 8493), (66, 8496), (76, 8577), (87, 8658), (90, 8676),

Gene: WheatThin_14 Start: 8949, Stop: 9335, Start Num: 32

Candidate Starts for WheatThin_14:

(21, 8853), (Start: 32 @8949 has 17 MA's), (39, 8973), (41, 8982), (46, 9021), (48, 9033), (56, 9081), (69, 9180), (78, 9231), (86, 9297), (87, 9303), (91, 9324),

Gene: Widow_10 Start: 7082, Stop: 7516, Start Num: 29

Candidate Starts for Widow_10:

(Start: 29 @7082 has 28 MA's), (34, 7109), (49, 7202), (50, 7208), (56, 7256), (58, 7277), (61, 7289), (66, 7319), (75, 7391), (84, 7463),

Gene: Wishmaker_14 Start: 9536, Stop: 9922, Start Num: 36

Candidate Starts for Wishmaker_14:

(8, 9191), (13, 9287), (14, 9290), (15, 9293), (17, 9323), (18, 9347), (19, 9359), (Start: 31 @9521 has 17 MA's), (Start: 36 @9536 has 6 MA's), (40, 9551), (45, 9596), (48, 9614), (51, 9632), (52, 9644), (55, 9656), (62, 9707), (63, 9710), (71, 9770), (73, 9779), (74, 9782),

Gene: ZAYM_11 Start: 7841, Stop: 8239, Start Num: 29

Candidate Starts for ZAYM_11:

(Start: 29 @7841 has 28 MA's), (35, 7856), (43, 7901), (53, 7967), (63, 8027), (69, 8075), (74, 8099), (75, 8111), (80, 8144), (87, 8204), (89, 8216),

Gene: Zodiariah_10 Start: 7490, Stop: 7870, Start Num: 32

Candidate Starts for Zodiariah_10:

(30, 7484), (Start: 32 @7490 has 17 MA's), (33, 7493), (44, 7547), (48, 7574), (55, 7613), (77, 7763), (84, 7823), (87, 7838),