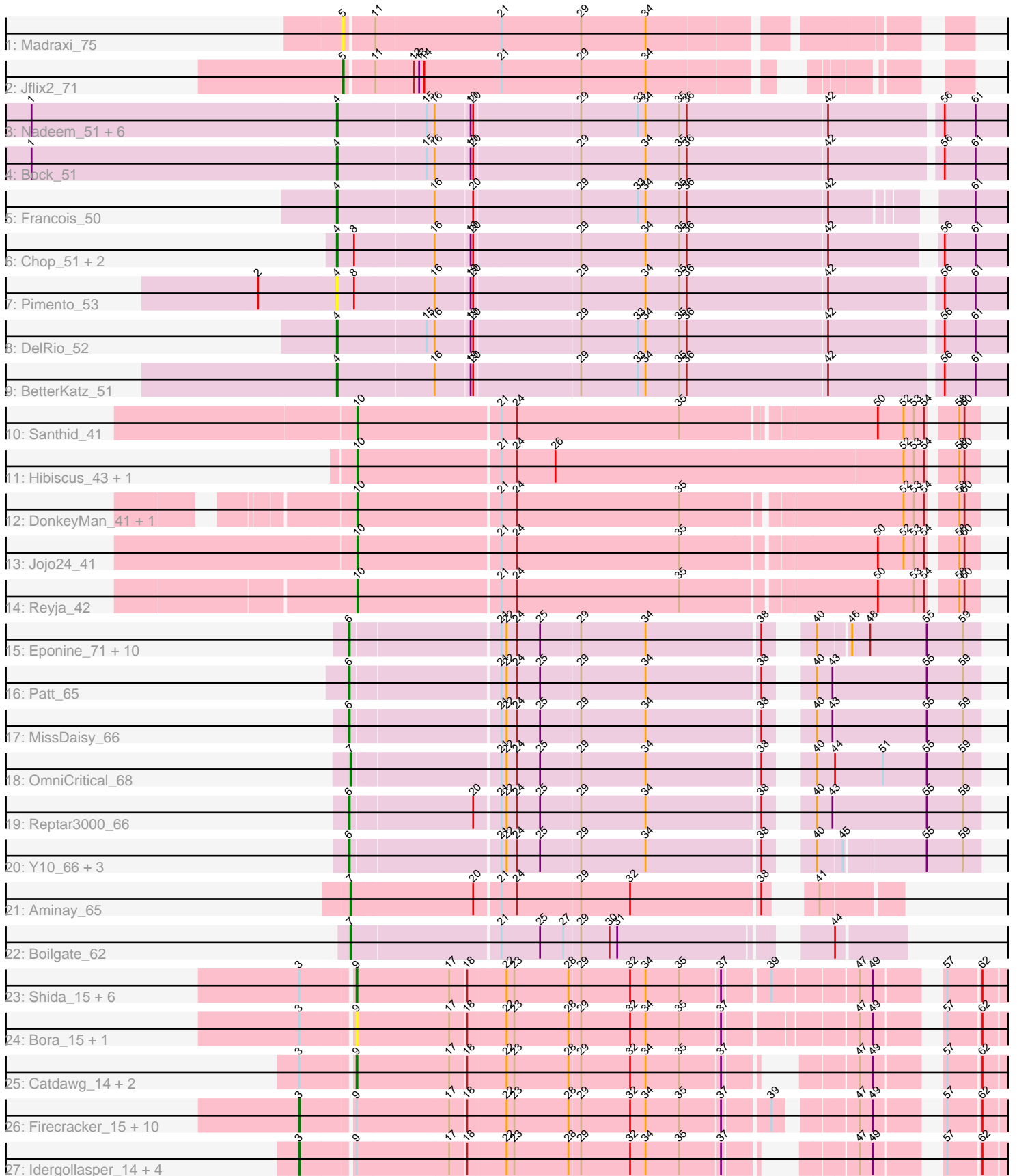


Pham 157829



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 157829 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157829 has 73 members, 11 are drafts.

Phages represented in each track:

- Track 1 : Madraxi_75
- Track 2 : Jflix2_71
- Track 3 : Nadeem_51, WheatThin_50, Brylie_51, Parada_51, Mulch_51, Ayotoya_51, NancyRae_50
- Track 4 : Bock_51
- Track 5 : Francois_50
- Track 6 : Chop_51, Hamood_51, GrandSlam_51
- Track 7 : Pimento_53
- Track 8 : DelRio_52
- Track 9 : BetterKatz_51
- Track 10 : Santhid_41
- Track 11 : Hibiscus_43, Heinz_43
- Track 12 : DonkeyMan_41, Tarzan_42
- Track 13 : Jojo24_41
- Track 14 : Reyja_42
- Track 15 : Eponine_71, Juliette_71, SamScheppers_67, Cheetobro_69, Chancellor_69, Malthus_70, Taquito_68, Fionnbharth_69, Mitti_69, Slarp_69, Wintermute_69
- Track 16 : Patt_65
- Track 17 : MissDaisy_66
- Track 18 : OmniCritical_68
- Track 19 : Reptar3000_66
- Track 20 : Y10_66, Y2_66, JF1_69, Ruthiejr_70
- Track 21 : Aminay_65
- Track 22 : Boilgate_62
- Track 23 : Shida_15, Corndog_17, Vorrps_15, Mori_15, Alkhayr_15, NiebruSaylor_15, Schuy_15
- Track 24 : Bora_15, Wildflower_15
- Track 25 : Catdawg_14, JangDynasty_14, FoulBall_14
- Track 26 : Firecracker_15, Murai_15, Dylan_15, Krili_15, Smooch_16, Ryadel_17, Zakhe101_16, Winget_15, Ashwin_16, YungJamal_16, MadKillah_16
- Track 27 : Idergollasper_14, Blessica_15, Familton_15, TelAviv_14, SchoolBus_14

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

The start number called the most often in the published annotations is 6, it was called in 18 of the 62 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Chancellor_69, Cheetobro_69, Eponine_71, Fionnbharth_69, JF1_69, Juliette_71, Malthus_70, MissDaisy_66, Mitti_69, Patt_65, Reptar3000_66, Ruthiejr_70, SamScheppers_67, Slarp_69, Taquito_68, Wintermute_69, Y10_66, Y2_66,

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

-

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

- Alkhayr_15, Aminay_65, Ashwin_16, Ayotoya_51, BetterKatz_51, Blessica_15, Bock_51, Boilgate_62, Bora_15, Brylie_51, Catdawg_14, Chop_51, Corndog_17, DelRio_52, DonkeyMan_41, Dylan_15, Familton_15, Firecracker_15, FoulBall_14, Francois_50, GrandSlam_51, Hamood_51, Heinz_43, Hibiscus_43, Idergollasper_14, JangDynasty_14, Jflix2_71, Jojo24_41, Krili_15, MadKillah_16, Madraxi_75, Mori_15, Mulch_51, Murai_15, Nadeem_51, NancyRae_50, NiebruSaylor_15, OmniCritical_68, Parada_51, Pimento_53, Reyja_42, Ryadel_17, Santhid_41, SchoolBus_14, Schuy_15, Shida_15, Smooch_16, Tarzan_42, TelAviv_14, Vorrps_15, WheatThin_50, Wildflower_15, Winget_15, YungJamal_16, Zakhe101_16,

Summary by start number:

Start 3:

- Found in 28 of 73 (38.4%) of genes in pham
- Manual Annotations of this start: 15 of 62
- Called 57.1% of time when present
- Phage (with cluster) where this start called: Ashwin_16 (O), Blessica_15 (O), Dylan_15 (O), Familton_15 (O), Firecracker_15 (O), Idergollasper_14 (O), Krili_15 (O), MadKillah_16 (O), Murai_15 (O), Ryadel_17 (O), SchoolBus_14 (O), Smooch_16 (O), TelAviv_14 (O), Winget_15 (O), YungJamal_16 (O), Zakhe101_16 (O),

Start 4:

- Found in 15 of 73 (20.5%) of genes in pham
- Manual Annotations of this start: 13 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ayotoya_51 (DI), BetterKatz_51 (DI), Bock_51 (DI), Brylie_51 (DI), Chop_51 (DI), DelRio_52 (DI), Francois_50 (DI), GrandSlam_51 (DI), Hamood_51 (DI), Mulch_51 (DI), Nadeem_51 (DI), NancyRae_50 (DI), Parada_51 (DI), Pimento_53 (DI), WheatThin_50 (DI),

Start 5:

- Found in 2 of 73 (2.7%) of genes in pham
- Manual Annotations of this start: 1 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jflix2_71 (CF), Madraxi_75 (CF),

Start 6:

- Found in 18 of 73 (24.7%) of genes in pham
- Manual Annotations of this start: 18 of 62
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Chancellor_69 (K4), Cheetobro_69 (K4), Eponine_71 (K4), Fionnbharth_69 (K4), JF1_69 (K4), Juliette_71 (K4), Malthus_70 (K4), MissDaisy_66 (K4), Mitti_69 (K4), Patt_65 (K4), Reptar3000_66 (K4), Ruthiejr_70 (K4), SamScheppers_67 (K4), Slarp_69 (K4), Taquito_68 (K4), Wintermute_69 (K4), Y10_66 (K4), Y2_66 (K4),

Start 7:

- Found in 3 of 73 (4.1%) of genes in pham
- Manual Annotations of this start: 3 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aminay_65 (K7), Boilgate_62 (K8), OmniCritical_68 (K4),

Start 9:

- Found in 28 of 73 (38.4%) of genes in pham
- Manual Annotations of this start: 7 of 62
- Called 42.9% of time when present
- Phage (with cluster) where this start called: Alkhayr_15 (O), Bora_15 (O), Catdawg_14 (O), Corndog_17 (O), FoulBall_14 (O), JangDynasty_14 (O), Mori_15 (O), NiebruSaylor_15 (O), Schuy_15 (O), Shida_15 (O), Vorrrps_15 (O), Wildflower_15 (O),

Start 10:

- Found in 7 of 73 (9.6%) of genes in pham
- Manual Annotations of this start: 5 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DonkeyMan_41 (DY), Heinz_43 (DY), Hibiscus_43 (DY), Jojo24_41 (DY), Reyja_42 (DY), Santhid_41 (DY), Tarzan_42 (DY),

Summary by clusters:

There are 7 clusters represented in this pham: DI, DY, CF, O, K7, K4, K8,

Info for manual annotations of cluster CF:

- Start number 5 was manually annotated 1 time for cluster CF.

Info for manual annotations of cluster DI:

- Start number 4 was manually annotated 13 times for cluster DI.

Info for manual annotations of cluster DY:

- Start number 10 was manually annotated 5 times for cluster DY.

Info for manual annotations of cluster K4:

- Start number 6 was manually annotated 18 times for cluster K4.
- Start number 7 was manually annotated 1 time for cluster K4.

Info for manual annotations of cluster K7:

- Start number 7 was manually annotated 1 time for cluster K7.

Info for manual annotations of cluster K8:

- Start number 7 was manually annotated 1 time for cluster K8.

Info for manual annotations of cluster O:

- Start number 3 was manually annotated 15 times for cluster O.
- Start number 9 was manually annotated 7 times for cluster O.

Gene Information:

Gene: Alkhayr_15 Start: 6062, Stop: 6742, Start Num: 9

Candidate Starts for Alkhayr_15:

(Start: 3 @6005 has 15 MA's), (Start: 9 @6062 has 7 MA's), (17, 6167), (18, 6185), (22, 6227), (23, 6236), (28, 6299), (29, 6311), (32, 6365), (34, 6383), (35, 6422), (37, 6467), (39, 6515), (47, 6605), (49, 6620), (57, 6674), (62, 6710),

Gene: Aminay_65 Start: 42473, Stop: 43045, Start Num: 7

Candidate Starts for Aminay_65:

(Start: 7 @42473 has 3 MA's), (20, 42614), (21, 42641), (24, 42659), (29, 42731), (32, 42785), (38, 42932), (41, 42959),

Gene: Ashwin_16 Start: 6240, Stop: 6962, Start Num: 3

Candidate Starts for Ashwin_16:

(Start: 3 @6240 has 15 MA's), (Start: 9 @6297 has 7 MA's), (17, 6402), (18, 6420), (22, 6462), (23, 6471), (28, 6534), (29, 6546), (32, 6600), (34, 6618), (35, 6657), (37, 6702), (39, 6750), (47, 6825), (49, 6840), (57, 6894), (62, 6930),

Gene: Ayotoya_51 Start: 37282, Stop: 38049, Start Num: 4

Candidate Starts for Ayotoya_51:

(1, 36928), (Start: 4 @37282 has 13 MA's), (15, 37381), (16, 37390), (19, 37429), (20, 37432), (29, 37549), (33, 37612), (34, 37621), (35, 37660), (36, 37669), (42, 37831), (56, 37942), (61, 37978),

Gene: BetterKatz_51 Start: 36768, Stop: 37547, Start Num: 4

Candidate Starts for BetterKatz_51:

(Start: 4 @36768 has 13 MA's), (16, 36876), (19, 36915), (20, 36918), (29, 37035), (33, 37098), (34, 37107), (35, 37146), (36, 37155), (42, 37317), (56, 37440), (61, 37476),

Gene: Blessica_15 Start: 6070, Stop: 6765, Start Num: 3

Candidate Starts for Blessica_15:

(Start: 3 @6070 has 15 MA's), (Start: 9 @6127 has 7 MA's), (17, 6232), (18, 6250), (22, 6292), (23, 6301), (28, 6364), (29, 6376), (32, 6430), (34, 6448), (35, 6487), (37, 6532), (47, 6628), (49, 6643), (57, 6697), (62, 6733),

Gene: Bock_51 Start: 36502, Stop: 37281, Start Num: 4

Candidate Starts for Bock_51:

(1, 36148), (Start: 4 @36502 has 13 MA's), (15, 36601), (16, 36610), (19, 36649), (20, 36652), (29, 36769), (34, 36841), (35, 36880), (36, 36889), (42, 37051), (56, 37174), (61, 37210),

Gene: Boilgate_62 Start: 44590, Stop: 45171, Start Num: 7

Candidate Starts for Boilgate_62:

(Start: 7 @44590 has 3 MA's), (21, 44755), (25, 44800), (27, 44827), (29, 44845), (30, 44875), (31, 44884), (44, 45094),

Gene: Bora_15 Start: 6095, Stop: 6772, Start Num: 9

Candidate Starts for Bora_15:

(Start: 3 @6038 has 15 MA's), (Start: 9 @6095 has 7 MA's), (17, 6200), (18, 6218), (22, 6260), (23, 6269), (28, 6332), (29, 6344), (32, 6398), (34, 6416), (35, 6455), (37, 6500), (47, 6635), (49, 6650), (57, 6704), (62, 6740),

Gene: Brylie_51 Start: 36552, Stop: 37343, Start Num: 4

Candidate Starts for Brylie_51:

(1, 36198), (Start: 4 @36552 has 13 MA's), (15, 36651), (16, 36660), (19, 36699), (20, 36702), (29, 36819), (33, 36882), (34, 36891), (35, 36930), (36, 36939), (42, 37101), (56, 37236), (61, 37272),

Gene: Catdawg_14 Start: 5733, Stop: 6371, Start Num: 9

Candidate Starts for Catdawg_14:

(Start: 3 @5676 has 15 MA's), (Start: 9 @5733 has 7 MA's), (17, 5838), (18, 5856), (22, 5898), (23, 5907), (28, 5970), (29, 5982), (32, 6036), (34, 6054), (35, 6093), (37, 6138), (47, 6234), (49, 6249), (57, 6303), (62, 6339),

Gene: Chancellor_69 Start: 42601, Stop: 43269, Start Num: 6

Candidate Starts for Chancellor_69:

(Start: 6 @42601 has 18 MA's), (21, 42763), (22, 42769), (24, 42781), (25, 42808), (29, 42853), (34, 42925), (38, 43054), (40, 43087), (46, 43120), (48, 43141), (55, 43207), (59, 43249),

Gene: Cheetobro_69 Start: 42598, Stop: 43266, Start Num: 6

Candidate Starts for Cheetobro_69:

(Start: 6 @42598 has 18 MA's), (21, 42760), (22, 42766), (24, 42778), (25, 42805), (29, 42850), (34, 42922), (38, 43051), (40, 43084), (46, 43117), (48, 43138), (55, 43204), (59, 43246),

Gene: Chop_51 Start: 37033, Stop: 37800, Start Num: 4

Candidate Starts for Chop_51:

(Start: 4 @37033 has 13 MA's), (8, 37051), (16, 37141), (19, 37180), (20, 37183), (29, 37300), (34, 37372), (35, 37411), (36, 37420), (42, 37582), (56, 37693), (61, 37729),

Gene: Corndog_17 Start: 6409, Stop: 7074, Start Num: 9

Candidate Starts for Corndog_17:

(Start: 3 @6352 has 15 MA's), (Start: 9 @6409 has 7 MA's), (17, 6514), (18, 6532), (22, 6574), (23, 6583), (28, 6646), (29, 6658), (32, 6712), (34, 6730), (35, 6769), (37, 6814), (39, 6862), (47, 6937), (49, 6952), (57, 7006), (62, 7042),

Gene: DelRio_52 Start: 37746, Stop: 38525, Start Num: 4

Candidate Starts for DelRio_52:

(Start: 4 @37746 has 13 MA's), (15, 37845), (16, 37854), (19, 37893), (20, 37896), (29, 38013), (33, 38076), (34, 38085), (35, 38124), (36, 38133), (42, 38295), (56, 38418), (61, 38454),

Gene: DonkeyMan_41 Start: 30250, Stop: 30930, Start Num: 10

Candidate Starts for DonkeyMan_41:

(Start: 10 @30250 has 5 MA's), (21, 30412), (24, 30430), (35, 30619), (52, 30856), (53, 30868), (54, 30880), (58, 30907), (60, 30913),

Gene: Dylan_15 Start: 6240, Stop: 6962, Start Num: 3

Candidate Starts for Dylan_15:

(Start: 3 @6240 has 15 MA's), (Start: 9 @6297 has 7 MA's), (17, 6402), (18, 6420), (22, 6462), (23, 6471), (28, 6534), (29, 6546), (32, 6600), (34, 6618), (35, 6657), (37, 6702), (39, 6750), (47, 6825), (49, 6840), (57, 6894), (62, 6930),

Gene: Eponine_71 Start: 43444, Stop: 44112, Start Num: 6

Candidate Starts for Eponine_71:

(Start: 6 @43444 has 18 MA's), (21, 43606), (22, 43612), (24, 43624), (25, 43651), (29, 43696), (34, 43768), (38, 43897), (40, 43930), (46, 43963), (48, 43984), (55, 44050), (59, 44092),

Gene: Familton_15 Start: 5677, Stop: 6372, Start Num: 3

Candidate Starts for Familton_15:

(Start: 3 @5677 has 15 MA's), (Start: 9 @5734 has 7 MA's), (17, 5839), (18, 5857), (22, 5899), (23, 5908), (28, 5971), (29, 5983), (32, 6037), (34, 6055), (35, 6094), (37, 6139), (47, 6235), (49, 6250), (57, 6304), (62, 6340),

Gene: Fionnbharth_69 Start: 42842, Stop: 43510, Start Num: 6

Candidate Starts for Fionnbharth_69:

(Start: 6 @42842 has 18 MA's), (21, 43004), (22, 43010), (24, 43022), (25, 43049), (29, 43094), (34, 43166), (38, 43295), (40, 43328), (46, 43361), (48, 43382), (55, 43448), (59, 43490),

Gene: Firecracker_15 Start: 5973, Stop: 6695, Start Num: 3

Candidate Starts for Firecracker_15:

(Start: 3 @5973 has 15 MA's), (Start: 9 @6030 has 7 MA's), (17, 6135), (18, 6153), (22, 6195), (23, 6204), (28, 6267), (29, 6279), (32, 6333), (34, 6351), (35, 6390), (37, 6435), (39, 6483), (47, 6558), (49, 6573), (57, 6627), (62, 6663),

Gene: FoulBall_14 Start: 5734, Stop: 6372, Start Num: 9

Candidate Starts for FoulBall_14:

(Start: 3 @5677 has 15 MA's), (Start: 9 @5734 has 7 MA's), (17, 5839), (18, 5857), (22, 5899), (23, 5908), (28, 5971), (29, 5983), (32, 6037), (34, 6055), (35, 6094), (37, 6139), (47, 6235), (49, 6250), (57, 6304), (62, 6340),

Gene: Francois_50 Start: 36554, Stop: 37309, Start Num: 4

Candidate Starts for Francois_50:

(Start: 4 @36554 has 13 MA's), (16, 36662), (20, 36704), (29, 36821), (33, 36884), (34, 36893), (35, 36932), (36, 36941), (42, 37103), (61, 37238),

Gene: GrandSlam_51 Start: 37033, Stop: 37800, Start Num: 4

Candidate Starts for GrandSlam_51:

(Start: 4 @37033 has 13 MA's), (8, 37051), (16, 37141), (19, 37180), (20, 37183), (29, 37300), (34, 37372), (35, 37411), (36, 37420), (42, 37582), (56, 37693), (61, 37729),

Gene: Hamood_51 Start: 37033, Stop: 37800, Start Num: 4

Candidate Starts for Hamood_51:

(Start: 4 @37033 has 13 MA's), (8, 37051), (16, 37141), (19, 37180), (20, 37183), (29, 37300), (34, 37372), (35, 37411), (36, 37420), (42, 37582), (56, 37693), (61, 37729),

Gene: Heinz_43 Start: 28349, Stop: 29047, Start Num: 10

Candidate Starts for Heinz_43:

(Start: 10 @28349 has 5 MA's), (21, 28511), (24, 28529), (26, 28574), (52, 28973), (53, 28985), (54, 28997), (58, 29024), (60, 29030),

Gene: Hibiscus_43 Start: 28298, Stop: 28996, Start Num: 10

Candidate Starts for Hibiscus_43:

(Start: 10 @28298 has 5 MA's), (21, 28460), (24, 28478), (26, 28523), (52, 28922), (53, 28934), (54, 28946), (58, 28973), (60, 28979),

Gene: Idergollasper_14 Start: 5677, Stop: 6372, Start Num: 3

Candidate Starts for Idergollasper_14:

(Start: 3 @5677 has 15 MA's), (Start: 9 @5734 has 7 MA's), (17, 5839), (18, 5857), (22, 5899), (23, 5908), (28, 5971), (29, 5983), (32, 6037), (34, 6055), (35, 6094), (37, 6139), (47, 6235), (49, 6250), (57, 6304), (62, 6340),

Gene: JF1_69 Start: 42759, Stop: 43424, Start Num: 6

Candidate Starts for JF1_69:

(Start: 6 @42759 has 18 MA's), (21, 42921), (22, 42927), (24, 42939), (25, 42966), (29, 43011), (34, 43083), (38, 43212), (40, 43245), (45, 43272), (55, 43362), (59, 43404),

Gene: JangDynasty_14 Start: 5823, Stop: 6461, Start Num: 9

Candidate Starts for JangDynasty_14:

(Start: 3 @5766 has 15 MA's), (Start: 9 @5823 has 7 MA's), (17, 5928), (18, 5946), (22, 5988), (23, 5997), (28, 6060), (29, 6072), (32, 6126), (34, 6144), (35, 6183), (37, 6228), (47, 6324), (49, 6339), (57, 6393), (62, 6429),

Gene: Jflix2_71 Start: 44931, Stop: 45539, Start Num: 5

Candidate Starts for Jflix2_71:

(Start: 5 @44931 has 1 MA's), (11, 44961), (12, 45003), (13, 45009), (14, 45015), (21, 45105), (29, 45198), (34, 45270),

Gene: Jojo24_41 Start: 28906, Stop: 29589, Start Num: 10

Candidate Starts for Jojo24_41:

(Start: 10 @28906 has 5 MA's), (21, 29068), (24, 29086), (35, 29275), (50, 29485), (52, 29515), (53, 29527), (54, 29539), (58, 29566), (60, 29572),

Gene: Juliette_71 Start: 42906, Stop: 43574, Start Num: 6

Candidate Starts for Juliette_71:

(Start: 6 @42906 has 18 MA's), (21, 43068), (22, 43074), (24, 43086), (25, 43113), (29, 43158), (34, 43230), (38, 43359), (40, 43392), (46, 43425), (48, 43446), (55, 43512), (59, 43554),

Gene: Krili_15 Start: 6006, Stop: 6731, Start Num: 3

Candidate Starts for Krili_15:

(Start: 3 @6006 has 15 MA's), (Start: 9 @6063 has 7 MA's), (17, 6168), (18, 6186), (22, 6228), (23, 6237), (28, 6300), (29, 6312), (32, 6366), (34, 6384), (35, 6423), (37, 6468), (39, 6507), (47, 6594), (49, 6609), (57, 6663), (62, 6699),

Gene: MadKillah_16 Start: 6027, Stop: 6764, Start Num: 3

Candidate Starts for MadKillah_16:

(Start: 3 @6027 has 15 MA's), (Start: 9 @6084 has 7 MA's), (17, 6189), (18, 6207), (22, 6249), (23, 6258), (28, 6321), (29, 6333), (32, 6387), (34, 6405), (35, 6444), (37, 6489), (39, 6537), (47, 6627), (49, 6642), (57, 6696), (62, 6732),

Gene: Madraxi_75 Start: 47623, Stop: 48270, Start Num: 5

Candidate Starts for Madraxi_75:

(Start: 5 @47623 has 1 MA's), (11, 47653), (21, 47797), (29, 47890), (34, 47962),

Gene: Malthus_70 Start: 42594, Stop: 43262, Start Num: 6

Candidate Starts for Malthus_70:

(Start: 6 @42594 has 18 MA's), (21, 42756), (22, 42762), (24, 42774), (25, 42801), (29, 42846), (34, 42918), (38, 43047), (40, 43080), (46, 43113), (48, 43134), (55, 43200), (59, 43242),

Gene: MissDaisy_66 Start: 41506, Stop: 42177, Start Num: 6

Candidate Starts for MissDaisy_66:

(Start: 6 @41506 has 18 MA's), (21, 41668), (22, 41674), (24, 41686), (25, 41713), (29, 41758), (34, 41830), (38, 41959), (40, 41992), (43, 42010), (55, 42115), (59, 42157),

Gene: Mitti_69 Start: 42773, Stop: 43417, Start Num: 6

Candidate Starts for Mitti_69:

(Start: 6 @42773 has 18 MA's), (21, 42935), (22, 42941), (24, 42953), (25, 42980), (29, 43025), (34, 43097), (38, 43226), (40, 43259), (46, 43292), (48, 43313), (55, 43355), (59, 43397),

Gene: Mori_15 Start: 5923, Stop: 6603, Start Num: 9

Candidate Starts for Mori_15:

(Start: 3 @5866 has 15 MA's), (Start: 9 @5923 has 7 MA's), (17, 6028), (18, 6046), (22, 6088), (23, 6097), (28, 6160), (29, 6172), (32, 6226), (34, 6244), (35, 6283), (37, 6328), (39, 6376), (47, 6466), (49, 6481), (57, 6535), (62, 6571),

Gene: Mulch_51 Start: 36552, Stop: 37343, Start Num: 4

Candidate Starts for Mulch_51:

(1, 36198), (Start: 4 @36552 has 13 MA's), (15, 36651), (16, 36660), (19, 36699), (20, 36702), (29, 36819), (33, 36882), (34, 36891), (35, 36930), (36, 36939), (42, 37101), (56, 37236), (61, 37272),

Gene: Murai_15 Start: 5866, Stop: 6603, Start Num: 3

Candidate Starts for Murai_15:

(Start: 3 @5866 has 15 MA's), (Start: 9 @5923 has 7 MA's), (17, 6028), (18, 6046), (22, 6088), (23, 6097), (28, 6160), (29, 6172), (32, 6226), (34, 6244), (35, 6283), (37, 6328), (39, 6376), (47, 6466), (49, 6481), (57, 6535), (62, 6571),

Gene: Nadeem_51 Start: 36552, Stop: 37331, Start Num: 4

Candidate Starts for Nadeem_51:

(1, 36198), (Start: 4 @36552 has 13 MA's), (15, 36651), (16, 36660), (19, 36699), (20, 36702), (29, 36819), (33, 36882), (34, 36891), (35, 36930), (36, 36939), (42, 37101), (56, 37224), (61, 37260),

Gene: NancyRae_50 Start: 36571, Stop: 37350, Start Num: 4

Candidate Starts for NancyRae_50:

(1, 36217), (Start: 4 @36571 has 13 MA's), (15, 36670), (16, 36679), (19, 36718), (20, 36721), (29, 36838), (33, 36901), (34, 36910), (35, 36949), (36, 36958), (42, 37120), (56, 37243), (61, 37279),

Gene: NiebruSaylor_15 Start: 5923, Stop: 6603, Start Num: 9

Candidate Starts for NiebruSaylor_15:

(Start: 3 @5866 has 15 MA's), (Start: 9 @5923 has 7 MA's), (17, 6028), (18, 6046), (22, 6088), (23, 6097), (28, 6160), (29, 6172), (32, 6226), (34, 6244), (35, 6283), (37, 6328), (39, 6376), (47, 6466), (49, 6481), (57, 6535), (62, 6571),

Gene: OmniCritical_68 Start: 42624, Stop: 43298, Start Num: 7

Candidate Starts for OmniCritical_68:

(Start: 7 @42624 has 3 MA's), (21, 42786), (22, 42792), (24, 42804), (25, 42831), (29, 42876), (34, 42948), (38, 43077), (40, 43110), (44, 43131), (51, 43185), (55, 43236), (59, 43278),

Gene: Parada_51 Start: 36552, Stop: 37343, Start Num: 4

Candidate Starts for Parada_51:

(1, 36198), (Start: 4 @36552 has 13 MA's), (15, 36651), (16, 36660), (19, 36699), (20, 36702), (29, 36819), (33, 36882), (34, 36891), (35, 36930), (36, 36939), (42, 37101), (56, 37236), (61, 37272),

Gene: Patt_65 Start: 41230, Stop: 41901, Start Num: 6

Candidate Starts for Patt_65:

(Start: 6 @41230 has 18 MA's), (21, 41392), (22, 41398), (24, 41410), (25, 41437), (29, 41482), (34, 41554), (38, 41683), (40, 41716), (43, 41734), (55, 41839), (59, 41881),

Gene: Pimento_53 Start: 36149, Stop: 36928, Start Num: 4

Candidate Starts for Pimento_53:

(2, 36059), (Start: 4 @36149 has 13 MA's), (8, 36167), (16, 36257), (19, 36296), (20, 36299), (29, 36416), (34, 36488), (35, 36527), (36, 36536), (42, 36698), (56, 36821), (61, 36857),

Gene: Reptar3000_66 Start: 41218, Stop: 41889, Start Num: 6

Candidate Starts for Reptar3000_66:

(Start: 6 @41218 has 18 MA's), (20, 41353), (21, 41380), (22, 41386), (24, 41398), (25, 41425), (29, 41470), (34, 41542), (38, 41671), (40, 41704), (43, 41722), (55, 41827), (59, 41869),

Gene: Reyja_42 Start: 29334, Stop: 30017, Start Num: 10

Candidate Starts for Reyja_42:

(Start: 10 @29334 has 5 MA's), (21, 29496), (24, 29514), (35, 29703), (50, 29913), (53, 29955), (54, 29967), (58, 29994), (60, 30000),

Gene: Ruthiejr_70 Start: 42644, Stop: 43309, Start Num: 6

Candidate Starts for Ruthiejr_70:

(Start: 6 @42644 has 18 MA's), (21, 42806), (22, 42812), (24, 42824), (25, 42851), (29, 42896), (34, 42968), (38, 43097), (40, 43130), (45, 43157), (55, 43247), (59, 43289),

Gene: Ryadel_17 Start: 6460, Stop: 7185, Start Num: 3

Candidate Starts for Ryadel_17:

(Start: 3 @6460 has 15 MA's), (Start: 9 @6517 has 7 MA's), (17, 6622), (18, 6640), (22, 6682), (23, 6691), (28, 6754), (29, 6766), (32, 6820), (34, 6838), (35, 6877), (37, 6922), (39, 6961), (47, 7048), (49, 7063), (57, 7117), (62, 7153),

Gene: SamScheppers_67 Start: 43073, Stop: 43741, Start Num: 6

Candidate Starts for SamScheppers_67:

(Start: 6 @43073 has 18 MA's), (21, 43235), (22, 43241), (24, 43253), (25, 43280), (29, 43325), (34, 43397), (38, 43526), (40, 43559), (46, 43592), (48, 43613), (55, 43679), (59, 43721),

Gene: Santhid_41 Start: 27625, Stop: 28305, Start Num: 10

Candidate Starts for Santhid_41:

(Start: 10 @27625 has 5 MA's), (21, 27787), (24, 27805), (35, 27994), (50, 28201), (52, 28231), (53, 28243), (54, 28255), (58, 28282), (60, 28288),

Gene: SchoolBus_14 Start: 5677, Stop: 6372, Start Num: 3

Candidate Starts for SchoolBus_14:

(Start: 3 @5677 has 15 MA's), (Start: 9 @5734 has 7 MA's), (17, 5839), (18, 5857), (22, 5899), (23, 5908), (28, 5971), (29, 5983), (32, 6037), (34, 6055), (35, 6094), (37, 6139), (47, 6235), (49, 6250), (57, 6304), (62, 6340),

Gene: Schuy_15 Start: 6084, Stop: 6764, Start Num: 9

Candidate Starts for Schuy_15:

(Start: 3 @6027 has 15 MA's), (Start: 9 @6084 has 7 MA's), (17, 6189), (18, 6207), (22, 6249), (23, 6258), (28, 6321), (29, 6333), (32, 6387), (34, 6405), (35, 6444), (37, 6489), (39, 6537), (47, 6627), (49, 6642), (57, 6696), (62, 6732),

Gene: Shida_15 Start: 5989, Stop: 6669, Start Num: 9

Candidate Starts for Shida_15:

(Start: 3 @5932 has 15 MA's), (Start: 9 @5989 has 7 MA's), (17, 6094), (18, 6112), (22, 6154), (23, 6163), (28, 6226), (29, 6238), (32, 6292), (34, 6310), (35, 6349), (37, 6394), (39, 6442), (47, 6532), (49, 6547), (57, 6601), (62, 6637),

Gene: Slarp_69 Start: 42601, Stop: 43269, Start Num: 6

Candidate Starts for Slarp_69:

(Start: 6 @42601 has 18 MA's), (21, 42763), (22, 42769), (24, 42781), (25, 42808), (29, 42853), (34, 42925), (38, 43054), (40, 43087), (46, 43120), (48, 43141), (55, 43207), (59, 43249),

Gene: Smooch_16 Start: 6196, Stop: 6918, Start Num: 3

Candidate Starts for Smooch_16:

(Start: 3 @6196 has 15 MA's), (Start: 9 @6253 has 7 MA's), (17, 6358), (18, 6376), (22, 6418), (23, 6427), (28, 6490), (29, 6502), (32, 6556), (34, 6574), (35, 6613), (37, 6658), (39, 6706), (47, 6781), (49, 6796), (57, 6850), (62, 6886),

Gene: Taquito_68 Start: 42836, Stop: 43474, Start Num: 6

Candidate Starts for Taquito_68:

(Start: 6 @42836 has 18 MA's), (21, 42998), (22, 43004), (24, 43016), (25, 43043), (29, 43088), (34, 43160), (38, 43289), (40, 43322), (46, 43355), (48, 43376), (55, 43412), (59, 43454),

Gene: Tarzan_42 Start: 28732, Stop: 29412, Start Num: 10

Candidate Starts for Tarzan_42:

(Start: 10 @28732 has 5 MA's), (21, 28894), (24, 28912), (35, 29101), (52, 29338), (53, 29350), (54, 29362), (58, 29389), (60, 29395),

Gene: TelAviv_14 Start: 5674, Stop: 6369, Start Num: 3

Candidate Starts for TelAviv_14:

(Start: 3 @5674 has 15 MA's), (Start: 9 @5731 has 7 MA's), (17, 5836), (18, 5854), (22, 5896), (23, 5905), (28, 5968), (29, 5980), (32, 6034), (34, 6052), (35, 6091), (37, 6136), (47, 6232), (49, 6247), (57, 6301), (62, 6337),

Gene: Vorrps_15 Start: 5923, Stop: 6603, Start Num: 9

Candidate Starts for Vorrps_15:

(Start: 3 @5866 has 15 MA's), (Start: 9 @5923 has 7 MA's), (17, 6028), (18, 6046), (22, 6088), (23, 6097), (28, 6160), (29, 6172), (32, 6226), (34, 6244), (35, 6283), (37, 6328), (39, 6376), (47, 6466), (49, 6481), (57, 6535), (62, 6571),

Gene: WheatThin_50 Start: 36552, Stop: 37331, Start Num: 4

Candidate Starts for WheatThin_50:

(1, 36198), (Start: 4 @36552 has 13 MA's), (15, 36651), (16, 36660), (19, 36699), (20, 36702), (29, 36819), (33, 36882), (34, 36891), (35, 36930), (36, 36939), (42, 37101), (56, 37224), (61, 37260),

Gene: Wildflower_15 Start: 5949, Stop: 6626, Start Num: 9

Candidate Starts for Wildflower_15:

(Start: 3 @5892 has 15 MA's), (Start: 9 @5949 has 7 MA's), (17, 6054), (18, 6072), (22, 6114), (23, 6123), (28, 6186), (29, 6198), (32, 6252), (34, 6270), (35, 6309), (37, 6354), (47, 6489), (49, 6504), (57, 6558), (62, 6594),

Gene: Winget_15 Start: 5931, Stop: 6644, Start Num: 3

Candidate Starts for Winget_15:

(Start: 3 @5931 has 15 MA's), (Start: 9 @5988 has 7 MA's), (17, 6093), (18, 6111), (22, 6153), (23, 6162), (28, 6225), (29, 6237), (32, 6291), (34, 6309), (35, 6348), (37, 6393), (39, 6441), (47, 6507),

(49, 6522), (57, 6576), (62, 6612),

Gene: Wintermute_69 Start: 42831, Stop: 43499, Start Num: 6

Candidate Starts for Wintermute_69:

(Start: 6 @42831 has 18 MA's), (21, 42993), (22, 42999), (24, 43011), (25, 43038), (29, 43083), (34, 43155), (38, 43284), (40, 43317), (46, 43350), (48, 43371), (55, 43437), (59, 43479),

Gene: Y10_66 Start: 42759, Stop: 43424, Start Num: 6

Candidate Starts for Y10_66:

(Start: 6 @42759 has 18 MA's), (21, 42921), (22, 42927), (24, 42939), (25, 42966), (29, 43011), (34, 43083), (38, 43212), (40, 43245), (45, 43272), (55, 43362), (59, 43404),

Gene: Y2_66 Start: 42759, Stop: 43424, Start Num: 6

Candidate Starts for Y2_66:

(Start: 6 @42759 has 18 MA's), (21, 42921), (22, 42927), (24, 42939), (25, 42966), (29, 43011), (34, 43083), (38, 43212), (40, 43245), (45, 43272), (55, 43362), (59, 43404),

Gene: YungJamal_16 Start: 6232, Stop: 6954, Start Num: 3

Candidate Starts for YungJamal_16:

(Start: 3 @6232 has 15 MA's), (Start: 9 @6289 has 7 MA's), (17, 6394), (18, 6412), (22, 6454), (23, 6463), (28, 6526), (29, 6538), (32, 6592), (34, 6610), (35, 6649), (37, 6694), (39, 6742), (47, 6817), (49, 6832), (57, 6886), (62, 6922),

Gene: Zakhe101_16 Start: 6244, Stop: 6966, Start Num: 3

Candidate Starts for Zakhe101_16:

(Start: 3 @6244 has 15 MA's), (Start: 9 @6301 has 7 MA's), (17, 6406), (18, 6424), (22, 6466), (23, 6475), (28, 6538), (29, 6550), (32, 6604), (34, 6622), (35, 6661), (37, 6706), (39, 6754), (47, 6829), (49, 6844), (57, 6898), (62, 6934),