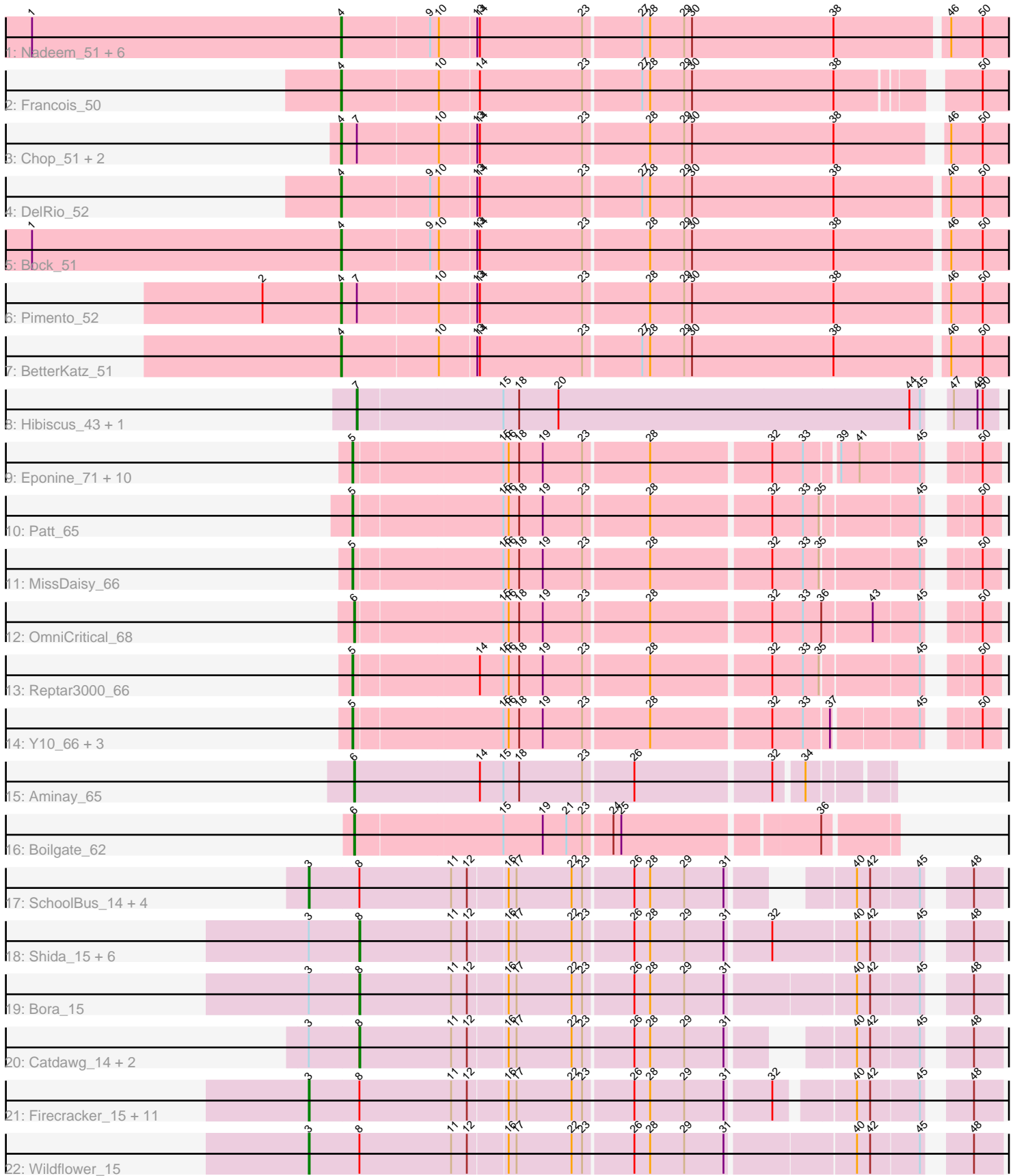


Pham 193997



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 193997 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193997 has 67 members, 3 are drafts.

Phages represented in each track:

- Track 1 : Nadeem_51, WheatThin_50, Brylie_51, Parada_51, Mulch_51, Ayotoya_51, NancyRae_50
- Track 2 : Francois_50
- Track 3 : Chop_51, Hamood_51, GrandSlam_51
- Track 4 : DelRio_52
- Track 5 : Bock_51
- Track 6 : Pimento_52
- Track 7 : BetterKatz_51
- Track 8 : Hibiscus_43, Heinz_43
- Track 9 : Eponine_71, SamScheppers_67, Juliette_71, Cheetobro_69, Chancellor_69, Malthus_70, Taquito_68, Slarp_69, Fionnbharth_69, Mitti_69, Wintermute_69
- Track 10 : Patt_65
- Track 11 : MissDaisy_66
- Track 12 : OmniCritical_68
- Track 13 : Reptar3000_66
- Track 14 : Y10_66, Y2_66, JF1_69, Ruthiejr_70
- Track 15 : Aminay_65
- Track 16 : Boilgate_62
- Track 17 : SchoolBus_14, Blessica_15, Familton_15, TelAviv_14, Idergollasper_14
- Track 18 : Shida_15, Corndog_17, Vorrrps_15, Schuy_16, Mori_15, Alkhayr_15, NiebruSaylor_15
- Track 19 : Bora_15
- Track 20 : Catdawg_14, JangDynasty_14, FoulBall_14
- Track 21 : Firecracker_15, Murai_15, Ashwin_16, Dylan_15, Krili_15, Smooch_16, Ryadel_17, Zakhe101_16, MadKillah_16, Winget_15, YungJamal_16, Vagabond_15
- Track 22 : Wildflower_15

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

The start number called the most often in the published annotations is 5, it was called in 18 of the 64 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, Dylan_15, Familton_15, Firecracker_15, FoulBall_14, Francois_50, GrandSlam_51, Hamood_51, Heinz_43, Hibiscus_43, Idergollasper_14, JangDynasty_14, Kriili_15, MadKillah_16, Mori_15, Mulch_51, Murai_15, Nadeem_51, NancyRae_50, NiebruSaylor_15, OmniCritical_68, Parada_51, Pimento_52, Ryadel_17, SchoolBus_14, Schuy_16, Shida_15, Smooch_16, TelAviv_14, Vagabond_15, Vorrps_15, WheatThin_50, Wildflower_15, Winget_15, YungJamal_16, Zakhe101_16,

Summary by start number:

Start 3:

- Found in 29 of 67 (43.3%) of genes in pham
- Manual Annotations of this start: 17 of 64
- Called 62.1% 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), Kriili_15 (O), MadKillah_16 (O), Murai_15 (O), Ryadel_17 (O), SchoolBus_14 (O), Smooch_16 (O), TelAviv_14 (O), Vagabond_15 (O), Wildflower_15 (O), Winget_15 (O), YungJamal_16 (O), Zakhe101_16 (O),

Start 4:

- Found in 15 of 67 (22.4%) of genes in pham
- Manual Annotations of this start: 15 of 64
- 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_52 (DI), WheatThin_50 (DI),

Start 5:

- Found in 18 of 67 (26.9%) of genes in pham
- Manual Annotations of this start: 18 of 64
- 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 6:

- Found in 3 of 67 (4.5%) of genes in pham
- Manual Annotations of this start: 3 of 64
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Aminay_65 (K7), Boilgate_62 (K8), OmniCritical_68 (K4),

Start 7:

- Found in 6 of 67 (9.0%) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Heinz_43 (DY), Hibiscus_43 (DY),

Start 8:

- Found in 29 of 67 (43.3%) of genes in pham
- Manual Annotations of this start: 10 of 64
- Called 37.9% 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_16 (O), Shida_15 (O), Vorrips_15 (O),

Summary by clusters:

There are 6 clusters represented in this pham: DI, DY, O, K7, K4, K8,

Info for manual annotations of cluster DI:

- Start number 4 was manually annotated 15 times for cluster DI.

Info for manual annotations of cluster DY:

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

Info for manual annotations of cluster K4:

- Start number 5 was manually annotated 18 times for cluster K4.
- Start number 6 was manually annotated 1 time for cluster K4.

Info for manual annotations of cluster K7:

- Start number 6 was manually annotated 1 time for cluster K7.

Info for manual annotations of cluster K8:

- Start number 6 was manually annotated 1 time for cluster K8.

Info for manual annotations of cluster O:

- Start number 3 was manually annotated 17 times for cluster O.
- Start number 8 was manually annotated 10 times for cluster O.

Gene Information:

Gene: Alkhayr_15 Start: 6062, Stop: 6742, Start Num: 8

Candidate Starts for Alkhayr_15:

(Start: 3 @6005 has 17 MA's), (Start: 8 @6062 has 10 MA's), (11, 6167), (12, 6185), (16, 6227), (17, 6236), (22, 6299), (23, 6311), (26, 6365), (28, 6383), (29, 6422), (31, 6467), (32, 6515), (40, 6605), (42, 6620), (45, 6674), (48, 6710),

Gene: Aminay_65 Start: 42473, Stop: 43045, Start Num: 6

Candidate Starts for Aminay_65:

(Start: 6 @42473 has 3 MA's), (14, 42614), (15, 42641), (18, 42659), (23, 42731), (26, 42785), (32, 42932), (34, 42959),

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

Candidate Starts for Ashwin_16:

(Start: 3 @6240 has 17 MA's), (Start: 8 @6297 has 10 MA's), (11, 6402), (12, 6420), (16, 6462), (17, 6471), (22, 6534), (23, 6546), (26, 6600), (28, 6618), (29, 6657), (31, 6702), (32, 6750), (40, 6825), (42, 6840), (45, 6894), (48, 6930),

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

Candidate Starts for Ayotoya_51:

(1, 36928), (Start: 4 @37282 has 15 MA's), (9, 37381), (10, 37390), (13, 37429), (14, 37432), (23, 37549), (27, 37612), (28, 37621), (29, 37660), (30, 37669), (38, 37831), (46, 37942), (50, 37978),

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

Candidate Starts for BetterKatz_51:

(Start: 4 @36768 has 15 MA's), (10, 36876), (13, 36915), (14, 36918), (23, 37035), (27, 37098), (28, 37107), (29, 37146), (30, 37155), (38, 37317), (46, 37440), (50, 37476),

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

Candidate Starts for Blessica_15:

(Start: 3 @6070 has 17 MA's), (Start: 8 @6127 has 10 MA's), (11, 6232), (12, 6250), (16, 6292), (17, 6301), (22, 6364), (23, 6376), (26, 6430), (28, 6448), (29, 6487), (31, 6532), (40, 6628), (42, 6643), (45, 6697), (48, 6733),

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

Candidate Starts for Bock_51:

(1, 36148), (Start: 4 @36502 has 15 MA's), (9, 36601), (10, 36610), (13, 36649), (14, 36652), (23, 36769), (28, 36841), (29, 36880), (30, 36889), (38, 37051), (46, 37174), (50, 37210),

Gene: Boilgate_62 Start: 44590, Stop: 45171, Start Num: 6

Candidate Starts for Boilgate_62:

(Start: 6 @44590 has 3 MA's), (15, 44755), (19, 44800), (21, 44827), (23, 44845), (24, 44875), (25, 44884), (36, 45094),

Gene: Bora_15 Start: 6095, Stop: 6772, Start Num: 8

Candidate Starts for Bora_15:

(Start: 3 @6038 has 17 MA's), (Start: 8 @6095 has 10 MA's), (11, 6200), (12, 6218), (16, 6260), (17, 6269), (22, 6332), (23, 6344), (26, 6398), (28, 6416), (29, 6455), (31, 6500), (40, 6635), (42, 6650), (45, 6704), (48, 6740),

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

Candidate Starts for Brylie_51:

(1, 36198), (Start: 4 @36552 has 15 MA's), (9, 36651), (10, 36660), (13, 36699), (14, 36702), (23, 36819), (27, 36882), (28, 36891), (29, 36930), (30, 36939), (38, 37101), (46, 37236), (50, 37272),

Gene: Catdawg_14 Start: 5733, Stop: 6371, Start Num: 8

Candidate Starts for Catdawg_14:

(Start: 3 @5676 has 17 MA's), (Start: 8 @5733 has 10 MA's), (11, 5838), (12, 5856), (16, 5898), (17, 5907), (22, 5970), (23, 5982), (26, 6036), (28, 6054), (29, 6093), (31, 6138), (40, 6234), (42, 6249), (45, 6303), (48, 6339),

Gene: Chancellor_69 Start: 42601, Stop: 43269, Start Num: 5

Candidate Starts for Chancellor_69:

(Start: 5 @42601 has 18 MA's), (15, 42763), (16, 42769), (18, 42781), (19, 42808), (23, 42853), (28, 42925), (32, 43054), (33, 43087), (39, 43120), (41, 43141), (45, 43207), (50, 43249),

Gene: Cheetobro_69 Start: 42598, Stop: 43266, Start Num: 5

Candidate Starts for Cheetobro_69:

(Start: 5 @42598 has 18 MA's), (15, 42760), (16, 42766), (18, 42778), (19, 42805), (23, 42850), (28, 42922), (32, 43051), (33, 43084), (39, 43117), (41, 43138), (45, 43204), (50, 43246),

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

Candidate Starts for Chop_51:

(Start: 4 @37033 has 15 MA's), (Start: 7 @37051 has 1 MA's), (10, 37141), (13, 37180), (14, 37183), (23, 37300), (28, 37372), (29, 37411), (30, 37420), (38, 37582), (46, 37693), (50, 37729),

Gene: Corndog_17 Start: 6409, Stop: 7074, Start Num: 8

Candidate Starts for Corndog_17:

(Start: 3 @6352 has 17 MA's), (Start: 8 @6409 has 10 MA's), (11, 6514), (12, 6532), (16, 6574), (17, 6583), (22, 6646), (23, 6658), (26, 6712), (28, 6730), (29, 6769), (31, 6814), (32, 6862), (40, 6937), (42, 6952), (45, 7006), (48, 7042),

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

Candidate Starts for DelRio_52:

(Start: 4 @37746 has 15 MA's), (9, 37845), (10, 37854), (13, 37893), (14, 37896), (23, 38013), (27, 38076), (28, 38085), (29, 38124), (30, 38133), (38, 38295), (46, 38418), (50, 38454),

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

Candidate Starts for Dylan_15:

(Start: 3 @6240 has 17 MA's), (Start: 8 @6297 has 10 MA's), (11, 6402), (12, 6420), (16, 6462), (17, 6471), (22, 6534), (23, 6546), (26, 6600), (28, 6618), (29, 6657), (31, 6702), (32, 6750), (40, 6825), (42, 6840), (45, 6894), (48, 6930),

Gene: Eponine_71 Start: 43444, Stop: 44112, Start Num: 5

Candidate Starts for Eponine_71:

(Start: 5 @43444 has 18 MA's), (15, 43606), (16, 43612), (18, 43624), (19, 43651), (23, 43696), (28, 43768), (32, 43897), (33, 43930), (39, 43963), (41, 43984), (45, 44050), (50, 44092),

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

Candidate Starts for Familton_15:

(Start: 3 @5677 has 17 MA's), (Start: 8 @5734 has 10 MA's), (11, 5839), (12, 5857), (16, 5899), (17, 5908), (22, 5971), (23, 5983), (26, 6037), (28, 6055), (29, 6094), (31, 6139), (40, 6235), (42, 6250), (45, 6304), (48, 6340),

Gene: Fionnbharth_69 Start: 42842, Stop: 43510, Start Num: 5

Candidate Starts for Fionnbharth_69:

(Start: 5 @42842 has 18 MA's), (15, 43004), (16, 43010), (18, 43022), (19, 43049), (23, 43094), (28, 43166), (32, 43295), (33, 43328), (39, 43361), (41, 43382), (45, 43448), (50, 43490),

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

Candidate Starts for Firecracker_15:

(Start: 3 @5973 has 17 MA's), (Start: 8 @6030 has 10 MA's), (11, 6135), (12, 6153), (16, 6195), (17, 6204), (22, 6267), (23, 6279), (26, 6333), (28, 6351), (29, 6390), (31, 6435), (32, 6483), (40, 6558), (42, 6573), (45, 6627), (48, 6663),

Gene: FoulBall_14 Start: 5734, Stop: 6372, Start Num: 8

Candidate Starts for FoulBall_14:

(Start: 3 @5677 has 17 MA's), (Start: 8 @5734 has 10 MA's), (11, 5839), (12, 5857), (16, 5899), (17, 5908), (22, 5971), (23, 5983), (26, 6037), (28, 6055), (29, 6094), (31, 6139), (40, 6235), (42, 6250), (45, 6304), (48, 6340),

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

Candidate Starts for Francois_50:

(Start: 4 @36554 has 15 MA's), (10, 36662), (14, 36704), (23, 36821), (27, 36884), (28, 36893), (29, 36932), (30, 36941), (38, 37103), (50, 37238),

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

Candidate Starts for GrandSlam_51:

(Start: 4 @37033 has 15 MA's), (Start: 7 @37051 has 1 MA's), (10, 37141), (13, 37180), (14, 37183), (23, 37300), (28, 37372), (29, 37411), (30, 37420), (38, 37582), (46, 37693), (50, 37729),

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

Candidate Starts for Hamood_51:

(Start: 4 @37033 has 15 MA's), (Start: 7 @37051 has 1 MA's), (10, 37141), (13, 37180), (14, 37183), (23, 37300), (28, 37372), (29, 37411), (30, 37420), (38, 37582), (46, 37693), (50, 37729),

Gene: Heinz_43 Start: 28349, Stop: 29047, Start Num: 7

Candidate Starts for Heinz_43:

(Start: 7 @28349 has 1 MA's), (15, 28511), (18, 28529), (20, 28574), (44, 28973), (45, 28985), (47, 28997), (49, 29024), (50, 29030),

Gene: Hibiscus_43 Start: 28298, Stop: 28996, Start Num: 7

Candidate Starts for Hibiscus_43:

(Start: 7 @28298 has 1 MA's), (15, 28460), (18, 28478), (20, 28523), (44, 28922), (45, 28934), (47, 28946), (49, 28973), (50, 28979),

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

Candidate Starts for Idergollasper_14:

(Start: 3 @5677 has 17 MA's), (Start: 8 @5734 has 10 MA's), (11, 5839), (12, 5857), (16, 5899), (17, 5908), (22, 5971), (23, 5983), (26, 6037), (28, 6055), (29, 6094), (31, 6139), (40, 6235), (42, 6250), (45, 6304), (48, 6340),

Gene: JF1_69 Start: 42759, Stop: 43424, Start Num: 5

Candidate Starts for JF1_69:

(Start: 5 @42759 has 18 MA's), (15, 42921), (16, 42927), (18, 42939), (19, 42966), (23, 43011), (28, 43083), (32, 43212), (33, 43245), (37, 43272), (45, 43362), (50, 43404),

Gene: JangDynasty_14 Start: 5823, Stop: 6461, Start Num: 8

Candidate Starts for JangDynasty_14:

(Start: 3 @5766 has 17 MA's), (Start: 8 @5823 has 10 MA's), (11, 5928), (12, 5946), (16, 5988), (17, 5997), (22, 6060), (23, 6072), (26, 6126), (28, 6144), (29, 6183), (31, 6228), (40, 6324), (42, 6339), (45, 6393), (48, 6429),

Gene: Juliette_71 Start: 42906, Stop: 43574, Start Num: 5

Candidate Starts for Juliette_71:

(Start: 5 @42906 has 18 MA's), (15, 43068), (16, 43074), (18, 43086), (19, 43113), (23, 43158), (28, 43230), (32, 43359), (33, 43392), (39, 43425), (41, 43446), (45, 43512), (50, 43554),

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

Candidate Starts for Krili_15:

(Start: 3 @6006 has 17 MA's), (Start: 8 @6063 has 10 MA's), (11, 6168), (12, 6186), (16, 6228), (17, 6237), (22, 6300), (23, 6312), (26, 6366), (28, 6384), (29, 6423), (31, 6468), (32, 6507), (40, 6594), (42, 6609), (45, 6663), (48, 6699),

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

Candidate Starts for MadKillah_16:

(Start: 3 @6027 has 17 MA's), (Start: 8 @6084 has 10 MA's), (11, 6189), (12, 6207), (16, 6249), (17, 6258), (22, 6321), (23, 6333), (26, 6387), (28, 6405), (29, 6444), (31, 6489), (32, 6537), (40, 6627), (42, 6642), (45, 6696), (48, 6732),

Gene: Malthus_70 Start: 42594, Stop: 43262, Start Num: 5

Candidate Starts for Malthus_70:

(Start: 5 @42594 has 18 MA's), (15, 42756), (16, 42762), (18, 42774), (19, 42801), (23, 42846), (28, 42918), (32, 43047), (33, 43080), (39, 43113), (41, 43134), (45, 43200), (50, 43242),

Gene: MissDaisy_66 Start: 41506, Stop: 42177, Start Num: 5

Candidate Starts for MissDaisy_66:

(Start: 5 @41506 has 18 MA's), (15, 41668), (16, 41674), (18, 41686), (19, 41713), (23, 41758), (28, 41830), (32, 41959), (33, 41992), (35, 42010), (45, 42115), (50, 42157),

Gene: Mitti_69 Start: 42773, Stop: 43417, Start Num: 5

Candidate Starts for Mitti_69:

(Start: 5 @42773 has 18 MA's), (15, 42935), (16, 42941), (18, 42953), (19, 42980), (23, 43025), (28, 43097), (32, 43226), (33, 43259), (39, 43292), (41, 43313), (45, 43355), (50, 43397),

Gene: Mori_15 Start: 5923, Stop: 6603, Start Num: 8

Candidate Starts for Mori_15:

(Start: 3 @5866 has 17 MA's), (Start: 8 @5923 has 10 MA's), (11, 6028), (12, 6046), (16, 6088), (17, 6097), (22, 6160), (23, 6172), (26, 6226), (28, 6244), (29, 6283), (31, 6328), (32, 6376), (40, 6466), (42, 6481), (45, 6535), (48, 6571),

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

Candidate Starts for Mulch_51:

(1, 36198), (Start: 4 @36552 has 15 MA's), (9, 36651), (10, 36660), (13, 36699), (14, 36702), (23, 36819), (27, 36882), (28, 36891), (29, 36930), (30, 36939), (38, 37101), (46, 37236), (50, 37272),

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

Candidate Starts for Murai_15:

(Start: 3 @5866 has 17 MA's), (Start: 8 @5923 has 10 MA's), (11, 6028), (12, 6046), (16, 6088), (17, 6097), (22, 6160), (23, 6172), (26, 6226), (28, 6244), (29, 6283), (31, 6328), (32, 6376), (40, 6466), (42, 6481), (45, 6535), (48, 6571),

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

Candidate Starts for Nadeem_51:

(1, 36198), (Start: 4 @36552 has 15 MA's), (9, 36651), (10, 36660), (13, 36699), (14, 36702), (23, 36819), (27, 36882), (28, 36891), (29, 36930), (30, 36939), (38, 37101), (46, 37224), (50, 37260),

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

Candidate Starts for NancyRae_50:

(1, 36217), (Start: 4 @36571 has 15 MA's), (9, 36670), (10, 36679), (13, 36718), (14, 36721), (23, 36838), (27, 36901), (28, 36910), (29, 36949), (30, 36958), (38, 37120), (46, 37243), (50, 37279),

Gene: NiebruSaylor_15 Start: 5923, Stop: 6603, Start Num: 8

Candidate Starts for NiebruSaylor_15:

(Start: 3 @5866 has 17 MA's), (Start: 8 @5923 has 10 MA's), (11, 6028), (12, 6046), (16, 6088), (17, 6097), (22, 6160), (23, 6172), (26, 6226), (28, 6244), (29, 6283), (31, 6328), (32, 6376), (40, 6466), (42, 6481), (45, 6535), (48, 6571),

Gene: OmniCritical_68 Start: 42624, Stop: 43298, Start Num: 6

Candidate Starts for OmniCritical_68:

(Start: 6 @42624 has 3 MA's), (15, 42786), (16, 42792), (18, 42804), (19, 42831), (23, 42876), (28, 42948), (32, 43077), (33, 43110), (36, 43131), (43, 43185), (45, 43236), (50, 43278),

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

Candidate Starts for Parada_51:

(1, 36198), (Start: 4 @36552 has 15 MA's), (9, 36651), (10, 36660), (13, 36699), (14, 36702), (23, 36819), (27, 36882), (28, 36891), (29, 36930), (30, 36939), (38, 37101), (46, 37236), (50, 37272),

Gene: Patt_65 Start: 41230, Stop: 41901, Start Num: 5

Candidate Starts for Patt_65:

(Start: 5 @41230 has 18 MA's), (15, 41392), (16, 41398), (18, 41410), (19, 41437), (23, 41482), (28, 41554), (32, 41683), (33, 41716), (35, 41734), (45, 41839), (50, 41881),

Gene: Pimento_52 Start: 36149, Stop: 36928, Start Num: 4

Candidate Starts for Pimento_52:

(2, 36059), (Start: 4 @36149 has 15 MA's), (Start: 7 @36167 has 1 MA's), (10, 36257), (13, 36296), (14, 36299), (23, 36416), (28, 36488), (29, 36527), (30, 36536), (38, 36698), (46, 36821), (50, 36857),

Gene: Reptar3000_66 Start: 41218, Stop: 41889, Start Num: 5

Candidate Starts for Reptar3000_66:

(Start: 5 @41218 has 18 MA's), (14, 41353), (15, 41380), (16, 41386), (18, 41398), (19, 41425), (23, 41470), (28, 41542), (32, 41671), (33, 41704), (35, 41722), (45, 41827), (50, 41869),

Gene: Ruthiejr_70 Start: 42644, Stop: 43309, Start Num: 5

Candidate Starts for Ruthiejr_70:

(Start: 5 @42644 has 18 MA's), (15, 42806), (16, 42812), (18, 42824), (19, 42851), (23, 42896), (28, 42968), (32, 43097), (33, 43130), (37, 43157), (45, 43247), (50, 43289),

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

Candidate Starts for Ryadel_17:

(Start: 3 @6460 has 17 MA's), (Start: 8 @6517 has 10 MA's), (11, 6622), (12, 6640), (16, 6682), (17, 6691), (22, 6754), (23, 6766), (26, 6820), (28, 6838), (29, 6877), (31, 6922), (32, 6961), (40, 7048), (42, 7063), (45, 7117), (48, 7153),

Gene: SamScheppers_67 Start: 43073, Stop: 43741, Start Num: 5

Candidate Starts for SamScheppers_67:

(Start: 5 @43073 has 18 MA's), (15, 43235), (16, 43241), (18, 43253), (19, 43280), (23, 43325), (28, 43397), (32, 43526), (33, 43559), (39, 43592), (41, 43613), (45, 43679), (50, 43721),

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

Candidate Starts for SchoolBus_14:

(Start: 3 @5677 has 17 MA's), (Start: 8 @5734 has 10 MA's), (11, 5839), (12, 5857), (16, 5899), (17, 5908), (22, 5971), (23, 5983), (26, 6037), (28, 6055), (29, 6094), (31, 6139), (40, 6235), (42, 6250), (45, 6304), (48, 6340),

Gene: Schuy_16 Start: 6084, Stop: 6764, Start Num: 8

Candidate Starts for Schuy_16:

(Start: 3 @6027 has 17 MA's), (Start: 8 @6084 has 10 MA's), (11, 6189), (12, 6207), (16, 6249), (17, 6258), (22, 6321), (23, 6333), (26, 6387), (28, 6405), (29, 6444), (31, 6489), (32, 6537), (40, 6627), (42, 6642), (45, 6696), (48, 6732),

Gene: Shida_15 Start: 5989, Stop: 6669, Start Num: 8

Candidate Starts for Shida_15:

(Start: 3 @5932 has 17 MA's), (Start: 8 @5989 has 10 MA's), (11, 6094), (12, 6112), (16, 6154), (17, 6163), (22, 6226), (23, 6238), (26, 6292), (28, 6310), (29, 6349), (31, 6394), (32, 6442), (40, 6532), (42, 6547), (45, 6601), (48, 6637),

Gene: Slarp_69 Start: 42601, Stop: 43269, Start Num: 5

Candidate Starts for Slarp_69:

(Start: 5 @42601 has 18 MA's), (15, 42763), (16, 42769), (18, 42781), (19, 42808), (23, 42853), (28, 42925), (32, 43054), (33, 43087), (39, 43120), (41, 43141), (45, 43207), (50, 43249),

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

Candidate Starts for Smooch_16:

(Start: 3 @6196 has 17 MA's), (Start: 8 @6253 has 10 MA's), (11, 6358), (12, 6376), (16, 6418), (17, 6427), (22, 6490), (23, 6502), (26, 6556), (28, 6574), (29, 6613), (31, 6658), (32, 6706), (40, 6781), (42, 6796), (45, 6850), (48, 6886),

Gene: Taquito_68 Start: 42836, Stop: 43474, Start Num: 5

Candidate Starts for Taquito_68:

(Start: 5 @42836 has 18 MA's), (15, 42998), (16, 43004), (18, 43016), (19, 43043), (23, 43088), (28, 43160), (32, 43289), (33, 43322), (39, 43355), (41, 43376), (45, 43412), (50, 43454),

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

Candidate Starts for TelAviv_14:

(Start: 3 @5674 has 17 MA's), (Start: 8 @5731 has 10 MA's), (11, 5836), (12, 5854), (16, 5896), (17, 5905), (22, 5968), (23, 5980), (26, 6034), (28, 6052), (29, 6091), (31, 6136), (40, 6232), (42, 6247), (45, 6301), (48, 6337),

Gene: Vagabond_15 Start: 5932, Stop: 6645, Start Num: 3

Candidate Starts for Vagabond_15:

(Start: 3 @5932 has 17 MA's), (Start: 8 @5989 has 10 MA's), (11, 6094), (12, 6112), (16, 6154), (17, 6163), (22, 6226), (23, 6238), (26, 6292), (28, 6310), (29, 6349), (31, 6394), (32, 6442), (40, 6508), (42, 6523), (45, 6577), (48, 6613),

Gene: Vorrps_15 Start: 5923, Stop: 6603, Start Num: 8

Candidate Starts for Vorrps_15:

(Start: 3 @5866 has 17 MA's), (Start: 8 @5923 has 10 MA's), (11, 6028), (12, 6046), (16, 6088), (17, 6097), (22, 6160), (23, 6172), (26, 6226), (28, 6244), (29, 6283), (31, 6328), (32, 6376), (40, 6466), (42, 6481), (45, 6535), (48, 6571),

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

Candidate Starts for WheatThin_50:

(1, 36198), (Start: 4 @36552 has 15 MA's), (9, 36651), (10, 36660), (13, 36699), (14, 36702), (23, 36819), (27, 36882), (28, 36891), (29, 36930), (30, 36939), (38, 37101), (46, 37224), (50, 37260),

Gene: Wildflower_15 Start: 5892, Stop: 6626, Start Num: 3

Candidate Starts for Wildflower_15:

(Start: 3 @5892 has 17 MA's), (Start: 8 @5949 has 10 MA's), (11, 6054), (12, 6072), (16, 6114), (17, 6123), (22, 6186), (23, 6198), (26, 6252), (28, 6270), (29, 6309), (31, 6354), (40, 6489), (42, 6504), (45, 6558), (48, 6594),

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

Candidate Starts for Winget_15:

(Start: 3 @5931 has 17 MA's), (Start: 8 @5988 has 10 MA's), (11, 6093), (12, 6111), (16, 6153), (17, 6162), (22, 6225), (23, 6237), (26, 6291), (28, 6309), (29, 6348), (31, 6393), (32, 6441), (40, 6507), (42, 6522), (45, 6576), (48, 6612),

Gene: Wintermute_69 Start: 42831, Stop: 43499, Start Num: 5

Candidate Starts for Wintermute_69:

(Start: 5 @42831 has 18 MA's), (15, 42993), (16, 42999), (18, 43011), (19, 43038), (23, 43083), (28, 43155), (32, 43284), (33, 43317), (39, 43350), (41, 43371), (45, 43437), (50, 43479),

Gene: Y10_66 Start: 42759, Stop: 43424, Start Num: 5

Candidate Starts for Y10_66:

(Start: 5 @42759 has 18 MA's), (15, 42921), (16, 42927), (18, 42939), (19, 42966), (23, 43011), (28, 43083), (32, 43212), (33, 43245), (37, 43272), (45, 43362), (50, 43404),

Gene: Y2_66 Start: 42759, Stop: 43424, Start Num: 5

Candidate Starts for Y2_66:

(Start: 5 @42759 has 18 MA's), (15, 42921), (16, 42927), (18, 42939), (19, 42966), (23, 43011), (28, 43083), (32, 43212), (33, 43245), (37, 43272), (45, 43362), (50, 43404),

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

Candidate Starts for YungJamal_16:

(Start: 3 @6232 has 17 MA's), (Start: 8 @6289 has 10 MA's), (11, 6394), (12, 6412), (16, 6454), (17, 6463), (22, 6526), (23, 6538), (26, 6592), (28, 6610), (29, 6649), (31, 6694), (32, 6742), (40, 6817), (42, 6832), (45, 6886), (48, 6922),

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

Candidate Starts for Zakhe101_16:

(Start: 3 @6244 has 17 MA's), (Start: 8 @6301 has 10 MA's), (11, 6406), (12, 6424), (16, 6466), (17, 6475), (22, 6538), (23, 6550), (26, 6604), (28, 6622), (29, 6661), (31, 6706), (32, 6754), (40, 6829), (42, 6844), (45, 6898), (48, 6934),