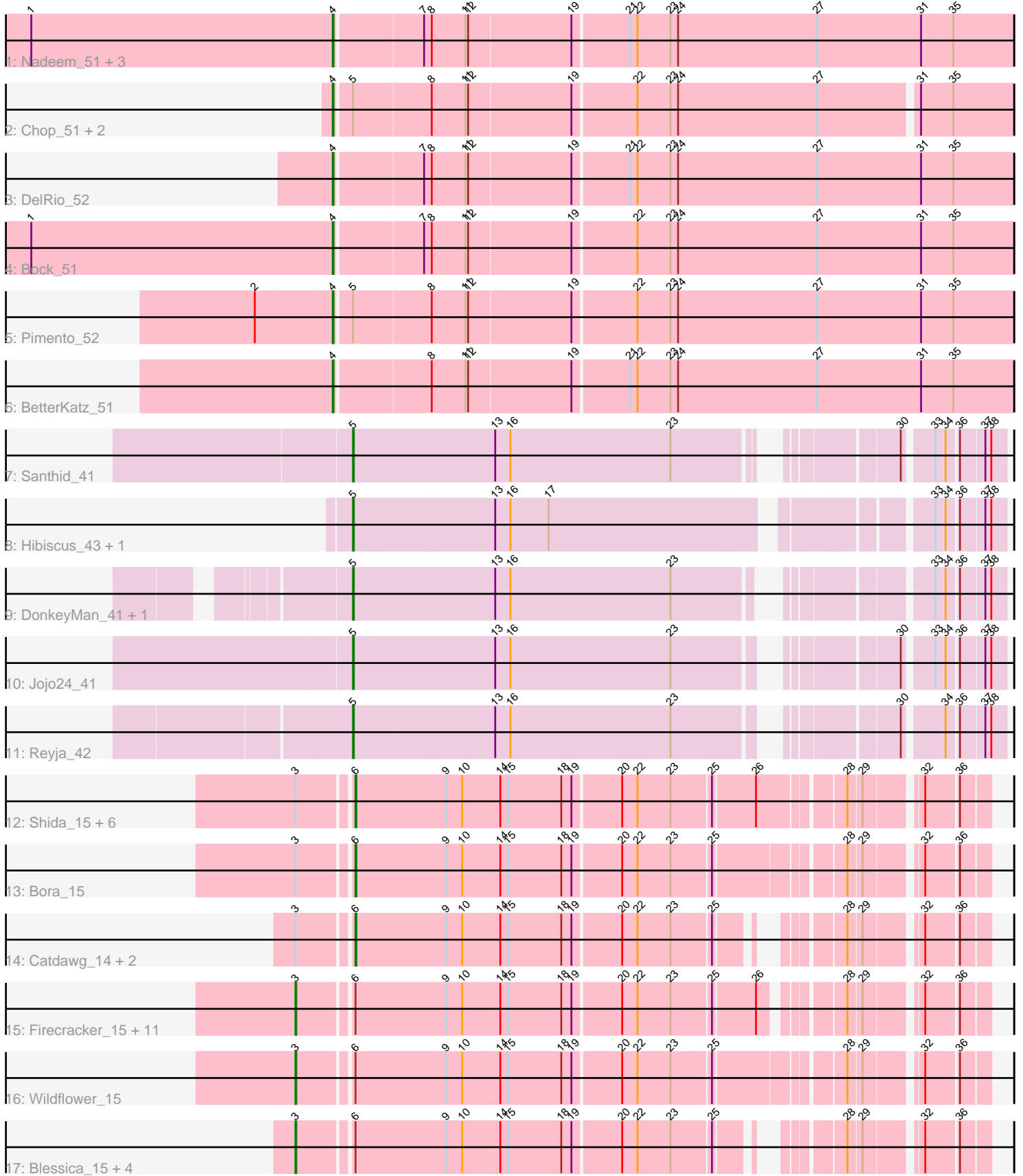


# Pham 196620



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 196620 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196620 has 47 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Nadeem\_51, WheatThin\_50, Ayotoya\_51, NancyRae\_50
- Track 2 : Chop\_51, Hamood\_51, GrandSlam\_51
- Track 3 : DelRio\_52
- Track 4 : Bock\_51
- Track 5 : Pimento\_52
- Track 6 : BetterKatz\_51
- Track 7 : Santhid\_41
- Track 8 : Hibiscus\_43, Heinz\_43
- Track 9 : DonkeyMan\_41, Tarzan\_42
- Track 10 : Jojo24\_41
- Track 11 : Reyja\_42
- Track 12 : Shida\_15, Corndog\_17, Vorrps\_15, Schuy\_16, Mori\_15, Alkhayr\_15, NiebruSaylor\_15
- Track 13 : Bora\_15
- Track 14 : Catdawg\_14, JangDynasty\_14, FoulBall\_14
- Track 15 : Firecracker\_15, Murai\_15, Dylan\_15, Krili\_15, YungJamal\_16, Smooch\_16, Ryadel\_17, Zakhe101\_16, MadKillah\_16, Winget\_15, Ashwin\_16, Vagabond\_15
- Track 16 : Wildflower\_15
- Track 17 : Blessica\_15, Familton\_15, TelAviv\_14, SchoolBus\_14, Idergollasper\_14

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

The start number called the most often in the published annotations is 3, it was called in 17 of the 43 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ashwin\_16, Blessica\_15, Dylan\_15, Familton\_15, Firecracker\_15, Idergollasper\_14, Krili\_15, MadKillah\_16, Murai\_15, Ryadel\_17, SchoolBus\_14, Smooch\_16, TelAviv\_14, Vagabond\_15, Wildflower\_15, Winget\_15, YungJamal\_16, Zakhe101\_16,

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

- Alkhayr\_15, Bora\_15, Catdawg\_14, Corndog\_17, FoulBall\_14, JangDynasty\_14, Mori\_15, NiebruSaylor\_15, Schuy\_16, Shida\_15, Vorrrps\_15,

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

- Ayotoya\_51, BetterKatz\_51, Bock\_51, Chop\_51, DelRio\_52, DonkeyMan\_41, GrandSlam\_51, Hamood\_51, Heinz\_43, Hibiscus\_43, Jojo24\_41, Nadeem\_51, NancyRae\_50, Pimento\_52, Reyja\_42, Santhid\_41, Tarzan\_42, WheatThin\_50,

### Summary by start number:

Start 3:

- Found in 29 of 47 ( 61.7% ) of genes in pham
- Manual Annotations of this start: 17 of 43
- 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 11 of 47 ( 23.4% ) of genes in pham
- Manual Annotations of this start: 11 of 43
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ayotoya\_51 (DI), BetterKatz\_51 (DI), Bock\_51 (DI), Chop\_51 (DI), DelRio\_52 (DI), GrandSlam\_51 (DI), Hamood\_51 (DI), Nadeem\_51 (DI), NancyRae\_50 (DI), Pimento\_52 (DI), WheatThin\_50 (DI),

Start 5:

- Found in 11 of 47 ( 23.4% ) of genes in pham
- Manual Annotations of this start: 5 of 43
- Called 63.6% 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),

Start 6:

- Found in 29 of 47 ( 61.7% ) of genes in pham
- Manual Annotations of this start: 10 of 43
- 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), Vorrrps\_15 (O),

### Summary by clusters:

There are 3 clusters represented in this pham: DY, O, DI,

Info for manual annotations of cluster DI:

- Start number 4 was manually annotated 11 times for cluster DI.

Info for manual annotations of cluster DY:

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

Info for manual annotations of cluster O:

- Start number 3 was manually annotated 17 times for cluster O.
- Start number 6 was manually annotated 10 times for cluster O.

**Gene Information:**

Gene: Alkhayr\_15 Start: 6062, Stop: 6742, Start Num: 6

Candidate Starts for Alkhayr\_15:

(Start: 3 @6005 has 17 MA's), (Start: 6 @6062 has 10 MA's), (9, 6167), (10, 6185), (14, 6227), (15, 6236), (18, 6299), (19, 6311), (20, 6365), (22, 6383), (23, 6422), (25, 6467), (26, 6515), (28, 6605), (29, 6620), (32, 6674), (36, 6710),

Gene: Ashwin\_16 Start: 6240, Stop: 6962, Start Num: 3

Candidate Starts for Ashwin\_16:

(Start: 3 @6240 has 17 MA's), (Start: 6 @6297 has 10 MA's), (9, 6402), (10, 6420), (14, 6462), (15, 6471), (18, 6534), (19, 6546), (20, 6600), (22, 6618), (23, 6657), (25, 6702), (26, 6750), (28, 6825), (29, 6840), (32, 6894), (36, 6930),

Gene: Ayotoya\_51 Start: 37282, Stop: 38049, Start Num: 4

Candidate Starts for Ayotoya\_51:

(1, 36928), (Start: 4 @37282 has 11 MA's), (7, 37381), (8, 37390), (11, 37429), (12, 37432), (19, 37549), (21, 37612), (22, 37621), (23, 37660), (24, 37669), (27, 37831), (31, 37942), (35, 37978),

Gene: BetterKatz\_51 Start: 36768, Stop: 37547, Start Num: 4

Candidate Starts for BetterKatz\_51:

(Start: 4 @36768 has 11 MA's), (8, 36876), (11, 36915), (12, 36918), (19, 37035), (21, 37098), (22, 37107), (23, 37146), (24, 37155), (27, 37317), (31, 37440), (35, 37476),

Gene: Blessica\_15 Start: 6070, Stop: 6765, Start Num: 3

Candidate Starts for Blessica\_15:

(Start: 3 @6070 has 17 MA's), (Start: 6 @6127 has 10 MA's), (9, 6232), (10, 6250), (14, 6292), (15, 6301), (18, 6364), (19, 6376), (20, 6430), (22, 6448), (23, 6487), (25, 6532), (28, 6628), (29, 6643), (32, 6697), (36, 6733),

Gene: Bock\_51 Start: 36502, Stop: 37281, Start Num: 4

Candidate Starts for Bock\_51:

(1, 36148), (Start: 4 @36502 has 11 MA's), (7, 36601), (8, 36610), (11, 36649), (12, 36652), (19, 36769), (22, 36841), (23, 36880), (24, 36889), (27, 37051), (31, 37174), (35, 37210),

Gene: Bora\_15 Start: 6095, Stop: 6772, Start Num: 6

Candidate Starts for Bora\_15:

(Start: 3 @6038 has 17 MA's), (Start: 6 @6095 has 10 MA's), (9, 6200), (10, 6218), (14, 6260), (15, 6269), (18, 6332), (19, 6344), (20, 6398), (22, 6416), (23, 6455), (25, 6500), (28, 6635), (29, 6650), (32, 6704), (36, 6740),

Gene: Catdawg\_14 Start: 5733, Stop: 6371, Start Num: 6

Candidate Starts for Catdawg\_14:

(Start: 3 @5676 has 17 MA's), (Start: 6 @5733 has 10 MA's), (9, 5838), (10, 5856), (14, 5898), (15, 5907), (18, 5970), (19, 5982), (20, 6036), (22, 6054), (23, 6093), (25, 6138), (28, 6234), (29, 6249), (32, 6303), (36, 6339),

Gene: Chop\_51 Start: 37033, Stop: 37800, Start Num: 4

Candidate Starts for Chop\_51:

(Start: 4 @37033 has 11 MA's), (Start: 5 @37051 has 5 MA's), (8, 37141), (11, 37180), (12, 37183), (19, 37300), (22, 37372), (23, 37411), (24, 37420), (27, 37582), (31, 37693), (35, 37729),

Gene: Corndog\_17 Start: 6409, Stop: 7074, Start Num: 6

Candidate Starts for Corndog\_17:

(Start: 3 @6352 has 17 MA's), (Start: 6 @6409 has 10 MA's), (9, 6514), (10, 6532), (14, 6574), (15, 6583), (18, 6646), (19, 6658), (20, 6712), (22, 6730), (23, 6769), (25, 6814), (26, 6862), (28, 6937), (29, 6952), (32, 7006), (36, 7042),

Gene: DelRio\_52 Start: 37746, Stop: 38525, Start Num: 4

Candidate Starts for DelRio\_52:

(Start: 4 @37746 has 11 MA's), (7, 37845), (8, 37854), (11, 37893), (12, 37896), (19, 38013), (21, 38076), (22, 38085), (23, 38124), (24, 38133), (27, 38295), (31, 38418), (35, 38454),

Gene: DonkeyMan\_41 Start: 30250, Stop: 30930, Start Num: 5

Candidate Starts for DonkeyMan\_41:

(Start: 5 @30250 has 5 MA's), (13, 30412), (16, 30430), (23, 30619), (33, 30856), (34, 30868), (36, 30880), (37, 30907), (38, 30913),

Gene: Dylan\_15 Start: 6240, Stop: 6962, Start Num: 3

Candidate Starts for Dylan\_15:

(Start: 3 @6240 has 17 MA's), (Start: 6 @6297 has 10 MA's), (9, 6402), (10, 6420), (14, 6462), (15, 6471), (18, 6534), (19, 6546), (20, 6600), (22, 6618), (23, 6657), (25, 6702), (26, 6750), (28, 6825), (29, 6840), (32, 6894), (36, 6930),

Gene: Familton\_15 Start: 5677, Stop: 6372, Start Num: 3

Candidate Starts for Familton\_15:

(Start: 3 @5677 has 17 MA's), (Start: 6 @5734 has 10 MA's), (9, 5839), (10, 5857), (14, 5899), (15, 5908), (18, 5971), (19, 5983), (20, 6037), (22, 6055), (23, 6094), (25, 6139), (28, 6235), (29, 6250), (32, 6304), (36, 6340),

Gene: Firecracker\_15 Start: 5973, Stop: 6695, Start Num: 3

Candidate Starts for Firecracker\_15:

(Start: 3 @5973 has 17 MA's), (Start: 6 @6030 has 10 MA's), (9, 6135), (10, 6153), (14, 6195), (15, 6204), (18, 6267), (19, 6279), (20, 6333), (22, 6351), (23, 6390), (25, 6435), (26, 6483), (28, 6558), (29, 6573), (32, 6627), (36, 6663),

Gene: FoulBall\_14 Start: 5734, Stop: 6372, Start Num: 6

Candidate Starts for FoulBall\_14:

(Start: 3 @5677 has 17 MA's), (Start: 6 @5734 has 10 MA's), (9, 5839), (10, 5857), (14, 5899), (15, 5908), (18, 5971), (19, 5983), (20, 6037), (22, 6055), (23, 6094), (25, 6139), (28, 6235), (29, 6250), (32, 6304), (36, 6340),

Gene: GrandSlam\_51 Start: 37033, Stop: 37800, Start Num: 4

Candidate Starts for GrandSlam\_51:

(Start: 4 @37033 has 11 MA's), (Start: 5 @37051 has 5 MA's), (8, 37141), (11, 37180), (12, 37183), (19, 37300), (22, 37372), (23, 37411), (24, 37420), (27, 37582), (31, 37693), (35, 37729),

Gene: Hamood\_51 Start: 37033, Stop: 37800, Start Num: 4

Candidate Starts for Hamood\_51:

(Start: 4 @37033 has 11 MA's), (Start: 5 @37051 has 5 MA's), (8, 37141), (11, 37180), (12, 37183), (19, 37300), (22, 37372), (23, 37411), (24, 37420), (27, 37582), (31, 37693), (35, 37729),

Gene: Heinz\_43 Start: 28349, Stop: 29047, Start Num: 5

Candidate Starts for Heinz\_43:

(Start: 5 @28349 has 5 MA's), (13, 28511), (16, 28529), (17, 28574), (33, 28973), (34, 28985), (36, 28997), (37, 29024), (38, 29030),

Gene: Hibiscus\_43 Start: 28298, Stop: 28996, Start Num: 5

Candidate Starts for Hibiscus\_43:

(Start: 5 @28298 has 5 MA's), (13, 28460), (16, 28478), (17, 28523), (33, 28922), (34, 28934), (36, 28946), (37, 28973), (38, 28979),

Gene: Idergollasper\_14 Start: 5677, Stop: 6372, Start Num: 3

Candidate Starts for Idergollasper\_14:

(Start: 3 @5677 has 17 MA's), (Start: 6 @5734 has 10 MA's), (9, 5839), (10, 5857), (14, 5899), (15, 5908), (18, 5971), (19, 5983), (20, 6037), (22, 6055), (23, 6094), (25, 6139), (28, 6235), (29, 6250), (32, 6304), (36, 6340),

Gene: JangDynasty\_14 Start: 5823, Stop: 6461, Start Num: 6

Candidate Starts for JangDynasty\_14:

(Start: 3 @5766 has 17 MA's), (Start: 6 @5823 has 10 MA's), (9, 5928), (10, 5946), (14, 5988), (15, 5997), (18, 6060), (19, 6072), (20, 6126), (22, 6144), (23, 6183), (25, 6228), (28, 6324), (29, 6339), (32, 6393), (36, 6429),

Gene: Jojo24\_41 Start: 28906, Stop: 29589, Start Num: 5

Candidate Starts for Jojo24\_41:

(Start: 5 @28906 has 5 MA's), (13, 29068), (16, 29086), (23, 29275), (30, 29485), (33, 29515), (34, 29527), (36, 29539), (37, 29566), (38, 29572),

Gene: Krili\_15 Start: 6006, Stop: 6731, Start Num: 3

Candidate Starts for Krili\_15:

(Start: 3 @6006 has 17 MA's), (Start: 6 @6063 has 10 MA's), (9, 6168), (10, 6186), (14, 6228), (15, 6237), (18, 6300), (19, 6312), (20, 6366), (22, 6384), (23, 6423), (25, 6468), (26, 6507), (28, 6594), (29, 6609), (32, 6663), (36, 6699),

Gene: MadKillah\_16 Start: 6027, Stop: 6764, Start Num: 3

Candidate Starts for MadKillah\_16:

(Start: 3 @6027 has 17 MA's), (Start: 6 @6084 has 10 MA's), (9, 6189), (10, 6207), (14, 6249), (15, 6258), (18, 6321), (19, 6333), (20, 6387), (22, 6405), (23, 6444), (25, 6489), (26, 6537), (28, 6627), (29, 6642), (32, 6696), (36, 6732),

Gene: Mori\_15 Start: 5923, Stop: 6603, Start Num: 6

Candidate Starts for Mori\_15:

(Start: 3 @5866 has 17 MA's), (Start: 6 @5923 has 10 MA's), (9, 6028), (10, 6046), (14, 6088), (15, 6097), (18, 6160), (19, 6172), (20, 6226), (22, 6244), (23, 6283), (25, 6328), (26, 6376), (28, 6466), (29, 6481), (32, 6535), (36, 6571),

Gene: Murai\_15 Start: 5866, Stop: 6603, Start Num: 3

Candidate Starts for Murai\_15:

(Start: 3 @5866 has 17 MA's), (Start: 6 @5923 has 10 MA's), (9, 6028), (10, 6046), (14, 6088), (15, 6097), (18, 6160), (19, 6172), (20, 6226), (22, 6244), (23, 6283), (25, 6328), (26, 6376), (28, 6466), (29, 6481), (32, 6535), (36, 6571),

Gene: Nadeem\_51 Start: 36552, Stop: 37331, Start Num: 4

Candidate Starts for Nadeem\_51:

(1, 36198), (Start: 4 @36552 has 11 MA's), (7, 36651), (8, 36660), (11, 36699), (12, 36702), (19, 36819), (21, 36882), (22, 36891), (23, 36930), (24, 36939), (27, 37101), (31, 37224), (35, 37260),

Gene: NancyRae\_50 Start: 36571, Stop: 37350, Start Num: 4

Candidate Starts for NancyRae\_50:

(1, 36217), (Start: 4 @36571 has 11 MA's), (7, 36670), (8, 36679), (11, 36718), (12, 36721), (19, 36838), (21, 36901), (22, 36910), (23, 36949), (24, 36958), (27, 37120), (31, 37243), (35, 37279),

Gene: NiebruSaylor\_15 Start: 5923, Stop: 6603, Start Num: 6

Candidate Starts for NiebruSaylor\_15:

(Start: 3 @5866 has 17 MA's), (Start: 6 @5923 has 10 MA's), (9, 6028), (10, 6046), (14, 6088), (15, 6097), (18, 6160), (19, 6172), (20, 6226), (22, 6244), (23, 6283), (25, 6328), (26, 6376), (28, 6466), (29, 6481), (32, 6535), (36, 6571),

Gene: Pimento\_52 Start: 36149, Stop: 36928, Start Num: 4

Candidate Starts for Pimento\_52:

(2, 36059), (Start: 4 @36149 has 11 MA's), (Start: 5 @36167 has 5 MA's), (8, 36257), (11, 36296), (12, 36299), (19, 36416), (22, 36488), (23, 36527), (24, 36536), (27, 36698), (31, 36821), (35, 36857),

Gene: Reyja\_42 Start: 29334, Stop: 30017, Start Num: 5

Candidate Starts for Reyja\_42:

(Start: 5 @29334 has 5 MA's), (13, 29496), (16, 29514), (23, 29703), (30, 29913), (34, 29955), (36, 29967), (37, 29994), (38, 30000),

Gene: Ryadel\_17 Start: 6460, Stop: 7185, Start Num: 3

Candidate Starts for Ryadel\_17:

(Start: 3 @6460 has 17 MA's), (Start: 6 @6517 has 10 MA's), (9, 6622), (10, 6640), (14, 6682), (15, 6691), (18, 6754), (19, 6766), (20, 6820), (22, 6838), (23, 6877), (25, 6922), (26, 6961), (28, 7048), (29, 7063), (32, 7117), (36, 7153),

Gene: Santhid\_41 Start: 27625, Stop: 28305, Start Num: 5

Candidate Starts for Santhid\_41:

(Start: 5 @27625 has 5 MA's), (13, 27787), (16, 27805), (23, 27994), (30, 28201), (33, 28231), (34, 28243), (36, 28255), (37, 28282), (38, 28288),

Gene: SchoolBus\_14 Start: 5677, Stop: 6372, Start Num: 3

Candidate Starts for SchoolBus\_14:

(Start: 3 @5677 has 17 MA's), (Start: 6 @5734 has 10 MA's), (9, 5839), (10, 5857), (14, 5899), (15, 5908), (18, 5971), (19, 5983), (20, 6037), (22, 6055), (23, 6094), (25, 6139), (28, 6235), (29, 6250), (32, 6304), (36, 6340),

Gene: Schuy\_16 Start: 6084, Stop: 6764, Start Num: 6

Candidate Starts for Schuy\_16:

(Start: 3 @6027 has 17 MA's), (Start: 6 @6084 has 10 MA's), (9, 6189), (10, 6207), (14, 6249), (15, 6258), (18, 6321), (19, 6333), (20, 6387), (22, 6405), (23, 6444), (25, 6489), (26, 6537), (28, 6627), (29, 6642), (32, 6696), (36, 6732),

Gene: Shida\_15 Start: 5989, Stop: 6669, Start Num: 6

Candidate Starts for Shida\_15:

(Start: 3 @5932 has 17 MA's), (Start: 6 @5989 has 10 MA's), (9, 6094), (10, 6112), (14, 6154), (15, 6163), (18, 6226), (19, 6238), (20, 6292), (22, 6310), (23, 6349), (25, 6394), (26, 6442), (28, 6532), (29, 6547), (32, 6601), (36, 6637),

Gene: Smooch\_16 Start: 6196, Stop: 6918, Start Num: 3

Candidate Starts for Smooch\_16:

(Start: 3 @6196 has 17 MA's), (Start: 6 @6253 has 10 MA's), (9, 6358), (10, 6376), (14, 6418), (15, 6427), (18, 6490), (19, 6502), (20, 6556), (22, 6574), (23, 6613), (25, 6658), (26, 6706), (28, 6781), (29, 6796), (32, 6850), (36, 6886),

Gene: Tarzan\_42 Start: 28732, Stop: 29412, Start Num: 5

Candidate Starts for Tarzan\_42:

(Start: 5 @28732 has 5 MA's), (13, 28894), (16, 28912), (23, 29101), (33, 29338), (34, 29350), (36, 29362), (37, 29389), (38, 29395),

Gene: TelAviv\_14 Start: 5674, Stop: 6369, Start Num: 3

Candidate Starts for TelAviv\_14:

(Start: 3 @5674 has 17 MA's), (Start: 6 @5731 has 10 MA's), (9, 5836), (10, 5854), (14, 5896), (15, 5905), (18, 5968), (19, 5980), (20, 6034), (22, 6052), (23, 6091), (25, 6136), (28, 6232), (29, 6247), (32, 6301), (36, 6337),

Gene: Vagabond\_15 Start: 5932, Stop: 6645, Start Num: 3

Candidate Starts for Vagabond\_15:

(Start: 3 @5932 has 17 MA's), (Start: 6 @5989 has 10 MA's), (9, 6094), (10, 6112), (14, 6154), (15, 6163), (18, 6226), (19, 6238), (20, 6292), (22, 6310), (23, 6349), (25, 6394), (26, 6442), (28, 6508), (29, 6523), (32, 6577), (36, 6613),

Gene: Vorrps\_15 Start: 5923, Stop: 6603, Start Num: 6

Candidate Starts for Vorrps\_15:

(Start: 3 @5866 has 17 MA's), (Start: 6 @5923 has 10 MA's), (9, 6028), (10, 6046), (14, 6088), (15, 6097), (18, 6160), (19, 6172), (20, 6226), (22, 6244), (23, 6283), (25, 6328), (26, 6376), (28, 6466), (29, 6481), (32, 6535), (36, 6571),

Gene: WheatThin\_50 Start: 36552, Stop: 37331, Start Num: 4

Candidate Starts for WheatThin\_50:

(1, 36198), (Start: 4 @36552 has 11 MA's), (7, 36651), (8, 36660), (11, 36699), (12, 36702), (19, 36819), (21, 36882), (22, 36891), (23, 36930), (24, 36939), (27, 37101), (31, 37224), (35, 37260),

Gene: Wildflower\_15 Start: 5892, Stop: 6626, Start Num: 3

Candidate Starts for Wildflower\_15:

(Start: 3 @5892 has 17 MA's), (Start: 6 @5949 has 10 MA's), (9, 6054), (10, 6072), (14, 6114), (15, 6123), (18, 6186), (19, 6198), (20, 6252), (22, 6270), (23, 6309), (25, 6354), (28, 6489), (29, 6504), (32, 6558), (36, 6594),

Gene: Winget\_15 Start: 5931, Stop: 6644, Start Num: 3

Candidate Starts for Winget\_15:

(Start: 3 @5931 has 17 MA's), (Start: 6 @5988 has 10 MA's), (9, 6093), (10, 6111), (14, 6153), (15, 6162), (18, 6225), (19, 6237), (20, 6291), (22, 6309), (23, 6348), (25, 6393), (26, 6441), (28, 6507), (29, 6522), (32, 6576), (36, 6612),

Gene: YungJamal\_16 Start: 6232, Stop: 6954, Start Num: 3

Candidate Starts for YungJamal\_16:



(Start: 3 @6232 has 17 MA's), (Start: 6 @6289 has 10 MA's), (9, 6394), (10, 6412), (14, 6454), (15, 6463), (18, 6526), (19, 6538), (20, 6592), (22, 6610), (23, 6649), (25, 6694), (26, 6742), (28, 6817), (29, 6832), (32, 6886), (36, 6922),

Gene: Zakhe101\_16 Start: 6244, Stop: 6966, Start Num: 3

Candidate Starts for Zakhe101\_16:

(Start: 3 @6244 has 17 MA's), (Start: 6 @6301 has 10 MA's), (9, 6406), (10, 6424), (14, 6466), (15, 6475), (18, 6538), (19, 6550), (20, 6604), (22, 6622), (23, 6661), (25, 6706), (26, 6754), (28, 6829), (29, 6844), (32, 6898), (36, 6934),