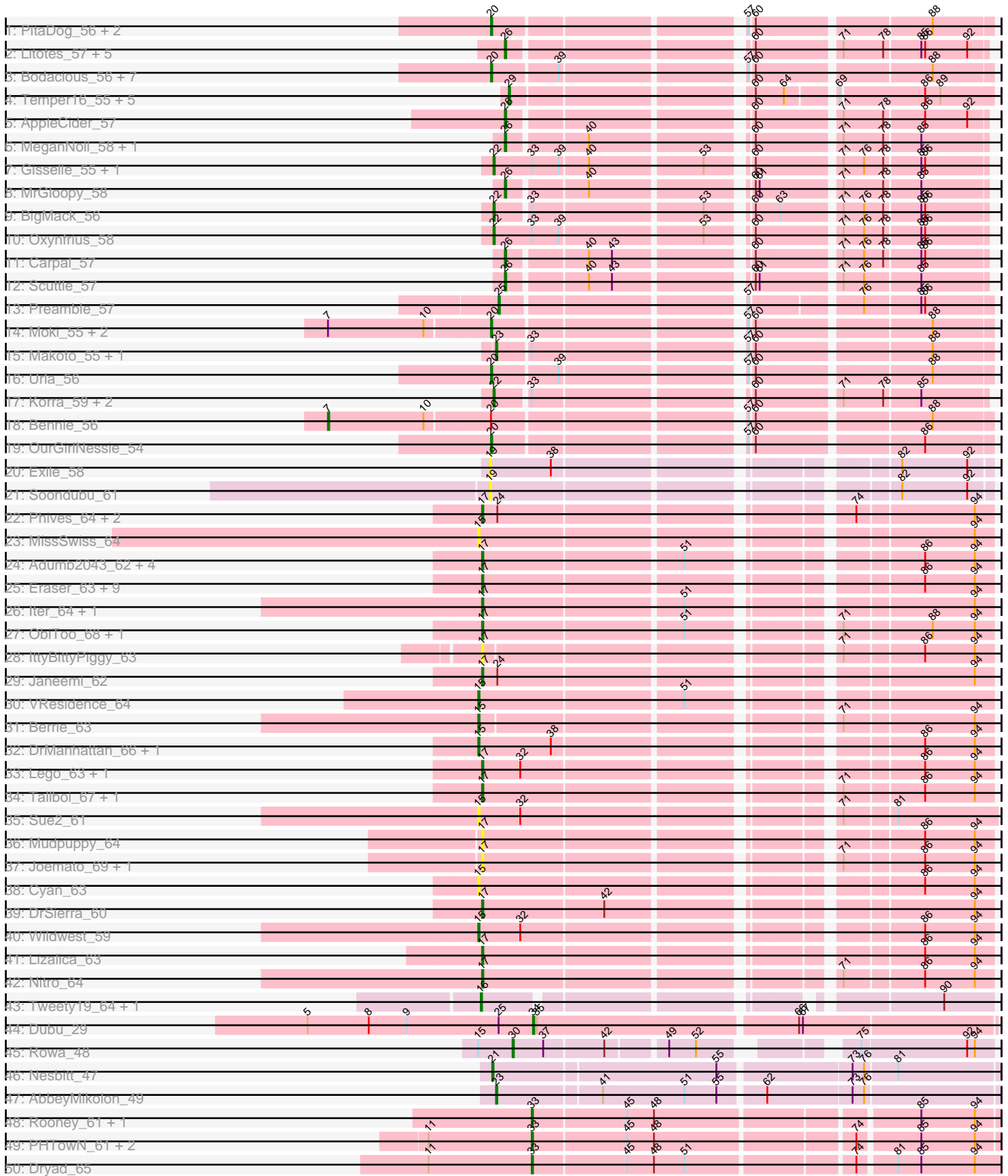
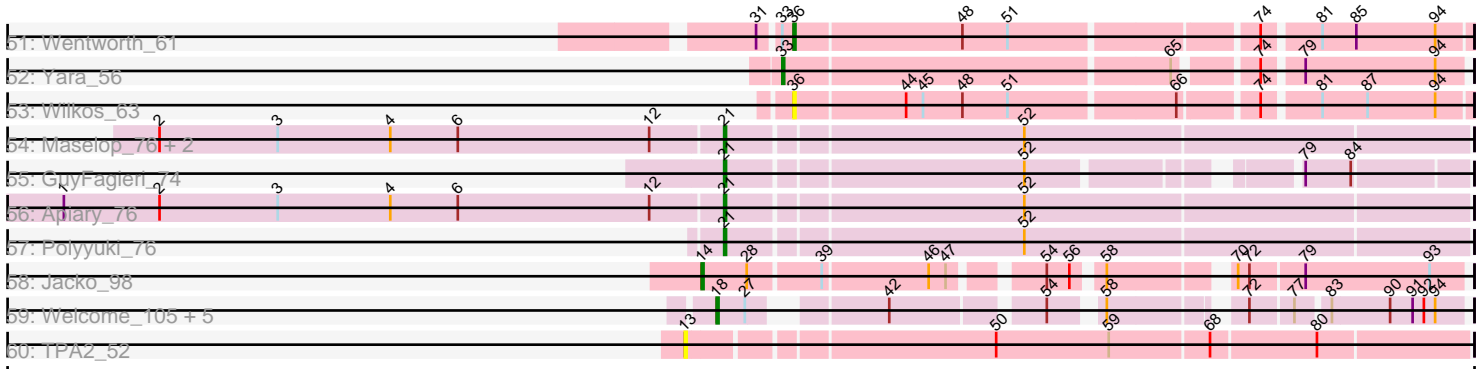


Pham 157715



Pham 157715



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 157715 Report

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

Pham number 157715 has 118 members, 21 are drafts.

Phages represented in each track:

- Track 1 : PitaDog\_56, Christian\_56, Pterodactyl\_56
- Track 2 : Litotes\_57, PartyCup\_63, CallieOMalley\_58, Suppi\_58, Canowicakte\_58, Wayne\_60
- Track 3 : Bodacious\_56, Lucy\_55, Lennox\_56, ChewChew\_56, CristinaYang\_56, Lasagna\_54, LilStuart\_55, Nancia\_56
- Track 4 : Temper16\_55, Maria1952\_54, Daiboju\_55, Sergei\_55, KingBob\_55, Herb\_55
- Track 5 : AppleCider\_57
- Track 6 : MeganNoll\_58, RAP15\_59
- Track 7 : Gisselle\_55, DreamTeam\_55
- Track 8 : MrGloopy\_58
- Track 9 : BigMack\_56
- Track 10 : Oxynfrius\_58
- Track 11 : Carpal\_57
- Track 12 : Scuttle\_57
- Track 13 : Preamble\_57
- Track 14 : Moki\_55, Huckleberry\_55, HeadNerd\_55
- Track 15 : Makoto\_55, DrRobert\_54
- Track 16 : Urla\_56
- Track 17 : Korra\_59, Fluke\_58, Glenn\_59
- Track 18 : Bennie\_56
- Track 19 : OurGirlNessie\_54
- Track 20 : Exile\_58
- Track 21 : Soondubu\_61
- Track 22 : Phives\_64, Community\_63, Tuck\_63
- Track 23 : MissSwiss\_64
- Track 24 : Adumb2043\_62, Turab\_62, Jstan\_64, AEgle\_61, Elezi\_62
- Track 25 : Eraser\_63, YesChef\_63, Asa16\_63, London\_63, AGrandiflora\_65, Niobe\_63, Tutumahutu\_65, Tbone\_63, Powerpuff\_65, Warda\_64
- Track 26 : Iter\_64, Ascela\_65
- Track 27 : ObiToo\_68, Crewmate\_68
- Track 28 : IttyBittyPiggy\_63
- Track 29 : Janeemi\_62
- Track 30 : VResidence\_64
- Track 31 : Berrie\_63
- Track 32 : DrManhattan\_66, Adolin\_65
- Track 33 : Lego\_63, Kaylissa\_65

- Track 34 : Tallboi\_67, JohnDoe\_64
- Track 35 : Sue2\_61
- Track 36 : Mudpuppy\_64
- Track 37 : Joemato\_69, Simpson\_69
- Track 38 : Cyan\_63
- Track 39 : DrSierra\_60
- Track 40 : Wildwest\_59
- Track 41 : Lizalica\_63
- Track 42 : Nitro\_64
- Track 43 : Tweety19\_64, Snek\_63
- Track 44 : Dubu\_29
- Track 45 : Rowa\_48
- Track 46 : Nesbitt\_47
- Track 47 : AbbeyMikolon\_49
- Track 48 : Rooney\_61, Gibson\_61
- Track 49 : PHTowN\_61, Lizz\_61, ShakeNBake\_61
- Track 50 : Dryad\_65
- Track 51 : Wentworth\_61
- Track 52 : Yara\_56
- Track 53 : Wilkos\_63
- Track 54 : Maselep\_76, CoffeeBean\_77, Braxoaddie\_76
- Track 55 : GuyFagieri\_74
- Track 56 : Apiary\_76
- Track 57 : Polyzuki\_76
- Track 58 : Jacko\_98
- Track 59 : Welcome\_105, ASegato\_101, Necrophoxinus\_105, StevieWelch\_103, Fork\_99, Erenyeager\_103
- Track 60 : TPA2\_52

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

The start number called the most often in the published annotations is 17, it was called in 23 of the 97 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AEgle\_61, AGrandiflora\_65, Adumb2043\_62, Asa16\_63, Ascela\_65, Community\_63, Crewmate\_68, DrSierra\_60, Elezi\_62, Eraser\_63, Iter\_64, IttyBittyPiggy\_63, Janeemi\_62, Joemato\_69, JohnDoe\_64, Jstan\_64, Kaylissa\_65, Lego\_63, Lizalica\_63, London\_63, Mudpuppy\_64, Niobe\_63, Nitro\_64, ObiToo\_68, Phives\_64, Powerpuff\_65, Simpson\_69, Tallboi\_67, Tbone\_63, Tuck\_63, Turab\_62, Tutumahutu\_65, Warda\_64, YesChef\_63,

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

- 

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

- ASegato\_101, AbbeyMikolon\_49, Adolin\_65, Apiary\_76, AppleCider\_57, Bennie\_56, Berrie\_63, BigMack\_56, Bodacious\_56, Braxoaddie\_76, CallieOMalley\_58, Canowicakte\_58, Carpal\_57, ChewChew\_56, Christian\_56, CoffeeBean\_77, CristinaYang\_56, Cyan\_63, Daiboju\_55, DrManhattan\_66,

DrRobert\_54, DreamTeam\_55, Dryad\_65, Dubu\_29, Erenyeager\_103, Exile\_58, Fluke\_58, Fork\_99, Gibson\_61, Gisselle\_55, Glenn\_59, GuyFagieri\_74, HeadNerd\_55, Herb\_55, Huckleberry\_55, Jacko\_98, KingBob\_55, Korra\_59, Lasagna\_54, Lennox\_56, LilStuart\_55, Litotes\_57, Lizz\_61, Lucy\_55, Makoto\_55, Maria1952\_54, Maselop\_76, MeganNoll\_58, MissSwiss\_64, Moki\_55, MrGloopy\_58, Nancia\_56, Necrophoxinus\_105, Nesbitt\_47, OurGirlNessie\_54, Oxynfrius\_58, PHTowN\_61, PartyCup\_63, PitaDog\_56, Polyuyuki\_76, Preamble\_57, Pterodactyl\_56, RAP15\_59, Rooney\_61, Rowa\_48, Scuttle\_57, Sergei\_55, ShakeNBake\_61, SneK\_63, Soondubu\_61, StevieWelch\_103, Sue2\_61, Suppi\_58, TPA2\_52, Temper16\_55, Tweety19\_64, Urla\_56, VResidence\_64, Wayne\_60, Welcome\_105, Wentworth\_61, Wildwest\_59, Wilkos\_63, Yara\_56,

### Summary by start number:

#### Start 7:

- Found in 4 of 118 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Bennie\_56 (AK),

#### Start 13:

- Found in 1 of 118 ( 0.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TPA2\_52 (singleton),

#### Start 14:

- Found in 1 of 118 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jacko\_98 (ED1),

#### Start 15:

- Found in 9 of 118 ( 7.6% ) of genes in pham
- Manual Annotations of this start: 5 of 97
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Adolin\_65 (AZ1), Berrie\_63 (AZ1), Cyan\_63 (AZ1), DrManhattan\_66 (AZ1), MissSwiss\_64 (AZ1), Sue2\_61 (AZ1), VResidence\_64 (AZ1), Wildwest\_59 (AZ1),

#### Start 16:

- Found in 2 of 118 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 2 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SneK\_63 (AZ3), Tweety19\_64 (AZ3),

#### Start 17:

- Found in 34 of 118 ( 28.8% ) of genes in pham
- Manual Annotations of this start: 23 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AEgle\_61 (AZ1), AGrandiflora\_65 (AZ1), Adumb2043\_62 (AZ1), Asa16\_63 (AZ1), Ascela\_65 (AZ1), Community\_63 (AZ1), Crewmate\_68 (AZ1), DrSierra\_60 (AZ1), Elezi\_62 (AZ1), Eraser\_63 (AZ1), Iter\_64

(AZ1), IttyBittyPiggy\_63 (AZ1), Janeemi\_62 (AZ1), Joemato\_69 (AZ1), JohnDoe\_64 (AZ1), Jstan\_64 (AZ1), Kaylissa\_65 (AZ1), Lego\_63 (AZ1), Lizalica\_63 (AZ1), London\_63 (AZ1), Mudpuppy\_64 (AZ1), Niobe\_63 (AZ1), Nitro\_64 (AZ1), ObiToo\_68 (AZ1), Phives\_64 (AZ1), Powerpuff\_65 (AZ1), Simpson\_69 (AZ1), Tallboi\_67 (AZ1), Tbone\_63 (AZ1), Tuck\_63 (AZ1), Turab\_62 (AZ1), Tutumahutu\_65 (AZ1), Warda\_64 (AZ1), YesChef\_63 (AZ1),

#### Start 18:

- Found in 6 of 118 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 5 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ASegato\_101 (ED2), Erenyeager\_103 (ED2), Fork\_99 (ED2), Necrophoxinus\_105 (ED2), StevieWelch\_103 (ED2), Welcome\_105 (ED2),

#### Start 19:

- Found in 2 of 118 ( 1.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Exile\_58 (AZ), Soondubu\_61 (AZ),

#### Start 20:

- Found in 17 of 118 ( 14.4% ) of genes in pham
- Manual Annotations of this start: 16 of 97
- Called 94.1% of time when present
- Phage (with cluster) where this start called: Bodacious\_56 (AK), ChewChew\_56 (AK), Christian\_56 (AK), CristinaYang\_56 (AK), HeadNerd\_55 (AK), Huckleberry\_55 (AK), Lasagna\_54 (AK), Lennox\_56 (AK), LilStuart\_55 (AK), Lucy\_55 (AK), Moki\_55 (AK), Nancia\_56 (AK), OurGirlNessie\_54 (AK), PitaDog\_56 (AK), Pterodactyl\_56 (AK), Urla\_56 (AK),

#### Start 21:

- Found in 7 of 118 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 6 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Apiary\_76 (CR), Braxoaddie\_76 (CR), CoffeeBean\_77 (CR), GuyFagieri\_74 (CR), Maselop\_76 (CR), Nesbitt\_47 (BL), Polyuyuki\_76 (CR),

#### Start 22:

- Found in 7 of 118 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 7 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BigMack\_56 (AK), DreamTeam\_55 (AK), Fluke\_58 (AK), Gisselle\_55 (AK), Glenn\_59 (AK), Korra\_59 (AK), Oxynfrius\_58 (AK),

#### Start 23:

- Found in 3 of 118 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 3 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbeyMikolon\_49 (BL), DrRobert\_54 (AK), Makoto\_55 (AK),

Start 25:

- Found in 2 of 118 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Preamble\_57 (AK),

Start 26:

- Found in 12 of 118 ( 10.2% ) of genes in pham
- Manual Annotations of this start: 11 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AppleCider\_57 (AK), CallieOMalley\_58 (AK), Canowicakte\_58 (AK), Carpal\_57 (AK), Litotes\_57 (AK), MeganNoll\_58 (AK), MrGloopy\_58 (AK), PartyCup\_63 (AK), RAP15\_59 (AK), Scuttle\_57 (AK), Suppi\_58 (AK), Wayne\_60 (AK),

Start 29:

- Found in 6 of 118 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 6 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Daiboju\_55 (AK), Herb\_55 (AK), KingBob\_55 (AK), Maria1952\_54 (AK), Sergei\_55 (AK), Temper16\_55 (AK),

Start 30:

- Found in 1 of 118 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rowa\_48 (BL),

Start 33:

- Found in 17 of 118 ( 14.4% ) of genes in pham
- Manual Annotations of this start: 7 of 97
- Called 41.2% of time when present
- Phage (with cluster) where this start called: Dryad\_65 (BN), Gibson\_61 (BN), Lizz\_61 (BN), PHTown\_61 (BN), Rooney\_61 (BN), ShakeNBake\_61 (BN), Yara\_56 (BN),

Start 34:

- Found in 1 of 118 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dubu\_29 (BJ),

Start 36:

- Found in 2 of 118 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Wentworth\_61 (BN), Wilkos\_63 (BN),

**Summary by clusters:**

There are 11 clusters represented in this pham: singleton, AZ, BL, AK, BJ, ED2, ED1, CR, AZ1, AZ3, BN,

Info for manual annotations of cluster AK:

- Start number 7 was manually annotated 1 time for cluster AK.
- Start number 20 was manually annotated 16 times for cluster AK.
- Start number 22 was manually annotated 7 times for cluster AK.
- Start number 23 was manually annotated 2 times for cluster AK.
- Start number 25 was manually annotated 1 time for cluster AK.
- Start number 26 was manually annotated 11 times for cluster AK.
- Start number 29 was manually annotated 6 times for cluster AK.

Info for manual annotations of cluster AZ1:

- Start number 15 was manually annotated 5 times for cluster AZ1.
- Start number 17 was manually annotated 23 times for cluster AZ1.

Info for manual annotations of cluster AZ3:

- Start number 16 was manually annotated 2 times for cluster AZ3.

Info for manual annotations of cluster BJ:

- Start number 34 was manually annotated 1 time for cluster BJ.

Info for manual annotations of cluster BL:

- Start number 21 was manually annotated 1 time for cluster BL.
- Start number 23 was manually annotated 1 time for cluster BL.
- Start number 30 was manually annotated 1 time for cluster BL.

Info for manual annotations of cluster BN:

- Start number 33 was manually annotated 7 times for cluster BN.
- Start number 36 was manually annotated 1 time for cluster BN.

Info for manual annotations of cluster CR:

- Start number 21 was manually annotated 5 times for cluster CR.

Info for manual annotations of cluster ED1:

- Start number 14 was manually annotated 1 time for cluster ED1.

Info for manual annotations of cluster ED2:

- Start number 18 was manually annotated 5 times for cluster ED2.

### ***Gene Information:***

Gene: AEgle\_61 Start: 41138, Stop: 41494, Start Num: 17

Candidate Starts for AEgle\_61:

(Start: 17 @41138 has 23 MA's), (51, 41288), (86, 41441), (94, 41480),

Gene: AGrandiflora\_65 Start: 42034, Stop: 42390, Start Num: 17

Candidate Starts for AGrandiflora\_65:

(Start: 17 @42034 has 23 MA's), (86, 42337), (94, 42376),

Gene: ASegato\_101 Start: 54171, Stop: 53848, Start Num: 18

Candidate Starts for ASegato\_101:



(Start: 18 @54171 has 5 MA's), (27, 54156), (42, 54102), (54, 54030), (58, 54009), (72, 53952), (77, 53931), (83, 53916), (90, 53886), (91, 53874), (92, 53868), (94, 53862),

Gene: AbbeyMikolon\_49 Start: 34450, Stop: 34821, Start Num: 23

Candidate Starts for AbbeyMikolon\_49:

(Start: 23 @34450 has 3 MA's), (41, 34528), (51, 34591), (55, 34615), (62, 34648), (73, 34711), (76, 34720),

Gene: Adolin\_65 Start: 40925, Stop: 41284, Start Num: 15

Candidate Starts for Adolin\_65:

(Start: 15 @40925 has 5 MA's), (38, 40982), (86, 41231), (94, 41270),

Gene: Adumb2043\_62 Start: 41162, Stop: 41518, Start Num: 17

Candidate Starts for Adumb2043\_62:

(Start: 17 @41162 has 23 MA's), (51, 41312), (86, 41465), (94, 41504),

Gene: Apiary\_76 Start: 55270, Stop: 54890, Start Num: 21

Candidate Starts for Apiary\_76:

(1, 55618), (2, 55567), (3, 55504), (4, 55444), (6, 55408), (12, 55306), (Start: 21 @55270 has 6 MA's), (52, 55120),

Gene: AppleCider\_57 Start: 41677, Stop: 42012, Start Num: 26

Candidate Starts for AppleCider\_57:

(Start: 26 @41677 has 11 MA's), (60, 41845), (71, 41905), (78, 41935), (86, 41965), (92, 41998),

Gene: Asa16\_63 Start: 41723, Stop: 42079, Start Num: 17

Candidate Starts for Asa16\_63:

(Start: 17 @41723 has 23 MA's), (86, 42026), (94, 42065),

Gene: Ascela\_65 Start: 42214, Stop: 42570, Start Num: 17

Candidate Starts for Ascela\_65:

(Start: 17 @42214 has 23 MA's), (51, 42364), (94, 42556),

Gene: Bennie\_56 Start: 40399, Stop: 40872, Start Num: 7

Candidate Starts for Bennie\_56:

(Start: 7 @40399 has 1 MA's), (10, 40474), (Start: 20 @40522 has 16 MA's), (57, 40699), (60, 40702), (88, 40828),

Gene: Berrie\_63 Start: 41818, Stop: 42174, Start Num: 15

Candidate Starts for Berrie\_63:

(Start: 15 @41818 has 5 MA's), (71, 42064), (94, 42160),

Gene: BigMack\_56 Start: 40973, Stop: 41317, Start Num: 22

Candidate Starts for BigMack\_56:

(Start: 22 @40973 has 7 MA's), (Start: 33 @40997 has 7 MA's), (53, 41123), (60, 41150), (63, 41168), (71, 41210), (76, 41225), (78, 41240), (85, 41267), (86, 41270),

Gene: Bodacious\_56 Start: 40944, Stop: 41294, Start Num: 20

Candidate Starts for Bodacious\_56:

(Start: 20 @40944 has 16 MA's), (39, 40992), (57, 41121), (60, 41124), (88, 41250),

Gene: Braxoaddie\_76 Start: 55255, Stop: 54875, Start Num: 21

Candidate Starts for Braxoaddie\_76:

(2, 55552), (3, 55489), (4, 55429), (6, 55393), (12, 55291), (Start: 21 @55255 has 6 MA's), (52, 55105),

Gene: CallieOMalley\_58 Start: 41865, Stop: 42200, Start Num: 26

Candidate Starts for CallieOMalley\_58:

(Start: 26 @41865 has 11 MA's), (60, 42033), (71, 42093), (78, 42123), (85, 42150), (86, 42153), (92, 42186),

Gene: Canowicakte\_58 Start: 41917, Stop: 42252, Start Num: 26

Candidate Starts for Canowicakte\_58:

(Start: 26 @41917 has 11 MA's), (60, 42085), (71, 42145), (78, 42175), (85, 42202), (86, 42205), (92, 42238),

Gene: Carpal\_57 Start: 41744, Stop: 42079, Start Num: 26

Candidate Starts for Carpal\_57:

(Start: 26 @41744 has 11 MA's), (40, 41801), (43, 41819), (60, 41912), (71, 41972), (76, 41987), (78, 42002), (85, 42029), (86, 42032),

Gene: ChewChew\_56 Start: 41074, Stop: 41424, Start Num: 20

Candidate Starts for ChewChew\_56:

(Start: 20 @41074 has 16 MA's), (39, 41122), (57, 41251), (60, 41254), (88, 41380),

Gene: Christian\_56 Start: 40786, Stop: 41136, Start Num: 20

Candidate Starts for Christian\_56:

(Start: 20 @40786 has 16 MA's), (57, 40963), (60, 40966), (88, 41092),

Gene: CoffeeBean\_77 Start: 55213, Stop: 54833, Start Num: 21

Candidate Starts for CoffeeBean\_77:

(2, 55510), (3, 55447), (4, 55387), (6, 55351), (12, 55249), (Start: 21 @55213 has 6 MA's), (52, 55063),

Gene: Community\_63 Start: 42094, Stop: 42450, Start Num: 17

Candidate Starts for Community\_63:

(Start: 17 @42094 has 23 MA's), (24, 42106), (74, 42349), (94, 42436),

Gene: Crewmate\_68 Start: 42445, Stop: 42801, Start Num: 17

Candidate Starts for Crewmate\_68:

(Start: 17 @42445 has 23 MA's), (51, 42595), (71, 42691), (88, 42754), (94, 42787),

Gene: CristinaYang\_56 Start: 41071, Stop: 41421, Start Num: 20

Candidate Starts for CristinaYang\_56:

(Start: 20 @41071 has 16 MA's), (39, 41119), (57, 41248), (60, 41251), (88, 41377),

Gene: Cyan\_63 Start: 41775, Stop: 42134, Start Num: 15

Candidate Starts for Cyan\_63:

(Start: 15 @41775 has 5 MA's), (86, 42081), (94, 42120),

Gene: Daiboju\_55 Start: 41677, Stop: 42018, Start Num: 29

Candidate Starts for Daiboju\_55:

(Start: 29 @41677 has 6 MA's), (60, 41848), (64, 41869), (69, 41902), (86, 41965), (89, 41977),

Gene: DrManhattan\_66 Start: 40479, Stop: 40838, Start Num: 15

Candidate Starts for DrManhattan\_66:

(Start: 15 @40479 has 5 MA's), (38, 40536), (86, 40785), (94, 40824),

Gene: DrRobert\_54 Start: 40308, Stop: 40655, Start Num: 23

Candidate Starts for DrRobert\_54:

(Start: 23 @40308 has 3 MA's), (Start: 33 @40332 has 7 MA's), (57, 40482), (60, 40485), (88, 40611),

Gene: DrSierra\_60 Start: 40611, Stop: 40967, Start Num: 17

Candidate Starts for DrSierra\_60:

(Start: 17 @40611 has 23 MA's), (42, 40704), (94, 40953),

Gene: DreamTeam\_55 Start: 40683, Stop: 41033, Start Num: 22

Candidate Starts for DreamTeam\_55:

(Start: 22 @40683 has 7 MA's), (Start: 33 @40713 has 7 MA's), (39, 40734), (40, 40755), (53, 40839), (60, 40866), (71, 40926), (76, 40941), (78, 40956), (85, 40983), (86, 40986),

Gene: Dryad\_65 Start: 44270, Stop: 43926, Start Num: 33

Candidate Starts for Dryad\_65:

(11, 44351), (Start: 33 @44270 has 7 MA's), (45, 44198), (48, 44177), (51, 44153), (74, 44033), (81, 44006), (85, 43988), (94, 43946),

Gene: Dubu\_29 Start: 22724, Stop: 23071, Start Num: 34

Candidate Starts for Dubu\_29:

(5, 22547), (8, 22595), (9, 22625), (Start: 25 @22697 has 1 MA's), (Start: 34 @22724 has 1 MA's), (35, 22727), (66, 22922), (67, 22925),

Gene: Elezi\_62 Start: 41480, Stop: 41836, Start Num: 17

Candidate Starts for Elezi\_62:

(Start: 17 @41480 has 23 MA's), (51, 41630), (86, 41783), (94, 41822),

Gene: Eraser\_63 Start: 41730, Stop: 42086, Start Num: 17

Candidate Starts for Eraser\_63:

(Start: 17 @41730 has 23 MA's), (86, 42033), (94, 42072),

Gene: Erenyeager\_103 Start: 54096, Stop: 53773, Start Num: 18

Candidate Starts for Erenyeager\_103:

(Start: 18 @54096 has 5 MA's), (27, 54081), (42, 54027), (54, 53955), (58, 53934), (72, 53877), (77, 53856), (83, 53841), (90, 53811), (91, 53799), (92, 53793), (94, 53787),

Gene: Exile\_58 Start: 42771, Stop: 43118, Start Num: 19

Candidate Starts for Exile\_58:

(19, 42771), (38, 42819), (82, 43050), (92, 43101),

Gene: Fluke\_58 Start: 42001, Stop: 42345, Start Num: 22

Candidate Starts for Fluke\_58:

(Start: 22 @42001 has 7 MA's), (Start: 33 @42025 has 7 MA's), (60, 42178), (71, 42238), (78, 42268), (85, 42295),

Gene: Fork\_99 Start: 54049, Stop: 53726, Start Num: 18

Candidate Starts for Fork\_99:

(Start: 18 @54049 has 5 MA's), (27, 54034), (42, 53980), (54, 53908), (58, 53887), (72, 53830), (77, 53809), (83, 53794), (90, 53764), (91, 53752), (92, 53746), (94, 53740),

Gene: Gibson\_61 Start: 43510, Stop: 43169, Start Num: 33

Candidate Starts for Gibson\_61:

(Start: 33 @43510 has 7 MA's), (45, 43438), (48, 43417), (85, 43228), (94, 43186),

Gene: Gisselle\_55 Start: 40683, Stop: 41033, Start Num: 22

Candidate Starts for Gisselle\_55:

(Start: 22 @40683 has 7 MA's), (Start: 33 @40713 has 7 MA's), (39, 40734), (40, 40755), (53, 40839), (60, 40866), (71, 40926), (76, 40941), (78, 40956), (85, 40983), (86, 40986),

Gene: Glenn\_59 Start: 42462, Stop: 42806, Start Num: 22

Candidate Starts for Glenn\_59:

(Start: 22 @42462 has 7 MA's), (Start: 33 @42486 has 7 MA's), (60, 42639), (71, 42699), (78, 42729), (85, 42756),

Gene: GuyFagieri\_74 Start: 55043, Stop: 54696, Start Num: 21

Candidate Starts for GuyFagieri\_74:

(Start: 21 @55043 has 6 MA's), (52, 54893), (79, 54776), (84, 54752),

Gene: HeadNerd\_55 Start: 40416, Stop: 40766, Start Num: 20

Candidate Starts for HeadNerd\_55:

(Start: 7 @40293 has 1 MA's), (10, 40368), (Start: 20 @40416 has 16 MA's), (57, 40593), (60, 40596), (88, 40722),

Gene: Herb\_55 Start: 41676, Stop: 42017, Start Num: 29

Candidate Starts for Herb\_55:

(Start: 29 @41676 has 6 MA's), (60, 41847), (64, 41868), (69, 41901), (86, 41964), (89, 41976),

Gene: Huckleberry\_55 Start: 40420, Stop: 40770, Start Num: 20

Candidate Starts for Huckleberry\_55:

(Start: 7 @40297 has 1 MA's), (10, 40372), (Start: 20 @40420 has 16 MA's), (57, 40597), (60, 40600), (88, 40726),

Gene: Iter\_64 Start: 41985, Stop: 42341, Start Num: 17

Candidate Starts for Iter\_64:

(Start: 17 @41985 has 23 MA's), (51, 42135), (94, 42327),

Gene: IttyBittyPiggy\_63 Start: 40207, Stop: 40560, Start Num: 17

Candidate Starts for IttyBittyPiggy\_63:

(Start: 17 @40207 has 23 MA's), (71, 40450), (86, 40507), (94, 40546),

Gene: Jacko\_98 Start: 53745, Stop: 53389, Start Num: 14

Candidate Starts for Jacko\_98:

(Start: 14 @53745 has 1 MA's), (28, 53721), (39, 53685), (46, 53631), (47, 53622), (54, 53583), (56, 53571), (58, 53559), (70, 53505), (72, 53499), (79, 53472), (93, 53406),

Gene: Janeemi\_62 Start: 41595, Stop: 41951, Start Num: 17

Candidate Starts for Janeemi\_62:

(Start: 17 @41595 has 23 MA's), (24, 41607), (94, 41937),

Gene: Joemato\_69 Start: 41955, Stop: 42311, Start Num: 17

Candidate Starts for Joemato\_69:

(Start: 17 @41955 has 23 MA's), (71, 42201), (86, 42258), (94, 42297),

Gene: JohnDoe\_64 Start: 41872, Stop: 42228, Start Num: 17

Candidate Starts for JohnDoe\_64:

(Start: 17 @41872 has 23 MA's), (71, 42118), (86, 42175), (94, 42214),

Gene: Jstan\_64 Start: 41484, Stop: 41840, Start Num: 17

Candidate Starts for Jstan\_64:

(Start: 17 @41484 has 23 MA's), (51, 41634), (86, 41787), (94, 41826),

Gene: Kaylissa\_65 Start: 42234, Stop: 42590, Start Num: 17

Candidate Starts for Kaylissa\_65:

(Start: 17 @42234 has 23 MA's), (32, 42264), (86, 42537), (94, 42576),

Gene: KingBob\_55 Start: 41677, Stop: 42018, Start Num: 29

Candidate Starts for KingBob\_55:

(Start: 29 @41677 has 6 MA's), (60, 41848), (64, 41869), (69, 41902), (86, 41965), (89, 41977),

Gene: Korra\_59 Start: 41736, Stop: 42080, Start Num: 22

Candidate Starts for Korra\_59:

(Start: 22 @41736 has 7 MA's), (Start: 33 @41760 has 7 MA's), (60, 41913), (71, 41973), (78, 42003), (85, 42030),

Gene: Lasagna\_54 Start: 40307, Stop: 40657, Start Num: 20

Candidate Starts for Lasagna\_54:

(Start: 20 @40307 has 16 MA's), (39, 40355), (57, 40484), (60, 40487), (88, 40613),

Gene: Lego\_63 Start: 41553, Stop: 41909, Start Num: 17

Candidate Starts for Lego\_63:

(Start: 17 @41553 has 23 MA's), (32, 41583), (86, 41856), (94, 41895),

Gene: Lennox\_56 Start: 40792, Stop: 41142, Start Num: 20

Candidate Starts for Lennox\_56:

(Start: 20 @40792 has 16 MA's), (39, 40840), (57, 40969), (60, 40972), (88, 41098),

Gene: LilStuart\_55 Start: 40655, Stop: 41005, Start Num: 20

Candidate Starts for LilStuart\_55:

(Start: 20 @40655 has 16 MA's), (39, 40703), (57, 40832), (60, 40835), (88, 40961),

Gene: Litotes\_57 Start: 41464, Stop: 41799, Start Num: 26

Candidate Starts for Litotes\_57:

(Start: 26 @41464 has 11 MA's), (60, 41632), (71, 41692), (78, 41722), (85, 41749), (86, 41752), (92, 41785),

Gene: Lizalica\_63 Start: 41149, Stop: 41505, Start Num: 17

Candidate Starts for Lizalica\_63:

(Start: 17 @41149 has 23 MA's), (86, 41452), (94, 41491),

Gene: Lizz\_61 Start: 43350, Stop: 43009, Start Num: 33

Candidate Starts for Lizz\_61:

(11, 43431), (Start: 33 @43350 has 7 MA's), (45, 43278), (48, 43257), (74, 43113), (85, 43068), (94, 43026),

Gene: London\_63 Start: 41721, Stop: 42077, Start Num: 17

Candidate Starts for London\_63:

(Start: 17 @41721 has 23 MA's), (86, 42024), (94, 42063),

Gene: Lucy\_55 Start: 40650, Stop: 41000, Start Num: 20

Candidate Starts for Lucy\_55:

(Start: 20 @40650 has 16 MA's), (39, 40698), (57, 40827), (60, 40830), (88, 40956),

Gene: Makoto\_55 Start: 40551, Stop: 40898, Start Num: 23

Candidate Starts for Makoto\_55:

(Start: 23 @40551 has 3 MA's), (Start: 33 @40575 has 7 MA's), (57, 40725), (60, 40728), (88, 40854),

Gene: Maria1952\_54 Start: 41676, Stop: 42017, Start Num: 29

Candidate Starts for Maria1952\_54:

(Start: 29 @41676 has 6 MA's), (60, 41847), (64, 41868), (69, 41901), (86, 41964), (89, 41976),

Gene: Maselop\_76 Start: 55289, Stop: 54909, Start Num: 21

Candidate Starts for Maselop\_76:

(2, 55586), (3, 55523), (4, 55463), (6, 55427), (12, 55325), (Start: 21 @55289 has 6 MA's), (52, 55139),

Gene: MeganNoll\_58 Start: 42247, Stop: 42582, Start Num: 26

Candidate Starts for MeganNoll\_58:

(Start: 26 @42247 has 11 MA's), (40, 42304), (60, 42415), (71, 42475), (78, 42505), (85, 42532),

Gene: MissSwiss\_64 Start: 40483, Stop: 40842, Start Num: 15

Candidate Starts for MissSwiss\_64:

(Start: 15 @40483 has 5 MA's), (94, 40828),

Gene: Moki\_55 Start: 40609, Stop: 40959, Start Num: 20

Candidate Starts for Moki\_55:

(Start: 7 @40486 has 1 MA's), (10, 40561), (Start: 20 @40609 has 16 MA's), (57, 40786), (60, 40789), (88, 40915),

Gene: MrGloopy\_58 Start: 41899, Stop: 42234, Start Num: 26

Candidate Starts for MrGloopy\_58:

(Start: 26 @41899 has 11 MA's), (40, 41956), (60, 42067), (61, 42070), (71, 42127), (78, 42157), (85, 42184),

Gene: Mudpuppy\_64 Start: 41921, Stop: 42277, Start Num: 17

Candidate Starts for Mudpuppy\_64:

(Start: 17 @41921 has 23 MA's), (86, 42224), (94, 42263),

Gene: Nancia\_56 Start: 40943, Stop: 41293, Start Num: 20

Candidate Starts for Nancia\_56:

(Start: 20 @40943 has 16 MA's), (39, 40991), (57, 41120), (60, 41123), (88, 41249),

Gene: Necrophoxinus\_105 Start: 54949, Stop: 54626, Start Num: 18

Candidate Starts for Necrophoxinus\_105:

(Start: 18 @54949 has 5 MA's), (27, 54934), (42, 54880), (54, 54808), (58, 54787), (72, 54730), (77, 54709), (83, 54694), (90, 54664), (91, 54652), (92, 54646), (94, 54640),

Gene: Nesbitt\_47 Start: 34330, Stop: 34704, Start Num: 21

Candidate Starts for Nesbitt\_47:

(Start: 21 @34330 has 6 MA's), (55, 34498), (73, 34594), (76, 34603), (81, 34627),

Gene: Niobe\_63 Start: 41724, Stop: 42080, Start Num: 17  
Candidate Starts for Niobe\_63:  
(Start: 17 @41724 has 23 MA's), (86, 42027), (94, 42066),

Gene: Nitro\_64 Start: 42421, Stop: 42777, Start Num: 17  
Candidate Starts for Nitro\_64:  
(Start: 17 @42421 has 23 MA's), (71, 42667), (86, 42724), (94, 42763),

Gene: ObiToo\_68 Start: 42061, Stop: 42417, Start Num: 17  
Candidate Starts for ObiToo\_68:  
(Start: 17 @42061 has 23 MA's), (51, 42211), (71, 42307), (88, 42370), (94, 42403),

Gene: OurGirlNessie\_54 Start: 40272, Stop: 40622, Start Num: 20  
Candidate Starts for OurGirlNessie\_54:  
(Start: 20 @40272 has 16 MA's), (57, 40449), (60, 40452), (86, 40572),

Gene: Oxynfrius\_58 Start: 42154, Stop: 42504, Start Num: 22  
Candidate Starts for Oxynfrius\_58:  
(Start: 22 @42154 has 7 MA's), (Start: 33 @42184 has 7 MA's), (39, 42205), (53, 42310), (60, 42337),  
(71, 42397), (76, 42412), (78, 42427), (85, 42454), (86, 42457),

Gene: PHTowN\_61 Start: 43348, Stop: 43007, Start Num: 33  
Candidate Starts for PHTowN\_61:  
(11, 43429), (Start: 33 @43348 has 7 MA's), (45, 43276), (48, 43255), (74, 43111), (85, 43066), (94,  
43024),

Gene: PartyCup\_63 Start: 42112, Stop: 42447, Start Num: 26  
Candidate Starts for PartyCup\_63:  
(Start: 26 @42112 has 11 MA's), (60, 42280), (71, 42340), (78, 42370), (85, 42397), (86, 42400), (92,  
42433),

Gene: Phives\_64 Start: 42209, Stop: 42565, Start Num: 17  
Candidate Starts for Phives\_64:  
(Start: 17 @42209 has 23 MA's), (24, 42221), (74, 42464), (94, 42551),

Gene: PitaDog\_56 Start: 40668, Stop: 41018, Start Num: 20  
Candidate Starts for PitaDog\_56:  
(Start: 20 @40668 has 16 MA's), (57, 40845), (60, 40848), (88, 40974),

Gene: Polyzuki\_76 Start: 55281, Stop: 54901, Start Num: 21  
Candidate Starts for Polyzuki\_76:  
(Start: 21 @55281 has 6 MA's), (52, 55131),

Gene: Powerpuff\_65 Start: 42757, Stop: 43113, Start Num: 17  
Candidate Starts for Powerpuff\_65:  
(Start: 17 @42757 has 23 MA's), (86, 43060), (94, 43099),

Gene: Preamble\_57 Start: 40868, Stop: 41209, Start Num: 25  
Candidate Starts for Preamble\_57:  
(Start: 25 @40868 has 1 MA's), (57, 41039), (76, 41114), (85, 41156), (86, 41159),

Gene: Pterodactyl\_56 Start: 40909, Stop: 41259, Start Num: 20  
Candidate Starts for Pterodactyl\_56:

(Start: 20 @40909 has 16 MA's), (57, 41086), (60, 41089), (88, 41215),

Gene: RAP15\_59 Start: 42248, Stop: 42583, Start Num: 26

Candidate Starts for RAP15\_59:

(Start: 26 @42248 has 11 MA's), (40, 42305), (60, 42416), (71, 42476), (78, 42506), (85, 42533),

Gene: Rooney\_61 Start: 43507, Stop: 43166, Start Num: 33

Candidate Starts for Rooney\_61:

(Start: 33 @43507 has 7 MA's), (45, 43435), (48, 43414), (85, 43225), (94, 43183),

Gene: Rowa\_48 Start: 34719, Stop: 35042, Start Num: 30

Candidate Starts for Rowa\_48:

(Start: 15 @34692 has 5 MA's), (Start: 30 @34719 has 1 MA's), (37, 34743), (42, 34788), (49, 34830), (52, 34851), (75, 34941), (92, 35022), (94, 35028),

Gene: Scuttle\_57 Start: 41927, Stop: 42262, Start Num: 26

Candidate Starts for Scuttle\_57:

(Start: 26 @41927 has 11 MA's), (40, 41984), (43, 42002), (60, 42095), (61, 42098), (71, 42155), (76, 42170), (85, 42212),

Gene: Sergei\_55 Start: 41677, Stop: 42018, Start Num: 29

Candidate Starts for Sergei\_55:

(Start: 29 @41677 has 6 MA's), (60, 41848), (64, 41869), (69, 41902), (86, 41965), (89, 41977),

Gene: ShakeNBake\_61 Start: 43366, Stop: 43025, Start Num: 33

Candidate Starts for ShakeNBake\_61:

(11, 43447), (Start: 33 @43366 has 7 MA's), (45, 43294), (48, 43273), (74, 43129), (85, 43084), (94, 43042),

Gene: Simpson\_69 Start: 41959, Stop: 42315, Start Num: 17

Candidate Starts for Simpson\_69:

(Start: 17 @41959 has 23 MA's), (71, 42205), (86, 42262), (94, 42301),

Gene: Snek\_63 Start: 39170, Stop: 39511, Start Num: 16

Candidate Starts for Snek\_63:

(Start: 16 @39170 has 2 MA's), (90, 39473),

Gene: Soondubu\_61 Start: 43780, Stop: 44127, Start Num: 19

Candidate Starts for Soondubu\_61:

(19, 43780), (82, 44059), (92, 44110),

Gene: StevieWelch\_103 Start: 54233, Stop: 53910, Start Num: 18

Candidate Starts for StevieWelch\_103:

(Start: 18 @54233 has 5 MA's), (27, 54218), (42, 54164), (54, 54092), (58, 54071), (72, 54014), (77, 53993), (83, 53978), (90, 53948), (91, 53936), (92, 53930), (94, 53924),

Gene: Sue2\_61 Start: 40180, Stop: 40542, Start Num: 15

Candidate Starts for Sue2\_61:

(Start: 15 @40180 has 5 MA's), (32, 40213), (71, 40429), (81, 40465),

Gene: Suppi\_58 Start: 41917, Stop: 42252, Start Num: 26

Candidate Starts for Suppi\_58:



(Start: 26 @41917 has 11 MA's), (60, 42085), (71, 42145), (78, 42175), (85, 42202), (86, 42205), (92, 42238),

Gene: TPA2\_52 Start: 39328, Stop: 38936, Start Num: 13  
Candidate Starts for TPA2\_52:  
(13, 39328), (50, 39178), (59, 39118), (68, 39067), (80, 39013),

Gene: Tallboi\_67 Start: 41726, Stop: 42082, Start Num: 17  
Candidate Starts for Tallboi\_67:  
(Start: 17 @41726 has 23 MA's), (71, 41972), (86, 42029), (94, 42068),

Gene: Tbone\_63 Start: 42208, Stop: 42564, Start Num: 17  
Candidate Starts for Tbone\_63:  
(Start: 17 @42208 has 23 MA's), (86, 42511), (94, 42550),

Gene: Temper16\_55 Start: 41677, Stop: 42018, Start Num: 29  
Candidate Starts for Temper16\_55:  
(Start: 29 @41677 has 6 MA's), (60, 41848), (64, 41869), (69, 41902), (86, 41965), (89, 41977),

Gene: Tuck\_63 Start: 41997, Stop: 42353, Start Num: 17  
Candidate Starts for Tuck\_63:  
(Start: 17 @41997 has 23 MA's), (24, 42009), (74, 42252), (94, 42339),

Gene: Turab\_62 Start: 41182, Stop: 41538, Start Num: 17  
Candidate Starts for Turab\_62:  
(Start: 17 @41182 has 23 MA's), (51, 41332), (86, 41485), (94, 41524),

Gene: Tutumahutu\_65 Start: 41800, Stop: 42156, Start Num: 17  
Candidate Starts for Tutumahutu\_65:  
(Start: 17 @41800 has 23 MA's), (86, 42103), (94, 42142),

Gene: Tweety19\_64 Start: 39171, Stop: 39512, Start Num: 16  
Candidate Starts for Tweety19\_64:  
(Start: 16 @39171 has 2 MA's), (90, 39474),

Gene: Urla\_56 Start: 41609, Stop: 41959, Start Num: 20  
Candidate Starts for Urla\_56:  
(Start: 20 @41609 has 16 MA's), (39, 41657), (57, 41786), (60, 41789), (88, 41915),

Gene: VResidence\_64 Start: 39888, Stop: 40247, Start Num: 15  
Candidate Starts for VResidence\_64:  
(Start: 15 @39888 has 5 MA's), (51, 40041),

Gene: Warda\_64 Start: 41934, Stop: 42290, Start Num: 17  
Candidate Starts for Warda\_64:  
(Start: 17 @41934 has 23 MA's), (86, 42237), (94, 42276),

Gene: Wayne\_60 Start: 42374, Stop: 42709, Start Num: 26  
Candidate Starts for Wayne\_60:  
(Start: 26 @42374 has 11 MA's), (60, 42542), (71, 42602), (78, 42632), (85, 42659), (86, 42662), (92, 42695),

Gene: Welcome\_105 Start: 54864, Stop: 54541, Start Num: 18

Candidate Starts for Welcome\_105:

(Start: 18 @54864 has 5 MA's), (27, 54849), (42, 54795), (54, 54723), (58, 54702), (72, 54645), (77, 54624), (83, 54609), (90, 54579), (91, 54567), (92, 54561), (94, 54555),

Gene: Wentworth\_61 Start: 43514, Stop: 43179, Start Num: 36

Candidate Starts for Wentworth\_61:

(31, 43529), (Start: 33 @43520 has 7 MA's), (Start: 36 @43514 has 1 MA's), (48, 43427), (51, 43403), (74, 43283), (81, 43256), (85, 43238), (94, 43196),

Gene: Wildwest\_59 Start: 41597, Stop: 41956, Start Num: 15

Candidate Starts for Wildwest\_59:

(Start: 15 @41597 has 5 MA's), (32, 41630), (86, 41903), (94, 41942),

Gene: Wilkos\_63 Start: 43658, Stop: 43323, Start Num: 36

Candidate Starts for Wilkos\_63:

(Start: 36 @43658 has 1 MA's), (44, 43601), (45, 43592), (48, 43571), (51, 43547), (66, 43463), (74, 43427), (81, 43400), (87, 43376), (94, 43340),

Gene: Yara\_56 Start: 41985, Stop: 41650, Start Num: 33

Candidate Starts for Yara\_56:

(Start: 33 @41985 has 7 MA's), (65, 41787), (74, 41751), (79, 41733), (94, 41664),

Gene: YesChef\_63 Start: 41616, Stop: 41972, Start Num: 17

Candidate Starts for YesChef\_63:

(Start: 17 @41616 has 23 MA's), (86, 41919), (94, 41958),