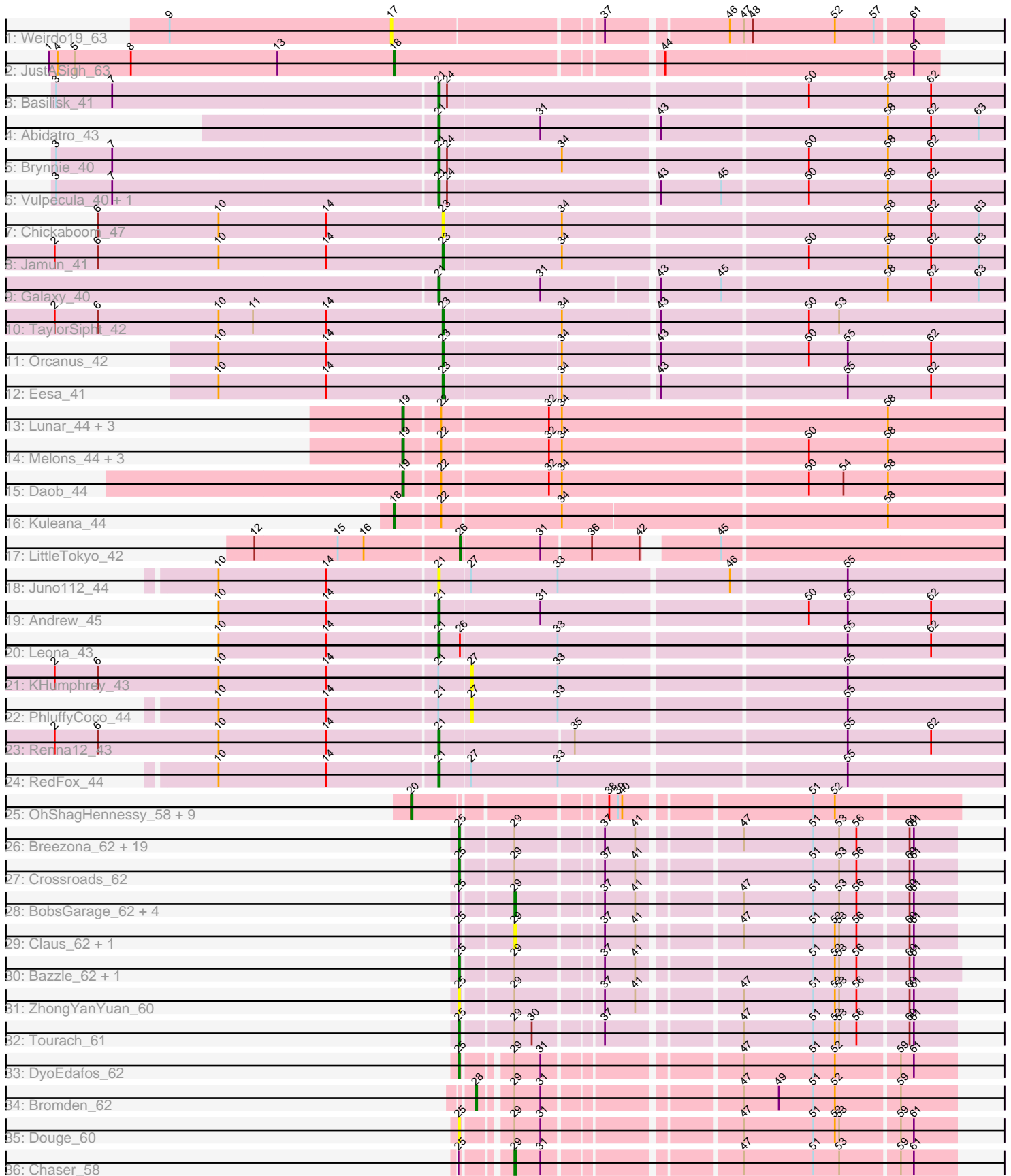


# Pham 132054



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 132054 Report

This analysis was run 04/28/24 on database version 559.

Pham number 132054 has 77 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Weirido19\_63
- Track 2 : JustASigh\_63
- Track 3 : Basilisk\_41
- Track 4 : Abidatro\_43
- Track 5 : Brynnie\_40
- Track 6 : Vulpecula\_40, Ruchi\_40
- Track 7 : Chickaboom\_47
- Track 8 : Jamun\_41
- Track 9 : Galaxy\_40
- Track 10 : TaylorSipht\_42
- Track 11 : Orcanus\_42
- Track 12 : Eesa\_41
- Track 13 : Lunar\_44, HannahPhantana\_50, Cote\_44, Amelia\_42
- Track 14 : Melons\_44, Kepler\_44, Coral\_42, Polka\_42
- Track 15 : Daob\_44
- Track 16 : Kuleana\_44
- Track 17 : LittleTokyo\_42
- Track 18 : Juno112\_44
- Track 19 : Andrew\_45
- Track 20 : Leona\_43
- Track 21 : KHumphrey\_43
- Track 22 : PhluffyCoco\_44
- Track 23 : Renna12\_43
- Track 24 : RedFox\_44
- Track 25 : OhShagHennessy\_58, Halena\_58, Wamburgxpress\_60, LeBron\_59, Calm\_61, Appletree2\_60, Zaria\_61, MAckerman\_58, UPIE\_60, DirkDirk\_57
- Track 26 : Breezona\_62, Finemlucis\_62, Rumpelstiltskin\_61, Gabriela\_59, BigCheese\_62, GuuelaD\_61, Netyap\_63, Faith1\_62, Wilder\_63, Gardann\_63, Vetrix\_62, Miley16\_62, Wigglewiggle\_62, Kahlid\_62, Nicholasp3\_62, Zakai\_63, Itos\_61, DrSeegs\_62, Loadrie\_61, Winky\_62
- Track 27 : Crossroads\_62
- Track 28 : BobsGarage\_62, MkaliMitinis3\_63, Lewan\_63, LilDestine\_62, Hafay\_63
- Track 29 : Claus\_62, Baoshan\_60
- Track 30 : Bazzle\_62, Archie\_62
- Track 31 : ZhongYanYuan\_60
- Track 32 : Tourach\_61
- Track 33 : DyoEdafos\_62

- Track 34 : Bromden\_62
- Track 35 : Douge\_60
- Track 36 : Chaser\_58

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

The start number called the most often in the published annotations is 25, it was called in 25 of the 65 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Archie\_62, Bazzle\_62, BigCheese\_62, Breezona\_62, Crossroads\_62, Douge\_60, DrSeegs\_62, DyoEdafos\_62, Faith1\_62, Finemlucis\_62, Gabriela\_59, Gardann\_63, GuuelaD\_61, Itos\_61, Kahlid\_62, Loadrie\_61, Miley16\_62, Netyap\_63, Nicholasp3\_62, Rumpelstiltskin\_61, Tourach\_61, Vetrix\_62, Wigglewiggle\_62, Wilder\_63, Winky\_62, Zakai\_63, ZhongYanYuan\_60,

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

- Baoshan\_60, BobsGarage\_62, Chaser\_58, Claus\_62, Hafay\_63, Lewan\_63, LilDestine\_62, MkaliMitinis3\_63,

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

- Abidatro\_43, Amelia\_42, Andrew\_45, Appletree2\_60, Basilisk\_41, Bromden\_62, Brynnie\_40, Calm\_61, Chickaboom\_47, Coral\_42, Cote\_44, Daob\_44, DirkDirk\_57, Eesa\_41, Galaxy\_40, Halena\_58, HannahPhantana\_50, Jamun\_41, Juno112\_44, JustASigh\_63, KHumphrey\_43, Kepler\_44, Kuleana\_44, LeBron\_59, Leona\_43, LittleTokyo\_42, Lunar\_44, MAckerman\_58, Melons\_44, OhShagHennessy\_58, Orcanus\_42, PhluffyCoco\_44, Polka\_42, RedFox\_44, Renna12\_43, Ruchi\_40, TaylorSipht\_42, UPIE\_60, Vulpecula\_40, Wamburgrxpress\_60, Weirido19\_63, Zaria\_61,

### **Summary by start number:**

Start 17:

- Found in 1 of 77 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Weirido19\_63 (AH),

Start 18:

- Found in 2 of 77 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 2 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JustASigh\_63 (AH), Kuleana\_44 (AS2),

Start 19:

- Found in 9 of 77 ( 11.7% ) of genes in pham
- Manual Annotations of this start: 8 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amelia\_42 (AS2), Coral\_42 (AS2), Cote\_44 (AS2), Daob\_44 (AS2), HannahPhantana\_50 (AS2), Kepler\_44 (AS2),

Lunar\_44 (AS2), Melons\_44 (AS2), Polka\_42 (AS2),

Start 20:

- Found in 10 of 77 ( 13.0% ) of genes in pham
- Manual Annotations of this start: 9 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Appletree2\_60 (L1), Calm\_61 (L1), DirkDirk\_57 (L1), Halena\_58 (L1), LeBron\_59 (L1), MAckerman\_58 (L1), OhShagHennessy\_58 (L1), UPIE\_60 (L1), Wamburgxpress\_60 (L1), Zaria\_61 (L1),

Start 21:

- Found in 13 of 77 ( 16.9% ) of genes in pham
- Manual Annotations of this start: 10 of 65
- Called 84.6% of time when present
- Phage (with cluster) where this start called: Abidatro\_43 (AS1), Andrew\_45 (AS3), Basilisk\_41 (AS1), Brynnie\_40 (AS1), Galaxy\_40 (AS1), Juno112\_44 (AS3), Leona\_43 (AS3), RedFox\_44 (AS3), Renna12\_43 (AS3), Ruchi\_40 (AS1), Vulpecula\_40 (AS1),

Start 23:

- Found in 5 of 77 ( 6.5% ) of genes in pham
- Manual Annotations of this start: 4 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chickaboom\_47 (AS1), Eesa\_41 (AS1), Jamun\_41 (AS1), Orcanus\_42 (AS1), TaylorSipht\_42 (AS1),

Start 25:

- Found in 35 of 77 ( 45.5% ) of genes in pham
- Manual Annotations of this start: 25 of 65
- Called 77.1% of time when present
- Phage (with cluster) where this start called: Archie\_62 (L2), Bazzle\_62 (L2), BigCheese\_62 (L2), Breezona\_62 (L2), Crossroads\_62 (L2), Douge\_60 (L4), DrSeegs\_62 (L2), DyoEdafos\_62 (L4), Faith1\_62 (L2), Finemlucis\_62 (L2), Gabriela\_59 (L2), Gardann\_63 (L2), GuuelaD\_61 (L2), Itos\_61 (L2), Kahlid\_62 (L2), Loadrie\_61 (L2), Miley16\_62 (L2), Netyap\_63 (L2), Nicholasp3\_62 (L2), Rumpelstiltskin\_61 (L2), Tourach\_61 (L2), Vetrrix\_62 (L2), Wigglewiggle\_62 (L2), Wilder\_63 (L2), Winky\_62 (L2), Zakai\_63 (L2), ZhongYanYuan\_60 (L2),

Start 26:

- Found in 2 of 77 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 50.0% of time when present
- Phage (with cluster) where this start called: LittleTokyo\_42 (AS2),

Start 27:

- Found in 4 of 77 ( 5.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: KHumphrey\_43 (AS3), PhluffyCoco\_44 (AS3),

Start 28:

- Found in 1 of 77 ( 1.3% ) of genes in pham

- Manual Annotations of this start: 1 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bromden\_62 (L4),

Start 29:

- Found in 36 of 77 ( 46.8% ) of genes in pham
- Manual Annotations of this start: 5 of 65
- Called 22.2% of time when present
- Phage (with cluster) where this start called: Baoshan\_60 (L2), BobsGarage\_62 (L2), Chaser\_58 (L4), Claus\_62 (L2), Hafay\_63 (L2), Lewan\_63 (L2), LilDestine\_62 (L2), MkaliMitinis3\_63 (L2),

### **Summary by clusters:**

There are 7 clusters represented in this pham: AS3, AS2, AS1, AH, L4, L2, L1,

Info for manual annotations of cluster AH:

- Start number 18 was manually annotated 1 time for cluster AH.

Info for manual annotations of cluster AS1:

- Start number 21 was manually annotated 6 times for cluster AS1.
- Start number 23 was manually annotated 4 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 18 was manually annotated 1 time for cluster AS2.
- Start number 19 was manually annotated 8 times for cluster AS2.
- Start number 26 was manually annotated 1 time for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 21 was manually annotated 4 times for cluster AS3.

Info for manual annotations of cluster L1:

- Start number 20 was manually annotated 9 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 25 was manually annotated 24 times for cluster L2.
- Start number 29 was manually annotated 4 times for cluster L2.

Info for manual annotations of cluster L4:

- Start number 25 was manually annotated 1 time for cluster L4.
- Start number 28 was manually annotated 1 time for cluster L4.
- Start number 29 was manually annotated 1 time for cluster L4.

### **Gene Information:**

Gene: Abidatro\_43 Start: 28625, Stop: 29005, Start Num: 21

Candidate Starts for Abidatro\_43:

(Start: 21 @28625 has 10 MA's), (31, 28694), (43, 28772), (58, 28925), (62, 28955), (63, 28988),

Gene: Amelia\_42 Start: 26881, Stop: 27288, Start Num: 19

Candidate Starts for Amelia\_42:

(Start: 19 @26881 has 8 MA's), (22, 26905), (32, 26977), (34, 26986), (58, 27208),

Gene: Andrew\_45 Start: 27847, Stop: 28227, Start Num: 21

Candidate Starts for Andrew\_45:

(10, 27697), (14, 27772), (Start: 21 @27847 has 10 MA's), (31, 27916), (50, 28093), (55, 28120), (62, 28177),

Gene: Appletree2\_60 Start: 42652, Stop: 42999, Start Num: 20

Candidate Starts for Appletree2\_60:

(Start: 20 @42652 has 9 MA's), (38, 42772), (39, 42778), (40, 42781), (51, 42901), (52, 42916),

Gene: Archie\_62 Start: 44654, Stop: 44971, Start Num: 25

Candidate Starts for Archie\_62:

(Start: 25 @44654 has 25 MA's), (Start: 29 @44687 has 5 MA's), (37, 44741), (41, 44762), (51, 44873), (52, 44888), (53, 44891), (56, 44903), (60, 44936), (61, 44939),

Gene: Baoshan\_60 Start: 44385, Stop: 44666, Start Num: 29

Candidate Starts for Baoshan\_60:

(Start: 25 @44352 has 25 MA's), (Start: 29 @44385 has 5 MA's), (37, 44439), (41, 44460), (47, 44523), (51, 44571), (52, 44586), (53, 44589), (56, 44601), (60, 44634), (61, 44637),

Gene: Basilisk\_41 Start: 27795, Stop: 28175, Start Num: 21

Candidate Starts for Basilisk\_41:

(3, 27534), (7, 27573), (Start: 21 @27795 has 10 MA's), (24, 27801), (50, 28041), (58, 28095), (62, 28125),

Gene: Bazzle\_62 Start: 44724, Stop: 45041, Start Num: 25

Candidate Starts for Bazzle\_62:

(Start: 25 @44724 has 25 MA's), (Start: 29 @44757 has 5 MA's), (37, 44811), (41, 44832), (51, 44943), (52, 44958), (53, 44961), (56, 44973), (60, 45006), (61, 45009),

Gene: BigCheese\_62 Start: 44409, Stop: 44723, Start Num: 25

Candidate Starts for BigCheese\_62:

(Start: 25 @44409 has 25 MA's), (Start: 29 @44442 has 5 MA's), (37, 44496), (41, 44517), (47, 44580), (51, 44628), (53, 44646), (56, 44658), (60, 44691), (61, 44694),

Gene: BobsGarage\_62 Start: 44442, Stop: 44723, Start Num: 29

Candidate Starts for BobsGarage\_62:

(Start: 25 @44409 has 25 MA's), (Start: 29 @44442 has 5 MA's), (37, 44496), (41, 44517), (47, 44580), (51, 44628), (53, 44646), (56, 44658), (60, 44691), (61, 44694),

Gene: Breezona\_62 Start: 44409, Stop: 44723, Start Num: 25

Candidate Starts for Breezona\_62:

(Start: 25 @44409 has 25 MA's), (Start: 29 @44442 has 5 MA's), (37, 44496), (41, 44517), (47, 44580), (51, 44628), (53, 44646), (56, 44658), (60, 44691), (61, 44694),

Gene: Bromden\_62 Start: 44397, Stop: 44696, Start Num: 28

Candidate Starts for Bromden\_62:

(Start: 28 @44397 has 1 MA's), (Start: 29 @44415 has 5 MA's), (31, 44433), (47, 44553), (49, 44577), (51, 44601), (52, 44616), (59, 44658),

Gene: Brynnie\_40 Start: 27673, Stop: 28053, Start Num: 21

Candidate Starts for Brynnie\_40:

(3, 27412), (7, 27451), (Start: 21 @27673 has 10 MA's), (24, 27679), (34, 27757), (50, 27919), (58, 27973), (62, 28003),

Gene: Calm\_61 Start: 42831, Stop: 43178, Start Num: 20

Candidate Starts for Calm\_61:

(Start: 20 @42831 has 9 MA's), (38, 42951), (39, 42957), (40, 42960), (51, 43080), (52, 43095),

Gene: Chaser\_58 Start: 43074, Stop: 43355, Start Num: 29

Candidate Starts for Chaser\_58:

(Start: 25 @43047 has 25 MA's), (Start: 29 @43074 has 5 MA's), (31, 43092), (47, 43212), (51, 43260), (53, 43278), (59, 43317), (61, 43326),

Gene: Chickaboom\_47 Start: 28397, Stop: 28774, Start Num: 23

Candidate Starts for Chickaboom\_47:

(6, 28157), (10, 28241), (14, 28316), (Start: 23 @28397 has 4 MA's), (34, 28478), (58, 28694), (62, 28724), (63, 28757),

Gene: Claus\_62 Start: 44523, Stop: 44804, Start Num: 29

Candidate Starts for Claus\_62:

(Start: 25 @44490 has 25 MA's), (Start: 29 @44523 has 5 MA's), (37, 44577), (41, 44598), (47, 44661), (51, 44709), (52, 44724), (53, 44727), (56, 44739), (60, 44772), (61, 44775),

Gene: Coral\_42 Start: 26729, Stop: 27136, Start Num: 19

Candidate Starts for Coral\_42:

(Start: 19 @26729 has 8 MA's), (22, 26753), (32, 26825), (34, 26834), (50, 27002), (58, 27056),

Gene: Cote\_44 Start: 27206, Stop: 27613, Start Num: 19

Candidate Starts for Cote\_44:

(Start: 19 @27206 has 8 MA's), (22, 27230), (32, 27302), (34, 27311), (58, 27533),

Gene: Crossroads\_62 Start: 44487, Stop: 44801, Start Num: 25

Candidate Starts for Crossroads\_62:

(Start: 25 @44487 has 25 MA's), (Start: 29 @44520 has 5 MA's), (37, 44574), (41, 44595), (51, 44706), (53, 44724), (56, 44736), (60, 44769), (61, 44772),

Gene: Daob\_44 Start: 27214, Stop: 27621, Start Num: 19

Candidate Starts for Daob\_44:

(Start: 19 @27214 has 8 MA's), (22, 27238), (32, 27310), (34, 27319), (50, 27487), (54, 27511), (58, 27541),

Gene: DirkDirk\_57 Start: 42238, Stop: 42585, Start Num: 20

Candidate Starts for DirkDirk\_57:

(Start: 20 @42238 has 9 MA's), (38, 42358), (39, 42364), (40, 42367), (51, 42487), (52, 42502),

Gene: Douge\_60 Start: 43053, Stop: 43361, Start Num: 25

Candidate Starts for Douge\_60:

(Start: 25 @43053 has 25 MA's), (Start: 29 @43080 has 5 MA's), (31, 43098), (47, 43218), (51, 43266), (52, 43281), (53, 43284), (59, 43323), (61, 43332),

Gene: DrSeegs\_62 Start: 44409, Stop: 44723, Start Num: 25

Candidate Starts for DrSeegs\_62:

(Start: 25 @44409 has 25 MA's), (Start: 29 @44442 has 5 MA's), (37, 44496), (41, 44517), (47, 44580), (51, 44628), (53, 44646), (56, 44658), (60, 44691), (61, 44694),

Gene: DyoEdafos\_62 Start: 43332, Stop: 43640, Start Num: 25

Candidate Starts for DyoEdafos\_62:

(Start: 25 @43332 has 25 MA's), (Start: 29 @43359 has 5 MA's), (31, 43377), (47, 43497), (51, 43545), (52, 43560), (59, 43602), (61, 43611),

Gene: Eesa\_41 Start: 29282, Stop: 29656, Start Num: 23

Candidate Starts for Eesa\_41:

(10, 29126), (14, 29201), (Start: 23 @29282 has 4 MA's), (34, 29360), (43, 29423), (55, 29549), (62, 29606),

Gene: Faith1\_62 Start: 44409, Stop: 44723, Start Num: 25

Candidate Starts for Faith1\_62:

(Start: 25 @44409 has 25 MA's), (Start: 29 @44442 has 5 MA's), (37, 44496), (41, 44517), (47, 44580), (51, 44628), (53, 44646), (56, 44658), (60, 44691), (61, 44694),

Gene: Finemlucis\_62 Start: 44730, Stop: 45044, Start Num: 25

Candidate Starts for Finemlucis\_62:

(Start: 25 @44730 has 25 MA's), (Start: 29 @44763 has 5 MA's), (37, 44817), (41, 44838), (47, 44901), (51, 44949), (53, 44967), (56, 44979), (60, 45012), (61, 45015),

Gene: Gabriela\_59 Start: 42859, Stop: 43173, Start Num: 25

Candidate Starts for Gabriela\_59:

(Start: 25 @42859 has 25 MA's), (Start: 29 @42892 has 5 MA's), (37, 42946), (41, 42967), (47, 43030), (51, 43078), (53, 43096), (56, 43108), (60, 43141), (61, 43144),

Gene: Galaxy\_40 Start: 27048, Stop: 27425, Start Num: 21

Candidate Starts for Galaxy\_40:

(Start: 21 @27048 has 10 MA's), (31, 27117), (43, 27192), (45, 27234), (58, 27345), (62, 27375), (63, 27408),

Gene: Gardann\_63 Start: 44445, Stop: 44759, Start Num: 25

Candidate Starts for Gardann\_63:

(Start: 25 @44445 has 25 MA's), (Start: 29 @44478 has 5 MA's), (37, 44532), (41, 44553), (47, 44616), (51, 44664), (53, 44682), (56, 44694), (60, 44727), (61, 44730),

Gene: GuuelaD\_61 Start: 44524, Stop: 44838, Start Num: 25

Candidate Starts for GuuelaD\_61:

(Start: 25 @44524 has 25 MA's), (Start: 29 @44557 has 5 MA's), (37, 44611), (41, 44632), (47, 44695), (51, 44743), (53, 44761), (56, 44773), (60, 44806), (61, 44809),

Gene: Hafay\_63 Start: 44546, Stop: 44827, Start Num: 29

Candidate Starts for Hafay\_63:

(Start: 25 @44513 has 25 MA's), (Start: 29 @44546 has 5 MA's), (37, 44600), (41, 44621), (47, 44684), (51, 44732), (53, 44750), (56, 44762), (60, 44795), (61, 44798),

Gene: Halena\_58 Start: 42275, Stop: 42622, Start Num: 20

Candidate Starts for Halena\_58:

(Start: 20 @42275 has 9 MA's), (38, 42395), (39, 42401), (40, 42404), (51, 42524), (52, 42539),

Gene: HannahPhantana\_50 Start: 26876, Stop: 27283, Start Num: 19

Candidate Starts for HannahPhantana\_50:

(Start: 19 @26876 has 8 MA's), (22, 26900), (32, 26972), (34, 26981), (58, 27203),



Gene: Itos\_61 Start: 43315, Stop: 43629, Start Num: 25

Candidate Starts for Itos\_61:

(Start: 25 @43315 has 25 MA's), (Start: 29 @43348 has 5 MA's), (37, 43402), (41, 43423), (47, 43486), (51, 43534), (53, 43552), (56, 43564), (60, 43597), (61, 43600),

Gene: Jamun\_41 Start: 28557, Stop: 28934, Start Num: 23

Candidate Starts for Jamun\_41:

(2, 28287), (6, 28317), (10, 28401), (14, 28476), (Start: 23 @28557 has 4 MA's), (34, 28638), (50, 28800), (58, 28854), (62, 28884), (63, 28917),

Gene: Juno112\_44 Start: 27966, Stop: 28346, Start Num: 21

Candidate Starts for Juno112\_44:

(10, 27816), (14, 27891), (Start: 21 @27966 has 10 MA's), (27, 27987), (33, 28047), (46, 28161), (55, 28239),

Gene: JustASigh\_63 Start: 42337, Stop: 42696, Start Num: 18

Candidate Starts for JustASigh\_63:

(1, 42097), (4, 42103), (5, 42115), (8, 42154), (13, 42256), (Start: 18 @42337 has 2 MA's), (44, 42511), (61, 42679),

Gene: KHumphrey\_43 Start: 27884, Stop: 28243, Start Num: 27

Candidate Starts for KHumphrey\_43:

(2, 27599), (6, 27629), (10, 27713), (14, 27788), (Start: 21 @27863 has 10 MA's), (27, 27884), (33, 27944), (55, 28136),

Gene: Kahlid\_62 Start: 44415, Stop: 44729, Start Num: 25

Candidate Starts for Kahlid\_62:

(Start: 25 @44415 has 25 MA's), (Start: 29 @44448 has 5 MA's), (37, 44502), (41, 44523), (47, 44586), (51, 44634), (53, 44652), (56, 44664), (60, 44697), (61, 44700),

Gene: Kepler\_44 Start: 27624, Stop: 28031, Start Num: 19

Candidate Starts for Kepler\_44:

(Start: 19 @27624 has 8 MA's), (22, 27648), (32, 27720), (34, 27729), (50, 27897), (58, 27951),

Gene: Kuleana\_44 Start: 27205, Stop: 27615, Start Num: 18

Candidate Starts for Kuleana\_44:

(Start: 18 @27205 has 2 MA's), (22, 27235), (34, 27316), (58, 27535),

Gene: LeBron\_59 Start: 42278, Stop: 42625, Start Num: 20

Candidate Starts for LeBron\_59:

(Start: 20 @42278 has 9 MA's), (38, 42398), (39, 42404), (40, 42407), (51, 42527), (52, 42542),

Gene: Leona\_43 Start: 28043, Stop: 28423, Start Num: 21

Candidate Starts for Leona\_43:

(10, 27893), (14, 27968), (Start: 21 @28043 has 10 MA's), (Start: 26 @28058 has 1 MA's), (33, 28124), (55, 28316), (62, 28373),

Gene: Lewan\_63 Start: 44502, Stop: 44783, Start Num: 29

Candidate Starts for Lewan\_63:

(Start: 25 @44469 has 25 MA's), (Start: 29 @44502 has 5 MA's), (37, 44556), (41, 44577), (47, 44640), (51, 44688), (53, 44706), (56, 44718), (60, 44751), (61, 44754),

Gene: LilDestine\_62 Start: 44475, Stop: 44756, Start Num: 29

Candidate Starts for LilDestine\_62:

(Start: 25 @44442 has 25 MA's), (Start: 29 @44475 has 5 MA's), (37, 44529), (41, 44550), (47, 44613), (51, 44661), (53, 44679), (56, 44691), (60, 44724), (61, 44727),

Gene: LittleTokyo\_42 Start: 26769, Stop: 27122, Start Num: 26

Candidate Starts for LittleTokyo\_42:

(12, 26631), (15, 26688), (16, 26706), (Start: 26 @26769 has 1 MA's), (31, 26823), (36, 26856), (42, 26889), (45, 26931),

Gene: Loadrie\_61 Start: 44497, Stop: 44811, Start Num: 25

Candidate Starts for Loadrie\_61:

(Start: 25 @44497 has 25 MA's), (Start: 29 @44530 has 5 MA's), (37, 44584), (41, 44605), (47, 44668), (51, 44716), (53, 44734), (56, 44746), (60, 44779), (61, 44782),

Gene: Lunar\_44 Start: 27540, Stop: 27947, Start Num: 19

Candidate Starts for Lunar\_44:

(Start: 19 @27540 has 8 MA's), (22, 27564), (32, 27636), (34, 27645), (58, 27867),

Gene: MAckerman\_58 Start: 42268, Stop: 42615, Start Num: 20

Candidate Starts for MAckerman\_58:

(Start: 20 @42268 has 9 MA's), (38, 42388), (39, 42394), (40, 42397), (51, 42517), (52, 42532),

Gene: Melons\_44 Start: 27354, Stop: 27761, Start Num: 19

Candidate Starts for Melons\_44:

(Start: 19 @27354 has 8 MA's), (22, 27378), (32, 27450), (34, 27459), (50, 27627), (58, 27681),

Gene: Miley16\_62 Start: 44409, Stop: 44723, Start Num: 25

Candidate Starts for Miley16\_62:

(Start: 25 @44409 has 25 MA's), (Start: 29 @44442 has 5 MA's), (37, 44496), (41, 44517), (47, 44580), (51, 44628), (53, 44646), (56, 44658), (60, 44691), (61, 44694),

Gene: MkaliMitinis3\_63 Start: 44514, Stop: 44795, Start Num: 29

Candidate Starts for MkaliMitinis3\_63:

(Start: 25 @44481 has 25 MA's), (Start: 29 @44514 has 5 MA's), (37, 44568), (41, 44589), (47, 44652), (51, 44700), (53, 44718), (56, 44730), (60, 44763), (61, 44766),

Gene: Netyap\_63 Start: 44410, Stop: 44724, Start Num: 25

Candidate Starts for Netyap\_63:

(Start: 25 @44410 has 25 MA's), (Start: 29 @44443 has 5 MA's), (37, 44497), (41, 44518), (47, 44581), (51, 44629), (53, 44647), (56, 44659), (60, 44692), (61, 44695),

Gene: Nicholasp3\_62 Start: 44445, Stop: 44759, Start Num: 25

Candidate Starts for Nicholasp3\_62:

(Start: 25 @44445 has 25 MA's), (Start: 29 @44478 has 5 MA's), (37, 44532), (41, 44553), (47, 44616), (51, 44664), (53, 44682), (56, 44694), (60, 44727), (61, 44730),

Gene: OhShagHennessy\_58 Start: 41719, Stop: 42066, Start Num: 20

Candidate Starts for OhShagHennessy\_58:

(Start: 20 @41719 has 9 MA's), (38, 41839), (39, 41845), (40, 41848), (51, 41968), (52, 41983),

Gene: Orcanus\_42 Start: 28916, Stop: 29290, Start Num: 23

Candidate Starts for Orcanus\_42:

(10, 28760), (14, 28835), (Start: 23 @28916 has 4 MA's), (34, 28994), (43, 29057), (50, 29156), (55, 29183), (62, 29240),

Gene: PhluffyCoco\_44 Start: 28082, Stop: 28441, Start Num: 27

Candidate Starts for PhluffyCoco\_44:

(10, 27911), (14, 27986), (Start: 21 @28061 has 10 MA's), (27, 28082), (33, 28142), (55, 28334),

Gene: Polka\_42 Start: 26730, Stop: 27137, Start Num: 19

Candidate Starts for Polka\_42:

(Start: 19 @26730 has 8 MA's), (22, 26754), (32, 26826), (34, 26835), (50, 27003), (58, 27057),

Gene: RedFox\_44 Start: 28060, Stop: 28440, Start Num: 21

Candidate Starts for RedFox\_44:

(10, 27910), (14, 27985), (Start: 21 @28060 has 10 MA's), (27, 28081), (33, 28141), (55, 28333),

Gene: Renna12\_43 Start: 27920, Stop: 28297, Start Num: 21

Candidate Starts for Renna12\_43:

(2, 27656), (6, 27686), (10, 27770), (14, 27845), (Start: 21 @27920 has 10 MA's), (35, 28010), (55, 28190), (62, 28247),

Gene: Ruchi\_40 Start: 27741, Stop: 28121, Start Num: 21

Candidate Starts for Ruchi\_40:

(3, 27480), (7, 27519), (Start: 21 @27741 has 10 MA's), (24, 27747), (43, 27888), (45, 27930), (50, 27987), (58, 28041), (62, 28071),

Gene: Rumpelstiltskin\_61 Start: 43838, Stop: 44152, Start Num: 25

Candidate Starts for Rumpelstiltskin\_61:

(Start: 25 @43838 has 25 MA's), (Start: 29 @43871 has 5 MA's), (37, 43925), (41, 43946), (47, 44009), (51, 44057), (53, 44075), (56, 44087), (60, 44120), (61, 44123),

Gene: TaylorSipht\_42 Start: 28318, Stop: 28695, Start Num: 23

Candidate Starts for TaylorSipht\_42:

(2, 28048), (6, 28078), (10, 28162), (11, 28186), (14, 28237), (Start: 23 @28318 has 4 MA's), (34, 28399), (43, 28462), (50, 28561), (53, 28582),

Gene: Tourach\_61 Start: 44494, Stop: 44808, Start Num: 25

Candidate Starts for Tourach\_61:

(Start: 25 @44494 has 25 MA's), (Start: 29 @44527 has 5 MA's), (30, 44539), (37, 44581), (47, 44665), (51, 44713), (52, 44728), (53, 44731), (56, 44743), (60, 44776), (61, 44779),

Gene: UPIE\_60 Start: 42689, Stop: 43036, Start Num: 20

Candidate Starts for UPIE\_60:

(Start: 20 @42689 has 9 MA's), (38, 42809), (39, 42815), (40, 42818), (51, 42938), (52, 42953),

Gene: Vetrix\_62 Start: 44449, Stop: 44763, Start Num: 25

Candidate Starts for Vetrix\_62:

(Start: 25 @44449 has 25 MA's), (Start: 29 @44482 has 5 MA's), (37, 44536), (41, 44557), (47, 44620), (51, 44668), (53, 44686), (56, 44698), (60, 44731), (61, 44734),

Gene: Vulpecula\_40 Start: 27418, Stop: 27798, Start Num: 21

Candidate Starts for Vulpecula\_40:

(3, 27157), (7, 27196), (Start: 21 @27418 has 10 MA's), (24, 27424), (43, 27565), (45, 27607), (50, 27664), (58, 27718), (62, 27748),

Gene: Wamburgrxpress\_60 Start: 42719, Stop: 43066, Start Num: 20

Candidate Starts for Wamburgrxpress\_60:

(Start: 20 @42719 has 9 MA's), (38, 42839), (39, 42845), (40, 42848), (51, 42968), (52, 42983),

Gene: Weirido19\_63 Start: 42154, Stop: 42513, Start Num: 17

Candidate Starts for Weirido19\_63:

(9, 42001), (17, 42154), (37, 42292), (46, 42370), (47, 42379), (48, 42385), (52, 42442), (57, 42469), (61, 42493),

Gene: Wigglewigggle\_62 Start: 44469, Stop: 44783, Start Num: 25

Candidate Starts for Wigglewigggle\_62:

(Start: 25 @44469 has 25 MA's), (Start: 29 @44502 has 5 MA's), (37, 44556), (41, 44577), (47, 44640), (51, 44688), (53, 44706), (56, 44718), (60, 44751), (61, 44754),

Gene: Wilder\_63 Start: 44415, Stop: 44729, Start Num: 25

Candidate Starts for Wilder\_63:

(Start: 25 @44415 has 25 MA's), (Start: 29 @44448 has 5 MA's), (37, 44502), (41, 44523), (47, 44586), (51, 44634), (53, 44652), (56, 44664), (60, 44697), (61, 44700),

Gene: Winky\_62 Start: 44409, Stop: 44723, Start Num: 25

Candidate Starts for Winky\_62:

(Start: 25 @44409 has 25 MA's), (Start: 29 @44442 has 5 MA's), (37, 44496), (41, 44517), (47, 44580), (51, 44628), (53, 44646), (56, 44658), (60, 44691), (61, 44694),

Gene: Zakai\_63 Start: 44735, Stop: 45049, Start Num: 25

Candidate Starts for Zakai\_63:

(Start: 25 @44735 has 25 MA's), (Start: 29 @44768 has 5 MA's), (37, 44822), (41, 44843), (47, 44906), (51, 44954), (53, 44972), (56, 44984), (60, 45017), (61, 45020),

Gene: Zaria\_61 Start: 42831, Stop: 43178, Start Num: 20

Candidate Starts for Zaria\_61:

(Start: 20 @42831 has 9 MA's), (38, 42951), (39, 42957), (40, 42960), (51, 43080), (52, 43095),

Gene: ZhongYanYuan\_60 Start: 44304, Stop: 44618, Start Num: 25

Candidate Starts for ZhongYanYuan\_60:

(Start: 25 @44304 has 25 MA's), (Start: 29 @44337 has 5 MA's), (37, 44391), (41, 44412), (47, 44475), (51, 44523), (52, 44538), (53, 44541), (56, 44553), (60, 44586), (61, 44589),