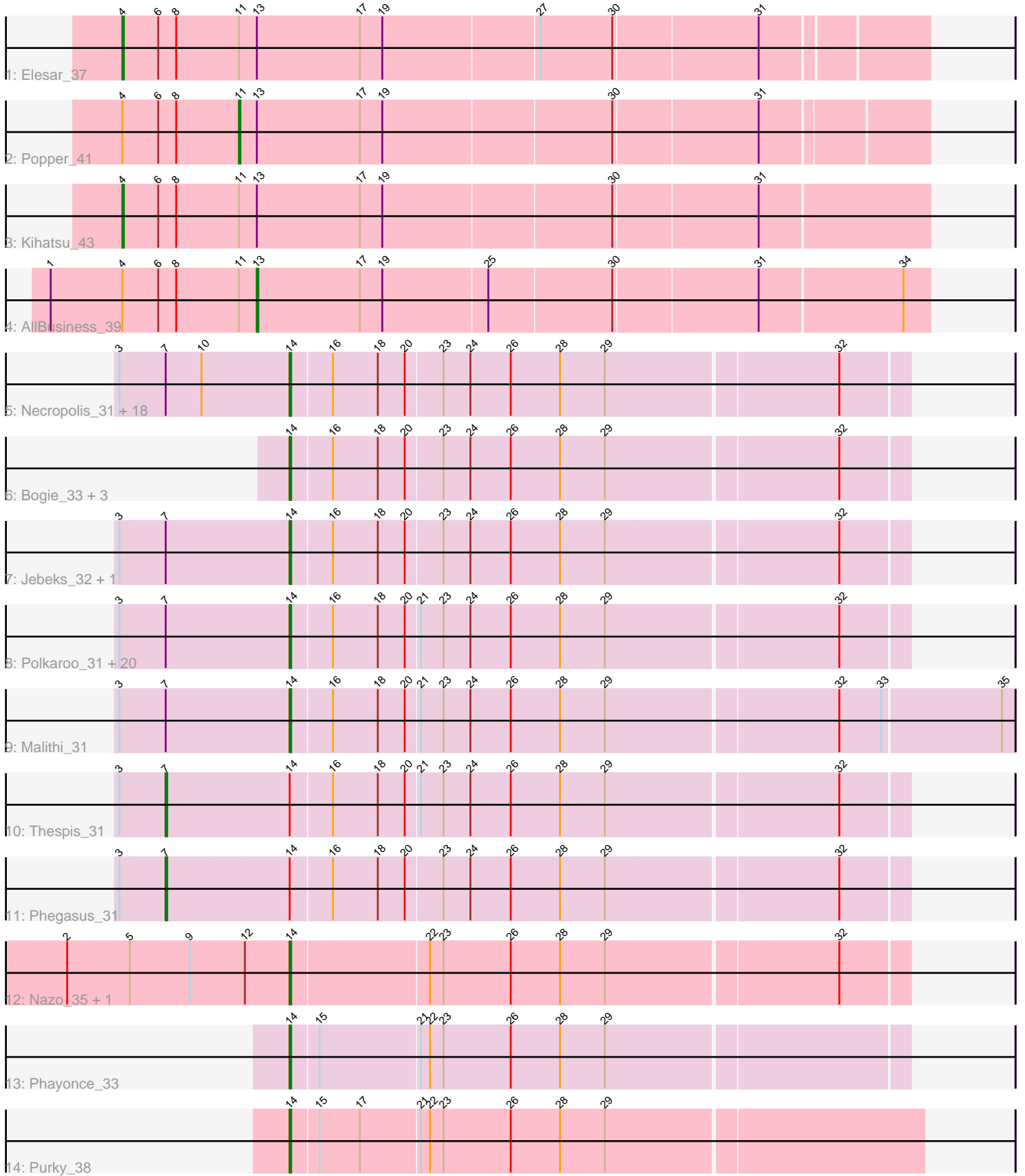


# Pham 311640



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 311640 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311640 has 57 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Elesar\_37
- Track 2 : Popper\_41
- Track 3 : Kihatsu\_43
- Track 4 : AllBusiness\_39
- Track 5 : Necropolis\_31, Venti\_31, Fishburne\_31, Kari\_31, Phineas\_31, Chubbello\_31, Dynamo\_31, Langerak\_31, Majeke\_31, Étoile\_31, Donovan\_31, Mangethe\_31, Techage\_31, BronnyJr\_31, HUHilltop\_31, Zilizebeth\_31, Vidya\_31, Bartholomew\_30, GaloreK\_31
- Track 6 : Bogie\_33, Shipwreck\_33, Arib1\_31, Pygmy\_33
- Track 7 : Jebeks\_32, FirstPlacePfu\_31
- Track 8 : Polkaroo\_31, Bhagsy\_31, KilKor\_31, Brusacoram\_31, Phalm\_31, GreaseLightnin\_31, PeanutPie\_31, Willsammy\_30, Ksquared\_31, StevieRay\_31, Camster\_31, Sonah\_31, Jung\_30, Bunnies\_31, Atcoo\_31, Glaske\_31, Gavriela\_31, Megiddo\_31, Juniormint\_31, StressBall\_31, CactusJack\_31
- Track 9 : Malithi\_31
- Track 10 : Thespis\_31
- Track 11 : Phegasus\_31
- Track 12 : Nazo\_35, BigNuz\_34
- Track 13 : Phayonce\_33
- Track 14 : Purky\_38

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

The start number called the most often in the published annotations is 14, it was called in 45 of the 51 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arib1\_31, Atcoo\_31, Bartholomew\_30, Bhagsy\_31, BigNuz\_34, Bogie\_33, BronnyJr\_31, Brusacoram\_31, Bunnies\_31, CactusJack\_31, Camster\_31, Chubbello\_31, Donovan\_31, Dynamo\_31, Etoile\_31, FirstPlacePfu\_31, Fishburne\_31, GaloreK\_31, Gavriela\_31, Glaske\_31, GreaseLightnin\_31, HUHilltop\_31, Jebeks\_32, Jung\_30, Juniormint\_31, Kari\_31, KilKor\_31, Ksquared\_31, Langerak\_31, Majeke\_31, Malithi\_31, Mangethe\_31, Megiddo\_31, Nazo\_35, Necropolis\_31, PeanutPie\_31, Phalm\_31, Phayonce\_33, Phineas\_31,

Polkaroo\_31, Purky\_38, Pygmy\_33, Shipwreck\_33, Sonah\_31, StevieRay\_31, StressBall\_31, Techage\_31, Venti\_31, Vidya\_31, Willsammy\_30, Zilizebeth\_31,

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

- Phegasus\_31, Thespis\_31,

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

- AllBusiness\_39, Elesar\_37, Kihatsu\_43, Popper\_41,

### Summary by start number:

Start 4:

- Found in 4 of 57 ( 7.0% ) of genes in pham
- Manual Annotations of this start: 2 of 51
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Elesar\_37 (FF), Kihatsu\_43 (FF),

Start 7:

- Found in 45 of 57 ( 78.9% ) of genes in pham
- Manual Annotations of this start: 2 of 51
- Called 4.4% of time when present
- Phage (with cluster) where this start called: Phegasus\_31 (P1), Thespis\_31 (P1),

Start 11:

- Found in 4 of 57 ( 7.0% ) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Popper\_41 (FF),

Start 13:

- Found in 4 of 57 ( 7.0% ) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 25.0% of time when present
- Phage (with cluster) where this start called: AllBusiness\_39 (FF),

Start 14:

- Found in 53 of 57 ( 93.0% ) of genes in pham
- Manual Annotations of this start: 45 of 51
- Called 96.2% of time when present
- Phage (with cluster) where this start called: Arib1\_31 (P1), Atcoo\_31 (P1), Bartholomew\_30 (P1), Bhagsy\_31 (P1), BigNuz\_34 (P4), Bogie\_33 (P1), BronnyJr\_31 (P1), Brusacoram\_31 (P1), Bunnies\_31 (P1), CactusJack\_31 (P1), Camster\_31 (P1), Chubbello\_31 (P1), Donovan\_31 (P1), Dynamo\_31 (P1), Etoile\_31 (P1), FirstPlacePfu\_31 (P1), Fishburne\_31 (P1), GaloreK\_31 (P1), Gavriela\_31 (P1), Glaske\_31 (P1), GreaseLightnin\_31 (P1), HUHilltop\_31 (P1), Jebeks\_32 (P1), Jung\_30 (P1), Juniormint\_31 (P1), Kari\_31 (P1), KilKor\_31 (P1), Ksquared\_31 (P1), Langerak\_31 (P1), Majeke\_31 (P1), Malithi\_31 (P1), Mangethe\_31 (P1), Megiddo\_31 (P1), Nazo\_35 (P4), Necropolis\_31 (P1), PeanutPie\_31 (P1), Phalm\_31 (P1), Phayonce\_33 (P5), Phineas\_31 (P1), Polkaroo\_31 (P1), Purky\_38 (P6), Pygmy\_33 (P1), Shipwreck\_33 (P1), Sonah\_31 (P1), StevieRay\_31 (P1), StressBall\_31 (P1), Techage\_31 (P1), Venti\_31 (P1), Vidya\_31 (P1), Willsammy\_30 (P1), Zilizebeth\_31 (P1),

## Summary by clusters:

There are 5 clusters represented in this pham: P1, P6, P4, FF, P5,

Info for manual annotations of cluster FF:

- Start number 4 was manually annotated 2 times for cluster FF.
- Start number 11 was manually annotated 1 time for cluster FF.
- Start number 13 was manually annotated 1 time for cluster FF.

Info for manual annotations of cluster P1:

- Start number 7 was manually annotated 2 times for cluster P1.
- Start number 14 was manually annotated 41 times for cluster P1.

Info for manual annotations of cluster P4:

- Start number 14 was manually annotated 2 times for cluster P4.

Info for manual annotations of cluster P5:

- Start number 14 was manually annotated 1 time for cluster P5.

Info for manual annotations of cluster P6:

- Start number 14 was manually annotated 1 time for cluster P6.

## Gene Information:

Gene: AllBusiness\_39 Start: 31045, Stop: 30608, Start Num: 13

Candidate Starts for AllBusiness\_39:

(1, 31183), (Start: 4 @31135 has 2 MA's), (6, 31111), (8, 31099), (Start: 11 @31057 has 1 MA's), (Start: 13 @31045 has 1 MA's), (17, 30976), (19, 30961), (25, 30892), (30, 30811), (31, 30718), (34, 30625),

Gene: Arib1\_31 Start: 27353, Stop: 26952, Start Num: 14

Candidate Starts for Arib1\_31:

(Start: 14 @27353 has 45 MA's), (16, 27326), (18, 27296), (20, 27278), (23, 27254), (24, 27236), (26, 27209), (28, 27176), (29, 27146), (32, 26996),

Gene: Atcoo\_31 Start: 27834, Stop: 27433, Start Num: 14

Candidate Starts for Atcoo\_31:

(3, 27945), (Start: 7 @27915 has 2 MA's), (Start: 14 @27834 has 45 MA's), (16, 27807), (18, 27777), (20, 27759), (21, 27750), (23, 27735), (24, 27717), (26, 27690), (28, 27657), (29, 27627), (32, 27477),

Gene: Bartholomew\_30 Start: 27347, Stop: 26946, Start Num: 14

Candidate Starts for Bartholomew\_30:

(3, 27458), (Start: 7 @27428 has 2 MA's), (10, 27404), (Start: 14 @27347 has 45 MA's), (16, 27320), (18, 27290), (20, 27272), (23, 27248), (24, 27230), (26, 27203), (28, 27170), (29, 27140), (32, 26990),

Gene: Bhagsy\_31 Start: 27343, Stop: 26942, Start Num: 14

Candidate Starts for Bhagsy\_31:

(3, 27454), (Start: 7 @27424 has 2 MA's), (Start: 14 @27343 has 45 MA's), (16, 27316), (18, 27286), (20, 27268), (21, 27259), (23, 27244), (24, 27226), (26, 27199), (28, 27166), (29, 27136), (32, 26986),

Gene: BigNuz\_34 Start: 29474, Stop: 29073, Start Num: 14

Candidate Starts for BigNuz\_34:

(2, 29621), (5, 29579), (9, 29540), (12, 29504), (Start: 14 @29474 has 45 MA's), (22, 29384), (23, 29375), (26, 29330), (28, 29297), (29, 29267), (32, 29117),

Gene: Bogie\_33 Start: 29130, Stop: 28729, Start Num: 14

Candidate Starts for Bogie\_33:

(Start: 14 @29130 has 45 MA's), (16, 29103), (18, 29073), (20, 29055), (23, 29031), (24, 29013), (26, 28986), (28, 28953), (29, 28923), (32, 28773),

Gene: BronnyJr\_31 Start: 27844, Stop: 27443, Start Num: 14

Candidate Starts for BronnyJr\_31:

(3, 27955), (Start: 7 @27925 has 2 MA's), (10, 27901), (Start: 14 @27844 has 45 MA's), (16, 27817), (18, 27787), (20, 27769), (23, 27745), (24, 27727), (26, 27700), (28, 27667), (29, 27637), (32, 27487),

Gene: Brusacoram\_31 Start: 27340, Stop: 26939, Start Num: 14

Candidate Starts for Brusacoram\_31:

(3, 27451), (Start: 7 @27421 has 2 MA's), (Start: 14 @27340 has 45 MA's), (16, 27313), (18, 27283), (20, 27265), (21, 27256), (23, 27241), (24, 27223), (26, 27196), (28, 27163), (29, 27133), (32, 26983),

Gene: Bunnies\_31 Start: 27361, Stop: 26960, Start Num: 14

Candidate Starts for Bunnies\_31:

(3, 27472), (Start: 7 @27442 has 2 MA's), (Start: 14 @27361 has 45 MA's), (16, 27334), (18, 27304), (20, 27286), (21, 27277), (23, 27262), (24, 27244), (26, 27217), (28, 27184), (29, 27154), (32, 27004),

Gene: CactusJack\_31 Start: 27604, Stop: 27203, Start Num: 14

Candidate Starts for CactusJack\_31:

(3, 27715), (Start: 7 @27685 has 2 MA's), (Start: 14 @27604 has 45 MA's), (16, 27577), (18, 27547), (20, 27529), (21, 27520), (23, 27505), (24, 27487), (26, 27460), (28, 27427), (29, 27397), (32, 27247),

Gene: Camster\_31 Start: 27377, Stop: 26976, Start Num: 14

Candidate Starts for Camster\_31:

(3, 27488), (Start: 7 @27458 has 2 MA's), (Start: 14 @27377 has 45 MA's), (16, 27350), (18, 27320), (20, 27302), (21, 27293), (23, 27278), (24, 27260), (26, 27233), (28, 27200), (29, 27170), (32, 27020),

Gene: Chubbello\_31 Start: 27346, Stop: 26945, Start Num: 14

Candidate Starts for Chubbello\_31:

(3, 27457), (Start: 7 @27427 has 2 MA's), (10, 27403), (Start: 14 @27346 has 45 MA's), (16, 27319), (18, 27289), (20, 27271), (23, 27247), (24, 27229), (26, 27202), (28, 27169), (29, 27139), (32, 26989),

Gene: Donovan\_31 Start: 27369, Stop: 26968, Start Num: 14

Candidate Starts for Donovan\_31:

(3, 27480), (Start: 7 @27450 has 2 MA's), (10, 27426), (Start: 14 @27369 has 45 MA's), (16, 27342), (18, 27312), (20, 27294), (23, 27270), (24, 27252), (26, 27225), (28, 27192), (29, 27162), (32, 27012),

Gene: Dynamo\_31 Start: 27758, Stop: 27357, Start Num: 14

Candidate Starts for Dynamo\_31:

(3, 27869), (Start: 7 @27839 has 2 MA's), (10, 27815), (Start: 14 @27758 has 45 MA's), (16, 27731), (18, 27701), (20, 27683), (23, 27659), (24, 27641), (26, 27614), (28, 27581), (29, 27551), (32, 27401),

Gene: Elesar\_37 Start: 30914, Stop: 30393, Start Num: 4

Candidate Starts for Elesar\_37:

(Start: 4 @30914 has 2 MA's), (6, 30890), (8, 30878), (Start: 11 @30836 has 1 MA's), (Start: 13 @30824 has 1 MA's), (17, 30755), (19, 30740), (27, 30638), (30, 30590), (31, 30497),

Gene: Etoile\_31 Start: 27347, Stop: 26946, Start Num: 14

Candidate Starts for Etoile\_31:

(3, 27458), (Start: 7 @27428 has 2 MA's), (10, 27404), (Start: 14 @27347 has 45 MA's), (16, 27320), (18, 27290), (20, 27272), (23, 27248), (24, 27230), (26, 27203), (28, 27170), (29, 27140), (32, 26990),

Gene: FirstPlacePfu\_31 Start: 27379, Stop: 26978, Start Num: 14

Candidate Starts for FirstPlacePfu\_31:

(3, 27490), (Start: 7 @27460 has 2 MA's), (Start: 14 @27379 has 45 MA's), (16, 27352), (18, 27322), (20, 27304), (23, 27280), (24, 27262), (26, 27235), (28, 27202), (29, 27172), (32, 27022),

Gene: Fishburne\_31 Start: 27347, Stop: 26946, Start Num: 14

Candidate Starts for Fishburne\_31:

(3, 27458), (Start: 7 @27428 has 2 MA's), (10, 27404), (Start: 14 @27347 has 45 MA's), (16, 27320), (18, 27290), (20, 27272), (23, 27248), (24, 27230), (26, 27203), (28, 27170), (29, 27140), (32, 26990),

Gene: GaloreK\_31 Start: 27343, Stop: 26942, Start Num: 14

Candidate Starts for GaloreK\_31:

(3, 27454), (Start: 7 @27424 has 2 MA's), (10, 27400), (Start: 14 @27343 has 45 MA's), (16, 27316), (18, 27286), (20, 27268), (23, 27244), (24, 27226), (26, 27199), (28, 27166), (29, 27136), (32, 26986),

Gene: Gavriela\_31 Start: 27604, Stop: 27203, Start Num: 14

Candidate Starts for Gavriela\_31:

(3, 27715), (Start: 7 @27685 has 2 MA's), (Start: 14 @27604 has 45 MA's), (16, 27577), (18, 27547), (20, 27529), (21, 27520), (23, 27505), (24, 27487), (26, 27460), (28, 27427), (29, 27397), (32, 27247),

Gene: Glaske\_31 Start: 27604, Stop: 27203, Start Num: 14

Candidate Starts for Glaske\_31:

(3, 27715), (Start: 7 @27685 has 2 MA's), (Start: 14 @27604 has 45 MA's), (16, 27577), (18, 27547), (20, 27529), (21, 27520), (23, 27505), (24, 27487), (26, 27460), (28, 27427), (29, 27397), (32, 27247),

Gene: GreaseLightnin\_31 Start: 27596, Stop: 27195, Start Num: 14

Candidate Starts for GreaseLightnin\_31:

(3, 27707), (Start: 7 @27677 has 2 MA's), (Start: 14 @27596 has 45 MA's), (16, 27569), (18, 27539), (20, 27521), (21, 27512), (23, 27497), (24, 27479), (26, 27452), (28, 27419), (29, 27389), (32, 27239),

Gene: HUHilltop\_31 Start: 27380, Stop: 26979, Start Num: 14

Candidate Starts for HUHilltop\_31:

(3, 27491), (Start: 7 @27461 has 2 MA's), (10, 27437), (Start: 14 @27380 has 45 MA's), (16, 27353), (18, 27323), (20, 27305), (23, 27281), (24, 27263), (26, 27236), (28, 27203), (29, 27173), (32, 27023),

Gene: Jebeks\_32 Start: 27332, Stop: 26931, Start Num: 14

Candidate Starts for Jebeks\_32:

(3, 27443), (Start: 7 @27413 has 2 MA's), (Start: 14 @27332 has 45 MA's), (16, 27305), (18, 27275), (20, 27257), (23, 27233), (24, 27215), (26, 27188), (28, 27155), (29, 27125), (32, 26975),

Gene: Jung\_30 Start: 27311, Stop: 26910, Start Num: 14

Candidate Starts for Jung\_30:

(3, 27422), (Start: 7 @27392 has 2 MA's), (Start: 14 @27311 has 45 MA's), (16, 27284), (18, 27254), (20, 27236), (21, 27227), (23, 27212), (24, 27194), (26, 27167), (28, 27134), (29, 27104), (32, 26954),

Gene: Juniormint\_31 Start: 27383, Stop: 26982, Start Num: 14

Candidate Starts for Juniormint\_31:

(3, 27494), (Start: 7 @27464 has 2 MA's), (Start: 14 @27383 has 45 MA's), (16, 27356), (18, 27326), (20, 27308), (21, 27299), (23, 27284), (24, 27266), (26, 27239), (28, 27206), (29, 27176), (32, 27026),

Gene: Kari\_31 Start: 27344, Stop: 26943, Start Num: 14

Candidate Starts for Kari\_31:

(3, 27455), (Start: 7 @27425 has 2 MA's), (10, 27401), (Start: 14 @27344 has 45 MA's), (16, 27317), (18, 27287), (20, 27269), (23, 27245), (24, 27227), (26, 27200), (28, 27167), (29, 27137), (32, 26987),

Gene: Kihatsu\_43 Start: 31043, Stop: 30516, Start Num: 4

Candidate Starts for Kihatsu\_43:

(Start: 4 @31043 has 2 MA's), (6, 31019), (8, 31007), (Start: 11 @30965 has 1 MA's), (Start: 13 @30953 has 1 MA's), (17, 30884), (19, 30869), (30, 30719), (31, 30626),

Gene: KilKor\_31 Start: 27604, Stop: 27203, Start Num: 14

Candidate Starts for KilKor\_31:

(3, 27715), (Start: 7 @27685 has 2 MA's), (Start: 14 @27604 has 45 MA's), (16, 27577), (18, 27547), (20, 27529), (21, 27520), (23, 27505), (24, 27487), (26, 27460), (28, 27427), (29, 27397), (32, 27247),

Gene: Ksquared\_31 Start: 27361, Stop: 26960, Start Num: 14

Candidate Starts for Ksquared\_31:

(3, 27472), (Start: 7 @27442 has 2 MA's), (Start: 14 @27361 has 45 MA's), (16, 27334), (18, 27304), (20, 27286), (21, 27277), (23, 27262), (24, 27244), (26, 27217), (28, 27184), (29, 27154), (32, 27004),

Gene: Langerak\_31 Start: 27363, Stop: 26962, Start Num: 14

Candidate Starts for Langerak\_31:

(3, 27474), (Start: 7 @27444 has 2 MA's), (10, 27420), (Start: 14 @27363 has 45 MA's), (16, 27336), (18, 27306), (20, 27288), (23, 27264), (24, 27246), (26, 27219), (28, 27186), (29, 27156), (32, 27006),

Gene: Majeke\_31 Start: 27385, Stop: 26984, Start Num: 14

Candidate Starts for Majeke\_31:

(3, 27496), (Start: 7 @27466 has 2 MA's), (10, 27442), (Start: 14 @27385 has 45 MA's), (16, 27358), (18, 27328), (20, 27310), (23, 27286), (24, 27268), (26, 27241), (28, 27208), (29, 27178), (32, 27028),

Gene: Malithi\_31 Start: 27270, Stop: 26800, Start Num: 14

Candidate Starts for Malithi\_31:

(3, 27381), (Start: 7 @27351 has 2 MA's), (Start: 14 @27270 has 45 MA's), (16, 27243), (18, 27213), (20, 27195), (21, 27186), (23, 27171), (24, 27153), (26, 27126), (28, 27093), (29, 27063), (32, 26913), (33, 26886), (35, 26808),

Gene: Mangethe\_31 Start: 27385, Stop: 26984, Start Num: 14

Candidate Starts for Mangethe\_31:

(3, 27496), (Start: 7 @27466 has 2 MA's), (10, 27442), (Start: 14 @27385 has 45 MA's), (16, 27358), (18, 27328), (20, 27310), (23, 27286), (24, 27268), (26, 27241), (28, 27208), (29, 27178), (32, 27028),

Gene: Megiddo\_31 Start: 27604, Stop: 27203, Start Num: 14

Candidate Starts for Megiddo\_31:

(3, 27715), (Start: 7 @27685 has 2 MA's), (Start: 14 @27604 has 45 MA's), (16, 27577), (18, 27547), (20, 27529), (21, 27520), (23, 27505), (24, 27487), (26, 27460), (28, 27427), (29, 27397), (32, 27247),

Gene: Nazo\_35 Start: 29476, Stop: 29075, Start Num: 14

Candidate Starts for Nazo\_35:

(2, 29623), (5, 29581), (9, 29542), (12, 29506), (Start: 14 @29476 has 45 MA's), (22, 29386), (23, 29377), (26, 29332), (28, 29299), (29, 29269), (32, 29119),

Gene: Necropolis\_31 Start: 27344, Stop: 26943, Start Num: 14

Candidate Starts for Necropolis\_31:

(3, 27455), (Start: 7 @27425 has 2 MA's), (10, 27401), (Start: 14 @27344 has 45 MA's), (16, 27317), (18, 27287), (20, 27269), (23, 27245), (24, 27227), (26, 27200), (28, 27167), (29, 27137), (32, 26987),

Gene: PeanutPie\_31 Start: 27343, Stop: 26942, Start Num: 14

Candidate Starts for PeanutPie\_31:

(3, 27454), (Start: 7 @27424 has 2 MA's), (Start: 14 @27343 has 45 MA's), (16, 27316), (18, 27286), (20, 27268), (21, 27259), (23, 27244), (24, 27226), (26, 27199), (28, 27166), (29, 27136), (32, 26986),

Gene: Phalm\_31 Start: 27604, Stop: 27203, Start Num: 14

Candidate Starts for Phalm\_31:

(3, 27715), (Start: 7 @27685 has 2 MA's), (Start: 14 @27604 has 45 MA's), (16, 27577), (18, 27547), (20, 27529), (21, 27520), (23, 27505), (24, 27487), (26, 27460), (28, 27427), (29, 27397), (32, 27247),

Gene: Phayonce\_33 Start: 29388, Stop: 28987, Start Num: 14

Candidate Starts for Phayonce\_33:

(Start: 14 @29388 has 45 MA's), (15, 29370), (21, 29304), (22, 29298), (23, 29289), (26, 29244), (28, 29211), (29, 29181),

Gene: Phegasus\_31 Start: 27433, Stop: 26951, Start Num: 7

Candidate Starts for Phegasus\_31:

(3, 27463), (Start: 7 @27433 has 2 MA's), (Start: 14 @27352 has 45 MA's), (16, 27325), (18, 27295), (20, 27277), (23, 27253), (24, 27235), (26, 27208), (28, 27175), (29, 27145), (32, 26995),

Gene: Phineas\_31 Start: 27718, Stop: 27317, Start Num: 14

Candidate Starts for Phineas\_31:

(3, 27829), (Start: 7 @27799 has 2 MA's), (10, 27775), (Start: 14 @27718 has 45 MA's), (16, 27691), (18, 27661), (20, 27643), (23, 27619), (24, 27601), (26, 27574), (28, 27541), (29, 27511), (32, 27361),

Gene: Polkaroo\_31 Start: 27361, Stop: 26960, Start Num: 14

Candidate Starts for Polkaroo\_31:

(3, 27472), (Start: 7 @27442 has 2 MA's), (Start: 14 @27361 has 45 MA's), (16, 27334), (18, 27304), (20, 27286), (21, 27277), (23, 27262), (24, 27244), (26, 27217), (28, 27184), (29, 27154), (32, 27004),

Gene: Popper\_41 Start: 29991, Stop: 29548, Start Num: 11

Candidate Starts for Popper\_41:

(Start: 4 @30069 has 2 MA's), (6, 30045), (8, 30033), (Start: 11 @29991 has 1 MA's), (Start: 13 @29979 has 1 MA's), (17, 29910), (19, 29895), (30, 29745), (31, 29652),

Gene: Purky\_38 Start: 30118, Stop: 29705, Start Num: 14

Candidate Starts for Purky\_38:

(Start: 14 @30118 has 45 MA's), (15, 30100), (17, 30073), (21, 30034), (22, 30028), (23, 30019), (26, 29974), (28, 29941), (29, 29911),

Gene: Pygmy\_33 Start: 29186, Stop: 28785, Start Num: 14

Candidate Starts for Pygmy\_33:

(Start: 14 @29186 has 45 MA's), (16, 29159), (18, 29129), (20, 29111), (23, 29087), (24, 29069), (26, 29042), (28, 29009), (29, 28979), (32, 28829),

Gene: Shipwreck\_33 Start: 29161, Stop: 28760, Start Num: 14

Candidate Starts for Shipwreck\_33:

(Start: 14 @29161 has 45 MA's), (16, 29134), (18, 29104), (20, 29086), (23, 29062), (24, 29044), (26, 29017), (28, 28984), (29, 28954), (32, 28804),

Gene: Sonah\_31 Start: 27333, Stop: 26932, Start Num: 14

Candidate Starts for Sonah\_31:

(3, 27444), (Start: 7 @27414 has 2 MA's), (Start: 14 @27333 has 45 MA's), (16, 27306), (18, 27276), (20, 27258), (21, 27249), (23, 27234), (24, 27216), (26, 27189), (28, 27156), (29, 27126), (32, 26976),

Gene: StevieRay\_31 Start: 27312, Stop: 26911, Start Num: 14

Candidate Starts for StevieRay\_31:

(3, 27423), (Start: 7 @27393 has 2 MA's), (Start: 14 @27312 has 45 MA's), (16, 27285), (18, 27255), (20, 27237), (21, 27228), (23, 27213), (24, 27195), (26, 27168), (28, 27135), (29, 27105), (32, 26955),

Gene: StressBall\_31 Start: 27604, Stop: 27203, Start Num: 14

Candidate Starts for StressBall\_31:

(3, 27715), (Start: 7 @27685 has 2 MA's), (Start: 14 @27604 has 45 MA's), (16, 27577), (18, 27547), (20, 27529), (21, 27520), (23, 27505), (24, 27487), (26, 27460), (28, 27427), (29, 27397), (32, 27247),

Gene: Techage\_31 Start: 27370, Stop: 26969, Start Num: 14

Candidate Starts for Techage\_31:

(3, 27481), (Start: 7 @27451 has 2 MA's), (10, 27427), (Start: 14 @27370 has 45 MA's), (16, 27343), (18, 27313), (20, 27295), (23, 27271), (24, 27253), (26, 27226), (28, 27193), (29, 27163), (32, 27013),

Gene: Thespis\_31 Start: 27421, Stop: 26939, Start Num: 7

Candidate Starts for Thespis\_31:

(3, 27451), (Start: 7 @27421 has 2 MA's), (Start: 14 @27340 has 45 MA's), (16, 27313), (18, 27283), (20, 27265), (21, 27256), (23, 27241), (24, 27223), (26, 27196), (28, 27163), (29, 27133), (32, 26983),

Gene: Venti\_31 Start: 27347, Stop: 26946, Start Num: 14

Candidate Starts for Venti\_31:

(3, 27458), (Start: 7 @27428 has 2 MA's), (10, 27404), (Start: 14 @27347 has 45 MA's), (16, 27320), (18, 27290), (20, 27272), (23, 27248), (24, 27230), (26, 27203), (28, 27170), (29, 27140), (32, 26990),

Gene: Vidya\_31 Start: 27380, Stop: 26979, Start Num: 14

Candidate Starts for Vidya\_31:

(3, 27491), (Start: 7 @27461 has 2 MA's), (10, 27437), (Start: 14 @27380 has 45 MA's), (16, 27353), (18, 27323), (20, 27305), (23, 27281), (24, 27263), (26, 27236), (28, 27203), (29, 27173), (32, 27023),

Gene: Willsammy\_30 Start: 27087, Stop: 26686, Start Num: 14

Candidate Starts for Willsammy\_30:

(3, 27198), (Start: 7 @27168 has 2 MA's), (Start: 14 @27087 has 45 MA's), (16, 27060), (18, 27030), (20, 27012), (21, 27003), (23, 26988), (24, 26970), (26, 26943), (28, 26910), (29, 26880), (32, 26730),

Gene: Zilizebeth\_31 Start: 27379, Stop: 26978, Start Num: 14

Candidate Starts for Zilizebeth\_31:

(3, 27490), (Start: 7 @27460 has 2 MA's), (10, 27436), (Start: 14 @27379 has 45 MA's), (16, 27352), (18, 27322), (20, 27304), (23, 27280), (24, 27262), (26, 27235), (28, 27202), (29, 27172), (32, 27022),