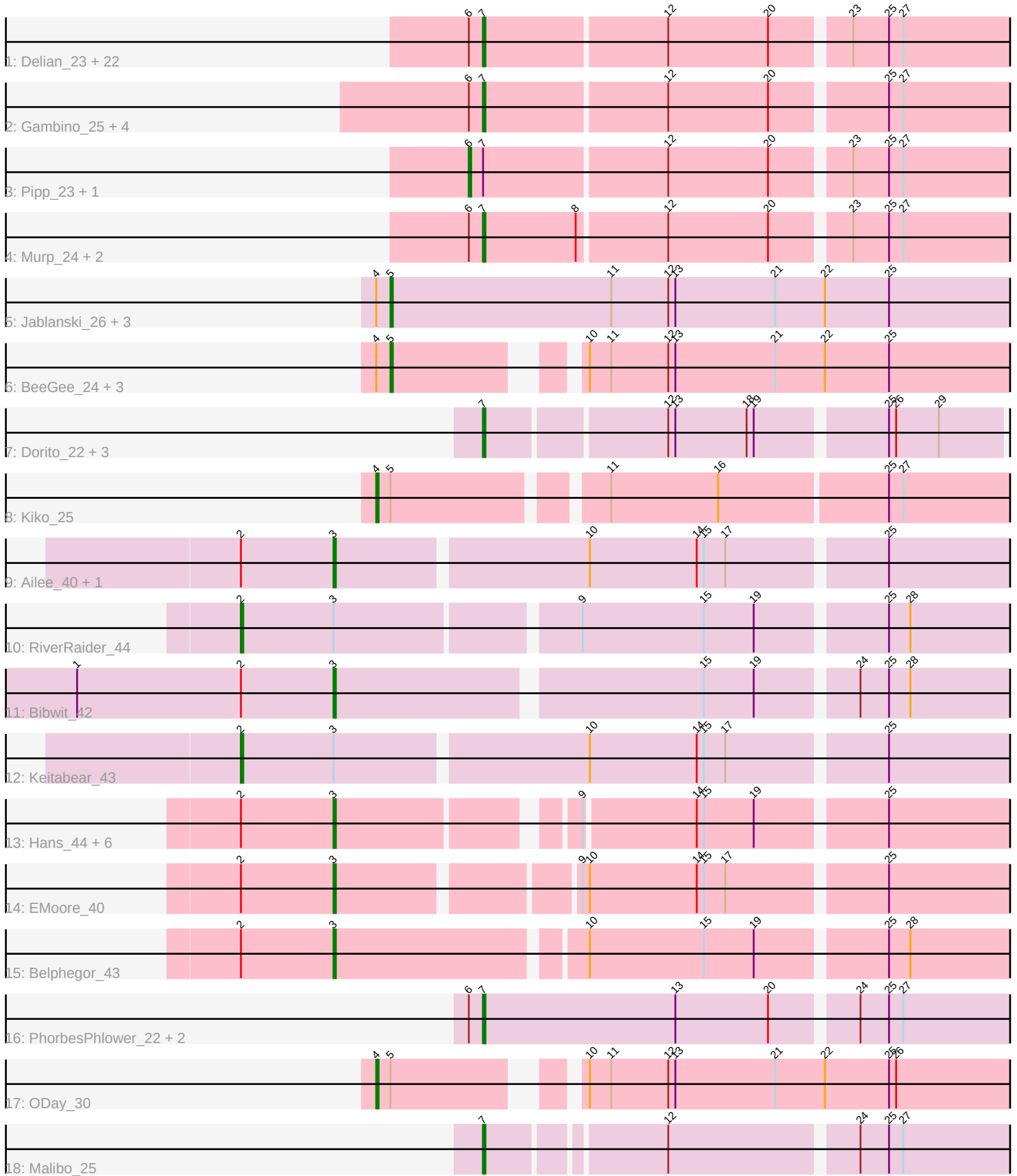


# Pham 325177



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 325177 Report

This analysis was run 09/05/26 on database version 662.

Pham number 325177 has 65 members, 2 are drafts.

Phages represented in each track:

- Track 1 : Delian\_23, UmaThurman\_23, JasperJr\_23, Zarbodnamra\_23, Melba\_23, Fenry\_22, Zilla\_23, Hitter\_23, Archis\_24, Malachai\_24, Jalammah\_25, BlingBling\_23, Barco\_23, Samba\_23, MintFen\_23, Guacamole\_23, Utz\_23, CaptainKirk2\_23, Walrus\_25, PhrostedPhlake\_25, Lysidious\_24, Mellie\_22, Begonia\_24
- Track 2 : Gambino\_25, Azula\_25, Frokostdame\_23, Blueberry\_25, MissRona\_25
- Track 3 : Pipp\_23, Wisp\_22
- Track 4 : Murp\_24, Bunnybear\_22, CheeseSpider\_27
- Track 5 : Jablanski\_26, Pytheas\_26, Posh\_26, Wrigley\_26
- Track 6 : BeeGee\_24, Confidence\_24, Cashline\_24, Denise\_20
- Track 7 : Dorito\_22, PhriskyACE\_22, Tuti\_23, Invectra\_23
- Track 8 : Kiko\_25
- Track 9 : Ailee\_40, Sedona\_43
- Track 10 : RiverRaider\_44
- Track 11 : Bibwit\_42
- Track 12 : Keitabear\_43
- Track 13 : Hans\_44, Ali17\_40, MelBins\_43, Phauci\_35, Leonard\_42, Inspectinfecti\_43, Phinally\_42
- Track 14 : EMoore\_40
- Track 15 : Belphegor\_43
- Track 16 : PhorbesPhlower\_22, Morkie\_22, InLimbo\_23
- Track 17 : ODay\_30
- Track 18 : Malibo\_25

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

The start number called the most often in the published annotations is 7, it was called in 37 of the 63 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Archis\_24, Azula\_25, Barco\_23, Begonia\_24, BlingBling\_23, Blueberry\_25, Bunnybear\_22, CaptainKirk2\_23, CheeseSpider\_27, Delian\_23, Dorito\_22, Fenry\_22, Frokostdame\_23, Gambino\_25, Guacamole\_23, Hitter\_23, InLimbo\_23, Invectra\_23, Jalammah\_25, JasperJr\_23, Lysidious\_24, Malachai\_24, Malibo\_25, Melba\_23, Mellie\_22, MintFen\_23, MissRona\_25, Morkie\_22, Murp\_24, PhorbesPhlower\_22,

PhriskyACE\_22, PhrostedPhlake\_25, Samba\_23, Tuti\_23, UmaThurman\_23, Utz\_23, Walrus\_25, Zarbodnamra\_23, Zilla\_23,

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

- Pipp\_23, Wisp\_22,

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

- Ailee\_40, Ali17\_40, BeeGee\_24, Belphegor\_43, Bibwit\_42, Cashline\_24, Confidence\_24, Denise\_20, EMoore\_40, Hans\_44, Inspectinfecti\_43, Jablanski\_26, Keitabear\_43, Kiko\_25, Leonard\_42, MelBins\_43, ODay\_30, Phauci\_35, Phinally\_42, Posh\_26, Pytheas\_26, RiverRaider\_44, Sedona\_43, Wrigley\_26,

### Summary by start number:

Start 2:

- Found in 14 of 65 ( 21.5% ) of genes in pham
- Manual Annotations of this start: 2 of 63
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Keitabear\_43 (DE1), RiverRaider\_44 (DE1),

Start 3:

- Found in 14 of 65 ( 21.5% ) of genes in pham
- Manual Annotations of this start: 12 of 63
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Ailee\_40 (DE1), Ali17\_40 (DE2), Belphegor\_43 (DE2), Bibwit\_42 (DE1), EMoore\_40 (DE2), Hans\_44 (DE2), Inspectinfecti\_43 (DE2), Leonard\_42 (DE2), MelBins\_43 (DE2), Phauci\_35 (DE2), Phinally\_42 (DE2), Sedona\_43 (DE1),

Start 4:

- Found in 10 of 65 ( 15.4% ) of genes in pham
- Manual Annotations of this start: 2 of 63
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Kiko\_25 (DB), ODay\_30 (DN),

Start 5:

- Found in 10 of 65 ( 15.4% ) of genes in pham
- Manual Annotations of this start: 8 of 63
- Called 80.0% of time when present
- Phage (with cluster) where this start called: BeeGee\_24 (CY5), Cashline\_24 (CY6), Confidence\_24 (CY1), Denise\_20 (CZ5), Jablanski\_26 (CY3), Posh\_26 (CY4), Pytheas\_26 (CY3), Wrigley\_26 (CY4),

Start 6:

- Found in 36 of 65 ( 55.4% ) of genes in pham
- Manual Annotations of this start: 2 of 63
- Called 5.6% of time when present
- Phage (with cluster) where this start called: Pipp\_23 (CV), Wisp\_22 (CV),

Start 7:

- Found in 41 of 65 ( 63.1% ) of genes in pham
- Manual Annotations of this start: 37 of 63

- Called 95.1% of time when present
- Phage (with cluster) where this start called: Archis\_24 (CV), Azula\_25 (CV), Barco\_23 (CV), Begonia\_24 (CV), BlingBling\_23 (CV), Blueberry\_25 (CV), Bunnybear\_22 (CZ), CaptainKirk2\_23 (CV), CheeseSpider\_27 (CV), Delian\_23 (CV), Dorito\_22 (CZ4), Fenry\_22 (CV), Frokostdame\_23 (CV), Gambino\_25 (CV), Guacamole\_23 (CV), Hitter\_23 (CV), InLimbo\_23 (DH), Invecra\_23 (CZ4), Jalammah\_25 (CV), JasperJr\_23 (CV), Lysidious\_24 (CV), Malachai\_24 (CV), Malibo\_25 (DW), Melba\_23 (CV), Mellie\_22 (CV), MintFen\_23 (CV), MissRona\_25 (CV), Morkie\_22 (DH), Murp\_24 (CV), PhorbesPhlower\_22 (DH), PhriskyACE\_22 (CZ4), PhrostedPhlake\_25 (CV), Samba\_23 (CV), Tuti\_23 (CZ4), UmaThurman\_23 (CV), Utz\_23 (CV), Walrus\_25 (CV), Zarbodnamra\_23 (CV), Zilla\_23 (CV),

### Summary by clusters:

There are 15 clusters represented in this pham: CY3, DN, CY1, DH, CY5, CY4, DE1, DE2, DB, CZ4, CZ5, CZ, DW, CV, CY6,

Info for manual annotations of cluster CV:

- Start number 6 was manually annotated 2 times for cluster CV.
- Start number 7 was manually annotated 29 times for cluster CV.

Info for manual annotations of cluster CY1:

- Start number 5 was manually annotated 1 time for cluster CY1.

Info for manual annotations of cluster CY3:

- Start number 5 was manually annotated 2 times for cluster CY3.

Info for manual annotations of cluster CY4:

- Start number 5 was manually annotated 2 times for cluster CY4.

Info for manual annotations of cluster CY5:

- Start number 5 was manually annotated 1 time for cluster CY5.

Info for manual annotations of cluster CY6:

- Start number 5 was manually annotated 1 time for cluster CY6.

Info for manual annotations of cluster CZ:

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

Info for manual annotations of cluster CZ4:

- Start number 7 was manually annotated 4 times for cluster CZ4.

Info for manual annotations of cluster CZ5:

- Start number 5 was manually annotated 1 time for cluster CZ5.

Info for manual annotations of cluster DB:

- Start number 4 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DE1:

- Start number 2 was manually annotated 2 times for cluster DE1.
- Start number 3 was manually annotated 3 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 3 was manually annotated 9 times for cluster DE2.

Info for manual annotations of cluster DH:

- Start number 7 was manually annotated 2 times for cluster DH.

Info for manual annotations of cluster DN:

- Start number 4 was manually annotated 1 time for cluster DN.

Info for manual annotations of cluster DW:

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

### **Gene Information:**

Gene: Ailee\_40 Start: 38298, Stop: 38588, Start Num: 3

Candidate Starts for Ailee\_40:

(Start: 2 @38259 has 2 MA's), (Start: 3 @38298 has 12 MA's), (10, 38400), (14, 38445), (15, 38448), (17, 38457), (25, 38520),

Gene: Ali17\_40 Start: 37604, Stop: 37882, Start Num: 3

Candidate Starts for Ali17\_40:

(Start: 2 @37565 has 2 MA's), (Start: 3 @37604 has 12 MA's), (9, 37694), (14, 37739), (15, 37742), (19, 37763), (25, 37814),

Gene: Archis\_24 Start: 20670, Stop: 20924, Start Num: 7

Candidate Starts for Archis\_24:

(Start: 6 @20664 has 2 MA's), (Start: 7 @20670 has 37 MA's), (12, 20745), (20, 20787), (23, 20817), (25, 20832), (27, 20838),

Gene: Azula\_25 Start: 20771, Stop: 21025, Start Num: 7

Candidate Starts for Azula\_25:

(Start: 6 @20765 has 2 MA's), (Start: 7 @20771 has 37 MA's), (12, 20846), (20, 20888), (25, 20933), (27, 20939),

Gene: Barco\_23 Start: 20459, Stop: 20713, Start Num: 7

Candidate Starts for Barco\_23:

(Start: 6 @20453 has 2 MA's), (Start: 7 @20459 has 37 MA's), (12, 20534), (20, 20576), (23, 20606), (25, 20621), (27, 20627),

Gene: BeeGee\_24 Start: 21065, Stop: 21334, Start Num: 5

Candidate Starts for BeeGee\_24:

(Start: 4 @21059 has 2 MA's), (Start: 5 @21065 has 8 MA's), (10, 21128), (11, 21137), (12, 21161), (13, 21164), (21, 21206), (22, 21227), (25, 21254),

Gene: Begonia\_24 Start: 20940, Stop: 21194, Start Num: 7

Candidate Starts for Begonia\_24:

(Start: 6 @20934 has 2 MA's), (Start: 7 @20940 has 37 MA's), (12, 21015), (20, 21057), (23, 21087), (25, 21102), (27, 21108),

Gene: Belphegor\_43 Start: 39646, Stop: 39933, Start Num: 3

Candidate Starts for Belphegor\_43:

(Start: 2 @39607 has 2 MA's), (Start: 3 @39646 has 12 MA's), (10, 39745), (15, 39793), (19, 39814), (25, 39865), (28, 39874),

Gene: Bibwit\_42 Start: 38235, Stop: 38522, Start Num: 3

Candidate Starts for Bibwit\_42:

(1, 38127), (Start: 2 @38196 has 2 MA's), (Start: 3 @38235 has 12 MA's), (15, 38382), (19, 38403), (24, 38442), (25, 38454), (28, 38463),

Gene: BlingBling\_23 Start: 20459, Stop: 20713, Start Num: 7

Candidate Starts for BlingBling\_23:

(Start: 6 @20453 has 2 MA's), (Start: 7 @20459 has 37 MA's), (12, 20534), (20, 20576), (23, 20606), (25, 20621), (27, 20627),

Gene: Blueberry\_25 Start: 20771, Stop: 21025, Start Num: 7

Candidate Starts for Blueberry\_25:

(Start: 6 @20765 has 2 MA's), (Start: 7 @20771 has 37 MA's), (12, 20846), (20, 20888), (25, 20933), (27, 20939),

Gene: Bunnybear\_22 Start: 21536, Stop: 21790, Start Num: 7

Candidate Starts for Bunnybear\_22:

(Start: 6 @21530 has 2 MA's), (Start: 7 @21536 has 37 MA's), (8, 21575), (12, 21611), (20, 21653), (23, 21683), (25, 21698), (27, 21704),

Gene: CaptainKirk2\_23 Start: 20480, Stop: 20734, Start Num: 7

Candidate Starts for CaptainKirk2\_23:

(Start: 6 @20474 has 2 MA's), (Start: 7 @20480 has 37 MA's), (12, 20555), (20, 20597), (23, 20627), (25, 20642), (27, 20648),

Gene: Cashline\_24 Start: 20932, Stop: 21201, Start Num: 5

Candidate Starts for Cashline\_24:

(Start: 4 @20926 has 2 MA's), (Start: 5 @20932 has 8 MA's), (10, 20995), (11, 21004), (12, 21028), (13, 21031), (21, 21073), (22, 21094), (25, 21121),

Gene: CheeseSpider\_27 Start: 21025, Stop: 21279, Start Num: 7

Candidate Starts for CheeseSpider\_27:

(Start: 6 @21019 has 2 MA's), (Start: 7 @21025 has 37 MA's), (8, 21064), (12, 21100), (20, 21142), (23, 21172), (25, 21187), (27, 21193),

Gene: Confidence\_24 Start: 21095, Stop: 21364, Start Num: 5

Candidate Starts for Confidence\_24:

(Start: 4 @21089 has 2 MA's), (Start: 5 @21095 has 8 MA's), (10, 21158), (11, 21167), (12, 21191), (13, 21194), (21, 21236), (22, 21257), (25, 21284),

Gene: Delian\_23 Start: 20480, Stop: 20734, Start Num: 7

Candidate Starts for Delian\_23:

(Start: 6 @20474 has 2 MA's), (Start: 7 @20480 has 37 MA's), (12, 20555), (20, 20597), (23, 20627), (25, 20642), (27, 20648),

Gene: Denise\_20 Start: 18160, Stop: 18429, Start Num: 5

Candidate Starts for Denise\_20:

(Start: 4 @18154 has 2 MA's), (Start: 5 @18160 has 8 MA's), (10, 18223), (11, 18232), (12, 18256), (13, 18259), (21, 18301), (22, 18322), (25, 18349),

Gene: Dorito\_22 Start: 19982, Stop: 20206, Start Num: 7

Candidate Starts for Dorito\_22:

(Start: 7 @19982 has 37 MA's), (12, 20054), (13, 20057), (18, 20087), (19, 20090), (25, 20141), (26, 20144), (29, 20162),

Gene: EMoore\_40 Start: 38778, Stop: 39062, Start Num: 3

Candidate Starts for EMoore\_40:

(Start: 2 @38739 has 2 MA's), (Start: 3 @38778 has 12 MA's), (9, 38871), (10, 38874), (14, 38919), (15, 38922), (17, 38931), (25, 38994),

Gene: Fenry\_22 Start: 20178, Stop: 20432, Start Num: 7

Candidate Starts for Fenry\_22:

(Start: 6 @20172 has 2 MA's), (Start: 7 @20178 has 37 MA's), (12, 20253), (20, 20295), (23, 20325), (25, 20340), (27, 20346),

Gene: Frokostdame\_23 Start: 20425, Stop: 20679, Start Num: 7

Candidate Starts for Frokostdame\_23:

(Start: 6 @20419 has 2 MA's), (Start: 7 @20425 has 37 MA's), (12, 20500), (20, 20542), (25, 20587), (27, 20593),

Gene: Gambino\_25 Start: 20771, Stop: 21025, Start Num: 7

Candidate Starts for Gambino\_25:

(Start: 6 @20765 has 2 MA's), (Start: 7 @20771 has 37 MA's), (12, 20846), (20, 20888), (25, 20933), (27, 20939),

Gene: Guacamole\_23 Start: 20463, Stop: 20717, Start Num: 7

Candidate Starts for Guacamole\_23:

(Start: 6 @20457 has 2 MA's), (Start: 7 @20463 has 37 MA's), (12, 20538), (20, 20580), (23, 20610), (25, 20625), (27, 20631),

Gene: Hans\_44 Start: 38244, Stop: 38522, Start Num: 3

Candidate Starts for Hans\_44:

(Start: 2 @38205 has 2 MA's), (Start: 3 @38244 has 12 MA's), (9, 38334), (14, 38379), (15, 38382), (19, 38403), (25, 38454),

Gene: Hitter\_23 Start: 20459, Stop: 20713, Start Num: 7

Candidate Starts for Hitter\_23:

(Start: 6 @20453 has 2 MA's), (Start: 7 @20459 has 37 MA's), (12, 20534), (20, 20576), (23, 20606), (25, 20621), (27, 20627),

Gene: InLimbo\_23 Start: 18738, Stop: 18995, Start Num: 7

Candidate Starts for InLimbo\_23:

(Start: 6 @18732 has 2 MA's), (Start: 7 @18738 has 37 MA's), (13, 18819), (20, 18858), (24, 18891), (25, 18903), (27, 18909),

Gene: Inspectinfecti\_43 Start: 38690, Stop: 38968, Start Num: 3

Candidate Starts for Inspectinfecti\_43:

(Start: 2 @38651 has 2 MA's), (Start: 3 @38690 has 12 MA's), (9, 38780), (14, 38825), (15, 38828), (19, 38849), (25, 38900),

Gene: Invectra\_23 Start: 20847, Stop: 21071, Start Num: 7

Candidate Starts for Invectra\_23:

(Start: 7 @20847 has 37 MA's), (12, 20919), (13, 20922), (18, 20952), (19, 20955), (25, 21006), (26, 21009), (29, 21027),

Gene: Jablanski\_26 Start: 22153, Stop: 22443, Start Num: 5

Candidate Starts for Jablanski\_26:

(Start: 4 @22147 has 2 MA's), (Start: 5 @22153 has 8 MA's), (11, 22246), (12, 22270), (13, 22273), (21, 22315), (22, 22336), (25, 22363),

Gene: Jalammah\_25 Start: 21253, Stop: 21507, Start Num: 7

Candidate Starts for Jalammah\_25:

(Start: 6 @21247 has 2 MA's), (Start: 7 @21253 has 37 MA's), (12, 21328), (20, 21370), (23, 21400), (25, 21415), (27, 21421),

Gene: JasperJr\_23 Start: 20463, Stop: 20717, Start Num: 7

Candidate Starts for JasperJr\_23:

(Start: 6 @20457 has 2 MA's), (Start: 7 @20463 has 37 MA's), (12, 20538), (20, 20580), (23, 20610), (25, 20625), (27, 20631),

Gene: Keitabear\_43 Start: 39890, Stop: 40219, Start Num: 2

Candidate Starts for Keitabear\_43:

(Start: 2 @39890 has 2 MA's), (Start: 3 @39929 has 12 MA's), (10, 40031), (14, 40076), (15, 40079), (17, 40088), (25, 40151),

Gene: Kiko\_25 Start: 20678, Stop: 20956, Start Num: 4

Candidate Starts for Kiko\_25:

(Start: 4 @20678 has 2 MA's), (Start: 5 @20684 has 8 MA's), (11, 20765), (16, 20810), (25, 20879), (27, 20885),

Gene: Leonard\_42 Start: 38329, Stop: 38607, Start Num: 3

Candidate Starts for Leonard\_42:

(Start: 2 @38290 has 2 MA's), (Start: 3 @38329 has 12 MA's), (9, 38419), (14, 38464), (15, 38467), (19, 38488), (25, 38539),

Gene: Lysidious\_24 Start: 20983, Stop: 21237, Start Num: 7

Candidate Starts for Lysidious\_24:

(Start: 6 @20977 has 2 MA's), (Start: 7 @20983 has 37 MA's), (12, 21058), (20, 21100), (23, 21130), (25, 21145), (27, 21151),

Gene: Malachai\_24 Start: 20940, Stop: 21194, Start Num: 7

Candidate Starts for Malachai\_24:

(Start: 6 @20934 has 2 MA's), (Start: 7 @20940 has 37 MA's), (12, 21015), (20, 21057), (23, 21087), (25, 21102), (27, 21108),

Gene: Malibo\_25 Start: 20695, Stop: 20922, Start Num: 7

Candidate Starts for Malibo\_25:

(Start: 7 @20695 has 37 MA's), (12, 20764), (24, 20839), (25, 20851), (27, 20857),

Gene: MelBins\_43 Start: 38476, Stop: 38754, Start Num: 3

Candidate Starts for MelBins\_43:

(Start: 2 @38437 has 2 MA's), (Start: 3 @38476 has 12 MA's), (9, 38566), (14, 38611), (15, 38614), (19, 38635), (25, 38686),

Gene: Melba\_23 Start: 20459, Stop: 20713, Start Num: 7



Candidate Starts for Melba\_23:

(Start: 6 @20453 has 2 MA's), (Start: 7 @20459 has 37 MA's), (12, 20534), (20, 20576), (23, 20606), (25, 20621), (27, 20627),

Gene: Mellie\_22 Start: 20220, Stop: 20474, Start Num: 7

Candidate Starts for Mellie\_22:

(Start: 6 @20214 has 2 MA's), (Start: 7 @20220 has 37 MA's), (12, 20295), (20, 20337), (23, 20367), (25, 20382), (27, 20388),

Gene: MintFen\_23 Start: 20459, Stop: 20713, Start Num: 7

Candidate Starts for MintFen\_23:

(Start: 6 @20453 has 2 MA's), (Start: 7 @20459 has 37 MA's), (12, 20534), (20, 20576), (23, 20606), (25, 20621), (27, 20627),

Gene: MissRona\_25 Start: 20771, Stop: 21025, Start Num: 7

Candidate Starts for MissRona\_25:

(Start: 6 @20765 has 2 MA's), (Start: 7 @20771 has 37 MA's), (12, 20846), (20, 20888), (25, 20933), (27, 20939),

Gene: Morkie\_22 Start: 18738, Stop: 18995, Start Num: 7

Candidate Starts for Morkie\_22:

(Start: 6 @18732 has 2 MA's), (Start: 7 @18738 has 37 MA's), (13, 18819), (20, 18858), (24, 18891), (25, 18903), (27, 18909),

Gene: Murp\_24 Start: 20727, Stop: 20981, Start Num: 7

Candidate Starts for Murp\_24:

(Start: 6 @20721 has 2 MA's), (Start: 7 @20727 has 37 MA's), (8, 20766), (12, 20802), (20, 20844), (23, 20874), (25, 20889), (27, 20895),

Gene: ODay\_30 Start: 22645, Stop: 22920, Start Num: 4

Candidate Starts for ODay\_30:

(Start: 4 @22645 has 2 MA's), (Start: 5 @22651 has 8 MA's), (10, 22714), (11, 22723), (12, 22747), (13, 22750), (21, 22792), (22, 22813), (25, 22840), (26, 22843),

Gene: Phauci\_35 Start: 35179, Stop: 35457, Start Num: 3

Candidate Starts for Phauci\_35:

(Start: 2 @35140 has 2 MA's), (Start: 3 @35179 has 12 MA's), (9, 35269), (14, 35314), (15, 35317), (19, 35338), (25, 35389),

Gene: Phinally\_42 Start: 38326, Stop: 38604, Start Num: 3

Candidate Starts for Phinally\_42:

(Start: 2 @38287 has 2 MA's), (Start: 3 @38326 has 12 MA's), (9, 38416), (14, 38461), (15, 38464), (19, 38485), (25, 38536),

Gene: PhorbesPhlower\_22 Start: 18738, Stop: 18995, Start Num: 7

Candidate Starts for PhorbesPhlower\_22:

(Start: 6 @18732 has 2 MA's), (Start: 7 @18738 has 37 MA's), (13, 18819), (20, 18858), (24, 18891), (25, 18903), (27, 18909),

Gene: PhriskyACE\_22 Start: 19982, Stop: 20206, Start Num: 7

Candidate Starts for PhriskyACE\_22:

(Start: 7 @19982 has 37 MA's), (12, 20054), (13, 20057), (18, 20087), (19, 20090), (25, 20141), (26, 20144), (29, 20162),

Gene: PhrostedPhlake\_25 Start: 21152, Stop: 21406, Start Num: 7

Candidate Starts for PhrostedPhlake\_25:

(Start: 6 @21146 has 2 MA's), (Start: 7 @21152 has 37 MA's), (12, 21227), (20, 21269), (23, 21299), (25, 21314), (27, 21320),

Gene: Pipp\_23 Start: 20447, Stop: 20707, Start Num: 6

Candidate Starts for Pipp\_23:

(Start: 6 @20447 has 2 MA's), (Start: 7 @20453 has 37 MA's), (12, 20528), (20, 20570), (23, 20600), (25, 20615), (27, 20621),

Gene: Posh\_26 Start: 22006, Stop: 22296, Start Num: 5

Candidate Starts for Posh\_26:

(Start: 4 @22000 has 2 MA's), (Start: 5 @22006 has 8 MA's), (11, 22099), (12, 22123), (13, 22126), (21, 22168), (22, 22189), (25, 22216),

Gene: Pytheas\_26 Start: 22152, Stop: 22442, Start Num: 5

Candidate Starts for Pytheas\_26:

(Start: 4 @22146 has 2 MA's), (Start: 5 @22152 has 8 MA's), (11, 22245), (12, 22269), (13, 22272), (21, 22314), (22, 22335), (25, 22362),

Gene: RiverRaider\_44 Start: 37811, Stop: 38137, Start Num: 2

Candidate Starts for RiverRaider\_44:

(Start: 2 @37811 has 2 MA's), (Start: 3 @37850 has 12 MA's), (9, 37946), (15, 37997), (19, 38018), (25, 38069), (28, 38078),

Gene: Samba\_23 Start: 20537, Stop: 20791, Start Num: 7

Candidate Starts for Samba\_23:

(Start: 6 @20531 has 2 MA's), (Start: 7 @20537 has 37 MA's), (12, 20612), (20, 20654), (23, 20684), (25, 20699), (27, 20705),

Gene: Sedona\_43 Start: 39665, Stop: 39955, Start Num: 3

Candidate Starts for Sedona\_43:

(Start: 2 @39626 has 2 MA's), (Start: 3 @39665 has 12 MA's), (10, 39767), (14, 39812), (15, 39815), (17, 39824), (25, 39887),

Gene: Tuti\_23 Start: 20869, Stop: 21093, Start Num: 7

Candidate Starts for Tuti\_23:

(Start: 7 @20869 has 37 MA's), (12, 20941), (13, 20944), (18, 20974), (19, 20977), (25, 21028), (26, 21031), (29, 21049),

Gene: UmaThurman\_23 Start: 20584, Stop: 20838, Start Num: 7

Candidate Starts for UmaThurman\_23:

(Start: 6 @20578 has 2 MA's), (Start: 7 @20584 has 37 MA's), (12, 20659), (20, 20701), (23, 20731), (25, 20746), (27, 20752),

Gene: Utz\_23 Start: 20454, Stop: 20708, Start Num: 7

Candidate Starts for Utz\_23:

(Start: 6 @20448 has 2 MA's), (Start: 7 @20454 has 37 MA's), (12, 20529), (20, 20571), (23, 20601), (25, 20616), (27, 20622),

Gene: Walrus\_25 Start: 20999, Stop: 21253, Start Num: 7

Candidate Starts for Walrus\_25:

(Start: 6 @20993 has 2 MA's), (Start: 7 @20999 has 37 MA's), (12, 21074), (20, 21116), (23, 21146), (25, 21161), (27, 21167),

Gene: Wisp\_22 Start: 20163, Stop: 20423, Start Num: 6

Candidate Starts for Wisp\_22:

(Start: 6 @20163 has 2 MA's), (Start: 7 @20169 has 37 MA's), (12, 20244), (20, 20286), (23, 20316), (25, 20331), (27, 20337),

Gene: Wrigley\_26 Start: 21903, Stop: 22193, Start Num: 5

Candidate Starts for Wrigley\_26:

(Start: 4 @21897 has 2 MA's), (Start: 5 @21903 has 8 MA's), (11, 21996), (12, 22020), (13, 22023), (21, 22065), (22, 22086), (25, 22113),

Gene: Zarbodnamra\_23 Start: 20458, Stop: 20712, Start Num: 7

Candidate Starts for Zarbodnamra\_23:

(Start: 6 @20452 has 2 MA's), (Start: 7 @20458 has 37 MA's), (12, 20533), (20, 20575), (23, 20605), (25, 20620), (27, 20626),

Gene: Zilla\_23 Start: 20476, Stop: 20730, Start Num: 7

Candidate Starts for Zilla\_23:

(Start: 6 @20470 has 2 MA's), (Start: 7 @20476 has 37 MA's), (12, 20551), (20, 20593), (23, 20623), (25, 20638), (27, 20644),