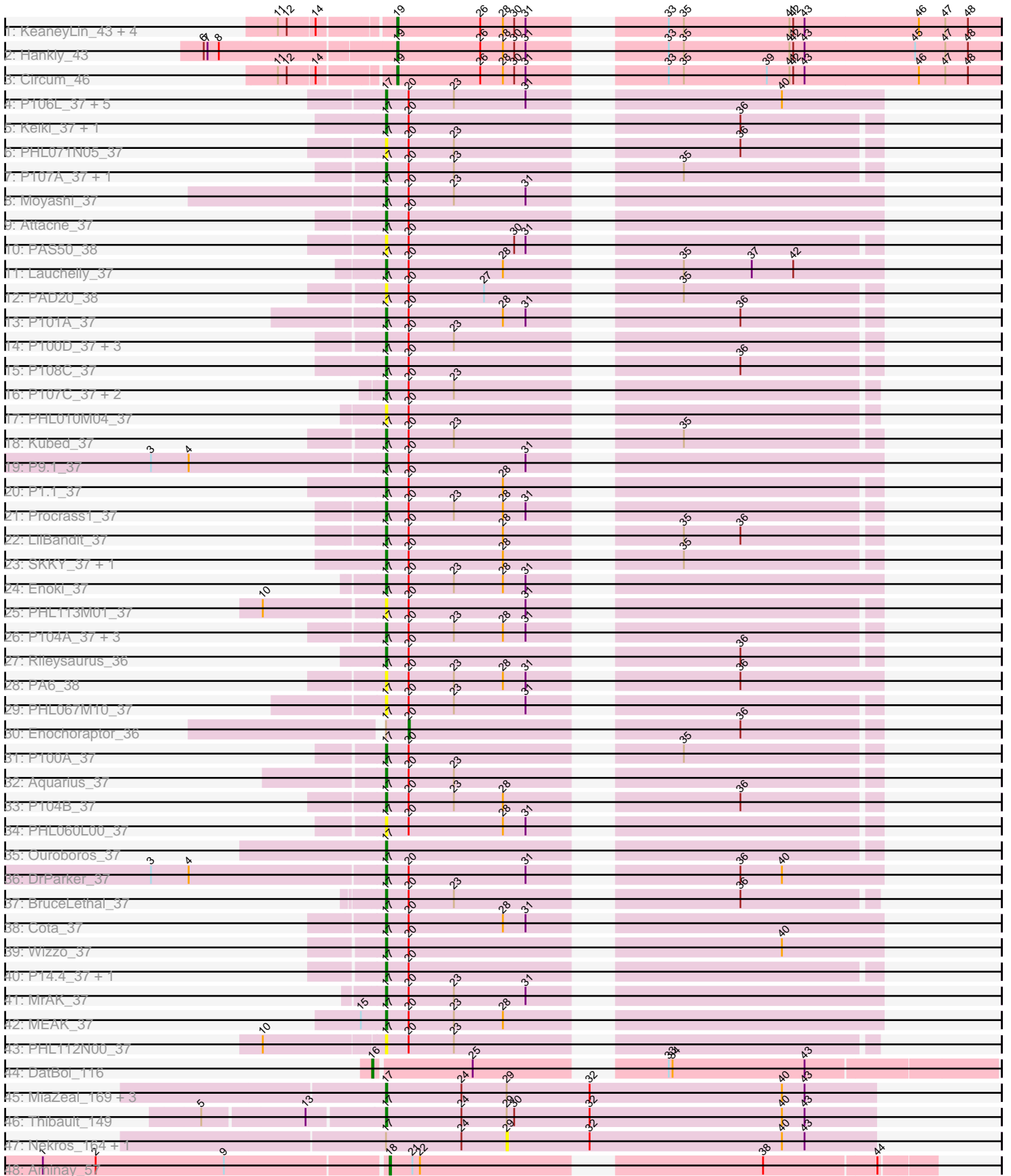


# Pham 224544



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 224544 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224544 has 73 members, 15 are drafts.

Phages represented in each track:

- Track 1 : KeaneyLin\_43, NapoleonB\_44, GoCrazy\_43, Dynamite\_44, Bowling\_43
- Track 2 : Hankly\_43
- Track 3 : Circum\_46
- Track 4 : P106L\_37, P106M\_37, P100.1\_37, P106A\_37, P106C\_38, P106I\_37
- Track 5 : Keiki\_37, Pirate\_37
- Track 6 : PHL071N05\_37
- Track 7 : P107A\_37, Solid\_37
- Track 8 : Moyashi\_37
- Track 9 : Attacne\_37
- Track 10 : PAS50\_38
- Track 11 : Lauchelly\_37
- Track 12 : PAD20\_38
- Track 13 : P101A\_37
- Track 14 : P100D\_37, P105\_37, QueenBey\_37, Leviosa\_37
- Track 15 : P108C\_37
- Track 16 : P107C\_37, ATCC29399BC\_37, ATCC29399BT\_37
- Track 17 : PHL010M04\_37
- Track 18 : Kubed\_37
- Track 19 : P9.1\_37
- Track 20 : P1.1\_37
- Track 21 : Procrass1\_37
- Track 22 : LilBandit\_37
- Track 23 : SKKY\_37, PHL037M02\_37
- Track 24 : Enoki\_37
- Track 25 : PHL113M01\_37
- Track 26 : P104A\_37, PHL111M01\_37, Supernova\_37, Stormborn\_37
- Track 27 : Rileysaurus\_36
- Track 28 : PA6\_38
- Track 29 : PHL067M10\_37
- Track 30 : Enochoraptor\_36
- Track 31 : P100A\_37
- Track 32 : Aquarius\_37
- Track 33 : P104B\_37
- Track 34 : PHL060L00\_37
- Track 35 : Ouroboros\_37
- Track 36 : DrParker\_37
- Track 37 : BruceLethal\_37

- Track 38 : Cota\_37
- Track 39 : Wizzo\_37
- Track 40 : P14.4\_37, PHL114L00\_37
- Track 41 : MrAK\_37
- Track 42 : MEAK\_37
- Track 43 : PHL112N00\_37
- Track 44 : DatBoi\_116
- Track 45 : MiaZeal\_169, LittleE\_173, Lucky2013\_162, Porcelain\_166
- Track 46 : Thibault\_149
- Track 47 : Nekros\_164, Shaboozey\_164
- Track 48 : Aminay\_57

**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 49 of the 58 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ATCC29399BC\_37, ATCC29399BT\_37, Aquarius\_37, Attacne\_37, BruceLethal\_37, Cota\_37, DrParker\_37, Enoki\_37, Keiki\_37, Kubed\_37, Lauchelly\_37, Leviosa\_37, LilBandit\_37, LittleE\_173, Lucky2013\_162, MEAK\_37, MiaZeal\_169, Moyashi\_37, MrAK\_37, Ouroboros\_37, P1.1\_37, P100.1\_37, P100A\_37, P100D\_37, P101A\_37, P104A\_37, P104B\_37, P105\_37, P106A\_37, P106C\_38, P106I\_37, P106L\_37, P106M\_37, P107A\_37, P107C\_37, P108C\_37, P14.4\_37, P9.1\_37, PA6\_38, PAD20\_38, PAS50\_38, PHL010M04\_37, PHL037M02\_37, PHL060L00\_37, PHL067M10\_37, PHL071N05\_37, PHL111M01\_37, PHL112N00\_37, PHL113M01\_37, PHL114L00\_37, Pirate\_37, Porcelain\_166, Procrass1\_37, QueenBey\_37, Rileysaurus\_36, SKKY\_37, Solid\_37, Stormborn\_37, Supernova\_37, Thibault\_149, Wizzo\_37,

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

- Enochoraptor\_36, Nekros\_164, Shaboozey\_164,

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

- Aminay\_57, Bowling\_43, Circum\_46, DatBoi\_116, Dynamite\_44, GoCrazy\_43, Hankly\_43, KeaneyLin\_43, NapoleonB\_44,

**Summary by start number:**

Start 16:

- Found in 1 of 73 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DatBoi\_116 (DL),

Start 17:

- Found in 64 of 73 ( 87.7% ) of genes in pham
- Manual Annotations of this start: 49 of 58
- Called 95.3% of time when present

- Phage (with cluster) where this start called: ATCC29399BC\_37 (BU), ATCC29399BT\_37 (BU), Aquarius\_37 (BU), Attacne\_37 (BU), BruceLethal\_37 (BU), Cota\_37 (BU), DrParker\_37 (BU), Enoki\_37 (BU), Keiki\_37 (BU), Kubed\_37 (BU), Lauchelly\_37 (BU), Leviosa\_37 (BU), LilBandit\_37 (BU), LittleE\_173 (J), Lucky2013\_162 (J), MEAK\_37 (BU), MiaZeal\_169 (J), Moyashi\_37 (BU), MrAK\_37 (BU), Ouroboros\_37 (BU), P1.1\_37 (BU), P100.1\_37 (BU), P100A\_37 (BU), P100D\_37 (BU), P101A\_37 (BU), P104A\_37 (BU), P104B\_37 (BU), P105\_37 (BU), P106A\_37 (BU), P106C\_38 (BU), P106I\_37 (BU), P106L\_37 (BU), P106M\_37 (BU), P107A\_37 (BU), P107C\_37 (BU), P108C\_37 (BU), P14.4\_37 (BU), P9.1\_37 (BU), PA6\_38 (BU), PAD20\_38 (BU), PAS50\_38 (BU), PHL010M04\_37 (BU), PHL037M02\_37 (BU), PHL060L00\_37 (BU), PHL067M10\_37 (BU), PHL071N05\_37 (BU), PHL111M01\_37 (BU), PHL112N00\_37 (BU), PHL113M01\_37 (BU), PHL114L00\_37 (BU), Pirate\_37 (BU), Porcelain\_166 (J), Procrass1\_37 (BU), QueenBey\_37 (BU), Rileysaurus\_36 (BU), SKKY\_37 (BU), Solid\_37 (BU), Stormborn\_37 (BU), Supernova\_37 (BU), Thibault\_149 (J), Wizzo\_37 (BU),

Start 18:

- Found in 1 of 73 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aminay\_57 (K7),

Start 19:

- Found in 7 of 73 ( 9.6% ) of genes in pham
- Manual Annotations of this start: 6 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bowling\_43 (AM), Circum\_46 (AM), Dynamite\_44 (AM), GoCrazy\_43 (AM), Hankly\_43 (AM), KeaneyLin\_43 (AM), NapoleonB\_44 (AM),

Start 20:

- Found in 56 of 73 ( 76.7% ) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 1.8% of time when present
- Phage (with cluster) where this start called: Enochoraptor\_36 (BU),

Start 29:

- Found in 7 of 73 ( 9.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 28.6% of time when present
- Phage (with cluster) where this start called: Nekros\_164 (J), Shaboozey\_164 (J),

### Summary by clusters:

There are 5 clusters represented in this pham: BU, DL, J, AM, K7,

Info for manual annotations of cluster AM:

- Start number 19 was manually annotated 6 times for cluster AM.

Info for manual annotations of cluster BU:

- Start number 17 was manually annotated 44 times for cluster BU.
- Start number 20 was manually annotated 1 time for cluster BU.

Info for manual annotations of cluster DL:

•Start number 16 was manually annotated 1 time for cluster DL.

Info for manual annotations of cluster J:

•Start number 17 was manually annotated 5 times for cluster J.

Info for manual annotations of cluster K7:

•Start number 18 was manually annotated 1 time for cluster K7.

### **Gene Information:**

Gene: ATCC29399BC\_37 Start: 24986, Stop: 24636, Start Num: 17

Candidate Starts for ATCC29399BC\_37:

(Start: 17 @24986 has 49 MA's), (Start: 20 @24968 has 1 MA's), (23, 24932),

Gene: ATCC29399BT\_37 Start: 24986, Stop: 24636, Start Num: 17

Candidate Starts for ATCC29399BT\_37:

(Start: 17 @24986 has 49 MA's), (Start: 20 @24968 has 1 MA's), (23, 24932),

Gene: Aminay\_57 Start: 39956, Stop: 40345, Start Num: 18

Candidate Starts for Aminay\_57:

(1, 39689), (2, 39731), (9, 39833), (Start: 18 @39956 has 1 MA's), (21, 39974), (22, 39980), (38, 40217), (44, 40304),

Gene: Aquarius\_37 Start: 24448, Stop: 24095, Start Num: 17

Candidate Starts for Aquarius\_37:

(Start: 17 @24448 has 49 MA's), (Start: 20 @24430 has 1 MA's), (23, 24394),

Gene: Attacne\_37 Start: 24487, Stop: 24128, Start Num: 17

Candidate Starts for Attacne\_37:

(Start: 17 @24487 has 49 MA's), (Start: 20 @24469 has 1 MA's),

Gene: Bowling\_43 Start: 30182, Stop: 30625, Start Num: 19

Candidate Starts for Bowling\_43:

(11, 30101), (12, 30107), (14, 30128), (Start: 19 @30182 has 6 MA's), (26, 30248), (28, 30266), (30, 30275), (31, 30284), (33, 30362), (35, 30374), (41, 30458), (42, 30461), (43, 30470), (46, 30560), (47, 30581), (48, 30599),

Gene: BruceLethal\_37 Start: 25011, Stop: 24661, Start Num: 17

Candidate Starts for BruceLethal\_37:

(Start: 17 @25011 has 49 MA's), (Start: 20 @24993 has 1 MA's), (23, 24957), (36, 24765),

Gene: Circum\_46 Start: 30820, Stop: 31263, Start Num: 19

Candidate Starts for Circum\_46:

(11, 30739), (12, 30745), (14, 30766), (Start: 19 @30820 has 6 MA's), (26, 30886), (28, 30904), (30, 30913), (31, 30922), (33, 31000), (35, 31012), (39, 31078), (41, 31096), (42, 31099), (43, 31108), (46, 31198), (47, 31219), (48, 31237),

Gene: Cota\_37 Start: 25045, Stop: 24686, Start Num: 17

Candidate Starts for Cota\_37:

(Start: 17 @25045 has 49 MA's), (Start: 20 @25027 has 1 MA's), (28, 24952), (31, 24934),

Gene: DatBoi\_116 Start: 73558, Stop: 74007, Start Num: 16

Candidate Starts for DatBoi\_116:

(Start: 16 @73558 has 1 MA's), (25, 73633), (33, 73753), (34, 73756), (43, 73861),

Gene: DrParker\_37 Start: 25088, Stop: 24729, Start Num: 17

Candidate Starts for DrParker\_37:

(3, 25265), (4, 25235), (Start: 17 @25088 has 49 MA's), (Start: 20 @25070 has 1 MA's), (31, 24977), (36, 24842), (40, 24809),

Gene: Dynamite\_44 Start: 30372, Stop: 30815, Start Num: 19

Candidate Starts for Dynamite\_44:

(11, 30291), (12, 30297), (14, 30318), (Start: 19 @30372 has 6 MA's), (26, 30438), (28, 30456), (30, 30465), (31, 30474), (33, 30552), (35, 30564), (41, 30648), (42, 30651), (43, 30660), (46, 30750), (47, 30771), (48, 30789),

Gene: Enochoraptor\_36 Start: 25008, Stop: 24673, Start Num: 20

Candidate Starts for Enochoraptor\_36:

(Start: 17 @25026 has 49 MA's), (Start: 20 @25008 has 1 MA's), (36, 24780),

Gene: Enoki\_37 Start: 25032, Stop: 24673, Start Num: 17

Candidate Starts for Enoki\_37:

(Start: 17 @25032 has 49 MA's), (Start: 20 @25014 has 1 MA's), (23, 24978), (28, 24939), (31, 24921),

Gene: GoCrazy\_43 Start: 30298, Stop: 30741, Start Num: 19

Candidate Starts for GoCrazy\_43:

(11, 30217), (12, 30223), (14, 30244), (Start: 19 @30298 has 6 MA's), (26, 30364), (28, 30382), (30, 30391), (31, 30400), (33, 30478), (35, 30490), (41, 30574), (42, 30577), (43, 30586), (46, 30676), (47, 30697), (48, 30715),

Gene: Hankly\_43 Start: 29599, Stop: 30042, Start Num: 19

Candidate Starts for Hankly\_43:

(6, 29452), (7, 29455), (8, 29464), (Start: 19 @29599 has 6 MA's), (26, 29665), (28, 29683), (30, 29692), (31, 29701), (33, 29779), (35, 29791), (41, 29875), (42, 29878), (43, 29887), (45, 29974), (47, 29998), (48, 30016),

Gene: KeaneyLin\_43 Start: 30298, Stop: 30741, Start Num: 19

Candidate Starts for KeaneyLin\_43:

(11, 30217), (12, 30223), (14, 30244), (Start: 19 @30298 has 6 MA's), (26, 30364), (28, 30382), (30, 30391), (31, 30400), (33, 30478), (35, 30490), (41, 30574), (42, 30577), (43, 30586), (46, 30676), (47, 30697), (48, 30715),

Gene: Keiki\_37 Start: 24960, Stop: 24607, Start Num: 17

Candidate Starts for Keiki\_37:

(Start: 17 @24960 has 49 MA's), (Start: 20 @24942 has 1 MA's), (36, 24714),

Gene: Kubed\_37 Start: 25015, Stop: 24662, Start Num: 17

Candidate Starts for Kubed\_37:

(Start: 17 @25015 has 49 MA's), (Start: 20 @24997 has 1 MA's), (23, 24961), (35, 24814),

Gene: Lauchelly\_37 Start: 25059, Stop: 24700, Start Num: 17

Candidate Starts for Lauchelly\_37:

(Start: 17 @25059 has 49 MA's), (Start: 20 @25041 has 1 MA's), (28, 24966), (35, 24858), (37, 24804), (42, 24771),

Gene: Leviosa\_37 Start: 25033, Stop: 24680, Start Num: 17

Candidate Starts for Leviosa\_37:

(Start: 17 @25033 has 49 MA's), (Start: 20 @25015 has 1 MA's), (23, 24979),

Gene: LilBandit\_37 Start: 24846, Stop: 24493, Start Num: 17

Candidate Starts for LilBandit\_37:

(Start: 17 @24846 has 49 MA's), (Start: 20 @24828 has 1 MA's), (28, 24753), (35, 24645), (36, 24600),

Gene: LittleE\_173 Start: 88941, Stop: 89330, Start Num: 17

Candidate Starts for LittleE\_173:

(Start: 17 @88941 has 49 MA's), (24, 89001), (29, 89037), (32, 89103), (40, 89256), (43, 89274),

Gene: Lucky2013\_162 Start: 84438, Stop: 84827, Start Num: 17

Candidate Starts for Lucky2013\_162:

(Start: 17 @84438 has 49 MA's), (24, 84498), (29, 84534), (32, 84600), (40, 84753), (43, 84771),

Gene: MEAK\_37 Start: 24711, Stop: 24352, Start Num: 17

Candidate Starts for MEAK\_37:

(15, 24723), (Start: 17 @24711 has 49 MA's), (Start: 20 @24693 has 1 MA's), (23, 24657), (28, 24618),

Gene: MiaZeal\_169 Start: 85585, Stop: 85974, Start Num: 17

Candidate Starts for MiaZeal\_169:

(Start: 17 @85585 has 49 MA's), (24, 85645), (29, 85681), (32, 85747), (40, 85900), (43, 85918),

Gene: Moyashi\_37 Start: 24819, Stop: 24460, Start Num: 17

Candidate Starts for Moyashi\_37:

(Start: 17 @24819 has 49 MA's), (Start: 20 @24801 has 1 MA's), (23, 24765), (31, 24708),

Gene: MrAK\_37 Start: 24832, Stop: 24473, Start Num: 17

Candidate Starts for MrAK\_37:

(Start: 17 @24832 has 49 MA's), (Start: 20 @24814 has 1 MA's), (23, 24778), (31, 24721),

Gene: NapoleonB\_44 Start: 30372, Stop: 30815, Start Num: 19

Candidate Starts for NapoleonB\_44:

(11, 30291), (12, 30297), (14, 30318), (Start: 19 @30372 has 6 MA's), (26, 30438), (28, 30456), (30, 30465), (31, 30474), (33, 30552), (35, 30564), (41, 30648), (42, 30651), (43, 30660), (46, 30750), (47, 30771), (48, 30789),

Gene: Nekros\_164 Start: 87481, Stop: 87774, Start Num: 29

Candidate Starts for Nekros\_164:

(Start: 17 @87385 has 49 MA's), (24, 87445), (29, 87481), (32, 87547), (40, 87700), (43, 87718),

Gene: Ouroboros\_37 Start: 25031, Stop: 24678, Start Num: 17

Candidate Starts for Ouroboros\_37:

(Start: 17 @25031 has 49 MA's),

Gene: P1.1\_37 Start: 25059, Stop: 24706, Start Num: 17

Candidate Starts for P1.1\_37:

(Start: 17 @25059 has 49 MA's), (Start: 20 @25041 has 1 MA's), (28, 24966),

Gene: P100.1\_37 Start: 25109, Stop: 24750, Start Num: 17  
Candidate Starts for P100.1\_37:  
(Start: 17 @25109 has 49 MA's), (Start: 20 @25091 has 1 MA's), (23, 25055), (31, 24998), (40, 24830),

Gene: P100A\_37 Start: 25041, Stop: 24688, Start Num: 17  
Candidate Starts for P100A\_37:  
(Start: 17 @25041 has 49 MA's), (Start: 20 @25023 has 1 MA's), (35, 24840),

Gene: P100D\_37 Start: 25020, Stop: 24667, Start Num: 17  
Candidate Starts for P100D\_37:  
(Start: 17 @25020 has 49 MA's), (Start: 20 @25002 has 1 MA's), (23, 24966),

Gene: P101A\_37 Start: 25052, Stop: 24699, Start Num: 17  
Candidate Starts for P101A\_37:  
(Start: 17 @25052 has 49 MA's), (Start: 20 @25034 has 1 MA's), (28, 24959), (31, 24941), (36, 24806),

Gene: P104A\_37 Start: 24814, Stop: 24461, Start Num: 17  
Candidate Starts for P104A\_37:  
(Start: 17 @24814 has 49 MA's), (Start: 20 @24796 has 1 MA's), (23, 24760), (28, 24721), (31, 24703),

Gene: P104B\_37 Start: 25021, Stop: 24668, Start Num: 17  
Candidate Starts for P104B\_37:  
(Start: 17 @25021 has 49 MA's), (Start: 20 @25003 has 1 MA's), (23, 24967), (28, 24928), (36, 24775),

Gene: P105\_37 Start: 24696, Stop: 24343, Start Num: 17  
Candidate Starts for P105\_37:  
(Start: 17 @24696 has 49 MA's), (Start: 20 @24678 has 1 MA's), (23, 24642),

Gene: P106A\_37 Start: 25126, Stop: 24767, Start Num: 17  
Candidate Starts for P106A\_37:  
(Start: 17 @25126 has 49 MA's), (Start: 20 @25108 has 1 MA's), (23, 25072), (31, 25015), (40, 24847),

Gene: P106C\_38 Start: 25042, Stop: 24683, Start Num: 17  
Candidate Starts for P106C\_38:  
(Start: 17 @25042 has 49 MA's), (Start: 20 @25024 has 1 MA's), (23, 24988), (31, 24931), (40, 24763),

Gene: P106I\_37 Start: 24871, Stop: 24512, Start Num: 17  
Candidate Starts for P106I\_37:  
(Start: 17 @24871 has 49 MA's), (Start: 20 @24853 has 1 MA's), (23, 24817), (31, 24760), (40, 24592),

Gene: P106L\_37 Start: 25042, Stop: 24683, Start Num: 17  
Candidate Starts for P106L\_37:  
(Start: 17 @25042 has 49 MA's), (Start: 20 @25024 has 1 MA's), (23, 24988), (31, 24931), (40, 24763),

Gene: P106M\_37 Start: 25042, Stop: 24683, Start Num: 17  
Candidate Starts for P106M\_37:  
(Start: 17 @25042 has 49 MA's), (Start: 20 @25024 has 1 MA's), (23, 24988), (31, 24931), (40, 24763),

Gene: P107A\_37 Start: 25060, Stop: 24707, Start Num: 17  
Candidate Starts for P107A\_37:  
(Start: 17 @25060 has 49 MA's), (Start: 20 @25042 has 1 MA's), (23, 25006), (35, 24859),

Gene: P107C\_37 Start: 24986, Stop: 24636, Start Num: 17



Candidate Starts for P107C\_37:

(Start: 17 @24986 has 49 MA's), (Start: 20 @24968 has 1 MA's), (23, 24932),

Gene: P108C\_37 Start: 25017, Stop: 24664, Start Num: 17

Candidate Starts for P108C\_37:

(Start: 17 @25017 has 49 MA's), (Start: 20 @24999 has 1 MA's), (36, 24771),

Gene: P14.4\_37 Start: 25029, Stop: 24676, Start Num: 17

Candidate Starts for P14.4\_37:

(Start: 17 @25029 has 49 MA's), (Start: 20 @25011 has 1 MA's),

Gene: P9.1\_37 Start: 25060, Stop: 24701, Start Num: 17

Candidate Starts for P9.1\_37:

(3, 25237), (4, 25207), (Start: 17 @25060 has 49 MA's), (Start: 20 @25042 has 1 MA's), (31, 24949),

Gene: PA6\_38 Start: 25025, Stop: 24666, Start Num: 17

Candidate Starts for PA6\_38:

(Start: 17 @25025 has 49 MA's), (Start: 20 @25007 has 1 MA's), (23, 24971), (28, 24932), (31, 24914), (36, 24779),

Gene: PAD20\_38 Start: 24785, Stop: 24432, Start Num: 17

Candidate Starts for PAD20\_38:

(Start: 17 @24785 has 49 MA's), (Start: 20 @24767 has 1 MA's), (27, 24707), (35, 24584),

Gene: PAS50\_38 Start: 25033, Stop: 24680, Start Num: 17

Candidate Starts for PAS50\_38:

(Start: 17 @25033 has 49 MA's), (Start: 20 @25015 has 1 MA's), (30, 24931), (31, 24922),

Gene: PHL010M04\_37 Start: 25018, Stop: 24668, Start Num: 17

Candidate Starts for PHL010M04\_37:

(Start: 17 @25018 has 49 MA's), (Start: 20 @25000 has 1 MA's),

Gene: PHL037M02\_37 Start: 25019, Stop: 24666, Start Num: 17

Candidate Starts for PHL037M02\_37:

(Start: 17 @25019 has 49 MA's), (Start: 20 @25001 has 1 MA's), (28, 24926), (35, 24818),

Gene: PHL060L00\_37 Start: 24865, Stop: 24512, Start Num: 17

Candidate Starts for PHL060L00\_37:

(Start: 17 @24865 has 49 MA's), (Start: 20 @24847 has 1 MA's), (28, 24772), (31, 24754),

Gene: PHL067M10\_37 Start: 24983, Stop: 24630, Start Num: 17

Candidate Starts for PHL067M10\_37:

(Start: 17 @24983 has 49 MA's), (Start: 20 @24965 has 1 MA's), (23, 24929), (31, 24872),

Gene: PHL071N05\_37 Start: 25049, Stop: 24696, Start Num: 17

Candidate Starts for PHL071N05\_37:

(Start: 17 @25049 has 49 MA's), (Start: 20 @25031 has 1 MA's), (23, 24995), (36, 24803),

Gene: PHL111M01\_37 Start: 24749, Stop: 24390, Start Num: 17

Candidate Starts for PHL111M01\_37:

(Start: 17 @24749 has 49 MA's), (Start: 20 @24731 has 1 MA's), (23, 24695), (28, 24656), (31, 24638),

Gene: PHL112N00\_37 Start: 25041, Stop: 24691, Start Num: 17

Candidate Starts for PHL112N00\_37:  
(10, 25128), (Start: 17 @25041 has 49 MA's), (Start: 20 @25023 has 1 MA's), (23, 24987),

Gene: PHL113M01\_37 Start: 24790, Stop: 24437, Start Num: 17  
Candidate Starts for PHL113M01\_37:  
(10, 24877), (Start: 17 @24790 has 49 MA's), (Start: 20 @24772 has 1 MA's), (31, 24679),

Gene: PHL114L00\_37 Start: 24979, Stop: 24626, Start Num: 17  
Candidate Starts for PHL114L00\_37:  
(Start: 17 @24979 has 49 MA's), (Start: 20 @24961 has 1 MA's),

Gene: Pirate\_37 Start: 24945, Stop: 24592, Start Num: 17  
Candidate Starts for Pirate\_37:  
(Start: 17 @24945 has 49 MA's), (Start: 20 @24927 has 1 MA's), (36, 24699),

Gene: Porcelain\_166 Start: 85384, Stop: 85773, Start Num: 17  
Candidate Starts for Porcelain\_166:  
(Start: 17 @85384 has 49 MA's), (24, 85444), (29, 85480), (32, 85546), (40, 85699), (43, 85717),

Gene: Procrass1\_37 Start: 24972, Stop: 24619, Start Num: 17  
Candidate Starts for Procrass1\_37:  
(Start: 17 @24972 has 49 MA's), (Start: 20 @24954 has 1 MA's), (23, 24918), (28, 24879), (31, 24861),

Gene: QueenBey\_37 Start: 24997, Stop: 24644, Start Num: 17  
Candidate Starts for QueenBey\_37:  
(Start: 17 @24997 has 49 MA's), (Start: 20 @24979 has 1 MA's), (23, 24943),

Gene: Rileysaurus\_36 Start: 25041, Stop: 24688, Start Num: 17  
Candidate Starts for Rileysaurus\_36:  
(Start: 17 @25041 has 49 MA's), (Start: 20 @25023 has 1 MA's), (36, 24795),

Gene: SKKY\_37 Start: 24777, Stop: 24424, Start Num: 17  
Candidate Starts for SKKY\_37:  
(Start: 17 @24777 has 49 MA's), (Start: 20 @24759 has 1 MA's), (28, 24684), (35, 24576),

Gene: Shaboozey\_164 Start: 85086, Stop: 85379, Start Num: 29  
Candidate Starts for Shaboozey\_164:  
(Start: 17 @84990 has 49 MA's), (24, 85050), (29, 85086), (32, 85152), (40, 85305), (43, 85323),

Gene: Solid\_37 Start: 25020, Stop: 24667, Start Num: 17  
Candidate Starts for Solid\_37:  
(Start: 17 @25020 has 49 MA's), (Start: 20 @25002 has 1 MA's), (23, 24966), (35, 24819),

Gene: Stormborn\_37 Start: 24639, Stop: 24280, Start Num: 17  
Candidate Starts for Stormborn\_37:  
(Start: 17 @24639 has 49 MA's), (Start: 20 @24621 has 1 MA's), (23, 24585), (28, 24546), (31, 24528),

Gene: Supernova\_37 Start: 24772, Stop: 24419, Start Num: 17  
Candidate Starts for Supernova\_37:  
(Start: 17 @24772 has 49 MA's), (Start: 20 @24754 has 1 MA's), (23, 24718), (28, 24679), (31, 24661),

Gene: Thibault\_149 Start: 84761, Stop: 85150, Start Num: 17  
Candidate Starts for Thibault\_149:

(5, 84632), (13, 84710), (Start: 17 @84761 has 49 MA's), (24, 84821), (29, 84857), (30, 84863), (32, 84923), (40, 85076), (43, 85094),

Gene: Wizzo\_37 Start: 24505, Stop: 24146, Start Num: 17

Candidate Starts for Wizzo\_37:

(Start: 17 @24505 has 49 MA's), (Start: 20 @24487 has 1 MA's), (40, 24226),