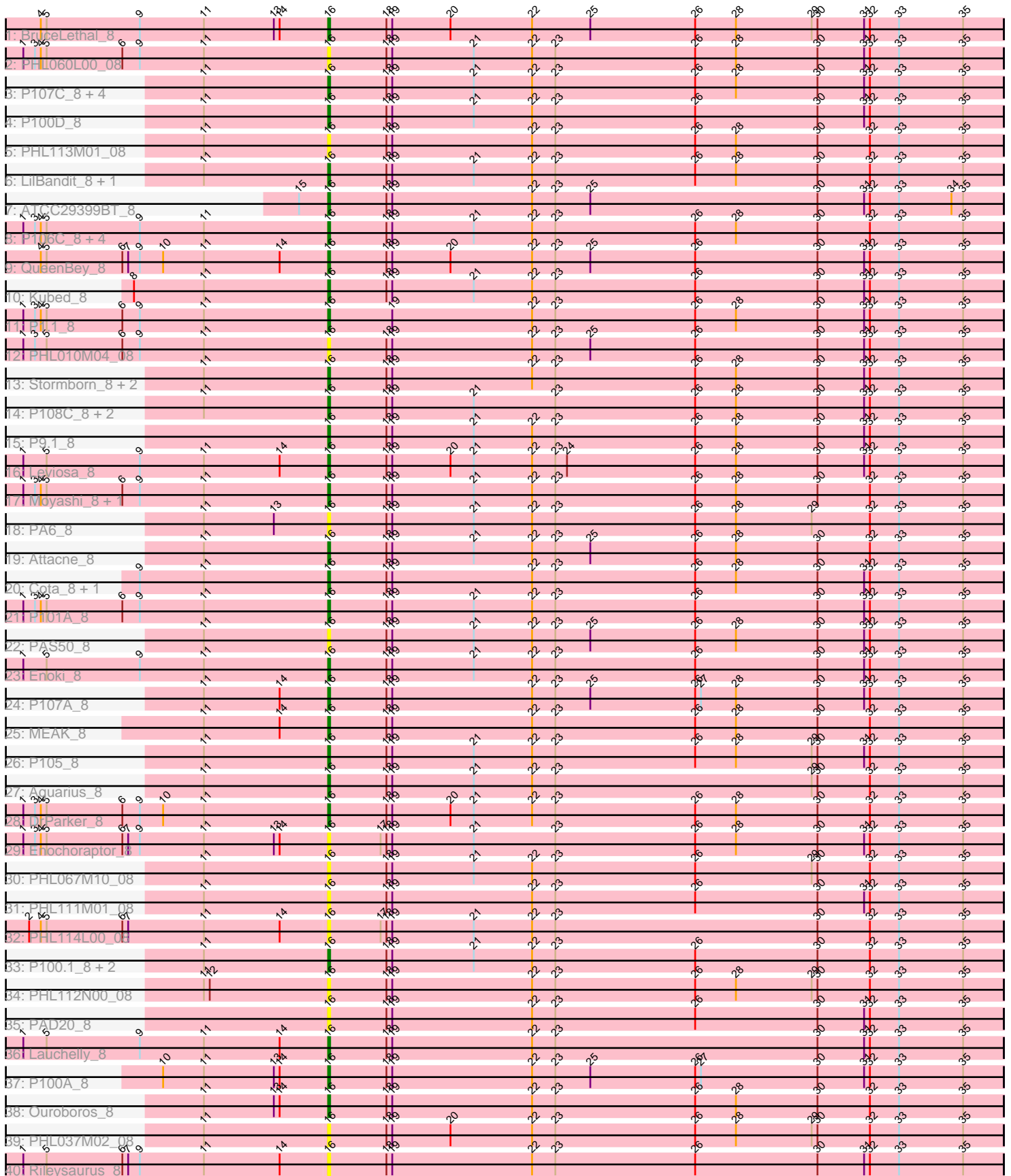


# Pham 194048



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 194048 Report

This analysis was run 11/02/24 on database version 579.

Pham number 194048 has 57 members, 14 are drafts.

Phages represented in each track:

- Track 1 : BruceLethal\_8
- Track 2 : PHL060L00\_08
- Track 3 : P107C\_8, ATCC29399BC\_8, Wizzo\_8, Solid\_8, Supernova\_8
- Track 4 : P100D\_8
- Track 5 : PHL113M01\_08
- Track 6 : LilBandit\_8, P14.4\_8
- Track 7 : ATCC29399BT\_8
- Track 8 : P106C\_8, P106L\_8, P106A\_8, P106I\_8, P106M\_8
- Track 9 : QueenBey\_8
- Track 10 : Kubed\_8
- Track 11 : P1.1\_8
- Track 12 : PHL010M04\_08
- Track 13 : Stormborn\_8, P104B\_8, Procrass1\_8
- Track 14 : P108C\_8, Pirate\_8, PHL071N05\_08
- Track 15 : P9.1\_8
- Track 16 : Leviosa\_8
- Track 17 : Moyashi\_8, SKKY\_8
- Track 18 : PA6\_8
- Track 19 : Attacne\_8
- Track 20 : Cota\_8, Keiki\_8
- Track 21 : P101A\_8
- Track 22 : PAS50\_8
- Track 23 : Enoki\_8
- Track 24 : P107A\_8
- Track 25 : MEAK\_8
- Track 26 : P105\_8
- Track 27 : Aquarius\_8
- Track 28 : DrParker\_8
- Track 29 : Enochoraptor\_8
- Track 30 : PHL067M10\_08
- Track 31 : PHL111M01\_08
- Track 32 : PHL114L00\_08
- Track 33 : P100.1\_8, P104A\_8, MrAK\_8
- Track 34 : PHL112N00\_08
- Track 35 : PAD20\_8
- Track 36 : Lauchelly\_8
- Track 37 : P100A\_8

- Track 38 : Ouroboros\_8
- Track 39 : PHL037M02\_08
- Track 40 : Rileysaurus\_8

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

The start number called the most often in the published annotations is 16, it was called in 43 of the 43 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ATCC29399BC\_8, ATCC29399BT\_8, Aquarius\_8, Attacne\_8, BruceLethal\_8, Cota\_8, DrParker\_8, Enochoraptor\_8, Enoki\_8, Keiki\_8, Kubed\_8, Lauchelly\_8, Leviosa\_8, LilBandit\_8, MEAK\_8, Moyashi\_8, MrAK\_8, Ouroboros\_8, P1.1\_8, P100.1\_8, P100A\_8, P100D\_8, P101A\_8, P104A\_8, P104B\_8, P105\_8, P106A\_8, P106C\_8, P106I\_8, P106L\_8, P106M\_8, P107A\_8, P107C\_8, P108C\_8, P14.4\_8, P9.1\_8, PA6\_8, PAD20\_8, PAS50\_8, PHL010M04\_08, PHL037M02\_08, PHL060L00\_08, PHL067M10\_08, PHL071N05\_08, PHL111M01\_08, PHL112N00\_08, PHL113M01\_08, PHL114L00\_08, Pirate\_8, Procrass1\_8, QueenBey\_8, Rileysaurus\_8, SKKY\_8, Solid\_8, Stormborn\_8, Supernova\_8, Wizzo\_8,

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

- 

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

- 

**Summary by start number:**

Start 16:

- Found in 57 of 57 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 43 of 43
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ATCC29399BC\_8 (BU), ATCC29399BT\_8 (BU), Aquarius\_8 (BU), Attacne\_8 (BU), BruceLethal\_8 (BU), Cota\_8 (BU), DrParker\_8 (BU), Enochoraptor\_8 (BU), Enoki\_8 (BU), Keiki\_8 (BU), Kubed\_8 (BU), Lauchelly\_8 (BU), Leviosa\_8 (BU), LilBandit\_8 (BU), MEAK\_8 (BU), Moyashi\_8 (BU), MrAK\_8 (BU), Ouroboros\_8 (BU), P1.1\_8 (BU), P100.1\_8 (BU), P100A\_8 (BU), P100D\_8 (BU), P101A\_8 (BU), P104A\_8 (BU), P104B\_8 (BU), P105\_8 (BU), P106A\_8 (BU), P106C\_8 (BU), P106I\_8 (BU), P106L\_8 (BU), P106M\_8 (BU), P107A\_8 (BU), P107C\_8 (BU), P108C\_8 (BU), P14.4\_8 (BU), P9.1\_8 (BU), PA6\_8 (BU), PAD20\_8 (BU), PAS50\_8 (BU), PHL010M04\_08 (BU), PHL037M02\_08 (BU), PHL060L00\_08 (BU), PHL067M10\_08 (BU), PHL071N05\_08 (BU), PHL111M01\_08 (BU), PHL112N00\_08 (BU), PHL113M01\_08 (BU), PHL114L00\_08 (BU), Pirate\_8 (BU), Procrass1\_8 (BU), QueenBey\_8 (BU), Rileysaurus\_8 (BU), SKKY\_8 (BU), Solid\_8 (BU), Stormborn\_8 (BU), Supernova\_8 (BU), Wizzo\_8 (BU),

**Summary by clusters:**

There is one cluster represented in this pham: BU

Info for manual annotations of cluster BU:

•Start number 16 was manually annotated 43 times for cluster BU.

**Gene Information:**

Gene: ATCC29399BC\_8 Start: 6098, Stop: 6445, Start Num: 16

Candidate Starts for ATCC29399BC\_8:

(11, 6035), (Start: 16 @6098 has 43 MA's), (18, 6128), (19, 6131), (21, 6173), (22, 6203), (23, 6215), (26, 6287), (28, 6308), (30, 6350), (31, 6374), (32, 6377), (33, 6392), (35, 6425),

Gene: ATCC29399BT\_8 Start: 6095, Stop: 6442, Start Num: 16

Candidate Starts for ATCC29399BT\_8:

(15, 6080), (Start: 16 @6095 has 43 MA's), (18, 6125), (19, 6128), (22, 6200), (23, 6212), (25, 6230), (30, 6347), (31, 6371), (32, 6374), (33, 6389), (34, 6416), (35, 6422),

Gene: Aquarius\_8 Start: 6088, Stop: 6435, Start Num: 16

Candidate Starts for Aquarius\_8:

(11, 6025), (Start: 16 @6088 has 43 MA's), (18, 6118), (19, 6121), (21, 6163), (22, 6193), (23, 6205), (29, 6337), (30, 6340), (32, 6367), (33, 6382), (35, 6415),

Gene: Attacne\_8 Start: 6099, Stop: 6446, Start Num: 16

Candidate Starts for Attacne\_8:

(11, 6036), (Start: 16 @6099 has 43 MA's), (18, 6129), (19, 6132), (21, 6174), (22, 6204), (23, 6216), (25, 6234), (26, 6288), (28, 6309), (30, 6351), (32, 6378), (33, 6393), (35, 6426),

Gene: BruceLethal\_8 Start: 6088, Stop: 6435, Start Num: 16

Candidate Starts for BruceLethal\_8:

(4, 5941), (5, 5944), (9, 5992), (11, 6025), (13, 6061), (14, 6064), (Start: 16 @6088 has 43 MA's), (18, 6118), (19, 6121), (20, 6151), (22, 6193), (25, 6223), (26, 6277), (28, 6298), (29, 6337), (30, 6340), (31, 6364), (32, 6367), (33, 6382), (35, 6415),

Gene: Cota\_8 Start: 6106, Stop: 6453, Start Num: 16

Candidate Starts for Cota\_8:

(9, 6010), (11, 6043), (Start: 16 @6106 has 43 MA's), (18, 6136), (19, 6139), (22, 6211), (23, 6223), (26, 6295), (28, 6316), (30, 6358), (31, 6382), (32, 6385), (33, 6400), (35, 6433),

Gene: DrParker\_8 Start: 6113, Stop: 6460, Start Num: 16

Candidate Starts for DrParker\_8:

(1, 5957), (3, 5963), (4, 5966), (5, 5969), (6, 6008), (9, 6017), (10, 6029), (11, 6050), (Start: 16 @6113 has 43 MA's), (18, 6143), (19, 6146), (20, 6176), (21, 6188), (22, 6218), (23, 6230), (26, 6302), (28, 6323), (30, 6365), (32, 6392), (33, 6407), (35, 6440),

Gene: Enochoraptor\_8 Start: 6109, Stop: 6456, Start Num: 16

Candidate Starts for Enochoraptor\_8:

(1, 5953), (3, 5959), (4, 5962), (5, 5965), (6, 6004), (7, 6007), (9, 6013), (11, 6046), (13, 6082), (14, 6085), (Start: 16 @6109 has 43 MA's), (17, 6136), (18, 6139), (19, 6142), (21, 6184), (23, 6226), (26, 6298), (28, 6319), (30, 6361), (31, 6385), (32, 6388), (33, 6403), (35, 6436),

Gene: Enoki\_8 Start: 6094, Stop: 6441, Start Num: 16

Candidate Starts for Enoki\_8:

(1, 5938), (5, 5950), (9, 5998), (11, 6031), (Start: 16 @6094 has 43 MA's), (18, 6124), (19, 6127), (21, 6169), (22, 6199), (23, 6211), (26, 6283), (30, 6346), (31, 6370), (32, 6373), (33, 6388), (35, 6421),

Gene: Keiki\_8 Start: 6106, Stop: 6453, Start Num: 16

Candidate Starts for Keiki\_8:

(9, 6010), (11, 6043), (Start: 16 @6106 has 43 MA's), (18, 6136), (19, 6139), (22, 6211), (23, 6223), (26, 6295), (28, 6316), (30, 6358), (31, 6382), (32, 6385), (33, 6400), (35, 6433),

Gene: Kubed\_8 Start: 6096, Stop: 6443, Start Num: 16

Candidate Starts for Kubed\_8:

(8, 5997), (11, 6033), (Start: 16 @6096 has 43 MA's), (18, 6126), (19, 6129), (21, 6171), (22, 6201), (23, 6213), (26, 6285), (30, 6348), (31, 6372), (32, 6375), (33, 6390), (35, 6423),

Gene: Lauchelly\_8 Start: 6091, Stop: 6438, Start Num: 16

Candidate Starts for Lauchelly\_8:

(1, 5935), (5, 5947), (9, 5995), (11, 6028), (14, 6067), (Start: 16 @6091 has 43 MA's), (18, 6121), (19, 6124), (22, 6196), (23, 6208), (30, 6343), (31, 6367), (32, 6370), (33, 6385), (35, 6418),

Gene: Leviosa\_8 Start: 6112, Stop: 6459, Start Num: 16

Candidate Starts for Leviosa\_8:

(1, 5956), (5, 5968), (9, 6016), (11, 6049), (14, 6088), (Start: 16 @6112 has 43 MA's), (18, 6142), (19, 6145), (20, 6175), (21, 6187), (22, 6217), (23, 6229), (24, 6235), (26, 6301), (28, 6322), (30, 6364), (31, 6388), (32, 6391), (33, 6406), (35, 6439),

Gene: LilBandit\_8 Start: 6096, Stop: 6443, Start Num: 16

Candidate Starts for LilBandit\_8:

(11, 6033), (Start: 16 @6096 has 43 MA's), (18, 6126), (19, 6129), (21, 6171), (22, 6201), (23, 6213), (26, 6285), (28, 6306), (30, 6348), (32, 6375), (33, 6390), (35, 6423),

Gene: MEAK\_8 Start: 6098, Stop: 6445, Start Num: 16

Candidate Starts for MEAK\_8:

(11, 6035), (14, 6074), (Start: 16 @6098 has 43 MA's), (18, 6128), (19, 6131), (22, 6203), (23, 6215), (26, 6287), (28, 6308), (30, 6350), (32, 6377), (33, 6392), (35, 6425),

Gene: Moyashi\_8 Start: 6116, Stop: 6463, Start Num: 16

Candidate Starts for Moyashi\_8:

(1, 5960), (3, 5966), (4, 5969), (5, 5972), (6, 6011), (9, 6020), (11, 6053), (Start: 16 @6116 has 43 MA's), (18, 6146), (19, 6149), (21, 6191), (22, 6221), (23, 6233), (26, 6305), (28, 6326), (30, 6368), (32, 6395), (33, 6410), (35, 6443),

Gene: MrAK\_8 Start: 6125, Stop: 6472, Start Num: 16

Candidate Starts for MrAK\_8:

(11, 6062), (Start: 16 @6125 has 43 MA's), (18, 6155), (19, 6158), (21, 6200), (22, 6230), (23, 6242), (26, 6314), (30, 6377), (32, 6404), (33, 6419), (35, 6452),

Gene: Ouroboros\_8 Start: 6099, Stop: 6446, Start Num: 16

Candidate Starts for Ouroboros\_8:

(11, 6036), (13, 6072), (14, 6075), (Start: 16 @6099 has 43 MA's), (18, 6129), (19, 6132), (22, 6204), (23, 6216), (26, 6288), (28, 6309), (30, 6351), (32, 6378), (33, 6393), (35, 6426),

Gene: P1.1\_8 Start: 6099, Stop: 6446, Start Num: 16

Candidate Starts for P1.1\_8:

(1, 5943), (3, 5949), (4, 5952), (5, 5955), (6, 5994), (9, 6003), (11, 6036), (Start: 16 @6099 has 43 MA's), (19, 6132), (22, 6204), (23, 6216), (26, 6288), (28, 6309), (30, 6351), (31, 6375), (32, 6378), (33, 6393), (35, 6426),

Gene: P100.1\_8 Start: 6089, Stop: 6436, Start Num: 16

Candidate Starts for P100.1\_8:

(11, 6026), (Start: 16 @6089 has 43 MA's), (18, 6119), (19, 6122), (21, 6164), (22, 6194), (23, 6206), (26, 6278), (30, 6341), (32, 6368), (33, 6383), (35, 6416),

Gene: P100A\_8 Start: 6111, Stop: 6458, Start Num: 16

Candidate Starts for P100A\_8:

(10, 6027), (11, 6048), (13, 6084), (14, 6087), (Start: 16 @6111 has 43 MA's), (18, 6141), (19, 6144), (22, 6216), (23, 6228), (25, 6246), (26, 6300), (27, 6303), (30, 6363), (31, 6387), (32, 6390), (33, 6405), (35, 6438),

Gene: P100D\_8 Start: 6093, Stop: 6440, Start Num: 16

Candidate Starts for P100D\_8:

(11, 6030), (Start: 16 @6093 has 43 MA's), (18, 6123), (19, 6126), (21, 6168), (22, 6198), (23, 6210), (26, 6282), (30, 6345), (31, 6369), (32, 6372), (33, 6387), (35, 6420),

Gene: P101A\_8 Start: 6092, Stop: 6439, Start Num: 16

Candidate Starts for P101A\_8:

(1, 5936), (3, 5942), (4, 5945), (5, 5948), (6, 5987), (9, 5996), (11, 6029), (Start: 16 @6092 has 43 MA's), (18, 6122), (19, 6125), (21, 6167), (22, 6197), (23, 6209), (26, 6281), (30, 6344), (31, 6368), (32, 6371), (33, 6386), (35, 6419),

Gene: P104A\_8 Start: 6094, Stop: 6441, Start Num: 16

Candidate Starts for P104A\_8:

(11, 6031), (Start: 16 @6094 has 43 MA's), (18, 6124), (19, 6127), (21, 6169), (22, 6199), (23, 6211), (26, 6283), (30, 6346), (32, 6373), (33, 6388), (35, 6421),

Gene: P104B\_8 Start: 6098, Stop: 6445, Start Num: 16

Candidate Starts for P104B\_8:

(11, 6035), (Start: 16 @6098 has 43 MA's), (18, 6128), (19, 6131), (22, 6203), (23, 6215), (26, 6287), (28, 6308), (30, 6350), (31, 6374), (32, 6377), (33, 6392), (35, 6425),

Gene: P105\_8 Start: 6088, Stop: 6435, Start Num: 16

Candidate Starts for P105\_8:

(11, 6025), (Start: 16 @6088 has 43 MA's), (18, 6118), (19, 6121), (21, 6163), (22, 6193), (23, 6205), (26, 6277), (28, 6298), (29, 6337), (30, 6340), (31, 6364), (32, 6367), (33, 6382), (35, 6415),

Gene: P106A\_8 Start: 6116, Stop: 6463, Start Num: 16

Candidate Starts for P106A\_8:

(1, 5960), (3, 5966), (4, 5969), (5, 5972), (9, 6020), (11, 6053), (Start: 16 @6116 has 43 MA's), (18, 6146), (19, 6149), (21, 6191), (22, 6221), (23, 6233), (26, 6305), (28, 6326), (30, 6368), (32, 6395), (33, 6410), (35, 6443),

Gene: P106C\_8 Start: 6116, Stop: 6463, Start Num: 16

Candidate Starts for P106C\_8:

(1, 5960), (3, 5966), (4, 5969), (5, 5972), (9, 6020), (11, 6053), (Start: 16 @6116 has 43 MA's), (18, 6146), (19, 6149), (21, 6191), (22, 6221), (23, 6233), (26, 6305), (28, 6326), (30, 6368), (32, 6395), (33, 6410), (35, 6443),

Gene: P106I\_8 Start: 6116, Stop: 6463, Start Num: 16

Candidate Starts for P106I\_8:

(1, 5960), (3, 5966), (4, 5969), (5, 5972), (9, 6020), (11, 6053), (Start: 16 @6116 has 43 MA's), (18, 6146), (19, 6149), (21, 6191), (22, 6221), (23, 6233), (26, 6305), (28, 6326), (30, 6368), (32, 6395), (33, 6410), (35, 6443),

Gene: P106L\_8 Start: 6116, Stop: 6463, Start Num: 16

Candidate Starts for P106L\_8:

(1, 5960), (3, 5966), (4, 5969), (5, 5972), (9, 6020), (11, 6053), (Start: 16 @6116 has 43 MA's), (18, 6146), (19, 6149), (21, 6191), (22, 6221), (23, 6233), (26, 6305), (28, 6326), (30, 6368), (32, 6395), (33, 6410), (35, 6443),

Gene: P106M\_8 Start: 6116, Stop: 6463, Start Num: 16

Candidate Starts for P106M\_8:

(1, 5960), (3, 5966), (4, 5969), (5, 5972), (9, 6020), (11, 6053), (Start: 16 @6116 has 43 MA's), (18, 6146), (19, 6149), (21, 6191), (22, 6221), (23, 6233), (26, 6305), (28, 6326), (30, 6368), (32, 6395), (33, 6410), (35, 6443),

Gene: P107A\_8 Start: 6102, Stop: 6449, Start Num: 16

Candidate Starts for P107A\_8:

(11, 6039), (14, 6078), (Start: 16 @6102 has 43 MA's), (18, 6132), (19, 6135), (22, 6207), (23, 6219), (25, 6237), (26, 6291), (27, 6294), (28, 6312), (30, 6354), (31, 6378), (32, 6381), (33, 6396), (35, 6429),

Gene: P107C\_8 Start: 6098, Stop: 6445, Start Num: 16

Candidate Starts for P107C\_8:

(11, 6035), (Start: 16 @6098 has 43 MA's), (18, 6128), (19, 6131), (21, 6173), (22, 6203), (23, 6215), (26, 6287), (28, 6308), (30, 6350), (31, 6374), (32, 6377), (33, 6392), (35, 6425),

Gene: P108C\_8 Start: 6102, Stop: 6449, Start Num: 16

Candidate Starts for P108C\_8:

(11, 6039), (Start: 16 @6102 has 43 MA's), (18, 6132), (19, 6135), (21, 6177), (23, 6219), (26, 6291), (28, 6312), (30, 6354), (31, 6378), (32, 6381), (33, 6396), (35, 6429),

Gene: P14.4\_8 Start: 6093, Stop: 6440, Start Num: 16

Candidate Starts for P14.4\_8:

(11, 6030), (Start: 16 @6093 has 43 MA's), (18, 6123), (19, 6126), (21, 6168), (22, 6198), (23, 6210), (26, 6282), (28, 6303), (30, 6345), (32, 6372), (33, 6387), (35, 6420),

Gene: P9.1\_8 Start: 6091, Stop: 6438, Start Num: 16

Candidate Starts for P9.1\_8:

(Start: 16 @6091 has 43 MA's), (18, 6121), (19, 6124), (21, 6166), (22, 6196), (23, 6208), (26, 6280), (28, 6301), (30, 6343), (31, 6367), (32, 6370), (33, 6385), (35, 6418),

Gene: PA6\_8 Start: 6101, Stop: 6448, Start Num: 16

Candidate Starts for PA6\_8:

(11, 6038), (13, 6074), (Start: 16 @6101 has 43 MA's), (18, 6131), (19, 6134), (21, 6176), (22, 6206), (23, 6218), (26, 6290), (28, 6311), (29, 6350), (32, 6380), (33, 6395), (35, 6428),

Gene: PAD20\_8 Start: 6099, Stop: 6446, Start Num: 16

Candidate Starts for PAD20\_8:

(Start: 16 @6099 has 43 MA's), (18, 6129), (19, 6132), (22, 6204), (23, 6216), (26, 6288), (30, 6351), (31, 6375), (32, 6378), (33, 6393), (35, 6426),

Gene: PAS50\_8 Start: 6096, Stop: 6443, Start Num: 16

Candidate Starts for PAS50\_8:

(11, 6033), (Start: 16 @6096 has 43 MA's), (18, 6126), (19, 6129), (21, 6171), (22, 6201), (23, 6213), (25, 6231), (26, 6285), (28, 6306), (30, 6348), (31, 6372), (32, 6375), (33, 6390), (35, 6423),

Gene: PHL010M04\_08 Start: 6091, Stop: 6438, Start Num: 16

Candidate Starts for PHL010M04\_08:

(1, 5935), (3, 5941), (5, 5947), (6, 5986), (9, 5995), (11, 6028), (Start: 16 @6091 has 43 MA's), (18, 6121), (19, 6124), (22, 6196), (23, 6208), (25, 6226), (26, 6280), (30, 6343), (31, 6367), (32, 6370), (33, 6385), (35, 6418),

Gene: PHL037M02\_08 Start: 6097, Stop: 6444, Start Num: 16

Candidate Starts for PHL037M02\_08:

(11, 6034), (Start: 16 @6097 has 43 MA's), (18, 6127), (19, 6130), (20, 6160), (22, 6202), (23, 6214), (26, 6286), (28, 6307), (29, 6346), (30, 6349), (32, 6376), (33, 6391), (35, 6424),

Gene: PHL060L00\_08 Start: 6089, Stop: 6436, Start Num: 16

Candidate Starts for PHL060L00\_08:

(1, 5933), (3, 5939), (4, 5942), (5, 5945), (6, 5984), (9, 5993), (11, 6026), (Start: 16 @6089 has 43 MA's), (18, 6119), (19, 6122), (21, 6164), (22, 6194), (23, 6206), (26, 6278), (28, 6299), (30, 6341), (31, 6365), (32, 6368), (33, 6383), (35, 6416),

Gene: PHL067M10\_08 Start: 6093, Stop: 6440, Start Num: 16

Candidate Starts for PHL067M10\_08:

(11, 6030), (Start: 16 @6093 has 43 MA's), (18, 6123), (19, 6126), (21, 6168), (22, 6198), (23, 6210), (26, 6282), (29, 6342), (30, 6345), (32, 6372), (33, 6387), (35, 6420),

Gene: PHL071N05\_08 Start: 6095, Stop: 6442, Start Num: 16

Candidate Starts for PHL071N05\_08:

(11, 6032), (Start: 16 @6095 has 43 MA's), (18, 6125), (19, 6128), (21, 6170), (23, 6212), (26, 6284), (28, 6305), (30, 6347), (31, 6371), (32, 6374), (33, 6389), (35, 6422),

Gene: PHL111M01\_08 Start: 6099, Stop: 6446, Start Num: 16

Candidate Starts for PHL111M01\_08:

(11, 6036), (Start: 16 @6099 has 43 MA's), (18, 6129), (19, 6132), (22, 6204), (23, 6216), (26, 6288), (30, 6351), (31, 6375), (32, 6378), (33, 6393), (35, 6426),

Gene: PHL112N00\_08 Start: 6099, Stop: 6446, Start Num: 16

Candidate Starts for PHL112N00\_08:

(11, 6036), (12, 6039), (Start: 16 @6099 has 43 MA's), (18, 6129), (19, 6132), (22, 6204), (23, 6216), (26, 6288), (28, 6309), (29, 6348), (30, 6351), (32, 6378), (33, 6393), (35, 6426),

Gene: PHL113M01\_08 Start: 6099, Stop: 6446, Start Num: 16

Candidate Starts for PHL113M01\_08:

(11, 6036), (Start: 16 @6099 has 43 MA's), (18, 6129), (19, 6132), (22, 6204), (23, 6216), (26, 6288), (28, 6309), (30, 6351), (32, 6378), (33, 6393), (35, 6426),

Gene: PHL114L00\_08 Start: 6098, Stop: 6445, Start Num: 16

Candidate Starts for PHL114L00\_08:

(2, 5945), (4, 5951), (5, 5954), (6, 5993), (7, 5996), (11, 6035), (14, 6074), (Start: 16 @6098 has 43 MA's), (17, 6125), (18, 6128), (19, 6131), (21, 6173), (22, 6203), (23, 6215), (30, 6350), (32, 6377), (33, 6392), (35, 6425),



Gene: Pirate\_8 Start: 6091, Stop: 6438, Start Num: 16

Candidate Starts for Pirate\_8:

(11, 6028), (Start: 16 @6091 has 43 MA's), (18, 6121), (19, 6124), (21, 6166), (23, 6208), (26, 6280), (28, 6301), (30, 6343), (31, 6367), (32, 6370), (33, 6385), (35, 6418),

Gene: Procrass1\_8 Start: 6098, Stop: 6445, Start Num: 16

Candidate Starts for Procrass1\_8:

(11, 6035), (Start: 16 @6098 has 43 MA's), (18, 6128), (19, 6131), (22, 6203), (23, 6215), (26, 6287), (28, 6308), (30, 6350), (31, 6374), (32, 6377), (33, 6392), (35, 6425),

Gene: QueenBey\_8 Start: 6092, Stop: 6439, Start Num: 16

Candidate Starts for QueenBey\_8:

(4, 5945), (5, 5948), (6, 5987), (7, 5990), (9, 5996), (10, 6008), (11, 6029), (14, 6068), (Start: 16 @6092 has 43 MA's), (18, 6122), (19, 6125), (20, 6155), (22, 6197), (23, 6209), (25, 6227), (26, 6281), (30, 6344), (31, 6368), (32, 6371), (33, 6386), (35, 6419),

Gene: Rileysaurus\_8 Start: 6087, Stop: 6434, Start Num: 16

Candidate Starts for Rileysaurus\_8:

(1, 5931), (5, 5943), (6, 5982), (7, 5985), (9, 5991), (11, 6024), (14, 6063), (Start: 16 @6087 has 43 MA's), (18, 6117), (19, 6120), (22, 6192), (23, 6204), (26, 6276), (30, 6339), (31, 6363), (32, 6366), (33, 6381), (35, 6414),

Gene: SKKY\_8 Start: 6123, Stop: 6470, Start Num: 16

Candidate Starts for SKKY\_8:

(1, 5967), (3, 5973), (4, 5976), (5, 5979), (6, 6018), (9, 6027), (11, 6060), (Start: 16 @6123 has 43 MA's), (18, 6153), (19, 6156), (21, 6198), (22, 6228), (23, 6240), (26, 6312), (28, 6333), (30, 6375), (32, 6402), (33, 6417), (35, 6450),

Gene: Solid\_8 Start: 6099, Stop: 6446, Start Num: 16

Candidate Starts for Solid\_8:

(11, 6036), (Start: 16 @6099 has 43 MA's), (18, 6129), (19, 6132), (21, 6174), (22, 6204), (23, 6216), (26, 6288), (28, 6309), (30, 6351), (31, 6375), (32, 6378), (33, 6393), (35, 6426),

Gene: Stormborn\_8 Start: 6095, Stop: 6442, Start Num: 16

Candidate Starts for Stormborn\_8:

(11, 6032), (Start: 16 @6095 has 43 MA's), (18, 6125), (19, 6128), (22, 6200), (23, 6212), (26, 6284), (28, 6305), (30, 6347), (31, 6371), (32, 6374), (33, 6389), (35, 6422),

Gene: Supernova\_8 Start: 6091, Stop: 6438, Start Num: 16

Candidate Starts for Supernova\_8:

(11, 6028), (Start: 16 @6091 has 43 MA's), (18, 6121), (19, 6124), (21, 6166), (22, 6196), (23, 6208), (26, 6280), (28, 6301), (30, 6343), (31, 6367), (32, 6370), (33, 6385), (35, 6418),

Gene: Wizzo\_8 Start: 6103, Stop: 6450, Start Num: 16

Candidate Starts for Wizzo\_8:

(11, 6040), (Start: 16 @6103 has 43 MA's), (18, 6133), (19, 6136), (21, 6178), (22, 6208), (23, 6220), (26, 6292), (28, 6313), (30, 6355), (31, 6379), (32, 6382), (33, 6397), (35, 6430),