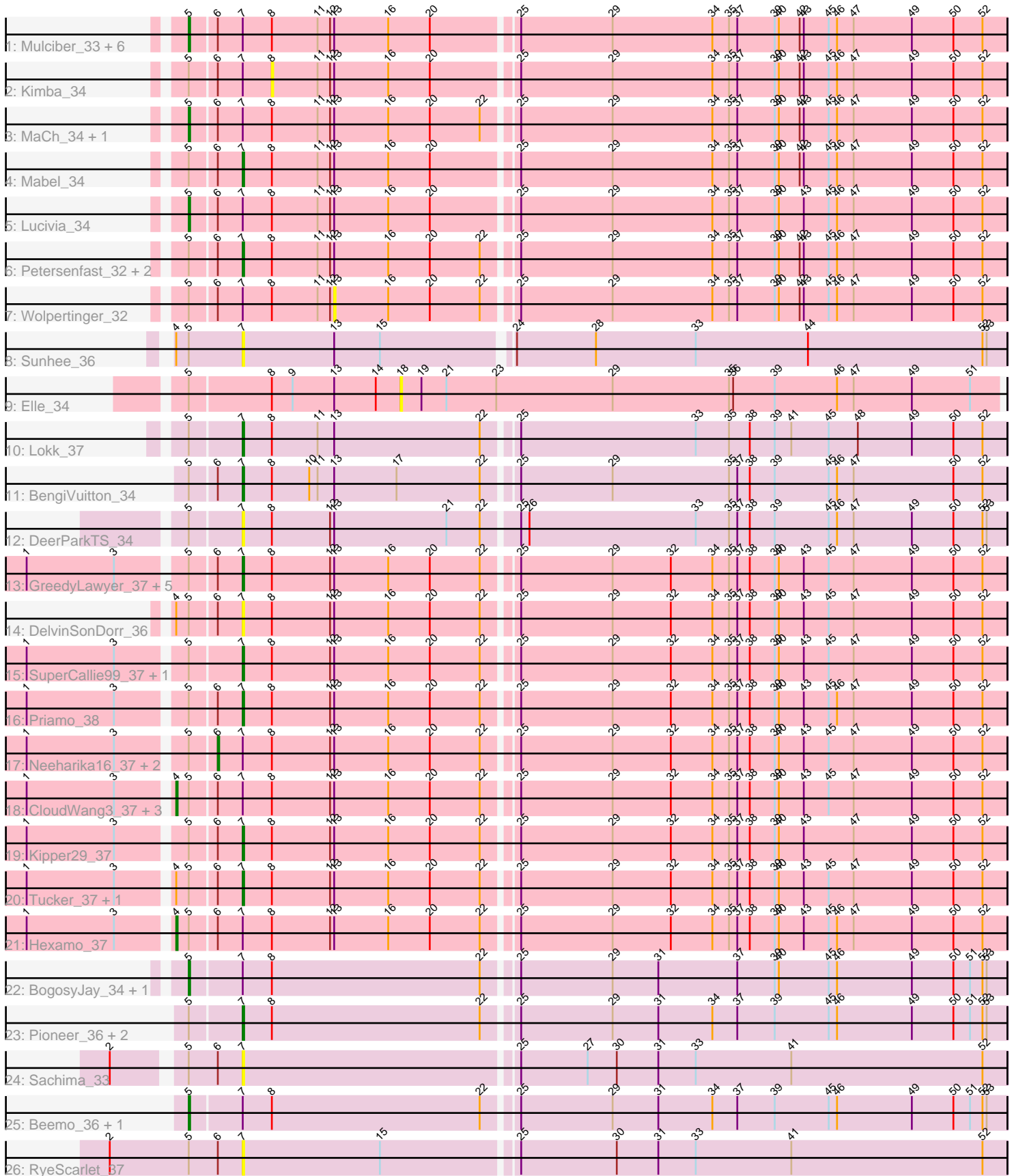


# Pham 294807



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 294807 Report

This analysis was run 04/18/26 on database version 643.

Pham number 294807 has 51 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Mulciber\_33, Salz\_34, Joselito\_34, Timothy\_34, Orange\_33, Ebony\_34, Snape\_33
- Track 2 : Kimba\_34
- Track 3 : MaCh\_34, Gilberta\_34
- Track 4 : Mabel\_34
- Track 5 : Lucivia\_34
- Track 6 : Petersenfast\_32, Saskia\_33, Bachome\_35
- Track 7 : Wolpertinger\_32
- Track 8 : Sunhee\_36
- Track 9 : Elle\_34
- Track 10 : Lokk\_37
- Track 11 : BengiVuitton\_34
- Track 12 : DeerParkTS\_34
- Track 13 : GreedyLawyer\_37, Garak\_38, BlessJoy\_37, ToneTone\_34, BennyP\_37, Candra\_37
- Track 14 : DelvinSonDorr\_36
- Track 15 : SuperCallie99\_37, Gruunaga\_37
- Track 16 : Priamo\_38
- Track 17 : Neeharika16\_37, DaVinci\_37, SmellyB\_37
- Track 18 : CloudWang3\_37, Artemis2UCLA\_37, Zaka\_37, Yokurt\_37
- Track 19 : Kipper29\_37
- Track 20 : Tucker\_37, Wiks\_36
- Track 21 : Hexamo\_37
- Track 22 : BogosyJay\_34, Maminiaina\_34
- Track 23 : Pioneer\_36, Ayanochan\_36, ExplosioNervosa\_36
- Track 24 : Sachima\_33
- Track 25 : Beemo\_36, Phonnegut\_36
- Track 26 : RyeScarlet\_37

### ***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 15 of the 37 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ayanochan\_36, Bachome\_35, BengiVuitton\_34, BennyP\_37, BlessJoy\_37, Candra\_37, DeerParkTS\_34, DelvinSonDorr\_36, ExplosioNervosa\_36, Garak\_38, GreedyLawyer\_37, Gruunaga\_37, Kipper29\_37, Lokk\_37, Mabel\_34, Petersenfast\_32, Pioneer\_36, Priamo\_38, RyeScarlet\_37, Sachima\_33, Saskia\_33, Sunhee\_36, SuperCallie99\_37, ToneTone\_34, Tucker\_37, Wiks\_36,

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

- Artemis2UCLA\_37, Beemo\_36, BogosyJay\_34, CloudWang3\_37, DaVinci\_37, Ebony\_34, Gilberta\_34, Hexamo\_37, Joselito\_34, Kimba\_34, Lucivia\_34, MaCh\_34, Maminiaina\_34, Mulciber\_33, Neeharika16\_37, Orange\_33, Phonnegut\_36, Salz\_34, SmellyB\_37, Snape\_33, Timothy\_34, Wolpertinger\_32, Yokurt\_37, Zaka\_37,

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

- Elle\_34,

### Summary by start number:

Start 4:

- Found in 9 of 51 ( 17.6% ) of genes in pham
- Manual Annotations of this start: 5 of 37
- Called 55.6% of time when present
- Phage (with cluster) where this start called: Artemis2UCLA\_37 (A6), CloudWang3\_37 (A6), Hexamo\_37 (A6), Yokurt\_37 (A6), Zaka\_37 (A6),

Start 5:

- Found in 51 of 51 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 14 of 37
- Called 27.5% of time when present
- Phage (with cluster) where this start called: Beemo\_36 (A9), BogosyJay\_34 (A9), Ebony\_34 (A11), Gilberta\_34 (A11), Joselito\_34 (A11), Lucivia\_34 (A11), MaCh\_34 (A11), Maminiaina\_34 (A9), Mulciber\_33 (A11), Orange\_33 (A11), Phonnegut\_36 (A9), Salz\_34 (A11), Snape\_33 (A11), Timothy\_34 (A11),

Start 6:

- Found in 38 of 51 ( 74.5% ) of genes in pham
- Manual Annotations of this start: 3 of 37
- Called 7.9% of time when present
- Phage (with cluster) where this start called: DaVinci\_37 (A6), Neeharika16\_37 (A6), SmellyB\_37 (A6),

Start 7:

- Found in 50 of 51 ( 98.0% ) of genes in pham
- Manual Annotations of this start: 15 of 37
- Called 52.0% of time when present
- Phage (with cluster) where this start called: Ayanochan\_36 (A9), Bachome\_35 (A11), BengiVuitton\_34 (A2), BennyP\_37 (A6), BlessJoy\_37 (A6), Candra\_37 (A6), DeerParkTS\_34 (A2), DelvinSonDorr\_36 (A6), ExplosioNervosa\_36 (A9), Garak\_38 (A6), GreedyLawyer\_37 (A6), Gruunaga\_37 (A6), Kipper29\_37 (A6), Lokk\_37 (A2), Mabel\_34 (A11), Petersenfast\_32 (A11), Pioneer\_36 (A9), Priamo\_38 (A6), RyeScarlet\_37 (A9), Sachima\_33 (A9), Saskia\_33 (A11), Sunhee\_36 (A14), SuperCallie99\_37 (A6), ToneTone\_34 (A6), Tucker\_37 (A6), Wiks\_36 (A6),

Start 8:

- Found in 48 of 51 ( 94.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.1% of time when present
- Phage (with cluster) where this start called: Kimba\_34 (A11),

Start 13:

- Found in 42 of 51 ( 82.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.4% of time when present
- Phage (with cluster) where this start called: Wolpertinger\_32 (A11),

Start 18:

- Found in 1 of 51 ( 2.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Elle\_34 (A15),

**Summary by clusters:**

There are 6 clusters represented in this pham: A15, A14, A11, A2, A6, A9,

Info for manual annotations of cluster A11:

- Start number 5 was manually annotated 10 times for cluster A11.
- Start number 7 was manually annotated 2 times for cluster A11.

Info for manual annotations of cluster A2:

- Start number 7 was manually annotated 2 times for cluster A2.

Info for manual annotations of cluster A6:

- Start number 4 was manually annotated 5 times for cluster A6.
- Start number 6 was manually annotated 3 times for cluster A6.
- Start number 7 was manually annotated 9 times for cluster A6.

Info for manual annotations of cluster A9:

- Start number 5 was manually annotated 4 times for cluster A9.
- Start number 7 was manually annotated 2 times for cluster A9.

**Gene Information:**

Gene: Artemis2UCLA\_37 Start: 24740, Stop: 25327, Start Num: 4

Candidate Starts for Artemis2UCLA\_37:

(1, 24641), (3, 24704), (Start: 4 @24740 has 5 MA's), (Start: 5 @24749 has 14 MA's), (Start: 6 @24767 has 3 MA's), (Start: 7 @24785 has 15 MA's), (8, 24806), (12, 24848), (13, 24851), (16, 24890), (20, 24920), (22, 24956), (25, 24977), (29, 25043), (32, 25085), (34, 25115), (35, 25127), (37, 25133), (38, 25142), (39, 25160), (40, 25163), (43, 25181), (45, 25199), (47, 25217), (49, 25259), (50, 25289), (52, 25310),

Gene: Ayanochan\_36 Start: 27076, Stop: 27618, Start Num: 7

Candidate Starts for Ayanochan\_36:

(Start: 5 @27040 has 14 MA's), (Start: 7 @27076 has 15 MA's), (8, 27097), (22, 27247), (25, 27268), (29, 27334), (31, 27367), (34, 27406), (37, 27424), (39, 27451), (45, 27490), (46, 27496), (49, 27550), (50, 27580), (51, 27592), (52, 27601), (53, 27604),

Gene: Bachome\_35 Start: 26144, Stop: 26686, Start Num: 7

Candidate Starts for Bachome\_35:

(Start: 5 @26108 has 14 MA's), (Start: 6 @26126 has 3 MA's), (Start: 7 @26144 has 15 MA's), (8, 26165), (11, 26198), (12, 26207), (13, 26210), (16, 26249), (20, 26279), (22, 26315), (25, 26336), (29, 26402), (34, 26474), (35, 26486), (37, 26492), (39, 26519), (40, 26522), (42, 26537), (43, 26540), (45, 26558), (46, 26564), (47, 26576), (49, 26618), (50, 26648), (52, 26669),

Gene: Beemo\_36 Start: 27041, Stop: 27619, Start Num: 5

Candidate Starts for Beemo\_36:

(Start: 5 @27041 has 14 MA's), (Start: 7 @27077 has 15 MA's), (8, 27098), (22, 27248), (25, 27269), (29, 27335), (31, 27368), (34, 27407), (37, 27425), (39, 27452), (45, 27491), (46, 27497), (49, 27551), (50, 27581), (51, 27593), (52, 27602), (53, 27605),

Gene: BengiVuitton\_34 Start: 26453, Stop: 26995, Start Num: 7

Candidate Starts for BengiVuitton\_34:

(Start: 5 @26417 has 14 MA's), (Start: 6 @26435 has 3 MA's), (Start: 7 @26453 has 15 MA's), (8, 26474), (10, 26501), (11, 26507), (13, 26519), (17, 26564), (22, 26624), (25, 26645), (29, 26711), (35, 26795), (37, 26801), (38, 26810), (39, 26828), (45, 26867), (46, 26873), (47, 26885), (50, 26957), (52, 26978),

Gene: BennyP\_37 Start: 25110, Stop: 25652, Start Num: 7

Candidate Starts for BennyP\_37:

(1, 24966), (3, 25029), (Start: 5 @25074 has 14 MA's), (Start: 6 @25092 has 3 MA's), (Start: 7 @25110 has 15 MA's), (8, 25131), (12, 25173), (13, 25176), (16, 25215), (20, 25245), (22, 25281), (25, 25302), (29, 25368), (32, 25410), (34, 25440), (35, 25452), (37, 25458), (38, 25467), (39, 25485), (40, 25488), (43, 25506), (45, 25524), (47, 25542), (49, 25584), (50, 25614), (52, 25635),

Gene: BlessJoy\_37 Start: 25105, Stop: 25647, Start Num: 7

Candidate Starts for BlessJoy\_37:

(1, 24961), (3, 25024), (Start: 5 @25069 has 14 MA's), (Start: 6 @25087 has 3 MA's), (Start: 7 @25105 has 15 MA's), (8, 25126), (12, 25168), (13, 25171), (16, 25210), (20, 25240), (22, 25276), (25, 25297), (29, 25363), (32, 25405), (34, 25435), (35, 25447), (37, 25453), (38, 25462), (39, 25480), (40, 25483), (43, 25501), (45, 25519), (47, 25537), (49, 25579), (50, 25609), (52, 25630),

Gene: BogosyJay\_34 Start: 26586, Stop: 27164, Start Num: 5

Candidate Starts for BogosyJay\_34:

(Start: 5 @26586 has 14 MA's), (Start: 7 @26622 has 15 MA's), (8, 26643), (22, 26793), (25, 26814), (29, 26880), (31, 26913), (37, 26970), (39, 26997), (40, 27000), (45, 27036), (46, 27042), (49, 27096), (50, 27126), (51, 27138), (52, 27147), (53, 27150),

Gene: Candra\_37 Start: 25146, Stop: 25688, Start Num: 7

Candidate Starts for Candra\_37:

(1, 25002), (3, 25065), (Start: 5 @25110 has 14 MA's), (Start: 6 @25128 has 3 MA's), (Start: 7 @25146 has 15 MA's), (8, 25167), (12, 25209), (13, 25212), (16, 25251), (20, 25281), (22, 25317), (25, 25338), (29, 25404), (32, 25446), (34, 25476), (35, 25488), (37, 25494), (38, 25503), (39, 25521), (40, 25524), (43, 25542), (45, 25560), (47, 25578), (49, 25620), (50, 25650), (52, 25671),

Gene: CloudWang3\_37 Start: 24840, Stop: 25427, Start Num: 4

Candidate Starts for CloudWang3\_37:

(1, 24741), (3, 24804), (Start: 4 @24840 has 5 MA's), (Start: 5 @24849 has 14 MA's), (Start: 6 @24867 has 3 MA's), (Start: 7 @24885 has 15 MA's), (8, 24906), (12, 24948), (13, 24951), (16, 24990), (20, 25020), (22, 25056), (25, 25077), (29, 25143), (32, 25185), (34, 25215), (35, 25227), (37, 25233), (38, 25242), (39, 25260), (40, 25263), (43, 25281), (45, 25299), (47, 25317), (49, 25359), (50, 25389), (52, 25410),

Gene: DaVinci\_37 Start: 25093, Stop: 25653, Start Num: 6

Candidate Starts for DaVinci\_37:

(1, 24967), (3, 25030), (Start: 5 @25075 has 14 MA's), (Start: 6 @25093 has 3 MA's), (Start: 7 @25111 has 15 MA's), (8, 25132), (12, 25174), (13, 25177), (16, 25216), (20, 25246), (22, 25282), (25, 25303), (29, 25369), (32, 25411), (34, 25441), (35, 25453), (37, 25459), (38, 25468), (39, 25486), (40, 25489), (43, 25507), (45, 25525), (47, 25543), (49, 25585), (50, 25615), (52, 25636),

Gene: DeerParkTS\_34 Start: 26427, Stop: 26972, Start Num: 7

Candidate Starts for DeerParkTS\_34:

(Start: 5 @26391 has 14 MA's), (Start: 7 @26427 has 15 MA's), (8, 26448), (12, 26490), (13, 26493), (21, 26574), (22, 26598), (25, 26622), (26, 26628), (33, 26748), (35, 26772), (37, 26778), (38, 26787), (39, 26805), (45, 26844), (46, 26850), (47, 26862), (49, 26904), (50, 26934), (52, 26955), (53, 26958),

Gene: DelvinSonDorr\_36 Start: 25104, Stop: 25646, Start Num: 7

Candidate Starts for DelvinSonDorr\_36:

(Start: 4 @25059 has 5 MA's), (Start: 5 @25068 has 14 MA's), (Start: 6 @25086 has 3 MA's), (Start: 7 @25104 has 15 MA's), (8, 25125), (12, 25167), (13, 25170), (16, 25209), (20, 25239), (22, 25275), (25, 25296), (29, 25362), (32, 25404), (34, 25434), (35, 25446), (37, 25452), (38, 25461), (39, 25479), (40, 25482), (43, 25500), (45, 25518), (47, 25536), (49, 25578), (50, 25608), (52, 25629),

Gene: Ebony\_34 Start: 26075, Stop: 26653, Start Num: 5

Candidate Starts for Ebony\_34:

(Start: 5 @26075 has 14 MA's), (Start: 6 @26093 has 3 MA's), (Start: 7 @26111 has 15 MA's), (8, 26132), (11, 26165), (12, 26174), (13, 26177), (16, 26216), (20, 26246), (25, 26303), (29, 26369), (34, 26441), (35, 26453), (37, 26459), (39, 26486), (40, 26489), (42, 26504), (43, 26507), (45, 26525), (46, 26531), (47, 26543), (49, 26585), (50, 26615), (52, 26636),

Gene: Elle\_34 Start: 24107, Stop: 24538, Start Num: 18

Candidate Starts for Elle\_34:

(Start: 5 @23957 has 14 MA's), (8, 24014), (9, 24029), (13, 24059), (14, 24089), (18, 24107), (19, 24122), (21, 24140), (23, 24176), (29, 24260), (35, 24344), (36, 24347), (39, 24377), (46, 24422), (47, 24434), (49, 24476), (51, 24518),

Gene: ExplosioNervosa\_36 Start: 27111, Stop: 27653, Start Num: 7

Candidate Starts for ExplosioNervosa\_36:

(Start: 5 @27075 has 14 MA's), (Start: 7 @27111 has 15 MA's), (8, 27132), (22, 27282), (25, 27303), (29, 27369), (31, 27402), (34, 27441), (37, 27459), (39, 27486), (45, 27525), (46, 27531), (49, 27585), (50, 27615), (51, 27627), (52, 27636), (53, 27639),

Gene: Garak\_38 Start: 25111, Stop: 25653, Start Num: 7

Candidate Starts for Garak\_38:

(1, 24967), (3, 25030), (Start: 5 @25075 has 14 MA's), (Start: 6 @25093 has 3 MA's), (Start: 7 @25111 has 15 MA's), (8, 25132), (12, 25174), (13, 25177), (16, 25216), (20, 25246), (22, 25282), (25, 25303), (29, 25369), (32, 25411), (34, 25441), (35, 25453), (37, 25459), (38, 25468), (39, 25486), (40, 25489), (43, 25507), (45, 25525), (47, 25543), (49, 25585), (50, 25615), (52, 25636),

Gene: Gilberta\_34 Start: 26111, Stop: 26689, Start Num: 5

Candidate Starts for Gilberta\_34:

(Start: 5 @26111 has 14 MA's), (Start: 6 @26129 has 3 MA's), (Start: 7 @26147 has 15 MA's), (8, 26168), (11, 26201), (12, 26210), (13, 26213), (16, 26252), (20, 26282), (22, 26318), (25, 26339), (29, 26405), (34, 26477), (35, 26489), (37, 26495), (39, 26522), (40, 26525), (42, 26540), (43, 26543), (45, 26561), (46, 26567), (47, 26579), (49, 26621), (50, 26651), (52, 26672),

Gene: GreedyLawyer\_37 Start: 25110, Stop: 25652, Start Num: 7

Candidate Starts for GreedyLawyer\_37:

(1, 24966), (3, 25029), (Start: 5 @25074 has 14 MA's), (Start: 6 @25092 has 3 MA's), (Start: 7 @25110 has 15 MA's), (8, 25131), (12, 25173), (13, 25176), (16, 25215), (20, 25245), (22, 25281), (25, 25302), (29, 25368), (32, 25410), (34, 25440), (35, 25452), (37, 25458), (38, 25467), (39, 25485), (40, 25488), (43, 25506), (45, 25524), (47, 25542), (49, 25584), (50, 25614), (52, 25635),

Gene: Gruunaga\_37 Start: 25099, Stop: 25641, Start Num: 7

Candidate Starts for Gruunaga\_37:

(1, 24955), (3, 25018), (Start: 5 @25063 has 14 MA's), (Start: 7 @25099 has 15 MA's), (8, 25120), (12, 25162), (13, 25165), (16, 25204), (20, 25234), (22, 25270), (25, 25291), (29, 25357), (32, 25399), (34, 25429), (35, 25441), (37, 25447), (38, 25456), (39, 25474), (40, 25477), (43, 25495), (45, 25513), (47, 25531), (49, 25573), (50, 25603), (52, 25624),

Gene: Hexamo\_37 Start: 24812, Stop: 25399, Start Num: 4

Candidate Starts for Hexamo\_37:

(1, 24713), (3, 24776), (Start: 4 @24812 has 5 MA's), (Start: 5 @24821 has 14 MA's), (Start: 6 @24839 has 3 MA's), (Start: 7 @24857 has 15 MA's), (8, 24878), (12, 24920), (13, 24923), (16, 24962), (20, 24992), (22, 25028), (25, 25049), (29, 25115), (32, 25157), (34, 25187), (35, 25199), (37, 25205), (38, 25214), (39, 25232), (40, 25235), (43, 25253), (45, 25271), (46, 25277), (47, 25289), (49, 25331), (50, 25361), (52, 25382),

Gene: Joselito\_34 Start: 26120, Stop: 26698, Start Num: 5

Candidate Starts for Joselito\_34:

(Start: 5 @26120 has 14 MA's), (Start: 6 @26138 has 3 MA's), (Start: 7 @26156 has 15 MA's), (8, 26177), (11, 26210), (12, 26219), (13, 26222), (16, 26261), (20, 26291), (25, 26348), (29, 26414), (34, 26486), (35, 26498), (37, 26504), (39, 26531), (40, 26534), (42, 26549), (43, 26552), (45, 26570), (46, 26576), (47, 26588), (49, 26630), (50, 26660), (52, 26681),

Gene: Kimba\_34 Start: 26141, Stop: 26662, Start Num: 8

Candidate Starts for Kimba\_34:

(Start: 5 @26084 has 14 MA's), (Start: 6 @26102 has 3 MA's), (Start: 7 @26120 has 15 MA's), (8, 26141), (11, 26174), (12, 26183), (13, 26186), (16, 26225), (20, 26255), (25, 26312), (29, 26378), (34, 26450), (35, 26462), (37, 26468), (39, 26495), (40, 26498), (42, 26513), (43, 26516), (45, 26534), (46, 26540), (47, 26552), (49, 26594), (50, 26624), (52, 26645),

Gene: Kipper29\_37 Start: 25110, Stop: 25652, Start Num: 7

Candidate Starts for Kipper29\_37:

(1, 24966), (3, 25029), (Start: 5 @25074 has 14 MA's), (Start: 6 @25092 has 3 MA's), (Start: 7 @25110 has 15 MA's), (8, 25131), (12, 25173), (13, 25176), (16, 25215), (20, 25245), (22, 25281), (25, 25302), (29, 25368), (32, 25410), (34, 25440), (35, 25452), (37, 25458), (38, 25467), (39, 25485), (40, 25488), (43, 25506), (47, 25542), (49, 25584), (50, 25614), (52, 25635),

Gene: Lokk\_37 Start: 27588, Stop: 28130, Start Num: 7

Candidate Starts for Lokk\_37:

(Start: 5 @27552 has 14 MA's), (Start: 7 @27588 has 15 MA's), (8, 27609), (11, 27642), (13, 27654), (22, 27759), (25, 27780), (33, 27906), (35, 27930), (38, 27945), (39, 27963), (41, 27975), (45, 28002), (48, 28023), (49, 28062), (50, 28092), (52, 28113),

Gene: Lucivia\_34 Start: 26169, Stop: 26747, Start Num: 5

Candidate Starts for Lucivia\_34:

(Start: 5 @26169 has 14 MA's), (Start: 6 @26187 has 3 MA's), (Start: 7 @26205 has 15 MA's), (8, 26226), (11, 26259), (12, 26268), (13, 26271), (16, 26310), (20, 26340), (25, 26397), (29, 26463), (34, 26535), (35, 26547), (37, 26553), (39, 26580), (40, 26583), (43, 26601), (45, 26619), (46, 26625), (47, 26637), (49, 26679), (50, 26709), (52, 26730),

Gene: MaCh\_34 Start: 26108, Stop: 26686, Start Num: 5

Candidate Starts for MaCh\_34:

(Start: 5 @26108 has 14 MA's), (Start: 6 @26126 has 3 MA's), (Start: 7 @26144 has 15 MA's), (8, 26165), (11, 26198), (12, 26207), (13, 26210), (16, 26249), (20, 26279), (22, 26315), (25, 26336), (29, 26402), (34, 26474), (35, 26486), (37, 26492), (39, 26519), (40, 26522), (42, 26537), (43, 26540), (45, 26558), (46, 26564), (47, 26576), (49, 26618), (50, 26648), (52, 26669),

Gene: Mabel\_34 Start: 26118, Stop: 26660, Start Num: 7

Candidate Starts for Mabel\_34:

(Start: 5 @26082 has 14 MA's), (Start: 6 @26100 has 3 MA's), (Start: 7 @26118 has 15 MA's), (8, 26139), (11, 26172), (12, 26181), (13, 26184), (16, 26223), (20, 26253), (25, 26310), (29, 26376), (34, 26448), (35, 26460), (37, 26466), (39, 26493), (40, 26496), (42, 26511), (43, 26514), (45, 26532), (46, 26538), (47, 26550), (49, 26592), (50, 26622), (52, 26643),

Gene: Maminiaina\_34 Start: 26568, Stop: 27146, Start Num: 5

Candidate Starts for Maminiaina\_34:

(Start: 5 @26568 has 14 MA's), (Start: 7 @26604 has 15 MA's), (8, 26625), (22, 26775), (25, 26796), (29, 26862), (31, 26895), (37, 26952), (39, 26979), (40, 26982), (45, 27018), (46, 27024), (49, 27078), (50, 27108), (51, 27120), (52, 27129), (53, 27132),

Gene: Mulciber\_33 Start: 25663, Stop: 26241, Start Num: 5

Candidate Starts for Mulciber\_33:

(Start: 5 @25663 has 14 MA's), (Start: 6 @25681 has 3 MA's), (Start: 7 @25699 has 15 MA's), (8, 25720), (11, 25753), (12, 25762), (13, 25765), (16, 25804), (20, 25834), (25, 25891), (29, 25957), (34, 26029), (35, 26041), (37, 26047), (39, 26074), (40, 26077), (42, 26092), (43, 26095), (45, 26113), (46, 26119), (47, 26131), (49, 26173), (50, 26203), (52, 26224),

Gene: Neeharika16\_37 Start: 25085, Stop: 25645, Start Num: 6

Candidate Starts for Neeharika16\_37:

(1, 24959), (3, 25022), (Start: 5 @25067 has 14 MA's), (Start: 6 @25085 has 3 MA's), (Start: 7 @25103 has 15 MA's), (8, 25124), (12, 25166), (13, 25169), (16, 25208), (20, 25238), (22, 25274), (25, 25295), (29, 25361), (32, 25403), (34, 25433), (35, 25445), (37, 25451), (38, 25460), (39, 25478), (40, 25481), (43, 25499), (45, 25517), (47, 25535), (49, 25577), (50, 25607), (52, 25628),

Gene: Orange\_33 Start: 25669, Stop: 26247, Start Num: 5

Candidate Starts for Orange\_33:

(Start: 5 @25669 has 14 MA's), (Start: 6 @25687 has 3 MA's), (Start: 7 @25705 has 15 MA's), (8, 25726), (11, 25759), (12, 25768), (13, 25771), (16, 25810), (20, 25840), (25, 25897), (29, 25963), (34, 26035), (35, 26047), (37, 26053), (39, 26080), (40, 26083), (42, 26098), (43, 26101), (45, 26119), (46, 26125), (47, 26137), (49, 26179), (50, 26209), (52, 26230),

Gene: Petersenfast\_32 Start: 25704, Stop: 26246, Start Num: 7

Candidate Starts for Petersenfast\_32:

(Start: 5 @25668 has 14 MA's), (Start: 6 @25686 has 3 MA's), (Start: 7 @25704 has 15 MA's), (8, 25725), (11, 25758), (12, 25767), (13, 25770), (16, 25809), (20, 25839), (22, 25875), (25, 25896), (29, 25962), (34, 26034), (35, 26046), (37, 26052), (39, 26079), (40, 26082), (42, 26097), (43, 26100), (45, 26118), (46, 26124), (47, 26136), (49, 26178), (50, 26208), (52, 26229),

Gene: Phonnegut\_36 Start: 27040, Stop: 27618, Start Num: 5

Candidate Starts for Phonnegut\_36:

(Start: 5 @27040 has 14 MA's), (Start: 7 @27076 has 15 MA's), (8, 27097), (22, 27247), (25, 27268), (29, 27334), (31, 27367), (34, 27406), (37, 27424), (39, 27451), (45, 27490), (46, 27496), (49, 27550), (50, 27580), (51, 27592), (52, 27601), (53, 27604),

Gene: Pioneer\_36 Start: 27076, Stop: 27618, Start Num: 7

Candidate Starts for Pioneer\_36:

(Start: 5 @27040 has 14 MA's), (Start: 7 @27076 has 15 MA's), (8, 27097), (22, 27247), (25, 27268), (29, 27334), (31, 27367), (34, 27406), (37, 27424), (39, 27451), (45, 27490), (46, 27496), (49, 27550), (50, 27580), (51, 27592), (52, 27601), (53, 27604),

Gene: Priamo\_38 Start: 25149, Stop: 25691, Start Num: 7

Candidate Starts for Priamo\_38:

(1, 25005), (3, 25068), (Start: 5 @25113 has 14 MA's), (Start: 6 @25131 has 3 MA's), (Start: 7 @25149 has 15 MA's), (8, 25170), (12, 25212), (13, 25215), (16, 25254), (20, 25284), (22, 25320), (25, 25341), (29, 25407), (32, 25449), (34, 25479), (35, 25491), (37, 25497), (38, 25506), (39, 25524), (40, 25527), (43, 25545), (45, 25563), (46, 25569), (47, 25581), (49, 25623), (50, 25653), (52, 25674),

Gene: RyeScarlet\_37 Start: 27076, Stop: 27618, Start Num: 7

Candidate Starts for RyeScarlet\_37:

(2, 26980), (Start: 5 @27037 has 14 MA's), (Start: 6 @27058 has 3 MA's), (Start: 7 @27076 has 15 MA's), (15, 27175), (25, 27268), (30, 27337), (31, 27367), (33, 27394), (41, 27463), (52, 27601),

Gene: Sachima\_33 Start: 27052, Stop: 27594, Start Num: 7

Candidate Starts for Sachima\_33:

(2, 26968), (Start: 5 @27013 has 14 MA's), (Start: 6 @27034 has 3 MA's), (Start: 7 @27052 has 15 MA's), (25, 27244), (27, 27292), (30, 27313), (31, 27343), (33, 27370), (41, 27439), (52, 27577),

Gene: Salz\_34 Start: 26023, Stop: 26601, Start Num: 5

Candidate Starts for Salz\_34:

(Start: 5 @26023 has 14 MA's), (Start: 6 @26041 has 3 MA's), (Start: 7 @26059 has 15 MA's), (8, 26080), (11, 26113), (12, 26122), (13, 26125), (16, 26164), (20, 26194), (25, 26251), (29, 26317), (34, 26389), (35, 26401), (37, 26407), (39, 26434), (40, 26437), (42, 26452), (43, 26455), (45, 26473), (46, 26479), (47, 26491), (49, 26533), (50, 26563), (52, 26584),

Gene: Saskia\_33 Start: 25901, Stop: 26443, Start Num: 7

Candidate Starts for Saskia\_33:

(Start: 5 @25865 has 14 MA's), (Start: 6 @25883 has 3 MA's), (Start: 7 @25901 has 15 MA's), (8, 25922), (11, 25955), (12, 25964), (13, 25967), (16, 26006), (20, 26036), (22, 26072), (25, 26093), (29, 26159), (34, 26231), (35, 26243), (37, 26249), (39, 26276), (40, 26279), (42, 26294), (43, 26297), (45, 26315), (46, 26321), (47, 26333), (49, 26375), (50, 26405), (52, 26426),

Gene: SmellyB\_37 Start: 25092, Stop: 25652, Start Num: 6

Candidate Starts for SmellyB\_37:

(1, 24966), (3, 25029), (Start: 5 @25074 has 14 MA's), (Start: 6 @25092 has 3 MA's), (Start: 7 @25110 has 15 MA's), (8, 25131), (12, 25173), (13, 25176), (16, 25215), (20, 25245), (22, 25281), (25, 25302),

(29, 25368), (32, 25410), (34, 25440), (35, 25452), (37, 25458), (38, 25467), (39, 25485), (40, 25488), (43, 25506), (45, 25524), (47, 25542), (49, 25584), (50, 25614), (52, 25635),

Gene: Snape\_33 Start: 25666, Stop: 26244, Start Num: 5

Candidate Starts for Snape\_33:

(Start: 5 @25666 has 14 MA's), (Start: 6 @25684 has 3 MA's), (Start: 7 @25702 has 15 MA's), (8, 25723), (11, 25756), (12, 25765), (13, 25768), (16, 25807), (20, 25837), (25, 25894), (29, 25960), (34, 26032), (35, 26044), (37, 26050), (39, 26077), (40, 26080), (42, 26095), (43, 26098), (45, 26116), (46, 26122), (47, 26134), (49, 26176), (50, 26206), (52, 26227),

Gene: Sunhee\_36 Start: 26510, Stop: 27049, Start Num: 7

Candidate Starts for Sunhee\_36:

(Start: 4 @26462 has 5 MA's), (Start: 5 @26471 has 14 MA's), (Start: 7 @26510 has 15 MA's), (13, 26576), (15, 26609), (24, 26696), (28, 26753), (33, 26825), (44, 26906), (52, 27032), (53, 27035),

Gene: SuperCallie99\_37 Start: 25102, Stop: 25644, Start Num: 7

Candidate Starts for SuperCallie99\_37:

(1, 24958), (3, 25021), (Start: 5 @25066 has 14 MA's), (Start: 7 @25102 has 15 MA's), (8, 25123), (12, 25165), (13, 25168), (16, 25207), (20, 25237), (22, 25273), (25, 25294), (29, 25360), (32, 25402), (34, 25432), (35, 25444), (37, 25450), (38, 25459), (39, 25477), (40, 25480), (43, 25498), (45, 25516), (47, 25534), (49, 25576), (50, 25606), (52, 25627),

Gene: Timothy\_34 Start: 26026, Stop: 26604, Start Num: 5

Candidate Starts for Timothy\_34:

(Start: 5 @26026 has 14 MA's), (Start: 6 @26044 has 3 MA's), (Start: 7 @26062 has 15 MA's), (8, 26083), (11, 26116), (12, 26125), (13, 26128), (16, 26167), (20, 26197), (25, 26254), (29, 26320), (34, 26392), (35, 26404), (37, 26410), (39, 26437), (40, 26440), (42, 26455), (43, 26458), (45, 26476), (46, 26482), (47, 26494), (49, 26536), (50, 26566), (52, 26587),

Gene: ToneTone\_34 Start: 24815, Stop: 25357, Start Num: 7

Candidate Starts for ToneTone\_34:

(1, 24671), (3, 24734), (Start: 5 @24779 has 14 MA's), (Start: 6 @24797 has 3 MA's), (Start: 7 @24815 has 15 MA's), (8, 24836), (12, 24878), (13, 24881), (16, 24920), (20, 24950), (22, 24986), (25, 25007), (29, 25073), (32, 25115), (34, 25145), (35, 25157), (37, 25163), (38, 25172), (39, 25190), (40, 25193), (43, 25211), (45, 25229), (47, 25247), (49, 25289), (50, 25319), (52, 25340),

Gene: Tucker\_37 Start: 24901, Stop: 25443, Start Num: 7

Candidate Starts for Tucker\_37:

(1, 24757), (3, 24820), (Start: 4 @24856 has 5 MA's), (Start: 5 @24865 has 14 MA's), (Start: 6 @24883 has 3 MA's), (Start: 7 @24901 has 15 MA's), (8, 24922), (12, 24964), (13, 24967), (16, 25006), (20, 25036), (22, 25072), (25, 25093), (29, 25159), (32, 25201), (34, 25231), (35, 25243), (37, 25249), (38, 25258), (39, 25276), (40, 25279), (43, 25297), (45, 25315), (47, 25333), (49, 25375), (50, 25405), (52, 25426),

Gene: Wiks\_36 Start: 24883, Stop: 25425, Start Num: 7

Candidate Starts for Wiks\_36:

(1, 24739), (3, 24802), (Start: 4 @24838 has 5 MA's), (Start: 5 @24847 has 14 MA's), (Start: 6 @24865 has 3 MA's), (Start: 7 @24883 has 15 MA's), (8, 24904), (12, 24946), (13, 24949), (16, 24988), (20, 25018), (22, 25054), (25, 25075), (29, 25141), (32, 25183), (34, 25213), (35, 25225), (37, 25231), (38, 25240), (39, 25258), (40, 25261), (43, 25279), (45, 25297), (47, 25315), (49, 25357), (50, 25387), (52, 25408),

Gene: Wolpertinger\_32 Start: 25770, Stop: 26246, Start Num: 13

Candidate Starts for Wolpertinger\_32:

(Start: 5 @25668 has 14 MA's), (Start: 6 @25686 has 3 MA's), (Start: 7 @25704 has 15 MA's), (8, 25725), (11, 25758), (12, 25767), (13, 25770), (16, 25809), (20, 25839), (22, 25875), (25, 25896), (29, 25962), (34, 26034), (35, 26046), (37, 26052), (39, 26079), (40, 26082), (42, 26097), (43, 26100), (45, 26118), (46, 26124), (47, 26136), (49, 26178), (50, 26208), (52, 26229),

Gene: Yokurt\_37 Start: 24838, Stop: 25425, Start Num: 4

Candidate Starts for Yokurt\_37:

(1, 24739), (3, 24802), (Start: 4 @24838 has 5 MA's), (Start: 5 @24847 has 14 MA's), (Start: 6 @24865 has 3 MA's), (Start: 7 @24883 has 15 MA's), (8, 24904), (12, 24946), (13, 24949), (16, 24988), (20, 25018), (22, 25054), (25, 25075), (29, 25141), (32, 25183), (34, 25213), (35, 25225), (37, 25231), (38, 25240), (39, 25258), (40, 25261), (43, 25279), (45, 25297), (47, 25315), (49, 25357), (50, 25387), (52, 25408),

Gene: Zaka\_37 Start: 24838, Stop: 25425, Start Num: 4

Candidate Starts for Zaka\_37:

(1, 24739), (3, 24802), (Start: 4 @24838 has 5 MA's), (Start: 5 @24847 has 14 MA's), (Start: 6 @24865 has 3 MA's), (Start: 7 @24883 has 15 MA's), (8, 24904), (12, 24946), (13, 24949), (16, 24988), (20, 25018), (22, 25054), (25, 25075), (29, 25141), (32, 25183), (34, 25213), (35, 25225), (37, 25231), (38, 25240), (39, 25258), (40, 25261), (43, 25279), (45, 25297), (47, 25315), (49, 25357), (50, 25387), (52, 25408),