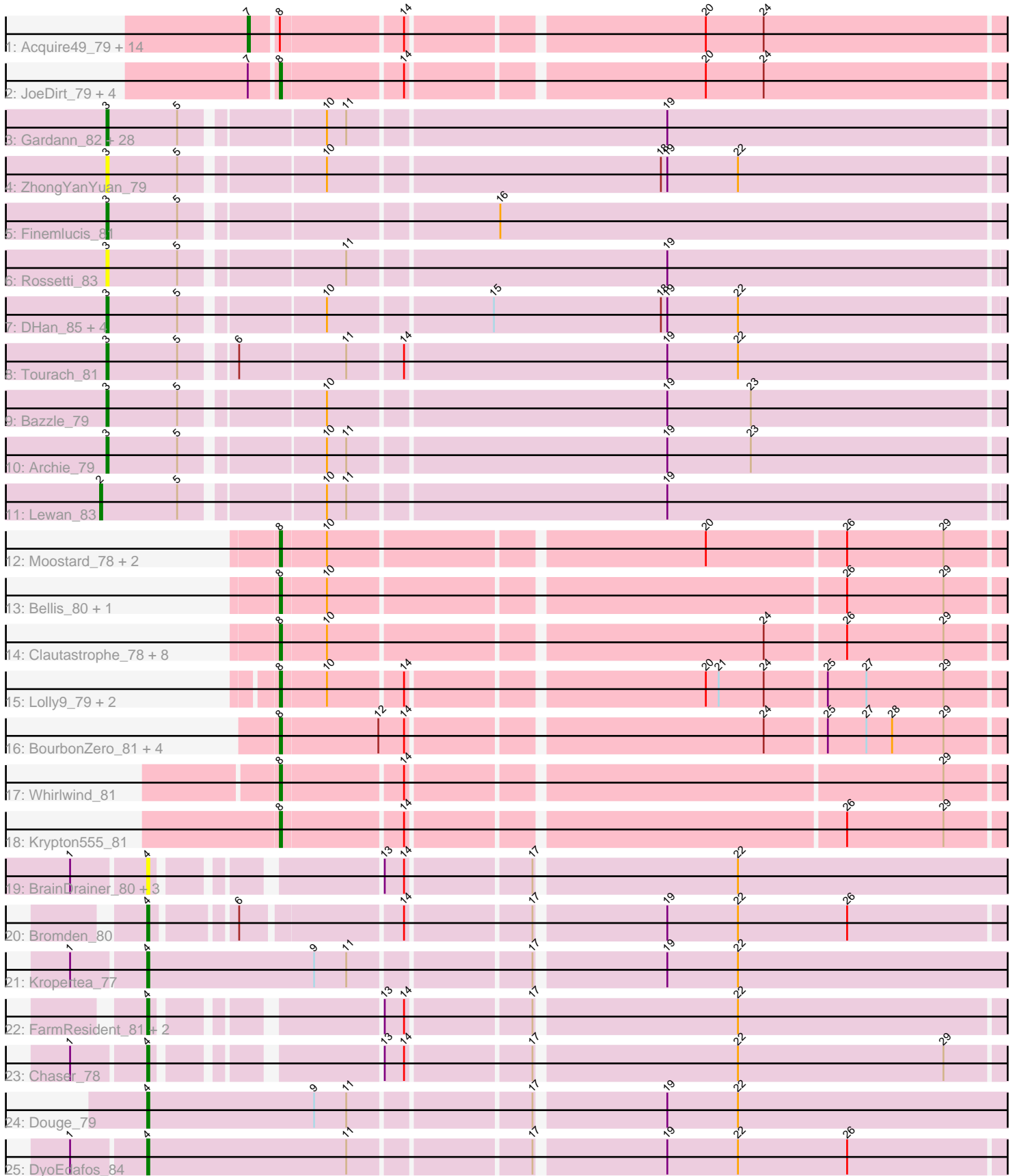


Pham 311442



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 311442 Report

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

Pham number 311442 has 97 members, 21 are drafts.

Phages represented in each track:

- Track 1 : Acquire49\_79, UPIE\_78, Wamburgexpress\_79, Silverleaf\_79, Appletree2\_78, Wyatt2\_80, DirkDirk\_76, AvadaKedavra\_79, Zaria\_80, Tyson\_80, Rose5\_79, LeBron\_78, Halena\_77, MAckerman\_77, Calm\_81
- Track 2 : JoeDirt\_79, Enceladus\_76, OhShagHennessy\_76, CicholasNage\_76, Poochiewood\_77
- Track 3 : Gardann\_82, Lynnae\_84, SoJulia\_84, Loadrie\_81, BobsGarage\_82, OverPar\_83, Faith1\_82, Netyap\_83, DrSeegs\_82, Zakai\_83, Wigglewiggle\_81, Nicholasp3\_82, BigCheese\_82, Winky\_82, Vetric\_81, Miley16\_82, GuuelaD\_80, LilDestine\_81, Kahlid\_82, Itos\_81, Crossroads\_82, Rumpelstiltskin\_79, Soap141\_82, Sarshaun\_83, Wilder\_83, MkaliMitinis3\_83, Gabriela\_81, Underpass\_73, Breezona\_82
- Track 4 : ZhongYanYuan\_79
- Track 5 : Finemlucis\_81
- Track 6 : Rossetti\_83
- Track 7 : DHan\_85, DanBing\_82, Baoshan\_80, Hafay\_83, Claus\_81
- Track 8 : Tourach\_81
- Track 9 : Bazzle\_79
- Track 10 : Archie\_79
- Track 11 : Lewan\_83
- Track 12 : Moostard\_78, Finnry\_80, Samty\_79
- Track 13 : Bellis\_80, TriFive\_81
- Track 14 : Clautastrophe\_78, Kingsolomon\_78, Nicholas\_78, Lumos\_80, Jobypre\_80, Red305\_81, MsGreen\_80, Snenia\_79, Jubie\_79
- Track 15 : Lolly9\_79, MiniLon\_84, MiniMac\_84
- Track 16 : BourbonZero\_81, DuncansLeg\_80, Ellson\_79, KirDoubleO7\_78, LiyuLake\_79
- Track 17 : Whirlwind\_81
- Track 18 : Krypton555\_81
- Track 19 : BrainDrainer\_80, Sheng711\_81, Douzhi\_80, PYPDinur\_79
- Track 20 : Bromden\_80
- Track 21 : Kropertea\_77
- Track 22 : FarmResident\_81, ChutneyChips\_80, Quby\_80
- Track 23 : Chaser\_78
- Track 24 : Douge\_79
- Track 25 : DyoEdafos\_84

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

The start number called the most often in the published annotations is 3, it was called in 31 of the 76 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Archie\_79, Baoshan\_80, Bazzle\_79, BigCheese\_82, BobsGarage\_82, Breezona\_82, Claus\_81, Crossroads\_82, DHan\_85, DanBing\_82, DrSeegs\_82, Faith1\_82, Finemlucis\_81, Gabriela\_81, Gardann\_82, GuuelaD\_80, Hafay\_83, Itos\_81, Kahlid\_82, LilDestine\_81, Loadrie\_81, Lynnae\_84, Miley16\_82, MkaliMitinis3\_83, Netyap\_83, Nicholasp3\_82, OverPar\_83, Rossetti\_83, Rumpelstiltskin\_79, Sarshaun\_83, SoJulia\_84, Soap141\_82, Tourach\_81, Underpass\_73, Vetrix\_81, Wigglewiggle\_81, Wilder\_83, Winky\_82, Zakai\_83, ZhongYanYuan\_79,

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

- 

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

- Acquire49\_79, Appletree2\_78, AvadaKedavra\_79, Bellis\_80, BourbonZero\_81, BrainDrainer\_80, Bromden\_80, Calm\_81, Chaser\_78, ChutneyChips\_80, CicholasNage\_76, Clautastrophe\_78, DirkDirk\_76, Douge\_79, Douzhi\_80, DuncansLeg\_80, DyoEdafos\_84, Ellson\_79, Enceladus\_76, FarmResident\_81, Finnry\_80, Halena\_77, Jobypre\_80, JoeDirt\_79, Jubie\_79, Kingsolomon\_78, KirDoubleO7\_78, Kropertea\_77, Krypton555\_81, LeBron\_78, Lewan\_83, LiyuLake\_79, Lolly9\_79, Lumos\_80, MAckerman\_77, MiniLon\_84, MiniMac\_84, Moostard\_78, MsGreen\_80, Nicholas\_78, OhShagHennessy\_76, PYPDinur\_79, Poochiewood\_77, Quby\_80, Red305\_81, Rose5\_79, Samty\_79, Sheng711\_81, Silverleaf\_79, Snenia\_79, TriFive\_81, Tyson\_80, UPIE\_78, Wamburggrxpress\_79, Whirlwind\_81, Wyatt2\_80, Zaria\_80,

## **Summary by start number:**

Start 2:

- Found in 1 of 97 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 76
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Lewan\_83 (L2),

Start 3:

- Found in 40 of 97 ( 41.2% ) of genes in pham
- Manual Annotations of this start: 31 of 76
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Archie\_79 (L2), Baoshan\_80 (L2), Bazzle\_79 (L2), BigCheese\_82 (L2), BobsGarage\_82 (L2), Breezona\_82 (L2), Claus\_81 (L2), Crossroads\_82 (L2), DHan\_85 (L2), DanBing\_82 (L2), DrSeegs\_82 (L2), Faith1\_82 (L2), Finemlucis\_81 (L2), Gabriela\_81 (L2), Gardann\_82 (L2), GuuelaD\_80 (L2), Hafay\_83 (L2), Itos\_81 (L2), Kahlid\_82 (L2), LilDestine\_81 (L2), Loadrie\_81 (L2), Lynnae\_84 (L2), Miley16\_82 (L2), MkaliMitinis3\_83 (L2), Netyap\_83 (L2), Nicholasp3\_82 (L2), OverPar\_83 (L2), Rossetti\_83 (L2), Rumpelstiltskin\_79 (L2), Sarshaun\_83 (L2), SoJulia\_84 (L2), Soap141\_82 (L2), Tourach\_81 (L2), Underpass\_73 (L2), Vetrix\_81 (L2), Wigglewiggle\_81 (L2), Wilder\_83 (L2), Winky\_82

(L2), Zakai\_83 (L2), ZhongYanYuan\_79 (L2),

Start 4:

- Found in 12 of 97 ( 12.4% ) of genes in pham
- Manual Annotations of this start: 6 of 76
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BrainDrainer\_80 (L4), Bromden\_80 (L4), Chaser\_78 (L4), ChutneyChips\_80 (L4), Douge\_79 (L4), Douzhi\_80 (L4), DyoEdafos\_84 (L4), FarmResident\_81 (L4), Kropertea\_77 (L4), PYPDinur\_79 (L4), Quby\_80 (L4), Sheng711\_81 (L4),

Start 7:

- Found in 20 of 97 ( 20.6% ) of genes in pham
- Manual Annotations of this start: 15 of 76
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Acquire49\_79 (L1), Appletree2\_78 (L1), AvadaKedavra\_79 (L1), Calm\_81 (L1), DirkDirk\_76 (L1), Halena\_77 (L1), LeBron\_78 (L1), MAckerman\_77 (L1), Rose5\_79 (L1), Silverleaf\_79 (L1), Tyson\_80 (L1), UPIE\_78 (L1), Wamburgxpress\_79 (L1), Wyatt2\_80 (L1), Zaria\_80 (L1),

Start 8:

- Found in 44 of 97 ( 45.4% ) of genes in pham
- Manual Annotations of this start: 23 of 76
- Called 65.9% of time when present
- Phage (with cluster) where this start called: Bellis\_80 (L3), BourbonZero\_81 (L3), CicholasNage\_76 (L1), Clautastrophe\_78 (L3), DuncansLeg\_80 (L3), Ellson\_79 (L3), Enceladus\_76 (L1), Finnry\_80 (L3), Jobypre\_80 (L3), JoeDirt\_79 (L1), Jubie\_79 (L3), Kingsolomon\_78 (L3), KirDoubleO7\_78 (L3), Krypton555\_81 (L3), LiyuLake\_79 (L3), Lolly9\_79 (L3), Lumos\_80 (L3), MiniLon\_84 (L3), MiniMac\_84 (L3), Moostard\_78 (L3), MsGreen\_80 (L3), Nicholas\_78 (L3), OhShagHennessy\_76 (L1), Poochiewood\_77 (L1), Red305\_81 (L3), Samty\_79 (L3), Snenia\_79 (L3), TriFive\_81 (L3), Whirlwind\_81 (L3),

### **Summary by clusters:**

There are 4 clusters represented in this pham: L4, L2, L3, L1,

Info for manual annotations of cluster L1:

- Start number 7 was manually annotated 15 times for cluster L1.
- Start number 8 was manually annotated 4 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 2 was manually annotated 1 time for cluster L2.
- Start number 3 was manually annotated 31 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 8 was manually annotated 19 times for cluster L3.

Info for manual annotations of cluster L4:

- Start number 4 was manually annotated 6 times for cluster L4.

**Gene Information:**

Gene: Acquire49\_79 Start: 52317, Stop: 52652, Start Num: 7

Candidate Starts for Acquire49\_79:

(Start: 7 @52317 has 15 MA's), (Start: 8 @52329 has 23 MA's), (14, 52383), (20, 52512), (24, 52539),

Gene: Appletree2\_78 Start: 51928, Stop: 52263, Start Num: 7

Candidate Starts for Appletree2\_78:

(Start: 7 @51928 has 15 MA's), (Start: 8 @51940 has 23 MA's), (14, 51994), (20, 52123), (24, 52150),

Gene: Archie\_79 Start: 53799, Stop: 54203, Start Num: 3

Candidate Starts for Archie\_79:

(Start: 3 @53799 has 31 MA's), (5, 53832), (10, 53892), (11, 53901), (19, 54045), (23, 54084),

Gene: AvadaKedavra\_79 Start: 52396, Stop: 52731, Start Num: 7

Candidate Starts for AvadaKedavra\_79:

(Start: 7 @52396 has 15 MA's), (Start: 8 @52408 has 23 MA's), (14, 52462), (20, 52591), (24, 52618),

Gene: Baoshan\_80 Start: 54085, Stop: 54489, Start Num: 3

Candidate Starts for Baoshan\_80:

(Start: 3 @54085 has 31 MA's), (5, 54118), (10, 54178), (15, 54250), (18, 54328), (19, 54331), (22, 54364),

Gene: Bazzle\_79 Start: 53988, Stop: 54392, Start Num: 3

Candidate Starts for Bazzle\_79:

(Start: 3 @53988 has 31 MA's), (5, 54021), (10, 54081), (19, 54234), (23, 54273),

Gene: Bellis\_80 Start: 54062, Stop: 54385, Start Num: 8

Candidate Starts for Bellis\_80:

(Start: 8 @54062 has 23 MA's), (10, 54083), (26, 54311), (29, 54356),

Gene: BigCheese\_82 Start: 54215, Stop: 54619, Start Num: 3

Candidate Starts for BigCheese\_82:

(Start: 3 @54215 has 31 MA's), (5, 54248), (10, 54308), (11, 54317), (19, 54461),

Gene: BobsGarage\_82 Start: 54215, Stop: 54619, Start Num: 3

Candidate Starts for BobsGarage\_82:

(Start: 3 @54215 has 31 MA's), (5, 54248), (10, 54308), (11, 54317), (19, 54461),

Gene: BourbonZero\_81 Start: 54091, Stop: 54414, Start Num: 8

Candidate Starts for BourbonZero\_81:

(Start: 8 @54091 has 23 MA's), (12, 54136), (14, 54148), (24, 54304), (25, 54331), (27, 54349), (28, 54361), (29, 54385),

Gene: BrainDrainer\_80 Start: 53020, Stop: 53388, Start Num: 4

Candidate Starts for BrainDrainer\_80:

(1, 52987), (Start: 4 @53020 has 6 MA's), (13, 53107), (14, 53116), (17, 53170), (22, 53260),

Gene: Breezona\_82 Start: 54215, Stop: 54619, Start Num: 3

Candidate Starts for Breezona\_82:

(Start: 3 @54215 has 31 MA's), (5, 54248), (10, 54308), (11, 54317), (19, 54461),

Gene: Bromden\_80 Start: 53647, Stop: 54018, Start Num: 4

Candidate Starts for Bromden\_80:

(Start: 4 @53647 has 6 MA's), (6, 53680), (14, 53749), (17, 53803), (19, 53860), (22, 53893), (26, 53944),

Gene: Calm\_81 Start: 52639, Stop: 52974, Start Num: 7

Candidate Starts for Calm\_81:

(Start: 7 @52639 has 15 MA's), (Start: 8 @52651 has 23 MA's), (14, 52705), (20, 52834), (24, 52861),

Gene: Chaser\_78 Start: 52652, Stop: 53017, Start Num: 4

Candidate Starts for Chaser\_78:

(1, 52619), (Start: 4 @52652 has 6 MA's), (13, 52739), (14, 52748), (17, 52802), (22, 52892), (29, 52988),

Gene: ChutneyChips\_80 Start: 52991, Stop: 53359, Start Num: 4

Candidate Starts for ChutneyChips\_80:

(Start: 4 @52991 has 6 MA's), (13, 53078), (14, 53087), (17, 53141), (22, 53231),

Gene: CicholasNage\_76 Start: 51993, Stop: 52316, Start Num: 8

Candidate Starts for CicholasNage\_76:

(Start: 7 @51981 has 15 MA's), (Start: 8 @51993 has 23 MA's), (14, 52047), (20, 52176), (24, 52203),

Gene: Claus\_81 Start: 54150, Stop: 54554, Start Num: 3

Candidate Starts for Claus\_81:

(Start: 3 @54150 has 31 MA's), (5, 54183), (10, 54243), (15, 54315), (18, 54393), (19, 54396), (22, 54429),

Gene: Clautastrophe\_78 Start: 54060, Stop: 54383, Start Num: 8

Candidate Starts for Clautastrophe\_78:

(Start: 8 @54060 has 23 MA's), (10, 54081), (24, 54273), (26, 54309), (29, 54354),

Gene: Crossroads\_82 Start: 54290, Stop: 54694, Start Num: 3

Candidate Starts for Crossroads\_82:

(Start: 3 @54290 has 31 MA's), (5, 54323), (10, 54383), (11, 54392), (19, 54536),

Gene: DHan\_85 Start: 54368, Stop: 54778, Start Num: 3

Candidate Starts for DHan\_85:

(Start: 3 @54368 has 31 MA's), (5, 54401), (10, 54461), (15, 54533), (18, 54611), (19, 54614), (22, 54647),

Gene: DanBing\_82 Start: 54020, Stop: 54424, Start Num: 3

Candidate Starts for DanBing\_82:

(Start: 3 @54020 has 31 MA's), (5, 54053), (10, 54113), (15, 54185), (18, 54263), (19, 54266), (22, 54299),

Gene: DirkDirk\_76 Start: 51508, Stop: 51843, Start Num: 7

Candidate Starts for DirkDirk\_76:

(Start: 7 @51508 has 15 MA's), (Start: 8 @51520 has 23 MA's), (14, 51574), (20, 51703), (24, 51730),

Gene: Douge\_79 Start: 52584, Stop: 52973, Start Num: 4

Candidate Starts for Douge\_79:

(Start: 4 @52584 has 6 MA's), (9, 52662), (11, 52677), (17, 52755), (19, 52812), (22, 52845),

Gene: Douzhi\_80 Start: 52837, Stop: 53205, Start Num: 4

Candidate Starts for Douzhi\_80:

(1, 52804), (Start: 4 @52837 has 6 MA's), (13, 52924), (14, 52933), (17, 52987), (22, 53077),

Gene: DrSeegs\_82 Start: 54215, Stop: 54619, Start Num: 3

Candidate Starts for DrSeegs\_82:

(Start: 3 @54215 has 31 MA's), (5, 54248), (10, 54308), (11, 54317), (19, 54461),

Gene: DuncansLeg\_80 Start: 54079, Stop: 54402, Start Num: 8

Candidate Starts for DuncansLeg\_80:

(Start: 8 @54079 has 23 MA's), (12, 54124), (14, 54136), (24, 54292), (25, 54319), (27, 54337), (28, 54349), (29, 54373),

Gene: DyoEdafos\_84 Start: 53485, Stop: 53871, Start Num: 4

Candidate Starts for DyoEdafos\_84:

(1, 53452), (Start: 4 @53485 has 6 MA's), (11, 53578), (17, 53656), (19, 53713), (22, 53746), (26, 53797),

Gene: Ellson\_79 Start: 54394, Stop: 54717, Start Num: 8

Candidate Starts for Ellson\_79:

(Start: 8 @54394 has 23 MA's), (12, 54439), (14, 54451), (24, 54607), (25, 54634), (27, 54652), (28, 54664), (29, 54688),

Gene: Enceladus\_76 Start: 52297, Stop: 52620, Start Num: 8

Candidate Starts for Enceladus\_76:

(Start: 7 @52285 has 15 MA's), (Start: 8 @52297 has 23 MA's), (14, 52351), (20, 52480), (24, 52507),

Gene: Faith1\_82 Start: 54215, Stop: 54619, Start Num: 3

Candidate Starts for Faith1\_82:

(Start: 3 @54215 has 31 MA's), (5, 54248), (10, 54308), (11, 54317), (19, 54461),

Gene: FarmResident\_81 Start: 52573, Stop: 52938, Start Num: 4

Candidate Starts for FarmResident\_81:

(Start: 4 @52573 has 6 MA's), (13, 52660), (14, 52669), (17, 52723), (22, 52813),

Gene: Finemlucis\_81 Start: 54683, Stop: 55087, Start Num: 3

Candidate Starts for Finemlucis\_81:

(Start: 3 @54683 has 31 MA's), (5, 54716), (16, 54851),

Gene: Finnry\_80 Start: 54311, Stop: 54634, Start Num: 8

Candidate Starts for Finnry\_80:

(Start: 8 @54311 has 23 MA's), (10, 54332), (20, 54497), (26, 54560), (29, 54605),

Gene: Gabriela\_81 Start: 53561, Stop: 53965, Start Num: 3

Candidate Starts for Gabriela\_81:

(Start: 3 @53561 has 31 MA's), (5, 53594), (10, 53654), (11, 53663), (19, 53807),

Gene: Gardann\_82 Start: 54050, Stop: 54454, Start Num: 3

Candidate Starts for Gardann\_82:

(Start: 3 @54050 has 31 MA's), (5, 54083), (10, 54143), (11, 54152), (19, 54296),

Gene: GuuelaD\_80 Start: 54330, Stop: 54740, Start Num: 3

Candidate Starts for GuuelaD\_80:

(Start: 3 @54330 has 31 MA's), (5, 54363), (10, 54423), (11, 54432), (19, 54576),

Gene: Hafay\_83 Start: 54145, Stop: 54549, Start Num: 3  
Candidate Starts for Hafay\_83:  
(Start: 3 @54145 has 31 MA's), (5, 54178), (10, 54238), (15, 54310), (18, 54388), (19, 54391), (22, 54424),

Gene: Halena\_77 Start: 51555, Stop: 51890, Start Num: 7  
Candidate Starts for Halena\_77:  
(Start: 7 @51555 has 15 MA's), (Start: 8 @51567 has 23 MA's), (14, 51621), (20, 51750), (24, 51777),

Gene: Itos\_81 Start: 53121, Stop: 53525, Start Num: 3  
Candidate Starts for Itos\_81:  
(Start: 3 @53121 has 31 MA's), (5, 53154), (10, 53214), (11, 53223), (19, 53367),

Gene: Jobypre\_80 Start: 54060, Stop: 54383, Start Num: 8  
Candidate Starts for Jobypre\_80:  
(Start: 8 @54060 has 23 MA's), (10, 54081), (24, 54273), (26, 54309), (29, 54354),

Gene: JoeDirt\_79 Start: 52895, Stop: 53218, Start Num: 8  
Candidate Starts for JoeDirt\_79:  
(Start: 7 @52883 has 15 MA's), (Start: 8 @52895 has 23 MA's), (14, 52949), (20, 53078), (24, 53105),

Gene: Jubie\_79 Start: 54195, Stop: 54518, Start Num: 8  
Candidate Starts for Jubie\_79:  
(Start: 8 @54195 has 23 MA's), (10, 54216), (24, 54408), (26, 54444), (29, 54489),

Gene: Kahlid\_82 Start: 54221, Stop: 54631, Start Num: 3  
Candidate Starts for Kahlid\_82:  
(Start: 3 @54221 has 31 MA's), (5, 54254), (10, 54314), (11, 54323), (19, 54467),

Gene: Kingsolomon\_78 Start: 54067, Stop: 54390, Start Num: 8  
Candidate Starts for Kingsolomon\_78:  
(Start: 8 @54067 has 23 MA's), (10, 54088), (24, 54280), (26, 54316), (29, 54361),

Gene: KirDoubleO7\_78 Start: 54081, Stop: 54404, Start Num: 8  
Candidate Starts for KirDoubleO7\_78:  
(Start: 8 @54081 has 23 MA's), (12, 54126), (14, 54138), (24, 54294), (25, 54321), (27, 54339), (28, 54351), (29, 54375),

Gene: Kropertea\_77 Start: 52767, Stop: 53156, Start Num: 4  
Candidate Starts for Kropertea\_77:  
(1, 52734), (Start: 4 @52767 has 6 MA's), (9, 52845), (11, 52860), (17, 52938), (19, 52995), (22, 53028),

Gene: Krypton555\_81 Start: 54339, Stop: 54659, Start Num: 8  
Candidate Starts for Krypton555\_81:  
(Start: 8 @54339 has 23 MA's), (14, 54393), (26, 54585), (29, 54630),

Gene: LeBron\_78 Start: 51554, Stop: 51889, Start Num: 7  
Candidate Starts for LeBron\_78:  
(Start: 7 @51554 has 15 MA's), (Start: 8 @51566 has 23 MA's), (14, 51620), (20, 51749), (24, 51776),

Gene: Lewan\_83 Start: 54273, Stop: 54686, Start Num: 2

Candidate Starts for Lewan\_83:

(Start: 2 @54273 has 1 MA's), (5, 54309), (10, 54369), (11, 54378), (19, 54522),

Gene: LilDestine\_81 Start: 54125, Stop: 54535, Start Num: 3

Candidate Starts for LilDestine\_81:

(Start: 3 @54125 has 31 MA's), (5, 54158), (10, 54218), (11, 54227), (19, 54371),

Gene: LiyuLake\_79 Start: 54154, Stop: 54477, Start Num: 8

Candidate Starts for LiyuLake\_79:

(Start: 8 @54154 has 23 MA's), (12, 54199), (14, 54211), (24, 54367), (25, 54394), (27, 54412), (28, 54424), (29, 54448),

Gene: Loadrie\_81 Start: 54300, Stop: 54710, Start Num: 3

Candidate Starts for Loadrie\_81:

(Start: 3 @54300 has 31 MA's), (5, 54333), (10, 54393), (11, 54402), (19, 54546),

Gene: Lolly9\_79 Start: 54161, Stop: 54481, Start Num: 8

Candidate Starts for Lolly9\_79:

(Start: 8 @54161 has 23 MA's), (10, 54182), (14, 54215), (20, 54344), (21, 54350), (24, 54371), (25, 54398), (27, 54416), (29, 54452),

Gene: Lumos\_80 Start: 54057, Stop: 54380, Start Num: 8

Candidate Starts for Lumos\_80:

(Start: 8 @54057 has 23 MA's), (10, 54078), (24, 54270), (26, 54306), (29, 54351),

Gene: Lynnae\_84 Start: 54233, Stop: 54643, Start Num: 3

Candidate Starts for Lynnae\_84:

(Start: 3 @54233 has 31 MA's), (5, 54266), (10, 54326), (11, 54335), (19, 54479),

Gene: MAckerman\_77 Start: 51548, Stop: 51883, Start Num: 7

Candidate Starts for MAckerman\_77:

(Start: 7 @51548 has 15 MA's), (Start: 8 @51560 has 23 MA's), (14, 51614), (20, 51743), (24, 51770),

Gene: Miley16\_82 Start: 54215, Stop: 54619, Start Num: 3

Candidate Starts for Miley16\_82:

(Start: 3 @54215 has 31 MA's), (5, 54248), (10, 54308), (11, 54317), (19, 54461),

Gene: MiniLon\_84 Start: 54162, Stop: 54482, Start Num: 8

Candidate Starts for MiniLon\_84:

(Start: 8 @54162 has 23 MA's), (10, 54183), (14, 54216), (20, 54345), (21, 54351), (24, 54372), (25, 54399), (27, 54417), (29, 54453),

Gene: MiniMac\_84 Start: 54157, Stop: 54477, Start Num: 8

Candidate Starts for MiniMac\_84:

(Start: 8 @54157 has 23 MA's), (10, 54178), (14, 54211), (20, 54340), (21, 54346), (24, 54367), (25, 54394), (27, 54412), (29, 54448),

Gene: MkaliMitinis3\_83 Start: 54284, Stop: 54694, Start Num: 3

Candidate Starts for MkaliMitinis3\_83:

(Start: 3 @54284 has 31 MA's), (5, 54317), (10, 54377), (11, 54386), (19, 54530),

Gene: Moostard\_78 Start: 54062, Stop: 54385, Start Num: 8

Candidate Starts for Moostard\_78:

(Start: 8 @54062 has 23 MA's), (10, 54083), (20, 54248), (26, 54311), (29, 54356),

Gene: MsGreen\_80 Start: 54059, Stop: 54382, Start Num: 8

Candidate Starts for MsGreen\_80:

(Start: 8 @54059 has 23 MA's), (10, 54080), (24, 54272), (26, 54308), (29, 54353),

Gene: Netyap\_83 Start: 54216, Stop: 54620, Start Num: 3

Candidate Starts for Netyap\_83:

(Start: 3 @54216 has 31 MA's), (5, 54249), (10, 54309), (11, 54318), (19, 54462),

Gene: Nicholas\_78 Start: 54067, Stop: 54390, Start Num: 8

Candidate Starts for Nicholas\_78:

(Start: 8 @54067 has 23 MA's), (10, 54088), (24, 54280), (26, 54316), (29, 54361),

Gene: Nicholasp3\_82 Start: 54050, Stop: 54454, Start Num: 3

Candidate Starts for Nicholasp3\_82:

(Start: 3 @54050 has 31 MA's), (5, 54083), (10, 54143), (11, 54152), (19, 54296),

Gene: OhShagHennessy\_76 Start: 51598, Stop: 51921, Start Num: 8

Candidate Starts for OhShagHennessy\_76:

(Start: 7 @51586 has 15 MA's), (Start: 8 @51598 has 23 MA's), (14, 51652), (20, 51781), (24, 51808),

Gene: OverPar\_83 Start: 54300, Stop: 54710, Start Num: 3

Candidate Starts for OverPar\_83:

(Start: 3 @54300 has 31 MA's), (5, 54333), (10, 54393), (11, 54402), (19, 54546),

Gene: PYPDinur\_79 Start: 53272, Stop: 53640, Start Num: 4

Candidate Starts for PYPDinur\_79:

(1, 53239), (Start: 4 @53272 has 6 MA's), (13, 53359), (14, 53368), (17, 53422), (22, 53512),

Gene: Poochiewood\_77 Start: 52903, Stop: 53226, Start Num: 8

Candidate Starts for Poochiewood\_77:

(Start: 7 @52891 has 15 MA's), (Start: 8 @52903 has 23 MA's), (14, 52957), (20, 53086), (24, 53113),

Gene: Quby\_80 Start: 52597, Stop: 52962, Start Num: 4

Candidate Starts for Quby\_80:

(Start: 4 @52597 has 6 MA's), (13, 52684), (14, 52693), (17, 52747), (22, 52837),

Gene: Red305\_81 Start: 54060, Stop: 54383, Start Num: 8

Candidate Starts for Red305\_81:

(Start: 8 @54060 has 23 MA's), (10, 54081), (24, 54273), (26, 54309), (29, 54354),

Gene: Rose5\_79 Start: 52728, Stop: 53063, Start Num: 7

Candidate Starts for Rose5\_79:

(Start: 7 @52728 has 15 MA's), (Start: 8 @52740 has 23 MA's), (14, 52794), (20, 52923), (24, 52950),

Gene: Rossetti\_83 Start: 54624, Stop: 55034, Start Num: 3

Candidate Starts for Rossetti\_83:

(Start: 3 @54624 has 31 MA's), (5, 54657), (11, 54726), (19, 54870),

Gene: Rumpelstiltskin\_79 Start: 53843, Stop: 54247, Start Num: 3

Candidate Starts for Rumpelstiltskin\_79:

(Start: 3 @53843 has 31 MA's), (5, 53876), (10, 53936), (11, 53945), (19, 54089),

Gene: Samty\_79 Start: 54055, Stop: 54378, Start Num: 8  
Candidate Starts for Samty\_79:  
(Start: 8 @54055 has 23 MA's), (10, 54076), (20, 54241), (26, 54304), (29, 54349),

Gene: Sarshaun\_83 Start: 54308, Stop: 54712, Start Num: 3  
Candidate Starts for Sarshaun\_83:  
(Start: 3 @54308 has 31 MA's), (5, 54341), (10, 54401), (11, 54410), (19, 54554),

Gene: Sheng711\_81 Start: 52906, Stop: 53274, Start Num: 4  
Candidate Starts for Sheng711\_81:  
(1, 52873), (Start: 4 @52906 has 6 MA's), (13, 52993), (14, 53002), (17, 53056), (22, 53146),

Gene: Silverleaf\_79 Start: 52184, Stop: 52519, Start Num: 7  
Candidate Starts for Silverleaf\_79:  
(Start: 7 @52184 has 15 MA's), (Start: 8 @52196 has 23 MA's), (14, 52250), (20, 52379), (24, 52406),

Gene: Snenia\_79 Start: 54061, Stop: 54384, Start Num: 8  
Candidate Starts for Snenia\_79:  
(Start: 8 @54061 has 23 MA's), (10, 54082), (24, 54274), (26, 54310), (29, 54355),

Gene: SoJulia\_84 Start: 55376, Stop: 55780, Start Num: 3  
Candidate Starts for SoJulia\_84:  
(Start: 3 @55376 has 31 MA's), (5, 55409), (10, 55469), (11, 55478), (19, 55622),

Gene: Soap141\_82 Start: 54308, Stop: 54712, Start Num: 3  
Candidate Starts for Soap141\_82:  
(Start: 3 @54308 has 31 MA's), (5, 54341), (10, 54401), (11, 54410), (19, 54554),

Gene: Tourach\_81 Start: 54333, Stop: 54737, Start Num: 3  
Candidate Starts for Tourach\_81:  
(Start: 3 @54333 has 31 MA's), (5, 54366), (6, 54387), (11, 54435), (14, 54459), (19, 54579), (22, 54612),

Gene: TriFive\_81 Start: 54060, Stop: 54383, Start Num: 8  
Candidate Starts for TriFive\_81:  
(Start: 8 @54060 has 23 MA's), (10, 54081), (26, 54309), (29, 54354),

Gene: Tyson\_80 Start: 52654, Stop: 52989, Start Num: 7  
Candidate Starts for Tyson\_80:  
(Start: 7 @52654 has 15 MA's), (Start: 8 @52666 has 23 MA's), (14, 52720), (20, 52849), (24, 52876),

Gene: UPIE\_78 Start: 52250, Stop: 52585, Start Num: 7  
Candidate Starts for UPIE\_78:  
(Start: 7 @52250 has 15 MA's), (Start: 8 @52262 has 23 MA's), (14, 52316), (20, 52445), (24, 52472),

Gene: Underpass\_73 Start: 49086, Stop: 49490, Start Num: 3  
Candidate Starts for Underpass\_73:  
(Start: 3 @49086 has 31 MA's), (5, 49119), (10, 49179), (11, 49188), (19, 49332),

Gene: Vetric\_81 Start: 54132, Stop: 54542, Start Num: 3  
Candidate Starts for Vetric\_81:  
(Start: 3 @54132 has 31 MA's), (5, 54165), (10, 54225), (11, 54234), (19, 54378),

Gene: Wamburgexpress\_79 Start: 52689, Stop: 53024, Start Num: 7

Candidate Starts for Wamburgexpress\_79:

(Start: 7 @52689 has 15 MA's), (Start: 8 @52701 has 23 MA's), (14, 52755), (20, 52884), (24, 52911),

Gene: Whirlwind\_81 Start: 54302, Stop: 54622, Start Num: 8

Candidate Starts for Whirlwind\_81:

(Start: 8 @54302 has 23 MA's), (14, 54356), (29, 54593),

Gene: Wigglewigggle\_81 Start: 54077, Stop: 54487, Start Num: 3

Candidate Starts for Wigglewigggle\_81:

(Start: 3 @54077 has 31 MA's), (5, 54110), (10, 54170), (11, 54179), (19, 54323),

Gene: Wilder\_83 Start: 54221, Stop: 54631, Start Num: 3

Candidate Starts for Wilder\_83:

(Start: 3 @54221 has 31 MA's), (5, 54254), (10, 54314), (11, 54323), (19, 54467),

Gene: Winky\_82 Start: 54215, Stop: 54619, Start Num: 3

Candidate Starts for Winky\_82:

(Start: 3 @54215 has 31 MA's), (5, 54248), (10, 54308), (11, 54317), (19, 54461),

Gene: Wyatt2\_80 Start: 52652, Stop: 52987, Start Num: 7

Candidate Starts for Wyatt2\_80:

(Start: 7 @52652 has 15 MA's), (Start: 8 @52664 has 23 MA's), (14, 52718), (20, 52847), (24, 52874),

Gene: Zakai\_83 Start: 54541, Stop: 54951, Start Num: 3

Candidate Starts for Zakai\_83:

(Start: 3 @54541 has 31 MA's), (5, 54574), (10, 54634), (11, 54643), (19, 54787),

Gene: Zaria\_80 Start: 52104, Stop: 52439, Start Num: 7

Candidate Starts for Zaria\_80:

(Start: 7 @52104 has 15 MA's), (Start: 8 @52116 has 23 MA's), (14, 52170), (20, 52299), (24, 52326),

Gene: ZhongYanYuan\_79 Start: 53668, Stop: 54072, Start Num: 3

Candidate Starts for ZhongYanYuan\_79:

(Start: 3 @53668 has 31 MA's), (5, 53701), (10, 53761), (18, 53911), (19, 53914), (22, 53947),