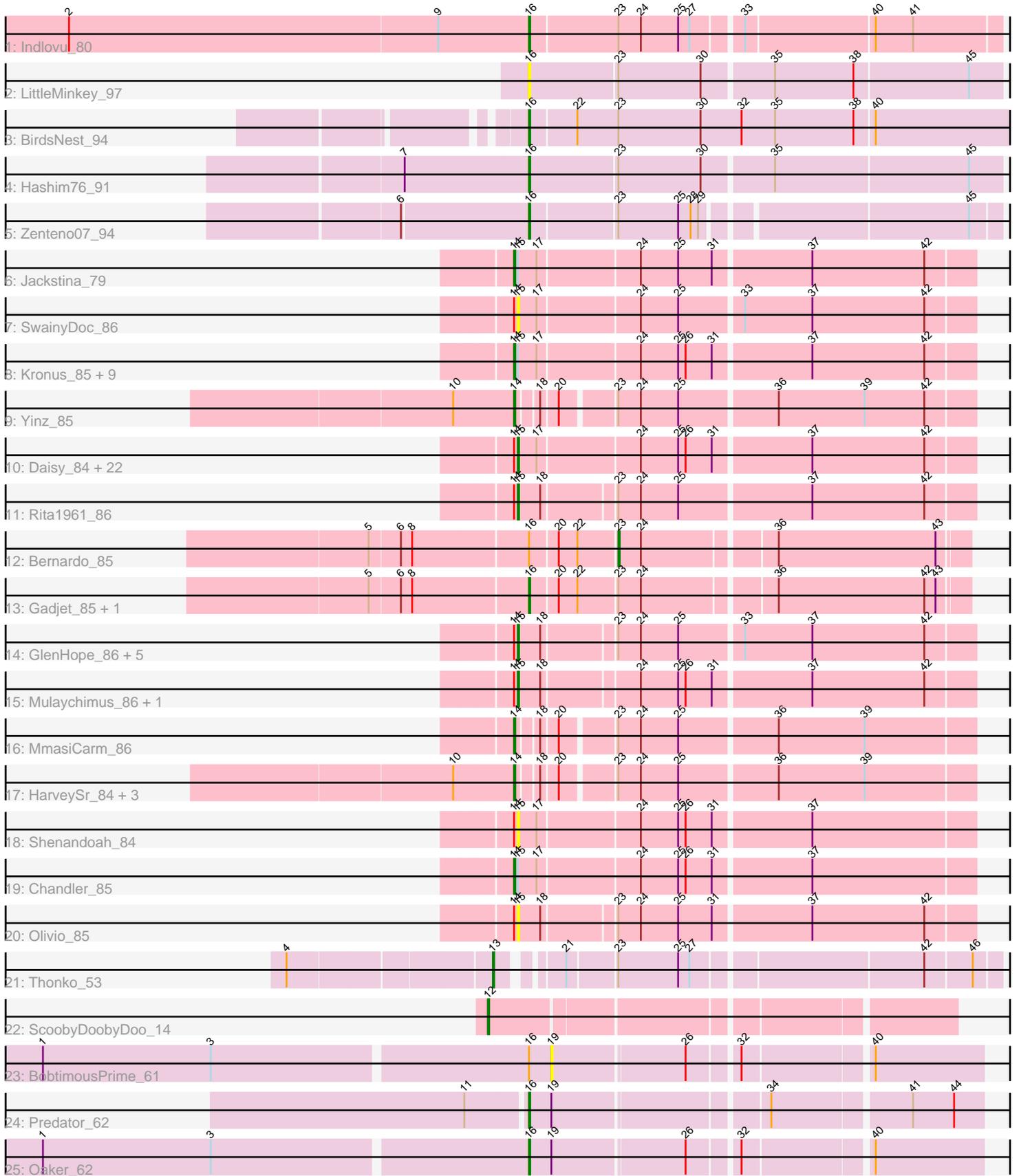


Pham 289394



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 289394 Report

This analysis was run 03/28/26 on database version 641.

Pham number 289394 has 66 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Indlovu\_80
- Track 2 : LittleMinkey\_97
- Track 3 : BirdsNest\_94
- Track 4 : Hashim76\_91
- Track 5 : Zenteno07\_94
- Track 6 : Jackstina\_79
- Track 7 : SwainyDoc\_86
- Track 8 : Kronus\_85, Audrey\_85, Mortcellus\_85, OrangeOswald\_84, Baloo\_84, LestyG\_83, Phayeta\_88, Ben11\_85, RomaT\_85, Corofin\_85
- Track 9 : Yinz\_85
- Track 10 : Daisy\_84, Nozo\_85, Heathcliff\_85, SynergyX\_85, Obutu\_87, Briakila\_85, Athena\_87, Akoma\_85, TinyTerror\_86, Abinghost\_85, Tydolla\_81, Devonte\_83, Deenasa\_85, Chentzyk\_87, Phaedrus\_80, Kamiyu\_85, Chalmers\_84, Phlyer\_85, Casbah\_85, Yahalom\_83, RagingRooster\_84, Glubnar\_86, SlippinJimmy\_88
- Track 11 : Rita1961\_86
- Track 12 : Bernardo\_85
- Track 13 : Gadget\_85, Pipefish\_86
- Track 14 : GlenHope\_86, Compostia\_84, Halfpint\_84, ChaChing\_85, Marlia\_86, Philly\_84
- Track 15 : Mulaychimus\_86, Gervas\_86
- Track 16 : MmasiCarm\_86
- Track 17 : HarveySr\_84, Morty007\_84, Neos5\_85, Marley1013\_86
- Track 18 : Shenandoah\_84
- Track 19 : Chandler\_85
- Track 20 : Olivio\_85
- Track 21 : Thonko\_53
- Track 22 : ScoobyDoobyDoo\_14
- Track 23 : BobtimousPrime\_61
- Track 24 : Predator\_62
- Track 25 : Oaker\_62

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

The start number called the most often in the published annotations is 15, it was called in 29 of the 58 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abinghost\_85, Akoma\_85, Athena\_87, Briakila\_85, Casbah\_85, ChaChing\_85, Chalmers\_84, Chentzyk\_87, Compostia\_84, Daisy\_84, Deenasa\_85, Devonte\_83, Gervas\_86, GlenHope\_86, Glubnar\_86, Halfpint\_84, Heathcliff\_85, Kamiyu\_85, Marlia\_86, Mulaychimus\_86, Nozo\_85, Obutu\_87, Olivio\_85, Phaedrus\_80, Philly\_84, Phlyer\_85, RagingRooster\_84, Rita1961\_86, Shenandoah\_84, SlippinJimmy\_88, SwainyDoc\_86, SynergyX\_85, TinyTerror\_86, Tydolla\_81, Yahalom\_83,

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

- Audrey\_85, Baloo\_84, Ben11\_85, Chandler\_85, Corofin\_85, Jackstina\_79, Kronus\_85, LestyG\_83, Mortcellus\_85, OrangeOswald\_84, Phayeta\_88, RomaT\_85,

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

- Bernardo\_85, BirdsNest\_94, BobtimousPrime\_61, Gadget\_85, HarveySr\_84, Hashim76\_91, Indlovu\_80, LittleMinkey\_97, Marley1013\_86, MmasiCarm\_86, Morty007\_84, Neos5\_85, Oaker\_62, Pipefish\_86, Predator\_62, ScoobyDoobyDoo\_14, Thonko\_53, Yinz\_85, Zenteno07\_94,

### Summary by start number:

Start 12:

- Found in 1 of 66 ( 1.5% ) 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: ScoobyDoobyDoo\_14 (C2),

Start 13:

- Found in 1 of 66 ( 1.5% ) 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: Thonko\_53 (B8),

Start 14:

- Found in 53 of 66 ( 80.3% ) of genes in pham
- Manual Annotations of this start: 18 of 58
- Called 34.0% of time when present
- Phage (with cluster) where this start called: Audrey\_85 (B3), Baloo\_84 (B3), Ben11\_85 (B3), Chandler\_85 (B3), Corofin\_85 (B3), HarveySr\_84 (B3), Jackstina\_79 (B3), Kronus\_85 (B3), LestyG\_83 (B3), Marley1013\_86 (B3), MmasiCarm\_86 (B3), Mortcellus\_85 (B3), Morty007\_84 (B3), Neos5\_85 (B3), OrangeOswald\_84 (B3), Phayeta\_88 (B3), RomaT\_85 (B3), Yinz\_85 (B3),

Start 15:

- Found in 47 of 66 ( 71.2% ) of genes in pham
- Manual Annotations of this start: 29 of 58
- Called 74.5% of time when present
- Phage (with cluster) where this start called: Abinghost\_85 (B3), Akoma\_85 (B3), Athena\_87 (B3), Briakila\_85 (B3), Casbah\_85 (B3), ChaChing\_85 (B3), Chalmers\_84 (B3), Chentzyk\_87 (B3), Compostia\_84 (B3), Daisy\_84 (B3), Deenasa\_85 (B3),

Devonte\_83 (B3), Gervas\_86 (B3), GlenHope\_86 (B3), Glubnar\_86 (B3), Halfpint\_84 (B3), Heathcliff\_85 (B3), Kamiyu\_85 (B3), Marlia\_86 (B3), Mulaychimus\_86 (B3), Nozo\_85 (B3), Obutu\_87 (B3), Olivio\_85 (B3), Phaedrus\_80 (B3), Philly\_84 (B3), Phlyer\_85 (B3), RagingRooster\_84 (B3), Rita1961\_86 (B3), Shenandoah\_84 (B3), SlippinJimmy\_88 (B3), SwainyDoc\_86 (B3), SynergyX\_85 (B3), TinyTerror\_86 (B3), Tydolla\_81 (B3), Yahalom\_83 (B3),

Start 16:

- Found in 11 of 66 ( 16.7% ) of genes in pham
- Manual Annotations of this start: 8 of 58
- Called 81.8% of time when present
- Phage (with cluster) where this start called: BirdsNest\_94 (B13), Gadget\_85 (B3), Hashim76\_91 (B13), Indlovu\_80 (B11), LittleMinkey\_97 (B13), Oaker\_62 (H1), Pipefish\_86 (B3), Predator\_62 (H1), Zenteno07\_94 (B13),

Start 19:

- Found in 3 of 66 ( 4.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: BobtimousPrime\_61 (H1),

Start 23:

- Found in 23 of 66 ( 34.8% ) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 4.3% of time when present
- Phage (with cluster) where this start called: Bernardo\_85 (B3),

### **Summary by clusters:**

There are 6 clusters represented in this pham: B3, H1, B13, B11, C2, B8,

Info for manual annotations of cluster B11:

- Start number 16 was manually annotated 1 time for cluster B11.

Info for manual annotations of cluster B13:

- Start number 16 was manually annotated 3 times for cluster B13.

Info for manual annotations of cluster B3:

- Start number 14 was manually annotated 18 times for cluster B3.
- Start number 15 was manually annotated 29 times for cluster B3.
- Start number 16 was manually annotated 2 times for cluster B3.
- Start number 23 was manually annotated 1 time for cluster B3.

Info for manual annotations of cluster B8:

- Start number 13 was manually annotated 1 time for cluster B8.

Info for manual annotations of cluster C2:

- Start number 12 was manually annotated 1 time for cluster C2.

Info for manual annotations of cluster H1:

- Start number 16 was manually annotated 2 times for cluster H1.

### **Gene Information:**

Gene: Abinghost\_85 Start: 62155, Stop: 61802, Start Num: 15

Candidate Starts for Abinghost\_85:

(Start: 14 @62158 has 18 MA's), (Start: 15 @62155 has 29 MA's), (17, 62140), (24, 62062), (25, 62032), (26, 62026), (31, 62005), (37, 61930), (42, 61840),

Gene: Akoma\_85 Start: 62195, Stop: 61842, Start Num: 15

Candidate Starts for Akoma\_85:

(Start: 14 @62198 has 18 MA's), (Start: 15 @62195 has 29 MA's), (17, 62180), (24, 62102), (25, 62072), (26, 62066), (31, 62045), (37, 61970), (42, 61880),

Gene: Athena\_87 Start: 62930, Stop: 62577, Start Num: 15

Candidate Starts for Athena\_87:

(Start: 14 @62933 has 18 MA's), (Start: 15 @62930 has 29 MA's), (17, 62915), (24, 62837), (25, 62807), (26, 62801), (31, 62780), (37, 62705), (42, 62615),

Gene: Audrey\_85 Start: 62187, Stop: 61831, Start Num: 14

Candidate Starts for Audrey\_85:

(Start: 14 @62187 has 18 MA's), (Start: 15 @62184 has 29 MA's), (17, 62169), (24, 62091), (25, 62061), (26, 62055), (31, 62034), (37, 61959), (42, 61869),

Gene: Baloo\_84 Start: 62039, Stop: 61683, Start Num: 14

Candidate Starts for Baloo\_84:

(Start: 14 @62039 has 18 MA's), (Start: 15 @62036 has 29 MA's), (17, 62021), (24, 61943), (25, 61913), (26, 61907), (31, 61886), (37, 61811), (42, 61721),

Gene: Ben11\_85 Start: 62414, Stop: 62058, Start Num: 14

Candidate Starts for Ben11\_85:

(Start: 14 @62414 has 18 MA's), (Start: 15 @62411 has 29 MA's), (17, 62396), (24, 62318), (25, 62288), (26, 62282), (31, 62261), (37, 62186), (42, 62096),

Gene: Bernardo\_85 Start: 62136, Stop: 61870, Start Num: 23

Candidate Starts for Bernardo\_85:

(5, 62325), (6, 62301), (8, 62292), (Start: 16 @62202 has 8 MA's), (20, 62181), (22, 62166), (Start: 23 @62136 has 1 MA's), (24, 62118), (36, 62019), (43, 61893),

Gene: BirdsNest\_94 Start: 66955, Stop: 66563, Start Num: 16

Candidate Starts for BirdsNest\_94:

(Start: 16 @66955 has 8 MA's), (22, 66919), (Start: 23 @66886 has 1 MA's), (30, 66820), (32, 66787), (35, 66760), (38, 66697), (40, 66682),

Gene: BobtimousPrime\_61 Start: 48865, Stop: 49185, Start Num: 19

Candidate Starts for BobtimousPrime\_61:

(1, 48466), (3, 48601), (Start: 16 @48847 has 8 MA's), (19, 48865), (26, 48967), (32, 49003), (40, 49099),

Gene: Briakila\_85 Start: 62382, Stop: 62029, Start Num: 15

Candidate Starts for Briakila\_85:

(Start: 14 @62385 has 18 MA's), (Start: 15 @62382 has 29 MA's), (17, 62367), (24, 62289), (25, 62259), (26, 62253), (31, 62232), (37, 62157), (42, 62067),

Gene: Casbah\_85 Start: 62495, Stop: 62142, Start Num: 15

Candidate Starts for Casbah\_85:

(Start: 14 @62498 has 18 MA's), (Start: 15 @62495 has 29 MA's), (17, 62480), (24, 62402), (25, 62372), (26, 62366), (31, 62345), (37, 62270), (42, 62180),

Gene: ChaChing\_85 Start: 62197, Stop: 61847, Start Num: 15

Candidate Starts for ChaChing\_85:

(Start: 14 @62200 has 18 MA's), (Start: 15 @62197 has 29 MA's), (18, 62179), (Start: 23 @62125 has 1 MA's), (24, 62107), (25, 62077), (33, 62029), (37, 61975), (42, 61885),

Gene: Chalmers\_84 Start: 62630, Stop: 62277, Start Num: 15

Candidate Starts for Chalmers\_84:

(Start: 14 @62633 has 18 MA's), (Start: 15 @62630 has 29 MA's), (17, 62615), (24, 62537), (25, 62507), (26, 62501), (31, 62480), (37, 62405), (42, 62315),

Gene: Chandler\_85 Start: 62974, Stop: 62618, Start Num: 14

Candidate Starts for Chandler\_85:

(Start: 14 @62974 has 18 MA's), (Start: 15 @62971 has 29 MA's), (17, 62956), (24, 62878), (25, 62848), (26, 62842), (31, 62821), (37, 62746),

Gene: Chentzyk\_87 Start: 63129, Stop: 62776, Start Num: 15

Candidate Starts for Chentzyk\_87:

(Start: 14 @63132 has 18 MA's), (Start: 15 @63129 has 29 MA's), (17, 63114), (24, 63036), (25, 63006), (26, 63000), (31, 62979), (37, 62904), (42, 62814),

Gene: Compostia\_84 Start: 62637, Stop: 62287, Start Num: 15

Candidate Starts for Compostia\_84:

(Start: 14 @62640 has 18 MA's), (Start: 15 @62637 has 29 MA's), (18, 62619), (Start: 23 @62565 has 1 MA's), (24, 62547), (25, 62517), (33, 62469), (37, 62415), (42, 62325),

Gene: Corofin\_85 Start: 62209, Stop: 61853, Start Num: 14

Candidate Starts for Corofin\_85:

(Start: 14 @62209 has 18 MA's), (Start: 15 @62206 has 29 MA's), (17, 62191), (24, 62113), (25, 62083), (26, 62077), (31, 62056), (37, 61981), (42, 61891),

Gene: Daisy\_84 Start: 61757, Stop: 61404, Start Num: 15

Candidate Starts for Daisy\_84:

(Start: 14 @61760 has 18 MA's), (Start: 15 @61757 has 29 MA's), (17, 61742), (24, 61664), (25, 61634), (26, 61628), (31, 61607), (37, 61532), (42, 61442),

Gene: Deenasa\_85 Start: 63106, Stop: 62753, Start Num: 15

Candidate Starts for Deenasa\_85:

(Start: 14 @63109 has 18 MA's), (Start: 15 @63106 has 29 MA's), (17, 63091), (24, 63013), (25, 62983), (26, 62977), (31, 62956), (37, 62881), (42, 62791),

Gene: Devonte\_83 Start: 61823, Stop: 61470, Start Num: 15

Candidate Starts for Devonte\_83:

(Start: 14 @61826 has 18 MA's), (Start: 15 @61823 has 29 MA's), (17, 61808), (24, 61730), (25, 61700), (26, 61694), (31, 61673), (37, 61598), (42, 61508),

Gene: Gadget\_85 Start: 62385, Stop: 62053, Start Num: 16

Candidate Starts for Gadget\_85:

(5, 62508), (6, 62484), (8, 62475), (Start: 16 @62385 has 8 MA's), (20, 62364), (22, 62349), (Start: 23 @62319 has 1 MA's), (24, 62301), (36, 62202), (42, 62085), (43, 62076),

Gene: Gervas\_86 Start: 62651, Stop: 62298, Start Num: 15

Candidate Starts for Gervas\_86:

(Start: 14 @62654 has 18 MA's), (Start: 15 @62651 has 29 MA's), (18, 62633), (24, 62558), (25, 62528), (26, 62522), (31, 62501), (37, 62426), (42, 62336),

Gene: GlenHope\_86 Start: 62227, Stop: 61877, Start Num: 15

Candidate Starts for GlenHope\_86:

(Start: 14 @62230 has 18 MA's), (Start: 15 @62227 has 29 MA's), (18, 62209), (Start: 23 @62155 has 1 MA's), (24, 62137), (25, 62107), (33, 62059), (37, 62005), (42, 61915),

Gene: Glubnar\_86 Start: 62089, Stop: 61736, Start Num: 15

Candidate Starts for Glubnar\_86:

(Start: 14 @62092 has 18 MA's), (Start: 15 @62089 has 29 MA's), (17, 62074), (24, 61996), (25, 61966), (26, 61960), (31, 61939), (37, 61864), (42, 61774),

Gene: Halfpint\_84 Start: 61969, Stop: 61619, Start Num: 15

Candidate Starts for Halfpint\_84:

(Start: 14 @61972 has 18 MA's), (Start: 15 @61969 has 29 MA's), (18, 61951), (Start: 23 @61897 has 1 MA's), (24, 61879), (25, 61849), (33, 61801), (37, 61747), (42, 61657),

Gene: HarveySr\_84 Start: 61732, Stop: 61388, Start Num: 14

Candidate Starts for HarveySr\_84:

(10, 61780), (Start: 14 @61732 has 18 MA's), (18, 61717), (20, 61705), (Start: 23 @61666 has 1 MA's), (24, 61648), (25, 61618), (36, 61543), (39, 61474),

Gene: Hashim76\_91 Start: 66420, Stop: 66052, Start Num: 16

Candidate Starts for Hashim76\_91:

(7, 66519), (Start: 16 @66420 has 8 MA's), (Start: 23 @66351 has 1 MA's), (30, 66285), (35, 66231), (45, 66078),

Gene: Heathcliff\_85 Start: 62151, Stop: 61798, Start Num: 15

Candidate Starts for Heathcliff\_85:

(Start: 14 @62154 has 18 MA's), (Start: 15 @62151 has 29 MA's), (17, 62136), (24, 62058), (25, 62028), (26, 62022), (31, 62001), (37, 61926), (42, 61836),

Gene: Indlovu\_80 Start: 64701, Stop: 64342, Start Num: 16

Candidate Starts for Indlovu\_80:

(2, 65067), (9, 64773), (Start: 16 @64701 has 8 MA's), (Start: 23 @64632 has 1 MA's), (24, 64614), (25, 64584), (27, 64575), (33, 64539), (40, 64440), (41, 64410),

Gene: Jackstina\_79 Start: 62068, Stop: 61712, Start Num: 14

Candidate Starts for Jackstina\_79:

(Start: 14 @62068 has 18 MA's), (Start: 15 @62065 has 29 MA's), (17, 62050), (24, 61972), (25, 61942), (31, 61915), (37, 61840), (42, 61750),

Gene: Kamiyu\_85 Start: 62154, Stop: 61801, Start Num: 15

Candidate Starts for Kamiyu\_85:

(Start: 14 @62157 has 18 MA's), (Start: 15 @62154 has 29 MA's), (17, 62139), (24, 62061), (25, 62031), (26, 62025), (31, 62004), (37, 61929), (42, 61839),

Gene: Kronus\_85 Start: 63241, Stop: 62885, Start Num: 14

Candidate Starts for Kronus\_85:

(Start: 14 @63241 has 18 MA's), (Start: 15 @63238 has 29 MA's), (17, 63223), (24, 63145), (25, 63115), (26, 63109), (31, 63088), (37, 63013), (42, 62923),

Gene: LestyG\_83 Start: 61727, Stop: 61371, Start Num: 14

Candidate Starts for LestyG\_83:

(Start: 14 @61727 has 18 MA's), (Start: 15 @61724 has 29 MA's), (17, 61709), (24, 61631), (25, 61601), (26, 61595), (31, 61574), (37, 61499), (42, 61409),

Gene: LittleMinkey\_97 Start: 66895, Stop: 66527, Start Num: 16

Candidate Starts for LittleMinkey\_97:

(Start: 16 @66895 has 8 MA's), (Start: 23 @66826 has 1 MA's), (30, 66760), (35, 66706), (38, 66643), (45, 66553),

Gene: Marley1013\_86 Start: 63081, Stop: 62737, Start Num: 14

Candidate Starts for Marley1013\_86:

(10, 63129), (Start: 14 @63081 has 18 MA's), (18, 63066), (20, 63054), (Start: 23 @63015 has 1 MA's), (24, 62997), (25, 62967), (36, 62892), (39, 62823),

Gene: Marlia\_86 Start: 62620, Stop: 62270, Start Num: 15

Candidate Starts for Marlia\_86:

(Start: 14 @62623 has 18 MA's), (Start: 15 @62620 has 29 MA's), (18, 62602), (Start: 23 @62548 has 1 MA's), (24, 62530), (25, 62500), (33, 62452), (37, 62398), (42, 62308),

Gene: MmasiCarm\_86 Start: 62584, Stop: 62240, Start Num: 14

Candidate Starts for MmasiCarm\_86:

(Start: 14 @62584 has 18 MA's), (18, 62569), (20, 62557), (Start: 23 @62518 has 1 MA's), (24, 62500), (25, 62470), (36, 62395), (39, 62326),

Gene: Mortcellus\_85 Start: 63322, Stop: 62966, Start Num: 14

Candidate Starts for Mortcellus\_85:

(Start: 14 @63322 has 18 MA's), (Start: 15 @63319 has 29 MA's), (17, 63304), (24, 63226), (25, 63196), (26, 63190), (31, 63169), (37, 63094), (42, 63004),

Gene: Morty007\_84 Start: 63081, Stop: 62737, Start Num: 14

Candidate Starts for Morty007\_84:

(10, 63129), (Start: 14 @63081 has 18 MA's), (18, 63066), (20, 63054), (Start: 23 @63015 has 1 MA's), (24, 62997), (25, 62967), (36, 62892), (39, 62823),

Gene: Mulaychimus\_86 Start: 62600, Stop: 62250, Start Num: 15

Candidate Starts for Mulaychimus\_86:

(Start: 14 @62603 has 18 MA's), (Start: 15 @62600 has 29 MA's), (18, 62582), (24, 62510), (25, 62480), (26, 62474), (31, 62453), (37, 62378), (42, 62288),

Gene: Neos5\_85 Start: 62543, Stop: 62199, Start Num: 14

Candidate Starts for Neos5\_85:

(10, 62591), (Start: 14 @62543 has 18 MA's), (18, 62528), (20, 62516), (Start: 23 @62477 has 1 MA's), (24, 62459), (25, 62429), (36, 62354), (39, 62285),

Gene: Nozo\_85 Start: 62961, Stop: 62608, Start Num: 15

Candidate Starts for Nozo\_85:

(Start: 14 @62964 has 18 MA's), (Start: 15 @62961 has 29 MA's), (17, 62946), (24, 62868), (25, 62838), (26, 62832), (31, 62811), (37, 62736), (42, 62646),

Gene: Oaker\_62 Start: 48655, Stop: 48993, Start Num: 16

Candidate Starts for Oaker\_62:

(1, 48274), (3, 48409), (Start: 16 @48655 has 8 MA's), (19, 48673), (26, 48775), (32, 48811), (40, 48907),

Gene: Obutu\_87 Start: 62764, Stop: 62411, Start Num: 15

Candidate Starts for Obutu\_87:

(Start: 14 @62767 has 18 MA's), (Start: 15 @62764 has 29 MA's), (17, 62749), (24, 62671), (25, 62641), (26, 62635), (31, 62614), (37, 62539), (42, 62449),

Gene: Olivio\_85 Start: 62402, Stop: 62052, Start Num: 15

Candidate Starts for Olivio\_85:

(Start: 14 @62405 has 18 MA's), (Start: 15 @62402 has 29 MA's), (18, 62384), (Start: 23 @62330 has 1 MA's), (24, 62312), (25, 62282), (31, 62255), (37, 62180), (42, 62090),

Gene: OrangeOswald\_84 Start: 62199, Stop: 61843, Start Num: 14

Candidate Starts for OrangeOswald\_84:

(Start: 14 @62199 has 18 MA's), (Start: 15 @62196 has 29 MA's), (17, 62181), (24, 62103), (25, 62073), (26, 62067), (31, 62046), (37, 61971), (42, 61881),

Gene: Phaedrus\_80 Start: 61612, Stop: 61259, Start Num: 15

Candidate Starts for Phaedrus\_80:

(Start: 14 @61615 has 18 MA's), (Start: 15 @61612 has 29 MA's), (17, 61597), (24, 61519), (25, 61489), (26, 61483), (31, 61462), (37, 61387), (42, 61297),

Gene: Phayeta\_88 Start: 62684, Stop: 62328, Start Num: 14

Candidate Starts for Phayeta\_88:

(Start: 14 @62684 has 18 MA's), (Start: 15 @62681 has 29 MA's), (17, 62666), (24, 62588), (25, 62558), (26, 62552), (31, 62531), (37, 62456), (42, 62366),

Gene: Philly\_84 Start: 62041, Stop: 61691, Start Num: 15

Candidate Starts for Philly\_84:

(Start: 14 @62044 has 18 MA's), (Start: 15 @62041 has 29 MA's), (18, 62023), (Start: 23 @61969 has 1 MA's), (24, 61951), (25, 61921), (33, 61873), (37, 61819), (42, 61729),

Gene: Phlyer\_85 Start: 62907, Stop: 62554, Start Num: 15

Candidate Starts for Phlyer\_85:

(Start: 14 @62910 has 18 MA's), (Start: 15 @62907 has 29 MA's), (17, 62892), (24, 62814), (25, 62784), (26, 62778), (31, 62757), (37, 62682), (42, 62592),

Gene: Pipefish\_86 Start: 63131, Stop: 62799, Start Num: 16

Candidate Starts for Pipefish\_86:

(5, 63254), (6, 63230), (8, 63221), (Start: 16 @63131 has 8 MA's), (20, 63110), (22, 63095), (Start: 23 @63065 has 1 MA's), (24, 63047), (36, 62948), (42, 62831), (43, 62822),

Gene: Predator\_62 Start: 46573, Stop: 46911, Start Num: 16

Candidate Starts for Predator\_62:

(11, 46528), (Start: 16 @46573 has 8 MA's), (19, 46591), (34, 46750), (41, 46855), (44, 46888),

Gene: RagingRooster\_84 Start: 61887, Stop: 61534, Start Num: 15

Candidate Starts for RagingRooster\_84:

(Start: 14 @61890 has 18 MA's), (Start: 15 @61887 has 29 MA's), (17, 61872), (24, 61794), (25, 61764), (26, 61758), (31, 61737), (37, 61662), (42, 61572),

Gene: Rita1961\_86 Start: 62538, Stop: 62188, Start Num: 15

Candidate Starts for Rita1961\_86:

(Start: 14 @62541 has 18 MA's), (Start: 15 @62538 has 29 MA's), (18, 62520), (Start: 23 @62466 has 1 MA's), (24, 62448), (25, 62418), (37, 62316), (42, 62226),

Gene: RomaT\_85 Start: 62764, Stop: 62408, Start Num: 14

Candidate Starts for RomaT\_85:

(Start: 14 @62764 has 18 MA's), (Start: 15 @62761 has 29 MA's), (17, 62746), (24, 62668), (25, 62638), (26, 62632), (31, 62611), (37, 62536), (42, 62446),

Gene: ScoobyDoobyDoo\_14 Start: 4522, Stop: 4866, Start Num: 12

Candidate Starts for ScoobyDoobyDoo\_14:

(Start: 12 @4522 has 1 MA's),

Gene: Shenandoah\_84 Start: 61807, Stop: 61454, Start Num: 15

Candidate Starts for Shenandoah\_84:

(Start: 14 @61810 has 18 MA's), (Start: 15 @61807 has 29 MA's), (17, 61792), (24, 61714), (25, 61684), (26, 61678), (31, 61657), (37, 61582),

Gene: SlippinJimmy\_88 Start: 63571, Stop: 63218, Start Num: 15

Candidate Starts for SlippinJimmy\_88:

(Start: 14 @63574 has 18 MA's), (Start: 15 @63571 has 29 MA's), (17, 63556), (24, 63478), (25, 63448), (26, 63442), (31, 63421), (37, 63346), (42, 63256),

Gene: SwainyDoc\_86 Start: 62570, Stop: 62217, Start Num: 15

Candidate Starts for SwainyDoc\_86:

(Start: 14 @62573 has 18 MA's), (Start: 15 @62570 has 29 MA's), (17, 62555), (24, 62477), (25, 62447), (33, 62399), (37, 62345), (42, 62255),

Gene: SynergyX\_85 Start: 62198, Stop: 61845, Start Num: 15

Candidate Starts for SynergyX\_85:

(Start: 14 @62201 has 18 MA's), (Start: 15 @62198 has 29 MA's), (17, 62183), (24, 62105), (25, 62075), (26, 62069), (31, 62048), (37, 61973), (42, 61883),

Gene: Thonko\_53 Start: 44732, Stop: 44370, Start Num: 13

Candidate Starts for Thonko\_53:

(4, 44885), (Start: 13 @44732 has 1 MA's), (21, 44693), (Start: 23 @44657 has 1 MA's), (25, 44609), (27, 44600), (42, 44426), (46, 44390),

Gene: TinyTerror\_86 Start: 62621, Stop: 62268, Start Num: 15

Candidate Starts for TinyTerror\_86:

(Start: 14 @62624 has 18 MA's), (Start: 15 @62621 has 29 MA's), (17, 62606), (24, 62528), (25, 62498), (26, 62492), (31, 62471), (37, 62396), (42, 62306),

Gene: Tydolla\_81 Start: 62177, Stop: 61824, Start Num: 15

Candidate Starts for Tydolla\_81:

(Start: 14 @62180 has 18 MA's), (Start: 15 @62177 has 29 MA's), (17, 62162), (24, 62084), (25, 62054), (26, 62048), (31, 62027), (37, 61952), (42, 61862),

Gene: Yahalom\_83 Start: 62004, Stop: 61651, Start Num: 15

Candidate Starts for Yahalom\_83:

(Start: 14 @62007 has 18 MA's), (Start: 15 @62004 has 29 MA's), (17, 61989), (24, 61911), (25, 61881), (26, 61875), (31, 61854), (37, 61779), (42, 61689),

Gene: Yinz\_85 Start: 62060, Stop: 61716, Start Num: 14

Candidate Starts for Yinz\_85:

(10, 62108), (Start: 14 @62060 has 18 MA's), (18, 62045), (20, 62033), (Start: 23 @61994 has 1 MA's), (24, 61976), (25, 61946), (36, 61871), (39, 61802), (42, 61754),

Gene: Zenteno07\_94 Start: 66543, Stop: 66193, Start Num: 16

Candidate Starts for Zenteno07\_94:

(6, 66642), (Start: 16 @66543 has 8 MA's), (Start: 23 @66477 has 1 MA's), (25, 66429), (28, 66420), (29, 66414), (45, 66216),