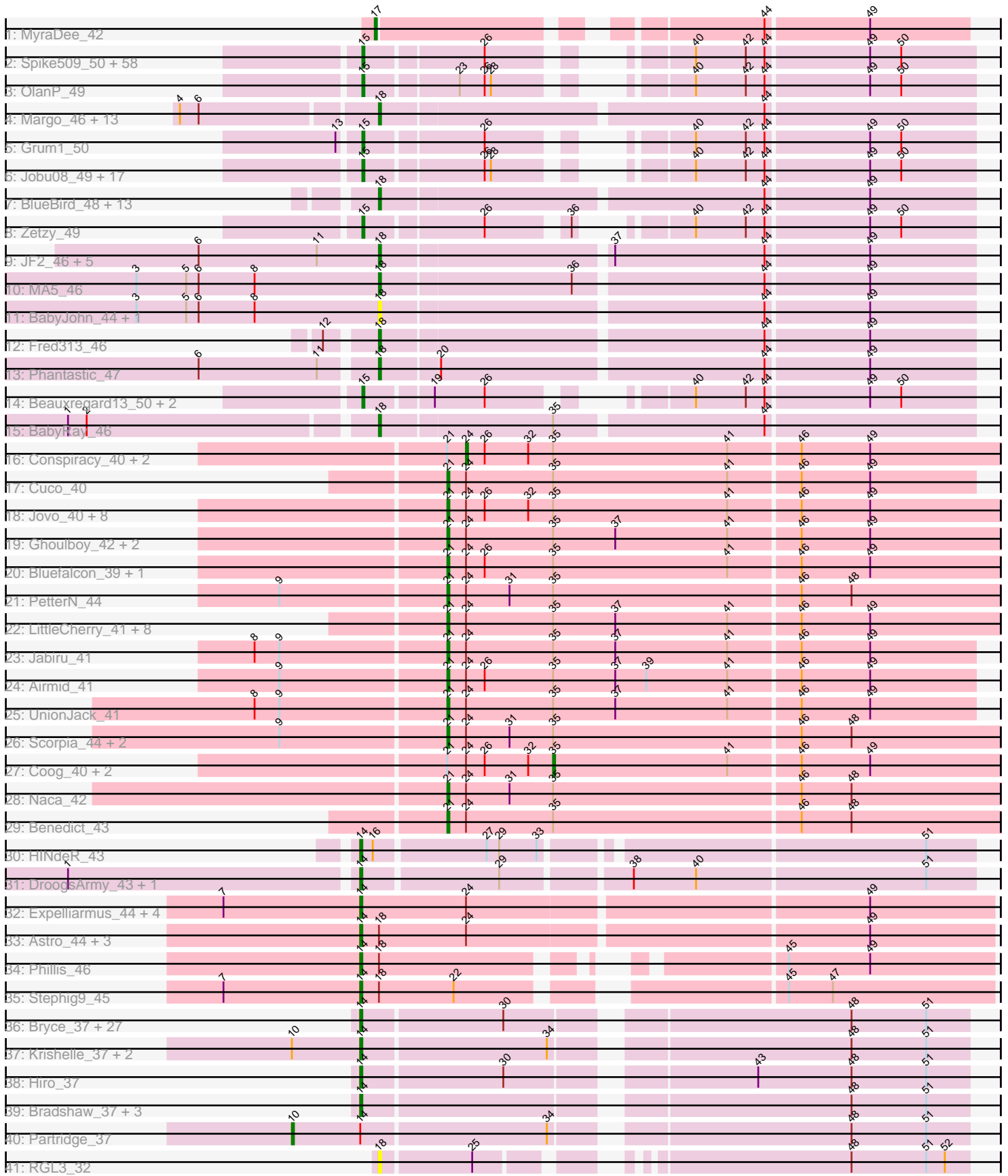


Pham 196283



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 196283 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196283 has 215 members, 14 are drafts.

Phages represented in each track:

- Track 1 : MyraDee\_42
- Track 2 : Spike509\_50, PotatoSplit\_52, Sabia\_50, Ollie\_50, Lilith\_51, JHC117\_50, Aglet\_51, Hercules11\_50, Microwolf\_50, MarQuardt\_50, SoYo\_50, Taurus\_51, BreSam8\_50, AugsMagnumOpus\_53, Watson\_50, DaHudson\_50, LBerry\_51, Snickers\_50, MadMarie\_50, StepMih\_50, P28Green\_51, Fernando\_50, AgronaGT15\_49, GtownJaz\_50, Dieselweasel\_51, Methuselah\_47, Marie\_50, BuzzBuzz\_48, Vix\_50, Grif\_50, MuchMore\_53, Anubis\_53, Misomonster\_51, Rummer\_49, Stagni\_50, Bxz2\_46, Louie6\_49, Soshari\_52, MoneyMay\_50, GingkoMaracino\_50, LugYA\_53, Pembroke\_50, Tiffany\_50, HashRod\_51, Sabinator\_49, Mainiac\_50, PGHhamlin\_52, Phoebe\_51, Daishi\_49, Cullens\_50, Colbster\_50, Farber\_50, KADY\_50, Malinsilva\_52, Phoxy\_50, Grub\_50, JenCasNa\_51, Wooldri\_52, LarryKay\_50
- Track 3 : OlanP\_49
- Track 4 : Margo\_46, Panamaxus\_44, Lambert1\_46, Texage\_45, Caviar\_46, QuinnKiro\_45, Pocahontas\_46, Norbert\_45, Hookmount\_46, Veracruz\_45, Todacoro\_46, Popcicle\_46, Noella\_46, ResDef\_46
- Track 5 : Grum1\_50
- Track 6 : Jobu08\_49, Kalnoky\_51, ACFishhook\_49, Pawn\_50, Heliosoles\_49, Phranny\_51, Marius\_51, HaveUMetTed\_51, Gemma\_49, Groupthink\_51, PurpleHaze\_50, Calvinny\_50, Manu\_50, PhishRPhriends\_48, JeppNRM\_51, Kalb97\_51, Reba\_50, SoilDragon\_50
- Track 7 : BlueBird\_48, Giroux\_47, Heathen\_46, Bugatti\_47, Kachowdy\_46, Marchesa\_46, Idleandcovert\_47, SaturnRing\_47, DropBear\_46, Pistachio\_48, Puppy\_48, TNguyen7\_47, HelDan\_46, Scout\_46
- Track 8 : Zetzy\_49
- Track 9 : JF2\_46, JF4\_46, MK4\_46, Isca\_45, B1\_43, Rockstar\_46
- Track 10 : MA5\_46
- Track 11 : BabyJohn\_44, Chiqui\_44
- Track 12 : Fred313\_46
- Track 13 : Phantastic\_47
- Track 14 : Beauxregard13\_50, EpicPhail\_51, Penny1\_51
- Track 15 : BabyRay\_46
- Track 16 : Conspiracy\_40, Tiger\_39, Theia\_38
- Track 17 : Cuco\_40
- Track 18 : Jovo\_40, Discoknowium\_39, Lev2\_40, Aragog\_39, AgentM\_39, Phlorence\_39, PickleBack\_40, ForGetIt\_40, Archetta\_40
- Track 19 : Ghoulboy\_42, SydNat\_42, Zolita\_41

- Track 20 : Bluefalcon\_39, MarysWell\_39
- Track 21 : PetterN\_44
- Track 22 : LittleCherry\_41, HuhtaEnerson15\_41, George\_40, Tarynearal\_39, Bonamassa\_41, Dublin\_39, Milcery\_41, Swirley\_43, Micasa\_42
- Track 23 : Jabiru\_41
- Track 24 : Airmid\_41
- Track 25 : UnionJack\_41
- Track 26 : Scorpia\_44, Chadwick\_44, EITiger69\_42
- Track 27 : Coog\_40, Midas2\_40, Twigg\_41
- Track 28 : Naca\_42
- Track 29 : Benedict\_43
- Track 30 : HINdeR\_43
- Track 31 : DroogsArmy\_43, Timshel\_45
- Track 32 : Expelliarmus\_44, Smeadley\_45, Roary\_45, Dixon\_44, Danforth\_44
- Track 33 : Astro\_44, Groundhog\_43, Saintus\_39, NearlyHeadless\_44
- Track 34 : Phillis\_46
- Track 35 : Stephig9\_45
- Track 36 : Bryce\_37, Swann\_37, CosmicSans\_37, AngryOrchard\_35, RER2\_30, Natosaleda\_37, BobbyDazzler\_37, Bonanza\_37, Rasputin\_37, Lillie\_37, Erik\_37, Nancinator\_37, Rhodalysa\_37, TWAMP\_37, Shuman\_37, Espica\_37, Jester\_37, Alpacados\_36, Takoda\_37, Yoncess\_37, Phrankenstein\_37, RexFury\_37, PhailMary\_36, Belenaria\_37, UhSalsa\_37, Yogi\_37, Gollum\_37, Harlequin\_37
- Track 37 : Krishelle\_37, AppleCloud\_35, Dinger\_37
- Track 38 : Hiro\_37
- Track 39 : Bradshaw\_37, StCroix\_37, Naiad\_37, Alatin\_37
- Track 40 : Partridge\_37
- Track 41 : RGL3\_32

***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 80 of the 201 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ACFishhook\_49, Aglet\_51, AgronaGT15\_49, Anubis\_53, AugsMagnumOpus\_53, Beauxregard13\_50, BreSam8\_50, BuzzBuzz\_48, Bxz2\_46, Calvinny\_50, Colbster\_50, Cullens\_50, DaHudson\_50, Daishi\_49, Dieselweasel\_51, EpicPhail\_51, Farber\_50, Fernando\_50, Gemma\_49, GingkoMaracino\_50, Grif\_50, Grouphthink\_51, Grub\_50, Grum1\_50, GtownJaz\_50, HashRod\_51, HaveUMetTed\_51, Heliosoles\_49, Hercules11\_50, JHC117\_50, JenCasNa\_51, JeppNRM\_51, Jobu08\_49, KADY\_50, Kalb97\_51, Kalnoky\_51, LBerry\_51, LarryKay\_50, Lilith\_51, Louie6\_49, LugYA\_53, MadMarie\_50, Mainiac\_50, Malinsilva\_52, Manu\_50, MarQuardt\_50, Marie\_50, Marius\_51, Methuselah\_47, Microwolf\_50, Misomonster\_51, MoneyMay\_50, MuchMore\_53, OlanP\_49, Ollie\_50, P28Green\_51, PGHhamlin\_52, Pawn\_50, Pembroke\_50, Penny1\_51, PhishRPhriends\_48, Phoebe\_51, Phoxy\_50, Phranny\_51, PotatoSplit\_52, PurpleHaze\_50, Reba\_50, Rummer\_49, Sabia\_50, Sabinator\_49, Snickers\_50, SoYo\_50, SoilDragon\_50, Soshari\_52, Spike509\_50, Stagni\_50, StepMih\_50, Taurus\_51, Tiffany\_50, Vix\_50, Watson\_50, Wooldri\_52, Zetzy\_49,

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

- 

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

- AgentM\_39, Airmid\_41, Alatin\_37, Alpacados\_36, AngryOrchard\_35, AppleCloud\_35, Aragog\_39, Archetta\_40, Astro\_44, B1\_43, BabyJohn\_44, BabyRay\_46, Belenaria\_37, Benedict\_43, BlueBird\_48, Bluefalcon\_39, BobbyDazzler\_37, Bonamassa\_41, Bonanza\_37, Bradshaw\_37, Bryce\_37, Bugatti\_47, Caviar\_46, Chadwick\_44, Chiqui\_44, Conspiracy\_40, Coog\_40, CosmicSans\_37, Cuco\_40, Danforth\_44, Dinger\_37, Discoknowium\_39, Dixon\_44, DroogsArmy\_43, DropBear\_46, Dublin\_39, EITiger69\_42, Erik\_37, Espica\_37, Expelliarmus\_44, ForGetIt\_40, Fred313\_46, George\_40, Ghouboy\_42, Giroux\_47, Gollum\_37, Groundhog\_43, HINdeR\_43, Harlequin\_37, Heathen\_46, HelDan\_46, Hiro\_37, Hookmount\_46, HuhtaEnerson15\_41, Idleandcovert\_47, Isca\_45, JF2\_46, JF4\_46, Jabiru\_41, Jester\_37, Jovo\_40, Kachowdy\_46, Krishelle\_37, Lambert1\_46, Lev2\_40, Lillie\_37, LittleCherry\_41, MA5\_46, MK4\_46, Marchesa\_46, Margo\_46, MarysWell\_39, Micasa\_42, Midas2\_40, Milcery\_41, MyraDee\_42, Naca\_42, Naiad\_37, Nancinator\_37, Natosaleda\_37, NearlyHeadless\_44, Noella\_46, Norbert\_45, Panamaxus\_44, Partridge\_37, PetterN\_44, PhailMary\_36, Phantastic\_47, Phillis\_46, Phlorence\_39, Phrankenstein\_37, PickleBack\_40, Pistachio\_48, Pocahontas\_46, Popcicle\_46, Puppy\_48, QuinnKiro\_45, RER2\_30, RGL3\_32, Rasputin\_37, ResDef\_46, RexFury\_37, Rhodalysa\_37, Roary\_45, Rockstar\_46, Saintus\_39, SaturnRing\_47, Scorpia\_44, Scout\_46, Shuman\_37, Smeadley\_45, StCroix\_37, Stephig9\_45, Swann\_37, Swirley\_43, SydNat\_42, TNguyen7\_47, TWAMP\_37, Takoda\_37, Tarynearal\_39, Texage\_45, Theia\_38, Tiger\_39, Timshel\_45, Todacoro\_46, Twigg\_41, UhSalsa\_37, UnionJack\_41, Veracruz\_45, Yogi\_37, Yoncess\_37, Zolita\_41,

### Summary by start number:

Start 10:

- Found in 4 of 215 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 201
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Partridge\_37 (CA),

Start 14:

- Found in 51 of 215 ( 23.7% ) of genes in pham
- Manual Annotations of this start: 49 of 201
- Called 98.0% of time when present
- Phage (with cluster) where this start called: Alatin\_37 (CA), Alpacados\_36 (CA), AngryOrchard\_35 (CA), AppleCloud\_35 (CA), Astro\_44 (A8), Belenaria\_37 (CA), BobbyDazzler\_37 (CA), Bonanza\_37 (CA), Bradshaw\_37 (CA), Bryce\_37 (CA), CosmicSans\_37 (CA), Danforth\_44 (A8), Dinger\_37 (CA), Dixon\_44 (A8), DroogsArmy\_43 (A7), Erik\_37 (CA), Espica\_37 (CA), Expelliarmus\_44 (A8), Gollum\_37 (CA), Groundhog\_43 (A8), HINdeR\_43 (A7), Harlequin\_37 (CA), Hiro\_37 (CA), Jester\_37 (CA), Krishelle\_37 (CA), Lillie\_37 (CA), Naiad\_37 (CA), Nancinator\_37 (CA), Natosaleda\_37 (CA), NearlyHeadless\_44 (A8), PhailMary\_36 (CA), Phillis\_46 (A8), Phrankenstein\_37 (CA), RER2\_30 (CA), Rasputin\_37 (CA), RexFury\_37 (CA), Rhodalysa\_37 (CA), Roary\_45 (A8), Saintus\_39 (A8), Shuman\_37 (CA), Smeadley\_45 (A8), StCroix\_37 (CA), Stephig9\_45 (A8), Swann\_37 (CA), TWAMP\_37 (CA), Takoda\_37 (CA), Timshel\_45 (A7), UhSalsa\_37 (CA), Yogi\_37 (CA), Yoncess\_37 (CA),

Start 15:

- Found in 83 of 215 ( 38.6% ) of genes in pham
- Manual Annotations of this start: 80 of 201
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ACFishhook\_49 (A3), Aglet\_51 (A3), AgronaGT15\_49 (A3), Anubis\_53 (A3), AugsMagnumOpus\_53 (A3), Beauxregard13\_50 (A3), BreSam8\_50 (A3), BuzzBuzz\_48 (A3), Bxz2\_46 (A3), Calvinny\_50 (A3), Colbster\_50 (A3), Cullens\_50 (A3), DaHudson\_50 (A3), Daishi\_49 (A3), Dieselweasel\_51 (A3), EpicPhail\_51 (A3), Farber\_50 (A3), Fernando\_50 (A3), Gemma\_49 (A3), GingkoMaracino\_50 (A3), Grif\_50 (A3), Groupthink\_51 (A3), Grub\_50 (A3), Grum1\_50 (A3), GtownJaz\_50 (A3), HashRod\_51 (A3), HaveUMetTed\_51 (A3), Heliosoles\_49 (A3), Hercules11\_50 (A3), JHC117\_50 (A3), JenCasNa\_51 (A3), JeppNRM\_51 (A3), Jobu08\_49 (A3), KADY\_50 (A3), Kalb97\_51 (A3), Kalnoky\_51 (A3), LBerry\_51 (A3), LarryKay\_50 (A3), Lilith\_51 (A3), Louie6\_49 (A3), LugYA\_53 (A3), MadMarie\_50 (A3), Mainiac\_50 (A3), Malinsilva\_52 (A3), Manu\_50 (A3), MarQuardt\_50 (A3), Marie\_50 (A3), Marius\_51 (A3), Methuselah\_47 (A3), Microwolf\_50 (A3), Misomonster\_51 (A3), MoneyMay\_50 (A3), MuchMore\_53 (A3), OlanP\_49 (A3), Ollie\_50 (A3), P28Green\_51 (A3), PGHhamlin\_52 (A3), Pawn\_50 (A3), Pembroke\_50 (A3), Penny1\_51 (A3), PhishRPhriends\_48 (A3), Phoebe\_51 (A3), Phoxy\_50 (A3), Phranny\_51 (A3), PotatoSplit\_52 (A3), PurpleHaze\_50 (A3), Reba\_50 (A3), Rummer\_49 (A3), Sabia\_50 (A3), Sabinator\_49 (A3), Snickers\_50 (A3), SoYo\_50 (A3), SoilDragon\_50 (A3), Soshari\_52 (A3), Spike509\_50 (A3), Stagni\_50 (A3), StepMih\_50 (A3), Taurus\_51 (A3), Tiffany\_50 (A3), Vix\_50 (A3), Watson\_50 (A3), Wooldri\_52 (A3), Zetzy\_49 (A3),

Start 17:

- Found in 1 of 215 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 201
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MyraDee\_42 (A18),

Start 18:

- Found in 47 of 215 ( 21.9% ) of genes in pham
- Manual Annotations of this start: 32 of 201
- Called 87.2% of time when present
- Phage (with cluster) where this start called: B1\_43 (A3), BabyJohn\_44 (A3), BabyRay\_46 (A3), BlueBird\_48 (A3), Bugatti\_47 (A3), Caviar\_46 (A3), Chiqui\_44 (A3), DropBear\_46 (A3), Fred313\_46 (A3), Giroux\_47 (A3), Heathen\_46 (A3), HelDan\_46 (A3), Hookmount\_46 (A3), Idleandcovert\_47 (A3), Isca\_45 (A3), JF2\_46 (A3), JF4\_46 (A3), Kachowdy\_46 (A3), Lambert1\_46 (A3), MA5\_46 (A3), MK4\_46 (A3), Marchesa\_46 (A3), Margo\_46 (A3), Noella\_46 (A3), Norbert\_45 (A3), Panamaxus\_44 (A3), Phantastic\_47 (A3), Pistachio\_48 (A3), Pocahontas\_46 (A3), Popcicle\_46 (A3), Puppy\_48 (A3), QuinnKiro\_45 (A3), RGL3\_32 (CA), ResDef\_46 (A3), Rockstar\_46 (A3), SaturnRing\_47 (A3), Scout\_46 (A3), TNguyen7\_47 (A3), Texage\_45 (A3), Todacoro\_46 (A3), Veracruz\_45 (A3),

Start 21:

- Found in 39 of 215 ( 18.1% ) of genes in pham
- Manual Annotations of this start: 33 of 201
- Called 84.6% of time when present
- Phage (with cluster) where this start called: AgentM\_39 (A5), Airmid\_41 (A5), Aragog\_39 (A5), Archetta\_40 (A5), Benedict\_43 (A5), Bluefalcon\_39 (A5),

Bonamassa\_41 (A5), Chadwick\_44 (A5), Cuco\_40 (A5), Discoknowium\_39 (A5), Dublin\_39 (A5), ElTiger69\_42 (A5), ForGetIt\_40 (A5), George\_40 (A5), Ghoulboy\_42 (A5), HuhtaEnerson15\_41 (A5), Jabiru\_41 (A5), Jovo\_40 (A5), Lev2\_40 (A5), LittleCherry\_41 (A5), MarysWell\_39 (A5), Micasa\_42 (A5), Milcery\_41 (A5), Naca\_42 (A5), PetterN\_44 (A5), Phlorence\_39 (A5), PickleBack\_40 (A5), Scorpia\_44 (A5), Swirley\_43 (A5), SydNat\_42 (A5), Tarynearal\_39 (A5), UnionJack\_41 (A5), Zolita\_41 (A5),

Start 24:

- Found in 48 of 215 ( 22.3% ) of genes in pham
- Manual Annotations of this start: 3 of 201
- Called 6.2% of time when present
- Phage (with cluster) where this start called: Conspiracy\_40 (A5), Theia\_38 (A5), Tiger\_39 (A5),

Start 35:

- Found in 40 of 215 ( 18.6% ) of genes in pham
- Manual Annotations of this start: 2 of 201
- Called 7.5% of time when present
- Phage (with cluster) where this start called: Coog\_40 (A5), Midas2\_40 (A5), Twigg\_41 (A5),

### **Summary by clusters:**

There are 6 clusters represented in this pham: CA, A18, A3, A5, A7, A8,

Info for manual annotations of cluster A18:

- Start number 17 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A3:

- Start number 15 was manually annotated 80 times for cluster A3.
- Start number 18 was manually annotated 32 times for cluster A3.

Info for manual annotations of cluster A5:

- Start number 21 was manually annotated 33 times for cluster A5.
- Start number 24 was manually annotated 3 times for cluster A5.
- Start number 35 was manually annotated 2 times for cluster A5.

Info for manual annotations of cluster A7:

- Start number 14 was manually annotated 3 times for cluster A7.

Info for manual annotations of cluster A8:

- Start number 14 was manually annotated 11 times for cluster A8.

Info for manual annotations of cluster CA:

- Start number 10 was manually annotated 1 time for cluster CA.
- Start number 14 was manually annotated 35 times for cluster CA.

### **Gene Information:**

Gene: ACFishhook\_49 Start: 32280, Stop: 32032, Start Num: 15

Candidate Starts for ACFishhook\_49:

(Start: 15 @32280 has 80 MA's), (26, 32226), (28, 32223), (40, 32163), (42, 32139), (44, 32130), (49, 32082), (50, 32067),

Gene: AgentM\_39 Start: 30764, Stop: 30501, Start Num: 21

Candidate Starts for AgentM\_39:

(Start: 21 @30764 has 33 MA's), (Start: 24 @30755 has 3 MA's), (26, 30746), (32, 30725), (Start: 35 @30713 has 2 MA's), (41, 30629), (46, 30596), (49, 30563),

Gene: Aglet\_51 Start: 32309, Stop: 32061, Start Num: 15

Candidate Starts for Aglet\_51:

(Start: 15 @32309 has 80 MA's), (26, 32255), (40, 32192), (42, 32168), (44, 32159), (49, 32111), (50, 32096),

Gene: AgronaGT15\_49 Start: 32160, Stop: 31912, Start Num: 15

Candidate Starts for AgronaGT15\_49:

(Start: 15 @32160 has 80 MA's), (26, 32106), (40, 32043), (42, 32019), (44, 32010), (49, 31962), (50, 31947),

Gene: Airmid\_41 Start: 30823, Stop: 30572, Start Num: 21

Candidate Starts for Airmid\_41:

(9, 30901), (Start: 21 @30823 has 33 MA's), (Start: 24 @30814 has 3 MA's), (26, 30805), (Start: 35 @30772 has 2 MA's), (37, 30742), (39, 30727), (41, 30688), (46, 30655), (49, 30622),

Gene: Alatin\_37 Start: 28461, Stop: 28189, Start Num: 14

Candidate Starts for Alatin\_37:

(Start: 14 @28461 has 49 MA's), (48, 28245), (51, 28209),

Gene: Alpacados\_36 Start: 28366, Stop: 28094, Start Num: 14

Candidate Starts for Alpacados\_36:

(Start: 14 @28366 has 49 MA's), (30, 28300), (48, 28150), (51, 28114),

Gene: AngryOrchard\_35 Start: 28325, Stop: 28053, Start Num: 14

Candidate Starts for AngryOrchard\_35:

(Start: 14 @28325 has 49 MA's), (30, 28259), (48, 28109), (51, 28073),

Gene: Anubis\_53 Start: 32195, Stop: 31947, Start Num: 15

Candidate Starts for Anubis\_53:

(Start: 15 @32195 has 80 MA's), (26, 32141), (40, 32078), (42, 32054), (44, 32045), (49, 31997), (50, 31982),

Gene: AppleCloud\_35 Start: 28336, Stop: 28064, Start Num: 14

Candidate Starts for AppleCloud\_35:

(Start: 10 @28369 has 1 MA's), (Start: 14 @28336 has 49 MA's), (34, 28249), (48, 28120), (51, 28084),

Gene: Aragog\_39 Start: 30794, Stop: 30531, Start Num: 21

Candidate Starts for Aragog\_39:

(Start: 21 @30794 has 33 MA's), (Start: 24 @30785 has 3 MA's), (26, 30776), (32, 30755), (Start: 35 @30743 has 2 MA's), (41, 30659), (46, 30626), (49, 30593),

Gene: Archetta\_40 Start: 31324, Stop: 31061, Start Num: 21

Candidate Starts for Archetta\_40:

(Start: 21 @31324 has 33 MA's), (Start: 24 @31315 has 3 MA's), (26, 31306), (32, 31285), (Start: 35 @31273 has 2 MA's), (41, 31189), (46, 31156), (49, 31123),

Gene: Astro\_44 Start: 31145, Stop: 30849, Start Num: 14

Candidate Starts for Astro\_44:

(Start: 14 @31145 has 49 MA's), (Start: 18 @31136 has 32 MA's), (Start: 24 @31094 has 3 MA's), (49, 30908),

Gene: AugsMagnumOpus\_53 Start: 32300, Stop: 32052, Start Num: 15

Candidate Starts for AugsMagnumOpus\_53:

(Start: 15 @32300 has 80 MA's), (26, 32246), (40, 32183), (42, 32159), (44, 32150), (49, 32102), (50, 32087),

Gene: B1\_43 Start: 31013, Stop: 30738, Start Num: 18

Candidate Starts for B1\_43:

(6, 31100), (11, 31043), (Start: 18 @31013 has 32 MA's), (37, 30908), (44, 30836), (49, 30788),

Gene: BabyJohn\_44 Start: 31805, Stop: 31530, Start Num: 18

Candidate Starts for BabyJohn\_44:

(3, 31922), (5, 31898), (6, 31892), (8, 31865), (Start: 18 @31805 has 32 MA's), (44, 31628), (49, 31580),

Gene: BabyRay\_46 Start: 31749, Stop: 31474, Start Num: 18

Candidate Starts for BabyRay\_46:

(1, 31890), (2, 31881), (Start: 18 @31749 has 32 MA's), (Start: 35 @31668 has 2 MA's), (44, 31572),

Gene: Beauxregard13\_50 Start: 32312, Stop: 32064, Start Num: 15

Candidate Starts for Beauxregard13\_50:

(Start: 15 @32312 has 80 MA's), (19, 32282), (26, 32258), (40, 32195), (42, 32171), (44, 32162), (49, 32114), (50, 32099),

Gene: Belenaria\_37 Start: 28395, Stop: 28123, Start Num: 14

Candidate Starts for Belenaria\_37:

(Start: 14 @28395 has 49 MA's), (30, 28329), (48, 28179), (51, 28143),

Gene: Benedict\_43 Start: 30995, Stop: 30732, Start Num: 21

Candidate Starts for Benedict\_43:

(Start: 21 @30995 has 33 MA's), (Start: 24 @30986 has 3 MA's), (Start: 35 @30944 has 2 MA's), (46, 30827), (48, 30803),

Gene: BlueBird\_48 Start: 31838, Stop: 31563, Start Num: 18

Candidate Starts for BlueBird\_48:

(Start: 18 @31838 has 32 MA's), (44, 31661), (49, 31613),

Gene: Bluefalcon\_39 Start: 31282, Stop: 31019, Start Num: 21

Candidate Starts for Bluefalcon\_39:

(Start: 21 @31282 has 33 MA's), (Start: 24 @31273 has 3 MA's), (26, 31264), (Start: 35 @31231 has 2 MA's), (41, 31147), (46, 31114), (49, 31081),

Gene: BobbyDazzler\_37 Start: 28440, Stop: 28168, Start Num: 14

Candidate Starts for BobbyDazzler\_37:

(Start: 14 @28440 has 49 MA's), (30, 28374), (48, 28224), (51, 28188),



Gene: Bonamassa\_41 Start: 31313, Stop: 31050, Start Num: 21

Candidate Starts for Bonamassa\_41:

(Start: 21 @31313 has 33 MA's), (Start: 24 @31304 has 3 MA's), (Start: 35 @31262 has 2 MA's), (37, 31232), (41, 31178), (46, 31145), (49, 31112),

Gene: Bonanza\_37 Start: 28368, Stop: 28096, Start Num: 14

Candidate Starts for Bonanza\_37:

(Start: 14 @28368 has 49 MA's), (30, 28302), (48, 28152), (51, 28116),

Gene: Bradshaw\_37 Start: 28394, Stop: 28122, Start Num: 14

Candidate Starts for Bradshaw\_37:

(Start: 14 @28394 has 49 MA's), (48, 28178), (51, 28142),

Gene: BreSam8\_50 Start: 32302, Stop: 32054, Start Num: 15

Candidate Starts for BreSam8\_50:

(Start: 15 @32302 has 80 MA's), (26, 32248), (40, 32185), (42, 32161), (44, 32152), (49, 32104), (50, 32089),

Gene: Bryce\_37 Start: 28369, Stop: 28097, Start Num: 14

Candidate Starts for Bryce\_37:

(Start: 14 @28369 has 49 MA's), (30, 28303), (48, 28153), (51, 28117),

Gene: Bugatti\_47 Start: 31838, Stop: 31563, Start Num: 18

Candidate Starts for Bugatti\_47:

(Start: 18 @31838 has 32 MA's), (44, 31661), (49, 31613),

Gene: BuzzBuzz\_48 Start: 32339, Stop: 32091, Start Num: 15

Candidate Starts for BuzzBuzz\_48:

(Start: 15 @32339 has 80 MA's), (26, 32285), (40, 32222), (42, 32198), (44, 32189), (49, 32141), (50, 32126),

Gene: Bxz2\_46 Start: 32346, Stop: 32098, Start Num: 15

Candidate Starts for Bxz2\_46:

(Start: 15 @32346 has 80 MA's), (26, 32292), (40, 32229), (42, 32205), (44, 32196), (49, 32148), (50, 32133),

Gene: Calvinny\_50 Start: 32208, Stop: 31960, Start Num: 15

Candidate Starts for Calvinny\_50:

(Start: 15 @32208 has 80 MA's), (26, 32154), (28, 32151), (40, 32091), (42, 32067), (44, 32058), (49, 32010), (50, 31995),

Gene: Caviar\_46 Start: 32081, Stop: 31806, Start Num: 18

Candidate Starts for Caviar\_46:

(4, 32171), (6, 32162), (Start: 18 @32081 has 32 MA's), (44, 31904),

Gene: Chadwick\_44 Start: 30975, Stop: 30712, Start Num: 21

Candidate Starts for Chadwick\_44:

(9, 31053), (Start: 21 @30975 has 33 MA's), (Start: 24 @30966 has 3 MA's), (31, 30945), (Start: 35 @30924 has 2 MA's), (46, 30807), (48, 30783),

Gene: Chiqui\_44 Start: 31814, Stop: 31539, Start Num: 18

Candidate Starts for Chiqui\_44:

(3, 31931), (5, 31907), (6, 31901), (8, 31874), (Start: 18 @31814 has 32 MA's), (44, 31637), (49, 31589),

Gene: Colbster\_50 Start: 32312, Stop: 32064, Start Num: 15

Candidate Starts for Colbster\_50:

(Start: 15 @32312 has 80 MA's), (26, 32258), (40, 32195), (42, 32171), (44, 32162), (49, 32114), (50, 32099),

Gene: Conspiracy\_40 Start: 30997, Stop: 30743, Start Num: 24

Candidate Starts for Conspiracy\_40:

(Start: 21 @31006 has 33 MA's), (Start: 24 @30997 has 3 MA's), (26, 30988), (32, 30967), (Start: 35 @30955 has 2 MA's), (41, 30871), (46, 30838), (49, 30805),

Gene: Coog\_40 Start: 31053, Stop: 30841, Start Num: 35

Candidate Starts for Coog\_40:

(Start: 21 @31104 has 33 MA's), (Start: 24 @31095 has 3 MA's), (26, 31086), (32, 31065), (Start: 35 @31053 has 2 MA's), (41, 30969), (46, 30936), (49, 30903),

Gene: CosmicSans\_37 Start: 28394, Stop: 28122, Start Num: 14

Candidate Starts for CosmicSans\_37:

(Start: 14 @28394 has 49 MA's), (30, 28328), (48, 28178), (51, 28142),

Gene: Cuco\_40 Start: 31061, Stop: 30810, Start Num: 21

Candidate Starts for Cuco\_40:

(Start: 21 @31061 has 33 MA's), (Start: 24 @31052 has 3 MA's), (Start: 35 @31010 has 2 MA's), (41, 30926), (46, 30893), (49, 30860),

Gene: Cullens\_50 Start: 32308, Stop: 32060, Start Num: 15

Candidate Starts for Cullens\_50:

(Start: 15 @32308 has 80 MA's), (26, 32254), (40, 32191), (42, 32167), (44, 32158), (49, 32110), (50, 32095),

Gene: DaHudson\_50 Start: 32301, Stop: 32053, Start Num: 15

Candidate Starts for DaHudson\_50:

(Start: 15 @32301 has 80 MA's), (26, 32247), (40, 32184), (42, 32160), (44, 32151), (49, 32103), (50, 32088),

Gene: Daishi\_49 Start: 31180, Stop: 30932, Start Num: 15

Candidate Starts for Daishi\_49:

(Start: 15 @31180 has 80 MA's), (26, 31126), (40, 31063), (42, 31039), (44, 31030), (49, 30982), (50, 30967),

Gene: Danforth\_44 Start: 31174, Stop: 30878, Start Num: 14

Candidate Starts for Danforth\_44:

(7, 31240), (Start: 14 @31174 has 49 MA's), (Start: 24 @31123 has 3 MA's), (49, 30937),

Gene: Dieselweasel\_51 Start: 32311, Stop: 32063, Start Num: 15

Candidate Starts for Dieselweasel\_51:

(Start: 15 @32311 has 80 MA's), (26, 32257), (40, 32194), (42, 32170), (44, 32161), (49, 32113), (50, 32098),

Gene: Dinger\_37 Start: 28378, Stop: 28106, Start Num: 14

Candidate Starts for Dinger\_37:

(Start: 10 @28411 has 1 MA's), (Start: 14 @28378 has 49 MA's), (34, 28291), (48, 28162), (51, 28126),

Gene: Discoknowium\_39 Start: 30803, Stop: 30540, Start Num: 21  
Candidate Starts for Discoknowium\_39:

(Start: 21 @30803 has 33 MA's), (Start: 24 @30794 has 3 MA's), (26, 30785), (32, 30764), (Start: 35 @30752 has 2 MA's), (41, 30668), (46, 30635), (49, 30602),

Gene: Dixon\_44 Start: 31047, Stop: 30760, Start Num: 14  
Candidate Starts for Dixon\_44:

(7, 31113), (Start: 14 @31047 has 49 MA's), (Start: 24 @30996 has 3 MA's), (49, 30810),

Gene: DroogsArmy\_43 Start: 33565, Stop: 33284, Start Num: 14  
Candidate Starts for DroogsArmy\_43:

(1, 33700), (Start: 14 @33565 has 49 MA's), (29, 33502), (38, 33445), (40, 33415), (51, 33307),

Gene: DropBear\_46 Start: 31726, Stop: 31451, Start Num: 18  
Candidate Starts for DropBear\_46:

(Start: 18 @31726 has 32 MA's), (44, 31549), (49, 31501),

Gene: Dublin\_39 Start: 30825, Stop: 30562, Start Num: 21  
Candidate Starts for Dublin\_39:

(Start: 21 @30825 has 33 MA's), (Start: 24 @30816 has 3 MA's), (Start: 35 @30774 has 2 MA's), (37, 30744), (41, 30690), (46, 30657), (49, 30624),

Gene: EITiger69\_42 Start: 30992, Stop: 30729, Start Num: 21  
Candidate Starts for EITiger69\_42:

(9, 31070), (Start: 21 @30992 has 33 MA's), (Start: 24 @30983 has 3 MA's), (31, 30962), (Start: 35 @30941 has 2 MA's), (46, 30824), (48, 30800),

Gene: EpicPhail\_51 Start: 32312, Stop: 32064, Start Num: 15  
Candidate Starts for EpicPhail\_51:

(Start: 15 @32312 has 80 MA's), (19, 32282), (26, 32258), (40, 32195), (42, 32171), (44, 32162), (49, 32114), (50, 32099),

Gene: Erik\_37 Start: 28392, Stop: 28120, Start Num: 14  
Candidate Starts for Erik\_37:

(Start: 14 @28392 has 49 MA's), (30, 28326), (48, 28176), (51, 28140),

Gene: Espica\_37 Start: 28395, Stop: 28123, Start Num: 14  
Candidate Starts for Espica\_37:

(Start: 14 @28395 has 49 MA's), (30, 28329), (48, 28179), (51, 28143),

Gene: Expelliarmus\_44 Start: 31203, Stop: 30907, Start Num: 14  
Candidate Starts for Expelliarmus\_44:

(7, 31269), (Start: 14 @31203 has 49 MA's), (Start: 24 @31152 has 3 MA's), (49, 30966),

Gene: Farber\_50 Start: 32301, Stop: 32053, Start Num: 15  
Candidate Starts for Farber\_50:

(Start: 15 @32301 has 80 MA's), (26, 32247), (40, 32184), (42, 32160), (44, 32151), (49, 32103), (50, 32088),

Gene: Fernando\_50 Start: 32308, Stop: 32060, Start Num: 15

Candidate Starts for Fernando\_50:

(Start: 15 @32308 has 80 MA's), (26, 32254), (40, 32191), (42, 32167), (44, 32158), (49, 32110), (50, 32095),

Gene: ForGetIt\_40 Start: 31031, Stop: 30768, Start Num: 21

Candidate Starts for ForGetIt\_40:

(Start: 21 @31031 has 33 MA's), (Start: 24 @31022 has 3 MA's), (26, 31013), (32, 30992), (Start: 35 @30980 has 2 MA's), (41, 30896), (46, 30863), (49, 30830),

Gene: Fred313\_46 Start: 31411, Stop: 31136, Start Num: 18

Candidate Starts for Fred313\_46:

(12, 31432), (Start: 18 @31411 has 32 MA's), (44, 31234), (49, 31186),

Gene: Gemma\_49 Start: 32204, Stop: 31956, Start Num: 15

Candidate Starts for Gemma\_49:

(Start: 15 @32204 has 80 MA's), (26, 32150), (28, 32147), (40, 32087), (42, 32063), (44, 32054), (49, 32006), (50, 31991),

Gene: George\_40 Start: 31255, Stop: 30992, Start Num: 21

Candidate Starts for George\_40:

(Start: 21 @31255 has 33 MA's), (Start: 24 @31246 has 3 MA's), (Start: 35 @31204 has 2 MA's), (37, 31174), (41, 31120), (46, 31087), (49, 31054),

Gene: Ghoulboy\_42 Start: 31768, Stop: 31505, Start Num: 21

Candidate Starts for Ghoulboy\_42:

(Start: 21 @31768 has 33 MA's), (Start: 24 @31759 has 3 MA's), (Start: 35 @31717 has 2 MA's), (37, 31687), (41, 31633), (46, 31600), (49, 31567),

Gene: GingkoMaracino\_50 Start: 32194, Stop: 31946, Start Num: 15

Candidate Starts for GingkoMaracino\_50:

(Start: 15 @32194 has 80 MA's), (26, 32140), (40, 32077), (42, 32053), (44, 32044), (49, 31996), (50, 31981),

Gene: Giroux\_47 Start: 31837, Stop: 31562, Start Num: 18

Candidate Starts for Giroux\_47:

(Start: 18 @31837 has 32 MA's), (44, 31660), (49, 31612),

Gene: Gollum\_37 Start: 28394, Stop: 28122, Start Num: 14

Candidate Starts for Gollum\_37:

(Start: 14 @28394 has 49 MA's), (30, 28328), (48, 28178), (51, 28142),

Gene: Grif\_50 Start: 32383, Stop: 32135, Start Num: 15

Candidate Starts for Grif\_50:

(Start: 15 @32383 has 80 MA's), (26, 32329), (40, 32266), (42, 32242), (44, 32233), (49, 32185), (50, 32170),

Gene: Groundhog\_43 Start: 31110, Stop: 30814, Start Num: 14

Candidate Starts for Groundhog\_43:

(Start: 14 @31110 has 49 MA's), (Start: 18 @31101 has 32 MA's), (Start: 24 @31059 has 3 MA's), (49, 30873),

Gene: Groupthink\_51 Start: 32208, Stop: 31960, Start Num: 15

Candidate Starts for Groupthink\_51:

(Start: 15 @32208 has 80 MA's), (26, 32154), (28, 32151), (40, 32091), (42, 32067), (44, 32058), (49, 32010), (50, 31995),

Gene: Grub\_50 Start: 32300, Stop: 32052, Start Num: 15

Candidate Starts for Grub\_50:

(Start: 15 @32300 has 80 MA's), (26, 32246), (40, 32183), (42, 32159), (44, 32150), (49, 32102), (50, 32087),

Gene: Grum1\_50 Start: 32308, Stop: 32060, Start Num: 15

Candidate Starts for Grum1\_50:

(13, 32317), (Start: 15 @32308 has 80 MA's), (26, 32254), (40, 32191), (42, 32167), (44, 32158), (49, 32110), (50, 32095),

Gene: GtownJaz\_50 Start: 32310, Stop: 32062, Start Num: 15

Candidate Starts for GtownJaz\_50:

(Start: 15 @32310 has 80 MA's), (26, 32256), (40, 32193), (42, 32169), (44, 32160), (49, 32112), (50, 32097),

Gene: HINdeR\_43 Start: 33388, Stop: 33113, Start Num: 14

Candidate Starts for HINdeR\_43:

(Start: 14 @33388 has 49 MA's), (16, 33382), (27, 33331), (29, 33325), (33, 33307), (51, 33136),

Gene: Harlequin\_37 Start: 28399, Stop: 28127, Start Num: 14

Candidate Starts for Harlequin\_37:

(Start: 14 @28399 has 49 MA's), (30, 28333), (48, 28183), (51, 28147),

Gene: HashRod\_51 Start: 32339, Stop: 32091, Start Num: 15

Candidate Starts for HashRod\_51:

(Start: 15 @32339 has 80 MA's), (26, 32285), (40, 32222), (42, 32198), (44, 32189), (49, 32141), (50, 32126),

Gene: HaveUMetTed\_51 Start: 32190, Stop: 31942, Start Num: 15

Candidate Starts for HaveUMetTed\_51:

(Start: 15 @32190 has 80 MA's), (26, 32136), (28, 32133), (40, 32073), (42, 32049), (44, 32040), (49, 31992), (50, 31977),

Gene: Heathen\_46 Start: 31467, Stop: 31192, Start Num: 18

Candidate Starts for Heathen\_46:

(Start: 18 @31467 has 32 MA's), (44, 31290), (49, 31242),

Gene: HelDan\_46 Start: 31719, Stop: 31444, Start Num: 18

Candidate Starts for HelDan\_46:

(Start: 18 @31719 has 32 MA's), (44, 31542), (49, 31494),

Gene: Heliosoles\_49 Start: 32211, Stop: 31963, Start Num: 15

Candidate Starts for Heliosoles\_49:

(Start: 15 @32211 has 80 MA's), (26, 32157), (28, 32154), (40, 32094), (42, 32070), (44, 32061), (49, 32013), (50, 31998),

Gene: Hercules11\_50 Start: 32317, Stop: 32069, Start Num: 15

Candidate Starts for Hercules11\_50:

(Start: 15 @32317 has 80 MA's), (26, 32263), (40, 32200), (42, 32176), (44, 32167), (49, 32119), (50, 32104),

Gene: Hiro\_37 Start: 28654, Stop: 28382, Start Num: 14

Candidate Starts for Hiro\_37:

(Start: 14 @28654 has 49 MA's), (30, 28588), (43, 28483), (48, 28438), (51, 28402),

Gene: Hookmount\_46 Start: 32082, Stop: 31807, Start Num: 18

Candidate Starts for Hookmount\_46:

(4, 32172), (6, 32163), (Start: 18 @32082 has 32 MA's), (44, 31905),

Gene: HuhtaEnerson15\_41 Start: 31246, Stop: 30983, Start Num: 21

Candidate Starts for HuhtaEnerson15\_41:

(Start: 21 @31246 has 33 MA's), (Start: 24 @31237 has 3 MA's), (Start: 35 @31195 has 2 MA's), (37, 31165), (41, 31111), (46, 31078), (49, 31045),

Gene: Idleandcovert\_47 Start: 31838, Stop: 31563, Start Num: 18

Candidate Starts for Idleandcovert\_47:

(Start: 18 @31838 has 32 MA's), (44, 31661), (49, 31613),

Gene: Isca\_45 Start: 31262, Stop: 30987, Start Num: 18

Candidate Starts for Isca\_45:

(6, 31349), (11, 31292), (Start: 18 @31262 has 32 MA's), (37, 31157), (44, 31085), (49, 31037),

Gene: JF2\_46 Start: 31013, Stop: 30738, Start Num: 18

Candidate Starts for JF2\_46:

(6, 31100), (11, 31043), (Start: 18 @31013 has 32 MA's), (37, 30908), (44, 30836), (49, 30788),

Gene: JF4\_46 Start: 31013, Stop: 30738, Start Num: 18

Candidate Starts for JF4\_46:

(6, 31100), (11, 31043), (Start: 18 @31013 has 32 MA's), (37, 30908), (44, 30836), (49, 30788),

Gene: JHC117\_50 Start: 32307, Stop: 32059, Start Num: 15

Candidate Starts for JHC117\_50:

(Start: 15 @32307 has 80 MA's), (26, 32253), (40, 32190), (42, 32166), (44, 32157), (49, 32109), (50, 32094),

Gene: Jabiru\_41 Start: 30865, Stop: 30614, Start Num: 21

Candidate Starts for Jabiru\_41:

(8, 30955), (9, 30943), (Start: 21 @30865 has 33 MA's), (Start: 24 @30856 has 3 MA's), (Start: 35 @30814 has 2 MA's), (37, 30784), (41, 30730), (46, 30697), (49, 30664),

Gene: JenCasNa\_51 Start: 32308, Stop: 32060, Start Num: 15

Candidate Starts for JenCasNa\_51:

(Start: 15 @32308 has 80 MA's), (26, 32254), (40, 32191), (42, 32167), (44, 32158), (49, 32110), (50, 32095),

Gene: JeppNRM\_51 Start: 32209, Stop: 31961, Start Num: 15

Candidate Starts for JeppNRM\_51:

(Start: 15 @32209 has 80 MA's), (26, 32155), (28, 32152), (40, 32092), (42, 32068), (44, 32059), (49, 32011), (50, 31996),

Gene: Jester\_37 Start: 28330, Stop: 28058, Start Num: 14

Candidate Starts for Jester\_37:

(Start: 14 @28330 has 49 MA's), (30, 28264), (48, 28114), (51, 28078),

Gene: Jobu08\_49 Start: 32140, Stop: 31892, Start Num: 15

Candidate Starts for Jobu08\_49:

(Start: 15 @32140 has 80 MA's), (26, 32086), (28, 32083), (40, 32023), (42, 31999), (44, 31990), (49, 31942), (50, 31927),

Gene: Jovo\_40 Start: 31287, Stop: 31024, Start Num: 21

Candidate Starts for Jovo\_40:

(Start: 21 @31287 has 33 MA's), (Start: 24 @31278 has 3 MA's), (26, 31269), (32, 31248), (Start: 35 @31236 has 2 MA's), (41, 31152), (46, 31119), (49, 31086),

Gene: KADY\_50 Start: 32339, Stop: 32091, Start Num: 15

Candidate Starts for KADY\_50:

(Start: 15 @32339 has 80 MA's), (26, 32285), (40, 32222), (42, 32198), (44, 32189), (49, 32141), (50, 32126),

Gene: Kachowdy\_46 Start: 31719, Stop: 31444, Start Num: 18

Candidate Starts for Kachowdy\_46:

(Start: 18 @31719 has 32 MA's), (44, 31542), (49, 31494),

Gene: Kalb97\_51 Start: 32207, Stop: 31959, Start Num: 15

Candidate Starts for Kalb97\_51:

(Start: 15 @32207 has 80 MA's), (26, 32153), (28, 32150), (40, 32090), (42, 32066), (44, 32057), (49, 32009), (50, 31994),

Gene: Kalnoky\_51 Start: 32205, Stop: 31957, Start Num: 15

Candidate Starts for Kalnoky\_51:

(Start: 15 @32205 has 80 MA's), (26, 32151), (28, 32148), (40, 32088), (42, 32064), (44, 32055), (49, 32007), (50, 31992),

Gene: Krishelle\_37 Start: 28678, Stop: 28406, Start Num: 14

Candidate Starts for Krishelle\_37:

(Start: 10 @28711 has 1 MA's), (Start: 14 @28678 has 49 MA's), (34, 28591), (48, 28462), (51, 28426),

Gene: LBerry\_51 Start: 32312, Stop: 32064, Start Num: 15

Candidate Starts for LBerry\_51:

(Start: 15 @32312 has 80 MA's), (26, 32258), (40, 32195), (42, 32171), (44, 32162), (49, 32114), (50, 32099),

Gene: Lambert1\_46 Start: 32081, Stop: 31806, Start Num: 18

Candidate Starts for Lambert1\_46:

(4, 32171), (6, 32162), (Start: 18 @32081 has 32 MA's), (44, 31904),

Gene: LarryKay\_50 Start: 32341, Stop: 32093, Start Num: 15

Candidate Starts for LarryKay\_50:

(Start: 15 @32341 has 80 MA's), (26, 32287), (40, 32224), (42, 32200), (44, 32191), (49, 32143), (50, 32128),

Gene: Lev2\_40 Start: 30919, Stop: 30656, Start Num: 21

Candidate Starts for Lev2\_40:

(Start: 21 @30919 has 33 MA's), (Start: 24 @30910 has 3 MA's), (26, 30901), (32, 30880), (Start: 35 @30868 has 2 MA's), (41, 30784), (46, 30751), (49, 30718),

Gene: Lilith\_51 Start: 32301, Stop: 32053, Start Num: 15

Candidate Starts for Lilith\_51:

(Start: 15 @32301 has 80 MA's), (26, 32247), (40, 32184), (42, 32160), (44, 32151), (49, 32103), (50, 32088),

Gene: Lillie\_37 Start: 28394, Stop: 28122, Start Num: 14

Candidate Starts for Lillie\_37:

(Start: 14 @28394 has 49 MA's), (30, 28328), (48, 28178), (51, 28142),

Gene: LittleCherry\_41 Start: 31256, Stop: 30993, Start Num: 21

Candidate Starts for LittleCherry\_41:

(Start: 21 @31256 has 33 MA's), (Start: 24 @31247 has 3 MA's), (Start: 35 @31205 has 2 MA's), (37, 31175), (41, 31121), (46, 31088), (49, 31055),

Gene: Louie6\_49 Start: 32340, Stop: 32092, Start Num: 15

Candidate Starts for Louie6\_49:

(Start: 15 @32340 has 80 MA's), (26, 32286), (40, 32223), (42, 32199), (44, 32190), (49, 32142), (50, 32127),

Gene: LugYA\_53 Start: 32309, Stop: 32061, Start Num: 15

Candidate Starts for LugYA\_53:

(Start: 15 @32309 has 80 MA's), (26, 32255), (40, 32192), (42, 32168), (44, 32159), (49, 32111), (50, 32096),

Gene: MA5\_46 Start: 31164, Stop: 30889, Start Num: 18

Candidate Starts for MA5\_46:

(3, 31281), (5, 31257), (6, 31251), (8, 31224), (Start: 18 @31164 has 32 MA's), (36, 31074), (44, 30987), (49, 30939),

Gene: MK4\_46 Start: 31247, Stop: 30972, Start Num: 18

Candidate Starts for MK4\_46:

(6, 31334), (11, 31277), (Start: 18 @31247 has 32 MA's), (37, 31142), (44, 31070), (49, 31022),

Gene: MadMarie\_50 Start: 32310, Stop: 32062, Start Num: 15

Candidate Starts for MadMarie\_50:

(Start: 15 @32310 has 80 MA's), (26, 32256), (40, 32193), (42, 32169), (44, 32160), (49, 32112), (50, 32097),

Gene: Mainiac\_50 Start: 32302, Stop: 32054, Start Num: 15

Candidate Starts for Mainiac\_50:

(Start: 15 @32302 has 80 MA's), (26, 32248), (40, 32185), (42, 32161), (44, 32152), (49, 32104), (50, 32089),

Gene: Malinsilva\_52 Start: 32300, Stop: 32052, Start Num: 15

Candidate Starts for Malinsilva\_52:

(Start: 15 @32300 has 80 MA's), (26, 32246), (40, 32183), (42, 32159), (44, 32150), (49, 32102), (50, 32087),

Gene: Manu\_50 Start: 32208, Stop: 31960, Start Num: 15

Candidate Starts for Manu\_50:

(Start: 15 @32208 has 80 MA's), (26, 32154), (28, 32151), (40, 32091), (42, 32067), (44, 32058), (49, 32010), (50, 31995),



Gene: MarQuardt\_50 Start: 32310, Stop: 32062, Start Num: 15

Candidate Starts for MarQuardt\_50:

(Start: 15 @32310 has 80 MA's), (26, 32256), (40, 32193), (42, 32169), (44, 32160), (49, 32112), (50, 32097),

Gene: Marchesa\_46 Start: 31717, Stop: 31442, Start Num: 18

Candidate Starts for Marchesa\_46:

(Start: 18 @31717 has 32 MA's), (44, 31540), (49, 31492),

Gene: Margo\_46 Start: 32107, Stop: 31832, Start Num: 18

Candidate Starts for Margo\_46:

(4, 32197), (6, 32188), (Start: 18 @32107 has 32 MA's), (44, 31930),

Gene: Marie\_50 Start: 32308, Stop: 32060, Start Num: 15

Candidate Starts for Marie\_50:

(Start: 15 @32308 has 80 MA's), (26, 32254), (40, 32191), (42, 32167), (44, 32158), (49, 32110), (50, 32095),

Gene: Marius\_51 Start: 32205, Stop: 31957, Start Num: 15

Candidate Starts for Marius\_51:

(Start: 15 @32205 has 80 MA's), (26, 32151), (28, 32148), (40, 32088), (42, 32064), (44, 32055), (49, 32007), (50, 31992),

Gene: MarysWell\_39 Start: 31119, Stop: 30856, Start Num: 21

Candidate Starts for MarysWell\_39:

(Start: 21 @31119 has 33 MA's), (Start: 24 @31110 has 3 MA's), (26, 31101), (Start: 35 @31068 has 2 MA's), (41, 30984), (46, 30951), (49, 30918),

Gene: Methuselah\_47 Start: 32335, Stop: 32087, Start Num: 15

Candidate Starts for Methuselah\_47:

(Start: 15 @32335 has 80 MA's), (26, 32281), (40, 32218), (42, 32194), (44, 32185), (49, 32137), (50, 32122),

Gene: Micasa\_42 Start: 31386, Stop: 31123, Start Num: 21

Candidate Starts for Micasa\_42:

(Start: 21 @31386 has 33 MA's), (Start: 24 @31377 has 3 MA's), (Start: 35 @31335 has 2 MA's), (37, 31305), (41, 31251), (46, 31218), (49, 31185),

Gene: Microwolf\_50 Start: 32309, Stop: 32061, Start Num: 15

Candidate Starts for Microwolf\_50:

(Start: 15 @32309 has 80 MA's), (26, 32255), (40, 32192), (42, 32168), (44, 32159), (49, 32111), (50, 32096),

Gene: Midas2\_40 Start: 31053, Stop: 30841, Start Num: 35

Candidate Starts for Midas2\_40:

(Start: 21 @31104 has 33 MA's), (Start: 24 @31095 has 3 MA's), (26, 31086), (32, 31065), (Start: 35 @31053 has 2 MA's), (41, 30969), (46, 30936), (49, 30903),

Gene: Milcery\_41 Start: 31223, Stop: 30960, Start Num: 21

Candidate Starts for Milcery\_41:

(Start: 21 @31223 has 33 MA's), (Start: 24 @31214 has 3 MA's), (Start: 35 @31172 has 2 MA's), (37, 31142), (41, 31088), (46, 31055), (49, 31022),

Gene: Misomonster\_51 Start: 32338, Stop: 32090, Start Num: 15  
Candidate Starts for Misomonster\_51:  
(Start: 15 @32338 has 80 MA's), (26, 32284), (40, 32221), (42, 32197), (44, 32188), (49, 32140), (50, 32125),

Gene: MoneyMay\_50 Start: 32308, Stop: 32060, Start Num: 15  
Candidate Starts for MoneyMay\_50:  
(Start: 15 @32308 has 80 MA's), (26, 32254), (40, 32191), (42, 32167), (44, 32158), (49, 32110), (50, 32095),

Gene: MuchMore\_53 Start: 32300, Stop: 32052, Start Num: 15  
Candidate Starts for MuchMore\_53:  
(Start: 15 @32300 has 80 MA's), (26, 32246), (40, 32183), (42, 32159), (44, 32150), (49, 32102), (50, 32087),

Gene: MyraDee\_42 Start: 29297, Stop: 29043, Start Num: 17  
Candidate Starts for MyraDee\_42:  
(Start: 17 @29297 has 1 MA's), (44, 29138), (49, 29090),

Gene: Naca\_42 Start: 31534, Stop: 31271, Start Num: 21  
Candidate Starts for Naca\_42:  
(Start: 21 @31534 has 33 MA's), (Start: 24 @31525 has 3 MA's), (31, 31504), (Start: 35 @31483 has 2 MA's), (46, 31366), (48, 31342),

Gene: Naiad\_37 Start: 28407, Stop: 28135, Start Num: 14  
Candidate Starts for Naiad\_37:  
(Start: 14 @28407 has 49 MA's), (48, 28191), (51, 28155),

Gene: Nancinator\_37 Start: 28395, Stop: 28123, Start Num: 14  
Candidate Starts for Nancinator\_37:  
(Start: 14 @28395 has 49 MA's), (30, 28329), (48, 28179), (51, 28143),

Gene: Natosaleda\_37 Start: 28394, Stop: 28122, Start Num: 14  
Candidate Starts for Natosaleda\_37:  
(Start: 14 @28394 has 49 MA's), (30, 28328), (48, 28178), (51, 28142),

Gene: NearlyHeadless\_44 Start: 30949, Stop: 30662, Start Num: 14  
Candidate Starts for NearlyHeadless\_44:  
(Start: 14 @30949 has 49 MA's), (Start: 18 @30940 has 32 MA's), (Start: 24 @30898 has 3 MA's), (49, 30712),

Gene: Noella\_46 Start: 32082, Stop: 31807, Start Num: 18  
Candidate Starts for Noella\_46:  
(4, 32172), (6, 32163), (Start: 18 @32082 has 32 MA's), (44, 31905),

Gene: Norbert\_45 Start: 32081, Stop: 31806, Start Num: 18  
Candidate Starts for Norbert\_45:  
(4, 32171), (6, 32162), (Start: 18 @32081 has 32 MA's), (44, 31904),

Gene: OlanP\_49 Start: 32378, Stop: 32130, Start Num: 15  
Candidate Starts for OlanP\_49:

(Start: 15 @32378 has 80 MA's), (23, 32336), (26, 32324), (28, 32321), (40, 32261), (42, 32237), (44, 32228), (49, 32180), (50, 32165),

Gene: Ollie\_50 Start: 32179, Stop: 31931, Start Num: 15

Candidate Starts for Ollie\_50:

(Start: 15 @32179 has 80 MA's), (26, 32125), (40, 32062), (42, 32038), (44, 32029), (49, 31981), (50, 31966),

Gene: P28Green\_51 Start: 32311, Stop: 32063, Start Num: 15

Candidate Starts for P28Green\_51:

(Start: 15 @32311 has 80 MA's), (26, 32257), (40, 32194), (42, 32170), (44, 32161), (49, 32113), (50, 32098),

Gene: PGHhamlin\_52 Start: 32300, Stop: 32052, Start Num: 15

Candidate Starts for PGHhamlin\_52:

(Start: 15 @32300 has 80 MA's), (26, 32246), (40, 32183), (42, 32159), (44, 32150), (49, 32102), (50, 32087),

Gene: Panamaxus\_44 Start: 32081, Stop: 31806, Start Num: 18

Candidate Starts for Panamaxus\_44:

(4, 32171), (6, 32162), (Start: 18 @32081 has 32 MA's), (44, 31904),

Gene: Partridge\_37 Start: 28510, Stop: 28205, Start Num: 10

Candidate Starts for Partridge\_37:

(Start: 10 @28510 has 1 MA's), (Start: 14 @28477 has 49 MA's), (34, 28390), (48, 28261), (51, 28225),

Gene: Pawn\_50 Start: 32212, Stop: 31964, Start Num: 15

Candidate Starts for Pawn\_50:

(Start: 15 @32212 has 80 MA's), (26, 32158), (28, 32155), (40, 32095), (42, 32071), (44, 32062), (49, 32014), (50, 31999),

Gene: Pembroke\_50 Start: 32309, Stop: 32061, Start Num: 15

Candidate Starts for Pembroke\_50:

(Start: 15 @32309 has 80 MA's), (26, 32255), (40, 32192), (42, 32168), (44, 32159), (49, 32111), (50, 32096),

Gene: Penny1\_51 Start: 32312, Stop: 32064, Start Num: 15

Candidate Starts for Penny1\_51:

(Start: 15 @32312 has 80 MA's), (19, 32282), (26, 32258), (40, 32195), (42, 32171), (44, 32162), (49, 32114), (50, 32099),

Gene: PetterN\_44 Start: 30975, Stop: 30712, Start Num: 21

Candidate Starts for PetterN\_44:

(9, 31053), (Start: 21 @30975 has 33 MA's), (Start: 24 @30966 has 3 MA's), (31, 30945), (Start: 35 @30924 has 2 MA's), (46, 30807), (48, 30783),

Gene: PhailMary\_36 Start: 28716, Stop: 28444, Start Num: 14

Candidate Starts for PhailMary\_36:

(Start: 14 @28716 has 49 MA's), (30, 28650), (48, 28500), (51, 28464),

Gene: Phantastic\_47 Start: 31457, Stop: 31182, Start Num: 18

Candidate Starts for Phantastic\_47:

(6, 31538), (11, 31481), (Start: 18 @31457 has 32 MA's), (20, 31430), (44, 31280), (49, 31232),

Gene: Phillis\_46 Start: 31492, Stop: 31232, Start Num: 14

Candidate Starts for Phillis\_46:

(Start: 14 @31492 has 49 MA's), (Start: 18 @31483 has 32 MA's), (45, 31330), (49, 31291),

Gene: PhishRPhriends\_48 Start: 31386, Stop: 31138, Start Num: 15

Candidate Starts for PhishRPhriends\_48:

(Start: 15 @31386 has 80 MA's), (26, 31332), (28, 31329), (40, 31269), (42, 31245), (44, 31236), (49, 31188), (50, 31173),

Gene: Phlorence\_39 Start: 30794, Stop: 30531, Start Num: 21

Candidate Starts for Phlorence\_39:

(Start: 21 @30794 has 33 MA's), (Start: 24 @30785 has 3 MA's), (26, 30776), (32, 30755), (Start: 35 @30743 has 2 MA's), (41, 30659), (46, 30626), (49, 30593),

Gene: Phoebe\_51 Start: 32301, Stop: 32053, Start Num: 15

Candidate Starts for Phoebe\_51:

(Start: 15 @32301 has 80 MA's), (26, 32247), (40, 32184), (42, 32160), (44, 32151), (49, 32103), (50, 32088),

Gene: Phoxy\_50 Start: 32336, Stop: 32088, Start Num: 15

Candidate Starts for Phoxy\_50:

(Start: 15 @32336 has 80 MA's), (26, 32282), (40, 32219), (42, 32195), (44, 32186), (49, 32138), (50, 32123),

Gene: Phrankenstein\_37 Start: 28340, Stop: 28068, Start Num: 14

Candidate Starts for Phrankenstein\_37:

(Start: 14 @28340 has 49 MA's), (30, 28274), (48, 28124), (51, 28088),

Gene: Phranny\_51 Start: 32194, Stop: 31946, Start Num: 15

Candidate Starts for Phranny\_51:

(Start: 15 @32194 has 80 MA's), (26, 32140), (28, 32137), (40, 32077), (42, 32053), (44, 32044), (49, 31996), (50, 31981),

Gene: PickleBack\_40 Start: 30920, Stop: 30657, Start Num: 21

Candidate Starts for PickleBack\_40:

(Start: 21 @30920 has 33 MA's), (Start: 24 @30911 has 3 MA's), (26, 30902), (32, 30881), (Start: 35 @30869 has 2 MA's), (41, 30785), (46, 30752), (49, 30719),

Gene: Pistachio\_48 Start: 31385, Stop: 31110, Start Num: 18

Candidate Starts for Pistachio\_48:

(Start: 18 @31385 has 32 MA's), (44, 31208), (49, 31160),

Gene: Pocahontas\_46 Start: 32078, Stop: 31803, Start Num: 18

Candidate Starts for Pocahontas\_46:

(4, 32168), (6, 32159), (Start: 18 @32078 has 32 MA's), (44, 31901),

Gene: Popcicle\_46 Start: 32078, Stop: 31803, Start Num: 18

Candidate Starts for Popcicle\_46:

(4, 32168), (6, 32159), (Start: 18 @32078 has 32 MA's), (44, 31901),

Gene: PotatoSplit\_52 Start: 32312, Stop: 32064, Start Num: 15

Candidate Starts for PotatoSplit\_52:

(Start: 15 @32312 has 80 MA's), (26, 32258), (40, 32195), (42, 32171), (44, 32162), (49, 32114), (50, 32099),

Gene: Puppy\_48 Start: 31458, Stop: 31183, Start Num: 18

Candidate Starts for Puppy\_48:

(Start: 18 @31458 has 32 MA's), (44, 31281), (49, 31233),

Gene: PurpleHaze\_50 Start: 32207, Stop: 31959, Start Num: 15

Candidate Starts for PurpleHaze\_50:

(Start: 15 @32207 has 80 MA's), (26, 32153), (28, 32150), (40, 32090), (42, 32066), (44, 32057), (49, 32009), (50, 31994),

Gene: QuinnKiro\_45 Start: 32081, Stop: 31806, Start Num: 18

Candidate Starts for QuinnKiro\_45:

(4, 32171), (6, 32162), (Start: 18 @32081 has 32 MA's), (44, 31904),

Gene: RER2\_30 Start: 25266, Stop: 24994, Start Num: 14

Candidate Starts for RER2\_30:

(Start: 14 @25266 has 49 MA's), (30, 25200), (48, 25050), (51, 25014),

Gene: RGL3\_32 Start: 26225, Stop: 25980, Start Num: 18

Candidate Starts for RGL3\_32:

(Start: 18 @26225 has 32 MA's), (25, 26183), (48, 26036), (51, 26000), (52, 25991),

Gene: Rasputin\_37 Start: 28364, Stop: 28092, Start Num: 14

Candidate Starts for Rasputin\_37:

(Start: 14 @28364 has 49 MA's), (30, 28298), (48, 28148), (51, 28112),

Gene: Reba\_50 Start: 31867, Stop: 31619, Start Num: 15

Candidate Starts for Reba\_50:

(Start: 15 @31867 has 80 MA's), (26, 31813), (28, 31810), (40, 31750), (42, 31726), (44, 31717), (49, 31669), (50, 31654),

Gene: ResDef\_46 Start: 32081, Stop: 31806, Start Num: 18

Candidate Starts for ResDef\_46:

(4, 32171), (6, 32162), (Start: 18 @32081 has 32 MA's), (44, 31904),

Gene: RexFury\_37 Start: 28425, Stop: 28153, Start Num: 14

Candidate Starts for RexFury\_37:

(Start: 14 @28425 has 49 MA's), (30, 28359), (48, 28209), (51, 28173),

Gene: Rhodalysa\_37 Start: 28394, Stop: 28122, Start Num: 14

Candidate Starts for Rhodalysa\_37:

(Start: 14 @28394 has 49 MA's), (30, 28328), (48, 28178), (51, 28142),

Gene: Roary\_45 Start: 31159, Stop: 30863, Start Num: 14

Candidate Starts for Roary\_45:

(7, 31225), (Start: 14 @31159 has 49 MA's), (Start: 24 @31108 has 3 MA's), (49, 30922),

Gene: Rockstar\_46 Start: 31256, Stop: 30981, Start Num: 18

Candidate Starts for Rockstar\_46:

(6, 31343), (11, 31286), (Start: 18 @31256 has 32 MA's), (37, 31151), (44, 31079), (49, 31031),

Gene: Rummer\_49 Start: 32339, Stop: 32091, Start Num: 15

Candidate Starts for Rummer\_49:

(Start: 15 @32339 has 80 MA's), (26, 32285), (40, 32222), (42, 32198), (44, 32189), (49, 32141), (50, 32126),

Gene: Sabia\_50 Start: 32302, Stop: 32054, Start Num: 15

Candidate Starts for Sabia\_50:

(Start: 15 @32302 has 80 MA's), (26, 32248), (40, 32185), (42, 32161), (44, 32152), (49, 32104), (50, 32089),

Gene: Sabinator\_49 Start: 32307, Stop: 32059, Start Num: 15

Candidate Starts for Sabinator\_49:

(Start: 15 @32307 has 80 MA's), (26, 32253), (40, 32190), (42, 32166), (44, 32157), (49, 32109), (50, 32094),

Gene: Saintus\_39 Start: 27880, Stop: 27593, Start Num: 14

Candidate Starts for Saintus\_39:

(Start: 14 @27880 has 49 MA's), (Start: 18 @27871 has 32 MA's), (Start: 24 @27829 has 3 MA's), (49, 27643),

Gene: SaturnRing\_47 Start: 31838, Stop: 31563, Start Num: 18

Candidate Starts for SaturnRing\_47:

(Start: 18 @31838 has 32 MA's), (44, 31661), (49, 31613),

Gene: Scorpia\_44 Start: 31052, Stop: 30789, Start Num: 21

Candidate Starts for Scorpia\_44:

(9, 31130), (Start: 21 @31052 has 33 MA's), (Start: 24 @31043 has 3 MA's), (31, 31022), (Start: 35 @31001 has 2 MA's), (46, 30884), (48, 30860),

Gene: Scout\_46 Start: 30966, Stop: 30691, Start Num: 18

Candidate Starts for Scout\_46:

(Start: 18 @30966 has 32 MA's), (44, 30789), (49, 30741),

Gene: Shuman\_37 Start: 28407, Stop: 28135, Start Num: 14

Candidate Starts for Shuman\_37:

(Start: 14 @28407 has 49 MA's), (30, 28341), (48, 28191), (51, 28155),

Gene: Smeadley\_45 Start: 31325, Stop: 31029, Start Num: 14

Candidate Starts for Smeadley\_45:

(7, 31391), (Start: 14 @31325 has 49 MA's), (Start: 24 @31274 has 3 MA's), (49, 31088),

Gene: Snickers\_50 Start: 32282, Stop: 32034, Start Num: 15

Candidate Starts for Snickers\_50:

(Start: 15 @32282 has 80 MA's), (26, 32228), (40, 32165), (42, 32141), (44, 32132), (49, 32084), (50, 32069),

Gene: SoYo\_50 Start: 32220, Stop: 31972, Start Num: 15

Candidate Starts for SoYo\_50:

(Start: 15 @32220 has 80 MA's), (26, 32166), (40, 32103), (42, 32079), (44, 32070), (49, 32022), (50, 32007),

Gene: SoilDragon\_50 Start: 31756, Stop: 31508, Start Num: 15

Candidate Starts for SoilDragon\_50:

(Start: 15 @31756 has 80 MA's), (26, 31702), (28, 31699), (40, 31639), (42, 31615), (44, 31606), (49, 31558), (50, 31543),

Gene: Soshari\_52 Start: 32335, Stop: 32087, Start Num: 15

Candidate Starts for Soshari\_52:

(Start: 15 @32335 has 80 MA's), (26, 32281), (40, 32218), (42, 32194), (44, 32185), (49, 32137), (50, 32122),

Gene: Spike509\_50 Start: 32336, Stop: 32088, Start Num: 15

Candidate Starts for Spike509\_50:

(Start: 15 @32336 has 80 MA's), (26, 32282), (40, 32219), (42, 32195), (44, 32186), (49, 32138), (50, 32123),

Gene: StCroix\_37 Start: 28407, Stop: 28135, Start Num: 14

Candidate Starts for StCroix\_37:

(Start: 14 @28407 has 49 MA's), (48, 28191), (51, 28155),

Gene: Stagni\_50 Start: 32311, Stop: 32063, Start Num: 15

Candidate Starts for Stagni\_50:

(Start: 15 @32311 has 80 MA's), (26, 32257), (40, 32194), (42, 32170), (44, 32161), (49, 32113), (50, 32098),

Gene: StepMih\_50 Start: 32302, Stop: 32054, Start Num: 15

Candidate Starts for StepMih\_50:

(Start: 15 @32302 has 80 MA's), (26, 32248), (40, 32185), (42, 32161), (44, 32152), (49, 32104), (50, 32089),

Gene: Stephig9\_45 Start: 31163, Stop: 30888, Start Num: 14

Candidate Starts for Stephig9\_45:

(7, 31229), (Start: 14 @31163 has 49 MA's), (Start: 18 @31154 has 32 MA's), (22, 31118), (45, 30986), (47, 30965),

Gene: Swann\_37 Start: 28394, Stop: 28122, Start Num: 14

Candidate Starts for Swann\_37:

(Start: 14 @28394 has 49 MA's), (30, 28328), (48, 28178), (51, 28142),

Gene: Swirley\_43 Start: 31587, Stop: 31324, Start Num: 21

Candidate Starts for Swirley\_43:

(Start: 21 @31587 has 33 MA's), (Start: 24 @31578 has 3 MA's), (Start: 35 @31536 has 2 MA's), (37, 31506), (41, 31452), (46, 31419), (49, 31386),

Gene: SydNat\_42 Start: 31777, Stop: 31514, Start Num: 21

Candidate Starts for SydNat\_42:

(Start: 21 @31777 has 33 MA's), (Start: 24 @31768 has 3 MA's), (Start: 35 @31726 has 2 MA's), (37, 31696), (41, 31642), (46, 31609), (49, 31576),

Gene: TNguyen7\_47 Start: 31805, Stop: 31530, Start Num: 18

Candidate Starts for TNguyen7\_47:

(Start: 18 @31805 has 32 MA's), (44, 31628), (49, 31580),

Gene: TWAMP\_37 Start: 28394, Stop: 28122, Start Num: 14

Candidate Starts for TWAMP\_37:

(Start: 14 @28394 has 49 MA's), (30, 28328), (48, 28178), (51, 28142),

Gene: Takoda\_37 Start: 28367, Stop: 28095, Start Num: 14

Candidate Starts for Takoda\_37:

(Start: 14 @28367 has 49 MA's), (30, 28301), (48, 28151), (51, 28115),

Gene: Tarynearal\_39 Start: 31029, Stop: 30766, Start Num: 21

Candidate Starts for Tarynearal\_39:

(Start: 21 @31029 has 33 MA's), (Start: 24 @31020 has 3 MA's), (Start: 35 @30978 has 2 MA's), (37, 30948), (41, 30894), (46, 30861), (49, 30828),

Gene: Taurus\_51 Start: 32308, Stop: 32060, Start Num: 15

Candidate Starts for Taurus\_51:

(Start: 15 @32308 has 80 MA's), (26, 32254), (40, 32191), (42, 32167), (44, 32158), (49, 32110), (50, 32095),

Gene: Texage\_45 Start: 32082, Stop: 31807, Start Num: 18

Candidate Starts for Texage\_45:

(4, 32172), (6, 32163), (Start: 18 @32082 has 32 MA's), (44, 31905),

Gene: Theia\_38 Start: 31043, Stop: 30789, Start Num: 24

Candidate Starts for Theia\_38:

(Start: 21 @31052 has 33 MA's), (Start: 24 @31043 has 3 MA's), (26, 31034), (32, 31013), (Start: 35 @31001 has 2 MA's), (41, 30917), (46, 30884), (49, 30851),

Gene: Tiffany\_50 Start: 32194, Stop: 31946, Start Num: 15

Candidate Starts for Tiffany\_50:

(Start: 15 @32194 has 80 MA's), (26, 32140), (40, 32077), (42, 32053), (44, 32044), (49, 31996), (50, 31981),

Gene: Tiger\_39 Start: 30576, Stop: 30322, Start Num: 24

Candidate Starts for Tiger\_39:

(Start: 21 @30585 has 33 MA's), (Start: 24 @30576 has 3 MA's), (26, 30567), (32, 30546), (Start: 35 @30534 has 2 MA's), (41, 30450), (46, 30417), (49, 30384),

Gene: Timshel\_45 Start: 33822, Stop: 33541, Start Num: 14

Candidate Starts for Timshel\_45:

(1, 33957), (Start: 14 @33822 has 49 MA's), (29, 33759), (38, 33702), (40, 33672), (51, 33564),

Gene: Todacoro\_46 Start: 32081, Stop: 31806, Start Num: 18

Candidate Starts for Todacoro\_46:

(4, 32171), (6, 32162), (Start: 18 @32081 has 32 MA's), (44, 31904),

Gene: Twigg\_41 Start: 31175, Stop: 30963, Start Num: 35

Candidate Starts for Twigg\_41:

(Start: 21 @31226 has 33 MA's), (Start: 24 @31217 has 3 MA's), (26, 31208), (32, 31187), (Start: 35 @31175 has 2 MA's), (41, 31091), (46, 31058), (49, 31025),

Gene: UhSalsa\_37 Start: 28395, Stop: 28123, Start Num: 14

Candidate Starts for UhSalsa\_37:

(Start: 14 @28395 has 49 MA's), (30, 28329), (48, 28179), (51, 28143),

Gene: UnionJack\_41 Start: 30553, Stop: 30302, Start Num: 21



Candidate Starts for UnionJack\_41:

(8, 30643), (9, 30631), (Start: 21 @30553 has 33 MA's), (Start: 24 @30544 has 3 MA's), (Start: 35 @30502 has 2 MA's), (37, 30472), (41, 30418), (46, 30385), (49, 30352),

Gene: Veracruz\_45 Start: 32081, Stop: 31806, Start Num: 18

Candidate Starts for Veracruz\_45:

(4, 32171), (6, 32162), (Start: 18 @32081 has 32 MA's), (44, 31904),

Gene: Vix\_50 Start: 32391, Stop: 32143, Start Num: 15

Candidate Starts for Vix\_50:

(Start: 15 @32391 has 80 MA's), (26, 32337), (40, 32274), (42, 32250), (44, 32241), (49, 32193), (50, 32178),

Gene: Watson\_50 Start: 32300, Stop: 32052, Start Num: 15

Candidate Starts for Watson\_50:

(Start: 15 @32300 has 80 MA's), (26, 32246), (40, 32183), (42, 32159), (44, 32150), (49, 32102), (50, 32087),

Gene: Wooldri\_52 Start: 32220, Stop: 31972, Start Num: 15

Candidate Starts for Wooldri\_52:

(Start: 15 @32220 has 80 MA's), (26, 32166), (40, 32103), (42, 32079), (44, 32070), (49, 32022), (50, 32007),

Gene: Yogi\_37 Start: 28368, Stop: 28096, Start Num: 14

Candidate Starts for Yogi\_37:

(Start: 14 @28368 has 49 MA's), (30, 28302), (48, 28152), (51, 28116),

Gene: Yoncess\_37 Start: 28369, Stop: 28097, Start Num: 14

Candidate Starts for Yoncess\_37:

(Start: 14 @28369 has 49 MA's), (30, 28303), (48, 28153), (51, 28117),

Gene: Zetzy\_49 Start: 31871, Stop: 31623, Start Num: 15

Candidate Starts for Zetzy\_49:

(Start: 15 @31871 has 80 MA's), (26, 31817), (36, 31784), (40, 31754), (42, 31730), (44, 31721), (49, 31673), (50, 31658),

Gene: Zolita\_41 Start: 31781, Stop: 31518, Start Num: 21

Candidate Starts for Zolita\_41:

(Start: 21 @31781 has 33 MA's), (Start: 24 @31772 has 3 MA's), (Start: 35 @31730 has 2 MA's), (37, 31700), (41, 31646), (46, 31613), (49, 31580),