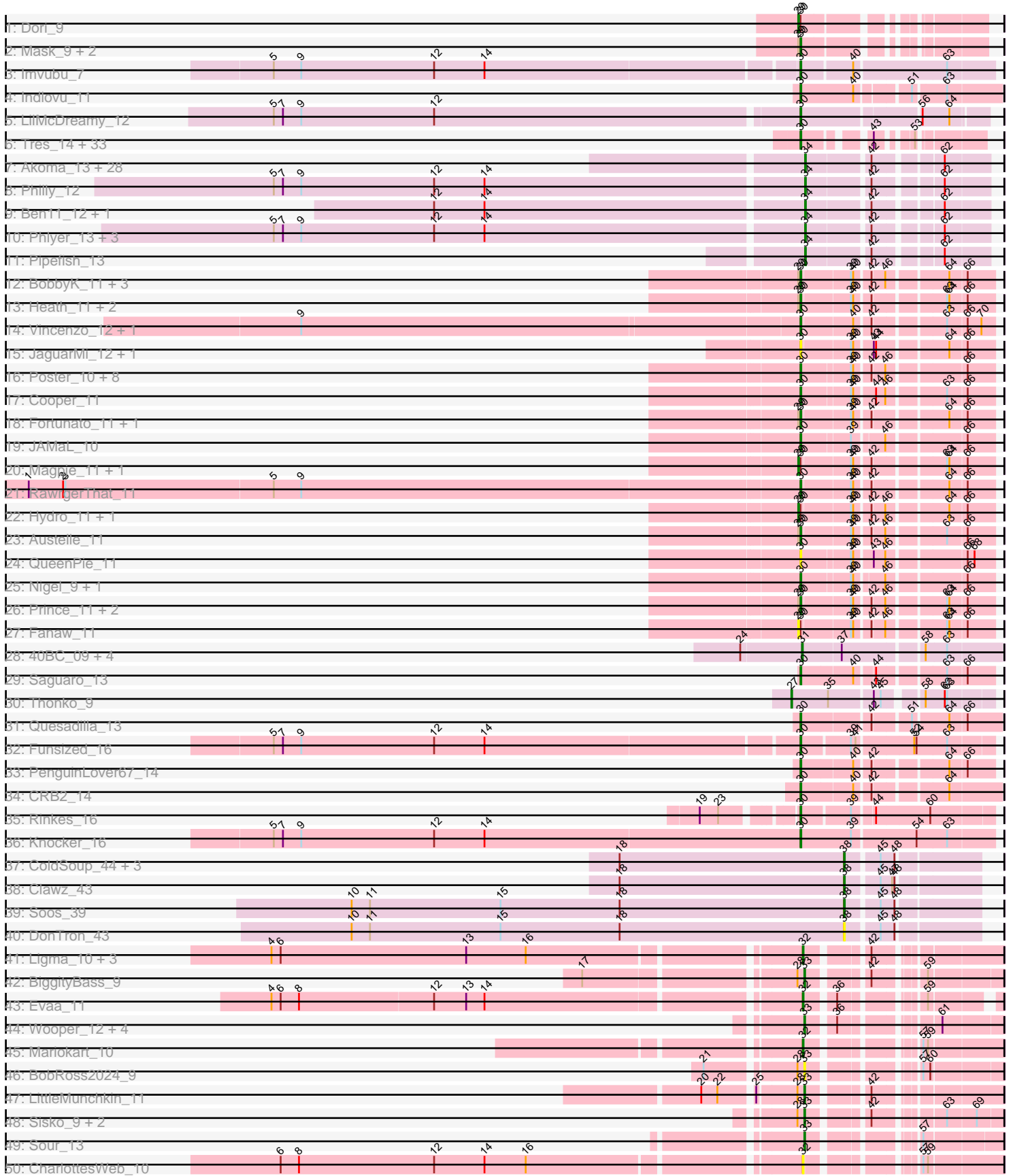
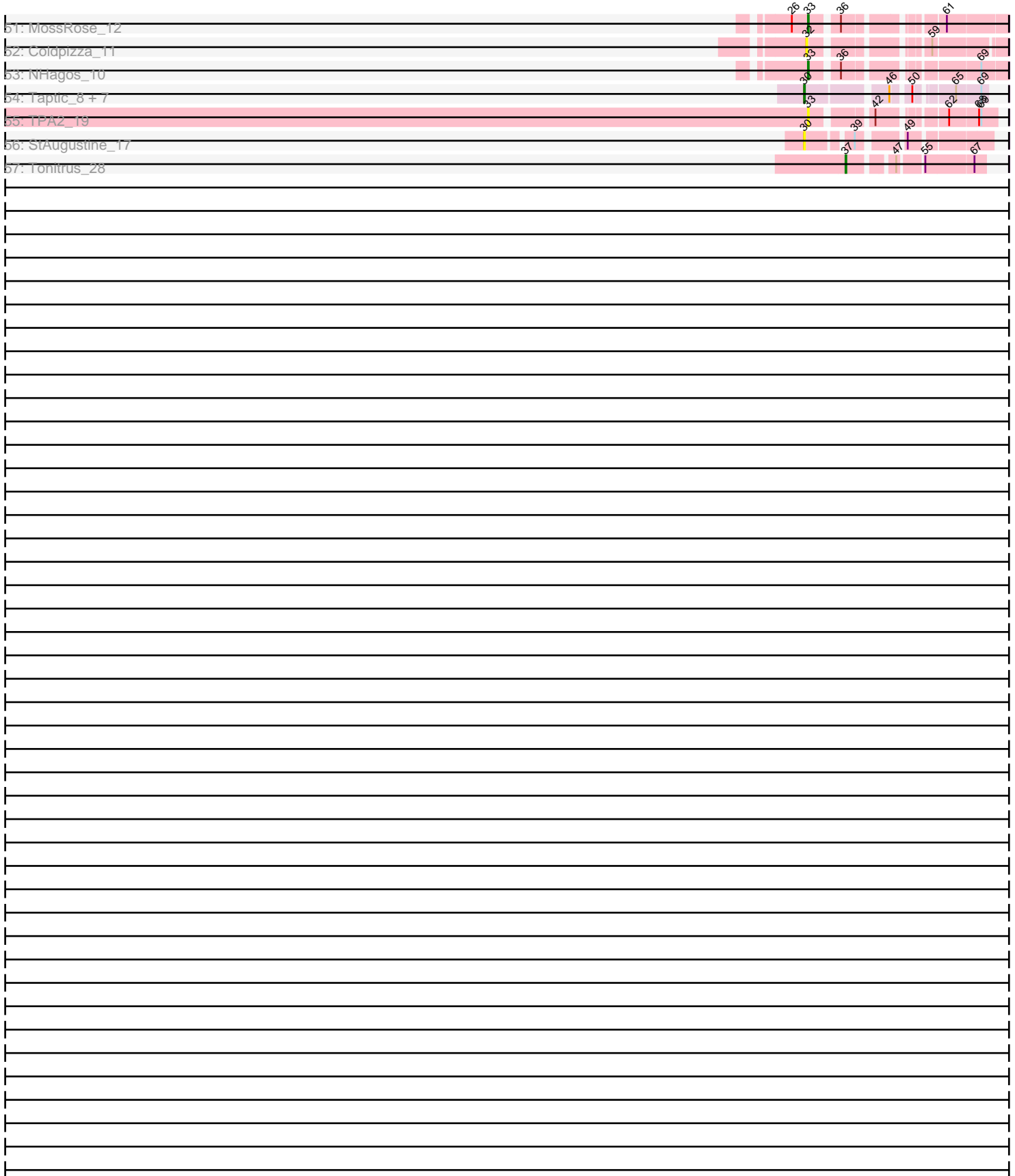


Pham 193779



Pham 193779



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 193779 Report

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

Pham number 193779 has 168 members, 30 are drafts.

Phages represented in each track:

- Track 1 : Dori\_9
- Track 2 : Mask\_9, Mao1\_8, Sejanus\_9
- Track 3 : Imvubu\_7
- Track 4 : Indlovu\_11
- Track 5 : LilMcDreamy\_12
- Track 6 : Tres\_14, Brownie5\_14, Arbiter\_14, LizLemon\_14, Kheth\_14, Hedgerow\_14, Rhinoforte\_14, Opia\_14, Ares\_14, Rosebush\_14, Eaglehorse\_14, Glass\_14, Godines\_14, ItsyBitsy1\_14, Allegro\_14, Laurie\_14, Faze9\_14, MasterPo\_14, Lephleur\_14, FrenchFry\_14, Bananafish\_14, Vic9\_15, TA17A\_14, Calamitous\_14, West99\_14, Tinciduntolum\_15, Blocker23\_14, Lars\_14, Holeinone\_14, Kaleb\_14, Phantasmagoria\_14, Boyle\_14, Sabella\_14, Coffee\_14
- Track 7 : Akoma\_13, OrangeOswald\_13, HarveySr\_13, Jackstina\_12, Neos5\_13, Yinz\_13, Tydolla\_13, SynergyX\_13, LestyG\_13, Briakila\_13, Corofin\_13, Gadget\_14, Baloo\_13, Kronus\_12, Devonte\_13, Deenasa\_13, Audrey\_13, SlippinJimmy\_13, Mortcellus\_12, Halfpint\_12, Phayeta\_13, Phaedrus\_12, Casbah\_12, Athena\_14, Kamiyu\_13, Nozo\_13, RagingRooster\_13, MmasiCarm\_13, ChaChing\_13
- Track 8 : Philly\_12
- Track 9 : Ben11\_12, Abinghost\_13
- Track 10 : Phlyer\_13, Heathcliff\_13, GlenHope\_14, Bernardo\_13
- Track 11 : Pipefish\_13
- Track 12 : BobbyK\_11, Hangman\_11, Waleliano\_11, VioletZ\_11
- Track 13 : Heath\_11, Apex\_10, Lolalove\_11
- Track 14 : Vincenzo\_12, AlanGrant\_12
- Track 15 : JaguarMi\_12, Xincheng\_11
- Track 16 : Poster\_10, Lambano\_10, Antihero\_10, Epah\_10, ChrisnMich\_10, Hally898\_10, GinPorsche\_10, Nanao\_10, Ahwei\_10
- Track 17 : Cooper\_11
- Track 18 : Fortunato\_11, Frederick\_11
- Track 19 : JAMaL\_10
- Track 20 : Magpie\_11, BrownCNA\_12
- Track 21 : RawrgerThat\_11
- Track 22 : Hydro\_11, Zemanar\_12
- Track 23 : Austelle\_11
- Track 24 : QueenPie\_11
- Track 25 : Nigel\_9, Stinger\_9
- Track 26 : Prince\_11, Mudslide\_11, Mithril\_11
- Track 27 : Fanaw\_11

- Track 28 : 40BC\_09, Jolie1\_09, 39HC\_09, KayaCho\_9, Hosp\_07
- Track 29 : Saguario\_13
- Track 30 : Thonko\_9
- Track 31 : Quesadilla\_13
- Track 32 : Funsized\_16
- Track 33 : PenguinLover67\_14
- Track 34 : CRB2\_14
- Track 35 : Rinkes\_16
- Track 36 : Knocker\_16
- Track 37 : ColdSoup\_44, Jollymon\_44, Sting\_42, KingstonB\_43
- Track 38 : Clawz\_43
- Track 39 : Soos\_39
- Track 40 : DonTron\_43
- Track 41 : Ligma\_10, Axumite\_10, Shatter\_10, Fresco\_10
- Track 42 : BiggityBass\_9
- Track 43 : Evaa\_11
- Track 44 : Wooper\_12, MakoManhole\_12, CaiB\_12, CloverMinnie\_12, AnarQue\_12
- Track 45 : Mariokart\_10
- Track 46 : BobRoss2024\_9
- Track 47 : LittleMunchkin\_11
- Track 48 : Sisko\_9, Yago84\_9, AnClar\_9
- Track 49 : Sour\_13
- Track 50 : CharlottesWeb\_10
- Track 51 : MossRose\_12
- Track 52 : Coldpizza\_11
- Track 53 : NHagos\_10
- Track 54 : Taptic\_8, PR\_08, Argie\_9, D12\_08, Megabear\_8, GodPhather\_9, Jeon\_8, Cepens\_8
- Track 55 : TPA2\_19
- Track 56 : StAugustine\_17
- Track 57 : Tonitrus\_28

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

The start number called the most often in the published annotations is 30, it was called in 73 of the 138 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Ahwei\_10, AlanGrant\_12, Allegro\_14, Antihero\_10, Apex\_10, Arbiter\_14, Ares\_14, Argie\_9, Austelle\_11, Bananafish\_14, Blocker23\_14, BobbyK\_11, Boyle\_14, Brownie5\_14, CRB2\_14, Calamitous\_14, Cepens\_8, ChrisnMich\_10, Coffee\_14, Cooper\_11, D12\_08, Eaglehorse\_14, Epah\_10, Faze9\_14, Fortunato\_11, Frederick\_11, FrenchFry\_14, Funsized\_16, GinPorsche\_10, Glass\_14, GodPhather\_9, Godines\_14, Hally898\_10, Hangman\_11, Heath\_11, Hedgerow\_14, Holeinone\_14, Imvubu\_7, Indlovu\_11, ItsyBitsy1\_14, JAMaL\_10, JaguarMi\_12, Jeon\_8, Kaleb\_14, Kheth\_14, Knocker\_16, Lambano\_10, Lars\_14, Laurie\_14, Lephleur\_14, LilMcDreamy\_12, LizLemon\_14, Lolalove\_11, Mao1\_8, Mask\_9, MasterPo\_14, Megabear\_8, Mithril\_11, Mudslide\_11, Nanao\_10, Nigel\_9, Opia\_14, PR\_08, PenguinLover67\_14, Phantasmagoria\_14, Poster\_10, Prince\_11, QueenPie\_11, Quesadilla\_13, RawrgerThat\_11, Rhinoforte\_14, Rinkes\_16,

Rosebush\_14, Sabella\_14, Saguaro\_13, Sejanus\_9, StAugustine\_17, Stinger\_9, TA17A\_14, Taptic\_8, Tinciduntolum\_15, Tres\_14, Vic9\_15, Vincenzo\_12, VioletZ\_11, Waleliano\_11, West99\_14, Xincheng\_11,

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

- BrownCNA\_12, Dori\_9, Fanaw\_11, Hydro\_11, Magpie\_11, Zemanar\_12,

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

- 39HC\_09, 40BC\_09, Abinghost\_13, Akoma\_13, AnClar\_9, AnarQue\_12, Athena\_14, Audrey\_13, Axumite\_10, Baloo\_13, Ben11\_12, Bernardo\_13, BiggityBass\_9, BobRoss2024\_9, Briakila\_13, CaiB\_12, Casbah\_12, ChaChing\_13, CharlottesWeb\_10, Clawz\_43, CloverMinnie\_12, ColdSoup\_44, Coldpizza\_11, Corofin\_13, Deenasa\_13, Devonte\_13, DonTron\_43, Evaa\_11, Fresco\_10, Gadget\_14, GlenHope\_14, Halfpint\_12, HarveySr\_13, Heathcliff\_13, Hosp\_07, Jackstina\_12, Jolie1\_09, Jollymon\_44, Kamiyu\_13, KayaCho\_9, KingstonB\_43, Kronus\_12, LestyG\_13, Ligma\_10, LittleMunchkin\_11, MakoManhole\_12, Mariokart\_10, MmasiCarm\_13, Mortcellus\_12, MossRose\_12, NHagos\_10, Neos5\_13, Nozo\_13, OrangeOswald\_13, Phaedrus\_12, Phayeta\_13, Philly\_12, Phlyer\_13, Pipefish\_13, RagingRooster\_13, Shatter\_10, Sisko\_9, SlippinJimmy\_13, Soos\_39, Sour\_13, Sting\_42, SynergyX\_13, TPA2\_19, Thonko\_9, Tonitrus\_28, Tydolla\_13, Wooper\_12, Yago84\_9, Yinz\_13,

### Summary by start number:

Start 27:

- Found in 1 of 168 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 138
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Thonko\_9 (B8),

Start 29:

- Found in 22 of 168 ( 13.1% ) of genes in pham
- Manual Annotations of this start: 5 of 138
- Called 27.3% of time when present
- Phage (with cluster) where this start called: BrownCNA\_12 (B4), Dori\_9 (AD), Fanaw\_11 (B4), Hydro\_11 (B4), Magpie\_11 (B4), Zemanar\_12 (B4),

Start 30:

- Found in 94 of 168 ( 56.0% ) of genes in pham
- Manual Annotations of this start: 73 of 138
- Called 93.6% of time when present
- Phage (with cluster) where this start called: Ahwei\_10 (B4), AlanGrant\_12 (B4), Allegro\_14 (B2), Antihero\_10 (B4), Apex\_10 (B4), Arbiter\_14 (B2), Ares\_14 (B2), Argie\_9 (W), Austelle\_11 (B4), Bananafish\_14 (B2), Blocker23\_14 (B2), BobbyK\_11 (B4), Boyle\_14 (B2), Brownie5\_14 (B2), CRB2\_14 (B9), Calamitous\_14 (B2), Cepens\_8 (W), ChrisnMich\_10 (B4), Coffee\_14 (B2), Cooper\_11 (B4), D12\_08 (W), Eaglehorse\_14 (B2), Epah\_10 (B4), Faze9\_14 (B2), Fortunato\_11 (B4), Frederick\_11 (B4), FrenchFry\_14 (B2), Funsized\_16 (B9), GinPorsche\_10 (B4), Glass\_14 (B2), GodPhather\_9 (W), Godines\_14 (B2), Hally898\_10 (B4), Hangman\_11 (B4), Heath\_11 (B4), Hedgerow\_14 (B2), Holeinone\_14 (B2), Imvubu\_7 (B10), Indlovu\_11 (B11), ItsyBitsy1\_14 (B2), JAMaL\_10 (B4), JaguarMi\_12 (B4), Jeon\_8 (W), Kaleb\_14 (B2), Kheth\_14 (B2), Knocker\_16 (B9), Lambano\_10 (B4), Lars\_14 (B2), Laurie\_14 (B2), Lephleur\_14 (B2), LilMcDreamy\_12 (B12), LizLemon\_14 (B2), Lolalove\_11

(B4), Mao1\_8 (AD), Mask\_9 (AD), MasterPo\_14 (B2), Megabear\_8 (W), Mithril\_11 (B4), Mudslide\_11 (B4), Nanao\_10 (B4), Nigel\_9 (B4), Opia\_14 (B2), PR\_08 (W), PenguinLover67\_14 (B9), Phantasmagoria\_14 (B2), Poster\_10 (B4), Prince\_11 (B4), QueenPie\_11 (B4), Quesadilla\_13 (B9), RawrgerThat\_11 (B4), Rhinoforte\_14 (B2), Rinkes\_16 (B9), Rosebush\_14 (B2), Sabella\_14 (B2), Saguaro\_13 (B7), Sejanus\_9 (AD), StAugustine\_17 (singleton), Stinger\_9 (B4), TA17A\_14 (B2), Taptic\_8 (W), Tinciduntolum\_15 (B2), Tres\_14 (B2), Vic9\_15 (B2), Vincenzo\_12 (B4), VioletZ\_11 (B4), Waleliano\_11 (B4), West99\_14 (B2), Xincheng\_11 (B4),

#### Start 31:

- Found in 5 of 168 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 1 of 138
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 39HC\_09 (B6), 40BC\_09 (B6), Hosp\_07 (B6), Jolie1\_09 (B6), KayaCho\_9 (B6),

#### Start 32:

- Found in 8 of 168 ( 4.8% ) of genes in pham
- Manual Annotations of this start: 6 of 138
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Axumite\_10 (DR), CharlottesWeb\_10 (DR), Coldpizza\_11 (DR), Evaa\_11 (DR), Fresco\_10 (DR), Ligma\_10 (DR), Mariokart\_10 (DR), Shatter\_10 (DR),

#### Start 33:

- Found in 15 of 168 ( 8.9% ) of genes in pham
- Manual Annotations of this start: 13 of 138
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AnClar\_9 (DR), AnarQue\_12 (DR), BiggityBass\_9 (DR), BobRoss2024\_9 (DR), CaiB\_12 (DR), CloverMinnie\_12 (DR), LittleMunchkin\_11 (DR), MakoManhole\_12 (DR), MossRose\_12 (DR), NHagos\_10 (DR), Sisko\_9 (DR), Sour\_13 (DR), TPA2\_19 (singleton), Wooper\_12 (DR), Yago84\_9 (DR),

#### Start 34:

- Found in 37 of 168 ( 22.0% ) of genes in pham
- Manual Annotations of this start: 35 of 138
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abinghost\_13 (B3), Akoma\_13 (B3), Athena\_14 (B3), Audrey\_13 (B3), Baloo\_13 (B3), Ben11\_12 (B3), Bernardo\_13 (B3), Briakila\_13 (B3), Casbah\_12 (B3), ChaChing\_13 (B3), Corofin\_13 (B3), Deenasa\_13 (B3), Devonte\_13 (B3), Gadget\_14 (B3), GlenHope\_14 (B3), Halfpint\_12 (B3), HarveySr\_13 (B3), Heathcliff\_13 (B3), Jackstina\_12 (B3), Kamiyu\_13 (B3), Kronus\_12 (B3), LestyG\_13 (B3), MmasiCarm\_13 (B3), Mortcellus\_12 (B3), Neos5\_13 (B3), Nozo\_13 (B3), OrangeOswald\_13 (B3), Phaedrus\_12 (B3), Phayeta\_13 (B3), Philly\_12 (B3), Phlyer\_13 (B3), Pipefish\_13 (B3), RagingRooster\_13 (B3), SlippinJimmy\_13 (B3), SynergyX\_13 (B3), Tydolla\_13 (B3), Yinz\_13 (B3),

#### Start 37:

- Found in 6 of 168 ( 3.6% ) of genes in pham
- Manual Annotations of this start: 1 of 138
- Called 16.7% of time when present

- Phage (with cluster) where this start called: Tonitrus\_28 (singleton),

Start 38:

- Found in 7 of 168 ( 4.2% ) of genes in pham
- Manual Annotations of this start: 3 of 138
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Clawz\_43 (CP), ColdSoup\_44 (CP), DonTron\_43 (CP), Jollymon\_44 (CP), KingstonB\_43 (CP), Soos\_39 (CP), Sting\_42 (CP),

### **Summary by clusters:**

There are 15 clusters represented in this pham: singleton, B2, B10, B8, B11, B4, B6, B7, B12, W, B3, CP, DR, B9, AD,

Info for manual annotations of cluster AD:

- Start number 29 was manually annotated 1 time for cluster AD.
- Start number 30 was manually annotated 3 times for cluster AD.

Info for manual annotations of cluster B10:

- Start number 30 was manually annotated 1 time for cluster B10.

Info for manual annotations of cluster B11:

- Start number 30 was manually annotated 1 time for cluster B11.

Info for manual annotations of cluster B12:

- Start number 30 was manually annotated 1 time for cluster B12.

Info for manual annotations of cluster B2:

- Start number 30 was manually annotated 31 times for cluster B2.

Info for manual annotations of cluster B3:

- Start number 34 was manually annotated 35 times for cluster B3.

Info for manual annotations of cluster B4:

- Start number 29 was manually annotated 4 times for cluster B4.
- Start number 30 was manually annotated 21 times for cluster B4.

Info for manual annotations of cluster B6:

- Start number 31 was manually annotated 1 time for cluster B6.

Info for manual annotations of cluster B7:

- Start number 30 was manually annotated 1 time for cluster B7.

Info for manual annotations of cluster B8:

- Start number 27 was manually annotated 1 time for cluster B8.

Info for manual annotations of cluster B9:

- Start number 30 was manually annotated 6 times for cluster B9.

Info for manual annotations of cluster CP:

- Start number 38 was manually annotated 3 times for cluster CP.

Info for manual annotations of cluster DR:

- Start number 32 was manually annotated 6 times for cluster DR.
- Start number 33 was manually annotated 13 times for cluster DR.

Info for manual annotations of cluster W:

- Start number 30 was manually annotated 8 times for cluster W.

**Gene Information:**

Gene: 39HC\_09 Start: 9546, Stop: 9785, Start Num: 31

Candidate Starts for 39HC\_09:

(24, 9468), (Start: 31 @9546 has 1 MA's), (Start: 37 @9594 has 1 MA's), (58, 9690), (63, 9717),

Gene: 40BC\_09 Start: 9546, Stop: 9785, Start Num: 31

Candidate Starts for 40BC\_09:

(24, 9468), (Start: 31 @9546 has 1 MA's), (Start: 37 @9594 has 1 MA's), (58, 9690), (63, 9717),

Gene: Abinghost\_13 Start: 10640, Stop: 10846, Start Num: 34

Candidate Starts for Abinghost\_13:

(12, 10166), (14, 10232), (Start: 34 @10640 has 35 MA's), (42, 10715), (62, 10790),

Gene: Ahwei\_10 Start: 10039, Stop: 10260, Start Num: 30

Candidate Starts for Ahwei\_10:

(Start: 30 @10039 has 73 MA's), (39, 10099), (40, 10102), (42, 10120), (46, 10135), (66, 10225),

Gene: Akoma\_13 Start: 10640, Stop: 10846, Start Num: 34

Candidate Starts for Akoma\_13:

(Start: 34 @10640 has 35 MA's), (42, 10715), (62, 10790),

Gene: AlanGrant\_12 Start: 11855, Stop: 12076, Start Num: 30

Candidate Starts for AlanGrant\_12:

(9, 11213), (Start: 30 @11855 has 73 MA's), (40, 11918), (42, 11936), (63, 12017), (66, 12041), (70, 12059),

Gene: Allegro\_14 Start: 12064, Stop: 12237, Start Num: 30

Candidate Starts for Allegro\_14:

(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: AnClar\_9 Start: 9843, Stop: 10046, Start Num: 33

Candidate Starts for AnClar\_9:

(28, 9834), (Start: 33 @9843 has 13 MA's), (42, 9906), (63, 9978), (69, 10014),

Gene: AnarQue\_12 Start: 11030, Stop: 11233, Start Num: 33

Candidate Starts for AnarQue\_12:

(Start: 33 @11030 has 13 MA's), (36, 11060), (61, 11159),

Gene: Antihero\_10 Start: 10039, Stop: 10260, Start Num: 30

Candidate Starts for Antihero\_10:

(Start: 30 @10039 has 73 MA's), (39, 10099), (40, 10102), (42, 10120), (46, 10135), (66, 10225),

Gene: Apex\_10 Start: 10688, Stop: 10909, Start Num: 30



Candidate Starts for Apex\_10:

(Start: 29 @10685 has 5 MA's), (Start: 30 @10688 has 73 MA's), (39, 10748), (40, 10751), (42, 10769), (63, 10850), (64, 10853), (66, 10874),

Gene: Arbiter\_14 Start: 12154, Stop: 12327, Start Num: 30

Candidate Starts for Arbiter\_14:

(Start: 30 @12154 has 73 MA's), (43, 12220), (53, 12253),

Gene: Ares\_14 Start: 12064, Stop: 12237, Start Num: 30

Candidate Starts for Ares\_14:

(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: Argie\_9 Start: 10545, Stop: 10733, Start Num: 30

Candidate Starts for Argie\_9:

(Start: 30 @10545 has 73 MA's), (46, 10638), (50, 10656), (65, 10695), (69, 10725),

Gene: Athena\_14 Start: 11403, Stop: 11609, Start Num: 34

Candidate Starts for Athena\_14:

(Start: 34 @11403 has 35 MA's), (42, 11478), (62, 11553),

Gene: Audrey\_13 Start: 10640, Stop: 10846, Start Num: 34

Candidate Starts for Audrey\_13:

(Start: 34 @10640 has 35 MA's), (42, 10715), (62, 10790),

Gene: Austelle\_11 Start: 11144, Stop: 11365, Start Num: 30

Candidate Starts for Austelle\_11:

(Start: 29 @11141 has 5 MA's), (Start: 30 @11144 has 73 MA's), (39, 11204), (40, 11207), (42, 11225), (46, 11240), (63, 11306), (66, 11330),

Gene: Axumite\_10 Start: 9533, Stop: 9739, Start Num: 32

Candidate Starts for Axumite\_10:

(4, 8870), (6, 8882), (13, 9125), (16, 9203), (Start: 32 @9533 has 6 MA's), (42, 9596),

Gene: Baloo\_13 Start: 10640, Stop: 10846, Start Num: 34

Candidate Starts for Baloo\_13:

(Start: 34 @10640 has 35 MA's), (42, 10715), (62, 10790),

Gene: Bananafish\_14 Start: 12064, Stop: 12237, Start Num: 30

Candidate Starts for Bananafish\_14:

(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: Ben11\_12 Start: 10488, Stop: 10694, Start Num: 34

Candidate Starts for Ben11\_12:

(12, 10014), (14, 10080), (Start: 34 @10488 has 35 MA's), (42, 10563), (62, 10638),

Gene: Bernardo\_13 Start: 10662, Stop: 10868, Start Num: 34

Candidate Starts for Bernardo\_13:

(5, 9978), (7, 9990), (9, 10014), (12, 10188), (14, 10254), (Start: 34 @10662 has 35 MA's), (42, 10737), (62, 10812),

Gene: BiggityBass\_9 Start: 9351, Stop: 9554, Start Num: 33

Candidate Starts for BiggityBass\_9:

(17, 9090), (28, 9342), (Start: 33 @9351 has 13 MA's), (42, 9414), (59, 9465),

Gene: Blocker23\_14 Start: 12181, Stop: 12354, Start Num: 30

Candidate Starts for Blocker23\_14:

(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: BobRoss2024\_9 Start: 9382, Stop: 9585, Start Num: 33

Candidate Starts for BobRoss2024\_9:

(21, 9268), (28, 9373), (Start: 33 @9382 has 13 MA's), (57, 9490), (60, 9499),

Gene: BobbyK\_11 Start: 11141, Stop: 11362, Start Num: 30

Candidate Starts for BobbyK\_11:

(Start: 29 @11138 has 5 MA's), (Start: 30 @11141 has 73 MA's), (39, 11201), (40, 11204), (42, 11222), (46, 11237), (64, 11306), (66, 11327),

Gene: Boyle\_14 Start: 12181, Stop: 12354, Start Num: 30

Candidate Starts for Boyle\_14:

(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: Briakila\_13 Start: 11429, Stop: 11635, Start Num: 34

Candidate Starts for Briakila\_13:

(Start: 34 @11429 has 35 MA's), (42, 11504), (62, 11579),

Gene: BrownCNA\_12 Start: 11392, Stop: 11616, Start Num: 29

Candidate Starts for BrownCNA\_12:

(Start: 29 @11392 has 5 MA's), (Start: 30 @11395 has 73 MA's), (39, 11455), (40, 11458), (42, 11476), (63, 11557), (64, 11560), (66, 11581),

Gene: Brownie5\_14 Start: 12181, Stop: 12354, Start Num: 30

Candidate Starts for Brownie5\_14:

(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: CRB2\_14 Start: 11939, Stop: 12169, Start Num: 30

Candidate Starts for CRB2\_14:

(Start: 30 @11939 has 73 MA's), (40, 12002), (42, 12020), (64, 12104),

Gene: CaiB\_12 Start: 11030, Stop: 11233, Start Num: 33

Candidate Starts for CaiB\_12:

(Start: 33 @11030 has 13 MA's), (36, 11060), (61, 11159),

Gene: Calamitous\_14 Start: 12064, Stop: 12237, Start Num: 30

Candidate Starts for Calamitous\_14:

(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: Casbah\_12 Start: 10492, Stop: 10698, Start Num: 34

Candidate Starts for Casbah\_12:

(Start: 34 @10492 has 35 MA's), (42, 10567), (62, 10642),

Gene: Cepens\_8 Start: 10284, Stop: 10472, Start Num: 30

Candidate Starts for Cepens\_8:

(Start: 30 @10284 has 73 MA's), (46, 10377), (50, 10395), (65, 10434), (69, 10464),

Gene: ChaChing\_13 Start: 10655, Stop: 10861, Start Num: 34

Candidate Starts for ChaChing\_13:

(Start: 34 @10655 has 35 MA's), (42, 10730), (62, 10805),

Gene: CharlottesWeb\_10 Start: 9585, Stop: 9791, Start Num: 32

Candidate Starts for CharlottesWeb\_10:

(6, 8934), (8, 8958), (12, 9135), (14, 9201), (16, 9255), (Start: 32 @9585 has 6 MA's), (57, 9693), (59, 9699),

Gene: ChrisnMich\_10 Start: 10039, Stop: 10260, Start Num: 30

Candidate Starts for ChrisnMich\_10:

(Start: 30 @10039 has 73 MA's), (39, 10099), (40, 10102), (42, 10120), (46, 10135), (66, 10225),

Gene: Clawz\_43 Start: 22851, Stop: 23009, Start Num: 38

Candidate Starts for Clawz\_43:

(18, 22557), (Start: 38 @22851 has 3 MA's), (45, 22890), (47, 22905), (48, 22908),

Gene: CloverMinnie\_12 Start: 11030, Stop: 11233, Start Num: 33

Candidate Starts for CloverMinnie\_12:

(Start: 33 @11030 has 13 MA's), (36, 11060), (61, 11159),

Gene: Coffee\_14 Start: 12181, Stop: 12354, Start Num: 30

Candidate Starts for Coffee\_14:

(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: ColdSoup\_44 Start: 22933, Stop: 23091, Start Num: 38

Candidate Starts for ColdSoup\_44:

(18, 22639), (Start: 38 @22933 has 3 MA's), (45, 22972), (48, 22990),

Gene: Coldpizza\_11 Start: 11468, Stop: 11665, Start Num: 32

Candidate Starts for Coldpizza\_11:

(Start: 32 @11468 has 6 MA's), (59, 11582),

Gene: Cooper\_11 Start: 10112, Stop: 10336, Start Num: 30

Candidate Starts for Cooper\_11:

(Start: 30 @10112 has 73 MA's), (39, 10172), (40, 10175), (44, 10199), (46, 10211), (63, 10277), (66, 10301),

Gene: Corofin\_13 Start: 10665, Stop: 10871, Start Num: 34

Candidate Starts for Corofin\_13:

(Start: 34 @10665 has 35 MA's), (42, 10740), (62, 10815),

Gene: D12\_08 Start: 10239, Stop: 10427, Start Num: 30

Candidate Starts for D12\_08:

(Start: 30 @10239 has 73 MA's), (46, 10332), (50, 10350), (65, 10389), (69, 10419),

Gene: Deenasa\_13 Start: 11403, Stop: 11609, Start Num: 34

Candidate Starts for Deenasa\_13:

(Start: 34 @11403 has 35 MA's), (42, 11478), (62, 11553),

Gene: Devonte\_13 Start: 10640, Stop: 10846, Start Num: 34

Candidate Starts for Devonte\_13:

(Start: 34 @10640 has 35 MA's), (42, 10715), (62, 10790),

Gene: DonTron\_43 Start: 23003, Stop: 23161, Start Num: 38

Candidate Starts for DonTron\_43:

(10, 22358), (11, 22382), (15, 22553), (18, 22709), (Start: 38 @23003 has 3 MA's), (45, 23042), (48, 23060),

Gene: Dori\_9 Start: 8150, Stop: 8341, Start Num: 29

Candidate Starts for Dori\_9:

(Start: 29 @8150 has 5 MA's), (Start: 30 @8153 has 73 MA's),

Gene: Eaglehorse\_14 Start: 12082, Stop: 12255, Start Num: 30

Candidate Starts for Eaglehorse\_14:

(Start: 30 @12082 has 73 MA's), (43, 12148), (53, 12181),

Gene: Epah\_10 Start: 10039, Stop: 10260, Start Num: 30

Candidate Starts for Epah\_10:

(Start: 30 @10039 has 73 MA's), (39, 10099), (40, 10102), (42, 10120), (46, 10135), (66, 10225),

Gene: Evaa\_11 Start: 10856, Stop: 11044, Start Num: 32

Candidate Starts for Evaa\_11:

(4, 10193), (6, 10205), (8, 10229), (12, 10403), (13, 10445), (14, 10469), (Start: 32 @10856 has 6 MA's), (36, 10886), (59, 10970),

Gene: Fanaw\_11 Start: 11141, Stop: 11365, Start Num: 29

Candidate Starts for Fanaw\_11:

(Start: 29 @11141 has 5 MA's), (Start: 30 @11144 has 73 MA's), (39, 11204), (40, 11207), (42, 11225), (46, 11240), (63, 11306), (64, 11309), (66, 11330),

Gene: Faze9\_14 Start: 12181, Stop: 12354, Start Num: 30

Candidate Starts for Faze9\_14:

(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: Fortunato\_11 Start: 11135, Stop: 11356, Start Num: 30

Candidate Starts for Fortunato\_11:

(Start: 29 @11132 has 5 MA's), (Start: 30 @11135 has 73 MA's), (39, 11195), (40, 11198), (42, 11216), (64, 11300), (66, 11321),

Gene: Frederick\_11 Start: 11144, Stop: 11365, Start Num: 30

Candidate Starts for Frederick\_11:

(Start: 29 @11141 has 5 MA's), (Start: 30 @11144 has 73 MA's), (39, 11204), (40, 11207), (42, 11225), (64, 11309), (66, 11330),

Gene: FrenchFry\_14 Start: 12181, Stop: 12354, Start Num: 30

Candidate Starts for FrenchFry\_14:

(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: Fresco\_10 Start: 9533, Stop: 9739, Start Num: 32

Candidate Starts for Fresco\_10:

(4, 8870), (6, 8882), (13, 9125), (16, 9203), (Start: 32 @9533 has 6 MA's), (42, 9596),

Gene: Funsized\_16 Start: 13096, Stop: 13326, Start Num: 30

Candidate Starts for Funsized\_16:

(5, 12424), (7, 12436), (9, 12460), (12, 12634), (14, 12700), (Start: 30 @13096 has 73 MA's), (39, 13156), (41, 13162), (52, 13228), (54, 13231), (63, 13270),

Gene: Gadget\_14 Start: 10644, Stop: 10850, Start Num: 34

Candidate Starts for Gadget\_14:

(Start: 34 @10644 has 35 MA's), (42, 10719), (62, 10794),

Gene: GinPorsche\_10 Start: 10039, Stop: 10260, Start Num: 30

Candidate Starts for GinPorsche\_10:

(Start: 30 @10039 has 73 MA's), (39, 10099), (40, 10102), (42, 10120), (46, 10135), (66, 10225),

Gene: Glass\_14 Start: 12181, Stop: 12354, Start Num: 30

Candidate Starts for Glass\_14:

(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: GlenHope\_14 Start: 10654, Stop: 10860, Start Num: 34

Candidate Starts for GlenHope\_14:

(5, 9970), (7, 9982), (9, 10006), (12, 10180), (14, 10246), (Start: 34 @10654 has 35 MA's), (42, 10729), (62, 10804),

Gene: GodPhather\_9 Start: 10542, Stop: 10730, Start Num: 30

Candidate Starts for GodPhather\_9:

(Start: 30 @10542 has 73 MA's), (46, 10635), (50, 10653), (65, 10692), (69, 10722),

Gene: Godines\_14 Start: 12064, Stop: 12237, Start Num: 30

Candidate Starts for Godines\_14:

(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: Halfpint\_12 Start: 10489, Stop: 10695, Start Num: 34

Candidate Starts for Halfpint\_12:

(Start: 34 @10489 has 35 MA's), (42, 10564), (62, 10639),

Gene: Hally898\_10 Start: 10039, Stop: 10260, Start Num: 30

Candidate Starts for Hally898\_10:

(Start: 30 @10039 has 73 MA's), (39, 10099), (40, 10102), (42, 10120), (46, 10135), (66, 10225),

Gene: Hangman\_11 Start: 11144, Stop: 11365, Start Num: 30

Candidate Starts for Hangman\_11:

(Start: 29 @11141 has 5 MA's), (Start: 30 @11144 has 73 MA's), (39, 11204), (40, 11207), (42, 11225), (46, 11240), (64, 11309), (66, 11330),

Gene: HarveySr\_13 Start: 10641, Stop: 10847, Start Num: 34

Candidate Starts for HarveySr\_13:

(Start: 34 @10641 has 35 MA's), (42, 10716), (62, 10791),

Gene: Heath\_11 Start: 11144, Stop: 11365, Start Num: 30

Candidate Starts for Heath\_11:

(Start: 29 @11141 has 5 MA's), (Start: 30 @11144 has 73 MA's), (39, 11204), (40, 11207), (42, 11225), (63, 11306), (64, 11309), (66, 11330),

Gene: Heathcliff\_13 Start: 10626, Stop: 10832, Start Num: 34

Candidate Starts for Heathcliff\_13:

(5, 9942), (7, 9954), (9, 9978), (12, 10152), (14, 10218), (Start: 34 @10626 has 35 MA's), (42, 10701), (62, 10776),

Gene: Hedgerow\_14 Start: 12163, Stop: 12336, Start Num: 30

Candidate Starts for Hedgerow\_14:

(Start: 30 @12163 has 73 MA's), (43, 12229), (53, 12262),

Gene: Holeinone\_14 Start: 12063, Stop: 12236, Start Num: 30

Candidate Starts for Holeinone\_14:

(Start: 30 @12063 has 73 MA's), (43, 12129), (53, 12162),

Gene: Hosp\_07 Start: 7748, Stop: 7987, Start Num: 31

Candidate Starts for Hosp\_07:

(24, 7670), (Start: 31 @7748 has 1 MA's), (Start: 37 @7796 has 1 MA's), (58, 7892), (63, 7919),

Gene: Hydro\_11 Start: 11138, Stop: 11362, Start Num: 29

Candidate Starts for Hydro\_11:

(Start: 29 @11138 has 5 MA's), (Start: 30 @11141 has 73 MA's), (39, 11201), (40, 11204), (42, 11222), (46, 11237), (64, 11306), (66, 11327),

Gene: Imvubu\_7 Start: 7957, Stop: 8193, Start Num: 30

Candidate Starts for Imvubu\_7:

(5, 7288), (9, 7324), (12, 7498), (14, 7564), (Start: 30 @7957 has 73 MA's), (40, 8020), (63, 8134),

Gene: Indlovu\_11 Start: 10773, Stop: 11009, Start Num: 30

Candidate Starts for Indlovu\_11:

(Start: 30 @10773 has 73 MA's), (40, 10842), (51, 10902), (63, 10941),

Gene: ItsyBitsy1\_14 Start: 12055, Stop: 12228, Start Num: 30

Candidate Starts for ItsyBitsy1\_14:

(Start: 30 @12055 has 73 MA's), (43, 12121), (53, 12154),

Gene: JAMaL\_10 Start: 10664, Stop: 10885, Start Num: 30

Candidate Starts for JAMaL\_10:

(Start: 30 @10664 has 73 MA's), (39, 10724), (46, 10760), (66, 10850),

Gene: Jackstina\_12 Start: 10557, Stop: 10763, Start Num: 34

Candidate Starts for Jackstina\_12:

(Start: 34 @10557 has 35 MA's), (42, 10632), (62, 10707),

Gene: JaguarMi\_12 Start: 10965, Stop: 11189, Start Num: 30

Candidate Starts for JaguarMi\_12:

(Start: 30 @10965 has 73 MA's), (39, 11025), (40, 11028), (43, 11049), (44, 11052), (64, 11133), (66, 11154),

Gene: Jeon\_8 Start: 10272, Stop: 10460, Start Num: 30

Candidate Starts for Jeon\_8:

(Start: 30 @10272 has 73 MA's), (46, 10365), (50, 10383), (65, 10422), (69, 10452),

Gene: Jolie1\_09 Start: 9546, Stop: 9785, Start Num: 31

Candidate Starts for Jolie1\_09:

(24, 9468), (Start: 31 @9546 has 1 MA's), (Start: 37 @9594 has 1 MA's), (58, 9690), (63, 9717),

Gene: Jollymon\_44 Start: 22933, Stop: 23091, Start Num: 38

Candidate Starts for Jollymon\_44:

(18, 22639), (Start: 38 @22933 has 3 MA's), (45, 22972), (48, 22990),

Gene: Kaleb\_14 Start: 12181, Stop: 12354, Start Num: 30

Candidate Starts for Kaleb\_14:

(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: Kamiyu\_13 Start: 10635, Stop: 10841, Start Num: 34

Candidate Starts for Kamiyu\_13:

(Start: 34 @10635 has 35 MA's), (42, 10710), (62, 10785),

Gene: KayaCho\_9 Start: 9549, Stop: 9788, Start Num: 31

Candidate Starts for KayaCho\_9:

(24, 9471), (Start: 31 @9549 has 1 MA's), (Start: 37 @9597 has 1 MA's), (58, 9693), (63, 9720),

Gene: Kheth\_14 Start: 12064, Stop: 12237, Start Num: 30

Candidate Starts for Kheth\_14:

(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: KingstonB\_43 Start: 22441, Stop: 22599, Start Num: 38

Candidate Starts for KingstonB\_43:

(18, 22147), (Start: 38 @22441 has 3 MA's), (45, 22480), (48, 22498),

Gene: Knocker\_16 Start: 13569, Stop: 13811, Start Num: 30

Candidate Starts for Knocker\_16:

(5, 12882), (7, 12894), (9, 12918), (12, 13092), (14, 13158), (Start: 30 @13569 has 73 MA's), (39, 13635), (54, 13713), (63, 13752),

Gene: Kronus\_12 Start: 11247, Stop: 11453, Start Num: 34

Candidate Starts for Kronus\_12:

(Start: 34 @11247 has 35 MA's), (42, 11322), (62, 11397),

Gene: Lambano\_10 Start: 10039, Stop: 10260, Start Num: 30

Candidate Starts for Lambano\_10:

(Start: 30 @10039 has 73 MA's), (39, 10099), (40, 10102), (42, 10120), (46, 10135), (66, 10225),

Gene: Lars\_14 Start: 12181, Stop: 12354, Start Num: 30

Candidate Starts for Lars\_14:

(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: Laurie\_14 Start: 12065, Stop: 12238, Start Num: 30

Candidate Starts for Laurie\_14:

(Start: 30 @12065 has 73 MA's), (43, 12131), (53, 12164),

Gene: Lephleur\_14 Start: 12064, Stop: 12237, Start Num: 30

Candidate Starts for Lephleur\_14:

(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: LestyG\_13 Start: 10644, Stop: 10850, Start Num: 34

Candidate Starts for LestyG\_13:

(Start: 34 @10644 has 35 MA's), (42, 10719), (62, 10794),

Gene: Ligma\_10 Start: 9533, Stop: 9739, Start Num: 32

Candidate Starts for Ligma\_10:

(4, 8870), (6, 8882), (13, 9125), (16, 9203), (Start: 32 @9533 has 6 MA's), (42, 9596),

Gene: LilMcDreamy\_12 Start: 11806, Stop: 12027, Start Num: 30  
Candidate Starts for LilMcDreamy\_12:  
(5, 11131), (7, 11143), (9, 11167), (12, 11341), (Start: 30 @11806 has 73 MA's), (56, 11950), (64, 11983),

Gene: LittleMunchkin\_11 Start: 10824, Stop: 11030, Start Num: 33  
Candidate Starts for LittleMunchkin\_11:  
(20, 10707), (22, 10728), (25, 10767), (28, 10815), (Start: 33 @10824 has 13 MA's), (42, 10887),

Gene: LizLemon\_14 Start: 12181, Stop: 12354, Start Num: 30  
Candidate Starts for LizLemon\_14:  
(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: Lolalove\_11 Start: 11141, Stop: 11362, Start Num: 30  
Candidate Starts for Lolalove\_11:  
(Start: 29 @11138 has 5 MA's), (Start: 30 @11141 has 73 MA's), (39, 11201), (40, 11204), (42, 11222), (63, 11303), (64, 11306), (66, 11327),

Gene: Magpie\_11 Start: 11296, Stop: 11520, Start Num: 29  
Candidate Starts for Magpie\_11:  
(Start: 29 @11296 has 5 MA's), (Start: 30 @11299 has 73 MA's), (39, 11359), (40, 11362), (42, 11380), (63, 11461), (64, 11464), (66, 11485),

Gene: MakoManhole\_12 Start: 11030, Stop: 11233, Start Num: 33  
Candidate Starts for MakoManhole\_12:  
(Start: 33 @11030 has 13 MA's), (36, 11060), (61, 11159),

Gene: Mao1\_8 Start: 8549, Stop: 8737, Start Num: 30  
Candidate Starts for Mao1\_8:  
(Start: 29 @8546 has 5 MA's), (Start: 30 @8549 has 73 MA's),

Gene: Mariokart\_10 Start: 9585, Stop: 9791, Start Num: 32  
Candidate Starts for Mariokart\_10:  
(Start: 32 @9585 has 6 MA's), (57, 9693), (59, 9699),

Gene: Mask\_9 Start: 8550, Stop: 8738, Start Num: 30  
Candidate Starts for Mask\_9:  
(Start: 29 @8547 has 5 MA's), (Start: 30 @8550 has 73 MA's),

Gene: MasterPo\_14 Start: 12064, Stop: 12237, Start Num: 30  
Candidate Starts for MasterPo\_14:  
(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: Megabear\_8 Start: 10239, Stop: 10427, Start Num: 30  
Candidate Starts for Megabear\_8:  
(Start: 30 @10239 has 73 MA's), (46, 10332), (50, 10350), (65, 10389), (69, 10419),

Gene: Mithril\_11 Start: 11144, Stop: 11365, Start Num: 30  
Candidate Starts for Mithril\_11:  
(Start: 29 @11141 has 5 MA's), (Start: 30 @11144 has 73 MA's), (39, 11204), (40, 11207), (42, 11225), (46, 11240), (63, 11306), (64, 11309), (66, 11330),

Gene: MmasiCarm\_13 Start: 10640, Stop: 10846, Start Num: 34



Candidate Starts for MmasiCarm\_13:  
(Start: 34 @10640 has 35 MA's), (42, 10715), (62, 10790),

Gene: Mortcellus\_12 Start: 11278, Stop: 11484, Start Num: 34  
Candidate Starts for Mortcellus\_12:  
(Start: 34 @11278 has 35 MA's), (42, 11353), (62, 11428),

Gene: MossRose\_12 Start: 11030, Stop: 11233, Start Num: 33  
Candidate Starts for MossRose\_12:  
(26, 11009), (Start: 33 @11030 has 13 MA's), (36, 11060), (61, 11159),

Gene: Mudslide\_11 Start: 11392, Stop: 11613, Start Num: 30  
Candidate Starts for Mudslide\_11:  
(Start: 29 @11389 has 5 MA's), (Start: 30 @11392 has 73 MA's), (39, 11452), (40, 11455), (42, 11473), (46, 11488), (63, 11554), (64, 11557), (66, 11578),

Gene: NHagos\_10 Start: 9514, Stop: 9717, Start Num: 33  
Candidate Starts for NHagos\_10:  
(Start: 33 @9514 has 13 MA's), (36, 9544), (69, 9685),

Gene: Nanao\_10 Start: 10039, Stop: 10260, Start Num: 30  
Candidate Starts for Nanao\_10:  
(Start: 30 @10039 has 73 MA's), (39, 10099), (40, 10102), (42, 10120), (46, 10135), (66, 10225),

Gene: Neos5\_13 Start: 11430, Stop: 11636, Start Num: 34  
Candidate Starts for Neos5\_13:  
(Start: 34 @11430 has 35 MA's), (42, 11505), (62, 11580),

Gene: Nigel\_9 Start: 9942, Stop: 10163, Start Num: 30  
Candidate Starts for Nigel\_9:  
(Start: 30 @9942 has 73 MA's), (39, 10002), (40, 10005), (46, 10038), (66, 10128),

Gene: Nozo\_13 Start: 11405, Stop: 11611, Start Num: 34  
Candidate Starts for Nozo\_13:  
(Start: 34 @11405 has 35 MA's), (42, 11480), (62, 11555),

Gene: Opia\_14 Start: 12064, Stop: 12237, Start Num: 30  
Candidate Starts for Opia\_14:  
(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: OrangeOswald\_13 Start: 10640, Stop: 10846, Start Num: 34  
Candidate Starts for OrangeOswald\_13:  
(Start: 34 @10640 has 35 MA's), (42, 10715), (62, 10790),

Gene: PR\_08 Start: 10239, Stop: 10427, Start Num: 30  
Candidate Starts for PR\_08:  
(Start: 30 @10239 has 73 MA's), (46, 10332), (50, 10350), (65, 10389), (69, 10419),

Gene: PenguinLover67\_14 Start: 11948, Stop: 12169, Start Num: 30  
Candidate Starts for PenguinLover67\_14:  
(Start: 30 @11948 has 73 MA's), (40, 12011), (42, 12029), (64, 12113), (66, 12134),

Gene: Phaedrus\_12 Start: 10557, Stop: 10763, Start Num: 34

Candidate Starts for Phaedrus\_12:  
(Start: 34 @10557 has 35 MA's), (42, 10632), (62, 10707),

Gene: Phantasmagoria\_14 Start: 12064, Stop: 12237, Start Num: 30  
Candidate Starts for Phantasmagoria\_14:  
(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: Phayeta\_13 Start: 10516, Stop: 10722, Start Num: 34  
Candidate Starts for Phayeta\_13:  
(Start: 34 @10516 has 35 MA's), (42, 10591), (62, 10666),

Gene: Philly\_12 Start: 10530, Stop: 10736, Start Num: 34  
Candidate Starts for Philly\_12:  
(5, 9846), (7, 9858), (9, 9882), (12, 10056), (14, 10122), (Start: 34 @10530 has 35 MA's), (42, 10605),  
(62, 10680),

Gene: Phlyer\_13 Start: 11397, Stop: 11603, Start Num: 34  
Candidate Starts for Phlyer\_13:  
(5, 10713), (7, 10725), (9, 10749), (12, 10923), (14, 10989), (Start: 34 @11397 has 35 MA's), (42,  
11472), (62, 11547),

Gene: Pipefish\_13 Start: 11526, Stop: 11732, Start Num: 34  
Candidate Starts for Pipefish\_13:  
(Start: 34 @11526 has 35 MA's), (42, 11601), (62, 11676),

Gene: Poster\_10 Start: 10039, Stop: 10260, Start Num: 30  
Candidate Starts for Poster\_10:  
(Start: 30 @10039 has 73 MA's), (39, 10099), (40, 10102), (42, 10120), (46, 10135), (66, 10225),

Gene: Prince\_11 Start: 11304, Stop: 11525, Start Num: 30  
Candidate Starts for Prince\_11:  
(Start: 29 @11301 has 5 MA's), (Start: 30 @11304 has 73 MA's), (39, 11364), (40, 11367), (42,  
11385), (46, 11400), (63, 11466), (64, 11469), (66, 11490),

Gene: QueenPie\_11 Start: 10997, Stop: 11221, Start Num: 30  
Candidate Starts for QueenPie\_11:  
(Start: 30 @10997 has 73 MA's), (39, 11057), (40, 11060), (43, 11081), (46, 11096), (66, 11186), (68,  
11195),

Gene: Quesadilla\_13 Start: 11758, Stop: 11988, Start Num: 30  
Candidate Starts for Quesadilla\_13:  
(Start: 30 @11758 has 73 MA's), (42, 11839), (51, 11881), (64, 11923), (66, 11944),

Gene: RagingRooster\_13 Start: 10641, Stop: 10847, Start Num: 34  
Candidate Starts for RagingRooster\_13:  
(Start: 34 @10641 has 35 MA's), (42, 10716), (62, 10791),

Gene: RawrgerThat\_11 Start: 11135, Stop: 11356, Start Num: 30  
Candidate Starts for RawrgerThat\_11:  
(1, 10139), (2, 10184), (3, 10187), (5, 10457), (9, 10493), (Start: 30 @11135 has 73 MA's), (39,  
11195), (40, 11198), (42, 11216), (64, 11300), (66, 11321),

Gene: Rhinoforte\_14 Start: 12181, Stop: 12354, Start Num: 30

Candidate Starts for Rhinoforte\_14:  
(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: Rinkes\_16 Start: 13061, Stop: 13291, Start Num: 30  
Candidate Starts for Rinkes\_16:  
(19, 12956), (23, 12980), (Start: 30 @13061 has 73 MA's), (39, 13121), (44, 13145), (60, 13214),

Gene: Rosebush\_14 Start: 12181, Stop: 12354, Start Num: 30  
Candidate Starts for Rosebush\_14:  
(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: Sabella\_14 Start: 12064, Stop: 12237, Start Num: 30  
Candidate Starts for Sabella\_14:  
(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: Saguaro\_13 Start: 12000, Stop: 12221, Start Num: 30  
Candidate Starts for Saguaro\_13:  
(Start: 30 @12000 has 73 MA's), (40, 12063), (44, 12084), (63, 12162), (66, 12186),

Gene: Sejanus\_9 Start: 9366, Stop: 9554, Start Num: 30  
Candidate Starts for Sejanus\_9:  
(Start: 29 @9363 has 5 MA's), (Start: 30 @9366 has 73 MA's),

Gene: Shatter\_10 Start: 9533, Stop: 9739, Start Num: 32  
Candidate Starts for Shatter\_10:  
(4, 8870), (6, 8882), (13, 9125), (16, 9203), (Start: 32 @9533 has 6 MA's), (42, 9596),

Gene: Sisko\_9 Start: 9345, Stop: 9548, Start Num: 33  
Candidate Starts for Sisko\_9:  
(28, 9336), (Start: 33 @9345 has 13 MA's), (42, 9408), (63, 9480), (69, 9516),

Gene: SlippinJimmy\_13 Start: 11402, Stop: 11608, Start Num: 34  
Candidate Starts for SlippinJimmy\_13:  
(Start: 34 @11402 has 35 MA's), (42, 11477), (62, 11552),

Gene: Soos\_39 Start: 22170, Stop: 22328, Start Num: 38  
Candidate Starts for Soos\_39:  
(10, 21525), (11, 21549), (15, 21720), (18, 21876), (Start: 38 @22170 has 3 MA's), (45, 22209), (48, 22227),

Gene: Sour\_13 Start: 11191, Stop: 11394, Start Num: 33  
Candidate Starts for Sour\_13:  
(Start: 33 @11191 has 13 MA's), (57, 11299),

Gene: StAugustine\_17 Start: 12941, Stop: 13135, Start Num: 30  
Candidate Starts for StAugustine\_17:  
(Start: 30 @12941 has 73 MA's), (39, 12992), (49, 13040),

Gene: Sting\_42 Start: 22609, Stop: 22767, Start Num: 38  
Candidate Starts for Sting\_42:  
(18, 22315), (Start: 38 @22609 has 3 MA's), (45, 22648), (48, 22666),

Gene: Stinger\_9 Start: 9575, Stop: 9799, Start Num: 30

Candidate Starts for Stinger\_9:

(Start: 30 @9575 has 73 MA's), (39, 9635), (40, 9638), (46, 9674), (66, 9764),

Gene: SynergyX\_13 Start: 10641, Stop: 10847, Start Num: 34

Candidate Starts for SynergyX\_13:

(Start: 34 @10641 has 35 MA's), (42, 10716), (62, 10791),

Gene: TA17A\_14 Start: 12064, Stop: 12237, Start Num: 30

Candidate Starts for TA17A\_14:

(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: TPA2\_19 Start: 12170, Stop: 12361, Start Num: 33

Candidate Starts for TPA2\_19:

(Start: 33 @12170 has 13 MA's), (42, 12233), (62, 12302), (68, 12338), (69, 12341),

Gene: Taptic\_8 Start: 10239, Stop: 10427, Start Num: 30

Candidate Starts for Taptic\_8:

(Start: 30 @10239 has 73 MA's), (46, 10332), (50, 10350), (65, 10389), (69, 10419),

Gene: Thonko\_9 Start: 8053, Stop: 8286, Start Num: 27

Candidate Starts for Thonko\_9:

(Start: 27 @8053 has 1 MA's), (35, 8101), (43, 8155), (45, 8164), (58, 8203), (62, 8227), (63, 8230),

Gene: Tinciduntolum\_15 Start: 12180, Stop: 12353, Start Num: 30

Candidate Starts for Tinciduntolum\_15:

(Start: 30 @12180 has 73 MA's), (43, 12246), (53, 12279),

Gene: Tonitrus\_28 Start: 18735, Stop: 18884, Start Num: 37

Candidate Starts for Tonitrus\_28:

(Start: 37 @18735 has 1 MA's), (47, 18783), (55, 18810), (67, 18870),

Gene: Tres\_14 Start: 12064, Stop: 12237, Start Num: 30

Candidate Starts for Tres\_14:

(Start: 30 @12064 has 73 MA's), (43, 12130), (53, 12163),

Gene: Tydolla\_13 Start: 11402, Stop: 11608, Start Num: 34

Candidate Starts for Tydolla\_13:

(Start: 34 @11402 has 35 MA's), (42, 11477), (62, 11552),

Gene: Vic9\_15 Start: 12507, Stop: 12680, Start Num: 30

Candidate Starts for Vic9\_15:

(Start: 30 @12507 has 73 MA's), (43, 12573), (53, 12606),

Gene: Vincenzo\_12 Start: 11855, Stop: 12076, Start Num: 30

Candidate Starts for Vincenzo\_12:

(9, 11213), (Start: 30 @11855 has 73 MA's), (40, 11918), (42, 11936), (63, 12017), (66, 12041), (70, 12059),

Gene: VioletZ\_11 Start: 11144, Stop: 11365, Start Num: 30

Candidate Starts for VioletZ\_11:

(Start: 29 @11141 has 5 MA's), (Start: 30 @11144 has 73 MA's), (39, 11204), (40, 11207), (42, 11225), (46, 11240), (64, 11309), (66, 11330),

Gene: Waleliano\_11 Start: 11144, Stop: 11365, Start Num: 30

Candidate Starts for Waleliano\_11:

(Start: 29 @11141 has 5 MA's), (Start: 30 @11144 has 73 MA's), (39, 11204), (40, 11207), (42, 11225), (46, 11240), (64, 11309), (66, 11330),

Gene: West99\_14 Start: 12181, Stop: 12354, Start Num: 30

Candidate Starts for West99\_14:

(Start: 30 @12181 has 73 MA's), (43, 12247), (53, 12280),

Gene: Wooper\_12 Start: 11030, Stop: 11233, Start Num: 33

Candidate Starts for Wooper\_12:

(Start: 33 @11030 has 13 MA's), (36, 11060), (61, 11159),

Gene: Xincheng\_11 Start: 10965, Stop: 11189, Start Num: 30

Candidate Starts for Xincheng\_11:

(Start: 30 @10965 has 73 MA's), (39, 11025), (40, 11028), (43, 11049), (44, 11052), (64, 11133), (66, 11154),

Gene: Yago84\_9 Start: 9354, Stop: 9557, Start Num: 33

Candidate Starts for Yago84\_9:

(28, 9345), (Start: 33 @9354 has 13 MA's), (42, 9417), (63, 9489), (69, 9525),

Gene: Yinz\_13 Start: 10670, Stop: 10876, Start Num: 34

Candidate Starts for Yinz\_13:

(Start: 34 @10670 has 35 MA's), (42, 10745), (62, 10820),

Gene: Zemanar\_12 Start: 11141, Stop: 11365, Start Num: 29

Candidate Starts for Zemanar\_12:

(Start: 29 @11141 has 5 MA's), (Start: 30 @11144 has 73 MA's), (39, 11204), (40, 11207), (42, 11225), (46, 11240), (64, 11309), (66, 11330),