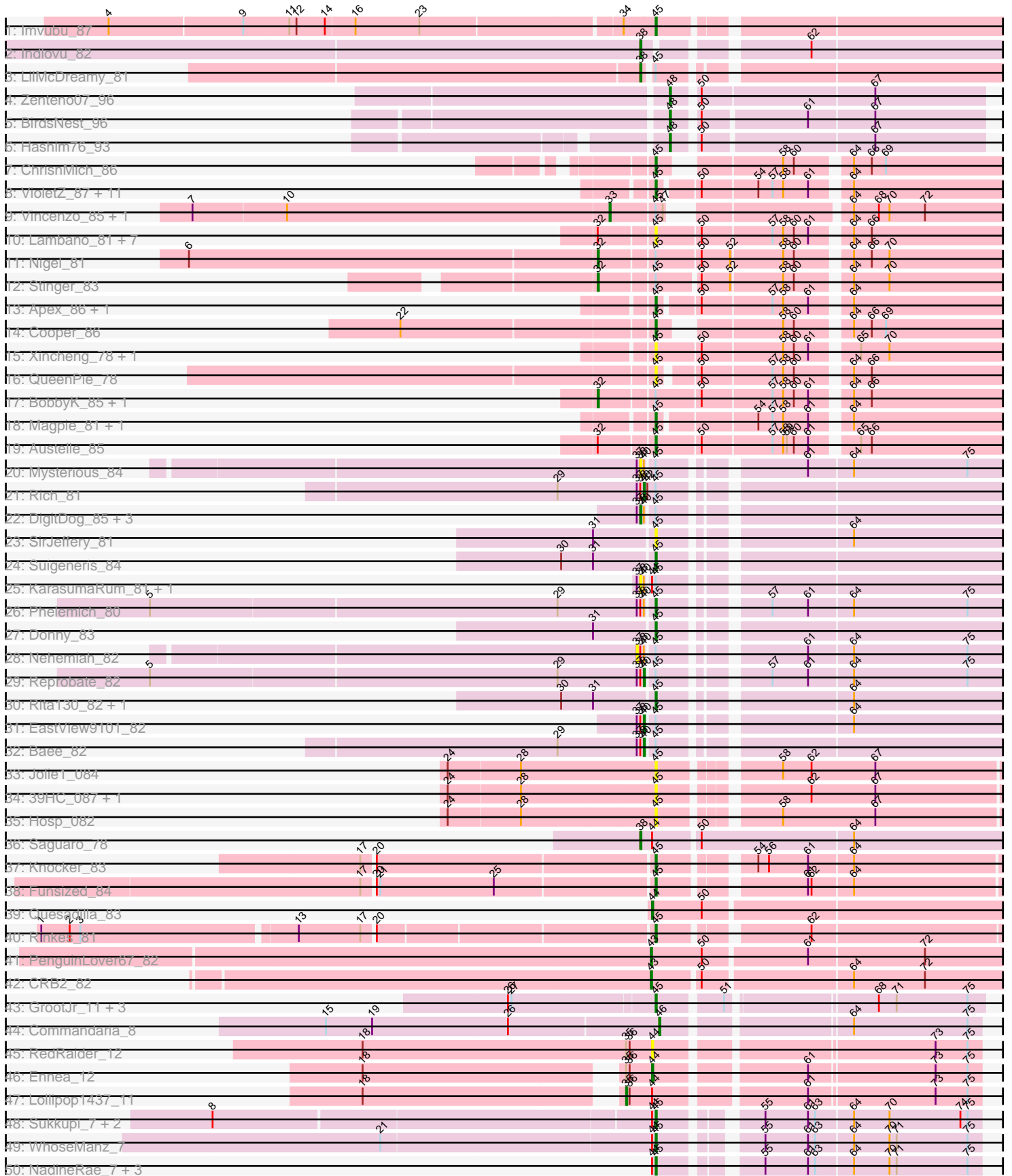
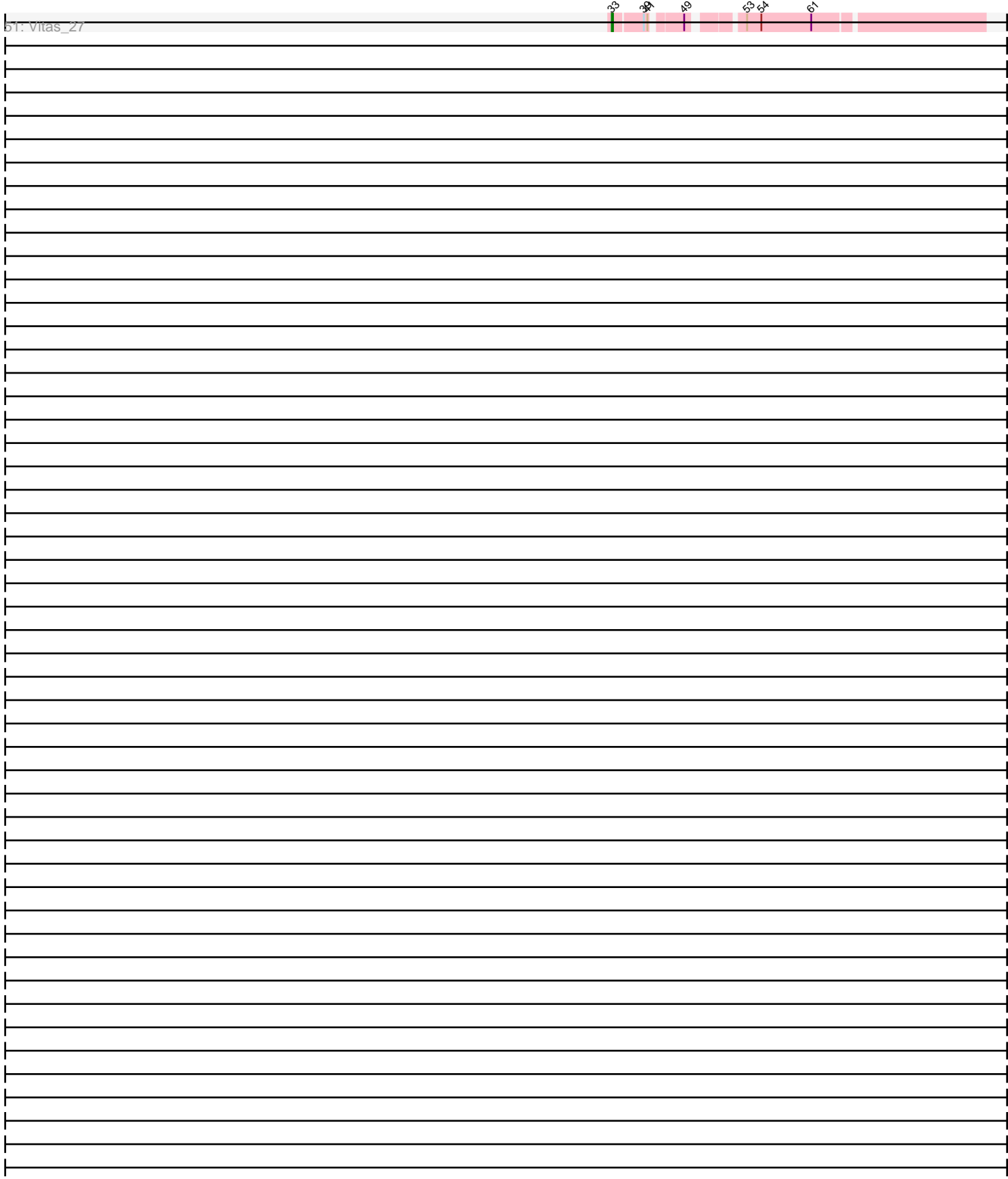


Pham 216068





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 216068 Report

This analysis was run 02/22/25 on database version 588.

Pham number 216068 has 88 members, 26 are drafts.

Phages represented in each track:

- Track 1 : Imvubu\_87
- Track 2 : Indlovu\_82
- Track 3 : LilMcDreamy\_81
- Track 4 : Zenteno07\_96
- Track 5 : BirdsNest\_96
- Track 6 : Hashim76\_93
- Track 7 : ChrisnMich\_86
- Track 8 : VioletZ\_87, Fortunato\_83, Hydro\_85, Hangman\_85, Waleliano\_84, Lolalove\_86, Zemanar\_84, Mudslide\_85, Frederick\_86, Mithril\_84, RawrgerThat\_84, BrownCNA\_86
- Track 9 : Vincenzo\_85, AlanGrant\_86
- Track 10 : Lambano\_81, Nanao\_83, Poster\_82, Epah\_83, GinPorsche\_83, Hally898\_81, Antihero\_83, Ahwei\_83
- Track 11 : Nigel\_81
- Track 12 : Stinger\_83
- Track 13 : Apex\_86, Prince\_84
- Track 14 : Cooper\_86
- Track 15 : Xincheng\_78, JaguarMi\_79
- Track 16 : QueenPie\_78
- Track 17 : BobbyK\_85, JAMaL\_84
- Track 18 : Magpie\_81, Fanaw\_80
- Track 19 : Austelle\_85
- Track 20 : Mysterious\_84
- Track 21 : Rich\_81
- Track 22 : DigitDog\_85, Serendipitous\_83, Nangang\_84, Shenyu\_84
- Track 23 : SirJeffery\_81
- Track 24 : Suigeneris\_84
- Track 25 : KarasumaRum\_81, StinkyVeggy\_81
- Track 26 : Phelemich\_80
- Track 27 : Donny\_83
- Track 28 : Nehemiah\_82
- Track 29 : Reprobate\_82
- Track 30 : Rita130\_82, Acadian\_83
- Track 31 : EastView9101\_82
- Track 32 : Bae\_82
- Track 33 : Jolie1\_084
- Track 34 : 39HC\_087, 40BC\_087

- Track 35 : Hosp\_082
- Track 36 : Saguaro\_78
- Track 37 : Knocker\_83
- Track 38 : Funsized\_84
- Track 39 : Quesadilla\_83
- Track 40 : Rinkes\_81
- Track 41 : PenguinLover67\_82
- Track 42 : CRB2\_82
- Track 43 : GrootJr\_11, NovumRegina\_9, Arti\_9, Wheezy\_9
- Track 44 : Commandaria\_8
- Track 45 : RedRaider\_12
- Track 46 : Ennea\_12
- Track 47 : Lollipop1437\_11
- Track 48 : Sukkupi\_7, BiPauneto\_7, Yndexa\_7
- Track 49 : WhoseManz\_7
- Track 50 : NadineRae\_7, HubbaBubba\_7, IDyn\_8, Marietta\_7
- Track 51 : Vitas\_27

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

The start number called the most often in the published annotations is 45, it was called in 38 of the 62 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 39HC\_087, 40BC\_087, Acadian\_83, Ahwei\_83, Antihero\_83, Apex\_86, Arti\_9, Austelle\_85, BiPauneto\_7, BrownCNA\_86, ChrisnMich\_86, Cooper\_86, Donny\_83, Epah\_83, Fanaw\_80, Fortunato\_83, Frederick\_86, Funsized\_84, GinPorsche\_83, GrootJr\_11, Hally898\_81, Hangman\_85, Hosp\_082, HubbaBubba\_7, Hydro\_85, IDyn\_8, Imvubu\_87, JaguarMi\_79, Jolie1\_084, Knocker\_83, Lambano\_81, Lolalove\_86, Magpie\_81, Marietta\_7, Mithril\_84, Mudslide\_85, NadineRae\_7, Nanao\_83, NovumRegina\_9, Phelemich\_80, Poster\_82, Prince\_84, QueenPie\_78, RawrgerThat\_84, Rinkes\_81, Rita130\_82, SirJeffery\_81, Suigeneris\_84, Sukkupi\_7, VioletZ\_87, Waleliano\_84, Wheezy\_9, WhoseManz\_7, Xincheng\_78, Yndexa\_7, Zemanar\_84,

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

- AlanGrant\_86, Bae\_82, BobbyK\_85, DigitDog\_85, EastView9101\_82, JAMaL\_84, KarasumaRum\_81, LilMcDreamy\_81, Mysterious\_84, Nangang\_84, Nehemiah\_82, Nigel\_81, Reprobate\_82, Rich\_81, Serendipitous\_83, Shenyu\_84, Stinger\_83, StinkyVeggy\_81, Vincenzo\_85,

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

- BirdsNest\_96, CRB2\_82, Commandaria\_8, Ennea\_12, Hashim76\_93, Indlovu\_82, Lollipop1437\_11, PenguinLover67\_82, Quesadilla\_83, RedRaider\_12, Saguaro\_78, Vitas\_27, Zenteno07\_96,

**Summary by start number:**

Start 32:

- Found in 13 of 88 ( 14.8% ) of genes in pham

- Manual Annotations of this start: 4 of 62
- Called 30.8% of time when present
- Phage (with cluster) where this start called: BobbyK\_85 (B4), JAMaL\_84 (B4), Nigel\_81 (B4), Stinger\_83 (B4),

#### Start 33:

- Found in 3 of 88 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 3 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AlanGrant\_86 (B4), Vincenzo\_85 (B4), Vitas\_27 (EB),

#### Start 35:

- Found in 3 of 88 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 1 of 62
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Lollipop1437\_11 (CR3),

#### Start 37:

- Found in 13 of 88 ( 14.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 7.7% of time when present
- Phage (with cluster) where this start called: Nehemiah\_82 (B5),

#### Start 38:

- Found in 16 of 88 ( 18.2% ) of genes in pham
- Manual Annotations of this start: 4 of 62
- Called 62.5% of time when present
- Phage (with cluster) where this start called: DigitDog\_85 (B5), Indlovu\_82 (B11), KarasumaRum\_81 (B5), LilMcDreamy\_81 (B12), Mysterious\_84 (B5), Nangang\_84 (B5), Saguaro\_78 (B7), Serendipitous\_83 (B5), Shenyu\_84 (B5), StinkyVeggy\_81 (B5),

#### Start 40:

- Found in 13 of 88 ( 14.8% ) of genes in pham
- Manual Annotations of this start: 4 of 62
- Called 30.8% of time when present
- Phage (with cluster) where this start called: Bae\_82 (B5), EastView9101\_82 (B5), Reprobate\_82 (B5), Rich\_81 (B5),

#### Start 43:

- Found in 2 of 88 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 2 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CRB2\_82 (B9), PenguinLover67\_82 (B9),

#### Start 44:

- Found in 15 of 88 ( 17.0% ) of genes in pham
- Manual Annotations of this start: 2 of 62
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Ennea\_12 (CR3), Quesadilla\_83 (B9), RedRaider\_12 (CR3),

Start 45:

- Found in 75 of 88 ( 85.2% ) of genes in pham
- Manual Annotations of this start: 38 of 62
- Called 74.7% of time when present
- Phage (with cluster) where this start called: 39HC\_087 (B6), 40BC\_087 (B6), Acadian\_83 (B5), Ahwei\_83 (B4), Antihero\_83 (B4), Apex\_86 (B4), Arti\_9 (CR2), Austelle\_85 (B4), BiPauneto\_7 (CR4), BrownCNA\_86 (B4), ChrisnMich\_86 (B4), Cooper\_86 (B4), Donny\_83 (B5), Epah\_83 (B4), Fanaw\_80 (B4), Fortunato\_83 (B4), Frederick\_86 (B4), Funsized\_84 (B9), GinPorsche\_83 (B4), GrootJr\_11 (CR2), Hally898\_81 (B4), Hangman\_85 (B4), Hosp\_082 (B6), HubbaBubba\_7 (CR4), Hydro\_85 (B4), IDyn\_8 (CR4), Imvubu\_87 (B10), JaguarMi\_79 (B4), Jolie1\_084 (B6), Knocker\_83 (B9), Lambano\_81 (B4), Lolalove\_86 (B4), Magpie\_81 (B4), Marietta\_7 (CR4), Mithril\_84 (B4), Mudslide\_85 (B4), NadineRae\_7 (CR4), Nanao\_83 (B4), NovumRegina\_9 (CR2), Phelemich\_80 (B5), Poster\_82 (B4), Prince\_84 (B4), QueenPie\_78 (B4), RawrgerThat\_84 (B4), Rinkes\_81 (B9), Rita130\_82 (B5), SirJeffery\_81 (B5), Suigeneris\_84 (B5), Sukkupi\_7 (CR4), VioletZ\_87 (B4), Waleliano\_84 (B4), Wheezy\_9 (CR2), WhoseManz\_7 (CR4), Xincheng\_78 (B4), Yndexa\_7 (CR4), Zemanar\_84 (B4),

Start 46:

- Found in 1 of 88 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Commandaria\_8 (CR2),

Start 48:

- Found in 3 of 88 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 3 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BirdsNest\_96 (B13), Hashim76\_93 (B13), Zenteno07\_96 (B13),

**Summary by clusters:**

There are 13 clusters represented in this pham: CR2, CR3, CR4, EB, B4, B5, B6, B7, B12, B13, B10, B11, B9,

Info for manual annotations of cluster B10:

- Start number 45 was manually annotated 1 time for cluster B10.

Info for manual annotations of cluster B11:

- Start number 38 was manually annotated 1 time for cluster B11.

Info for manual annotations of cluster B12:

- Start number 38 was manually annotated 1 time for cluster B12.

Info for manual annotations of cluster B13:

- Start number 48 was manually annotated 3 times for cluster B13.

Info for manual annotations of cluster B4:

- Start number 32 was manually annotated 4 times for cluster B4.
- Start number 33 was manually annotated 2 times for cluster B4.

- Start number 45 was manually annotated 18 times for cluster B4.

Info for manual annotations of cluster B5:

- Start number 38 was manually annotated 1 time for cluster B5.
- Start number 40 was manually annotated 4 times for cluster B5.
- Start number 45 was manually annotated 4 times for cluster B5.

Info for manual annotations of cluster B7:

- Start number 38 was manually annotated 1 time for cluster B7.

Info for manual annotations of cluster B9:

- Start number 43 was manually annotated 2 times for cluster B9.
- Start number 44 was manually annotated 1 time for cluster B9.
- Start number 45 was manually annotated 3 times for cluster B9.

Info for manual annotations of cluster CR2:

- Start number 45 was manually annotated 4 times for cluster CR2.
- Start number 46 was manually annotated 1 time for cluster CR2.

Info for manual annotations of cluster CR3:

- Start number 35 was manually annotated 1 time for cluster CR3.
- Start number 44 was manually annotated 1 time for cluster CR3.

Info for manual annotations of cluster CR4:

- Start number 45 was manually annotated 8 times for cluster CR4.

Info for manual annotations of cluster EB:

- Start number 33 was manually annotated 1 time for cluster EB.

### ***Gene Information:***

Gene: 39HC\_087 Start: 65341, Stop: 65051, Start Num: 45

Candidate Starts for 39HC\_087:

(24, 65503), (28, 65443), (Start: 45 @65341 has 38 MA's), (62, 65233), (67, 65179),

Gene: 40BC\_087 Start: 65341, Stop: 65051, Start Num: 45

Candidate Starts for 40BC\_087:

(24, 65503), (28, 65443), (Start: 45 @65341 has 38 MA's), (62, 65233), (67, 65179),

Gene: Acadian\_83 Start: 63798, Stop: 63526, Start Num: 45

Candidate Starts for Acadian\_83:

(30, 63873), (31, 63846), (Start: 45 @63798 has 38 MA's), (64, 63657),

Gene: Ahwei\_83 Start: 64624, Stop: 64340, Start Num: 45

Candidate Starts for Ahwei\_83:

(Start: 32 @64666 has 4 MA's), (Start: 45 @64624 has 38 MA's), (50, 64588), (57, 64531), (58, 64522), (60, 64513), (61, 64501), (64, 64474), (66, 64459),

Gene: AlanGrant\_86 Start: 66429, Stop: 66130, Start Num: 33

Candidate Starts for AlanGrant\_86:

(7, 66777), (10, 66699), (Start: 33 @66429 has 3 MA's), (Start: 45 @66393 has 38 MA's), (47, 66387), (64, 66264), (68, 66243), (70, 66234), (72, 66204),

Gene: Antihero\_83 Start: 64547, Stop: 64263, Start Num: 45

Candidate Starts for Antihero\_83:

(Start: 32 @64589 has 4 MA's), (Start: 45 @64547 has 38 MA's), (50, 64511), (57, 64454), (58, 64445), (60, 64436), (61, 64424), (64, 64397), (66, 64382),

Gene: Apex\_86 Start: 65693, Stop: 65415, Start Num: 45

Candidate Starts for Apex\_86:

(Start: 45 @65693 has 38 MA's), (50, 65663), (57, 65606), (58, 65597), (61, 65576), (64, 65549),

Gene: Arti\_9 Start: 5743, Stop: 5994, Start Num: 45

Candidate Starts for Arti\_9:

(26, 5623), (27, 5626), (Start: 45 @5743 has 38 MA's), (51, 5791), (68, 5905), (71, 5920), (75, 5980),

Gene: Austelle\_85 Start: 66243, Stop: 65959, Start Num: 45

Candidate Starts for Austelle\_85:

(Start: 32 @66285 has 4 MA's), (Start: 45 @66243 has 38 MA's), (50, 66207), (57, 66150), (58, 66141), (59, 66138), (60, 66132), (61, 66120), (65, 66087), (66, 66078),

Gene: Bae\_82 Start: 64440, Stop: 64162, Start Num: 40

Candidate Starts for Bae\_82:

(29, 64512), (37, 64446), (Start: 38 @64443 has 4 MA's), (Start: 40 @64440 has 4 MA's), (Start: 45 @64434 has 38 MA's),

Gene: BiPauneto\_7 Start: 3671, Stop: 3916, Start Num: 45

Candidate Starts for BiPauneto\_7:

(8, 3311), (Start: 44 @3668 has 2 MA's), (Start: 45 @3671 has 38 MA's), (55, 3737), (61, 3773), (63, 3779), (64, 3809), (70, 3839), (74, 3899), (75, 3905),

Gene: BirdsNest\_96 Start: 67441, Stop: 67193, Start Num: 48

Candidate Starts for BirdsNest\_96:

(Start: 48 @67441 has 3 MA's), (50, 67423), (61, 67339), (67, 67285),

Gene: BobbyK\_85 Start: 65257, Stop: 64931, Start Num: 32

Candidate Starts for BobbyK\_85:

(Start: 32 @65257 has 4 MA's), (Start: 45 @65215 has 38 MA's), (50, 65179), (57, 65122), (58, 65113), (60, 65104), (61, 65092), (64, 65065), (66, 65050),

Gene: BrownCNA\_86 Start: 65641, Stop: 65363, Start Num: 45

Candidate Starts for BrownCNA\_86:

(Start: 45 @65641 has 38 MA's), (50, 65611), (54, 65566), (57, 65554), (58, 65545), (61, 65524), (64, 65497),

Gene: CRB2\_82 Start: 65913, Stop: 65626, Start Num: 43

Candidate Starts for CRB2\_82:

(Start: 43 @65913 has 2 MA's), (50, 65877), (64, 65757), (72, 65697),

Gene: ChrisnMich\_86 Start: 64491, Stop: 64228, Start Num: 45

Candidate Starts for ChrisnMich\_86:

(Start: 45 @64491 has 38 MA's), (58, 64410), (60, 64401), (64, 64362), (66, 64347), (69, 64335),



Gene: Commandaria\_8 Start: 4772, Stop: 5020, Start Num: 46  
Candidate Starts for Commandaria\_8:  
(15, 4496), (19, 4535), (26, 4649), (Start: 46 @4772 has 1 MA's), (64, 4913), (75, 5009),

Gene: Cooper\_86 Start: 64991, Stop: 64728, Start Num: 45  
Candidate Starts for Cooper\_86:  
(22, 65192), (Start: 45 @64991 has 38 MA's), (58, 64910), (60, 64901), (64, 64862), (66, 64847), (69, 64835),

Gene: DigitDog\_85 Start: 64306, Stop: 64025, Start Num: 38  
Candidate Starts for DigitDog\_85:  
(37, 64309), (Start: 38 @64306 has 4 MA's), (Start: 40 @64303 has 4 MA's), (Start: 45 @64297 has 38 MA's),

Gene: Donny\_83 Start: 63632, Stop: 63360, Start Num: 45  
Candidate Starts for Donny\_83:  
(31, 63680), (Start: 45 @63632 has 38 MA's),

Gene: EastView9101\_82 Start: 63548, Stop: 63270, Start Num: 40  
Candidate Starts for EastView9101\_82:  
(37, 63554), (Start: 38 @63551 has 4 MA's), (Start: 40 @63548 has 4 MA's), (Start: 45 @63542 has 38 MA's), (64, 63401),

Gene: Ennea\_12 Start: 6510, Stop: 6764, Start Num: 44  
Candidate Starts for Ennea\_12:  
(18, 6291), (Start: 35 @6489 has 1 MA's), (36, 6492), (Start: 44 @6510 has 2 MA's), (61, 6624), (73, 6726), (75, 6753),

Gene: Epah\_83 Start: 64547, Stop: 64263, Start Num: 45  
Candidate Starts for Epah\_83:  
(Start: 32 @64589 has 4 MA's), (Start: 45 @64547 has 38 MA's), (50, 64511), (57, 64454), (58, 64445), (60, 64436), (61, 64424), (64, 64397), (66, 64382),

Gene: Fanaw\_80 Start: 65228, Stop: 64950, Start Num: 45  
Candidate Starts for Fanaw\_80:  
(Start: 45 @65228 has 38 MA's), (54, 65153), (57, 65141), (58, 65132), (61, 65111), (64, 65084),

Gene: Fortunato\_83 Start: 65020, Stop: 64742, Start Num: 45  
Candidate Starts for Fortunato\_83:  
(Start: 45 @65020 has 38 MA's), (50, 64990), (54, 64945), (57, 64933), (58, 64924), (61, 64903), (64, 64876),

Gene: Frederick\_86 Start: 65507, Stop: 65229, Start Num: 45  
Candidate Starts for Frederick\_86:  
(Start: 45 @65507 has 38 MA's), (50, 65477), (54, 65432), (57, 65420), (58, 65411), (61, 65390), (64, 65363),

Gene: Funsized\_84 Start: 66820, Stop: 66524, Start Num: 45  
Candidate Starts for Funsized\_84:  
(17, 67057), (20, 67048), (21, 67045), (25, 66949), (Start: 45 @66820 has 38 MA's), (61, 66712), (62, 66709), (64, 66676),

Gene: GinPorsche\_83 Start: 64544, Stop: 64260, Start Num: 45

Candidate Starts for GinPorsche\_83:

(Start: 32 @64586 has 4 MA's), (Start: 45 @64544 has 38 MA's), (50, 64508), (57, 64451), (58, 64442), (60, 64433), (61, 64421), (64, 64394), (66, 64379),

Gene: GrootJr\_11 Start: 6138, Stop: 6389, Start Num: 45

Candidate Starts for GrootJr\_11:

(26, 6018), (27, 6021), (Start: 45 @6138 has 38 MA's), (51, 6186), (68, 6300), (71, 6315), (75, 6375),

Gene: Hally898\_81 Start: 64384, Stop: 64100, Start Num: 45

Candidate Starts for Hally898\_81:

(Start: 32 @64426 has 4 MA's), (Start: 45 @64384 has 38 MA's), (50, 64348), (57, 64291), (58, 64282), (60, 64273), (61, 64261), (64, 64234), (66, 64219),

Gene: Hangman\_85 Start: 65719, Stop: 65441, Start Num: 45

Candidate Starts for Hangman\_85:

(Start: 45 @65719 has 38 MA's), (50, 65689), (54, 65644), (57, 65632), (58, 65623), (61, 65602), (64, 65575),

Gene: Hashim76\_93 Start: 66930, Stop: 66682, Start Num: 48

Candidate Starts for Hashim76\_93:

(Start: 48 @66930 has 3 MA's), (50, 66912), (67, 66774),

Gene: Hosp\_082 Start: 62629, Stop: 62333, Start Num: 45

Candidate Starts for Hosp\_082:

(24, 62791), (28, 62731), (Start: 45 @62629 has 38 MA's), (58, 62545), (67, 62467),

Gene: HubbaBubba\_7 Start: 3528, Stop: 3773, Start Num: 45

Candidate Starts for HubbaBubba\_7:

(Start: 44 @3525 has 2 MA's), (Start: 45 @3528 has 38 MA's), (55, 3594), (61, 3630), (63, 3636), (64, 3666), (70, 3696), (71, 3702), (75, 3762),

Gene: Hydro\_85 Start: 65594, Stop: 65316, Start Num: 45

Candidate Starts for Hydro\_85:

(Start: 45 @65594 has 38 MA's), (50, 65564), (54, 65519), (57, 65507), (58, 65498), (61, 65477), (64, 65450),

Gene: IDyn\_8 Start: 4449, Stop: 4694, Start Num: 45

Candidate Starts for IDyn\_8:

(Start: 44 @4446 has 2 MA's), (Start: 45 @4449 has 38 MA's), (55, 4515), (61, 4551), (63, 4557), (64, 4587), (70, 4617), (71, 4623), (75, 4683),

Gene: Imvubu\_87 Start: 64765, Stop: 64490, Start Num: 45

Candidate Starts for Imvubu\_87:

(4, 65203), (9, 65092), (11, 65053), (12, 65047), (14, 65023), (16, 64999), (23, 64945), (34, 64783), (Start: 45 @64765 has 38 MA's),

Gene: Indlovu\_82 Start: 65227, Stop: 64946, Start Num: 38

Candidate Starts for Indlovu\_82:

(Start: 38 @65227 has 4 MA's), (62, 65110),

Gene: JAMaL\_84 Start: 65126, Stop: 64800, Start Num: 32

Candidate Starts for JAMaL\_84:

(Start: 32 @65126 has 4 MA's), (Start: 45 @65084 has 38 MA's), (50, 65048), (57, 64991), (58, 64982), (60, 64973), (61, 64961), (64, 64934), (66, 64919),

Gene: JaguarMi\_79 Start: 65587, Stop: 65303, Start Num: 45

Candidate Starts for JaguarMi\_79:

(Start: 45 @65587 has 38 MA's), (50, 65551), (58, 65485), (60, 65476), (61, 65464), (65, 65431), (70, 65407),

Gene: Jolie1\_084 Start: 64656, Stop: 64360, Start Num: 45

Candidate Starts for Jolie1\_084:

(24, 64818), (28, 64758), (Start: 45 @64656 has 38 MA's), (58, 64572), (62, 64548), (67, 64494),

Gene: KarasumaRum\_81 Start: 63704, Stop: 63423, Start Num: 38

Candidate Starts for KarasumaRum\_81:

(37, 63707), (Start: 38 @63704 has 4 MA's), (Start: 40 @63701 has 4 MA's), (Start: 44 @63698 has 2 MA's), (Start: 45 @63695 has 38 MA's),

Gene: Knocker\_83 Start: 65702, Stop: 65406, Start Num: 45

Candidate Starts for Knocker\_83:

(17, 65939), (20, 65930), (Start: 45 @65702 has 38 MA's), (54, 65636), (56, 65627), (61, 65594), (64, 65558),

Gene: Lambano\_81 Start: 64384, Stop: 64100, Start Num: 45

Candidate Starts for Lambano\_81:

(Start: 32 @64426 has 4 MA's), (Start: 45 @64384 has 38 MA's), (50, 64348), (57, 64291), (58, 64282), (60, 64273), (61, 64261), (64, 64234), (66, 64219),

Gene: LilMcDreamy\_81 Start: 63946, Stop: 63668, Start Num: 38

Candidate Starts for LilMcDreamy\_81:

(Start: 38 @63946 has 4 MA's), (Start: 45 @63940 has 38 MA's),

Gene: Lolalove\_86 Start: 65538, Stop: 65260, Start Num: 45

Candidate Starts for Lolalove\_86:

(Start: 45 @65538 has 38 MA's), (50, 65508), (54, 65463), (57, 65451), (58, 65442), (61, 65421), (64, 65394),

Gene: Lollipop1437\_11 Start: 6477, Stop: 6752, Start Num: 35

Candidate Starts for Lollipop1437\_11:

(18, 6279), (Start: 35 @6477 has 1 MA's), (36, 6480), (Start: 44 @6498 has 2 MA's), (61, 6612), (73, 6714), (75, 6741),

Gene: Magpie\_81 Start: 65221, Stop: 64943, Start Num: 45

Candidate Starts for Magpie\_81:

(Start: 45 @65221 has 38 MA's), (54, 65146), (57, 65134), (58, 65125), (61, 65104), (64, 65077),

Gene: Marietta\_7 Start: 3861, Stop: 4106, Start Num: 45

Candidate Starts for Marietta\_7:

(Start: 44 @3858 has 2 MA's), (Start: 45 @3861 has 38 MA's), (55, 3927), (61, 3963), (63, 3969), (64, 3999), (70, 4029), (71, 4035), (75, 4095),

Gene: Mithril\_84 Start: 65378, Stop: 65100, Start Num: 45

Candidate Starts for Mithril\_84:

(Start: 45 @65378 has 38 MA's), (50, 65348), (54, 65303), (57, 65291), (58, 65282), (61, 65261), (64, 65234),

Gene: Mudslide\_85 Start: 65768, Stop: 65490, Start Num: 45

Candidate Starts for Mudslide\_85:

(Start: 45 @65768 has 38 MA's), (50, 65738), (54, 65693), (57, 65681), (58, 65672), (61, 65651), (64, 65624),

Gene: Mysterious\_84 Start: 63891, Stop: 63610, Start Num: 38

Candidate Starts for Mysterious\_84:

(37, 63894), (Start: 38 @63891 has 4 MA's), (Start: 40 @63888 has 4 MA's), (Start: 45 @63882 has 38 MA's), (61, 63777), (64, 63741), (75, 63645),

Gene: NadineRae\_7 Start: 3565, Stop: 3810, Start Num: 45

Candidate Starts for NadineRae\_7:

(Start: 44 @3562 has 2 MA's), (Start: 45 @3565 has 38 MA's), (55, 3631), (61, 3667), (63, 3673), (64, 3703), (70, 3733), (71, 3739), (75, 3799),

Gene: Nanao\_83 Start: 64397, Stop: 64113, Start Num: 45

Candidate Starts for Nanao\_83:

(Start: 32 @64439 has 4 MA's), (Start: 45 @64397 has 38 MA's), (50, 64361), (57, 64304), (58, 64295), (60, 64286), (61, 64274), (64, 64247), (66, 64232),

Gene: Nangang\_84 Start: 64289, Stop: 64008, Start Num: 38

Candidate Starts for Nangang\_84:

(37, 64292), (Start: 38 @64289 has 4 MA's), (Start: 40 @64286 has 4 MA's), (Start: 45 @64280 has 38 MA's),

Gene: Nehemiah\_82 Start: 63774, Stop: 63490, Start Num: 37

Candidate Starts for Nehemiah\_82:

(37, 63774), (Start: 38 @63771 has 4 MA's), (Start: 40 @63768 has 4 MA's), (Start: 45 @63762 has 38 MA's), (61, 63657), (64, 63621), (75, 63525),

Gene: Nigel\_81 Start: 63962, Stop: 63636, Start Num: 32

Candidate Starts for Nigel\_81:

(6, 64301), (Start: 32 @63962 has 4 MA's), (Start: 45 @63920 has 38 MA's), (50, 63884), (52, 63860), (58, 63818), (60, 63809), (64, 63770), (66, 63755), (70, 63740),

Gene: NovumRegina\_9 Start: 6137, Stop: 6388, Start Num: 45

Candidate Starts for NovumRegina\_9:

(26, 6017), (27, 6020), (Start: 45 @6137 has 38 MA's), (51, 6185), (68, 6299), (71, 6314), (75, 6374),

Gene: PenguinLover67\_82 Start: 63644, Stop: 63351, Start Num: 43

Candidate Starts for PenguinLover67\_82:

(Start: 43 @63644 has 2 MA's), (50, 63602), (61, 63518), (72, 63422),

Gene: Phelemich\_80 Start: 63840, Stop: 63568, Start Num: 45

Candidate Starts for Phelemich\_80:

(5, 64257), (29, 63918), (37, 63852), (Start: 38 @63849 has 4 MA's), (Start: 40 @63846 has 4 MA's), (Start: 45 @63840 has 38 MA's), (57, 63765), (61, 63735), (64, 63699), (75, 63603),

Gene: Poster\_82 Start: 64398, Stop: 64114, Start Num: 45

Candidate Starts for Poster\_82:

(Start: 32 @64440 has 4 MA's), (Start: 45 @64398 has 38 MA's), (50, 64362), (57, 64305), (58, 64296), (60, 64287), (61, 64275), (64, 64248), (66, 64233),

Gene: Prince\_84 Start: 65635, Stop: 65357, Start Num: 45

Candidate Starts for Prince\_84:

(Start: 45 @65635 has 38 MA's), (50, 65605), (57, 65548), (58, 65539), (61, 65518), (64, 65491),

Gene: QueenPie\_78 Start: 64138, Stop: 63863, Start Num: 45

Candidate Starts for QueenPie\_78:

(Start: 45 @64138 has 38 MA's), (50, 64111), (57, 64054), (58, 64045), (60, 64036), (64, 63997), (66, 63982),

Gene: Quesadilla\_83 Start: 64272, Stop: 63979, Start Num: 44

Candidate Starts for Quesadilla\_83:

(Start: 44 @64272 has 2 MA's), (50, 64230),

Gene: RawrgerThat\_84 Start: 65226, Stop: 64948, Start Num: 45

Candidate Starts for RawrgerThat\_84:

(Start: 45 @65226 has 38 MA's), (50, 65196), (54, 65151), (57, 65139), (58, 65130), (61, 65109), (64, 65082),

Gene: RedRaider\_12 Start: 6444, Stop: 6698, Start Num: 44

Candidate Starts for RedRaider\_12:

(18, 6201), (Start: 35 @6423 has 1 MA's), (36, 6426), (Start: 44 @6444 has 2 MA's), (73, 6660), (75, 6687),

Gene: Reprobate\_82 Start: 63851, Stop: 63573, Start Num: 40

Candidate Starts for Reprobate\_82:

(5, 64262), (29, 63923), (37, 63857), (Start: 38 @63854 has 4 MA's), (Start: 40 @63851 has 4 MA's), (Start: 45 @63845 has 38 MA's), (57, 63770), (61, 63740), (64, 63704), (75, 63608),

Gene: Rich\_81 Start: 64507, Stop: 64226, Start Num: 40

Candidate Starts for Rich\_81:

(29, 64579), (37, 64513), (Start: 38 @64510 has 4 MA's), (Start: 40 @64507 has 4 MA's), (42, 64504), (Start: 45 @64498 has 38 MA's),

Gene: Rinkes\_81 Start: 64713, Stop: 64441, Start Num: 45

Candidate Starts for Rinkes\_81:

(1, 65202), (2, 65178), (3, 65169), (13, 64995), (17, 64944), (20, 64935), (Start: 45 @64713 has 38 MA's), (62, 64602),

Gene: Rita130\_82 Start: 63772, Stop: 63500, Start Num: 45

Candidate Starts for Rita130\_82:

(30, 63847), (31, 63820), (Start: 45 @63772 has 38 MA's), (64, 63631),

Gene: Saguaro\_78 Start: 62799, Stop: 62497, Start Num: 38

Candidate Starts for Saguaro\_78:

(Start: 38 @62799 has 4 MA's), (Start: 44 @62790 has 2 MA's), (50, 62754), (64, 62628),

Gene: Serendipitous\_83 Start: 63637, Stop: 63356, Start Num: 38

Candidate Starts for Serendipitous\_83:

(37, 63640), (Start: 38 @63637 has 4 MA's), (Start: 40 @63634 has 4 MA's), (Start: 45 @63628 has 38 MA's),

Gene: Shenyu\_84 Start: 64305, Stop: 64024, Start Num: 38  
Candidate Starts for Shenyu\_84:  
(37, 64308), (Start: 38 @64305 has 4 MA's), (Start: 40 @64302 has 4 MA's), (Start: 45 @64296 has 38 MA's),

Gene: SirJeffery\_81 Start: 63582, Stop: 63310, Start Num: 45  
Candidate Starts for SirJeffery\_81:  
(31, 63630), (Start: 45 @63582 has 38 MA's), (64, 63441),

Gene: Stinger\_83 Start: 64081, Stop: 63758, Start Num: 32  
Candidate Starts for Stinger\_83:  
(Start: 32 @64081 has 4 MA's), (Start: 45 @64039 has 38 MA's), (50, 64006), (52, 63982), (58, 63940), (60, 63931), (64, 63892), (70, 63862),

Gene: StinkyVeggy\_81 Start: 63704, Stop: 63423, Start Num: 38  
Candidate Starts for StinkyVeggy\_81:  
(37, 63707), (Start: 38 @63704 has 4 MA's), (Start: 40 @63701 has 4 MA's), (Start: 44 @63698 has 2 MA's), (Start: 45 @63695 has 38 MA's),

Gene: Suigeneris\_84 Start: 64020, Stop: 63748, Start Num: 45  
Candidate Starts for Suigeneris\_84:  
(30, 64095), (31, 64068), (Start: 45 @64020 has 38 MA's),

Gene: Sukkupi\_7 Start: 3562, Stop: 3807, Start Num: 45  
Candidate Starts for Sukkupi\_7:  
(8, 3202), (Start: 44 @3559 has 2 MA's), (Start: 45 @3562 has 38 MA's), (55, 3628), (61, 3664), (63, 3670), (64, 3700), (70, 3730), (74, 3790), (75, 3796),

Gene: Vincenzo\_85 Start: 66459, Stop: 66160, Start Num: 33  
Candidate Starts for Vincenzo\_85:  
(7, 66807), (10, 66729), (Start: 33 @66459 has 3 MA's), (Start: 45 @66423 has 38 MA's), (47, 66417), (64, 66294), (68, 66273), (70, 66264), (72, 66234),

Gene: VioletZ\_87 Start: 65725, Stop: 65447, Start Num: 45  
Candidate Starts for VioletZ\_87:  
(Start: 45 @65725 has 38 MA's), (50, 65695), (54, 65650), (57, 65638), (58, 65629), (61, 65608), (64, 65581),

Gene: Vitas\_27 Start: 20918, Stop: 20643, Start Num: 33  
Candidate Starts for Vitas\_27:  
(Start: 33 @20918 has 3 MA's), (39, 20894), (41, 20891), (49, 20870), (53, 20834), (54, 20822), (61, 20780),

Gene: Waleliano\_84 Start: 65393, Stop: 65115, Start Num: 45  
Candidate Starts for Waleliano\_84:  
(Start: 45 @65393 has 38 MA's), (50, 65363), (54, 65318), (57, 65306), (58, 65297), (61, 65276), (64, 65249),

Gene: Wheezy\_9 Start: 5755, Stop: 6006, Start Num: 45  
Candidate Starts for Wheezy\_9:  
(26, 5635), (27, 5638), (Start: 45 @5755 has 38 MA's), (51, 5803), (68, 5917), (71, 5932), (75, 5992),

Gene: WhoseManz\_7 Start: 3472, Stop: 3717, Start Num: 45

Candidate Starts for WhoseManz\_7:

(21, 3247), (Start: 44 @3469 has 2 MA's), (Start: 45 @3472 has 38 MA's), (55, 3538), (61, 3574), (63, 3580), (64, 3610), (70, 3640), (71, 3646), (75, 3706),

Gene: Xincheng\_78 Start: 65538, Stop: 65254, Start Num: 45

Candidate Starts for Xincheng\_78:

(Start: 45 @65538 has 38 MA's), (50, 65502), (58, 65436), (60, 65427), (61, 65415), (65, 65382), (70, 65358),

Gene: Yndexa\_7 Start: 3562, Stop: 3807, Start Num: 45

Candidate Starts for Yndexa\_7:

(8, 3202), (Start: 44 @3559 has 2 MA's), (Start: 45 @3562 has 38 MA's), (55, 3628), (61, 3664), (63, 3670), (64, 3700), (70, 3730), (74, 3790), (75, 3796),

Gene: Zemanar\_84 Start: 65406, Stop: 65128, Start Num: 45

Candidate Starts for Zemanar\_84:

(Start: 45 @65406 has 38 MA's), (50, 65376), (54, 65331), (57, 65319), (58, 65310), (61, 65289), (64, 65262),

Gene: Zenteno07\_96 Start: 67053, Stop: 66802, Start Num: 48

Candidate Starts for Zenteno07\_96:

(Start: 48 @67053 has 3 MA's), (50, 67035), (67, 66894),