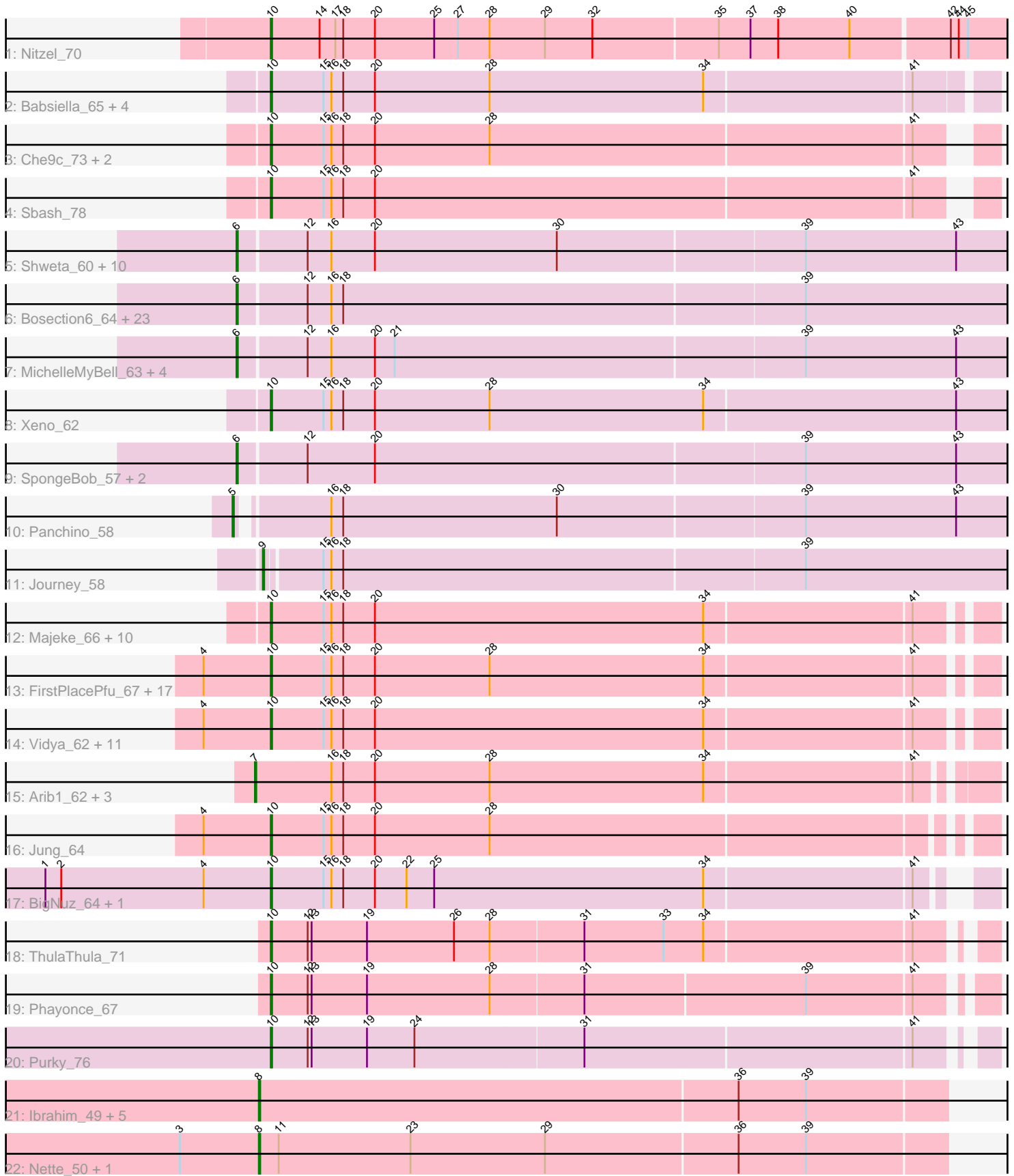


# Pham 212460



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 212460 Report

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

Pham number 212460 has 115 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Nitzel\_70
- Track 2 : Babsiella\_65, Bunnies\_69, Brujita\_64, Ksquared\_67, Langerak\_63
- Track 3 : Che9c\_73, Xavia\_65, Stuck\_76
- Track 4 : Sbash\_78
- Track 5 : Shweta\_60, Redi\_62, Nenae\_62, ShrimpFriedEgg\_62, Raymond7\_55, BabeRuth\_62, Purgamenstris\_62, Hanako\_61, Phrann\_61, Andies\_59, PhancyPhin\_62
- Track 6 : Bosection6\_64, Pipsqueaks\_66, Smurph\_65, SkinnyPete\_62, Aggie\_61, Carcharodon\_65, Silvy\_61, EGUnicorn\_63, Magsby\_64, Chewbacca\_68, Schnauzer\_66, Philonius\_65, Silvafighter\_67, Fulbright\_63, Scitech\_60, Xerxes\_65, Parmesanjohn\_65, Tapioca\_63, Duplicity\_63, Charlie\_62, Phloss\_63, Melville\_70, Tortoise12\_63, Gex\_66
- Track 7 : MichelleMyBell\_63, Rebel\_59, Butters\_61, Rubeelu\_61, Kevin1\_64
- Track 8 : Xeno\_62
- Track 9 : SpongeBob\_57, Snekmaggedon\_57, Jamie19\_57
- Track 10 : Panchino\_58
- Track 11 : Journey\_58
- Track 12 : Majeke\_66, Island3\_65, QueenHazel\_60, Etoile\_61, Donovan\_63, Phegasus\_66, Kari\_61, HC\_60, Fishburne\_62, Xula\_59, Mangethe\_66
- Track 13 : FirstPlacePfu\_67, StevieRay\_68, Bogie\_66, HUHilltop\_66, Zilizebeth\_69, Thespis\_65, Atcoo\_65, Juniormint\_61, Brusacoram\_65, Polkaroo\_65, Megiddo\_63, Shipwreck\_66, Necropolis\_61, Dynamo\_63, Pygmy\_67, GreaseLightnin\_68, Phineas\_64, Bhagsy\_68
- Track 14 : Vidya\_62, Willsammy\_65, Jebeks\_64, Gavriela\_63, CactusJack\_64, Malithi\_63, Phalm\_64, Camster\_64, Sonah\_64, StressBall\_63, Glaske\_63, KilKor\_64
- Track 15 : Arib1\_62, Techage\_64, Venti\_61, Bartholomew\_59
- Track 16 : Jung\_64
- Track 17 : BigNuz\_64, Nazo\_65
- Track 18 : ThulaThula\_71
- Track 19 : Phayonce\_67
- Track 20 : Purky\_76
- Track 21 : Ibrahim\_49, Bernal13\_49, Whitty\_48, ZenTime222\_48, RonRayGun\_49, Nairb\_48
- Track 22 : Nette\_50, Mendokysei\_47

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

The start number called the most often in the published annotations is 10, it was called in 51 of the 103 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Atcoo\_65, Babsiella\_65, Bhagsy\_68, BigNuz\_64, Bogie\_66, Brujita\_64, Brusacoram\_65, Bunnies\_69, CactusJack\_64, Camster\_64, Che9c\_73, Donovan\_63, Dynamo\_63, Etoile\_61, FirstPlacePfu\_67, Fishburne\_62, Gavriela\_63, Glaske\_63, GreaseLightnin\_68, HC\_60, HUHilltop\_66, Island3\_65, Jebeks\_64, Jung\_64, Juniormint\_61, Kari\_61, KilKor\_64, Ksquared\_67, Langerak\_63, Majeke\_66, Malithi\_63, Mangethe\_66, Megiddo\_63, Nazo\_65, Necropolis\_61, Nitzel\_70, Phalm\_64, Phayonce\_67, Phegasus\_66, Phineas\_64, Polkaroo\_65, Purky\_76, Pygmy\_67, QueenHazel\_60, Sbash\_78, Shipwreck\_66, Sonah\_64, StevieRay\_68, StressBall\_63, Stuck\_76, Thespiis\_65, ThulaThula\_71, Vidya\_62, Willsammy\_65, Xavia\_65, Xeno\_62, Xula\_59, Zilizebeth\_69,

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

- 

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

- Aggie\_61, Andies\_59, Arib1\_62, BabeRuth\_62, Bartholomew\_59, Bernal13\_49, Bosection6\_64, Butters\_61, Carcharodon\_65, Charlie\_62, Chewbacca\_68, Duplicity\_63, EGUnicorn\_63, Fulbright\_63, Gex\_66, Hanako\_61, Ibrahim\_49, Jamie19\_57, Journey\_58, Kevin1\_64, Magsby\_64, Melville\_70, Mendokysei\_47, MichelleMyBell\_63, Nairb\_48, Nенаe\_62, Nette\_50, Panchino\_58, Parmesanjohn\_65, PhancyPhin\_62, Philonius\_65, Phloss\_63, Phrann\_61, Pipsqueaks\_66, Purgamenstris\_62, Raymond7\_55, Rebel\_59, Redi\_62, RonRayGun\_49, Rubeelu\_61, Schnauzer\_66, Scitech\_60, ShrimpFriedEgg\_62, Shweta\_60, Silvafighter\_67, Silvy\_61, SkinnyPete\_62, Smurph\_65, Snekmaggon\_57, SpongeBob\_57, Tapioca\_63, Techage\_64, Tortoise12\_63, Venti\_61, Whitty\_48, Xerxes\_65, ZenTime222\_48,

### **Summary by start number:**

Start 5:

- Found in 1 of 115 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Panchino\_58 (N),

Start 6:

- Found in 43 of 115 ( 37.4% ) of genes in pham
- Manual Annotations of this start: 39 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aggie\_61 (N), Andies\_59 (N), BabeRuth\_62 (N), Bosection6\_64 (N), Butters\_61 (N), Carcharodon\_65 (N), Charlie\_62 (N), Chewbacca\_68 (N), Duplicity\_63 (N), EGUnicorn\_63 (N), Fulbright\_63 (N), Gex\_66 (N), Hanako\_61 (N), Jamie19\_57 (N), Kevin1\_64 (N), Magsby\_64 (N), Melville\_70 (N), MichelleMyBell\_63 (N), Nенаe\_62 (N), Parmesanjohn\_65 (N), PhancyPhin\_62 (N), Philonius\_65 (N), Phloss\_63 (N), Phrann\_61 (N), Pipsqueaks\_66 (N), Purgamenstris\_62 (N), Raymond7\_55 (N),

Rebel\_59 (N), Redi\_62 (N), Rubeelu\_61 (N), Schnauzer\_66 (N), Scitech\_60 (N), ShrimpFriedEgg\_62 (N), Shweta\_60 (N), Silvafighter\_67 (N), Silvy\_61 (N), SkinnyPete\_62 (N), Smurph\_65 (N), Snekmaggon\_57 (N), SpongeBob\_57 (N), Tapioca\_63 (N), Tortoise12\_63 (N), Xerxes\_65 (N),

Start 7:

- Found in 4 of 115 ( 3.5% ) of genes in pham
- Manual Annotations of this start: 4 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arib1\_62 (P1), Bartholomew\_59 (P1), Techage\_64 (P1), Venti\_61 (P1),

Start 8:

- Found in 8 of 115 ( 7.0% ) of genes in pham
- Manual Annotations of this start: 7 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bernal13\_49 (T), Ibrahim\_49 (T), Mendokysei\_47 (T), Nairb\_48 (T), Nette\_50 (T), RonRayGun\_49 (T), Whitty\_48 (T), ZenTime222\_48 (T),

Start 9:

- Found in 1 of 115 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Journey\_58 (N),

Start 10:

- Found in 58 of 115 ( 50.4% ) of genes in pham
- Manual Annotations of this start: 51 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Atcoo\_65 (P1), Babsiella\_65 (I1), Bhagsy\_68 (P1), BigNuz\_64 (P4), Bogie\_66 (P1), Brujita\_64 (I1), Brusacoram\_65 (P1), Bunnies\_69 (P1), CactusJack\_64 (P1), Camster\_64 (P1), Che9c\_73 (I2), Donovan\_63 (P1), Dynamo\_63 (P1), Etoile\_61 (P1), FirstPlacePfu\_67 (P1), Fishburne\_62 (P1), Gavriela\_63 (P1), Glaske\_63 (P1), GreaseLightnin\_68 (P1), HC\_60 (I1), HUHilltop\_66 (P1), Island3\_65 (I1), Jebeks\_64 (P1), Jung\_64 (P1), Juniomint\_61 (P1), Kari\_61 (P1), KilKor\_64 (P1), Ksquared\_67 (P1), Langerak\_63 (P1), Majeke\_66 (P1), Malithi\_63 (P1), Mangethe\_66 (P1), Megiddo\_63 (P1), Nazo\_65 (P4), Necropolis\_61 (P1), Nitzel\_70 (F1), Phalm\_64 (P1), Phayonce\_67 (P5), Phegasus\_66 (P1), Phineas\_64 (P1), Polkaroo\_65 (P1), Purky\_76 (P6), Pygmy\_67 (P1), QueenHazel\_60 (I1), Sbash\_78 (I2), Shipwreck\_66 (P1), Sonah\_64 (P1), StevieRay\_68 (P1), StressBall\_63 (P1), Stuck\_76 (I2), Thespis\_65 (P1), ThulaThula\_71 (P5), Vidya\_62 (P1), Willsammy\_65 (P1), Xavia\_65 (P3), Xeno\_62 (N), Xula\_59 (I1), Zilizebeth\_69 (P1),

### Summary by clusters:

There are 10 clusters represented in this pham: F1, P1, P6, P4, P5, I1, P3, I2, N, T,

Info for manual annotations of cluster F1:

- Start number 10 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster I1:

- Start number 10 was manually annotated 6 times for cluster I1.

Info for manual annotations of cluster I2:

- Start number 10 was manually annotated 2 times for cluster I2.

Info for manual annotations of cluster N:

- Start number 5 was manually annotated 1 time for cluster N.
- Start number 6 was manually annotated 39 times for cluster N.
- Start number 9 was manually annotated 1 time for cluster N.
- Start number 10 was manually annotated 1 time for cluster N.

Info for manual annotations of cluster P1:

- Start number 7 was manually annotated 4 times for cluster P1.
- Start number 10 was manually annotated 35 times for cluster P1.

Info for manual annotations of cluster P3:

- Start number 10 was manually annotated 1 time for cluster P3.

Info for manual annotations of cluster P4:

- Start number 10 was manually annotated 2 times for cluster P4.

Info for manual annotations of cluster P5:

- Start number 10 was manually annotated 2 times for cluster P5.

Info for manual annotations of cluster P6:

- Start number 10 was manually annotated 1 time for cluster P6.

Info for manual annotations of cluster T:

- Start number 8 was manually annotated 7 times for cluster T.

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

Gene: Aggie\_61 Start: 41047, Stop: 41649, Start Num: 6

Candidate Starts for Aggie\_61:

(Start: 6 @41047 has 39 MA's), (12, 41095), (16, 41113), (18, 41122), (39, 41467),

Gene: Andies\_59 Start: 40492, Stop: 41094, Start Num: 6

Candidate Starts for Andies\_59:

(Start: 6 @40492 has 39 MA's), (12, 40540), (16, 40558), (20, 40591), (30, 40729), (39, 40912), (43, 41026),

Gene: Arib1\_62 Start: 40287, Stop: 40829, Start Num: 7

Candidate Starts for Arib1\_62:

(Start: 7 @40287 has 4 MA's), (16, 40344), (18, 40353), (20, 40377), (28, 40464), (34, 40626), (41, 40779),

Gene: Atcoo\_65 Start: 43667, Stop: 44197, Start Num: 10

Candidate Starts for Atcoo\_65:

(4, 43616), (Start: 10 @43667 has 51 MA's), (15, 43706), (16, 43712), (18, 43721), (20, 43745), (28, 43832), (34, 43994), (41, 44147),

Gene: BabeRuth\_62 Start: 39143, Stop: 39745, Start Num: 6

Candidate Starts for BabeRuth\_62:

(Start: 6 @39143 has 39 MA's), (12, 39191), (16, 39209), (20, 39242), (30, 39380), (39, 39563), (43, 39677),

Gene: Babsiella\_65 Start: 41599, Stop: 42135, Start Num: 10

Candidate Starts for Babsiella\_65:

(Start: 10 @41599 has 51 MA's), (15, 41638), (16, 41644), (18, 41653), (20, 41677), (28, 41764), (34, 41926), (41, 42079),

Gene: Bartholomew\_59 Start: 39614, Stop: 40162, Start Num: 7

Candidate Starts for Bartholomew\_59:

(Start: 7 @39614 has 4 MA's), (16, 39671), (18, 39680), (20, 39704), (28, 39791), (34, 39953), (41, 40106),

Gene: Bernal13\_49 Start: 35954, Stop: 36469, Start Num: 8

Candidate Starts for Bernal13\_49:

(Start: 8 @35954 has 7 MA's), (36, 36314), (39, 36365),

Gene: Bhagsy\_68 Start: 42784, Stop: 43314, Start Num: 10

Candidate Starts for Bhagsy\_68:

(4, 42733), (Start: 10 @42784 has 51 MA's), (15, 42823), (16, 42829), (18, 42838), (20, 42862), (28, 42949), (34, 43111), (41, 43264),

Gene: BigNuz\_64 Start: 42336, Stop: 42854, Start Num: 10

Candidate Starts for BigNuz\_64:

(1, 42165), (2, 42177), (4, 42285), (Start: 10 @42336 has 51 MA's), (15, 42375), (16, 42381), (18, 42390), (20, 42414), (22, 42438), (25, 42459), (34, 42663), (41, 42816),

Gene: Bogie\_66 Start: 42649, Stop: 43179, Start Num: 10

Candidate Starts for Bogie\_66:

(4, 42598), (Start: 10 @42649 has 51 MA's), (15, 42688), (16, 42694), (18, 42703), (20, 42727), (28, 42814), (34, 42976), (41, 43129),

Gene: Bosection6\_64 Start: 40096, Stop: 40698, Start Num: 6

Candidate Starts for Bosection6\_64:

(Start: 6 @40096 has 39 MA's), (12, 40144), (16, 40162), (18, 40171), (39, 40516),

Gene: Brujita\_64 Start: 41657, Stop: 42181, Start Num: 10

Candidate Starts for Brujita\_64:

(Start: 10 @41657 has 51 MA's), (15, 41696), (16, 41702), (18, 41711), (20, 41735), (28, 41822), (34, 41984), (41, 42137),

Gene: Brusacoram\_65 Start: 42210, Stop: 42740, Start Num: 10

Candidate Starts for Brusacoram\_65:

(4, 42159), (Start: 10 @42210 has 51 MA's), (15, 42249), (16, 42255), (18, 42264), (20, 42288), (28, 42375), (34, 42537), (41, 42690),

Gene: Bunnies\_69 Start: 43411, Stop: 43941, Start Num: 10

Candidate Starts for Bunnies\_69:

(Start: 10 @43411 has 51 MA's), (15, 43450), (16, 43456), (18, 43465), (20, 43489), (28, 43576), (34, 43738), (41, 43891),

Gene: Butters\_61 Start: 38432, Stop: 39028, Start Num: 6  
Candidate Starts for Butters\_61:  
(Start: 6 @38432 has 39 MA's), (12, 38480), (16, 38498), (20, 38531), (21, 38546), (39, 38849), (43, 38963),

Gene: CactusJack\_64 Start: 42282, Stop: 42812, Start Num: 10  
Candidate Starts for CactusJack\_64:  
(4, 42231), (Start: 10 @42282 has 51 MA's), (15, 42321), (16, 42327), (18, 42336), (20, 42360), (34, 42609), (41, 42762),

Gene: Camster\_64 Start: 41110, Stop: 41640, Start Num: 10  
Candidate Starts for Camster\_64:  
(4, 41059), (Start: 10 @41110 has 51 MA's), (15, 41149), (16, 41155), (18, 41164), (20, 41188), (34, 41437), (41, 41590),

Gene: Carcharodon\_65 Start: 40394, Stop: 40996, Start Num: 6  
Candidate Starts for Carcharodon\_65:  
(Start: 6 @40394 has 39 MA's), (12, 40442), (16, 40460), (18, 40469), (39, 40814),

Gene: Charlie\_62 Start: 39720, Stop: 40322, Start Num: 6  
Candidate Starts for Charlie\_62:  
(Start: 6 @39720 has 39 MA's), (12, 39768), (16, 39786), (18, 39795), (39, 40140),

Gene: Che9c\_73 Start: 51368, Stop: 51892, Start Num: 10  
Candidate Starts for Che9c\_73:  
(Start: 10 @51368 has 51 MA's), (15, 51407), (16, 51413), (18, 51422), (20, 51446), (28, 51533), (41, 51848),

Gene: Chewbacca\_68 Start: 40289, Stop: 40891, Start Num: 6  
Candidate Starts for Chewbacca\_68:  
(Start: 6 @40289 has 39 MA's), (12, 40337), (16, 40355), (18, 40364), (39, 40709),

Gene: Donovan\_63 Start: 41244, Stop: 41774, Start Num: 10  
Candidate Starts for Donovan\_63:  
(Start: 10 @41244 has 51 MA's), (15, 41283), (16, 41289), (18, 41298), (20, 41322), (34, 41571), (41, 41724),

Gene: Duplicity\_63 Start: 39651, Stop: 40253, Start Num: 6  
Candidate Starts for Duplicity\_63:  
(Start: 6 @39651 has 39 MA's), (12, 39699), (16, 39717), (18, 39726), (39, 40071),

Gene: Dynamo\_63 Start: 40683, Stop: 41213, Start Num: 10  
Candidate Starts for Dynamo\_63:  
(4, 40632), (Start: 10 @40683 has 51 MA's), (15, 40722), (16, 40728), (18, 40737), (20, 40761), (28, 40848), (34, 41010), (41, 41163),

Gene: EGUunicorn\_63 Start: 38717, Stop: 39319, Start Num: 6  
Candidate Starts for EGUunicorn\_63:  
(Start: 6 @38717 has 39 MA's), (12, 38765), (16, 38783), (18, 38792), (39, 39137),

Gene: Etoile\_61 Start: 41070, Stop: 41600, Start Num: 10  
Candidate Starts for Etoile\_61:

(Start: 10 @41070 has 51 MA's), (15, 41109), (16, 41115), (18, 41124), (20, 41148), (34, 41397), (41, 41550),

Gene: FirstPlacePfu\_67 Start: 40276, Stop: 40806, Start Num: 10

Candidate Starts for FirstPlacePfu\_67:

(4, 40225), (Start: 10 @40276 has 51 MA's), (15, 40315), (16, 40321), (18, 40330), (20, 40354), (28, 40441), (34, 40603), (41, 40756),

Gene: Fishburne\_62 Start: 41070, Stop: 41600, Start Num: 10

Candidate Starts for Fishburne\_62:

(Start: 10 @41070 has 51 MA's), (15, 41109), (16, 41115), (18, 41124), (20, 41148), (34, 41397), (41, 41550),

Gene: Fulbright\_63 Start: 39088, Stop: 39690, Start Num: 6

Candidate Starts for Fulbright\_63:

(Start: 6 @39088 has 39 MA's), (12, 39136), (16, 39154), (18, 39163), (39, 39508),

Gene: Gavriela\_63 Start: 41975, Stop: 42505, Start Num: 10

Candidate Starts for Gavriela\_63:

(4, 41924), (Start: 10 @41975 has 51 MA's), (15, 42014), (16, 42020), (18, 42029), (20, 42053), (34, 42302), (41, 42455),

Gene: Gex\_66 Start: 40410, Stop: 41012, Start Num: 6

Candidate Starts for Gex\_66:

(Start: 6 @40410 has 39 MA's), (12, 40458), (16, 40476), (18, 40485), (39, 40830),

Gene: Glaske\_63 Start: 42282, Stop: 42812, Start Num: 10

Candidate Starts for Glaske\_63:

(4, 42231), (Start: 10 @42282 has 51 MA's), (15, 42321), (16, 42327), (18, 42336), (20, 42360), (34, 42609), (41, 42762),

Gene: GreaseLightnin\_68 Start: 43064, Stop: 43594, Start Num: 10

Candidate Starts for GreaseLightnin\_68:

(4, 43013), (Start: 10 @43064 has 51 MA's), (15, 43103), (16, 43109), (18, 43118), (20, 43142), (28, 43229), (34, 43391), (41, 43544),

Gene: HC\_60 Start: 39145, Stop: 39687, Start Num: 10

Candidate Starts for HC\_60:

(Start: 10 @39145 has 51 MA's), (15, 39184), (16, 39190), (18, 39199), (20, 39223), (34, 39472), (41, 39625),

Gene: HUHilltop\_66 Start: 40906, Stop: 41436, Start Num: 10

Candidate Starts for HUHilltop\_66:

(4, 40855), (Start: 10 @40906 has 51 MA's), (15, 40945), (16, 40951), (18, 40960), (20, 40984), (28, 41071), (34, 41233), (41, 41386),

Gene: Hanako\_61 Start: 39143, Stop: 39745, Start Num: 6

Candidate Starts for Hanako\_61:

(Start: 6 @39143 has 39 MA's), (12, 39191), (16, 39209), (20, 39242), (30, 39380), (39, 39563), (43, 39677),

Gene: Ibrahim\_49 Start: 36400, Stop: 36915, Start Num: 8

Candidate Starts for Ibrahim\_49:



(Start: 8 @36400 has 7 MA's), (36, 36760), (39, 36811),

Gene: Island3\_65 Start: 41657, Stop: 42181, Start Num: 10

Candidate Starts for Island3\_65:

(Start: 10 @41657 has 51 MA's), (15, 41696), (16, 41702), (18, 41711), (20, 41735), (34, 41984), (41, 42137),

Gene: Jamie19\_57 Start: 37823, Stop: 38425, Start Num: 6

Candidate Starts for Jamie19\_57:

(Start: 6 @37823 has 39 MA's), (12, 37871), (20, 37922), (39, 38243), (43, 38357),

Gene: Jebeks\_64 Start: 40203, Stop: 40733, Start Num: 10

Candidate Starts for Jebeks\_64:

(4, 40152), (Start: 10 @40203 has 51 MA's), (15, 40242), (16, 40248), (18, 40257), (20, 40281), (34, 40530), (41, 40683),

Gene: Journey\_58 Start: 38700, Stop: 39281, Start Num: 9

Candidate Starts for Journey\_58:

(Start: 9 @38700 has 1 MA's), (15, 38739), (16, 38745), (18, 38754), (39, 39099),

Gene: Jung\_64 Start: 41206, Stop: 41730, Start Num: 10

Candidate Starts for Jung\_64:

(4, 41155), (Start: 10 @41206 has 51 MA's), (15, 41245), (16, 41251), (18, 41260), (20, 41284), (28, 41371),

Gene: Juniormint\_61 Start: 39659, Stop: 40189, Start Num: 10

Candidate Starts for Juniormint\_61:

(4, 39608), (Start: 10 @39659 has 51 MA's), (15, 39698), (16, 39704), (18, 39713), (20, 39737), (28, 39824), (34, 39986), (41, 40139),

Gene: Kari\_61 Start: 41067, Stop: 41597, Start Num: 10

Candidate Starts for Kari\_61:

(Start: 10 @41067 has 51 MA's), (15, 41106), (16, 41112), (18, 41121), (20, 41145), (34, 41394), (41, 41547),

Gene: Kevin1\_64 Start: 38938, Stop: 39537, Start Num: 6

Candidate Starts for Kevin1\_64:

(Start: 6 @38938 has 39 MA's), (12, 38986), (16, 39004), (20, 39037), (21, 39052), (39, 39358), (43, 39472),

Gene: KilKor\_64 Start: 42975, Stop: 43505, Start Num: 10

Candidate Starts for KilKor\_64:

(4, 42924), (Start: 10 @42975 has 51 MA's), (15, 43014), (16, 43020), (18, 43029), (20, 43053), (34, 43302), (41, 43455),

Gene: Ksquared\_67 Start: 43288, Stop: 43818, Start Num: 10

Candidate Starts for Ksquared\_67:

(Start: 10 @43288 has 51 MA's), (15, 43327), (16, 43333), (18, 43342), (20, 43366), (28, 43453), (34, 43615), (41, 43768),

Gene: Langerak\_63 Start: 41047, Stop: 41577, Start Num: 10

Candidate Starts for Langerak\_63:

(Start: 10 @41047 has 51 MA's), (15, 41086), (16, 41092), (18, 41101), (20, 41125), (28, 41212), (34, 41374), (41, 41527),

Gene: Magsby\_64 Start: 40356, Stop: 40958, Start Num: 6

Candidate Starts for Magsby\_64:

(Start: 6 @40356 has 39 MA's), (12, 40404), (16, 40422), (18, 40431), (39, 40776),

Gene: Majeke\_66 Start: 41694, Stop: 42224, Start Num: 10

Candidate Starts for Majeke\_66:

(Start: 10 @41694 has 51 MA's), (15, 41733), (16, 41739), (18, 41748), (20, 41772), (34, 42021), (41, 42174),

Gene: Malithi\_63 Start: 40833, Stop: 41363, Start Num: 10

Candidate Starts for Malithi\_63:

(4, 40782), (Start: 10 @40833 has 51 MA's), (15, 40872), (16, 40878), (18, 40887), (20, 40911), (34, 41160), (41, 41313),

Gene: Mangethe\_66 Start: 41694, Stop: 42224, Start Num: 10

Candidate Starts for Mangethe\_66:

(Start: 10 @41694 has 51 MA's), (15, 41733), (16, 41739), (18, 41748), (20, 41772), (34, 42021), (41, 42174),

Gene: Megiddo\_63 Start: 42843, Stop: 43373, Start Num: 10

Candidate Starts for Megiddo\_63:

(4, 42792), (Start: 10 @42843 has 51 MA's), (15, 42882), (16, 42888), (18, 42897), (20, 42921), (28, 43008), (34, 43170), (41, 43323),

Gene: Melville\_70 Start: 39965, Stop: 40567, Start Num: 6

Candidate Starts for Melville\_70:

(Start: 6 @39965 has 39 MA's), (12, 40013), (16, 40031), (18, 40040), (39, 40385),

Gene: Mendokysei\_47 Start: 35526, Stop: 36041, Start Num: 8

Candidate Starts for Mendokysei\_47:

(3, 35466), (Start: 8 @35526 has 7 MA's), (11, 35541), (23, 35640), (29, 35742), (36, 35886), (39, 35937),

Gene: MichelleMyBell\_63 Start: 38786, Stop: 39388, Start Num: 6

Candidate Starts for MichelleMyBell\_63:

(Start: 6 @38786 has 39 MA's), (12, 38834), (16, 38852), (20, 38885), (21, 38900), (39, 39206), (43, 39320),

Gene: Nairb\_48 Start: 35954, Stop: 36469, Start Num: 8

Candidate Starts for Nairb\_48:

(Start: 8 @35954 has 7 MA's), (36, 36314), (39, 36365),

Gene: Nazo\_65 Start: 42521, Stop: 43039, Start Num: 10

Candidate Starts for Nazo\_65:

(1, 42350), (2, 42362), (4, 42470), (Start: 10 @42521 has 51 MA's), (15, 42560), (16, 42566), (18, 42575), (20, 42599), (22, 42623), (25, 42644), (34, 42848), (41, 43001),

Gene: Necropolis\_61 Start: 40272, Stop: 40802, Start Num: 10

Candidate Starts for Necropolis\_61:

(4, 40221), (Start: 10 @40272 has 51 MA's), (15, 40311), (16, 40317), (18, 40326), (20, 40350), (28, 40437), (34, 40599), (41, 40752),

Gene: Nенаe\_62 Start: 39145, Stop: 39747, Start Num: 6

Candidate Starts for Nенаe\_62:

(Start: 6 @39145 has 39 MA's), (12, 39193), (16, 39211), (20, 39244), (30, 39382), (39, 39565), (43, 39679),

Gene: Nette\_50 Start: 35535, Stop: 36050, Start Num: 8

Candidate Starts for Nette\_50:

(3, 35475), (Start: 8 @35535 has 7 MA's), (11, 35550), (23, 35649), (29, 35751), (36, 35895), (39, 35946),

Gene: Nitzel\_70 Start: 44595, Stop: 45167, Start Num: 10

Candidate Starts for Nitzel\_70:

(Start: 10 @44595 has 51 MA's), (14, 44631), (17, 44643), (18, 44649), (20, 44673), (25, 44718), (27, 44736), (28, 44760), (29, 44802), (32, 44838), (35, 44931), (37, 44955), (38, 44976), (40, 45030), (42, 45102), (44, 45108), (45, 45114),

Gene: Panchino\_58 Start: 39928, Stop: 40521, Start Num: 5

Candidate Starts for Panchino\_58:

(Start: 5 @39928 has 1 MA's), (16, 39985), (18, 39994), (30, 40156), (39, 40339), (43, 40453),

Gene: Parmesanjohn\_65 Start: 40414, Stop: 41016, Start Num: 6

Candidate Starts for Parmesanjohn\_65:

(Start: 6 @40414 has 39 MA's), (12, 40462), (16, 40480), (18, 40489), (39, 40834),

Gene: Phalm\_64 Start: 42273, Stop: 42803, Start Num: 10

Candidate Starts for Phalm\_64:

(4, 42222), (Start: 10 @42273 has 51 MA's), (15, 42312), (16, 42318), (18, 42327), (20, 42351), (34, 42600), (41, 42753),

Gene: PhancyPhin\_62 Start: 39139, Stop: 39741, Start Num: 6

Candidate Starts for PhancyPhin\_62:

(Start: 6 @39139 has 39 MA's), (12, 39187), (16, 39205), (20, 39238), (30, 39376), (39, 39559), (43, 39673),

Gene: Phayonce\_67 Start: 44806, Stop: 45330, Start Num: 10

Candidate Starts for Phayonce\_67:

(Start: 10 @44806 has 51 MA's), (12, 44833), (13, 44836), (19, 44878), (28, 44971), (31, 45040), (39, 45205), (41, 45283),

Gene: Phegasus\_66 Start: 41661, Stop: 42191, Start Num: 10

Candidate Starts for Phegasus\_66:

(Start: 10 @41661 has 51 MA's), (15, 41700), (16, 41706), (18, 41715), (20, 41739), (34, 41988), (41, 42141),

Gene: Philonius\_65 Start: 40579, Stop: 41181, Start Num: 6

Candidate Starts for Philonius\_65:

(Start: 6 @40579 has 39 MA's), (12, 40627), (16, 40645), (18, 40654), (39, 40999),

Gene: Phineas\_64 Start: 41241, Stop: 41771, Start Num: 10

Candidate Starts for Phineas\_64:

(4, 41190), (Start: 10 @41241 has 51 MA's), (15, 41280), (16, 41286), (18, 41295), (20, 41319), (28, 41406), (34, 41568), (41, 41721),

Gene: Phloss\_63 Start: 39821, Stop: 40423, Start Num: 6

Candidate Starts for Phloss\_63:

(Start: 6 @39821 has 39 MA's), (12, 39869), (16, 39887), (18, 39896), (39, 40241),

Gene: Phrann\_61 Start: 41688, Stop: 42290, Start Num: 6

Candidate Starts for Phrann\_61:

(Start: 6 @41688 has 39 MA's), (12, 41736), (16, 41754), (20, 41787), (30, 41925), (39, 42108), (43, 42222),

Gene: Pipsqueaks\_66 Start: 40392, Stop: 40994, Start Num: 6

Candidate Starts for Pipsqueaks\_66:

(Start: 6 @40392 has 39 MA's), (12, 40440), (16, 40458), (18, 40467), (39, 40812),

Gene: Polkaroo\_65 Start: 42987, Stop: 43517, Start Num: 10

Candidate Starts for Polkaroo\_65:

(4, 42936), (Start: 10 @42987 has 51 MA's), (15, 43026), (16, 43032), (18, 43041), (20, 43065), (28, 43152), (34, 43314), (41, 43467),

Gene: Purgamenstris\_62 Start: 39143, Stop: 39745, Start Num: 6

Candidate Starts for Purgamenstris\_62:

(Start: 6 @39143 has 39 MA's), (12, 39191), (16, 39209), (20, 39242), (30, 39380), (39, 39563), (43, 39677),

Gene: Purky\_76 Start: 46764, Stop: 47285, Start Num: 10

Candidate Starts for Purky\_76:

(Start: 10 @46764 has 51 MA's), (12, 46791), (13, 46794), (19, 46836), (24, 46872), (31, 46998), (41, 47241),

Gene: Pygmy\_67 Start: 42705, Stop: 43235, Start Num: 10

Candidate Starts for Pygmy\_67:

(4, 42654), (Start: 10 @42705 has 51 MA's), (15, 42744), (16, 42750), (18, 42759), (20, 42783), (28, 42870), (34, 43032), (41, 43185),

Gene: QueenHazel\_60 Start: 40826, Stop: 41356, Start Num: 10

Candidate Starts for QueenHazel\_60:

(Start: 10 @40826 has 51 MA's), (15, 40865), (16, 40871), (18, 40880), (20, 40904), (34, 41153), (41, 41306),

Gene: Raymond7\_55 Start: 38931, Stop: 39533, Start Num: 6

Candidate Starts for Raymond7\_55:

(Start: 6 @38931 has 39 MA's), (12, 38979), (16, 38997), (20, 39030), (30, 39168), (39, 39351), (43, 39465),

Gene: Rebel\_59 Start: 37248, Stop: 37847, Start Num: 6

Candidate Starts for Rebel\_59:

(Start: 6 @37248 has 39 MA's), (12, 37296), (16, 37314), (20, 37347), (21, 37362), (39, 37668), (43, 37782),

Gene: Redi\_62 Start: 39142, Stop: 39744, Start Num: 6

Candidate Starts for Redi\_62:

(Start: 6 @39142 has 39 MA's), (12, 39190), (16, 39208), (20, 39241), (30, 39379), (39, 39562), (43, 39676),

Gene: RonRayGun\_49 Start: 36400, Stop: 36915, Start Num: 8

Candidate Starts for RonRayGun\_49:

(Start: 8 @36400 has 7 MA's), (36, 36760), (39, 36811),

Gene: Rubeelu\_61 Start: 38432, Stop: 39028, Start Num: 6

Candidate Starts for Rubeelu\_61:

(Start: 6 @38432 has 39 MA's), (12, 38480), (16, 38498), (20, 38531), (21, 38546), (39, 38849), (43, 38963),

Gene: Sbash\_78 Start: 50081, Stop: 50605, Start Num: 10

Candidate Starts for Sbash\_78:

(Start: 10 @50081 has 51 MA's), (15, 50120), (16, 50126), (18, 50135), (20, 50159), (41, 50561),

Gene: Schnauzer\_66 Start: 40414, Stop: 41016, Start Num: 6

Candidate Starts for Schnauzer\_66:

(Start: 6 @40414 has 39 MA's), (12, 40462), (16, 40480), (18, 40489), (39, 40834),

Gene: Scitech\_60 Start: 39817, Stop: 40419, Start Num: 6

Candidate Starts for Scitech\_60:

(Start: 6 @39817 has 39 MA's), (12, 39865), (16, 39883), (18, 39892), (39, 40237),

Gene: Shipwreck\_66 Start: 42680, Stop: 43210, Start Num: 10

Candidate Starts for Shipwreck\_66:

(4, 42629), (Start: 10 @42680 has 51 MA's), (15, 42719), (16, 42725), (18, 42734), (20, 42758), (28, 42845), (34, 43007), (41, 43160),

Gene: ShrimpFriedEgg\_62 Start: 39142, Stop: 39744, Start Num: 6

Candidate Starts for ShrimpFriedEgg\_62:

(Start: 6 @39142 has 39 MA's), (12, 39190), (16, 39208), (20, 39241), (30, 39379), (39, 39562), (43, 39676),

Gene: Shweta\_60 Start: 39374, Stop: 39976, Start Num: 6

Candidate Starts for Shweta\_60:

(Start: 6 @39374 has 39 MA's), (12, 39422), (16, 39440), (20, 39473), (30, 39611), (39, 39794), (43, 39908),

Gene: Silvafighter\_67 Start: 39957, Stop: 40559, Start Num: 6

Candidate Starts for Silvafighter\_67:

(Start: 6 @39957 has 39 MA's), (12, 40005), (16, 40023), (18, 40032), (39, 40377),

Gene: Silvy\_61 Start: 41047, Stop: 41649, Start Num: 6

Candidate Starts for Silvy\_61:

(Start: 6 @41047 has 39 MA's), (12, 41095), (16, 41113), (18, 41122), (39, 41467),

Gene: SkinnyPete\_62 Start: 40161, Stop: 40763, Start Num: 6

Candidate Starts for SkinnyPete\_62:

(Start: 6 @40161 has 39 MA's), (12, 40209), (16, 40227), (18, 40236), (39, 40581),

Gene: Smurph\_65 Start: 40414, Stop: 41016, Start Num: 6

Candidate Starts for Smurph\_65:

(Start: 6 @40414 has 39 MA's), (12, 40462), (16, 40480), (18, 40489), (39, 40834),

Gene: Snekmaggedon\_57 Start: 37823, Stop: 38425, Start Num: 6

Candidate Starts for Snekmaggedon\_57:

(Start: 6 @37823 has 39 MA's), (12, 37871), (20, 37922), (39, 38243), (43, 38357),

Gene: Sonah\_64 Start: 40377, Stop: 40907, Start Num: 10

Candidate Starts for Sonah\_64:

(4, 40326), (Start: 10 @40377 has 51 MA's), (15, 40416), (16, 40422), (18, 40431), (20, 40455), (34, 40704), (41, 40857),

Gene: SpongeBob\_57 Start: 37823, Stop: 38425, Start Num: 6

Candidate Starts for SpongeBob\_57:

(Start: 6 @37823 has 39 MA's), (12, 37871), (20, 37922), (39, 38243), (43, 38357),

Gene: StevieRay\_68 Start: 43444, Stop: 43974, Start Num: 10

Candidate Starts for StevieRay\_68:

(4, 43393), (Start: 10 @43444 has 51 MA's), (15, 43483), (16, 43489), (18, 43498), (20, 43522), (28, 43609), (34, 43771), (41, 43924),

Gene: StressBall\_63 Start: 41975, Stop: 42505, Start Num: 10

Candidate Starts for StressBall\_63:

(4, 41924), (Start: 10 @41975 has 51 MA's), (15, 42014), (16, 42020), (18, 42029), (20, 42053), (34, 42302), (41, 42455),

Gene: Stuck\_76 Start: 49335, Stop: 49859, Start Num: 10

Candidate Starts for Stuck\_76:

(Start: 10 @49335 has 51 MA's), (15, 49374), (16, 49380), (18, 49389), (20, 49413), (28, 49500), (41, 49815),

Gene: Tapioca\_63 Start: 40931, Stop: 41533, Start Num: 6

Candidate Starts for Tapioca\_63:

(Start: 6 @40931 has 39 MA's), (12, 40979), (16, 40997), (18, 41006), (39, 41351),

Gene: Techage\_64 Start: 41242, Stop: 41784, Start Num: 7

Candidate Starts for Techage\_64:

(Start: 7 @41242 has 4 MA's), (16, 41299), (18, 41308), (20, 41332), (28, 41419), (34, 41581), (41, 41734),

Gene: Thespis\_65 Start: 42210, Stop: 42740, Start Num: 10

Candidate Starts for Thespis\_65:

(4, 42159), (Start: 10 @42210 has 51 MA's), (15, 42249), (16, 42255), (18, 42264), (20, 42288), (28, 42375), (34, 42537), (41, 42690),

Gene: ThulaThula\_71 Start: 46227, Stop: 46748, Start Num: 10

Candidate Starts for ThulaThula\_71:

(Start: 10 @46227 has 51 MA's), (12, 46254), (13, 46257), (19, 46299), (26, 46365), (28, 46392), (31, 46461), (33, 46521), (34, 46551), (41, 46704),

Gene: Tortoise12\_63 Start: 39535, Stop: 40137, Start Num: 6

Candidate Starts for Tortoise12\_63:

(Start: 6 @39535 has 39 MA's), (12, 39583), (16, 39601), (18, 39610), (39, 39955),

Gene: Venti\_61 Start: 39614, Stop: 40162, Start Num: 7  
Candidate Starts for Venti\_61:  
(Start: 7 @39614 has 4 MA's), (16, 39671), (18, 39680), (20, 39704), (28, 39791), (34, 39953), (41, 40106),

Gene: Vidya\_62 Start: 40498, Stop: 41028, Start Num: 10  
Candidate Starts for Vidya\_62:  
(4, 40447), (Start: 10 @40498 has 51 MA's), (15, 40537), (16, 40543), (18, 40552), (20, 40576), (34, 40825), (41, 40978),

Gene: Whitty\_48 Start: 35955, Stop: 36470, Start Num: 8  
Candidate Starts for Whitty\_48:  
(Start: 8 @35955 has 7 MA's), (36, 36315), (39, 36366),

Gene: Willsammy\_65 Start: 42459, Stop: 42989, Start Num: 10  
Candidate Starts for Willsammy\_65:  
(4, 42408), (Start: 10 @42459 has 51 MA's), (15, 42498), (16, 42504), (18, 42513), (20, 42537), (34, 42786), (41, 42939),

Gene: Xavia\_65 Start: 46537, Stop: 47067, Start Num: 10  
Candidate Starts for Xavia\_65:  
(Start: 10 @46537 has 51 MA's), (15, 46576), (16, 46582), (18, 46591), (20, 46615), (28, 46702), (41, 47017),

Gene: Xeno\_62 Start: 39097, Stop: 39681, Start Num: 10  
Candidate Starts for Xeno\_62:  
(Start: 10 @39097 has 51 MA's), (15, 39136), (16, 39142), (18, 39151), (20, 39175), (28, 39262), (34, 39424), (43, 39613),

Gene: Xerxes\_65 Start: 40411, Stop: 41013, Start Num: 6  
Candidate Starts for Xerxes\_65:  
(Start: 6 @40411 has 39 MA's), (12, 40459), (16, 40477), (18, 40486), (39, 40831),

Gene: Xula\_59 Start: 40447, Stop: 40989, Start Num: 10  
Candidate Starts for Xula\_59:  
(Start: 10 @40447 has 51 MA's), (15, 40486), (16, 40492), (18, 40501), (20, 40525), (34, 40774), (41, 40927),

Gene: ZenTime222\_48 Start: 35954, Stop: 36469, Start Num: 8  
Candidate Starts for ZenTime222\_48:  
(Start: 8 @35954 has 7 MA's), (36, 36314), (39, 36365),

Gene: Zilizebeth\_69 Start: 42019, Stop: 42549, Start Num: 10  
Candidate Starts for Zilizebeth\_69:  
(4, 41968), (Start: 10 @42019 has 51 MA's), (15, 42058), (16, 42064), (18, 42073), (20, 42097), (28, 42184), (34, 42346), (41, 42499),