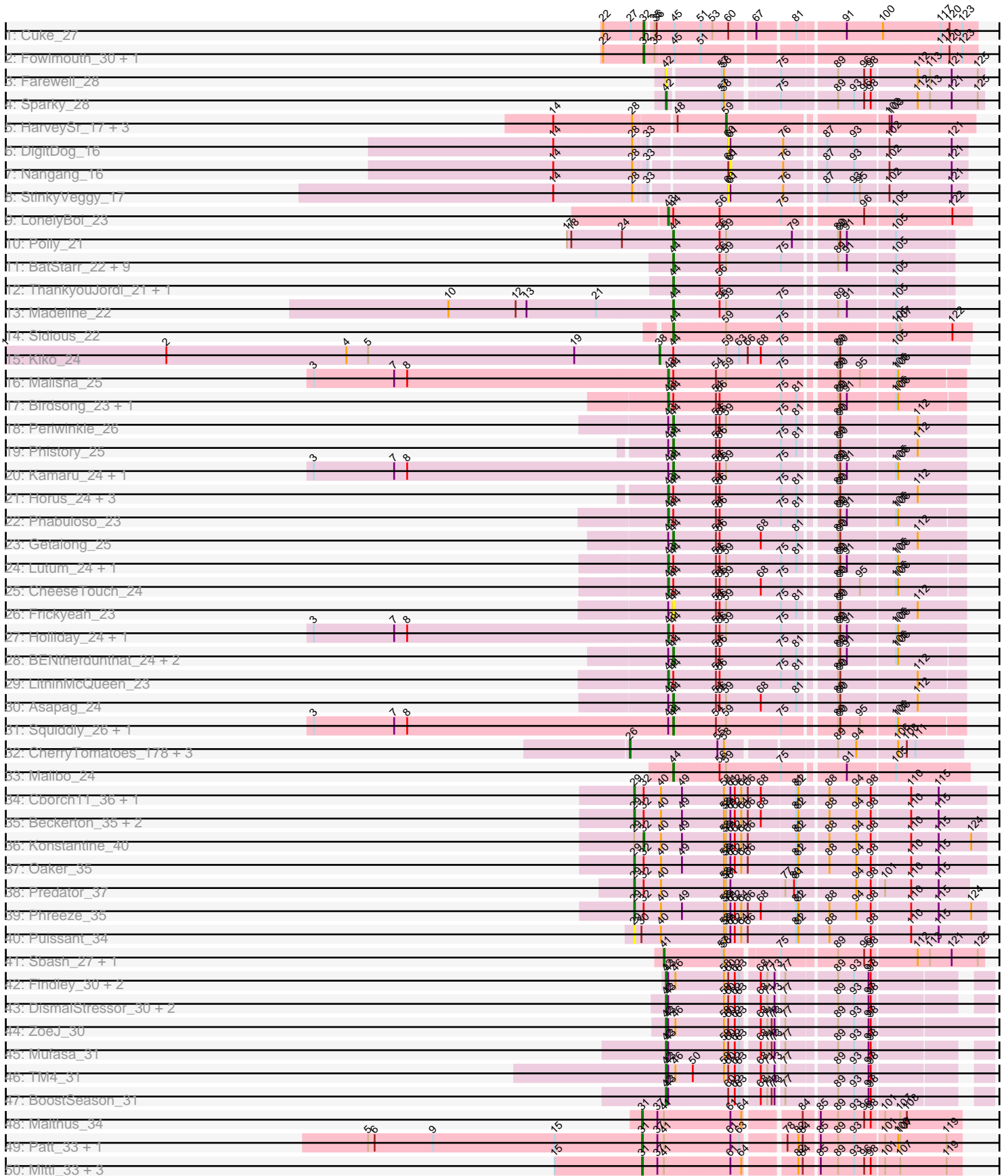


Pham 157684





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 157684 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157684 has 131 members, 17 are drafts.

Phages represented in each track:

- Track 1 : Cuke\_27
- Track 2 : Fowlmouth\_30, MrMiyagi\_30
- Track 3 : Farewell\_28
- Track 4 : Sparky\_28
- Track 5 : HarveySr\_17, Ben11\_16, SlippinJimmy\_17, Phaedrus\_16
- Track 6 : DigitDog\_16
- Track 7 : Nangang\_16
- Track 8 : StinkyVeggy\_17
- Track 9 : LonelyBoi\_23
- Track 10 : Polly\_21
- Track 11 : BatStarr\_22, Bialota\_22, Nymphadora\_22, Herod\_22, Zirinka\_22, TimTam\_22, Bosnia\_22, Hugley\_22, Ohgeesy\_22, Eviarto\_22
- Track 12 : ThankyouJordi\_21, WelcomeAyanna\_21
- Track 13 : Madeline\_22
- Track 14 : Sidious\_22
- Track 15 : Kiko\_24
- Track 16 : Malisha\_25
- Track 17 : Birdsong\_23, BearBQ\_23
- Track 18 : Periwinkle\_26
- Track 19 : Phistory\_25
- Track 20 : Kamaru\_24, Whitney\_25
- Track 21 : Horus\_24, Apricot\_23, Crater\_22, Leroy\_24
- Track 22 : Phabuloso\_23
- Track 23 : Getalong\_25
- Track 24 : Lutum\_24, Kenna\_23
- Track 25 : CheeseTouch\_24
- Track 26 : Frickyeah\_23
- Track 27 : Holliday\_24, Budski\_24
- Track 28 : BENtherdunthat\_24, Kuwabara\_23, MortyNRick\_23
- Track 29 : LitninMcQueen\_23
- Track 30 : Asapag\_24
- Track 31 : Squiddly\_26, Spooky\_24
- Track 32 : CherryTomatoes\_178, Skog\_5, Pupper\_173, SCentae\_172
- Track 33 : Malibo\_24
- Track 34 : Cborch11\_36, Megatron06\_38
- Track 35 : Beckerton\_35, Damien\_35, Thumb\_35
- Track 36 : Konstantine\_40

- Track 37 : Oaker\_35
- Track 38 : Predator\_37
- Track 39 : Phreeze\_35
- Track 40 : Puissant\_34
- Track 41 : Sbash\_27, IdentityCrisis\_27
- Track 42 : Findley\_30, Strobilo\_32, Milly\_30
- Track 43 : DismalStressor\_30, DismalFunk\_30, Marcoliusprime\_30
- Track 44 : ZoeJ\_30
- Track 45 : Mufasa\_31
- Track 46 : TM4\_31
- Track 47 : BoostSeason\_31
- Track 48 : Malthus\_34
- Track 49 : Patt\_33, MissDaisy\_33
- Track 50 : Mitti\_33, Eponine\_35, OmniCritical\_33, Taquito\_33
- Track 51 : Fionnbharth\_33
- Track 52 : Chancellor\_33, Cheetobro\_33, Slarp\_33
- Track 53 : JF1\_33, Y10\_33, Y2\_33
- Track 54 : Juliette\_35
- Track 55 : Wintermute\_33
- Track 56 : Reptar3000\_33
- Track 57 : Ruthiejr\_34
- Track 58 : SamScheppers\_33
- Track 59 : Boilgate\_29
- Track 60 : Hadrien\_34, Dewey\_33, LilHazelnut\_34, Hail\_33, Gravaillia\_33, HH92\_33, Wishmaker\_33, Ubuntu\_34, Evanesce\_33, DeepSoil15\_34, Amymech\_34, Giles\_33, Forge\_33, Kinbote\_34, Gancho\_33, Webster2\_34, Ein37\_34, OBUpride\_34, Daegal\_35, Luke\_34, Amochick\_34, Luna22\_33
- Track 61 : Bipper\_36
- Track 62 : Cracklewink\_36
- Track 63 : Typha\_33, Hilltopfarm\_33
- Track 64 : VanLee\_29
- Track 65 : Mbo2\_27
- Track 66 : TPA2\_24

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

The start number called the most often in the published annotations is 29, it was called in 28 of the 114 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amochick\_34, Amymech\_34, Beckerton\_35, Cborch11\_36, Daegal\_35, Damien\_35, DeepSoil15\_34, Dewey\_33, Ein37\_34, Evanesce\_33, Forge\_33, Gancho\_33, Giles\_33, Gravaillia\_33, HH92\_33, Hadrien\_34, Hail\_33, Kinbote\_34, LilHazelnut\_34, Luke\_34, Luna22\_33, Megatron06\_38, OBUpride\_34, Oaker\_35, Phreeze\_35, Predator\_37, Puissant\_34, Thumb\_35, Ubuntu\_34, Webster2\_34, Wishmaker\_33,

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

- Konstantine\_40,

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

- Apricot\_23, Asapag\_24, BENtherdunthat\_24, BatStarr\_22, BearBQ\_23, Ben11\_16, Bialota\_22, Bipper\_36, Birdsong\_23, Boilgate\_29, BoostSeason\_31, Bosnia\_22, Budski\_24, Chancellor\_33, CheeseTouch\_24, Cheetobro\_33, CherryTomatoes\_178, Cracklewink\_36, Crater\_22, Cuke\_27, DigitDog\_16, DismalFunk\_30, DismalStressor\_30, Eponine\_35, Eviarto\_22, Farewell\_28, Findley\_30, Fionnbharth\_33, Fowlmouth\_30, Frickyeah\_23, Getalong\_25, HarveySr\_17, Herod\_22, Hilltopfarm\_33, Holliday\_24, Horus\_24, Hugley\_22, IdentityCrisis\_27, JF1\_33, Juliette\_35, Kamaru\_24, Kenna\_23, Kiko\_24, Kuwabara\_23, Leroy\_24, LitninMcQueen\_23, LonelyBoi\_23, Lutum\_24, Madeline\_22, Malibo\_24, Malisha\_25, Malthus\_34, Marcoliusprime\_30, Mbo2\_27, Milly\_30, MissDaisy\_33, Mitti\_33, MortyNRick\_23, MrMiyagi\_30, Mufasa\_31, Nangang\_16, Nymphadora\_22, Ohgeesy\_22, OmniCritical\_33, Patt\_33, Periwinkle\_26, Phabuloso\_23, Phaedrus\_16, Phistory\_25, Polly\_21, Pupper\_173, Reptar3000\_33, Ruthiejr\_34, SCentae\_172, SamScheppers\_33, Sbash\_27, Sidious\_22, Skog\_5, Slarp\_33, SlippinJimmy\_17, Sparky\_28, Spooky\_24, Squiddly\_26, StinkyVeggy\_17, Strobilo\_32, TM4\_31, TPA2\_24, Taquito\_33, ThankyouJordi\_21, TimTam\_22, Typha\_33, VanLee\_29, WelcomeAyanna\_21, Whitney\_25, Wintermute\_33, Y10\_33, Y2\_33, Zirinka\_22, ZoeJ\_30,

### Summary by start number:

#### Start 26:

- Found in 4 of 131 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 3 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CherryTomatoes\_178 (DO), Pupper\_173 (DO), SCentae\_172 (DO), Skog\_5 (DO),

#### Start 29:

- Found in 32 of 131 ( 24.4% ) of genes in pham
- Manual Annotations of this start: 28 of 114
- Called 96.9% of time when present
- Phage (with cluster) where this start called: Amochick\_34 (Q), Amymech\_34 (Q), Beckerton\_35 (H1), Cborch11\_36 (H1), Daegal\_35 (Q), Damien\_35 (H1), DeepSoil15\_34 (Q), Dewey\_33 (Q), Ein37\_34 (Q), Evanesce\_33 (Q), Forge\_33 (Q), Gancho\_33 (Q), Giles\_33 (Q), Gravaillia\_33 (Q), HH92\_33 (Q), Hadrien\_34 (Q), Hail\_33 (Q), Kinbote\_34 (Q), LilHazelNut\_34 (Q), Luke\_34 (Q), Luna22\_33 (Q), Megatron06\_38 (H1), OBUpride\_34 (Q), Oaker\_35 (H1), Phreeze\_35 (H1), Predator\_37 (H1), Puissant\_34 (H1), Thumb\_35 (H1), Ubuntu\_34 (Q), Webster2\_34 (Q), Wishmaker\_33 (Q),

#### Start 31:

- Found in 20 of 131 ( 15.3% ) of genes in pham
- Manual Annotations of this start: 20 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Boilgate\_29 (K8), Chancellor\_33 (K4), Cheetobro\_33 (K4), Eponine\_35 (K4), Fionnbharth\_33 (K4), JF1\_33 (K4), Juliette\_35 (K4), Malthus\_34 (K4), MissDaisy\_33 (K4), Mitti\_33 (K4), OmniCritical\_33 (K4), Patt\_33 (K4), Reptar3000\_33 (K4), Ruthiejr\_34 (K4), SamScheppers\_33 (K4), Slarp\_33 (K4), Taquito\_33 (K4), Wintermute\_33 (K4), Y10\_33 (K4), Y2\_33 (K4),

#### Start 32:

- Found in 12 of 131 ( 9.2% ) of genes in pham

- Manual Annotations of this start: 4 of 114
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Cuke\_27 (AC), Fowlmouth\_30 (AC), Konstantine\_40 (H1), MrMiyagi\_30 (AC),

#### Start 34:

- Found in 2 of 131 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Cracklewink\_36 (Y),

#### Start 38:

- Found in 1 of 131 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kiko\_24 (DB),

#### Start 41:

- Found in 23 of 131 ( 17.6% ) of genes in pham
- Manual Annotations of this start: 2 of 114
- Called 13.0% of time when present
- Phage (with cluster) where this start called: IdentityCrisis\_27 (singleton), Mbo2\_27 (singleton), Sbash\_27 (I2),

#### Start 42:

- Found in 12 of 131 ( 9.2% ) of genes in pham
- Manual Annotations of this start: 10 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BoostSeason\_31 (K2), DismalFunk\_30 (K2), DismalStressor\_30 (K2), Farewell\_28 (AF), Findley\_30 (K2), Marcoliusprime\_30 (K2), Milly\_30 (K2), Mufasa\_31 (K2), Sparky\_28 (AF), Strobilo\_32 (K2), TM4\_31 (K2), ZoeJ\_30 (K2),

#### Start 43:

- Found in 41 of 131 ( 31.3% ) of genes in pham
- Manual Annotations of this start: 18 of 114
- Called 43.9% of time when present
- Phage (with cluster) where this start called: Apricot\_23 (DN3), BearBQ\_23 (DN), Bipper\_36 (Y), Birdsong\_23 (DN), Budski\_24 (DN), CheeseTouch\_24 (DN1), Crater\_22 (DN3), Hilltopfarm\_33 (Y), Holliday\_24 (DN1), Horus\_24 (DN1), Kenna\_23 (DN1), Leroy\_24 (DN1), LitninMcQueen\_23 (DN1), LonelyBoi\_23 (CY), Lutum\_24 (DN1), Malisha\_25 (DN), Phabuloso\_23 (DN1), Typha\_33 (Y),

#### Start 44:

- Found in 44 of 131 ( 33.6% ) of genes in pham
- Manual Annotations of this start: 24 of 114
- Called 63.6% of time when present
- Phage (with cluster) where this start called: Asapag\_24 (DN1), BENtherdunthat\_24 (DN1), BatStarr\_22 (CZ1), Bialota\_22 (CZ1), Bosnia\_22 (CZ1), Eviarto\_22 (CZ1), Frickyeah\_23 (DN1), Getalong\_25 (DN1), Herod\_22 (CZ1), Hugley\_22 (CZ1), Kamaru\_24 (DN1), Kuwabara\_23 (DN4), Madeline\_22 (CZ1), Malibo\_24 (DW), MortyNRick\_23 (DN), Nymphadora\_22 (CZ1), Ohgeesy\_22 (CZ), Periwinkle\_26 (DN1), Phistory\_25 (DN1), Polly\_21 (CZ1), Sidious\_22 (CZ7), Spooky\_24 (DN2),

Squiddly\_26 (DN2), ThankyouJordi\_21 (CZ1), TimTam\_22 (CZ1),  
WelcomeAyanna\_21 (CZ1), Whitney\_25 (DN1), Zirinka\_22 (CZ1),

Start 47:

- Found in 1 of 131 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: VanLee\_29 (singleton),

Start 59:

- Found in 43 of 131 ( 32.8% ) of genes in pham
- Manual Annotations of this start: 2 of 114
- Called 9.3% of time when present
- Phage (with cluster) where this start called: Ben11\_16 (B3), HarveySr\_17 (B3),  
Phaedrus\_16 (B3), SlippinJimmy\_17 (B3),

Start 60:

- Found in 15 of 131 ( 11.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 13.3% of time when present
- Phage (with cluster) where this start called: DigitDog\_16 (B5), StinkyVeggy\_17 (B5),

Start 61:

- Found in 36 of 131 ( 27.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 5.6% of time when present
- Phage (with cluster) where this start called: Nangang\_16 (B5), TPA2\_24 (singleton),

### **Summary by clusters:**

There are 24 clusters represented in this pham: DN, DO, singleton, CZ1, DB, CZ7,  
K2, K4, DW, K8, I2, DN4, DN1, DN3, DN2, AC, AF, Q, CZ, CY, Y, H1, B5, B3,

Info for manual annotations of cluster AC:

- Start number 32 was manually annotated 3 times for cluster AC.

Info for manual annotations of cluster AF:

- Start number 42 was manually annotated 1 time for cluster AF.

Info for manual annotations of cluster B3:

- Start number 59 was manually annotated 2 times for cluster B3.

Info for manual annotations of cluster CY:

- Start number 43 was manually annotated 1 time for cluster CY.

Info for manual annotations of cluster CZ:

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

Info for manual annotations of cluster CZ1:

- Start number 44 was manually annotated 12 times for cluster CZ1.

Info for manual annotations of cluster CZ7:

- Start number 44 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster DB:

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

Info for manual annotations of cluster DN:

- Start number 43 was manually annotated 4 times for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 43 was manually annotated 8 times for cluster DN1.
- Start number 44 was manually annotated 6 times for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 44 was manually annotated 2 times for cluster DN2.

Info for manual annotations of cluster DN3:

- Start number 43 was manually annotated 2 times for cluster DN3.

Info for manual annotations of cluster DN4:

- Start number 44 was manually annotated 1 time for cluster DN4.

Info for manual annotations of cluster DO:

- Start number 26 was manually annotated 3 times for cluster DO.

Info for manual annotations of cluster DW:

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

Info for manual annotations of cluster H1:

- Start number 29 was manually annotated 7 times for cluster H1.
- Start number 32 was manually annotated 1 time for cluster H1.

Info for manual annotations of cluster I2:

- Start number 41 was manually annotated 1 time for cluster I2.

Info for manual annotations of cluster K2:

- Start number 42 was manually annotated 9 times for cluster K2.

Info for manual annotations of cluster K4:

- Start number 31 was manually annotated 19 times for cluster K4.

Info for manual annotations of cluster K8:

- Start number 31 was manually annotated 1 time for cluster K8.

Info for manual annotations of cluster Q:

- Start number 29 was manually annotated 21 times for cluster Q.

Info for manual annotations of cluster Y:

- Start number 34 was manually annotated 1 time for cluster Y.
- Start number 43 was manually annotated 3 times for cluster Y.

***Gene Information:***



Gene: Amochick\_34 Start: 29602, Stop: 30012, Start Num: 29

Candidate Starts for Amochick\_34:

(Start: 29 @29602 has 28 MA's), (53, 29704), (69, 29770), (72, 29782), (75, 29794), (81, 29815), (97, 29902), (117, 29995),

Gene: Amymech\_34 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Amymech\_34:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: Apricot\_23 Start: 19749, Stop: 20129, Start Num: 43

Candidate Starts for Apricot\_23:

(Start: 43 @19749 has 18 MA's), (Start: 44 @19755 has 24 MA's), (54, 19812), (56, 19815), (75, 19899), (81, 19920), (89, 19962), (90, 19965), (112, 20064),

Gene: Asapag\_24 Start: 20197, Stop: 20571, Start Num: 44

Candidate Starts for Asapag\_24:

(Start: 43 @20191 has 18 MA's), (Start: 44 @20197 has 24 MA's), (54, 20254), (56, 20257), (Start: 59 @20266 has 2 MA's), (68, 20314), (81, 20362), (89, 20404), (90, 20407), (112, 20506),

Gene: BENtherdunthat\_24 Start: 20197, Stop: 20568, Start Num: 44

Candidate Starts for BENtherdunthat\_24:

(Start: 43 @20191 has 18 MA's), (Start: 44 @20197 has 24 MA's), (54, 20254), (56, 20257), (75, 20341), (81, 20362), (89, 20404), (90, 20407), (91, 20416), (105, 20476), (106, 20479),

Gene: BatStarr\_22 Start: 21074, Stop: 21430, Start Num: 44

Candidate Starts for BatStarr\_22:

(Start: 44 @21074 has 24 MA's), (56, 21134), (Start: 59 @21143 has 2 MA's), (75, 21218), (89, 21281), (91, 21293), (105, 21353),

Gene: BearBQ\_23 Start: 21031, Stop: 21408, Start Num: 43

Candidate Starts for BearBQ\_23:

(Start: 43 @21031 has 18 MA's), (Start: 44 @21037 has 24 MA's), (54, 21094), (56, 21097), (75, 21181), (81, 21202), (89, 21244), (90, 21247), (91, 21256), (105, 21316), (106, 21319),

Gene: Beckerton\_35 Start: 32917, Stop: 33378, Start Num: 29

Candidate Starts for Beckerton\_35:

(Start: 29 @32917 has 28 MA's), (Start: 32 @32929 has 4 MA's), (40, 32953), (49, 32980), (58, 33037), (Start: 59 @33040 has 2 MA's), (61, 33046), (62, 33052), (64, 33061), (66, 33070), (68, 33088), (81, 33133), (82, 33136), (88, 33172), (94, 33208), (98, 33226), (110, 33277), (115, 33313),

Gene: Ben11\_16 Start: 14510, Stop: 14824, Start Num: 59

Candidate Starts for Ben11\_16:

(14, 14285), (28, 14390), (48, 14444), (Start: 59 @14510 has 2 MA's), (102, 14711), (103, 14714),

Gene: Bialota\_22 Start: 21086, Stop: 21442, Start Num: 44

Candidate Starts for Bialota\_22:

(Start: 44 @21086 has 24 MA's), (56, 21146), (Start: 59 @21155 has 2 MA's), (75, 21230), (89, 21293), (91, 21305), (105, 21365),

Gene: Bipper\_36 Start: 31123, Stop: 31452, Start Num: 43

Candidate Starts for Bipper\_36:

(23, 31051), (25, 31069), (Start: 34 @31099 has 1 MA's), (Start: 43 @31123 has 18 MA's), (52, 31168), (Start: 59 @31198 has 2 MA's), (63, 31216), (70, 31243), (73, 31255), (75, 31258), (77, 31264), (80, 31276), (90, 31330), (96, 31360), (106, 31402), (107, 31405), (109, 31417),

Gene: Birdsong\_23 Start: 19924, Stop: 20301, Start Num: 43

Candidate Starts for Birdsong\_23:

(Start: 43 @19924 has 18 MA's), (Start: 44 @19930 has 24 MA's), (54, 19987), (56, 19990), (75, 20074), (81, 20095), (89, 20137), (90, 20140), (91, 20149), (105, 20209), (106, 20212),

Gene: Boilgate\_29 Start: 29197, Stop: 29595, Start Num: 31

Candidate Starts for Boilgate\_29:

(20, 29137), (Start: 31 @29197 has 20 MA's), (Start: 41 @29227 has 2 MA's), (50, 29266), (60, 29311), (61, 29314), (84, 29395), (89, 29437), (93, 29458), (96, 29470), (98, 29479), (106, 29512), (112, 29539), (119, 29575),

Gene: BoostSeason\_31 Start: 26116, Stop: 26502, Start Num: 42

Candidate Starts for BoostSeason\_31:

(Start: 42 @26116 has 10 MA's), (Start: 43 @26119 has 18 MA's), (60, 26197), (62, 26206), (63, 26212), (68, 26233), (71, 26242), (72, 26248), (73, 26251), (77, 26260), (89, 26323), (93, 26344), (97, 26362), (98, 26365),

Gene: Bosnia\_22 Start: 21074, Stop: 21430, Start Num: 44

Candidate Starts for Bosnia\_22:

(Start: 44 @21074 has 24 MA's), (56, 21134), (Start: 59 @21143 has 2 MA's), (75, 21218), (89, 21281), (91, 21293), (105, 21353),

Gene: Budski\_24 Start: 20296, Stop: 20676, Start Num: 43

Candidate Starts for Budski\_24:

(3, 19807), (7, 19918), (8, 19936), (Start: 43 @20296 has 18 MA's), (Start: 44 @20302 has 24 MA's), (54, 20359), (56, 20362), (Start: 59 @20371 has 2 MA's), (75, 20446), (89, 20509), (90, 20512), (91, 20521), (105, 20581), (106, 20584),

Gene: Cborch11\_36 Start: 32382, Stop: 32843, Start Num: 29

Candidate Starts for Cborch11\_36:

(Start: 29 @32382 has 28 MA's), (Start: 32 @32394 has 4 MA's), (40, 32418), (49, 32445), (58, 32502), (61, 32511), (62, 32517), (64, 32526), (66, 32535), (68, 32553), (81, 32598), (82, 32601), (88, 32637), (94, 32673), (98, 32691), (110, 32742), (115, 32778),

Gene: Chancellor\_33 Start: 28471, Stop: 28869, Start Num: 31

Candidate Starts for Chancellor\_33:

(Start: 31 @28471 has 20 MA's), (37, 28492), (Start: 41 @28501 has 2 MA's), (61, 28588), (64, 28603), (82, 28663), (84, 28669), (85, 28687), (89, 28711), (93, 28732), (96, 28744), (98, 28753), (101, 28768), (107, 28789), (119, 28849),

Gene: CheeseTouch\_24 Start: 20185, Stop: 20562, Start Num: 43

Candidate Starts for CheeseTouch\_24:

(Start: 43 @20185 has 18 MA's), (Start: 44 @20191 has 24 MA's), (54, 20248), (56, 20251), (Start: 59 @20260 has 2 MA's), (68, 20308), (75, 20335), (89, 20398), (90, 20401), (95, 20425), (105, 20470), (106, 20473),

Gene: Cheetobro\_33 Start: 28468, Stop: 28866, Start Num: 31

Candidate Starts for Cheetobro\_33:

(Start: 31 @28468 has 20 MA's), (37, 28489), (Start: 41 @28498 has 2 MA's), (61, 28585), (64, 28600), (82, 28660), (84, 28666), (85, 28684), (89, 28708), (93, 28729), (96, 28741), (98, 28750), (101, 28765), (107, 28786), (119, 28846),

Gene: CherryTomatoes\_178 Start: 126292, Stop: 126711, Start Num: 26

Candidate Starts for CherryTomatoes\_178:

(Start: 26 @126292 has 3 MA's), (55, 126406), (58, 126415), (89, 126547), (94, 126571), (106, 126622), (108, 126634), (111, 126646),

Gene: Cracklewink\_36 Start: 31099, Stop: 31452, Start Num: 34

Candidate Starts for Cracklewink\_36:

(23, 31051), (25, 31069), (Start: 34 @31099 has 1 MA's), (Start: 43 @31123 has 18 MA's), (52, 31168), (Start: 59 @31198 has 2 MA's), (63, 31216), (70, 31243), (73, 31255), (75, 31258), (77, 31264), (80, 31276), (90, 31330), (96, 31360), (106, 31402), (107, 31405), (109, 31417),

Gene: Crater\_22 Start: 19749, Stop: 20129, Start Num: 43

Candidate Starts for Crater\_22:

(Start: 43 @19749 has 18 MA's), (Start: 44 @19755 has 24 MA's), (54, 19812), (56, 19815), (75, 19899), (81, 19920), (89, 19962), (90, 19965), (112, 20064),

Gene: Cuke\_27 Start: 25711, Stop: 26124, Start Num: 32

Candidate Starts for Cuke\_27:

(22, 25657), (27, 25693), (Start: 32 @25711 has 4 MA's), (35, 25720), (36, 25723), (45, 25744), (51, 25777), (53, 25792), (60, 25813), (67, 25846), (81, 25891), (91, 25951), (100, 25999), (117, 26074), (120, 26086), (123, 26104),

Gene: Daegal\_35 Start: 29890, Stop: 30300, Start Num: 29

Candidate Starts for Daegal\_35:

(Start: 29 @29890 has 28 MA's), (53, 29992), (69, 30058), (72, 30070), (75, 30082), (81, 30103), (97, 30190), (117, 30283),

Gene: Damien\_35 Start: 32383, Stop: 32844, Start Num: 29

Candidate Starts for Damien\_35:

(Start: 29 @32383 has 28 MA's), (Start: 32 @32395 has 4 MA's), (40, 32419), (49, 32446), (58, 32503), (Start: 59 @32506 has 2 MA's), (61, 32512), (62, 32518), (64, 32527), (66, 32536), (68, 32554), (81, 32599), (82, 32602), (88, 32638), (94, 32674), (98, 32692), (110, 32743), (115, 32779),

Gene: DeepSoil15\_34 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for DeepSoil15\_34:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: Dewey\_33 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Dewey\_33:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: DigitDog\_16 Start: 14925, Stop: 15227, Start Num: 60

Candidate Starts for DigitDog\_16:

(14, 14706), (28, 14814), (33, 14829), (60, 14925), (61, 14928), (76, 15000), (87, 15045), (93, 15081), (102, 15123), (121, 15207),

Gene: DismalFunk\_30 Start: 26028, Stop: 26414, Start Num: 42

Candidate Starts for DismalFunk\_30:

(Start: 42 @26028 has 10 MA's), (Start: 43 @26031 has 18 MA's), (58, 26103), (60, 26109), (62, 26118), (63, 26124), (68, 26145), (71, 26154), (73, 26163), (77, 26172), (89, 26235), (93, 26256), (97, 26274), (98, 26277),

Gene: DismalStressor\_30 Start: 26028, Stop: 26414, Start Num: 42

Candidate Starts for DismalStressor\_30:

(Start: 42 @26028 has 10 MA's), (Start: 43 @26031 has 18 MA's), (58, 26103), (60, 26109), (62, 26118), (63, 26124), (68, 26145), (71, 26154), (73, 26163), (77, 26172), (89, 26235), (93, 26256), (97, 26274), (98, 26277),

Gene: Ein37\_34 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Ein37\_34:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: Eponine\_35 Start: 29224, Stop: 29622, Start Num: 31

Candidate Starts for Eponine\_35:

(15, 29104), (Start: 31 @29224 has 20 MA's), (37, 29245), (Start: 41 @29254 has 2 MA's), (61, 29341), (64, 29356), (82, 29416), (84, 29422), (85, 29440), (89, 29464), (93, 29485), (96, 29497), (98, 29506), (101, 29521), (107, 29542), (119, 29602),

Gene: Evanesce\_33 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Evanesce\_33:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: Eviarto\_22 Start: 21074, Stop: 21430, Start Num: 44

Candidate Starts for Eviarto\_22:

(Start: 44 @21074 has 24 MA's), (56, 21134), (Start: 59 @21143 has 2 MA's), (75, 21218), (89, 21281), (91, 21293), (105, 21353),

Gene: Farewell\_28 Start: 26686, Stop: 27078, Start Num: 42

Candidate Starts for Farewell\_28:

(Start: 42 @26686 has 10 MA's), (57, 26752), (58, 26755), (75, 26818), (89, 26887), (96, 26920), (98, 26929), (112, 26989), (113, 27004), (121, 27034), (125, 27070),

Gene: Findley\_30 Start: 26020, Stop: 26406, Start Num: 42

Candidate Starts for Findley\_30:

(Start: 42 @26020 has 10 MA's), (Start: 43 @26023 has 18 MA's), (46, 26032), (58, 26095), (60, 26101), (62, 26110), (63, 26116), (68, 26137), (71, 26146), (73, 26155), (77, 26164), (89, 26227), (93, 26248), (97, 26266), (98, 26269),

Gene: Fionnbharth\_33 Start: 28459, Stop: 28857, Start Num: 31

Candidate Starts for Fionnbharth\_33:

(Start: 31 @28459 has 20 MA's), (37, 28480), (Start: 41 @28489 has 2 MA's), (61, 28576), (64, 28591), (84, 28657), (85, 28675), (89, 28699), (93, 28720), (96, 28732), (98, 28741), (101, 28756), (107, 28777),

Gene: Forge\_33 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Forge\_33:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: Fowlmouth\_30 Start: 29190, Stop: 29609, Start Num: 32

Candidate Starts for Fowlmouth\_30:

(22, 29136), (Start: 32 @29190 has 4 MA's), (35, 29205), (45, 29229), (51, 29262), (117, 29559), (120, 29571), (123, 29589),

Gene: Frickyeah\_23 Start: 19960, Stop: 20334, Start Num: 44

Candidate Starts for Frickyeah\_23:

(Start: 43 @19954 has 18 MA's), (Start: 44 @19960 has 24 MA's), (54, 20017), (56, 20020), (Start: 59 @20029 has 2 MA's), (75, 20104), (81, 20125), (89, 20167), (90, 20170), (112, 20269),

Gene: Gancho\_33 Start: 29319, Stop: 29729, Start Num: 29

Candidate Starts for Gancho\_33:

(Start: 29 @29319 has 28 MA's), (53, 29421), (69, 29487), (72, 29499), (75, 29511), (81, 29532), (97, 29619), (117, 29712),

Gene: Getalong\_25 Start: 20997, Stop: 21371, Start Num: 44

Candidate Starts for Getalong\_25:

(Start: 43 @20991 has 18 MA's), (Start: 44 @20997 has 24 MA's), (54, 21054), (56, 21057), (68, 21114), (81, 21162), (89, 21204), (90, 21207), (112, 21306),

Gene: Giles\_33 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Giles\_33:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: Gravaillia\_33 Start: 29325, Stop: 29735, Start Num: 29

Candidate Starts for Gravaillia\_33:

(Start: 29 @29325 has 28 MA's), (53, 29427), (69, 29493), (72, 29505), (75, 29517), (81, 29538), (97, 29625), (117, 29718),

Gene: HH92\_33 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for HH92\_33:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: Hadrien\_34 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Hadrien\_34:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: Hail\_33 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Hail\_33:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: HarveySr\_17 Start: 14663, Stop: 14977, Start Num: 59

Candidate Starts for HarveySr\_17:

(14, 14438), (28, 14543), (48, 14597), (Start: 59 @14663 has 2 MA's), (102, 14864), (103, 14867),

Gene: Herod\_22 Start: 21074, Stop: 21430, Start Num: 44

Candidate Starts for Herod\_22:

(Start: 44 @21074 has 24 MA's), (56, 21134), (Start: 59 @21143 has 2 MA's), (75, 21218), (89, 21281), (91, 21293), (105, 21353),

Gene: Hilltopfarm\_33 Start: 30365, Stop: 30721, Start Num: 43

Candidate Starts for Hilltopfarm\_33:

(16, 30215), (Start: 43 @30365 has 18 MA's), (50, 30398), (61, 30446), (63, 30458), (69, 30482), (73, 30497), (80, 30518), (86, 30548), (89, 30569), (90, 30572), (104, 30638), (107, 30647), (109, 30659),

Gene: Holliday\_24 Start: 20296, Stop: 20676, Start Num: 43

Candidate Starts for Holliday\_24:

(3, 19807), (7, 19918), (8, 19936), (Start: 43 @20296 has 18 MA's), (Start: 44 @20302 has 24 MA's), (54, 20359), (56, 20362), (Start: 59 @20371 has 2 MA's), (75, 20446), (89, 20509), (90, 20512), (91, 20521), (105, 20581), (106, 20584),

Gene: Horus\_24 Start: 20213, Stop: 20593, Start Num: 43

Candidate Starts for Horus\_24:

(Start: 43 @20213 has 18 MA's), (Start: 44 @20219 has 24 MA's), (54, 20276), (56, 20279), (75, 20363), (81, 20384), (89, 20426), (90, 20429), (112, 20528),

Gene: Hugley\_22 Start: 21074, Stop: 21430, Start Num: 44

Candidate Starts for Hugley\_22:

(Start: 44 @21074 has 24 MA's), (56, 21134), (Start: 59 @21143 has 2 MA's), (75, 21218), (89, 21281), (91, 21293), (105, 21353),

Gene: IdentityCrisis\_27 Start: 23066, Stop: 23467, Start Num: 41

Candidate Starts for IdentityCrisis\_27:

(Start: 41 @23066 has 2 MA's), (57, 23141), (58, 23144), (75, 23207), (89, 23276), (96, 23309), (98, 23318), (112, 23378), (113, 23393), (121, 23423), (125, 23459),

Gene: JF1\_33 Start: 28458, Stop: 28856, Start Num: 31

Candidate Starts for JF1\_33:

(Start: 31 @28458 has 20 MA's), (37, 28479), (Start: 41 @28488 has 2 MA's), (61, 28575), (64, 28590), (69, 28611), (84, 28656), (85, 28674), (89, 28698), (93, 28719), (96, 28731), (98, 28740), (101, 28755), (107, 28776),

Gene: Juliette\_35 Start: 28617, Stop: 29015, Start Num: 31

Candidate Starts for Juliette\_35:

(Start: 31 @28617 has 20 MA's), (37, 28638), (Start: 41 @28647 has 2 MA's), (61, 28734), (64, 28749), (82, 28809), (84, 28815), (85, 28833), (89, 28857), (93, 28878), (96, 28890), (98, 28899), (101, 28914), (119, 28995),

Gene: Kamaru\_24 Start: 20302, Stop: 20676, Start Num: 44

Candidate Starts for Kamaru\_24:

(3, 19807), (7, 19918), (8, 19936), (Start: 43 @20296 has 18 MA's), (Start: 44 @20302 has 24 MA's), (54, 20359), (56, 20362), (Start: 59 @20371 has 2 MA's), (75, 20446), (89, 20509), (90, 20512), (91, 20521), (105, 20581), (106, 20584),

Gene: Kenna\_23 Start: 20192, Stop: 20569, Start Num: 43

Candidate Starts for Kenna\_23:

(Start: 43 @20192 has 18 MA's), (Start: 44 @20198 has 24 MA's), (54, 20255), (56, 20258), (Start: 59 @20267 has 2 MA's), (75, 20342), (81, 20363), (89, 20405), (90, 20408), (91, 20417), (105, 20477), (106, 20480),

Gene: Kiko\_24 Start: 20229, Stop: 20624, Start Num: 38

Candidate Starts for Kiko\_24:

(1, 19326), (2, 19548), (4, 19797), (5, 19827), (19, 20112), (Start: 38 @20229 has 1 MA's), (Start: 44 @20247 has 24 MA's), (Start: 59 @20316 has 2 MA's), (63, 20334), (66, 20346), (68, 20364), (75, 20391), (89, 20454), (90, 20457), (105, 20526),

Gene: Kinbote\_34 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Kinbote\_34:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: Konstantine\_40 Start: 33596, Stop: 34045, Start Num: 32

Candidate Starts for Konstantine\_40:

(Start: 29 @33584 has 28 MA's), (Start: 32 @33596 has 4 MA's), (40, 33620), (49, 33647), (58, 33704), (Start: 59 @33707 has 2 MA's), (61, 33713), (62, 33719), (64, 33728), (66, 33737), (81, 33800), (82, 33803), (88, 33839), (94, 33875), (98, 33893), (110, 33944), (115, 33980), (124, 34025),

Gene: Kuwabara\_23 Start: 19624, Stop: 19995, Start Num: 44

Candidate Starts for Kuwabara\_23:

(Start: 43 @19618 has 18 MA's), (Start: 44 @19624 has 24 MA's), (54, 19681), (56, 19684), (75, 19768), (81, 19789), (89, 19831), (90, 19834), (91, 19843), (105, 19903), (106, 19906),

Gene: Leroy\_24 Start: 20214, Stop: 20594, Start Num: 43

Candidate Starts for Leroy\_24:

(Start: 43 @20214 has 18 MA's), (Start: 44 @20220 has 24 MA's), (54, 20277), (56, 20280), (75, 20364), (81, 20385), (89, 20427), (90, 20430), (112, 20529),

Gene: LilHazelnut\_34 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for LilHazelnut\_34:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: LitninMcQueen\_23 Start: 19948, Stop: 20325, Start Num: 43

Candidate Starts for LitninMcQueen\_23:

(Start: 43 @19948 has 18 MA's), (Start: 44 @19954 has 24 MA's), (54, 20011), (56, 20014), (75, 20098), (81, 20119), (89, 20161), (90, 20164), (112, 20263),

Gene: LonelyBoi\_23 Start: 20872, Stop: 21258, Start Num: 43

Candidate Starts for LonelyBoi\_23:

(Start: 43 @20872 has 18 MA's), (Start: 44 @20878 has 24 MA's), (56, 20938), (75, 21022), (96, 21118), (105, 21157), (122, 21232),

Gene: Luke\_34 Start: 29551, Stop: 29961, Start Num: 29

Candidate Starts for Luke\_34:

(Start: 29 @29551 has 28 MA's), (53, 29653), (69, 29719), (72, 29731), (75, 29743), (81, 29764), (97, 29851), (117, 29944),

Gene: Luna22\_33 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Luna22\_33:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: Lutum\_24 Start: 20192, Stop: 20569, Start Num: 43

Candidate Starts for Lutum\_24:

(Start: 43 @20192 has 18 MA's), (Start: 44 @20198 has 24 MA's), (54, 20255), (56, 20258), (Start: 59 @20267 has 2 MA's), (75, 20342), (81, 20363), (89, 20405), (90, 20408), (91, 20417), (105, 20477), (106, 20480),

Gene: Madeline\_22 Start: 21372, Stop: 21728, Start Num: 44

Candidate Starts for Madeline\_22:

(10, 21066), (12, 21159), (13, 21174), (21, 21270), (Start: 44 @21372 has 24 MA's), (56, 21432), (Start: 59 @21441 has 2 MA's), (75, 21516), (89, 21579), (91, 21591), (105, 21651),

Gene: Malibo\_24 Start: 20256, Stop: 20633, Start Num: 44

Candidate Starts for Malibo\_24:

(Start: 44 @20256 has 24 MA's), (56, 20316), (Start: 59 @20325 has 2 MA's), (75, 20400), (91, 20475), (105, 20535),

Gene: Malisha\_25 Start: 22077, Stop: 22454, Start Num: 43

Candidate Starts for Malisha\_25:

(3, 21588), (7, 21699), (8, 21717), (Start: 43 @22077 has 18 MA's), (Start: 44 @22083 has 24 MA's), (54, 22140), (Start: 59 @22152 has 2 MA's), (75, 22227), (89, 22290), (90, 22293), (95, 22317), (105, 22362), (106, 22365),

Gene: Malthus\_34 Start: 28383, Stop: 28781, Start Num: 31

Candidate Starts for Malthus\_34:

(Start: 31 @28383 has 20 MA's), (37, 28404), (Start: 41 @28413 has 2 MA's), (61, 28500), (64, 28515), (84, 28581), (85, 28599), (89, 28623), (93, 28644), (96, 28656), (98, 28665), (101, 28680), (107, 28701), (108, 28710),

Gene: Marcoliusprime\_30 Start: 26028, Stop: 26414, Start Num: 42

Candidate Starts for Marcoliusprime\_30:

(Start: 42 @26028 has 10 MA's), (Start: 43 @26031 has 18 MA's), (58, 26103), (60, 26109), (62, 26118), (63, 26124), (68, 26145), (71, 26154), (73, 26163), (77, 26172), (89, 26235), (93, 26256), (97, 26274), (98, 26277),

Gene: Mbo2\_27 Start: 28891, Stop: 29355, Start Num: 41

Candidate Starts for Mbo2\_27:

(Start: 41 @28891 has 2 MA's), (55, 28954), (56, 28957), (64, 28987), (71, 29014), (74, 29023), (83, 29053), (89, 29095), (92, 29113), (95, 29122), (97, 29134), (104, 29164), (107, 29173),

Gene: Megatron06\_38 Start: 32916, Stop: 33377, Start Num: 29

Candidate Starts for Megatron06\_38:

(Start: 29 @32916 has 28 MA's), (Start: 32 @32928 has 4 MA's), (40, 32952), (49, 32979), (58, 33036), (61, 33045), (62, 33051), (64, 33060), (66, 33069), (68, 33087), (81, 33132), (82, 33135), (88, 33171), (94, 33207), (98, 33225), (110, 33276), (115, 33312),

Gene: Milly\_30 Start: 26001, Stop: 26387, Start Num: 42

Candidate Starts for Milly\_30:

(Start: 42 @26001 has 10 MA's), (Start: 43 @26004 has 18 MA's), (46, 26013), (58, 26076), (60, 26082), (62, 26091), (63, 26097), (68, 26118), (71, 26127), (73, 26136), (77, 26145), (89, 26208), (93, 26229), (97, 26247), (98, 26250),

Gene: MissDaisy\_33 Start: 28226, Stop: 28624, Start Num: 31

Candidate Starts for MissDaisy\_33:



(5, 27848), (6, 27857), (9, 27938), (15, 28106), (Start: 31 @28226 has 20 MA's), (37, 28247), (Start: 41 @28256 has 2 MA's), (61, 28343), (63, 28355), (78, 28403), (82, 28418), (84, 28424), (85, 28442), (89, 28466), (93, 28487), (101, 28523), (106, 28541), (107, 28544), (119, 28604),

Gene: Mitti\_33 Start: 28384, Stop: 28782, Start Num: 31

Candidate Starts for Mitti\_33:

(15, 28264), (Start: 31 @28384 has 20 MA's), (37, 28405), (Start: 41 @28414 has 2 MA's), (61, 28501), (64, 28516), (82, 28576), (84, 28582), (85, 28600), (89, 28624), (93, 28645), (96, 28657), (98, 28666), (101, 28681), (107, 28702), (119, 28762),

Gene: MortyNRick\_23 Start: 19930, Stop: 20301, Start Num: 44

Candidate Starts for MortyNRick\_23:

(Start: 43 @19924 has 18 MA's), (Start: 44 @19930 has 24 MA's), (54, 19987), (56, 19990), (75, 20074), (81, 20095), (89, 20137), (90, 20140), (91, 20149), (105, 20209), (106, 20212),

Gene: MrMiyagi\_30 Start: 29201, Stop: 29620, Start Num: 32

Candidate Starts for MrMiyagi\_30:

(22, 29147), (Start: 32 @29201 has 4 MA's), (35, 29216), (45, 29240), (51, 29273), (117, 29570), (120, 29582), (123, 29600),

Gene: Mufasa\_31 Start: 26109, Stop: 26495, Start Num: 42

Candidate Starts for Mufasa\_31:

(Start: 42 @26109 has 10 MA's), (Start: 43 @26112 has 18 MA's), (58, 26184), (60, 26190), (62, 26199), (63, 26205), (68, 26226), (71, 26235), (72, 26241), (73, 26244), (77, 26253), (89, 26316), (93, 26337), (97, 26355), (98, 26358),

Gene: Nangang\_16 Start: 14928, Stop: 15227, Start Num: 61

Candidate Starts for Nangang\_16:

(14, 14706), (28, 14814), (33, 14829), (60, 14925), (61, 14928), (76, 15000), (87, 15045), (93, 15081), (102, 15123), (121, 15207),

Gene: Nymphadora\_22 Start: 21074, Stop: 21430, Start Num: 44

Candidate Starts for Nymphadora\_22:

(Start: 44 @21074 has 24 MA's), (56, 21134), (Start: 59 @21143 has 2 MA's), (75, 21218), (89, 21281), (91, 21293), (105, 21353),

Gene: OBUpride\_34 Start: 29590, Stop: 30000, Start Num: 29

Candidate Starts for OBUpride\_34:

(Start: 29 @29590 has 28 MA's), (53, 29692), (69, 29758), (72, 29770), (75, 29782), (81, 29803), (97, 29890), (117, 29983),

Gene: Oaker\_35 Start: 32640, Stop: 33101, Start Num: 29

Candidate Starts for Oaker\_35:

(Start: 29 @32640 has 28 MA's), (Start: 32 @32652 has 4 MA's), (40, 32676), (49, 32703), (58, 32760), (Start: 59 @32763 has 2 MA's), (61, 32769), (62, 32775), (64, 32784), (66, 32793), (81, 32856), (82, 32859), (88, 32895), (94, 32931), (98, 32949), (110, 33000), (115, 33036),

Gene: Ohgeesy\_22 Start: 20697, Stop: 21053, Start Num: 44

Candidate Starts for Ohgeesy\_22:

(Start: 44 @20697 has 24 MA's), (56, 20757), (Start: 59 @20766 has 2 MA's), (75, 20841), (89, 20904), (91, 20916), (105, 20976),

Gene: OmniCritical\_33 Start: 28368, Stop: 28766, Start Num: 31

Candidate Starts for OmniCritical\_33:

(15, 28248), (Start: 31 @28368 has 20 MA's), (37, 28389), (Start: 41 @28398 has 2 MA's), (61, 28485), (64, 28500), (82, 28560), (84, 28566), (85, 28584), (89, 28608), (93, 28629), (96, 28641), (98, 28650), (101, 28665), (107, 28686), (119, 28746),

Gene: Patt\_33 Start: 28202, Stop: 28600, Start Num: 31

Candidate Starts for Patt\_33:

(5, 27824), (6, 27833), (9, 27914), (15, 28082), (Start: 31 @28202 has 20 MA's), (37, 28223), (Start: 41 @28232 has 2 MA's), (61, 28319), (63, 28331), (78, 28379), (82, 28394), (84, 28400), (85, 28418), (89, 28442), (93, 28463), (101, 28499), (106, 28517), (107, 28520), (119, 28580),

Gene: Periwinkle\_26 Start: 20664, Stop: 21038, Start Num: 44

Candidate Starts for Periwinkle\_26:

(Start: 43 @20658 has 18 MA's), (Start: 44 @20664 has 24 MA's), (54, 20721), (56, 20724), (Start: 59 @20733 has 2 MA's), (75, 20808), (81, 20829), (89, 20871), (90, 20874), (112, 20973),

Gene: Phabuloso\_23 Start: 19948, Stop: 20325, Start Num: 43

Candidate Starts for Phabuloso\_23:

(Start: 43 @19948 has 18 MA's), (Start: 44 @19954 has 24 MA's), (54, 20011), (56, 20014), (75, 20098), (81, 20119), (89, 20161), (90, 20164), (91, 20173), (105, 20233), (106, 20236),

Gene: Phaedrus\_16 Start: 14604, Stop: 14918, Start Num: 59

Candidate Starts for Phaedrus\_16:

(14, 14379), (28, 14484), (48, 14538), (Start: 59 @14604 has 2 MA's), (102, 14805), (103, 14808),

Gene: Phistory\_25 Start: 20985, Stop: 21359, Start Num: 44

Candidate Starts for Phistory\_25:

(Start: 43 @20979 has 18 MA's), (Start: 44 @20985 has 24 MA's), (54, 21042), (56, 21045), (75, 21129), (81, 21150), (89, 21192), (90, 21195), (112, 21294),

Gene: Phreeze\_35 Start: 32383, Stop: 32844, Start Num: 29

Candidate Starts for Phreeze\_35:

(Start: 29 @32383 has 28 MA's), (Start: 32 @32395 has 4 MA's), (40, 32419), (49, 32446), (58, 32503), (Start: 59 @32506 has 2 MA's), (61, 32512), (62, 32518), (64, 32527), (66, 32536), (68, 32554), (81, 32599), (82, 32602), (88, 32638), (94, 32674), (98, 32692), (110, 32743), (115, 32779), (124, 32824),

Gene: Polly\_21 Start: 20514, Stop: 20870, Start Num: 44

Candidate Starts for Polly\_21:

(17, 20373), (18, 20379), (24, 20448), (Start: 44 @20514 has 24 MA's), (56, 20574), (Start: 59 @20583 has 2 MA's), (79, 20673), (89, 20721), (90, 20724), (91, 20733), (105, 20793),

Gene: Predator\_37 Start: 31599, Stop: 32036, Start Num: 29

Candidate Starts for Predator\_37:

(Start: 29 @31599 has 28 MA's), (Start: 32 @31611 has 4 MA's), (40, 31635), (58, 31719), (Start: 59 @31722 has 2 MA's), (61, 31728), (77, 31800), (80, 31812), (81, 31815), (94, 31890), (98, 31908), (101, 31923), (110, 31959), (115, 31995),

Gene: Puissant\_34 Start: 32872, Stop: 33333, Start Num: 29

Candidate Starts for Puissant\_34:

(Start: 29 @32872 has 28 MA's), (30, 32881), (40, 32908), (58, 32992), (Start: 59 @32995 has 2 MA's), (61, 33001), (62, 33007), (64, 33016), (66, 33025), (81, 33088), (82, 33091), (88, 33127), (98, 33181), (110, 33232), (115, 33268),

Gene: Pupper\_173 Start: 126534, Stop: 126953, Start Num: 26

Candidate Starts for Pupper\_173:

(Start: 26 @126534 has 3 MA's), (55, 126648), (58, 126657), (89, 126789), (94, 126813), (106, 126864), (108, 126876), (111, 126888),

Gene: Reptar3000\_33 Start: 28193, Stop: 28591, Start Num: 31

Candidate Starts for Reptar3000\_33:

(Start: 31 @28193 has 20 MA's), (37, 28214), (Start: 41 @28223 has 2 MA's), (61, 28310), (63, 28322), (78, 28370), (82, 28385), (84, 28391), (85, 28409), (89, 28433), (93, 28454), (101, 28490), (106, 28508), (107, 28511), (119, 28571),

Gene: Ruthiejr\_34 Start: 28349, Stop: 28747, Start Num: 31

Candidate Starts for Ruthiejr\_34:

(Start: 31 @28349 has 20 MA's), (37, 28370), (Start: 41 @28379 has 2 MA's), (61, 28466), (64, 28481), (82, 28541), (84, 28547), (85, 28565), (89, 28589), (93, 28610), (96, 28622), (98, 28631), (101, 28646), (119, 28727),

Gene: SCentae\_172 Start: 126727, Stop: 127146, Start Num: 26

Candidate Starts for SCentae\_172:

(Start: 26 @126727 has 3 MA's), (55, 126841), (58, 126850), (89, 126982), (94, 127006), (106, 127057), (108, 127069), (111, 127081),

Gene: SamScheppers\_33 Start: 28862, Stop: 29260, Start Num: 31

Candidate Starts for SamScheppers\_33:

(15, 28742), (Start: 31 @28862 has 20 MA's), (37, 28883), (Start: 41 @28892 has 2 MA's), (61, 28979), (64, 28994), (82, 29054), (84, 29060), (85, 29078), (89, 29102), (93, 29123), (96, 29135), (98, 29144), (101, 29159), (119, 29240),

Gene: Sbash\_27 Start: 25423, Stop: 25824, Start Num: 41

Candidate Starts for Sbash\_27:

(Start: 41 @25423 has 2 MA's), (57, 25498), (58, 25501), (75, 25564), (89, 25633), (96, 25666), (98, 25675), (112, 25735), (113, 25750), (121, 25780), (125, 25816),

Gene: Sidious\_22 Start: 20529, Stop: 20909, Start Num: 44

Candidate Starts for Sidious\_22:

(Start: 44 @20529 has 24 MA's), (Start: 59 @20598 has 2 MA's), (75, 20673), (105, 20808), (107, 20814), (122, 20883),

Gene: Skog\_5 Start: 3101, Stop: 3520, Start Num: 26

Candidate Starts for Skog\_5:

(Start: 26 @3101 has 3 MA's), (55, 3215), (58, 3224), (89, 3356), (94, 3380), (106, 3431), (108, 3443), (111, 3455),

Gene: Slarp\_33 Start: 28471, Stop: 28869, Start Num: 31

Candidate Starts for Slarp\_33:

(Start: 31 @28471 has 20 MA's), (37, 28492), (Start: 41 @28501 has 2 MA's), (61, 28588), (64, 28603), (82, 28663), (84, 28669), (85, 28687), (89, 28711), (93, 28732), (96, 28744), (98, 28753), (101, 28768), (107, 28789), (119, 28849),

Gene: SlippinJimmy\_17 Start: 15451, Stop: 15765, Start Num: 59

Candidate Starts for SlippinJimmy\_17:

(14, 15226), (28, 15331), (48, 15385), (Start: 59 @15451 has 2 MA's), (102, 15652), (103, 15655),

Gene: Sparky\_28 Start: 26721, Stop: 27113, Start Num: 42

Candidate Starts for Sparky\_28:

(Start: 42 @26721 has 10 MA's), (57, 26787), (58, 26790), (75, 26853), (89, 26922), (93, 26943), (96, 26955), (98, 26964), (112, 27024), (113, 27039), (121, 27069), (125, 27105),

Gene: Spooky\_24 Start: 20292, Stop: 20663, Start Num: 44

Candidate Starts for Spooky\_24:

(3, 19797), (7, 19908), (8, 19926), (Start: 43 @20286 has 18 MA's), (Start: 44 @20292 has 24 MA's), (54, 20349), (Start: 59 @20361 has 2 MA's), (75, 20436), (89, 20499), (90, 20502), (95, 20526), (105, 20571), (106, 20574),

Gene: Squiddly\_26 Start: 21704, Stop: 22075, Start Num: 44

Candidate Starts for Squiddly\_26:

(3, 21209), (7, 21320), (8, 21338), (Start: 43 @21698 has 18 MA's), (Start: 44 @21704 has 24 MA's), (54, 21761), (Start: 59 @21773 has 2 MA's), (75, 21848), (89, 21911), (90, 21914), (95, 21938), (105, 21983), (106, 21986),

Gene: StinkyVeggy\_17 Start: 15081, Stop: 15383, Start Num: 60

Candidate Starts for StinkyVeggy\_17:

(14, 14862), (28, 14970), (33, 14985), (60, 15081), (61, 15084), (76, 15156), (87, 15201), (93, 15237), (95, 15243), (102, 15279), (121, 15363),

Gene: Strobilo\_32 Start: 26001, Stop: 26387, Start Num: 42

Candidate Starts for Strobilo\_32:

(Start: 42 @26001 has 10 MA's), (Start: 43 @26004 has 18 MA's), (46, 26013), (58, 26076), (60, 26082), (62, 26091), (63, 26097), (68, 26118), (71, 26127), (73, 26136), (77, 26145), (89, 26208), (93, 26229), (97, 26247), (98, 26250),

Gene: TM4\_31 Start: 26207, Stop: 26593, Start Num: 42

Candidate Starts for TM4\_31:

(Start: 42 @26207 has 10 MA's), (Start: 43 @26210 has 18 MA's), (46, 26219), (50, 26243), (58, 26282), (60, 26288), (62, 26297), (63, 26303), (68, 26324), (71, 26333), (73, 26342), (77, 26351), (89, 26414), (93, 26435), (97, 26453), (98, 26456),

Gene: TPA2\_24 Start: 15808, Stop: 16110, Start Num: 61

Candidate Starts for TPA2\_24:

(11, 15427), (39, 15712), (48, 15736), (61, 15808), (65, 15829), (95, 15967), (99, 15991), (102, 16003), (114, 16060), (116, 16072), (118, 16081),

Gene: Taquito\_33 Start: 28909, Stop: 29307, Start Num: 31

Candidate Starts for Taquito\_33:

(15, 28789), (Start: 31 @28909 has 20 MA's), (37, 28930), (Start: 41 @28939 has 2 MA's), (61, 29026), (64, 29041), (82, 29101), (84, 29107), (85, 29125), (89, 29149), (93, 29170), (96, 29182), (98, 29191), (101, 29206), (107, 29227), (119, 29287),

Gene: ThankyouJordi\_21 Start: 21049, Stop: 21405, Start Num: 44

Candidate Starts for ThankyouJordi\_21:

(Start: 44 @21049 has 24 MA's), (56, 21109), (105, 21328),

Gene: Thumb\_35 Start: 32380, Stop: 32841, Start Num: 29

Candidate Starts for Thumb\_35:

(Start: 29 @32380 has 28 MA's), (Start: 32 @32392 has 4 MA's), (40, 32416), (49, 32443), (58, 32500), (Start: 59 @32503 has 2 MA's), (61, 32509), (62, 32515), (64, 32524), (66, 32533), (68, 32551), (81, 32596), (82, 32599), (88, 32635), (94, 32671), (98, 32689), (110, 32740), (115, 32776),

Gene: TimTam\_22 Start: 21074, Stop: 21430, Start Num: 44

Candidate Starts for TimTam\_22:

(Start: 44 @21074 has 24 MA's), (56, 21134), (Start: 59 @21143 has 2 MA's), (75, 21218), (89, 21281), (91, 21293), (105, 21353),

Gene: Typha\_33 Start: 30335, Stop: 30691, Start Num: 43

Candidate Starts for Typha\_33:

(16, 30185), (Start: 43 @30335 has 18 MA's), (50, 30368), (61, 30416), (63, 30428), (69, 30452), (73, 30467), (80, 30488), (86, 30518), (89, 30539), (90, 30542), (104, 30608), (107, 30617), (109, 30629),

Gene: Ubuntu\_34 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Ubuntu\_34:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: VanLee\_29 Start: 25243, Stop: 25584, Start Num: 47

Candidate Starts for VanLee\_29:

(Start: 47 @25243 has 1 MA's), (Start: 59 @25297 has 2 MA's), (74, 25366), (89, 25450), (106, 25525),

Gene: Webster2\_34 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Webster2\_34:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: WelcomeAyanna\_21 Start: 21049, Stop: 21405, Start Num: 44

Candidate Starts for WelcomeAyanna\_21:

(Start: 44 @21049 has 24 MA's), (56, 21109), (105, 21328),

Gene: Whitney\_25 Start: 21106, Stop: 21480, Start Num: 44

Candidate Starts for Whitney\_25:

(3, 20611), (7, 20722), (8, 20740), (Start: 43 @21100 has 18 MA's), (Start: 44 @21106 has 24 MA's), (54, 21163), (56, 21166), (Start: 59 @21175 has 2 MA's), (75, 21250), (89, 21313), (90, 21316), (91, 21325), (105, 21385), (106, 21388),

Gene: Wintermute\_33 Start: 28458, Stop: 28856, Start Num: 31

Candidate Starts for Wintermute\_33:

(Start: 31 @28458 has 20 MA's), (37, 28479), (Start: 41 @28488 has 2 MA's), (61, 28575), (64, 28590), (82, 28650), (84, 28656), (85, 28674), (89, 28698), (93, 28719), (96, 28731), (98, 28740), (101, 28755), (107, 28776), (119, 28836),

Gene: Wishmaker\_33 Start: 29596, Stop: 30006, Start Num: 29

Candidate Starts for Wishmaker\_33:

(Start: 29 @29596 has 28 MA's), (53, 29698), (69, 29764), (72, 29776), (75, 29788), (81, 29809), (97, 29896), (117, 29989),

Gene: Y10\_33 Start: 28458, Stop: 28856, Start Num: 31

Candidate Starts for Y10\_33:

(Start: 31 @28458 has 20 MA's), (37, 28479), (Start: 41 @28488 has 2 MA's), (61, 28575), (64, 28590), (69, 28611), (84, 28656), (85, 28674), (89, 28698), (93, 28719), (96, 28731), (98, 28740), (101, 28755), (107, 28776),

Gene: Y2\_33 Start: 28458, Stop: 28856, Start Num: 31

Candidate Starts for Y2\_33:

(Start: 31 @28458 has 20 MA's), (37, 28479), (Start: 41 @28488 has 2 MA's), (61, 28575), (64, 28590), (69, 28611), (84, 28656), (85, 28674), (89, 28698), (93, 28719), (96, 28731), (98, 28740), (101, 28755), (107, 28776),

Gene: Zirinka\_22 Start: 21086, Stop: 21442, Start Num: 44

Candidate Starts for Zirinka\_22:

(Start: 44 @21086 has 24 MA's), (56, 21146), (Start: 59 @21155 has 2 MA's), (75, 21230), (89, 21293), (91, 21305), (105, 21365),

Gene: ZoeJ\_30 Start: 25982, Stop: 26392, Start Num: 42

Candidate Starts for ZoeJ\_30:

(Start: 42 @25982 has 10 MA's), (Start: 43 @25985 has 18 MA's), (46, 25994), (58, 26057), (60, 26063), (62, 26072), (63, 26078), (68, 26099), (71, 26108), (72, 26114), (73, 26117), (77, 26126), (89, 26189), (93, 26210), (97, 26228), (98, 26231),