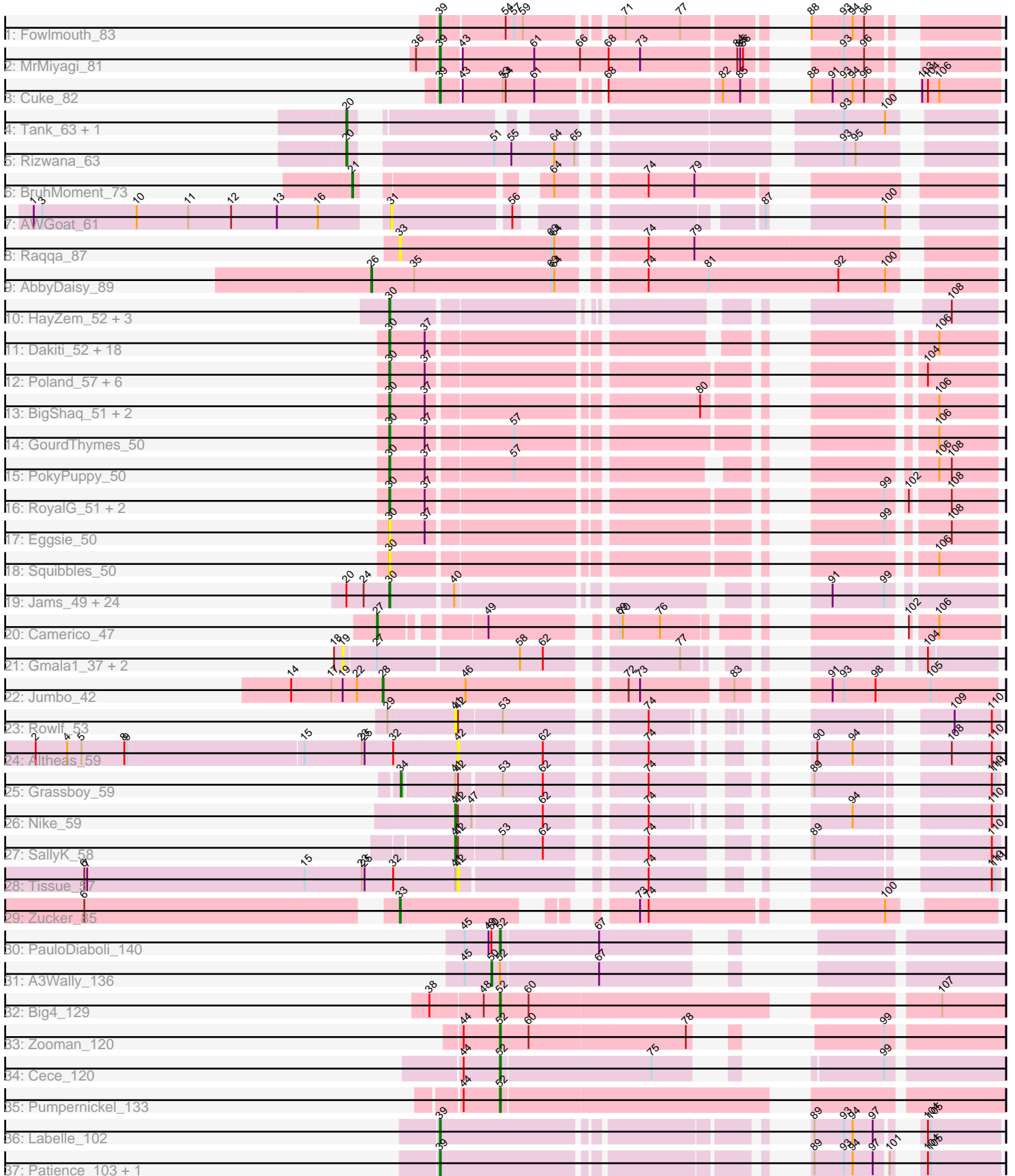


Pham 163501



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 163501 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163501 has 96 members, 22 are drafts.

Phages represented in each track:

- Track 1 : Fowlmouth\_83
- Track 2 : MrMiyagi\_81
- Track 3 : Cuke\_82
- Track 4 : Tank\_63, Wilde\_65
- Track 5 : Rizwana\_63
- Track 6 : BruhMoment\_73
- Track 7 : AWGoat\_61
- Track 8 : Raqqa\_87
- Track 9 : AbbyDaisy\_89
- Track 10 : HayZem\_52, GMA7\_42, GTE7\_41, Amore2\_53
- Track 11 : Dakiti\_52, John316\_54, CathyBurgh\_50, Adgers\_52, Chelms\_51, Gorko\_50, RemRem\_51, BirksAndSocks\_55, Hotorobo\_50, Flakey\_50, Linetti\_52, Barbochs\_51, Ekhein\_51, Lizzo\_50, Breezic\_50, Monty\_49, Beaver\_54, Exiguo\_50, Sam12\_50
- Track 12 : Poland\_57, Msay19\_55, Butterball\_54, Boneham\_54, Jellybones\_53, FelixAlejandro\_55, Sombrero\_51
- Track 13 : BigShaq\_51, PierreThree\_51, BenoitCattle\_53
- Track 14 : GourdThymes\_50
- Track 15 : PokyPuppy\_50
- Track 16 : RoyalG\_51, Diabla\_54, SteveFrench\_50
- Track 17 : Eggsie\_50
- Track 18 : Squibbles\_50
- Track 19 : Jams\_49, Anamika\_49, Charianelly\_48, Jormungandr\_49, Shelley\_49, GalacticEye\_49, MrWormie\_49, Harambe\_49, Luker\_50, Kaseim\_49, Newt\_50, Nimi13\_49, Sticker17\_49, Teal\_49, Hello\_49, Berries\_49, Damp\_47, Lahirium\_49, Hail2Pitt\_48, Neoevie\_49, Woes\_49, Minos\_50, Lidong\_49, Bianmat\_49, Guillaume\_49
- Track 20 : Camerico\_47
- Track 21 : Gmala1\_37, GordDuk1\_37, GordTnk2\_37
- Track 22 : Jumbo\_42
- Track 23 : Rowlf\_53
- Track 24 : Altheas\_59
- Track 25 : Grassboy\_59
- Track 26 : Nike\_59
- Track 27 : SallyK\_58
- Track 28 : Tissue\_57
- Track 29 : Zucker\_85

- Track 30 : PauloDiaboli\_140
- Track 31 : A3Wally\_136
- Track 32 : Big4\_129
- Track 33 : Zooman\_120
- Track 34 : Cece\_120
- Track 35 : Pumpnickel\_133
- Track 36 : Labelle\_102
- Track 37 : Patience\_103, Madrugua\_101

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

The start number called the most often in the published annotations is 30, it was called in 51 of the 74 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adgers\_52, Amore2\_53, Anamika\_49, Barbochs\_51, Beaver\_54, BenoitCattle\_53, Berries\_49, Bianmat\_49, BigShaq\_51, BirksAndSocks\_55, Boneham\_54, Breezic\_50, Butterball\_54, CathyBurgh\_50, Charianelly\_48, Chelms\_51, Dakiti\_52, Damp\_47, Diabla\_54, Eggsie\_50, Ekhein\_51, Exiguo\_50, FelixAlejandro\_55, Flakey\_50, GMA7\_42, GTE7\_41, GalacticEye\_49, Gorko\_50, GourdThymes\_50, Guillaume\_49, Hail2Pitt\_48, Harambe\_49, HayZem\_52, Hello\_49, Hotorobo\_50, Jams\_49, Jellybones\_53, John316\_54, Jormungandr\_49, Kaseim\_49, Lahirium\_49, Lidong\_49, Linetti\_52, Lizzo\_50, Luker\_50, Minos\_50, Monty\_49, MrWormie\_49, Msay19\_55, Neoevie\_49, Newt\_50, Nimi13\_49, PierreThree\_51, PokyPuppy\_50, Poland\_57, RemRem\_51, RoyalG\_51, Sam12\_50, Shelley\_49, Sombrero\_51, Squibbles\_50, SteveFrench\_50, Sticker17\_49, Teal\_49, Woes\_49,

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

- 

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

- A3Wally\_136, AWGoat\_61, AbbyDaisy\_89, Altheas\_59, Big4\_129, BruhMoment\_73, Camerico\_47, Cece\_120, Cuke\_82, Fowlmouth\_83, Gmala1\_37, GordDuk1\_37, GordTnk2\_37, Grassboy\_59, Jumbo\_42, Labelle\_102, Madrugua\_101, MrMiyagi\_81, Nike\_59, Patience\_103, PauloDiaboli\_140, Pumpnickel\_133, Raqqa\_87, Rizwana\_63, Rowlf\_53, SallyK\_58, Tank\_63, Tissue\_57, Wilde\_65, Zooman\_120, Zucker\_85,

**Summary by start number:**

Start 19:

- Found in 4 of 96 ( 4.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Gmala1\_37 (DF1), GordDuk1\_37 (DF1), GordTnk2\_37 (DF1),

Start 20:

- Found in 28 of 96 ( 29.2% ) of genes in pham
- Manual Annotations of this start: 3 of 74

- Called 10.7% of time when present
- Phage (with cluster) where this start called: Rizwana\_63 (AP1), Tank\_63 (AP1), Wilde\_65 (AP1),

#### Start 21:

- Found in 1 of 96 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 74
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BruhMoment\_73 (AP3),

#### Start 26:

- Found in 1 of 96 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 74
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbyDaisy\_89 (AY),

#### Start 27:

- Found in 4 of 96 ( 4.2% ) of genes in pham
- Manual Annotations of this start: 1 of 74
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Camerico\_47 (DF),

#### Start 28:

- Found in 1 of 96 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 74
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jumbo\_42 (DF3),

#### Start 30:

- Found in 65 of 96 ( 67.7% ) of genes in pham
- Manual Annotations of this start: 51 of 74
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adgers\_52 (CS2), Amore2\_53 (CS1), Anamika\_49 (CS3), Barbochs\_51 (CS2), Beaver\_54 (CS2), BenoitCattle\_53 (CS2), Berries\_49 (CS3), Bianmat\_49 (CS3), BigShaq\_51 (CS2), BirksAndSocks\_55 (CS2), Boneham\_54 (CS2), Breezic\_50 (CS2), Butterball\_54 (CS2), CathyBurgh\_50 (CS2), Charianelly\_48 (CS3), Chelms\_51 (CS2), Dakiti\_52 (CS2), Damp\_47 (CS3), Diabla\_54 (CS2), Eggsie\_50 (CS2), Ekhein\_51 (CS2), Exiguo\_50 (CS2), FelixAlejandro\_55 (CS2), Flakey\_50 (CS2), GMA7\_42 (CS1), GTE7\_41 (CS1), GalacticEye\_49 (CS3), Gorko\_50 (CS2), GourdThymes\_50 (CS2), Guillaume\_49 (CS3), Hail2Pitt\_48 (CS3), Harambe\_49 (CS3), HayZem\_52 (CS1), Hello\_49 (CS3), Hotorobo\_50 (CS2), Jams\_49 (CS3), Jellybones\_53 (CS2), John316\_54 (CS2), Jormungandr\_49 (CS3), Kaseim\_49 (CS3), Lahirium\_49 (CS3), Lidong\_49 (CS3), Linetti\_52 (CS2), Lizzo\_50 (CS2), Luker\_50 (CS3), Minos\_50 (CS3), Monty\_49 (CS2), MrWormie\_49 (CS3), Msay19\_55 (CS2), Neoevie\_49 (CS3), Newt\_50 (CS3), Nimi13\_49 (CS3), PierreThree\_51 (CS2), PokyPuppy\_50 (CS2), Poland\_57 (CS2), RemRem\_51 (CS2), RoyalG\_51 (CS2), Sam12\_50 (CS2), Shelley\_49 (CS3), Sombrero\_51 (CS2), Squibbles\_50 (CS2), SteveFrench\_50 (CS2), Sticker17\_49 (CS3), Teal\_49 (CS3), Woes\_49 (CS3),

#### Start 31:

- Found in 1 of 96 ( 1.0% ) of genes in pham
- No Manual Annotations of this start.

- Called 100.0% of time when present
- Phage (with cluster) where this start called: AWGoat\_61 (AP4),

Start 33:

- Found in 2 of 96 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 1 of 74
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Raqqa\_87 (AY), Zucker\_85 (FN),

Start 34:

- Found in 1 of 96 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 74
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Grassboy\_59 (EG),

Start 39:

- Found in 6 of 96 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 6 of 74
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cuke\_82 (AC), Fowlmouth\_83 (AC), Labelle\_102 (U), Madruga\_101 (U), MrMiyagi\_81 (AC), Patience\_103 (U),

Start 41:

- Found in 5 of 96 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 2 of 74
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Nike\_59 (EG), Rowlf\_53 (EG), SallyK\_58 (EG),

Start 42:

- Found in 6 of 96 ( 6.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Altheas\_59 (EG), Tissue\_57 (EG),

Start 50:

- Found in 2 of 96 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 1 of 74
- Called 50.0% of time when present
- Phage (with cluster) where this start called: A3Wally\_136 (GD1),

Start 52:

- Found in 6 of 96 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 5 of 74
- Called 83.3% of time when present
- Phage (with cluster) where this start called: Big4\_129 (GD2), Cece\_120 (GD3), PauloDiaboli\_140 (GD1), Pumpnickel\_133 (GD4), Zooman\_120 (GD2),

**Summary by clusters:**

There are 18 clusters represented in this pham: GD1, GD2, GD3, GD4, DF, AP3, EG, AP1, DF1, AC, DF3, U, FN, AY, AP4, CS1, CS3, CS2,

Info for manual annotations of cluster AC:

- Start number 39 was manually annotated 3 times for cluster AC.

Info for manual annotations of cluster AP1:

- Start number 20 was manually annotated 3 times for cluster AP1.

Info for manual annotations of cluster AP3:

- Start number 21 was manually annotated 1 time for cluster AP3.

Info for manual annotations of cluster AY:

- Start number 26 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster CS1:

- Start number 30 was manually annotated 1 time for cluster CS1.

Info for manual annotations of cluster CS2:

- Start number 30 was manually annotated 29 times for cluster CS2.

Info for manual annotations of cluster CS3:

- Start number 30 was manually annotated 21 times for cluster CS3.

Info for manual annotations of cluster DF:

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

Info for manual annotations of cluster DF3:

- Start number 28 was manually annotated 1 time for cluster DF3.

Info for manual annotations of cluster EG:

- Start number 34 was manually annotated 1 time for cluster EG.
- Start number 41 was manually annotated 2 times for cluster EG.

Info for manual annotations of cluster FN:

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

Info for manual annotations of cluster GD1:

- Start number 50 was manually annotated 1 time for cluster GD1.
- Start number 52 was manually annotated 1 time for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 52 was manually annotated 2 times for cluster GD2.

Info for manual annotations of cluster GD3:

- Start number 52 was manually annotated 1 time for cluster GD3.

Info for manual annotations of cluster GD4:

- Start number 52 was manually annotated 1 time for cluster GD4.

Info for manual annotations of cluster U:

- Start number 39 was manually annotated 3 times for cluster U.

**Gene Information:**

Gene: A3Wally\_136 Start: 86849, Stop: 87247, Start Num: 50

Candidate Starts for A3Wally\_136:

(45, 86822), (Start: 50 @86849 has 1 MA's), (Start: 52 @86858 has 5 MA's), (67, 86957),

Gene: AWGoat\_61 Start: 44078, Stop: 43587, Start Num: 31

Candidate Starts for AWGoat\_61:

(1, 44426), (3, 44417), (10, 44318), (11, 44264), (12, 44219), (13, 44171), (16, 44129), (31, 44078), (56, 43961), (87, 43760), (100, 43682),

Gene: AbbyDaisy\_89 Start: 50820, Stop: 51422, Start Num: 26

Candidate Starts for AbbyDaisy\_89:

(Start: 26 @50820 has 1 MA's), (35, 50865), (63, 51009), (64, 51012), (74, 51087), (81, 51150), (92, 51285), (100, 51333),

Gene: Adgers\_52 Start: 46769, Stop: 46248, Start Num: 30

Candidate Starts for Adgers\_52:

(Start: 30 @46769 has 51 MA's), (37, 46733), (106, 46307),

Gene: Altheas\_59 Start: 43024, Stop: 42620, Start Num: 42

Candidate Starts for Altheas\_59:

(2, 43459), (4, 43426), (5, 43411), (8, 43366), (9, 43363), (15, 43180), (23, 43120), (25, 43117), (32, 43087), (42, 43024), (62, 42937), (74, 42856), (90, 42775), (94, 42739), (108, 42670), (110, 42628),

Gene: Amore2\_53 Start: 47169, Stop: 46684, Start Num: 30

Candidate Starts for Amore2\_53:

(Start: 30 @47169 has 51 MA's), (108, 46731),

Gene: Anamika\_49 Start: 47821, Stop: 47318, Start Num: 30

Candidate Starts for Anamika\_49:

(Start: 20 @47866 has 3 MA's), (24, 47848), (Start: 30 @47821 has 51 MA's), (40, 47761), (91, 47470), (99, 47416),

Gene: Barbochs\_51 Start: 46513, Stop: 45992, Start Num: 30

Candidate Starts for Barbochs\_51:

(Start: 30 @46513 has 51 MA's), (37, 46477), (106, 46051),

Gene: Beaver\_54 Start: 48283, Stop: 47762, Start Num: 30

Candidate Starts for Beaver\_54:

(Start: 30 @48283 has 51 MA's), (37, 48247), (106, 47821),

Gene: BenoitCattle\_53 Start: 47030, Stop: 46509, Start Num: 30

Candidate Starts for BenoitCattle\_53:

(Start: 30 @47030 has 51 MA's), (37, 46994), (80, 46736), (106, 46568),

Gene: Berries\_49 Start: 47793, Stop: 47290, Start Num: 30

Candidate Starts for Berries\_49:

(Start: 20 @47838 has 3 MA's), (24, 47820), (Start: 30 @47793 has 51 MA's), (40, 47733), (91, 47442), (99, 47388),

Gene: Bianmat\_49 Start: 47833, Stop: 47330, Start Num: 30

Candidate Starts for Bianmat\_49:

(Start: 20 @47878 has 3 MA's), (24, 47860), (Start: 30 @47833 has 51 MA's), (40, 47773), (91, 47482), (99, 47428),

Gene: Big4\_129 Start: 85559, Stop: 86026, Start Num: 52

Candidate Starts for Big4\_129:

(38, 85493), (48, 85544), (Start: 52 @85559 has 5 MA's), (60, 85589), (107, 85961),

Gene: BigShaq\_51 Start: 47035, Stop: 46514, Start Num: 30

Candidate Starts for BigShaq\_51:

(Start: 30 @47035 has 51 MA's), (37, 46999), (80, 46741), (106, 46573),

Gene: BirksAndSocks\_55 Start: 48633, Stop: 48112, Start Num: 30

Candidate Starts for BirksAndSocks\_55:

(Start: 30 @48633 has 51 MA's), (37, 48597), (106, 48171),

Gene: Boneham\_54 Start: 48534, Stop: 48013, Start Num: 30

Candidate Starts for Boneham\_54:

(Start: 30 @48534 has 51 MA's), (37, 48498), (104, 48084),

Gene: Breezic\_50 Start: 46526, Stop: 46005, Start Num: 30

Candidate Starts for Breezic\_50:

(Start: 30 @46526 has 51 MA's), (37, 46490), (106, 46064),

Gene: BruhMoment\_73 Start: 49223, Stop: 48708, Start Num: 21

Candidate Starts for BruhMoment\_73:

(Start: 21 @49223 has 1 MA's), (64, 49073), (74, 48998), (79, 48950),

Gene: Butterball\_54 Start: 48539, Stop: 48018, Start Num: 30

Candidate Starts for Butterball\_54:

(Start: 30 @48539 has 51 MA's), (37, 48503), (104, 48089),

Gene: Camerico\_47 Start: 46654, Stop: 46154, Start Num: 27

Candidate Starts for Camerico\_47:

(Start: 27 @46654 has 1 MA's), (49, 46561), (69, 46453), (70, 46450), (76, 46411), (102, 46240), (106, 46216),

Gene: CathyBurgh\_50 Start: 47103, Stop: 46582, Start Num: 30

Candidate Starts for CathyBurgh\_50:

(Start: 30 @47103 has 51 MA's), (37, 47067), (106, 46641),

Gene: Cece\_120 Start: 88234, Stop: 88626, Start Num: 52

Candidate Starts for Cece\_120:

(44, 88198), (Start: 52 @88234 has 5 MA's), (75, 88387), (99, 88513),

Gene: Charianelly\_48 Start: 47543, Stop: 47040, Start Num: 30

Candidate Starts for Charianelly\_48:

(Start: 20 @47588 has 3 MA's), (24, 47570), (Start: 30 @47543 has 51 MA's), (40, 47483), (91, 47192), (99, 47138),

Gene: Chelms\_51 Start: 47023, Stop: 46514, Start Num: 30

Candidate Starts for Chelms\_51:

(Start: 30 @47023 has 51 MA's), (37, 46987), (106, 46573),



Gene: Cuke\_82 Start: 48535, Stop: 49002, Start Num: 39

Candidate Starts for Cuke\_82:

(Start: 39 @48535 has 6 MA's), (43, 48553), (53, 48595), (54, 48598), (61, 48628), (68, 48685), (82, 48799), (85, 48817), (88, 48841), (91, 48862), (93, 48874), (94, 48883), (96, 48895), (103, 48922), (104, 48928), (106, 48940),

Gene: Dakiti\_52 Start: 47891, Stop: 47382, Start Num: 30

Candidate Starts for Dakiti\_52:

(Start: 30 @47891 has 51 MA's), (37, 47855), (106, 47441),

Gene: Damp\_47 Start: 46707, Stop: 46204, Start Num: 30

Candidate Starts for Damp\_47:

(Start: 20 @46752 has 3 MA's), (24, 46734), (Start: 30 @46707 has 51 MA's), (40, 46647), (91, 46356), (99, 46302),

Gene: Diabla\_54 Start: 48464, Stop: 47943, Start Num: 30

Candidate Starts for Diabla\_54:

(Start: 30 @48464 has 51 MA's), (37, 48428), (99, 48041), (102, 48026), (108, 47990),

Gene: Eggsie\_50 Start: 46426, Stop: 45905, Start Num: 30

Candidate Starts for Eggsie\_50:

(Start: 30 @46426 has 51 MA's), (37, 46390), (99, 46003), (108, 45952),

Gene: Ekhein\_51 Start: 46231, Stop: 45710, Start Num: 30

Candidate Starts for Ekhein\_51:

(Start: 30 @46231 has 51 MA's), (37, 46195), (106, 45769),

Gene: Exiguo\_50 Start: 46243, Stop: 45722, Start Num: 30

Candidate Starts for Exiguo\_50:

(Start: 30 @46243 has 51 MA's), (37, 46207), (106, 45781),

Gene: FelixAlejandro\_55 Start: 48737, Stop: 48216, Start Num: 30

Candidate Starts for FelixAlejandro\_55:

(Start: 30 @48737 has 51 MA's), (37, 48701), (104, 48287),

Gene: Flakey\_50 Start: 47107, Stop: 46586, Start Num: 30

Candidate Starts for Flakey\_50:

(Start: 30 @47107 has 51 MA's), (37, 47071), (106, 46645),

Gene: Fowlmouth\_83 Start: 51110, Stop: 51577, Start Num: 39

Candidate Starts for Fowlmouth\_83:

(Start: 39 @51110 has 6 MA's), (54, 51173), (57, 51182), (59, 51191), (71, 51278), (77, 51335), (88, 51416), (93, 51449), (94, 51458), (96, 51470),

Gene: GMA7\_42 Start: 41383, Stop: 40898, Start Num: 30

Candidate Starts for GMA7\_42:

(Start: 30 @41383 has 51 MA's), (108, 40945),

Gene: GTE7\_41 Start: 41414, Stop: 40929, Start Num: 30

Candidate Starts for GTE7\_41:

(Start: 30 @41414 has 51 MA's), (108, 40976),

Gene: GalacticEye\_49 Start: 47504, Stop: 47001, Start Num: 30

Candidate Starts for GalacticEye\_49:

(Start: 20 @47549 has 3 MA's), (24, 47531), (Start: 30 @47504 has 51 MA's), (40, 47444), (91, 47153), (99, 47099),

Gene: Gmala1\_37 Start: 39458, Stop: 38919, Start Num: 19

Candidate Starts for Gmala1\_37:

(18, 39467), (19, 39458), (Start: 27 @39425 has 1 MA's), (58, 39281), (62, 39257), (77, 39143), (104, 38987),

Gene: GordDuk1\_37 Start: 39399, Stop: 38860, Start Num: 19

Candidate Starts for GordDuk1\_37:

(18, 39408), (19, 39399), (Start: 27 @39366 has 1 MA's), (58, 39222), (62, 39198), (77, 39084), (104, 38928),

Gene: GordTnk2\_37 Start: 39365, Stop: 38826, Start Num: 19

Candidate Starts for GordTnk2\_37:

(18, 39374), (19, 39365), (Start: 27 @39332 has 1 MA's), (58, 39188), (62, 39164), (77, 39050), (104, 38894),

Gene: Gorko\_50 Start: 46235, Stop: 45714, Start Num: 30

Candidate Starts for Gorko\_50:

(Start: 30 @46235 has 51 MA's), (37, 46199), (106, 45773),

Gene: GourdThymes\_50 Start: 47109, Stop: 46588, Start Num: 30

Candidate Starts for GourdThymes\_50:

(Start: 30 @47109 has 51 MA's), (37, 47073), (57, 46989), (106, 46647),

Gene: Grassboy\_59 Start: 43110, Stop: 42643, Start Num: 34

Candidate Starts for Grassboy\_59:

(Start: 34 @43110 has 1 MA's), (Start: 41 @43062 has 2 MA's), (42, 43059), (53, 43020), (62, 42978), (74, 42897), (89, 42801), (110, 42651), (111, 42648),

Gene: Guillaume\_49 Start: 47554, Stop: 47051, Start Num: 30

Candidate Starts for Guillaume\_49:

(Start: 20 @47599 has 3 MA's), (24, 47581), (Start: 30 @47554 has 51 MA's), (40, 47494), (91, 47203), (99, 47149),

Gene: Hail2Pitt\_48 Start: 48030, Stop: 47527, Start Num: 30

Candidate Starts for Hail2Pitt\_48:

(Start: 20 @48075 has 3 MA's), (24, 48057), (Start: 30 @48030 has 51 MA's), (40, 47970), (91, 47679), (99, 47625),

Gene: Harambe\_49 Start: 47821, Stop: 47318, Start Num: 30

Candidate Starts for Harambe\_49:

(Start: 20 @47866 has 3 MA's), (24, 47848), (Start: 30 @47821 has 51 MA's), (40, 47761), (91, 47470), (99, 47416),

Gene: HayZem\_52 Start: 47166, Stop: 46681, Start Num: 30

Candidate Starts for HayZem\_52:

(Start: 30 @47166 has 51 MA's), (108, 46728),

Gene: Hello\_49 Start: 47783, Stop: 47280, Start Num: 30

Candidate Starts for Hello\_49:

(Start: 20 @47828 has 3 MA's), (24, 47810), (Start: 30 @47783 has 51 MA's), (40, 47723), (91, 47432), (99, 47378),

Gene: Hotorobo\_50 Start: 47114, Stop: 46593, Start Num: 30

Candidate Starts for Hotorobo\_50:

(Start: 30 @47114 has 51 MA's), (37, 47078), (106, 46652),

Gene: Jams\_49 Start: 46993, Stop: 46490, Start Num: 30

Candidate Starts for Jams\_49:

(Start: 20 @47038 has 3 MA's), (24, 47020), (Start: 30 @46993 has 51 MA's), (40, 46933), (91, 46642), (99, 46588),

Gene: Jellybones\_53 Start: 48215, Stop: 47694, Start Num: 30

Candidate Starts for Jellybones\_53:

(Start: 30 @48215 has 51 MA's), (37, 48179), (104, 47765),

Gene: John316\_54 Start: 48272, Stop: 47751, Start Num: 30

Candidate Starts for John316\_54:

(Start: 30 @48272 has 51 MA's), (37, 48236), (106, 47810),

Gene: Jormungandr\_49 Start: 47536, Stop: 47033, Start Num: 30

Candidate Starts for Jormungandr\_49:

(Start: 20 @47581 has 3 MA's), (24, 47563), (Start: 30 @47536 has 51 MA's), (40, 47476), (91, 47185), (99, 47131),

Gene: Jumbo\_42 Start: 45467, Stop: 44925, Start Num: 28

Candidate Starts for Jumbo\_42:

(14, 45563), (17, 45521), (19, 45509), (22, 45494), (Start: 28 @45467 has 1 MA's), (46, 45380), (72, 45239), (73, 45227), (83, 45140), (91, 45095), (93, 45083), (98, 45050), (105, 44993),

Gene: Kaseim\_49 Start: 46978, Stop: 46475, Start Num: 30

Candidate Starts for Kaseim\_49:

(Start: 20 @47023 has 3 MA's), (24, 47005), (Start: 30 @46978 has 51 MA's), (40, 46918), (91, 46627), (99, 46573),

Gene: Labelle\_102 Start: 64800, Stop: 65264, Start Num: 39

Candidate Starts for Labelle\_102:

(Start: 39 @64800 has 6 MA's), (89, 65106), (93, 65136), (94, 65145), (97, 65166), (104, 65190), (105, 65193),

Gene: Lahirium\_49 Start: 48058, Stop: 47555, Start Num: 30

Candidate Starts for Lahirium\_49:

(Start: 20 @48103 has 3 MA's), (24, 48085), (Start: 30 @48058 has 51 MA's), (40, 47998), (91, 47707), (99, 47653),

Gene: Lidong\_49 Start: 47793, Stop: 47290, Start Num: 30

Candidate Starts for Lidong\_49:

(Start: 20 @47838 has 3 MA's), (24, 47820), (Start: 30 @47793 has 51 MA's), (40, 47733), (91, 47442), (99, 47388),

Gene: Linetti\_52 Start: 48032, Stop: 47523, Start Num: 30

Candidate Starts for Linetti\_52:

(Start: 30 @48032 has 51 MA's), (37, 47996), (106, 47582),

Gene: Lizzo\_50 Start: 47103, Stop: 46582, Start Num: 30  
Candidate Starts for Lizzo\_50:  
(Start: 30 @47103 has 51 MA's), (37, 47067), (106, 46641),

Gene: Luker\_50 Start: 48011, Stop: 47508, Start Num: 30  
Candidate Starts for Luker\_50:  
(Start: 20 @48056 has 3 MA's), (24, 48038), (Start: 30 @48011 has 51 MA's), (40, 47951), (91, 47660), (99, 47606),

Gene: Madruga\_101 Start: 64424, Stop: 64888, Start Num: 39  
Candidate Starts for Madruga\_101:  
(Start: 39 @64424 has 6 MA's), (89, 64730), (93, 64760), (94, 64769), (97, 64790), (101, 64802), (104, 64814), (105, 64817),

Gene: Minos\_50 Start: 47535, Stop: 47032, Start Num: 30  
Candidate Starts for Minos\_50:  
(Start: 20 @47580 has 3 MA's), (24, 47562), (Start: 30 @47535 has 51 MA's), (40, 47475), (91, 47184), (99, 47130),

Gene: Monty\_49 Start: 46253, Stop: 45732, Start Num: 30  
Candidate Starts for Monty\_49:  
(Start: 30 @46253 has 51 MA's), (37, 46217), (106, 45791),

Gene: MrMiyagi\_81 Start: 51354, Stop: 51842, Start Num: 39  
Candidate Starts for MrMiyagi\_81:  
(36, 51333), (Start: 39 @51354 has 6 MA's), (43, 51372), (61, 51447), (66, 51495), (68, 51525), (73, 51558), (84, 51654), (85, 51657), (86, 51660), (93, 51714), (96, 51735),

Gene: MrWormie\_49 Start: 46696, Stop: 46193, Start Num: 30  
Candidate Starts for MrWormie\_49:  
(Start: 20 @46741 has 3 MA's), (24, 46723), (Start: 30 @46696 has 51 MA's), (40, 46636), (91, 46345), (99, 46291),

Gene: Msay19\_55 Start: 48726, Stop: 48205, Start Num: 30  
Candidate Starts for Msay19\_55:  
(Start: 30 @48726 has 51 MA's), (37, 48690), (104, 48276),

Gene: Neoevie\_49 Start: 47797, Stop: 47294, Start Num: 30  
Candidate Starts for Neoevie\_49:  
(Start: 20 @47842 has 3 MA's), (24, 47824), (Start: 30 @47797 has 51 MA's), (40, 47737), (91, 47446), (99, 47392),

Gene: Newt\_50 Start: 48025, Stop: 47522, Start Num: 30  
Candidate Starts for Newt\_50:  
(Start: 20 @48070 has 3 MA's), (24, 48052), (Start: 30 @48025 has 51 MA's), (40, 47965), (91, 47674), (99, 47620),

Gene: Nike\_59 Start: 43351, Stop: 42950, Start Num: 41  
Candidate Starts for Nike\_59:  
(Start: 41 @43351 has 2 MA's), (42, 43348), (47, 43336), (62, 43264), (74, 43183), (94, 43069), (110, 42958),

Gene: Nimi13\_49 Start: 47544, Stop: 47041, Start Num: 30

Candidate Starts for Nimi13\_49:

(Start: 20 @47589 has 3 MA's), (24, 47571), (Start: 30 @47544 has 51 MA's), (40, 47484), (91, 47193), (99, 47139),

Gene: Patience\_103 Start: 65328, Stop: 65792, Start Num: 39

Candidate Starts for Patience\_103:

(Start: 39 @65328 has 6 MA's), (89, 65634), (93, 65664), (94, 65673), (97, 65694), (101, 65706), (104, 65718), (105, 65721),

Gene: PauloDiaboli\_140 Start: 86201, Stop: 86590, Start Num: 52

Candidate Starts for PauloDiaboli\_140:

(45, 86165), (49, 86189), (Start: 50 @86192 has 1 MA's), (Start: 52 @86201 has 5 MA's), (67, 86300),

Gene: PierreThree\_51 Start: 47781, Stop: 47260, Start Num: 30

Candidate Starts for PierreThree\_51:

(Start: 30 @47781 has 51 MA's), (37, 47745), (80, 47487), (106, 47319),

Gene: PokyPuppy\_50 Start: 47715, Stop: 47209, Start Num: 30

Candidate Starts for PokyPuppy\_50:

(Start: 30 @47715 has 51 MA's), (37, 47679), (57, 47595), (106, 47268), (108, 47256),

Gene: Poland\_57 Start: 48705, Stop: 48184, Start Num: 30

Candidate Starts for Poland\_57:

(Start: 30 @48705 has 51 MA's), (37, 48669), (104, 48255),

Gene: Pumpernickel\_133 Start: 86998, Stop: 87462, Start Num: 52

Candidate Starts for Pumpernickel\_133:

(44, 86962), (Start: 52 @86998 has 5 MA's),

Gene: Raqqa\_87 Start: 48508, Stop: 49080, Start Num: 33

Candidate Starts for Raqqa\_87:

(Start: 33 @48508 has 1 MA's), (63, 48667), (64, 48670), (74, 48745), (79, 48793),

Gene: RemRem\_51 Start: 46243, Stop: 45722, Start Num: 30

Candidate Starts for RemRem\_51:

(Start: 30 @46243 has 51 MA's), (37, 46207), (106, 45781),

Gene: Rizwana\_63 Start: 46128, Stop: 45559, Start Num: 20

Candidate Starts for Rizwana\_63:

(Start: 20 @46128 has 3 MA's), (51, 46002), (55, 45984), (64, 45939), (65, 45918), (93, 45690), (95, 45678),

Gene: Rowlf\_53 Start: 41903, Stop: 41508, Start Num: 41

Candidate Starts for Rowlf\_53:

(29, 41969), (Start: 41 @41903 has 2 MA's), (42, 41900), (53, 41858), (74, 41735), (109, 41555), (110, 41516),

Gene: RoyalG\_51 Start: 47075, Stop: 46554, Start Num: 30

Candidate Starts for RoyalG\_51:

(Start: 30 @47075 has 51 MA's), (37, 47039), (99, 46652), (102, 46637), (108, 46601),

Gene: SallyK\_58 Start: 43182, Stop: 42760, Start Num: 41

Candidate Starts for SallyK\_58:

(Start: 41 @43182 has 2 MA's), (42, 43179), (53, 43137), (62, 43095), (74, 43014), (89, 42918), (110, 42768),

Gene: Sam12\_50 Start: 46243, Stop: 45722, Start Num: 30

Candidate Starts for Sam12\_50:

(Start: 30 @46243 has 51 MA's), (37, 46207), (106, 45781),

Gene: Shelley\_49 Start: 47020, Stop: 46517, Start Num: 30

Candidate Starts for Shelley\_49:

(Start: 20 @47065 has 3 MA's), (24, 47047), (Start: 30 @47020 has 51 MA's), (40, 46960), (91, 46669), (99, 46615),

Gene: Sombrero\_51 Start: 46616, Stop: 46095, Start Num: 30

Candidate Starts for Sombrero\_51:

(Start: 30 @46616 has 51 MA's), (37, 46580), (104, 46166),

Gene: Squibbles\_50 Start: 47106, Stop: 46585, Start Num: 30

Candidate Starts for Squibbles\_50:

(Start: 30 @47106 has 51 MA's), (106, 46644),

Gene: SteveFrench\_50 Start: 47315, Stop: 46794, Start Num: 30

Candidate Starts for SteveFrench\_50:

(Start: 30 @47315 has 51 MA's), (37, 47279), (99, 46892), (102, 46877), (108, 46841),

Gene: Sticker17\_49 Start: 47535, Stop: 47032, Start Num: 30

Candidate Starts for Sticker17\_49:

(Start: 20 @47580 has 3 MA's), (24, 47562), (Start: 30 @47535 has 51 MA's), (40, 47475), (91, 47184), (99, 47130),

Gene: Tank\_63 Start: 46124, Stop: 45591, Start Num: 20

Candidate Starts for Tank\_63:

(Start: 20 @46124 has 3 MA's), (93, 45722), (100, 45680),

Gene: Teal\_49 Start: 48002, Stop: 47499, Start Num: 30

Candidate Starts for Teal\_49:

(Start: 20 @48047 has 3 MA's), (24, 48029), (Start: 30 @48002 has 51 MA's), (40, 47942), (91, 47651), (99, 47597),

Gene: Tissue\_57 Start: 42946, Stop: 42539, Start Num: 42

Candidate Starts for Tissue\_57:

(6, 43333), (7, 43330), (15, 43102), (23, 43042), (25, 43039), (32, 43009), (Start: 41 @42949 has 2 MA's), (42, 42946), (74, 42784), (110, 42547), (111, 42544),

Gene: Wilde\_65 Start: 46423, Stop: 45890, Start Num: 20

Candidate Starts for Wilde\_65:

(Start: 20 @46423 has 3 MA's), (93, 46021), (100, 45979),

Gene: Woes\_49 Start: 48053, Stop: 47550, Start Num: 30

Candidate Starts for Woes\_49:

(Start: 20 @48098 has 3 MA's), (24, 48080), (Start: 30 @48053 has 51 MA's), (40, 47993), (91, 47702), (99, 47648),

Gene: Zooman\_120 Start: 82979, Stop: 83374, Start Num: 52

Candidate Starts for Zooman\_120:

(44, 82943), (Start: 52 @82979 has 5 MA's), (60, 83009), (78, 83171), (99, 83261),

Gene: Zucker\_85 Start: 49487, Stop: 49963, Start Num: 33

Candidate Starts for Zucker\_85:

(6, 49187), (Start: 33 @49487 has 1 MA's), (73, 49670), (74, 49679), (100, 49874),