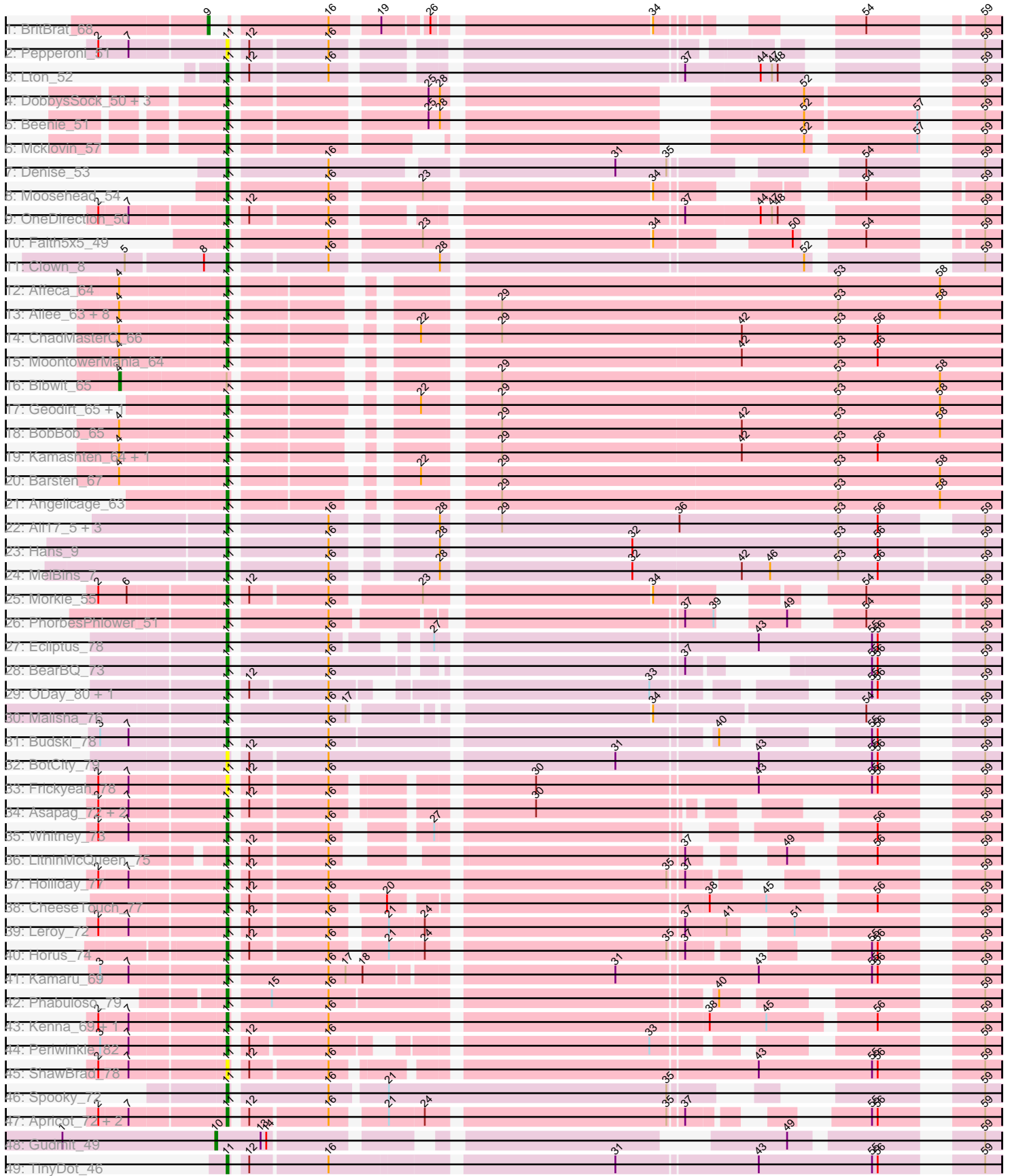


Pham 221403



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 221403 Report

This analysis was run 03/28/25 on database version 593.

Pham number 221403 has 71 members, 6 are drafts.

Phages represented in each track:

- Track 1 : BritBrat\_68
- Track 2 : Pepperoni\_51
- Track 3 : Lton\_52
- Track 4 : DobbysSock\_50, Samman98\_58, Clark\_57, Invecra\_59
- Track 5 : Beenie\_51
- Track 6 : Mcklovin\_57
- Track 7 : Denise\_53
- Track 8 : Moosehead\_54
- Track 9 : OneDirection\_50
- Track 10 : Faith5x5\_49
- Track 11 : Clown\_8
- Track 12 : Affeca\_64
- Track 13 : Ailee\_63, Fitzgerald\_64, Sedona\_65, Sitar\_66, Keitabear\_65, Sanjuju\_65, Stultus\_62, Shivanishola\_63, Lennon\_66
- Track 14 : ChadMasterC\_66
- Track 15 : MoontowerMania\_64
- Track 16 : Bibwit\_65
- Track 17 : Geodirt\_65, Kewpiedoll\_65
- Track 18 : BobBob\_65
- Track 19 : Kamashten\_64, Thing3\_64
- Track 20 : Barsten\_67
- Track 21 : Angelicage\_63
- Track 22 : Ali17\_5, Inspectinfecti\_8, Phinally\_7, Leonard\_7
- Track 23 : Hans\_9
- Track 24 : MelBins\_7
- Track 25 : Morkie\_55
- Track 26 : PhorbesPhlower\_51
- Track 27 : Ecliptus\_78
- Track 28 : BearBQ\_73
- Track 29 : ODay\_80, Kuwabara\_74
- Track 30 : Malisha\_76
- Track 31 : Budski\_78
- Track 32 : BotCity\_79
- Track 33 : Frickyeah\_78
- Track 34 : Asapag\_72, BENtherdunthat\_76, Birdsong\_71
- Track 35 : Whitney\_73
- Track 36 : LitninMcQueen\_75

- Track 37 : Holliday\_77
- Track 38 : CheeseTouch\_77
- Track 39 : Leroy\_72
- Track 40 : Horus\_74
- Track 41 : Kamaru\_69
- Track 42 : Phabuloso\_79
- Track 43 : Kenna\_69, Lutum\_75
- Track 44 : Periwinkle\_82
- Track 45 : ShawBrad\_78
- Track 46 : Spooky\_72
- Track 47 : Apricot\_72, Phistory\_71, Crater\_72
- Track 48 : Gudmit\_49
- Track 49 : TinyDot\_46

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

The start number called the most often in the published annotations is 11, it was called in 62 of the 65 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Affeca\_64, Ailee\_63, Ali17\_5, Angelicage\_63, Apricot\_72, Asapag\_72, BENtherdunthat\_76, Barsten\_67, BearBQ\_73, Beenie\_51, Birdsong\_71, BobBob\_65, BotCity\_79, Budski\_78, ChadMasterC\_66, CheeseTouch\_77, Clark\_57, Clown\_8, Crater\_72, Denise\_53, DobbysSock\_50, Ecliptus\_78, Faith5x5\_49, Fitzgerald\_64, Frickyeah\_78, Geodirt\_65, Hans\_9, Holliday\_77, Horus\_74, Inspectinfecti\_8, Invectra\_59, Kamaru\_69, Kamashten\_64, Keitabear\_65, Kenna\_69, Kewpiedoll\_65, Kuwabara\_74, Lennon\_66, Leonard\_7, Leroy\_72, LitninMcQueen\_75, Lton\_52, Lutum\_75, Malisha\_76, Mcklovin\_57, MelBins\_7, MoontowerMania\_64, Moosehead\_54, Morkie\_55, ODay\_80, OneDirection\_50, Pepperoni\_51, Periwinkle\_82, Phabuloso\_79, Phinally\_7, Phistory\_71, PhorbesPhlower\_51, Samman98\_58, Sanjuju\_65, Sedona\_65, ShawBrad\_78, Shivanishola\_63, Sitar\_66, Spooky\_72, Stultus\_62, Thing3\_64, TinyDot\_46, Whitney\_73,

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

- Bibwit\_65,

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

- BritBrat\_68, Gudmit\_49,

**Summary by start number:**

Start 4:

- Found in 17 of 71 ( 23.9% ) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 5.9% of time when present
- Phage (with cluster) where this start called: Bibwit\_65 (DE1),

Start 9:

- Found in 1 of 71 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 65

- Called 100.0% of time when present
- Phage (with cluster) where this start called: BritBrat\_68 (CY2),

Start 10:

- Found in 1 of 71 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gudmit\_49 (singleton),

Start 11:

- Found in 69 of 71 ( 97.2% ) of genes in pham
- Manual Annotations of this start: 62 of 65
- Called 98.6% of time when present
- Phage (with cluster) where this start called: Affeca\_64 (DE1), Ailee\_63 (DE1), Ali17\_5 (DE2), Angelicage\_63 (DE1), Apricot\_72 (DN3), Asapag\_72 (DN1), BENTherdunthat\_76 (DN1), Barsten\_67 (DE1), BearBQ\_73 (DN), Beenie\_51 (CZ4), Birdsong\_71 (DN), BobBob\_65 (DE1), BotCity\_79 (DN), Budski\_78 (DN), ChadMasterC\_66 (DE1), CheeseTouch\_77 (DN1), Clark\_57 (CZ4), Clown\_8 (DC2), Crater\_72 (DN3), Denise\_53 (CZ5), DobbysSock\_50 (CZ4), Ecliptus\_78 (DN), Faith5x5\_49 (CZ6), Fitzgerald\_64 (DE1), Frickyeah\_78 (DN1), Geodirt\_65 (DE1), Hans\_9 (DE2), Holliday\_77 (DN1), Horus\_74 (DN1), Inspectinfecti\_8 (DE2), Invectra\_59 (CZ4), Kamaru\_69 (DN1), Kamashten\_64 (DE1), Keitabear\_65 (DE1), Kenna\_69 (DN1), Kewpiedoll\_65 (DE1), Kuwabara\_74 (DN4), Lennon\_66 (DE1), Leonard\_7 (DE2), Leroy\_72 (DN1), LitninMcQueen\_75 (DN1), Lton\_52 (CZ), Lutum\_75 (DN1), Malisha\_76 (DN), Mcklovin\_57 (CZ4), MelBins\_7 (DE2), MoontowerMania\_64 (DE1), Moosehead\_54 (CZ6), Morkie\_55 (DH), ODay\_80 (DN), OneDirection\_50 (CZ6), Pepperoni\_51 (CZ), Periwinkle\_82 (DN1), Phabuloso\_79 (DN1), Phinally\_7 (DE2), Phistory\_71 (DN1), PhorbesPhlower\_51 (DH), Samman98\_58 (CZ4), Sanjuju\_65 (DE1), Sedona\_65 (DE1), ShawBrad\_78 (DN1), Shivanishola\_63 (DE1), Sitar\_66 (DE1), Spooky\_72 (DN2), Stultus\_62 (DE1), Thing3\_64 (DE1), TinyDot\_46 (singleton), Whitney\_73 (DN1),

### Summary by clusters:

There are 15 clusters represented in this pham: DN, CY2, singleton, DH, CZ, DE1, DE2, CZ6, CZ4, CZ5, DN4, DN1, DN3, DN2, DC2,

Info for manual annotations of cluster CY2:

- Start number 9 was manually annotated 1 time for cluster CY2.

Info for manual annotations of cluster CZ:

- Start number 11 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ4:

- Start number 11 was manually annotated 5 times for cluster CZ4.

Info for manual annotations of cluster CZ5:

- Start number 11 was manually annotated 1 time for cluster CZ5.

Info for manual annotations of cluster CZ6:

- Start number 11 was manually annotated 3 times for cluster CZ6.

Info for manual annotations of cluster DC2:

- Start number 11 was manually annotated 1 time for cluster DC2.

Info for manual annotations of cluster DE1:

- Start number 4 was manually annotated 1 time for cluster DE1.
- Start number 11 was manually annotated 18 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 11 was manually annotated 6 times for cluster DE2.

Info for manual annotations of cluster DH:

- Start number 11 was manually annotated 2 times for cluster DH.

Info for manual annotations of cluster DN:

- Start number 11 was manually annotated 6 times for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 11 was manually annotated 14 times for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 11 was manually annotated 1 time for cluster DN2.

Info for manual annotations of cluster DN3:

- Start number 11 was manually annotated 2 times for cluster DN3.

Info for manual annotations of cluster DN4:

- Start number 11 was manually annotated 1 time for cluster DN4.

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

Gene: Affeca\_64 Start: 50623, Stop: 50991, Start Num: 11

Candidate Starts for Affeca\_64:

(Start: 4 @50569 has 1 MA's), (Start: 11 @50623 has 62 MA's), (53, 50905), (58, 50959),

Gene: Ailee\_63 Start: 50343, Stop: 50711, Start Num: 11

Candidate Starts for Ailee\_63:

(Start: 4 @50289 has 1 MA's), (Start: 11 @50343 has 62 MA's), (29, 50448), (53, 50625), (58, 50679),

Gene: Ali17\_5 Start: 4477, Stop: 4836, Start Num: 11

Candidate Starts for Ali17\_5:

(Start: 11 @4477 has 62 MA's), (16, 4525), (28, 4567), (29, 4591), (36, 4684), (53, 4768), (56, 4789), (59, 4828),

Gene: Angelicage\_63 Start: 50575, Stop: 50943, Start Num: 11

Candidate Starts for Angelicage\_63:

(Start: 11 @50575 has 62 MA's), (29, 50680), (53, 50857), (58, 50911),

Gene: Apricot\_72 Start: 42626, Stop: 42949, Start Num: 11

Candidate Starts for Apricot\_72:

(2, 42563), (7, 42578), (Start: 11 @42626 has 62 MA's), (12, 42632), (16, 42671), (21, 42695), (24, 42713), (35, 42833), (37, 42839), (55, 42899), (56, 42902), (59, 42941),

Gene: Asapag\_72 Start: 42928, Stop: 43242, Start Num: 11  
Candidate Starts for Asapag\_72:  
(2, 42865), (7, 42880), (Start: 11 @42928 has 62 MA's), (12, 42934), (16, 42973), (30, 43060), (59, 43234),

Gene: BENtherdunthat\_76 Start: 43974, Stop: 44288, Start Num: 11  
Candidate Starts for BENtherdunthat\_76:  
(2, 43911), (7, 43926), (Start: 11 @43974 has 62 MA's), (12, 43980), (16, 44019), (30, 44106), (59, 44280),

Gene: Barsten\_67 Start: 50851, Stop: 51222, Start Num: 11  
Candidate Starts for Barsten\_67:  
(Start: 4 @50797 has 1 MA's), (Start: 11 @50851 has 62 MA's), (22, 50926), (29, 50959), (53, 51136), (58, 51190),

Gene: BearBQ\_73 Start: 45171, Stop: 45494, Start Num: 11  
Candidate Starts for BearBQ\_73:  
(Start: 11 @45171 has 62 MA's), (16, 45219), (37, 45384), (55, 45444), (56, 45447), (59, 45486),

Gene: Beenie\_51 Start: 38991, Stop: 39326, Start Num: 11  
Candidate Starts for Beenie\_51:  
(Start: 11 @38991 has 62 MA's), (25, 39081), (28, 39087), (52, 39243), (57, 39300), (59, 39318),

Gene: Bibwit\_65 Start: 49883, Stop: 50305, Start Num: 4  
Candidate Starts for Bibwit\_65:  
(Start: 4 @49883 has 1 MA's), (Start: 11 @49937 has 62 MA's), (29, 50042), (53, 50219), (58, 50273),

Gene: Birdsong\_71 Start: 42664, Stop: 42978, Start Num: 11  
Candidate Starts for Birdsong\_71:  
(2, 42601), (7, 42616), (Start: 11 @42664 has 62 MA's), (12, 42670), (16, 42709), (30, 42796), (59, 42970),

Gene: BobBob\_65 Start: 50063, Stop: 50431, Start Num: 11  
Candidate Starts for BobBob\_65:  
(Start: 4 @50009 has 1 MA's), (Start: 11 @50063 has 62 MA's), (29, 50168), (42, 50294), (53, 50345), (58, 50399),

Gene: BotCity\_79 Start: 45425, Stop: 45796, Start Num: 11  
Candidate Starts for BotCity\_79:  
(Start: 11 @45425 has 62 MA's), (12, 45431), (16, 45470), (31, 45614), (43, 45686), (55, 45746), (56, 45749), (59, 45788),

Gene: BritBrat\_68 Start: 44637, Stop: 44939, Start Num: 9  
Candidate Starts for BritBrat\_68:  
(Start: 9 @44637 has 1 MA's), (16, 44685), (19, 44706), (26, 44727), (34, 44832), (54, 44889), (59, 44931),

Gene: Budski\_78 Start: 44785, Stop: 45126, Start Num: 11  
Candidate Starts for Budski\_78:  
(3, 44722), (7, 44737), (Start: 11 @44785 has 62 MA's), (16, 44833), (40, 45019), (55, 45076), (56, 45079), (59, 45118),

Gene: ChadMasterC\_66 Start: 52230, Stop: 52601, Start Num: 11

Candidate Starts for ChadMasterC\_66:

(Start: 4 @52176 has 1 MA's), (Start: 11 @52230 has 62 MA's), (22, 52305), (29, 52338), (42, 52464), (53, 52515), (56, 52536),

Gene: CheeseTouch\_77 Start: 40196, Stop: 40543, Start Num: 11

Candidate Starts for CheeseTouch\_77:

(Start: 11 @40196 has 62 MA's), (12, 40202), (16, 40241), (20, 40265), (38, 40415), (45, 40445), (56, 40496), (59, 40535),

Gene: Clark\_57 Start: 38808, Stop: 39143, Start Num: 11

Candidate Starts for Clark\_57:

(Start: 11 @38808 has 62 MA's), (25, 38898), (28, 38904), (52, 39060), (59, 39135),

Gene: Clown\_8 Start: 5206, Stop: 5559, Start Num: 11

Candidate Starts for Clown\_8:

(5, 5155), (8, 5194), (Start: 11 @5206 has 62 MA's), (16, 5251), (28, 5302), (52, 5482), (59, 5551),

Gene: Crater\_72 Start: 43021, Stop: 43344, Start Num: 11

Candidate Starts for Crater\_72:

(2, 42958), (7, 42973), (Start: 11 @43021 has 62 MA's), (12, 43027), (16, 43066), (21, 43090), (24, 43108), (35, 43228), (37, 43234), (55, 43294), (56, 43297), (59, 43336),

Gene: Denise\_53 Start: 34928, Stop: 35266, Start Num: 11

Candidate Starts for Denise\_53:

(Start: 11 @34928 has 62 MA's), (16, 34976), (31, 35114), (35, 35141), (54, 35213), (59, 35258),

Gene: DobbysSock\_50 Start: 37650, Stop: 37985, Start Num: 11

Candidate Starts for DobbysSock\_50:

(Start: 11 @37650 has 62 MA's), (25, 37740), (28, 37746), (52, 37902), (59, 37977),

Gene: Ecliptus\_78 Start: 45538, Stop: 45891, Start Num: 11

Candidate Starts for Ecliptus\_78:

(Start: 11 @45538 has 62 MA's), (16, 45586), (27, 45622), (43, 45781), (55, 45841), (56, 45844), (59, 45883),

Gene: Faith5x5\_49 Start: 33082, Stop: 33411, Start Num: 11

Candidate Starts for Faith5x5\_49:

(Start: 11 @33082 has 62 MA's), (16, 33130), (23, 33172), (34, 33283), (50, 33337), (54, 33361), (59, 33403),

Gene: Fitzgerald\_64 Start: 51085, Stop: 51453, Start Num: 11

Candidate Starts for Fitzgerald\_64:

(Start: 4 @51031 has 1 MA's), (Start: 11 @51085 has 62 MA's), (29, 51190), (53, 51367), (58, 51421),

Gene: Frickyeah\_78 Start: 44063, Stop: 44419, Start Num: 11

Candidate Starts for Frickyeah\_78:

(2, 44000), (7, 44015), (Start: 11 @44063 has 62 MA's), (12, 44069), (16, 44108), (30, 44195), (43, 44309), (55, 44369), (56, 44372), (59, 44411),

Gene: Geodirt\_65 Start: 51295, Stop: 51666, Start Num: 11

Candidate Starts for Geodirt\_65:

(Start: 11 @51295 has 62 MA's), (22, 51370), (29, 51403), (53, 51580), (58, 51634),

Gene: Gudmit\_49 Start: 31812, Stop: 32141, Start Num: 10

Candidate Starts for Gudmit\_49:

(1, 31731), (Start: 10 @31812 has 1 MA's), (13, 31836), (14, 31839), (49, 32055), (59, 32133),

Gene: Hans\_9 Start: 5000, Stop: 5374, Start Num: 11

Candidate Starts for Hans\_9:

(Start: 11 @5000 has 62 MA's), (16, 5048), (28, 5090), (32, 5183), (53, 5291), (56, 5312), (59, 5366),

Gene: Holliday\_77 Start: 47029, Stop: 47361, Start Num: 11

Candidate Starts for Holliday\_77:

(2, 46966), (7, 46981), (Start: 11 @47029 has 62 MA's), (12, 47035), (16, 47074), (35, 47245), (37, 47251), (59, 47353),

Gene: Horus\_74 Start: 45088, Stop: 45411, Start Num: 11

Candidate Starts for Horus\_74:

(Start: 11 @45088 has 62 MA's), (12, 45094), (16, 45133), (21, 45157), (24, 45175), (35, 45295), (37, 45301), (55, 45361), (56, 45364), (59, 45403),

Gene: Inspectinfecti\_8 Start: 5534, Stop: 5893, Start Num: 11

Candidate Starts for Inspectinfecti\_8:

(Start: 11 @5534 has 62 MA's), (16, 5582), (28, 5624), (29, 5648), (36, 5741), (53, 5825), (56, 5846), (59, 5885),

Gene: Invectra\_59 Start: 40382, Stop: 40717, Start Num: 11

Candidate Starts for Invectra\_59:

(Start: 11 @40382 has 62 MA's), (25, 40472), (28, 40478), (52, 40634), (59, 40709),

Gene: Kamaru\_69 Start: 42541, Stop: 42909, Start Num: 11

Candidate Starts for Kamaru\_69:

(3, 42478), (7, 42493), (Start: 11 @42541 has 62 MA's), (16, 42589), (17, 42598), (18, 42607), (31, 42727), (43, 42799), (55, 42859), (56, 42862), (59, 42901),

Gene: Kamashten\_64 Start: 49896, Stop: 50264, Start Num: 11

Candidate Starts for Kamashten\_64:

(Start: 4 @49842 has 1 MA's), (Start: 11 @49896 has 62 MA's), (29, 50001), (42, 50127), (53, 50178), (56, 50199),

Gene: Keitabear\_65 Start: 51857, Stop: 52225, Start Num: 11

Candidate Starts for Keitabear\_65:

(Start: 4 @51803 has 1 MA's), (Start: 11 @51857 has 62 MA's), (29, 51962), (53, 52139), (58, 52193),

Gene: Kenna\_69 Start: 42661, Stop: 43026, Start Num: 11

Candidate Starts for Kenna\_69:

(2, 42598), (7, 42613), (Start: 11 @42661 has 62 MA's), (16, 42709), (38, 42898), (45, 42928), (56, 42979), (59, 43018),

Gene: Kewpiedoll\_65 Start: 51216, Stop: 51587, Start Num: 11

Candidate Starts for Kewpiedoll\_65:

(Start: 11 @51216 has 62 MA's), (22, 51291), (29, 51324), (53, 51501), (58, 51555),

Gene: Kuwabara\_74 Start: 44853, Stop: 45173, Start Num: 11

Candidate Starts for Kuwabara\_74:



(Start: 11 @44853 has 62 MA's), (12, 44859), (16, 44898), (33, 45042), (55, 45126), (56, 45129), (59, 45165),

Gene: Lennon\_66 Start: 52006, Stop: 52374, Start Num: 11

Candidate Starts for Lennon\_66:

(Start: 4 @51952 has 1 MA's), (Start: 11 @52006 has 62 MA's), (29, 52111), (53, 52288), (58, 52342),

Gene: Leonard\_7 Start: 5129, Stop: 5488, Start Num: 11

Candidate Starts for Leonard\_7:

(Start: 11 @5129 has 62 MA's), (16, 5177), (28, 5219), (29, 5243), (36, 5336), (53, 5420), (56, 5441), (59, 5480),

Gene: Leroy\_72 Start: 42957, Stop: 43301, Start Num: 11

Candidate Starts for Leroy\_72:

(2, 42894), (7, 42909), (Start: 11 @42957 has 62 MA's), (12, 42963), (16, 43002), (21, 43026), (24, 43044), (37, 43170), (41, 43191), (51, 43212), (59, 43293),

Gene: LitninMcQueen\_75 Start: 43856, Stop: 44158, Start Num: 11

Candidate Starts for LitninMcQueen\_75:

(Start: 11 @43856 has 62 MA's), (12, 43862), (16, 43901), (37, 44054), (49, 44081), (56, 44111), (59, 44150),

Gene: Lton\_52 Start: 32721, Stop: 33059, Start Num: 11

Candidate Starts for Lton\_52:

(Start: 11 @32721 has 62 MA's), (12, 32727), (16, 32766), (37, 32928), (44, 32967), (47, 32973), (48, 32976), (59, 33051),

Gene: Lutum\_75 Start: 43824, Stop: 44189, Start Num: 11

Candidate Starts for Lutum\_75:

(2, 43761), (7, 43776), (Start: 11 @43824 has 62 MA's), (16, 43872), (38, 44061), (45, 44091), (56, 44142), (59, 44181),

Gene: Malisha\_76 Start: 47249, Stop: 47602, Start Num: 11

Candidate Starts for Malisha\_76:

(Start: 11 @47249 has 62 MA's), (16, 47297), (17, 47306), (34, 47444), (54, 47552), (59, 47594),

Gene: Mcklovin\_57 Start: 44830, Stop: 45141, Start Num: 11

Candidate Starts for Mcklovin\_57:

(Start: 11 @44830 has 62 MA's), (52, 45064), (57, 45115), (59, 45133),

Gene: MelBins\_7 Start: 5115, Stop: 5489, Start Num: 11

Candidate Starts for MelBins\_7:

(Start: 11 @5115 has 62 MA's), (16, 5163), (28, 5205), (32, 5298), (42, 5355), (46, 5370), (53, 5406), (56, 5427), (59, 5481),

Gene: MoontowerMania\_64 Start: 51183, Stop: 51551, Start Num: 11

Candidate Starts for MoontowerMania\_64:

(Start: 4 @51129 has 1 MA's), (Start: 11 @51183 has 62 MA's), (42, 51414), (53, 51465), (56, 51486),

Gene: Moosehead\_54 Start: 33307, Stop: 33630, Start Num: 11

Candidate Starts for Moosehead\_54:

(Start: 11 @33307 has 62 MA's), (16, 33355), (23, 33397), (34, 33508), (54, 33580), (59, 33622),

Gene: Morkie\_55 Start: 34669, Stop: 34992, Start Num: 11

Candidate Starts for Morkie\_55:

(2, 34606), (6, 34621), (Start: 11 @34669 has 62 MA's), (12, 34675), (16, 34714), (23, 34756), (34, 34867), (54, 34942), (59, 34984),

Gene: ODay\_80 Start: 46266, Stop: 46589, Start Num: 11

Candidate Starts for ODay\_80:

(Start: 11 @46266 has 62 MA's), (12, 46272), (16, 46311), (33, 46455), (55, 46539), (56, 46542), (59, 46581),

Gene: OneDirection\_50 Start: 32364, Stop: 32702, Start Num: 11

Candidate Starts for OneDirection\_50:

(2, 32301), (7, 32316), (Start: 11 @32364 has 62 MA's), (12, 32370), (16, 32409), (37, 32571), (44, 32610), (47, 32616), (48, 32619), (59, 32694),

Gene: Pepperoni\_51 Start: 33825, Stop: 34151, Start Num: 11

Candidate Starts for Pepperoni\_51:

(2, 33762), (7, 33777), (Start: 11 @33825 has 62 MA's), (12, 33831), (16, 33870), (59, 34143),

Gene: Periwinkle\_82 Start: 46121, Stop: 46444, Start Num: 11

Candidate Starts for Periwinkle\_82:

(3, 46058), (7, 46073), (Start: 11 @46121 has 62 MA's), (12, 46127), (16, 46166), (33, 46310), (59, 46436),

Gene: Phabuloso\_79 Start: 44818, Stop: 45159, Start Num: 11

Candidate Starts for Phabuloso\_79:

(Start: 11 @44818 has 62 MA's), (15, 44836), (16, 44866), (40, 45052), (59, 45151),

Gene: Phinally\_7 Start: 5126, Stop: 5485, Start Num: 11

Candidate Starts for Phinally\_7:

(Start: 11 @5126 has 62 MA's), (16, 5174), (28, 5216), (29, 5240), (36, 5333), (53, 5417), (56, 5438), (59, 5477),

Gene: Phistory\_71 Start: 42186, Stop: 42509, Start Num: 11

Candidate Starts for Phistory\_71:

(2, 42123), (7, 42138), (Start: 11 @42186 has 62 MA's), (12, 42192), (16, 42231), (21, 42255), (24, 42273), (35, 42393), (37, 42399), (55, 42459), (56, 42462), (59, 42501),

Gene: PhorbesPhlower\_51 Start: 33361, Stop: 33684, Start Num: 11

Candidate Starts for PhorbesPhlower\_51:

(Start: 11 @33361 has 62 MA's), (16, 33409), (37, 33574), (39, 33589), (49, 33610), (54, 33634), (59, 33676),

Gene: Samman98\_58 Start: 38911, Stop: 39246, Start Num: 11

Candidate Starts for Samman98\_58:

(Start: 11 @38911 has 62 MA's), (25, 39001), (28, 39007), (52, 39163), (59, 39238),

Gene: Sanjuju\_65 Start: 51217, Stop: 51585, Start Num: 11

Candidate Starts for Sanjuju\_65:

(Start: 4 @51163 has 1 MA's), (Start: 11 @51217 has 62 MA's), (29, 51322), (53, 51499), (58, 51553),

Gene: Sedona\_65 Start: 51790, Stop: 52158, Start Num: 11

Candidate Starts for Sedona\_65:

(Start: 4 @51736 has 1 MA's), (Start: 11 @51790 has 62 MA's), (29, 51895), (53, 52072), (58, 52126),

Gene: ShawBrad\_78 Start: 43579, Stop: 43935, Start Num: 11

Candidate Starts for ShawBrad\_78:

(2, 43516), (7, 43531), (Start: 11 @43579 has 62 MA's), (12, 43585), (16, 43624), (43, 43825), (55, 43885), (56, 43888), (59, 43927),

Gene: Shivanishola\_63 Start: 48835, Stop: 49203, Start Num: 11

Candidate Starts for Shivanishola\_63:

(Start: 4 @48781 has 1 MA's), (Start: 11 @48835 has 62 MA's), (29, 48940), (53, 49117), (58, 49171),

Gene: Sitar\_66 Start: 51715, Stop: 52083, Start Num: 11

Candidate Starts for Sitar\_66:

(Start: 4 @51661 has 1 MA's), (Start: 11 @51715 has 62 MA's), (29, 51820), (53, 51997), (58, 52051),

Gene: Spooky\_72 Start: 43079, Stop: 43405, Start Num: 11

Candidate Starts for Spooky\_72:

(Start: 11 @43079 has 62 MA's), (16, 43127), (21, 43154), (35, 43301), (59, 43397),

Gene: Stultus\_62 Start: 49962, Stop: 50330, Start Num: 11

Candidate Starts for Stultus\_62:

(Start: 4 @49908 has 1 MA's), (Start: 11 @49962 has 62 MA's), (29, 50067), (53, 50244), (58, 50298),

Gene: Thing3\_64 Start: 49896, Stop: 50264, Start Num: 11

Candidate Starts for Thing3\_64:

(Start: 4 @49842 has 1 MA's), (Start: 11 @49896 has 62 MA's), (29, 50001), (42, 50127), (53, 50178), (56, 50199),

Gene: TinyDot\_46 Start: 31361, Stop: 31729, Start Num: 11

Candidate Starts for TinyDot\_46:

(Start: 11 @31361 has 62 MA's), (12, 31367), (16, 31406), (31, 31547), (43, 31619), (55, 31679), (56, 31682), (59, 31721),

Gene: Whitney\_73 Start: 44698, Stop: 45015, Start Num: 11

Candidate Starts for Whitney\_73:

(2, 44635), (7, 44650), (Start: 11 @44698 has 62 MA's), (16, 44743), (27, 44779), (56, 44968), (59, 45007),