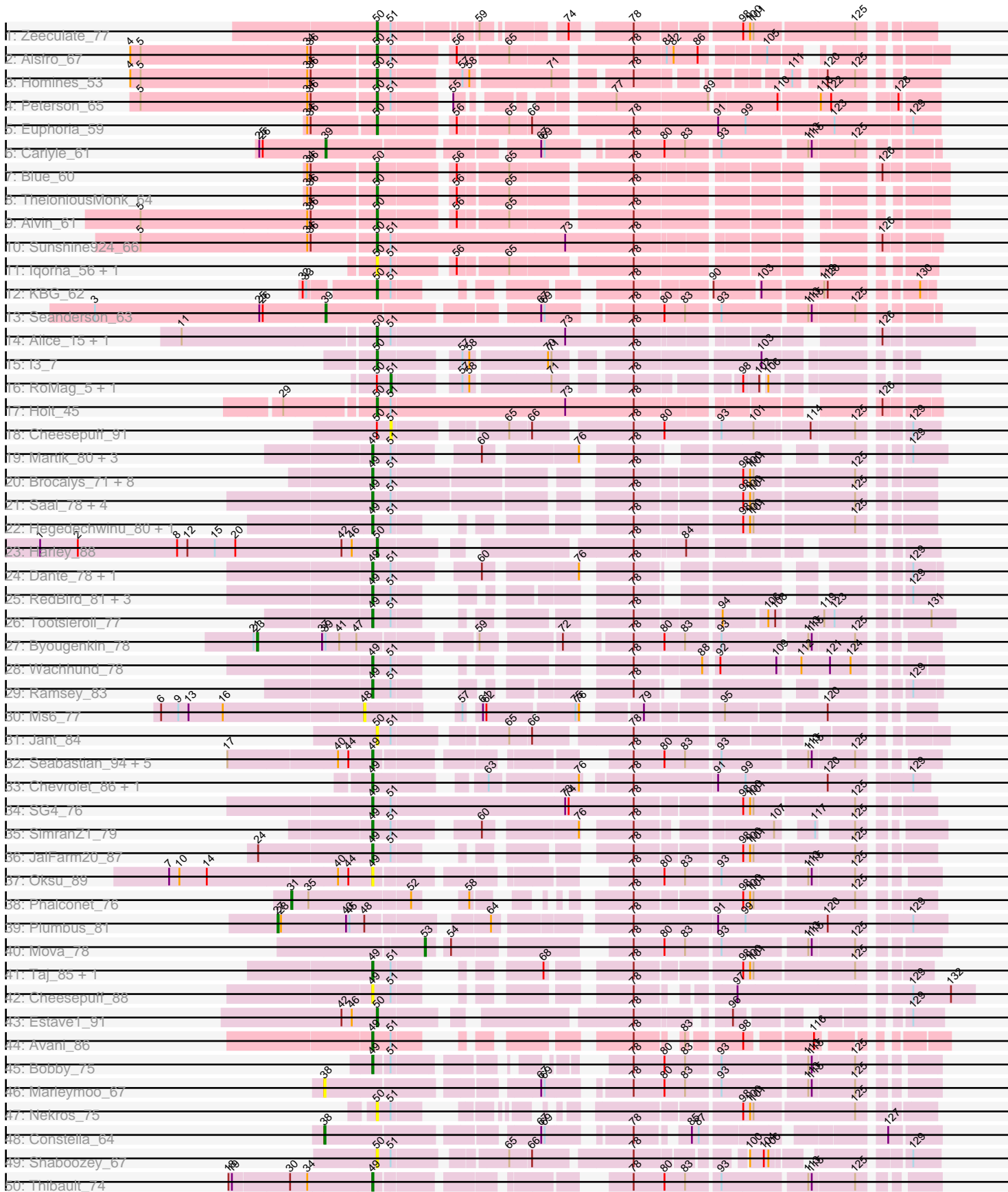
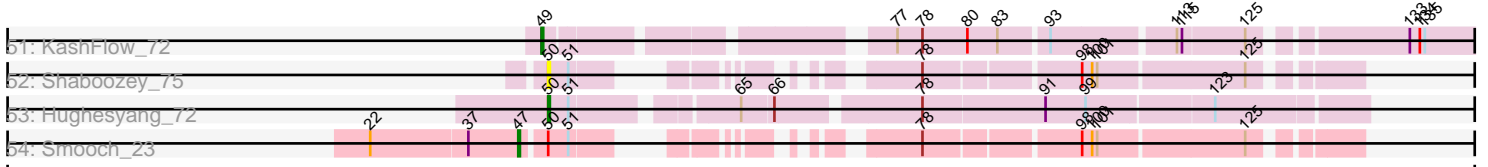


Pham 224499



Pham 224499



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 224499 Report

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

Pham number 224499 has 84 members, 11 are drafts.

Phages represented in each track:

- Track 1 : Zeeculate\_77
- Track 2 : Alsfro\_67
- Track 3 : Homines\_53
- Track 4 : Peterson\_65
- Track 5 : Euphoria\_59
- Track 6 : Carlyle\_61
- Track 7 : Blue\_60
- Track 8 : TheloniousMonk\_64
- Track 9 : Alvin\_61
- Track 10 : Sunshine924\_66
- Track 11 : Iqorha\_56, Inyanga\_56
- Track 12 : KBG\_62
- Track 13 : Seanderson\_63
- Track 14 : Alice\_15, Flabslab\_16
- Track 15 : I3\_7
- Track 16 : RoMag\_5, Kamryn\_6
- Track 17 : Holt\_45
- Track 18 : Cheesepuff\_91
- Track 19 : Martik\_80, Leozinho\_78, Pippy\_75, Blexus\_75
- Track 20 : Brocalys\_71, Koella\_70, Priscilla\_76, Cabrinians\_78, LastJedi\_70, FreddyB\_88, NormanBulbieJr\_75, SwagPigglett\_82, BobaPhett\_81
- Track 21 : Saal\_78, Flathead\_78, Lizziana\_83, Donkeykong\_83, Gorge\_80
- Track 22 : Hegedechwinu\_80, Crumble\_76
- Track 23 : Harley\_88
- Track 24 : Dante\_78, Radiance\_78
- Track 25 : RedBird\_81, Dorothy\_81, Sassafras\_81, Inventum\_78
- Track 26 : Tootsieroll\_77
- Track 27 : Byougenkin\_78
- Track 28 : Wachhund\_78
- Track 29 : Ramsey\_83
- Track 30 : Ms6\_77
- Track 31 : Jant\_84
- Track 32 : Seabastian\_94, Jinglebell\_93, Modragons\_91, Llama\_93, OfUltron\_94, Ochi17\_92
- Track 33 : Chevrolet\_86, ArcusAngelus\_83
- Track 34 : SG4\_76
- Track 35 : SimranZ1\_79

- Track 36 : JalFarm20\_87
- Track 37 : Oksu\_89
- Track 38 : Phalconet\_76
- Track 39 : Plumbus\_81
- Track 40 : Mova\_78
- Track 41 : Taj\_85, Wee\_84
- Track 42 : Cheesepuff\_88
- Track 43 : Estave1\_91
- Track 44 : Avani\_86
- Track 45 : Bobby\_75
- Track 46 : Marleymoo\_67
- Track 47 : Nekros\_75
- Track 48 : Constella\_64
- Track 49 : Shaboozey\_67
- Track 50 : Thibault\_74
- Track 51 : KashFlow\_72
- Track 52 : Shaboozey\_75
- Track 53 : Hughesyang\_72
- Track 54 : Smooch\_23

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

The start number called the most often in the published annotations is 49, it was called in 46 of the 73 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ArcusAngelus\_83, Avani\_86, Blexus\_75, BobaPhett\_81, Bobby\_75, Brocalys\_71, Cabrinians\_78, Cheesepuff\_88, Chevrolet\_86, Crumble\_76, Dante\_78, Donkeykong\_83, Dorothy\_81, Flathead\_78, FreddyB\_88, Gorge\_80, Hegedechwinu\_80, Inventum\_78, JalFarm20\_87, Jinglebell\_93, KashFlow\_72, Koella\_70, LastJedi\_70, Leozinho\_78, Lizziana\_83, Llama\_93, Martik\_80, Modragons\_91, NormanBulbieJr\_75, Ochi17\_92, OfUltron\_94, Oksu\_89, Pippy\_75, Priscilla\_76, Radiance\_78, Ramsey\_83, RedBird\_81, SG4\_76, Saal\_78, Sassafras\_81, Sebastian\_94, SimranZ1\_79, SwagPiggett\_82, Taj\_85, Thibault\_74, Tootsieroll\_77, Wachhund\_78, Wee\_84,

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

- 

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

- Alice\_15, Alsfro\_67, Alvin\_61, Blue\_60, Byougenkin\_78, Carlyle\_61, Cheesepuff\_91, Constella\_64, Estave1\_91, Euphoria\_59, Flabslab\_16, Harley\_88, Holt\_45, Homines\_53, Hughesyang\_72, I3\_7, Inyanga\_56, Iqorha\_56, Jant\_84, KBG\_62, Kamryn\_6, Marleymoo\_67, Mova\_78, Ms6\_77, Nekros\_75, Peterson\_65, Phalconet\_76, Plumbus\_81, RoMag\_5, Seanderson\_63, Shaboozey\_67, Shaboozey\_75, Smooch\_23, Sunshine924\_66, TheloniousMonk\_64, Zeeculate\_77,

**Summary by start number:**

Start 23:

- Found in 1 of 84 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Byougenkin\_78 (F1),

Start 27:

- Found in 1 of 84 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Plumbus\_81 (F1),

Start 31:

- Found in 1 of 84 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phalconet\_76 (F1),

Start 38:

- Found in 2 of 84 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Constella\_64 (J), Marleymoo\_67 (J),

Start 39:

- Found in 3 of 84 ( 3.6% ) of genes in pham
- Manual Annotations of this start: 2 of 73
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Carlyle\_61 (A1), Seanderson\_63 (A1),

Start 47:

- Found in 2 of 84 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Smooch\_23 (O),

Start 48:

- Found in 2 of 84 ( 2.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Ms6\_77 (F1),

Start 49:

- Found in 48 of 84 ( 57.1% ) of genes in pham
- Manual Annotations of this start: 46 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ArcusAngelus\_83 (F1), Avani\_86 (F2), Blexus\_75 (F1), BobaPhett\_81 (F1), Bobby\_75 (J), Brocalys\_71 (F1), Cabrinians\_78 (F1), Cheesepuff\_88 (F1), Chevrolet\_86 (F1), Crumble\_76 (F1), Dante\_78 (F1), Donkeykong\_83 (F1), Dorothy\_81 (F1), Flathead\_78 (F1), FreddyB\_88 (F1), Gorge\_80 (F1), Hegedechwinu\_80 (F1), Inventum\_78 (F1), JalFarm20\_87 (F1), Jinglebell\_93 (F1), KashFlow\_72 (J), Koella\_70 (F1), LastJedi\_70 (F1), Leozinho\_78 (F1), Lizziana\_83 (F1), Llama\_93 (F1), Martik\_80 (F1), Modragons\_91 (F1), NormanBulbieJr\_75 (F1), Ochi17\_92 (F1), OfUltron\_94 (F1), Oksu\_89 (F1), Pippy\_75

(F1), Priscilla\_76 (F1), Radiance\_78 (F1), Ramsey\_83 (F1), RedBird\_81 (F1), SG4\_76 (F1), Saal\_78 (F1), Sassafras\_81 (F1), Seabastian\_94 (F1), SimranZ1\_79 (F1), SwagPiggett\_82 (F1), Taj\_85 (F1), Thibault\_74 (J), Tootsieroll\_77 (F1), Wachhund\_78 (F1), Wee\_84 (F1),

Start 50:

- Found in 27 of 84 ( 32.1% ) of genes in pham
- Manual Annotations of this start: 17 of 73
- Called 85.2% of time when present
- Phage (with cluster) where this start called: Alice\_15 (C1), Alsfro\_67 (A1), Alvin\_61 (A1), Blue\_60 (A1), Estave1\_91 (F1), Euphoria\_59 (A1), Flabslab\_16 (C1), Harley\_88 (F1), Holt\_45 (E), Homines\_53 (A1), Hughesyang\_72 (J), I3\_7 (C1), Inyanga\_56 (A1), Iqorha\_56 (A1), Jant\_84 (F1), KBG\_62 (A1), Nekros\_75 (J), Peterson\_65 (A1), Shaboozey\_67 (J), Shaboozey\_75 (J), Sunshine924\_66 (A1), TheloniousMonk\_64 (A1), Zeeculate\_77 (A1),

Start 51:

- Found in 57 of 84 ( 67.9% ) of genes in pham
- Manual Annotations of this start: 2 of 73
- Called 5.3% of time when present
- Phage (with cluster) where this start called: Cheese puff\_91 (F1), Kamryn\_6 (C1), RoMag\_5 (C1),

Start 53:

- Found in 1 of 84 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mova\_78 (F1),

### **Summary by clusters:**

There are 7 clusters represented in this pham: F1, F2, E, J, O, A1, C1,

Info for manual annotations of cluster A1:

- Start number 39 was manually annotated 2 times for cluster A1.
- Start number 50 was manually annotated 10 times for cluster A1.

Info for manual annotations of cluster C1:

- Start number 50 was manually annotated 3 times for cluster C1.
- Start number 51 was manually annotated 2 times for cluster C1.

Info for manual annotations of cluster E:

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

Info for manual annotations of cluster F1:

- Start number 23 was manually annotated 1 time for cluster F1.
- Start number 27 was manually annotated 1 time for cluster F1.
- Start number 31 was manually annotated 1 time for cluster F1.
- Start number 49 was manually annotated 42 times for cluster F1.
- Start number 50 was manually annotated 2 times for cluster F1.
- Start number 53 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster F2:

- Start number 49 was manually annotated 1 time for cluster F2.

Info for manual annotations of cluster J:

- Start number 38 was manually annotated 1 time for cluster J.
- Start number 49 was manually annotated 3 times for cluster J.
- Start number 50 was manually annotated 1 time for cluster J.

Info for manual annotations of cluster O:

- Start number 47 was manually annotated 1 time for cluster O.

### **Gene Information:**

Gene: Alice\_15 Start: 5418, Stop: 5885, Start Num: 50

Candidate Starts for Alice\_15:

(11, 5256), (Start: 50 @5418 has 17 MA's), (Start: 51 @5430 has 2 MA's), (73, 5580), (78, 5640), (126, 5811),

Gene: Alsfro\_67 Start: 41490, Stop: 41089, Start Num: 50

Candidate Starts for Alsfro\_67:

(4, 41700), (5, 41691), (34, 41547), (36, 41544), (Start: 50 @41490 has 17 MA's), (Start: 51 @41478 has 2 MA's), (56, 41433), (65, 41394), (78, 41298), (81, 41271), (82, 41265), (86, 41244), (105, 41196),

Gene: Alvin\_61 Start: 40955, Stop: 40545, Start Num: 50

Candidate Starts for Alvin\_61:

(5, 41156), (34, 41012), (36, 41009), (Start: 50 @40955 has 17 MA's), (56, 40898), (65, 40859), (78, 40763),

Gene: ArcusAngelus\_83 Start: 49676, Stop: 50101, Start Num: 49

Candidate Starts for ArcusAngelus\_83:

(Start: 49 @49676 has 46 MA's), (63, 49751), (76, 49823), (78, 49856), (91, 49928), (99, 49952), (120, 50024), (129, 50087),

Gene: Avani\_86 Start: 46087, Stop: 46437, Start Num: 49

Candidate Starts for Avani\_86:

(Start: 49 @46087 has 46 MA's), (Start: 51 @46102 has 2 MA's), (78, 46237), (83, 46267), (98, 46303), (116, 46354),

Gene: Blexus\_75 Start: 48431, Stop: 48811, Start Num: 49

Candidate Starts for Blexus\_75:

(Start: 49 @48431 has 46 MA's), (Start: 51 @48446 has 2 MA's), (60, 48506), (76, 48578), (78, 48611), (129, 48788),

Gene: Blue\_60 Start: 41591, Stop: 41178, Start Num: 50

Candidate Starts for Blue\_60:

(34, 41648), (36, 41645), (Start: 50 @41591 has 17 MA's), (56, 41534), (65, 41495), (78, 41399), (126, 41228),

Gene: BobaPhett\_81 Start: 50730, Stop: 51155, Start Num: 49

Candidate Starts for BobaPhett\_81:

(Start: 49 @50730 has 46 MA's), (Start: 51 @50745 has 2 MA's), (78, 50925), (98, 51009), (100, 51015), (101, 51018), (125, 51102),

Gene: Bobby\_75 Start: 51169, Stop: 50789, Start Num: 49

Candidate Starts for Bobby\_75:

(Start: 49 @51169 has 46 MA's), (Start: 51 @51157 has 2 MA's), (78, 51022), (80, 50995), (83, 50977), (93, 50950), (113, 50881), (115, 50878), (125, 50842),

Gene: Brocalys\_71 Start: 46210, Stop: 46635, Start Num: 49

Candidate Starts for Brocalys\_71:

(Start: 49 @46210 has 46 MA's), (Start: 51 @46225 has 2 MA's), (78, 46405), (98, 46489), (100, 46495), (101, 46498), (125, 46582),

Gene: Byougenkin\_78 Start: 46058, Stop: 46567, Start Num: 23

Candidate Starts for Byougenkin\_78:

(21, 46055), (Start: 23 @46058 has 1 MA's), (37, 46115), (Start: 39 @46118 has 2 MA's), (41, 46130), (Start: 47 @46145 has 1 MA's), (59, 46235), (72, 46292), (78, 46334), (80, 46361), (83, 46379), (93, 46406), (113, 46475), (115, 46478), (125, 46514),

Gene: Cabrinians\_78 Start: 48130, Stop: 48555, Start Num: 49

Candidate Starts for Cabrinians\_78:

(Start: 49 @48130 has 46 MA's), (Start: 51 @48145 has 2 MA's), (78, 48325), (98, 48409), (100, 48415), (101, 48418), (125, 48502),

Gene: Carlyle\_61 Start: 39697, Stop: 39242, Start Num: 39

Candidate Starts for Carlyle\_61:

(25, 39754), (26, 39751), (Start: 39 @39697 has 2 MA's), (67, 39535), (69, 39532), (78, 39475), (80, 39448), (83, 39430), (93, 39403), (113, 39334), (115, 39331), (125, 39295),

Gene: Cheesepuff\_91 Start: 49045, Stop: 49464, Start Num: 51

Candidate Starts for Cheesepuff\_91:

(Start: 50 @49033 has 17 MA's), (Start: 51 @49045 has 2 MA's), (65, 49129), (66, 49147), (78, 49225), (80, 49252), (93, 49297), (101, 49324), (114, 49369), (125, 49405), (129, 49441),

Gene: Cheesepuff\_88 Start: 48067, Stop: 48468, Start Num: 49

Candidate Starts for Cheesepuff\_88:

(Start: 49 @48067 has 46 MA's), (Start: 51 @48082 has 2 MA's), (78, 48217), (97, 48280), (129, 48415), (132, 48448),

Gene: Chevrolet\_86 Start: 49677, Stop: 50102, Start Num: 49

Candidate Starts for Chevrolet\_86:

(Start: 49 @49677 has 46 MA's), (63, 49752), (76, 49824), (78, 49857), (91, 49929), (99, 49953), (120, 50025), (129, 50088),

Gene: Constella\_64 Start: 46367, Stop: 45930, Start Num: 38

Candidate Starts for Constella\_64:

(Start: 38 @46367 has 1 MA's), (67, 46205), (69, 46202), (78, 46145), (85, 46109), (87, 46103), (127, 45971),

Gene: Crumble\_76 Start: 44855, Stop: 45280, Start Num: 49

Candidate Starts for Crumble\_76:

(Start: 49 @44855 has 46 MA's), (Start: 51 @44870 has 2 MA's), (78, 45050), (98, 45134), (100, 45140), (101, 45143), (125, 45227),

Gene: Dante\_78 Start: 50103, Stop: 50483, Start Num: 49



Candidate Starts for Dante\_78:

(Start: 49 @50103 has 46 MA's), (Start: 51 @50118 has 2 MA's), (60, 50178), (76, 50250), (78, 50283), (129, 50460),

Gene: Donkeykong\_83 Start: 49734, Stop: 50111, Start Num: 49

Candidate Starts for Donkeykong\_83:

(Start: 49 @49734 has 46 MA's), (Start: 51 @49749 has 2 MA's), (78, 49884), (98, 49968), (100, 49974), (101, 49977), (125, 50061),

Gene: Dorothy\_81 Start: 50224, Stop: 50574, Start Num: 49

Candidate Starts for Dorothy\_81:

(Start: 49 @50224 has 46 MA's), (Start: 51 @50239 has 2 MA's), (78, 50374), (129, 50551),

Gene: Estave1\_91 Start: 53006, Stop: 53392, Start Num: 50

Candidate Starts for Estave1\_91:

(42, 52976), (46, 52985), (Start: 50 @53006 has 17 MA's), (78, 53192), (96, 53258), (129, 53366),

Gene: Euphoria\_59 Start: 40555, Stop: 40109, Start Num: 50

Candidate Starts for Euphoria\_59:

(34, 40612), (36, 40609), (Start: 50 @40555 has 17 MA's), (56, 40498), (65, 40459), (66, 40441), (78, 40363), (91, 40291), (99, 40267), (123, 40195), (129, 40132),

Gene: Flabslab\_16 Start: 5015, Stop: 5452, Start Num: 50

Candidate Starts for Flabslab\_16:

(11, 4853), (Start: 50 @5015 has 17 MA's), (Start: 51 @5027 has 2 MA's), (73, 5177), (78, 5237), (126, 5408),

Gene: Flathead\_78 Start: 47777, Stop: 48157, Start Num: 49

Candidate Starts for Flathead\_78:

(Start: 49 @47777 has 46 MA's), (Start: 51 @47792 has 2 MA's), (78, 47927), (98, 48011), (100, 48017), (101, 48020), (125, 48104),

Gene: FreddyB\_88 Start: 49777, Stop: 50202, Start Num: 49

Candidate Starts for FreddyB\_88:

(Start: 49 @49777 has 46 MA's), (Start: 51 @49792 has 2 MA's), (78, 49972), (98, 50056), (100, 50062), (101, 50065), (125, 50149),

Gene: Gorge\_80 Start: 49405, Stop: 49830, Start Num: 49

Candidate Starts for Gorge\_80:

(Start: 49 @49405 has 46 MA's), (Start: 51 @49420 has 2 MA's), (78, 49600), (98, 49684), (100, 49690), (101, 49693), (125, 49777),

Gene: Harley\_88 Start: 50437, Stop: 50829, Start Num: 50

Candidate Starts for Harley\_88:

(1, 50143), (2, 50176), (8, 50263), (12, 50272), (15, 50296), (20, 50314), (42, 50407), (46, 50416), (Start: 50 @50437 has 17 MA's), (78, 50623), (84, 50665),

Gene: Hegedechwinu\_80 Start: 46978, Stop: 47358, Start Num: 49

Candidate Starts for Hegedechwinu\_80:

(Start: 49 @46978 has 46 MA's), (Start: 51 @46993 has 2 MA's), (78, 47128), (98, 47212), (100, 47218), (101, 47221), (125, 47305),

Gene: Holt\_45 Start: 35325, Stop: 34888, Start Num: 50

Candidate Starts for Holt\_45:

(29, 35397), (Start: 50 @35325 has 17 MA's), (Start: 51 @35313 has 2 MA's), (73, 35163), (78, 35103), (126, 34932),

Gene: Homines\_53 Start: 37028, Stop: 36645, Start Num: 50

Candidate Starts for Homines\_53:

(4, 37238), (5, 37229), (34, 37085), (36, 37082), (Start: 50 @37028 has 17 MA's), (Start: 51 @37016 has 2 MA's), (57, 36968), (58, 36962), (71, 36899), (78, 36845), (111, 36743), (120, 36722), (125, 36698),

Gene: Hughesyang\_72 Start: 50943, Stop: 50497, Start Num: 50

Candidate Starts for Hughesyang\_72:

(Start: 50 @50943 has 17 MA's), (Start: 51 @50931 has 2 MA's), (65, 50847), (66, 50829), (78, 50751), (91, 50679), (99, 50655), (123, 50583),

Gene: I3\_7 Start: 2438, Stop: 2830, Start Num: 50

Candidate Starts for I3\_7:

(Start: 50 @2438 has 17 MA's), (57, 2498), (58, 2504), (70, 2564), (71, 2567), (78, 2621), (103, 2723),

Gene: Inventum\_78 Start: 48409, Stop: 48759, Start Num: 49

Candidate Starts for Inventum\_78:

(Start: 49 @48409 has 46 MA's), (Start: 51 @48424 has 2 MA's), (78, 48559), (129, 48736),

Gene: Inyanga\_56 Start: 40763, Stop: 40362, Start Num: 50

Candidate Starts for Inyanga\_56:

(Start: 50 @40763 has 17 MA's), (Start: 51 @40751 has 2 MA's), (56, 40706), (65, 40667), (78, 40571),

Gene: Iqorha\_56 Start: 40762, Stop: 40361, Start Num: 50

Candidate Starts for Iqorha\_56:

(Start: 50 @40762 has 17 MA's), (Start: 51 @40750 has 2 MA's), (56, 40705), (65, 40666), (78, 40570),

Gene: JalFarm20\_87 Start: 48995, Stop: 49375, Start Num: 49

Candidate Starts for JalFarm20\_87:

(24, 48899), (Start: 49 @48995 has 46 MA's), (Start: 51 @49010 has 2 MA's), (78, 49145), (98, 49229), (100, 49235), (101, 49238), (125, 49322),

Gene: Jant\_84 Start: 48028, Stop: 48438, Start Num: 50

Candidate Starts for Jant\_84:

(Start: 50 @48028 has 17 MA's), (Start: 51 @48040 has 2 MA's), (65, 48124), (66, 48142), (78, 48220),

Gene: Jinglebell\_93 Start: 50985, Stop: 51386, Start Num: 49

Candidate Starts for Jinglebell\_93:

(17, 50862), (40, 50955), (44, 50964), (Start: 49 @50985 has 46 MA's), (78, 51153), (80, 51180), (83, 51198), (93, 51225), (113, 51294), (115, 51297), (125, 51333),

Gene: KBG\_62 Start: 42879, Stop: 42511, Start Num: 50

Candidate Starts for KBG\_62:

(32, 42936), (33, 42933), (Start: 50 @42879 has 17 MA's), (Start: 51 @42867 has 2 MA's), (78, 42732), (90, 42672), (103, 42636), (119, 42588), (120, 42585), (130, 42522),

Gene: Kamryn\_6 Start: 1771, Stop: 2151, Start Num: 51

Candidate Starts for Kamryn\_6:

(Start: 50 @1759 has 17 MA's), (Start: 51 @1771 has 2 MA's), (57, 1819), (58, 1825), (71, 1888), (78, 1942), (98, 2020), (102, 2032), (106, 2035),

Gene: KashFlow\_72 Start: 47258, Stop: 46752, Start Num: 49

Candidate Starts for KashFlow\_72:

(Start: 49 @47258 has 46 MA's), (77, 47087), (78, 47072), (80, 47045), (83, 47027), (93, 47000), (113, 46931), (115, 46928), (125, 46892), (133, 46811), (134, 46805), (135, 46802),

Gene: Koella\_70 Start: 44029, Stop: 44454, Start Num: 49

Candidate Starts for Koella\_70:

(Start: 49 @44029 has 46 MA's), (Start: 51 @44044 has 2 MA's), (78, 44224), (98, 44308), (100, 44314), (101, 44317), (125, 44401),

Gene: LastJedi\_70 Start: 46604, Stop: 47029, Start Num: 49

Candidate Starts for LastJedi\_70:

(Start: 49 @46604 has 46 MA's), (Start: 51 @46619 has 2 MA's), (78, 46799), (98, 46883), (100, 46889), (101, 46892), (125, 46976),

Gene: Leozinho\_78 Start: 46065, Stop: 46445, Start Num: 49

Candidate Starts for Leozinho\_78:

(Start: 49 @46065 has 46 MA's), (Start: 51 @46080 has 2 MA's), (60, 46140), (76, 46212), (78, 46245), (129, 46422),

Gene: Lizziana\_83 Start: 49853, Stop: 50278, Start Num: 49

Candidate Starts for Lizziana\_83:

(Start: 49 @49853 has 46 MA's), (Start: 51 @49868 has 2 MA's), (78, 50048), (98, 50132), (100, 50138), (101, 50141), (125, 50225),

Gene: Llama\_93 Start: 50841, Stop: 51242, Start Num: 49

Candidate Starts for Llama\_93:

(17, 50718), (40, 50811), (44, 50820), (Start: 49 @50841 has 46 MA's), (78, 51009), (80, 51036), (83, 51054), (93, 51081), (113, 51150), (115, 51153), (125, 51189),

Gene: Marleymoo\_67 Start: 49139, Stop: 48684, Start Num: 38

Candidate Starts for Marleymoo\_67:

(Start: 38 @49139 has 1 MA's), (67, 48977), (69, 48974), (78, 48917), (80, 48890), (83, 48872), (93, 48845), (113, 48776), (115, 48773), (125, 48737),

Gene: Martik\_80 Start: 50276, Stop: 50662, Start Num: 49

Candidate Starts for Martik\_80:

(Start: 49 @50276 has 46 MA's), (Start: 51 @50291 has 2 MA's), (60, 50351), (76, 50423), (78, 50456), (129, 50633),

Gene: Modragons\_91 Start: 50829, Stop: 51230, Start Num: 49

Candidate Starts for Modragons\_91:

(17, 50706), (40, 50799), (44, 50808), (Start: 49 @50829 has 46 MA's), (78, 50997), (80, 51024), (83, 51042), (93, 51069), (113, 51138), (115, 51141), (125, 51177),

Gene: Mova\_78 Start: 47116, Stop: 47487, Start Num: 53

Candidate Starts for Mova\_78:

(Start: 53 @47116 has 1 MA's), (54, 47131), (78, 47251), (80, 47278), (83, 47296), (93, 47323), (113, 47392), (115, 47395), (125, 47431),

Gene: Ms6\_77 Start: 44192, Stop: 44584, Start Num: 48

Candidate Starts for Ms6\_77:

(6, 44018), (9, 44033), (13, 44042), (16, 44072), (48, 44192), (57, 44243), (61, 44252), (62, 44255), (75, 44327), (76, 44330), (79, 44369), (95, 44429), (120, 44510),

Gene: Nekros\_75 Start: 49878, Stop: 49516, Start Num: 50

Candidate Starts for Nekros\_75:

(Start: 50 @49878 has 17 MA's), (Start: 51 @49866 has 2 MA's), (98, 49662), (100, 49656), (101, 49653), (125, 49569),

Gene: NormanBulbieJr\_75 Start: 48043, Stop: 48468, Start Num: 49

Candidate Starts for NormanBulbieJr\_75:

(Start: 49 @48043 has 46 MA's), (Start: 51 @48058 has 2 MA's), (78, 48238), (98, 48322), (100, 48328), (101, 48331), (125, 48415),

Gene: Ochi17\_92 Start: 50436, Stop: 50837, Start Num: 49

Candidate Starts for Ochi17\_92:

(17, 50313), (40, 50406), (44, 50415), (Start: 49 @50436 has 46 MA's), (78, 50604), (80, 50631), (83, 50649), (93, 50676), (113, 50745), (115, 50748), (125, 50784),

Gene: OfUltron\_94 Start: 50985, Stop: 51386, Start Num: 49

Candidate Starts for OfUltron\_94:

(17, 50862), (40, 50955), (44, 50964), (Start: 49 @50985 has 46 MA's), (78, 51153), (80, 51180), (83, 51198), (93, 51225), (113, 51294), (115, 51297), (125, 51333),

Gene: Oksu\_89 Start: 51566, Stop: 51967, Start Num: 49

Candidate Starts for Oksu\_89:

(7, 51392), (10, 51401), (14, 51425), (40, 51536), (44, 51545), (Start: 49 @51566 has 46 MA's), (78, 51734), (80, 51761), (83, 51779), (93, 51806), (113, 51875), (115, 51878), (125, 51914),

Gene: Peterson\_65 Start: 43369, Stop: 42962, Start Num: 50

Candidate Starts for Peterson\_65:

(5, 43570), (34, 43426), (36, 43423), (Start: 50 @43369 has 17 MA's), (Start: 51 @43357 has 2 MA's), (55, 43318), (77, 43216), (89, 43138), (110, 43084), (118, 43051), (122, 43042), (128, 42994),

Gene: Phalconet\_76 Start: 47337, Stop: 47762, Start Num: 31

Candidate Starts for Phalconet\_76:

(Start: 31 @47337 has 1 MA's), (35, 47352), (52, 47436), (58, 47454), (78, 47532), (98, 47616), (100, 47622), (101, 47625), (125, 47709),

Gene: Pippy\_75 Start: 47171, Stop: 47551, Start Num: 49

Candidate Starts for Pippy\_75:

(Start: 49 @47171 has 46 MA's), (Start: 51 @47186 has 2 MA's), (60, 47246), (76, 47318), (78, 47351), (129, 47528),

Gene: Plumbus\_81 Start: 45998, Stop: 46525, Start Num: 27

Candidate Starts for Plumbus\_81:

(Start: 27 @45998 has 1 MA's), (28, 46001), (43, 46058), (45, 46061), (48, 46073), (64, 46163), (78, 46265), (91, 46337), (99, 46361), (120, 46433), (129, 46496),

Gene: Priscilla\_76 Start: 48141, Stop: 48566, Start Num: 49

Candidate Starts for Priscilla\_76:

(Start: 49 @48141 has 46 MA's), (Start: 51 @48156 has 2 MA's), (78, 48336), (98, 48420), (100, 48426), (101, 48429), (125, 48513),

Gene: Radiance\_78 Start: 48851, Stop: 49231, Start Num: 49

Candidate Starts for Radiance\_78:

(Start: 49 @48851 has 46 MA's), (Start: 51 @48866 has 2 MA's), (60, 48926), (76, 48998), (78, 49031), (129, 49208),

Gene: Ramsey\_83 Start: 50333, Stop: 50683, Start Num: 49

Candidate Starts for Ramsey\_83:

(Start: 49 @50333 has 46 MA's), (Start: 51 @50348 has 2 MA's), (78, 50483), (129, 50660),

Gene: RedBird\_81 Start: 50091, Stop: 50441, Start Num: 49

Candidate Starts for RedBird\_81:

(Start: 49 @50091 has 46 MA's), (Start: 51 @50106 has 2 MA's), (78, 50241), (129, 50418),

Gene: RoMag\_5 Start: 2623, Stop: 3003, Start Num: 51

Candidate Starts for RoMag\_5:

(Start: 50 @2611 has 17 MA's), (Start: 51 @2623 has 2 MA's), (57, 2671), (58, 2677), (71, 2740), (78, 2794), (98, 2872), (102, 2884), (106, 2887),

Gene: SG4\_76 Start: 47114, Stop: 47569, Start Num: 49

Candidate Starts for SG4\_76:

(Start: 49 @47114 has 46 MA's), (Start: 51 @47129 has 2 MA's), (73, 47279), (74, 47282), (78, 47339), (98, 47423), (100, 47429), (101, 47432), (125, 47516),

Gene: Saal\_78 Start: 49224, Stop: 49649, Start Num: 49

Candidate Starts for Saal\_78:

(Start: 49 @49224 has 46 MA's), (Start: 51 @49239 has 2 MA's), (78, 49419), (98, 49503), (100, 49509), (101, 49512), (125, 49596),

Gene: Sassafras\_81 Start: 48408, Stop: 48758, Start Num: 49

Candidate Starts for Sassafras\_81:

(Start: 49 @48408 has 46 MA's), (Start: 51 @48423 has 2 MA's), (78, 48558), (129, 48735),

Gene: Seabastian\_94 Start: 50986, Stop: 51387, Start Num: 49

Candidate Starts for Seabastian\_94:

(17, 50863), (40, 50956), (44, 50965), (Start: 49 @50986 has 46 MA's), (78, 51154), (80, 51181), (83, 51199), (93, 51226), (113, 51295), (115, 51298), (125, 51334),

Gene: Seanderson\_63 Start: 42839, Stop: 42384, Start Num: 39

Candidate Starts for Seanderson\_63:

(3, 43040), (25, 42896), (26, 42893), (Start: 39 @42839 has 2 MA's), (67, 42677), (69, 42674), (78, 42617), (80, 42590), (83, 42572), (93, 42545), (113, 42476), (115, 42473), (125, 42437),

Gene: Shaboozey\_67 Start: 45344, Stop: 44943, Start Num: 50

Candidate Starts for Shaboozey\_67:

(Start: 50 @45344 has 17 MA's), (Start: 51 @45332 has 2 MA's), (65, 45248), (66, 45230), (78, 45152), (100, 45074), (104, 45062), (106, 45059), (129, 44966),

Gene: Shaboozey\_75 Start: 47658, Stop: 47296, Start Num: 50

Candidate Starts for Shaboozey\_75:

(Start: 50 @47658 has 17 MA's), (Start: 51 @47646 has 2 MA's), (78, 47526), (98, 47442), (100, 47436), (101, 47433), (125, 47349),

Gene: SimranZ1\_79 Start: 47570, Stop: 47956, Start Num: 49

Candidate Starts for SimranZ1\_79:

(Start: 49 @47570 has 46 MA's), (Start: 51 @47585 has 2 MA's), (60, 47645), (76, 47717), (78, 47750), (107, 47852), (117, 47873), (125, 47897),

Gene: Smooch\_23 Start: 10621, Stop: 10995, Start Num: 47

Candidate Starts for Smooch\_23:

(22, 10534), (37, 10591), (Start: 47 @10621 has 1 MA's), (Start: 50 @10633 has 17 MA's), (Start: 51 @10645 has 2 MA's), (78, 10765), (98, 10849), (100, 10855), (101, 10858), (125, 10942),

Gene: Sunshine924\_66 Start: 41648, Stop: 41211, Start Num: 50

Candidate Starts for Sunshine924\_66:

(5, 41849), (34, 41705), (36, 41702), (Start: 50 @41648 has 17 MA's), (Start: 51 @41636 has 2 MA's), (73, 41486), (78, 41426), (126, 41255),

Gene: SwagPigglett\_82 Start: 50360, Stop: 50785, Start Num: 49

Candidate Starts for SwagPigglett\_82:

(Start: 49 @50360 has 46 MA's), (Start: 51 @50375 has 2 MA's), (78, 50555), (98, 50639), (100, 50645), (101, 50648), (125, 50732),

Gene: Taj\_85 Start: 49957, Stop: 50334, Start Num: 49

Candidate Starts for Taj\_85:

(Start: 49 @49957 has 46 MA's), (Start: 51 @49972 has 2 MA's), (68, 50050), (78, 50107), (98, 50191), (100, 50197), (101, 50200), (125, 50284),

Gene: TheloniousMonk\_64 Start: 43165, Stop: 42755, Start Num: 50

Candidate Starts for TheloniousMonk\_64:

(34, 43222), (36, 43219), (Start: 50 @43165 has 17 MA's), (56, 43108), (65, 43069), (78, 42973),

Gene: Thibault\_74 Start: 51276, Stop: 51677, Start Num: 49

Candidate Starts for Thibault\_74:

(18, 51156), (19, 51159), (30, 51207), (34, 51222), (Start: 49 @51276 has 46 MA's), (78, 51444), (80, 51471), (83, 51489), (93, 51516), (113, 51585), (115, 51588), (125, 51624),

Gene: Tootsieroll\_77 Start: 49368, Stop: 49754, Start Num: 49

Candidate Starts for Tootsieroll\_77:

(Start: 49 @49368 has 46 MA's), (Start: 51 @49383 has 2 MA's), (78, 49518), (94, 49584), (106, 49617), (108, 49623), (119, 49659), (123, 49668), (131, 49734),

Gene: Wachhund\_78 Start: 45999, Stop: 46379, Start Num: 49

Candidate Starts for Wachhund\_78:

(Start: 49 @45999 has 46 MA's), (Start: 51 @46014 has 2 MA's), (78, 46149), (88, 46203), (92, 46212), (109, 46260), (112, 46278), (121, 46302), (124, 46320),

Gene: Wee\_84 Start: 50033, Stop: 50410, Start Num: 49

Candidate Starts for Wee\_84:

(Start: 49 @50033 has 46 MA's), (Start: 51 @50048 has 2 MA's), (68, 50126), (78, 50183), (98, 50267), (100, 50273), (101, 50276), (125, 50360),

Gene: Zeeculate\_77 Start: 48542, Stop: 48138, Start Num: 50

Candidate Starts for Zeeculate\_77:

(Start: 50 @48542 has 17 MA's), (Start: 51 @48530 has 2 MA's), (59, 48467), (74, 48410), (78, 48368), (98, 48284), (100, 48278), (101, 48275), (125, 48191),