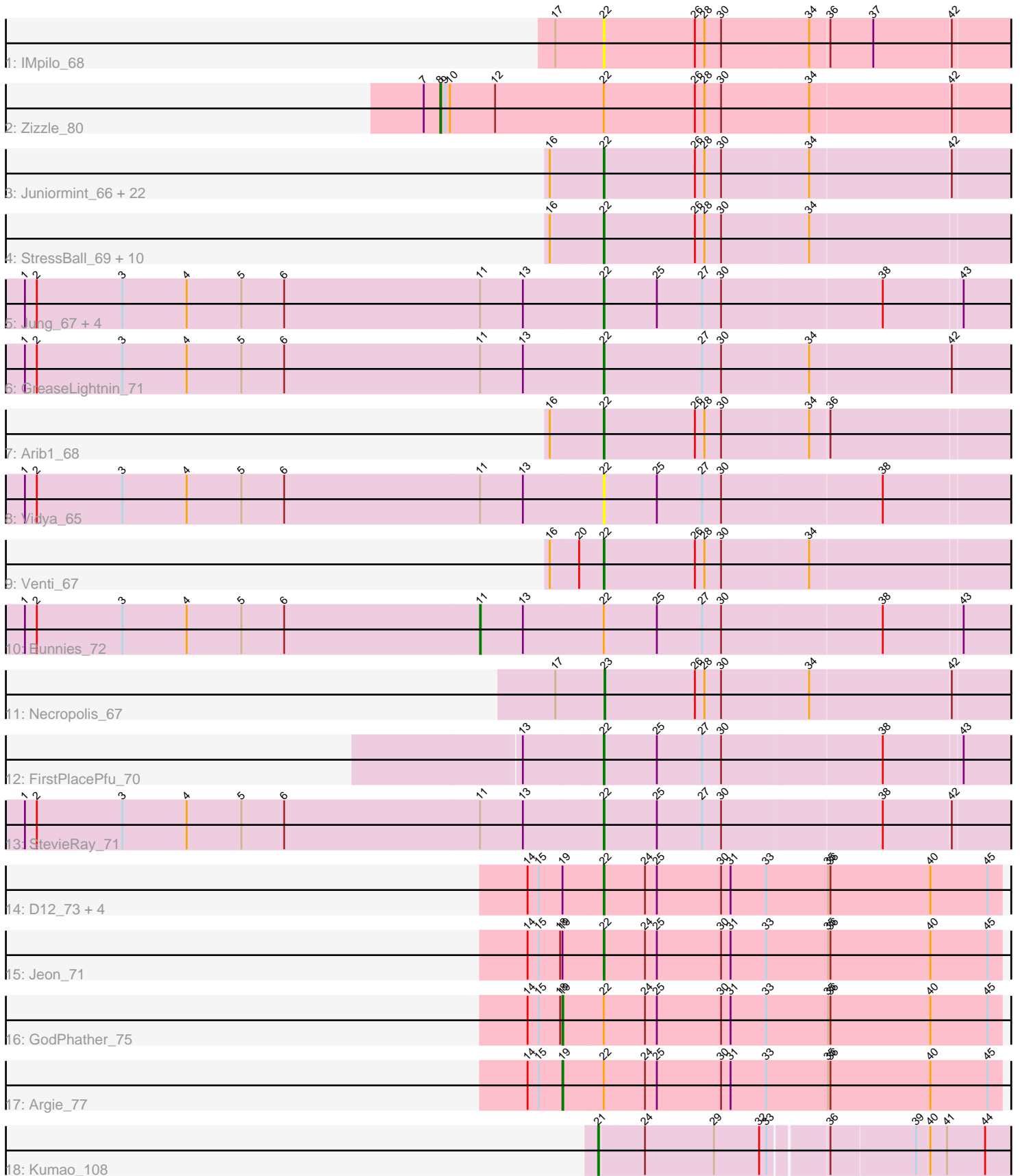


# Pham 191213



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 191213 Report

This analysis was run 11/02/24 on database version 579.

Pham number 191213 has 58 members, 4 are drafts.

Phages represented in each track:

- Track 1 : IMpilo\_68
- Track 2 : Zizzle\_80
- Track 3 : Juniormint\_66, Xula\_62, Malithi\_69, Phegasus\_72, Bogie\_72, Polkaro\_70, HUHilltop\_72, Mangethe\_72, Pygmy\_73, Phineas\_70, Camster\_70, Sonah\_70, Jebeks\_67, Techage\_70, DillTech15\_79, Majeke\_72, Zilizebeth\_74, Langerak\_68, Fishburne\_68, Fastidio\_72, Donovan\_69, Dynamo\_69, Shipwreck\_72
- Track 4 : StressBall\_69, KilKor\_70, Kari\_66, Glaske\_69, CactusJack\_70, Bartholomew\_65, Phalm\_70, Megiddo\_69, Totinger\_74, LittleShirley\_78, Willsammy\_71
- Track 5 : Jung\_67, Atcoo\_68, Thespis\_68, Ksquared\_70, Brusacoram\_68
- Track 6 : GreaseLightnin\_71
- Track 7 : Arib1\_68
- Track 8 : Vidya\_65
- Track 9 : Venti\_67
- Track 10 : Bunnies\_72
- Track 11 : Necropolis\_67
- Track 12 : FirstPlacePfu\_70
- Track 13 : StevieRay\_71
- Track 14 : D12\_73, Megabear\_73, PR\_74, Taptic\_76, Cepens\_75
- Track 15 : Jeon\_71
- Track 16 : GodPhather\_75
- Track 17 : Argie\_77
- Track 18 : Kumao\_108

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

The start number called the most often in the published annotations is 22, it was called in 48 of the 54 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arib1\_68, Atcoo\_68, Bartholomew\_65, Bogie\_72, Brusacoram\_68, CactusJack\_70, Camster\_70, Cepens\_75, D12\_73, DillTech15\_79, Donovan\_69, Dynamo\_69, Fastidio\_72, FirstPlacePfu\_70, Fishburne\_68, Glaske\_69, GreaseLightnin\_71, HUHilltop\_72, IMpilo\_68, Jebeks\_67, Jeon\_71, Jung\_67, Juniormint\_66, Kari\_66,

KilKor\_70, Ksquared\_70, Langerak\_68, LittleShirley\_78, Majeke\_72, Malithi\_69, Mangethe\_72, Megabear\_73, Megiddo\_69, PR\_74, Phalm\_70, Phegasus\_72, Phineas\_70, Polkaroo\_70, Pygmy\_73, Shipwreck\_72, Sonah\_70, StevieRay\_71, StressBall\_69, Taptic\_76, Techage\_70, Thespis\_68, Totinger\_74, Venti\_67, Vidya\_65, Willsammy\_71, Xula\_62, Zilizebeth\_74,

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

- Argie\_77, Bunnies\_72, GodPhather\_75, Zizzle\_80,

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

- Kumao\_108, Necropolis\_67,

### Summary by start number:

Start 8:

- Found in 1 of 58 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 54
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Zizzle\_80 (F1),

Start 11:

- Found in 9 of 58 ( 15.5% ) of genes in pham
- Manual Annotations of this start: 1 of 54
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Bunnies\_72 (P1),

Start 19:

- Found in 8 of 58 ( 13.8% ) of genes in pham
- Manual Annotations of this start: 2 of 54
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Argie\_77 (W), GodPhather\_75 (W),

Start 21:

- Found in 1 of 58 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 54
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kumao\_108 (singleton),

Start 22:

- Found in 56 of 58 ( 96.6% ) of genes in pham
- Manual Annotations of this start: 48 of 54
- Called 92.9% of time when present
- Phage (with cluster) where this start called: Arib1\_68 (P1), Atcoo\_68 (P1), Bartholomew\_65 (P1), Bogie\_72 (P1), Brusacoram\_68 (P1), CactusJack\_70 (P1), Camster\_70 (P1), Cepens\_75 (W), D12\_73 (W), DillTech15\_79 (F1), Donovan\_69 (P1), Dynamo\_69 (P1), Fastidio\_72 (F1), FirstPlacePfu\_70 (P1), Fishburne\_68 (P1), Glaske\_69 (P1), GreaseLightnin\_71 (P1), HUHilltop\_72 (P1), IMpilo\_68 (F1), Jebeks\_67 (P1), Jeon\_71 (W), Jung\_67 (P1), Juniormint\_66 (P1), Kari\_66 (P1), KilKor\_70 (P1), Ksquared\_70 (P1), Langerak\_68 (P1), LittleShirley\_78 (F1), Majeke\_72 (P1), Malithi\_69 (P1), Mangethe\_72 (P1), Megabear\_73 (W), Megiddo\_69 (P1), PR\_74 (W), Phalm\_70 (P1), Phegasus\_72 (P1), Phineas\_70 (P1), Polkaroo\_70 (P1), Pygmy\_73 (P1), Shipwreck\_72 (P1), Sonah\_70 (P1), StevieRay\_71 (P1), StressBall\_69 (P1), Taptic\_76 (W), Techage\_70 (P1), Thespis\_68 (P1), Totinger\_74

(F1), Venti\_67 (P1), Vidya\_65 (P1), Willsammy\_71 (P1), Xula\_62 (I1), Zilizebeth\_74 (P1),

Start 23:

- Found in 1 of 58 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 54
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Necropolis\_67 (P1),

### **Summary by clusters:**

There are 5 clusters represented in this pham: I1, F1, singleton, P1, W,

Info for manual annotations of cluster F1:

- Start number 8 was manually annotated 1 time for cluster F1.
- Start number 22 was manually annotated 4 times for cluster F1.

Info for manual annotations of cluster I1:

- Start number 22 was manually annotated 1 time for cluster I1.

Info for manual annotations of cluster P1:

- Start number 11 was manually annotated 1 time for cluster P1.
- Start number 22 was manually annotated 37 times for cluster P1.
- Start number 23 was manually annotated 1 time for cluster P1.

Info for manual annotations of cluster W:

- Start number 19 was manually annotated 2 times for cluster W.
- Start number 22 was manually annotated 6 times for cluster W.

### **Gene Information:**

Gene: Argie\_77 Start: 54826, Stop: 55377, Start Num: 19

Candidate Starts for Argie\_77:

(14, 54784), (15, 54796), (Start: 19 @54826 has 2 MA's), (Start: 22 @54877 has 48 MA's), (24, 54928), (25, 54943), (30, 55024), (31, 55036), (33, 55081), (35, 55159), (36, 55162), (40, 55288), (45, 55360),

Gene: Arib1\_68 Start: 42771, Stop: 43271, Start Num: 22

Candidate Starts for Arib1\_68:

(16, 42705), (Start: 22 @42771 has 48 MA's), (26, 42885), (28, 42897), (30, 42918), (34, 43026), (36, 43050),

Gene: Atcoo\_68 Start: 45509, Stop: 46009, Start Num: 22

Candidate Starts for Atcoo\_68:

(1, 44783), (2, 44798), (3, 44906), (4, 44987), (5, 45056), (6, 45110), (Start: 11 @45356 has 1 MA's), (13, 45410), (Start: 22 @45509 has 48 MA's), (25, 45575), (27, 45632), (30, 45656), (38, 45854), (43, 45950),

Gene: Bartholomew\_65 Start: 42051, Stop: 42551, Start Num: 22

Candidate Starts for Bartholomew\_65:

(16, 41985), (Start: 22 @42051 has 48 MA's), (26, 42165), (28, 42177), (30, 42198), (34, 42306),

Gene: Bogie\_72 Start: 45121, Stop: 45621, Start Num: 22

Candidate Starts for Bogie\_72:

(16, 45055), (Start: 22 @45121 has 48 MA's), (26, 45235), (28, 45247), (30, 45268), (34, 45376), (42, 45550),

Gene: Brusacoram\_68 Start: 44052, Stop: 44552, Start Num: 22

Candidate Starts for Brusacoram\_68:

(1, 43326), (2, 43341), (3, 43449), (4, 43530), (5, 43599), (6, 43653), (Start: 11 @43899 has 1 MA's), (13, 43953), (Start: 22 @44052 has 48 MA's), (25, 44118), (27, 44175), (30, 44199), (38, 44397), (43, 44493),

Gene: Bunnies\_72 Start: 45100, Stop: 45753, Start Num: 11

Candidate Starts for Bunnies\_72:

(1, 44527), (2, 44542), (3, 44650), (4, 44731), (5, 44800), (6, 44854), (Start: 11 @45100 has 1 MA's), (13, 45154), (Start: 22 @45253 has 48 MA's), (25, 45319), (27, 45376), (30, 45400), (38, 45598), (43, 45694),

Gene: CactusJack\_70 Start: 44749, Stop: 45249, Start Num: 22

Candidate Starts for CactusJack\_70:

(16, 44683), (Start: 22 @44749 has 48 MA's), (26, 44863), (28, 44875), (30, 44896), (34, 45004),

Gene: Camster\_70 Start: 43582, Stop: 44082, Start Num: 22

Candidate Starts for Camster\_70:

(16, 43516), (Start: 22 @43582 has 48 MA's), (26, 43696), (28, 43708), (30, 43729), (34, 43837), (42, 44011),

Gene: Cepens\_75 Start: 53686, Stop: 54186, Start Num: 22

Candidate Starts for Cepens\_75:

(14, 53593), (15, 53605), (Start: 19 @53635 has 2 MA's), (Start: 22 @53686 has 48 MA's), (24, 53737), (25, 53752), (30, 53833), (31, 53845), (33, 53890), (35, 53968), (36, 53971), (40, 54097), (45, 54169),

Gene: D12\_73 Start: 54321, Stop: 54821, Start Num: 22

Candidate Starts for D12\_73:

(14, 54228), (15, 54240), (Start: 19 @54270 has 2 MA's), (Start: 22 @54321 has 48 MA's), (24, 54372), (25, 54387), (30, 54468), (31, 54480), (33, 54525), (35, 54603), (36, 54606), (40, 54732), (45, 54804),

Gene: DillTech15\_79 Start: 46743, Stop: 47243, Start Num: 22

Candidate Starts for DillTech15\_79:

(16, 46677), (Start: 22 @46743 has 48 MA's), (26, 46857), (28, 46869), (30, 46890), (34, 46998), (42, 47172),

Gene: Donovan\_69 Start: 43711, Stop: 44211, Start Num: 22

Candidate Starts for Donovan\_69:

(16, 43645), (Start: 22 @43711 has 48 MA's), (26, 43825), (28, 43837), (30, 43858), (34, 43966), (42, 44140),

Gene: Dynamo\_69 Start: 43155, Stop: 43655, Start Num: 22

Candidate Starts for Dynamo\_69:

(16, 43089), (Start: 22 @43155 has 48 MA's), (26, 43269), (28, 43281), (30, 43302), (34, 43410), (42, 43584),

Gene: Fastidio\_72 Start: 43551, Stop: 44051, Start Num: 22

Candidate Starts for Fastidio\_72:

(16, 43485), (Start: 22 @43551 has 48 MA's), (26, 43665), (28, 43677), (30, 43698), (34, 43806), (42, 43980),

Gene: FirstPlacePfu\_70 Start: 42114, Stop: 42614, Start Num: 22

Candidate Starts for FirstPlacePfu\_70:

(13, 42015), (Start: 22 @42114 has 48 MA's), (25, 42180), (27, 42237), (30, 42261), (38, 42459), (43, 42555),

Gene: Fishburne\_68 Start: 43537, Stop: 44037, Start Num: 22

Candidate Starts for Fishburne\_68:

(16, 43471), (Start: 22 @43537 has 48 MA's), (26, 43651), (28, 43663), (30, 43684), (34, 43792), (42, 43966),

Gene: Glaske\_69 Start: 44749, Stop: 45249, Start Num: 22

Candidate Starts for Glaske\_69:

(16, 44683), (Start: 22 @44749 has 48 MA's), (26, 44863), (28, 44875), (30, 44896), (34, 45004),

Gene: GodPhather\_75 Start: 54280, Stop: 54831, Start Num: 19

Candidate Starts for GodPhather\_75:

(14, 54238), (15, 54250), (18, 54277), (Start: 19 @54280 has 2 MA's), (Start: 22 @54331 has 48 MA's), (24, 54382), (25, 54397), (30, 54478), (31, 54490), (33, 54535), (35, 54613), (36, 54616), (40, 54742), (45, 54814),

Gene: GreaseLightnin\_71 Start: 44906, Stop: 45406, Start Num: 22

Candidate Starts for GreaseLightnin\_71:

(1, 44180), (2, 44195), (3, 44303), (4, 44384), (5, 44453), (6, 44507), (Start: 11 @44753 has 1 MA's), (13, 44807), (Start: 22 @44906 has 48 MA's), (27, 45029), (30, 45053), (34, 45161), (42, 45335),

Gene: HUHilltop\_72 Start: 43378, Stop: 43878, Start Num: 22

Candidate Starts for HUHilltop\_72:

(16, 43312), (Start: 22 @43378 has 48 MA's), (26, 43492), (28, 43504), (30, 43525), (34, 43633), (42, 43807),

Gene: IMPilo\_68 Start: 43866, Stop: 44366, Start Num: 22

Candidate Starts for IMPilo\_68:

(17, 43806), (Start: 22 @43866 has 48 MA's), (26, 43980), (28, 43992), (30, 44013), (34, 44121), (36, 44145), (37, 44199), (42, 44295),

Gene: Jebeks\_67 Start: 42009, Stop: 42509, Start Num: 22

Candidate Starts for Jebeks\_67:

(16, 41943), (Start: 22 @42009 has 48 MA's), (26, 42123), (28, 42135), (30, 42156), (34, 42264), (42, 42438),

Gene: Jeon\_71 Start: 53824, Stop: 54324, Start Num: 22

Candidate Starts for Jeon\_71:

(14, 53731), (15, 53743), (18, 53770), (Start: 19 @53773 has 2 MA's), (Start: 22 @53824 has 48 MA's), (24, 53875), (25, 53890), (30, 53971), (31, 53983), (33, 54028), (35, 54106), (36, 54109), (40, 54235), (45, 54307),

Gene: Jung\_67 Start: 43030, Stop: 43530, Start Num: 22

Candidate Starts for Jung\_67:

(1, 42304), (2, 42319), (3, 42427), (4, 42508), (5, 42577), (6, 42631), (Start: 11 @42877 has 1 MA's), (13, 42931), (Start: 22 @43030 has 48 MA's), (25, 43096), (27, 43153), (30, 43177), (38, 43375), (43, 43471),

Gene: Juniormint\_66 Start: 42124, Stop: 42624, Start Num: 22

Candidate Starts for Juniormint\_66:

(16, 42058), (Start: 22 @42124 has 48 MA's), (26, 42238), (28, 42250), (30, 42271), (34, 42379), (42, 42553),

Gene: Kari\_66 Start: 43534, Stop: 44034, Start Num: 22

Candidate Starts for Kari\_66:

(16, 43468), (Start: 22 @43534 has 48 MA's), (26, 43648), (28, 43660), (30, 43681), (34, 43789),

Gene: KilKor\_70 Start: 45442, Stop: 45942, Start Num: 22

Candidate Starts for KilKor\_70:

(16, 45376), (Start: 22 @45442 has 48 MA's), (26, 45556), (28, 45568), (30, 45589), (34, 45697),

Gene: Ksquared\_70 Start: 45130, Stop: 45630, Start Num: 22

Candidate Starts for Ksquared\_70:

(1, 44404), (2, 44419), (3, 44527), (4, 44608), (5, 44677), (6, 44731), (Start: 11 @44977 has 1 MA's), (13, 45031), (Start: 22 @45130 has 48 MA's), (25, 45196), (27, 45253), (30, 45277), (38, 45475), (43, 45571),

Gene: Kumao\_108 Start: 65513, Stop: 65010, Start Num: 21

Candidate Starts for Kumao\_108:

(Start: 21 @65513 has 1 MA's), (24, 65459), (29, 65372), (32, 65315), (33, 65306), (36, 65240), (39, 65135), (40, 65117), (41, 65096), (44, 65048),

Gene: Langerak\_68 Start: 43515, Stop: 44015, Start Num: 22

Candidate Starts for Langerak\_68:

(16, 43449), (Start: 22 @43515 has 48 MA's), (26, 43629), (28, 43641), (30, 43662), (34, 43770), (42, 43944),

Gene: LittleShirley\_78 Start: 47224, Stop: 47724, Start Num: 22

Candidate Starts for LittleShirley\_78:

(16, 47158), (Start: 22 @47224 has 48 MA's), (26, 47338), (28, 47350), (30, 47371), (34, 47479),

Gene: Majeke\_72 Start: 44160, Stop: 44660, Start Num: 22

Candidate Starts for Majeke\_72:

(16, 44094), (Start: 22 @44160 has 48 MA's), (26, 44274), (28, 44286), (30, 44307), (34, 44415), (42, 44589),

Gene: Malithi\_69 Start: 43304, Stop: 43804, Start Num: 22

Candidate Starts for Malithi\_69:

(16, 43238), (Start: 22 @43304 has 48 MA's), (26, 43418), (28, 43430), (30, 43451), (34, 43559), (42, 43733),

Gene: Mangethe\_72 Start: 44160, Stop: 44660, Start Num: 22

Candidate Starts for Mangethe\_72:

(16, 44094), (Start: 22 @44160 has 48 MA's), (26, 44274), (28, 44286), (30, 44307), (34, 44415), (42, 44589),

Gene: Megabear\_73 Start: 53607, Stop: 54107, Start Num: 22

Candidate Starts for Megabear\_73:

(14, 53514), (15, 53526), (Start: 19 @53556 has 2 MA's), (Start: 22 @53607 has 48 MA's), (24, 53658), (25, 53673), (30, 53754), (31, 53766), (33, 53811), (35, 53889), (36, 53892), (40, 54018), (45, 54090),

Gene: Megiddo\_69 Start: 45310, Stop: 45810, Start Num: 22

Candidate Starts for Megiddo\_69:

(16, 45244), (Start: 22 @45310 has 48 MA's), (26, 45424), (28, 45436), (30, 45457), (34, 45565),

Gene: Necropolis\_67 Start: 42745, Stop: 43245, Start Num: 23

Candidate Starts for Necropolis\_67:

(17, 42685), (Start: 23 @42745 has 1 MA's), (26, 42859), (28, 42871), (30, 42892), (34, 43000), (42, 43174),

Gene: PR\_74 Start: 54298, Stop: 54798, Start Num: 22

Candidate Starts for PR\_74:

(14, 54205), (15, 54217), (Start: 19 @54247 has 2 MA's), (Start: 22 @54298 has 48 MA's), (24, 54349), (25, 54364), (30, 54445), (31, 54457), (33, 54502), (35, 54580), (36, 54583), (40, 54709), (45, 54781),

Gene: Phalm\_70 Start: 44740, Stop: 45240, Start Num: 22

Candidate Starts for Phalm\_70:

(16, 44674), (Start: 22 @44740 has 48 MA's), (26, 44854), (28, 44866), (30, 44887), (34, 44995),

Gene: Phegasus\_72 Start: 44127, Stop: 44627, Start Num: 22

Candidate Starts for Phegasus\_72:

(16, 44061), (Start: 22 @44127 has 48 MA's), (26, 44241), (28, 44253), (30, 44274), (34, 44382), (42, 44556),

Gene: Phineas\_70 Start: 43712, Stop: 44212, Start Num: 22

Candidate Starts for Phineas\_70:

(16, 43646), (Start: 22 @43712 has 48 MA's), (26, 43826), (28, 43838), (30, 43859), (34, 43967), (42, 44141),

Gene: Polkaroo\_70 Start: 45452, Stop: 45952, Start Num: 22

Candidate Starts for Polkaroo\_70:

(16, 45386), (Start: 22 @45452 has 48 MA's), (26, 45566), (28, 45578), (30, 45599), (34, 45707), (42, 45881),

Gene: Pygmy\_73 Start: 45094, Stop: 45594, Start Num: 22

Candidate Starts for Pygmy\_73:

(16, 45028), (Start: 22 @45094 has 48 MA's), (26, 45208), (28, 45220), (30, 45241), (34, 45349), (42, 45523),

Gene: Shipwreck\_72 Start: 45152, Stop: 45652, Start Num: 22

Candidate Starts for Shipwreck\_72:

(16, 45086), (Start: 22 @45152 has 48 MA's), (26, 45266), (28, 45278), (30, 45299), (34, 45407), (42, 45581),

Gene: Sonah\_70 Start: 42849, Stop: 43349, Start Num: 22

Candidate Starts for Sonah\_70:



(16, 42783), (Start: 22 @42849 has 48 MA's), (26, 42963), (28, 42975), (30, 42996), (34, 43104), (42, 43278),

Gene: StevieRay\_71 Start: 45286, Stop: 45786, Start Num: 22

Candidate Starts for StevieRay\_71:

(1, 44560), (2, 44575), (3, 44683), (4, 44764), (5, 44833), (6, 44887), (Start: 11 @45133 has 1 MA's), (13, 45187), (Start: 22 @45286 has 48 MA's), (25, 45352), (27, 45409), (30, 45433), (38, 45631), (42, 45715),

Gene: StressBall\_69 Start: 44442, Stop: 44942, Start Num: 22

Candidate Starts for StressBall\_69:

(16, 44376), (Start: 22 @44442 has 48 MA's), (26, 44556), (28, 44568), (30, 44589), (34, 44697),

Gene: Taptic\_76 Start: 54303, Stop: 54803, Start Num: 22

Candidate Starts for Taptic\_76:

(14, 54210), (15, 54222), (Start: 19 @54252 has 2 MA's), (Start: 22 @54303 has 48 MA's), (24, 54354), (25, 54369), (30, 54450), (31, 54462), (33, 54507), (35, 54585), (36, 54588), (40, 54714), (45, 54786),

Gene: Techage\_70 Start: 43643, Stop: 44143, Start Num: 22

Candidate Starts for Techage\_70:

(16, 43577), (Start: 22 @43643 has 48 MA's), (26, 43757), (28, 43769), (30, 43790), (34, 43898), (42, 44072),

Gene: Thespis\_68 Start: 44052, Stop: 44552, Start Num: 22

Candidate Starts for Thespis\_68:

(1, 43326), (2, 43341), (3, 43449), (4, 43530), (5, 43599), (6, 43653), (Start: 11 @43899 has 1 MA's), (13, 43953), (Start: 22 @44052 has 48 MA's), (25, 44118), (27, 44175), (30, 44199), (38, 44397), (43, 44493),

Gene: Totinger\_74 Start: 46301, Stop: 46801, Start Num: 22

Candidate Starts for Totinger\_74:

(16, 46235), (Start: 22 @46301 has 48 MA's), (26, 46415), (28, 46427), (30, 46448), (34, 46556),

Gene: Venti\_67 Start: 42051, Stop: 42551, Start Num: 22

Candidate Starts for Venti\_67:

(16, 41985), (20, 42021), (Start: 22 @42051 has 48 MA's), (26, 42165), (28, 42177), (30, 42198), (34, 42306),

Gene: Vidya\_65 Start: 42340, Stop: 42840, Start Num: 22

Candidate Starts for Vidya\_65:

(1, 41614), (2, 41629), (3, 41737), (4, 41818), (5, 41887), (6, 41941), (Start: 11 @42187 has 1 MA's), (13, 42241), (Start: 22 @42340 has 48 MA's), (25, 42406), (27, 42463), (30, 42487), (38, 42685),

Gene: Willsammy\_71 Start: 44926, Stop: 45426, Start Num: 22

Candidate Starts for Willsammy\_71:

(16, 44860), (Start: 22 @44926 has 48 MA's), (26, 45040), (28, 45052), (30, 45073), (34, 45181),

Gene: Xula\_62 Start: 42299, Stop: 42799, Start Num: 22

Candidate Starts for Xula\_62:

(16, 42233), (Start: 22 @42299 has 48 MA's), (26, 42413), (28, 42425), (30, 42446), (34, 42554), (42, 42728),

Gene: Zilizebeth\_74 Start: 44484, Stop: 44984, Start Num: 22

Candidate Starts for Zilizebeth\_74:

(16, 44418), (Start: 22 @44484 has 48 MA's), (26, 44598), (28, 44610), (30, 44631), (34, 44739), (42, 44913),

Gene: Zizzle\_80 Start: 49276, Stop: 49980, Start Num: 8

Candidate Starts for Zizzle\_80:

(7, 49255), (Start: 8 @49276 has 1 MA's), (9, 49282), (10, 49288), (12, 49345), (Start: 22 @49480 has 48 MA's), (26, 49594), (28, 49606), (30, 49627), (34, 49735), (42, 49909),