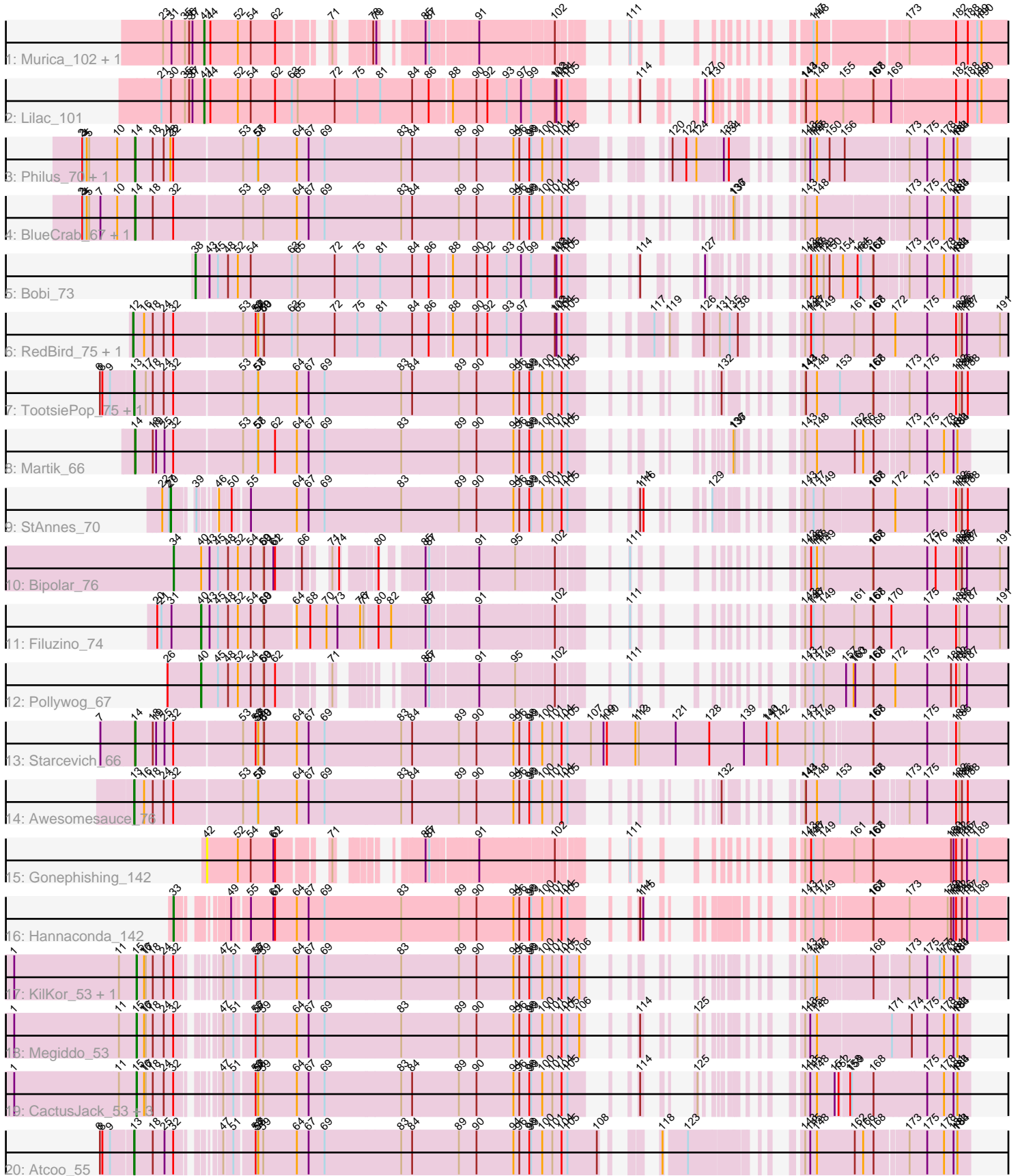


# Pham 194250



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 194250 Report

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

Pham number 194250 has 29 members, 1 are drafts.

Phages represented in each track:

- Track 1 : Murica\_102, MISSy\_100
- Track 2 : Lilac\_101
- Track 3 : Philus\_70, DRBy19\_70
- Track 4 : BlueCrab\_67, FreddyB\_67
- Track 5 : Bobi\_73
- Track 6 : RedBird\_75, Dorothy\_75
- Track 7 : TootsiePop\_75, Misha28\_75
- Track 8 : Martik\_66
- Track 9 : StAnnes\_70
- Track 10 : Bipolar\_76
- Track 11 : Filuzino\_74
- Track 12 : Pollywog\_67
- Track 13 : Starcevich\_66
- Track 14 : Awesomesauce\_76
- Track 15 : Gonephishing\_142
- Track 16 : Hannaconda\_142
- Track 17 : KilKor\_53, Willsammy\_52
- Track 18 : Megiddo\_53
- Track 19 : CactusJack\_53, StressBall\_53, Phalm\_53, Glaske\_53
- Track 20 : Atcoo\_55

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

The start number called the most often in the published annotations is 15, it was called in 7 of the 28 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- CactusJack\_53, Glaske\_53, KilKor\_53, Megiddo\_53, Phalm\_53, StressBall\_53, Willsammy\_52,

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

- 

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

- Atcoo\_55, Awesomesauce\_76, Bipolar\_76, BlueCrab\_67, Bobi\_73, DRBy19\_70, Dorothy\_75, Filuzino\_74, FreddyB\_67, Gonephishing\_142, Hannaconda\_142, Lilac\_101, MISSy\_100, Martik\_66, Misha28\_75, Murica\_102, Philus\_70, Pollywog\_67, RedBird\_75, StAnnes\_70, Starcevich\_66, TootsiePop\_75,

### Summary by start number:

#### Start 12:

- Found in 2 of 29 ( 6.9% ) of genes in pham
- Manual Annotations of this start: 2 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dorothy\_75 (F1), RedBird\_75 (F1),

#### Start 13:

- Found in 4 of 29 ( 13.8% ) of genes in pham
- Manual Annotations of this start: 4 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Atcoo\_55 (P1), Awesomesauce\_76 (F1), Misha28\_75 (F1), TootsiePop\_75 (F1),

#### Start 14:

- Found in 6 of 29 ( 20.7% ) of genes in pham
- Manual Annotations of this start: 6 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlueCrab\_67 (F1), DRBy19\_70 (F1), FreddyB\_67 (F1), Martik\_66 (F1), Philus\_70 (F1), Starcevich\_66 (F1),

#### Start 15:

- Found in 7 of 29 ( 24.1% ) of genes in pham
- Manual Annotations of this start: 7 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CactusJack\_53 (P1), Glaske\_53 (P1), KilKor\_53 (P1), Megiddo\_53 (P1), Phalm\_53 (P1), StressBall\_53 (P1), Willsammy\_52 (P1),

#### Start 29:

- Found in 1 of 29 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 1 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: StAnnes\_70 (F1),

#### Start 33:

- Found in 1 of 29 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 1 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hannaconda\_142 (J),

#### Start 34:

- Found in 1 of 29 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 1 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bipolar\_76 (F1),

Start 38:

- Found in 1 of 29 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 1 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bobi\_73 (F1),

Start 40:

- Found in 3 of 29 ( 10.3% ) of genes in pham
- Manual Annotations of this start: 2 of 28
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Filuzino\_74 (F1), Pollywog\_67 (F1),

Start 41:

- Found in 3 of 29 ( 10.3% ) of genes in pham
- Manual Annotations of this start: 3 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Lilac\_101 (E), MISSy\_100 (E), Murica\_102 (E),

Start 42:

- Found in 1 of 29 ( 3.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gonephishing\_142 (J),

**Summary by clusters:**

There are 4 clusters represented in this pham: F1, J, P1, E,

Info for manual annotations of cluster E:

- Start number 41 was manually annotated 3 times for cluster E.

Info for manual annotations of cluster F1:

- Start number 12 was manually annotated 2 times for cluster F1.
- Start number 13 was manually annotated 3 times for cluster F1.
- Start number 14 was manually annotated 6 times for cluster F1.
- Start number 29 was manually annotated 1 time for cluster F1.
- Start number 34 was manually annotated 1 time for cluster F1.
- Start number 38 was manually annotated 1 time for cluster F1.
- Start number 40 was manually annotated 2 times for cluster F1.

Info for manual annotations of cluster J:

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

Info for manual annotations of cluster P1:

- Start number 13 was manually annotated 1 time for cluster P1.
- Start number 15 was manually annotated 7 times for cluster P1.

**Gene Information:**

Gene: Atcoo\_55 Start: 37344, Stop: 39803, Start Num: 13

Candidate Starts for Atcoo\_55:

(6, 37242), (8, 37251), (9, 37278), (Start: 13 @37344 has 4 MA's), (18, 37404), (25, 37443), (32, 37473), (47, 37563), (51, 37590), (56, 37653), (57, 37659), (58, 37662), (59, 37680), (64, 37800), (67, 37842), (69, 37899), (83, 38169), (84, 38208), (89, 38373), (90, 38436), (94, 38568), (96, 38589), (98, 38625), (99, 38631), (100, 38670), (101, 38706), (104, 38739), (105, 38760), (108, 38865), (118, 38940), (123, 39012), (143, 39258), (145, 39276), (148, 39300), (162, 39435), (166, 39465), (168, 39501), (173, 39603), (175, 39660), (178, 39720), (181, 39753), (183, 39762), (184, 39765),

Gene: Awesomesauce\_76 Start: 46078, Stop: 48528, Start Num: 13

Candidate Starts for Awesomesauce\_76:

(Start: 13 @46078 has 4 MA's), (16, 46108), (18, 46138), (24, 46174), (32, 46207), (53, 46438), (57, 46489), (58, 46492), (64, 46630), (67, 46672), (69, 46729), (83, 46999), (84, 47038), (89, 47203), (90, 47266), (94, 47398), (96, 47419), (98, 47455), (99, 47461), (100, 47500), (101, 47536), (104, 47569), (105, 47590), (132, 47725), (143, 47827), (144, 47830), (148, 47869), (153, 47950), (167, 48061), (168, 48064), (173, 48166), (175, 48223), (182, 48325), (185, 48337), (186, 48346), (188, 48367),

Gene: Bipolar\_76 Start: 46390, Stop: 48396, Start Num: 34

Candidate Starts for Bipolar\_76:

(Start: 34 @46390 has 1 MA's), (Start: 40 @46483 has 2 MA's), (43, 46513), (45, 46543), (48, 46579), (52, 46612), (54, 46657), (59, 46699), (60, 46702), (61, 46735), (62, 46741), (66, 46822), (71, 46864), (74, 46879), (80, 46972), (85, 47062), (87, 47074), (91, 47206), (95, 47326), (102, 47449), (111, 47536), (143, 47671), (146, 47692), (147, 47701), (148, 47713), (149, 47737), (167, 47905), (168, 47908), (175, 48088), (176, 48118), (182, 48190), (185, 48202), (186, 48211), (187, 48229), (191, 48346),

Gene: BlueCrab\_67 Start: 43881, Stop: 46157, Start Num: 14

Candidate Starts for BlueCrab\_67:

(2, 43704), (3, 43710), (4, 43719), (5, 43728), (7, 43767), (10, 43824), (Start: 14 @43881 has 6 MA's), (18, 43938), (32, 44007), (53, 44238), (59, 44310), (64, 44430), (67, 44472), (69, 44529), (83, 44799), (84, 44838), (89, 45003), (90, 45066), (94, 45198), (96, 45219), (98, 45255), (99, 45261), (100, 45300), (101, 45336), (104, 45369), (105, 45390), (136, 45555), (137, 45558), (143, 45642), (148, 45684), (173, 45957), (175, 46014), (178, 46074), (181, 46107), (183, 46116), (184, 46119),

Gene: Bobi\_73 Start: 44682, Stop: 46739, Start Num: 38

Candidate Starts for Bobi\_73:

(Start: 38 @44682 has 1 MA's), (43, 44721), (45, 44751), (48, 44787), (52, 44820), (54, 44865), (63, 45009), (65, 45030), (72, 45162), (75, 45243), (81, 45324), (84, 45438), (86, 45495), (88, 45567), (90, 45651), (92, 45690), (93, 45759), (97, 45810), (99, 45843), (102, 45924), (103, 45930), (104, 45948), (105, 45969), (114, 46053), (127, 46095), (143, 46218), (146, 46239), (147, 46248), (148, 46260), (149, 46284), (150, 46305), (154, 46338), (164, 46383), (165, 46395), (167, 46434), (168, 46437), (173, 46539), (175, 46596), (178, 46656), (181, 46689), (183, 46698), (184, 46701),

Gene: CactusJack\_53 Start: 36390, Stop: 38582, Start Num: 15

Candidate Starts for CactusJack\_53:

(1, 35955), (11, 36327), (Start: 15 @36390 has 7 MA's), (16, 36417), (17, 36423), (18, 36447), (24, 36483), (32, 36516), (47, 36606), (51, 36633), (56, 36696), (57, 36702), (58, 36705), (59, 36723), (64, 36843), (67, 36885), (69, 36942), (83, 37212), (84, 37251), (89, 37416), (90, 37479), (94, 37611), (96, 37632), (98, 37668), (99, 37674), (100, 37713), (101, 37749), (104, 37782), (105, 37803), (114, 37887), (125, 37923), (143, 38046), (145, 38064), (148, 38088), (151, 38145), (152, 38151), (158, 38181), (159, 38187), (168, 38253), (175, 38439), (178, 38499), (181, 38532), (183, 38541), (184, 38544),

Gene: DRBy19\_70 Start: 44260, Stop: 46806, Start Num: 14

Candidate Starts for DRBy19\_70:

(2, 44083), (3, 44089), (4, 44098), (5, 44107), (10, 44203), (Start: 14 @44260 has 6 MA's), (18, 44317), (24, 44353), (28, 44377), (32, 44386), (53, 44617), (57, 44668), (58, 44671), (64, 44809), (67, 44851), (69, 44908), (83, 45178), (84, 45217), (89, 45382), (90, 45445), (94, 45577), (96, 45598), (98, 45634), (99, 45640), (100, 45679), (101, 45715), (104, 45748), (105, 45769), (120, 45961), (122, 46009), (124, 46045), (133, 46135), (134, 46153), (143, 46276), (145, 46294), (147, 46306), (148, 46318), (150, 46363), (156, 46411), (173, 46606), (175, 46663), (178, 46723), (181, 46756), (183, 46765), (184, 46768),

Gene: Dorothy\_75 Start: 45729, Stop: 48410, Start Num: 12

Candidate Starts for Dorothy\_75:

(Start: 12 @45729 has 2 MA's), (16, 45768), (18, 45798), (24, 45834), (32, 45867), (53, 46098), (56, 46143), (57, 46149), (58, 46152), (59, 46170), (60, 46173), (63, 46272), (65, 46293), (72, 46425), (75, 46506), (81, 46587), (84, 46701), (86, 46758), (88, 46830), (90, 46914), (92, 46953), (93, 47022), (97, 47073), (102, 47187), (103, 47193), (104, 47211), (105, 47232), (117, 47379), (119, 47415), (126, 47484), (131, 47532), (135, 47565), (138, 47592), (143, 47685), (146, 47706), (147, 47715), (149, 47751), (161, 47853), (167, 47916), (168, 47919), (172, 47997), (175, 48105), (182, 48207), (185, 48219), (186, 48228), (187, 48246), (191, 48363),

Gene: Filuzino\_74 Start: 46234, Stop: 48309, Start Num: 40

Candidate Starts for Filuzino\_74:

(20, 46084), (21, 46099), (31, 46135), (Start: 40 @46234 has 2 MA's), (43, 46264), (45, 46294), (48, 46330), (52, 46363), (54, 46408), (59, 46450), (60, 46453), (64, 46555), (68, 46603), (70, 46657), (73, 46696), (76, 46771), (77, 46783), (80, 46828), (82, 46873), (85, 46978), (87, 46990), (91, 47122), (102, 47365), (111, 47452), (143, 47587), (146, 47608), (147, 47617), (149, 47653), (161, 47755), (167, 47818), (168, 47821), (170, 47884), (175, 48001), (182, 48103), (185, 48115), (187, 48142), (191, 48259),

Gene: FreddyB\_67 Start: 41676, Stop: 43952, Start Num: 14

Candidate Starts for FreddyB\_67:

(2, 41499), (3, 41505), (4, 41514), (5, 41523), (7, 41562), (10, 41619), (Start: 14 @41676 has 6 MA's), (18, 41733), (32, 41802), (53, 42033), (59, 42105), (64, 42225), (67, 42267), (69, 42324), (83, 42594), (84, 42633), (89, 42798), (90, 42861), (94, 42993), (96, 43014), (98, 43050), (99, 43056), (100, 43095), (101, 43131), (104, 43164), (105, 43185), (136, 43350), (137, 43353), (143, 43437), (148, 43479), (173, 43752), (175, 43809), (178, 43869), (181, 43902), (183, 43911), (184, 43914),

Gene: Glaske\_53 Start: 36390, Stop: 38582, Start Num: 15

Candidate Starts for Glaske\_53:

(1, 35955), (11, 36327), (Start: 15 @36390 has 7 MA's), (16, 36417), (17, 36423), (18, 36447), (24, 36483), (32, 36516), (47, 36606), (51, 36633), (56, 36696), (57, 36702), (58, 36705), (59, 36723), (64, 36843), (67, 36885), (69, 36942), (83, 37212), (84, 37251), (89, 37416), (90, 37479), (94, 37611), (96, 37632), (98, 37668), (99, 37674), (100, 37713), (101, 37749), (104, 37782), (105, 37803), (114, 37887), (125, 37923), (143, 38046), (145, 38064), (148, 38088), (151, 38145), (152, 38151), (158, 38181), (159, 38187), (168, 38253), (175, 38439), (178, 38499), (181, 38532), (183, 38541), (184, 38544),

Gene: Gonephishing\_142 Start: 76140, Stop: 77969, Start Num: 42

Candidate Starts for Gonephishing\_142:

(42, 76140), (52, 76248), (54, 76293), (61, 76371), (62, 76377), (71, 76500), (85, 76662), (87, 76674), (91, 76806), (102, 77049), (111, 77136), (143, 77271), (146, 77292), (147, 77301), (149, 77337), (161, 77439), (167, 77502), (168, 77505), (180, 77775), (181, 77784), (182, 77793), (186, 77814), (187, 77832), (189, 77868),

Gene: Hannaconda\_142 Start: 76662, Stop: 78896, Start Num: 33

Candidate Starts for Hannaconda\_142:

(Start: 33 @76662 has 1 MA's), (49, 76770), (55, 76815), (61, 76893), (62, 76899), (64, 76977), (67, 77019), (69, 77076), (83, 77346), (89, 77550), (90, 77613), (94, 77745), (96, 77766), (98, 77802), (99, 77808), (100, 77847), (101, 77883), (104, 77916), (105, 77937), (114, 78021), (115, 78030), (143, 78231), (147, 78261), (149, 78297), (167, 78438), (168, 78441), (173, 78558), (179, 78690), (180, 78702), (181, 78711), (182, 78720), (186, 78741), (187, 78759), (189, 78795),

Gene: KilKor\_53 Start: 36390, Stop: 38570, Start Num: 15

Candidate Starts for KilKor\_53:

(1, 35955), (11, 36327), (Start: 15 @36390 has 7 MA's), (16, 36417), (17, 36423), (18, 36447), (24, 36483), (32, 36516), (47, 36606), (51, 36633), (56, 36696), (57, 36702), (59, 36723), (64, 36843), (67, 36885), (69, 36942), (83, 37212), (89, 37416), (90, 37479), (94, 37611), (96, 37632), (98, 37668), (99, 37674), (100, 37713), (101, 37749), (104, 37782), (105, 37803), (106, 37845), (143, 38052), (147, 38082), (148, 38094), (168, 38268), (173, 38370), (175, 38427), (177, 38472), (178, 38487), (181, 38520), (183, 38529), (184, 38532),

Gene: Lilac\_101 Start: 58401, Stop: 60605, Start Num: 41

Candidate Starts for Lilac\_101:

(21, 58254), (30, 58284), (35, 58332), (36, 58347), (37, 58359), (Start: 41 @58401 has 3 MA's), (44, 58419), (52, 58515), (54, 58560), (62, 58644), (63, 58704), (65, 58725), (72, 58857), (75, 58938), (81, 59019), (84, 59133), (86, 59190), (88, 59262), (90, 59346), (92, 59385), (93, 59454), (97, 59505), (99, 59538), (102, 59619), (103, 59625), (104, 59643), (105, 59664), (114, 59748), (127, 59793), (130, 59805), (143, 59910), (144, 59913), (148, 59952), (155, 60039), (167, 60141), (168, 60144), (169, 60207), (182, 60426), (188, 60468), (189, 60501), (190, 60516),

Gene: MISSy\_100 Start: 58583, Stop: 60391, Start Num: 41

Candidate Starts for MISSy\_100:

(23, 58436), (31, 58466), (35, 58514), (36, 58529), (37, 58541), (Start: 41 @58583 has 3 MA's), (44, 58601), (52, 58697), (54, 58742), (62, 58826), (71, 58949), (78, 59036), (79, 59042), (85, 59129), (87, 59141), (91, 59273), (102, 59516), (111, 59603), (147, 59768), (148, 59780), (173, 60053), (182, 60212), (188, 60254), (189, 60287), (190, 60302),

Gene: Martik\_66 Start: 42749, Stop: 45055, Start Num: 14

Candidate Starts for Martik\_66:

(Start: 14 @42749 has 6 MA's), (18, 42806), (19, 42818), (25, 42845), (32, 42875), (53, 43106), (57, 43157), (58, 43160), (62, 43220), (64, 43298), (67, 43340), (69, 43397), (83, 43667), (89, 43871), (90, 43934), (94, 44066), (96, 44087), (98, 44123), (99, 44129), (100, 44168), (101, 44204), (104, 44237), (105, 44258), (136, 44423), (137, 44426), (143, 44510), (148, 44552), (162, 44687), (166, 44717), (168, 44753), (173, 44855), (175, 44912), (178, 44972), (181, 45005), (183, 45014), (184, 45017),

Gene: Megiddo\_53 Start: 36390, Stop: 38585, Start Num: 15

Candidate Starts for Megiddo\_53:

(1, 35955), (11, 36327), (Start: 15 @36390 has 7 MA's), (16, 36417), (17, 36423), (18, 36447), (24, 36483), (32, 36516), (47, 36606), (51, 36633), (56, 36696), (57, 36702), (59, 36723), (64, 36843), (67, 36885), (69, 36942), (83, 37212), (89, 37416), (90, 37479), (94, 37611), (96, 37632), (98, 37668), (99, 37674), (100, 37713), (101, 37749), (104, 37782), (105, 37803), (106, 37845), (114, 37887), (125, 37923), (143, 38046), (145, 38064), (148, 38088), (171, 38325), (174, 38388), (175, 38442), (178, 38502), (181, 38535), (183, 38544), (184, 38547),

Gene: Misha28\_75 Start: 46524, Stop: 48974, Start Num: 13

Candidate Starts for Misha28\_75:

(6, 46422), (8, 46431), (9, 46458), (Start: 13 @46524 has 4 MA's), (17, 46560), (18, 46584), (24, 46620), (32, 46653), (53, 46884), (57, 46935), (58, 46938), (64, 47076), (67, 47118), (69, 47175), (83, 47445), (84, 47484), (89, 47649), (90, 47712), (94, 47844), (96, 47865), (98, 47901), (99, 47907), (100, 47946), (101, 47982), (104, 48015), (105, 48036), (132, 48171), (143, 48273), (144, 48276), (148, 48315), (153, 48396), (167, 48507), (168, 48510), (173, 48612), (175, 48669), (182, 48771), (185, 48783), (186, 48792), (188, 48813),

Gene: Murica\_102 Start: 59799, Stop: 61607, Start Num: 41

Candidate Starts for Murica\_102:

(23, 59652), (31, 59682), (35, 59730), (36, 59745), (37, 59757), (Start: 41 @59799 has 3 MA's), (44, 59817), (52, 59913), (54, 59958), (62, 60042), (71, 60165), (78, 60252), (79, 60258), (85, 60345), (87, 60357), (91, 60489), (102, 60732), (111, 60819), (147, 60984), (148, 60996), (173, 61269), (182, 61428), (188, 61470), (189, 61503), (190, 61518),

Gene: Phalm\_53 Start: 36390, Stop: 38582, Start Num: 15

Candidate Starts for Phalm\_53:

(1, 35955), (11, 36327), (Start: 15 @36390 has 7 MA's), (16, 36417), (17, 36423), (18, 36447), (24, 36483), (32, 36516), (47, 36606), (51, 36633), (56, 36696), (57, 36702), (58, 36705), (59, 36723), (64, 36843), (67, 36885), (69, 36942), (83, 37212), (84, 37251), (89, 37416), (90, 37479), (94, 37611), (96, 37632), (98, 37668), (99, 37674), (100, 37713), (101, 37749), (104, 37782), (105, 37803), (114, 37887), (125, 37923), (143, 38046), (145, 38064), (148, 38088), (151, 38145), (152, 38151), (158, 38181), (159, 38187), (168, 38253), (175, 38439), (178, 38499), (181, 38532), (183, 38541), (184, 38544),

Gene: Philus\_70 Start: 44236, Stop: 46782, Start Num: 14

Candidate Starts for Philus\_70:

(2, 44059), (3, 44065), (4, 44074), (5, 44083), (10, 44179), (Start: 14 @44236 has 6 MA's), (18, 44293), (24, 44329), (28, 44353), (32, 44362), (53, 44593), (57, 44644), (58, 44647), (64, 44785), (67, 44827), (69, 44884), (83, 45154), (84, 45193), (89, 45358), (90, 45421), (94, 45553), (96, 45574), (98, 45610), (99, 45616), (100, 45655), (101, 45691), (104, 45724), (105, 45745), (120, 45937), (122, 45985), (124, 46021), (133, 46111), (134, 46129), (143, 46252), (145, 46270), (147, 46282), (148, 46294), (150, 46339), (156, 46387), (173, 46582), (175, 46639), (178, 46699), (181, 46732), (183, 46741), (184, 46744),

Gene: Pollywog\_67 Start: 43356, Stop: 45239, Start Num: 40

Candidate Starts for Pollywog\_67:

(26, 43242), (Start: 40 @43356 has 2 MA's), (45, 43413), (48, 43449), (52, 43482), (54, 43527), (59, 43569), (60, 43572), (62, 43611), (71, 43734), (85, 43899), (87, 43911), (91, 44043), (95, 44163), (102, 44286), (111, 44373), (143, 44508), (147, 44538), (149, 44574), (157, 44652), (160, 44679), (163, 44685), (167, 44745), (168, 44748), (172, 44826), (175, 44934), (180, 45018), (182, 45036), (185, 45048), (187, 45075),

Gene: RedBird\_75 Start: 45596, Stop: 48277, Start Num: 12

Candidate Starts for RedBird\_75:

(Start: 12 @45596 has 2 MA's), (16, 45635), (18, 45665), (24, 45701), (32, 45734), (53, 45965), (56, 46010), (57, 46016), (58, 46019), (59, 46037), (60, 46040), (63, 46139), (65, 46160), (72, 46292), (75, 46373), (81, 46454), (84, 46568), (86, 46625), (88, 46697), (90, 46781), (92, 46820), (93, 46889), (97, 46940), (102, 47054), (103, 47060), (104, 47078), (105, 47099), (117, 47246), (119, 47282), (126, 47351), (131, 47399), (135, 47432), (138, 47459), (143, 47552), (146, 47573), (147, 47582), (149, 47618), (161, 47720), (167, 47783), (168, 47786), (172, 47864), (175, 47972), (182, 48074), (185, 48086), (186, 48095), (187, 48113), (191, 48230),

Gene: StAnnes\_70 Start: 44611, Stop: 46869, Start Num: 29



Candidate Starts for StAnnes\_70:

(22, 44581), (27, 44605), (Start: 29 @44611 has 1 MA's), (39, 44665), (46, 44701), (50, 44734), (55, 44779), (64, 44941), (67, 44983), (69, 45040), (83, 45310), (89, 45514), (90, 45577), (94, 45709), (96, 45730), (98, 45766), (99, 45772), (100, 45811), (101, 45847), (104, 45880), (105, 45901), (114, 45985), (116, 45997), (129, 46042), (143, 46162), (147, 46192), (149, 46228), (167, 46387), (168, 46390), (172, 46468), (175, 46576), (182, 46663), (185, 46675), (186, 46684), (188, 46705),

Gene: Starcevich\_66 Start: 42297, Stop: 45341, Start Num: 14

Candidate Starts for Starcevich\_66:

(7, 42183), (Start: 14 @42297 has 6 MA's), (18, 42354), (19, 42366), (25, 42393), (32, 42423), (53, 42654), (56, 42699), (57, 42705), (58, 42708), (59, 42726), (60, 42729), (64, 42846), (67, 42888), (69, 42945), (83, 43215), (84, 43254), (89, 43419), (90, 43482), (94, 43614), (96, 43635), (98, 43671), (99, 43677), (100, 43716), (101, 43752), (104, 43785), (105, 43806), (107, 43890), (109, 43935), (110, 43947), (112, 44049), (113, 44061), (121, 44193), (128, 44313), (139, 44436), (140, 44517), (141, 44523), (142, 44556), (143, 44655), (147, 44685), (149, 44721), (167, 44862), (168, 44865), (175, 45051), (182, 45138), (185, 45150),

Gene: StressBall\_53 Start: 36390, Stop: 38582, Start Num: 15

Candidate Starts for StressBall\_53:

(1, 35955), (11, 36327), (Start: 15 @36390 has 7 MA's), (16, 36417), (17, 36423), (18, 36447), (24, 36483), (32, 36516), (47, 36606), (51, 36633), (56, 36696), (57, 36702), (58, 36705), (59, 36723), (64, 36843), (67, 36885), (69, 36942), (83, 37212), (84, 37251), (89, 37416), (90, 37479), (94, 37611), (96, 37632), (98, 37668), (99, 37674), (100, 37713), (101, 37749), (104, 37782), (105, 37803), (114, 37887), (125, 37923), (143, 38046), (145, 38064), (148, 38088), (151, 38145), (152, 38151), (158, 38181), (159, 38187), (168, 38253), (175, 38439), (178, 38499), (181, 38532), (183, 38541), (184, 38544),

Gene: TootsiePop\_75 Start: 46524, Stop: 48974, Start Num: 13

Candidate Starts for TootsiePop\_75:

(6, 46422), (8, 46431), (9, 46458), (Start: 13 @46524 has 4 MA's), (17, 46560), (18, 46584), (24, 46620), (32, 46653), (53, 46884), (57, 46935), (58, 46938), (64, 47076), (67, 47118), (69, 47175), (83, 47445), (84, 47484), (89, 47649), (90, 47712), (94, 47844), (96, 47865), (98, 47901), (99, 47907), (100, 47946), (101, 47982), (104, 48015), (105, 48036), (132, 48171), (143, 48273), (144, 48276), (148, 48315), (153, 48396), (167, 48507), (168, 48510), (173, 48612), (175, 48669), (182, 48771), (185, 48783), (186, 48792), (188, 48813),

Gene: Willsammy\_52 Start: 35873, Stop: 38053, Start Num: 15

Candidate Starts for Willsammy\_52:

(1, 35438), (11, 35810), (Start: 15 @35873 has 7 MA's), (16, 35900), (17, 35906), (18, 35930), (24, 35966), (32, 35999), (47, 36089), (51, 36116), (56, 36179), (57, 36185), (59, 36206), (64, 36326), (67, 36368), (69, 36425), (83, 36695), (89, 36899), (90, 36962), (94, 37094), (96, 37115), (98, 37151), (99, 37157), (100, 37196), (101, 37232), (104, 37265), (105, 37286), (106, 37328), (143, 37535), (147, 37565), (148, 37577), (168, 37751), (173, 37853), (175, 37910), (177, 37955), (178, 37970), (181, 38003), (183, 38012), (184, 38015),