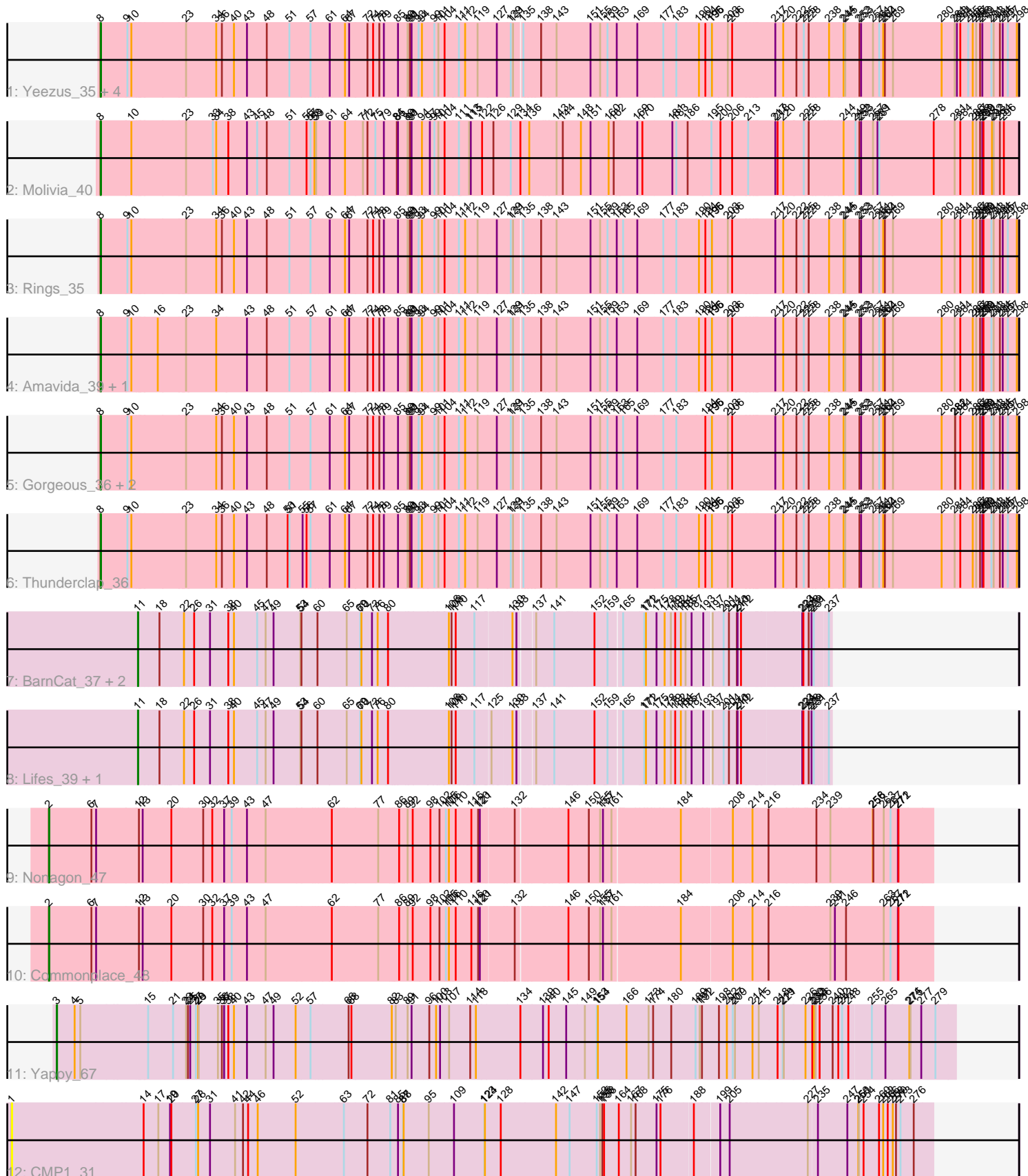


Pham 309265



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 309265 Report

This analysis was run 06/27/26 on database version 652.

Pham number 309265 has 22 members, 1 are drafts.

Phages represented in each track:

- Track 1 : Yeezus\_35, Boersma\_37, Amigo\_36, Ichor\_35, Jaek\_35
- Track 2 : Molivia\_40
- Track 3 : Rings\_35
- Track 4 : Amavida\_39, Heylee\_39
- Track 5 : Gorgeous\_36, Anansi\_36, SorJuana\_36
- Track 6 : Thunderclap\_36
- Track 7 : BarnCat\_37, Cassita\_43, WaterT\_42
- Track 8 : Lifes\_39, LeeroyJenkins\_44
- Track 9 : Nonagon\_47
- Track 10 : Commonplace\_48
- Track 11 : Yappy\_67
- Track 12 : CMP1\_31

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

The start number called the most often in the published annotations is 8, it was called in 13 of the 21 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amavida\_39, Amigo\_36, Anansi\_36, Boersma\_37, Gorgeous\_36, Heylee\_39, Ichor\_35, Jaek\_35, Molivia\_40, Rings\_35, SorJuana\_36, Thunderclap\_36, Yeezus\_35,

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

- 

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

- BarnCat\_37, CMP1\_31, Cassita\_43, Commonplace\_48, LeeroyJenkins\_44, Lifes\_39, Nonagon\_47, WaterT\_42, Yappy\_67,

### **Summary by start number:**

Start 1:

- Found in 1 of 22 ( 4.5% ) of genes in pham

- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CMP1\_31 (singleton),

#### Start 2:

- Found in 2 of 22 ( 9.1% ) of genes in pham
- Manual Annotations of this start: 2 of 21
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Commonplace\_48 (JD), Nonagon\_47 (JD),

#### Start 3:

- Found in 1 of 22 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 1 of 21
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yappy\_67 (singleton),

#### Start 8:

- Found in 13 of 22 ( 59.1% ) of genes in pham
- Manual Annotations of this start: 13 of 21
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amavida\_39 (AQ), Amigo\_36 (AQ), Anansi\_36 (AQ), Boersma\_37 (AQ), Gorgeous\_36 (AQ), Heylee\_39 (AQ), Ichor\_35 (AQ), Jaek\_35 (AQ), Molivia\_40 (AQ), Rings\_35 (AQ), SorJuana\_36 (AQ), Thunderclap\_36 (AQ), Yeezus\_35 (AQ),

#### Start 11:

- Found in 5 of 22 ( 22.7% ) of genes in pham
- Manual Annotations of this start: 5 of 21
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BarnCat\_37 (GB), Cassita\_43 (GB), LeeroyJenkins\_44 (GB), Lifes\_39 (GB), WaterT\_42 (GB),

### **Summary by clusters:**

There are 4 clusters represented in this pham: AQ, JD, singleton, GB,

Info for manual annotations of cluster AQ:

- Start number 8 was manually annotated 13 times for cluster AQ.

Info for manual annotations of cluster GB:

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

Info for manual annotations of cluster JD:

- Start number 2 was manually annotated 2 times for cluster JD.

### **Gene Information:**

Gene: Amavida\_39 Start: 19025, Stop: 23734, Start Num: 8

Candidate Starts for Amavida\_39:

(Start: 8 @19025 has 13 MA's), (9, 19166), (10, 19187), (16, 19319), (23, 19460), (34, 19619), (43, 19781), (48, 19886), (51, 20006), (57, 20114), (61, 20204), (64, 20285), (67, 20306), (72, 20402), (74, 20432), (78, 20465), (79, 20489), (85, 20564), (89, 20612), (90, 20624), (91, 20633), (93, 20669), (94, 20687), (99, 20750), (101, 20771), (104, 20804), (111, 20879), (112, 20909), (119, 20975), (127, 21074), (129, 21146), (131, 21158), (135, 21197), (138, 21284), (143, 21359), (151, 21536), (155, 21587), (159, 21623), (163, 21671), (169, 21779), (177, 21908), (183, 21977), (190, 22094), (194, 22127), (195, 22157), (196, 22160), (203, 22241), (206, 22262), (217, 22481), (220, 22523), (222, 22589), (225, 22628), (228, 22652), (238, 22754), (244, 22823), (245, 22832), (252, 22895), (253, 22904), (257, 22967), (261, 23000), (262, 23021), (264, 23030), (269, 23072), (280, 23330), (281, 23399), (284, 23429), (286, 23495), (287, 23513), (288, 23534), (289, 23546), (290, 23552), (291, 23591), (293, 23603), (294, 23636), (295, 23651), (297, 23678), (298, 23726),

Gene: Amigo\_36 Start: 18899, Stop: 23608, Start Num: 8

Candidate Starts for Amigo\_36:

(Start: 8 @18899 has 13 MA's), (9, 19040), (10, 19061), (23, 19334), (34, 19493), (36, 19523), (40, 19586), (43, 19655), (48, 19760), (51, 19880), (57, 19988), (61, 20078), (64, 20159), (67, 20180), (72, 20276), (74, 20306), (78, 20339), (79, 20363), (85, 20438), (89, 20486), (90, 20498), (91, 20507), (93, 20543), (94, 20561), (99, 20624), (101, 20645), (104, 20678), (111, 20753), (112, 20783), (119, 20849), (127, 20948), (129, 21020), (131, 21032), (135, 21071), (138, 21158), (143, 21233), (151, 21410), (155, 21461), (159, 21497), (163, 21545), (169, 21653), (177, 21782), (183, 21851), (190, 21968), (194, 22001), (195, 22031), (196, 22034), (203, 22115), (206, 22136), (217, 22355), (220, 22397), (222, 22463), (225, 22502), (228, 22526), (238, 22628), (244, 22697), (245, 22706), (252, 22769), (253, 22778), (257, 22841), (261, 22874), (262, 22895), (264, 22904), (269, 22946), (280, 23204), (281, 23273), (283, 23285), (284, 23303), (285, 23345), (286, 23369), (287, 23387), (288, 23408), (289, 23420), (291, 23465), (293, 23477), (294, 23510), (295, 23525), (297, 23552), (298, 23600),

Gene: Anansi\_36 Start: 18908, Stop: 23617, Start Num: 8

Candidate Starts for Anansi\_36:

(Start: 8 @18908 has 13 MA's), (9, 19049), (10, 19070), (23, 19343), (34, 19502), (36, 19532), (40, 19595), (43, 19664), (48, 19769), (51, 19889), (57, 19997), (61, 20087), (64, 20168), (67, 20189), (72, 20285), (74, 20315), (78, 20348), (79, 20372), (85, 20447), (89, 20495), (90, 20507), (91, 20516), (93, 20552), (94, 20570), (99, 20633), (101, 20654), (104, 20687), (111, 20762), (112, 20792), (119, 20858), (127, 20957), (129, 21029), (131, 21041), (135, 21080), (138, 21167), (143, 21242), (151, 21419), (155, 21470), (159, 21506), (163, 21554), (165, 21587), (169, 21662), (177, 21791), (183, 21860), (194, 22010), (195, 22040), (196, 22043), (203, 22124), (206, 22145), (217, 22364), (220, 22406), (222, 22472), (225, 22511), (228, 22535), (238, 22637), (244, 22706), (245, 22715), (252, 22778), (253, 22787), (257, 22850), (261, 22883), (262, 22904), (264, 22913), (269, 22955), (280, 23213), (281, 23282), (282, 23285), (284, 23312), (286, 23378), (287, 23396), (288, 23417), (289, 23429), (290, 23435), (291, 23474), (293, 23486), (294, 23519), (295, 23534), (297, 23561), (298, 23609),

Gene: BarnCat\_37 Start: 19813, Stop: 23070, Start Num: 11

Candidate Starts for BarnCat\_37:

(Start: 11 @19813 has 5 MA's), (18, 19918), (22, 20023), (26, 20077), (31, 20161), (38, 20248), (40, 20278), (45, 20401), (47, 20446), (49, 20488), (53, 20626), (54, 20632), (60, 20710), (65, 20860), (69, 20932), (70, 20938), (73, 20989), (76, 21019), (80, 21073), (106, 21370), (108, 21382), (110, 21400), (117, 21478), (130, 21631), (133, 21646), (137, 21718), (141, 21796), (152, 21985), (159, 22048), (165, 22114), (171, 22222), (172, 22231), (175, 22279), (178, 22315), (179, 22348), (182, 22369), (184, 22399), (185, 22420), (187, 22444), (193, 22492), (197, 22525), (201, 22567), (204, 22594), (210, 22624), (211, 22627), (212, 22642), (223, 22948), (224, 22954), (228, 22972), (229, 22987), (231, 22993), (237, 23056),

Gene: Boersma\_37 Start: 18899, Stop: 23608, Start Num: 8

Candidate Starts for Boersma\_37:

(Start: 8 @18899 has 13 MA's), (9, 19040), (10, 19061), (23, 19334), (34, 19493), (36, 19523), (40, 19586), (43, 19655), (48, 19760), (51, 19880), (57, 19988), (61, 20078), (64, 20159), (67, 20180), (72, 20276), (74, 20306), (78, 20339), (79, 20363), (85, 20438), (89, 20486), (90, 20498), (91, 20507), (93, 20543), (94, 20561), (99, 20624), (101, 20645), (104, 20678), (111, 20753), (112, 20783), (119, 20849), (127, 20948), (129, 21020), (131, 21032), (135, 21071), (138, 21158), (143, 21233), (151, 21410), (155, 21461), (159, 21497), (163, 21545), (169, 21653), (177, 21782), (183, 21851), (190, 21968), (194, 22001), (195, 22031), (196, 22034), (203, 22115), (206, 22136), (217, 22355), (220, 22397), (222, 22463), (225, 22502), (228, 22526), (238, 22628), (244, 22697), (245, 22706), (252, 22769), (253, 22778), (257, 22841), (261, 22874), (262, 22895), (264, 22904), (269, 22946), (280, 23204), (281, 23273), (283, 23285), (284, 23303), (285, 23345), (286, 23369), (287, 23387), (288, 23408), (289, 23420), (291, 23465), (293, 23477), (294, 23510), (295, 23525), (297, 23552), (298, 23600),

Gene: CMP1\_31 Start: 25228, Stop: 29883, Start Num: 1

Candidate Starts for CMP1\_31:

(1, 25228), (14, 25921), (17, 25999), (19, 26059), (20, 26065), (27, 26191), (28, 26203), (31, 26266), (41, 26398), (42, 26440), (44, 26467), (46, 26518), (52, 26719), (63, 26962), (72, 27079), (81, 27196), (85, 27235), (87, 27262), (88, 27265), (95, 27391), (109, 27514), (123, 27673), (124, 27676), (128, 27754), (142, 28033), (147, 28105), (153, 28237), (155, 28255), (156, 28267), (158, 28276), (164, 28351), (167, 28414), (168, 28438), (175, 28537), (176, 28558), (188, 28708), (199, 28825), (205, 28867), (227, 29251), (235, 29290), (247, 29443), (250, 29500), (251, 29503), (254, 29527), (260, 29608), (262, 29626), (266, 29650), (268, 29677), (270, 29692), (273, 29716), (276, 29782),

Gene: Cassita\_43 Start: 22189, Stop: 25446, Start Num: 11

Candidate Starts for Cassita\_43:

(Start: 11 @22189 has 5 MA's), (18, 22294), (22, 22399), (26, 22453), (31, 22537), (38, 22624), (40, 22654), (45, 22777), (47, 22822), (49, 22864), (53, 23002), (54, 23008), (60, 23086), (65, 23236), (69, 23308), (70, 23314), (73, 23365), (76, 23395), (80, 23449), (106, 23746), (108, 23758), (110, 23776), (117, 23854), (130, 24007), (133, 24022), (137, 24094), (141, 24172), (152, 24361), (159, 24424), (165, 24490), (171, 24598), (172, 24607), (175, 24655), (178, 24691), (179, 24724), (182, 24745), (184, 24775), (185, 24796), (187, 24820), (193, 24868), (197, 24901), (201, 24943), (204, 24970), (210, 25000), (211, 25003), (212, 25018), (223, 25324), (224, 25330), (228, 25348), (229, 25363), (231, 25369), (237, 25432),

Gene: Commonplace\_48 Start: 26516, Stop: 30925, Start Num: 2

Candidate Starts for Commonplace\_48:

(Start: 2 @26516 has 2 MA's), (6, 26741), (7, 26765), (12, 26987), (13, 27005), (20, 27152), (30, 27314), (32, 27362), (37, 27425), (39, 27464), (43, 27545), (47, 27644), (62, 27977), (77, 28211), (86, 28313), (89, 28358), (92, 28385), (98, 28478), (102, 28523), (105, 28556), (106, 28571), (110, 28604), (116, 28685), (120, 28718), (121, 28727), (132, 28889), (146, 29132), (150, 29240), (155, 29300), (157, 29315), (161, 29354), (184, 29675), (208, 29912), (214, 30008), (216, 30086), (239, 30398), (241, 30419), (246, 30476), (263, 30668), (267, 30704), (271, 30743), (272, 30746),

Gene: Gorgeous\_36 Start: 18908, Stop: 23617, Start Num: 8

Candidate Starts for Gorgeous\_36:

(Start: 8 @18908 has 13 MA's), (9, 19049), (10, 19070), (23, 19343), (34, 19502), (36, 19532), (40, 19595), (43, 19664), (48, 19769), (51, 19889), (57, 19997), (61, 20087), (64, 20168), (67, 20189), (72, 20285), (74, 20315), (78, 20348), (79, 20372), (85, 20447), (89, 20495), (90, 20507), (91, 20516), (93, 20552), (94, 20570), (99, 20633), (101, 20654), (104, 20687), (111, 20762), (112, 20792), (119, 20858), (127, 20957), (129, 21029), (131, 21041), (135, 21080), (138, 21167), (143, 21242), (151, 21419), (155, 21470), (159, 21506), (163, 21554), (165, 21587), (169, 21662), (177, 21791), (183,

21860), (194, 22010), (195, 22040), (196, 22043), (203, 22124), (206, 22145), (217, 22364), (220, 22406), (222, 22472), (225, 22511), (228, 22535), (238, 22637), (244, 22706), (245, 22715), (252, 22778), (253, 22787), (257, 22850), (261, 22883), (262, 22904), (264, 22913), (269, 22955), (280, 23213), (281, 23282), (282, 23285), (284, 23312), (286, 23378), (287, 23396), (288, 23417), (289, 23429), (290, 23435), (291, 23474), (293, 23486), (294, 23519), (295, 23534), (297, 23561), (298, 23609),

Gene: Heylee\_39 Start: 19025, Stop: 23734, Start Num: 8

Candidate Starts for Heylee\_39:

(Start: 8 @19025 has 13 MA's), (9, 19166), (10, 19187), (16, 19319), (23, 19460), (34, 19619), (43, 19781), (48, 19886), (51, 20006), (57, 20114), (61, 20204), (64, 20285), (67, 20306), (72, 20402), (74, 20432), (78, 20465), (79, 20489), (85, 20564), (89, 20612), (90, 20624), (91, 20633), (93, 20669), (94, 20687), (99, 20750), (101, 20771), (104, 20804), (111, 20879), (112, 20909), (119, 20975), (127, 21074), (129, 21146), (131, 21158), (135, 21197), (138, 21284), (143, 21359), (151, 21536), (155, 21587), (159, 21623), (163, 21671), (169, 21779), (177, 21908), (183, 21977), (190, 22094), (194, 22127), (195, 22157), (196, 22160), (203, 22241), (206, 22262), (217, 22481), (220, 22523), (222, 22589), (225, 22628), (228, 22652), (238, 22754), (244, 22823), (245, 22832), (252, 22895), (253, 22904), (257, 22967), (261, 23000), (262, 23021), (264, 23030), (269, 23072), (280, 23330), (281, 23399), (284, 23429), (286, 23495), (287, 23513), (288, 23534), (289, 23546), (290, 23552), (291, 23591), (293, 23603), (294, 23636), (295, 23651), (297, 23678), (298, 23726),

Gene: Ichor\_35 Start: 18899, Stop: 23608, Start Num: 8

Candidate Starts for Ichor\_35:

(Start: 8 @18899 has 13 MA's), (9, 19040), (10, 19061), (23, 19334), (34, 19493), (36, 19523), (40, 19586), (43, 19655), (48, 19760), (51, 19880), (57, 19988), (61, 20078), (64, 20159), (67, 20180), (72, 20276), (74, 20306), (78, 20339), (79, 20363), (85, 20438), (89, 20486), (90, 20498), (91, 20507), (93, 20543), (94, 20561), (99, 20624), (101, 20645), (104, 20678), (111, 20753), (112, 20783), (119, 20849), (127, 20948), (129, 21020), (131, 21032), (135, 21071), (138, 21158), (143, 21233), (151, 21410), (155, 21461), (159, 21497), (163, 21545), (169, 21653), (177, 21782), (183, 21851), (190, 21968), (194, 22001), (195, 22031), (196, 22034), (203, 22115), (206, 22136), (217, 22355), (220, 22397), (222, 22463), (225, 22502), (228, 22526), (238, 22628), (244, 22697), (245, 22706), (252, 22769), (253, 22778), (257, 22841), (261, 22874), (262, 22895), (264, 22904), (269, 22946), (280, 23204), (281, 23273), (283, 23285), (284, 23303), (285, 23345), (286, 23369), (287, 23387), (288, 23408), (289, 23420), (291, 23465), (293, 23477), (294, 23510), (295, 23525), (297, 23552), (298, 23600),

Gene: Jaek\_35 Start: 18899, Stop: 23608, Start Num: 8

Candidate Starts for Jaek\_35:

(Start: 8 @18899 has 13 MA's), (9, 19040), (10, 19061), (23, 19334), (34, 19493), (36, 19523), (40, 19586), (43, 19655), (48, 19760), (51, 19880), (57, 19988), (61, 20078), (64, 20159), (67, 20180), (72, 20276), (74, 20306), (78, 20339), (79, 20363), (85, 20438), (89, 20486), (90, 20498), (91, 20507), (93, 20543), (94, 20561), (99, 20624), (101, 20645), (104, 20678), (111, 20753), (112, 20783), (119, 20849), (127, 20948), (129, 21020), (131, 21032), (135, 21071), (138, 21158), (143, 21233), (151, 21410), (155, 21461), (159, 21497), (163, 21545), (169, 21653), (177, 21782), (183, 21851), (190, 21968), (194, 22001), (195, 22031), (196, 22034), (203, 22115), (206, 22136), (217, 22355), (220, 22397), (222, 22463), (225, 22502), (228, 22526), (238, 22628), (244, 22697), (245, 22706), (252, 22769), (253, 22778), (257, 22841), (261, 22874), (262, 22895), (264, 22904), (269, 22946), (280, 23204), (281, 23273), (283, 23285), (284, 23303), (285, 23345), (286, 23369), (287, 23387), (288, 23408), (289, 23420), (291, 23465), (293, 23477), (294, 23510), (295, 23525), (297, 23552), (298, 23600),

Gene: LeeroyJenkins\_44 Start: 23072, Stop: 26329, Start Num: 11

Candidate Starts for LeeroyJenkins\_44:

(Start: 11 @23072 has 5 MA's), (18, 23177), (22, 23282), (26, 23336), (31, 23420), (38, 23507), (40, 23537), (45, 23660), (47, 23705), (49, 23747), (53, 23885), (54, 23891), (60, 23969), (65, 24119), (69, 24191), (70, 24197), (73, 24248), (76, 24278), (80, 24332), (106, 24629), (108, 24641), (110, 24659), (117, 24737), (125, 24800), (130, 24890), (133, 24905), (137, 24977), (141, 25055), (152, 25244), (159, 25307), (165, 25373), (171, 25481), (172, 25490), (175, 25538), (178, 25574), (179, 25607), (182, 25628), (184, 25658), (185, 25679), (187, 25703), (193, 25751), (197, 25784), (201, 25826), (204, 25853), (210, 25883), (211, 25886), (212, 25901), (223, 26207), (224, 26213), (228, 26231), (229, 26246), (231, 26252), (237, 26315),

Gene: Lifes\_39 Start: 19844, Stop: 23101, Start Num: 11

Candidate Starts for Lifes\_39:

(Start: 11 @19844 has 5 MA's), (18, 19949), (22, 20054), (26, 20108), (31, 20192), (38, 20279), (40, 20309), (45, 20432), (47, 20477), (49, 20519), (53, 20657), (54, 20663), (60, 20741), (65, 20891), (69, 20963), (70, 20969), (73, 21020), (76, 21050), (80, 21104), (106, 21401), (108, 21413), (110, 21431), (117, 21509), (125, 21572), (130, 21662), (133, 21677), (137, 21749), (141, 21827), (152, 22016), (159, 22079), (165, 22145), (171, 22253), (172, 22262), (175, 22310), (178, 22346), (179, 22379), (182, 22400), (184, 22430), (185, 22451), (187, 22475), (193, 22523), (197, 22556), (201, 22598), (204, 22625), (210, 22655), (211, 22658), (212, 22673), (223, 22979), (224, 22985), (228, 23003), (229, 23018), (231, 23024), (237, 23087),

Gene: Molivia\_40 Start: 19152, Stop: 23894, Start Num: 8

Candidate Starts for Molivia\_40:

(Start: 8 @19152 has 13 MA's), (10, 19314), (23, 19587), (33, 19728), (34, 19746), (38, 19809), (43, 19908), (45, 19962), (48, 20013), (51, 20133), (56, 20220), (57, 20241), (58, 20262), (59, 20271), (61, 20340), (64, 20421), (71, 20514), (72, 20538), (75, 20580), (79, 20625), (84, 20694), (85, 20700), (89, 20748), (90, 20760), (91, 20769), (94, 20823), (97, 20862), (99, 20886), (101, 20907), (104, 20940), (111, 21015), (113, 21066), (115, 21075), (122, 21135), (126, 21195), (129, 21285), (134, 21336), (136, 21381), (143, 21519), (144, 21552), (148, 21648), (151, 21699), (160, 21792), (162, 21819), (169, 21942), (170, 21966), (181, 22119), (183, 22140), (186, 22200), (195, 22323), (200, 22368), (206, 22425), (213, 22506), (217, 22644), (218, 22656), (220, 22686), (225, 22791), (228, 22815), (244, 22986), (249, 23037), (252, 23058), (253, 23067), (257, 23130), (259, 23154), (261, 23163), (278, 23445), (281, 23553), (284, 23583), (286, 23649), (287, 23667), (288, 23688), (289, 23700), (290, 23706), (292, 23751), (293, 23760), (294, 23793), (296, 23814),

Gene: Nonagon\_47 Start: 26216, Stop: 30631, Start Num: 2

Candidate Starts for Nonagon\_47:

(Start: 2 @26216 has 2 MA's), (6, 26441), (7, 26465), (12, 26687), (13, 26705), (20, 26852), (30, 27014), (32, 27062), (37, 27125), (39, 27164), (43, 27245), (47, 27344), (62, 27677), (77, 27911), (86, 28013), (89, 28058), (92, 28085), (98, 28178), (102, 28223), (105, 28256), (106, 28271), (110, 28304), (116, 28385), (120, 28418), (121, 28427), (132, 28589), (146, 28832), (150, 28940), (155, 29000), (157, 29015), (161, 29054), (184, 29375), (208, 29612), (214, 29708), (216, 29786), (234, 30026), (239, 30098), (256, 30317), (258, 30320), (263, 30374), (267, 30410), (271, 30449), (272, 30452),

Gene: Rings\_35 Start: 19030, Stop: 23739, Start Num: 8

Candidate Starts for Rings\_35:

(Start: 8 @19030 has 13 MA's), (9, 19171), (10, 19192), (23, 19465), (34, 19624), (36, 19654), (40, 19717), (43, 19786), (48, 19891), (51, 20011), (57, 20119), (61, 20209), (64, 20290), (67, 20311), (72, 20407), (74, 20437), (78, 20470), (79, 20494), (85, 20569), (89, 20617), (90, 20629), (91, 20638), (93, 20674), (94, 20692), (99, 20755), (101, 20776), (104, 20809), (111, 20884), (112, 20914), (119, 20980), (127, 21079), (129, 21151), (131, 21163), (135, 21202), (138, 21289), (143, 21364), (151, 21541), (155, 21592), (159, 21628), (163, 21676), (165, 21709), (169, 21784), (177, 21913), (183, 21982), (190, 22099), (194, 22132), (195, 22162), (196, 22165), (203, 22246), (206, 22267), (217, 22486), (220, 22528), (222, 22594), (225, 22633), (228, 22657), (238, 22759), (244, 22828), (245,

22837), (252, 22900), (253, 22909), (257, 22972), (261, 23005), (262, 23026), (264, 23035), (269, 23077), (280, 23335), (281, 23404), (284, 23434), (286, 23500), (287, 23518), (288, 23539), (289, 23551), (290, 23557), (291, 23596), (293, 23608), (294, 23641), (295, 23656), (297, 23683), (298, 23731),

Gene: SorJuana\_36 Start: 18908, Stop: 23617, Start Num: 8

Candidate Starts for SorJuana\_36:

(Start: 8 @18908 has 13 MA's), (9, 19049), (10, 19070), (23, 19343), (34, 19502), (36, 19532), (40, 19595), (43, 19664), (48, 19769), (51, 19889), (57, 19997), (61, 20087), (64, 20168), (67, 20189), (72, 20285), (74, 20315), (78, 20348), (79, 20372), (85, 20447), (89, 20495), (90, 20507), (91, 20516), (93, 20552), (94, 20570), (99, 20633), (101, 20654), (104, 20687), (111, 20762), (112, 20792), (119, 20858), (127, 20957), (129, 21029), (131, 21041), (135, 21080), (138, 21167), (143, 21242), (151, 21419), (155, 21470), (159, 21506), (163, 21554), (165, 21587), (169, 21662), (177, 21791), (183, 21860), (194, 22010), (195, 22040), (196, 22043), (203, 22124), (206, 22145), (217, 22364), (220, 22406), (222, 22472), (225, 22511), (228, 22535), (238, 22637), (244, 22706), (245, 22715), (252, 22778), (253, 22787), (257, 22850), (261, 22883), (262, 22904), (264, 22913), (269, 22955), (280, 23213), (281, 23282), (282, 23285), (284, 23312), (286, 23378), (287, 23396), (288, 23417), (289, 23429), (290, 23435), (291, 23474), (293, 23486), (294, 23519), (295, 23534), (297, 23561), (298, 23609),

Gene: Thunderclap\_36 Start: 18928, Stop: 23637, Start Num: 8

Candidate Starts for Thunderclap\_36:

(Start: 8 @18928 has 13 MA's), (9, 19069), (10, 19090), (23, 19363), (34, 19522), (36, 19552), (40, 19615), (43, 19684), (48, 19789), (50, 19900), (51, 19909), (55, 19975), (56, 19996), (57, 20017), (61, 20107), (64, 20188), (67, 20209), (72, 20305), (74, 20335), (78, 20368), (79, 20392), (85, 20467), (89, 20515), (90, 20527), (91, 20536), (93, 20572), (94, 20590), (99, 20653), (101, 20674), (104, 20707), (111, 20782), (112, 20812), (119, 20878), (127, 20977), (129, 21049), (131, 21061), (135, 21100), (138, 21187), (143, 21262), (151, 21439), (155, 21490), (159, 21526), (163, 21574), (169, 21682), (177, 21811), (183, 21880), (190, 21997), (194, 22030), (195, 22060), (196, 22063), (203, 22144), (206, 22165), (217, 22384), (220, 22426), (222, 22492), (225, 22531), (228, 22555), (238, 22657), (244, 22726), (245, 22735), (252, 22798), (253, 22807), (257, 22870), (261, 22903), (262, 22924), (264, 22933), (269, 22975), (280, 23233), (281, 23302), (284, 23332), (286, 23398), (287, 23416), (288, 23437), (289, 23449), (290, 23455), (291, 23494), (293, 23506), (294, 23539), (295, 23554), (297, 23581), (298, 23629),

Gene: WaterT\_42 Start: 21933, Stop: 25190, Start Num: 11

Candidate Starts for WaterT\_42:

(Start: 11 @21933 has 5 MA's), (18, 22038), (22, 22143), (26, 22197), (31, 22281), (38, 22368), (40, 22398), (45, 22521), (47, 22566), (49, 22608), (53, 22746), (54, 22752), (60, 22830), (65, 22980), (69, 23052), (70, 23058), (73, 23109), (76, 23139), (80, 23193), (106, 23490), (108, 23502), (110, 23520), (117, 23598), (130, 23751), (133, 23766), (137, 23838), (141, 23916), (152, 24105), (159, 24168), (165, 24234), (171, 24342), (172, 24351), (175, 24399), (178, 24435), (179, 24468), (182, 24489), (184, 24519), (185, 24540), (187, 24564), (193, 24612), (197, 24645), (201, 24687), (204, 24714), (210, 24744), (211, 24747), (212, 24762), (223, 25068), (224, 25074), (228, 25092), (229, 25107), (231, 25113), (237, 25176),

Gene: Yappy\_67 Start: 24312, Stop: 28976, Start Num: 3

Candidate Starts for Yappy\_67:

(Start: 3 @24312 has 1 MA's), (4, 24405), (5, 24435), (15, 24780), (21, 24912), (23, 24981), (24, 24990), (25, 25002), (27, 25032), (28, 25044), (29, 25047), (35, 25149), (36, 25170), (37, 25182), (38, 25203), (40, 25233), (43, 25302), (47, 25401), (49, 25443), (52, 25560), (57, 25635), (66, 25812), (68, 25827), (82, 26040), (83, 26061), (89, 26124), (91, 26145), (96, 26229), (100, 26265), (103, 26286), (107, 26334), (114, 26445), (118, 26475), (134, 26703), (139, 26820), (140, 26850), (145, 26943),

(149, 27039), (153, 27102), (154, 27108), (166, 27258), (173, 27375), (174, 27399), (180, 27495), (189, 27621), (191, 27642), (192, 27654), (198, 27744), (202, 27786), (207, 27816), (209, 27828), (214, 27921), (215, 27954), (218, 28053), (219, 28080), (221, 28086), (226, 28200), (230, 28236), (232, 28245), (233, 28254), (236, 28275), (240, 28344), (242, 28374), (243, 28392), (248, 28425), (255, 28536), (265, 28608), (274, 28731), (275, 28737), (277, 28794), (279, 28869),

Gene: Yeezus\_35 Start: 18898, Stop: 23607, Start Num: 8

Candidate Starts for Yeezus\_35:

(Start: 8 @18898 has 13 MA's), (9, 19039), (10, 19060), (23, 19333), (34, 19492), (36, 19522), (40, 19585), (43, 19654), (48, 19759), (51, 19879), (57, 19987), (61, 20077), (64, 20158), (67, 20179), (72, 20275), (74, 20305), (78, 20338), (79, 20362), (85, 20437), (89, 20485), (90, 20497), (91, 20506), (93, 20542), (94, 20560), (99, 20623), (101, 20644), (104, 20677), (111, 20752), (112, 20782), (119, 20848), (127, 20947), (129, 21019), (131, 21031), (135, 21070), (138, 21157), (143, 21232), (151, 21409), (155, 21460), (159, 21496), (163, 21544), (169, 21652), (177, 21781), (183, 21850), (190, 21967), (194, 22000), (195, 22030), (196, 22033), (203, 22114), (206, 22135), (217, 22354), (220, 22396), (222, 22462), (225, 22501), (228, 22525), (238, 22627), (244, 22696), (245, 22705), (252, 22768), (253, 22777), (257, 22840), (261, 22873), (262, 22894), (264, 22903), (269, 22945), (280, 23203), (281, 23272), (283, 23284), (284, 23302), (285, 23344), (286, 23368), (287, 23386), (288, 23407), (289, 23419), (291, 23464), (293, 23476), (294, 23509), (295, 23524), (297, 23551), (298, 23599),