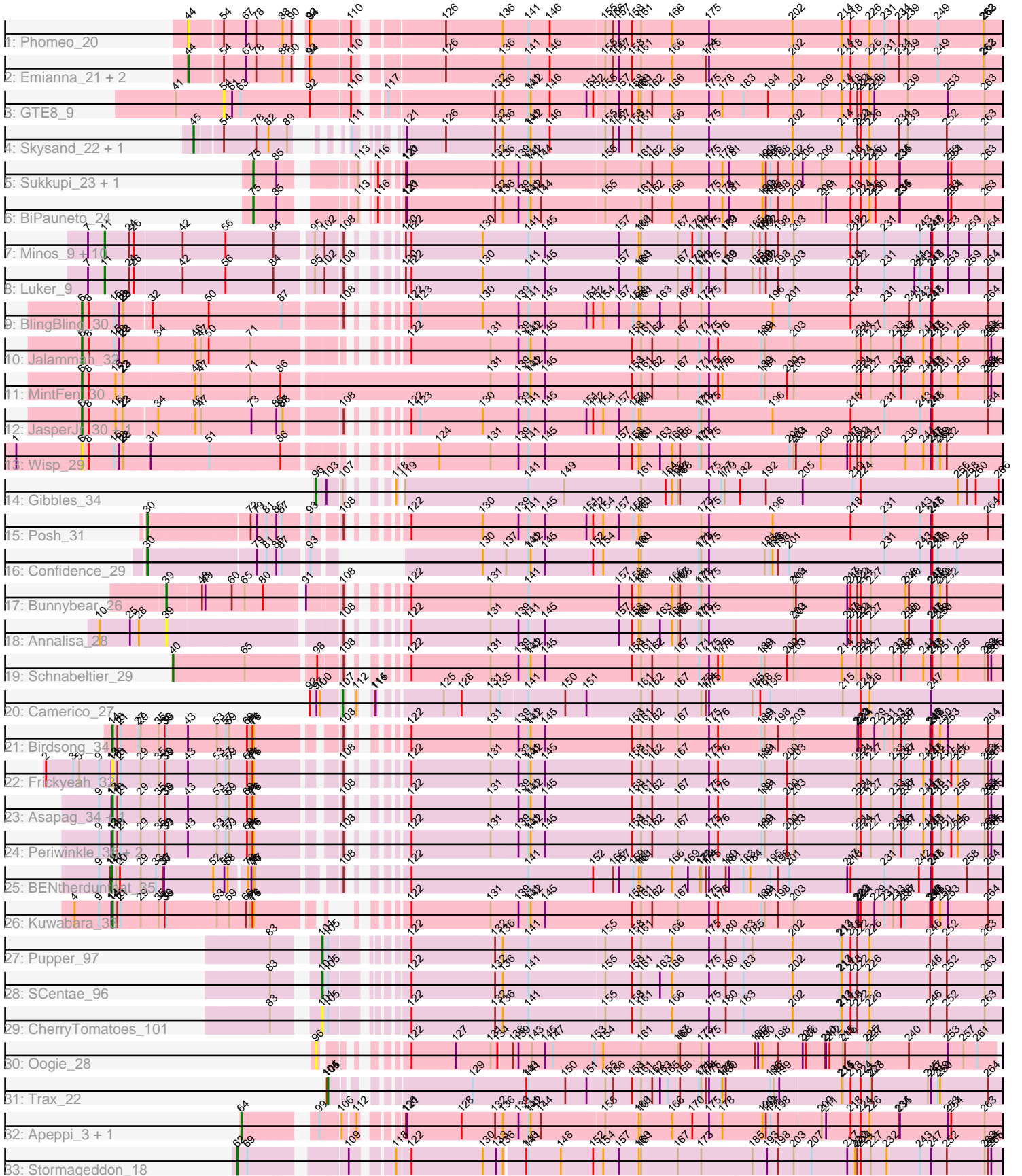


Pham 163659



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 163659 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163659 has 52 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Phomeo\_20
- Track 2 : Emianna\_21, Kurt\_21, KidneyBean\_21
- Track 3 : GTE8\_9
- Track 4 : Skysand\_22, Float294\_22
- Track 5 : Sukkupi\_23, Yndexa\_23
- Track 6 : BiPauneto\_24
- Track 7 : Minos\_9, Guillaume\_9, Sticker17\_9, GalacticEye\_9, MrWormie\_9, Nimi13\_9, Charianelly\_9, Damp\_9, Newt\_9, Jormungandr\_9, Teal\_9
- Track 8 : Luker\_9
- Track 9 : BlingBling\_30
- Track 10 : Jalammah\_32
- Track 11 : MintFen\_30
- Track 12 : JasperJr\_30, Guacamole\_30
- Track 13 : Wisp\_29
- Track 14 : Gibbles\_34
- Track 15 : Posh\_31
- Track 16 : Confidence\_29
- Track 17 : Bunnybear\_26
- Track 18 : Annalisa\_28
- Track 19 : Schnabeltier\_29
- Track 20 : Camerico\_27
- Track 21 : Birdsong\_34
- Track 22 : Frickyeah\_32
- Track 23 : Asapag\_34, Getalong\_35
- Track 24 : Periwinkle\_36, Leroy\_34, Horus\_34
- Track 25 : BENtherdunthat\_35
- Track 26 : Kuwabara\_33
- Track 27 : Pupper\_97
- Track 28 : SCentae\_96
- Track 29 : CherryTomatoes\_101
- Track 30 : Oogie\_28
- Track 31 : Trax\_22
- Track 32 : Apeppi\_3, LuckyLeo\_3
- Track 33 : Stormageddon\_18

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

The start number called the most often in the published annotations is 11, it was called in 10 of the 42 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Charianelly\_9, Damp\_9, GalacticEye\_9, Guillaume\_9, Jormungandr\_9, Luker\_9, Minos\_9, MrWormie\_9, Newt\_9, Nimi13\_9, Sticker17\_9, Teal\_9,

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

- 

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

- Annalisa\_28, Apeppi\_3, Asapag\_34, BENTherdunthat\_35, BiPauneto\_24, Birdsong\_34, BlingBling\_30, Bunnybear\_26, Camerico\_27, CherryTomatoes\_101, Confidence\_29, Emianna\_21, Float294\_22, Frickyeah\_32, GTE8\_9, Getalong\_35, Gibbles\_34, Guacamole\_30, Horus\_34, Jalammah\_32, JasperJr\_30, KidneyBean\_21, Kurt\_21, Kuwabara\_33, Leroy\_34, LuckyLeo\_3, MintFen\_30, Oogie\_28, Periwinkle\_36, Phomeo\_20, Posh\_31, Pupper\_97, SCentae\_96, Schnabeltier\_29, Skysand\_22, Stormageddon\_18, Sukkupi\_23, Trax\_22, Wisp\_29, Yndexa\_23,

## **Summary by start number:**

Start 6:

- Found in 6 of 52 ( 11.5% ) of genes in pham
- Manual Annotations of this start: 5 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlingBling\_30 (CV), Guacamole\_30 (CV), Jalammah\_32 (CV), JasperJr\_30 (CV), MintFen\_30 (CV), Wisp\_29 (CV),

Start 11:

- Found in 12 of 52 ( 23.1% ) of genes in pham
- Manual Annotations of this start: 10 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Charianelly\_9 (CS3), Damp\_9 (CS3), GalacticEye\_9 (CS3), Guillaume\_9 (CS3), Jormungandr\_9 (CS3), Luker\_9 (CS3), Minos\_9 (CS3), MrWormie\_9 (CS3), Newt\_9 (CS3), Nimi13\_9 (CS3), Sticker17\_9 (CS3), Teal\_9 (CS3),

Start 13:

- Found in 8 of 52 ( 15.4% ) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 12.5% of time when present
- Phage (with cluster) where this start called: BENTherdunthat\_35 (DN1),

Start 14:

- Found in 8 of 52 ( 15.4% ) of genes in pham
- Manual Annotations of this start: 7 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Asapag\_34 (DN1), Birdsong\_34 (DN), Frickyeah\_32 (DN1), Getalong\_35 (DN1), Horus\_34 (DN1), Kuwabara\_33 (DN4),

Leroy\_34 (DN1), Periwinkle\_36 (DN1),

Start 30:

- Found in 2 of 52 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 2 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Confidence\_29 (CY1), Posh\_31 (CY),

Start 39:

- Found in 10 of 52 ( 19.2% ) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Annalisa\_28 (CZ4), Bunnybear\_26 (CZ),

Start 40:

- Found in 1 of 52 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Schnabeltier\_29 (DB),

Start 44:

- Found in 4 of 52 ( 7.7% ) of genes in pham
- Manual Annotations of this start: 3 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Emianna\_21 (CR2), KidneyBean\_21 (CR2), Kurt\_21 (CR2), Phomeo\_20 (CR2),

Start 45:

- Found in 2 of 52 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 2 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Float294\_22 (CR3), Skysand\_22 (CR3),

Start 54:

- Found in 7 of 52 ( 13.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 14.3% of time when present
- Phage (with cluster) where this start called: GTE8\_9 (CR2),

Start 62:

- Found in 1 of 52 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Stormageddon\_18 (DX),

Start 64:

- Found in 2 of 52 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Apeppi\_3 (DV), LuckyLeo\_3 (DV),

Start 75:

- Found in 3 of 52 ( 5.8% ) of genes in pham

- Manual Annotations of this start: 3 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BiPauneto\_24 (CR4), Sukkupi\_23 (CR4), Yndexa\_23 (CR4),

Start 96:

- Found in 2 of 52 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gibbles\_34 (CX), Oogie\_28 (DQ),

Start 101:

- Found in 3 of 52 ( 5.8% ) of genes in pham
- Manual Annotations of this start: 2 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CherryTomatoes\_101 (DO), Pupper\_97 (DO), SCentae\_96 (DO),

Start 105:

- Found in 4 of 52 ( 7.7% ) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Trax\_22 (DU2),

Start 107:

- Found in 2 of 52 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Camerico\_27 (DF),

### **Summary by clusters:**

There are 20 clusters represented in this pham: DN, DO, CY1, DN4, CR4, CR3, DF, DB, CR2, CZ4, CZ, CY, CX, DN1, DX, DV, DU2, CV, CS3, DQ,

Info for manual annotations of cluster CR2:

- Start number 44 was manually annotated 3 times for cluster CR2.

Info for manual annotations of cluster CR3:

- Start number 45 was manually annotated 2 times for cluster CR3.

Info for manual annotations of cluster CR4:

- Start number 75 was manually annotated 3 times for cluster CR4.

Info for manual annotations of cluster CS3:

- Start number 11 was manually annotated 10 times for cluster CS3.

Info for manual annotations of cluster CV:

- Start number 6 was manually annotated 5 times for cluster CV.

Info for manual annotations of cluster CX:

- Start number 96 was manually annotated 1 time for cluster CX.

Info for manual annotations of cluster CY:

- Start number 30 was manually annotated 1 time for cluster CY.

Info for manual annotations of cluster CY1:

- Start number 30 was manually annotated 1 time for cluster CY1.

Info for manual annotations of cluster CZ:

- Start number 39 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster DB:

- Start number 40 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DF:

- Start number 107 was manually annotated 1 time for cluster DF.

Info for manual annotations of cluster DN:

- Start number 14 was manually annotated 1 time for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 13 was manually annotated 1 time for cluster DN1.
- Start number 14 was manually annotated 5 times for cluster DN1.

Info for manual annotations of cluster DN4:

- Start number 14 was manually annotated 1 time for cluster DN4.

Info for manual annotations of cluster DO:

- Start number 101 was manually annotated 2 times for cluster DO.

Info for manual annotations of cluster DU2:

- Start number 105 was manually annotated 1 time for cluster DU2.

Info for manual annotations of cluster DV:

- Start number 64 was manually annotated 1 time for cluster DV.

Info for manual annotations of cluster DX:

- Start number 62 was manually annotated 1 time for cluster DX.

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

Gene: Annalisa\_28 Start: 23307, Stop: 25346, Start Num: 39

Candidate Starts for Annalisa\_28:

(10, 23130), (25, 23211), (28, 23235), (Start: 39 @23307 has 1 MA's), (108, 23715), (122, 23790), (131, 24003), (139, 24075), (141, 24102), (145, 24147), (157, 24345), (158, 24378), (160, 24396), (161, 24402), (163, 24453), (166, 24486), (167, 24501), (168, 24507), (171, 24558), (173, 24564), (175, 24585), (203, 24807), (204, 24813), (217, 24945), (218, 24954), (222, 24972), (224, 24981), (227, 25008), (238, 25098), (240, 25107), (247, 25161), (248, 25164), (249, 25179), (250, 25185),

Gene: Apeppi\_3 Start: 3182, Stop: 5059, Start Num: 64

Candidate Starts for Apeppi\_3:

(Start: 64 @3182 has 1 MA's), (99, 3338), (106, 3389), (112, 3419), (120, 3488), (121, 3491), (128, 3638), (132, 3725), (136, 3746), (139, 3788), (141, 3815), (142, 3821), (144, 3848), (155, 4016), (160, 4103), (161, 4109), (166, 4193), (170, 4247), (175, 4292), (178, 4328), (190, 4436), (192, 4445), (195, 4457), (198, 4478), (209, 4589), (211, 4601), (218, 4667), (224, 4694), (226, 4718), (234, 4796), (235, 4799), (253, 4922), (254, 4931), (263, 5015),

Gene: Asapag\_34 Start: 26338, Stop: 28506, Start Num: 14

Candidate Starts for Asapag\_34:

(9, 26305), (Start: 13 @26335 has 1 MA's), (Start: 14 @26338 has 7 MA's), (18, 26350), (21, 26359), (29, 26410), (35, 26449), (38, 26467), (Start: 39 @26470 has 1 MA's), (43, 26527), (53, 26602), (57, 26626), (59, 26635), (68, 26677), (71, 26686), (74, 26692), (76, 26695), (108, 26875), (122, 26950), (131, 27163), (139, 27235), (141, 27262), (142, 27268), (145, 27307), (158, 27538), (161, 27562), (162, 27592), (167, 27661), (175, 27745), (176, 27766), (189, 27880), (191, 27889), (200, 27949), (203, 27967), (221, 28129), (224, 28141), (227, 28168), (233, 28228), (236, 28246), (237, 28255), (244, 28300), (247, 28321), (248, 28324), (251, 28348), (256, 28393), (263, 28459), (264, 28468), (265, 28477),

Gene: BENtherdunthat\_35 Start: 25903, Stop: 28089, Start Num: 13

Candidate Starts for BENtherdunthat\_35:

(9, 25870), (12, 25900), (Start: 13 @25903 has 1 MA's), (17, 25915), (20, 25924), (29, 25975), (33, 26014), (36, 26032), (37, 26035), (52, 26167), (55, 26191), (58, 26200), (70, 26242), (73, 26251), (76, 26257), (77, 26260), (108, 26440), (122, 26515), (141, 26827), (152, 27001), (156, 27055), (157, 27070), (159, 27106), (160, 27121), (161, 27127), (166, 27211), (169, 27253), (172, 27286), (173, 27289), (174, 27301), (175, 27310), (180, 27355), (181, 27364), (183, 27400), (184, 27418), (195, 27472), (198, 27493), (201, 27523), (217, 27679), (218, 27688), (231, 27778), (242, 27871), (247, 27904), (248, 27907), (258, 27997), (264, 28051),

Gene: BiPauneto\_24 Start: 9593, Stop: 11410, Start Num: 75

Candidate Starts for BiPauneto\_24:

(Start: 75 @9593 has 3 MA's), (85, 9644), (113, 9785), (116, 9800), (120, 9839), (121, 9842), (132, 10076), (136, 10097), (139, 10139), (141, 10166), (142, 10172), (144, 10199), (155, 10367), (161, 10460), (162, 10490), (166, 10544), (175, 10643), (178, 10679), (181, 10697), (190, 10787), (192, 10796), (195, 10808), (198, 10829), (202, 10868), (209, 10940), (211, 10952), (218, 11018), (224, 11045), (226, 11069), (230, 11084), (234, 11147), (235, 11150), (253, 11273), (254, 11282), (263, 11366),

Gene: Birdsong\_34 Start: 26020, Stop: 28188, Start Num: 14

Candidate Starts for Birdsong\_34:

(Start: 14 @26020 has 7 MA's), (18, 26032), (21, 26041), (27, 26086), (29, 26092), (35, 26131), (38, 26149), (Start: 39 @26152 has 1 MA's), (43, 26209), (53, 26284), (57, 26308), (59, 26317), (68, 26359), (71, 26368), (74, 26374), (76, 26377), (108, 26557), (122, 26632), (131, 26845), (139, 26917), (141, 26944), (142, 26950), (145, 26989), (158, 27220), (161, 27244), (162, 27274), (167, 27343), (175, 27427), (176, 27448), (189, 27562), (191, 27571), (198, 27607), (203, 27649), (222, 27814), (223, 27817), (224, 27823), (229, 27859), (231, 27886), (233, 27910), (236, 27928), (237, 27937), (246, 28000), (247, 28003), (248, 28006), (250, 28027), (253, 28048), (264, 28150),

Gene: BlingBling\_30 Start: 25273, Stop: 27564, Start Num: 6

Candidate Starts for BlingBling\_30:

(Start: 6 @25273 has 5 MA's), (8, 25291), (15, 25360), (19, 25372), (22, 25381), (23, 25384), (32, 25450), (50, 25597), (87, 25780), (108, 25915), (122, 25990), (123, 26014), (130, 26182), (139, 26275), (141, 26302), (145, 26347), (151, 26458), (152, 26476), (154, 26503), (157, 26545), (159, 26581), (160, 26596), (161, 26602), (163, 26653), (168, 26707), (173, 26764), (175, 26785), (196, 26953), (201, 26998), (218, 27163), (231, 27253), (240, 27319), (243, 27349), (247, 27379), (248,

27382), (264, 27526),

Gene: Bunnybear\_26 Start: 24720, Stop: 26759, Start Num: 39

Candidate Starts for Bunnybear\_26:

(Start: 39 @24720 has 1 MA's), (48, 24801), (49, 24810), (60, 24879), (65, 24912), (80, 24957), (91, 25047), (108, 25128), (122, 25203), (131, 25416), (141, 25515), (157, 25758), (158, 25791), (160, 25809), (161, 25815), (166, 25899), (167, 25914), (168, 25920), (171, 25971), (173, 25977), (175, 25998), (203, 26220), (204, 26226), (217, 26358), (218, 26367), (222, 26385), (224, 26394), (227, 26421), (238, 26511), (240, 26520), (247, 26574), (248, 26577), (249, 26592), (250, 26598), (252, 26616),

Gene: Camerico\_27 Start: 32001, Stop: 33617, Start Num: 107

Candidate Starts for Camerico\_27:

(92, 31923), (97, 31941), (100, 31950), (Start: 107 @32001 has 1 MA's), (112, 32010), (114, 32022), (115, 32025), (125, 32160), (128, 32208), (131, 32286), (135, 32304), (141, 32376), (150, 32475), (151, 32532), (161, 32676), (162, 32706), (167, 32775), (173, 32838), (174, 32850), (175, 32859), (185, 32970), (188, 32991), (195, 33018), (215, 33207), (224, 33255), (226, 33279), (247, 33435),

Gene: Charianelly\_9 Start: 10934, Stop: 13162, Start Num: 11

Candidate Starts for Charianelly\_9:

(7, 10889), (Start: 11 @10934 has 10 MA's), (24, 10997), (26, 11006), (42, 11129), (56, 11243), (84, 11372), (95, 11459), (102, 11483), (108, 11525), (120, 11585), (122, 11600), (130, 11792), (141, 11912), (145, 11957), (157, 12155), (160, 12206), (161, 12212), (167, 12311), (170, 12350), (171, 12368), (173, 12374), (175, 12395), (179, 12434), (180, 12437), (185, 12506), (188, 12527), (189, 12530), (192, 12542), (198, 12575), (203, 12617), (218, 12764), (222, 12782), (231, 12854), (243, 12947), (247, 12977), (248, 12980), (253, 13022), (259, 13076), (264, 13124),

Gene: CherryTomatoes\_101 Start: 48896, Stop: 50605, Start Num: 101

Candidate Starts for CherryTomatoes\_101:

(83, 48803), (Start: 101 @48896 has 2 MA's), (Start: 105 @48911 has 1 MA's), (122, 49052), (132, 49274), (136, 49292), (141, 49361), (155, 49562), (158, 49631), (161, 49655), (166, 49739), (175, 49838), (180, 49883), (183, 49931), (202, 50063), (213, 50186), (214, 50189), (218, 50213), (222, 50231), (226, 50264), (246, 50420), (252, 50465), (263, 50561),

Gene: Confidence\_29 Start: 24635, Stop: 26650, Start Num: 30

Candidate Starts for Confidence\_29:

(Start: 30 @24635 has 2 MA's), (79, 24896), (81, 24923), (85, 24944), (87, 24950), (93, 25007), (130, 25268), (137, 25328), (141, 25388), (142, 25394), (145, 25433), (152, 25562), (154, 25589), (160, 25682), (161, 25688), (171, 25844), (173, 25850), (175, 25871), (191, 26018), (195, 26033), (196, 26039), (198, 26054), (201, 26084), (231, 26339), (243, 26435), (247, 26465), (248, 26468), (249, 26483), (255, 26534),

Gene: Damp\_9 Start: 10098, Stop: 12326, Start Num: 11

Candidate Starts for Damp\_9:

(7, 10053), (Start: 11 @10098 has 10 MA's), (24, 10161), (26, 10170), (42, 10293), (56, 10407), (84, 10536), (95, 10623), (102, 10647), (108, 10689), (120, 10749), (122, 10764), (130, 10956), (141, 11076), (145, 11121), (157, 11319), (160, 11370), (161, 11376), (167, 11475), (170, 11514), (171, 11532), (173, 11538), (175, 11559), (179, 11598), (180, 11601), (185, 11670), (188, 11691), (189, 11694), (192, 11706), (198, 11739), (203, 11781), (218, 11928), (222, 11946), (231, 12018), (243, 12111), (247, 12141), (248, 12144), (253, 12186), (259, 12240), (264, 12288),

Gene: Emianna\_21 Start: 10466, Stop: 12502, Start Num: 44

Candidate Starts for Emianna\_21:



(Start: 44 @10466 has 3 MA's), (54, 10547), (67, 10607), (78, 10634), (88, 10697), (90, 10721), (92, 10736), (94, 10739), (110, 10838), (126, 11042), (136, 11189), (141, 11258), (146, 11315), (155, 11459), (156, 11480), (157, 11495), (158, 11528), (161, 11552), (166, 11636), (174, 11726), (175, 11735), (202, 11960), (214, 12086), (218, 12110), (226, 12161), (231, 12200), (234, 12239), (239, 12260), (249, 12338), (262, 12455), (263, 12458),

Gene: Float294\_22 Start: 10208, Stop: 12094, Start Num: 45

Candidate Starts for Float294\_22:

(Start: 45 @10208 has 2 MA's), (54, 10265), (78, 10352), (82, 10379), (89, 10427), (111, 10469), (121, 10529), (126, 10634), (132, 10763), (136, 10781), (141, 10850), (142, 10856), (146, 10907), (155, 11051), (156, 11072), (157, 11087), (158, 11120), (161, 11144), (166, 11228), (175, 11327), (202, 11552), (214, 11678), (222, 11720), (224, 11729), (226, 11753), (234, 11831), (239, 11852), (252, 11954), (263, 12050),

Gene: Frickyeah\_32 Start: 24439, Stop: 26607, Start Num: 14

Candidate Starts for Frickyeah\_32:

(2, 24265), (3, 24337), (5, 24352), (9, 24406), (Start: 13 @24436 has 1 MA's), (Start: 14 @24439 has 7 MA's), (18, 24451), (21, 24460), (29, 24511), (35, 24550), (38, 24568), (Start: 39 @24571 has 1 MA's), (43, 24628), (53, 24703), (57, 24727), (59, 24736), (68, 24778), (71, 24787), (74, 24793), (76, 24796), (108, 24976), (122, 25051), (131, 25264), (139, 25336), (141, 25363), (142, 25369), (145, 25408), (158, 25639), (161, 25663), (162, 25693), (167, 25762), (175, 25846), (176, 25867), (189, 25981), (191, 25990), (200, 26050), (203, 26068), (221, 26230), (224, 26242), (227, 26269), (233, 26329), (236, 26347), (237, 26356), (244, 26401), (247, 26422), (248, 26425), (251, 26449), (254, 26476), (256, 26494), (263, 26560), (264, 26569), (265, 26578),

Gene: GTE8\_9 Start: 3345, Stop: 5333, Start Num: 54

Candidate Starts for GTE8\_9:

(41, 3216), (54, 3345), (61, 3366), (63, 3387), (92, 3564), (110, 3666), (117, 3726), (132, 3999), (136, 4020), (141, 4089), (142, 4095), (146, 4146), (151, 4245), (152, 4263), (155, 4290), (157, 4326), (158, 4359), (160, 4377), (161, 4383), (162, 4413), (166, 4467), (175, 4566), (178, 4602), (183, 4659), (194, 4725), (202, 4791), (209, 4863), (214, 4917), (218, 4941), (222, 4959), (224, 4968), (226, 4992), (229, 5004), (239, 5091), (253, 5196), (263, 5289),

Gene: GalacticEye\_9 Start: 10923, Stop: 13151, Start Num: 11

Candidate Starts for GalacticEye\_9:

(7, 10878), (Start: 11 @10923 has 10 MA's), (24, 10986), (26, 10995), (42, 11118), (56, 11232), (84, 11361), (95, 11448), (102, 11472), (108, 11514), (120, 11574), (122, 11589), (130, 11781), (141, 11901), (145, 11946), (157, 12144), (160, 12195), (161, 12201), (167, 12300), (170, 12339), (171, 12357), (173, 12363), (175, 12384), (179, 12423), (180, 12426), (185, 12495), (188, 12516), (189, 12519), (192, 12531), (198, 12564), (203, 12606), (218, 12753), (222, 12771), (231, 12843), (243, 12936), (247, 12966), (248, 12969), (253, 13011), (259, 13065), (264, 13113),

Gene: Getalong\_35 Start: 27115, Stop: 29283, Start Num: 14

Candidate Starts for Getalong\_35:

(9, 27082), (Start: 13 @27112 has 1 MA's), (Start: 14 @27115 has 7 MA's), (18, 27127), (21, 27136), (29, 27187), (35, 27226), (38, 27244), (Start: 39 @27247 has 1 MA's), (43, 27304), (53, 27379), (57, 27403), (59, 27412), (68, 27454), (71, 27463), (74, 27469), (76, 27472), (108, 27652), (122, 27727), (131, 27940), (139, 28012), (141, 28039), (142, 28045), (145, 28084), (158, 28315), (161, 28339), (162, 28369), (167, 28438), (175, 28522), (176, 28543), (189, 28657), (191, 28666), (200, 28726), (203, 28744), (221, 28906), (224, 28918), (227, 28945), (233, 29005), (236, 29023), (237, 29032), (244, 29077), (247, 29098), (248, 29101), (251, 29125), (256, 29170), (263, 29236), (264, 29245), (265, 29254),

Gene: Gibbles\_34 Start: 37129, Stop: 38808, Start Num: 96

Candidate Starts for Gibbles\_34:

(Start: 96 @37129 has 1 MA's), (103, 37150), (Start: 107 @37183 has 1 MA's), (118, 37228), (119, 37234), (141, 37564), (149, 37660), (161, 37864), (164, 37930), (166, 37948), (167, 37963), (168, 37969), (175, 38047), (177, 38077), (179, 38086), (182, 38125), (192, 38194), (205, 38287), (219, 38422), (224, 38443), (256, 38695), (258, 38716), (260, 38740), (266, 38797),

Gene: Guacamole\_30 Start: 25271, Stop: 27562, Start Num: 6

Candidate Starts for Guacamole\_30:

(Start: 6 @25271 has 5 MA's), (8, 25289), (16, 25361), (22, 25379), (23, 25382), (34, 25463), (46, 25559), (47, 25574), (73, 25703), (85, 25766), (87, 25778), (88, 25781), (108, 25913), (122, 25988), (123, 26012), (130, 26180), (139, 26273), (141, 26300), (145, 26345), (151, 26456), (152, 26474), (154, 26501), (157, 26543), (159, 26579), (160, 26594), (161, 26600), (171, 26756), (173, 26762), (175, 26783), (196, 26951), (218, 27161), (231, 27251), (243, 27347), (247, 27377), (248, 27380), (264, 27524),

Gene: Guillaume\_9 Start: 10934, Stop: 13183, Start Num: 11

Candidate Starts for Guillaume\_9:

(7, 10889), (Start: 11 @10934 has 10 MA's), (24, 10997), (26, 11006), (42, 11129), (56, 11243), (84, 11372), (95, 11480), (102, 11504), (108, 11546), (120, 11606), (122, 11621), (130, 11813), (141, 11933), (145, 11978), (157, 12176), (160, 12227), (161, 12233), (167, 12332), (170, 12371), (171, 12389), (173, 12395), (175, 12416), (179, 12455), (180, 12458), (185, 12527), (188, 12548), (189, 12551), (192, 12563), (198, 12596), (203, 12638), (218, 12785), (222, 12803), (231, 12875), (243, 12968), (247, 12998), (248, 13001), (253, 13043), (259, 13097), (264, 13145),

Gene: Horus\_34 Start: 26360, Stop: 28528, Start Num: 14

Candidate Starts for Horus\_34:

(9, 26327), (Start: 13 @26357 has 1 MA's), (Start: 14 @26360 has 7 MA's), (18, 26372), (21, 26381), (29, 26432), (35, 26471), (38, 26489), (Start: 39 @26492 has 1 MA's), (43, 26549), (53, 26624), (57, 26648), (59, 26657), (68, 26699), (71, 26708), (74, 26714), (76, 26717), (108, 26897), (122, 26972), (131, 27185), (139, 27257), (141, 27284), (142, 27290), (145, 27329), (158, 27560), (161, 27584), (162, 27614), (167, 27683), (175, 27767), (176, 27788), (189, 27902), (191, 27911), (200, 27971), (203, 27989), (221, 28151), (224, 28163), (227, 28190), (233, 28250), (236, 28268), (237, 28277), (244, 28322), (247, 28343), (248, 28346), (251, 28370), (254, 28397), (256, 28415), (263, 28481), (264, 28490), (265, 28499),

Gene: Jalammah\_32 Start: 26022, Stop: 28295, Start Num: 6

Candidate Starts for Jalammah\_32:

(Start: 6 @26022 has 5 MA's), (8, 26040), (15, 26109), (19, 26121), (22, 26130), (23, 26133), (34, 26214), (46, 26310), (47, 26325), (50, 26346), (71, 26454), (122, 26739), (131, 26952), (139, 27024), (141, 27051), (142, 27057), (145, 27096), (158, 27327), (161, 27351), (162, 27381), (167, 27450), (171, 27507), (175, 27534), (176, 27555), (189, 27669), (191, 27678), (203, 27756), (221, 27918), (224, 27930), (227, 27957), (233, 28017), (236, 28035), (237, 28044), (244, 28089), (247, 28110), (248, 28113), (251, 28137), (256, 28182), (263, 28248), (264, 28257), (265, 28266),

Gene: JasperJr\_30 Start: 25271, Stop: 27562, Start Num: 6

Candidate Starts for JasperJr\_30:

(Start: 6 @25271 has 5 MA's), (8, 25289), (16, 25361), (22, 25379), (23, 25382), (34, 25463), (46, 25559), (47, 25574), (73, 25703), (85, 25766), (87, 25778), (88, 25781), (108, 25913), (122, 25988), (123, 26012), (130, 26180), (139, 26273), (141, 26300), (145, 26345), (151, 26456), (152, 26474), (154, 26501), (157, 26543), (159, 26579), (160, 26594), (161, 26600), (171, 26756), (173, 26762), (175, 26783), (196, 26951), (218, 27161), (231, 27251), (243, 27347), (247, 27377), (248, 27380), (264, 27524),

Gene: Jormungandr\_9 Start: 10937, Stop: 13165, Start Num: 11

Candidate Starts for Jormungandr\_9:

(7, 10892), (Start: 11 @10937 has 10 MA's), (24, 11000), (26, 11009), (42, 11132), (56, 11246), (84, 11375), (95, 11462), (102, 11486), (108, 11528), (120, 11588), (122, 11603), (130, 11795), (141, 11915), (145, 11960), (157, 12158), (160, 12209), (161, 12215), (167, 12314), (170, 12353), (171, 12371), (173, 12377), (175, 12398), (179, 12437), (180, 12440), (185, 12509), (188, 12530), (189, 12533), (192, 12545), (198, 12578), (203, 12620), (218, 12767), (222, 12785), (231, 12857), (243, 12950), (247, 12980), (248, 12983), (253, 13025), (259, 13079), (264, 13127),

Gene: KidneyBean\_21 Start: 10229, Stop: 12265, Start Num: 44

Candidate Starts for KidneyBean\_21:

(Start: 44 @10229 has 3 MA's), (54, 10310), (67, 10370), (78, 10397), (88, 10460), (90, 10484), (92, 10499), (94, 10502), (110, 10601), (126, 10805), (136, 10952), (141, 11021), (146, 11078), (155, 11222), (156, 11243), (157, 11258), (158, 11291), (161, 11315), (166, 11399), (174, 11489), (175, 11498), (202, 11723), (214, 11849), (218, 11873), (226, 11924), (231, 11963), (234, 12002), (239, 12023), (249, 12101), (262, 12218), (263, 12221),

Gene: Kurt\_21 Start: 10466, Stop: 12502, Start Num: 44

Candidate Starts for Kurt\_21:

(Start: 44 @10466 has 3 MA's), (54, 10547), (67, 10607), (78, 10634), (88, 10697), (90, 10721), (92, 10736), (94, 10739), (110, 10838), (126, 11042), (136, 11189), (141, 11258), (146, 11315), (155, 11459), (156, 11480), (157, 11495), (158, 11528), (161, 11552), (166, 11636), (174, 11726), (175, 11735), (202, 11960), (214, 12086), (218, 12110), (226, 12161), (231, 12200), (234, 12239), (239, 12260), (249, 12338), (262, 12455), (263, 12458),

Gene: Kuwabara\_33 Start: 25711, Stop: 27840, Start Num: 14

Candidate Starts for Kuwabara\_33:

(4, 25615), (9, 25678), (Start: 13 @25708 has 1 MA's), (Start: 14 @25711 has 7 MA's), (18, 25723), (21, 25732), (29, 25783), (35, 25822), (38, 25840), (Start: 39 @25843 has 1 MA's), (53, 25975), (59, 26008), (66, 26047), (71, 26059), (74, 26065), (76, 26068), (122, 26284), (131, 26497), (139, 26569), (141, 26596), (142, 26602), (145, 26641), (158, 26872), (161, 26896), (162, 26926), (167, 26995), (175, 27079), (176, 27100), (189, 27214), (191, 27223), (198, 27259), (203, 27301), (222, 27466), (223, 27469), (224, 27475), (229, 27511), (231, 27538), (233, 27562), (236, 27580), (237, 27589), (246, 27652), (247, 27655), (248, 27658), (250, 27679), (253, 27700), (264, 27802),

Gene: Leroy\_34 Start: 26361, Stop: 28529, Start Num: 14

Candidate Starts for Leroy\_34:

(9, 26328), (Start: 13 @26358 has 1 MA's), (Start: 14 @26361 has 7 MA's), (18, 26373), (21, 26382), (29, 26433), (35, 26472), (38, 26490), (Start: 39 @26493 has 1 MA's), (43, 26550), (53, 26625), (57, 26649), (59, 26658), (68, 26700), (71, 26709), (74, 26715), (76, 26718), (108, 26898), (122, 26973), (131, 27186), (139, 27258), (141, 27285), (142, 27291), (145, 27330), (158, 27561), (161, 27585), (162, 27615), (167, 27684), (175, 27768), (176, 27789), (189, 27903), (191, 27912), (200, 27972), (203, 27990), (221, 28152), (224, 28164), (227, 28191), (233, 28251), (236, 28269), (237, 28278), (244, 28323), (247, 28344), (248, 28347), (251, 28371), (254, 28398), (256, 28416), (263, 28482), (264, 28491), (265, 28500),

Gene: LuckyLeo\_3 Start: 3182, Stop: 5059, Start Num: 64

Candidate Starts for LuckyLeo\_3:

(Start: 64 @3182 has 1 MA's), (99, 3338), (106, 3389), (112, 3419), (120, 3488), (121, 3491), (128, 3638), (132, 3725), (136, 3746), (139, 3788), (141, 3815), (142, 3821), (144, 3848), (155, 4016), (160, 4103), (161, 4109), (166, 4193), (170, 4247), (175, 4292), (178, 4328), (190, 4436), (192, 4445), (195, 4457), (198, 4478), (209, 4589), (211, 4601), (218, 4667), (224, 4694), (226, 4718), (234, 4796), (235,

4799), (253, 4922), (254, 4931), (263, 5015),

Gene: Luker\_9 Start: 10917, Stop: 13145, Start Num: 11

Candidate Starts for Luker\_9:

(7, 10872), (Start: 11 @10917 has 10 MA's), (24, 10980), (26, 10989), (42, 11112), (56, 11226), (84, 11355), (95, 11442), (102, 11466), (108, 11508), (120, 11568), (122, 11583), (130, 11775), (141, 11895), (145, 11940), (157, 12138), (160, 12189), (161, 12195), (167, 12294), (170, 12333), (171, 12351), (173, 12357), (175, 12378), (179, 12417), (180, 12420), (185, 12489), (188, 12510), (189, 12513), (192, 12525), (198, 12558), (203, 12600), (218, 12747), (222, 12765), (231, 12837), (241, 12915), (243, 12930), (247, 12960), (248, 12963), (253, 13005), (259, 13059), (264, 13107),

Gene: Minos\_9 Start: 10923, Stop: 13151, Start Num: 11

Candidate Starts for Minos\_9:

(7, 10878), (Start: 11 @10923 has 10 MA's), (24, 10986), (26, 10995), (42, 11118), (56, 11232), (84, 11361), (95, 11448), (102, 11472), (108, 11514), (120, 11574), (122, 11589), (130, 11781), (141, 11901), (145, 11946), (157, 12144), (160, 12195), (161, 12201), (167, 12300), (170, 12339), (171, 12357), (173, 12363), (175, 12384), (179, 12423), (180, 12426), (185, 12495), (188, 12516), (189, 12519), (192, 12531), (198, 12564), (203, 12606), (218, 12753), (222, 12771), (231, 12843), (243, 12936), (247, 12966), (248, 12969), (253, 13011), (259, 13065), (264, 13113),

Gene: MintFen\_30 Start: 25225, Stop: 27615, Start Num: 6

Candidate Starts for MintFen\_30:

(Start: 6 @25225 has 5 MA's), (8, 25243), (16, 25315), (22, 25333), (23, 25336), (46, 25513), (47, 25528), (71, 25657), (86, 25732), (131, 26272), (139, 26344), (141, 26371), (142, 26377), (145, 26416), (158, 26647), (161, 26671), (162, 26701), (167, 26770), (171, 26827), (175, 26854), (176, 26875), (178, 26887), (189, 26989), (191, 26998), (200, 27058), (203, 27076), (221, 27238), (224, 27250), (227, 27277), (233, 27337), (236, 27355), (237, 27364), (244, 27409), (247, 27430), (248, 27433), (251, 27457), (256, 27502), (263, 27568), (264, 27577), (265, 27586),

Gene: MrWormie\_9 Start: 10087, Stop: 12315, Start Num: 11

Candidate Starts for MrWormie\_9:

(7, 10042), (Start: 11 @10087 has 10 MA's), (24, 10150), (26, 10159), (42, 10282), (56, 10396), (84, 10525), (95, 10612), (102, 10636), (108, 10678), (120, 10738), (122, 10753), (130, 10945), (141, 11065), (145, 11110), (157, 11308), (160, 11359), (161, 11365), (167, 11464), (170, 11503), (171, 11521), (173, 11527), (175, 11548), (179, 11587), (180, 11590), (185, 11659), (188, 11680), (189, 11683), (192, 11695), (198, 11728), (203, 11770), (218, 11917), (222, 11935), (231, 12007), (243, 12100), (247, 12130), (248, 12133), (253, 12175), (259, 12229), (264, 12277),

Gene: Newt\_9 Start: 10934, Stop: 13162, Start Num: 11

Candidate Starts for Newt\_9:

(7, 10889), (Start: 11 @10934 has 10 MA's), (24, 10997), (26, 11006), (42, 11129), (56, 11243), (84, 11372), (95, 11459), (102, 11483), (108, 11525), (120, 11585), (122, 11600), (130, 11792), (141, 11912), (145, 11957), (157, 12155), (160, 12206), (161, 12212), (167, 12311), (170, 12350), (171, 12368), (173, 12374), (175, 12395), (179, 12434), (180, 12437), (185, 12506), (188, 12527), (189, 12530), (192, 12542), (198, 12575), (203, 12617), (218, 12764), (222, 12782), (231, 12854), (243, 12947), (247, 12977), (248, 12980), (253, 13022), (259, 13076), (264, 13124),

Gene: Nimi13\_9 Start: 10935, Stop: 13163, Start Num: 11

Candidate Starts for Nimi13\_9:

(7, 10890), (Start: 11 @10935 has 10 MA's), (24, 10998), (26, 11007), (42, 11130), (56, 11244), (84, 11373), (95, 11460), (102, 11484), (108, 11526), (120, 11586), (122, 11601), (130, 11793), (141, 11913), (145, 11958), (157, 12156), (160, 12207), (161, 12213), (167, 12312), (170, 12351), (171, 12369), (173, 12375), (175, 12396), (179, 12435), (180, 12438), (185, 12507), (188, 12528), (189,

12531), (192, 12543), (198, 12576), (203, 12618), (218, 12765), (222, 12783), (231, 12855), (243, 12948), (247, 12978), (248, 12981), (253, 13023), (259, 13077), (264, 13125),

Gene: Oogie\_28 Start: 17349, Stop: 19010, Start Num: 96

Candidate Starts for Oogie\_28:

(Start: 96 @17349 has 1 MA's), (122, 17463), (127, 17583), (131, 17676), (134, 17694), (138, 17730), (139, 17745), (143, 17781), (145, 17817), (147, 17838), (153, 17949), (154, 17973), (161, 18072), (167, 18171), (168, 18177), (173, 18234), (175, 18255), (186, 18375), (187, 18384), (190, 18396), (198, 18438), (205, 18498), (206, 18507), (210, 18558), (211, 18561), (212, 18570), (215, 18606), (216, 18612), (225, 18672), (227, 18681), (240, 18780), (253, 18882), (257, 18924), (261, 18960),

Gene: Periwinkle\_36 Start: 26805, Stop: 28973, Start Num: 14

Candidate Starts for Periwinkle\_36:

(9, 26772), (Start: 13 @26802 has 1 MA's), (Start: 14 @26805 has 7 MA's), (18, 26817), (21, 26826), (29, 26877), (35, 26916), (38, 26934), (Start: 39 @26937 has 1 MA's), (43, 26994), (53, 27069), (57, 27093), (59, 27102), (68, 27144), (71, 27153), (74, 27159), (76, 27162), (108, 27342), (122, 27417), (131, 27630), (139, 27702), (141, 27729), (142, 27735), (145, 27774), (158, 28005), (161, 28029), (162, 28059), (167, 28128), (175, 28212), (176, 28233), (189, 28347), (191, 28356), (200, 28416), (203, 28434), (221, 28596), (224, 28608), (227, 28635), (233, 28695), (236, 28713), (237, 28722), (244, 28767), (247, 28788), (248, 28791), (251, 28815), (254, 28842), (256, 28860), (263, 28926), (264, 28935), (265, 28944),

Gene: Phomeo\_20 Start: 10116, Stop: 12152, Start Num: 44

Candidate Starts for Phomeo\_20:

(Start: 44 @10116 has 3 MA's), (54, 10197), (67, 10257), (78, 10284), (88, 10347), (90, 10371), (92, 10386), (94, 10389), (110, 10488), (126, 10692), (136, 10839), (141, 10908), (146, 10965), (155, 11109), (156, 11130), (157, 11145), (158, 11178), (161, 11202), (166, 11286), (175, 11385), (202, 11610), (214, 11736), (218, 11760), (226, 11811), (231, 11850), (234, 11889), (239, 11910), (249, 11988), (262, 12105), (263, 12108),

Gene: Posh\_31 Start: 25600, Stop: 27681, Start Num: 30

Candidate Starts for Posh\_31:

(Start: 30 @25600 has 2 MA's), (72, 25846), (79, 25861), (81, 25888), (85, 25909), (87, 25915), (93, 25972), (108, 26032), (122, 26107), (130, 26299), (139, 26392), (141, 26419), (145, 26464), (151, 26575), (152, 26593), (154, 26620), (157, 26662), (159, 26698), (160, 26713), (161, 26719), (173, 26881), (175, 26902), (196, 27070), (218, 27280), (231, 27370), (243, 27466), (247, 27496), (248, 27499), (264, 27643),

Gene: Pupper\_97 Start: 49017, Stop: 50726, Start Num: 101

Candidate Starts for Pupper\_97:

(83, 48924), (Start: 101 @49017 has 2 MA's), (Start: 105 @49032 has 1 MA's), (122, 49173), (132, 49395), (136, 49413), (141, 49482), (155, 49683), (158, 49752), (161, 49776), (166, 49860), (175, 49959), (180, 50004), (183, 50052), (185, 50076), (202, 50184), (213, 50307), (214, 50310), (218, 50334), (222, 50352), (226, 50385), (246, 50541), (252, 50586), (263, 50682),

Gene: SCentae\_96 Start: 49163, Stop: 50872, Start Num: 101

Candidate Starts for SCentae\_96:

(83, 49070), (Start: 101 @49163 has 2 MA's), (Start: 105 @49178 has 1 MA's), (122, 49319), (132, 49541), (136, 49559), (141, 49628), (155, 49829), (158, 49898), (161, 49922), (163, 49973), (166, 50006), (175, 50105), (180, 50150), (183, 50198), (202, 50330), (213, 50453), (214, 50456), (218, 50480), (222, 50498), (226, 50531), (246, 50687), (252, 50732), (263, 50828),

Gene: Schnabeltier\_29 Start: 24627, Stop: 26651, Start Num: 40

Candidate Starts for Schnabeltier\_29:

(Start: 40 @24627 has 1 MA's), (65, 24804), (98, 24969), (108, 25020), (122, 25095), (131, 25308), (139, 25380), (141, 25407), (142, 25413), (145, 25452), (158, 25683), (161, 25707), (162, 25737), (167, 25806), (171, 25863), (175, 25890), (176, 25911), (178, 25923), (189, 26025), (191, 26034), (200, 26094), (203, 26112), (214, 26235), (221, 26274), (224, 26286), (227, 26313), (233, 26373), (236, 26391), (237, 26400), (244, 26445), (247, 26466), (248, 26469), (251, 26493), (256, 26538), (263, 26604), (264, 26613), (265, 26622),

Gene: Skysand\_22 Start: 10210, Stop: 12096, Start Num: 45

Candidate Starts for Skysand\_22:

(Start: 45 @10210 has 2 MA's), (54, 10267), (78, 10354), (82, 10381), (89, 10429), (111, 10471), (121, 10531), (126, 10636), (132, 10765), (136, 10783), (141, 10852), (142, 10858), (146, 10909), (155, 11053), (156, 11074), (157, 11089), (158, 11122), (161, 11146), (166, 11230), (175, 11329), (202, 11554), (214, 11680), (222, 11722), (224, 11731), (226, 11755), (234, 11833), (239, 11854), (252, 11956), (263, 12052),

Gene: Sticker17\_9 Start: 10934, Stop: 13162, Start Num: 11

Candidate Starts for Sticker17\_9:

(7, 10889), (Start: 11 @10934 has 10 MA's), (24, 10997), (26, 11006), (42, 11129), (56, 11243), (84, 11372), (95, 11459), (102, 11483), (108, 11525), (120, 11585), (122, 11600), (130, 11792), (141, 11912), (145, 11957), (157, 12155), (160, 12206), (161, 12212), (167, 12311), (170, 12350), (171, 12368), (173, 12374), (175, 12395), (179, 12434), (180, 12437), (185, 12506), (188, 12527), (189, 12530), (192, 12542), (198, 12575), (203, 12617), (218, 12764), (222, 12782), (231, 12854), (243, 12947), (247, 12977), (248, 12980), (253, 13022), (259, 13076), (264, 13124),

Gene: Stormageddon\_18 Start: 21743, Stop: 23659, Start Num: 62

Candidate Starts for Stormageddon\_18:

(Start: 62 @21743 has 1 MA's), (69, 21770), (109, 21992), (118, 22073), (122, 22106), (130, 22295), (133, 22331), (136, 22349), (140, 22400), (141, 22406), (148, 22493), (152, 22580), (154, 22607), (157, 22649), (160, 22703), (161, 22709), (167, 22808), (173, 22871), (185, 23006), (193, 23045), (198, 23075), (203, 23117), (207, 23159), (217, 23255), (220, 23276), (222, 23282), (224, 23291), (227, 23318), (232, 23360), (243, 23450), (247, 23477), (252, 23519), (263, 23615), (264, 23624), (265, 23633),

Gene: Sukkupi\_23 Start: 9484, Stop: 11301, Start Num: 75

Candidate Starts for Sukkupi\_23:

(Start: 75 @9484 has 3 MA's), (85, 9535), (113, 9676), (116, 9691), (120, 9730), (121, 9733), (132, 9967), (136, 9988), (139, 10030), (141, 10057), (142, 10063), (144, 10090), (155, 10258), (161, 10351), (162, 10381), (166, 10435), (175, 10534), (178, 10570), (181, 10588), (190, 10678), (192, 10687), (195, 10699), (198, 10720), (202, 10759), (205, 10780), (209, 10831), (218, 10909), (224, 10936), (226, 10960), (230, 10975), (234, 11038), (235, 11041), (253, 11164), (254, 11173), (263, 11257),

Gene: Teal\_9 Start: 10911, Stop: 13139, Start Num: 11

Candidate Starts for Teal\_9:

(7, 10866), (Start: 11 @10911 has 10 MA's), (24, 10974), (26, 10983), (42, 11106), (56, 11220), (84, 11349), (95, 11436), (102, 11460), (108, 11502), (120, 11562), (122, 11577), (130, 11769), (141, 11889), (145, 11934), (157, 12132), (160, 12183), (161, 12189), (167, 12288), (170, 12327), (171, 12345), (173, 12351), (175, 12372), (179, 12411), (180, 12414), (185, 12483), (188, 12504), (189, 12507), (192, 12519), (198, 12552), (203, 12594), (218, 12741), (222, 12759), (231, 12831), (243, 12924), (247, 12954), (248, 12957), (253, 12999), (259, 13053), (264, 13101),

Gene: Trax\_22 Start: 12887, Stop: 14566, Start Num: 105

Candidate Starts for Trax\_22:

(104, 12884), (Start: 105 @12887 has 1 MA's), (129, 13175), (140, 13316), (141, 13322), (150, 13421), (151, 13478), (155, 13529), (156, 13550), (158, 13598), (161, 13622), (162, 13652), (163, 13673), (165, 13694), (168, 13727), (171, 13778), (173, 13784), (174, 13796), (175, 13805), (177, 13838), (178, 13841), (180, 13850), (195, 13967), (197, 13976), (199, 13991), (214, 14153), (215, 14156), (218, 14174), (224, 14201), (227, 14228), (228, 14231), (245, 14372), (247, 14381), (249, 14399), (250, 14405), (264, 14528),

Gene: Wisp\_29 Start: 24983, Stop: 27256, Start Num: 6

Candidate Starts for Wisp\_29:

(1, 24806), (Start: 6 @24983 has 5 MA's), (8, 25001), (15, 25070), (19, 25082), (22, 25091), (23, 25094), (31, 25160), (51, 25307), (86, 25490), (124, 25775), (131, 25913), (139, 25985), (141, 26012), (145, 26057), (157, 26255), (158, 26288), (160, 26306), (161, 26312), (163, 26363), (166, 26396), (168, 26417), (171, 26468), (173, 26474), (175, 26495), (201, 26705), (203, 26717), (204, 26723), (208, 26783), (217, 26855), (218, 26864), (222, 26882), (224, 26891), (227, 26918), (238, 27008), (244, 27050), (247, 27071), (248, 27074), (249, 27089), (250, 27095), (252, 27113),

Gene: Yndexa\_23 Start: 9484, Stop: 11301, Start Num: 75

Candidate Starts for Yndexa\_23:

(Start: 75 @9484 has 3 MA's), (85, 9535), (113, 9676), (116, 9691), (120, 9730), (121, 9733), (132, 9967), (136, 9988), (139, 10030), (141, 10057), (142, 10063), (144, 10090), (155, 10258), (161, 10351), (162, 10381), (166, 10435), (175, 10534), (178, 10570), (181, 10588), (190, 10678), (192, 10687), (195, 10699), (198, 10720), (202, 10759), (205, 10780), (209, 10831), (218, 10909), (224, 10936), (226, 10960), (230, 10975), (234, 11038), (235, 11041), (253, 11164), (254, 11173), (263, 11257),