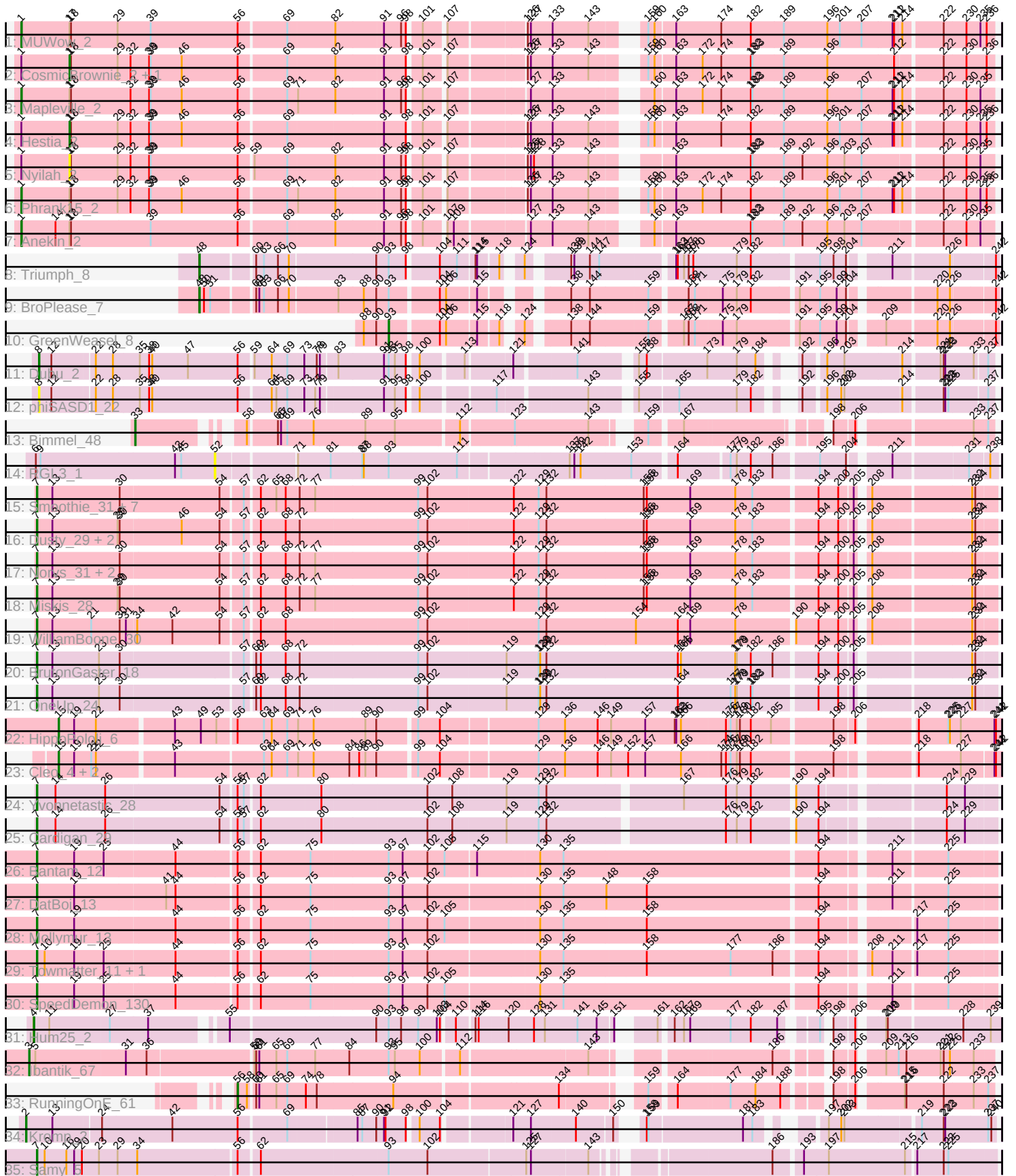




Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly 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 330945 Report

This analysis was run 09/05/26 on database version 662.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 330945 has 50 members, 5 are drafts.

Phages represented in each track:

- Track 1 : MUWow_2
- Track 2 : CosmicBrownie_2, Persistence_2
- Track 3 : Mapleville_2
- Track 4 : Hestia_2
- Track 5 : Nyilah_2
- Track 6 : Phrank15_2
- Track 7 : Anekin_2
- Track 8 : Triumph_8
- Track 9 : BroPlease_7
- Track 10 : GreenWeasel_8
- Track 11 : Dubu_2
- Track 12 : phiSASD1_22
- Track 13 : Bimmel_48
- Track 14 : RGL3_1
- Track 15 : Smoothie_31, Lozinak_30, Cucurbita_32, Engineer_31, ClubL_30, Toniann_30, Aphelion_30, PhinkBoden_30
- Track 16 : Dusty_29, Culver_30, Abscondus_29
- Track 17 : Norvs_31, Bachita_32, Geeche_29
- Track 18 : Miskis_28
- Track 19 : WilliamBoone_30
- Track 20 : BrutonGaster_18
- Track 21 : OneUp_24
- Track 22 : HippoPololi_6
- Track 23 : Cleo_4, Gibbous_4, Dre3_4
- Track 24 : Yvonnetastic_28
- Track 25 : Cardigan_29
- Track 26 : Bantam_12
- Track 27 : DatBoi_13
- Track 28 : Mollymur_13
- Track 29 : Towmatter_11, Daredevil_12
- Track 30 : SpeedDemon_130
- Track 31 : Hum25_2
- Track 32 : Ibantik_67

- Track 33 : RunningOnE_61
- Track 34 : Kromp_2
- Track 35 : Samy_5

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

The start number called the most often in the published annotations is 7, it was called in 26 of the 45 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abscondus_29, Aphelion_30, Bachita_32, Bantam_12, BrutonGaster_18, Cardigan_29, ClubL_30, Cucurbita_32, Culver_30, Daredevil_12, DatBoi_13, Dusty_29, Engineer_31, Geeche_29, Lozinak_30, Miskis_28, Mollymur_13, Norvs_31, OneUp_24, PhinkBoden_30, Samy_5, Smoothie_31, SpeedDemon_130, Toniann_30, Towmatter_11, WilliamBoone_30, Yvonnestic_28,

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

•

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

- Anekin_2, Bimmel_48, BroPlease_7, Cleo_4, CosmicBrownie_2, Dre3_4, Dubu_2, Gibbous_4, GreenWeasel_8, Hestia_2, HippoPololi_6, Hum25_2, Ibantik_67, Kromp_2, MUWow_2, Mapleville_2, Nyilah_2, Persistence_2, Phrank15_2, RGL3_1, RunningOnE_61, Triumph_8, phiSASD1_22,

Summary by start number:

Start 1:

- Found in 8 of 50 (16.0%) of genes in pham
- Manual Annotations of this start: 4 of 45
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Anekin_2 (AY), MUWow_2 (AY), Mapleville_2 (AY), Phrank15_2 (AY),

Start 2:

- Found in 1 of 50 (2.0%) of genes in pham
- Manual Annotations of this start: 1 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kromp_2 (singleton),

Start 3:

- Found in 1 of 50 (2.0%) of genes in pham
- Manual Annotations of this start: 1 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ibantik_67 (JN),

Start 4:

- Found in 1 of 50 (2.0%) of genes in pham
- Manual Annotations of this start: 1 of 45
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Hum25_2 (FQ1),

Start 7:

- Found in 27 of 50 (54.0%) of genes in pham
- Manual Annotations of this start: 26 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abscondus_29 (CQ1), Aphelion_30 (CQ1), Bachita_32 (CQ1), Bantam_12 (DL), BrutonGaster_18 (CQ2), Cardigan_29 (DD), ClubL_30 (CQ1), Cucurbita_32 (CQ1), Culver_30 (CQ1), Daredevil_12 (DL), DatBoi_13 (DL), Dusty_29 (CQ1), Engineer_31 (CQ1), Geeche_29 (CQ1), Lozinak_30 (CQ1), Miskis_28 (CQ1), Mollymur_13 (DL), Norvs_31 (CQ1), OneUp_24 (CQ2), PhinkBoden_30 (CQ1), Samy_5 (singleton), Smoothie_31 (CQ1), SpeedDemon_130 (DL), Toniann_30 (CQ1), Towmatter_11 (DL), WilliamBoone_30 (CQ1), Yvonnestic_28 (DD),

Start 8:

- Found in 2 of 50 (4.0%) of genes in pham
- Manual Annotations of this start: 1 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dubu_2 (BJ), phiSASD1_22 (BJ),

Start 15:

- Found in 4 of 50 (8.0%) of genes in pham
- Manual Annotations of this start: 4 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cleo_4 (CT), Dre3_4 (CT), Gibbous_4 (CT), HippoPololi_6 (CT),

Start 17:

- Found in 8 of 50 (16.0%) of genes in pham
- Manual Annotations of this start: 2 of 45
- Called 50.0% of time when present
- Phage (with cluster) where this start called: CosmicBrownie_2 (AY), Hestia_2 (AY), Nyilah_2 (AY), Persistence_2 (AY),

Start 33:

- Found in 1 of 50 (2.0%) of genes in pham
- Manual Annotations of this start: 1 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bimmel_48 (BT),

Start 48:

- Found in 2 of 50 (4.0%) of genes in pham
- Manual Annotations of this start: 2 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BroPlease_7 (BD4), Triumph_8 (BD2),

Start 52:

- Found in 1 of 50 (2.0%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: RGL3_1 (CA),

Start 56:

- Found in 22 of 50 (44.0%) of genes in pham
- Manual Annotations of this start: 1 of 45
- Called 4.5% of time when present
- Phage (with cluster) where this start called: RunningOnE_61 (JN),

Start 93:

- Found in 14 of 50 (28.0%) of genes in pham
- Manual Annotations of this start: 1 of 45
- Called 7.1% of time when present
- Phage (with cluster) where this start called: GreenWeasel_8 (BD4),

Summary by clusters:

There are 14 clusters represented in this pham: DL, DD, singleton, BJ, BT, BD4, JN, BD2, AY, CQ2, CQ1, FQ1, CA, CT,

Info for manual annotations of cluster AY:

- Start number 1 was manually annotated 4 times for cluster AY.
- Start number 17 was manually annotated 2 times for cluster AY.

Info for manual annotations of cluster BD2:

- Start number 48 was manually annotated 1 time for cluster BD2.

Info for manual annotations of cluster BD4:

- Start number 48 was manually annotated 1 time for cluster BD4.
- Start number 93 was manually annotated 1 time for cluster BD4.

Info for manual annotations of cluster BJ:

- Start number 8 was manually annotated 1 time for cluster BJ.

Info for manual annotations of cluster BT:

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

Info for manual annotations of cluster CQ1:

- Start number 7 was manually annotated 15 times for cluster CQ1.

Info for manual annotations of cluster CQ2:

- Start number 7 was manually annotated 2 times for cluster CQ2.

Info for manual annotations of cluster CT:

- Start number 15 was manually annotated 4 times for cluster CT.

Info for manual annotations of cluster DD:

- Start number 7 was manually annotated 2 times for cluster DD.

Info for manual annotations of cluster DL:

- Start number 7 was manually annotated 6 times for cluster DL.

Info for manual annotations of cluster FQ1:

- Start number 4 was manually annotated 1 time for cluster FQ1.

Info for manual annotations of cluster JN:

- Start number 3 was manually annotated 1 time for cluster JN.
- Start number 56 was manually annotated 1 time for cluster JN.

Gene Information:

Gene: Abscondus_29 Start: 8433, Stop: 10181, Start Num: 7

Candidate Starts for Abscondus_29:

(Start: 7 @8433 has 26 MA's), (13, 8463), (29, 8589), (30, 8592), (46, 8706), (54, 8778), (57, 8817), (62, 8841), (68, 8889), (72, 8916), (99, 9138), (102, 9156), (122, 9318), (129, 9366), (132, 9381), (156, 9564), (158, 9570), (169, 9654), (178, 9741), (183, 9774), (194, 9888), (200, 9924), (205, 9948), (208, 9963), (232, 10137), (234, 10143),

Gene: Anekin_2 Start: 597, Stop: 2330, Start Num: 1

Candidate Starts for Anekin_2:

(Start: 1 @597 has 4 MA's), (14, 663), (Start: 17 @690 has 2 MA's), (18, 693), (39, 846), (Start: 56 @1014 has 1 MA's), (69, 1101), (82, 1188), (91, 1278), (96, 1311), (98, 1320), (101, 1341), (107, 1377), (109, 1389), (127, 1518), (133, 1557), (143, 1626), (160, 1704), (163, 1740), (182, 1881), (183, 1884), (189, 1944), (192, 1980), (196, 2028), (203, 2061), (207, 2094), (222, 2235), (230, 2277), (235, 2304),

Gene: Aphelion_30 Start: 8680, Stop: 10428, Start Num: 7

Candidate Starts for Aphelion_30:

(Start: 7 @8680 has 26 MA's), (13, 8710), (30, 8839), (54, 9025), (57, 9064), (62, 9088), (65, 9118), (68, 9136), (72, 9163), (77, 9193), (99, 9385), (102, 9403), (122, 9565), (129, 9613), (132, 9628), (156, 9811), (158, 9817), (169, 9901), (178, 9988), (183, 10021), (194, 10135), (200, 10171), (205, 10195), (208, 10210), (232, 10384), (234, 10390),

Gene: Bachita_32 Start: 9113, Stop: 10861, Start Num: 7

Candidate Starts for Bachita_32:

(Start: 7 @9113 has 26 MA's), (13, 9143), (30, 9272), (54, 9458), (57, 9497), (62, 9521), (68, 9569), (72, 9596), (77, 9626), (99, 9818), (102, 9836), (122, 9998), (129, 10046), (132, 10061), (156, 10244), (158, 10250), (169, 10334), (178, 10421), (183, 10454), (194, 10568), (200, 10604), (205, 10628), (208, 10643), (232, 10817), (234, 10823),

Gene: Bantam_12 Start: 6089, Stop: 7825, Start Num: 7

Candidate Starts for Bantam_12:

(Start: 7 @6089 has 26 MA's), (19, 6161), (25, 6218), (44, 6350), (Start: 56 @6461 has 1 MA's), (62, 6497), (75, 6593), (Start: 93 @6737 has 1 MA's), (97, 6764), (102, 6812), (105, 6845), (115, 6902), (130, 7019), (135, 7064), (194, 7535), (211, 7643), (225, 7739),

Gene: Bimmel_48 Start: 25564, Stop: 26946, Start Num: 33

Candidate Starts for Bimmel_48:

(Start: 33 @25564 has 1 MA's), (58, 25717), (66, 25768), (67, 25774), (69, 25786), (76, 25837), (89, 25933), (95, 25990), (112, 26101), (123, 26194), (143, 26329), (159, 26398), (167, 26452), (198, 26686), (206, 26722), (233, 26911), (237, 26935),

Gene: BroPlease_7 Start: 2717, Stop: 4060, Start Num: 48

Candidate Starts for BroPlease_7:

(Start: 48 @2717 has 2 MA's), (50, 2726), (51, 2738), (60, 2810), (61, 2816), (63, 2825), (66, 2852), (70, 2873), (83, 2960), (88, 3008), (90, 3032), (Start: 93 @3056 has 1 MA's), (104, 3143), (106, 3155),

(115, 3209), (138, 3332), (144, 3368), (159, 3476), (168, 3539), (171, 3551), (175, 3602), (179, 3629), (182, 3656), (191, 3737), (195, 3776), (199, 3803), (204, 3821), (220, 3956), (226, 3977), (242, 4055),

Gene: BrutonGaster_18 Start: 5409, Stop: 7157, Start Num: 7

Candidate Starts for BrutonGaster_18:

(Start: 7 @5409 has 26 MA's), (13, 5439), (23, 5529), (30, 5568), (57, 5793), (60, 5808), (62, 5817), (68, 5865), (72, 5892), (99, 6114), (102, 6132), (119, 6282), (129, 6342), (130, 6345), (132, 6357), (164, 6606), (166, 6612), (178, 6717), (179, 6720), (182, 6747), (186, 6789), (194, 6864), (200, 6900), (205, 6924), (232, 7113), (234, 7119),

Gene: Cardigan_29 Start: 10698, Stop: 12416, Start Num: 7

Candidate Starts for Cardigan_29:

(Start: 7 @10698 has 26 MA's), (14, 10734), (26, 10830), (54, 11043), (Start: 56 @11070 has 1 MA's), (57, 11082), (62, 11106), (80, 11220), (102, 11415), (108, 11463), (119, 11565), (129, 11625), (132, 11640), (176, 11964), (179, 11985), (182, 12012), (190, 12087), (194, 12129), (224, 12330), (229, 12363),

Gene: Cleo_4 Start: 1285, Stop: 2979, Start Num: 15

Candidate Starts for Cleo_4:

(Start: 15 @1285 has 4 MA's), (19, 1315), (21, 1348), (22, 1357), (43, 1495), (63, 1657), (64, 1672), (69, 1702), (71, 1723), (76, 1753), (84, 1822), (86, 1840), (89, 1852), (90, 1873), (99, 1942), (104, 1984), (129, 2161), (136, 2212), (146, 2275), (149, 2299), (152, 2332), (157, 2365), (166, 2434), (174, 2509), (176, 2518), (177, 2527), (179, 2539), (180, 2545), (182, 2566), (198, 2704), (218, 2827), (227, 2908), (241, 2965), (242, 2968),

Gene: ClubL_30 Start: 8614, Stop: 10362, Start Num: 7

Candidate Starts for ClubL_30:

(Start: 7 @8614 has 26 MA's), (13, 8644), (30, 8773), (54, 8959), (57, 8998), (62, 9022), (65, 9052), (68, 9070), (72, 9097), (77, 9127), (99, 9319), (102, 9337), (122, 9499), (129, 9547), (132, 9562), (156, 9745), (158, 9751), (169, 9835), (178, 9922), (183, 9955), (194, 10069), (200, 10105), (205, 10129), (208, 10144), (232, 10318), (234, 10324),

Gene: CosmicBrownie_2 Start: 690, Stop: 2330, Start Num: 17

Candidate Starts for CosmicBrownie_2:

(Start: 1 @597 has 4 MA's), (Start: 17 @690 has 2 MA's), (18, 693), (29, 783), (32, 807), (38, 843), (39, 846), (46, 906), (Start: 56 @1014 has 1 MA's), (69, 1101), (82, 1188), (91, 1278), (98, 1320), (101, 1341), (107, 1377), (126, 1512), (127, 1518), (133, 1557), (143, 1626), (159, 1692), (160, 1704), (163, 1740), (172, 1788), (174, 1824), (182, 1881), (183, 1884), (189, 1944), (196, 2028), (212, 2154), (222, 2235), (230, 2277), (236, 2316),

Gene: Cucurbita_32 Start: 9972, Stop: 11720, Start Num: 7

Candidate Starts for Cucurbita_32:

(Start: 7 @9972 has 26 MA's), (13, 10002), (30, 10131), (54, 10317), (57, 10356), (62, 10380), (65, 10410), (68, 10428), (72, 10455), (77, 10485), (99, 10677), (102, 10695), (122, 10857), (129, 10905), (132, 10920), (156, 11103), (158, 11109), (169, 11193), (178, 11280), (183, 11313), (194, 11427), (200, 11463), (205, 11487), (208, 11502), (232, 11676), (234, 11682),

Gene: Culver_30 Start: 8433, Stop: 10181, Start Num: 7

Candidate Starts for Culver_30:

(Start: 7 @8433 has 26 MA's), (13, 8463), (29, 8589), (30, 8592), (46, 8706), (54, 8778), (57, 8817), (62, 8841), (68, 8889), (72, 8916), (99, 9138), (102, 9156), (122, 9318), (129, 9366), (132, 9381), (156, 9564), (158, 9570), (169, 9654), (178, 9741), (183, 9774), (194, 9888), (200, 9924), (205, 9948), (208, 9963), (232, 10137), (234, 10143),

Gene: Daredevil_12 Start: 5000, Stop: 6736, Start Num: 7

Candidate Starts for Daredevil_12:

(Start: 7 @5000 has 26 MA's), (10, 5015), (19, 5072), (25, 5129), (44, 5261), (Start: 56 @5372 has 1 MA's), (62, 5408), (75, 5504), (Start: 93 @5648 has 1 MA's), (97, 5675), (102, 5723), (130, 5930), (135, 5975), (158, 6128), (177, 6290), (186, 6371), (194, 6446), (208, 6518), (211, 6554), (217, 6590), (225, 6650),

Gene: DatBoi_13 Start: 6914, Stop: 8650, Start Num: 7

Candidate Starts for DatBoi_13:

(Start: 7 @6914 has 26 MA's), (19, 6986), (41, 7157), (44, 7175), (Start: 56 @7286 has 1 MA's), (62, 7322), (75, 7418), (Start: 93 @7562 has 1 MA's), (97, 7589), (102, 7637), (130, 7844), (135, 7889), (148, 7970), (158, 8042), (194, 8360), (211, 8468), (225, 8564),

Gene: Dre3_4 Start: 1229, Stop: 2923, Start Num: 15

Candidate Starts for Dre3_4:

(Start: 15 @1229 has 4 MA's), (19, 1259), (21, 1292), (22, 1301), (43, 1439), (63, 1601), (64, 1616), (69, 1646), (71, 1667), (76, 1697), (84, 1766), (86, 1784), (89, 1796), (90, 1817), (99, 1886), (104, 1928), (129, 2105), (136, 2156), (146, 2219), (149, 2243), (152, 2276), (157, 2309), (166, 2378), (174, 2453), (176, 2462), (177, 2471), (179, 2483), (180, 2489), (182, 2510), (198, 2648), (218, 2771), (227, 2852), (241, 2909), (242, 2912),

Gene: Dubu_2 Start: 550, Stop: 2163, Start Num: 8

Candidate Starts for Dubu_2:

(Start: 8 @550 has 1 MA's), (12, 574), (22, 643), (28, 676), (35, 727), (38, 745), (40, 751), (47, 820), (Start: 56 @916 has 1 MA's), (59, 940), (64, 973), (69, 1003), (73, 1033), (78, 1054), (79, 1060), (83, 1087), (91, 1174), (Start: 93 @1183 has 1 MA's), (95, 1195), (98, 1216), (100, 1231), (113, 1306), (121, 1384), (141, 1492), (155, 1585), (158, 1600), (173, 1708), (179, 1765), (184, 1801), (192, 1834), (196, 1870), (203, 1903), (214, 2008), (221, 2071), (222, 2077), (223, 2080), (233, 2131), (237, 2152),

Gene: Dusty_29 Start: 8433, Stop: 10181, Start Num: 7

Candidate Starts for Dusty_29:

(Start: 7 @8433 has 26 MA's), (13, 8463), (29, 8589), (30, 8592), (46, 8706), (54, 8778), (57, 8817), (62, 8841), (68, 8889), (72, 8916), (99, 9138), (102, 9156), (122, 9318), (129, 9366), (132, 9381), (156, 9564), (158, 9570), (169, 9654), (178, 9741), (183, 9774), (194, 9888), (200, 9924), (205, 9948), (208, 9963), (232, 10137), (234, 10143),

Gene: Engineer_31 Start: 8628, Stop: 10376, Start Num: 7

Candidate Starts for Engineer_31:

(Start: 7 @8628 has 26 MA's), (13, 8658), (30, 8787), (54, 8973), (57, 9012), (62, 9036), (65, 9066), (68, 9084), (72, 9111), (77, 9141), (99, 9333), (102, 9351), (122, 9513), (129, 9561), (132, 9576), (156, 9759), (158, 9765), (169, 9849), (178, 9936), (183, 9969), (194, 10083), (200, 10119), (205, 10143), (208, 10158), (232, 10332), (234, 10338),

Gene: Geeche_29 Start: 8502, Stop: 10250, Start Num: 7

Candidate Starts for Geeche_29:

(Start: 7 @8502 has 26 MA's), (13, 8532), (30, 8661), (54, 8847), (57, 8886), (62, 8910), (68, 8958), (72, 8985), (77, 9015), (99, 9207), (102, 9225), (122, 9387), (129, 9435), (132, 9450), (156, 9633), (158, 9639), (169, 9723), (178, 9810), (183, 9843), (194, 9957), (200, 9993), (205, 10017), (208, 10032), (232, 10206), (234, 10212),

Gene: Gibbous_4 Start: 1229, Stop: 2923, Start Num: 15

Candidate Starts for Gibbous_4:

(Start: 15 @1229 has 4 MA's), (19, 1259), (21, 1292), (22, 1301), (43, 1439), (63, 1601), (64, 1616), (69, 1646), (71, 1667), (76, 1697), (84, 1766), (86, 1784), (89, 1796), (90, 1817), (99, 1886), (104, 1928), (129, 2105), (136, 2156), (146, 2219), (149, 2243), (152, 2276), (157, 2309), (166, 2378), (174, 2453), (176, 2462), (177, 2471), (179, 2483), (180, 2489), (182, 2510), (198, 2648), (218, 2771), (227, 2852), (241, 2909), (242, 2912),

Gene: GreenWeasel_8 Start: 3065, Stop: 4069, Start Num: 93

Candidate Starts for GreenWeasel_8:

(88, 3017), (90, 3041), (Start: 93 @3065 has 1 MA's), (104, 3152), (106, 3164), (115, 3218), (118, 3254), (124, 3278), (138, 3341), (144, 3377), (159, 3485), (167, 3539), (168, 3548), (171, 3560), (175, 3611), (179, 3638), (191, 3746), (195, 3785), (199, 3812), (204, 3830), (209, 3878), (220, 3965), (226, 3986), (242, 4064),

Gene: Hestia_2 Start: 690, Stop: 2330, Start Num: 17

Candidate Starts for Hestia_2:

(Start: 1 @597 has 4 MA's), (Start: 17 @690 has 2 MA's), (18, 693), (29, 783), (32, 807), (38, 843), (39, 846), (46, 906), (Start: 56 @1014 has 1 MA's), (69, 1101), (91, 1278), (98, 1320), (101, 1341), (107, 1377), (126, 1512), (127, 1518), (133, 1557), (143, 1626), (159, 1692), (160, 1704), (163, 1740), (174, 1824), (182, 1881), (189, 1944), (196, 2028), (201, 2052), (207, 2094), (211, 2151), (212, 2154), (214, 2166), (222, 2235), (230, 2277), (235, 2304), (236, 2316),

Gene: HippoPololi_6 Start: 1863, Stop: 3563, Start Num: 15

Candidate Starts for HippoPololi_6:

(Start: 15 @1863 has 4 MA's), (19, 1893), (22, 1935), (43, 2073), (49, 2121), (53, 2151), (Start: 56 @2184 has 1 MA's), (63, 2235), (64, 2250), (69, 2280), (71, 2301), (76, 2331), (89, 2430), (90, 2451), (99, 2520), (104, 2562), (129, 2739), (136, 2790), (146, 2853), (149, 2877), (157, 2943), (162, 3000), (163, 3003), (166, 3012), (176, 3096), (177, 3105), (179, 3117), (180, 3123), (182, 3144), (185, 3183), (198, 3282), (206, 3318), (218, 3405), (225, 3462), (226, 3465), (227, 3486), (241, 3549), (242, 3552),

Gene: Hum25_2 Start: 471, Stop: 2078, Start Num: 4

Candidate Starts for Hum25_2:

(Start: 4 @471 has 1 MA's), (11, 501), (27, 615), (37, 687), (55, 807), (90, 1071), (Start: 93 @1092 has 1 MA's), (96, 1116), (99, 1146), (103, 1182), (104, 1188), (110, 1209), (114, 1239), (116, 1245), (120, 1299), (128, 1347), (131, 1368), (141, 1431), (145, 1467), (151, 1491), (161, 1536), (162, 1554), (167, 1572), (169, 1584), (177, 1659), (182, 1698), (187, 1749), (195, 1800), (198, 1806), (206, 1842), (209, 1878), (210, 1881), (228, 2013), (239, 2061),

Gene: Ibantik_67 Start: 28527, Stop: 30182, Start Num: 3

Candidate Starts for Ibantik_67:

(Start: 3 @28527 has 1 MA's), (5, 28539), (31, 28710), (36, 28749), (59, 28941), (60, 28944), (61, 28950), (65, 28983), (69, 29004), (77, 29058), (84, 29121), (Start: 93 @29196 has 1 MA's), (95, 29208), (100, 29253), (112, 29319), (143, 29544), (186, 29832), (198, 29910), (206, 29946), (209, 29982), (213, 30006), (216, 30021), (221, 30087), (222, 30093), (226, 30105), (233, 30147),

Gene: Kromp_2 Start: 782, Stop: 2422, Start Num: 2

Candidate Starts for Kromp_2:

(Start: 2 @782 has 1 MA's), (13, 833), (24, 914), (42, 1049), (Start: 56 @1175 has 1 MA's), (69, 1262), (85, 1385), (87, 1394), (90, 1421), (91, 1436), (92, 1439), (98, 1478), (100, 1493), (104, 1532), (121, 1646), (127, 1679), (140, 1763), (150, 1829), (158, 1850), (159, 1853), (181, 2027), (183, 2045), (197, 2123), (202, 2147), (203, 2153), (219, 2285), (222, 2327), (223, 2330), (237, 2408), (240, 2414),

Gene: Lozinak_30 Start: 8683, Stop: 10431, Start Num: 7

Candidate Starts for Lozinak_30:

(Start: 7 @8683 has 26 MA's), (13, 8713), (30, 8842), (54, 9028), (57, 9067), (62, 9091), (65, 9121), (68, 9139), (72, 9166), (77, 9196), (99, 9388), (102, 9406), (122, 9568), (129, 9616), (132, 9631), (156, 9814), (158, 9820), (169, 9904), (178, 9991), (183, 10024), (194, 10138), (200, 10174), (205, 10198), (208, 10213), (232, 10387), (234, 10393),

Gene: MUWow_2 Start: 597, Stop: 2330, Start Num: 1

Candidate Starts for MUWow_2:

(Start: 1 @597 has 4 MA's), (Start: 17 @690 has 2 MA's), (18, 693), (29, 783), (39, 846), (Start: 56 @1014 has 1 MA's), (69, 1101), (82, 1188), (91, 1278), (96, 1311), (98, 1320), (101, 1341), (107, 1377), (126, 1512), (127, 1518), (133, 1557), (143, 1626), (159, 1692), (160, 1704), (163, 1740), (174, 1824), (182, 1881), (189, 1944), (196, 2028), (201, 2052), (207, 2094), (211, 2151), (212, 2154), (214, 2166), (222, 2235), (230, 2277), (235, 2304), (236, 2316),

Gene: Mapleville_2 Start: 596, Stop: 2329, Start Num: 1

Candidate Starts for Mapleville_2:

(Start: 1 @596 has 4 MA's), (Start: 17 @689 has 2 MA's), (18, 692), (32, 806), (38, 842), (39, 845), (46, 905), (Start: 56 @1013 has 1 MA's), (69, 1100), (71, 1118), (82, 1187), (91, 1277), (96, 1310), (98, 1319), (101, 1340), (107, 1376), (127, 1517), (133, 1556), (160, 1703), (163, 1739), (172, 1787), (174, 1823), (182, 1880), (183, 1883), (189, 1943), (196, 2027), (207, 2093), (211, 2150), (212, 2153), (214, 2165), (222, 2234), (230, 2276), (235, 2303),

Gene: Miskis_28 Start: 8458, Stop: 10206, Start Num: 7

Candidate Starts for Miskis_28:

(Start: 7 @8458 has 26 MA's), (13, 8488), (29, 8614), (30, 8617), (54, 8803), (57, 8842), (62, 8866), (68, 8914), (72, 8941), (77, 8971), (99, 9163), (102, 9181), (122, 9343), (129, 9391), (132, 9406), (156, 9589), (158, 9595), (169, 9679), (178, 9766), (183, 9799), (194, 9913), (200, 9949), (205, 9973), (208, 9988), (232, 10162), (234, 10168),

Gene: Mollymur_13 Start: 6996, Stop: 8732, Start Num: 7

Candidate Starts for Mollymur_13:

(Start: 7 @6996 has 26 MA's), (19, 7068), (44, 7257), (Start: 56 @7368 has 1 MA's), (62, 7404), (75, 7500), (Start: 93 @7644 has 1 MA's), (97, 7671), (102, 7719), (105, 7752), (130, 7926), (135, 7971), (158, 8124), (194, 8442), (217, 8586), (225, 8646),

Gene: Norvs_31 Start: 8685, Stop: 10433, Start Num: 7

Candidate Starts for Norvs_31:

(Start: 7 @8685 has 26 MA's), (13, 8715), (30, 8844), (54, 9030), (57, 9069), (62, 9093), (68, 9141), (72, 9168), (77, 9198), (99, 9390), (102, 9408), (122, 9570), (129, 9618), (132, 9633), (156, 9816), (158, 9822), (169, 9906), (178, 9993), (183, 10026), (194, 10140), (200, 10176), (205, 10200), (208, 10215), (232, 10389), (234, 10395),

Gene: Nyilah_2 Start: 689, Stop: 2329, Start Num: 17

Candidate Starts for Nyilah_2:

(Start: 1 @596 has 4 MA's), (Start: 17 @689 has 2 MA's), (18, 692), (29, 782), (32, 806), (38, 842), (39, 845), (Start: 56 @1013 has 1 MA's), (59, 1037), (69, 1100), (82, 1187), (91, 1277), (96, 1310), (98, 1319), (101, 1340), (107, 1376), (126, 1511), (127, 1517), (128, 1523), (133, 1556), (143, 1625), (163, 1739), (182, 1880), (183, 1883), (189, 1943), (192, 1979), (196, 2027), (203, 2060), (207, 2093), (222, 2234), (230, 2276), (235, 2303),

Gene: OneUp_24 Start: 6501, Stop: 8249, Start Num: 7

Candidate Starts for OneUp_24:

(Start: 7 @6501 has 26 MA's), (13, 6531), (23, 6621), (30, 6660), (57, 6885), (60, 6900), (62, 6909), (68, 6957), (72, 6984), (99, 7206), (102, 7224), (119, 7374), (129, 7434), (130, 7437), (132, 7449),

(164, 7698), (177, 7800), (178, 7809), (179, 7812), (182, 7839), (183, 7842), (194, 7956), (200, 7992), (205, 8016), (232, 8205), (234, 8211),

Gene: Persistence_2 Start: 689, Stop: 2329, Start Num: 17

Candidate Starts for Persistence_2:

(Start: 1 @596 has 4 MA's), (Start: 17 @689 has 2 MA's), (18, 692), (29, 782), (32, 806), (38, 842), (39, 845), (46, 905), (Start: 56 @1013 has 1 MA's), (69, 1100), (82, 1187), (91, 1277), (98, 1319), (101, 1340), (107, 1376), (126, 1511), (127, 1517), (133, 1556), (143, 1625), (159, 1691), (160, 1703), (163, 1739), (172, 1787), (174, 1823), (182, 1880), (183, 1883), (189, 1943), (196, 2027), (212, 2153), (222, 2234), (230, 2276), (236, 2315),

Gene: PhinkBoden_30 Start: 9066, Stop: 10814, Start Num: 7

Candidate Starts for PhinkBoden_30:

(Start: 7 @9066 has 26 MA's), (13, 9096), (30, 9225), (54, 9411), (57, 9450), (62, 9474), (65, 9504), (68, 9522), (72, 9549), (77, 9579), (99, 9771), (102, 9789), (122, 9951), (129, 9999), (132, 10014), (156, 10197), (158, 10203), (169, 10287), (178, 10374), (183, 10407), (194, 10521), (200, 10557), (205, 10581), (208, 10596), (232, 10770), (234, 10776),

Gene: Phrank15_2 Start: 597, Stop: 2330, Start Num: 1

Candidate Starts for Phrank15_2:

(Start: 1 @597 has 4 MA's), (Start: 17 @690 has 2 MA's), (18, 693), (29, 783), (32, 807), (38, 843), (39, 846), (46, 906), (Start: 56 @1014 has 1 MA's), (69, 1101), (71, 1119), (82, 1188), (91, 1278), (96, 1311), (98, 1320), (101, 1341), (107, 1377), (126, 1512), (127, 1518), (133, 1557), (143, 1626), (159, 1692), (160, 1704), (163, 1740), (172, 1788), (174, 1824), (182, 1881), (189, 1944), (196, 2028), (201, 2052), (207, 2094), (211, 2151), (212, 2154), (214, 2166), (222, 2235), (230, 2277), (235, 2304), (236, 2316),

Gene: RGL3_1 Start: 361, Stop: 1710, Start Num: 52

Candidate Starts for RGL3_1:

(6, 19), (9, 28), (43, 286), (45, 298), (52, 361), (71, 502), (81, 562), (87, 619), (88, 622), (Start: 93 @670 has 1 MA's), (111, 799), (137, 997), (139, 1006), (142, 1018), (153, 1111), (164, 1183), (177, 1273), (179, 1285), (182, 1312), (186, 1354), (195, 1429), (204, 1474), (211, 1534), (231, 1666), (238, 1696),

Gene: RunningOnE_61 Start: 28302, Stop: 29567, Start Num: 56

Candidate Starts for RunningOnE_61:

(Start: 56 @28302 has 1 MA's), (58, 28320), (60, 28329), (61, 28335), (65, 28368), (69, 28389), (74, 28425), (78, 28446), (94, 28590), (134, 28878), (159, 28998), (164, 29040), (177, 29136), (184, 29184), (188, 29232), (198, 29295), (206, 29331), (215, 29403), (216, 29406), (222, 29478), (233, 29532), (237, 29556),

Gene: Samy_5 Start: 1792, Stop: 3501, Start Num: 7

Candidate Starts for Samy_5:

(Start: 7 @1792 has 26 MA's), (10, 1807), (16, 1849), (19, 1864), (20, 1879), (23, 1912), (29, 1945), (34, 1981), (Start: 56 @2164 has 1 MA's), (62, 2200), (Start: 93 @2440 has 1 MA's), (102, 2515), (125, 2698), (127, 2707), (143, 2812), (186, 3100), (193, 3148), (197, 3193), (215, 3340), (217, 3355), (222, 3406), (225, 3415),

Gene: Smoothie_31 Start: 8683, Stop: 10431, Start Num: 7

Candidate Starts for Smoothie_31:

(Start: 7 @8683 has 26 MA's), (13, 8713), (30, 8842), (54, 9028), (57, 9067), (62, 9091), (65, 9121), (68, 9139), (72, 9166), (77, 9196), (99, 9388), (102, 9406), (122, 9568), (129, 9616), (132, 9631), (156, 9814), (158, 9820), (169, 9904), (178, 9991), (183, 10024), (194, 10138), (200, 10174), (205, 10198), (208, 10213), (232, 10387), (234, 10393),

Gene: SpeedDemon_130 Start: 6395, Stop: 8131, Start Num: 7

Candidate Starts for SpeedDemon_130:

(Start: 7 @6395 has 26 MA's), (19, 6467), (25, 6524), (44, 6656), (Start: 56 @6767 has 1 MA's), (62, 6803), (75, 6899), (Start: 93 @7043 has 1 MA's), (97, 7070), (102, 7118), (105, 7151), (130, 7325), (135, 7370), (194, 7841), (211, 7949), (225, 8045),

Gene: Toniann_30 Start: 8628, Stop: 10376, Start Num: 7

Candidate Starts for Toniann_30:

(Start: 7 @8628 has 26 MA's), (13, 8658), (30, 8787), (54, 8973), (57, 9012), (62, 9036), (65, 9066), (68, 9084), (72, 9111), (77, 9141), (99, 9333), (102, 9351), (122, 9513), (129, 9561), (132, 9576), (156, 9759), (158, 9765), (169, 9849), (178, 9936), (183, 9969), (194, 10083), (200, 10119), (205, 10143), (208, 10158), (232, 10332), (234, 10338),

Gene: Towmatter_11 Start: 4822, Stop: 6558, Start Num: 7

Candidate Starts for Towmatter_11:

(Start: 7 @4822 has 26 MA's), (10, 4837), (19, 4894), (25, 4951), (44, 5083), (Start: 56 @5194 has 1 MA's), (62, 5230), (75, 5326), (Start: 93 @5470 has 1 MA's), (97, 5497), (102, 5545), (130, 5752), (135, 5797), (158, 5950), (177, 6112), (186, 6193), (194, 6268), (208, 6340), (211, 6376), (217, 6412), (225, 6472),

Gene: Triumph_8 Start: 2519, Stop: 3862, Start Num: 48

Candidate Starts for Triumph_8:

(Start: 48 @2519 has 2 MA's), (60, 2612), (63, 2627), (66, 2654), (70, 2675), (90, 2834), (Start: 93 @2858 has 1 MA's), (98, 2891), (104, 2945), (111, 2978), (114, 3008), (115, 3011), (118, 3047), (124, 3071), (138, 3134), (139, 3140), (144, 3170), (147, 3188), (163, 3317), (164, 3320), (167, 3332), (168, 3341), (170, 3350), (179, 3431), (182, 3458), (195, 3578), (198, 3599), (204, 3623), (211, 3683), (226, 3779), (242, 3857),

Gene: WilliamBoone_30 Start: 8027, Stop: 9775, Start Num: 7

Candidate Starts for WilliamBoone_30:

(Start: 7 @8027 has 26 MA's), (13, 8057), (21, 8132), (30, 8186), (31, 8198), (34, 8216), (42, 8282), (54, 8372), (57, 8411), (62, 8435), (68, 8483), (99, 8732), (102, 8750), (129, 8960), (132, 8975), (154, 9143), (164, 9224), (169, 9248), (178, 9335), (190, 9440), (194, 9482), (200, 9518), (205, 9542), (208, 9557), (232, 9731), (234, 9737),

Gene: Yvonnetastic_28 Start: 10462, Stop: 12180, Start Num: 7

Candidate Starts for Yvonnetastic_28:

(Start: 7 @10462 has 26 MA's), (14, 10498), (26, 10594), (54, 10807), (Start: 56 @10834 has 1 MA's), (57, 10846), (62, 10870), (80, 10984), (102, 11179), (108, 11227), (119, 11329), (129, 11389), (132, 11404), (167, 11647), (176, 11728), (179, 11749), (182, 11776), (190, 11851), (194, 11893), (224, 12094), (229, 12127),

Gene: phiSASD1_22 Start: 558, Stop: 2168, Start Num: 8

Candidate Starts for phiSASD1_22:

(Start: 8 @558 has 1 MA's), (12, 582), (22, 651), (28, 684), (35, 735), (38, 753), (40, 759), (Start: 56 @924 has 1 MA's), (64, 981), (65, 990), (69, 1011), (73, 1041), (77, 1059), (79, 1068), (91, 1182), (95, 1203), (98, 1224), (100, 1239), (117, 1365), (143, 1521), (155, 1590), (165, 1662), (179, 1770), (182, 1797), (192, 1839), (196, 1875), (202, 1902), (203, 1908), (214, 2013), (222, 2082), (223, 2085), (225, 2091), (237, 2157),