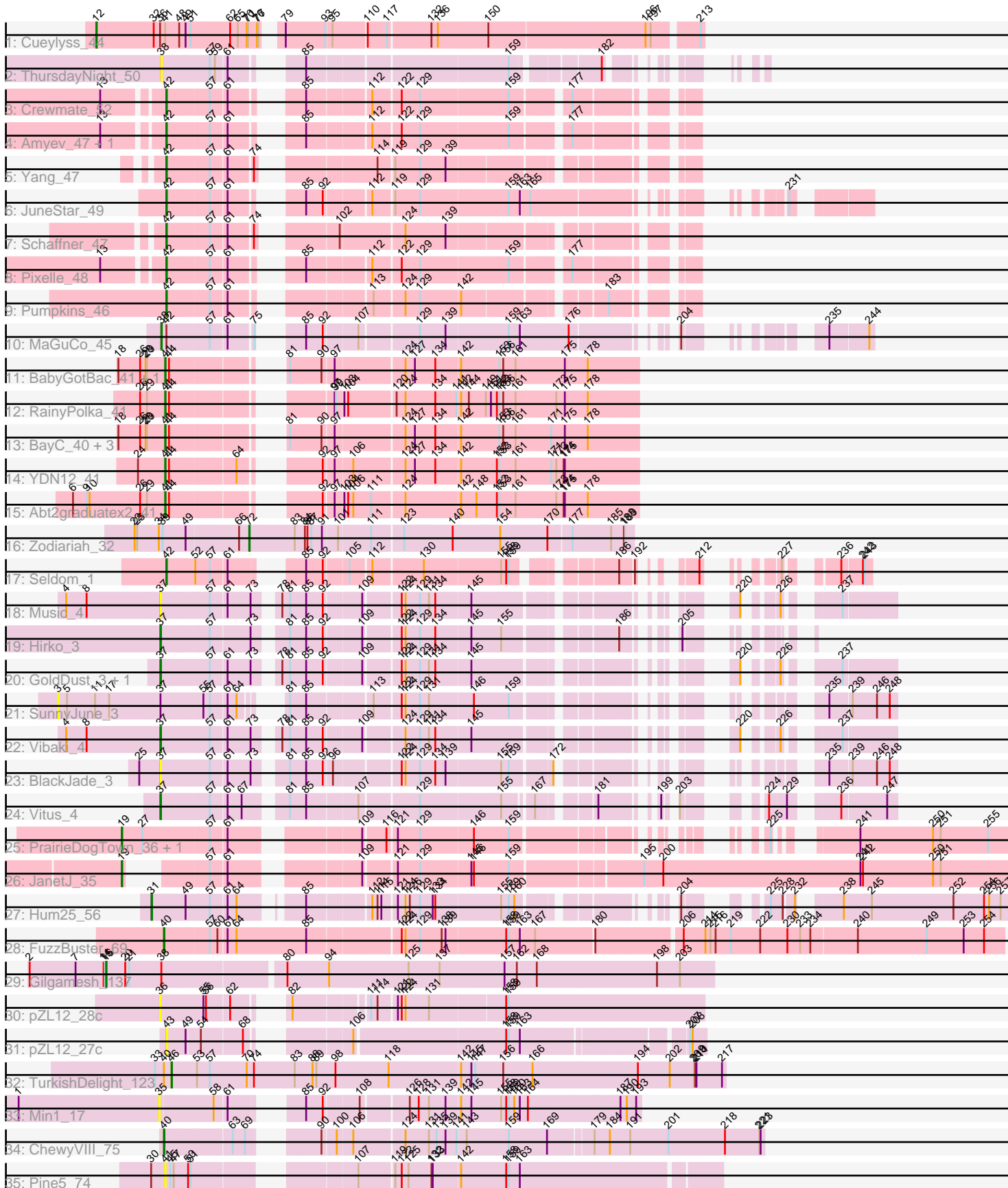


Pham 296715



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 296715 Report

This analysis was run 04/25/26 on database version 644.

Pham number 296715 has 42 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Cueyliss_44
- Track 2 : ThursdayNight_50
- Track 3 : Crewmate_52
- Track 4 : Amyev_47, Tian_46
- Track 5 : Yang_47
- Track 6 : JuneStar_49
- Track 7 : Schaffner_47
- Track 8 : Pixelle_48
- Track 9 : Pumpkins_46
- Track 10 : MaGuCo_45
- Track 11 : BabyGotBac_41, TP1604_40
- Track 12 : RainyPolka_41
- Track 13 : BayC_40, Asis_40, Salete_40, Maih_39
- Track 14 : YDN12_41
- Track 15 : Abt2graduatex2_41
- Track 16 : Zodiariah_32
- Track 17 : Seldom_1
- Track 18 : Music_4
- Track 19 : Hirko_3
- Track 20 : GoldDust_3, Gooberta_3
- Track 21 : SunnyJune_3
- Track 22 : Vibaki_4
- Track 23 : BlackJade_3
- Track 24 : Vitus_4
- Track 25 : PrairieDogTown_36, EvenBluerMoon_35
- Track 26 : JanetJ_35
- Track 27 : Hum25_56
- Track 28 : FuzzBuster_69
- Track 29 : Gilgamesh_137
- Track 30 : pZL12_28c
- Track 31 : pZL12_27c
- Track 32 : TurkishDelight_123
- Track 33 : Min1_17
- Track 34 : ChewyVIII_75
- Track 35 : Pine5_74

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

The start number called the most often in the published annotations is 41, it was called in 9 of the 32 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abt2graduatex2_41, Asis_40, BabyGotBac_41, BayC_40, Maih_39, Pine5_74, RainyPolka_41, Salete_40, TP1604_40, YDN12_41,

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

- Cueylyss_44,

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

- Amyev_47, BlackJade_3, ChewyVIII_75, Crewmate_52, EvenBluerMoon_35, FuzzBuster_69, Gilgamesh_137, GoldDust_3, Gooberta_3, Hirko_3, Hum25_56, JanetJ_35, JuneStar_49, MaGuCo_45, Min1_17, Music_4, Pixelle_48, PrairieDogTown_36, Pumpkins_46, Schaffner_47, Seldom_1, SunnyJune_3, ThursdayNight_50, Tian_46, TurkishDelight_123, Vibaki_4, Vitus_4, Yang_47, Zodiariah_32, pZL12_27c, pZL12_28c,

Summary by start number:

Start 3:

- Found in 1 of 42 (2.4%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SunnyJune_3 (FL),

Start 12:

- Found in 1 of 42 (2.4%) of genes in pham
- Manual Annotations of this start: 1 of 32
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cueylyss_44 (A1),

Start 16:

- Found in 1 of 42 (2.4%) of genes in pham
- Manual Annotations of this start: 1 of 32
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gilgamesh_137 (singleton),

Start 19:

- Found in 3 of 42 (7.1%) of genes in pham
- Manual Annotations of this start: 3 of 32
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EvenBluerMoon_35 (FO), JanetJ_35 (FO), PrairieDogTown_36 (FO),

Start 31:

- Found in 1 of 42 (2.4%) of genes in pham
- Manual Annotations of this start: 1 of 32
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hum25_56 (FQ),

Start 35:

- Found in 1 of 42 (2.4%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Min1_17 (singleton),

Start 36:

- Found in 2 of 42 (4.8%) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: pZL12_28c (singleton),

Start 37:

- Found in 8 of 42 (19.0%) of genes in pham
- Manual Annotations of this start: 4 of 32
- Called 87.5% of time when present
- Phage (with cluster) where this start called: BlackJade_3 (FL), GoldDust_3 (FL), Gooberta_3 (FL), Hirko_3 (FL), Music_4 (FL), Vibaki_4 (FL), Vitus_4 (FL),

Start 38:

- Found in 3 of 42 (7.1%) of genes in pham
- Manual Annotations of this start: 1 of 32
- Called 66.7% of time when present
- Phage (with cluster) where this start called: MaGuCo_45 (AZ2), ThursdayNight_50 (AZ),

Start 40:

- Found in 3 of 42 (7.1%) of genes in pham
- Manual Annotations of this start: 2 of 32
- Called 66.7% of time when present
- Phage (with cluster) where this start called: ChewyVIII_75 (singleton), FuzzBuster_69 (GM),

Start 41:

- Found in 11 of 42 (26.2%) of genes in pham
- Manual Annotations of this start: 9 of 32
- Called 90.9% of time when present
- Phage (with cluster) where this start called: Abt2graduatex2_41 (BG), Asis_40 (BG), BabyGotBac_41 (BG), BayC_40 (BG), Maih_39 (BG), Pine5_74 (singleton), RainyPolka_41 (BG), Salete_40 (BG), TP1604_40 (BG), YDN12_41 (BG),

Start 42:

- Found in 10 of 42 (23.8%) of genes in pham
- Manual Annotations of this start: 8 of 32
- Called 90.0% of time when present
- Phage (with cluster) where this start called: Amyev_47 (AZ1), Crewmate_52 (AZ1), JuneStar_49 (AZ1), Pixelle_48 (AZ1), Pumpkins_46 (AZ1), Schaffner_47 (AZ1), Seldom_1 (FD), Tian_46 (AZ1), Yang_47 (AZ1),

Start 43:

- Found in 1 of 42 (2.4%) of genes in pham
- No Manual Annotations of this start.

- Called 100.0% of time when present
- Phage (with cluster) where this start called: pZL12_27c (singleton),

Start 46:

- Found in 1 of 42 (2.4%) of genes in pham
- Manual Annotations of this start: 1 of 32
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TurkishDelight_123 (singleton),

Start 72:

- Found in 1 of 42 (2.4%) of genes in pham
- Manual Annotations of this start: 1 of 32
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Zodiariah_32 (DW),

Summary by clusters:

There are 12 clusters represented in this pham: FQ, singleton, BG, A1, FD, DW, AZ1, GM, AZ, FL, AZ2, FO,

Info for manual annotations of cluster A1:

- Start number 12 was manually annotated 1 time for cluster A1.

Info for manual annotations of cluster AZ1:

- Start number 42 was manually annotated 7 times for cluster AZ1.

Info for manual annotations of cluster AZ2:

- Start number 38 was manually annotated 1 time for cluster AZ2.

Info for manual annotations of cluster BG:

- Start number 41 was manually annotated 9 times for cluster BG.

Info for manual annotations of cluster DW:

- Start number 72 was manually annotated 1 time for cluster DW.

Info for manual annotations of cluster FD:

- Start number 42 was manually annotated 1 time for cluster FD.

Info for manual annotations of cluster FL:

- Start number 37 was manually annotated 4 times for cluster FL.

Info for manual annotations of cluster FO:

- Start number 19 was manually annotated 3 times for cluster FO.

Info for manual annotations of cluster FQ:

- Start number 31 was manually annotated 1 time for cluster FQ.

Info for manual annotations of cluster GM:

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

Gene Information:

Gene: Abt2graduatex2_41 Start: 32795, Stop: 31851, Start Num: 41

Candidate Starts for Abt2graduatex2_41:

(6, 33008), (9, 32975), (10, 32969), (26, 32852), (29, 32837), (Start: 41 @32795 has 9 MA's), (44, 32786), (92, 32534), (97, 32513), (103, 32495), (104, 32486), (106, 32474), (111, 32438), (124, 32366), (142, 32246), (148, 32213), (152, 32168), (153, 32162), (161, 32126), (173, 32039), (174, 32024), (175, 32021), (178, 31967),

Gene: Amyev_47 Start: 35220, Stop: 36194, Start Num: 42

Candidate Starts for Amyev_47:

(13, 35097), (Start: 42 @35220 has 8 MA's), (57, 35304), (61, 35340), (85, 35439), (112, 35565), (122, 35625), (129, 35667), (159, 35862), (177, 35973),

Gene: Asis_40 Start: 32623, Stop: 31679, Start Num: 41

Candidate Starts for Asis_40:

(18, 32728), (26, 32680), (28, 32668), (29, 32665), (Start: 41 @32623 has 9 MA's), (44, 32614), (81, 32437), (90, 32365), (97, 32341), (124, 32194), (127, 32173), (134, 32128), (142, 32074), (153, 31990), (156, 31981), (161, 31954), (171, 31879), (175, 31849), (178, 31795),

Gene: BabyGotBac_41 Start: 32623, Stop: 31679, Start Num: 41

Candidate Starts for BabyGotBac_41:

(18, 32728), (26, 32680), (28, 32668), (29, 32665), (Start: 41 @32623 has 9 MA's), (44, 32614), (81, 32437), (90, 32365), (97, 32341), (124, 32194), (127, 32173), (134, 32128), (142, 32074), (153, 31990), (156, 31981), (161, 31954), (175, 31849), (178, 31795),

Gene: BayC_40 Start: 32623, Stop: 31679, Start Num: 41

Candidate Starts for BayC_40:

(18, 32728), (26, 32680), (28, 32668), (29, 32665), (Start: 41 @32623 has 9 MA's), (44, 32614), (81, 32437), (90, 32365), (97, 32341), (124, 32194), (127, 32173), (134, 32128), (142, 32074), (153, 31990), (156, 31981), (161, 31954), (171, 31879), (175, 31849), (178, 31795),

Gene: BlackJade_3 Start: 2028, Stop: 3266, Start Num: 37

Candidate Starts for BlackJade_3:

(25, 1980), (Start: 37 @2028 has 4 MA's), (57, 2121), (61, 2157), (73, 2208), (81, 2265), (85, 2301), (92, 2340), (96, 2358), (122, 2487), (124, 2496), (129, 2529), (134, 2562), (139, 2586), (155, 2703), (159, 2721), (172, 2802), (235, 3120), (239, 3168), (246, 3222), (248, 3252),

Gene: ChewyVIII_75 Start: 55068, Stop: 53818, Start Num: 40

Candidate Starts for ChewyVIII_75:

(Start: 40 @55068 has 2 MA's), (63, 54921), (69, 54894), (90, 54792), (100, 54762), (106, 54729), (124, 54624), (131, 54570), (135, 54555), (139, 54534), (141, 54510), (143, 54492), (159, 54399), (169, 54312), (179, 54213), (184, 54177), (191, 54132), (201, 54042), (218, 53910), (221, 53829), (223, 53826),

Gene: Crewmate_52 Start: 34132, Stop: 35106, Start Num: 42

Candidate Starts for Crewmate_52:

(13, 34009), (Start: 42 @34132 has 8 MA's), (57, 34216), (61, 34252), (85, 34351), (112, 34477), (122, 34537), (129, 34579), (159, 34774), (177, 34885),

Gene: Cueyllyss_44 Start: 34031, Stop: 32712, Start Num: 12

Candidate Starts for Cueyllyss_44:

(Start: 12 @34031 has 1 MA's), (32, 33896), (36, 33881), (Start: 41 @33869 has 9 MA's), (48, 33836), (49, 33824), (51, 33815), (62, 33725), (65, 33707), (70, 33686), (71, 33683), (76, 33662), (77, 33659), (79, 33635), (93, 33542), (95, 33530), (110, 33458), (117, 33413), (132, 33317), (136, 33302), (150, 33185), (196, 32825), (197, 32813), (213, 32720),

Gene: EvenBluerMoon_35 Start: 27808, Stop: 29394, Start Num: 19

Candidate Starts for EvenBluerMoon_35:

(Start: 19 @27808 has 3 MA's), (27, 27856), (57, 27994), (61, 28030), (109, 28258), (116, 28306), (121, 28324), (129, 28375), (146, 28489), (159, 28567), (225, 28906), (241, 29026), (250, 29197), (251, 29215), (255, 29326),

Gene: FuzzBuster_69 Start: 41767, Stop: 39908, Start Num: 40

Candidate Starts for FuzzBuster_69:

(Start: 40 @41767 has 2 MA's), (57, 41677), (60, 41659), (61, 41641), (64, 41620), (85, 41458), (122, 41269), (124, 41260), (129, 41227), (138, 41179), (139, 41170), (158, 41038), (159, 41032), (163, 41008), (167, 40972), (180, 40840), (206, 40651), (214, 40600), (215, 40588), (216, 40576), (219, 40540), (222, 40471), (230, 40408), (233, 40378), (234, 40354), (240, 40249), (249, 40090), (253, 40003), (254, 39955),

Gene: Gilgamesh_137 Start: 118223, Stop: 119593, Start Num: 16

Candidate Starts for Gilgamesh_137:

(2, 118043), (7, 118151), (14, 118217), (15, 118220), (Start: 16 @118223 has 1 MA's), (20, 118268), (21, 118277), (Start: 38 @118352 has 1 MA's), (80, 118619), (94, 118715), (125, 118898), (137, 118964), (157, 119111), (162, 119138), (168, 119180), (198, 119462), (203, 119513),

Gene: GoldDust_3 Start: 1973, Stop: 3220, Start Num: 37

Candidate Starts for GoldDust_3:

(Start: 37 @1973 has 4 MA's), (57, 2069), (61, 2105), (73, 2156), (78, 2195), (81, 2213), (85, 2249), (92, 2288), (109, 2360), (122, 2435), (124, 2444), (129, 2477), (131, 2498), (134, 2510), (145, 2585), (220, 2984), (226, 3029), (237, 3104),

Gene: Gooberta_3 Start: 1973, Stop: 3220, Start Num: 37

Candidate Starts for Gooberta_3:

(Start: 37 @1973 has 4 MA's), (57, 2069), (61, 2105), (73, 2156), (78, 2195), (81, 2213), (85, 2249), (92, 2288), (109, 2360), (122, 2435), (124, 2444), (129, 2477), (131, 2498), (134, 2510), (145, 2585), (220, 2984), (226, 3029), (237, 3104),

Gene: Hirko_3 Start: 1965, Stop: 3029, Start Num: 37

Candidate Starts for Hirko_3:

(Start: 37 @1965 has 4 MA's), (57, 2058), (73, 2145), (81, 2202), (85, 2238), (92, 2277), (109, 2349), (122, 2424), (124, 2433), (129, 2466), (134, 2499), (145, 2574), (155, 2640), (186, 2847), (205, 2907),

Gene: Hum25_56 Start: 30981, Stop: 32510, Start Num: 31

Candidate Starts for Hum25_56:

(Start: 31 @30981 has 1 MA's), (49, 31053), (57, 31098), (61, 31134), (64, 31155), (85, 31251), (112, 31377), (114, 31389), (115, 31398), (121, 31428), (124, 31446), (126, 31455), (129, 31479), (133, 31506), (134, 31512), (155, 31653), (159, 31671), (160, 31683), (204, 31917), (225, 32010), (228, 32034), (232, 32055), (238, 32121), (245, 32184), (252, 32376), (254, 32448), (256, 32460), (257, 32487),

Gene: JanetJ_35 Start: 28312, Stop: 30129, Start Num: 19

Candidate Starts for JanetJ_35:

(Start: 19 @28312 has 3 MA's), (57, 28411), (61, 28447), (109, 28675), (121, 28741), (129, 28792), (145, 28900), (146, 28906), (159, 28984), (195, 29257), (200, 29302), (241, 29761), (242, 29767), (250, 29932), (251, 29950),

Gene: JuneStar_49 Start: 36072, Stop: 37253, Start Num: 42

Candidate Starts for JuneStar_49:

(Start: 42 @36072 has 8 MA's), (57, 36156), (61, 36192), (85, 36288), (92, 36327), (112, 36414), (119, 36459), (129, 36516), (159, 36708), (163, 36732), (165, 36756), (231, 37116),

Gene: MaGuCo_45 Start: 34507, Stop: 35697, Start Num: 38

Candidate Starts for MaGuCo_45:

(Start: 38 @34507 has 1 MA's), (Start: 42 @34516 has 8 MA's), (57, 34600), (61, 34636), (75, 34687), (85, 34732), (92, 34771), (107, 34834), (129, 34960), (139, 35017), (159, 35152), (163, 35176), (176, 35287), (204, 35446), (235, 35602), (244, 35686),

Gene: Maih_39 Start: 32622, Stop: 31678, Start Num: 41

Candidate Starts for Maih_39:

(18, 32727), (26, 32679), (28, 32667), (29, 32664), (Start: 41 @32622 has 9 MA's), (44, 32613), (81, 32436), (90, 32364), (97, 32340), (124, 32193), (127, 32172), (134, 32127), (142, 32073), (153, 31989), (156, 31980), (161, 31953), (171, 31878), (175, 31848), (178, 31794),

Gene: Min1_17 Start: 7577, Stop: 8530, Start Num: 35

Candidate Starts for Min1_17:

(1, 7247), (35, 7577), (58, 7682), (61, 7709), (85, 7811), (92, 7850), (108, 7916), (126, 8015), (128, 8036), (131, 8060), (139, 8096), (142, 8126), (145, 8147), (155, 8213), (158, 8225), (159, 8231), (160, 8243), (163, 8255), (164, 8273), (187, 8483), (190, 8498), (193, 8519),

Gene: Music_4 Start: 2201, Stop: 3448, Start Num: 37

Candidate Starts for Music_4:

(4, 1982), (8, 2030), (Start: 37 @2201 has 4 MA's), (57, 2297), (61, 2333), (73, 2384), (78, 2423), (81, 2441), (85, 2477), (92, 2516), (109, 2588), (122, 2663), (124, 2672), (129, 2705), (131, 2726), (134, 2738), (145, 2813), (220, 3212), (226, 3257), (237, 3332),

Gene: Pine5_74 Start: 54534, Stop: 55667, Start Num: 41

Candidate Starts for Pine5_74:

(30, 54501), (Start: 41 @54534 has 9 MA's), (45, 54546), (47, 54552), (50, 54585), (51, 54591), (107, 54882), (119, 54954), (122, 54966), (125, 54981), (132, 55032), (133, 55035), (142, 55095), (158, 55194), (159, 55200), (163, 55224),

Gene: Pixelle_48 Start: 35564, Stop: 36538, Start Num: 42

Candidate Starts for Pixelle_48:

(13, 35441), (Start: 42 @35564 has 8 MA's), (57, 35648), (61, 35684), (85, 35783), (112, 35909), (122, 35969), (129, 36011), (159, 36206), (177, 36317),

Gene: PrairieDogTown_36 Start: 27810, Stop: 29396, Start Num: 19

Candidate Starts for PrairieDogTown_36:

(Start: 19 @27810 has 3 MA's), (27, 27858), (57, 27996), (61, 28032), (109, 28260), (116, 28308), (121, 28326), (129, 28377), (146, 28491), (159, 28569), (225, 28908), (241, 29028), (250, 29199), (251, 29217), (255, 29328),

Gene: Pumpkins_46 Start: 33990, Stop: 34940, Start Num: 42

Candidate Starts for Pumpkins_46:

(Start: 42 @33990 has 8 MA's), (57, 34074), (61, 34110), (113, 34338), (124, 34404), (129, 34437), (142, 34524), (183, 34794),

Gene: RainyPolka_41 Start: 32578, Stop: 31634, Start Num: 41

Candidate Starts for RainyPolka_41:

(26, 32635), (29, 32620), (Start: 41 @32578 has 9 MA's), (44, 32569), (97, 32296), (99, 32293), (103, 32278), (104, 32269), (120, 32170), (124, 32149), (134, 32083), (141, 32035), (142, 32029), (144, 32011), (149, 31975), (151, 31963), (152, 31951), (153, 31945), (156, 31936), (161, 31909), (173, 31822), (175, 31804), (178, 31750),

Gene: Salete_40 Start: 32623, Stop: 31679, Start Num: 41

Candidate Starts for Salete_40:

(18, 32728), (26, 32680), (28, 32668), (29, 32665), (Start: 41 @32623 has 9 MA's), (44, 32614), (81, 32437), (90, 32365), (97, 32341), (124, 32194), (127, 32173), (134, 32128), (142, 32074), (153, 31990), (156, 31981), (161, 31954), (171, 31879), (175, 31849), (178, 31795),

Gene: Schaffner_47 Start: 33959, Stop: 34921, Start Num: 42

Candidate Starts for Schaffner_47:

(Start: 42 @33959 has 8 MA's), (57, 34043), (61, 34079), (74, 34127), (102, 34250), (124, 34385), (139, 34475),

Gene: Seldom_1 Start: 1247, Stop: 138, Start Num: 42

Candidate Starts for Seldom_1:

(Start: 42 @1247 has 8 MA's), (52, 1193), (57, 1163), (61, 1127), (85, 1025), (92, 986), (105, 941), (112, 899), (130, 788), (155, 620), (158, 608), (159, 602), (186, 425), (192, 398), (212, 341), (227, 275), (236, 203), (242, 158), (243, 155),

Gene: SunnyJune_3 Start: 2021, Stop: 3454, Start Num: 3

Candidate Starts for SunnyJune_3:

(3, 2021), (5, 2042), (11, 2108), (17, 2141), (Start: 37 @2261 has 4 MA's), (55, 2342), (57, 2357), (61, 2393), (64, 2414), (81, 2453), (85, 2489), (113, 2618), (122, 2675), (124, 2684), (129, 2717), (131, 2738), (146, 2831), (159, 2909), (235, 3308), (239, 3356), (246, 3410), (248, 3440),

Gene: TP1604_40 Start: 32623, Stop: 31679, Start Num: 41

Candidate Starts for TP1604_40:

(18, 32728), (26, 32680), (28, 32668), (29, 32665), (Start: 41 @32623 has 9 MA's), (44, 32614), (81, 32437), (90, 32365), (97, 32341), (124, 32194), (127, 32173), (134, 32128), (142, 32074), (153, 31990), (156, 31981), (161, 31954), (175, 31849), (178, 31795),

Gene: ThursdayNight_50 Start: 35166, Stop: 36119, Start Num: 38

Candidate Starts for ThursdayNight_50:

(Start: 38 @35166 has 1 MA's), (57, 35259), (59, 35271), (61, 35295), (85, 35391), (159, 35811), (182, 35973),

Gene: Tian_46 Start: 35220, Stop: 36194, Start Num: 42

Candidate Starts for Tian_46:

(13, 35097), (Start: 42 @35220 has 8 MA's), (57, 35304), (61, 35340), (85, 35439), (112, 35565), (122, 35625), (129, 35667), (159, 35862), (177, 35973),

Gene: TurkishDelight_123 Start: 90090, Stop: 91361, Start Num: 46

Candidate Starts for TurkishDelight_123:

(33, 90051), (Start: 40 @90072 has 2 MA's), (Start: 46 @90090 has 1 MA's), (53, 90150), (57, 90180), (70, 90267), (74, 90282), (83, 90378), (88, 90417), (89, 90426), (98, 90471), (118, 90591), (142,

90747), (145, 90771), (147, 90780), (156, 90846), (166, 90912), (194, 91155), (202, 91230), (209, 91287), (210, 91290), (211, 91293), (217, 91353),

Gene: Vibaki_4 Start: 2231, Stop: 3478, Start Num: 37

Candidate Starts for Vibaki_4:

(4, 2012), (8, 2060), (Start: 37 @2231 has 4 MA's), (57, 2327), (61, 2363), (73, 2414), (78, 2453), (81, 2471), (85, 2507), (92, 2546), (109, 2618), (124, 2702), (129, 2735), (131, 2756), (134, 2768), (145, 2843), (220, 3242), (226, 3287), (237, 3362),

Gene: Vitus_4 Start: 2116, Stop: 3375, Start Num: 37

Candidate Starts for Vitus_4:

(Start: 37 @2116 has 4 MA's), (57, 2212), (61, 2248), (67, 2281), (81, 2356), (85, 2392), (107, 2494), (129, 2620), (155, 2794), (167, 2851), (181, 2953), (199, 3037), (203, 3049), (224, 3145), (229, 3178), (236, 3253), (247, 3352),

Gene: YDN12_41 Start: 32025, Stop: 31081, Start Num: 41

Candidate Starts for YDN12_41:

(24, 32088), (Start: 41 @32025 has 9 MA's), (44, 32016), (64, 31878), (92, 31764), (97, 31743), (106, 31704), (124, 31596), (127, 31575), (134, 31530), (142, 31476), (152, 31398), (153, 31392), (161, 31356), (171, 31281), (173, 31269), (174, 31254), (175, 31251),

Gene: Yang_47 Start: 33687, Stop: 34649, Start Num: 42

Candidate Starts for Yang_47:

(Start: 42 @33687 has 8 MA's), (57, 33771), (61, 33807), (74, 33855), (114, 34056), (119, 34089), (129, 34146), (139, 34203),

Gene: Zodiariah_32 Start: 30136, Stop: 29276, Start Num: 72

Candidate Starts for Zodiariah_32:

(22, 30400), (23, 30394), (34, 30343), (39, 30334), (49, 30280), (66, 30160), (Start: 72 @30136 has 1 MA's), (83, 30031), (84, 30007), (86, 30001), (87, 29992), (91, 29968), (101, 29935), (111, 29866), (123, 29797), (140, 29686), (154, 29578), (170, 29467), (177, 29416), (185, 29329), (188, 29299), (189, 29296),

Gene: pZL12_28c Start: 19291, Stop: 18185, Start Num: 36

Candidate Starts for pZL12_28c:

(36, 19291), (55, 19198), (56, 19192), (62, 19141), (82, 19078), (111, 18925), (114, 18910), (121, 18871), (122, 18862), (124, 18853), (131, 18799), (158, 18640), (159, 18634),

Gene: pZL12_27c Start: 18188, Stop: 17142, Start Num: 43

Candidate Starts for pZL12_27c:

(43, 18188), (49, 18149), (54, 18122), (68, 18032), (106, 17873), (158, 17546), (159, 17540), (163, 17516), (207, 17180), (208, 17174),