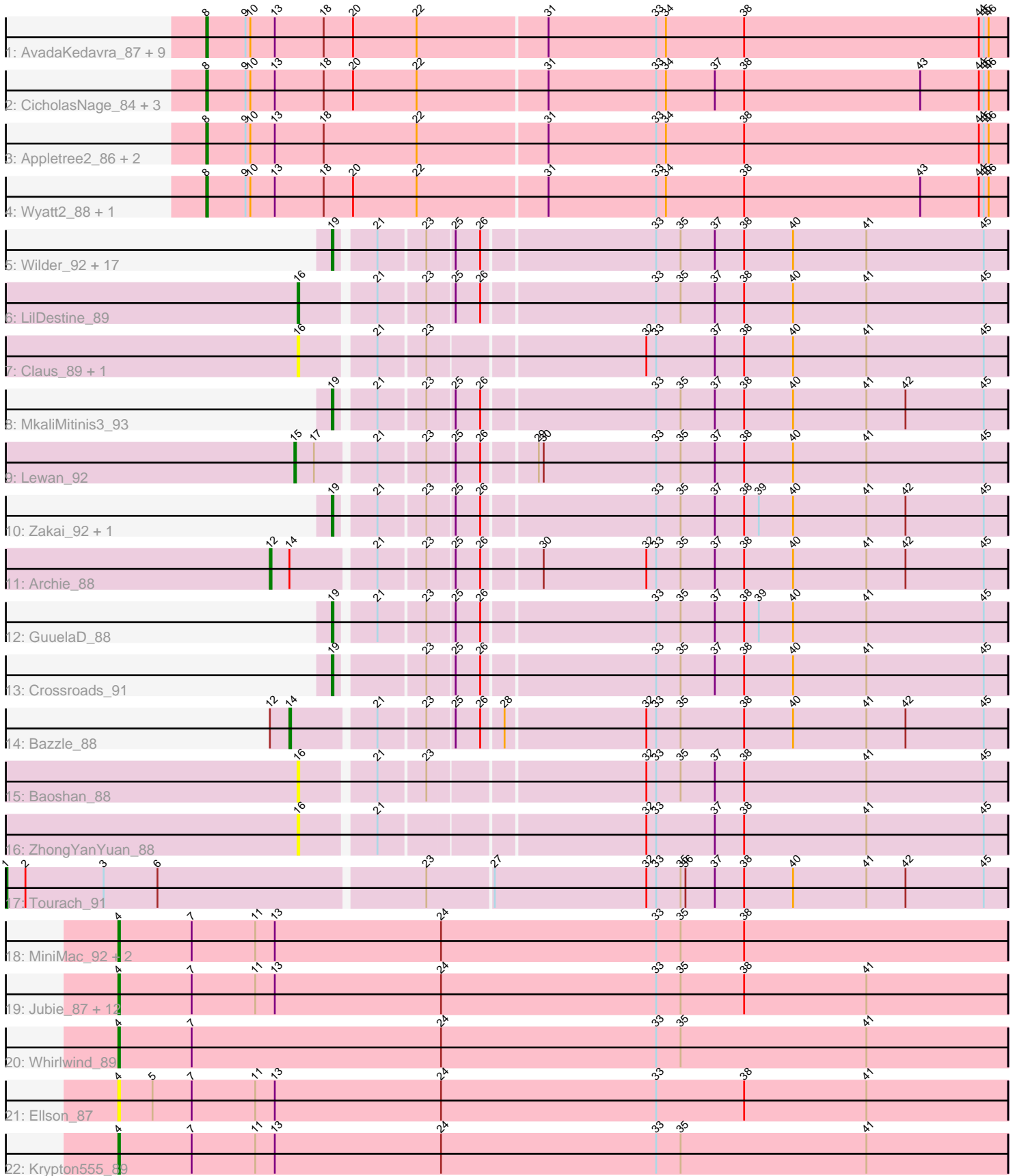


Pham 157838



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 157838 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157838 has 70 members, 8 are drafts.

Phages represented in each track:

- Track 1 : AvadaKedavra_87, Zaria_87, Wamburggrxpress_86, DirkDirk_84, Halena_84, Silverleaf_87, MAckerman_83, JoeDirt_88, Calm_88, Tyson_88
- Track 2 : CicholasNage_84, Acquire49_87, LeBron_86, UPIE_86
- Track 3 : Appletree2_86, Enceladus_84, OhShagHennessy_83
- Track 4 : Wyatt2_88, Rose5_88
- Track 5 : Wilder_92, Rumpelstiltskin_87, Netyap_90, Gabriela_91, Vetric_89, DrSeegs_90, Finemlucis_92, BigCheese_91, Gardann_91, Nicholasp3_91, Itos_91, Winky_91, BobsGarage_90, Faith1_91, Miley16_91, Wigglewiggle_91, Kahlid_90, Breezona_91
- Track 6 : LilDestine_89
- Track 7 : Claus_89, Hafay_91
- Track 8 : MkaliMitinis3_93
- Track 9 : Lewan_92
- Track 10 : Zakai_92, Loadrie_90
- Track 11 : Archie_88
- Track 12 : GuuelaD_88
- Track 13 : Crossroads_91
- Track 14 : Bazzle_88
- Track 15 : Baoshan_88
- Track 16 : ZhongYanYuan_88
- Track 17 : Tourach_91
- Track 18 : MiniMac_92, Lolly9_87, MiniLon_92
- Track 19 : Jubie_87, Snenia_87, Finnry_88, Lumos_88, DuncansLeg_88, MsGreen_88, Samty_87, Nicholas_86, Moostard_86, Kingsolomon_86, Clautastrophe_86, Bellis_86, Jobypre_89
- Track 20 : Whirlwind_89
- Track 21 : Ellson_87
- Track 22 : Krypton555_89

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

The start number called the most often in the published annotations is 19, it was called in 23 of the 62 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- BigCheese_91, BobsGarage_90, Breezona_91, Crossroads_91, DrSeegs_90, Faith1_91, Finemlucis_92, Gabriela_91, Gardann_91, GuuelaD_88, Itos_91, Kahlid_90, Loadrie_90, Miley16_91, MkaliMitinis3_93, Netyap_90, Nicholasp3_91, Rumpelstiltskin_87, Vetrix_89, Wigglewiggle_91, Wilder_92, Winky_91, Zakai_92,

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

-

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

- Acquire49_87, Appletree2_86, Archie_88, AvadaKedavra_87, Baoshan_88, Bazzle_88, Bellis_86, Calm_88, CicholasNage_84, Claus_89, Clautastrophe_86, DirkDirk_84, DuncansLeg_88, Ellson_87, Enceladus_84, Finnry_88, Hafay_91, Halena_84, Jobypre_89, JoeDirt_88, Jubie_87, Kingsolomon_86, Krypton555_89, LeBron_86, Lewan_92, LilDestine_89, Lolly9_87, Lumos_88, MAckerman_83, MiniLon_92, MiniMac_92, Moostard_86, MsGreen_88, Nicholas_86, OhShagHennessy_83, Rose5_88, Samty_87, Silverleaf_87, Snenia_87, Tourach_91, Tyson_88, UPIE_86, Wamburgrxpress_86, Whirlwind_89, Wyatt2_88, Zaria_87, ZhongYanYuan_88,

Summary by start number:

Start 1:

- Found in 1 of 70 (1.4%) of genes in pham
- Manual Annotations of this start: 1 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Tourach_91 (L2),

Start 4:

- Found in 19 of 70 (27.1%) of genes in pham
- Manual Annotations of this start: 16 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bellis_86 (L3), Clautastrophe_86 (L3), DuncansLeg_88 (L3), Ellson_87 (L3), Finnry_88 (L3), Jobypre_89 (L3), Jubie_87 (L3), Kingsolomon_86 (L3), Krypton555_89 (L3), Lolly9_87 (L3), Lumos_88 (L3), MiniLon_92 (L3), MiniMac_92 (L3), Moostard_86 (L3), MsGreen_88 (L3), Nicholas_86 (L3), Samty_87 (L3), Snenia_87 (L3), Whirlwind_89 (L3),

Start 8:

- Found in 19 of 70 (27.1%) of genes in pham
- Manual Annotations of this start: 18 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acquire49_87 (L1), Appletree2_86 (L1), AvadaKedavra_87 (L1), Calm_88 (L1), CicholasNage_84 (L1), DirkDirk_84 (L1), Enceladus_84 (L1), Halena_84 (L1), JoeDirt_88 (L1), LeBron_86 (L1), MAckerman_83 (L1), OhShagHennessy_83 (L1), Rose5_88 (L1), Silverleaf_87 (L1), Tyson_88 (L1), UPIE_86 (L1), Wamburgrxpress_86 (L1), Wyatt2_88 (L1), Zaria_87 (L1),

Start 12:

- Found in 2 of 70 (2.9%) of genes in pham
- Manual Annotations of this start: 1 of 62
- Called 50.0% of time when present

- Phage (with cluster) where this start called: Archie_88 (L2),

Start 14:

- Found in 2 of 70 (2.9%) of genes in pham
- Manual Annotations of this start: 1 of 62
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Bazzle_88 (L2),

Start 15:

- Found in 1 of 70 (1.4%) of genes in pham
- Manual Annotations of this start: 1 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Lewan_92 (L2),

Start 16:

- Found in 5 of 70 (7.1%) of genes in pham
- Manual Annotations of this start: 1 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Baoshan_88 (L2), Claus_89 (L2), Hafay_91 (L2), LilDestine_89 (L2), ZhongYanYuan_88 (L2),

Start 19:

- Found in 23 of 70 (32.9%) of genes in pham
- Manual Annotations of this start: 23 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BigCheese_91 (L2), BobsGarage_90 (L2), Breezona_91 (L2), Crossroads_91 (L2), DrSeegs_90 (L2), Faith1_91 (L2), Finemlucis_92 (L2), Gabriela_91 (L2), Gardann_91 (L2), GuuelaD_88 (L2), Itos_91 (L2), Kahlid_90 (L2), Loadrie_90 (L2), Miley16_91 (L2), MkaliMitinis3_93 (L2), Netyap_90 (L2), Nicholasp3_91 (L2), Rumpelstiltskin_87 (L2), Vetric_89 (L2), Wigglewiggles_91 (L2), Wilder_92 (L2), Winky_91 (L2), Zakai_92 (L2),

Summary by clusters:

There are 3 clusters represented in this pham: L2, L3, L1,

Info for manual annotations of cluster L1:

- Start number 8 was manually annotated 18 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 1 was manually annotated 1 time for cluster L2.
- Start number 12 was manually annotated 1 time for cluster L2.
- Start number 14 was manually annotated 1 time for cluster L2.
- Start number 15 was manually annotated 1 time for cluster L2.
- Start number 16 was manually annotated 1 time for cluster L2.
- Start number 19 was manually annotated 23 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 4 was manually annotated 16 times for cluster L3.

Gene Information:

Gene: Acquire49_87 Start: 56147, Stop: 56635, Start Num: 8

Candidate Starts for Acquire49_87:

(Start: 8 @56147 has 18 MA's), (9, 56171), (10, 56174), (13, 56189), (18, 56219), (20, 56237), (22, 56276), (31, 56354), (33, 56420), (34, 56426), (37, 56456), (38, 56474), (43, 56582), (44, 56618), (45, 56621), (46, 56624),

Gene: Appletree2_86 Start: 55871, Stop: 56359, Start Num: 8

Candidate Starts for Appletree2_86:

(Start: 8 @55871 has 18 MA's), (9, 55895), (10, 55898), (13, 55913), (18, 55943), (22, 56000), (31, 56078), (33, 56144), (34, 56150), (38, 56198), (44, 56342), (45, 56345), (46, 56348),

Gene: Archie_88 Start: 57890, Stop: 58324, Start Num: 12

Candidate Starts for Archie_88:

(Start: 12 @57890 has 1 MA's), (Start: 14 @57902 has 1 MA's), (21, 57950), (23, 57977), (25, 57992), (26, 58007), (30, 58040), (32, 58103), (33, 58109), (35, 58124), (37, 58145), (38, 58163), (40, 58193), (41, 58238), (42, 58262), (45, 58310),

Gene: AvadaKedavra_87 Start: 56223, Stop: 56711, Start Num: 8

Candidate Starts for AvadaKedavra_87:

(Start: 8 @56223 has 18 MA's), (9, 56247), (10, 56250), (13, 56265), (18, 56295), (20, 56313), (22, 56352), (31, 56430), (33, 56496), (34, 56502), (38, 56550), (44, 56694), (45, 56697), (46, 56700),

Gene: Baoshan_88 Start: 58580, Stop: 58996, Start Num: 16

Candidate Starts for Baoshan_88:

(Start: 16 @58580 has 1 MA's), (21, 58622), (23, 58649), (32, 58775), (33, 58781), (35, 58796), (37, 58817), (38, 58835), (41, 58910), (45, 58982),

Gene: Bazzle_88 Start: 58458, Stop: 58880, Start Num: 14

Candidate Starts for Bazzle_88:

(Start: 12 @58446 has 1 MA's), (Start: 14 @58458 has 1 MA's), (21, 58506), (23, 58533), (25, 58548), (26, 58563), (28, 58575), (32, 58659), (33, 58665), (35, 58680), (38, 58719), (40, 58749), (41, 58794), (42, 58818), (45, 58866),

Gene: Bellis_86 Start: 57982, Stop: 58527, Start Num: 4

Candidate Starts for Bellis_86:

(Start: 4 @57982 has 16 MA's), (7, 58027), (11, 58066), (13, 58078), (24, 58180), (33, 58312), (35, 58327), (38, 58366), (41, 58441),

Gene: BigCheese_91 Start: 58695, Stop: 59090, Start Num: 19

Candidate Starts for BigCheese_91:

(Start: 19 @58695 has 23 MA's), (21, 58716), (23, 58743), (25, 58758), (26, 58773), (33, 58875), (35, 58890), (37, 58911), (38, 58929), (40, 58959), (41, 59004), (45, 59076),

Gene: BobsGarage_90 Start: 58695, Stop: 59090, Start Num: 19

Candidate Starts for BobsGarage_90:

(Start: 19 @58695 has 23 MA's), (21, 58716), (23, 58743), (25, 58758), (26, 58773), (33, 58875), (35, 58890), (37, 58911), (38, 58929), (40, 58959), (41, 59004), (45, 59076),

Gene: Breezona_91 Start: 58695, Stop: 59090, Start Num: 19

Candidate Starts for Breezona_91:

(Start: 19 @58695 has 23 MA's), (21, 58716), (23, 58743), (25, 58758), (26, 58773), (33, 58875), (35, 58890), (37, 58911), (38, 58929), (40, 58959), (41, 59004), (45, 59076),

Gene: Calm_88 Start: 56122, Stop: 56610, Start Num: 8

Candidate Starts for Calm_88:

(Start: 8 @56122 has 18 MA's), (9, 56146), (10, 56149), (13, 56164), (18, 56194), (20, 56212), (22, 56251), (31, 56329), (33, 56395), (34, 56401), (38, 56449), (44, 56593), (45, 56596), (46, 56599),

Gene: CicholasNage_84 Start: 55811, Stop: 56299, Start Num: 8

Candidate Starts for CicholasNage_84:

(Start: 8 @55811 has 18 MA's), (9, 55835), (10, 55838), (13, 55853), (18, 55883), (20, 55901), (22, 55940), (31, 56018), (33, 56084), (34, 56090), (37, 56120), (38, 56138), (43, 56246), (44, 56282), (45, 56285), (46, 56288),

Gene: Claus_89 Start: 58231, Stop: 58647, Start Num: 16

Candidate Starts for Claus_89:

(Start: 16 @58231 has 1 MA's), (21, 58273), (23, 58300), (32, 58426), (33, 58432), (37, 58468), (38, 58486), (40, 58516), (41, 58561), (45, 58633),

Gene: Clautastrophe_86 Start: 57977, Stop: 58522, Start Num: 4

Candidate Starts for Clautastrophe_86:

(Start: 4 @57977 has 16 MA's), (7, 58022), (11, 58061), (13, 58073), (24, 58175), (33, 58307), (35, 58322), (38, 58361), (41, 58436),

Gene: Crossroads_91 Start: 58407, Stop: 58802, Start Num: 19

Candidate Starts for Crossroads_91:

(Start: 19 @58407 has 23 MA's), (23, 58455), (25, 58470), (26, 58485), (33, 58587), (35, 58602), (37, 58623), (38, 58641), (40, 58671), (41, 58716), (45, 58788),

Gene: DirkDirk_84 Start: 55451, Stop: 55939, Start Num: 8

Candidate Starts for DirkDirk_84:

(Start: 8 @55451 has 18 MA's), (9, 55475), (10, 55478), (13, 55493), (18, 55523), (20, 55541), (22, 55580), (31, 55658), (33, 55724), (34, 55730), (38, 55778), (44, 55922), (45, 55925), (46, 55928),

Gene: DrSeegs_90 Start: 58695, Stop: 59090, Start Num: 19

Candidate Starts for DrSeegs_90:

(Start: 19 @58695 has 23 MA's), (21, 58716), (23, 58743), (25, 58758), (26, 58773), (33, 58875), (35, 58890), (37, 58911), (38, 58929), (40, 58959), (41, 59004), (45, 59076),

Gene: DuncansLeg_88 Start: 57996, Stop: 58541, Start Num: 4

Candidate Starts for DuncansLeg_88:

(Start: 4 @57996 has 16 MA's), (7, 58041), (11, 58080), (13, 58092), (24, 58194), (33, 58326), (35, 58341), (38, 58380), (41, 58455),

Gene: Ellson_87 Start: 58311, Stop: 58856, Start Num: 4

Candidate Starts for Ellson_87:

(Start: 4 @58311 has 16 MA's), (5, 58332), (7, 58356), (11, 58395), (13, 58407), (24, 58509), (33, 58641), (38, 58695), (41, 58770),

Gene: Enceladus_84 Start: 56152, Stop: 56640, Start Num: 8

Candidate Starts for Enceladus_84:

(Start: 8 @56152 has 18 MA's), (9, 56176), (10, 56179), (13, 56194), (18, 56224), (22, 56281), (31, 56359), (33, 56425), (34, 56431), (38, 56479), (44, 56623), (45, 56626), (46, 56629),

Gene: Faith1_91 Start: 58332, Stop: 58727, Start Num: 19

Candidate Starts for Faith1_91:

(Start: 19 @58332 has 23 MA's), (21, 58353), (23, 58380), (25, 58395), (26, 58410), (33, 58512), (35, 58527), (37, 58548), (38, 58566), (40, 58596), (41, 58641), (45, 58713),

Gene: Finemlucis_92 Start: 59463, Stop: 59858, Start Num: 19

Candidate Starts for Finemlucis_92:

(Start: 19 @59463 has 23 MA's), (21, 59484), (23, 59511), (25, 59526), (26, 59541), (33, 59643), (35, 59658), (37, 59679), (38, 59697), (40, 59727), (41, 59772), (45, 59844),

Gene: Finnry_88 Start: 58330, Stop: 58875, Start Num: 4

Candidate Starts for Finnry_88:

(Start: 4 @58330 has 16 MA's), (7, 58375), (11, 58414), (13, 58426), (24, 58528), (33, 58660), (35, 58675), (38, 58714), (41, 58789),

Gene: Gabriela_91 Start: 57678, Stop: 58073, Start Num: 19

Candidate Starts for Gabriela_91:

(Start: 19 @57678 has 23 MA's), (21, 57699), (23, 57726), (25, 57741), (26, 57756), (33, 57858), (35, 57873), (37, 57894), (38, 57912), (40, 57942), (41, 57987), (45, 58059),

Gene: Gardann_91 Start: 58179, Stop: 58574, Start Num: 19

Candidate Starts for Gardann_91:

(Start: 19 @58179 has 23 MA's), (21, 58200), (23, 58227), (25, 58242), (26, 58257), (33, 58359), (35, 58374), (37, 58395), (38, 58413), (40, 58443), (41, 58488), (45, 58560),

Gene: GuuelaD_88 Start: 58291, Stop: 58686, Start Num: 19

Candidate Starts for GuuelaD_88:

(Start: 19 @58291 has 23 MA's), (21, 58312), (23, 58339), (25, 58354), (26, 58369), (33, 58471), (35, 58486), (37, 58507), (38, 58525), (39, 58534), (40, 58555), (41, 58600), (45, 58672),

Gene: Hafay_91 Start: 58226, Stop: 58642, Start Num: 16

Candidate Starts for Hafay_91:

(Start: 16 @58226 has 1 MA's), (21, 58268), (23, 58295), (32, 58421), (33, 58427), (37, 58463), (38, 58481), (40, 58511), (41, 58556), (45, 58628),

Gene: Halena_84 Start: 55038, Stop: 55526, Start Num: 8

Candidate Starts for Halena_84:

(Start: 8 @55038 has 18 MA's), (9, 55062), (10, 55065), (13, 55080), (18, 55110), (20, 55128), (22, 55167), (31, 55245), (33, 55311), (34, 55317), (38, 55365), (44, 55509), (45, 55512), (46, 55515),

Gene: Itos_91 Start: 57238, Stop: 57633, Start Num: 19

Candidate Starts for Itos_91:

(Start: 19 @57238 has 23 MA's), (21, 57259), (23, 57286), (25, 57301), (26, 57316), (33, 57418), (35, 57433), (37, 57454), (38, 57472), (40, 57502), (41, 57547), (45, 57619),

Gene: Jobypre_89 Start: 57977, Stop: 58522, Start Num: 4

Candidate Starts for Jobypre_89:

(Start: 4 @57977 has 16 MA's), (7, 58022), (11, 58061), (13, 58073), (24, 58175), (33, 58307), (35, 58322), (38, 58361), (41, 58436),

Gene: JoeDirt_88 Start: 56713, Stop: 57201, Start Num: 8

Candidate Starts for JoeDirt_88:

(Start: 8 @56713 has 18 MA's), (9, 56737), (10, 56740), (13, 56755), (18, 56785), (20, 56803), (22, 56842), (31, 56920), (33, 56986), (34, 56992), (38, 57040), (44, 57184), (45, 57187), (46, 57190),

Gene: Jubie_87 Start: 58112, Stop: 58657, Start Num: 4

Candidate Starts for Jubie_87:

(Start: 4 @58112 has 16 MA's), (7, 58157), (11, 58196), (13, 58208), (24, 58310), (33, 58442), (35, 58457), (38, 58496), (41, 58571),

Gene: Kahlid_90 Start: 58097, Stop: 58492, Start Num: 19

Candidate Starts for Kahlid_90:

(Start: 19 @58097 has 23 MA's), (21, 58118), (23, 58145), (25, 58160), (26, 58175), (33, 58277), (35, 58292), (37, 58313), (38, 58331), (40, 58361), (41, 58406), (45, 58478),

Gene: Kingsolomon_86 Start: 58086, Stop: 58631, Start Num: 4

Candidate Starts for Kingsolomon_86:

(Start: 4 @58086 has 16 MA's), (7, 58131), (11, 58170), (13, 58182), (24, 58284), (33, 58416), (35, 58431), (38, 58470), (41, 58545),

Gene: Krypton555_89 Start: 58354, Stop: 58899, Start Num: 4

Candidate Starts for Krypton555_89:

(Start: 4 @58354 has 16 MA's), (7, 58399), (11, 58438), (13, 58450), (24, 58552), (33, 58684), (35, 58699), (41, 58813),

Gene: LeBron_86 Start: 55381, Stop: 55869, Start Num: 8

Candidate Starts for LeBron_86:

(Start: 8 @55381 has 18 MA's), (9, 55405), (10, 55408), (13, 55423), (18, 55453), (20, 55471), (22, 55510), (31, 55588), (33, 55654), (34, 55660), (37, 55690), (38, 55708), (43, 55816), (44, 55852), (45, 55855), (46, 55858),

Gene: Lewan_92 Start: 58307, Stop: 58726, Start Num: 15

Candidate Starts for Lewan_92:

(Start: 15 @58307 has 1 MA's), (17, 58319), (21, 58352), (23, 58379), (25, 58394), (26, 58409), (29, 58439), (30, 58442), (33, 58511), (35, 58526), (37, 58547), (38, 58565), (40, 58595), (41, 58640), (45, 58712),

Gene: LilDestine_89 Start: 57987, Stop: 58403, Start Num: 16

Candidate Starts for LilDestine_89:

(Start: 16 @57987 has 1 MA's), (21, 58029), (23, 58056), (25, 58071), (26, 58086), (33, 58188), (35, 58203), (37, 58224), (38, 58242), (40, 58272), (41, 58317), (45, 58389),

Gene: Loadrie_90 Start: 58499, Stop: 58894, Start Num: 19

Candidate Starts for Loadrie_90:

(Start: 19 @58499 has 23 MA's), (21, 58520), (23, 58547), (25, 58562), (26, 58577), (33, 58679), (35, 58694), (37, 58715), (38, 58733), (39, 58742), (40, 58763), (41, 58808), (42, 58832), (45, 58880),

Gene: Lolly9_87 Start: 58162, Stop: 58707, Start Num: 4

Candidate Starts for Lolly9_87:

(Start: 4 @58162 has 16 MA's), (7, 58207), (11, 58246), (13, 58258), (24, 58360), (33, 58492), (35, 58507), (38, 58546),

Gene: Lumos_88 Start: 57974, Stop: 58519, Start Num: 4

Candidate Starts for Lumos_88:

(Start: 4 @57974 has 16 MA's), (7, 58019), (11, 58058), (13, 58070), (24, 58172), (33, 58304), (35, 58319), (38, 58358), (41, 58433),

Gene: MAckerman_83 Start: 55031, Stop: 55519, Start Num: 8

Candidate Starts for MAckerman_83:

(Start: 8 @55031 has 18 MA's), (9, 55055), (10, 55058), (13, 55073), (18, 55103), (20, 55121), (22, 55160), (31, 55238), (33, 55304), (34, 55310), (38, 55358), (44, 55502), (45, 55505), (46, 55508),

Gene: Miley16_91 Start: 58695, Stop: 59090, Start Num: 19

Candidate Starts for Miley16_91:

(Start: 19 @58695 has 23 MA's), (21, 58716), (23, 58743), (25, 58758), (26, 58773), (33, 58875), (35, 58890), (37, 58911), (38, 58929), (40, 58959), (41, 59004), (45, 59076),

Gene: MiniLon_92 Start: 58163, Stop: 58708, Start Num: 4

Candidate Starts for MiniLon_92:

(Start: 4 @58163 has 16 MA's), (7, 58208), (11, 58247), (13, 58259), (24, 58361), (33, 58493), (35, 58508), (38, 58547),

Gene: MiniMac_92 Start: 58158, Stop: 58703, Start Num: 4

Candidate Starts for MiniMac_92:

(Start: 4 @58158 has 16 MA's), (7, 58203), (11, 58242), (13, 58254), (24, 58356), (33, 58488), (35, 58503), (38, 58542),

Gene: MkaliMitinis3_93 Start: 58462, Stop: 58857, Start Num: 19

Candidate Starts for MkaliMitinis3_93:

(Start: 19 @58462 has 23 MA's), (21, 58483), (23, 58510), (25, 58525), (26, 58540), (33, 58642), (35, 58657), (37, 58678), (38, 58696), (40, 58726), (41, 58771), (42, 58795), (45, 58843),

Gene: Moostard_86 Start: 58081, Stop: 58626, Start Num: 4

Candidate Starts for Moostard_86:

(Start: 4 @58081 has 16 MA's), (7, 58126), (11, 58165), (13, 58177), (24, 58279), (33, 58411), (35, 58426), (38, 58465), (41, 58540),

Gene: MsGreen_88 Start: 57976, Stop: 58521, Start Num: 4

Candidate Starts for MsGreen_88:

(Start: 4 @57976 has 16 MA's), (7, 58021), (11, 58060), (13, 58072), (24, 58174), (33, 58306), (35, 58321), (38, 58360), (41, 58435),

Gene: Netyap_90 Start: 58333, Stop: 58728, Start Num: 19

Candidate Starts for Netyap_90:

(Start: 19 @58333 has 23 MA's), (21, 58354), (23, 58381), (25, 58396), (26, 58411), (33, 58513), (35, 58528), (37, 58549), (38, 58567), (40, 58597), (41, 58642), (45, 58714),

Gene: Nicholas_86 Start: 58086, Stop: 58631, Start Num: 4

Candidate Starts for Nicholas_86:

(Start: 4 @58086 has 16 MA's), (7, 58131), (11, 58170), (13, 58182), (24, 58284), (33, 58416), (35, 58431), (38, 58470), (41, 58545),

Gene: Nicholasp3_91 Start: 58179, Stop: 58574, Start Num: 19

Candidate Starts for Nicholasp3_91:

(Start: 19 @58179 has 23 MA's), (21, 58200), (23, 58227), (25, 58242), (26, 58257), (33, 58359), (35, 58374), (37, 58395), (38, 58413), (40, 58443), (41, 58488), (45, 58560),

Gene: OhShagHennessy_83 Start: 55288, Stop: 55776, Start Num: 8

Candidate Starts for OhShagHennessy_83:

(Start: 8 @55288 has 18 MA's), (9, 55312), (10, 55315), (13, 55330), (18, 55360), (22, 55417), (31, 55495), (33, 55561), (34, 55567), (38, 55615), (44, 55759), (45, 55762), (46, 55765),

Gene: Rose5_88 Start: 56555, Stop: 57043, Start Num: 8

Candidate Starts for Rose5_88:

(Start: 8 @56555 has 18 MA's), (9, 56579), (10, 56582), (13, 56597), (18, 56627), (20, 56645), (22, 56684), (31, 56762), (33, 56828), (34, 56834), (38, 56882), (43, 56990), (44, 57026), (45, 57029), (46, 57032),

Gene: Rumpelstiltskin_87 Start: 57972, Stop: 58367, Start Num: 19

Candidate Starts for Rumpelstiltskin_87:

(Start: 19 @57972 has 23 MA's), (21, 57993), (23, 58020), (25, 58035), (26, 58050), (33, 58152), (35, 58167), (37, 58188), (38, 58206), (40, 58236), (41, 58281), (45, 58353),

Gene: Samty_87 Start: 58074, Stop: 58619, Start Num: 4

Candidate Starts for Samty_87:

(Start: 4 @58074 has 16 MA's), (7, 58119), (11, 58158), (13, 58170), (24, 58272), (33, 58404), (35, 58419), (38, 58458), (41, 58533),

Gene: Silverleaf_87 Start: 56051, Stop: 56539, Start Num: 8

Candidate Starts for Silverleaf_87:

(Start: 8 @56051 has 18 MA's), (9, 56075), (10, 56078), (13, 56093), (18, 56123), (20, 56141), (22, 56180), (31, 56258), (33, 56324), (34, 56330), (38, 56378), (44, 56522), (45, 56525), (46, 56528),

Gene: Snenia_87 Start: 57978, Stop: 58523, Start Num: 4

Candidate Starts for Snenia_87:

(Start: 4 @57978 has 16 MA's), (7, 58023), (11, 58062), (13, 58074), (24, 58176), (33, 58308), (35, 58323), (38, 58362), (41, 58437),

Gene: Tourach_91 Start: 58876, Stop: 59481, Start Num: 1

Candidate Starts for Tourach_91:

(Start: 1 @58876 has 1 MA's), (2, 58888), (3, 58936), (6, 58969), (23, 59128), (27, 59167), (32, 59260), (33, 59266), (35, 59281), (36, 59284), (37, 59302), (38, 59320), (40, 59350), (41, 59395), (42, 59419), (45, 59467),

Gene: Tyson_88 Start: 56484, Stop: 56972, Start Num: 8

Candidate Starts for Tyson_88:

(Start: 8 @56484 has 18 MA's), (9, 56508), (10, 56511), (13, 56526), (18, 56556), (20, 56574), (22, 56613), (31, 56691), (33, 56757), (34, 56763), (38, 56811), (44, 56955), (45, 56958), (46, 56961),

Gene: UPIE_86 Start: 56080, Stop: 56568, Start Num: 8

Candidate Starts for UPIE_86:

(Start: 8 @56080 has 18 MA's), (9, 56104), (10, 56107), (13, 56122), (18, 56152), (20, 56170), (22, 56209), (31, 56287), (33, 56353), (34, 56359), (37, 56389), (38, 56407), (43, 56515), (44, 56551), (45, 56554), (46, 56557),

Gene: Vetric_89 Start: 57953, Stop: 58348, Start Num: 19

Candidate Starts for Vetric_89:

(Start: 19 @57953 has 23 MA's), (21, 57974), (23, 58001), (25, 58016), (26, 58031), (33, 58133), (35, 58148), (37, 58169), (38, 58187), (40, 58217), (41, 58262), (45, 58334),

Gene: Wamburgexpress_86 Start: 56172, Stop: 56660, Start Num: 8

Candidate Starts for Wamburgexpress_86:

(Start: 8 @56172 has 18 MA's), (9, 56196), (10, 56199), (13, 56214), (18, 56244), (20, 56262), (22, 56301), (31, 56379), (33, 56445), (34, 56451), (38, 56499), (44, 56643), (45, 56646), (46, 56649),

Gene: Whirlwind_89 Start: 58317, Stop: 58862, Start Num: 4

Candidate Starts for Whirlwind_89:

(Start: 4 @58317 has 16 MA's), (7, 58362), (24, 58515), (33, 58647), (35, 58662), (41, 58776),

Gene: Wigglewigggle_91 Start: 58255, Stop: 58650, Start Num: 19

Candidate Starts for Wigglewigggle_91:

(Start: 19 @58255 has 23 MA's), (21, 58276), (23, 58303), (25, 58318), (26, 58333), (33, 58435), (35, 58450), (37, 58471), (38, 58489), (40, 58519), (41, 58564), (45, 58636),

Gene: Wilder_92 Start: 58097, Stop: 58492, Start Num: 19

Candidate Starts for Wilder_92:

(Start: 19 @58097 has 23 MA's), (21, 58118), (23, 58145), (25, 58160), (26, 58175), (33, 58277), (35, 58292), (37, 58313), (38, 58331), (40, 58361), (41, 58406), (45, 58478),

Gene: Winky_91 Start: 58695, Stop: 59090, Start Num: 19

Candidate Starts for Winky_91:

(Start: 19 @58695 has 23 MA's), (21, 58716), (23, 58743), (25, 58758), (26, 58773), (33, 58875), (35, 58890), (37, 58911), (38, 58929), (40, 58959), (41, 59004), (45, 59076),

Gene: Wyatt2_88 Start: 56479, Stop: 56967, Start Num: 8

Candidate Starts for Wyatt2_88:

(Start: 8 @56479 has 18 MA's), (9, 56503), (10, 56506), (13, 56521), (18, 56551), (20, 56569), (22, 56608), (31, 56686), (33, 56752), (34, 56758), (38, 56806), (43, 56914), (44, 56950), (45, 56953), (46, 56956),

Gene: Zakai_92 Start: 58740, Stop: 59135, Start Num: 19

Candidate Starts for Zakai_92:

(Start: 19 @58740 has 23 MA's), (21, 58761), (23, 58788), (25, 58803), (26, 58818), (33, 58920), (35, 58935), (37, 58956), (38, 58974), (39, 58983), (40, 59004), (41, 59049), (42, 59073), (45, 59121),

Gene: Zaria_87 Start: 55587, Stop: 56075, Start Num: 8

Candidate Starts for Zaria_87:

(Start: 8 @55587 has 18 MA's), (9, 55611), (10, 55614), (13, 55629), (18, 55659), (20, 55677), (22, 55716), (31, 55794), (33, 55860), (34, 55866), (38, 55914), (44, 56058), (45, 56061), (46, 56064),

Gene: ZhongYanYuan_88 Start: 58130, Stop: 58546, Start Num: 16

Candidate Starts for ZhongYanYuan_88:

(Start: 16 @58130 has 1 MA's), (21, 58172), (32, 58325), (33, 58331), (37, 58367), (38, 58385), (41, 58460), (45, 58532),