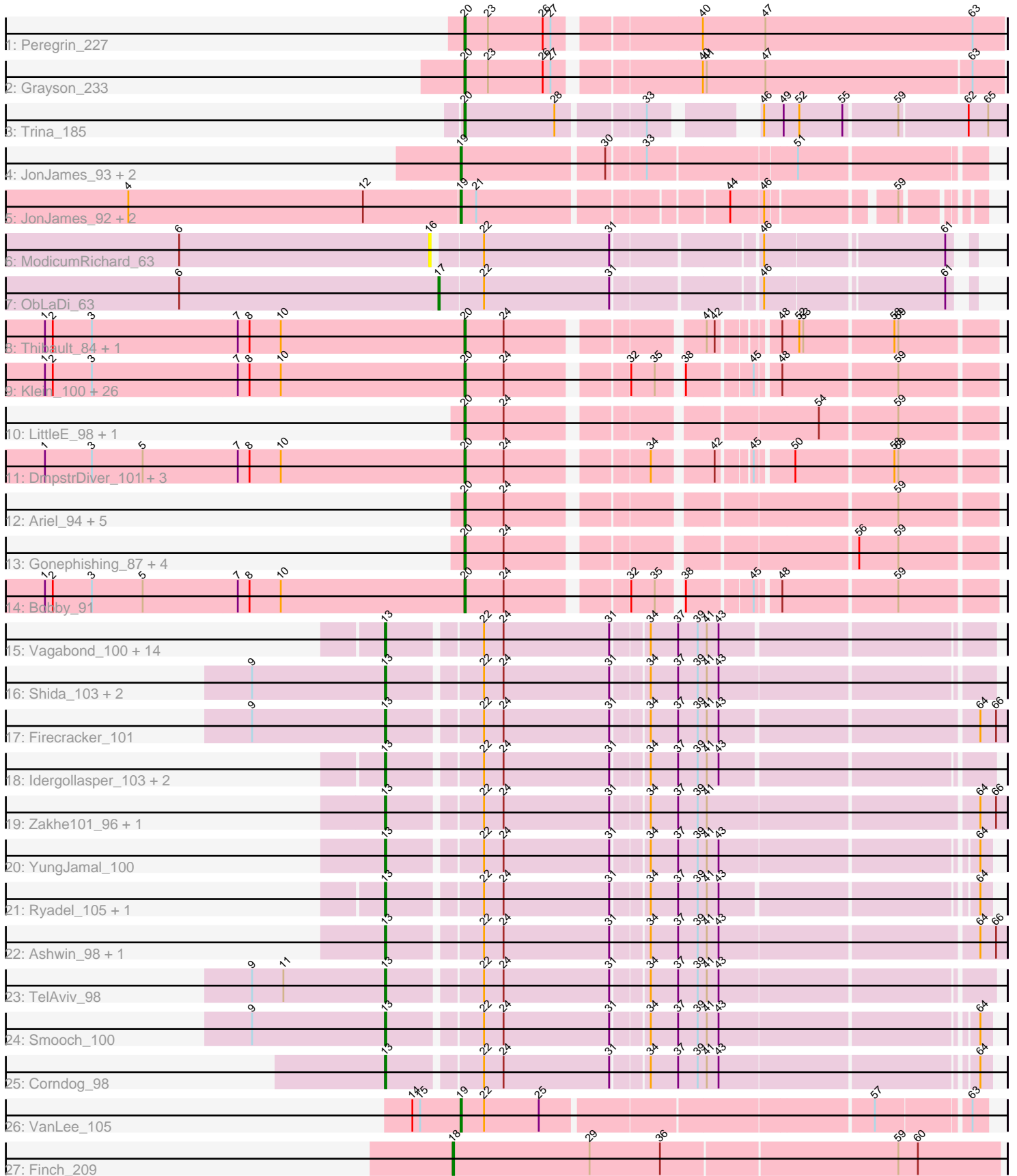


Pham 223049



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 223049 Report

This analysis was run 03/28/25 on database version 593.

Pham number 223049 has 92 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Peregrin_227
- Track 2 : Grayson_233
- Track 3 : Trina_185
- Track 4 : JonJames_93, Cardigan_95, Yvonnestic_91
- Track 5 : JonJames_92, Cardigan_94, Yvonnestic_90
- Track 6 : ModicumRichard_63
- Track 7 : ObLaDi_63
- Track 8 : Thibault_84, Constella_85
- Track 9 : Klein_100, Bombitas_88, Halley_101, Duke13_96, Beem_100, Dallas_101, EricMillard_93, Phoebus_101, Odette_99, Minerva_99, Schatzie_94, Ejimix_93, Optimus_93, Pound_91, JuicyJay_96, Dove_85, Wanda_103, Hughesyang_99, Yeet_92, Kalah2_93, Bagrid_99, ThreeRngTarjay_96, BAKA_101, Zelink_96, Redno2_91, NihilNomen_101, HokkenD_88
- Track 10 : LittleE_98, Omega_104
- Track 11 : DmpstrDiver_101, KashFlow_90, Marleymoo_81, Hannaconda_86
- Track 12 : Ariel_94, Courthouse_90, Porcelain_93, Squint_93, MiaZeal_95, Superphikiman_92
- Track 13 : Gonephishing_87, Nekros_97, Rearden_89, Lucky2013_92, Shaboozey_93
- Track 14 : Bobby_91
- Track 15 : Vagabond_100, Familton_102, Winget_101, Mori_101, Blessica_99, Alkhayr_97, NiebruSaylor_101, Schuy_101, Bora_100, Vorrps_101, Catdawg_102, Zebo_99, FoulBall_100, Murai_101, SchoolBus_100
- Track 16 : Shida_103, JangDynasty_97, KingPhillip3_99
- Track 17 : Firecracker_101
- Track 18 : Idergollasper_103, Wogge42_98, Krili_103
- Track 19 : Zakhe101_96, Dylan_96
- Track 20 : YungJamal_100
- Track 21 : Ryadel_105, MadKillah_104
- Track 22 : Ashwin_98, Wildflower_98
- Track 23 : TelAviv_98
- Track 24 : Smooch_100
- Track 25 : Corndog_98
- Track 26 : VanLee_105
- Track 27 : Finch_209

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

The start number called the most often in the published annotations is 20, it was called in 43 of the 78 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Ariel_94, BAKA_101, Bagrid_99, Beem_100, Bobby_91, Bombitas_88, Constella_85, Courthouse_90, Dallas_101, DmpstrDiver_101, Dove_85, Duke13_96, Ejimix_93, EricMillard_93, Gonephishing_87, Grayson_233, Halley_101, Hannaconda_86, HokkenD_88, Hughesyang_99, JuicyJay_96, Kalah2_93, KashFlow_90, Klein_100, LittleE_98, Lucky2013_92, Marleymoo_81, MiaZeal_95, Minerva_99, Nekros_97, NihilNomen_101, Odette_99, Omega_104, Optimus_93, Peregrin_227, Phoebus_101, Porcelain_93, Pound_91, Rearden_89, Redno2_91, Schatzie_94, Shaboozey_93, Squint_93, Superphikiman_92, Thibault_84, ThreeRngTarjay_96, Trina_185, Wanda_103, Yeet_92, Zelink_96,

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

•

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

• Alkhayr_97, Ashwin_98, Blessica_99, Bora_100, Cardigan_94, Cardigan_95, Catdawg_102, Corndog_98, Dylan_96, Familton_102, Finch_209, Firecracker_101, FoulBall_100, Idergollasper_103, JangDynasty_97, JonJames_92, JonJames_93, KingPhillip3_99, Krili_103, MadKillah_104, ModicumRichard_63, Mori_101, Murai_101, NiebruSaylor_101, ObLaDi_63, Ryadel_105, SchoolBus_100, Schuy_101, Shida_103, Smooch_100, TelAviv_98, Vagabond_100, VanLee_105, Vorrps_101, Wildflower_98, Winget_101, Wogge42_98, YungJamal_100, Yvonnetastic_90, Yvonnetastic_91, Zakhe101_96, Zebo_99,

Summary by start number:

Start 13:

• Found in 32 of 92 (34.8%) of genes in pham
• Manual Annotations of this start: 28 of 78
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Alkhayr_97 (O), Ashwin_98 (O), Blessica_99 (O), Bora_100 (O), Catdawg_102 (O), Corndog_98 (O), Dylan_96 (O), Familton_102 (O), Firecracker_101 (O), FoulBall_100 (O), Idergollasper_103 (O), JangDynasty_97 (O), KingPhillip3_99 (O), Krili_103 (O), MadKillah_104 (O), Mori_101 (O), Murai_101 (O), NiebruSaylor_101 (O), Ryadel_105 (O), SchoolBus_100 (O), Schuy_101 (O), Shida_103 (O), Smooch_100 (O), TelAviv_98 (O), Vagabond_100 (O), Vorrps_101 (O), Wildflower_98 (O), Winget_101 (O), Wogge42_98 (O), YungJamal_100 (O), Zakhe101_96 (O), Zebo_99 (O),

Start 16:

• Found in 1 of 92 (1.1%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: ModicumRichard_63 (DZ),

Start 17:

• Found in 1 of 92 (1.1%) of genes in pham

- Manual Annotations of this start: 1 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ObLaDi_63 (DZ),

Start 18:

- Found in 1 of 92 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Finch_209 (singleton),

Start 19:

- Found in 7 of 92 (7.6%) of genes in pham
- Manual Annotations of this start: 5 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cardigan_94 (DD), Cardigan_95 (DD), JonJames_92 (DD), JonJames_93 (DD), VanLee_105 (singleton), Yvonnetastic_90 (DD), Yvonnetastic_91 (DD),

Start 20:

- Found in 50 of 92 (54.3%) of genes in pham
- Manual Annotations of this start: 43 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ariel_94 (J), BAKA_101 (J), Bagrid_99 (J), Beem_100 (J), Bobby_91 (J), Bombitas_88 (J), Constella_85 (J), Courthouse_90 (J), Dallas_101 (J), DmpstrDiver_101 (J), Dove_85 (J), Duke13_96 (J), Ejimix_93 (J), EricMillard_93 (J), Gonephishing_87 (J), Grayson_233 (CB), Halley_101 (J), Hannaconda_86 (J), HokkenD_88 (J), Hughesyang_99 (J), JuicyJay_96 (J), Kalah2_93 (J), KashFlow_90 (J), Klein_100 (J), LittleE_98 (J), Lucky2013_92 (J), Marleymoo_81 (J), MiaZeal_95 (J), Minerva_99 (J), Nekros_97 (J), NihilNomen_101 (J), Odette_99 (J), Omega_104 (J), Optimus_93 (J), Peregrin_227 (CB), Phoebus_101 (J), Porcelain_93 (J), Pound_91 (J), Rearden_89 (J), Redno2_91 (J), Schatzie_94 (J), Shaboozey_93 (J), Squint_93 (J), Superphikiman_92 (J), Thibault_84 (J), ThreeRngTarjay_96 (J), Trina_185 (CE), Wanda_103 (J), Yeet_92 (J), Zelink_96 (J),

Summary by clusters:

There are 7 clusters represented in this pham: singleton, CB, DD, J, CE, DZ, O,

Info for manual annotations of cluster CB:

- Start number 20 was manually annotated 2 times for cluster CB.

Info for manual annotations of cluster CE:

- Start number 20 was manually annotated 1 time for cluster CE.

Info for manual annotations of cluster DD:

- Start number 19 was manually annotated 4 times for cluster DD.

Info for manual annotations of cluster DZ:

- Start number 17 was manually annotated 1 time for cluster DZ.

Info for manual annotations of cluster J:

- Start number 20 was manually annotated 40 times for cluster J.

Info for manual annotations of cluster O:

•Start number 13 was manually annotated 28 times for cluster O.

Gene Information:

Gene: Alkhayr_97 Start: 62112, Stop: 61681, Start Num: 13

Candidate Starts for Alkhayr_97:

(Start: 13 @62112 has 28 MA's), (22, 62046), (24, 62031), (31, 61950), (34, 61926), (37, 61905), (39, 61890), (41, 61884), (43, 61875),

Gene: Ariel_94 Start: 54759, Stop: 55124, Start Num: 20

Candidate Starts for Ariel_94:

(Start: 20 @54759 has 43 MA's), (24, 54789), (59, 55053),

Gene: Ashwin_98 Start: 61339, Stop: 60893, Start Num: 13

Candidate Starts for Ashwin_98:

(Start: 13 @61339 has 28 MA's), (22, 61273), (24, 61258), (31, 61177), (34, 61153), (37, 61132), (39, 61117), (41, 61111), (43, 61102), (64, 60913), (66, 60901),

Gene: BAKA_101 Start: 60653, Stop: 61012, Start Num: 20

Candidate Starts for BAKA_101:

(1, 60332), (2, 60338), (3, 60368), (7, 60479), (8, 60488), (10, 60512), (Start: 20 @60653 has 43 MA's), (24, 60683), (32, 60764), (35, 60782), (38, 60797), (45, 60842), (48, 60857), (59, 60941),

Gene: Bagrid_99 Start: 59520, Stop: 59879, Start Num: 20

Candidate Starts for Bagrid_99:

(1, 59199), (2, 59205), (3, 59235), (7, 59346), (8, 59355), (10, 59379), (Start: 20 @59520 has 43 MA's), (24, 59550), (32, 59631), (35, 59649), (38, 59664), (45, 59709), (48, 59724), (59, 59808),

Gene: Beem_100 Start: 60381, Stop: 60740, Start Num: 20

Candidate Starts for Beem_100:

(1, 60060), (2, 60066), (3, 60096), (7, 60207), (8, 60216), (10, 60240), (Start: 20 @60381 has 43 MA's), (24, 60411), (32, 60492), (35, 60510), (38, 60525), (45, 60570), (48, 60585), (59, 60669),

Gene: Blessica_99 Start: 62320, Stop: 61889, Start Num: 13

Candidate Starts for Blessica_99:

(Start: 13 @62320 has 28 MA's), (22, 62254), (24, 62239), (31, 62158), (34, 62134), (37, 62113), (39, 62098), (41, 62092), (43, 62083),

Gene: Bobby_91 Start: 58746, Stop: 59105, Start Num: 20

Candidate Starts for Bobby_91:

(1, 58425), (2, 58431), (3, 58461), (5, 58500), (7, 58572), (8, 58581), (10, 58605), (Start: 20 @58746 has 43 MA's), (24, 58776), (32, 58857), (35, 58875), (38, 58890), (45, 58935), (48, 58950), (59, 59034),

Gene: Bombitas_88 Start: 57544, Stop: 57903, Start Num: 20

Candidate Starts for Bombitas_88:

(1, 57223), (2, 57229), (3, 57259), (7, 57370), (8, 57379), (10, 57403), (Start: 20 @57544 has 43 MA's), (24, 57574), (32, 57655), (35, 57673), (38, 57688), (45, 57733), (48, 57748), (59, 57832),

Gene: Bora_100 Start: 63162, Stop: 62731, Start Num: 13

Candidate Starts for Bora_100:

(Start: 13 @63162 has 28 MA's), (22, 63096), (24, 63081), (31, 63000), (34, 62976), (37, 62955), (39, 62940), (41, 62934), (43, 62925),

Gene: Cardigan_95 Start: 56781, Stop: 57152, Start Num: 19

Candidate Starts for Cardigan_95:

(Start: 19 @56781 has 5 MA's), (30, 56886), (33, 56913), (51, 57018),

Gene: Cardigan_94 Start: 56443, Stop: 56784, Start Num: 19

Candidate Starts for Cardigan_94:

(4, 56191), (12, 56371), (Start: 19 @56443 has 5 MA's), (21, 56455), (44, 56629), (46, 56653), (59, 56737),

Gene: Catdawg_102 Start: 63432, Stop: 63001, Start Num: 13

Candidate Starts for Catdawg_102:

(Start: 13 @63432 has 28 MA's), (22, 63366), (24, 63351), (31, 63270), (34, 63246), (37, 63225), (39, 63210), (41, 63204), (43, 63195),

Gene: Constella_85 Start: 54550, Stop: 54906, Start Num: 20

Candidate Starts for Constella_85:

(1, 54229), (2, 54235), (3, 54265), (7, 54376), (8, 54385), (10, 54409), (Start: 20 @54550 has 43 MA's), (24, 54580), (41, 54709), (42, 54715), (48, 54751), (52, 54763), (53, 54766), (58, 54832), (59, 54835),

Gene: Corndog_98 Start: 61248, Stop: 60820, Start Num: 13

Candidate Starts for Corndog_98:

(Start: 13 @61248 has 28 MA's), (22, 61182), (24, 61167), (31, 61086), (34, 61062), (37, 61041), (39, 61026), (41, 61020), (43, 61011), (64, 60828),

Gene: Courthouse_90 Start: 54359, Stop: 54724, Start Num: 20

Candidate Starts for Courthouse_90:

(Start: 20 @54359 has 43 MA's), (24, 54389), (59, 54653),

Gene: Dallas_101 Start: 60389, Stop: 60748, Start Num: 20

Candidate Starts for Dallas_101:

(1, 60068), (2, 60074), (3, 60104), (7, 60215), (8, 60224), (10, 60248), (Start: 20 @60389 has 43 MA's), (24, 60419), (32, 60500), (35, 60518), (38, 60533), (45, 60578), (48, 60593), (59, 60677),

Gene: DmpstrDiver_101 Start: 59812, Stop: 60168, Start Num: 20

Candidate Starts for DmpstrDiver_101:

(1, 59491), (3, 59527), (5, 59566), (7, 59638), (8, 59647), (10, 59671), (Start: 20 @59812 has 43 MA's), (24, 59842), (34, 59938), (42, 59977), (45, 59998), (50, 60022), (58, 60094), (59, 60097),

Gene: Dove_85 Start: 55810, Stop: 56169, Start Num: 20

Candidate Starts for Dove_85:

(1, 55489), (2, 55495), (3, 55525), (7, 55636), (8, 55645), (10, 55669), (Start: 20 @55810 has 43 MA's), (24, 55840), (32, 55921), (35, 55939), (38, 55954), (45, 55999), (48, 56014), (59, 56098),

Gene: Duke13_96 Start: 58321, Stop: 58680, Start Num: 20

Candidate Starts for Duke13_96:

(1, 58000), (2, 58006), (3, 58036), (7, 58147), (8, 58156), (10, 58180), (Start: 20 @58321 has 43 MA's), (24, 58351), (32, 58432), (35, 58450), (38, 58465), (45, 58510), (48, 58525), (59, 58609),

Gene: Dylan_96 Start: 61072, Stop: 60626, Start Num: 13

Candidate Starts for Dylan_96:

(Start: 13 @61072 has 28 MA's), (22, 61006), (24, 60991), (31, 60910), (34, 60886), (37, 60865), (39, 60850), (41, 60844), (64, 60646), (66, 60634),

Gene: Ejimix_93 Start: 60108, Stop: 60467, Start Num: 20

Candidate Starts for Ejimix_93:

(1, 59787), (2, 59793), (3, 59823), (7, 59934), (8, 59943), (10, 59967), (Start: 20 @60108 has 43 MA's), (24, 60138), (32, 60219), (35, 60237), (38, 60252), (45, 60297), (48, 60312), (59, 60396),

Gene: EricMillard_93 Start: 59449, Stop: 59808, Start Num: 20

Candidate Starts for EricMillard_93:

(1, 59128), (2, 59134), (3, 59164), (7, 59275), (8, 59284), (10, 59308), (Start: 20 @59449 has 43 MA's), (24, 59479), (32, 59560), (35, 59578), (38, 59593), (45, 59638), (48, 59653), (59, 59737),

Gene: Familton_102 Start: 62844, Stop: 62413, Start Num: 13

Candidate Starts for Familton_102:

(Start: 13 @62844 has 28 MA's), (22, 62778), (24, 62763), (31, 62682), (34, 62658), (37, 62637), (39, 62622), (41, 62616), (43, 62607),

Gene: Finch_209 Start: 121773, Stop: 122186, Start Num: 18

Candidate Starts for Finch_209:

(Start: 18 @121773 has 1 MA's), (29, 121878), (36, 121932), (59, 122109), (60, 122124),

Gene: Firecracker_101 Start: 62707, Stop: 62264, Start Num: 13

Candidate Starts for Firecracker_101:

(9, 62809), (Start: 13 @62707 has 28 MA's), (22, 62641), (24, 62626), (31, 62545), (34, 62521), (37, 62500), (39, 62485), (41, 62479), (43, 62470), (64, 62284), (66, 62272),

Gene: FoulBall_100 Start: 62395, Stop: 61964, Start Num: 13

Candidate Starts for FoulBall_100:

(Start: 13 @62395 has 28 MA's), (22, 62329), (24, 62314), (31, 62233), (34, 62209), (37, 62188), (39, 62173), (41, 62167), (43, 62158),

Gene: Gonephishing_87 Start: 53920, Stop: 54285, Start Num: 20

Candidate Starts for Gonephishing_87:

(Start: 20 @53920 has 43 MA's), (24, 53950), (56, 54184), (59, 54214),

Gene: Grayson_233 Start: 113502, Stop: 113894, Start Num: 20

Candidate Starts for Grayson_233:

(Start: 20 @113502 has 43 MA's), (23, 113520), (26, 113562), (27, 113568), (40, 113667), (41, 113670), (47, 113715), (63, 113871),

Gene: Halley_101 Start: 60382, Stop: 60741, Start Num: 20

Candidate Starts for Halley_101:

(1, 60061), (2, 60067), (3, 60097), (7, 60208), (8, 60217), (10, 60241), (Start: 20 @60382 has 43 MA's), (24, 60412), (32, 60493), (35, 60511), (38, 60526), (45, 60571), (48, 60586), (59, 60670),

Gene: Hannaconda_86 Start: 53322, Stop: 53678, Start Num: 20

Candidate Starts for Hannaconda_86:

(1, 53001), (3, 53037), (5, 53076), (7, 53148), (8, 53157), (10, 53181), (Start: 20 @53322 has 43 MA's), (24, 53352), (34, 53448), (42, 53487), (45, 53508), (50, 53532), (58, 53604), (59, 53607),

Gene: HokkenD_88 Start: 58651, Stop: 59010, Start Num: 20

Candidate Starts for HokkenD_88:

(1, 58330), (2, 58336), (3, 58366), (7, 58477), (8, 58486), (10, 58510), (Start: 20 @58651 has 43 MA's), (24, 58681), (32, 58762), (35, 58780), (38, 58795), (45, 58840), (48, 58855), (59, 58939),

Gene: Hughesyang_99 Start: 60340, Stop: 60699, Start Num: 20

Candidate Starts for Hughesyang_99:

(1, 60019), (2, 60025), (3, 60055), (7, 60166), (8, 60175), (10, 60199), (Start: 20 @60340 has 43 MA's), (24, 60370), (32, 60451), (35, 60469), (38, 60484), (45, 60529), (48, 60544), (59, 60628),

Gene: Idergollasper_103 Start: 63392, Stop: 62961, Start Num: 13

Candidate Starts for Idergollasper_103:

(Start: 13 @63392 has 28 MA's), (22, 63326), (24, 63311), (31, 63230), (34, 63206), (37, 63185), (39, 63170), (41, 63164), (43, 63155),

Gene: JangDynasty_97 Start: 61738, Stop: 61307, Start Num: 13

Candidate Starts for JangDynasty_97:

(9, 61840), (Start: 13 @61738 has 28 MA's), (22, 61672), (24, 61657), (31, 61576), (34, 61552), (37, 61531), (39, 61516), (41, 61510), (43, 61501),

Gene: JonJames_93 Start: 56974, Stop: 57345, Start Num: 19

Candidate Starts for JonJames_93:

(Start: 19 @56974 has 5 MA's), (30, 57079), (33, 57106), (51, 57211),

Gene: JonJames_92 Start: 56636, Stop: 56977, Start Num: 19

Candidate Starts for JonJames_92:

(4, 56384), (12, 56564), (Start: 19 @56636 has 5 MA's), (21, 56648), (44, 56822), (46, 56846), (59, 56930),

Gene: JuicyJay_96 Start: 61516, Stop: 61875, Start Num: 20

Candidate Starts for JuicyJay_96:

(1, 61195), (2, 61201), (3, 61231), (7, 61342), (8, 61351), (10, 61375), (Start: 20 @61516 has 43 MA's), (24, 61546), (32, 61627), (35, 61645), (38, 61660), (45, 61705), (48, 61720), (59, 61804),

Gene: Kalah2_93 Start: 59675, Stop: 60034, Start Num: 20

Candidate Starts for Kalah2_93:

(1, 59354), (2, 59360), (3, 59390), (7, 59501), (8, 59510), (10, 59534), (Start: 20 @59675 has 43 MA's), (24, 59705), (32, 59786), (35, 59804), (38, 59819), (45, 59864), (48, 59879), (59, 59963),

Gene: KashFlow_90 Start: 54883, Stop: 55239, Start Num: 20

Candidate Starts for KashFlow_90:

(1, 54562), (3, 54598), (5, 54637), (7, 54709), (8, 54718), (10, 54742), (Start: 20 @54883 has 43 MA's), (24, 54913), (34, 55009), (42, 55048), (45, 55069), (50, 55093), (58, 55165), (59, 55168),

Gene: KingPhillip3_99 Start: 63095, Stop: 62661, Start Num: 13

Candidate Starts for KingPhillip3_99:

(9, 63197), (Start: 13 @63095 has 28 MA's), (22, 63029), (24, 63014), (31, 62933), (34, 62909), (37, 62888), (39, 62873), (41, 62867), (43, 62858),

Gene: Klein_100 Start: 59382, Stop: 59741, Start Num: 20

Candidate Starts for Klein_100:

(1, 59061), (2, 59067), (3, 59097), (7, 59208), (8, 59217), (10, 59241), (Start: 20 @59382 has 43 MA's), (24, 59412), (32, 59493), (35, 59511), (38, 59526), (45, 59571), (48, 59586), (59, 59670),

Gene: Krili_103 Start: 62941, Stop: 62510, Start Num: 13

Candidate Starts for Krili_103:

(Start: 13 @62941 has 28 MA's), (22, 62875), (24, 62860), (31, 62779), (34, 62755), (37, 62734), (39, 62719), (41, 62713), (43, 62704),

Gene: LittleE_98 Start: 58455, Stop: 58820, Start Num: 20

Candidate Starts for LittleE_98:

(Start: 20 @58455 has 43 MA's), (24, 58485), (54, 58692), (59, 58749),

Gene: Lucky2013_92 Start: 54775, Stop: 55140, Start Num: 20

Candidate Starts for Lucky2013_92:

(Start: 20 @54775 has 43 MA's), (24, 54805), (56, 55039), (59, 55069),

Gene: MadKillah_104 Start: 62467, Stop: 62042, Start Num: 13

Candidate Starts for MadKillah_104:

(Start: 13 @62467 has 28 MA's), (22, 62401), (24, 62386), (31, 62305), (34, 62281), (37, 62260), (39, 62245), (41, 62239), (43, 62230), (64, 62050),

Gene: Marleymoo_81 Start: 56537, Stop: 56893, Start Num: 20

Candidate Starts for Marleymoo_81:

(1, 56216), (3, 56252), (5, 56291), (7, 56363), (8, 56372), (10, 56396), (Start: 20 @56537 has 43 MA's), (24, 56567), (34, 56663), (42, 56702), (45, 56723), (50, 56747), (58, 56819), (59, 56822),

Gene: MiaZeal_95 Start: 55431, Stop: 55796, Start Num: 20

Candidate Starts for MiaZeal_95:

(Start: 20 @55431 has 43 MA's), (24, 55461), (59, 55725),

Gene: Minerva_99 Start: 60327, Stop: 60686, Start Num: 20

Candidate Starts for Minerva_99:

(1, 60006), (2, 60012), (3, 60042), (7, 60153), (8, 60162), (10, 60186), (Start: 20 @60327 has 43 MA's), (24, 60357), (32, 60438), (35, 60456), (38, 60471), (45, 60516), (48, 60531), (59, 60615),

Gene: ModicumRichard_63 Start: 43300, Stop: 43671, Start Num: 16

Candidate Starts for ModicumRichard_63:

(6, 43108), (16, 43300), (22, 43333), (31, 43429), (46, 43531), (61, 43660),

Gene: Mori_101 Start: 62970, Stop: 62539, Start Num: 13

Candidate Starts for Mori_101:

(Start: 13 @62970 has 28 MA's), (22, 62904), (24, 62889), (31, 62808), (34, 62784), (37, 62763), (39, 62748), (41, 62742), (43, 62733),

Gene: Murai_101 Start: 62818, Stop: 62387, Start Num: 13

Candidate Starts for Murai_101:

(Start: 13 @62818 has 28 MA's), (22, 62752), (24, 62737), (31, 62656), (34, 62632), (37, 62611), (39, 62596), (41, 62590), (43, 62581),

Gene: Nekros_97 Start: 58390, Stop: 58755, Start Num: 20

Candidate Starts for Nekros_97:

(Start: 20 @58390 has 43 MA's), (24, 58420), (56, 58654), (59, 58684),

Gene: NiebruSaylor_101 Start: 62085, Stop: 61654, Start Num: 13

Candidate Starts for NiebruSaylor_101:

(Start: 13 @62085 has 28 MA's), (22, 62019), (24, 62004), (31, 61923), (34, 61899), (37, 61878), (39, 61863), (41, 61857), (43, 61848),

Gene: NihilNomen_101 Start: 60468, Stop: 60827, Start Num: 20

Candidate Starts for NihilNomen_101:

(1, 60147), (2, 60153), (3, 60183), (7, 60294), (8, 60303), (10, 60327), (Start: 20 @60468 has 43 MA's), (24, 60498), (32, 60579), (35, 60597), (38, 60612), (45, 60657), (48, 60672), (59, 60756),

Gene: ObLaDi_63 Start: 43248, Stop: 43619, Start Num: 17

Candidate Starts for ObLaDi_63:

(6, 43053), (Start: 17 @43248 has 1 MA's), (22, 43281), (31, 43377), (46, 43479), (61, 43608),

Gene: Odette_99 Start: 59511, Stop: 59870, Start Num: 20

Candidate Starts for Odette_99:

(1, 59190), (2, 59196), (3, 59226), (7, 59337), (8, 59346), (10, 59370), (Start: 20 @59511 has 43 MA's), (24, 59541), (32, 59622), (35, 59640), (38, 59655), (45, 59700), (48, 59715), (59, 59799),

Gene: Omega_104 Start: 60228, Stop: 60593, Start Num: 20

Candidate Starts for Omega_104:

(Start: 20 @60228 has 43 MA's), (24, 60258), (54, 60465), (59, 60522),

Gene: Optimus_93 Start: 59002, Stop: 59361, Start Num: 20

Candidate Starts for Optimus_93:

(1, 58681), (2, 58687), (3, 58717), (7, 58828), (8, 58837), (10, 58861), (Start: 20 @59002 has 43 MA's), (24, 59032), (32, 59113), (35, 59131), (38, 59146), (45, 59191), (48, 59206), (59, 59290),

Gene: Peregrin_227 Start: 113498, Stop: 113893, Start Num: 20

Candidate Starts for Peregrin_227:

(Start: 20 @113498 has 43 MA's), (23, 113516), (26, 113558), (27, 113564), (40, 113663), (47, 113711), (63, 113870),

Gene: Phoebus_101 Start: 61651, Stop: 62010, Start Num: 20

Candidate Starts for Phoebus_101:

(1, 61330), (2, 61336), (3, 61366), (7, 61477), (8, 61486), (10, 61510), (Start: 20 @61651 has 43 MA's), (24, 61681), (32, 61762), (35, 61780), (38, 61795), (45, 61840), (48, 61855), (59, 61939),

Gene: Porcelain_93 Start: 55431, Stop: 55796, Start Num: 20

Candidate Starts for Porcelain_93:

(Start: 20 @55431 has 43 MA's), (24, 55461), (59, 55725),

Gene: Pound_91 Start: 59679, Stop: 60038, Start Num: 20

Candidate Starts for Pound_91:

(1, 59358), (2, 59364), (3, 59394), (7, 59505), (8, 59514), (10, 59538), (Start: 20 @59679 has 43 MA's), (24, 59709), (32, 59790), (35, 59808), (38, 59823), (45, 59868), (48, 59883), (59, 59967),

Gene: Rearden_89 Start: 55614, Stop: 55979, Start Num: 20

Candidate Starts for Rearden_89:

(Start: 20 @55614 has 43 MA's), (24, 55644), (56, 55878), (59, 55908),

Gene: Redno2_91 Start: 56202, Stop: 56561, Start Num: 20

Candidate Starts for Redno2_91:

(1, 55881), (2, 55887), (3, 55917), (7, 56028), (8, 56037), (10, 56061), (Start: 20 @56202 has 43 MA's), (24, 56232), (32, 56313), (35, 56331), (38, 56346), (45, 56391), (48, 56406), (59, 56490),

Gene: Ryadel_105 Start: 63803, Stop: 63378, Start Num: 13

Candidate Starts for Ryadel_105:

(Start: 13 @63803 has 28 MA's), (22, 63737), (24, 63722), (31, 63641), (34, 63617), (37, 63596), (39, 63581), (41, 63575), (43, 63566), (64, 63386),

Gene: Schatzie_94 Start: 59258, Stop: 59617, Start Num: 20

Candidate Starts for Schatzie_94:

(1, 58937), (2, 58943), (3, 58973), (7, 59084), (8, 59093), (10, 59117), (Start: 20 @59258 has 43 MA's), (24, 59288), (32, 59369), (35, 59387), (38, 59402), (45, 59447), (48, 59462), (59, 59546),

Gene: SchoolBus_100 Start: 62561, Stop: 62130, Start Num: 13

Candidate Starts for SchoolBus_100:

(Start: 13 @62561 has 28 MA's), (22, 62495), (24, 62480), (31, 62399), (34, 62375), (37, 62354), (39, 62339), (41, 62333), (43, 62324),

Gene: Schuy_101 Start: 62180, Stop: 61749, Start Num: 13

Candidate Starts for Schuy_101:

(Start: 13 @62180 has 28 MA's), (22, 62114), (24, 62099), (31, 62018), (34, 61994), (37, 61973), (39, 61958), (41, 61952), (43, 61943),

Gene: Shaboozey_93 Start: 55262, Stop: 55627, Start Num: 20

Candidate Starts for Shaboozey_93:

(Start: 20 @55262 has 43 MA's), (24, 55292), (56, 55526), (59, 55556),

Gene: Shida_103 Start: 63065, Stop: 62631, Start Num: 13

Candidate Starts for Shida_103:

(9, 63167), (Start: 13 @63065 has 28 MA's), (22, 62999), (24, 62984), (31, 62903), (34, 62879), (37, 62858), (39, 62843), (41, 62837), (43, 62828),

Gene: Smooch_100 Start: 62946, Stop: 62518, Start Num: 13

Candidate Starts for Smooch_100:

(9, 63048), (Start: 13 @62946 has 28 MA's), (22, 62880), (24, 62865), (31, 62784), (34, 62760), (37, 62739), (39, 62724), (41, 62718), (43, 62709), (64, 62526),

Gene: Squint_93 Start: 55550, Stop: 55915, Start Num: 20

Candidate Starts for Squint_93:

(Start: 20 @55550 has 43 MA's), (24, 55580), (59, 55844),

Gene: Superphikiman_92 Start: 54641, Stop: 55006, Start Num: 20

Candidate Starts for Superphikiman_92:

(Start: 20 @54641 has 43 MA's), (24, 54671), (59, 54935),

Gene: TelAviv_98 Start: 62790, Stop: 62356, Start Num: 13

Candidate Starts for TelAviv_98:

(9, 62892), (11, 62868), (Start: 13 @62790 has 28 MA's), (22, 62724), (24, 62709), (31, 62628), (34, 62604), (37, 62583), (39, 62568), (41, 62562), (43, 62553),

Gene: Thibault_84 Start: 55167, Stop: 55523, Start Num: 20

Candidate Starts for Thibault_84:

(1, 54846), (2, 54852), (3, 54882), (7, 54993), (8, 55002), (10, 55026), (Start: 20 @55167 has 43 MA's), (24, 55197), (41, 55326), (42, 55332), (48, 55368), (52, 55380), (53, 55383), (58, 55449), (59, 55452),

Gene: ThreeRngTarjay_96 Start: 60543, Stop: 60902, Start Num: 20

Candidate Starts for ThreeRngTarjay_96:

(1, 60222), (2, 60228), (3, 60258), (7, 60369), (8, 60378), (10, 60402), (Start: 20 @60543 has 43 MA's), (24, 60573), (32, 60654), (35, 60672), (38, 60687), (45, 60732), (48, 60747), (59, 60831),

Gene: Trina_185 Start: 102486, Stop: 102851, Start Num: 20

Candidate Starts for Trina_185:

(Start: 20 @102486 has 43 MA's), (28, 102555), (33, 102615), (46, 102672), (49, 102687), (52, 102699), (55, 102732), (59, 102771), (62, 102822), (65, 102837),

Gene: Vagabond_100 Start: 62228, Stop: 61797, Start Num: 13

Candidate Starts for Vagabond_100:

(Start: 13 @62228 has 28 MA's), (22, 62162), (24, 62147), (31, 62066), (34, 62042), (37, 62021), (39, 62006), (41, 62000), (43, 61991),

Gene: VanLee_105 Start: 56038, Stop: 56412, Start Num: 19

Candidate Starts for VanLee_105:

(14, 56002), (15, 56008), (Start: 19 @56038 has 5 MA's), (22, 56056), (25, 56098), (57, 56335), (63, 56401),

Gene: Vorrrps_101 Start: 62971, Stop: 62540, Start Num: 13

Candidate Starts for Vorrrps_101:

(Start: 13 @62971 has 28 MA's), (22, 62905), (24, 62890), (31, 62809), (34, 62785), (37, 62764), (39, 62749), (41, 62743), (43, 62734),

Gene: Wanda_103 Start: 59659, Stop: 60018, Start Num: 20

Candidate Starts for Wanda_103:

(1, 59338), (2, 59344), (3, 59374), (7, 59485), (8, 59494), (10, 59518), (Start: 20 @59659 has 43 MA's), (24, 59689), (32, 59770), (35, 59788), (38, 59803), (45, 59848), (48, 59863), (59, 59947),

Gene: Wildflower_98 Start: 60971, Stop: 60525, Start Num: 13

Candidate Starts for Wildflower_98:

(Start: 13 @60971 has 28 MA's), (22, 60905), (24, 60890), (31, 60809), (34, 60785), (37, 60764), (39, 60749), (41, 60743), (43, 60734), (64, 60545), (66, 60533),

Gene: Winget_101 Start: 62865, Stop: 62434, Start Num: 13

Candidate Starts for Winget_101:

(Start: 13 @62865 has 28 MA's), (22, 62799), (24, 62784), (31, 62703), (34, 62679), (37, 62658), (39, 62643), (41, 62637), (43, 62628),

Gene: Wogge42_98 Start: 62149, Stop: 61718, Start Num: 13

Candidate Starts for Wogge42_98:

(Start: 13 @62149 has 28 MA's), (22, 62083), (24, 62068), (31, 61987), (34, 61963), (37, 61942), (39, 61927), (41, 61921), (43, 61912),

Gene: Yeet_92 Start: 58760, Stop: 59119, Start Num: 20

Candidate Starts for Yeet_92:

(1, 58439), (2, 58445), (3, 58475), (7, 58586), (8, 58595), (10, 58619), (Start: 20 @58760 has 43 MA's), (24, 58790), (32, 58871), (35, 58889), (38, 58904), (45, 58949), (48, 58964), (59, 59048),

Gene: YungJamal_100 Start: 62022, Stop: 61594, Start Num: 13

Candidate Starts for YungJamal_100:

(Start: 13 @62022 has 28 MA's), (22, 61956), (24, 61941), (31, 61860), (34, 61836), (37, 61815), (39, 61800), (41, 61794), (43, 61785), (64, 61602),

Gene: Yvonnetastic_90 Start: 54178, Stop: 54519, Start Num: 19

Candidate Starts for Yvonnetastic_90:

(4, 53926), (12, 54106), (Start: 19 @54178 has 5 MA's), (21, 54190), (44, 54364), (46, 54388), (59, 54472),

Gene: Yvonnetastic_91 Start: 54516, Stop: 54887, Start Num: 19

Candidate Starts for Yvonnetastic_91:

(Start: 19 @54516 has 5 MA's), (30, 54621), (33, 54648), (51, 54753),

Gene: Zakhe101_96 Start: 61076, Stop: 60630, Start Num: 13

Candidate Starts for Zakhe101_96:

(Start: 13 @61076 has 28 MA's), (22, 61010), (24, 60995), (31, 60914), (34, 60890), (37, 60869), (39, 60854), (41, 60848), (64, 60650), (66, 60638),

Gene: Zebo_99 Start: 62561, Stop: 62130, Start Num: 13

Candidate Starts for Zebo_99:

(Start: 13 @62561 has 28 MA's), (22, 62495), (24, 62480), (31, 62399), (34, 62375), (37, 62354), (39, 62339), (41, 62333), (43, 62324),

Gene: Zelink_96 Start: 60854, Stop: 61213, Start Num: 20

Candidate Starts for Zelink_96:

(1, 60533), (2, 60539), (3, 60569), (7, 60680), (8, 60689), (10, 60713), (Start: 20 @60854 has 43 MA's), (24, 60884), (32, 60965), (35, 60983), (38, 60998), (45, 61043), (48, 61058), (59, 61142),