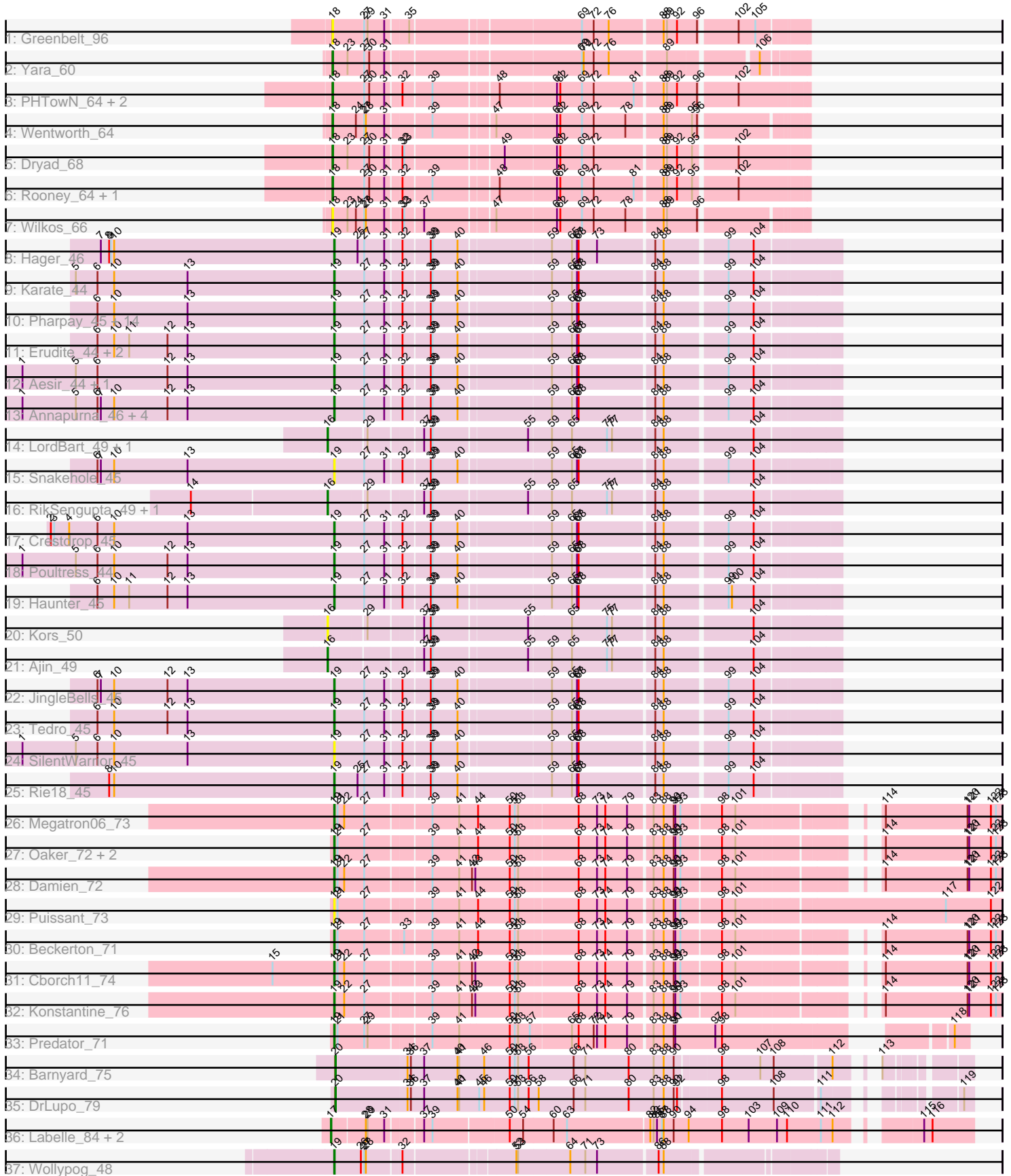


Pham 202923



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 202923 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202923 has 67 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Greenbelt_96
- Track 2 : Yara_60
- Track 3 : PHTown_64, Lizz_64, ShakeNBake_64
- Track 4 : Wentworth_64
- Track 5 : Dryad_68
- Track 6 : Rooney_64, Gibson_64
- Track 7 : Wilkos_66
- Track 8 : Hager_46
- Track 9 : Karate_44
- Track 10 : Pharpay_45, Krampus_45, Anakin_45, CoolCookie_45, Rachella_45, Neptune_45, Artiphact_45, NarutoRun_45, PhunaPhoke_45, Potty_45, Cybele_45, OverHedge_45, Kate_46, AnnaSerena_45, Gilda_45
- Track 11 : Erudite_44, Dauntless_44, MortySmith_43
- Track 12 : Aesir_44, JDawG_44
- Track 13 : Annapurna_46, Chivey_45, DannyDe_45, Hiddenleaf_45, FreddieHg_45
- Track 14 : LordBart_49, Sparcetus_49
- Track 15 : Snakehole_45
- Track 16 : RikSengupta_49, TinyMiny_49
- Track 17 : Crestdrop_45
- Track 18 : Poultruss_44
- Track 19 : Haunter_45
- Track 20 : Kors_50
- Track 21 : Ajin_49
- Track 22 : JingleBells_45
- Track 23 : Tedro_45
- Track 24 : SilentWarrior_45
- Track 25 : Rie18_45
- Track 26 : Megatron06_73
- Track 27 : Oaker_72, Phreeze_71, Thumb_73
- Track 28 : Damien_72
- Track 29 : Puissant_73
- Track 30 : Beckerton_71
- Track 31 : Cborch11_74
- Track 32 : Konstantine_76
- Track 33 : Predator_71
- Track 34 : Barnyard_75
- Track 35 : DrLupo_79

- Track 36 : Labelle_84, Madrugua_83, Patience_85
- Track 37 : Wollypog_48

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 41 of the 58 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aesir_44, Anakin_45, AnnaSerena_45, Annapurna_46, Artiphact_45, Beckerton_71, Cborch11_74, Chivey_45, CoolCookie_45, Crestdrop_45, Cybele_45, Damien_72, DannyDe_45, Dauntless_44, Erudite_44, FreddieHg_45, Gilda_45, Hager_46, Haunter_45, Hiddenleaf_45, JDawG_44, JingleBells_45, Karate_44, Kate_46, Konstantine_76, Krampus_45, Megatron06_73, MortySmith_43, NarutoRun_45, Neptune_45, Oaker_72, OverHedge_45, Pharpay_45, Phreeze_71, PhunaPhoke_45, Potty_45, Poultress_44, Predator_71, Puissant_73, Rachella_45, Rie18_45, SilentWarrior_45, Snakehole_45, Tedro_45, Thumb_73, Wollypog_48,

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

-

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

- Ajin_49, Barnyard_75, DrLupo_79, Dryad_68, Gibson_64, Greenbelt_96, Kors_50, Labelle_84, Lizz_64, LordBart_49, Madrugua_83, PHTowN_64, Patience_85, RikSengupta_49, Rooney_64, ShakeNBake_64, Sparcetus_49, TinyMiny_49, Wentworth_64, Wilkos_66, Yara_60,

Summary by start number:

Start 16:

- Found in 6 of 67 (9.0%) of genes in pham
- Manual Annotations of this start: 4 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ajin_49 (EF), Kors_50 (EF), LordBart_49 (EF), RikSengupta_49 (EF), Sparcetus_49 (EF), TinyMiny_49 (EF),

Start 17:

- Found in 3 of 67 (4.5%) of genes in pham
- Manual Annotations of this start: 3 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Labelle_84 (U), Madrugua_83 (U), Patience_85 (U),

Start 18:

- Found in 10 of 67 (14.9%) of genes in pham
- Manual Annotations of this start: 8 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dryad_68 (BN), Gibson_64 (BN), Greenbelt_96 (BN), Lizz_64 (BN), PHTowN_64 (BN), Rooney_64 (BN), ShakeNBake_64 (BN), Wentworth_64 (BN), Wilkos_66 (BN), Yara_60 (BN),

Start 19:

- Found in 46 of 67 (68.7%) of genes in pham
- Manual Annotations of this start: 41 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aesir_44 (EF), Anakin_45 (EF), AnnaSerena_45 (EF), Annapurna_46 (EF), Artiphact_45 (EF), Beckerton_71 (H1), Cborch11_74 (H1), Chivey_45 (EF), CoolCookie_45 (EF), Crestdrop_45 (EF), Cybele_45 (EF), Damien_72 (H1), DannyDe_45 (EF), Dauntless_44 (EF), Erudite_44 (EF), FreddieHg_45 (EF), Gilda_45 (EF), Hager_46 (EF), Haunter_45 (EF), Hiddenleaf_45 (EF), JDawG_44 (EF), JingleBells_45 (EF), Karate_44 (EF), Kate_46 (EF), Konstantine_76 (H1), Krampus_45 (EF), Megatron06_73 (H1), MortySmith_43 (EF), NarutoRun_45 (EF), Neptune_45 (EF), Oaker_72 (H1), OverHedge_45 (EF), Pharpay_45 (EF), Phreeze_71 (H1), PhunaPhoke_45 (EF), Potty_45 (EF), Poultruss_44 (EF), Predator_71 (H1), Puissant_73 (H1), Rachella_45 (EF), Rie18_45 (EF), SilentWarrior_45 (EF), Snakehole_45 (EF), Tedro_45 (EF), Thumb_73 (H1), Wollypog_48 (singleton),

Start 20:

- Found in 2 of 67 (3.0%) of genes in pham
- Manual Annotations of this start: 2 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Barnyard_75 (H2), DrLupo_79 (H2),

Summary by clusters:

There are 6 clusters represented in this pham: singleton, H1, H2, BN, EF, U,

Info for manual annotations of cluster BN:

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

Info for manual annotations of cluster EF:

- Start number 16 was manually annotated 4 times for cluster EF.
- Start number 19 was manually annotated 31 times for cluster EF.

Info for manual annotations of cluster H1:

- Start number 19 was manually annotated 9 times for cluster H1.

Info for manual annotations of cluster H2:

- Start number 20 was manually annotated 2 times for cluster H2.

Info for manual annotations of cluster U:

- Start number 17 was manually annotated 3 times for cluster U.

Gene Information:

Gene: Aesir_44 Start: 29791, Stop: 30636, Start Num: 19

Candidate Starts for Aesir_44:

(1, 29230), (5, 29326), (6, 29365), (12, 29491), (13, 29527), (Start: 19 @29791 has 41 MA's), (27, 29845), (31, 29881), (32, 29908), (38, 29953), (39, 29956), (40, 30001), (59, 30157), (65, 30193), (67, 30202), (68, 30205), (84, 30334), (88, 30349), (99, 30454), (104, 30496),

Gene: Ajin_49 Start: 31113, Stop: 31955, Start Num: 16

Candidate Starts for Ajin_49:

(Start: 16 @31113 has 4 MA's), (37, 31260), (38, 31272), (39, 31275), (55, 31437), (59, 31473), (65, 31509), (75, 31572), (77, 31581), (84, 31650), (88, 31665), (104, 31812),

Gene: Anakin_45 Start: 30144, Stop: 30992, Start Num: 19

Candidate Starts for Anakin_45:

(6, 29718), (10, 29748), (13, 29880), (Start: 19 @30144 has 41 MA's), (27, 30198), (31, 30234), (32, 30261), (38, 30306), (39, 30309), (40, 30354), (59, 30510), (65, 30546), (67, 30555), (68, 30558), (84, 30687), (88, 30702), (99, 30807), (104, 30849),

Gene: AnnaSerena_45 Start: 30179, Stop: 31027, Start Num: 19

Candidate Starts for AnnaSerena_45:

(6, 29753), (10, 29783), (13, 29915), (Start: 19 @30179 has 41 MA's), (27, 30233), (31, 30269), (32, 30296), (38, 30341), (39, 30344), (40, 30389), (59, 30545), (65, 30581), (67, 30590), (68, 30593), (84, 30722), (88, 30737), (99, 30842), (104, 30884),

Gene: Annapurna_46 Start: 29420, Stop: 30265, Start Num: 19

Candidate Starts for Annapurna_46:

(1, 28859), (5, 28955), (6, 28994), (7, 29000), (10, 29024), (12, 29120), (13, 29156), (Start: 19 @29420 has 41 MA's), (27, 29474), (31, 29510), (32, 29537), (38, 29582), (39, 29585), (40, 29630), (59, 29786), (65, 29822), (67, 29831), (68, 29834), (84, 29963), (88, 29978), (99, 30083), (104, 30125),

Gene: Artiphact_45 Start: 30168, Stop: 31016, Start Num: 19

Candidate Starts for Artiphact_45:

(6, 29742), (10, 29772), (13, 29904), (Start: 19 @30168 has 41 MA's), (27, 30222), (31, 30258), (32, 30285), (38, 30330), (39, 30333), (40, 30378), (59, 30534), (65, 30570), (67, 30579), (68, 30582), (84, 30711), (88, 30726), (99, 30831), (104, 30873),

Gene: Barnyard_75 Start: 51526, Stop: 52548, Start Num: 20

Candidate Starts for Barnyard_75:

(Start: 20 @51526 has 2 MA's), (34, 51652), (36, 51658), (37, 51682), (40, 51742), (41, 51745), (46, 51790), (50, 51835), (51, 51844), (53, 51850), (56, 51868), (66, 51949), (71, 51970), (80, 52048), (83, 52093), (88, 52111), (90, 52129), (98, 52204), (107, 52273), (108, 52294), (112, 52387), (113, 52423),

Gene: Beckerton_71 Start: 53060, Stop: 54136, Start Num: 19

Candidate Starts for Beckerton_71:

(Start: 19 @53060 has 41 MA's), (21, 53066), (27, 53114), (33, 53177), (39, 53222), (41, 53270), (44, 53300), (50, 53357), (51, 53366), (53, 53372), (68, 53474), (73, 53507), (74, 53522), (79, 53561), (83, 53600), (88, 53618), (90, 53636), (91, 53639), (93, 53648), (98, 53714), (101, 53738), (114, 53927), (120, 54074), (121, 54077), (122, 54116), (123, 54125),

Gene: Cborch11_74 Start: 52603, Stop: 53682, Start Num: 19

Candidate Starts for Cborch11_74:

(15, 52492), (Start: 19 @52603 has 41 MA's), (21, 52609), (22, 52621), (27, 52657), (39, 52765), (41, 52813), (42, 52834), (43, 52840), (50, 52900), (51, 52909), (53, 52915), (68, 53017), (73, 53050), (74, 53065), (79, 53104), (83, 53143), (88, 53161), (90, 53179), (91, 53182), (93, 53191), (98, 53257), (101, 53281), (114, 53473), (120, 53620), (121, 53623), (122, 53662), (123, 53671),

Gene: Chivey_45 Start: 29369, Stop: 30214, Start Num: 19

Candidate Starts for Chivey_45:

(1, 28808), (5, 28904), (6, 28943), (7, 28949), (10, 28973), (12, 29069), (13, 29105), (Start: 19 @29369 has 41 MA's), (27, 29423), (31, 29459), (32, 29486), (38, 29531), (39, 29534), (40, 29579), (59, 29735), (65, 29771), (67, 29780), (68, 29783), (84, 29912), (88, 29927), (99, 30032), (104, 30074),

Gene: CoolCookie_45 Start: 30174, Stop: 31022, Start Num: 19

Candidate Starts for CoolCookie_45:

(6, 29748), (10, 29778), (13, 29910), (Start: 19 @30174 has 41 MA's), (27, 30228), (31, 30264), (32, 30291), (38, 30336), (39, 30339), (40, 30384), (59, 30540), (65, 30576), (67, 30585), (68, 30588), (84, 30717), (88, 30732), (99, 30837), (104, 30879),

Gene: Crestdrop_45 Start: 29400, Stop: 30245, Start Num: 19

Candidate Starts for Crestdrop_45:

(2, 28890), (3, 28896), (4, 28923), (6, 28974), (10, 29004), (13, 29136), (Start: 19 @29400 has 41 MA's), (27, 29454), (31, 29490), (32, 29517), (38, 29562), (39, 29565), (40, 29610), (59, 29766), (65, 29802), (67, 29811), (68, 29814), (84, 29943), (88, 29958), (99, 30063), (104, 30105),

Gene: Cybele_45 Start: 30144, Stop: 30992, Start Num: 19

Candidate Starts for Cybele_45:

(6, 29718), (10, 29748), (13, 29880), (Start: 19 @30144 has 41 MA's), (27, 30198), (31, 30234), (32, 30261), (38, 30306), (39, 30309), (40, 30354), (59, 30510), (65, 30546), (67, 30555), (68, 30558), (84, 30687), (88, 30702), (99, 30807), (104, 30849),

Gene: Damien_72 Start: 52565, Stop: 53644, Start Num: 19

Candidate Starts for Damien_72:

(Start: 19 @52565 has 41 MA's), (21, 52571), (22, 52583), (27, 52619), (39, 52727), (41, 52775), (42, 52796), (43, 52802), (50, 52862), (51, 52871), (53, 52877), (68, 52979), (73, 53012), (74, 53027), (79, 53066), (83, 53105), (88, 53123), (90, 53141), (91, 53144), (93, 53153), (98, 53219), (101, 53243), (114, 53435), (120, 53582), (121, 53585), (122, 53624), (123, 53633),

Gene: DannyDe_45 Start: 29375, Stop: 30220, Start Num: 19

Candidate Starts for DannyDe_45:

(1, 28814), (5, 28910), (6, 28949), (7, 28955), (10, 28979), (12, 29075), (13, 29111), (Start: 19 @29375 has 41 MA's), (27, 29429), (31, 29465), (32, 29492), (38, 29537), (39, 29540), (40, 29585), (59, 29741), (65, 29777), (67, 29786), (68, 29789), (84, 29918), (88, 29933), (99, 30038), (104, 30080),

Gene: Dauntless_44 Start: 29727, Stop: 30572, Start Num: 19

Candidate Starts for Dauntless_44:

(6, 29301), (10, 29331), (11, 29358), (12, 29427), (13, 29463), (Start: 19 @29727 has 41 MA's), (27, 29781), (31, 29817), (32, 29844), (38, 29889), (39, 29892), (40, 29937), (59, 30093), (65, 30129), (67, 30138), (68, 30141), (84, 30270), (88, 30285), (99, 30390), (104, 30432),

Gene: DrLupo_79 Start: 52740, Stop: 53756, Start Num: 20

Candidate Starts for DrLupo_79:

(Start: 20 @52740 has 2 MA's), (34, 52866), (36, 52872), (37, 52896), (40, 52956), (41, 52959), (45, 52995), (46, 53004), (50, 53049), (51, 53058), (53, 53064), (56, 53082), (58, 53100), (66, 53163), (71, 53184), (80, 53262), (83, 53307), (88, 53325), (90, 53343), (92, 53349), (98, 53418), (108, 53508), (111, 53577), (119, 53739),

Gene: Dryad_68 Start: 46911, Stop: 46123, Start Num: 18

Candidate Starts for Dryad_68:

(Start: 18 @46911 has 8 MA's), (23, 46884), (27, 46857), (30, 46848), (31, 46821), (32, 46797), (33, 46794), (49, 46635), (61, 46545), (62, 46539), (69, 46500), (72, 46479), (88, 46362), (89, 46356), (92, 46338), (95, 46311), (102, 46239),

Gene: Erudite_44 Start: 29727, Stop: 30572, Start Num: 19

Candidate Starts for Erudite_44:

(6, 29301), (10, 29331), (11, 29358), (12, 29427), (13, 29463), (Start: 19 @29727 has 41 MA's), (27, 29781), (31, 29817), (32, 29844), (38, 29889), (39, 29892), (40, 29937), (59, 30093), (65, 30129), (67, 30138), (68, 30141), (84, 30270), (88, 30285), (99, 30390), (104, 30432),

Gene: FreddieHg_45 Start: 29385, Stop: 30230, Start Num: 19

Candidate Starts for FreddieHg_45:

(1, 28824), (5, 28920), (6, 28959), (7, 28965), (10, 28989), (12, 29085), (13, 29121), (Start: 19 @29385 has 41 MA's), (27, 29439), (31, 29475), (32, 29502), (38, 29547), (39, 29550), (40, 29595), (59, 29751), (65, 29787), (67, 29796), (68, 29799), (84, 29928), (88, 29943), (99, 30048), (104, 30090),

Gene: Gibson_64 Start: 46180, Stop: 45395, Start Num: 18

Candidate Starts for Gibson_64:

(Start: 18 @46180 has 8 MA's), (27, 46126), (30, 46117), (31, 46090), (32, 46066), (39, 46018), (48, 45913), (61, 45814), (62, 45808), (69, 45769), (72, 45748), (81, 45676), (88, 45631), (89, 45625), (92, 45607), (95, 45580), (102, 45508),

Gene: Gilda_45 Start: 30168, Stop: 31013, Start Num: 19

Candidate Starts for Gilda_45:

(6, 29742), (10, 29772), (13, 29904), (Start: 19 @30168 has 41 MA's), (27, 30222), (31, 30258), (32, 30285), (38, 30330), (39, 30333), (40, 30378), (59, 30534), (65, 30570), (67, 30579), (68, 30582), (84, 30711), (88, 30726), (99, 30831), (104, 30873),

Gene: Greenbelt_96 Start: 42280, Stop: 41495, Start Num: 18

Candidate Starts for Greenbelt_96:

(Start: 18 @42280 has 8 MA's), (27, 42226), (29, 42220), (31, 42190), (35, 42154), (69, 41869), (72, 41848), (76, 41821), (88, 41731), (89, 41725), (92, 41707), (96, 41671), (102, 41608), (105, 41581),

Gene: Hager_46 Start: 29593, Stop: 30441, Start Num: 19

Candidate Starts for Hager_46:

(7, 29173), (8, 29188), (9, 29191), (10, 29197), (Start: 19 @29593 has 41 MA's), (25, 29635), (27, 29647), (31, 29683), (32, 29710), (38, 29755), (39, 29758), (40, 29803), (59, 29959), (65, 29995), (67, 30004), (68, 30007), (73, 30040), (84, 30136), (88, 30151), (99, 30256), (104, 30298),

Gene: Haunter_45 Start: 29551, Stop: 30396, Start Num: 19

Candidate Starts for Haunter_45:

(6, 29125), (10, 29155), (11, 29182), (12, 29251), (13, 29287), (Start: 19 @29551 has 41 MA's), (27, 29605), (31, 29641), (32, 29668), (38, 29713), (39, 29716), (40, 29761), (59, 29917), (65, 29953), (67, 29962), (68, 29965), (84, 30094), (88, 30109), (99, 30214), (100, 30220), (104, 30256),

Gene: Hiddenleaf_45 Start: 29369, Stop: 30214, Start Num: 19

Candidate Starts for Hiddenleaf_45:

(1, 28808), (5, 28904), (6, 28943), (7, 28949), (10, 28973), (12, 29069), (13, 29105), (Start: 19 @29369 has 41 MA's), (27, 29423), (31, 29459), (32, 29486), (38, 29531), (39, 29534), (40, 29579), (59, 29735), (65, 29771), (67, 29780), (68, 29783), (84, 29912), (88, 29927), (99, 30032), (104, 30074),

Gene: JDawG_44 Start: 29786, Stop: 30631, Start Num: 19

Candidate Starts for JDawG_44:

(1, 29225), (5, 29321), (6, 29360), (12, 29486), (13, 29522), (Start: 19 @29786 has 41 MA's), (27, 29840), (31, 29876), (32, 29903), (38, 29948), (39, 29951), (40, 29996), (59, 30152), (65, 30188), (67, 30197), (68, 30200), (84, 30329), (88, 30344), (99, 30449), (104, 30491),

Gene: JingleBells_45 Start: 29520, Stop: 30365, Start Num: 19

Candidate Starts for JingleBells_45:

(6, 29094), (7, 29100), (10, 29124), (12, 29220), (13, 29256), (Start: 19 @29520 has 41 MA's), (27, 29574), (31, 29610), (32, 29637), (38, 29682), (39, 29685), (40, 29730), (59, 29886), (65, 29922), (67, 29931), (68, 29934), (84, 30063), (88, 30078), (99, 30183), (104, 30225),

Gene: Karate_44 Start: 30169, Stop: 31014, Start Num: 19

Candidate Starts for Karate_44:

(5, 29704), (6, 29743), (10, 29773), (13, 29905), (Start: 19 @30169 has 41 MA's), (27, 30223), (31, 30259), (32, 30286), (38, 30331), (39, 30334), (40, 30379), (59, 30535), (65, 30571), (67, 30580), (68, 30583), (84, 30712), (88, 30727), (99, 30832), (104, 30874),

Gene: Kate_46 Start: 30176, Stop: 31024, Start Num: 19

Candidate Starts for Kate_46:

(6, 29750), (10, 29780), (13, 29912), (Start: 19 @30176 has 41 MA's), (27, 30230), (31, 30266), (32, 30293), (38, 30338), (39, 30341), (40, 30386), (59, 30542), (65, 30578), (67, 30587), (68, 30590), (84, 30719), (88, 30734), (99, 30839), (104, 30881),

Gene: Konstantine_76 Start: 53396, Stop: 54475, Start Num: 19

Candidate Starts for Konstantine_76:

(Start: 19 @53396 has 41 MA's), (22, 53414), (27, 53450), (39, 53558), (41, 53606), (42, 53627), (43, 53633), (50, 53693), (51, 53702), (53, 53708), (68, 53810), (73, 53843), (74, 53858), (79, 53897), (83, 53936), (88, 53954), (90, 53972), (91, 53975), (93, 53984), (98, 54050), (101, 54074), (114, 54266), (120, 54413), (121, 54416), (122, 54455), (123, 54464),

Gene: Kors_50 Start: 31190, Stop: 32032, Start Num: 16

Candidate Starts for Kors_50:

(Start: 16 @31190 has 4 MA's), (29, 31253), (37, 31337), (38, 31349), (39, 31352), (55, 31514), (65, 31586), (75, 31649), (77, 31658), (84, 31727), (88, 31742), (104, 31889),

Gene: Krampus_45 Start: 30176, Stop: 31024, Start Num: 19

Candidate Starts for Krampus_45:

(6, 29750), (10, 29780), (13, 29912), (Start: 19 @30176 has 41 MA's), (27, 30230), (31, 30266), (32, 30293), (38, 30338), (39, 30341), (40, 30386), (59, 30542), (65, 30578), (67, 30587), (68, 30590), (84, 30719), (88, 30734), (99, 30839), (104, 30881),

Gene: Labelle_84 Start: 54626, Stop: 55684, Start Num: 17

Candidate Starts for Labelle_84:

(Start: 17 @54626 has 3 MA's), (28, 54683), (29, 54686), (31, 54716), (37, 54773), (39, 54788), (50, 54917), (54, 54941), (60, 54995), (63, 55019), (82, 55163), (83, 55169), (85, 55175), (87, 55184), (88, 55187), (90, 55205), (94, 55232), (98, 55292), (103, 55340), (109, 55388), (110, 55406), (111, 55466), (112, 55487), (115, 55595), (116, 55610),

Gene: Lizz_64 Start: 46003, Stop: 45221, Start Num: 18

Candidate Starts for Lizz_64:

(Start: 18 @46003 has 8 MA's), (27, 45949), (30, 45940), (31, 45913), (32, 45889), (39, 45841), (48, 45736), (61, 45637), (62, 45631), (69, 45592), (72, 45571), (81, 45499), (88, 45454), (89, 45448), (92, 45430), (96, 45394), (102, 45331),

Gene: LordBart_49 Start: 31099, Stop: 31941, Start Num: 16

Candidate Starts for LordBart_49:

(Start: 16 @31099 has 4 MA's), (29, 31162), (37, 31246), (38, 31258), (39, 31261), (55, 31423), (59, 31459), (65, 31495), (75, 31558), (77, 31567), (84, 31636), (88, 31651), (104, 31798),

Gene: Madruga_83 Start: 54580, Stop: 55638, Start Num: 17

Candidate Starts for Madruga_83:

(Start: 17 @54580 has 3 MA's), (28, 54637), (29, 54640), (31, 54670), (37, 54727), (39, 54742), (50, 54871), (54, 54895), (60, 54949), (63, 54973), (82, 55117), (83, 55123), (85, 55129), (87, 55138), (88, 55141), (90, 55159), (94, 55186), (98, 55246), (103, 55294), (109, 55342), (110, 55360), (111, 55420), (112, 55441), (115, 55549), (116, 55564),

Gene: Megatron06_73 Start: 53142, Stop: 54218, Start Num: 19

Candidate Starts for Megatron06_73:

(Start: 19 @53142 has 41 MA's), (21, 53148), (22, 53160), (27, 53196), (39, 53304), (41, 53352), (44, 53382), (50, 53439), (51, 53448), (53, 53454), (68, 53556), (73, 53589), (74, 53604), (79, 53643), (83, 53682), (88, 53700), (90, 53718), (91, 53721), (93, 53730), (98, 53796), (101, 53820), (114, 54009), (120, 54156), (121, 54159), (122, 54198), (123, 54207),

Gene: MortySmith_43 Start: 29204, Stop: 30049, Start Num: 19

Candidate Starts for MortySmith_43:

(6, 28778), (10, 28808), (11, 28835), (12, 28904), (13, 28940), (Start: 19 @29204 has 41 MA's), (27, 29258), (31, 29294), (32, 29321), (38, 29366), (39, 29369), (40, 29414), (59, 29570), (65, 29606), (67, 29615), (68, 29618), (84, 29747), (88, 29762), (99, 29867), (104, 29909),

Gene: NarutoRun_45 Start: 30144, Stop: 30992, Start Num: 19

Candidate Starts for NarutoRun_45:

(6, 29718), (10, 29748), (13, 29880), (Start: 19 @30144 has 41 MA's), (27, 30198), (31, 30234), (32, 30261), (38, 30306), (39, 30309), (40, 30354), (59, 30510), (65, 30546), (67, 30555), (68, 30558), (84, 30687), (88, 30702), (99, 30807), (104, 30849),

Gene: Neptune_45 Start: 30144, Stop: 30992, Start Num: 19

Candidate Starts for Neptune_45:

(6, 29718), (10, 29748), (13, 29880), (Start: 19 @30144 has 41 MA's), (27, 30198), (31, 30234), (32, 30261), (38, 30306), (39, 30309), (40, 30354), (59, 30510), (65, 30546), (67, 30555), (68, 30558), (84, 30687), (88, 30702), (99, 30807), (104, 30849),

Gene: Oaker_72 Start: 53171, Stop: 54247, Start Num: 19

Candidate Starts for Oaker_72:

(Start: 19 @53171 has 41 MA's), (21, 53177), (27, 53225), (39, 53333), (41, 53381), (44, 53411), (50, 53468), (51, 53477), (53, 53483), (68, 53585), (73, 53618), (74, 53633), (79, 53672), (83, 53711), (88, 53729), (90, 53747), (91, 53750), (93, 53759), (98, 53825), (101, 53849), (114, 54038), (120, 54185), (121, 54188), (122, 54227), (123, 54236),

Gene: OverHedge_45 Start: 30134, Stop: 30982, Start Num: 19

Candidate Starts for OverHedge_45:

(6, 29708), (10, 29738), (13, 29870), (Start: 19 @30134 has 41 MA's), (27, 30188), (31, 30224), (32, 30251), (38, 30296), (39, 30299), (40, 30344), (59, 30500), (65, 30536), (67, 30545), (68, 30548), (84, 30677), (88, 30692), (99, 30797), (104, 30839),

Gene: PHTowN_64 Start: 46001, Stop: 45219, Start Num: 18

Candidate Starts for PHTowN_64:

(Start: 18 @46001 has 8 MA's), (27, 45947), (30, 45938), (31, 45911), (32, 45887), (39, 45839), (48, 45734), (61, 45635), (62, 45629), (69, 45590), (72, 45569), (81, 45497), (88, 45452), (89, 45446), (92, 45428), (96, 45392), (102, 45329),

Gene: Patience_85 Start: 55493, Stop: 56551, Start Num: 17

Candidate Starts for Patience_85:

(Start: 17 @55493 has 3 MA's), (28, 55550), (29, 55553), (31, 55583), (37, 55640), (39, 55655), (50, 55784), (54, 55808), (60, 55862), (63, 55886), (82, 56030), (83, 56036), (85, 56042), (87, 56051), (88, 56054), (90, 56072), (94, 56099), (98, 56159), (103, 56207), (109, 56255), (110, 56273), (111, 56333), (112, 56354), (115, 56462), (116, 56477),

Gene: Pharpay_45 Start: 30189, Stop: 31037, Start Num: 19

Candidate Starts for Pharpay_45:

(6, 29763), (10, 29793), (13, 29925), (Start: 19 @30189 has 41 MA's), (27, 30243), (31, 30279), (32, 30306), (38, 30351), (39, 30354), (40, 30399), (59, 30555), (65, 30591), (67, 30600), (68, 30603), (84, 30732), (88, 30747), (99, 30852), (104, 30894),

Gene: Phreeze_71 Start: 52138, Stop: 53217, Start Num: 19

Candidate Starts for Phreeze_71:

(Start: 19 @52138 has 41 MA's), (21, 52144), (27, 52192), (39, 52300), (41, 52348), (44, 52378), (50, 52435), (51, 52444), (53, 52450), (68, 52552), (73, 52585), (74, 52600), (79, 52639), (83, 52678), (88, 52696), (90, 52714), (91, 52717), (93, 52726), (98, 52792), (101, 52816), (114, 53008), (120, 53155), (121, 53158), (122, 53197), (123, 53206),

Gene: PhunaPhoke_45 Start: 30162, Stop: 31010, Start Num: 19

Candidate Starts for PhunaPhoke_45:

(6, 29736), (10, 29766), (13, 29898), (Start: 19 @30162 has 41 MA's), (27, 30216), (31, 30252), (32, 30279), (38, 30324), (39, 30327), (40, 30372), (59, 30528), (65, 30564), (67, 30573), (68, 30576), (84, 30705), (88, 30720), (99, 30825), (104, 30867),

Gene: Potty_45 Start: 30167, Stop: 31015, Start Num: 19

Candidate Starts for Potty_45:

(6, 29741), (10, 29771), (13, 29903), (Start: 19 @30167 has 41 MA's), (27, 30221), (31, 30257), (32, 30284), (38, 30329), (39, 30332), (40, 30377), (59, 30533), (65, 30569), (67, 30578), (68, 30581), (84, 30710), (88, 30725), (99, 30830), (104, 30872),

Gene: Poultruss_44 Start: 30482, Stop: 31330, Start Num: 19

Candidate Starts for Poultruss_44:

(1, 29921), (5, 30017), (6, 30056), (10, 30086), (12, 30182), (13, 30218), (Start: 19 @30482 has 41 MA's), (27, 30536), (31, 30572), (32, 30599), (38, 30644), (39, 30647), (40, 30692), (59, 30848), (65, 30884), (67, 30893), (68, 30896), (84, 31025), (88, 31040), (99, 31145), (104, 31187),

Gene: Predator_71 Start: 51699, Stop: 52709, Start Num: 19

Candidate Starts for Predator_71:

(Start: 19 @51699 has 41 MA's), (21, 51705), (27, 51753), (29, 51759), (39, 51861), (41, 51909), (50, 51996), (51, 52005), (53, 52011), (57, 52032), (65, 52101), (68, 52113), (72, 52140), (73, 52146), (74, 52161), (79, 52200), (83, 52239), (88, 52257), (90, 52275), (91, 52278), (97, 52350), (98, 52362), (118, 52683),

Gene: Puissant_73 Start: 52254, Stop: 53387, Start Num: 19

Candidate Starts for Puissant_73:

(Start: 19 @52254 has 41 MA's), (21, 52260), (27, 52308), (39, 52416), (41, 52464), (44, 52494), (50, 52551), (51, 52560), (53, 52566), (68, 52668), (73, 52701), (74, 52716), (79, 52755), (83, 52794), (88, 52812), (90, 52830), (91, 52833), (93, 52842), (98, 52908), (101, 52932), (117, 53289), (122, 53367),

Gene: Rachella_45 Start: 30170, Stop: 31018, Start Num: 19

Candidate Starts for Rachella_45:

(6, 29744), (10, 29774), (13, 29906), (Start: 19 @30170 has 41 MA's), (27, 30224), (31, 30260), (32, 30287), (38, 30332), (39, 30335), (40, 30380), (59, 30536), (65, 30572), (67, 30581), (68, 30584), (84, 30713), (88, 30728), (99, 30833), (104, 30875),

Gene: Rie18_45 Start: 29667, Stop: 30512, Start Num: 19

Candidate Starts for Rie18_45:

(8, 29262), (10, 29271), (Start: 19 @29667 has 41 MA's), (25, 29709), (27, 29721), (31, 29757), (32, 29784), (38, 29829), (39, 29832), (40, 29877), (59, 30033), (65, 30069), (67, 30078), (68, 30081), (84, 30210), (88, 30225), (99, 30330), (104, 30372),

Gene: RikSengupta_49 Start: 31227, Stop: 32069, Start Num: 16

Candidate Starts for RikSengupta_49:

(14, 30993), (Start: 16 @31227 has 4 MA's), (29, 31290), (37, 31374), (38, 31386), (39, 31389), (55, 31551), (59, 31587), (65, 31623), (75, 31686), (77, 31695), (84, 31764), (88, 31779), (104, 31926),

Gene: Rooney_64 Start: 46156, Stop: 45371, Start Num: 18

Candidate Starts for Rooney_64:

(Start: 18 @46156 has 8 MA's), (27, 46102), (30, 46093), (31, 46066), (32, 46042), (39, 45994), (48, 45889), (61, 45790), (62, 45784), (69, 45745), (72, 45724), (81, 45652), (88, 45607), (89, 45601), (92, 45583), (95, 45556), (102, 45484),

Gene: ShakeNBake_64 Start: 46028, Stop: 45246, Start Num: 18

Candidate Starts for ShakeNBake_64:

(Start: 18 @46028 has 8 MA's), (27, 45974), (30, 45965), (31, 45938), (32, 45914), (39, 45866), (48, 45761), (61, 45662), (62, 45656), (69, 45617), (72, 45596), (81, 45524), (88, 45479), (89, 45473), (92, 45455), (96, 45419), (102, 45356),

Gene: SilentWarrior_45 Start: 29382, Stop: 30230, Start Num: 19

Candidate Starts for SilentWarrior_45:

(1, 28821), (5, 28917), (6, 28956), (10, 28986), (13, 29118), (Start: 19 @29382 has 41 MA's), (27, 29436), (31, 29472), (32, 29499), (38, 29544), (39, 29547), (40, 29592), (59, 29748), (65, 29784), (67, 29793), (68, 29796), (84, 29925), (88, 29940), (99, 30045), (104, 30087),

Gene: Snakehole_45 Start: 29347, Stop: 30192, Start Num: 19

Candidate Starts for Snakehole_45:

(6, 28921), (7, 28927), (10, 28951), (13, 29083), (Start: 19 @29347 has 41 MA's), (27, 29401), (31, 29437), (32, 29464), (38, 29509), (39, 29512), (40, 29557), (59, 29713), (65, 29749), (67, 29758), (68, 29761), (84, 29890), (88, 29905), (99, 30010), (104, 30052),

Gene: Sparcetus_49 Start: 31104, Stop: 31946, Start Num: 16

Candidate Starts for Sparcetus_49:

(Start: 16 @31104 has 4 MA's), (29, 31167), (37, 31251), (38, 31263), (39, 31266), (55, 31428), (59, 31464), (65, 31500), (75, 31563), (77, 31572), (84, 31641), (88, 31656), (104, 31803),

Gene: Tedro_45 Start: 29601, Stop: 30446, Start Num: 19

Candidate Starts for Tedro_45:

(6, 29175), (10, 29205), (12, 29301), (13, 29337), (Start: 19 @29601 has 41 MA's), (27, 29655), (31, 29691), (32, 29718), (38, 29763), (39, 29766), (40, 29811), (59, 29967), (65, 30003), (67, 30012), (68, 30015), (84, 30144), (88, 30159), (99, 30264), (104, 30306),

Gene: Thumb_73 Start: 52573, Stop: 53652, Start Num: 19

Candidate Starts for Thumb_73:

(Start: 19 @52573 has 41 MA's), (21, 52579), (27, 52627), (39, 52735), (41, 52783), (44, 52813), (50, 52870), (51, 52879), (53, 52885), (68, 52987), (73, 53020), (74, 53035), (79, 53074), (83, 53113), (88, 53131), (90, 53149), (91, 53152), (93, 53161), (98, 53227), (101, 53251), (114, 53443), (120, 53590), (121, 53593), (122, 53632), (123, 53641),

Gene: TinyMiny_49 Start: 31125, Stop: 31967, Start Num: 16

Candidate Starts for TinyMiny_49:

(14, 30891), (Start: 16 @31125 has 4 MA's), (29, 31188), (37, 31272), (38, 31284), (39, 31287), (55, 31449), (59, 31485), (65, 31521), (75, 31584), (77, 31593), (84, 31662), (88, 31677), (104, 31824),

Gene: Wentworth_64 Start: 46130, Stop: 45360, Start Num: 18

Candidate Starts for Wentworth_64:

(Start: 18 @46130 has 8 MA's), (24, 46088), (27, 46076), (28, 46073), (31, 46040), (39, 45968), (47, 45869), (61, 45764), (62, 45758), (69, 45719), (72, 45698), (78, 45641), (88, 45581), (89, 45575), (95, 45530), (96, 45521),

Gene: Wilkos_66 Start: 46285, Stop: 45515, Start Num: 18

Candidate Starts for Wilkos_66:

(Start: 18 @46285 has 8 MA's), (23, 46258), (24, 46243), (27, 46231), (28, 46228), (31, 46195), (32, 46171), (33, 46168), (37, 46138), (47, 46024), (61, 45919), (62, 45913), (69, 45874), (72, 45853), (78, 45796), (88, 45736), (89, 45730), (96, 45676),

Gene: Wollypog_48 Start: 34784, Stop: 35608, Start Num: 19

Candidate Starts for Wollypog_48:

(Start: 19 @34784 has 41 MA's), (26, 34832), (27, 34838), (28, 34841), (32, 34898), (52, 35081), (53, 35084), (64, 35174), (71, 35201), (73, 35222), (86, 35324), (88, 35333),

Gene: Yara_60 Start: 44990, Stop: 44223, Start Num: 18

Candidate Starts for Yara_60:

(Start: 18 @44990 has 8 MA's), (23, 44963), (27, 44936), (30, 44927), (31, 44900), (69, 44579), (70, 44576), (72, 44558), (76, 44531), (89, 44435), (106, 44297),