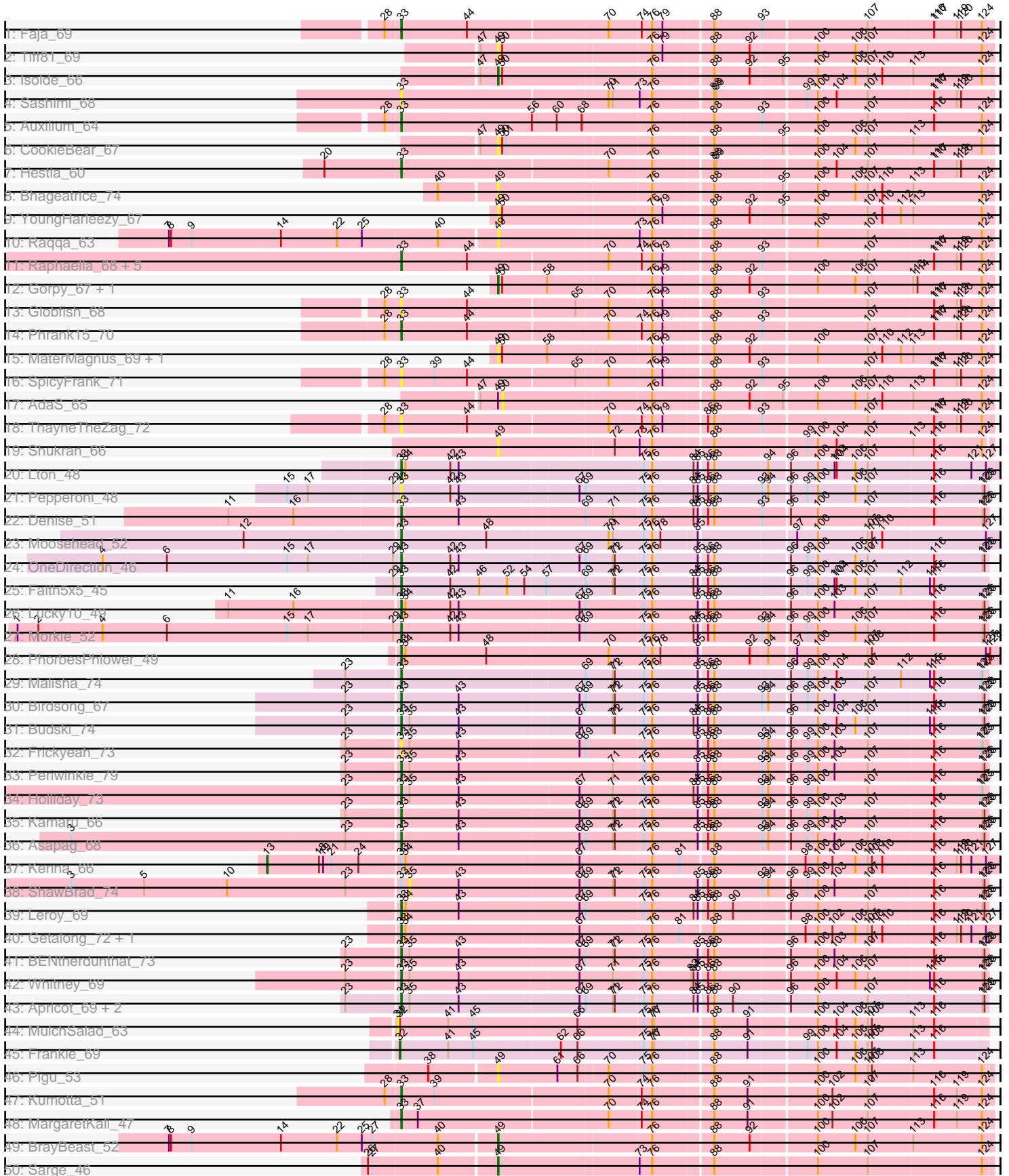


Pham 198088



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 198088 Report

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

Pham number 198088 has 65 members, 23 are drafts.

Phages represented in each track:

- Track 1 : Faja_69
- Track 2 : Tiff81_69
- Track 3 : Isolde_66
- Track 4 : Sashimi_68
- Track 5 : Auxilium_64
- Track 6 : CookieBear_67
- Track 7 : Hestia_60
- Track 8 : Bhageatrice_74
- Track 9 : YoungHarleezy_67
- Track 10 : Raqqa_63
- Track 11 : Raphaella_68, BillyTP_69, Richie_71, Lawnathon_68, BenchScraper_68, Windest_70
- Track 12 : Gorpy_67, Sakai_66
- Track 13 : Globfish_68
- Track 14 : Phrank15_70
- Track 15 : MaterMagnus_69, Aikyam_67
- Track 16 : SpicyFrank_71
- Track 17 : AdaS_65
- Track 18 : ThayneTheZag_72
- Track 19 : Shukran_66
- Track 20 : Lton_48
- Track 21 : Pepperoni_48
- Track 22 : Denise_51
- Track 23 : Moosehead_52
- Track 24 : OneDirection_46
- Track 25 : Faith5x5_45
- Track 26 : Lucky10_49
- Track 27 : Morkie_52
- Track 28 : PhorbesPhlower_49
- Track 29 : Malisha_74
- Track 30 : Birdsong_67
- Track 31 : Budski_74
- Track 32 : Frickyeah_73
- Track 33 : Periwinkle_79
- Track 34 : Holliday_73
- Track 35 : Kamaru_66
- Track 36 : Asapag_68

- Track 37 : Kenna_66
- Track 38 : ShawBrad_74
- Track 39 : Leroy_69
- Track 40 : Getalong_72, Lutum_72
- Track 41 : BENtherdunthat_73
- Track 42 : Whitney_69
- Track 43 : Apricot_69, Phistory_68, Crater_69
- Track 44 : MulchSalad_63
- Track 45 : Frankie_69
- Track 46 : Pigu_53
- Track 47 : Kumotta_51
- Track 48 : MargaretKali_47
- Track 49 : BrayBeast_52
- Track 50 : Sarge_46
- Track 51 : Bauer_62
- Track 52 : BlackSpider_58
- Track 53 : REQ2_57
- Track 54 : TJE1_54
- Track 55 : Footloose_50

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

The start number called the most often in the published annotations is 33, it was called in 33 of the 42 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Apricot_69, Asapag_68, Auxilium_64, BENtherdunthat_73, BenchScraper_68, BillyTP_69, Birdsong_67, Budski_74, Crater_69, Denise_51, Faith5x5_45, Faja_69, Frickyeah_73, Getalong_72, Globfish_68, Hestia_60, Holliday_73, Kamaru_66, Kumotta_51, Lawnathon_68, Leroy_69, Lton_48, Lucky10_49, Lutum_72, Malisha_74, MargaretKali_47, Moosehead_52, Morkie_52, OneDirection_46, Pepperoni_48, Periwinkle_79, Phistory_68, PhorbesPhlower_49, Phrank15_70, Raphaella_68, Richie_71, Sashimi_68, SpicyFrank_71, ThayneTheZag_72, Whitney_69, Windest_70,

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

- Kenna_66, ShawBrad_74,

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

- AdaS_65, Aikyam_67, Bauer_62, Bhageatrice_74, BlackSpider_58, BrayBeast_52, CookieBear_67, Footloose_50, Frankie_69, Gorpy_67, Isolde_66, MaterMagnus_69, MulchSalad_63, Pigu_53, REQ2_57, Raqqa_63, Sakai_66, Sarge_46, Shukran_66, TJE1_54, Tiff81_69, YoungHarleezy_67,

Summary by start number:

Start 13:

- Found in 1 of 65 (1.5%) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Kenna_66 (DN1),

Start 30:

- Found in 1 of 65 (1.5%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: REQ2_57 (singleton),

Start 31:

- Found in 1 of 65 (1.5%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MulchSalad_63 (F),

Start 32:

- Found in 2 of 65 (3.1%) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Frankie_69 (F1),

Start 33:

- Found in 43 of 65 (66.2%) of genes in pham
- Manual Annotations of this start: 33 of 42
- Called 95.3% of time when present
- Phage (with cluster) where this start called: Apricot_69 (DN3), Asapag_68 (DN1), Auxilium_64 (AY), BENtherdunthat_73 (DN1), BenchScraper_68 (AY), BillyTP_69 (AY), Birdsong_67 (DN), Budski_74 (DN), Crater_69 (DN3), Denise_51 (CZ5), Faith5x5_45 (CZ6), Faja_69 (AY), Frickyeah_73 (DN1), Getalong_72 (DN1), Globfish_68 (AY), Hestia_60 (AY), Holliday_73 (DN1), Kamaru_66 (DN1), Kumotta_51 (FB), Lawnathon_68 (AY), Leroy_69 (DN1), Lton_48 (CZ), Lucky10_49 (DH), Lutum_72 (DN1), Malisha_74 (DN), MargaretKali_47 (FB), Moosehead_52 (CZ6), Morkie_52 (DH), OneDirection_46 (CZ6), Pepperoni_48 (CZ), Periwinkle_79 (DN1), Phistory_68 (DN1), PhorbesPhlower_49 (DH), Phrank15_70 (AY), Raphaella_68 (AY), Richie_71 (AY), Sashimi_68 (AY), SpicyFrank_71 (AY), ThayneTheZag_72 (AY), Whitney_69 (DN1), Windest_70 (AY),

Start 35:

- Found in 10 of 65 (15.4%) of genes in pham
- No Manual Annotations of this start.
- Called 10.0% of time when present
- Phage (with cluster) where this start called: ShawBrad_74 (DN1),

Start 49:

- Found in 18 of 65 (27.7%) of genes in pham
- Manual Annotations of this start: 7 of 42
- Called 94.4% of time when present
- Phage (with cluster) where this start called: Aikyam_67 (AY), Bauer_62 (FN), Bhageatrice_74 (AY), BlackSpider_58 (FN), BrayBeast_52 (FB), CookieBear_67 (AY), Footloose_50 (singleton), Gorpy_67 (AY), Isolde_66 (AY), MaterMagnus_69 (AY), Pigu_53 (FB), Raqqa_63 (AY), Sakai_66 (AY), Sarge_46 (FB), Shukran_66 (AY), Tiff81_69 (AY), YoungHarleezy_67 (AY),

Start 50:

- Found in 11 of 65 (16.9%) of genes in pham
- No Manual Annotations of this start.
- Called 9.1% of time when present
- Phage (with cluster) where this start called: AdaS_65 (AY),

Start 53:

- Found in 1 of 65 (1.5%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TJE1_54 (singleton),

Summary by clusters:

There are 13 clusters represented in this pham: DN, F1, singleton, DH, F, CZ6, CZ5, CZ, FB, DN1, DN3, AY, FN,

Info for manual annotations of cluster AY:

- Start number 33 was manually annotated 8 times for cluster AY.
- Start number 49 was manually annotated 3 times for cluster AY.

Info for manual annotations of cluster CZ:

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

Info for manual annotations of cluster CZ5:

- Start number 33 was manually annotated 1 time for cluster CZ5.

Info for manual annotations of cluster CZ6:

- Start number 33 was manually annotated 3 times for cluster CZ6.

Info for manual annotations of cluster DH:

- Start number 33 was manually annotated 3 times for cluster DH.

Info for manual annotations of cluster DN:

- Start number 33 was manually annotated 3 times for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 13 was manually annotated 1 time for cluster DN1.
- Start number 33 was manually annotated 10 times for cluster DN1.

Info for manual annotations of cluster DN3:

- Start number 33 was manually annotated 2 times for cluster DN3.

Info for manual annotations of cluster F1:

- Start number 32 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster FB:

- Start number 33 was manually annotated 2 times for cluster FB.
- Start number 49 was manually annotated 2 times for cluster FB.

Info for manual annotations of cluster FN:

- Start number 49 was manually annotated 1 time for cluster FN.

Gene Information:

Gene: AdaS_65 Start: 33822, Stop: 34496, Start Num: 50

Candidate Starts for AdaS_65:

(47, 33795), (Start: 49 @33816 has 7 MA's), (50, 33822), (76, 34026), (88, 34107), (92, 34158), (95, 34203), (100, 34248), (106, 34302), (107, 34320), (110, 34341), (113, 34383), (124, 34482),

Gene: Aikyam_67 Start: 34135, Stop: 34815, Start Num: 49

Candidate Starts for Aikyam_67:

(Start: 49 @34135 has 7 MA's), (50, 34141), (58, 34204), (76, 34345), (79, 34360), (88, 34426), (92, 34477), (100, 34567), (107, 34639), (110, 34660), (112, 34687), (113, 34702), (124, 34801),

Gene: Apricot_69 Start: 40994, Stop: 41812, Start Num: 33

Candidate Starts for Apricot_69:

(23, 40922), (Start: 33 @40994 has 33 MA's), (35, 41006), (43, 41075), (67, 41243), (69, 41252), (71, 41291), (72, 41294), (75, 41333), (76, 41345), (84, 41405), (85, 41411), (86, 41420), (88, 41429), (90, 41456), (96, 41531), (100, 41570), (107, 41642), (116, 41735), (125, 41804), (126, 41807),

Gene: Asapag_68 Start: 40988, Stop: 41806, Start Num: 33

Candidate Starts for Asapag_68:

(3, 40520), (23, 40916), (Start: 33 @40988 has 33 MA's), (43, 41069), (67, 41237), (69, 41246), (71, 41285), (72, 41288), (75, 41327), (76, 41339), (85, 41405), (86, 41414), (88, 41423), (93, 41489), (94, 41498), (96, 41525), (99, 41549), (100, 41564), (103, 41588), (107, 41636), (116, 41729), (125, 41798), (126, 41801),

Gene: Auxilium_64 Start: 33296, Stop: 34126, Start Num: 33

Candidate Starts for Auxilium_64:

(28, 33275), (Start: 33 @33296 has 33 MA's), (56, 33482), (60, 33518), (68, 33554), (76, 33647), (88, 33734), (93, 33800), (100, 33875), (107, 33947), (116, 34040), (124, 34109),

Gene: BENtherdunthat_73 Start: 42342, Stop: 43160, Start Num: 33

Candidate Starts for BENtherdunthat_73:

(23, 42270), (Start: 33 @42342 has 33 MA's), (35, 42354), (43, 42423), (67, 42591), (69, 42600), (71, 42639), (72, 42642), (75, 42681), (76, 42693), (85, 42759), (86, 42768), (88, 42777), (96, 42879), (100, 42918), (103, 42942), (107, 42990), (116, 43083), (125, 43152), (126, 43155),

Gene: Bauer_62 Start: 34228, Stop: 34908, Start Num: 49

Candidate Starts for Bauer_62:

(47, 34207), (Start: 49 @34228 has 7 MA's), (50, 34234), (76, 34438), (79, 34453), (88, 34519), (92, 34570), (95, 34615), (100, 34660), (106, 34714), (107, 34732), (110, 34753), (113, 34795), (124, 34894),

Gene: BenchScraper_68 Start: 35513, Stop: 36331, Start Num: 33

Candidate Starts for BenchScraper_68:

(Start: 33 @35513 has 33 MA's), (44, 35606), (70, 35801), (74, 35846), (76, 35861), (79, 35876), (88, 35942), (93, 36008), (107, 36155), (116, 36248), (117, 36251), (119, 36281), (120, 36287), (124, 36317),

Gene: Bhageatrice_74 Start: 38750, Stop: 39430, Start Num: 49

Candidate Starts for Bhageatrice_74:

(40, 38678), (Start: 49 @38750 has 7 MA's), (76, 38960), (88, 39041), (95, 39137), (100, 39182), (106, 39236), (107, 39254), (110, 39275), (113, 39317), (124, 39416),

Gene: BillyTP_69 Start: 37368, Stop: 38186, Start Num: 33

Candidate Starts for BillyTP_69:

(Start: 33 @37368 has 33 MA's), (44, 37461), (70, 37656), (74, 37701), (76, 37716), (79, 37731), (88, 37797), (93, 37863), (107, 38010), (116, 38103), (117, 38106), (119, 38136), (120, 38142), (124, 38172),

Gene: Birdsong_67 Start: 40724, Stop: 41542, Start Num: 33

Candidate Starts for Birdsong_67:

(23, 40652), (Start: 33 @40724 has 33 MA's), (43, 40805), (67, 40973), (69, 40982), (71, 41021), (72, 41024), (75, 41063), (76, 41075), (85, 41141), (86, 41150), (88, 41159), (93, 41225), (94, 41234), (96, 41261), (99, 41285), (100, 41300), (103, 41324), (107, 41372), (116, 41465), (125, 41534), (126, 41537),

Gene: BlackSpider_58 Start: 33088, Stop: 33768, Start Num: 49

Candidate Starts for BlackSpider_58:

(Start: 49 @33088 has 7 MA's), (50, 33094), (58, 33157), (76, 33298), (79, 33313), (88, 33379), (92, 33430), (100, 33520), (106, 33574), (107, 33592), (110, 33613), (113, 33655), (124, 33754),

Gene: BrayBeast_52 Start: 29851, Stop: 30531, Start Num: 49

Candidate Starts for BrayBeast_52:

(7, 29395), (8, 29398), (9, 29428), (14, 29557), (22, 29638), (25, 29674), (27, 29689), (40, 29779), (Start: 49 @29851 has 7 MA's), (76, 30061), (88, 30142), (92, 30193), (100, 30283), (106, 30337), (107, 30355), (113, 30418), (124, 30517),

Gene: Budski_74 Start: 42848, Stop: 43663, Start Num: 33

Candidate Starts for Budski_74:

(23, 42776), (Start: 33 @42848 has 33 MA's), (35, 42860), (43, 42929), (67, 43094), (71, 43142), (72, 43145), (75, 43184), (76, 43196), (84, 43256), (85, 43262), (86, 43271), (88, 43280), (96, 43382), (100, 43421), (104, 43448), (106, 43475), (107, 43493), (115, 43580), (116, 43586), (125, 43655), (126, 43658),

Gene: CookieBear_67 Start: 35566, Stop: 36246, Start Num: 49

Candidate Starts for CookieBear_67:

(47, 35545), (Start: 49 @35566 has 7 MA's), (50, 35572), (51, 35578), (76, 35776), (88, 35857), (95, 35953), (100, 35998), (106, 36052), (107, 36070), (113, 36133), (124, 36232),

Gene: Crater_69 Start: 41389, Stop: 42207, Start Num: 33

Candidate Starts for Crater_69:

(23, 41317), (Start: 33 @41389 has 33 MA's), (35, 41401), (43, 41470), (67, 41638), (69, 41647), (71, 41686), (72, 41689), (75, 41728), (76, 41740), (84, 41800), (85, 41806), (86, 41815), (88, 41824), (90, 41851), (96, 41926), (100, 41965), (107, 42037), (116, 42130), (125, 42199), (126, 42202),

Gene: Denise_51 Start: 33901, Stop: 34716, Start Num: 33

Candidate Starts for Denise_51:

(11, 33667), (16, 33760), (Start: 33 @33901 has 33 MA's), (43, 33982), (69, 34156), (71, 34195), (75, 34237), (76, 34249), (84, 34309), (85, 34315), (86, 34324), (88, 34333), (93, 34399), (96, 34435), (100, 34474), (107, 34546), (116, 34639), (125, 34708), (126, 34711),

Gene: Faith5x5_45 Start: 30917, Stop: 31735, Start Num: 33

Candidate Starts for Faith5x5_45:

(29, 30905), (Start: 33 @30917 has 33 MA's), (42, 30986), (46, 31028), (52, 31067), (54, 31091), (57, 31118), (69, 31175), (71, 31214), (72, 31217), (75, 31256), (76, 31268), (84, 31328), (85, 31334), (86, 31343), (88, 31352), (96, 31454), (99, 31478), (100, 31493), (103, 31517), (104, 31520), (106, 31547), (107, 31565), (112, 31613), (115, 31652), (116, 31658),

Gene: Faja_69 Start: 37118, Stop: 37936, Start Num: 33

Candidate Starts for Faja_69:

(28, 37097), (Start: 33 @37118 has 33 MA's), (44, 37211), (70, 37406), (74, 37451), (76, 37466), (79, 37481), (88, 37547), (93, 37613), (107, 37760), (116, 37853), (117, 37856), (119, 37886), (120, 37892), (124, 37922),

Gene: Footloose_50 Start: 29476, Stop: 30153, Start Num: 49

Candidate Starts for Footloose_50:

(36, 29362), (Start: 49 @29476 has 7 MA's), (70, 29626), (76, 29686), (88, 29767), (91, 29815), (98, 29890), (101, 29917), (102, 29929), (120, 30112),

Gene: Frankie_69 Start: 42916, Stop: 43731, Start Num: 32

Candidate Starts for Frankie_69:

(Start: 32 @42916 has 1 MA's), (41, 42982), (45, 43018), (62, 43141), (66, 43165), (75, 43258), (76, 43270), (77, 43273), (88, 43351), (91, 43399), (99, 43477), (100, 43492), (104, 43519), (106, 43546), (107, 43564), (108, 43570), (113, 43627), (116, 43657),

Gene: Frickyeah_73 Start: 41481, Stop: 42299, Start Num: 33

Candidate Starts for Frickyeah_73:

(23, 41409), (Start: 33 @41481 has 33 MA's), (35, 41493), (43, 41562), (67, 41730), (69, 41739), (75, 41820), (76, 41832), (85, 41898), (86, 41907), (88, 41916), (93, 41982), (94, 41991), (96, 42018), (99, 42042), (100, 42057), (103, 42081), (107, 42129), (116, 42222), (123, 42288), (125, 42291),

Gene: Getalong_72 Start: 43580, Stop: 44404, Start Num: 33

Candidate Starts for Getalong_72:

(Start: 33 @43580 has 33 MA's), (34, 43586), (67, 43820), (76, 43922), (81, 43961), (88, 44003), (98, 44126), (100, 44144), (102, 44165), (106, 44198), (107, 44216), (108, 44222), (110, 44237), (116, 44309), (119, 44342), (120, 44348), (121, 44363), (127, 44384),

Gene: Globfish_68 Start: 36209, Stop: 37027, Start Num: 33

Candidate Starts for Globfish_68:

(28, 36188), (Start: 33 @36209 has 33 MA's), (44, 36302), (65, 36452), (70, 36497), (76, 36557), (79, 36572), (88, 36638), (93, 36704), (107, 36851), (116, 36944), (117, 36947), (119, 36977), (120, 36983), (124, 37013),

Gene: Gorpy_67 Start: 36558, Stop: 37238, Start Num: 49

Candidate Starts for Gorpy_67:

(Start: 49 @36558 has 7 MA's), (50, 36564), (58, 36627), (76, 36768), (79, 36783), (88, 36849), (92, 36900), (100, 36990), (106, 37044), (107, 37062), (113, 37125), (114, 37131), (124, 37224),

Gene: Hestia_60 Start: 33341, Stop: 34159, Start Num: 33

Candidate Starts for Hestia_60:

(20, 33233), (Start: 33 @33341 has 33 MA's), (70, 33629), (76, 33689), (88, 33770), (89, 33773), (100, 33911), (104, 33938), (107, 33983), (116, 34076), (117, 34079), (119, 34109), (120, 34115),

Gene: Holliday_73 Start: 45104, Stop: 45919, Start Num: 33

Candidate Starts for Holliday_73:

(23, 45032), (Start: 33 @45104 has 33 MA's), (35, 45116), (43, 45185), (67, 45350), (71, 45398), (75, 45440), (76, 45452), (84, 45512), (85, 45518), (86, 45527), (88, 45536), (93, 45602), (94, 45611), (96, 45638), (99, 45662), (100, 45677), (107, 45749), (116, 45842), (123, 45908), (125, 45911),

Gene: Isolde_66 Start: 35235, Stop: 35915, Start Num: 49

Candidate Starts for Isolde_66:

(47, 35214), (Start: 49 @35235 has 7 MA's), (50, 35241), (76, 35445), (88, 35526), (92, 35577), (95, 35622), (100, 35667), (106, 35721), (107, 35739), (110, 35760), (113, 35802), (124, 35901),

Gene: Kamaru_66 Start: 40909, Stop: 41727, Start Num: 33

Candidate Starts for Kamaru_66:

(23, 40837), (Start: 33 @40909 has 33 MA's), (43, 40990), (67, 41158), (69, 41167), (71, 41206), (72, 41209), (75, 41248), (76, 41260), (85, 41326), (86, 41335), (88, 41344), (93, 41410), (94, 41419), (96, 41446), (99, 41470), (100, 41485), (103, 41509), (107, 41557), (116, 41650), (125, 41719), (126, 41722),

Gene: Kenna_66 Start: 40834, Stop: 41844, Start Num: 13

Candidate Starts for Kenna_66:

(Start: 13 @40834 has 1 MA's), (18, 40909), (19, 40915), (21, 40927), (24, 40966), (Start: 33 @41020 has 33 MA's), (34, 41026), (67, 41260), (76, 41362), (81, 41401), (88, 41443), (98, 41566), (100, 41584), (102, 41605), (106, 41638), (107, 41656), (108, 41662), (110, 41677), (116, 41749), (119, 41782), (120, 41788), (121, 41803), (127, 41824),

Gene: Kumotta_51 Start: 30258, Stop: 31076, Start Num: 33

Candidate Starts for Kumotta_51:

(28, 30237), (Start: 33 @30258 has 33 MA's), (39, 30306), (70, 30546), (74, 30591), (76, 30606), (88, 30687), (91, 30735), (100, 30828), (102, 30849), (107, 30900), (116, 30993), (119, 31026), (124, 31062),

Gene: Lawnathon_68 Start: 35913, Stop: 36731, Start Num: 33

Candidate Starts for Lawnathon_68:

(Start: 33 @35913 has 33 MA's), (44, 36006), (70, 36201), (74, 36246), (76, 36261), (79, 36276), (88, 36342), (93, 36408), (107, 36555), (116, 36648), (117, 36651), (119, 36681), (120, 36687), (124, 36717),

Gene: Leroy_69 Start: 41325, Stop: 42143, Start Num: 33

Candidate Starts for Leroy_69:

(Start: 33 @41325 has 33 MA's), (34, 41331), (43, 41406), (67, 41574), (69, 41583), (75, 41664), (76, 41676), (84, 41736), (85, 41742), (86, 41751), (88, 41760), (90, 41787), (96, 41862), (100, 41901), (107, 41973), (116, 42066), (125, 42135), (126, 42138),

Gene: Lton_48 Start: 30793, Stop: 31626, Start Num: 33

Candidate Starts for Lton_48:

(Start: 33 @30793 has 33 MA's), (34, 30799), (42, 30862), (43, 30874), (75, 31129), (76, 31141), (84, 31201), (85, 31207), (86, 31216), (88, 31225), (94, 31300), (96, 31327), (100, 31366), (103, 31390), (104, 31393), (106, 31420), (107, 31438), (116, 31531), (121, 31585), (127, 31606),

Gene: Lucky10_49 Start: 33511, Stop: 34326, Start Num: 33

Candidate Starts for Lucky10_49:

(11, 33277), (16, 33370), (Start: 33 @33511 has 33 MA's), (34, 33517), (42, 33580), (43, 33592), (67, 33757), (69, 33766), (75, 33847), (76, 33859), (85, 33925), (86, 33934), (88, 33943), (96, 34045), (100, 34084), (103, 34108), (107, 34156), (116, 34249), (125, 34318), (126, 34321),

Gene: Lutum_72 Start: 42183, Stop: 43007, Start Num: 33

Candidate Starts for Lutum_72:

(Start: 33 @42183 has 33 MA's), (34, 42189), (67, 42423), (76, 42525), (81, 42564), (88, 42606), (98, 42729), (100, 42747), (102, 42768), (106, 42801), (107, 42819), (108, 42825), (110, 42840), (116, 42912), (119, 42945), (120, 42951), (121, 42966), (127, 42987),

Gene: Malisha_74 Start: 45847, Stop: 46662, Start Num: 33

Candidate Starts for Malisha_74:

(23, 45775), (Start: 33 @45847 has 33 MA's), (69, 46102), (71, 46141), (72, 46144), (75, 46183), (76, 46195), (85, 46261), (86, 46270), (88, 46279), (96, 46381), (99, 46405), (100, 46420), (104, 46447), (107, 46492), (112, 46540), (115, 46579), (116, 46585), (123, 46651), (125, 46654),

Gene: MargaretKali_47 Start: 28876, Stop: 29694, Start Num: 33

Candidate Starts for MargaretKali_47:

(Start: 33 @28876 has 33 MA's), (37, 28900), (70, 29164), (74, 29209), (76, 29224), (88, 29305), (91, 29353), (100, 29446), (102, 29467), (107, 29518), (116, 29611), (119, 29644), (124, 29680),

Gene: MaterMagnus_69 Start: 36307, Stop: 36987, Start Num: 49

Candidate Starts for MaterMagnus_69:

(Start: 49 @36307 has 7 MA's), (50, 36313), (58, 36376), (76, 36517), (79, 36532), (88, 36598), (92, 36649), (100, 36739), (107, 36811), (110, 36832), (112, 36859), (113, 36874), (124, 36973),

Gene: Moosehead_52 Start: 31917, Stop: 32753, Start Num: 33

Candidate Starts for Moosehead_52:

(12, 31698), (Start: 33 @31917 has 33 MA's), (48, 32037), (70, 32208), (71, 32214), (75, 32259), (76, 32271), (78, 32283), (85, 32334), (97, 32463), (100, 32493), (107, 32565), (108, 32571), (110, 32586), (127, 32733),

Gene: Morkie_52 Start: 33040, Stop: 33855, Start Num: 33

Candidate Starts for Morkie_52:

(1, 32491), (2, 32521), (4, 32614), (6, 32707), (15, 32881), (17, 32911), (29, 33028), (Start: 33 @33040 has 33 MA's), (42, 33109), (43, 33121), (67, 33286), (69, 33295), (75, 33376), (76, 33388), (84, 33448), (85, 33454), (86, 33463), (88, 33472), (93, 33538), (94, 33547), (96, 33574), (99, 33598), (100, 33613), (106, 33667), (107, 33685), (116, 33778), (125, 33847), (126, 33850),

Gene: MulchSalad_63 Start: 38756, Stop: 39574, Start Num: 31

Candidate Starts for MulchSalad_63:

(31, 38756), (Start: 32 @38759 has 1 MA's), (41, 38825), (45, 38861), (66, 39008), (75, 39101), (76, 39113), (77, 39116), (88, 39194), (91, 39242), (100, 39335), (104, 39362), (106, 39389), (107, 39407), (108, 39413), (113, 39470), (116, 39500),

Gene: OneDirection_46 Start: 30433, Stop: 31248, Start Num: 33

Candidate Starts for OneDirection_46:

(4, 30007), (6, 30100), (15, 30274), (17, 30304), (29, 30421), (Start: 33 @30433 has 33 MA's), (42, 30502), (43, 30514), (67, 30679), (69, 30688), (71, 30727), (72, 30730), (75, 30769), (76, 30781), (85, 30847), (86, 30856), (88, 30865), (96, 30967), (99, 30991), (100, 31006), (106, 31060), (107, 31078), (116, 31171), (125, 31240), (126, 31243),

Gene: Pepperoni_48 Start: 32196, Stop: 33011, Start Num: 33

Candidate Starts for Pepperoni_48:

(15, 32037), (17, 32067), (29, 32184), (Start: 33 @32196 has 33 MA's), (42, 32265), (43, 32277), (67, 32442), (69, 32451), (75, 32532), (76, 32544), (84, 32604), (85, 32610), (86, 32619), (88, 32628), (93, 32694), (94, 32703), (96, 32730), (99, 32754), (100, 32769), (106, 32823), (107, 32841), (116, 32934),

(125, 33003), (126, 33006),

Gene: Periwinkle_79 Start: 44489, Stop: 45307, Start Num: 33

Candidate Starts for Periwinkle_79:

(23, 44417), (Start: 33 @44489 has 33 MA's), (35, 44501), (43, 44570), (71, 44786), (75, 44828), (76, 44840), (85, 44906), (86, 44915), (88, 44924), (93, 44990), (94, 44999), (96, 45026), (99, 45050), (100, 45065), (103, 45089), (107, 45137), (116, 45230), (125, 45299), (126, 45302),

Gene: Phistory_68 Start: 40554, Stop: 41372, Start Num: 33

Candidate Starts for Phistory_68:

(23, 40482), (Start: 33 @40554 has 33 MA's), (35, 40566), (43, 40635), (67, 40803), (69, 40812), (71, 40851), (72, 40854), (75, 40893), (76, 40905), (84, 40965), (85, 40971), (86, 40980), (88, 40989), (90, 41016), (96, 41091), (100, 41130), (107, 41202), (116, 41295), (125, 41364), (126, 41367),

Gene: PhorbesPhlower_49 Start: 31974, Stop: 32810, Start Num: 33

Candidate Starts for PhorbesPhlower_49:

(Start: 33 @31974 has 33 MA's), (34, 31980), (48, 32094), (70, 32265), (75, 32316), (76, 32328), (78, 32340), (85, 32391), (92, 32460), (94, 32484), (97, 32520), (100, 32550), (107, 32622), (108, 32628), (127, 32790), (128, 32796),

Gene: Phrank15_70 Start: 36044, Stop: 36862, Start Num: 33

Candidate Starts for Phrank15_70:

(28, 36023), (Start: 33 @36044 has 33 MA's), (44, 36137), (70, 36332), (74, 36377), (76, 36392), (79, 36407), (88, 36473), (93, 36539), (107, 36686), (116, 36779), (117, 36782), (119, 36812), (120, 36818), (124, 36848),

Gene: Pigu_53 Start: 29001, Stop: 29678, Start Num: 49

Candidate Starts for Pigu_53:

(38, 28911), (Start: 49 @29001 has 7 MA's), (61, 29085), (66, 29112), (70, 29151), (75, 29199), (76, 29211), (88, 29292), (100, 29433), (106, 29487), (107, 29505), (108, 29511), (113, 29568), (124, 29667),

Gene: REQ2_57 Start: 38376, Stop: 39203, Start Num: 30

Candidate Starts for REQ2_57:

(17, 38250), (30, 38376), (55, 38562), (67, 38637), (76, 38739), (85, 38802), (87, 38817), (88, 38820), (100, 38961), (104, 38988), (107, 39033), (109, 39045), (113, 39096), (116, 39126), (122, 39186), (123, 39192), (125, 39195),

Gene: Raphaella_68 Start: 35611, Stop: 36429, Start Num: 33

Candidate Starts for Raphaella_68:

(Start: 33 @35611 has 33 MA's), (44, 35704), (70, 35899), (74, 35944), (76, 35959), (79, 35974), (88, 36040), (93, 36106), (107, 36253), (116, 36346), (117, 36349), (119, 36379), (120, 36385), (124, 36415),

Gene: Raqqa_63 Start: 33880, Stop: 34560, Start Num: 49

Candidate Starts for Raqqa_63:

(7, 33424), (8, 33427), (9, 33457), (14, 33586), (22, 33667), (25, 33703), (40, 33808), (Start: 49 @33880 has 7 MA's), (73, 34072), (76, 34090), (88, 34171), (100, 34312), (107, 34384), (124, 34546),

Gene: Richie_71 Start: 37416, Stop: 38234, Start Num: 33

Candidate Starts for Richie_71:

(Start: 33 @37416 has 33 MA's), (44, 37509), (70, 37704), (74, 37749), (76, 37764), (79, 37779), (88, 37845), (93, 37911), (107, 38058), (116, 38151), (117, 38154), (119, 38184), (120, 38190), (124,

38220),

Gene: Sakai_66 Start: 35269, Stop: 35949, Start Num: 49

Candidate Starts for Sakai_66:

(Start: 49 @35269 has 7 MA's), (50, 35275), (58, 35338), (76, 35479), (79, 35494), (88, 35560), (92, 35611), (100, 35701), (106, 35755), (107, 35773), (113, 35836), (114, 35842), (124, 35935),

Gene: Sarge_46 Start: 27598, Stop: 28278, Start Num: 49

Candidate Starts for Sarge_46:

(26, 27430), (27, 27436), (40, 27526), (Start: 49 @27598 has 7 MA's), (73, 27790), (76, 27808), (88, 27889), (100, 28030), (107, 28102), (124, 28264),

Gene: Sashimi_68 Start: 36533, Stop: 37351, Start Num: 33

Candidate Starts for Sashimi_68:

(Start: 33 @36533 has 33 MA's), (70, 36821), (71, 36827), (73, 36863), (76, 36881), (88, 36962), (89, 36965), (99, 37088), (100, 37103), (104, 37130), (107, 37175), (116, 37268), (117, 37271), (119, 37301), (120, 37307),

Gene: ShawBrad_74 Start: 41657, Stop: 42463, Start Num: 35

Candidate Starts for ShawBrad_74:

(3, 41177), (5, 41282), (10, 41402), (23, 41573), (Start: 33 @41645 has 33 MA's), (35, 41657), (43, 41726), (67, 41894), (69, 41903), (71, 41942), (72, 41945), (75, 41984), (76, 41996), (85, 42062), (86, 42071), (88, 42080), (93, 42146), (94, 42155), (96, 42182), (99, 42206), (100, 42221), (103, 42245), (107, 42293), (116, 42386), (125, 42455), (126, 42458),

Gene: Shukran_66 Start: 34562, Stop: 35239, Start Num: 49

Candidate Starts for Shukran_66:

(Start: 49 @34562 has 7 MA's), (72, 34721), (73, 34754), (76, 34772), (88, 34853), (99, 34979), (100, 34994), (104, 35021), (107, 35066), (113, 35129), (116, 35159), (124, 35228),

Gene: SpicyFrank_71 Start: 36831, Stop: 37649, Start Num: 33

Candidate Starts for SpicyFrank_71:

(28, 36810), (Start: 33 @36831 has 33 MA's), (39, 36879), (44, 36924), (65, 37074), (70, 37119), (76, 37179), (79, 37194), (88, 37260), (93, 37326), (107, 37473), (116, 37566), (117, 37569), (119, 37599), (120, 37605), (124, 37635),

Gene: TJE1_54 Start: 41888, Stop: 42547, Start Num: 53

Candidate Starts for TJE1_54:

(53, 41888), (59, 41945), (63, 41963), (64, 41975), (80, 42125), (82, 42134), (85, 42155), (86, 42164), (88, 42173), (100, 42320), (101, 42329), (102, 42341), (105, 42365), (109, 42404), (111, 42425), (118, 42500),

Gene: ThayneTheZag_72 Start: 36048, Stop: 36866, Start Num: 33

Candidate Starts for ThayneTheZag_72:

(28, 36027), (Start: 33 @36048 has 33 MA's), (44, 36141), (70, 36336), (74, 36381), (76, 36396), (79, 36411), (86, 36468), (88, 36477), (93, 36543), (107, 36690), (116, 36783), (117, 36786), (119, 36816), (120, 36822), (124, 36852),

Gene: Tiff81_69 Start: 34216, Stop: 34896, Start Num: 49

Candidate Starts for Tiff81_69:

(47, 34195), (Start: 49 @34216 has 7 MA's), (50, 34222), (76, 34426), (79, 34441), (88, 34507), (92, 34558), (100, 34648), (106, 34702), (107, 34720), (124, 34882),

Gene: Whitney_69 Start: 42761, Stop: 43576, Start Num: 33

Candidate Starts for Whitney_69:

(23, 42689), (Start: 33 @42761 has 33 MA's), (35, 42773), (43, 42842), (67, 43007), (71, 43055), (75, 43097), (76, 43109), (83, 43166), (84, 43169), (85, 43175), (86, 43184), (88, 43193), (96, 43295), (100, 43334), (104, 43361), (106, 43388), (107, 43406), (115, 43493), (116, 43499), (125, 43568), (126, 43571),

Gene: Windest_70 Start: 34971, Stop: 35789, Start Num: 33

Candidate Starts for Windest_70:

(Start: 33 @34971 has 33 MA's), (44, 35064), (70, 35259), (74, 35304), (76, 35319), (79, 35334), (88, 35400), (93, 35466), (107, 35613), (116, 35706), (117, 35709), (119, 35739), (120, 35745), (124, 35775),

Gene: YoungHarleezy_67 Start: 35964, Stop: 36644, Start Num: 49

Candidate Starts for YoungHarleezy_67:

(Start: 49 @35964 has 7 MA's), (50, 35970), (76, 36174), (79, 36189), (88, 36255), (92, 36306), (95, 36351), (100, 36396), (107, 36468), (110, 36489), (112, 36516), (113, 36531), (124, 36630),