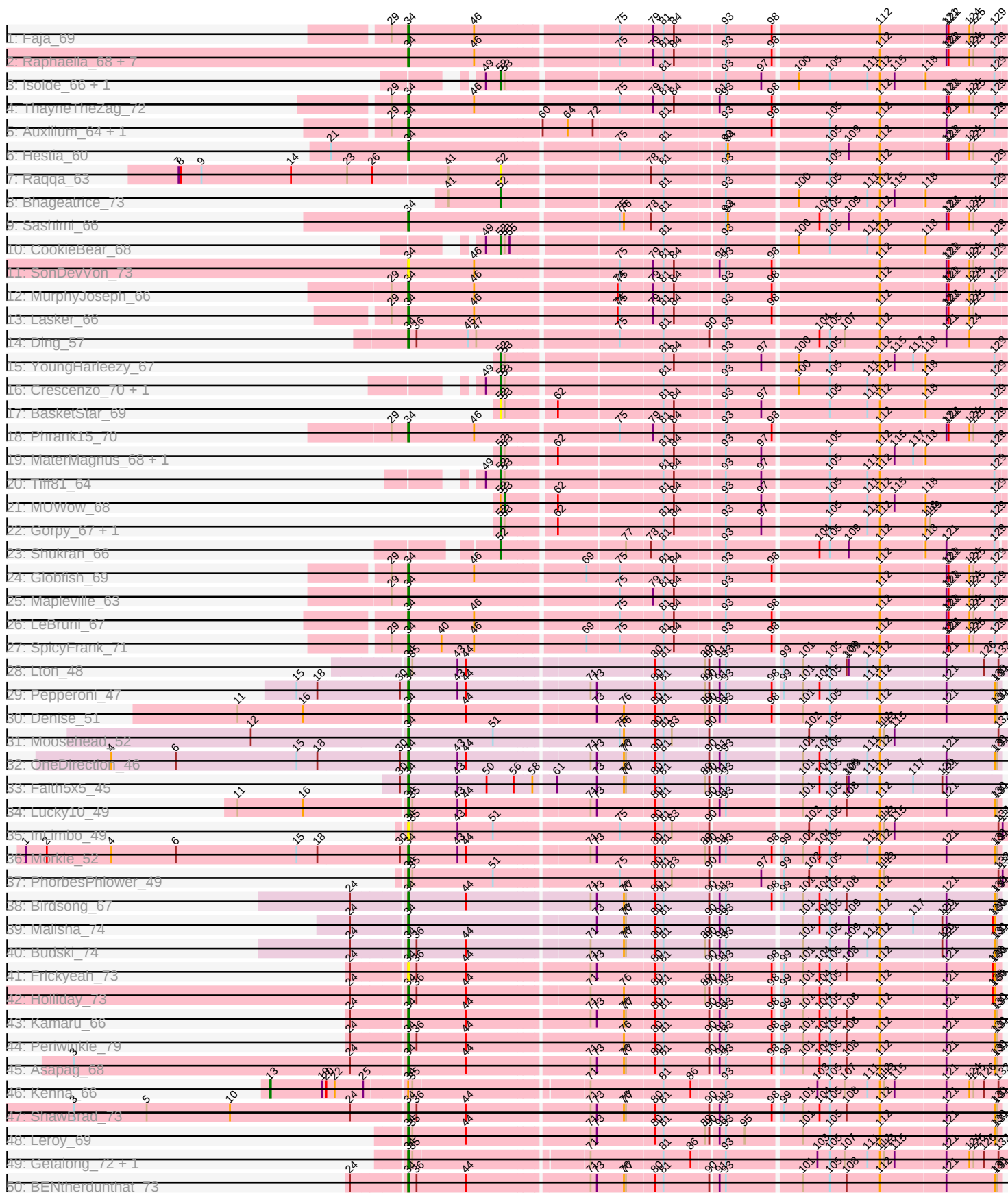
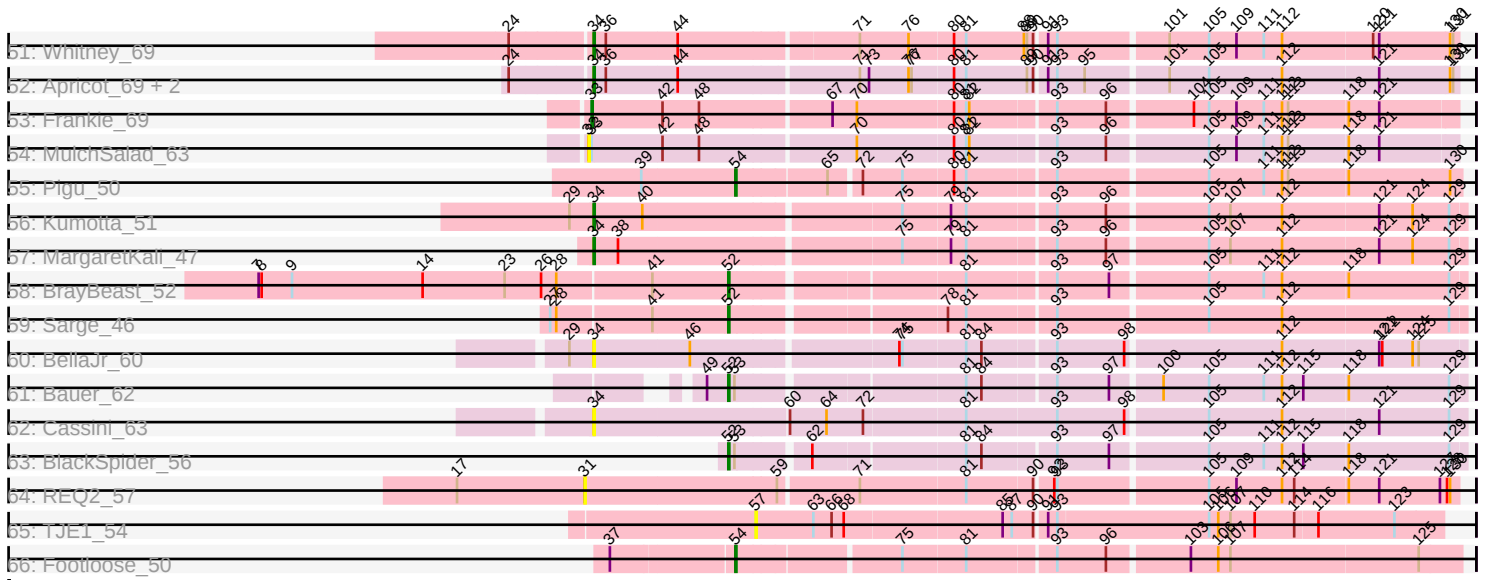




Pham 321318



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 321318 Report

This analysis was run 09/05/26 on database version 662.

Pham number 321318 has 81 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Faja_69
- Track 2 : Raphaella_68, Kabloowy_67, JellyBread_65, Windest_71, Lawnathon_70, Richie_71, BillyTP_69, BenchScraper_68
- Track 3 : Isolde_66, AdaS_64
- Track 4 : ThayneTheZag_72
- Track 5 : Auxilium_64, GumGum_71
- Track 6 : Hestia_60
- Track 7 : Raqqa_63
- Track 8 : Bhageatrice_73
- Track 9 : Sashimi_66
- Track 10 : CookieBear_68
- Track 11 : SonDevVon_73
- Track 12 : MurphyJoseph_66
- Track 13 : Lasker_66
- Track 14 : Ding_57
- Track 15 : YoungHarleezy_67
- Track 16 : Crescenzo_70, DarwinJr_72
- Track 17 : BasketStar_69
- Track 18 : Phrank15_70
- Track 19 : MaterMagnus_68, Aikyam_67
- Track 20 : Tiff81_64
- Track 21 : MUWow_68
- Track 22 : Gorpy_67, Sakai_66
- Track 23 : Shukran_66
- Track 24 : Globfish_69
- Track 25 : Mapleville_63
- Track 26 : LeBruni_67
- Track 27 : SpicyFrank_71
- Track 28 : Lton_48
- Track 29 : Pepperoni_47
- Track 30 : Denise_51
- Track 31 : Moosehead_52
- Track 32 : OneDirection_46
- Track 33 : Faith5x5_45
- Track 34 : Lucky10_49
- Track 35 : InLimbo_49
- Track 36 : Morkie_52

- Track 37 : PhorbesPhlower_49
- Track 38 : Birdsong_67
- Track 39 : Malisha_74
- Track 40 : Budski_74
- Track 41 : Frickyeh_73
- Track 42 : Holliday_73
- Track 43 : Kamaru_66
- Track 44 : Periwinkle_79
- Track 45 : Asapag_68
- Track 46 : Kenna_66
- Track 47 : ShawBrad_73
- Track 48 : Leroy_69
- Track 49 : Getalong_72, Lutum_72
- Track 50 : BENtherdunthat_73
- Track 51 : Whitney_69
- Track 52 : Apricot_69, Phistory_68, Crater_69
- Track 53 : Frankie_69
- Track 54 : MulchSalad_63
- Track 55 : Pigu_50
- Track 56 : Kumotta_51
- Track 57 : MargaretKali_47
- Track 58 : BrayBeast_52
- Track 59 : Sarge_46
- Track 60 : BellaJr_60
- Track 61 : Bauer_62
- Track 62 : Cassini_63
- Track 63 : BlackSpider_56
- Track 64 : REQ2_57
- Track 65 : TJE1_54
- Track 66 : 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 34, it was called in 48 of the 69 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Apricot_69, Asapag_68, Auxilium_64, BENtherdunthat_73, BellaJr_60, BenchScraper_68, BillyTP_69, Birdsong_67, Budski_74, Cassini_63, Crater_69, Denise_51, Ding_57, Faith5x5_45, Faja_69, Frickyeh_73, Getalong_72, Globfish_69, GumGum_71, Hestia_60, Holliday_73, InLimbo_49, JellyBread_65, Kabloowy_67, Kamaru_66, Kumotta_51, Lasker_66, Lawnathon_70, LeBruni_67, Leroy_69, Lton_48, Lucky10_49, Lutum_72, Malisha_74, Mapleville_63, MargaretKali_47, Moosehead_52, Morkie_52, MurphyJoseph_66, OneDirection_46, Pepperoni_47, Periwinkle_79, Phistory_68, PhorbesPhlower_49, Phrank15_70, Raphaella_68, Richie_71, Sashimi_66, ShawBrad_73, SonDevVon_73, SpicyFrank_71, ThayneTheZag_72, Whitney_69, Windest_71,

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

- Kenna_66,

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

• AdaS_64, Aikyam_67, BasketStar_69, Bauer_62, Bhageatrice_73, BlackSpider_56, BrayBeast_52, CookieBear_68, Crescenzo_70, DarwinJr_72, Footloose_50, Frankie_69, Gorpy_67, Isolde_66, MUWow_68, MaterMagnus_68, MulchSalad_63, Pigu_50, REQ2_57, Raqqa_63, Sakai_66, Sarge_46, Shukran_66, TJE1_54, Tiff81_64, YoungHarleezy_67,

Summary by start number:

Start 13:

- Found in 1 of 81 (1.2%) of genes in pham
- Manual Annotations of this start: 1 of 69
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kenna_66 (DN1),

Start 31:

- Found in 1 of 81 (1.2%) 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 32:

- Found in 1 of 81 (1.2%) 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 (F7),

Start 33:

- Found in 2 of 81 (2.5%) of genes in pham
- Manual Annotations of this start: 1 of 69
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Frankie_69 (F1),

Start 34:

- Found in 55 of 81 (67.9%) of genes in pham
- Manual Annotations of this start: 48 of 69
- Called 98.2% of time when present
- Phage (with cluster) where this start called: Apricot_69 (DN3), Asapag_68 (DN1), Auxilium_64 (AY), BENtherdunthat_73 (DN1), BellaJr_60 (FN), BenchScraper_68 (AY), BillyTP_69 (AY), Birdsong_67 (DN), Budski_74 (DN), Cassini_63 (FN), Crater_69 (DN3), Denise_51 (CZ5), Ding_57 (AY), Faith5x5_45 (CZ6), Faja_69 (AY), Frickyeah_73 (DN1), Getalong_72 (DN1), Globfish_69 (AY), GumGum_71 (AY), Hestia_60 (AY), Holliday_73 (DN1), InLimbo_49 (DH), JellyBread_65 (AY), Kabloowy_67 (AY), Kamaru_66 (DN1), Kumotta_51 (FB), Lasker_66 (AY), Lawnathon_70 (AY), LeBruni_67 (AY), Leroy_69 (DN1), Lton_48 (CZ), Lucky10_49 (DH), Lutum_72 (DN1), Malisha_74 (DN), Mapleville_63 (AY), MargaretKali_47 (FB), Moosehead_52 (CZ6), Morkie_52 (DH), MurphyJoseph_66 (AY), OneDirection_46 (CZ6), Pepperoni_47 (CZ), Periwinkle_79 (DN1), Phistory_68 (DN1), PhorbesPhlower_49 (DH), Phrank15_70 (AY), Raphaella_68 (AY), Richie_71 (AY), Sashimi_66 (AY), ShawBrad_73 (DN1), SonDevVon_73 (AY), SpicyFrank_71 (AY), ThayneTheZag_72 (AY), Whitney_69 (DN1), Windest_71 (AY),

Start 52:

- Found in 20 of 81 (24.7%) of genes in pham
- Manual Annotations of this start: 16 of 69
- Called 95.0% of time when present
- Phage (with cluster) where this start called: AdaS_64 (AY), Aikyam_67 (AY), BasketStar_69 (AY), Bauer_62 (FN), Bhageatrice_73 (AY), BlackSpider_56 (FN), BrayBeast_52 (FB), CookieBear_68 (AY), Crescenzo_70 (AY), DarwinJr_72 (AY), Gorpy_67 (AY), Isolde_66 (AY), MaterMagnus_68 (AY), Raqqa_63 (AY), Sakai_66 (AY), Sarge_46 (FB), Shukran_66 (AY), Tiff81_64 (AY), YoungHarleezy_67 (AY),

Start 53:

- Found in 15 of 81 (18.5%) of genes in pham
- Manual Annotations of this start: 1 of 69
- Called 6.7% of time when present
- Phage (with cluster) where this start called: MUWow_68 (AY),

Start 54:

- Found in 2 of 81 (2.5%) of genes in pham
- Manual Annotations of this start: 2 of 69
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Footloose_50 (singleton), Pigu_50 (FB),

Start 57:

- Found in 1 of 81 (1.2%) 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, F7, CZ6, CZ5, CZ, FB, DN1, DN3, AY, FN,

Info for manual annotations of cluster AY:

- Start number 34 was manually annotated 21 times for cluster AY.
- Start number 52 was manually annotated 12 times for cluster AY.
- Start number 53 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster CZ:

- Start number 34 was manually annotated 2 times for cluster CZ.

Info for manual annotations of cluster CZ5:

- Start number 34 was manually annotated 1 time for cluster CZ5.

Info for manual annotations of cluster CZ6:

- Start number 34 was manually annotated 3 times for cluster CZ6.

Info for manual annotations of cluster DH:

- Start number 34 was manually annotated 3 times for cluster DH.

Info for manual annotations of cluster DN:

- Start number 34 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 34 was manually annotated 11 times for cluster DN1.

Info for manual annotations of cluster DN3:

- Start number 34 was manually annotated 2 times for cluster DN3.

Info for manual annotations of cluster F1:

- Start number 33 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster FB:

- Start number 34 was manually annotated 2 times for cluster FB.
- Start number 52 was manually annotated 2 times for cluster FB.
- Start number 54 was manually annotated 1 time for cluster FB.

Info for manual annotations of cluster FN:

- Start number 52 was manually annotated 2 times for cluster FN.

Gene Information:

Gene: AdaS_64 Start: 33816, Stop: 34496, Start Num: 52

Candidate Starts for AdaS_64:

(49, 33795), (Start: 52 @33816 has 16 MA's), (Start: 53 @33822 has 1 MA's), (81, 34026), (93, 34107), (97, 34158), (100, 34203), (105, 34248), (111, 34302), (112, 34320), (115, 34341), (118, 34383), (129, 34482),

Gene: Aikyam_67 Start: 34135, Stop: 34815, Start Num: 52

Candidate Starts for Aikyam_67:

(Start: 52 @34135 has 16 MA's), (Start: 53 @34141 has 1 MA's), (62, 34204), (81, 34345), (84, 34360), (93, 34426), (97, 34477), (105, 34567), (112, 34639), (115, 34660), (117, 34687), (118, 34702), (129, 34801),

Gene: Apricot_69 Start: 40994, Stop: 41812, Start Num: 34

Candidate Starts for Apricot_69:

(24, 40922), (Start: 34 @40994 has 48 MA's), (36, 41006), (44, 41075), (71, 41243), (73, 41252), (76, 41291), (77, 41294), (80, 41333), (81, 41345), (89, 41405), (90, 41411), (91, 41420), (93, 41429), (95, 41456), (101, 41531), (105, 41570), (112, 41642), (121, 41735), (130, 41804), (131, 41807),

Gene: Asapag_68 Start: 40988, Stop: 41806, Start Num: 34

Candidate Starts for Asapag_68:

(3, 40520), (24, 40916), (Start: 34 @40988 has 48 MA's), (44, 41069), (71, 41237), (73, 41246), (76, 41285), (77, 41288), (80, 41327), (81, 41339), (90, 41405), (91, 41414), (93, 41423), (98, 41489), (99, 41498), (101, 41525), (104, 41549), (105, 41564), (108, 41588), (112, 41636), (121, 41729), (130, 41798), (131, 41801),

Gene: Auxilium_64 Start: 33296, Stop: 34126, Start Num: 34

Candidate Starts for Auxilium_64:

(29, 33275), (Start: 34 @33296 has 48 MA's), (60, 33482), (64, 33518), (72, 33554), (81, 33647), (93, 33734), (98, 33800), (105, 33875), (112, 33947), (121, 34040), (129, 34109),

Gene: BENtherdunthat_73 Start: 42342, Stop: 43160, Start Num: 34

Candidate Starts for BENtherdunthat_73:

(24, 42270), (Start: 34 @42342 has 48 MA's), (36, 42354), (44, 42423), (71, 42591), (73, 42600), (76, 42639), (77, 42642), (80, 42681), (81, 42693), (90, 42759), (91, 42768), (93, 42777), (101, 42879), (105, 42918), (108, 42942), (112, 42990), (121, 43083), (130, 43152), (131, 43155),

Gene: BasketStar_69 Start: 36486, Stop: 37166, Start Num: 52

Candidate Starts for BasketStar_69:

(Start: 52 @36486 has 16 MA's), (Start: 53 @36492 has 1 MA's), (62, 36555), (81, 36696), (84, 36711), (93, 36777), (97, 36828), (105, 36918), (111, 36972), (112, 36990), (118, 37053), (129, 37152),

Gene: Bauer_62 Start: 34228, Stop: 34908, Start Num: 52

Candidate Starts for Bauer_62:

(49, 34207), (Start: 52 @34228 has 16 MA's), (Start: 53 @34234 has 1 MA's), (81, 34438), (84, 34453), (93, 34519), (97, 34570), (100, 34615), (105, 34660), (111, 34714), (112, 34732), (115, 34753), (118, 34795), (129, 34894),

Gene: BellaJr_60 Start: 34923, Stop: 35741, Start Num: 34

Candidate Starts for BellaJr_60:

(29, 34902), (Start: 34 @34923 has 48 MA's), (46, 35016), (74, 35208), (75, 35211), (81, 35271), (84, 35286), (93, 35352), (98, 35418), (112, 35565), (121, 35658), (122, 35661), (124, 35691), (125, 35697),

Gene: BenchScraper_68 Start: 35513, Stop: 36331, Start Num: 34

Candidate Starts for BenchScraper_68:

(Start: 34 @35513 has 48 MA's), (46, 35606), (75, 35801), (79, 35846), (81, 35861), (84, 35876), (93, 35942), (98, 36008), (112, 36155), (121, 36248), (122, 36251), (124, 36281), (125, 36287), (129, 36317),

Gene: Bhageatrice_73 Start: 38750, Stop: 39430, Start Num: 52

Candidate Starts for Bhageatrice_73:

(41, 38678), (Start: 52 @38750 has 16 MA's), (81, 38960), (93, 39041), (100, 39137), (105, 39182), (111, 39236), (112, 39254), (115, 39275), (118, 39317), (129, 39416),

Gene: BillyTP_69 Start: 37368, Stop: 38186, Start Num: 34

Candidate Starts for BillyTP_69:

(Start: 34 @37368 has 48 MA's), (46, 37461), (75, 37656), (79, 37701), (81, 37716), (84, 37731), (93, 37797), (98, 37863), (112, 38010), (121, 38103), (122, 38106), (124, 38136), (125, 38142), (129, 38172),

Gene: Birdsong_67 Start: 40724, Stop: 41542, Start Num: 34

Candidate Starts for Birdsong_67:

(24, 40652), (Start: 34 @40724 has 48 MA's), (44, 40805), (71, 40973), (73, 40982), (76, 41021), (77, 41024), (80, 41063), (81, 41075), (90, 41141), (91, 41150), (93, 41159), (98, 41225), (99, 41234), (101, 41261), (104, 41285), (105, 41300), (108, 41324), (112, 41372), (121, 41465), (130, 41534), (131, 41537),

Gene: BlackSpider_56 Start: 33088, Stop: 33768, Start Num: 52

Candidate Starts for BlackSpider_56:

(Start: 52 @33088 has 16 MA's), (Start: 53 @33094 has 1 MA's), (62, 33157), (81, 33298), (84, 33313), (93, 33379), (97, 33430), (105, 33520), (111, 33574), (112, 33592), (115, 33613), (118, 33655), (129, 33754),

Gene: BrayBeast_52 Start: 29851, Stop: 30531, Start Num: 52

Candidate Starts for BrayBeast_52:

(7, 29395), (8, 29398), (9, 29428), (14, 29557), (23, 29638), (26, 29674), (28, 29689), (41, 29779),
(Start: 52 @29851 has 16 MA's), (81, 30061), (93, 30142), (97, 30193), (105, 30283), (111, 30337),
(112, 30355), (118, 30418), (129, 30517),

Gene: Budski_74 Start: 42848, Stop: 43663, Start Num: 34

Candidate Starts for Budski_74:

(24, 42776), (Start: 34 @42848 has 48 MA's), (36, 42860), (44, 42929), (71, 43094), (76, 43142), (77, 43145),
(80, 43184), (81, 43196), (89, 43256), (90, 43262), (91, 43271), (93, 43280), (101, 43382),
(105, 43421), (109, 43448), (111, 43475), (112, 43493), (120, 43580), (121, 43586), (130, 43655),
(131, 43658),

Gene: Cassini_63 Start: 34929, Stop: 35759, Start Num: 34

Candidate Starts for Cassini_63:

(Start: 34 @34929 has 48 MA's), (60, 35115), (64, 35151), (72, 35187), (81, 35280), (93, 35367), (98, 35433),
(105, 35508), (112, 35580), (121, 35673), (129, 35742),

Gene: CookieBear_68 Start: 35566, Stop: 36246, Start Num: 52

Candidate Starts for CookieBear_68:

(49, 35545), (Start: 52 @35566 has 16 MA's), (Start: 53 @35572 has 1 MA's), (55, 35578), (81, 35776),
(93, 35857), (100, 35953), (105, 35998), (111, 36052), (112, 36070), (118, 36133), (129, 36232),

Gene: Crater_69 Start: 41389, Stop: 42207, Start Num: 34

Candidate Starts for Crater_69:

(24, 41317), (Start: 34 @41389 has 48 MA's), (36, 41401), (44, 41470), (71, 41638), (73, 41647), (76, 41686),
(77, 41689), (80, 41728), (81, 41740), (89, 41800), (90, 41806), (91, 41815), (93, 41824), (95, 41851),
(101, 41926), (105, 41965), (112, 42037), (121, 42130), (130, 42199), (131, 42202),

Gene: Crescenzo_70 Start: 37707, Stop: 38387, Start Num: 52

Candidate Starts for Crescenzo_70:

(49, 37686), (Start: 52 @37707 has 16 MA's), (Start: 53 @37713 has 1 MA's), (81, 37917), (93, 37998),
(100, 38094), (105, 38139), (111, 38193), (112, 38211), (118, 38274), (129, 38373),

Gene: DarwinJr_72 Start: 37662, Stop: 38342, Start Num: 52

Candidate Starts for DarwinJr_72:

(49, 37641), (Start: 52 @37662 has 16 MA's), (Start: 53 @37668 has 1 MA's), (81, 37872), (93, 37953),
(100, 38049), (105, 38094), (111, 38148), (112, 38166), (118, 38229), (129, 38328),

Gene: Denise_51 Start: 33901, Stop: 34716, Start Num: 34

Candidate Starts for Denise_51:

(11, 33667), (16, 33760), (Start: 34 @33901 has 48 MA's), (44, 33982), (73, 34156), (76, 34195), (80, 34237),
(81, 34249), (89, 34309), (90, 34315), (91, 34324), (93, 34333), (98, 34399), (101, 34435),
(105, 34474), (112, 34546), (121, 34639), (130, 34708), (131, 34711),

Gene: Ding_57 Start: 34064, Stop: 34882, Start Num: 34

Candidate Starts for Ding_57:

(Start: 34 @34064 has 48 MA's), (36, 34076), (45, 34148), (47, 34160), (75, 34352), (81, 34412), (90, 34475),
(93, 34493), (104, 34619), (105, 34634), (107, 34655), (112, 34706), (121, 34799), (124, 34832),

Gene: Faith5x5_45 Start: 30917, Stop: 31735, Start Num: 34

Candidate Starts for Faith5x5_45:

(30, 30905), (Start: 34 @30917 has 48 MA's), (43, 30986), (50, 31028), (56, 31067), (58, 31091), (61, 31118), (73, 31175), (76, 31214), (77, 31217), (80, 31256), (81, 31268), (89, 31328), (90, 31334), (91, 31343), (93, 31352), (101, 31454), (104, 31478), (105, 31493), (108, 31517), (109, 31520), (111, 31547), (112, 31565), (117, 31613), (120, 31652), (121, 31658),

Gene: Faja_69 Start: 37118, Stop: 37936, Start Num: 34

Candidate Starts for Faja_69:

(29, 37097), (Start: 34 @37118 has 48 MA's), (46, 37211), (75, 37406), (79, 37451), (81, 37466), (84, 37481), (93, 37547), (98, 37613), (112, 37760), (121, 37853), (122, 37856), (124, 37886), (125, 37892), (129, 37922),

Gene: Footloose_50 Start: 29476, Stop: 30153, Start Num: 54

Candidate Starts for Footloose_50:

(37, 29362), (Start: 54 @29476 has 2 MA's), (75, 29626), (81, 29686), (93, 29767), (96, 29815), (103, 29890), (106, 29917), (107, 29929), (125, 30112),

Gene: Frankie_69 Start: 42916, Stop: 43731, Start Num: 33

Candidate Starts for Frankie_69:

(Start: 33 @42916 has 1 MA's), (42, 42982), (48, 43018), (67, 43141), (70, 43165), (80, 43258), (81, 43270), (82, 43273), (93, 43351), (96, 43399), (104, 43477), (105, 43492), (109, 43519), (111, 43546), (112, 43564), (113, 43570), (118, 43627), (121, 43657),

Gene: Frickyeah_73 Start: 41481, Stop: 42299, Start Num: 34

Candidate Starts for Frickyeah_73:

(24, 41409), (Start: 34 @41481 has 48 MA's), (36, 41493), (44, 41562), (71, 41730), (73, 41739), (80, 41820), (81, 41832), (90, 41898), (91, 41907), (93, 41916), (98, 41982), (99, 41991), (101, 42018), (104, 42042), (105, 42057), (108, 42081), (112, 42129), (121, 42222), (128, 42288), (130, 42291),

Gene: Getalong_72 Start: 43580, Stop: 44404, Start Num: 34

Candidate Starts for Getalong_72:

(Start: 34 @43580 has 48 MA's), (35, 43586), (71, 43820), (81, 43922), (86, 43961), (93, 44003), (103, 44126), (105, 44144), (107, 44165), (111, 44198), (112, 44216), (113, 44222), (115, 44237), (121, 44309), (124, 44342), (125, 44348), (126, 44363), (132, 44384),

Gene: Globfish_69 Start: 36209, Stop: 37027, Start Num: 34

Candidate Starts for Globfish_69:

(29, 36188), (Start: 34 @36209 has 48 MA's), (46, 36302), (69, 36452), (75, 36497), (81, 36557), (84, 36572), (93, 36638), (98, 36704), (112, 36851), (121, 36944), (122, 36947), (124, 36977), (125, 36983), (129, 37013),

Gene: Gorpy_67 Start: 36558, Stop: 37238, Start Num: 52

Candidate Starts for Gorpy_67:

(Start: 52 @36558 has 16 MA's), (Start: 53 @36564 has 1 MA's), (62, 36627), (81, 36768), (84, 36783), (93, 36849), (97, 36900), (105, 36990), (111, 37044), (112, 37062), (118, 37125), (119, 37131), (129, 37224),

Gene: GumGum_71 Start: 36025, Stop: 36855, Start Num: 34

Candidate Starts for GumGum_71:

(29, 36004), (Start: 34 @36025 has 48 MA's), (60, 36211), (64, 36247), (72, 36283), (81, 36376), (93, 36463), (98, 36529), (105, 36604), (112, 36676), (121, 36769), (129, 36838),

Gene: Hestia_60 Start: 33341, Stop: 34159, Start Num: 34

Candidate Starts for Hestia_60:

(21, 33233), (Start: 34 @33341 has 48 MA's), (75, 33629), (81, 33689), (93, 33770), (94, 33773), (105, 33911), (109, 33938), (112, 33983), (121, 34076), (122, 34079), (124, 34109), (125, 34115),

Gene: Holliday_73 Start: 45104, Stop: 45919, Start Num: 34

Candidate Starts for Holliday_73:

(24, 45032), (Start: 34 @45104 has 48 MA's), (36, 45116), (44, 45185), (71, 45350), (76, 45398), (80, 45440), (81, 45452), (89, 45512), (90, 45518), (91, 45527), (93, 45536), (98, 45602), (99, 45611), (101, 45638), (104, 45662), (105, 45677), (112, 45749), (121, 45842), (128, 45908), (130, 45911),

Gene: InLimbo_49 Start: 32521, Stop: 33357, Start Num: 34

Candidate Starts for InLimbo_49:

(Start: 34 @32521 has 48 MA's), (35, 32527), (43, 32590), (51, 32641), (75, 32812), (80, 32863), (81, 32875), (83, 32887), (90, 32938), (102, 33067), (105, 33097), (112, 33169), (113, 33175), (115, 33190), (132, 33337), (133, 33343),

Gene: Isolde_66 Start: 35235, Stop: 35915, Start Num: 52

Candidate Starts for Isolde_66:

(49, 35214), (Start: 52 @35235 has 16 MA's), (Start: 53 @35241 has 1 MA's), (81, 35445), (93, 35526), (97, 35577), (100, 35622), (105, 35667), (111, 35721), (112, 35739), (115, 35760), (118, 35802), (129, 35901),

Gene: JellyBread_65 Start: 34773, Stop: 35591, Start Num: 34

Candidate Starts for JellyBread_65:

(Start: 34 @34773 has 48 MA's), (46, 34866), (75, 35061), (79, 35106), (81, 35121), (84, 35136), (93, 35202), (98, 35268), (112, 35415), (121, 35508), (122, 35511), (124, 35541), (125, 35547), (129, 35577),

Gene: Kabloowy_67 Start: 36692, Stop: 37510, Start Num: 34

Candidate Starts for Kabloowy_67:

(Start: 34 @36692 has 48 MA's), (46, 36785), (75, 36980), (79, 37025), (81, 37040), (84, 37055), (93, 37121), (98, 37187), (112, 37334), (121, 37427), (122, 37430), (124, 37460), (125, 37466), (129, 37496),

Gene: Kamaru_66 Start: 40909, Stop: 41727, Start Num: 34

Candidate Starts for Kamaru_66:

(24, 40837), (Start: 34 @40909 has 48 MA's), (44, 40990), (71, 41158), (73, 41167), (76, 41206), (77, 41209), (80, 41248), (81, 41260), (90, 41326), (91, 41335), (93, 41344), (98, 41410), (99, 41419), (101, 41446), (104, 41470), (105, 41485), (108, 41509), (112, 41557), (121, 41650), (130, 41719), (131, 41722),

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

Candidate Starts for Kenna_66:

(Start: 13 @40834 has 1 MA's), (19, 40909), (20, 40915), (22, 40927), (25, 40966), (Start: 34 @41020 has 48 MA's), (35, 41026), (71, 41260), (81, 41362), (86, 41401), (93, 41443), (103, 41566), (105, 41584), (107, 41605), (111, 41638), (112, 41656), (113, 41662), (115, 41677), (121, 41749), (124, 41782), (125, 41788), (126, 41803), (132, 41824),

Gene: Kumotta_51 Start: 30258, Stop: 31076, Start Num: 34

Candidate Starts for Kumotta_51:

(29, 30237), (Start: 34 @30258 has 48 MA's), (40, 30306), (75, 30546), (79, 30591), (81, 30606), (93, 30687), (96, 30735), (105, 30828), (107, 30849), (112, 30900), (121, 30993), (124, 31026), (129, 31062),

Gene: Lasker_66 Start: 36113, Stop: 36931, Start Num: 34

Candidate Starts for Lasker_66:

(29, 36092), (Start: 34 @36113 has 48 MA's), (46, 36206), (74, 36398), (75, 36401), (79, 36446), (81, 36461), (84, 36476), (93, 36542), (98, 36608), (112, 36755), (121, 36848), (122, 36851), (124, 36881), (125, 36887),

Gene: Lawnathon_70 Start: 35913, Stop: 36731, Start Num: 34

Candidate Starts for Lawnathon_70:

(Start: 34 @35913 has 48 MA's), (46, 36006), (75, 36201), (79, 36246), (81, 36261), (84, 36276), (93, 36342), (98, 36408), (112, 36555), (121, 36648), (122, 36651), (124, 36681), (125, 36687), (129, 36717),

Gene: LeBruni_67 Start: 35175, Stop: 35993, Start Num: 34

Candidate Starts for LeBruni_67:

(Start: 34 @35175 has 48 MA's), (46, 35268), (75, 35463), (81, 35523), (84, 35538), (93, 35604), (98, 35670), (112, 35817), (121, 35910), (122, 35913), (124, 35943), (125, 35949), (129, 35979),

Gene: Leroy_69 Start: 41325, Stop: 42143, Start Num: 34

Candidate Starts for Leroy_69:

(Start: 34 @41325 has 48 MA's), (35, 41331), (44, 41406), (71, 41574), (73, 41583), (80, 41664), (81, 41676), (89, 41736), (90, 41742), (91, 41751), (93, 41760), (95, 41787), (101, 41862), (105, 41901), (112, 41973), (121, 42066), (130, 42135), (131, 42138),

Gene: Lton_48 Start: 30793, Stop: 31626, Start Num: 34

Candidate Starts for Lton_48:

(Start: 34 @30793 has 48 MA's), (35, 30799), (43, 30862), (44, 30874), (80, 31129), (81, 31141), (89, 31201), (90, 31207), (91, 31216), (93, 31225), (99, 31300), (101, 31327), (105, 31366), (108, 31390), (109, 31393), (111, 31420), (112, 31438), (121, 31531), (126, 31585), (132, 31606),

Gene: Lucky10_49 Start: 33511, Stop: 34326, Start Num: 34

Candidate Starts for Lucky10_49:

(11, 33277), (16, 33370), (Start: 34 @33511 has 48 MA's), (35, 33517), (43, 33580), (44, 33592), (71, 33757), (73, 33766), (80, 33847), (81, 33859), (90, 33925), (91, 33934), (93, 33943), (101, 34045), (105, 34084), (108, 34108), (112, 34156), (121, 34249), (130, 34318), (131, 34321),

Gene: Lutum_72 Start: 42183, Stop: 43007, Start Num: 34

Candidate Starts for Lutum_72:

(Start: 34 @42183 has 48 MA's), (35, 42189), (71, 42423), (81, 42525), (86, 42564), (93, 42606), (103, 42729), (105, 42747), (107, 42768), (111, 42801), (112, 42819), (113, 42825), (115, 42840), (121, 42912), (124, 42945), (125, 42951), (126, 42966), (132, 42987),

Gene: MUWow_68 Start: 36153, Stop: 36827, Start Num: 53

Candidate Starts for MUWow_68:

(Start: 52 @36147 has 16 MA's), (Start: 53 @36153 has 1 MA's), (62, 36216), (81, 36357), (84, 36372), (93, 36438), (97, 36489), (105, 36579), (111, 36633), (112, 36651), (115, 36672), (118, 36714), (129, 36813),

Gene: Malisha_74 Start: 45847, Stop: 46662, Start Num: 34

Candidate Starts for Malisha_74:

(24, 45775), (Start: 34 @45847 has 48 MA's), (73, 46102), (76, 46141), (77, 46144), (80, 46183), (81, 46195), (90, 46261), (91, 46270), (93, 46279), (101, 46381), (104, 46405), (105, 46420), (109, 46447), (112, 46492), (117, 46540), (120, 46579), (121, 46585), (128, 46651), (130, 46654),

Gene: Mapleville_63 Start: 35232, Stop: 36050, Start Num: 34

Candidate Starts for Mapleville_63:

(29, 35211), (Start: 34 @35232 has 48 MA's), (75, 35520), (79, 35565), (81, 35580), (84, 35595), (93, 35661), (112, 35874), (121, 35967), (122, 35970), (124, 36000), (125, 36006), (129, 36036),

Gene: MargaretKali_47 Start: 28876, Stop: 29694, Start Num: 34

Candidate Starts for MargaretKali_47:

(Start: 34 @28876 has 48 MA's), (38, 28900), (75, 29164), (79, 29209), (81, 29224), (93, 29305), (96, 29353), (105, 29446), (107, 29467), (112, 29518), (121, 29611), (124, 29644), (129, 29680),

Gene: MaterMagnus_68 Start: 36307, Stop: 36987, Start Num: 52

Candidate Starts for MaterMagnus_68:

(Start: 52 @36307 has 16 MA's), (Start: 53 @36313 has 1 MA's), (62, 36376), (81, 36517), (84, 36532), (93, 36598), (97, 36649), (105, 36739), (112, 36811), (115, 36832), (117, 36859), (118, 36874), (129, 36973),

Gene: Moosehead_52 Start: 31917, Stop: 32753, Start Num: 34

Candidate Starts for Moosehead_52:

(12, 31698), (Start: 34 @31917 has 48 MA's), (51, 32037), (75, 32208), (76, 32214), (80, 32259), (81, 32271), (83, 32283), (90, 32334), (102, 32463), (105, 32493), (112, 32565), (113, 32571), (115, 32586), (132, 32733),

Gene: Morkie_52 Start: 33040, Stop: 33855, Start Num: 34

Candidate Starts for Morkie_52:

(1, 32491), (2, 32521), (4, 32614), (6, 32707), (15, 32881), (18, 32911), (30, 33028), (Start: 34 @33040 has 48 MA's), (43, 33109), (44, 33121), (71, 33286), (73, 33295), (80, 33376), (81, 33388), (89, 33448), (90, 33454), (91, 33463), (93, 33472), (98, 33538), (99, 33547), (101, 33574), (104, 33598), (105, 33613), (111, 33667), (112, 33685), (121, 33778), (130, 33847), (131, 33850),

Gene: MulchSalad_63 Start: 38756, Stop: 39574, Start Num: 32

Candidate Starts for MulchSalad_63:

(32, 38756), (Start: 33 @38759 has 1 MA's), (42, 38825), (48, 38861), (70, 39008), (80, 39101), (81, 39113), (82, 39116), (93, 39194), (96, 39242), (105, 39335), (109, 39362), (111, 39389), (112, 39407), (113, 39413), (118, 39470), (121, 39500),

Gene: MurphyJoseph_66 Start: 34991, Stop: 35809, Start Num: 34

Candidate Starts for MurphyJoseph_66:

(29, 34970), (Start: 34 @34991 has 48 MA's), (46, 35084), (74, 35276), (75, 35279), (79, 35324), (81, 35339), (84, 35354), (93, 35420), (98, 35486), (112, 35633), (121, 35726), (122, 35729), (124, 35759), (125, 35765), (129, 35795),

Gene: OneDirection_46 Start: 30433, Stop: 31248, Start Num: 34

Candidate Starts for OneDirection_46:

(4, 30007), (6, 30100), (15, 30274), (18, 30304), (30, 30421), (Start: 34 @30433 has 48 MA's), (43, 30502), (44, 30514), (71, 30679), (73, 30688), (76, 30727), (77, 30730), (80, 30769), (81, 30781), (90, 30847), (91, 30856), (93, 30865), (101, 30967), (104, 30991), (105, 31006), (111, 31060), (112, 31078), (121, 31171), (130, 31240), (131, 31243),

Gene: Pepperoni_47 Start: 32196, Stop: 33011, Start Num: 34

Candidate Starts for Pepperoni_47:

(15, 32037), (18, 32067), (30, 32184), (Start: 34 @32196 has 48 MA's), (43, 32265), (44, 32277), (71, 32442), (73, 32451), (80, 32532), (81, 32544), (89, 32604), (90, 32610), (91, 32619), (93, 32628), (98, 32694), (99, 32703), (101, 32730), (104, 32754), (105, 32769), (111, 32823), (112, 32841), (121,

32934), (130, 33003), (131, 33006),

Gene: Periwinkle_79 Start: 44489, Stop: 45307, Start Num: 34

Candidate Starts for Periwinkle_79:

(24, 44417), (Start: 34 @44489 has 48 MA's), (36, 44501), (44, 44570), (76, 44786), (80, 44828), (81, 44840), (90, 44906), (91, 44915), (93, 44924), (98, 44990), (99, 44999), (101, 45026), (104, 45050), (105, 45065), (108, 45089), (112, 45137), (121, 45230), (130, 45299), (131, 45302),

Gene: Phistory_68 Start: 40554, Stop: 41372, Start Num: 34

Candidate Starts for Phistory_68:

(24, 40482), (Start: 34 @40554 has 48 MA's), (36, 40566), (44, 40635), (71, 40803), (73, 40812), (76, 40851), (77, 40854), (80, 40893), (81, 40905), (89, 40965), (90, 40971), (91, 40980), (93, 40989), (95, 41016), (101, 41091), (105, 41130), (112, 41202), (121, 41295), (130, 41364), (131, 41367),

Gene: PhorbesPhlower_49 Start: 31974, Stop: 32810, Start Num: 34

Candidate Starts for PhorbesPhlower_49:

(Start: 34 @31974 has 48 MA's), (35, 31980), (51, 32094), (75, 32265), (80, 32316), (81, 32328), (83, 32340), (90, 32391), (97, 32460), (99, 32484), (102, 32520), (105, 32550), (112, 32622), (113, 32628), (132, 32790), (133, 32796),

Gene: Phrank15_70 Start: 36044, Stop: 36862, Start Num: 34

Candidate Starts for Phrank15_70:

(29, 36023), (Start: 34 @36044 has 48 MA's), (46, 36137), (75, 36332), (79, 36377), (81, 36392), (84, 36407), (93, 36473), (98, 36539), (112, 36686), (121, 36779), (122, 36782), (124, 36812), (125, 36818), (129, 36848),

Gene: Pigu_50 Start: 29001, Stop: 29678, Start Num: 54

Candidate Starts for Pigu_50:

(39, 28911), (Start: 54 @29001 has 2 MA's), (65, 29085), (72, 29112), (75, 29151), (80, 29199), (81, 29211), (93, 29292), (105, 29433), (111, 29487), (112, 29505), (113, 29511), (118, 29568), (130, 29667),

Gene: REQ2_57 Start: 38376, Stop: 39203, Start Num: 31

Candidate Starts for REQ2_57:

(17, 38250), (31, 38376), (59, 38562), (71, 38637), (81, 38739), (90, 38802), (92, 38817), (93, 38820), (105, 38961), (109, 38988), (112, 39033), (114, 39045), (118, 39096), (121, 39126), (127, 39186), (128, 39192), (130, 39195),

Gene: Raphaella_68 Start: 35611, Stop: 36429, Start Num: 34

Candidate Starts for Raphaella_68:

(Start: 34 @35611 has 48 MA's), (46, 35704), (75, 35899), (79, 35944), (81, 35959), (84, 35974), (93, 36040), (98, 36106), (112, 36253), (121, 36346), (122, 36349), (124, 36379), (125, 36385), (129, 36415),

Gene: Raqqa_63 Start: 33880, Stop: 34560, Start Num: 52

Candidate Starts for Raqqa_63:

(7, 33424), (8, 33427), (9, 33457), (14, 33586), (23, 33667), (26, 33703), (41, 33808), (Start: 52 @33880 has 16 MA's), (78, 34072), (81, 34090), (93, 34171), (105, 34312), (112, 34384), (129, 34546),

Gene: Richie_71 Start: 37416, Stop: 38234, Start Num: 34

Candidate Starts for Richie_71:

(Start: 34 @37416 has 48 MA's), (46, 37509), (75, 37704), (79, 37749), (81, 37764), (84, 37779), (93, 37845), (98, 37911), (112, 38058), (121, 38151), (122, 38154), (124, 38184), (125, 38190), (129, 38220),

Gene: Sakai_66 Start: 35269, Stop: 35949, Start Num: 52

Candidate Starts for Sakai_66:

(Start: 52 @35269 has 16 MA's), (Start: 53 @35275 has 1 MA's), (62, 35338), (81, 35479), (84, 35494), (93, 35560), (97, 35611), (105, 35701), (111, 35755), (112, 35773), (118, 35836), (119, 35842), (129, 35935),

Gene: Sarge_46 Start: 27598, Stop: 28278, Start Num: 52

Candidate Starts for Sarge_46:

(27, 27430), (28, 27436), (41, 27526), (Start: 52 @27598 has 16 MA's), (78, 27790), (81, 27808), (93, 27889), (105, 28030), (112, 28102), (129, 28264),

Gene: Sashimi_66 Start: 36533, Stop: 37351, Start Num: 34

Candidate Starts for Sashimi_66:

(Start: 34 @36533 has 48 MA's), (75, 36821), (76, 36827), (78, 36863), (81, 36881), (93, 36962), (94, 36965), (104, 37088), (105, 37103), (109, 37130), (112, 37175), (121, 37268), (122, 37271), (124, 37301), (125, 37307),

Gene: ShawBrad_73 Start: 41645, Stop: 42463, Start Num: 34

Candidate Starts for ShawBrad_73:

(3, 41177), (5, 41282), (10, 41402), (24, 41573), (Start: 34 @41645 has 48 MA's), (36, 41657), (44, 41726), (71, 41894), (73, 41903), (76, 41942), (77, 41945), (80, 41984), (81, 41996), (90, 42062), (91, 42071), (93, 42080), (98, 42146), (99, 42155), (101, 42182), (104, 42206), (105, 42221), (108, 42245), (112, 42293), (121, 42386), (130, 42455), (131, 42458),

Gene: Shukran_66 Start: 34562, Stop: 35239, Start Num: 52

Candidate Starts for Shukran_66:

(Start: 52 @34562 has 16 MA's), (77, 34721), (78, 34754), (81, 34772), (93, 34853), (104, 34979), (105, 34994), (109, 35021), (112, 35066), (118, 35129), (121, 35159), (129, 35228),

Gene: SonDevVon_73 Start: 36764, Stop: 37582, Start Num: 34

Candidate Starts for SonDevVon_73:

(Start: 34 @36764 has 48 MA's), (46, 36857), (75, 37052), (79, 37097), (81, 37112), (84, 37127), (91, 37184), (93, 37193), (98, 37259), (112, 37406), (121, 37499), (122, 37502), (124, 37532), (125, 37538), (129, 37568),

Gene: SpicyFrank_71 Start: 36831, Stop: 37649, Start Num: 34

Candidate Starts for SpicyFrank_71:

(29, 36810), (Start: 34 @36831 has 48 MA's), (40, 36879), (46, 36924), (69, 37074), (75, 37119), (81, 37179), (84, 37194), (93, 37260), (98, 37326), (112, 37473), (121, 37566), (122, 37569), (124, 37599), (125, 37605), (129, 37635),

Gene: TJE1_54 Start: 41888, Stop: 42547, Start Num: 57

Candidate Starts for TJE1_54:

(57, 41888), (63, 41945), (66, 41963), (68, 41975), (85, 42125), (87, 42134), (90, 42155), (91, 42164), (93, 42173), (105, 42320), (106, 42329), (107, 42341), (110, 42365), (114, 42404), (116, 42425), (123, 42500),

Gene: ThayneTheZag_72 Start: 36048, Stop: 36866, Start Num: 34

Candidate Starts for ThayneTheZag_72:

(29, 36027), (Start: 34 @36048 has 48 MA's), (46, 36141), (75, 36336), (79, 36381), (81, 36396), (84, 36411), (91, 36468), (93, 36477), (98, 36543), (112, 36690), (121, 36783), (122, 36786), (124, 36816), (125, 36822), (129, 36852),

Gene: Tiff81_64 Start: 34216, Stop: 34896, Start Num: 52

Candidate Starts for Tiff81_64:

(49, 34195), (Start: 52 @34216 has 16 MA's), (Start: 53 @34222 has 1 MA's), (81, 34426), (84, 34441), (93, 34507), (97, 34558), (105, 34648), (111, 34702), (112, 34720), (129, 34882),

Gene: Whitney_69 Start: 42761, Stop: 43576, Start Num: 34

Candidate Starts for Whitney_69:

(24, 42689), (Start: 34 @42761 has 48 MA's), (36, 42773), (44, 42842), (71, 43007), (76, 43055), (80, 43097), (81, 43109), (88, 43166), (89, 43169), (90, 43175), (91, 43184), (93, 43193), (101, 43295), (105, 43334), (109, 43361), (111, 43388), (112, 43406), (120, 43493), (121, 43499), (130, 43568), (131, 43571),

Gene: Windest_71 Start: 34971, Stop: 35789, Start Num: 34

Candidate Starts for Windest_71:

(Start: 34 @34971 has 48 MA's), (46, 35064), (75, 35259), (79, 35304), (81, 35319), (84, 35334), (93, 35400), (98, 35466), (112, 35613), (121, 35706), (122, 35709), (124, 35739), (125, 35745), (129, 35775),

Gene: YoungHarleezy_67 Start: 35964, Stop: 36644, Start Num: 52

Candidate Starts for YoungHarleezy_67:

(Start: 52 @35964 has 16 MA's), (Start: 53 @35970 has 1 MA's), (81, 36174), (84, 36189), (93, 36255), (97, 36306), (100, 36351), (105, 36396), (112, 36468), (115, 36489), (117, 36516), (118, 36531), (129, 36630),