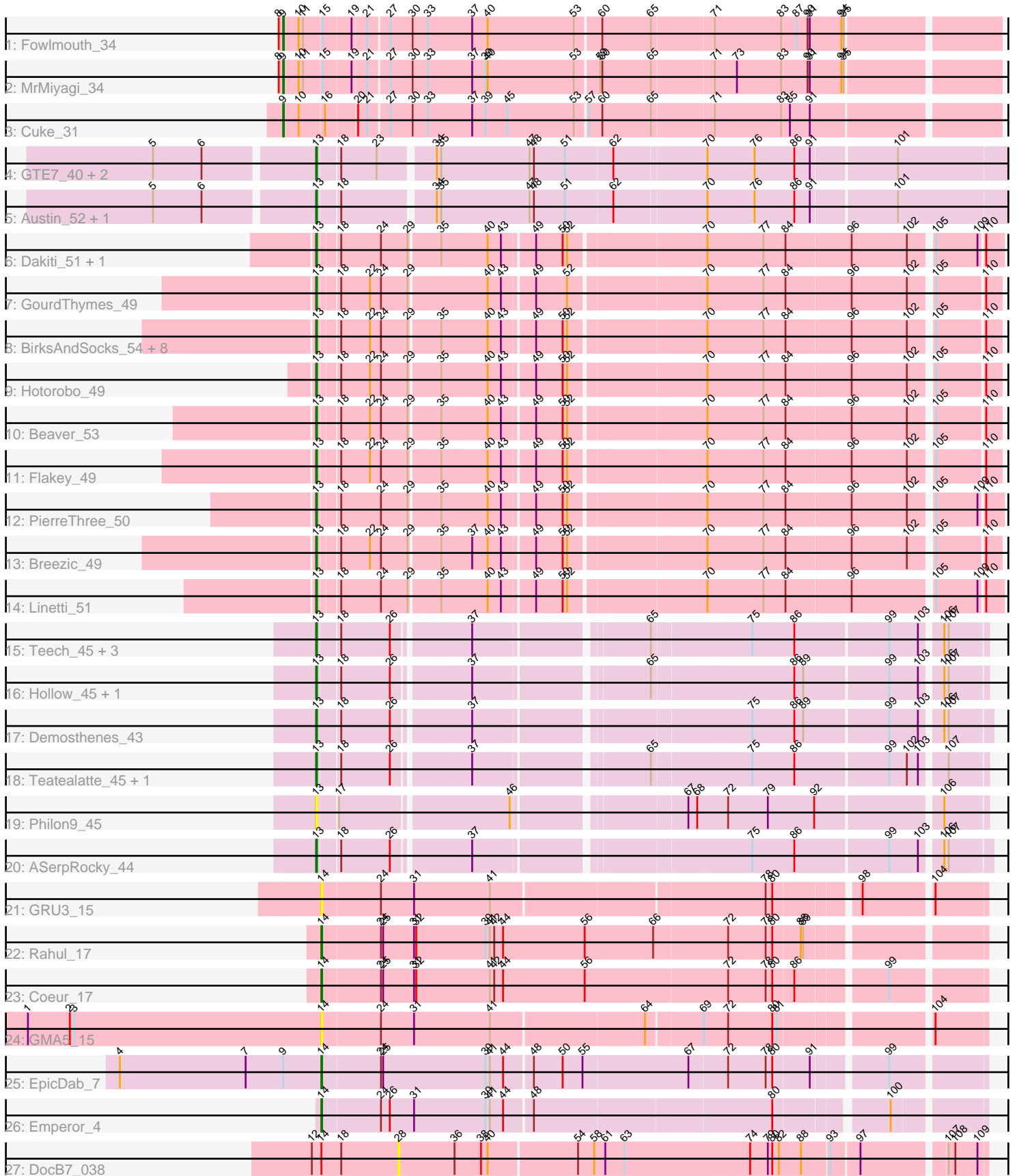


Pham 171583



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 171583 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171583 has 44 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Fowlmouth\_34
- Track 2 : MrMiyagi\_34
- Track 3 : Cuke\_31
- Track 4 : GTE7\_40, GMA7\_41, HayZem\_51
- Track 5 : Austin\_52, Amore2\_52
- Track 6 : Dakiti\_51, Chelms\_50
- Track 7 : GourdThymes\_49
- Track 8 : BirksAndSocks\_54, Lizzo\_49, John316\_53, CathyBurgh\_49, Exiguo\_49, Ekhein\_50, Gorko\_49, Sam12\_49, RemRem\_50
- Track 9 : Hotorobo\_49
- Track 10 : Beaver\_53
- Track 11 : Flakey\_49
- Track 12 : PierreThree\_50
- Track 13 : Breezic\_49
- Track 14 : Linetti\_51
- Track 15 : Teech\_45, Kvothe\_44, Katyusha\_44, Benczkowski14\_44
- Track 16 : Hollow\_45, Niagara\_44
- Track 17 : Demosthenes\_43
- Track 18 : Teatealatte\_45, Tredge\_45
- Track 19 : Philon9\_45
- Track 20 : ASerpRocky\_44
- Track 21 : GRU3\_15
- Track 22 : Rahul\_17
- Track 23 : Coeur\_17
- Track 24 : GMA5\_15
- Track 25 : EpicDab\_7
- Track 26 : Emperor\_4
- Track 27 : DocB7\_038

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

The start number called the most often in the published annotations is 13, it was called in 29 of the 36 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ASerpRocky\_44, Amore2\_52, Austin\_52, Beaver\_53, Benczkowski14\_44, BirksAndSocks\_54, Breezic\_49, CathyBurgh\_49, Chelms\_50, Dakiti\_51, Demosthenes\_43, Ekhein\_50, Exiguo\_49, Flakey\_49, GMA7\_41, GTE7\_40, Gorko\_49, GourdThymes\_49, HayZem\_51, Hollow\_45, Hotorobo\_49, John316\_53, Katyusha\_44, Kvothe\_44, Linetti\_51, Lizzo\_49, Niagara\_44, Philon9\_45, PierreThree\_50, RemRem\_50, Sam12\_49, Teatealatte\_45, Teech\_45, Tredge\_45,

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

- 

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

- Coeur\_17, Cuke\_31, DocB7\_038, Emperor\_4, EpicDab\_7, Fowlmouth\_34, GMA5\_15, GRU3\_15, MrMiyagi\_34, Rahul\_17,

### Summary by start number:

Start 9:

- Found in 4 of 44 ( 9.1% ) of genes in pham
- Manual Annotations of this start: 3 of 36
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Cuke\_31 (AC), Fowlmouth\_34 (AC), MrMiyagi\_34 (AC),

Start 13:

- Found in 34 of 44 ( 77.3% ) of genes in pham
- Manual Annotations of this start: 29 of 36
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ASerpRocky\_44 (CS4), Amore2\_52 (CS1), Austin\_52 (CS1), Beaver\_53 (CS2), Benczkowski14\_44 (CS4), BirksAndSocks\_54 (CS2), Breezic\_49 (CS2), CathyBurgh\_49 (CS2), Chelms\_50 (CS2), Dakiti\_51 (CS2), Demosthenes\_43 (CS4), Ekhein\_50 (CS2), Exiguo\_49 (CS2), Flakey\_49 (CS2), GMA7\_41 (CS1), GTE7\_40 (CS1), Gorko\_49 (CS2), GourdThymes\_49 (CS2), HayZem\_51 (CS1), Hollow\_45 (CS4), Hotorobo\_49 (CS2), John316\_53 (CS2), Katyusha\_44 (CS4), Kvothe\_44 (CS4), Linetti\_51 (CS2), Lizzo\_49 (CS2), Niagara\_44 (CS4), Philon9\_45 (CS4), PierreThree\_50 (CS2), RemRem\_50 (CS2), Sam12\_49 (CS2), Teatealatte\_45 (CS4), Teech\_45 (CS4), Tredge\_45 (CS4),

Start 14:

- Found in 7 of 44 ( 15.9% ) of genes in pham
- Manual Annotations of this start: 4 of 36
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Coeur\_17 (CW2), Emperor\_4 (DM), EpicDab\_7 (DM), GMA5\_15 (CW2), GRU3\_15 (CW2), Rahul\_17 (CW2),

Start 28:

- Found in 1 of 44 ( 2.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DocB7\_038 (singleton),

### Summary by clusters:

There are 7 clusters represented in this pham: AC, DM, CW2, singleton, CS4, CS1, CS2,

Info for manual annotations of cluster AC:

- Start number 9 was manually annotated 3 times for cluster AC.

Info for manual annotations of cluster CS1:

- Start number 13 was manually annotated 3 times for cluster CS1.

Info for manual annotations of cluster CS2:

- Start number 13 was manually annotated 17 times for cluster CS2.

Info for manual annotations of cluster CS4:

- Start number 13 was manually annotated 9 times for cluster CS4.

Info for manual annotations of cluster CW2:

- Start number 14 was manually annotated 2 times for cluster CW2.

Info for manual annotations of cluster DM:

- Start number 14 was manually annotated 2 times for cluster DM.

### ***Gene Information:***

Gene: ASerpRocky\_44 Start: 46453, Stop: 45620, Start Num: 13

Candidate Starts for ASerpRocky\_44:

(Start: 13 @46453 has 29 MA's), (18, 46426), (26, 46360), (37, 46267), (75, 45925), (86, 45868), (99, 45745), (103, 45706), (106, 45682), (107, 45676),

Gene: Amore2\_52 Start: 46682, Stop: 45783, Start Num: 13

Candidate Starts for Amore2\_52:

(5, 46889), (6, 46823), (Start: 13 @46682 has 29 MA's), (18, 46655), (34, 46541), (35, 46535), (47, 46418), (48, 46412), (51, 46370), (62, 46310), (70, 46190), (76, 46127), (86, 46073), (91, 46052), (101, 45941),

Gene: Austin\_52 Start: 46682, Stop: 45783, Start Num: 13

Candidate Starts for Austin\_52:

(5, 46889), (6, 46823), (Start: 13 @46682 has 29 MA's), (18, 46655), (34, 46541), (35, 46535), (47, 46418), (48, 46412), (51, 46370), (62, 46310), (70, 46190), (76, 46127), (86, 46073), (91, 46052), (101, 45941),

Gene: Beaver\_53 Start: 47765, Stop: 46908, Start Num: 13

Candidate Starts for Beaver\_53:

(Start: 13 @47765 has 29 MA's), (18, 47741), (22, 47702), (24, 47687), (29, 47651), (35, 47612), (40, 47552), (43, 47534), (49, 47495), (50, 47459), (52, 47453), (70, 47282), (77, 47207), (84, 47177), (96, 47090), (102, 47015), (105, 46988), (110, 46928),

Gene: Benczkowski14\_44 Start: 46742, Stop: 45915, Start Num: 13

Candidate Starts for Benczkowski14\_44:

(Start: 13 @46742 has 29 MA's), (18, 46715), (26, 46649), (37, 46556), (65, 46343), (75, 46214), (86, 46157), (99, 46034), (103, 45995), (106, 45971), (107, 45965),

Gene: BirksAndSocks\_54 Start: 48115, Stop: 47258, Start Num: 13

Candidate Starts for BirksAndSocks\_54:

(Start: 13 @48115 has 29 MA's), (18, 48091), (22, 48052), (24, 48037), (29, 48001), (35, 47962), (40, 47902), (43, 47884), (49, 47845), (50, 47809), (52, 47803), (70, 47632), (77, 47557), (84, 47527), (96, 47440), (102, 47365), (105, 47338), (110, 47278),

Gene: Breezic\_49 Start: 46008, Stop: 45151, Start Num: 13

Candidate Starts for Breezic\_49:

(Start: 13 @46008 has 29 MA's), (18, 45984), (22, 45945), (24, 45930), (29, 45894), (35, 45855), (37, 45816), (40, 45795), (43, 45777), (49, 45738), (50, 45702), (52, 45696), (70, 45525), (77, 45450), (84, 45420), (96, 45333), (102, 45258), (105, 45231), (110, 45171),

Gene: CathyBurgh\_49 Start: 46585, Stop: 45728, Start Num: 13

Candidate Starts for CathyBurgh\_49:

(Start: 13 @46585 has 29 MA's), (18, 46561), (22, 46522), (24, 46507), (29, 46471), (35, 46432), (40, 46372), (43, 46354), (49, 46315), (50, 46279), (52, 46273), (70, 46102), (77, 46027), (84, 45997), (96, 45910), (102, 45835), (105, 45808), (110, 45748),

Gene: Chelms\_50 Start: 46517, Stop: 45657, Start Num: 13

Candidate Starts for Chelms\_50:

(Start: 13 @46517 has 29 MA's), (18, 46493), (24, 46439), (29, 46403), (35, 46364), (40, 46304), (43, 46286), (49, 46247), (50, 46211), (52, 46205), (70, 46034), (77, 45959), (84, 45929), (96, 45842), (102, 45767), (105, 45740), (109, 45686), (110, 45680),

Gene: Coeur\_17 Start: 11931, Stop: 12794, Start Num: 14

Candidate Starts for Coeur\_17:

(Start: 14 @11931 has 4 MA's), (24, 12009), (25, 12012), (31, 12054), (32, 12057), (41, 12156), (42, 12162), (44, 12174), (56, 12285), (72, 12477), (78, 12528), (80, 12537), (86, 12564), (99, 12675),

Gene: Cuke\_31 Start: 27339, Stop: 28265, Start Num: 9

Candidate Starts for Cuke\_31:

(Start: 9 @27339 has 3 MA's), (10, 27360), (16, 27393), (20, 27432), (21, 27444), (27, 27471), (30, 27498), (33, 27519), (37, 27579), (39, 27597), (45, 27627), (53, 27717), (57, 27732), (60, 27750), (65, 27816), (71, 27897), (83, 27984), (85, 27996), (91, 28023),

Gene: Dakiti\_51 Start: 47385, Stop: 46525, Start Num: 13

Candidate Starts for Dakiti\_51:

(Start: 13 @47385 has 29 MA's), (18, 47361), (24, 47307), (29, 47271), (35, 47232), (40, 47172), (43, 47154), (49, 47115), (50, 47079), (52, 47073), (70, 46902), (77, 46827), (84, 46797), (96, 46710), (102, 46635), (105, 46608), (109, 46554), (110, 46548),

Gene: Demosthenes\_43 Start: 46429, Stop: 45593, Start Num: 13

Candidate Starts for Demosthenes\_43:

(Start: 13 @46429 has 29 MA's), (18, 46399), (26, 46333), (37, 46240), (75, 45898), (86, 45841), (89, 45829), (99, 45718), (103, 45679), (106, 45655), (107, 45649),

Gene: DocB7\_038 Start: 38440, Stop: 37679, Start Num: 28

Candidate Starts for DocB7\_038:

(12, 38557), (Start: 14 @38545 has 4 MA's), (18, 38518), (28, 38440), (36, 38365), (38, 38329), (40, 38320), (54, 38203), (58, 38182), (61, 38167), (63, 38143), (74, 37975), (79, 37951), (80, 37945), (82, 37936), (88, 37906), (93, 37870), (97, 37834), (107, 37729), (108, 37720), (109, 37690),

Gene: Ekhein\_50 Start: 45713, Stop: 44856, Start Num: 13

Candidate Starts for Ekhein\_50:

(Start: 13 @45713 has 29 MA's), (18, 45689), (22, 45650), (24, 45635), (29, 45599), (35, 45560), (40, 45500), (43, 45482), (49, 45443), (50, 45407), (52, 45401), (70, 45230), (77, 45155), (84, 45125), (96, 45038), (102, 44963), (105, 44936), (110, 44876),

Gene: Emperor\_4 Start: 2151, Stop: 2993, Start Num: 14

Candidate Starts for Emperor\_4:

(Start: 14 @2151 has 4 MA's), (24, 2229), (26, 2241), (31, 2274), (39, 2370), (41, 2376), (44, 2394), (48, 2430), (80, 2745), (100, 2880),

Gene: EpicDab\_7 Start: 4348, Stop: 5202, Start Num: 14

Candidate Starts for EpicDab\_7:

(4, 4075), (7, 4246), (Start: 9 @4297 has 3 MA's), (Start: 14 @4348 has 4 MA's), (24, 4426), (25, 4429), (39, 4567), (41, 4573), (44, 4591), (48, 4627), (50, 4666), (55, 4693), (67, 4834), (72, 4885), (78, 4936), (80, 4945), (91, 4993), (99, 5083),

Gene: Exiguo\_49 Start: 45725, Stop: 44868, Start Num: 13

Candidate Starts for Exiguo\_49:

(Start: 13 @45725 has 29 MA's), (18, 45701), (22, 45662), (24, 45647), (29, 45611), (35, 45572), (40, 45512), (43, 45494), (49, 45455), (50, 45419), (52, 45413), (70, 45242), (77, 45167), (84, 45137), (96, 45050), (102, 44975), (105, 44948), (110, 44888),

Gene: Flakey\_49 Start: 46589, Stop: 45732, Start Num: 13

Candidate Starts for Flakey\_49:

(Start: 13 @46589 has 29 MA's), (18, 46565), (22, 46526), (24, 46511), (29, 46475), (35, 46436), (40, 46376), (43, 46358), (49, 46319), (50, 46283), (52, 46277), (70, 46106), (77, 46031), (84, 46001), (96, 45914), (102, 45839), (105, 45812), (110, 45752),

Gene: Fowlmouth\_34 Start: 30830, Stop: 31756, Start Num: 9

Candidate Starts for Fowlmouth\_34:

(8, 30824), (Start: 9 @30830 has 3 MA's), (10, 30851), (11, 30857), (15, 30881), (19, 30917), (21, 30935), (27, 30962), (30, 30989), (33, 31010), (37, 31070), (40, 31091), (53, 31208), (60, 31241), (65, 31307), (71, 31388), (83, 31475), (87, 31496), (90, 31511), (91, 31514), (94, 31556), (95, 31559),

Gene: GMA5\_15 Start: 12085, Stop: 12933, Start Num: 14

Candidate Starts for GMA5\_15:

(1, 11686), (2, 11743), (3, 11749), (Start: 14 @12085 has 4 MA's), (24, 12163), (31, 12208), (41, 12310), (64, 12511), (69, 12583), (72, 12616), (80, 12676), (81, 12682), (104, 12865),

Gene: GMA7\_41 Start: 40896, Stop: 39997, Start Num: 13

Candidate Starts for GMA7\_41:

(5, 41103), (6, 41037), (Start: 13 @40896 has 29 MA's), (18, 40869), (23, 40821), (34, 40755), (35, 40749), (47, 40632), (48, 40626), (51, 40584), (62, 40524), (70, 40404), (76, 40341), (86, 40287), (91, 40266), (101, 40155),

Gene: GRU3\_15 Start: 12090, Stop: 12938, Start Num: 14

Candidate Starts for GRU3\_15:

(Start: 14 @12090 has 4 MA's), (24, 12168), (31, 12213), (41, 12315), (78, 12672), (80, 12681), (98, 12783), (104, 12870),

Gene: GTE7\_40 Start: 40927, Stop: 40028, Start Num: 13

Candidate Starts for GTE7\_40:

(5, 41134), (6, 41068), (Start: 13 @40927 has 29 MA's), (18, 40900), (23, 40852), (34, 40786), (35, 40780), (47, 40663), (48, 40657), (51, 40615), (62, 40555), (70, 40435), (76, 40372), (86, 40318), (91, 40297), (101, 40186),

Gene: Gorko\_49 Start: 45717, Stop: 44860, Start Num: 13

Candidate Starts for Gorko\_49:

(Start: 13 @45717 has 29 MA's), (18, 45693), (22, 45654), (24, 45639), (29, 45603), (35, 45564), (40, 45504), (43, 45486), (49, 45447), (50, 45411), (52, 45405), (70, 45234), (77, 45159), (84, 45129), (96, 45042), (102, 44967), (105, 44940), (110, 44880),

Gene: GourdThymes\_49 Start: 46591, Stop: 45734, Start Num: 13

Candidate Starts for GourdThymes\_49:

(Start: 13 @46591 has 29 MA's), (18, 46567), (22, 46528), (24, 46513), (29, 46477), (40, 46378), (43, 46360), (49, 46321), (52, 46279), (70, 46108), (77, 46033), (84, 46003), (96, 45916), (102, 45841), (105, 45814), (110, 45754),

Gene: HayZem\_51 Start: 46679, Stop: 45780, Start Num: 13

Candidate Starts for HayZem\_51:

(5, 46886), (6, 46820), (Start: 13 @46679 has 29 MA's), (18, 46652), (23, 46604), (34, 46538), (35, 46532), (47, 46415), (48, 46409), (51, 46367), (62, 46307), (70, 46187), (76, 46124), (86, 46070), (91, 46049), (101, 45938),

Gene: Hollow\_45 Start: 47078, Stop: 46251, Start Num: 13

Candidate Starts for Hollow\_45:

(Start: 13 @47078 has 29 MA's), (18, 47051), (26, 46985), (37, 46892), (65, 46679), (86, 46493), (89, 46481), (99, 46370), (103, 46331), (106, 46307), (107, 46301),

Gene: Hotorobo\_49 Start: 46596, Stop: 45739, Start Num: 13

Candidate Starts for Hotorobo\_49:

(Start: 13 @46596 has 29 MA's), (18, 46572), (22, 46533), (24, 46518), (29, 46482), (35, 46443), (40, 46383), (43, 46365), (49, 46326), (50, 46290), (52, 46284), (70, 46113), (77, 46038), (84, 46008), (96, 45921), (102, 45846), (105, 45819), (110, 45759),

Gene: John316\_53 Start: 47754, Stop: 46897, Start Num: 13

Candidate Starts for John316\_53:

(Start: 13 @47754 has 29 MA's), (18, 47730), (22, 47691), (24, 47676), (29, 47640), (35, 47601), (40, 47541), (43, 47523), (49, 47484), (50, 47448), (52, 47442), (70, 47271), (77, 47196), (84, 47166), (96, 47079), (102, 47004), (105, 46977), (110, 46917),

Gene: Katyusha\_44 Start: 46742, Stop: 45915, Start Num: 13

Candidate Starts for Katyusha\_44:

(Start: 13 @46742 has 29 MA's), (18, 46715), (26, 46649), (37, 46556), (65, 46343), (75, 46214), (86, 46157), (99, 46034), (103, 45995), (106, 45971), (107, 45965),

Gene: Kvothe\_44 Start: 46641, Stop: 45814, Start Num: 13

Candidate Starts for Kvothe\_44:

(Start: 13 @46641 has 29 MA's), (18, 46614), (26, 46548), (37, 46455), (65, 46242), (75, 46113), (86, 46056), (99, 45933), (103, 45894), (106, 45870), (107, 45864),

Gene: Linetti\_51 Start: 47526, Stop: 46666, Start Num: 13

Candidate Starts for Linetti\_51:

(Start: 13 @47526 has 29 MA's), (18, 47502), (24, 47448), (29, 47412), (35, 47373), (40, 47313), (43, 47295), (49, 47256), (50, 47220), (52, 47214), (70, 47043), (77, 46968), (84, 46938), (96, 46851),

(105, 46749), (109, 46695), (110, 46689),

Gene: Lizzo\_49 Start: 46585, Stop: 45728, Start Num: 13

Candidate Starts for Lizzo\_49:

(Start: 13 @46585 has 29 MA's), (18, 46561), (22, 46522), (24, 46507), (29, 46471), (35, 46432), (40, 46372), (43, 46354), (49, 46315), (50, 46279), (52, 46273), (70, 46102), (77, 46027), (84, 45997), (96, 45910), (102, 45835), (105, 45808), (110, 45748),

Gene: MrMiyagi\_34 Start: 30841, Stop: 31767, Start Num: 9

Candidate Starts for MrMiyagi\_34:

(8, 30835), (Start: 9 @30841 has 3 MA's), (10, 30862), (11, 30868), (15, 30892), (19, 30928), (21, 30946), (27, 30973), (30, 31000), (33, 31021), (37, 31081), (39, 31099), (40, 31102), (53, 31219), (59, 31249), (60, 31252), (65, 31318), (71, 31399), (73, 31429), (83, 31486), (90, 31522), (91, 31525), (94, 31567), (95, 31570),

Gene: Niagara\_44 Start: 46720, Stop: 45893, Start Num: 13

Candidate Starts for Niagara\_44:

(Start: 13 @46720 has 29 MA's), (18, 46693), (26, 46627), (37, 46534), (65, 46321), (86, 46135), (89, 46123), (99, 46012), (103, 45973), (106, 45949), (107, 45943),

Gene: Philon9\_45 Start: 47751, Stop: 46924, Start Num: 13

Candidate Starts for Philon9\_45:

(Start: 13 @47751 has 29 MA's), (17, 47727), (46, 47514), (67, 47307), (68, 47295), (72, 47256), (79, 47202), (92, 47139), (106, 46980),

Gene: PierreThree\_50 Start: 47263, Stop: 46403, Start Num: 13

Candidate Starts for PierreThree\_50:

(Start: 13 @47263 has 29 MA's), (18, 47239), (24, 47185), (29, 47149), (35, 47110), (40, 47050), (43, 47032), (49, 46993), (50, 46957), (52, 46951), (70, 46780), (77, 46705), (84, 46675), (96, 46588), (102, 46513), (105, 46486), (109, 46432), (110, 46426),

Gene: Rahul\_17 Start: 11952, Stop: 12815, Start Num: 14

Candidate Starts for Rahul\_17:

(Start: 14 @11952 has 4 MA's), (24, 12030), (25, 12033), (31, 12075), (32, 12078), (39, 12171), (41, 12177), (42, 12183), (44, 12195), (56, 12306), (66, 12399), (72, 12498), (78, 12549), (80, 12558), (88, 12594), (89, 12597),

Gene: RemRem\_50 Start: 45725, Stop: 44868, Start Num: 13

Candidate Starts for RemRem\_50:

(Start: 13 @45725 has 29 MA's), (18, 45701), (22, 45662), (24, 45647), (29, 45611), (35, 45572), (40, 45512), (43, 45494), (49, 45455), (50, 45419), (52, 45413), (70, 45242), (77, 45167), (84, 45137), (96, 45050), (102, 44975), (105, 44948), (110, 44888),

Gene: Sam12\_49 Start: 45725, Stop: 44868, Start Num: 13

Candidate Starts for Sam12\_49:

(Start: 13 @45725 has 29 MA's), (18, 45701), (22, 45662), (24, 45647), (29, 45611), (35, 45572), (40, 45512), (43, 45494), (49, 45455), (50, 45419), (52, 45413), (70, 45242), (77, 45167), (84, 45137), (96, 45050), (102, 44975), (105, 44948), (110, 44888),

Gene: Teatealatte\_45 Start: 46644, Stop: 45817, Start Num: 13

Candidate Starts for Teatealatte\_45:

(Start: 13 @46644 has 29 MA's), (18, 46617), (26, 46551), (37, 46458), (65, 46245), (75, 46116), (86, 46059), (99, 45936), (102, 45912), (103, 45897), (107, 45867),



Gene: Teech\_45 Start: 46445, Stop: 45618, Start Num: 13

Candidate Starts for Teech\_45:

(Start: 13 @46445 has 29 MA's), (18, 46418), (26, 46352), (37, 46259), (65, 46046), (75, 45917), (86, 45860), (99, 45737), (103, 45698), (106, 45674), (107, 45668),

Gene: Tredge\_45 Start: 46644, Stop: 45817, Start Num: 13

Candidate Starts for Tredge\_45:

(Start: 13 @46644 has 29 MA's), (18, 46617), (26, 46551), (37, 46458), (65, 46245), (75, 46116), (86, 46059), (99, 45936), (102, 45912), (103, 45897), (107, 45867),