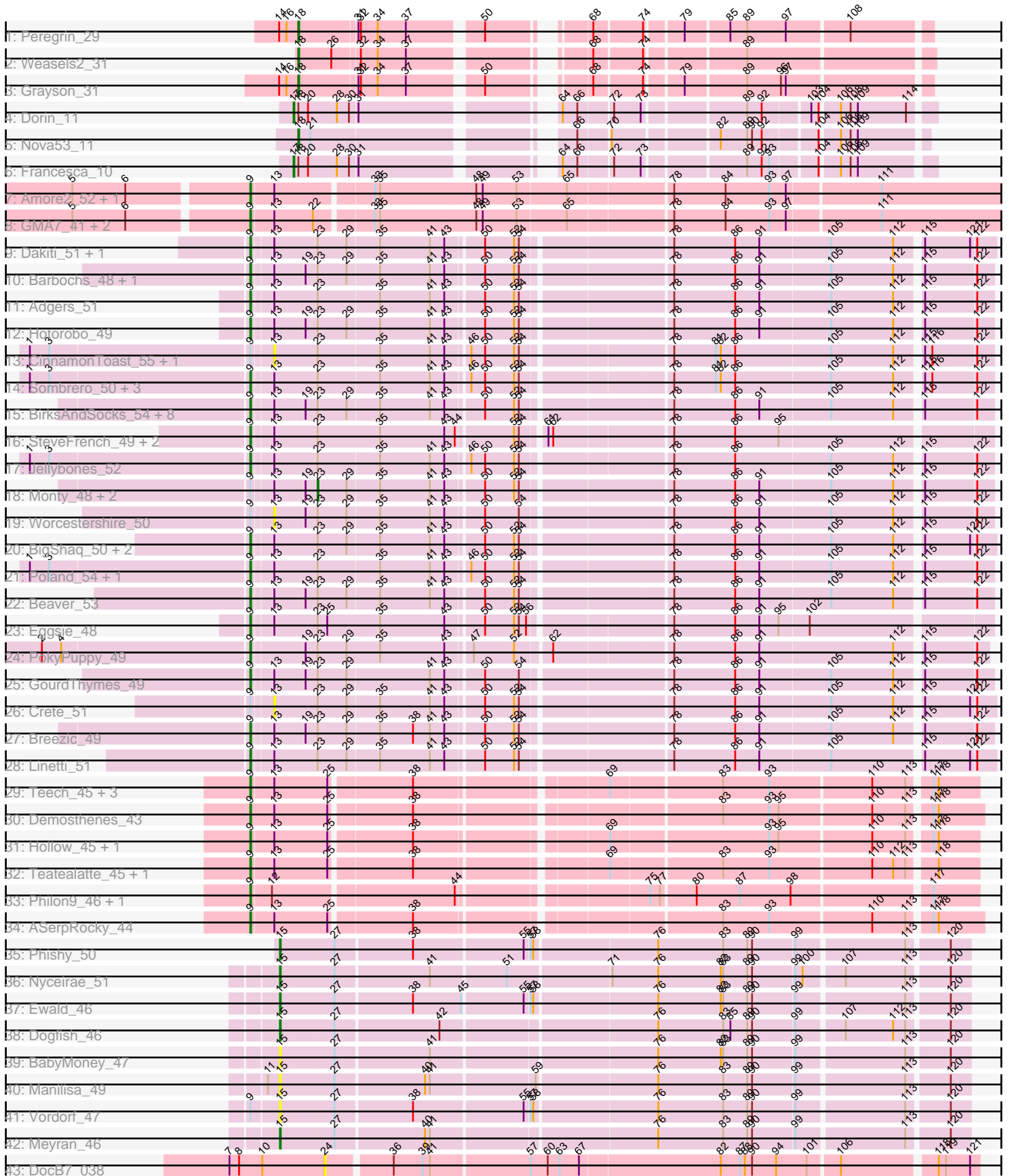


Pham 296525



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 296525 Report

This analysis was run 04/25/26 on database version 644.

Pham number 296525 has 73 members, 11 are drafts.

Phages represented in each track:

- Track 1 : Peregrin_29
- Track 2 : Weasels2_31
- Track 3 : Grayson_31
- Track 4 : Dorin_11
- Track 5 : Nova53_11
- Track 6 : Francesca_10
- Track 7 : Amore2_52, Austin_52
- Track 8 : GMA7_41, HayZem_51, GTE7_40
- Track 9 : Dakiti_51, Chelms_50
- Track 10 : Barbochs_48, Flakey_49
- Track 11 : Adgers_51
- Track 12 : Hotorobo_49
- Track 13 : CinnamonToast_55, BillyBobJr_55
- Track 14 : Sombrero_50, Boneham_53, FelixAlejandro_54, Butterball_53
- Track 15 : BirksAndSocks_54, Lizzo_49, John316_53, CathyBurgh_49, Exiguo_49, Ekhein_50, Gorko_49, Sam12_49, RemRem_50
- Track 16 : SteveFrench_49, Diabla_53, RoyalG_50
- Track 17 : Jellybones_52
- Track 18 : Monty_48, Kelzog_51, Squibbles_49
- Track 19 : Worcestershire_50
- Track 20 : BigShaq_50, BenoitCattle_51, PierreThree_50
- Track 21 : Poland_54, Msay19_54
- Track 22 : Beaver_53
- Track 23 : Eggsie_48
- Track 24 : PokyPuppy_49
- Track 25 : GourdThymes_49
- Track 26 : Crete_51
- Track 27 : Breezic_49
- Track 28 : Linetti_51
- Track 29 : Teech_45, Katyusha_44, Benczkowski14_44, Kvothe_44
- Track 30 : Demosthenes_43
- Track 31 : Hollow_45, Niagara_44
- Track 32 : Teatealatte_45, Tredge_45
- Track 33 : Philon9_46, Vitaenoi_46
- Track 34 : ASerpRocky_44
- Track 35 : Phishy_50
- Track 36 : Nyceirae_51

- Track 37 : Ewald_46
- Track 38 : Dogfish_46
- Track 39 : BabyMoney_47
- Track 40 : Manilisa_49
- Track 41 : Vordorf_47
- Track 42 : Meyran_46
- Track 43 : 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 9, it was called in 49 of the 62 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ASerpRocky_44, Adgers_51, Amore2_52, Austin_52, Barbochs_48, Beaver_53, Benczkowski14_44, BenoitCattle_51, BigShaq_50, BirksAndSocks_54, Boneham_53, Breezic_49, Butterball_53, CathyBurgh_49, Chelms_50, Dakiti_51, Demosthenes_43, Diabla_53, Eggsie_48, Ekhein_50, Exiguo_49, FelixAlejandro_54, Flakey_49, GMA7_41, GTE7_40, Gorko_49, GourdThymes_49, HayZem_51, Hollow_45, Hotorobo_49, Jellybones_52, John316_53, Katyusha_44, Kvothe_44, Linetti_51, Lizzo_49, Msay19_54, Niagara_44, Philon9_46, PierreThree_50, PokyPuppy_49, Poland_54, RemRem_50, RoyalG_50, Sam12_49, Sombrero_50, SteveFrench_49, Teatealatte_45, Teech_45, Tredge_45, Vitaenoi_46,

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

- BillyBobJr_55, CinnamonToast_55, Crete_51, Kelzog_51, Monty_48, Squibbles_49, Vordorf_47, Worcestershire_50,

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

- BabyMoney_47, DocB7_038, Dogfish_46, Dorin_11, Ewald_46, Francesca_10, Grayson_31, Manilisa_49, Meyran_46, Nova53_11, Nyceirae_51, Peregrin_29, Phishy_50, Weasels2_31,

Summary by start number:

Start 9:

- Found in 59 of 73 (80.8%) of genes in pham
- Manual Annotations of this start: 49 of 62
- Called 86.4% of time when present
- Phage (with cluster) where this start called: ASerpRocky_44 (CS4), Adgers_51 (CS2), Amore2_52 (CS1), Austin_52 (CS1), Barbochs_48 (CS2), Beaver_53 (CS2), Benczkowski14_44 (CS4), BenoitCattle_51 (CS2), BigShaq_50 (CS2), BirksAndSocks_54 (CS2), Boneham_53 (CS2), Breezic_49 (CS2), Butterball_53 (CS2), CathyBurgh_49 (CS2), Chelms_50 (CS2), Dakiti_51 (CS2), Demosthenes_43 (CS4), Diabla_53 (CS2), Eggsie_48 (CS2), Ekhein_50 (CS2), Exiguo_49 (CS2), FelixAlejandro_54 (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), Jellybones_52 (CS2), John316_53 (CS2), Katyusha_44 (CS4), Kvothe_44 (CS4), Linetti_51 (CS2), Lizzo_49 (CS2), Msay19_54 (CS2), Niagara_44 (CS4), Philon9_46 (CS4), PierreThree_50 (CS2), PokyPuppy_49 (CS2), Poland_54

(CS2), RemRem_50 (CS2), RoyalG_50 (CS2), Sam12_49 (CS2), Sombrero_50 (CS2), SteveFrench_49 (CS2), Teatealatte_45 (CS4), Teech_45 (CS4), Tredge_45 (CS4), Vitaenoi_46 (CS4),

Start 13:

- Found in 55 of 73 (75.3%) of genes in pham
- No Manual Annotations of this start.
- Called 7.3% of time when present
- Phage (with cluster) where this start called: BillyBobJr_55 (CS2), CinnamonToast_55 (CS2), Crete_51 (CS2), Worcestershire_50 (CS2),

Start 15:

- Found in 8 of 73 (11.0%) of genes in pham
- Manual Annotations of this start: 5 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BabyMoney_47 (DT), Dogfish_46 (DT), Ewald_46 (DT), Manilisa_49 (DT), Meyran_46 (DT), Nyceirae_51 (DT), Phishy_50 (DT), Vordorf_47 (DT),

Start 17:

- Found in 2 of 73 (2.7%) of genes in pham
- Manual Annotations of this start: 2 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dorin_11 (CG), Francesca_10 (CG),

Start 18:

- Found in 6 of 73 (8.2%) of genes in pham
- Manual Annotations of this start: 4 of 62
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Grayson_31 (CB), Nova53_11 (CG), Peregrin_29 (CB), Weasels2_31 (CB),

Start 23:

- Found in 41 of 73 (56.2%) of genes in pham
- Manual Annotations of this start: 2 of 62
- Called 7.3% of time when present
- Phage (with cluster) where this start called: Kelzog_51 (CS2), Monty_48 (CS2), Squibbles_49 (CS2),

Start 24:

- Found in 1 of 73 (1.4%) 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: singleton, CB, CG, CS4, DT, CS1, CS2,

Info for manual annotations of cluster CB:

- Start number 18 was manually annotated 3 times for cluster CB.

Info for manual annotations of cluster CG:

- Start number 17 was manually annotated 2 times for cluster CG.
- Start number 18 was manually annotated 1 time for cluster CG.

Info for manual annotations of cluster CS1:

- Start number 9 was manually annotated 3 times for cluster CS1.

Info for manual annotations of cluster CS2:

- Start number 9 was manually annotated 34 times for cluster CS2.
- Start number 23 was manually annotated 2 times for cluster CS2.

Info for manual annotations of cluster CS4:

- Start number 9 was manually annotated 12 times for cluster CS4.

Info for manual annotations of cluster DT:

- Start number 15 was manually annotated 5 times for cluster DT.

Gene Information:

Gene: ASerpRocky_44 Start: 46453, Stop: 45620, Start Num: 9

Candidate Starts for ASerpRocky_44:

(Start: 9 @46453 has 49 MA's), (13, 46426), (25, 46360), (38, 46267), (83, 45925), (93, 45868), (110, 45745), (113, 45706), (117, 45682), (118, 45676),

Gene: Adgers_51 Start: 46251, Stop: 45394, Start Num: 9

Candidate Starts for Adgers_51:

(Start: 9 @46251 has 49 MA's), (13, 46227), (Start: 23 @46173 has 2 MA's), (35, 46098), (41, 46038), (43, 46020), (50, 45981), (52, 45945), (54, 45939), (78, 45768), (86, 45693), (91, 45663), (105, 45576), (112, 45501), (115, 45474), (122, 45414),

Gene: Amore2_52 Start: 46682, Stop: 45783, Start Num: 9

Candidate Starts for Amore2_52:

(5, 46889), (6, 46823), (Start: 9 @46682 has 49 MA's), (13, 46655), (33, 46541), (35, 46535), (48, 46418), (49, 46412), (53, 46370), (65, 46310), (78, 46190), (84, 46127), (93, 46073), (97, 46052), (111, 45941),

Gene: Austin_52 Start: 46682, Stop: 45783, Start Num: 9

Candidate Starts for Austin_52:

(5, 46889), (6, 46823), (Start: 9 @46682 has 49 MA's), (13, 46655), (33, 46541), (35, 46535), (48, 46418), (49, 46412), (53, 46370), (65, 46310), (78, 46190), (84, 46127), (93, 46073), (97, 46052), (111, 45941),

Gene: BabyMoney_47 Start: 35952, Stop: 36758, Start Num: 15

Candidate Starts for BabyMoney_47:

(Start: 15 @35952 has 5 MA's), (27, 36015), (41, 36126), (76, 36393), (82, 36471), (83, 36474), (89, 36504), (90, 36510), (99, 36561), (113, 36687), (120, 36735),

Gene: Barbochs_48 Start: 45995, Stop: 45138, Start Num: 9

Candidate Starts for Barbochs_48:

(Start: 9 @45995 has 49 MA's), (13, 45971), (19, 45932), (Start: 23 @45917 has 2 MA's), (29, 45881), (35, 45842), (41, 45782), (43, 45764), (50, 45725), (52, 45689), (54, 45683), (78, 45512), (86, 45437),

(91, 45407), (105, 45320), (112, 45245), (115, 45218), (122, 45158),

Gene: Beaver_53 Start: 47765, Stop: 46908, Start Num: 9

Candidate Starts for Beaver_53:

(Start: 9 @47765 has 49 MA's), (13, 47741), (19, 47702), (Start: 23 @47687 has 2 MA's), (29, 47651), (35, 47612), (41, 47552), (43, 47534), (50, 47495), (52, 47459), (54, 47453), (78, 47282), (86, 47207), (91, 47177), (105, 47090), (112, 47015), (115, 46988), (122, 46928),

Gene: Benczkowski14_44 Start: 46742, Stop: 45915, Start Num: 9

Candidate Starts for Benczkowski14_44:

(Start: 9 @46742 has 49 MA's), (13, 46715), (25, 46649), (38, 46556), (69, 46343), (83, 46214), (93, 46157), (110, 46034), (113, 45995), (117, 45971), (118, 45965),

Gene: BenoitCattle_51 Start: 46512, Stop: 45652, Start Num: 9

Candidate Starts for BenoitCattle_51:

(Start: 9 @46512 has 49 MA's), (13, 46488), (Start: 23 @46434 has 2 MA's), (29, 46398), (35, 46359), (41, 46299), (43, 46281), (50, 46242), (52, 46206), (54, 46200), (78, 46029), (86, 45954), (91, 45924), (105, 45837), (112, 45762), (115, 45735), (121, 45681), (122, 45675),

Gene: BigShaq_50 Start: 46517, Stop: 45657, Start Num: 9

Candidate Starts for BigShaq_50:

(Start: 9 @46517 has 49 MA's), (13, 46493), (Start: 23 @46439 has 2 MA's), (29, 46403), (35, 46364), (41, 46304), (43, 46286), (50, 46247), (52, 46211), (54, 46205), (78, 46034), (86, 45959), (91, 45929), (105, 45842), (112, 45767), (115, 45740), (121, 45686), (122, 45680),

Gene: BillyBobJr_55 Start: 48051, Stop: 47221, Start Num: 13

Candidate Starts for BillyBobJr_55:

(1, 48342), (3, 48318), (Start: 9 @48075 has 49 MA's), (13, 48051), (Start: 23 @47997 has 2 MA's), (35, 47922), (41, 47862), (43, 47844), (46, 47820), (50, 47805), (52, 47769), (54, 47763), (78, 47595), (81, 47544), (82, 47538), (86, 47520), (105, 47403), (112, 47328), (115, 47301), (116, 47292), (122, 47241),

Gene: BirksAndSocks_54 Start: 48115, Stop: 47258, Start Num: 9

Candidate Starts for BirksAndSocks_54:

(Start: 9 @48115 has 49 MA's), (13, 48091), (19, 48052), (Start: 23 @48037 has 2 MA's), (29, 48001), (35, 47962), (41, 47902), (43, 47884), (50, 47845), (52, 47809), (54, 47803), (78, 47632), (86, 47557), (91, 47527), (105, 47440), (112, 47365), (115, 47338), (122, 47278),

Gene: Boneham_53 Start: 48016, Stop: 47162, Start Num: 9

Candidate Starts for Boneham_53:

(1, 48283), (3, 48259), (Start: 9 @48016 has 49 MA's), (13, 47992), (Start: 23 @47938 has 2 MA's), (35, 47863), (41, 47803), (43, 47785), (46, 47761), (50, 47746), (52, 47710), (54, 47704), (78, 47536), (81, 47485), (82, 47479), (86, 47461), (105, 47344), (112, 47269), (115, 47242), (116, 47233), (122, 47182),

Gene: Breezic_49 Start: 46008, Stop: 45151, Start Num: 9

Candidate Starts for Breezic_49:

(Start: 9 @46008 has 49 MA's), (13, 45984), (19, 45945), (Start: 23 @45930 has 2 MA's), (29, 45894), (35, 45855), (38, 45816), (41, 45795), (43, 45777), (50, 45738), (52, 45702), (54, 45696), (78, 45525), (86, 45450), (91, 45420), (105, 45333), (112, 45258), (115, 45231), (122, 45171),

Gene: Butterball_53 Start: 48021, Stop: 47167, Start Num: 9

Candidate Starts for Butterball_53:

(1, 48288), (3, 48264), (Start: 9 @48021 has 49 MA's), (13, 47997), (Start: 23 @47943 has 2 MA's), (35, 47868), (41, 47808), (43, 47790), (46, 47766), (50, 47751), (52, 47715), (54, 47709), (78, 47541), (81, 47490), (82, 47484), (86, 47466), (105, 47349), (112, 47274), (115, 47247), (116, 47238), (122, 47187),

Gene: CathyBurgh_49 Start: 46585, Stop: 45728, Start Num: 9

Candidate Starts for CathyBurgh_49:

(Start: 9 @46585 has 49 MA's), (13, 46561), (19, 46522), (Start: 23 @46507 has 2 MA's), (29, 46471), (35, 46432), (41, 46372), (43, 46354), (50, 46315), (52, 46279), (54, 46273), (78, 46102), (86, 46027), (91, 45997), (105, 45910), (112, 45835), (115, 45808), (122, 45748),

Gene: Chelms_50 Start: 46517, Stop: 45657, Start Num: 9

Candidate Starts for Chelms_50:

(Start: 9 @46517 has 49 MA's), (13, 46493), (Start: 23 @46439 has 2 MA's), (29, 46403), (35, 46364), (41, 46304), (43, 46286), (50, 46247), (52, 46211), (54, 46205), (78, 46034), (86, 45959), (91, 45929), (105, 45842), (112, 45767), (115, 45740), (121, 45686), (122, 45680),

Gene: CinnamonToast_55 Start: 48051, Stop: 47221, Start Num: 13

Candidate Starts for CinnamonToast_55:

(1, 48342), (3, 48318), (Start: 9 @48075 has 49 MA's), (13, 48051), (Start: 23 @47997 has 2 MA's), (35, 47922), (41, 47862), (43, 47844), (46, 47820), (50, 47805), (52, 47769), (54, 47763), (78, 47595), (81, 47544), (82, 47538), (86, 47520), (105, 47403), (112, 47328), (115, 47301), (116, 47292), (122, 47241),

Gene: Crete_51 Start: 46759, Stop: 45923, Start Num: 13

Candidate Starts for Crete_51:

(Start: 9 @46783 has 49 MA's), (13, 46759), (Start: 23 @46705 has 2 MA's), (29, 46669), (35, 46630), (41, 46570), (43, 46552), (50, 46513), (52, 46477), (54, 46471), (78, 46300), (86, 46225), (91, 46195), (105, 46108), (112, 46033), (115, 46006), (121, 45952), (122, 45946),

Gene: Dakiti_51 Start: 47385, Stop: 46525, Start Num: 9

Candidate Starts for Dakiti_51:

(Start: 9 @47385 has 49 MA's), (13, 47361), (Start: 23 @47307 has 2 MA's), (29, 47271), (35, 47232), (41, 47172), (43, 47154), (50, 47115), (52, 47079), (54, 47073), (78, 46902), (86, 46827), (91, 46797), (105, 46710), (112, 46635), (115, 46608), (121, 46554), (122, 46548),

Gene: Demosthenes_43 Start: 46429, Stop: 45593, Start Num: 9

Candidate Starts for Demosthenes_43:

(Start: 9 @46429 has 49 MA's), (13, 46399), (25, 46333), (38, 46240), (83, 45898), (93, 45841), (95, 45829), (110, 45718), (113, 45679), (117, 45655), (118, 45649),

Gene: Diabla_53 Start: 47946, Stop: 47092, Start Num: 9

Candidate Starts for Diabla_53:

(Start: 9 @47946 has 49 MA's), (13, 47922), (Start: 23 @47868 has 2 MA's), (35, 47790), (43, 47712), (44, 47700), (52, 47637), (54, 47631), (61, 47607), (62, 47601), (78, 47466), (86, 47391), (95, 47337),

Gene: DocB7_038 Start: 38440, Stop: 37679, Start Num: 24

Candidate Starts for DocB7_038:

(7, 38557), (8, 38545), (10, 38518), (24, 38440), (36, 38365), (39, 38329), (41, 38320), (57, 38203), (60, 38182), (63, 38167), (67, 38143), (82, 37975), (87, 37951), (88, 37945), (90, 37936), (94, 37906), (101, 37870), (106, 37834), (118, 37729), (119, 37720), (121, 37690),

Gene: Dogfish_46 Start: 35376, Stop: 36182, Start Num: 15

Candidate Starts for Dogfish_46:

(Start: 15 @35376 has 5 MA's), (27, 35439), (42, 35562), (76, 35817), (83, 35898), (85, 35907), (89, 35928), (90, 35934), (99, 35985), (107, 36039), (112, 36096), (113, 36111), (120, 36159),

Gene: Dorin_11 Start: 5894, Stop: 5211, Start Num: 17

Candidate Starts for Dorin_11:

(Start: 17 @5894 has 2 MA's), (Start: 18 @5888 has 4 MA's), (20, 5876), (28, 5840), (30, 5825), (31, 5816), (64, 5615), (66, 5597), (72, 5561), (73, 5531), (89, 5417), (92, 5399), (103, 5348), (104, 5339), (106, 5318), (108, 5306), (109, 5297), (114, 5237),

Gene: Eggsie_48 Start: 45908, Stop: 45054, Start Num: 9

Candidate Starts for Eggsie_48:

(Start: 9 @45908 has 49 MA's), (13, 45884), (Start: 23 @45830 has 2 MA's), (25, 45818), (35, 45752), (43, 45674), (50, 45635), (52, 45599), (54, 45593), (56, 45584), (78, 45428), (86, 45353), (91, 45323), (95, 45299), (102, 45263),

Gene: Ekhein_50 Start: 45713, Stop: 44856, Start Num: 9

Candidate Starts for Ekhein_50:

(Start: 9 @45713 has 49 MA's), (13, 45689), (19, 45650), (Start: 23 @45635 has 2 MA's), (29, 45599), (35, 45560), (41, 45500), (43, 45482), (50, 45443), (52, 45407), (54, 45401), (78, 45230), (86, 45155), (91, 45125), (105, 45038), (112, 44963), (115, 44936), (122, 44876),

Gene: Ewald_46 Start: 35188, Stop: 35994, Start Num: 15

Candidate Starts for Ewald_46:

(Start: 15 @35188 has 5 MA's), (27, 35251), (38, 35341), (45, 35401), (55, 35473), (57, 35479), (58, 35482), (76, 35629), (82, 35707), (83, 35710), (89, 35740), (90, 35746), (99, 35797), (113, 35923), (120, 35971),

Gene: Exiguo_49 Start: 45725, Stop: 44868, Start Num: 9

Candidate Starts for Exiguo_49:

(Start: 9 @45725 has 49 MA's), (13, 45701), (19, 45662), (Start: 23 @45647 has 2 MA's), (29, 45611), (35, 45572), (41, 45512), (43, 45494), (50, 45455), (52, 45419), (54, 45413), (78, 45242), (86, 45167), (91, 45137), (105, 45050), (112, 44975), (115, 44948), (122, 44888),

Gene: FelixAlejandro_54 Start: 48219, Stop: 47365, Start Num: 9

Candidate Starts for FelixAlejandro_54:

(1, 48486), (3, 48462), (Start: 9 @48219 has 49 MA's), (13, 48195), (Start: 23 @48141 has 2 MA's), (35, 48066), (41, 48006), (43, 47988), (46, 47964), (50, 47949), (52, 47913), (54, 47907), (78, 47739), (81, 47688), (82, 47682), (86, 47664), (105, 47547), (112, 47472), (115, 47445), (116, 47436), (122, 47385),

Gene: Flakey_49 Start: 46589, Stop: 45732, Start Num: 9

Candidate Starts for Flakey_49:

(Start: 9 @46589 has 49 MA's), (13, 46565), (19, 46526), (Start: 23 @46511 has 2 MA's), (29, 46475), (35, 46436), (41, 46376), (43, 46358), (50, 46319), (52, 46283), (54, 46277), (78, 46106), (86, 46031), (91, 46001), (105, 45914), (112, 45839), (115, 45812), (122, 45752),

Gene: Francesca_10 Start: 6016, Stop: 5336, Start Num: 17

Candidate Starts for Francesca_10:

(Start: 17 @6016 has 2 MA's), (Start: 18 @6010 has 4 MA's), (20, 5998), (28, 5962), (30, 5947), (31, 5938), (64, 5737), (66, 5719), (72, 5683), (73, 5653), (89, 5539), (92, 5521), (93, 5512), (104, 5461), (106, 5440), (108, 5428), (109, 5419),

Gene: GMA7_41 Start: 40896, Stop: 39997, Start Num: 9

Candidate Starts for GMA7_41:

(5, 41103), (6, 41037), (Start: 9 @40896 has 49 MA's), (13, 40869), (22, 40821), (33, 40755), (35, 40749), (48, 40632), (49, 40626), (53, 40584), (65, 40524), (78, 40404), (84, 40341), (93, 40287), (97, 40266), (111, 40155),

Gene: GTE7_40 Start: 40927, Stop: 40028, Start Num: 9

Candidate Starts for GTE7_40:

(5, 41134), (6, 41068), (Start: 9 @40927 has 49 MA's), (13, 40900), (22, 40852), (33, 40786), (35, 40780), (48, 40663), (49, 40657), (53, 40615), (65, 40555), (78, 40435), (84, 40372), (93, 40318), (97, 40297), (111, 40186),

Gene: Gorko_49 Start: 45717, Stop: 44860, Start Num: 9

Candidate Starts for Gorko_49:

(Start: 9 @45717 has 49 MA's), (13, 45693), (19, 45654), (Start: 23 @45639 has 2 MA's), (29, 45603), (35, 45564), (41, 45504), (43, 45486), (50, 45447), (52, 45411), (54, 45405), (78, 45234), (86, 45159), (91, 45129), (105, 45042), (112, 44967), (115, 44940), (122, 44880),

Gene: GourdThymes_49 Start: 46591, Stop: 45734, Start Num: 9

Candidate Starts for GourdThymes_49:

(Start: 9 @46591 has 49 MA's), (13, 46567), (19, 46528), (Start: 23 @46513 has 2 MA's), (29, 46477), (41, 46378), (43, 46360), (50, 46321), (54, 46279), (78, 46108), (86, 46033), (91, 46003), (105, 45916), (112, 45841), (115, 45814), (122, 45754),

Gene: Grayson_31 Start: 9328, Stop: 8654, Start Num: 18

Candidate Starts for Grayson_31:

(14, 9352), (16, 9343), (Start: 18 @9328 has 4 MA's), (31, 9262), (32, 9259), (34, 9238), (37, 9205), (50, 9124), (68, 9031), (74, 8977), (79, 8938), (89, 8866), (96, 8824), (97, 8818),

Gene: HayZem_51 Start: 46679, Stop: 45780, Start Num: 9

Candidate Starts for HayZem_51:

(5, 46886), (6, 46820), (Start: 9 @46679 has 49 MA's), (13, 46652), (22, 46604), (33, 46538), (35, 46532), (48, 46415), (49, 46409), (53, 46367), (65, 46307), (78, 46187), (84, 46124), (93, 46070), (97, 46049), (111, 45938),

Gene: Hollow_45 Start: 47078, Stop: 46251, Start Num: 9

Candidate Starts for Hollow_45:

(Start: 9 @47078 has 49 MA's), (13, 47051), (25, 46985), (38, 46892), (69, 46679), (93, 46493), (95, 46481), (110, 46370), (113, 46331), (117, 46307), (118, 46301),

Gene: Hotorobo_49 Start: 46596, Stop: 45739, Start Num: 9

Candidate Starts for Hotorobo_49:

(Start: 9 @46596 has 49 MA's), (13, 46572), (19, 46533), (Start: 23 @46518 has 2 MA's), (29, 46482), (35, 46443), (41, 46383), (43, 46365), (50, 46326), (52, 46290), (54, 46284), (78, 46113), (86, 46038), (91, 46008), (105, 45921), (112, 45846), (115, 45819), (122, 45759),

Gene: Jellybones_52 Start: 47697, Stop: 46843, Start Num: 9

Candidate Starts for Jellybones_52:

(1, 47964), (3, 47940), (Start: 9 @47697 has 49 MA's), (13, 47673), (Start: 23 @47619 has 2 MA's), (35, 47544), (41, 47484), (43, 47466), (46, 47442), (50, 47427), (52, 47391), (54, 47385), (78, 47217), (86, 47142), (105, 47025), (112, 46950), (115, 46923), (122, 46863),

Gene: John316_53 Start: 47754, Stop: 46897, Start Num: 9

Candidate Starts for John316_53:

(Start: 9 @47754 has 49 MA's), (13, 47730), (19, 47691), (Start: 23 @47676 has 2 MA's), (29, 47640), (35, 47601), (41, 47541), (43, 47523), (50, 47484), (52, 47448), (54, 47442), (78, 47271), (86, 47196), (91, 47166), (105, 47079), (112, 47004), (115, 46977), (122, 46917),

Gene: Katyusha_44 Start: 46742, Stop: 45915, Start Num: 9

Candidate Starts for Katyusha_44:

(Start: 9 @46742 has 49 MA's), (13, 46715), (25, 46649), (38, 46556), (69, 46343), (83, 46214), (93, 46157), (110, 46034), (113, 45995), (117, 45971), (118, 45965),

Gene: Kelzog_51 Start: 46525, Stop: 45746, Start Num: 23

Candidate Starts for Kelzog_51:

(Start: 9 @46603 has 49 MA's), (13, 46579), (19, 46540), (Start: 23 @46525 has 2 MA's), (29, 46489), (35, 46450), (41, 46390), (43, 46372), (50, 46333), (52, 46297), (54, 46291), (78, 46120), (86, 46045), (91, 46015), (105, 45928), (112, 45853), (115, 45826), (122, 45766),

Gene: Kvothe_44 Start: 46641, Stop: 45814, Start Num: 9

Candidate Starts for Kvothe_44:

(Start: 9 @46641 has 49 MA's), (13, 46614), (25, 46548), (38, 46455), (69, 46242), (83, 46113), (93, 46056), (110, 45933), (113, 45894), (117, 45870), (118, 45864),

Gene: Linetti_51 Start: 47526, Stop: 46666, Start Num: 9

Candidate Starts for Linetti_51:

(Start: 9 @47526 has 49 MA's), (13, 47502), (Start: 23 @47448 has 2 MA's), (29, 47412), (35, 47373), (41, 47313), (43, 47295), (50, 47256), (52, 47220), (54, 47214), (78, 47043), (86, 46968), (91, 46938), (105, 46851), (115, 46749), (121, 46695), (122, 46689),

Gene: Lizzo_49 Start: 46585, Stop: 45728, Start Num: 9

Candidate Starts for Lizzo_49:

(Start: 9 @46585 has 49 MA's), (13, 46561), (19, 46522), (Start: 23 @46507 has 2 MA's), (29, 46471), (35, 46432), (41, 46372), (43, 46354), (50, 46315), (52, 46279), (54, 46273), (78, 46102), (86, 46027), (91, 45997), (105, 45910), (112, 45835), (115, 45808), (122, 45748),

Gene: Manilisa_49 Start: 36357, Stop: 37163, Start Num: 15

Candidate Starts for Manilisa_49:

(11, 36342), (Start: 15 @36357 has 5 MA's), (27, 36420), (40, 36525), (41, 36531), (59, 36654), (76, 36798), (83, 36879), (89, 36909), (90, 36915), (99, 36966), (113, 37092), (120, 37140),

Gene: Meyran_46 Start: 36292, Stop: 37098, Start Num: 15

Candidate Starts for Meyran_46:

(Start: 15 @36292 has 5 MA's), (27, 36355), (40, 36460), (41, 36466), (76, 36733), (83, 36814), (89, 36844), (90, 36850), (99, 36901), (113, 37027), (120, 37075),

Gene: Monty_48 Start: 45657, Stop: 44878, Start Num: 23

Candidate Starts for Monty_48:

(Start: 9 @45735 has 49 MA's), (13, 45711), (19, 45672), (Start: 23 @45657 has 2 MA's), (29, 45621), (35, 45582), (41, 45522), (43, 45504), (50, 45465), (52, 45429), (54, 45423), (78, 45252), (86, 45177), (91, 45147), (105, 45060), (112, 44985), (115, 44958), (122, 44898),

Gene: Msay19_54 Start: 48208, Stop: 47351, Start Num: 9

Candidate Starts for Msay19_54:

(1, 48475), (3, 48451), (Start: 9 @48208 has 49 MA's), (13, 48184), (Start: 23 @48130 has 2 MA's), (35, 48055), (41, 47995), (43, 47977), (46, 47953), (50, 47938), (52, 47902), (54, 47896), (78, 47725),

(86, 47650), (91, 47620), (105, 47533), (112, 47458), (115, 47431), (122, 47371),

Gene: Niagara_44 Start: 46720, Stop: 45893, Start Num: 9

Candidate Starts for Niagara_44:

(Start: 9 @46720 has 49 MA's), (13, 46693), (25, 46627), (38, 46534), (69, 46321), (93, 46135), (95, 46123), (110, 46012), (113, 45973), (117, 45949), (118, 45943),

Gene: Nova53_11 Start: 6450, Stop: 5779, Start Num: 18

Candidate Starts for Nova53_11:

(Start: 18 @6450 has 4 MA's), (21, 6435), (66, 6159), (70, 6126), (82, 6009), (89, 5976), (90, 5970), (92, 5958), (104, 5898), (106, 5877), (108, 5865), (109, 5856),

Gene: Nyceirae_51 Start: 36282, Stop: 37091, Start Num: 15

Candidate Starts for Nyceirae_51:

(Start: 15 @36282 has 5 MA's), (27, 36345), (41, 36456), (51, 36546), (71, 36669), (76, 36726), (82, 36804), (83, 36807), (89, 36837), (90, 36843), (99, 36894), (100, 36903), (107, 36948), (113, 37020), (120, 37068),

Gene: Peregrin_29 Start: 8642, Stop: 7968, Start Num: 18

Candidate Starts for Peregrin_29:

(14, 8666), (16, 8657), (Start: 18 @8642 has 4 MA's), (31, 8576), (32, 8573), (34, 8552), (37, 8519), (50, 8438), (68, 8345), (74, 8291), (79, 8252), (85, 8201), (89, 8180), (97, 8132), (108, 8060),

Gene: Philon9_46 Start: 47751, Stop: 46924, Start Num: 9

Candidate Starts for Philon9_46:

(Start: 9 @47751 has 49 MA's), (12, 47727), (44, 47514), (75, 47307), (77, 47295), (80, 47256), (87, 47202), (98, 47139), (117, 46980),

Gene: Phishy_50 Start: 37259, Stop: 38065, Start Num: 15

Candidate Starts for Phishy_50:

(Start: 15 @37259 has 5 MA's), (27, 37322), (38, 37412), (55, 37544), (57, 37550), (58, 37553), (76, 37700), (83, 37781), (89, 37811), (90, 37817), (99, 37868), (113, 37994), (120, 38042),

Gene: PierreThree_50 Start: 47263, Stop: 46403, Start Num: 9

Candidate Starts for PierreThree_50:

(Start: 9 @47263 has 49 MA's), (13, 47239), (Start: 23 @47185 has 2 MA's), (29, 47149), (35, 47110), (41, 47050), (43, 47032), (50, 46993), (52, 46957), (54, 46951), (78, 46780), (86, 46705), (91, 46675), (105, 46588), (112, 46513), (115, 46486), (121, 46432), (122, 46426),

Gene: PokyPuppy_49 Start: 47212, Stop: 46361, Start Num: 9

Candidate Starts for PokyPuppy_49:

(2, 47464), (4, 47440), (Start: 9 @47212 has 49 MA's), (19, 47149), (Start: 23 @47134 has 2 MA's), (29, 47098), (35, 47056), (43, 46978), (47, 46951), (52, 46903), (62, 46864), (78, 46729), (86, 46654), (91, 46624), (112, 46462), (115, 46435), (122, 46375),

Gene: Poland_54 Start: 48187, Stop: 47330, Start Num: 9

Candidate Starts for Poland_54:

(1, 48454), (3, 48430), (Start: 9 @48187 has 49 MA's), (13, 48163), (Start: 23 @48109 has 2 MA's), (35, 48034), (41, 47974), (43, 47956), (46, 47932), (50, 47917), (52, 47881), (54, 47875), (78, 47704), (86, 47629), (91, 47599), (105, 47512), (112, 47437), (115, 47410), (122, 47350),

Gene: RemRem_50 Start: 45725, Stop: 44868, Start Num: 9

Candidate Starts for RemRem_50:

(Start: 9 @45725 has 49 MA's), (13, 45701), (19, 45662), (Start: 23 @45647 has 2 MA's), (29, 45611), (35, 45572), (41, 45512), (43, 45494), (50, 45455), (52, 45419), (54, 45413), (78, 45242), (86, 45167), (91, 45137), (105, 45050), (112, 44975), (115, 44948), (122, 44888),

Gene: RoyalG_50 Start: 46557, Stop: 45703, Start Num: 9

Candidate Starts for RoyalG_50:

(Start: 9 @46557 has 49 MA's), (13, 46533), (Start: 23 @46479 has 2 MA's), (35, 46401), (43, 46323), (44, 46311), (52, 46248), (54, 46242), (61, 46218), (62, 46212), (78, 46077), (86, 46002), (95, 45948),

Gene: Sam12_49 Start: 45725, Stop: 44868, Start Num: 9

Candidate Starts for Sam12_49:

(Start: 9 @45725 has 49 MA's), (13, 45701), (19, 45662), (Start: 23 @45647 has 2 MA's), (29, 45611), (35, 45572), (41, 45512), (43, 45494), (50, 45455), (52, 45419), (54, 45413), (78, 45242), (86, 45167), (91, 45137), (105, 45050), (112, 44975), (115, 44948), (122, 44888),

Gene: Sombrero_50 Start: 46098, Stop: 45244, Start Num: 9

Candidate Starts for Sombrero_50:

(1, 46365), (3, 46341), (Start: 9 @46098 has 49 MA's), (13, 46074), (Start: 23 @46020 has 2 MA's), (35, 45945), (41, 45885), (43, 45867), (46, 45843), (50, 45828), (52, 45792), (54, 45786), (78, 45618), (81, 45567), (82, 45561), (86, 45543), (105, 45426), (112, 45351), (115, 45324), (116, 45315), (122, 45264),

Gene: Squibbles_49 Start: 46510, Stop: 45731, Start Num: 23

Candidate Starts for Squibbles_49:

(Start: 9 @46588 has 49 MA's), (13, 46564), (19, 46525), (Start: 23 @46510 has 2 MA's), (29, 46474), (35, 46435), (41, 46375), (43, 46357), (50, 46318), (52, 46282), (54, 46276), (78, 46105), (86, 46030), (91, 46000), (105, 45913), (112, 45838), (115, 45811), (122, 45751),

Gene: SteveFrench_49 Start: 46797, Stop: 45943, Start Num: 9

Candidate Starts for SteveFrench_49:

(Start: 9 @46797 has 49 MA's), (13, 46773), (Start: 23 @46719 has 2 MA's), (35, 46641), (43, 46563), (44, 46551), (52, 46488), (54, 46482), (61, 46458), (62, 46452), (78, 46317), (86, 46242), (95, 46188),

Gene: Teatealatte_45 Start: 46644, Stop: 45817, Start Num: 9

Candidate Starts for Teatealatte_45:

(Start: 9 @46644 has 49 MA's), (13, 46617), (25, 46551), (38, 46458), (69, 46245), (83, 46116), (93, 46059), (110, 45936), (112, 45912), (113, 45897), (118, 45867),

Gene: Teech_45 Start: 46445, Stop: 45618, Start Num: 9

Candidate Starts for Teech_45:

(Start: 9 @46445 has 49 MA's), (13, 46418), (25, 46352), (38, 46259), (69, 46046), (83, 45917), (93, 45860), (110, 45737), (113, 45698), (117, 45674), (118, 45668),

Gene: Tredge_45 Start: 46644, Stop: 45817, Start Num: 9

Candidate Starts for Tredge_45:

(Start: 9 @46644 has 49 MA's), (13, 46617), (25, 46551), (38, 46458), (69, 46245), (83, 46116), (93, 46059), (110, 45936), (112, 45912), (113, 45897), (118, 45867),

Gene: Vitaenoi_46 Start: 47750, Stop: 46923, Start Num: 9

Candidate Starts for Vitaenoi_46:

(Start: 9 @47750 has 49 MA's), (12, 47726), (44, 47513), (75, 47306), (77, 47294), (80, 47255), (87, 47201), (98, 47138), (117, 46979),

Gene: Vordorf_47 Start: 35552, Stop: 36358, Start Num: 15

Candidate Starts for Vordorf_47:

(Start: 9 @35519 has 49 MA's), (Start: 15 @35552 has 5 MA's), (27, 35615), (38, 35705), (55, 35837), (57, 35843), (58, 35846), (76, 35993), (83, 36074), (89, 36104), (90, 36110), (99, 36161), (113, 36287), (120, 36335),

Gene: Weasels2_31 Start: 9643, Stop: 8966, Start Num: 18

Candidate Starts for Weasels2_31:

(Start: 18 @9643 has 4 MA's), (26, 9604), (32, 9574), (34, 9553), (37, 9520), (68, 9346), (74, 9292), (89, 9181),

Gene: Worcestershire_50 Start: 45703, Stop: 44870, Start Num: 13

Candidate Starts for Worcestershire_50:

(Start: 9 @45727 has 49 MA's), (13, 45703), (19, 45664), (Start: 23 @45649 has 2 MA's), (29, 45613), (35, 45574), (41, 45514), (43, 45496), (50, 45457), (54, 45415), (78, 45244), (86, 45169), (91, 45139), (105, 45052), (112, 44977), (115, 44950), (122, 44890),