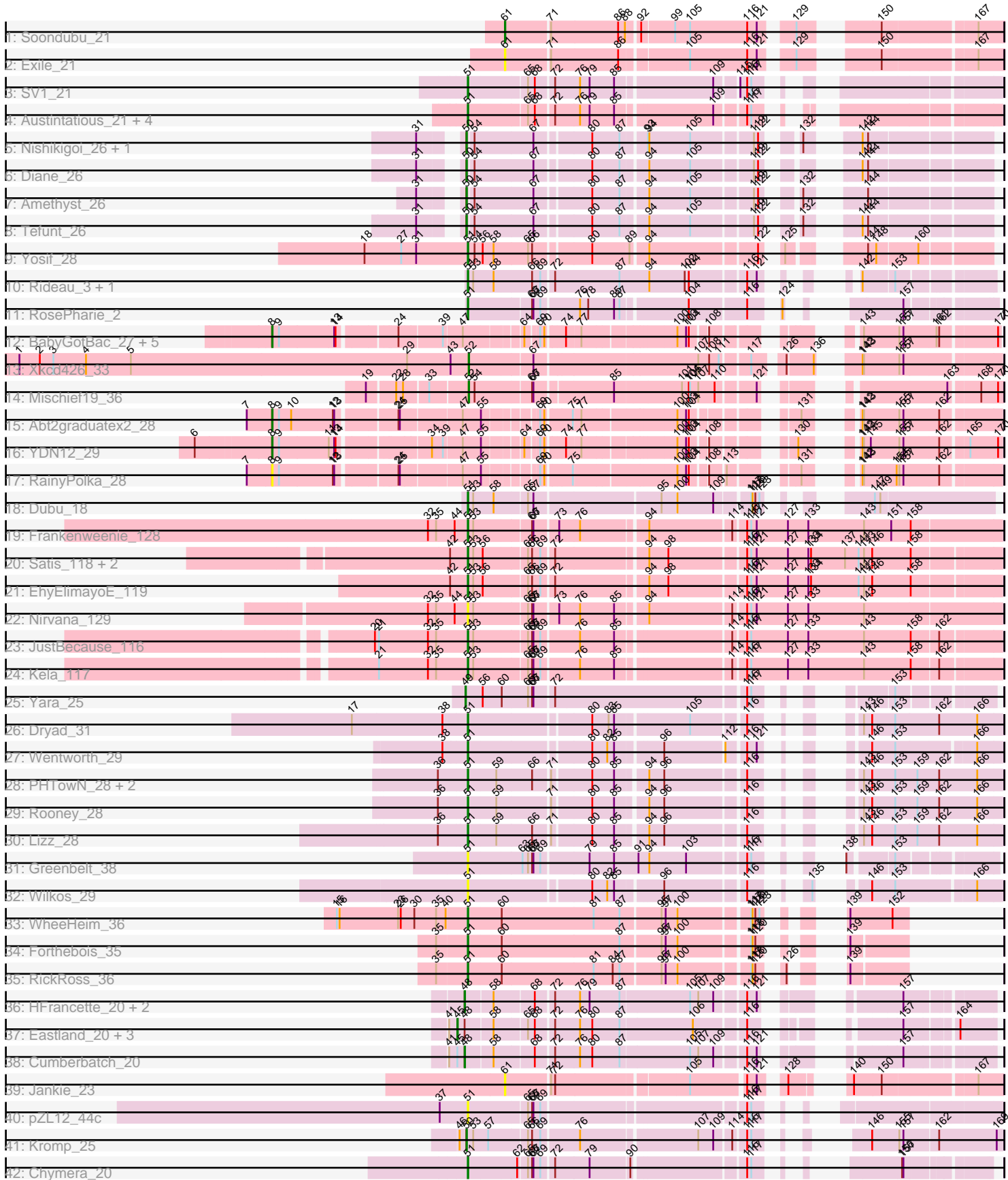


Pham 202945



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 202945 Report

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

Pham number 202945 has 62 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Soondubu_21
- Track 2 : Exile_21
- Track 3 : SV1_21
- Track 4 : Austintatious_21, Ididsumtinwong_21, PapayaSalad_21, Bioscum_21, Lishka_20
- Track 5 : Nishikigoi_26, Haizum_26
- Track 6 : Diane_26
- Track 7 : Amethyst_26
- Track 8 : Tefunt_26
- Track 9 : Yosif_28
- Track 10 : Rideau_3, Dennebes_2
- Track 11 : RosePharie_2
- Track 12 : BabyGotBac_27, Asis_27, BayC_27, TP1604_27, Maih_27, Salete_27
- Track 13 : Xkcd426_33
- Track 14 : Mischief19_36
- Track 15 : Abt2graduatex2_28
- Track 16 : YDN12_29
- Track 17 : RainyPolka_28
- Track 18 : Dubu_18
- Track 19 : Frankenweenie_128
- Track 20 : Satis_118, Quantum_117, Kradal_118
- Track 21 : EhyElimayoE_119
- Track 22 : Nirvana_129
- Track 23 : JustBecause_116
- Track 24 : Kela_117
- Track 25 : Yara_25
- Track 26 : Dryad_31
- Track 27 : Wentworth_29
- Track 28 : PHTown_28, Gibson_28, ShakeNBake_28
- Track 29 : Rooney_28
- Track 30 : Lizz_28
- Track 31 : Greenbelt_38
- Track 32 : Wilkos_29
- Track 33 : WheeHeim_36
- Track 34 : Forthebois_35
- Track 35 : RickRoss_36
- Track 36 : HFrancette_20, Ignacio_20, Vondra_20

- Track 37 : Eastland_20, AxeJC_20, Piccadilly_20, Eklok_20
- Track 38 : Cumberbatch_20
- Track 39 : Jankie_23
- Track 40 : pZL12_44c
- Track 41 : Kromp_25
- Track 42 : Chymera_20

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

The start number called the most often in the published annotations is 51, it was called in 27 of the 53 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Austintatious_21, Bioscum_21, Chymera_20, Dennebes_2, Dryad_31, Dubu_18, EhyElimayoE_119, Forthebois_35, Frankenweenie_128, Gibson_28, Greenbelt_38, Ididsumtinwong_21, JustBecause_116, Kela_117, Kradal_118, Lishka_20, Lizz_28, Nirvana_129, PHTowN_28, PapayaSalad_21, Quantum_117, RickRoss_36, Rideau_3, Rooney_28, RosePharie_2, SV1_21, Satis_118, ShakeNBake_28, Wentworth_29, WheeHeim_36, Wilkos_29, Yosif_28, pZL12_44c,

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

-

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

- Abt2graduatex2_28, Amethyst_26, Asis_27, AxeJC_20, BabyGotBac_27, BayC_27, Cumberbatch_20, Diane_26, Eastland_20, Eklok_20, Exile_21, HFrancette_20, Haizum_26, Ignacio_20, Jankie_23, Kromp_25, Maih_27, Mischief19_36, Nishikigoi_26, Piccadilly_20, RainyPolka_28, Salete_27, Soondubu_21, TP1604_27, Tefunt_26, Vondra_20, Xkcd426_33, YDN12_29, Yara_25,

Summary by start number:

Start 8:

- Found in 9 of 62 (14.5%) of genes in pham
- Manual Annotations of this start: 8 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abt2graduatex2_28 (BG), Asis_27 (BG), BabyGotBac_27 (BG), BayC_27 (BG), Maih_27 (BG), RainyPolka_28 (BG), Salete_27 (BG), TP1604_27 (BG), YDN12_29 (BG),

Start 45:

- Found in 5 of 62 (8.1%) of genes in pham
- Manual Annotations of this start: 4 of 53
- Called 80.0% of time when present
- Phage (with cluster) where this start called: AxeJC_20 (BP), Eastland_20 (BP), Eklok_20 (BP), Piccadilly_20 (BP),

Start 48:

- Found in 8 of 62 (12.9%) of genes in pham
- Manual Annotations of this start: 4 of 53

- Called 50.0% of time when present
- Phage (with cluster) where this start called: Cumberbatch_20 (BP), HFrancette_20 (BP), Ignacio_20 (BP), Vondra_20 (BP),

Start 49:

- Found in 1 of 62 (1.6%) of genes in pham
- Manual Annotations of this start: 1 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yara_25 (BN),

Start 50:

- Found in 6 of 62 (9.7%) of genes in pham
- Manual Annotations of this start: 6 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amethyst_26 (BD2), Diane_26 (BD2), Haizum_26 (BD2), Kromp_25 (singleton), Nishikigoi_26 (BD2), Tefunt_26 (BD2),

Start 51:

- Found in 33 of 62 (53.2%) of genes in pham
- Manual Annotations of this start: 27 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Austintatious_21 (BC3), Bioscum_21 (BC3), Chymera_20 (singleton), Dennebes_2 (BF), Dryad_31 (BN), Dubu_18 (BJ), EhyElimayoE_119 (BM), Forthebois_35 (BO), Frankenweenie_128 (BM), Gibson_28 (BN), Greenbelt_38 (BN), Ididsumtinwong_21 (BC3), JustBecause_116 (BM), Kela_117 (BM), Kradal_118 (BM), Lishka_20 (BC3), Lizz_28 (BN), Nirvana_129 (BM), PHTown_28 (BN), PapayaSalad_21 (BC3), Quantum_117 (BM), RickRoss_36 (BO), Rideau_3 (BF), Rooney_28 (BN), RosePharie_2 (BF), SV1_21 (BC1), Satis_118 (BM), ShakeNBake_28 (BN), Wentworth_29 (BN), WheeHeim_36 (BO), Wilkos_29 (BN), Yosif_28 (BD3), pZL12_44c (singleton),

Start 52:

- Found in 2 of 62 (3.2%) of genes in pham
- Manual Annotations of this start: 2 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mischief19_36 (BG), Xkcd426_33 (BG),

Start 61:

- Found in 3 of 62 (4.8%) of genes in pham
- Manual Annotations of this start: 1 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Exile_21 (AZ), Jankie_23 (FP), Soondubu_21 (AZ),

Summary by clusters:

There are 14 clusters represented in this pham: FP, BF, BG, BM, BN, BO, singleton, BJ, BP, BD3, BD2, AZ, BC1, BC3,

Info for manual annotations of cluster AZ:

- Start number 61 was manually annotated 1 time for cluster AZ.

Info for manual annotations of cluster BC1:

- Start number 51 was manually annotated 1 time for cluster BC1.

Info for manual annotations of cluster BC3:

- Start number 51 was manually annotated 4 times for cluster BC3.

Info for manual annotations of cluster BD2:

- Start number 50 was manually annotated 5 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 51 was manually annotated 1 time for cluster BD3.

Info for manual annotations of cluster BF:

- Start number 51 was manually annotated 2 times for cluster BF.

Info for manual annotations of cluster BG:

- Start number 8 was manually annotated 8 times for cluster BG.
- Start number 52 was manually annotated 2 times for cluster BG.

Info for manual annotations of cluster BJ:

- Start number 51 was manually annotated 1 time for cluster BJ.

Info for manual annotations of cluster BM:

- Start number 51 was manually annotated 7 times for cluster BM.

Info for manual annotations of cluster BN:

- Start number 49 was manually annotated 1 time for cluster BN.
- Start number 51 was manually annotated 7 times for cluster BN.

Info for manual annotations of cluster BO:

- Start number 51 was manually annotated 3 times for cluster BO.

Info for manual annotations of cluster BP:

- Start number 45 was manually annotated 4 times for cluster BP.
- Start number 48 was manually annotated 4 times for cluster BP.

Gene Information:

Gene: Abt2graduatex2_28 Start: 26138, Stop: 27415, Start Num: 8

Candidate Starts for Abt2graduatex2_28:

(7, 26084), (Start: 8 @26138 has 8 MA's), (9, 26153), (10, 26180), (12, 26270), (13, 26273), (24, 26384), (25, 26387), (47, 26510), (55, 26546), (69, 26642), (70, 26651), (75, 26699), (77, 26714), (100, 26900), (103, 26918), (104, 26924), (131, 27077), (142, 27128), (143, 27131), (155, 27209), (157, 27218), (162, 27293),

Gene: Amethyst_26 Start: 21581, Stop: 22531, Start Num: 50

Candidate Starts for Amethyst_26:

(31, 21512), (Start: 50 @21581 has 6 MA's), (54, 21593), (67, 21722), (80, 21833), (87, 21893), (94, 21941), (105, 22031), (119, 22154), (122, 22163), (132, 22208), (144, 22280),

Gene: Asis_27 Start: 25552, Stop: 26814, Start Num: 8

Candidate Starts for Asis_27:

(Start: 8 @25552 has 8 MA's), (9, 25564), (13, 25684), (14, 25687), (24, 25795), (39, 25882), (47, 25921), (64, 26029), (69, 26053), (70, 26062), (74, 26095), (77, 26125), (100, 26302), (103, 26320), (104, 26326), (108, 26356), (143, 26533), (155, 26611), (157, 26620), (161, 26689), (162, 26695), (170, 26809),

Gene: Austintatious_21 Start: 16123, Stop: 17064, Start Num: 51

Candidate Starts for Austintatious_21:

(Start: 51 @16123 has 27 MA's), (65, 16243), (68, 16258), (72, 16294), (76, 16348), (79, 16369), (85, 16423), (109, 16618), (116, 16672), (117, 16681),

Gene: AxeJC_20 Start: 16979, Stop: 17923, Start Num: 45

Candidate Starts for AxeJC_20:

(41, 16961), (Start: 45 @16979 has 4 MA's), (Start: 48 @16994 has 4 MA's), (58, 17048), (65, 17114), (68, 17129), (72, 17165), (76, 17219), (80, 17246), (87, 17306), (106, 17462), (116, 17561), (157, 17750), (164, 17849),

Gene: BabyGotBac_27 Start: 25552, Stop: 26814, Start Num: 8

Candidate Starts for BabyGotBac_27:

(Start: 8 @25552 has 8 MA's), (9, 25564), (13, 25684), (14, 25687), (24, 25795), (39, 25882), (47, 25921), (64, 26029), (69, 26053), (70, 26062), (74, 26095), (77, 26125), (100, 26302), (103, 26320), (104, 26326), (108, 26356), (143, 26533), (155, 26611), (157, 26620), (161, 26689), (162, 26695), (170, 26809),

Gene: BayC_27 Start: 25552, Stop: 26814, Start Num: 8

Candidate Starts for BayC_27:

(Start: 8 @25552 has 8 MA's), (9, 25564), (13, 25684), (14, 25687), (24, 25795), (39, 25882), (47, 25921), (64, 26029), (69, 26053), (70, 26062), (74, 26095), (77, 26125), (100, 26302), (103, 26320), (104, 26326), (108, 26356), (143, 26533), (155, 26611), (157, 26620), (161, 26689), (162, 26695), (170, 26809),

Gene: Bioscum_21 Start: 16159, Stop: 17100, Start Num: 51

Candidate Starts for Bioscum_21:

(Start: 51 @16159 has 27 MA's), (65, 16279), (68, 16294), (72, 16330), (76, 16384), (79, 16405), (85, 16459), (109, 16654), (116, 16708), (117, 16717),

Gene: Chymera_20 Start: 16278, Stop: 17153, Start Num: 51

Candidate Starts for Chymera_20:

(Start: 51 @16278 has 27 MA's), (62, 16380), (65, 16398), (66, 16407), (67, 16410), (69, 16425), (72, 16449), (79, 16524), (90, 16608), (116, 16827), (117, 16836), (156, 16989), (157, 16992),

Gene: Cumberbatch_20 Start: 16995, Stop: 17939, Start Num: 48

Candidate Starts for Cumberbatch_20:

(41, 16962), (Start: 45 @16980 has 4 MA's), (Start: 48 @16995 has 4 MA's), (58, 17049), (68, 17130), (72, 17166), (76, 17220), (80, 17247), (87, 17307), (105, 17457), (107, 17475), (109, 17508), (116, 17562), (121, 17583), (157, 17766),

Gene: Dennebes_2 Start: 2618, Stop: 3529, Start Num: 51

Candidate Starts for Dennebes_2:

(Start: 51 @2618 has 27 MA's), (53, 2630), (58, 2672), (66, 2753), (69, 2771), (72, 2795), (87, 2936), (94, 3002), (102, 3080), (104, 3089), (116, 3197), (121, 3218), (142, 3278), (153, 3344),

Gene: Diane_26 Start: 21914, Stop: 22867, Start Num: 50

Candidate Starts for Diane_26:

(31, 21845), (Start: 50 @21914 has 6 MA's), (54, 21926), (67, 22055), (80, 22166), (87, 22226), (94, 22274), (105, 22364), (119, 22487), (122, 22496), (142, 22604), (144, 22616),

Gene: Dryad_31 Start: 20705, Stop: 21643, Start Num: 51

Candidate Starts for Dryad_31:

(17, 20459), (38, 20657), (Start: 51 @20705 has 27 MA's), (80, 20954), (83, 20990), (85, 21002), (105, 21149), (116, 21251), (143, 21344), (146, 21362), (153, 21413), (162, 21506), (166, 21590),

Gene: Dubu_18 Start: 16543, Stop: 17481, Start Num: 51

Candidate Starts for Dubu_18:

(Start: 51 @16543 has 27 MA's), (53, 16555), (58, 16597), (65, 16663), (67, 16675), (95, 16930), (100, 16960), (109, 17038), (117, 17101), (118, 17104), (120, 17110), (123, 17119), (147, 17227), (149, 17239),

Gene: Eastland_20 Start: 16964, Stop: 17908, Start Num: 45

Candidate Starts for Eastland_20:

(41, 16946), (Start: 45 @16964 has 4 MA's), (Start: 48 @16979 has 4 MA's), (58, 17033), (65, 17099), (68, 17114), (72, 17150), (76, 17204), (80, 17231), (87, 17291), (106, 17447), (116, 17546), (157, 17735), (164, 17834),

Gene: EhyElimayoE_119 Start: 77532, Stop: 78617, Start Num: 51

Candidate Starts for EhyElimayoE_119:

(42, 77493), (Start: 51 @77532 has 27 MA's), (53, 77544), (56, 77562), (65, 77652), (66, 77661), (69, 77679), (72, 77703), (94, 77886), (98, 77928), (116, 78081), (117, 78090), (121, 78102), (127, 78171), (133, 78216), (134, 78222), (141, 78327), (143, 78339), (146, 78357), (158, 78438),

Gene: Eklok_20 Start: 16979, Stop: 17923, Start Num: 45

Candidate Starts for Eklok_20:

(41, 16961), (Start: 45 @16979 has 4 MA's), (Start: 48 @16994 has 4 MA's), (58, 17048), (65, 17114), (68, 17129), (72, 17165), (76, 17219), (80, 17246), (87, 17306), (106, 17462), (116, 17561), (157, 17750), (164, 17849),

Gene: Exile_21 Start: 20646, Stop: 21581, Start Num: 61

Candidate Starts for Exile_21:

(Start: 61 @20646 has 1 MA's), (71, 20739), (86, 20886), (105, 21021), (116, 21147), (121, 21168), (129, 21222), (150, 21342), (167, 21525),

Gene: Forthebois_35 Start: 16763, Stop: 17539, Start Num: 51

Candidate Starts for Forthebois_35:

(35, 16697), (Start: 51 @16763 has 27 MA's), (60, 16832), (87, 17090), (95, 17174), (97, 17183), (100, 17204), (117, 17342), (118, 17345), (120, 17351), (139, 17420),

Gene: Frankenweenie_128 Start: 82432, Stop: 83532, Start Num: 51

Candidate Starts for Frankenweenie_128:

(32, 82351), (35, 82369), (44, 82405), (Start: 51 @82432 has 27 MA's), (53, 82444), (66, 82561), (67, 82564), (73, 82612), (76, 82657), (94, 82786), (114, 82960), (116, 82981), (117, 82990), (121, 83002), (127, 83071), (133, 83116), (143, 83239), (151, 83299), (158, 83338),

Gene: Gibson_28 Start: 19877, Stop: 20806, Start Num: 51

Candidate Starts for Gibson_28:

(36, 19820), (Start: 51 @19877 has 27 MA's), (59, 19937), (66, 20012), (71, 20045), (80, 20126), (85, 20174), (94, 20228), (96, 20261), (116, 20420), (143, 20507), (146, 20525), (153, 20576), (159,

20624), (162, 20669), (166, 20753),

Gene: Greenbelt_38 Start: 19143, Stop: 20069, Start Num: 51

Candidate Starts for Greenbelt_38:

(Start: 51 @19143 has 27 MA's), (63, 19257), (65, 19269), (66, 19278), (67, 19281), (69, 19296), (79, 19395), (85, 19449), (91, 19503), (94, 19527), (103, 19608), (116, 19722), (117, 19731), (138, 19791), (153, 19878),

Gene: HFrancette_20 Start: 17010, Stop: 17954, Start Num: 48

Candidate Starts for HFrancette_20:

(Start: 48 @17010 has 4 MA's), (58, 17064), (68, 17145), (72, 17181), (76, 17235), (79, 17256), (87, 17322), (105, 17472), (107, 17490), (109, 17523), (116, 17577), (121, 17598), (157, 17781),

Gene: Haizum_26 Start: 21588, Stop: 22541, Start Num: 50

Candidate Starts for Haizum_26:

(31, 21519), (Start: 50 @21588 has 6 MA's), (54, 21600), (67, 21729), (80, 21840), (87, 21900), (93, 21945), (94, 21948), (105, 22038), (119, 22161), (122, 22170), (132, 22215), (142, 22278), (144, 22290),

Gene: Ididsumtinwong_21 Start: 16159, Stop: 17100, Start Num: 51

Candidate Starts for Ididsumtinwong_21:

(Start: 51 @16159 has 27 MA's), (65, 16279), (68, 16294), (72, 16330), (76, 16384), (79, 16405), (85, 16459), (109, 16654), (116, 16708), (117, 16717),

Gene: Ignacio_20 Start: 17010, Stop: 17954, Start Num: 48

Candidate Starts for Ignacio_20:

(Start: 48 @17010 has 4 MA's), (58, 17064), (68, 17145), (72, 17181), (76, 17235), (79, 17256), (87, 17322), (105, 17472), (107, 17490), (109, 17523), (116, 17577), (121, 17598), (157, 17781),

Gene: Jankie_23 Start: 18276, Stop: 19181, Start Num: 61

Candidate Starts for Jankie_23:

(Start: 61 @18276 has 1 MA's), (71, 18369), (72, 18378), (105, 18651), (116, 18762), (121, 18783), (128, 18819), (140, 18879), (150, 18939), (167, 19128),

Gene: JustBecause_116 Start: 76599, Stop: 77684, Start Num: 51

Candidate Starts for JustBecause_116:

(20, 76401), (21, 76410), (32, 76518), (35, 76536), (Start: 51 @76599 has 27 MA's), (53, 76611), (65, 76719), (66, 76728), (67, 76731), (69, 76746), (76, 76824), (85, 76899), (114, 77127), (116, 77148), (117, 77157), (127, 77238), (133, 77283), (143, 77406), (158, 77505), (162, 77562),

Gene: Kela_117 Start: 76479, Stop: 77564, Start Num: 51

Candidate Starts for Kela_117:

(21, 76290), (32, 76398), (35, 76416), (Start: 51 @76479 has 27 MA's), (53, 76491), (65, 76599), (66, 76608), (67, 76611), (69, 76626), (76, 76704), (85, 76779), (114, 77007), (116, 77028), (117, 77037), (127, 77118), (133, 77163), (143, 77286), (158, 77385), (162, 77442),

Gene: Kradal_118 Start: 77529, Stop: 78614, Start Num: 51

Candidate Starts for Kradal_118:

(42, 77490), (Start: 51 @77529 has 27 MA's), (53, 77541), (56, 77559), (65, 77649), (66, 77658), (69, 77676), (72, 77700), (94, 77883), (98, 77925), (116, 78078), (117, 78087), (121, 78099), (127, 78168), (133, 78213), (134, 78219), (137, 78294), (141, 78324), (143, 78336), (146, 78354), (158, 78435),

Gene: Kromp_25 Start: 22282, Stop: 23208, Start Num: 50

Candidate Starts for Kromp_25:

(46, 22267), (Start: 50 @22282 has 6 MA's), (53, 22294), (57, 22324), (65, 22402), (66, 22411), (69, 22429), (76, 22507), (107, 22744), (109, 22777), (114, 22810), (116, 22831), (117, 22840), (146, 22933), (155, 22990), (157, 22999), (162, 23071), (169, 23197),

Gene: Lishka_20 Start: 16123, Stop: 17064, Start Num: 51

Candidate Starts for Lishka_20:

(Start: 51 @16123 has 27 MA's), (65, 16243), (68, 16258), (72, 16294), (76, 16348), (79, 16369), (85, 16423), (109, 16618), (116, 16672), (117, 16681),

Gene: Lizz_28 Start: 19686, Stop: 20615, Start Num: 51

Candidate Starts for Lizz_28:

(36, 19629), (Start: 51 @19686 has 27 MA's), (59, 19746), (66, 19821), (71, 19854), (80, 19935), (85, 19983), (94, 20037), (96, 20070), (116, 20229), (143, 20316), (146, 20334), (153, 20385), (159, 20433), (162, 20478), (166, 20562),

Gene: Maih_27 Start: 25551, Stop: 26813, Start Num: 8

Candidate Starts for Maih_27:

(Start: 8 @25551 has 8 MA's), (9, 25563), (13, 25683), (14, 25686), (24, 25794), (39, 25881), (47, 25920), (64, 26028), (69, 26052), (70, 26061), (74, 26094), (77, 26124), (100, 26301), (103, 26319), (104, 26325), (108, 26355), (143, 26532), (155, 26610), (157, 26619), (161, 26688), (162, 26694), (170, 26808),

Gene: Mischief19_36 Start: 37234, Stop: 38199, Start Num: 52

Candidate Starts for Mischief19_36:

(19, 37042), (22, 37096), (28, 37111), (33, 37159), (Start: 52 @37234 has 2 MA's), (54, 37246), (66, 37363), (67, 37366), (85, 37525), (101, 37669), (104, 37684), (105, 37687), (107, 37705), (110, 37741), (121, 37813), (163, 38092), (168, 38152), (170, 38188),

Gene: Nirvana_129 Start: 80829, Stop: 81929, Start Num: 51

Candidate Starts for Nirvana_129:

(32, 80748), (35, 80766), (44, 80802), (Start: 51 @80829 has 27 MA's), (53, 80841), (65, 80949), (66, 80958), (67, 80961), (73, 81009), (76, 81054), (85, 81129), (94, 81183), (114, 81357), (116, 81378), (117, 81387), (121, 81399), (127, 81468), (133, 81513), (143, 81636),

Gene: Nishikigoi_26 Start: 21588, Stop: 22541, Start Num: 50

Candidate Starts for Nishikigoi_26:

(31, 21519), (Start: 50 @21588 has 6 MA's), (54, 21600), (67, 21729), (80, 21840), (87, 21900), (93, 21945), (94, 21948), (105, 22038), (119, 22161), (122, 22170), (132, 22215), (142, 22278), (144, 22290),

Gene: PHTowN_28 Start: 19684, Stop: 20613, Start Num: 51

Candidate Starts for PHTowN_28:

(36, 19627), (Start: 51 @19684 has 27 MA's), (59, 19744), (66, 19819), (71, 19852), (80, 19933), (85, 19981), (94, 20035), (96, 20068), (116, 20227), (143, 20314), (146, 20332), (153, 20383), (159, 20431), (162, 20476), (166, 20560),

Gene: PapayaSalad_21 Start: 16134, Stop: 17075, Start Num: 51

Candidate Starts for PapayaSalad_21:

(Start: 51 @16134 has 27 MA's), (65, 16254), (68, 16269), (72, 16305), (76, 16359), (79, 16380), (85, 16434), (109, 16629), (116, 16683), (117, 16692),

Gene: Piccadilly_20 Start: 16963, Stop: 17907, Start Num: 45

Candidate Starts for Piccadilly_20:

(41, 16945), (Start: 45 @16963 has 4 MA's), (Start: 48 @16978 has 4 MA's), (58, 17032), (65, 17098), (68, 17113), (72, 17149), (76, 17203), (80, 17230), (87, 17290), (106, 17446), (116, 17545), (157, 17734), (164, 17833),

Gene: Quantum_117 Start: 77529, Stop: 78614, Start Num: 51

Candidate Starts for Quantum_117:

(42, 77490), (Start: 51 @77529 has 27 MA's), (53, 77541), (56, 77559), (65, 77649), (66, 77658), (69, 77676), (72, 77700), (94, 77883), (98, 77925), (116, 78078), (117, 78087), (121, 78099), (127, 78168), (133, 78213), (134, 78219), (137, 78294), (141, 78324), (143, 78336), (146, 78354), (158, 78435),

Gene: RainyPolka_28 Start: 26004, Stop: 27281, Start Num: 8

Candidate Starts for RainyPolka_28:

(7, 25950), (Start: 8 @26004 has 8 MA's), (9, 26019), (12, 26136), (13, 26139), (24, 26250), (25, 26253), (47, 26376), (55, 26412), (69, 26508), (70, 26517), (75, 26565), (100, 26766), (103, 26784), (104, 26790), (108, 26820), (113, 26847), (131, 26943), (142, 26994), (143, 26997), (154, 27069), (155, 27075), (157, 27084), (162, 27159),

Gene: RickRoss_36 Start: 16891, Stop: 17667, Start Num: 51

Candidate Starts for RickRoss_36:

(35, 16825), (Start: 51 @16891 has 27 MA's), (60, 16960), (81, 17161), (84, 17203), (87, 17218), (95, 17302), (97, 17311), (100, 17332), (117, 17470), (118, 17473), (120, 17479), (126, 17509), (139, 17548),

Gene: Rideau_3 Start: 2618, Stop: 3529, Start Num: 51

Candidate Starts for Rideau_3:

(Start: 51 @2618 has 27 MA's), (53, 2630), (58, 2672), (66, 2753), (69, 2771), (72, 2795), (87, 2936), (94, 3002), (102, 3080), (104, 3089), (116, 3197), (121, 3218), (142, 3278), (153, 3344),

Gene: Rooney_28 Start: 19874, Stop: 20803, Start Num: 51

Candidate Starts for Rooney_28:

(36, 19817), (Start: 51 @19874 has 27 MA's), (59, 19934), (71, 20042), (80, 20123), (85, 20171), (94, 20225), (96, 20258), (116, 20417), (143, 20504), (146, 20522), (153, 20573), (159, 20621), (162, 20666), (166, 20750),

Gene: RosePharie_2 Start: 2633, Stop: 3526, Start Num: 51

Candidate Starts for RosePharie_2:

(Start: 51 @2633 has 27 MA's), (66, 2762), (67, 2765), (69, 2780), (76, 2858), (78, 2876), (85, 2933), (87, 2945), (104, 3074), (116, 3191), (124, 3230), (157, 3353),

Gene: SV1_21 Start: 16368, Stop: 17315, Start Num: 51

Candidate Starts for SV1_21:

(Start: 51 @16368 has 27 MA's), (65, 16488), (68, 16503), (72, 16539), (76, 16593), (79, 16614), (85, 16668), (109, 16863), (115, 16905), (116, 16917), (117, 16926),

Gene: Salete_27 Start: 25552, Stop: 26814, Start Num: 8

Candidate Starts for Salete_27:

(Start: 8 @25552 has 8 MA's), (9, 25564), (13, 25684), (14, 25687), (24, 25795), (39, 25882), (47, 25921), (64, 26029), (69, 26053), (70, 26062), (74, 26095), (77, 26125), (100, 26302), (103, 26320), (104, 26326), (108, 26356), (143, 26533), (155, 26611), (157, 26620), (161, 26689), (162, 26695), (170, 26809),

Gene: Satis_118 Start: 77525, Stop: 78610, Start Num: 51

Candidate Starts for Satis_118:

(42, 77486), (Start: 51 @77525 has 27 MA's), (53, 77537), (56, 77555), (65, 77645), (66, 77654), (69, 77672), (72, 77696), (94, 77879), (98, 77921), (116, 78074), (117, 78083), (121, 78095), (127, 78164), (133, 78209), (134, 78215), (137, 78290), (141, 78320), (143, 78332), (146, 78350), (158, 78431),

Gene: ShakeNBake_28 Start: 19702, Stop: 20631, Start Num: 51

Candidate Starts for ShakeNBake_28:

(36, 19645), (Start: 51 @19702 has 27 MA's), (59, 19762), (66, 19837), (71, 19870), (80, 19951), (85, 19999), (94, 20053), (96, 20086), (116, 20245), (143, 20332), (146, 20350), (153, 20401), (159, 20449), (162, 20494), (166, 20578),

Gene: Soondubu_21 Start: 20650, Stop: 21585, Start Num: 61

Candidate Starts for Soondubu_21:

(Start: 61 @20650 has 1 MA's), (71, 20743), (86, 20890), (88, 20905), (92, 20926), (99, 20995), (105, 21025), (116, 21151), (121, 21172), (129, 21226), (150, 21346), (167, 21529),

Gene: TP1604_27 Start: 25552, Stop: 26814, Start Num: 8

Candidate Starts for TP1604_27:

(Start: 8 @25552 has 8 MA's), (9, 25564), (13, 25684), (14, 25687), (24, 25795), (39, 25882), (47, 25921), (64, 26029), (69, 26053), (70, 26062), (74, 26095), (77, 26125), (100, 26302), (103, 26320), (104, 26326), (108, 26356), (143, 26533), (155, 26611), (157, 26620), (161, 26689), (162, 26695), (170, 26809),

Gene: Tefunt_26 Start: 21591, Stop: 22544, Start Num: 50

Candidate Starts for Tefunt_26:

(31, 21522), (Start: 50 @21591 has 6 MA's), (54, 21603), (67, 21732), (80, 21843), (87, 21903), (94, 21951), (105, 22041), (119, 22164), (122, 22173), (132, 22218), (142, 22281), (144, 22293),

Gene: Vondra_20 Start: 17009, Stop: 17959, Start Num: 48

Candidate Starts for Vondra_20:

(Start: 48 @17009 has 4 MA's), (58, 17063), (68, 17144), (72, 17180), (76, 17234), (79, 17255), (87, 17321), (105, 17471), (107, 17489), (109, 17522), (116, 17576), (121, 17597), (157, 17786),

Gene: Wentworth_29 Start: 20065, Stop: 20982, Start Num: 51

Candidate Starts for Wentworth_29:

(38, 20017), (Start: 51 @20065 has 27 MA's), (80, 20314), (82, 20347), (85, 20362), (96, 20452), (112, 20578), (116, 20611), (121, 20632), (146, 20716), (153, 20767), (166, 20929),

Gene: WheeHeim_36 Start: 16771, Stop: 17556, Start Num: 51

Candidate Starts for WheeHeim_36:

(15, 16486), (16, 16492), (23, 16621), (26, 16627), (30, 16657), (35, 16705), (40, 16726), (Start: 51 @16771 has 27 MA's), (60, 16840), (81, 17041), (87, 17098), (95, 17182), (97, 17191), (100, 17212), (117, 17350), (118, 17353), (120, 17359), (123, 17368), (139, 17428), (152, 17521),

Gene: Wilkos_29 Start: 19977, Stop: 20894, Start Num: 51

Candidate Starts for Wilkos_29:

(Start: 51 @19977 has 27 MA's), (80, 20226), (82, 20259), (85, 20274), (96, 20364), (116, 20523), (135, 20580), (146, 20628), (153, 20679), (166, 20841),

Gene: Xkcd426_33 Start: 33252, Stop: 34259, Start Num: 52

Candidate Starts for Xkcd426_33:

(1, 32271), (2, 32316), (3, 32346), (4, 32418), (5, 32517), (29, 33123), (43, 33213), (Start: 52 @33252 has 2 MA's), (67, 33384), (107, 33729), (108, 33753), (111, 33774), (117, 33825), (126, 33876), (136,

33930), (142, 33972), (143, 33975), (155, 34053), (157, 34062),

Gene: YDN12_29 Start: 25515, Stop: 26783, Start Num: 8

Candidate Starts for YDN12_29:

(6, 25356), (Start: 8 @25515 has 8 MA's), (9, 25527), (11, 25635), (13, 25647), (14, 25650), (34, 25824), (39, 25845), (47, 25884), (55, 25920), (64, 25992), (69, 26016), (70, 26025), (74, 26058), (77, 26088), (100, 26268), (103, 26286), (104, 26292), (108, 26322), (130, 26439), (142, 26496), (143, 26499), (145, 26514), (155, 26577), (157, 26586), (162, 26661), (165, 26715), (170, 26775),

Gene: Yara_25 Start: 19303, Stop: 20226, Start Num: 49

Candidate Starts for Yara_25:

(Start: 49 @19303 has 1 MA's), (56, 19333), (60, 19372), (65, 19429), (66, 19438), (67, 19441), (72, 19480), (116, 19879), (117, 19888), (153, 20041),

Gene: Yosif_28 Start: 22917, Stop: 23870, Start Num: 51

Candidate Starts for Yosif_28:

(18, 22689), (27, 22770), (31, 22803), (Start: 51 @22917 has 27 MA's), (54, 22932), (56, 22950), (58, 22974), (65, 23049), (66, 23058), (80, 23172), (89, 23250), (94, 23280), (122, 23496), (125, 23517), (144, 23619), (148, 23637), (160, 23721),

Gene: pZL12_44c Start: 32427, Stop: 31489, Start Num: 51

Candidate Starts for pZL12_44c:

(37, 32484), (Start: 51 @32427 has 27 MA's), (65, 32307), (66, 32298), (67, 32295), (69, 32280), (116, 31875), (117, 31866),