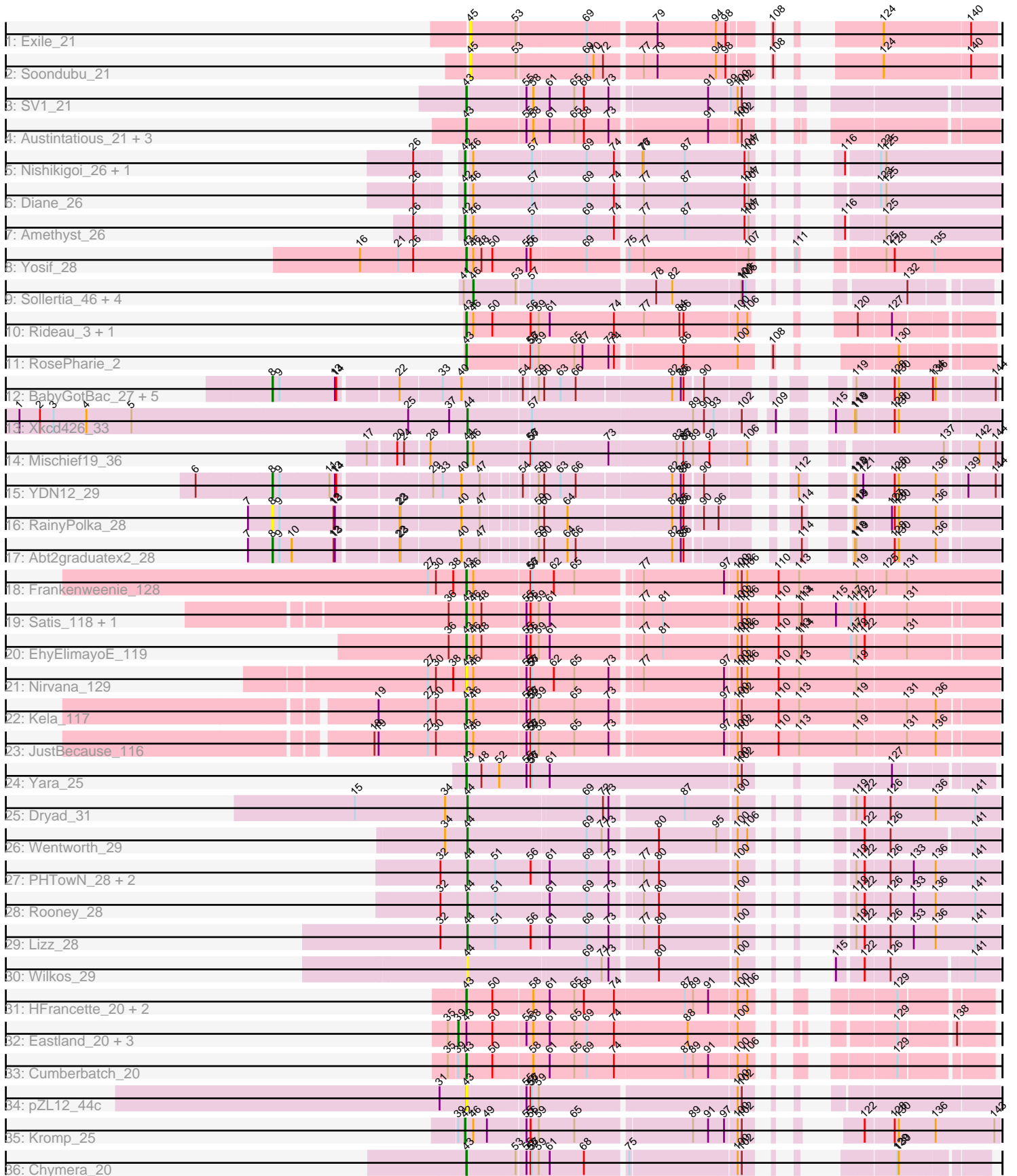


Pham 163631



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 163631 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163631 has 58 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Exile_21
- Track 2 : Soondubu_21
- Track 3 : SV1_21
- Track 4 : Austintatious_21, Ididsumtinwong_21, PapayaSalad_21, Bioscum_21
- Track 5 : Nishikigoi_26, Haizum_26
- Track 6 : Diane_26
- Track 7 : Amethyst_26
- Track 8 : Yosif_28
- Track 9 : Sollertia_46, Genie2_46, Yaboi_46, Stanimal_46, BoomerJR_46
- 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 : YDN12_29
- Track 16 : RainyPolka_28
- Track 17 : Abt2graduatex2_28
- Track 18 : Frankenweenie_128
- Track 19 : Satis_118, Kradal_118
- Track 20 : EhyElimayoE_119
- Track 21 : Nirvana_129
- Track 22 : Kela_117
- Track 23 : JustBecause_116
- Track 24 : Yara_25
- Track 25 : Dryad_31
- Track 26 : Wentworth_29
- Track 27 : PHTowN_28, Gibson_28, ShakeNBake_28
- Track 28 : Rooney_28
- Track 29 : Lizz_28
- Track 30 : Wilkos_29
- Track 31 : HFrancette_20, Ignacio_20, Vondra_20
- Track 32 : Eastland_20, AxeJC_20, Piccadilly_20, Eklok_20
- Track 33 : Cumberbatch_20
- Track 34 : pZL12_44c
- Track 35 : Kromp_25
- Track 36 : 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 43, it was called in 20 of the 51 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Austintatious_21, Bioscum_21, Chymera_20, Cumberbatch_20, Dennebes_2, EhyElimayoE_119, Frankenweenie_128, HFrancette_20, Ididsumtinwong_21, Ignacio_20, JustBecause_116, Kela_117, Kradal_118, Nirvana_129, PapayaSalad_21, Rideau_3, RosePharie_2, SV1_21, Satis_118, Vondra_20, Yara_25, Yosif_28, pZL12_44c,

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

- AxeJC_20, Eastland_20, Eklok_20, Piccadilly_20,

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

- Abt2graduatex2_28, Amethyst_26, Asis_27, BabyGotBac_27, BayC_27, BoomerJR_46, Diane_26, Dryad_31, Exile_21, Genie2_46, Gibson_28, Haizum_26, Kromp_25, Lizz_28, Maih_27, Mischief19_36, Nishikigoi_26, PHTowN_28, RainyPolka_28, Rooney_28, Salete_27, ShakeNBake_28, Sollertia_46, Soondubu_21, Stanimal_46, TP1604_27, Wentworth_29, Wilkos_29, Xkcd426_33, YDN12_29, Yaboi_46,

Summary by start number:

Start 8:

- Found in 9 of 58 (15.5%) of genes in pham
- Manual Annotations of this start: 8 of 51
- 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 39:

- Found in 6 of 58 (10.3%) of genes in pham
- Manual Annotations of this start: 4 of 51
- Called 66.7% of time when present
- Phage (with cluster) where this start called: AxeJC_20 (BP), Eastland_20 (BP), Eklok_20 (BP), Piccadilly_20 (BP),

Start 42:

- Found in 5 of 58 (8.6%) of genes in pham
- Manual Annotations of this start: 5 of 51
- 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),

Start 43:

- Found in 27 of 58 (46.6%) of genes in pham
- Manual Annotations of this start: 20 of 51

- Called 85.2% of time when present
- Phage (with cluster) where this start called: Austintatious_21 (BC3), Bioscum_21 (BC3), Chymera_20 (singleton), Cumberbatch_20 (BP), Dennebes_2 (BF), EhyElimayoE_119 (BM), Frankenweenie_128 (BM), HFrancette_20 (BP), Ididsumtinwong_21 (BC3), Ignacio_20 (BP), JustBecause_116 (BM), Kela_117 (BM), Kradal_118 (BM), Nirvana_129 (BM), PapayaSalad_21 (BC3), Rideau_3 (BF), RosePharie_2 (BF), SV1_21 (BC1), Satis_118 (BM), Vondra_20 (BP), Yara_25 (BN), Yosif_28 (BD3), pZL12_44c (singleton),

Start 44:

- Found in 10 of 58 (17.2%) of genes in pham
- Manual Annotations of this start: 9 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dryad_31 (BN), Gibson_28 (BN), Lizz_28 (BN), Mischief19_36 (BG), PHTowN_28 (BN), Rooney_28 (BN), ShakeNBake_28 (BN), Wentworth_29 (BN), Wilkos_29 (BN), Xkcd426_33 (BG),

Start 45:

- Found in 2 of 58 (3.4%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Exile_21 (AZ), Soondubu_21 (AZ),

Start 46:

- Found in 21 of 58 (36.2%) of genes in pham
- Manual Annotations of this start: 5 of 51
- Called 23.8% of time when present
- Phage (with cluster) where this start called: BoomerJR_46 (BE2), Genie2_46 (BE2), Sollertia_46 (BE2), Stanimal_46 (BE2), Yaboi_46 (BE2),

Summary by clusters:

There are 12 clusters represented in this pham: BF, BG, BM, BN, singleton, BP, BD3, BD2, BE2, AZ, BC1, BC3,

Info for manual annotations of cluster BC1:

- Start number 43 was manually annotated 1 time for cluster BC1.

Info for manual annotations of cluster BC3:

- Start number 43 was manually annotated 4 times for cluster BC3.

Info for manual annotations of cluster BD2:

- Start number 42 was manually annotated 4 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 43 was manually annotated 1 time for cluster BD3.

Info for manual annotations of cluster BE2:

- Start number 46 was manually annotated 5 times for cluster BE2.

Info for manual annotations of cluster BF:

- Start number 43 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 44 was manually annotated 2 times for cluster BG.

Info for manual annotations of cluster BM:

- Start number 43 was manually annotated 6 times for cluster BM.

Info for manual annotations of cluster BN:

- Start number 43 was manually annotated 1 time for cluster BN.
- Start number 44 was manually annotated 7 times for cluster BN.

Info for manual annotations of cluster BP:

- Start number 39 was manually annotated 4 times for cluster BP.
- Start number 43 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), (22, 26384), (23, 26387), (40, 26510), (47, 26546), (59, 26642), (60, 26651), (64, 26699), (66, 26714), (82, 26900), (85, 26918), (86, 26924), (114, 27077), (118, 27128), (119, 27131), (128, 27209), (130, 27218), (136, 27293),

Gene: Amethyst_26 Start: 21581, Stop: 22531, Start Num: 42

Candidate Starts for Amethyst_26:

(26, 21512), (Start: 42 @21581 has 5 MA's), (Start: 46 @21593 has 5 MA's), (57, 21722), (69, 21833), (74, 21893), (77, 21941), (87, 22031), (104, 22154), (107, 22163), (116, 22208), (125, 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), (22, 25795), (33, 25882), (40, 25921), (54, 26029), (59, 26053), (60, 26062), (63, 26095), (66, 26125), (82, 26302), (85, 26320), (86, 26326), (90, 26356), (119, 26533), (128, 26611), (130, 26620), (134, 26689), (136, 26695), (144, 26809),

Gene: Austintatious_21 Start: 16123, Stop: 17064, Start Num: 43

Candidate Starts for Austintatious_21:

(Start: 43 @16123 has 20 MA's), (55, 16243), (58, 16258), (61, 16294), (65, 16348), (68, 16369), (73, 16423), (91, 16618), (100, 16672), (102, 16681),

Gene: AxeJC_20 Start: 16979, Stop: 17923, Start Num: 39

Candidate Starts for AxeJC_20:

(35, 16961), (Start: 39 @16979 has 4 MA's), (Start: 43 @16994 has 20 MA's), (50, 17048), (55, 17114), (58, 17129), (61, 17165), (65, 17219), (69, 17246), (74, 17306), (88, 17462), (100, 17561), (129, 17750), (138, 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), (22, 25795), (33, 25882), (40, 25921), (54, 26029), (59, 26053), (60, 26062), (63, 26095), (66, 26125), (82, 26302), (85, 26320), (86, 26326), (90, 26356), (119, 26533), (128, 26611), (130, 26620), (134, 26689), (136, 26695), (144, 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), (22, 25795), (33, 25882), (40, 25921), (54, 26029), (59, 26053), (60, 26062), (63, 26095), (66, 26125), (82, 26302), (85, 26320), (86, 26326), (90, 26356), (119, 26533), (128, 26611), (130, 26620), (134, 26689), (136, 26695), (144, 26809),

Gene: Bioscum_21 Start: 16159, Stop: 17100, Start Num: 43

Candidate Starts for Bioscum_21:

(Start: 43 @16159 has 20 MA's), (55, 16279), (58, 16294), (61, 16330), (65, 16384), (68, 16405), (73, 16459), (91, 16654), (100, 16708), (102, 16717),

Gene: BoomerJR_46 Start: 21403, Stop: 22296, Start Num: 46

Candidate Starts for BoomerJR_46:

(41, 21382), (Start: 46 @21403 has 5 MA's), (53, 21493), (57, 21523), (78, 21778), (82, 21808), (101, 21949), (103, 21952), (105, 21958), (132, 22138),

Gene: Chymera_20 Start: 16278, Stop: 17153, Start Num: 43

Candidate Starts for Chymera_20:

(Start: 43 @16278 has 20 MA's), (53, 16380), (55, 16398), (56, 16407), (57, 16410), (59, 16425), (61, 16449), (68, 16524), (75, 16608), (100, 16827), (102, 16836), (129, 16989), (130, 16992),

Gene: Cumberbatch_20 Start: 16995, Stop: 17939, Start Num: 43

Candidate Starts for Cumberbatch_20:

(35, 16962), (Start: 39 @16980 has 4 MA's), (Start: 43 @16995 has 20 MA's), (50, 17049), (58, 17130), (61, 17166), (65, 17220), (69, 17247), (74, 17307), (87, 17457), (89, 17475), (91, 17508), (100, 17562), (106, 17583), (129, 17766),

Gene: Dennebes_2 Start: 2618, Stop: 3529, Start Num: 43

Candidate Starts for Dennebes_2:

(Start: 43 @2618 has 20 MA's), (Start: 46 @2630 has 5 MA's), (50, 2672), (56, 2753), (59, 2771), (61, 2795), (74, 2936), (77, 3002), (84, 3080), (86, 3089), (100, 3197), (106, 3218), (120, 3278), (127, 3344),

Gene: Diane_26 Start: 21914, Stop: 22867, Start Num: 42

Candidate Starts for Diane_26:

(26, 21845), (Start: 42 @21914 has 5 MA's), (Start: 46 @21926 has 5 MA's), (57, 22055), (69, 22166), (74, 22226), (77, 22274), (87, 22364), (104, 22487), (107, 22496), (123, 22604), (125, 22616),

Gene: Dryad_31 Start: 20705, Stop: 21643, Start Num: 44

Candidate Starts for Dryad_31:

(15, 20459), (34, 20657), (Start: 44 @20705 has 9 MA's), (69, 20954), (72, 20990), (73, 21002), (87, 21149), (100, 21251), (119, 21344), (122, 21362), (126, 21413), (136, 21506), (141, 21590),

Gene: Eastland_20 Start: 16964, Stop: 17908, Start Num: 39

Candidate Starts for Eastland_20:

(35, 16946), (Start: 39 @16964 has 4 MA's), (Start: 43 @16979 has 20 MA's), (50, 17033), (55, 17099), (58, 17114), (61, 17150), (65, 17204), (69, 17231), (74, 17291), (88, 17447), (100, 17546),

(129, 17735), (138, 17834),

Gene: EhyElimayoE_119 Start: 77532, Stop: 78617, Start Num: 43

Candidate Starts for EhyElimayoE_119:

(36, 77493), (Start: 43 @77532 has 20 MA's), (Start: 46 @77544 has 5 MA's), (48, 77562), (55, 77652), (56, 77661), (59, 77679), (61, 77703), (77, 77886), (81, 77928), (100, 78081), (102, 78090), (106, 78102), (110, 78171), (113, 78216), (114, 78222), (117, 78327), (119, 78339), (122, 78357), (131, 78438),

Gene: Eklok_20 Start: 16979, Stop: 17923, Start Num: 39

Candidate Starts for Eklok_20:

(35, 16961), (Start: 39 @16979 has 4 MA's), (Start: 43 @16994 has 20 MA's), (50, 17048), (55, 17114), (58, 17129), (61, 17165), (65, 17219), (69, 17246), (74, 17306), (88, 17462), (100, 17561), (129, 17750), (138, 17849),

Gene: Exile_21 Start: 20646, Stop: 21581, Start Num: 45

Candidate Starts for Exile_21:

(45, 20646), (53, 20739), (69, 20886), (79, 21021), (94, 21147), (98, 21168), (108, 21222), (124, 21342), (140, 21525),

Gene: Frankenweenie_128 Start: 82432, Stop: 83532, Start Num: 43

Candidate Starts for Frankenweenie_128:

(27, 82351), (30, 82369), (38, 82405), (Start: 43 @82432 has 20 MA's), (Start: 46 @82444 has 5 MA's), (56, 82561), (57, 82564), (62, 82612), (65, 82657), (77, 82786), (97, 82960), (100, 82981), (102, 82990), (106, 83002), (110, 83071), (113, 83116), (119, 83239), (125, 83299), (131, 83338),

Gene: Genie2_46 Start: 21517, Stop: 22410, Start Num: 46

Candidate Starts for Genie2_46:

(41, 21496), (Start: 46 @21517 has 5 MA's), (53, 21607), (57, 21637), (78, 21892), (82, 21922), (101, 22063), (103, 22066), (105, 22072), (132, 22252),

Gene: Gibson_28 Start: 19877, Stop: 20806, Start Num: 44

Candidate Starts for Gibson_28:

(32, 19820), (Start: 44 @19877 has 9 MA's), (51, 19937), (56, 20012), (61, 20045), (69, 20126), (73, 20174), (77, 20228), (80, 20261), (100, 20420), (119, 20507), (122, 20525), (126, 20576), (133, 20624), (136, 20669), (141, 20753),

Gene: HFrancette_20 Start: 17010, Stop: 17954, Start Num: 43

Candidate Starts for HFrancette_20:

(Start: 43 @17010 has 20 MA's), (50, 17064), (58, 17145), (61, 17181), (65, 17235), (68, 17256), (74, 17322), (87, 17472), (89, 17490), (91, 17523), (100, 17577), (106, 17598), (129, 17781),

Gene: Haizum_26 Start: 21588, Stop: 22541, Start Num: 42

Candidate Starts for Haizum_26:

(26, 21519), (Start: 42 @21588 has 5 MA's), (Start: 46 @21600 has 5 MA's), (57, 21729), (69, 21840), (74, 21900), (76, 21945), (77, 21948), (87, 22038), (104, 22161), (107, 22170), (116, 22215), (123, 22278), (125, 22290),

Gene: Ididsumtinwong_21 Start: 16159, Stop: 17100, Start Num: 43

Candidate Starts for Ididsumtinwong_21:

(Start: 43 @16159 has 20 MA's), (55, 16279), (58, 16294), (61, 16330), (65, 16384), (68, 16405), (73, 16459), (91, 16654), (100, 16708), (102, 16717),

Gene: Ignacio_20 Start: 17010, Stop: 17954, Start Num: 43

Candidate Starts for Ignacio_20:

(Start: 43 @17010 has 20 MA's), (50, 17064), (58, 17145), (61, 17181), (65, 17235), (68, 17256), (74, 17322), (87, 17472), (89, 17490), (91, 17523), (100, 17577), (106, 17598), (129, 17781),

Gene: JustBecause_116 Start: 76599, Stop: 77684, Start Num: 43

Candidate Starts for JustBecause_116:

(18, 76401), (19, 76410), (27, 76518), (30, 76536), (Start: 43 @76599 has 20 MA's), (Start: 46 @76611 has 5 MA's), (55, 76719), (56, 76728), (57, 76731), (59, 76746), (65, 76824), (73, 76899), (97, 77127), (100, 77148), (102, 77157), (110, 77238), (113, 77283), (119, 77406), (131, 77505), (136, 77562),

Gene: Kela_117 Start: 76479, Stop: 77564, Start Num: 43

Candidate Starts for Kela_117:

(19, 76290), (27, 76398), (30, 76416), (Start: 43 @76479 has 20 MA's), (Start: 46 @76491 has 5 MA's), (55, 76599), (56, 76608), (57, 76611), (59, 76626), (65, 76704), (73, 76779), (97, 77007), (100, 77028), (102, 77037), (110, 77118), (113, 77163), (119, 77286), (131, 77385), (136, 77442),

Gene: Kradal_118 Start: 77529, Stop: 78614, Start Num: 43

Candidate Starts for Kradal_118:

(36, 77490), (Start: 43 @77529 has 20 MA's), (Start: 46 @77541 has 5 MA's), (48, 77559), (55, 77649), (56, 77658), (59, 77676), (61, 77700), (77, 77883), (81, 77925), (100, 78078), (102, 78087), (106, 78099), (110, 78168), (113, 78213), (114, 78219), (115, 78294), (117, 78324), (119, 78336), (122, 78354), (131, 78435),

Gene: Kromp_25 Start: 22282, Stop: 23208, Start Num: 42

Candidate Starts for Kromp_25:

(Start: 39 @22267 has 4 MA's), (Start: 42 @22282 has 5 MA's), (Start: 46 @22294 has 5 MA's), (49, 22324), (55, 22402), (56, 22411), (59, 22429), (65, 22507), (89, 22744), (91, 22777), (97, 22810), (100, 22831), (102, 22840), (122, 22933), (128, 22990), (130, 22999), (136, 23071), (143, 23197),

Gene: Lizz_28 Start: 19686, Stop: 20615, Start Num: 44

Candidate Starts for Lizz_28:

(32, 19629), (Start: 44 @19686 has 9 MA's), (51, 19746), (56, 19821), (61, 19854), (69, 19935), (73, 19983), (77, 20037), (80, 20070), (100, 20229), (119, 20316), (122, 20334), (126, 20385), (133, 20433), (136, 20478), (141, 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), (22, 25794), (33, 25881), (40, 25920), (54, 26028), (59, 26052), (60, 26061), (63, 26094), (66, 26124), (82, 26301), (85, 26319), (86, 26325), (90, 26355), (119, 26532), (128, 26610), (130, 26619), (134, 26688), (136, 26694), (144, 26808),

Gene: Mischief19_36 Start: 37234, Stop: 38199, Start Num: 44

Candidate Starts for Mischief19_36:

(17, 37042), (20, 37096), (24, 37111), (28, 37159), (Start: 44 @37234 has 9 MA's), (Start: 46 @37246 has 5 MA's), (56, 37363), (57, 37366), (73, 37525), (83, 37669), (86, 37684), (87, 37687), (89, 37705), (92, 37741), (106, 37813), (137, 38092), (142, 38152), (144, 38188),

Gene: Nirvana_129 Start: 80829, Stop: 81929, Start Num: 43

Candidate Starts for Nirvana_129:

(27, 80748), (30, 80766), (38, 80802), (Start: 43 @80829 has 20 MA's), (Start: 46 @80841 has 5 MA's), (55, 80949), (56, 80958), (57, 80961), (62, 81009), (65, 81054), (73, 81129), (77, 81183), (97, 81357), (100, 81378), (102, 81387), (106, 81399), (110, 81468), (113, 81513), (119, 81636),

Gene: Nishikigoi_26 Start: 21588, Stop: 22541, Start Num: 42

Candidate Starts for Nishikigoi_26:

(26, 21519), (Start: 42 @21588 has 5 MA's), (Start: 46 @21600 has 5 MA's), (57, 21729), (69, 21840), (74, 21900), (76, 21945), (77, 21948), (87, 22038), (104, 22161), (107, 22170), (116, 22215), (123, 22278), (125, 22290),

Gene: PHTowN_28 Start: 19684, Stop: 20613, Start Num: 44

Candidate Starts for PHTowN_28:

(32, 19627), (Start: 44 @19684 has 9 MA's), (51, 19744), (56, 19819), (61, 19852), (69, 19933), (73, 19981), (77, 20035), (80, 20068), (100, 20227), (119, 20314), (122, 20332), (126, 20383), (133, 20431), (136, 20476), (141, 20560),

Gene: PapayaSalad_21 Start: 16134, Stop: 17075, Start Num: 43

Candidate Starts for PapayaSalad_21:

(Start: 43 @16134 has 20 MA's), (55, 16254), (58, 16269), (61, 16305), (65, 16359), (68, 16380), (73, 16434), (91, 16629), (100, 16683), (102, 16692),

Gene: Piccadilly_20 Start: 16963, Stop: 17907, Start Num: 39

Candidate Starts for Piccadilly_20:

(35, 16945), (Start: 39 @16963 has 4 MA's), (Start: 43 @16978 has 20 MA's), (50, 17032), (55, 17098), (58, 17113), (61, 17149), (65, 17203), (69, 17230), (74, 17290), (88, 17446), (100, 17545), (129, 17734), (138, 17833),

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), (22, 26250), (23, 26253), (40, 26376), (47, 26412), (59, 26508), (60, 26517), (64, 26565), (82, 26766), (85, 26784), (86, 26790), (90, 26820), (96, 26847), (114, 26943), (118, 26994), (119, 26997), (127, 27069), (128, 27075), (130, 27084), (136, 27159),

Gene: Rideau_3 Start: 2618, Stop: 3529, Start Num: 43

Candidate Starts for Rideau_3:

(Start: 43 @2618 has 20 MA's), (Start: 46 @2630 has 5 MA's), (50, 2672), (56, 2753), (59, 2771), (61, 2795), (74, 2936), (77, 3002), (84, 3080), (86, 3089), (100, 3197), (106, 3218), (120, 3278), (127, 3344),

Gene: Rooney_28 Start: 19874, Stop: 20803, Start Num: 44

Candidate Starts for Rooney_28:

(32, 19817), (Start: 44 @19874 has 9 MA's), (51, 19934), (61, 20042), (69, 20123), (73, 20171), (77, 20225), (80, 20258), (100, 20417), (119, 20504), (122, 20522), (126, 20573), (133, 20621), (136, 20666), (141, 20750),

Gene: RosePharie_2 Start: 2633, Stop: 3526, Start Num: 43

Candidate Starts for RosePharie_2:

(Start: 43 @2633 has 20 MA's), (56, 2762), (57, 2765), (59, 2780), (65, 2858), (67, 2876), (73, 2933), (74, 2945), (86, 3074), (100, 3191), (108, 3230), (130, 3353),

Gene: SV1_21 Start: 16368, Stop: 17315, Start Num: 43

Candidate Starts for SV1_21:

(Start: 43 @16368 has 20 MA's), (55, 16488), (58, 16503), (61, 16539), (65, 16593), (68, 16614), (73, 16668), (91, 16863), (99, 16905), (100, 16917), (102, 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), (22, 25795), (33, 25882), (40, 25921), (54, 26029), (59, 26053), (60, 26062), (63, 26095), (66, 26125), (82, 26302), (85, 26320), (86, 26326), (90, 26356), (119, 26533), (128, 26611), (130, 26620), (134, 26689), (136, 26695), (144, 26809),

Gene: Satis_118 Start: 77525, Stop: 78610, Start Num: 43

Candidate Starts for Satis_118:

(36, 77486), (Start: 43 @77525 has 20 MA's), (Start: 46 @77537 has 5 MA's), (48, 77555), (55, 77645), (56, 77654), (59, 77672), (61, 77696), (77, 77879), (81, 77921), (100, 78074), (102, 78083), (106, 78095), (110, 78164), (113, 78209), (114, 78215), (115, 78290), (117, 78320), (119, 78332), (122, 78350), (131, 78431),

Gene: ShakeNBake_28 Start: 19702, Stop: 20631, Start Num: 44

Candidate Starts for ShakeNBake_28:

(32, 19645), (Start: 44 @19702 has 9 MA's), (51, 19762), (56, 19837), (61, 19870), (69, 19951), (73, 19999), (77, 20053), (80, 20086), (100, 20245), (119, 20332), (122, 20350), (126, 20401), (133, 20449), (136, 20494), (141, 20578),

Gene: Sollertia_46 Start: 21517, Stop: 22410, Start Num: 46

Candidate Starts for Sollertia_46:

(41, 21496), (Start: 46 @21517 has 5 MA's), (53, 21607), (57, 21637), (78, 21892), (82, 21922), (101, 22063), (103, 22066), (105, 22072), (132, 22252),

Gene: Soondubu_21 Start: 20650, Stop: 21585, Start Num: 45

Candidate Starts for Soondubu_21:

(45, 20650), (53, 20743), (69, 20890), (70, 20905), (72, 20926), (77, 20995), (79, 21025), (94, 21151), (98, 21172), (108, 21226), (124, 21346), (140, 21529),

Gene: Stanimal_46 Start: 21406, Stop: 22299, Start Num: 46

Candidate Starts for Stanimal_46:

(41, 21385), (Start: 46 @21406 has 5 MA's), (53, 21496), (57, 21526), (78, 21781), (82, 21811), (101, 21952), (103, 21955), (105, 21961), (132, 22141),

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), (22, 25795), (33, 25882), (40, 25921), (54, 26029), (59, 26053), (60, 26062), (63, 26095), (66, 26125), (82, 26302), (85, 26320), (86, 26326), (90, 26356), (119, 26533), (128, 26611), (130, 26620), (134, 26689), (136, 26695), (144, 26809),

Gene: Vondra_20 Start: 17009, Stop: 17959, Start Num: 43

Candidate Starts for Vondra_20:

(Start: 43 @17009 has 20 MA's), (50, 17063), (58, 17144), (61, 17180), (65, 17234), (68, 17255), (74, 17321), (87, 17471), (89, 17489), (91, 17522), (100, 17576), (106, 17597), (129, 17786),

Gene: Wentworth_29 Start: 20065, Stop: 20982, Start Num: 44

Candidate Starts for Wentworth_29:

(34, 20017), (Start: 44 @20065 has 9 MA's), (69, 20314), (71, 20347), (73, 20362), (80, 20452), (95, 20578), (100, 20611), (106, 20632), (122, 20716), (126, 20767), (141, 20929),

Gene: Wilkos_29 Start: 19977, Stop: 20894, Start Num: 44

Candidate Starts for Wilkos_29:

(Start: 44 @19977 has 9 MA's), (69, 20226), (71, 20259), (73, 20274), (80, 20364), (100, 20523), (115, 20580), (122, 20628), (126, 20679), (141, 20841),

Gene: Xkcd426_33 Start: 33252, Stop: 34259, Start Num: 44

Candidate Starts for Xkcd426_33:

(1, 32271), (2, 32316), (3, 32346), (4, 32418), (5, 32517), (25, 33123), (37, 33213), (Start: 44 @33252 has 9 MA's), (57, 33384), (89, 33729), (90, 33753), (93, 33774), (102, 33825), (109, 33876), (115, 33930), (118, 33972), (119, 33975), (128, 34053), (130, 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), (29, 25824), (33, 25845), (40, 25884), (47, 25920), (54, 25992), (59, 26016), (60, 26025), (63, 26058), (66, 26088), (82, 26268), (85, 26286), (86, 26292), (90, 26322), (112, 26439), (118, 26496), (119, 26499), (121, 26514), (128, 26577), (130, 26586), (136, 26661), (139, 26715), (144, 26775),

Gene: Yaboi_46 Start: 21494, Stop: 22387, Start Num: 46

Candidate Starts for Yaboi_46:

(41, 21473), (Start: 46 @21494 has 5 MA's), (53, 21584), (57, 21614), (78, 21869), (82, 21899), (101, 22040), (103, 22043), (105, 22049), (132, 22229),

Gene: Yara_25 Start: 19303, Stop: 20226, Start Num: 43

Candidate Starts for Yara_25:

(Start: 43 @19303 has 20 MA's), (48, 19333), (52, 19372), (55, 19429), (56, 19438), (57, 19441), (61, 19480), (100, 19879), (102, 19888), (127, 20041),

Gene: Yosif_28 Start: 22917, Stop: 23870, Start Num: 43

Candidate Starts for Yosif_28:

(16, 22689), (21, 22770), (26, 22803), (Start: 43 @22917 has 20 MA's), (Start: 46 @22932 has 5 MA's), (48, 22950), (50, 22974), (55, 23049), (56, 23058), (69, 23172), (75, 23250), (77, 23280), (107, 23496), (111, 23517), (125, 23619), (128, 23637), (135, 23721),

Gene: pZL12_44c Start: 32427, Stop: 31489, Start Num: 43

Candidate Starts for pZL12_44c:

(31, 32484), (Start: 43 @32427 has 20 MA's), (55, 32307), (56, 32298), (57, 32295), (59, 32280), (100, 31875), (102, 31866),