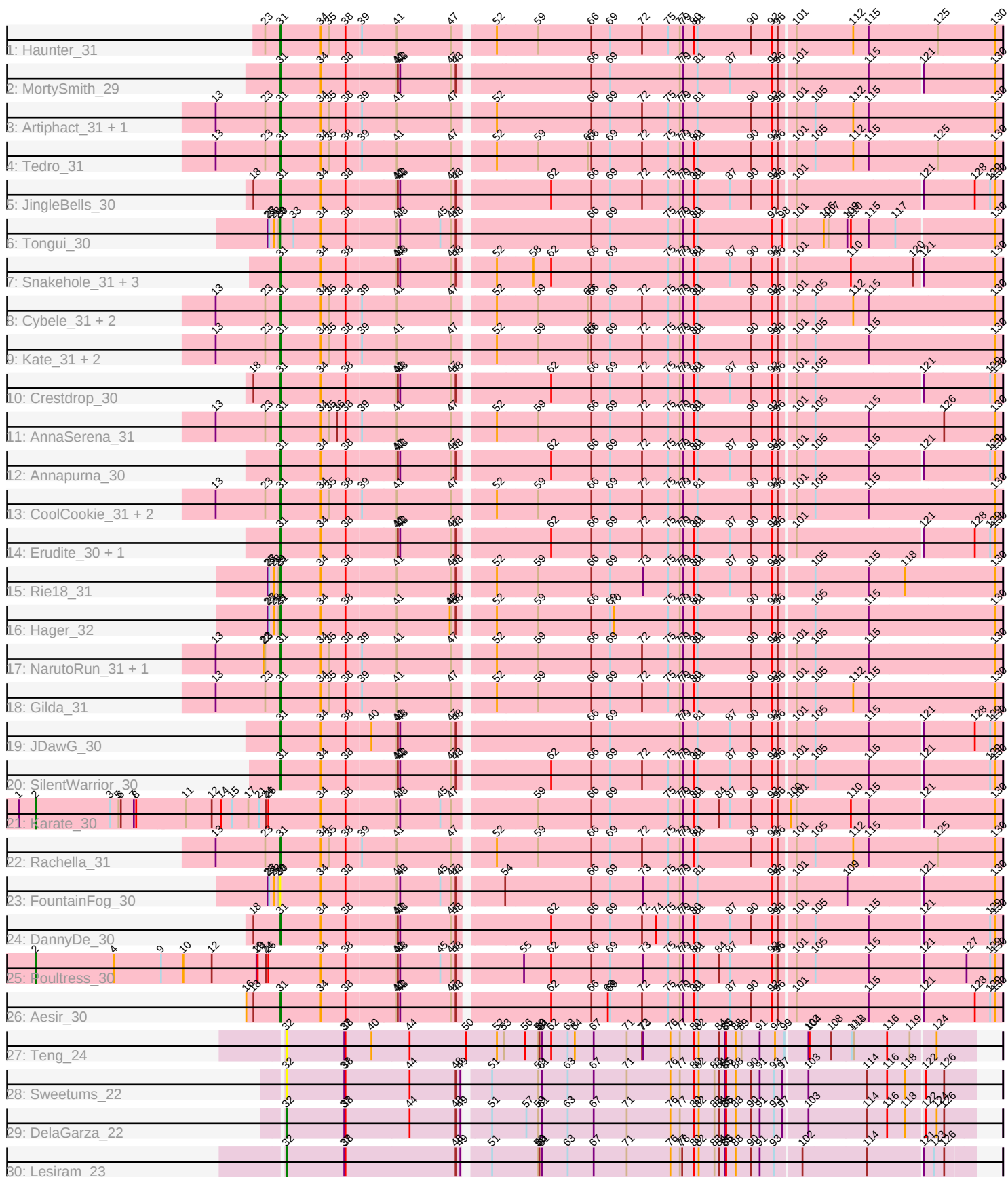


Pham 280598



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 280598 Report

This analysis was run 02/07/26 on database version 634.

Pham number 280598 has 42 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Haunter_31
- Track 2 : MortySmith_29
- Track 3 : Artiphact_31, Pharpay_31
- Track 4 : Tedro_31
- Track 5 : JingleBells_30
- Track 6 : Tongui_30
- Track 7 : Snakehole_31, Chivey_30, Hiddenleaf_30, FreddieHg_30
- Track 8 : Cybele_31, Neptune_31, PhunaPhoke_31
- Track 9 : Kate_31, OverHedge_31, OhDear_31
- Track 10 : Crestdrop_30
- Track 11 : AnnaSerena_31
- Track 12 : Annapurna_30
- Track 13 : CoolCookie_31, Potty_31, Krampus_31
- Track 14 : Erudite_30, Dauntless_30
- Track 15 : Rie18_31
- Track 16 : Hager_32
- Track 17 : NarutoRun_31, Anakin_31
- Track 18 : Gilda_31
- Track 19 : JDawG_30
- Track 20 : SilentWarrior_30
- Track 21 : Karate_30
- Track 22 : Rachella_31
- Track 23 : FountainFog_30
- Track 24 : DannyDe_30
- Track 25 : Poultress_30
- Track 26 : Aesir_30
- Track 27 : Teng_24
- Track 28 : Sweetums_22
- Track 29 : DelaGarza_22
- Track 30 : Lesiram_23

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

The start number called the most often in the published annotations is 31, it was called in 31 of the 36 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aesir_30, Anakin_31, AnnaSerena_31, Annapurna_30, Artiphact_31, Chivey_30, CoolCookie_31, Crestdrop_30, Cybele_31, DannyDe_30, Dauntless_30, Erudite_30, FreddieHg_30, Gilda_31, Hager_32, Haunter_31, Hiddenleaf_30, JDawG_30, JingleBells_30, Kate_31, Krampus_31, MortySmith_29, NarutoRun_31, Neptune_31, OhDear_31, OverHedge_31, Pharpay_31, PhunaPhoke_31, Potty_31, Rachella_31, Rie18_31, SilentWarrior_30, Snakehole_31, Tedro_31,

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

-

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

- DelaGarza_22, FountainFog_30, Karate_30, Lesiram_23, Poultress_30, Sweetums_22, Teng_24, Tongui_30,

Summary by start number:

Start 2:

- Found in 2 of 42 (4.8%) of genes in pham
- Manual Annotations of this start: 2 of 36
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Karate_30 (EF), Poultress_30 (EF),

Start 30:

- Found in 2 of 42 (4.8%) of genes in pham
- Manual Annotations of this start: 1 of 36
- Called 100.0% of time when present
- Phage (with cluster) where this start called: FountainFog_30 (EF), Tongui_30 (EF),

Start 31:

- Found in 34 of 42 (81.0%) of genes in pham
- Manual Annotations of this start: 31 of 36
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aesir_30 (EF), Anakin_31 (EF), AnnaSerena_31 (EF), Annapurna_30 (EF), Artiphact_31 (EF), Chivey_30 (EF), CoolCookie_31 (EF), Crestdrop_30 (EF), Cybele_31 (EF), DannyDe_30 (EF), Dauntless_30 (EF), Erudite_30 (EF), FreddieHg_30 (EF), Gilda_31 (EF), Hager_32 (EF), Haunter_31 (EF), Hiddenleaf_30 (EF), JDawG_30 (EF), JingleBells_30 (EF), Kate_31 (EF), Krampus_31 (EF), MortySmith_29 (EF), NarutoRun_31 (EF), Neptune_31 (EF), OhDear_31 (EF), OverHedge_31 (EF), Pharpay_31 (EF), PhunaPhoke_31 (EF), Potty_31 (EF), Rachella_31 (EF), Rie18_31 (EF), SilentWarrior_30 (EF), Snakehole_31 (EF), Tedro_31 (EF),

Start 32:

- Found in 4 of 42 (9.5%) of genes in pham
- Manual Annotations of this start: 2 of 36
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DelaGarza_22 (GF), Lesiram_23 (GF), Sweetums_22 (GF), Teng_24 (GF),

Summary by clusters:

There are 2 clusters represented in this pham: GF, EF,

Info for manual annotations of cluster EF:

- Start number 2 was manually annotated 2 times for cluster EF.
- Start number 30 was manually annotated 1 time for cluster EF.
- Start number 31 was manually annotated 31 times for cluster EF.

Info for manual annotations of cluster GF:

- Start number 32 was manually annotated 2 times for cluster GF.

Gene Information:

Gene: Aesir_30 Start: 18424, Stop: 20193, Start Num: 31

Candidate Starts for Aesir_30:

(16, 18337), (18, 18355), (Start: 31 @18424 has 31 MA's), (34, 18526), (38, 18589), (41, 18712), (42, 18715), (43, 18721), (47, 18850), (48, 18862), (62, 19075), (66, 19177), (68, 19219), (69, 19225), (72, 19306), (75, 19372), (77, 19402), (79, 19411), (80, 19438), (81, 19447), (87, 19528), (90, 19582), (92, 19633), (96, 19648), (101, 19684), (115, 19867), (121, 19996), (128, 20122), (129, 20161), (130, 20173),

Gene: Anakin_31 Start: 18678, Stop: 20456, Start Num: 31

Candidate Starts for Anakin_31:

(13, 18513), (22, 18636), (23, 18639), (Start: 31 @18678 has 31 MA's), (34, 18780), (35, 18801), (38, 18843), (39, 18879), (41, 18966), (47, 19104), (52, 19194), (59, 19296), (66, 19431), (69, 19479), (72, 19560), (75, 19626), (77, 19656), (79, 19665), (80, 19692), (81, 19701), (90, 19836), (92, 19887), (96, 19902), (101, 19938), (105, 19986), (115, 20121), (130, 20436),

Gene: AnnaSerena_31 Start: 18687, Stop: 20465, Start Num: 31

Candidate Starts for AnnaSerena_31:

(13, 18522), (23, 18648), (Start: 31 @18687 has 31 MA's), (34, 18789), (35, 18810), (36, 18831), (38, 18852), (39, 18888), (41, 18975), (47, 19113), (52, 19203), (59, 19305), (66, 19440), (69, 19488), (72, 19569), (75, 19635), (77, 19665), (79, 19674), (80, 19701), (81, 19710), (90, 19845), (92, 19896), (96, 19911), (101, 19947), (105, 19995), (115, 20130), (126, 20316), (130, 20445),

Gene: Annapurna_30 Start: 17886, Stop: 19655, Start Num: 31

Candidate Starts for Annapurna_30:

(Start: 31 @17886 has 31 MA's), (34, 17988), (38, 18051), (41, 18174), (42, 18177), (43, 18183), (47, 18312), (48, 18324), (62, 18537), (66, 18639), (69, 18687), (72, 18768), (75, 18834), (77, 18864), (79, 18873), (80, 18900), (81, 18909), (87, 18990), (90, 19044), (92, 19095), (96, 19110), (101, 19146), (105, 19194), (115, 19329), (121, 19458), (129, 19623), (130, 19635),

Gene: Artiphact_31 Start: 18679, Stop: 20457, Start Num: 31

Candidate Starts for Artiphact_31:

(13, 18514), (23, 18640), (Start: 31 @18679 has 31 MA's), (34, 18781), (35, 18802), (38, 18844), (39, 18880), (41, 18967), (47, 19105), (52, 19195), (66, 19432), (69, 19480), (72, 19561), (75, 19627), (77, 19657), (79, 19666), (81, 19702), (90, 19837), (92, 19888), (96, 19903), (101, 19939), (105, 19987), (112, 20083), (115, 20122), (130, 20437),

Gene: Chivey_30 Start: 17840, Stop: 19609, Start Num: 31

Candidate Starts for Chivey_30:

(Start: 31 @17840 has 31 MA's), (34, 17942), (38, 18005), (41, 18128), (42, 18131), (43, 18137), (47, 18266), (48, 18278), (52, 18356), (58, 18446), (62, 18491), (66, 18593), (69, 18641), (75, 18788), (77, 18818), (79, 18827), (80, 18854), (81, 18863), (87, 18944), (90, 18998), (92, 19049), (96, 19064), (101, 19100), (110, 19238), (120, 19394), (121, 19412), (130, 19589),

Gene: CoolCookie_31 Start: 18685, Stop: 20463, Start Num: 31

Candidate Starts for CoolCookie_31:

(13, 18520), (23, 18646), (Start: 31 @18685 has 31 MA's), (34, 18787), (35, 18808), (38, 18850), (39, 18886), (41, 18973), (47, 19111), (52, 19201), (59, 19303), (66, 19438), (69, 19486), (72, 19567), (75, 19633), (77, 19663), (79, 19672), (81, 19708), (90, 19843), (92, 19894), (96, 19909), (101, 19945), (105, 19993), (115, 20128), (130, 20443),

Gene: Crestdrop_30 Start: 17749, Stop: 19518, Start Num: 31

Candidate Starts for Crestdrop_30:

(18, 17680), (Start: 31 @17749 has 31 MA's), (34, 17851), (38, 17914), (41, 18037), (42, 18040), (43, 18046), (47, 18175), (48, 18187), (62, 18400), (66, 18502), (69, 18550), (72, 18631), (75, 18697), (77, 18727), (79, 18736), (80, 18763), (81, 18772), (87, 18853), (90, 18907), (92, 18958), (96, 18973), (101, 19009), (105, 19057), (121, 19321), (129, 19486), (130, 19498),

Gene: Cybele_31 Start: 18655, Stop: 20433, Start Num: 31

Candidate Starts for Cybele_31:

(13, 18490), (23, 18616), (Start: 31 @18655 has 31 MA's), (34, 18757), (35, 18778), (38, 18820), (39, 18856), (41, 18943), (47, 19081), (52, 19171), (59, 19273), (65, 19399), (66, 19408), (69, 19456), (72, 19537), (75, 19603), (77, 19633), (79, 19642), (80, 19669), (81, 19678), (90, 19813), (92, 19864), (96, 19879), (101, 19915), (105, 19963), (112, 20059), (115, 20098), (130, 20413),

Gene: DannyDe_30 Start: 17832, Stop: 19601, Start Num: 31

Candidate Starts for DannyDe_30:

(18, 17763), (Start: 31 @17832 has 31 MA's), (34, 17934), (38, 17997), (41, 18120), (42, 18123), (43, 18129), (47, 18258), (48, 18270), (62, 18483), (66, 18585), (69, 18633), (72, 18714), (74, 18750), (75, 18780), (77, 18810), (79, 18819), (80, 18846), (81, 18855), (87, 18936), (90, 18990), (92, 19041), (96, 19056), (101, 19092), (105, 19140), (115, 19275), (121, 19404), (129, 19569), (130, 19581),

Gene: Dauntless_30 Start: 18392, Stop: 20161, Start Num: 31

Candidate Starts for Dauntless_30:

(Start: 31 @18392 has 31 MA's), (34, 18494), (38, 18557), (41, 18680), (42, 18683), (43, 18689), (47, 18818), (48, 18830), (62, 19043), (66, 19145), (69, 19193), (72, 19274), (75, 19340), (77, 19370), (79, 19379), (80, 19406), (81, 19415), (87, 19496), (90, 19550), (92, 19601), (96, 19616), (101, 19652), (121, 19964), (128, 20090), (129, 20129), (130, 20141),

Gene: DelaGarza_22 Start: 15128, Stop: 16816, Start Num: 32

Candidate Starts for DelaGarza_22:

(Start: 32 @15128 has 2 MA's), (37, 15275), (38, 15278), (44, 15440), (48, 15557), (49, 15569), (51, 15623), (57, 15710), (59, 15740), (61, 15749), (63, 15815), (67, 15881), (71, 15965), (76, 16073), (77, 16097), (80, 16133), (82, 16145), (83, 16181), (84, 16193), (85, 16208), (86, 16211), (88, 16235), (90, 16274), (91, 16295), (93, 16331), (97, 16352), (103, 16409), (114, 16556), (116, 16607), (118, 16652), (122, 16697), (124, 16721), (126, 16739),

Gene: Erudite_30 Start: 18392, Stop: 20161, Start Num: 31

Candidate Starts for Erudite_30:

(Start: 31 @18392 has 31 MA's), (34, 18494), (38, 18557), (41, 18680), (42, 18683), (43, 18689), (47, 18818), (48, 18830), (62, 19043), (66, 19145), (69, 19193), (72, 19274), (75, 19340), (77, 19370), (79,

19379), (80, 19406), (81, 19415), (87, 19496), (90, 19550), (92, 19601), (96, 19616), (101, 19652), (121, 19964), (128, 20090), (129, 20129), (130, 20141),

Gene: FountainFog_30 Start: 17995, Stop: 19764, Start Num: 30

Candidate Starts for FountainFog_30:

(25, 17965), (27, 17968), (28, 17980), (29, 17992), (Start: 30 @17995 has 1 MA's), (34, 18097), (38, 18160), (41, 18283), (43, 18292), (45, 18394), (47, 18421), (48, 18433), (54, 18532), (66, 18748), (69, 18796), (73, 18880), (75, 18943), (77, 18973), (79, 18982), (81, 19018), (92, 19204), (96, 19219), (101, 19255), (109, 19384), (121, 19567), (130, 19744),

Gene: FreddieHg_30 Start: 17856, Stop: 19625, Start Num: 31

Candidate Starts for FreddieHg_30:

(Start: 31 @17856 has 31 MA's), (34, 17958), (38, 18021), (41, 18144), (42, 18147), (43, 18153), (47, 18282), (48, 18294), (52, 18372), (58, 18462), (62, 18507), (66, 18609), (69, 18657), (75, 18804), (77, 18834), (79, 18843), (80, 18870), (81, 18879), (87, 18960), (90, 19014), (92, 19065), (96, 19080), (101, 19116), (110, 19254), (120, 19410), (121, 19428), (130, 19605),

Gene: Gilda_31 Start: 18679, Stop: 20457, Start Num: 31

Candidate Starts for Gilda_31:

(13, 18514), (23, 18640), (Start: 31 @18679 has 31 MA's), (34, 18781), (35, 18802), (38, 18844), (39, 18880), (41, 18967), (47, 19105), (52, 19195), (59, 19297), (66, 19432), (69, 19480), (72, 19561), (75, 19627), (77, 19657), (79, 19666), (80, 19693), (81, 19702), (90, 19837), (92, 19888), (96, 19903), (101, 19939), (105, 19987), (112, 20083), (115, 20122), (130, 20437),

Gene: Hager_32 Start: 18239, Stop: 20017, Start Num: 31

Candidate Starts for Hager_32:

(25, 18209), (27, 18212), (28, 18224), (29, 18236), (Start: 31 @18239 has 31 MA's), (34, 18341), (38, 18404), (41, 18527), (46, 18662), (47, 18665), (48, 18677), (52, 18755), (59, 18857), (66, 18992), (69, 19040), (70, 19049), (75, 19187), (77, 19217), (79, 19226), (80, 19253), (81, 19262), (90, 19397), (92, 19448), (96, 19463), (105, 19547), (115, 19682), (130, 19997),

Gene: Haunter_31 Start: 18092, Stop: 19870, Start Num: 31

Candidate Starts for Haunter_31:

(23, 18053), (Start: 31 @18092 has 31 MA's), (34, 18194), (35, 18215), (38, 18257), (39, 18293), (41, 18380), (47, 18518), (52, 18608), (59, 18710), (66, 18845), (69, 18893), (72, 18974), (75, 19040), (77, 19070), (79, 19079), (80, 19106), (81, 19115), (90, 19250), (92, 19301), (96, 19316), (101, 19352), (112, 19496), (115, 19535), (125, 19706), (130, 19850),

Gene: Hiddenleaf_30 Start: 17840, Stop: 19609, Start Num: 31

Candidate Starts for Hiddenleaf_30:

(Start: 31 @17840 has 31 MA's), (34, 17942), (38, 18005), (41, 18128), (42, 18131), (43, 18137), (47, 18266), (48, 18278), (52, 18356), (58, 18446), (62, 18491), (66, 18593), (69, 18641), (75, 18788), (77, 18818), (79, 18827), (80, 18854), (81, 18863), (87, 18944), (90, 18998), (92, 19049), (96, 19064), (101, 19100), (110, 19238), (120, 19394), (121, 19412), (130, 19589),

Gene: JDawG_30 Start: 18422, Stop: 20188, Start Num: 31

Candidate Starts for JDawG_30:

(Start: 31 @18422 has 31 MA's), (34, 18524), (38, 18587), (40, 18647), (41, 18710), (42, 18713), (43, 18719), (47, 18848), (48, 18860), (66, 19172), (69, 19220), (77, 19397), (79, 19406), (81, 19442), (87, 19523), (90, 19577), (92, 19628), (96, 19643), (101, 19679), (105, 19727), (115, 19862), (121, 19991), (128, 20117), (129, 20156), (130, 20168),

Gene: JingleBells_30 Start: 17956, Stop: 19725, Start Num: 31

Candidate Starts for JingleBells_30:

(18, 17887), (Start: 31 @17956 has 31 MA's), (34, 18058), (38, 18121), (41, 18244), (42, 18247), (43, 18253), (47, 18382), (48, 18394), (62, 18607), (66, 18709), (69, 18757), (72, 18838), (75, 18904), (77, 18934), (79, 18943), (80, 18970), (81, 18979), (87, 19060), (90, 19114), (92, 19165), (96, 19180), (101, 19216), (121, 19528), (128, 19654), (129, 19693), (130, 19705),

Gene: Karate_30 Start: 18091, Stop: 20484, Start Num: 2

Candidate Starts for Karate_30:

(1, 18049), (Start: 2 @18091 has 2 MA's), (3, 18280), (5, 18301), (6, 18307), (7, 18340), (8, 18346), (11, 18466), (12, 18532), (14, 18556), (15, 18583), (17, 18625), (21, 18652), (24, 18670), (26, 18676), (34, 18808), (38, 18871), (41, 18994), (43, 19003), (45, 19105), (47, 19132), (59, 19321), (66, 19456), (69, 19504), (75, 19651), (77, 19681), (79, 19690), (80, 19717), (81, 19726), (84, 19780), (87, 19807), (90, 19861), (92, 19912), (96, 19927), (100, 19960), (101, 19975), (110, 20113), (115, 20158), (121, 20287), (130, 20464),

Gene: Kate_31 Start: 18687, Stop: 20465, Start Num: 31

Candidate Starts for Kate_31:

(13, 18522), (23, 18648), (Start: 31 @18687 has 31 MA's), (34, 18789), (35, 18810), (38, 18852), (39, 18888), (41, 18975), (47, 19113), (52, 19203), (59, 19305), (65, 19431), (66, 19440), (69, 19488), (72, 19569), (75, 19635), (77, 19665), (79, 19674), (80, 19701), (81, 19710), (90, 19845), (92, 19896), (96, 19911), (101, 19947), (105, 19995), (115, 20130), (130, 20445),

Gene: Krampus_31 Start: 18685, Stop: 20463, Start Num: 31

Candidate Starts for Krampus_31:

(13, 18520), (23, 18646), (Start: 31 @18685 has 31 MA's), (34, 18787), (35, 18808), (38, 18850), (39, 18886), (41, 18973), (47, 19111), (52, 19201), (59, 19303), (66, 19438), (69, 19486), (72, 19567), (75, 19633), (77, 19663), (79, 19672), (81, 19708), (90, 19843), (92, 19894), (96, 19909), (101, 19945), (105, 19993), (115, 20128), (130, 20443),

Gene: Lesiram_23 Start: 15098, Stop: 16786, Start Num: 32

Candidate Starts for Lesiram_23:

(Start: 32 @15098 has 2 MA's), (37, 15245), (38, 15248), (48, 15527), (49, 15539), (51, 15593), (59, 15710), (60, 15713), (61, 15719), (63, 15785), (67, 15851), (71, 15935), (76, 16043), (77, 16067), (78, 16073), (80, 16103), (82, 16115), (83, 16151), (84, 16163), (85, 16178), (86, 16181), (88, 16205), (90, 16244), (91, 16265), (93, 16301), (102, 16364), (114, 16526), (121, 16661), (123, 16688), (126, 16712),

Gene: MortySmith_29 Start: 17815, Stop: 19581, Start Num: 31

Candidate Starts for MortySmith_29:

(Start: 31 @17815 has 31 MA's), (34, 17917), (38, 17980), (41, 18103), (42, 18106), (43, 18112), (47, 18241), (48, 18253), (66, 18565), (69, 18613), (77, 18790), (79, 18799), (81, 18835), (87, 18916), (92, 19021), (96, 19036), (101, 19072), (115, 19255), (121, 19384), (130, 19561),

Gene: NarutoRun_31 Start: 18678, Stop: 20456, Start Num: 31

Candidate Starts for NarutoRun_31:

(13, 18513), (22, 18636), (23, 18639), (Start: 31 @18678 has 31 MA's), (34, 18780), (35, 18801), (38, 18843), (39, 18879), (41, 18966), (47, 19104), (52, 19194), (59, 19296), (66, 19431), (69, 19479), (72, 19560), (75, 19626), (77, 19656), (79, 19665), (80, 19692), (81, 19701), (90, 19836), (92, 19887), (96, 19902), (101, 19938), (105, 19986), (115, 20121), (130, 20436),

Gene: Neptune_31 Start: 18655, Stop: 20433, Start Num: 31

Candidate Starts for Neptune_31:

(13, 18490), (23, 18616), (Start: 31 @18655 has 31 MA's), (34, 18757), (35, 18778), (38, 18820), (39, 18856), (41, 18943), (47, 19081), (52, 19171), (59, 19273), (65, 19399), (66, 19408), (69, 19456), (72, 19537), (75, 19603), (77, 19633), (79, 19642), (80, 19669), (81, 19678), (90, 19813), (92, 19864), (96, 19879), (101, 19915), (105, 19963), (112, 20059), (115, 20098), (130, 20413),

Gene: OhDear_31 Start: 18684, Stop: 20462, Start Num: 31

Candidate Starts for OhDear_31:

(13, 18519), (23, 18645), (Start: 31 @18684 has 31 MA's), (34, 18786), (35, 18807), (38, 18849), (39, 18885), (41, 18972), (47, 19110), (52, 19200), (59, 19302), (65, 19428), (66, 19437), (69, 19485), (72, 19566), (75, 19632), (77, 19662), (79, 19671), (80, 19698), (81, 19707), (90, 19842), (92, 19893), (96, 19908), (101, 19944), (105, 19992), (115, 20127), (130, 20442),

Gene: OverHedge_31 Start: 18645, Stop: 20423, Start Num: 31

Candidate Starts for OverHedge_31:

(13, 18480), (23, 18606), (Start: 31 @18645 has 31 MA's), (34, 18747), (35, 18768), (38, 18810), (39, 18846), (41, 18933), (47, 19071), (52, 19161), (59, 19263), (65, 19389), (66, 19398), (69, 19446), (72, 19527), (75, 19593), (77, 19623), (79, 19632), (80, 19659), (81, 19668), (90, 19803), (92, 19854), (96, 19869), (101, 19905), (105, 19953), (115, 20088), (130, 20403),

Gene: Pharpay_31 Start: 18700, Stop: 20478, Start Num: 31

Candidate Starts for Pharpay_31:

(13, 18535), (23, 18661), (Start: 31 @18700 has 31 MA's), (34, 18802), (35, 18823), (38, 18865), (39, 18901), (41, 18988), (47, 19126), (52, 19216), (66, 19453), (69, 19501), (72, 19582), (75, 19648), (77, 19678), (79, 19687), (81, 19723), (90, 19858), (92, 19909), (96, 19924), (101, 19960), (105, 20008), (112, 20104), (115, 20143), (130, 20458),

Gene: PhunaPhoke_31 Start: 18673, Stop: 20451, Start Num: 31

Candidate Starts for PhunaPhoke_31:

(13, 18508), (23, 18634), (Start: 31 @18673 has 31 MA's), (34, 18775), (35, 18796), (38, 18838), (39, 18874), (41, 18961), (47, 19099), (52, 19189), (59, 19291), (65, 19417), (66, 19426), (69, 19474), (72, 19555), (75, 19621), (77, 19651), (79, 19660), (80, 19687), (81, 19696), (90, 19831), (92, 19882), (96, 19897), (101, 19933), (105, 19981), (112, 20077), (115, 20116), (130, 20431),

Gene: Potty_31 Start: 18678, Stop: 20456, Start Num: 31

Candidate Starts for Potty_31:

(13, 18513), (23, 18639), (Start: 31 @18678 has 31 MA's), (34, 18780), (35, 18801), (38, 18843), (39, 18879), (41, 18966), (47, 19104), (52, 19194), (59, 19296), (66, 19431), (69, 19479), (72, 19560), (75, 19626), (77, 19656), (79, 19665), (81, 19701), (90, 19836), (92, 19887), (96, 19902), (101, 19938), (105, 19986), (115, 20121), (130, 20436),

Gene: Poultress_30 Start: 18442, Stop: 20820, Start Num: 2

Candidate Starts for Poultress_30:

(Start: 2 @18442 has 2 MA's), (4, 18637), (9, 18751), (10, 18808), (12, 18880), (19, 18994), (20, 18997), (24, 19018), (26, 19024), (34, 19156), (38, 19219), (41, 19342), (42, 19345), (43, 19351), (45, 19453), (47, 19480), (48, 19492), (55, 19633), (62, 19702), (66, 19804), (69, 19852), (73, 19936), (75, 19999), (77, 20029), (79, 20038), (80, 20065), (81, 20074), (84, 20128), (87, 20155), (92, 20260), (95, 20272), (96, 20275), (101, 20311), (105, 20359), (115, 20494), (121, 20623), (127, 20728), (129, 20788), (130, 20800),

Gene: Rachella_31 Start: 18681, Stop: 20459, Start Num: 31

Candidate Starts for Rachella_31:

(13, 18516), (23, 18642), (Start: 31 @18681 has 31 MA's), (34, 18783), (35, 18804), (38, 18846), (39, 18882), (41, 18969), (47, 19107), (52, 19197), (59, 19299), (66, 19434), (69, 19482), (72, 19563), (75,

19629), (77, 19659), (79, 19668), (80, 19695), (81, 19704), (90, 19839), (92, 19890), (96, 19905), (101, 19941), (105, 19989), (112, 20085), (115, 20124), (125, 20295), (130, 20439),

Gene: Rie18_31 Start: 18192, Stop: 19970, Start Num: 31

Candidate Starts for Rie18_31:

(25, 18162), (27, 18165), (28, 18177), (29, 18189), (Start: 31 @18192 has 31 MA's), (34, 18294), (38, 18357), (41, 18480), (47, 18618), (48, 18630), (52, 18708), (59, 18810), (66, 18945), (69, 18993), (73, 19077), (75, 19140), (77, 19170), (79, 19179), (80, 19206), (81, 19215), (87, 19296), (90, 19350), (92, 19401), (96, 19416), (105, 19500), (115, 19635), (118, 19725), (130, 19950),

Gene: SilentWarrior_30 Start: 17848, Stop: 19617, Start Num: 31

Candidate Starts for SilentWarrior_30:

(Start: 31 @17848 has 31 MA's), (34, 17950), (38, 18013), (41, 18136), (42, 18139), (43, 18145), (47, 18274), (48, 18286), (62, 18499), (66, 18601), (69, 18649), (72, 18730), (75, 18796), (77, 18826), (79, 18835), (80, 18862), (81, 18871), (87, 18952), (90, 19006), (92, 19057), (96, 19072), (101, 19108), (105, 19156), (115, 19291), (121, 19420), (129, 19585), (130, 19597),

Gene: Snakehole_31 Start: 17937, Stop: 19706, Start Num: 31

Candidate Starts for Snakehole_31:

(Start: 31 @17937 has 31 MA's), (34, 18039), (38, 18102), (41, 18225), (42, 18228), (43, 18234), (47, 18363), (48, 18375), (52, 18453), (58, 18543), (62, 18588), (66, 18690), (69, 18738), (75, 18885), (77, 18915), (79, 18924), (80, 18951), (81, 18960), (87, 19041), (90, 19095), (92, 19146), (96, 19161), (101, 19197), (110, 19335), (120, 19491), (121, 19509), (130, 19686),

Gene: Sweetums_22 Start: 15209, Stop: 16897, Start Num: 32

Candidate Starts for Sweetums_22:

(Start: 32 @15209 has 2 MA's), (37, 15356), (38, 15359), (44, 15521), (48, 15638), (49, 15650), (51, 15704), (59, 15821), (61, 15830), (63, 15896), (67, 15962), (71, 16046), (76, 16154), (77, 16178), (80, 16214), (82, 16226), (83, 16262), (84, 16274), (85, 16289), (86, 16292), (88, 16316), (90, 16355), (91, 16376), (93, 16412), (97, 16433), (103, 16490), (114, 16637), (116, 16688), (118, 16733), (122, 16778), (126, 16820),

Gene: Tedro_31 Start: 18151, Stop: 19929, Start Num: 31

Candidate Starts for Tedro_31:

(13, 17986), (23, 18112), (Start: 31 @18151 has 31 MA's), (34, 18253), (35, 18274), (38, 18316), (39, 18352), (41, 18439), (47, 18577), (52, 18667), (59, 18769), (65, 18895), (66, 18904), (69, 18952), (72, 19033), (75, 19099), (77, 19129), (79, 19138), (80, 19165), (81, 19174), (90, 19309), (92, 19360), (96, 19375), (101, 19411), (105, 19459), (112, 19555), (115, 19594), (125, 19765), (130, 19909),

Gene: Teng_24 Start: 15125, Stop: 16837, Start Num: 32

Candidate Starts for Teng_24:

(Start: 32 @15125 has 2 MA's), (37, 15272), (38, 15275), (40, 15341), (44, 15437), (50, 15581), (52, 15659), (53, 15677), (56, 15731), (59, 15764), (60, 15767), (61, 15773), (62, 15797), (63, 15839), (64, 15857), (67, 15905), (71, 15989), (72, 16028), (73, 16031), (76, 16097), (77, 16121), (80, 16157), (82, 16169), (84, 16217), (85, 16232), (86, 16235), (88, 16259), (89, 16274), (91, 16319), (94, 16358), (99, 16382), (103, 16433), (104, 16436), (108, 16490), (111, 16541), (113, 16547), (116, 16631), (119, 16688), (124, 16745),

Gene: Tongui_30 Start: 18184, Stop: 19953, Start Num: 30

Candidate Starts for Tongui_30:

(25, 18154), (27, 18157), (28, 18169), (29, 18181), (Start: 30 @18184 has 1 MA's), (33, 18217), (34, 18286), (38, 18349), (41, 18472), (43, 18481), (45, 18583), (47, 18610), (48, 18622), (66, 18937), (69, 18985), (75, 19132), (77, 19162), (79, 19171), (80, 19198), (81, 19207), (92, 19393), (98, 19420), (101,

19444), (106, 19513), (107, 19525), (109, 19573), (110, 19582), (115, 19627), (117, 19693), (130, 19933),