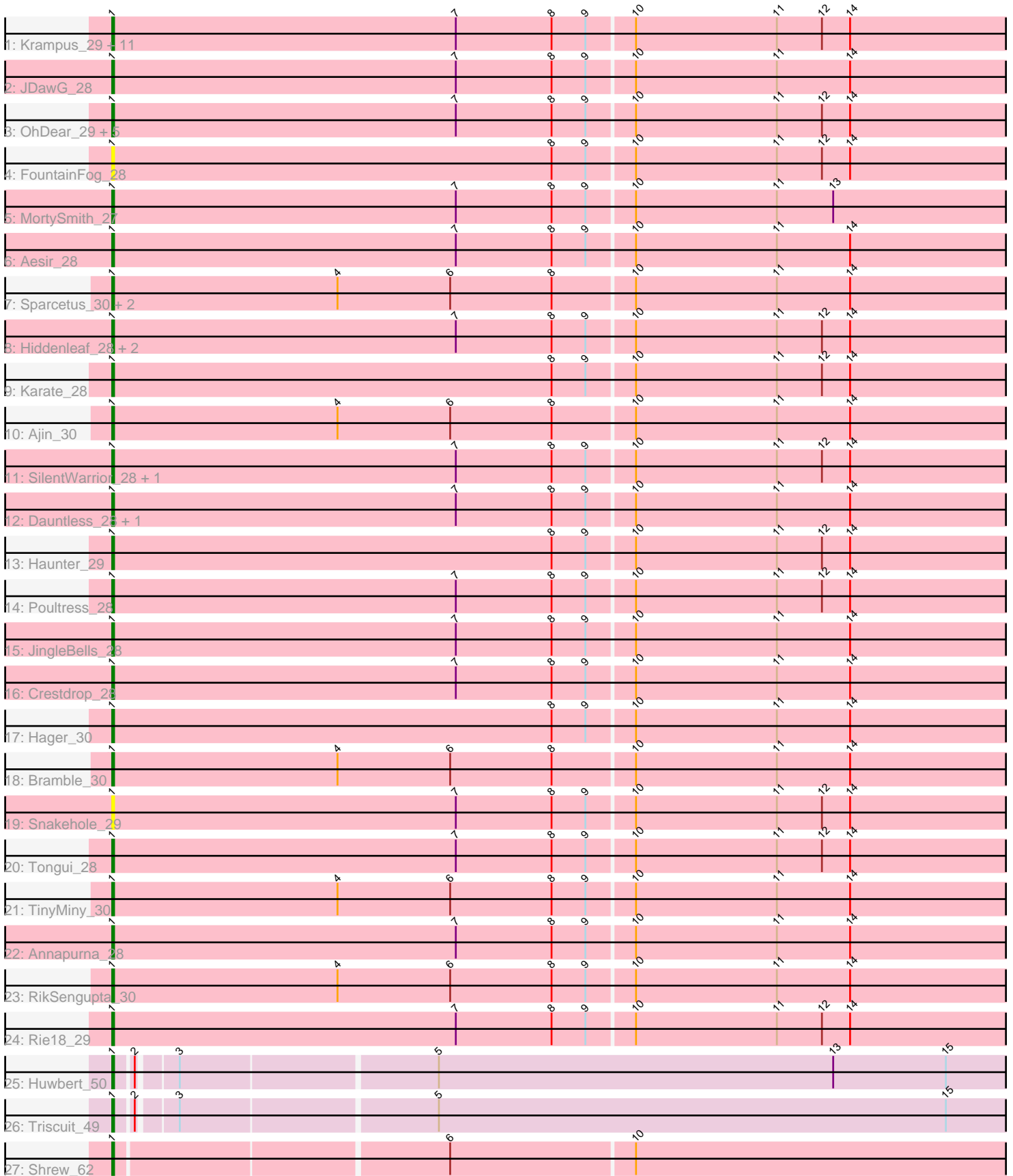


# Zoomed Pham 311704



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 311704 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311704 has 49 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Krampus\_29, Anakin\_29, Cybele\_29, Tiggy93\_29, NarutoRun\_29, Potty\_29, Rachella\_29, Tedro\_29, Kate\_29, OverHedge\_29, Neptune\_29, AnnaSerena\_29
- Track 2 : JDawG\_28
- Track 3 : OhDear\_29, Artiphact\_29, CoolCookie\_29, PhunaPhoke\_29, Pharpay\_29, Gilda\_29
- Track 4 : FountainFog\_28
- Track 5 : MortySmith\_27
- Track 6 : Aesir\_28
- Track 7 : Sparcetus\_30, Kors\_30, LordBart\_30
- Track 8 : Hiddenleaf\_28, Chivey\_28, FreddieHg\_28
- Track 9 : Karate\_28
- Track 10 : Ajin\_30
- Track 11 : SilentWarrior\_28, DannyDe\_28
- Track 12 : Dauntless\_28, Erudite\_28
- Track 13 : Haunter\_29
- Track 14 : Poultruss\_28
- Track 15 : JingleBells\_28
- Track 16 : Crestdrop\_28
- Track 17 : Hager\_30
- Track 18 : Bramble\_30
- Track 19 : Snakehole\_29
- Track 20 : Tongui\_28
- Track 21 : TinyMiny\_30
- Track 22 : Annapurna\_28
- Track 23 : RikSengupta\_30
- Track 24 : Rie18\_29
- Track 25 : Huwbert\_50
- Track 26 : Triscuit\_49
- Track 27 : Shrew\_62

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

The start number called the most often in the published annotations is 1, it was called in 45 of the 45 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aesir\_28, Ajin\_30, Anakin\_29, AnnaSerena\_29, Annapurna\_28, Artiphact\_29, Bramble\_30, Chivey\_28, CoolCookie\_29, Crestdrop\_28, Cybele\_29, DannyDe\_28, Dauntless\_28, Erudite\_28, FountainFog\_28, FreddieHg\_28, Gilda\_29, Hager\_30, Haunter\_29, Hiddenleaf\_28, Huwbert\_50, JDawG\_28, JingleBells\_28, Karate\_28, Kate\_29, Kors\_30, Krampus\_29, LordBart\_30, MortySmith\_27, NarutoRun\_29, Neptune\_29, OhDear\_29, OverHedge\_29, Pharpay\_29, PhunaPhoke\_29, Potty\_29, Poultruss\_28, Rachella\_29, Rie18\_29, RikSengupta\_30, Shrew\_62, SilentWarrior\_28, Snakehole\_29, Sparcetus\_30, Tedro\_29, Tiggy93\_29, TinyMiny\_30, Tongui\_28, Triscuit\_49,

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

- 

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

- 

### **Summary by start number:**

Start 1:

- Found in 49 of 49 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 45 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aesir\_28 (EF), Ajin\_30 (EF), Anakin\_29 (EF), AnnaSerena\_29 (EF), Annapurna\_28 (EF), Artiphact\_29 (EF), Bramble\_30 (EF), Chivey\_28 (EF), CoolCookie\_29 (EF), Crestdrop\_28 (EF), Cybele\_29 (EF), DannyDe\_28 (EF), Dauntless\_28 (EF), Erudite\_28 (EF), FountainFog\_28 (EF), FreddieHg\_28 (EF), Gilda\_29 (EF), Hager\_30 (EF), Haunter\_29 (EF), Hiddenleaf\_28 (EF), Huwbert\_50 (GG), JDawG\_28 (EF), JingleBells\_28 (EF), Karate\_28 (EF), Kate\_29 (EF), Kors\_30 (EF), Krampus\_29 (EF), LordBart\_30 (EF), MortySmith\_27 (EF), NarutoRun\_29 (EF), Neptune\_29 (EF), OhDear\_29 (EF), OverHedge\_29 (EF), Pharpay\_29 (EF), PhunaPhoke\_29 (EF), Potty\_29 (EF), Poultruss\_28 (EF), Rachella\_29 (EF), Rie18\_29 (EF), RikSengupta\_30 (EF), Shrew\_62 (singleton), SilentWarrior\_28 (EF), Snakehole\_29 (EF), Sparcetus\_30 (EF), Tedro\_29 (EF), Tiggy93\_29 (EF), TinyMiny\_30 (EF), Tongui\_28 (EF), Triscuit\_49 (GG),

### **Summary by clusters:**

There are 3 clusters represented in this pham: GG, singleton, EF,

Info for manual annotations of cluster EF:

- Start number 1 was manually annotated 42 times for cluster EF.

Info for manual annotations of cluster GG:

- Start number 1 was manually annotated 2 times for cluster GG.

### **Gene Information:**

Gene: Aesir\_28 Start: 14656, Stop: 17532, Start Num: 1

Candidate Starts for Aesir\_28:

(Start: 1 @14656 has 45 MA's), (7, 14839), (8, 14890), (9, 14908), (10, 14932), (11, 15007), (14, 15046), (18, 15166), (20, 15175), (21, 15187), (23, 15235), (27, 15301), (38, 15472), (39, 15481), (42, 15523), (50, 15688), (51, 15700), (52, 15712), (55, 15763), (57, 15775), (58, 15778), (68, 15913), (78, 16054), (81, 16069), (82, 16102), (83, 16111), (95, 16297), (97, 16327), (104, 16372), (105, 16381), (108, 16396), (111, 16414), (112, 16417), (115, 16438), (116, 16441), (117, 16459), (120, 16501), (121, 16504), (122, 16507), (126, 16528), (132, 16561), (133, 16606), (135, 16636), (146, 16711), (150, 16768), (157, 16825), (160, 16837), (168, 16885), (169, 16888), (176, 17020), (187, 17173), (190, 17188), (191, 17215), (194, 17254), (196, 17284), (201, 17317), (203, 17347), (209, 17422), (213, 17479), (214, 17482), (215, 17488), (218, 17524),

Gene: Ajin\_30 Start: 14799, Stop: 17618, Start Num: 1

Candidate Starts for Ajin\_30:

(Start: 1 @14799 has 45 MA's), (4, 14919), (6, 14979), (8, 15033), (10, 15075), (11, 15150), (14, 15189), (16, 15279), (22, 15363), (23, 15378), (24, 15384), (28, 15456), (29, 15507), (30, 15513), (32, 15552), (42, 15666), (45, 15720), (48, 15783), (49, 15822), (50, 15831), (54, 15876), (58, 15921), (68, 16056), (74, 16161), (75, 16176), (76, 16182), (77, 16185), (79, 16203), (80, 16206), (83, 16224), (95, 16377), (100, 16428), (103, 16446), (105, 16461), (107, 16473), (108, 16476), (119, 16569), (121, 16584), (123, 16593), (126, 16608), (130, 16626), (131, 16629), (132, 16641), (133, 16686), (142, 16770), (152, 16872), (156, 16902), (168, 16965), (169, 16968), (170, 16980), (180, 17166), (183, 17202), (187, 17253), (191, 17295), (194, 17334), (196, 17364), (201, 17397), (203, 17427), (205, 17466), (214, 17565), (215, 17571), (217, 17595),

Gene: Anakin\_29 Start: 14910, Stop: 17786, Start Num: 1

Candidate Starts for Anakin\_29:

(Start: 1 @14910 has 45 MA's), (7, 15093), (8, 15144), (9, 15162), (10, 15186), (11, 15261), (12, 15285), (14, 15300), (18, 15420), (21, 15441), (23, 15489), (27, 15555), (38, 15726), (39, 15735), (41, 15768), (42, 15777), (44, 15810), (50, 15942), (51, 15954), (52, 15966), (57, 16029), (59, 16065), (69, 16179), (78, 16308), (81, 16323), (82, 16356), (83, 16365), (95, 16551), (102, 16617), (105, 16635), (108, 16650), (111, 16668), (112, 16671), (115, 16692), (116, 16695), (119, 16743), (125, 16779), (126, 16782), (132, 16815), (133, 16860), (140, 16926), (141, 16935), (151, 17043), (157, 17079), (160, 17091), (168, 17139), (169, 17142), (176, 17274), (187, 17427), (190, 17442), (191, 17469), (194, 17508), (196, 17538), (201, 17571), (203, 17601), (209, 17676), (214, 17736), (215, 17742), (217, 17766), (218, 17778),

Gene: AnnaSerena\_29 Start: 14919, Stop: 17795, Start Num: 1

Candidate Starts for AnnaSerena\_29:

(Start: 1 @14919 has 45 MA's), (7, 15102), (8, 15153), (9, 15171), (10, 15195), (11, 15270), (12, 15294), (14, 15309), (18, 15429), (21, 15450), (23, 15498), (27, 15564), (38, 15735), (39, 15744), (41, 15777), (42, 15786), (44, 15819), (50, 15951), (51, 15963), (52, 15975), (57, 16038), (59, 16074), (69, 16188), (78, 16317), (81, 16332), (82, 16365), (83, 16374), (95, 16560), (102, 16626), (105, 16644), (108, 16659), (111, 16677), (112, 16680), (115, 16701), (116, 16704), (119, 16752), (125, 16788), (126, 16791), (132, 16824), (133, 16869), (140, 16935), (141, 16944), (151, 17052), (157, 17088), (160, 17100), (168, 17148), (169, 17151), (176, 17283), (187, 17436), (190, 17451), (191, 17478), (194, 17517), (196, 17547), (201, 17580), (203, 17610), (209, 17685), (214, 17745), (215, 17751), (217, 17775), (218, 17787),

Gene: Annapurna\_28 Start: 14118, Stop: 16994, Start Num: 1

Candidate Starts for Annapurna\_28:

(Start: 1 @14118 has 45 MA's), (7, 14301), (8, 14352), (9, 14370), (10, 14394), (11, 14469), (14, 14508), (18, 14628), (20, 14637), (21, 14649), (23, 14697), (27, 14763), (38, 14934), (39, 14943), (42, 14985), (50, 15150), (51, 15162), (52, 15174), (55, 15225), (57, 15237), (58, 15240), (78, 15516), (81,

15531), (82, 15564), (83, 15573), (95, 15759), (97, 15789), (104, 15834), (105, 15843), (108, 15858), (111, 15876), (112, 15879), (115, 15900), (116, 15903), (117, 15921), (120, 15963), (121, 15966), (122, 15969), (126, 15990), (132, 16023), (133, 16068), (135, 16098), (146, 16173), (150, 16230), (157, 16287), (160, 16299), (168, 16347), (169, 16350), (176, 16482), (187, 16635), (190, 16650), (191, 16677), (194, 16716), (196, 16746), (201, 16779), (203, 16809), (209, 16884), (213, 16941), (214, 16944), (215, 16950), (218, 16986),

Gene: Artiphact\_29 Start: 14911, Stop: 17787, Start Num: 1

Candidate Starts for Artiphact\_29:

(Start: 1 @14911 has 45 MA's), (7, 15094), (8, 15145), (9, 15163), (10, 15187), (11, 15262), (12, 15286), (14, 15301), (18, 15421), (21, 15442), (23, 15490), (27, 15556), (38, 15727), (39, 15736), (41, 15769), (42, 15778), (44, 15811), (50, 15943), (51, 15955), (52, 15967), (57, 16030), (59, 16066), (69, 16180), (78, 16309), (81, 16324), (82, 16357), (83, 16366), (95, 16552), (102, 16618), (105, 16636), (108, 16651), (111, 16669), (112, 16672), (115, 16693), (116, 16696), (119, 16744), (125, 16780), (126, 16783), (132, 16816), (133, 16861), (140, 16927), (141, 16936), (157, 17080), (160, 17092), (168, 17140), (169, 17143), (176, 17275), (187, 17428), (190, 17443), (191, 17470), (194, 17509), (196, 17539), (201, 17572), (203, 17602), (209, 17677), (214, 17737), (215, 17743), (217, 17767), (218, 17779),

Gene: Bramble\_30 Start: 14765, Stop: 17584, Start Num: 1

Candidate Starts for Bramble\_30:

(Start: 1 @14765 has 45 MA's), (4, 14885), (6, 14945), (8, 14999), (10, 15041), (11, 15116), (14, 15155), (16, 15245), (22, 15329), (23, 15344), (24, 15350), (28, 15422), (29, 15473), (30, 15479), (32, 15518), (42, 15632), (45, 15686), (48, 15749), (49, 15788), (50, 15797), (54, 15842), (58, 15887), (68, 16022), (74, 16127), (75, 16142), (76, 16148), (77, 16151), (79, 16169), (80, 16172), (83, 16190), (95, 16343), (100, 16394), (103, 16412), (105, 16427), (107, 16439), (108, 16442), (119, 16535), (123, 16559), (126, 16574), (129, 16583), (130, 16592), (131, 16595), (132, 16607), (133, 16652), (142, 16736), (143, 16739), (152, 16838), (156, 16868), (168, 16931), (169, 16934), (170, 16946), (180, 17132), (183, 17168), (187, 17219), (191, 17261), (194, 17300), (196, 17330), (201, 17363), (203, 17393), (205, 17432), (214, 17531), (215, 17537), (217, 17561),

Gene: Chivey\_28 Start: 14072, Stop: 16948, Start Num: 1

Candidate Starts for Chivey\_28:

(Start: 1 @14072 has 45 MA's), (7, 14255), (8, 14306), (9, 14324), (10, 14348), (11, 14423), (12, 14447), (14, 14462), (18, 14582), (21, 14603), (23, 14651), (27, 14717), (38, 14888), (39, 14897), (41, 14930), (42, 14939), (44, 14972), (50, 15104), (51, 15116), (52, 15128), (55, 15179), (59, 15227), (69, 15341), (78, 15470), (81, 15485), (82, 15518), (83, 15527), (95, 15713), (104, 15788), (105, 15797), (108, 15812), (111, 15830), (112, 15833), (115, 15854), (116, 15857), (117, 15875), (120, 15917), (121, 15920), (122, 15923), (126, 15944), (132, 15977), (133, 16022), (135, 16052), (146, 16127), (150, 16184), (157, 16241), (160, 16253), (168, 16301), (169, 16304), (176, 16436), (187, 16589), (190, 16604), (191, 16631), (194, 16670), (196, 16700), (201, 16733), (203, 16763), (209, 16838), (213, 16895), (214, 16898), (215, 16904), (218, 16940),

Gene: CoolCookie\_29 Start: 14917, Stop: 17793, Start Num: 1

Candidate Starts for CoolCookie\_29:

(Start: 1 @14917 has 45 MA's), (7, 15100), (8, 15151), (9, 15169), (10, 15193), (11, 15268), (12, 15292), (14, 15307), (18, 15427), (21, 15448), (23, 15496), (27, 15562), (38, 15733), (39, 15742), (41, 15775), (42, 15784), (44, 15817), (50, 15949), (51, 15961), (52, 15973), (57, 16036), (59, 16072), (69, 16186), (78, 16315), (81, 16330), (82, 16363), (83, 16372), (95, 16558), (102, 16624), (105, 16642), (108, 16657), (111, 16675), (112, 16678), (115, 16699), (116, 16702), (119, 16750), (125, 16786), (126, 16789), (132, 16822), (133, 16867), (140, 16933), (141, 16942), (157, 17086), (160, 17098), (168, 17146), (169, 17149), (176, 17281), (187, 17434), (190, 17449), (191, 17476), (194, 17515), (196, 17545), (201, 17578), (203, 17608), (209, 17683), (214, 17743), (215, 17749), (217, 17773),

(218, 17785),

Gene: Crestdrop\_28 Start: 13981, Stop: 16857, Start Num: 1

Candidate Starts for Crestdrop\_28:

(Start: 1 @13981 has 45 MA's), (7, 14164), (8, 14215), (9, 14233), (10, 14257), (11, 14332), (14, 14371), (18, 14491), (20, 14500), (21, 14512), (23, 14560), (27, 14626), (38, 14797), (39, 14806), (42, 14848), (45, 14902), (50, 15013), (51, 15025), (52, 15037), (55, 15088), (57, 15100), (58, 15103), (78, 15379), (81, 15394), (82, 15427), (83, 15436), (95, 15622), (97, 15652), (99, 15664), (104, 15697), (105, 15706), (108, 15721), (111, 15739), (112, 15742), (115, 15763), (116, 15766), (117, 15784), (120, 15826), (121, 15829), (122, 15832), (126, 15853), (132, 15886), (133, 15931), (135, 15961), (146, 16036), (157, 16150), (168, 16210), (169, 16213), (176, 16345), (187, 16498), (190, 16513), (191, 16540), (194, 16579), (196, 16609), (201, 16642), (203, 16672), (209, 16747), (213, 16804), (214, 16807), (215, 16813), (218, 16849),

Gene: Cybele\_29 Start: 14887, Stop: 17763, Start Num: 1

Candidate Starts for Cybele\_29:

(Start: 1 @14887 has 45 MA's), (7, 15070), (8, 15121), (9, 15139), (10, 15163), (11, 15238), (12, 15262), (14, 15277), (18, 15397), (21, 15418), (23, 15466), (27, 15532), (38, 15703), (39, 15712), (41, 15745), (42, 15754), (44, 15787), (50, 15919), (51, 15931), (52, 15943), (57, 16006), (59, 16042), (69, 16156), (78, 16285), (81, 16300), (82, 16333), (83, 16342), (95, 16528), (102, 16594), (105, 16612), (108, 16627), (111, 16645), (112, 16648), (115, 16669), (116, 16672), (119, 16720), (125, 16756), (126, 16759), (132, 16792), (133, 16837), (140, 16903), (141, 16912), (151, 17020), (157, 17056), (160, 17068), (168, 17116), (169, 17119), (176, 17251), (187, 17404), (190, 17419), (191, 17446), (194, 17485), (196, 17515), (201, 17548), (203, 17578), (209, 17653), (214, 17713), (215, 17719), (217, 17743), (218, 17755),

Gene: DannyDe\_28 Start: 14064, Stop: 16940, Start Num: 1

Candidate Starts for DannyDe\_28:

(Start: 1 @14064 has 45 MA's), (7, 14247), (8, 14298), (9, 14316), (10, 14340), (11, 14415), (12, 14439), (14, 14454), (18, 14574), (21, 14595), (23, 14643), (27, 14709), (38, 14880), (39, 14889), (41, 14922), (42, 14931), (44, 14964), (50, 15096), (51, 15108), (52, 15120), (55, 15171), (59, 15219), (69, 15333), (78, 15462), (81, 15477), (82, 15510), (83, 15519), (95, 15705), (104, 15780), (105, 15789), (108, 15804), (111, 15822), (112, 15825), (115, 15846), (116, 15849), (117, 15867), (120, 15909), (121, 15912), (122, 15915), (126, 15936), (132, 15969), (133, 16014), (135, 16044), (146, 16119), (157, 16233), (160, 16245), (168, 16293), (169, 16296), (176, 16428), (187, 16581), (190, 16596), (191, 16623), (194, 16662), (196, 16692), (201, 16725), (203, 16755), (209, 16830), (213, 16887), (214, 16890), (215, 16896), (218, 16932),

Gene: Dauntless\_28 Start: 14624, Stop: 17500, Start Num: 1

Candidate Starts for Dauntless\_28:

(Start: 1 @14624 has 45 MA's), (7, 14807), (8, 14858), (9, 14876), (10, 14900), (11, 14975), (14, 15014), (18, 15134), (20, 15143), (21, 15155), (23, 15203), (27, 15269), (38, 15440), (39, 15449), (42, 15491), (50, 15656), (51, 15668), (52, 15680), (55, 15731), (57, 15743), (58, 15746), (78, 16022), (81, 16037), (82, 16070), (83, 16079), (95, 16265), (97, 16295), (104, 16340), (105, 16349), (108, 16364), (111, 16382), (112, 16385), (115, 16406), (116, 16409), (117, 16427), (120, 16469), (121, 16472), (122, 16475), (126, 16496), (132, 16529), (133, 16574), (146, 16679), (157, 16793), (160, 16805), (168, 16853), (176, 16988), (187, 17141), (190, 17156), (191, 17183), (194, 17222), (196, 17252), (201, 17285), (203, 17315), (209, 17390), (213, 17447), (214, 17450), (215, 17456), (218, 17492),

Gene: Erudite\_28 Start: 14624, Stop: 17500, Start Num: 1

Candidate Starts for Erudite\_28:

(Start: 1 @14624 has 45 MA's), (7, 14807), (8, 14858), (9, 14876), (10, 14900), (11, 14975), (14, 15014), (18, 15134), (20, 15143), (21, 15155), (23, 15203), (27, 15269), (38, 15440), (39, 15449), (42,

15491), (50, 15656), (51, 15668), (52, 15680), (55, 15731), (57, 15743), (58, 15746), (78, 16022), (81, 16037), (82, 16070), (83, 16079), (95, 16265), (97, 16295), (104, 16340), (105, 16349), (108, 16364), (111, 16382), (112, 16385), (115, 16406), (116, 16409), (117, 16427), (120, 16469), (121, 16472), (122, 16475), (126, 16496), (132, 16529), (133, 16574), (146, 16679), (157, 16793), (160, 16805), (168, 16853), (176, 16988), (187, 17141), (190, 17156), (191, 17183), (194, 17222), (196, 17252), (201, 17285), (203, 17315), (209, 17390), (213, 17447), (214, 17450), (215, 17456), (218, 17492),

Gene: FountainFog\_28 Start: 14229, Stop: 17105, Start Num: 1

Candidate Starts for FountainFog\_28:

(Start: 1 @14229 has 45 MA's), (8, 14463), (9, 14481), (10, 14505), (11, 14580), (12, 14604), (14, 14619), (18, 14739), (21, 14760), (23, 14808), (27, 14874), (38, 15045), (39, 15054), (41, 15087), (42, 15096), (44, 15129), (50, 15261), (51, 15273), (52, 15285), (55, 15336), (59, 15384), (61, 15414), (63, 15447), (69, 15498), (78, 15627), (81, 15642), (82, 15675), (83, 15684), (95, 15870), (97, 15900), (104, 15945), (108, 15969), (111, 15987), (112, 15990), (115, 16011), (116, 16014), (119, 16062), (126, 16101), (132, 16134), (133, 16179), (135, 16209), (138, 16230), (141, 16254), (142, 16263), (143, 16266), (151, 16362), (157, 16398), (160, 16410), (168, 16458), (169, 16461), (171, 16518), (175, 16572), (187, 16746), (190, 16761), (191, 16788), (194, 16827), (196, 16857), (201, 16890), (203, 16920), (209, 16995), (214, 17055), (215, 17061), (217, 17085), (218, 17097),

Gene: FreddieHg\_28 Start: 14088, Stop: 16964, Start Num: 1

Candidate Starts for FreddieHg\_28:

(Start: 1 @14088 has 45 MA's), (7, 14271), (8, 14322), (9, 14340), (10, 14364), (11, 14439), (12, 14463), (14, 14478), (18, 14598), (21, 14619), (23, 14667), (27, 14733), (38, 14904), (39, 14913), (41, 14946), (42, 14955), (44, 14988), (50, 15120), (51, 15132), (52, 15144), (55, 15195), (59, 15243), (69, 15357), (78, 15486), (81, 15501), (82, 15534), (83, 15543), (95, 15729), (104, 15804), (105, 15813), (108, 15828), (111, 15846), (112, 15849), (115, 15870), (116, 15873), (117, 15891), (120, 15933), (121, 15936), (122, 15939), (126, 15960), (132, 15993), (133, 16038), (135, 16068), (146, 16143), (150, 16200), (157, 16257), (160, 16269), (168, 16317), (169, 16320), (176, 16452), (187, 16605), (190, 16620), (191, 16647), (194, 16686), (196, 16716), (201, 16749), (203, 16779), (209, 16854), (213, 16911), (214, 16914), (215, 16920), (218, 16956),

Gene: Gilda\_29 Start: 14911, Stop: 17787, Start Num: 1

Candidate Starts for Gilda\_29:

(Start: 1 @14911 has 45 MA's), (7, 15094), (8, 15145), (9, 15163), (10, 15187), (11, 15262), (12, 15286), (14, 15301), (18, 15421), (21, 15442), (23, 15490), (27, 15556), (38, 15727), (39, 15736), (41, 15769), (42, 15778), (44, 15811), (50, 15943), (51, 15955), (52, 15967), (57, 16030), (59, 16066), (69, 16180), (78, 16309), (81, 16324), (82, 16357), (83, 16366), (95, 16552), (102, 16618), (105, 16636), (108, 16651), (111, 16669), (112, 16672), (115, 16693), (116, 16696), (119, 16744), (125, 16780), (126, 16783), (132, 16816), (133, 16861), (140, 16927), (141, 16936), (157, 17080), (160, 17092), (168, 17140), (169, 17143), (176, 17275), (187, 17428), (190, 17443), (191, 17470), (194, 17509), (196, 17539), (201, 17572), (203, 17602), (209, 17677), (214, 17737), (215, 17743), (217, 17767), (218, 17779),

Gene: Hager\_30 Start: 14473, Stop: 17349, Start Num: 1

Candidate Starts for Hager\_30:

(Start: 1 @14473 has 45 MA's), (8, 14707), (9, 14725), (10, 14749), (11, 14824), (14, 14863), (18, 14983), (21, 15004), (23, 15052), (27, 15118), (38, 15289), (39, 15298), (41, 15331), (42, 15340), (50, 15505), (51, 15517), (52, 15529), (57, 15592), (59, 15628), (78, 15871), (81, 15886), (82, 15919), (83, 15928), (95, 16114), (97, 16144), (104, 16189), (108, 16213), (111, 16231), (112, 16234), (115, 16255), (116, 16258), (119, 16306), (126, 16345), (132, 16378), (133, 16423), (138, 16474), (141, 16498), (142, 16507), (157, 16642), (160, 16654), (168, 16702), (169, 16705), (171, 16762), (173, 16786), (175, 16816), (187, 16990), (190, 17005), (191, 17032), (194, 17071), (196, 17101), (199, 17122), (201, 17134), (203, 17164), (209, 17239), (214, 17299), (215, 17305), (217, 17329), (218,

17341),

Gene: Haunter\_29 Start: 14324, Stop: 17200, Start Num: 1

Candidate Starts for Haunter\_29:

(Start: 1 @14324 has 45 MA's), (8, 14558), (9, 14576), (10, 14600), (11, 14675), (12, 14699), (14, 14714), (18, 14834), (21, 14855), (23, 14903), (27, 14969), (38, 15140), (39, 15149), (41, 15182), (42, 15191), (44, 15224), (50, 15356), (51, 15368), (52, 15380), (57, 15443), (59, 15479), (69, 15593), (78, 15722), (81, 15737), (82, 15770), (83, 15779), (95, 15965), (97, 15995), (108, 16064), (111, 16082), (112, 16085), (115, 16106), (116, 16109), (119, 16157), (126, 16196), (132, 16229), (133, 16274), (138, 16325), (141, 16349), (142, 16358), (151, 16457), (157, 16493), (160, 16505), (168, 16553), (169, 16556), (171, 16613), (173, 16637), (175, 16667), (187, 16841), (190, 16856), (191, 16883), (196, 16952), (201, 16985), (203, 17015), (209, 17090), (214, 17150), (215, 17156), (217, 17180), (218, 17192),

Gene: Hiddenleaf\_28 Start: 14072, Stop: 16948, Start Num: 1

Candidate Starts for Hiddenleaf\_28:

(Start: 1 @14072 has 45 MA's), (7, 14255), (8, 14306), (9, 14324), (10, 14348), (11, 14423), (12, 14447), (14, 14462), (18, 14582), (21, 14603), (23, 14651), (27, 14717), (38, 14888), (39, 14897), (41, 14930), (42, 14939), (44, 14972), (50, 15104), (51, 15116), (52, 15128), (55, 15179), (59, 15227), (69, 15341), (78, 15470), (81, 15485), (82, 15518), (83, 15527), (95, 15713), (104, 15788), (105, 15797), (108, 15812), (111, 15830), (112, 15833), (115, 15854), (116, 15857), (117, 15875), (120, 15917), (121, 15920), (122, 15923), (126, 15944), (132, 15977), (133, 16022), (135, 16052), (146, 16127), (150, 16184), (157, 16241), (160, 16253), (168, 16301), (169, 16304), (176, 16436), (187, 16589), (190, 16604), (191, 16631), (194, 16670), (196, 16700), (201, 16733), (203, 16763), (209, 16838), (213, 16895), (214, 16898), (215, 16904), (218, 16940),

Gene: Huwbert\_50 Start: 25202, Stop: 28258, Start Num: 1

Candidate Starts for Huwbert\_50:

(Start: 1 @25202 has 45 MA's), (2, 25211), (3, 25229), (5, 25361), (13, 25571), (15, 25631), (20, 25709), (25, 25802), (29, 25898), (37, 25994), (43, 26075), (46, 26153), (51, 26234), (56, 26300), (66, 26432), (67, 26435), (70, 26465), (72, 26471), (84, 26681), (85, 26684), (87, 26714), (88, 26741), (89, 26747), (90, 26765), (91, 26768), (92, 26774), (93, 26801), (94, 26807), (98, 26873), (101, 26906), (110, 26966), (112, 26972), (114, 26984), (115, 26993), (119, 27044), (124, 27071), (128, 27089), (133, 27161), (137, 27209), (139, 27233), (144, 27275), (147, 27314), (149, 27320), (153, 27374), (157, 27401), (158, 27407), (161, 27416), (162, 27419), (169, 27464), (185, 27749), (188, 27770), (192, 27830), (193, 27848), (200, 27944), (202, 27965), (206, 28055), (207, 28058), (208, 28061), (210, 28079), (211, 28088), (218, 28181), (219, 28247), (220, 28250),

Gene: JDawG\_28 Start: 14654, Stop: 17530, Start Num: 1

Candidate Starts for JDawG\_28:

(Start: 1 @14654 has 45 MA's), (7, 14837), (8, 14888), (9, 14906), (10, 14930), (11, 15005), (14, 15044), (18, 15164), (20, 15173), (21, 15185), (23, 15233), (27, 15299), (38, 15470), (39, 15479), (42, 15521), (50, 15686), (51, 15698), (52, 15710), (55, 15761), (57, 15773), (58, 15776), (78, 16052), (81, 16067), (82, 16100), (83, 16109), (95, 16295), (97, 16325), (104, 16370), (105, 16379), (108, 16394), (111, 16412), (112, 16415), (115, 16436), (116, 16439), (117, 16457), (120, 16499), (121, 16502), (122, 16505), (126, 16526), (132, 16559), (133, 16604), (135, 16634), (150, 16766), (157, 16823), (160, 16835), (168, 16883), (169, 16886), (176, 17018), (187, 17171), (190, 17186), (191, 17213), (194, 17252), (196, 17282), (201, 17315), (203, 17345), (209, 17420), (213, 17477), (214, 17480), (215, 17486), (218, 17522),

Gene: JingleBells\_28 Start: 14188, Stop: 17064, Start Num: 1

Candidate Starts for JingleBells\_28:

(Start: 1 @14188 has 45 MA's), (7, 14371), (8, 14422), (9, 14440), (10, 14464), (11, 14539), (14, 14578), (18, 14698), (20, 14707), (21, 14719), (23, 14767), (27, 14833), (38, 15004), (39, 15013), (42, 15055), (50, 15220), (51, 15232), (52, 15244), (55, 15295), (57, 15307), (58, 15310), (68, 15445), (78, 15586), (81, 15601), (82, 15634), (83, 15643), (95, 15829), (104, 15904), (105, 15913), (108, 15928), (111, 15946), (112, 15949), (115, 15970), (116, 15973), (117, 15991), (120, 16033), (121, 16036), (122, 16039), (126, 16060), (132, 16093), (133, 16138), (135, 16168), (146, 16243), (150, 16300), (160, 16369), (168, 16417), (169, 16420), (176, 16552), (187, 16705), (190, 16720), (191, 16747), (194, 16786), (196, 16816), (201, 16849), (203, 16879), (209, 16954), (213, 17011), (214, 17014), (215, 17020), (218, 17056),

Gene: Karate\_28 Start: 14323, Stop: 17199, Start Num: 1

Candidate Starts for Karate\_28:

(Start: 1 @14323 has 45 MA's), (8, 14557), (9, 14575), (10, 14599), (11, 14674), (12, 14698), (14, 14713), (18, 14833), (21, 14854), (23, 14902), (27, 14968), (38, 15139), (39, 15148), (41, 15181), (42, 15190), (50, 15355), (51, 15367), (52, 15379), (57, 15442), (59, 15478), (69, 15592), (78, 15721), (81, 15736), (82, 15769), (83, 15778), (95, 15964), (97, 15994), (104, 16039), (105, 16048), (108, 16063), (111, 16081), (112, 16084), (115, 16105), (116, 16108), (119, 16156), (126, 16195), (132, 16228), (133, 16273), (138, 16324), (141, 16348), (142, 16357), (151, 16456), (157, 16492), (160, 16504), (168, 16552), (169, 16555), (171, 16612), (174, 16657), (175, 16666), (187, 16840), (190, 16855), (191, 16882), (194, 16921), (196, 16951), (201, 16984), (203, 17014), (209, 17089), (214, 17149), (215, 17155), (217, 17179), (218, 17191),

Gene: Kate\_29 Start: 14919, Stop: 17795, Start Num: 1

Candidate Starts for Kate\_29:

(Start: 1 @14919 has 45 MA's), (7, 15102), (8, 15153), (9, 15171), (10, 15195), (11, 15270), (12, 15294), (14, 15309), (18, 15429), (21, 15450), (23, 15498), (27, 15564), (38, 15735), (39, 15744), (41, 15777), (42, 15786), (44, 15819), (50, 15951), (51, 15963), (52, 15975), (57, 16038), (59, 16074), (69, 16188), (78, 16317), (81, 16332), (82, 16365), (83, 16374), (95, 16560), (102, 16626), (105, 16644), (108, 16659), (111, 16677), (112, 16680), (115, 16701), (116, 16704), (119, 16752), (125, 16788), (126, 16791), (132, 16824), (133, 16869), (140, 16935), (141, 16944), (151, 17052), (157, 17088), (160, 17100), (168, 17148), (169, 17151), (176, 17283), (187, 17436), (190, 17451), (191, 17478), (194, 17517), (196, 17547), (201, 17580), (203, 17610), (209, 17685), (214, 17745), (215, 17751), (217, 17775), (218, 17787),

Gene: Kors\_30 Start: 14845, Stop: 17664, Start Num: 1

Candidate Starts for Kors\_30:

(Start: 1 @14845 has 45 MA's), (4, 14965), (6, 15025), (8, 15079), (10, 15121), (11, 15196), (14, 15235), (16, 15325), (22, 15409), (23, 15424), (24, 15430), (28, 15502), (29, 15553), (30, 15559), (32, 15598), (42, 15712), (45, 15766), (48, 15829), (49, 15868), (50, 15877), (54, 15922), (58, 15967), (68, 16102), (74, 16207), (75, 16222), (76, 16228), (77, 16231), (79, 16249), (80, 16252), (83, 16270), (95, 16423), (100, 16474), (103, 16492), (105, 16507), (107, 16519), (108, 16522), (119, 16615), (121, 16630), (123, 16639), (126, 16654), (130, 16672), (131, 16675), (132, 16687), (133, 16732), (142, 16816), (143, 16819), (152, 16918), (156, 16948), (168, 17011), (169, 17014), (170, 17026), (180, 17212), (183, 17248), (187, 17299), (191, 17341), (194, 17380), (196, 17410), (201, 17443), (203, 17473), (205, 17512), (214, 17611), (215, 17617), (217, 17641),

Gene: Krampus\_29 Start: 14917, Stop: 17793, Start Num: 1

Candidate Starts for Krampus\_29:

(Start: 1 @14917 has 45 MA's), (7, 15100), (8, 15151), (9, 15169), (10, 15193), (11, 15268), (12, 15292), (14, 15307), (18, 15427), (21, 15448), (23, 15496), (27, 15562), (38, 15733), (39, 15742), (41, 15775), (42, 15784), (44, 15817), (50, 15949), (51, 15961), (52, 15973), (57, 16036), (59, 16072), (69, 16186), (78, 16315), (81, 16330), (82, 16363), (83, 16372), (95, 16558), (102, 16624), (105, 16642), (108, 16657), (111, 16675), (112, 16678), (115, 16699), (116, 16702), (119, 16750), (125, 16786),

(126, 16789), (132, 16822), (133, 16867), (140, 16933), (141, 16942), (151, 17050), (157, 17086), (160, 17098), (168, 17146), (169, 17149), (176, 17281), (187, 17434), (190, 17449), (191, 17476), (194, 17515), (196, 17545), (201, 17578), (203, 17608), (209, 17683), (214, 17743), (215, 17749), (217, 17773), (218, 17785),

Gene: LordBart\_30 Start: 14761, Stop: 17580, Start Num: 1

Candidate Starts for LordBart\_30:

(Start: 1 @14761 has 45 MA's), (4, 14881), (6, 14941), (8, 14995), (10, 15037), (11, 15112), (14, 15151), (16, 15241), (22, 15325), (23, 15340), (24, 15346), (28, 15418), (29, 15469), (30, 15475), (32, 15514), (42, 15628), (45, 15682), (48, 15745), (49, 15784), (50, 15793), (54, 15838), (58, 15883), (68, 16018), (74, 16123), (75, 16138), (76, 16144), (77, 16147), (79, 16165), (80, 16168), (83, 16186), (95, 16339), (100, 16390), (103, 16408), (105, 16423), (107, 16435), (108, 16438), (119, 16531), (121, 16546), (123, 16555), (126, 16570), (130, 16588), (131, 16591), (132, 16603), (133, 16648), (142, 16732), (143, 16735), (152, 16834), (156, 16864), (168, 16927), (169, 16930), (170, 16942), (180, 17128), (183, 17164), (187, 17215), (191, 17257), (194, 17296), (196, 17326), (201, 17359), (203, 17389), (205, 17428), (214, 17527), (215, 17533), (217, 17557),

Gene: MortySmith\_27 Start: 14047, Stop: 16923, Start Num: 1

Candidate Starts for MortySmith\_27:

(Start: 1 @14047 has 45 MA's), (7, 14230), (8, 14281), (9, 14299), (10, 14323), (11, 14398), (13, 14428), (16, 14527), (18, 14557), (19, 14560), (20, 14566), (21, 14578), (27, 14692), (38, 14863), (39, 14872), (42, 14914), (50, 15079), (51, 15091), (52, 15103), (55, 15154), (61, 15232), (78, 15445), (81, 15460), (82, 15493), (83, 15502), (95, 15688), (97, 15718), (105, 15772), (108, 15787), (111, 15805), (112, 15808), (115, 15829), (116, 15832), (117, 15850), (120, 15892), (121, 15895), (122, 15898), (126, 15919), (132, 15952), (133, 15997), (135, 16027), (146, 16102), (157, 16216), (160, 16228), (168, 16276), (169, 16279), (176, 16411), (187, 16564), (190, 16579), (191, 16606), (194, 16645), (196, 16675), (201, 16708), (203, 16738), (209, 16813), (213, 16870), (214, 16873), (215, 16879), (218, 16915),

Gene: NarutoRun\_29 Start: 14910, Stop: 17786, Start Num: 1

Candidate Starts for NarutoRun\_29:

(Start: 1 @14910 has 45 MA's), (7, 15093), (8, 15144), (9, 15162), (10, 15186), (11, 15261), (12, 15285), (14, 15300), (18, 15420), (21, 15441), (23, 15489), (27, 15555), (38, 15726), (39, 15735), (41, 15768), (42, 15777), (44, 15810), (50, 15942), (51, 15954), (52, 15966), (57, 16029), (59, 16065), (69, 16179), (78, 16308), (81, 16323), (82, 16356), (83, 16365), (95, 16551), (102, 16617), (105, 16635), (108, 16650), (111, 16668), (112, 16671), (115, 16692), (116, 16695), (119, 16743), (125, 16779), (126, 16782), (132, 16815), (133, 16860), (140, 16926), (141, 16935), (151, 17043), (157, 17079), (160, 17091), (168, 17139), (169, 17142), (176, 17274), (187, 17427), (190, 17442), (191, 17469), (194, 17508), (196, 17538), (201, 17571), (203, 17601), (209, 17676), (214, 17736), (215, 17742), (217, 17766), (218, 17778),

Gene: Neptune\_29 Start: 14887, Stop: 17763, Start Num: 1

Candidate Starts for Neptune\_29:

(Start: 1 @14887 has 45 MA's), (7, 15070), (8, 15121), (9, 15139), (10, 15163), (11, 15238), (12, 15262), (14, 15277), (18, 15397), (21, 15418), (23, 15466), (27, 15532), (38, 15703), (39, 15712), (41, 15745), (42, 15754), (44, 15787), (50, 15919), (51, 15931), (52, 15943), (57, 16006), (59, 16042), (69, 16156), (78, 16285), (81, 16300), (82, 16333), (83, 16342), (95, 16528), (102, 16594), (105, 16612), (108, 16627), (111, 16645), (112, 16648), (115, 16669), (116, 16672), (119, 16720), (125, 16756), (126, 16759), (132, 16792), (133, 16837), (140, 16903), (141, 16912), (151, 17020), (157, 17056), (160, 17068), (168, 17116), (169, 17119), (176, 17251), (187, 17404), (190, 17419), (191, 17446), (194, 17485), (196, 17515), (201, 17548), (203, 17578), (209, 17653), (214, 17713), (215, 17719), (217, 17743), (218, 17755),

Gene: OhDear\_29 Start: 14916, Stop: 17792, Start Num: 1

Candidate Starts for OhDear\_29:

(Start: 1 @14916 has 45 MA's), (7, 15099), (8, 15150), (9, 15168), (10, 15192), (11, 15267), (12, 15291), (14, 15306), (18, 15426), (21, 15447), (23, 15495), (27, 15561), (38, 15732), (39, 15741), (41, 15774), (42, 15783), (44, 15816), (50, 15948), (51, 15960), (52, 15972), (57, 16035), (59, 16071), (69, 16185), (78, 16314), (81, 16329), (82, 16362), (83, 16371), (95, 16557), (102, 16623), (105, 16641), (108, 16656), (111, 16674), (112, 16677), (115, 16698), (116, 16701), (119, 16749), (125, 16785), (126, 16788), (132, 16821), (133, 16866), (140, 16932), (141, 16941), (157, 17085), (160, 17097), (168, 17145), (169, 17148), (176, 17280), (187, 17433), (190, 17448), (191, 17475), (194, 17514), (196, 17544), (201, 17577), (203, 17607), (209, 17682), (214, 17742), (215, 17748), (217, 17772), (218, 17784),

Gene: OverHedge\_29 Start: 14877, Stop: 17753, Start Num: 1

Candidate Starts for OverHedge\_29:

(Start: 1 @14877 has 45 MA's), (7, 15060), (8, 15111), (9, 15129), (10, 15153), (11, 15228), (12, 15252), (14, 15267), (18, 15387), (21, 15408), (23, 15456), (27, 15522), (38, 15693), (39, 15702), (41, 15735), (42, 15744), (44, 15777), (50, 15909), (51, 15921), (52, 15933), (57, 15996), (59, 16032), (69, 16146), (78, 16275), (81, 16290), (82, 16323), (83, 16332), (95, 16518), (102, 16584), (105, 16602), (108, 16617), (111, 16635), (112, 16638), (115, 16659), (116, 16662), (119, 16710), (125, 16746), (126, 16749), (132, 16782), (133, 16827), (140, 16893), (141, 16902), (151, 17010), (157, 17046), (160, 17058), (168, 17106), (169, 17109), (176, 17241), (187, 17394), (190, 17409), (191, 17436), (194, 17475), (196, 17505), (201, 17538), (203, 17568), (209, 17643), (214, 17703), (215, 17709), (217, 17733), (218, 17745),

Gene: Pharpay\_29 Start: 14932, Stop: 17808, Start Num: 1

Candidate Starts for Pharpay\_29:

(Start: 1 @14932 has 45 MA's), (7, 15115), (8, 15166), (9, 15184), (10, 15208), (11, 15283), (12, 15307), (14, 15322), (18, 15442), (21, 15463), (23, 15511), (27, 15577), (38, 15748), (39, 15757), (41, 15790), (42, 15799), (44, 15832), (50, 15964), (51, 15976), (52, 15988), (57, 16051), (59, 16087), (69, 16201), (78, 16330), (81, 16345), (82, 16378), (83, 16387), (95, 16573), (102, 16639), (105, 16657), (108, 16672), (111, 16690), (112, 16693), (115, 16714), (116, 16717), (119, 16765), (125, 16801), (126, 16804), (132, 16837), (133, 16882), (140, 16948), (141, 16957), (157, 17101), (160, 17113), (168, 17161), (169, 17164), (176, 17296), (187, 17449), (190, 17464), (191, 17491), (194, 17530), (196, 17560), (201, 17593), (203, 17623), (209, 17698), (214, 17758), (215, 17764), (217, 17788), (218, 17800),

Gene: PhunaPhoke\_29 Start: 14905, Stop: 17781, Start Num: 1

Candidate Starts for PhunaPhoke\_29:

(Start: 1 @14905 has 45 MA's), (7, 15088), (8, 15139), (9, 15157), (10, 15181), (11, 15256), (12, 15280), (14, 15295), (18, 15415), (21, 15436), (23, 15484), (27, 15550), (38, 15721), (39, 15730), (41, 15763), (42, 15772), (44, 15805), (50, 15937), (51, 15949), (52, 15961), (57, 16024), (59, 16060), (69, 16174), (78, 16303), (81, 16318), (82, 16351), (83, 16360), (95, 16546), (102, 16612), (105, 16630), (108, 16645), (111, 16663), (112, 16666), (115, 16687), (116, 16690), (119, 16738), (125, 16774), (126, 16777), (132, 16810), (133, 16855), (140, 16921), (141, 16930), (157, 17074), (160, 17086), (168, 17134), (169, 17137), (176, 17269), (187, 17422), (190, 17437), (191, 17464), (194, 17503), (196, 17533), (201, 17566), (203, 17596), (209, 17671), (214, 17731), (215, 17737), (217, 17761), (218, 17773),

Gene: Potty\_29 Start: 14910, Stop: 17786, Start Num: 1

Candidate Starts for Potty\_29:

(Start: 1 @14910 has 45 MA's), (7, 15093), (8, 15144), (9, 15162), (10, 15186), (11, 15261), (12, 15285), (14, 15300), (18, 15420), (21, 15441), (23, 15489), (27, 15555), (38, 15726), (39, 15735), (41, 15768), (42, 15777), (44, 15810), (50, 15942), (51, 15954), (52, 15966), (57, 16029), (59, 16065), (69,

16179), (78, 16308), (81, 16323), (82, 16356), (83, 16365), (95, 16551), (102, 16617), (105, 16635), (108, 16650), (111, 16668), (112, 16671), (115, 16692), (116, 16695), (119, 16743), (125, 16779), (126, 16782), (132, 16815), (133, 16860), (140, 16926), (141, 16935), (151, 17043), (157, 17079), (160, 17091), (168, 17139), (169, 17142), (176, 17274), (187, 17427), (190, 17442), (191, 17469), (194, 17508), (196, 17538), (201, 17571), (203, 17601), (209, 17676), (214, 17736), (215, 17742), (217, 17766), (218, 17778),

Gene: Poultruss\_28 Start: 14674, Stop: 17550, Start Num: 1

Candidate Starts for Poultruss\_28:

(Start: 1 @14674 has 45 MA's), (7, 14857), (8, 14908), (9, 14926), (10, 14950), (11, 15025), (12, 15049), (14, 15064), (18, 15184), (21, 15205), (23, 15253), (27, 15319), (38, 15490), (39, 15499), (41, 15532), (42, 15541), (44, 15574), (50, 15706), (51, 15718), (52, 15730), (57, 15793), (59, 15829), (69, 15943), (78, 16072), (81, 16087), (82, 16120), (83, 16129), (95, 16315), (97, 16345), (108, 16414), (111, 16432), (112, 16435), (115, 16456), (116, 16459), (119, 16507), (126, 16546), (132, 16579), (133, 16624), (138, 16675), (141, 16699), (142, 16708), (151, 16807), (157, 16843), (160, 16855), (169, 16906), (174, 17008), (187, 17191), (190, 17206), (191, 17233), (194, 17272), (196, 17302), (201, 17335), (203, 17365), (209, 17440), (214, 17500), (215, 17506), (217, 17530), (218, 17542),

Gene: Rachella\_29 Start: 14913, Stop: 17789, Start Num: 1

Candidate Starts for Rachella\_29:

(Start: 1 @14913 has 45 MA's), (7, 15096), (8, 15147), (9, 15165), (10, 15189), (11, 15264), (12, 15288), (14, 15303), (18, 15423), (21, 15444), (23, 15492), (27, 15558), (38, 15729), (39, 15738), (41, 15771), (42, 15780), (44, 15813), (50, 15945), (51, 15957), (52, 15969), (57, 16032), (59, 16068), (69, 16182), (78, 16311), (81, 16326), (82, 16359), (83, 16368), (95, 16554), (102, 16620), (105, 16638), (108, 16653), (111, 16671), (112, 16674), (115, 16695), (116, 16698), (119, 16746), (125, 16782), (126, 16785), (132, 16818), (133, 16863), (140, 16929), (141, 16938), (151, 17046), (157, 17082), (160, 17094), (168, 17142), (169, 17145), (176, 17277), (187, 17430), (190, 17445), (191, 17472), (194, 17511), (196, 17541), (201, 17574), (203, 17604), (209, 17679), (214, 17739), (215, 17745), (217, 17769), (218, 17781),

Gene: Rie18\_29 Start: 14255, Stop: 17302, Start Num: 1

Candidate Starts for Rie18\_29:

(Start: 1 @14255 has 45 MA's), (7, 14438), (8, 14489), (9, 14507), (10, 14531), (11, 14606), (12, 14630), (14, 14645), (21, 14786), (23, 14834), (27, 14900), (34, 15047), (35, 15095), (36, 15131), (38, 15242), (39, 15251), (40, 15269), (41, 15284), (50, 15458), (51, 15470), (52, 15482), (60, 15599), (62, 15614), (64, 15650), (69, 15695), (78, 15824), (81, 15839), (82, 15872), (83, 15881), (95, 16067), (97, 16097), (102, 16133), (108, 16166), (111, 16184), (116, 16211), (119, 16259), (125, 16295), (126, 16298), (131, 16319), (132, 16331), (133, 16376), (138, 16427), (141, 16451), (142, 16460), (157, 16595), (160, 16607), (168, 16655), (169, 16658), (171, 16715), (173, 16739), (175, 16769), (187, 16943), (190, 16958), (191, 16985), (194, 17024), (196, 17054), (201, 17087), (203, 17117), (209, 17192), (214, 17252), (215, 17258), (217, 17282), (218, 17294),

Gene: RikSengupta\_30 Start: 14882, Stop: 17701, Start Num: 1

Candidate Starts for RikSengupta\_30:

(Start: 1 @14882 has 45 MA's), (4, 15002), (6, 15062), (8, 15116), (9, 15134), (10, 15158), (11, 15233), (14, 15272), (16, 15362), (22, 15446), (23, 15461), (24, 15467), (28, 15539), (29, 15590), (30, 15596), (32, 15635), (42, 15749), (45, 15803), (48, 15866), (49, 15905), (50, 15914), (54, 15959), (58, 16004), (68, 16139), (74, 16244), (75, 16259), (76, 16265), (77, 16268), (79, 16286), (80, 16289), (83, 16307), (95, 16460), (100, 16511), (103, 16529), (105, 16544), (107, 16556), (108, 16559), (119, 16652), (121, 16667), (123, 16676), (126, 16691), (130, 16709), (131, 16712), (132, 16724), (133, 16769), (142, 16853), (143, 16856), (152, 16955), (156, 16985), (168, 17048), (169, 17051), (170, 17063), (180, 17249), (183, 17285), (187, 17336), (191, 17378), (194, 17417), (196, 17447), (201, 17480), (203, 17510), (205, 17549), (214, 17648), (215, 17654), (217, 17678),

Gene: Shrew\_62 Start: 29859, Stop: 32717, Start Num: 1

Candidate Starts for Shrew\_62:

(Start: 1 @29859 has 45 MA's), (6, 30030), (10, 30126), (17, 30345), (20, 30369), (29, 30558), (30, 30564), (33, 30606), (42, 30717), (45, 30771), (47, 30822), (53, 30924), (58, 30972), (63, 31068), (66, 31092), (79, 31233), (83, 31281), (96, 31461), (102, 31521), (106, 31542), (113, 31581), (118, 31635), (127, 31686), (135, 31761), (136, 31767), (148, 31851), (149, 31854), (154, 31908), (155, 31911), (159, 31941), (163, 31962), (164, 31965), (165, 31974), (167, 31986), (171, 32052), (172, 32070), (174, 32097), (177, 32139), (178, 32160), (186, 32280), (189, 32292), (195, 32385), (196, 32391), (197, 32403), (198, 32421), (204, 32475), (206, 32532), (212, 32577), (216, 32613), (219, 32709),

Gene: SilentWarrior\_28 Start: 14080, Stop: 16956, Start Num: 1

Candidate Starts for SilentWarrior\_28:

(Start: 1 @14080 has 45 MA's), (7, 14263), (8, 14314), (9, 14332), (10, 14356), (11, 14431), (12, 14455), (14, 14470), (18, 14590), (21, 14611), (23, 14659), (27, 14725), (38, 14896), (39, 14905), (41, 14938), (42, 14947), (44, 14980), (50, 15112), (51, 15124), (52, 15136), (55, 15187), (59, 15235), (69, 15349), (78, 15478), (81, 15493), (82, 15526), (83, 15535), (95, 15721), (104, 15796), (105, 15805), (108, 15820), (111, 15838), (112, 15841), (115, 15862), (116, 15865), (117, 15883), (120, 15925), (121, 15928), (122, 15931), (126, 15952), (132, 15985), (133, 16030), (135, 16060), (146, 16135), (157, 16249), (160, 16261), (168, 16309), (169, 16312), (176, 16444), (187, 16597), (190, 16612), (191, 16639), (194, 16678), (196, 16708), (201, 16741), (203, 16771), (209, 16846), (213, 16903), (214, 16906), (215, 16912), (218, 16948),

Gene: Snakehole\_29 Start: 14169, Stop: 17045, Start Num: 1

Candidate Starts for Snakehole\_29:

(Start: 1 @14169 has 45 MA's), (7, 14352), (8, 14403), (9, 14421), (10, 14445), (11, 14520), (12, 14544), (14, 14559), (18, 14679), (21, 14700), (23, 14748), (27, 14814), (38, 14985), (39, 14994), (41, 15027), (42, 15036), (44, 15069), (50, 15201), (51, 15213), (52, 15225), (57, 15288), (59, 15324), (69, 15438), (78, 15567), (81, 15582), (82, 15615), (83, 15624), (95, 15810), (104, 15885), (105, 15894), (108, 15909), (111, 15927), (112, 15930), (115, 15951), (116, 15954), (117, 15972), (120, 16014), (121, 16017), (122, 16020), (126, 16041), (132, 16074), (133, 16119), (135, 16149), (146, 16224), (150, 16281), (157, 16338), (160, 16350), (168, 16398), (169, 16401), (176, 16533), (187, 16686), (190, 16701), (191, 16728), (194, 16767), (196, 16797), (201, 16830), (203, 16860), (209, 16935), (213, 16992), (214, 16995), (215, 17001), (218, 17037),

Gene: Sparcetus\_30 Start: 14761, Stop: 17580, Start Num: 1

Candidate Starts for Sparcetus\_30:

(Start: 1 @14761 has 45 MA's), (4, 14881), (6, 14941), (8, 14995), (10, 15037), (11, 15112), (14, 15151), (16, 15241), (22, 15325), (23, 15340), (24, 15346), (28, 15418), (29, 15469), (30, 15475), (32, 15514), (42, 15628), (45, 15682), (48, 15745), (49, 15784), (50, 15793), (54, 15838), (58, 15883), (68, 16018), (74, 16123), (75, 16138), (76, 16144), (77, 16147), (79, 16165), (80, 16168), (83, 16186), (95, 16339), (100, 16390), (103, 16408), (105, 16423), (107, 16435), (108, 16438), (119, 16531), (121, 16546), (123, 16555), (126, 16570), (130, 16588), (131, 16591), (132, 16603), (133, 16648), (142, 16732), (143, 16735), (152, 16834), (156, 16864), (168, 16927), (169, 16930), (170, 16942), (180, 17128), (183, 17164), (187, 17215), (191, 17257), (194, 17296), (196, 17326), (201, 17359), (203, 17389), (205, 17428), (214, 17527), (215, 17533), (217, 17557),

Gene: Tedro\_29 Start: 14383, Stop: 17259, Start Num: 1

Candidate Starts for Tedro\_29:

(Start: 1 @14383 has 45 MA's), (7, 14566), (8, 14617), (9, 14635), (10, 14659), (11, 14734), (12, 14758), (14, 14773), (18, 14893), (21, 14914), (23, 14962), (27, 15028), (38, 15199), (39, 15208), (41, 15241), (42, 15250), (44, 15283), (50, 15415), (51, 15427), (52, 15439), (57, 15502), (59, 15538), (69, 15652), (78, 15781), (81, 15796), (82, 15829), (83, 15838), (95, 16024), (102, 16090), (105, 16108),

(108, 16123), (111, 16141), (112, 16144), (115, 16165), (116, 16168), (119, 16216), (125, 16252), (126, 16255), (132, 16288), (133, 16333), (140, 16399), (141, 16408), (151, 16516), (157, 16552), (160, 16564), (168, 16612), (169, 16615), (176, 16747), (187, 16900), (190, 16915), (191, 16942), (194, 16981), (196, 17011), (201, 17044), (203, 17074), (209, 17149), (214, 17209), (215, 17215), (217, 17239), (218, 17251),

Gene: Tiggy93\_29 Start: 14916, Stop: 17792, Start Num: 1

Candidate Starts for Tiggy93\_29:

(Start: 1 @14916 has 45 MA's), (7, 15099), (8, 15150), (9, 15168), (10, 15192), (11, 15267), (12, 15291), (14, 15306), (18, 15426), (21, 15447), (23, 15495), (27, 15561), (38, 15732), (39, 15741), (41, 15774), (42, 15783), (44, 15816), (50, 15948), (51, 15960), (52, 15972), (57, 16035), (59, 16071), (69, 16185), (78, 16314), (81, 16329), (82, 16362), (83, 16371), (95, 16557), (102, 16623), (105, 16641), (108, 16656), (111, 16674), (112, 16677), (115, 16698), (116, 16701), (119, 16749), (125, 16785), (126, 16788), (132, 16821), (133, 16866), (140, 16932), (141, 16941), (151, 17049), (157, 17085), (160, 17097), (168, 17145), (169, 17148), (176, 17280), (187, 17433), (190, 17448), (191, 17475), (194, 17514), (196, 17544), (201, 17577), (203, 17607), (209, 17682), (214, 17742), (215, 17748), (217, 17772), (218, 17784),

Gene: TinyMiny\_30 Start: 14780, Stop: 17599, Start Num: 1

Candidate Starts for TinyMiny\_30:

(Start: 1 @14780 has 45 MA's), (4, 14900), (6, 14960), (8, 15014), (9, 15032), (10, 15056), (11, 15131), (14, 15170), (16, 15260), (22, 15344), (23, 15359), (24, 15365), (28, 15437), (29, 15488), (30, 15494), (31, 15530), (32, 15533), (42, 15647), (45, 15701), (48, 15764), (49, 15803), (50, 15812), (54, 15857), (58, 15902), (68, 16037), (74, 16142), (75, 16157), (76, 16163), (77, 16166), (79, 16184), (80, 16187), (83, 16205), (95, 16358), (100, 16409), (103, 16427), (105, 16442), (107, 16454), (108, 16457), (119, 16550), (121, 16565), (123, 16574), (126, 16589), (130, 16607), (131, 16610), (132, 16622), (133, 16667), (142, 16751), (143, 16754), (152, 16853), (156, 16883), (168, 16946), (169, 16949), (170, 16961), (180, 17147), (183, 17183), (187, 17234), (191, 17276), (194, 17315), (196, 17345), (201, 17378), (203, 17408), (205, 17447), (214, 17546), (215, 17552), (217, 17576),

Gene: Tongui\_28 Start: 14247, Stop: 17294, Start Num: 1

Candidate Starts for Tongui\_28:

(Start: 1 @14247 has 45 MA's), (7, 14430), (8, 14481), (9, 14499), (10, 14523), (11, 14598), (12, 14622), (14, 14637), (21, 14778), (22, 14811), (23, 14826), (27, 14892), (31, 14997), (34, 15039), (35, 15087), (36, 15123), (38, 15234), (39, 15243), (41, 15276), (50, 15450), (51, 15462), (52, 15474), (60, 15591), (62, 15606), (64, 15642), (69, 15687), (78, 15816), (81, 15831), (82, 15864), (83, 15873), (95, 16059), (97, 16089), (104, 16134), (105, 16143), (108, 16158), (115, 16200), (116, 16203), (117, 16221), (119, 16251), (125, 16287), (126, 16290), (130, 16308), (132, 16323), (133, 16368), (140, 16434), (141, 16443), (146, 16473), (157, 16587), (160, 16599), (168, 16647), (175, 16761), (187, 16935), (190, 16950), (191, 16977), (194, 17016), (196, 17046), (199, 17067), (201, 17079), (203, 17109), (214, 17244), (215, 17250), (217, 17274), (218, 17286),

Gene: Triscuit\_49 Start: 25122, Stop: 28178, Start Num: 1

Candidate Starts for Triscuit\_49:

(Start: 1 @25122 has 45 MA's), (2, 25131), (3, 25149), (5, 25281), (15, 25551), (20, 25629), (23, 25689), (26, 25746), (29, 25818), (37, 25914), (43, 25995), (46, 26073), (53, 26184), (56, 26220), (57, 26229), (65, 26343), (71, 26388), (73, 26445), (84, 26601), (85, 26604), (86, 26628), (87, 26634), (88, 26661), (89, 26667), (91, 26688), (92, 26694), (93, 26721), (98, 26793), (101, 26826), (102, 26835), (109, 26874), (110, 26886), (112, 26892), (115, 26913), (119, 26964), (130, 27021), (133, 27081), (134, 27108), (139, 27153), (144, 27195), (145, 27204), (153, 27294), (158, 27327), (161, 27336), (166, 27366), (179, 27558), (181, 27591), (182, 27594), (184, 27636), (185, 27669), (188, 27690), (192, 27750), (193, 27768), (200, 27864), (202, 27885), (206, 27975), (207, 27978), (208, 27981), (210, 27999), (211, 28008), (218, 28101), (219, 28167), (220, 28170),

