

Pham 192406



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 192406 Report

This analysis was run 11/02/24 on database version 579.

Pham number 192406 has 126 members, 11 are drafts.

Phages represented in each track:

- Track 1 : Fowlmouth_9, MrMiyagi_9
- Track 2 : Cuke_8
- Track 3 : Indlulamithi_11
- Track 4 : Leopard_26, Onyinye_27, Aikoy_26
- Track 5 : PLOT_16, Giuseppe_15, WaldoWhy_16, Helpful_16, Delton_15, Thoth_15, Chill_16, Visconti_15, Penelope2018_15, Troll4_15, Mopey_15
- Track 6 : Gumball_14, SirHarley_14, Nova_15, BigMama_13, Prager_15, KandZ_15, Erk16_15, Adjutor_16, PBI1_16, Butterscotch_15
- Track 7 : Hawkeye_17
- Track 8 : LilyPad_11
- Track 9 : Suzy_11
- Track 10 : Djokovic_10, Terapin_10, BiteSize_10, Madi_10, Sienna_10, Beyoncage_10
- Track 11 : LittleFella_12
- Track 12 : OtterstedtS21_14, Fulcrum_15, Lila22_15, ParvusTarda_14, DoobyDoo_13, Gibbin_15, MoiGyank_16, BirthdayBoy_15, GOATification_15
- Track 13 : Ranch_14, Alyssamiracle_13, Sampudon_15, Genamy16_13, Patos_15, DaviePasture_14, Rumi_13, GretelLyn_14, Avian_13, Sadboi_14, Jalebi_15, NovaSharks_13, Yikes_15, Jamemuya19_12, NorManre_15, Erutan_14, Mima20_14
- Track 14 : Lambo_14
- Track 15 : LuckyLeo_14, Apeppi_13, Tillicus_15
- Track 16 : DumpTruck_13, Xenia2_12
- Track 17 : Alephilan_12
- Track 18 : Zany_14
- Track 19 : Wojtek_13
- Track 20 : NarutoRun_17, Anakin_17
- Track 21 : Cybele_17, Kate_17, Krampus_17, OverHedge_17, Rachella_17, PhunaPhoke_17, Gilda_17, Pharpay_17, Karate_16, Neptune_17, AnnaSerena_17
- Track 22 : CoolCookie_17
- Track 23 : Tedro_17, Haunter_17
- Track 24 : Ajin_18, TinyMiny_18, RikSengupta_18, Kors_19, Sparcetus_18
- Track 25 : MortySmith_15, Chivey_16, Dauntless_16, Erudite_16, FreddieHg_16, Aesir_16, DannyDe_16, Snakehole_18, JDawG_16, JingleBells_16, Hiddenleaf_16, Crestdrop_16, Poultruss_16
- Track 26 : Hager_18, Potty_17
- Track 27 : Rie18_17
- Track 28 : Huwbart_38, Triscuit_37

- Track 29 : Damien_14, Phreeze_14, Beckerton_14, Thumb_14, Konstantine_19, Oaker_14
- Track 30 : Predator_18
- Track 31 : Cborch11_15, Megatron06_16
- Track 32 : Puissant_13
- Track 33 : DrLupo_22
- Track 34 : Barnyard_20
- Track 35 : Shrew_56
- Track 36 : Wollypog_5

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

The start number called the most often in the published annotations is 12, it was called in 73 of the 115 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adjutor_16, Aesir_16, Aikoy_26, Ajin_18, Anakin_17, AnnaSerena_17, Beyoncage_10, BigMama_13, BiteSize_10, Butterscotch_15, Chill_16, Chivey_16, CoolCookie_17, Crestdrop_16, Cuke_8, Cybele_17, DannyDe_16, Dauntless_16, Delton_15, Djokovic_10, Erk16_15, Erudite_16, Fowlmouth_9, FreddieHg_16, Gilda_17, Giuseppe_15, Gumball_14, Hager_18, Haunter_17, Hawkeye_17, Helpful_16, Hiddenleaf_16, Indlulamithi_11, JDawG_16, JingleBells_16, KandZ_15, Karate_16, Kate_17, Kors_19, Krampus_17, Leopard_26, LilyPad_11, LittleFella_12, Madi_10, Mopey_15, MortySmith_15, MrMiyagi_9, NarutoRun_17, Neptune_17, Nova_15, Onyinye_27, OverHedge_17, PBI1_16, PLOT_16, Penelope2018_15, Pharpay_17, PhunaPhoke_17, Potty_17, Poultruss_16, Prager_15, Rachella_17, Rie18_17, RikSengupta_18, Shrew_56, Sienna_10, SirHarley_14, Snakehole_18, Sparcetus_18, Suzy_11, Tedro_17, Terapin_10, Thoth_15, TinyMiny_18, Troll4_15, Visconti_15, WaldoWhy_16, Wollypog_5,

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

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

- Alephlan_12, Alyssamiracle_13, Apeppi_13, Avian_13, Barnyard_20, Beckerton_14, BirthdayBoy_15, Cborch11_15, Damien_14, DaviePasture_14, DoobyDoo_13, DrLupo_22, DumpTruck_13, Erutan_14, Fulcrum_15, GOATification_15, Genamy16_13, Gibbin_15, GretelLyn_14, Huwbert_38, Jalebi_15, Jamemuya19_12, Konstantine_19, Lambo_14, Lila22_15, LuckyLeo_14, Megatron06_16, Mima20_14, MoiGyank_16, NorManre_15, NovaSharks_13, Oaker_14, OtterstedtS21_14, ParvusTarda_14, Patos_15, Phreeze_14, Predator_18, Puissant_13, Ranch_14, Rumi_13, Sadboi_14, Sampudon_15, Thumb_14, Tillicus_15, Triscuit_37, Wojtek_13, Xenia2_12, Yikes_15, Zany_14,

Summary by start number:

Start 8:

- Found in 2 of 126 (1.6%) of genes in pham
- Manual Annotations of this start: 2 of 115
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Barnyard_20 (H2), DrLupo_22 (H2),

Start 9:

- Found in 2 of 126 (1.6%) of genes in pham
- Manual Annotations of this start: 2 of 115
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Huwbert_38 (GG), Triscuit_37 (GG),

Start 10:

- Found in 10 of 126 (7.9%) of genes in pham
- Manual Annotations of this start: 9 of 115
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beckerton_14 (H1), Cborch11_15 (H1), Damien_14 (H1), Konstantine_19 (H1), Megatron06_16 (H1), Oaker_14 (H1), Phreeze_14 (H1), Predator_18 (H1), Puissant_13 (H1), Thumb_14 (H1),

Start 11:

- Found in 35 of 126 (27.8%) of genes in pham
- Manual Annotations of this start: 29 of 115
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alephlan_12 (DV), Alyssamiracle_13 (DV), Apeppi_13 (DV), Avian_13 (DV), BirthdayBoy_15 (DV), DaviePasture_14 (DV), DoobyDoo_13 (DV), DumpTruck_13 (DV), Erutan_14 (DV), Fulcrum_15 (DV), GOATification_15 (DV), Genamy16_13 (DV), Gibbin_15 (DV), GretelLyn_14 (DV), Jalebi_15 (DV), Jamemuya19_12 (DV), Lambo_14 (DV), Lila22_15 (DV), LuckyLeo_14 (DV), Mima20_14 (DV), MoiGyank_16 (DV), NorManre_15 (DV), NovaSharks_13 (DV), OtterstedtS21_14 (DV), ParvusTarda_14 (DV), Patos_15 (DV), Ranch_14 (DV), Rumi_13 (DV), Sadboi_14 (DV), Sampudon_15 (DV), Tillicus_15 (DV), Wojtek_13 (DV), Xenia2_12 (DV), Yikes_15 (DV), Zany_14 (DV),

Start 12:

- Found in 77 of 126 (61.1%) of genes in pham
- Manual Annotations of this start: 73 of 115
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adjutor_16 (D1), Aesir_16 (EF), Aikoy_26 (AE), Ajin_18 (EF), Anakin_17 (EF), AnnaSerena_17 (EF), Beyoncage_10 (DG1), BigMama_13 (D1), BiteSize_10 (DG1), Butterscotch_15 (D1), Chill_16 (D1), Chivey_16 (EF), CoolCookie_17 (EF), Crestdrop_16 (EF), Cuke_8 (AC), Cybele_17 (EF), DannyDe_16 (EF), Dauntless_16 (EF), Delton_15 (D1), Djokovic_10 (DG1), Erk16_15 (D1), Erudite_16 (EF), Fowlmouth_9 (AC), FreddieHg_16 (EF), Gilda_17 (EF), Giuseppe_15 (D1), Gumball_14 (D1), Hager_18 (EF), Haunter_17 (EF), Hawkeye_17 (D2), Helpful_16 (D1), Hiddenleaf_16 (EF), Indlulamithi_11 (AC), JDawG_16 (EF), JingleBells_16 (EF), KandZ_15 (D1), Karate_16 (EF), Kate_17 (EF), Kors_19 (EF), Krampus_17 (EF), Leopard_26 (AE), LilyPad_11 (DG1), LittleFella_12 (DG2), Madi_10 (DG1), Mopey_15 (D1), MortySmith_15 (EF), MrMiyagi_9 (AC), NarutoRun_17 (EF), Neptune_17 (EF), Nova_15 (D1), Onyinye_27 (AE), OverHedge_17 (EF), PBI1_16 (D1), PLOT_16 (D1), Penelope2018_15 (D1), Pharpay_17 (EF), PhunaPhoke_17 (EF), Potty_17 (EF), Poultruss_16 (EF), Prager_15 (D1), Rachella_17 (EF), Rie18_17 (EF), RikSengupta_18 (EF), Shrew_56 (singleton), Sienna_10 (DG1), SirHarley_14 (D1), Snakehole_18 (EF), Sparcetus_18 (EF), Suzy_11 (DG1), Tedro_17 (EF), Terapin_10 (DG1), Thoth_15 (D1), TinyMiny_18 (EF), Troll4_15 (D1), Visconti_15 (D1), WaldoWhy_16 (D1), Wollypog_5 (singleton),

Summary by clusters:

There are 12 clusters represented in this pham: DG2, singleton, H1, AE, H2, EF, AC, GG, DG1, DV, D2, D1,

Info for manual annotations of cluster AC:

- Start number 12 was manually annotated 4 times for cluster AC.

Info for manual annotations of cluster AE:

- Start number 12 was manually annotated 3 times for cluster AE.

Info for manual annotations of cluster D1:

- Start number 12 was manually annotated 20 times for cluster D1.

Info for manual annotations of cluster D2:

- Start number 12 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DG1:

- Start number 12 was manually annotated 8 times for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 12 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:

- Start number 11 was manually annotated 29 times for cluster DV.

Info for manual annotations of cluster EF:

- Start number 12 was manually annotated 35 times for cluster EF.

Info for manual annotations of cluster GG:

- Start number 9 was manually annotated 2 times for cluster GG.

Info for manual annotations of cluster H1:

- Start number 10 was manually annotated 9 times for cluster H1.

Info for manual annotations of cluster H2:

- Start number 8 was manually annotated 2 times for cluster H2.

Gene Information:

Gene: Adjutor_16 Start: 10392, Stop: 10811, Start Num: 12

Candidate Starts for Adjutor_16:

(Start: 12 @10392 has 73 MA's), (21, 10488), (23, 10515), (24, 10539), (26, 10548), (28, 10554), (35, 10587), (38, 10596), (57, 10773),

Gene: Aesir_16 Start: 9070, Stop: 9429, Start Num: 12

Candidate Starts for Aesir_16:

(Start: 12 @9070 has 73 MA's), (38, 9277), (42, 9295), (56, 9415),

Gene: Aikoy_26 Start: 16296, Stop: 16724, Start Num: 12

Candidate Starts for Aikoy_26:

(Start: 12 @16296 has 73 MA's), (23, 16419), (26, 16452), (27, 16455), (29, 16461), (35, 16509), (38, 16518), (52, 16647), (53, 16665),

Gene: Ajin_18 Start: 9126, Stop: 9482, Start Num: 12

Candidate Starts for Ajin_18:

(Start: 12 @9126 has 73 MA's), (14, 9162), (21, 9222), (35, 9321),

Gene: Alephilan_12 Start: 10817, Stop: 11206, Start Num: 11

Candidate Starts for Alephilan_12:

(Start: 11 @10817 has 29 MA's), (25, 10973), (26, 10979), (38, 11027),

Gene: Alyssamiracle_13 Start: 9224, Stop: 9613, Start Num: 11

Candidate Starts for Alyssamiracle_13:

(Start: 11 @9224 has 29 MA's), (25, 9380), (26, 9386), (27, 9389), (38, 9434),

Gene: Anakin_17 Start: 9282, Stop: 9638, Start Num: 12

Candidate Starts for Anakin_17:

(Start: 12 @9282 has 73 MA's), (38, 9489), (47, 9546), (56, 9624),

Gene: AnnaSerena_17 Start: 9288, Stop: 9644, Start Num: 12

Candidate Starts for AnnaSerena_17:

(Start: 12 @9288 has 73 MA's), (38, 9495), (47, 9552), (56, 9630),

Gene: Apeppi_13 Start: 10933, Stop: 11331, Start Num: 11

Candidate Starts for Apeppi_13:

(Start: 11 @10933 has 29 MA's), (38, 11143),

Gene: Avian_13 Start: 9224, Stop: 9613, Start Num: 11

Candidate Starts for Avian_13:

(Start: 11 @9224 has 29 MA's), (25, 9380), (26, 9386), (27, 9389), (38, 9434),

Gene: Barnyard_20 Start: 11230, Stop: 11703, Start Num: 8

Candidate Starts for Barnyard_20:

(Start: 8 @11230 has 2 MA's), (17, 11317), (21, 11353), (30, 11431), (32, 11443), (39, 11500), (50, 11605), (57, 11677),

Gene: Beckerton_14 Start: 10316, Stop: 10822, Start Num: 10

Candidate Starts for Beckerton_14:

(Start: 10 @10316 has 9 MA's), (19, 10421), (23, 10457), (24, 10481), (36, 10559), (37, 10568), (38, 10571), (49, 10658), (57, 10748), (62, 10799),

Gene: Beyoncage_10 Start: 6697, Stop: 7074, Start Num: 12

Candidate Starts for Beyoncage_10:

(Start: 12 @6697 has 73 MA's), (38, 6901), (50, 6976),

Gene: BigMama_13 Start: 10465, Stop: 10884, Start Num: 12

Candidate Starts for BigMama_13:

(Start: 12 @10465 has 73 MA's), (21, 10561), (23, 10588), (24, 10612), (26, 10621), (28, 10627), (35, 10660), (38, 10669), (57, 10846),

Gene: BirthdayBoy_15 Start: 11670, Stop: 12059, Start Num: 11

Candidate Starts for BirthdayBoy_15:

(Start: 11 @11670 has 29 MA's), (25, 11826), (26, 11832), (27, 11835), (38, 11880), (51, 11973),

Gene: BiteSize_10 Start: 6697, Stop: 7074, Start Num: 12

Candidate Starts for BiteSize_10:

(Start: 12 @6697 has 73 MA's), (38, 6901), (50, 6976),

Gene: Butterscotch_15 Start: 10452, Stop: 10871, Start Num: 12

Candidate Starts for Butterscotch_15:

(Start: 12 @10452 has 73 MA's), (21, 10548), (23, 10575), (24, 10599), (26, 10608), (28, 10614), (35, 10647), (38, 10656), (57, 10833),

Gene: Cborch11_15 Start: 9778, Stop: 10284, Start Num: 10

Candidate Starts for Cborch11_15:

(Start: 10 @9778 has 9 MA's), (19, 9883), (23, 9919), (24, 9943), (36, 10021), (38, 10033), (49, 10120), (57, 10210), (62, 10261),

Gene: Chill_16 Start: 10455, Stop: 10874, Start Num: 12

Candidate Starts for Chill_16:

(Start: 12 @10455 has 73 MA's), (19, 10542), (21, 10551), (23, 10578), (24, 10602), (26, 10611), (28, 10617), (35, 10650), (38, 10659), (57, 10836),

Gene: Chivey_16 Start: 8482, Stop: 8841, Start Num: 12

Candidate Starts for Chivey_16:

(Start: 12 @8482 has 73 MA's), (38, 8689), (42, 8707), (56, 8827),

Gene: CoolCookie_17 Start: 9286, Stop: 9642, Start Num: 12

Candidate Starts for CoolCookie_17:

(Start: 12 @9286 has 73 MA's), (38, 9493), (47, 9550), (56, 9628),

Gene: Crestdrop_16 Start: 8356, Stop: 8715, Start Num: 12

Candidate Starts for Crestdrop_16:

(Start: 12 @8356 has 73 MA's), (38, 8563), (42, 8581), (56, 8701),

Gene: Cuke_8 Start: 5912, Stop: 6340, Start Num: 12

Candidate Starts for Cuke_8:

(Start: 12 @5912 has 73 MA's), (20, 6002), (27, 6071), (38, 6116), (42, 6134), (53, 6269), (61, 6326),

Gene: Cybele_17 Start: 9256, Stop: 9612, Start Num: 12

Candidate Starts for Cybele_17:

(Start: 12 @9256 has 73 MA's), (38, 9463), (47, 9520), (56, 9598),

Gene: Damien_14 Start: 9778, Stop: 10284, Start Num: 10

Candidate Starts for Damien_14:

(Start: 10 @9778 has 9 MA's), (19, 9883), (23, 9919), (24, 9943), (36, 10021), (37, 10030), (38, 10033), (49, 10120), (57, 10210), (62, 10261),

Gene: DannyDe_16 Start: 8474, Stop: 8833, Start Num: 12

Candidate Starts for DannyDe_16:

(Start: 12 @8474 has 73 MA's), (38, 8681), (42, 8699), (56, 8819),

Gene: Dauntless_16 Start: 8999, Stop: 9358, Start Num: 12

Candidate Starts for Dauntless_16:

(Start: 12 @8999 has 73 MA's), (38, 9206), (42, 9224), (56, 9344),

Gene: DaviePasture_14 Start: 11427, Stop: 11816, Start Num: 11
Candidate Starts for DaviePasture_14:
(Start: 11 @11427 has 29 MA's), (25, 11583), (26, 11589), (27, 11592), (38, 11637),

Gene: Delton_15 Start: 10461, Stop: 10880, Start Num: 12
Candidate Starts for Delton_15:
(Start: 12 @10461 has 73 MA's), (19, 10548), (21, 10557), (23, 10584), (24, 10608), (26, 10617), (28, 10623), (35, 10656), (38, 10665), (57, 10842),

Gene: Djokovic_10 Start: 6697, Stop: 7074, Start Num: 12
Candidate Starts for Djokovic_10:
(Start: 12 @6697 has 73 MA's), (38, 6901), (50, 6976),

Gene: DoobyDoo_13 Start: 10604, Stop: 10993, Start Num: 11
Candidate Starts for DoobyDoo_13:
(Start: 11 @10604 has 29 MA's), (25, 10760), (26, 10766), (27, 10769), (38, 10814), (51, 10907),

Gene: DrLupo_22 Start: 11658, Stop: 12131, Start Num: 8
Candidate Starts for DrLupo_22:
(7, 11646), (Start: 8 @11658 has 2 MA's), (21, 11781), (26, 11844), (32, 11871), (39, 11928), (56, 12099),

Gene: DumpTruck_13 Start: 10861, Stop: 11247, Start Num: 11
Candidate Starts for DumpTruck_13:
(Start: 11 @10861 has 29 MA's), (15, 10915), (20, 10957), (27, 11026), (38, 11071),

Gene: Erk16_15 Start: 10455, Stop: 10874, Start Num: 12
Candidate Starts for Erk16_15:
(Start: 12 @10455 has 73 MA's), (21, 10551), (23, 10578), (24, 10602), (26, 10611), (28, 10617), (35, 10650), (38, 10659), (57, 10836),

Gene: Erudite_16 Start: 8999, Stop: 9358, Start Num: 12
Candidate Starts for Erudite_16:
(Start: 12 @8999 has 73 MA's), (38, 9206), (42, 9224), (56, 9344),

Gene: Erutan_14 Start: 11117, Stop: 11506, Start Num: 11
Candidate Starts for Erutan_14:
(Start: 11 @11117 has 29 MA's), (25, 11273), (26, 11279), (27, 11282), (38, 11327),

Gene: Fowlmouth_9 Start: 6076, Stop: 6507, Start Num: 12
Candidate Starts for Fowlmouth_9:
(Start: 12 @6076 has 73 MA's), (18, 6154), (20, 6166), (38, 6280), (54, 6451), (57, 6463), (59, 6472), (61, 6493),

Gene: FreddieHg_16 Start: 8498, Stop: 8857, Start Num: 12
Candidate Starts for FreddieHg_16:
(Start: 12 @8498 has 73 MA's), (38, 8705), (42, 8723), (56, 8843),

Gene: Fulcrum_15 Start: 11650, Stop: 12039, Start Num: 11
Candidate Starts for Fulcrum_15:
(Start: 11 @11650 has 29 MA's), (25, 11806), (26, 11812), (27, 11815), (38, 11860), (51, 11953),

Gene: GOATification_15 Start: 11650, Stop: 12039, Start Num: 11
Candidate Starts for GOATification_15:
(Start: 11 @11650 has 29 MA's), (25, 11806), (26, 11812), (27, 11815), (38, 11860), (51, 11953),

Gene: Genamy16_13 Start: 9224, Stop: 9613, Start Num: 11
Candidate Starts for Genamy16_13:
(Start: 11 @9224 has 29 MA's), (25, 9380), (26, 9386), (27, 9389), (38, 9434),

Gene: Gibbin_15 Start: 11710, Stop: 12099, Start Num: 11
Candidate Starts for Gibbin_15:
(Start: 11 @11710 has 29 MA's), (25, 11866), (26, 11872), (27, 11875), (38, 11920), (51, 12013),

Gene: Gilda_17 Start: 9280, Stop: 9636, Start Num: 12
Candidate Starts for Gilda_17:
(Start: 12 @9280 has 73 MA's), (38, 9487), (47, 9544), (56, 9622),

Gene: Giuseppe_15 Start: 10444, Stop: 10863, Start Num: 12
Candidate Starts for Giuseppe_15:
(Start: 12 @10444 has 73 MA's), (19, 10531), (21, 10540), (23, 10567), (24, 10591), (26, 10600), (28, 10606), (35, 10639), (38, 10648), (57, 10825),

Gene: GretelLyn_14 Start: 11984, Stop: 12373, Start Num: 11
Candidate Starts for GretelLyn_14:
(Start: 11 @11984 has 29 MA's), (25, 12140), (26, 12146), (27, 12149), (38, 12194),

Gene: Gumball_14 Start: 10399, Stop: 10821, Start Num: 12
Candidate Starts for Gumball_14:
(Start: 12 @10399 has 73 MA's), (21, 10495), (23, 10522), (24, 10546), (26, 10555), (28, 10561), (35, 10594), (38, 10603), (57, 10780),

Gene: Hager_18 Start: 8855, Stop: 9211, Start Num: 12
Candidate Starts for Hager_18:
(Start: 12 @8855 has 73 MA's), (38, 9062), (47, 9119), (56, 9197),

Gene: Haunter_17 Start: 8696, Stop: 9052, Start Num: 12
Candidate Starts for Haunter_17:
(Start: 12 @8696 has 73 MA's), (38, 8903), (47, 8960), (56, 9038),

Gene: Hawkeye_17 Start: 10361, Stop: 10765, Start Num: 12
Candidate Starts for Hawkeye_17:
(1, 9983), (2, 10025), (4, 10157), (5, 10166), (6, 10262), (Start: 12 @10361 has 73 MA's), (24, 10508), (26, 10517), (28, 10523), (38, 10565), (53, 10715), (56, 10736),

Gene: Helpful_16 Start: 10452, Stop: 10871, Start Num: 12
Candidate Starts for Helpful_16:
(Start: 12 @10452 has 73 MA's), (19, 10539), (21, 10548), (23, 10575), (24, 10599), (26, 10608), (28, 10614), (35, 10647), (38, 10656), (57, 10833),

Gene: Hiddenleaf_16 Start: 8482, Stop: 8841, Start Num: 12
Candidate Starts for Hiddenleaf_16:
(Start: 12 @8482 has 73 MA's), (38, 8689), (42, 8707), (56, 8827),

Gene: Huwbert_38 Start: 19477, Stop: 19938, Start Num: 9

Candidate Starts for Huwbert_38:

(Start: 9 @19477 has 2 MA's), (20, 19573), (22, 19603), (28, 19648), (34, 19693), (44, 19774),

Gene: Indlulamithi_11 Start: 7639, Stop: 8055, Start Num: 12

Candidate Starts for Indlulamithi_11:

(Start: 12 @7639 has 73 MA's), (17, 7702), (38, 7843),

Gene: JDawG_16 Start: 9064, Stop: 9423, Start Num: 12

Candidate Starts for JDawG_16:

(Start: 12 @9064 has 73 MA's), (38, 9271), (42, 9289), (56, 9409),

Gene: Jalebi_15 Start: 12160, Stop: 12549, Start Num: 11

Candidate Starts for Jalebi_15:

(Start: 11 @12160 has 29 MA's), (25, 12316), (26, 12322), (27, 12325), (38, 12370),

Gene: Jamemuya19_12 Start: 9224, Stop: 9613, Start Num: 11

Candidate Starts for Jamemuya19_12:

(Start: 11 @9224 has 29 MA's), (25, 9380), (26, 9386), (27, 9389), (38, 9434),

Gene: JingleBells_16 Start: 8559, Stop: 8918, Start Num: 12

Candidate Starts for JingleBells_16:

(Start: 12 @8559 has 73 MA's), (38, 8766), (42, 8784), (56, 8904),

Gene: KandZ_15 Start: 10549, Stop: 10971, Start Num: 12

Candidate Starts for KandZ_15:

(Start: 12 @10549 has 73 MA's), (21, 10645), (23, 10672), (24, 10696), (26, 10705), (28, 10711), (35, 10744), (38, 10753), (57, 10930),

Gene: Karate_16 Start: 8704, Stop: 9060, Start Num: 12

Candidate Starts for Karate_16:

(Start: 12 @8704 has 73 MA's), (38, 8911), (47, 8968), (56, 9046),

Gene: Kate_17 Start: 9288, Stop: 9644, Start Num: 12

Candidate Starts for Kate_17:

(Start: 12 @9288 has 73 MA's), (38, 9495), (47, 9552), (56, 9630),

Gene: Konstantine_19 Start: 10980, Stop: 11486, Start Num: 10

Candidate Starts for Konstantine_19:

(Start: 10 @10980 has 9 MA's), (19, 11085), (23, 11121), (24, 11145), (36, 11223), (37, 11232), (38, 11235), (49, 11322), (57, 11412), (62, 11463),

Gene: Kors_19 Start: 9156, Stop: 9512, Start Num: 12

Candidate Starts for Kors_19:

(Start: 12 @9156 has 73 MA's), (14, 9192), (21, 9252), (35, 9351),

Gene: Krampus_17 Start: 9286, Stop: 9642, Start Num: 12

Candidate Starts for Krampus_17:

(Start: 12 @9286 has 73 MA's), (38, 9493), (47, 9550), (56, 9628),

Gene: Lambo_14 Start: 11654, Stop: 12043, Start Num: 11

Candidate Starts for Lambo_14:

(Start: 11 @11654 has 29 MA's), (26, 11816), (27, 11819), (38, 11864),

Gene: Leopard_26 Start: 16581, Stop: 17009, Start Num: 12

Candidate Starts for Leopard_26:

(Start: 12 @16581 has 73 MA's), (23, 16704), (26, 16737), (27, 16740), (29, 16746), (35, 16794), (38, 16803), (52, 16932), (53, 16950),

Gene: Lila22_15 Start: 11608, Stop: 11997, Start Num: 11

Candidate Starts for Lila22_15:

(Start: 11 @11608 has 29 MA's), (25, 11764), (26, 11770), (27, 11773), (38, 11818), (51, 11911),

Gene: LilyPad_11 Start: 7439, Stop: 7816, Start Num: 12

Candidate Starts for LilyPad_11:

(Start: 12 @7439 has 73 MA's), (13, 7469), (24, 7586), (41, 7658), (56, 7784), (57, 7790),

Gene: LittleFella_12 Start: 9274, Stop: 9663, Start Num: 12

Candidate Starts for LittleFella_12:

(Start: 12 @9274 has 73 MA's), (19, 9361), (24, 9421), (26, 9430), (38, 9478), (55, 9616),

Gene: LuckyLeo_14 Start: 10933, Stop: 11331, Start Num: 11

Candidate Starts for LuckyLeo_14:

(Start: 11 @10933 has 29 MA's), (38, 11143),

Gene: Madi_10 Start: 6697, Stop: 7074, Start Num: 12

Candidate Starts for Madi_10:

(Start: 12 @6697 has 73 MA's), (38, 6901), (50, 6976),

Gene: Megatron06_16 Start: 10313, Stop: 10819, Start Num: 10

Candidate Starts for Megatron06_16:

(Start: 10 @10313 has 9 MA's), (19, 10418), (23, 10454), (24, 10478), (36, 10556), (38, 10568), (49, 10655), (57, 10745), (62, 10796),

Gene: Mima20_14 Start: 11337, Stop: 11726, Start Num: 11

Candidate Starts for Mima20_14:

(Start: 11 @11337 has 29 MA's), (25, 11493), (26, 11499), (27, 11502), (38, 11547),

Gene: MoiGyank_16 Start: 12021, Stop: 12410, Start Num: 11

Candidate Starts for MoiGyank_16:

(Start: 11 @12021 has 29 MA's), (25, 12177), (26, 12183), (27, 12186), (38, 12231), (51, 12324),

Gene: Mopey_15 Start: 10452, Stop: 10871, Start Num: 12

Candidate Starts for Mopey_15:

(Start: 12 @10452 has 73 MA's), (19, 10539), (21, 10548), (23, 10575), (24, 10599), (26, 10608), (28, 10614), (35, 10647), (38, 10656), (57, 10833),

Gene: MortySmith_15 Start: 8461, Stop: 8820, Start Num: 12

Candidate Starts for MortySmith_15:

(Start: 12 @8461 has 73 MA's), (38, 8668), (42, 8686), (56, 8806),

Gene: MrMiyagi_9 Start: 6076, Stop: 6507, Start Num: 12

Candidate Starts for MrMiyagi_9:

(Start: 12 @6076 has 73 MA's), (18, 6154), (20, 6166), (38, 6280), (54, 6451), (57, 6463), (59, 6472), (61, 6493),

Gene: NarutoRun_17 Start: 9282, Stop: 9638, Start Num: 12

Candidate Starts for NarutoRun_17:

(Start: 12 @9282 has 73 MA's), (38, 9489), (47, 9546), (56, 9624),

Gene: Neptune_17 Start: 9256, Stop: 9612, Start Num: 12

Candidate Starts for Neptune_17:

(Start: 12 @9256 has 73 MA's), (38, 9463), (47, 9520), (56, 9598),

Gene: NorManre_15 Start: 11216, Stop: 11605, Start Num: 11

Candidate Starts for NorManre_15:

(Start: 11 @11216 has 29 MA's), (25, 11372), (26, 11378), (27, 11381), (38, 11426),

Gene: Nova_15 Start: 10876, Stop: 11298, Start Num: 12

Candidate Starts for Nova_15:

(Start: 12 @10876 has 73 MA's), (21, 10972), (23, 10999), (24, 11023), (26, 11032), (28, 11038), (35, 11071), (38, 11080), (57, 11257),

Gene: NovaSharks_13 Start: 9224, Stop: 9613, Start Num: 11

Candidate Starts for NovaSharks_13:

(Start: 11 @9224 has 29 MA's), (25, 9380), (26, 9386), (27, 9389), (38, 9434),

Gene: Oaker_14 Start: 10037, Stop: 10543, Start Num: 10

Candidate Starts for Oaker_14:

(Start: 10 @10037 has 9 MA's), (19, 10142), (23, 10178), (24, 10202), (36, 10280), (37, 10289), (38, 10292), (49, 10379), (57, 10469), (62, 10520),

Gene: Onyinye_27 Start: 16462, Stop: 16890, Start Num: 12

Candidate Starts for Onyinye_27:

(Start: 12 @16462 has 73 MA's), (23, 16585), (26, 16618), (27, 16621), (29, 16627), (35, 16675), (38, 16684), (52, 16813), (53, 16831),

Gene: OtterstedtS21_14 Start: 11306, Stop: 11695, Start Num: 11

Candidate Starts for OtterstedtS21_14:

(Start: 11 @11306 has 29 MA's), (25, 11462), (26, 11468), (27, 11471), (38, 11516), (51, 11609),

Gene: OverHedge_17 Start: 9253, Stop: 9609, Start Num: 12

Candidate Starts for OverHedge_17:

(Start: 12 @9253 has 73 MA's), (38, 9460), (47, 9517), (56, 9595),

Gene: PBI1_16 Start: 10383, Stop: 10802, Start Num: 12

Candidate Starts for PBI1_16:

(Start: 12 @10383 has 73 MA's), (21, 10479), (23, 10506), (24, 10530), (26, 10539), (28, 10545), (35, 10578), (38, 10587), (57, 10764),

Gene: PLOT_16 Start: 10455, Stop: 10874, Start Num: 12

Candidate Starts for PLOT_16:

(Start: 12 @10455 has 73 MA's), (19, 10542), (21, 10551), (23, 10578), (24, 10602), (26, 10611), (28, 10617), (35, 10650), (38, 10659), (57, 10836),

Gene: ParvusTarda_14 Start: 10788, Stop: 11177, Start Num: 11

Candidate Starts for ParvusTarda_14:

(Start: 11 @10788 has 29 MA's), (25, 10944), (26, 10950), (27, 10953), (38, 10998), (51, 11091),

Gene: Patos_15 Start: 11216, Stop: 11605, Start Num: 11

Candidate Starts for Patos_15:

(Start: 11 @11216 has 29 MA's), (25, 11372), (26, 11378), (27, 11381), (38, 11426),

Gene: Penelope2018_15 Start: 10452, Stop: 10871, Start Num: 12

Candidate Starts for Penelope2018_15:

(Start: 12 @10452 has 73 MA's), (19, 10539), (21, 10548), (23, 10575), (24, 10599), (26, 10608), (28, 10614), (35, 10647), (38, 10656), (57, 10833),

Gene: Pharpay_17 Start: 9301, Stop: 9657, Start Num: 12

Candidate Starts for Pharpay_17:

(Start: 12 @9301 has 73 MA's), (38, 9508), (47, 9565), (56, 9643),

Gene: Phreeze_14 Start: 9778, Stop: 10284, Start Num: 10

Candidate Starts for Phreeze_14:

(Start: 10 @9778 has 9 MA's), (19, 9883), (23, 9919), (24, 9943), (36, 10021), (37, 10030), (38, 10033), (49, 10120), (57, 10210), (62, 10261),

Gene: PhunaPhoke_17 Start: 9274, Stop: 9630, Start Num: 12

Candidate Starts for PhunaPhoke_17:

(Start: 12 @9274 has 73 MA's), (38, 9481), (47, 9538), (56, 9616),

Gene: Potty_17 Start: 9279, Stop: 9635, Start Num: 12

Candidate Starts for Potty_17:

(Start: 12 @9279 has 73 MA's), (38, 9486), (47, 9543), (56, 9621),

Gene: Poultruss_16 Start: 9053, Stop: 9412, Start Num: 12

Candidate Starts for Poultruss_16:

(Start: 12 @9053 has 73 MA's), (38, 9260), (42, 9278), (56, 9398),

Gene: Prager_15 Start: 10461, Stop: 10880, Start Num: 12

Candidate Starts for Prager_15:

(Start: 12 @10461 has 73 MA's), (21, 10557), (23, 10584), (24, 10608), (26, 10617), (28, 10623), (35, 10656), (38, 10665), (57, 10842),

Gene: Predator_18 Start: 11335, Stop: 11802, Start Num: 10

Candidate Starts for Predator_18:

(Start: 10 @11335 has 9 MA's), (16, 11407), (32, 11536), (33, 11551), (37, 11587), (38, 11590), (49, 11677), (57, 11767), (58, 11770),

Gene: Puissant_13 Start: 10247, Stop: 10702, Start Num: 10

Candidate Starts for Puissant_13:

(Start: 10 @10247 has 9 MA's), (15, 10313), (19, 10352), (24, 10412), (26, 10421), (37, 10499), (38, 10502), (49, 10589), (56, 10673), (57, 10679),

Gene: Rachella_17 Start: 9285, Stop: 9641, Start Num: 12

Candidate Starts for Rachella_17:

(Start: 12 @9285 has 73 MA's), (38, 9492), (47, 9549), (56, 9627),

Gene: Ranch_14 Start: 10154, Stop: 10543, Start Num: 11

Candidate Starts for Ranch_14:

(Start: 11 @10154 has 29 MA's), (25, 10310), (26, 10316), (27, 10319), (38, 10364),

Gene: Rie18_17 Start: 8639, Stop: 8995, Start Num: 12

Candidate Starts for Rie18_17:
(3, 8312), (Start: 12 @8639 has 73 MA's), (38, 8846), (47, 8903), (56, 8981),

Gene: RikSengupta_18 Start: 9208, Stop: 9564, Start Num: 12
Candidate Starts for RikSengupta_18:
(Start: 12 @9208 has 73 MA's), (14, 9244), (21, 9304), (35, 9403),

Gene: Rumi_13 Start: 9224, Stop: 9613, Start Num: 11
Candidate Starts for Rumi_13:
(Start: 11 @9224 has 29 MA's), (25, 9380), (26, 9386), (27, 9389), (38, 9434),

Gene: Sadboi_14 Start: 11984, Stop: 12373, Start Num: 11
Candidate Starts for Sadboi_14:
(Start: 11 @11984 has 29 MA's), (25, 12140), (26, 12146), (27, 12149), (38, 12194),

Gene: Sampudon_15 Start: 12160, Stop: 12549, Start Num: 11
Candidate Starts for Sampudon_15:
(Start: 11 @12160 has 29 MA's), (25, 12316), (26, 12322), (27, 12325), (38, 12370),

Gene: Shrew_56 Start: 23926, Stop: 24369, Start Num: 12
Candidate Starts for Shrew_56:
(Start: 12 @23926 has 73 MA's), (28, 24088), (31, 24097), (40, 24175), (43, 24199),

Gene: Sienna_10 Start: 6697, Stop: 7074, Start Num: 12
Candidate Starts for Sienna_10:
(Start: 12 @6697 has 73 MA's), (38, 6901), (50, 6976),

Gene: SirHarley_14 Start: 10381, Stop: 10803, Start Num: 12
Candidate Starts for SirHarley_14:
(Start: 12 @10381 has 73 MA's), (21, 10477), (23, 10504), (24, 10528), (26, 10537), (28, 10543), (35, 10576), (38, 10585), (57, 10762),

Gene: Snakehole_18 Start: 8578, Stop: 8937, Start Num: 12
Candidate Starts for Snakehole_18:
(Start: 12 @8578 has 73 MA's), (38, 8785), (42, 8803), (56, 8923),

Gene: Sparcetus_18 Start: 9087, Stop: 9443, Start Num: 12
Candidate Starts for Sparcetus_18:
(Start: 12 @9087 has 73 MA's), (14, 9123), (21, 9183), (35, 9282),

Gene: Suzy_11 Start: 7940, Stop: 8317, Start Num: 12
Candidate Starts for Suzy_11:
(Start: 12 @7940 has 73 MA's), (19, 8027), (35, 8135), (38, 8144), (50, 8219),

Gene: Tedro_17 Start: 8752, Stop: 9108, Start Num: 12
Candidate Starts for Tedro_17:
(Start: 12 @8752 has 73 MA's), (38, 8959), (47, 9016), (56, 9094),

Gene: Terapin_10 Start: 6697, Stop: 7074, Start Num: 12
Candidate Starts for Terapin_10:
(Start: 12 @6697 has 73 MA's), (38, 6901), (50, 6976),

Gene: Thoth_15 Start: 10449, Stop: 10868, Start Num: 12

Candidate Starts for Thoth_15:

(Start: 12 @10449 has 73 MA's), (19, 10536), (21, 10545), (23, 10572), (24, 10596), (26, 10605), (28, 10611), (35, 10644), (38, 10653), (57, 10830),

Gene: Thumb_14 Start: 9779, Stop: 10285, Start Num: 10

Candidate Starts for Thumb_14:

(Start: 10 @9779 has 9 MA's), (19, 9884), (23, 9920), (24, 9944), (36, 10022), (37, 10031), (38, 10034), (49, 10121), (57, 10211), (62, 10262),

Gene: Tillicus_15 Start: 10534, Stop: 10923, Start Num: 11

Candidate Starts for Tillicus_15:

(Start: 11 @10534 has 29 MA's), (38, 10744),

Gene: TinyMiny_18 Start: 9106, Stop: 9462, Start Num: 12

Candidate Starts for TinyMiny_18:

(Start: 12 @9106 has 73 MA's), (14, 9142), (21, 9202), (35, 9301),

Gene: Triscuit_37 Start: 19392, Stop: 19853, Start Num: 9

Candidate Starts for Triscuit_37:

(Start: 9 @19392 has 2 MA's), (20, 19488), (22, 19518), (28, 19563), (34, 19608), (44, 19689),

Gene: Troll4_15 Start: 10453, Stop: 10872, Start Num: 12

Candidate Starts for Troll4_15:

(Start: 12 @10453 has 73 MA's), (19, 10540), (21, 10549), (23, 10576), (24, 10600), (26, 10609), (28, 10615), (35, 10648), (38, 10657), (57, 10834),

Gene: Visconti_15 Start: 10462, Stop: 10881, Start Num: 12

Candidate Starts for Visconti_15:

(Start: 12 @10462 has 73 MA's), (19, 10549), (21, 10558), (23, 10585), (24, 10609), (26, 10618), (28, 10624), (35, 10657), (38, 10666), (57, 10843),

Gene: WaldoWhy_16 Start: 10455, Stop: 10874, Start Num: 12

Candidate Starts for WaldoWhy_16:

(Start: 12 @10455 has 73 MA's), (19, 10542), (21, 10551), (23, 10578), (24, 10602), (26, 10611), (28, 10617), (35, 10650), (38, 10659), (57, 10836),

Gene: Wojtek_13 Start: 10861, Stop: 11250, Start Num: 11

Candidate Starts for Wojtek_13:

(Start: 11 @10861 has 29 MA's), (37, 11068), (38, 11071), (45, 11104),

Gene: Wollypog_5 Start: 5809, Stop: 6210, Start Num: 12

Candidate Starts for Wollypog_5:

(Start: 12 @5809 has 73 MA's), (46, 6064), (48, 6082),

Gene: Xenia2_12 Start: 10903, Stop: 11289, Start Num: 11

Candidate Starts for Xenia2_12:

(Start: 11 @10903 has 29 MA's), (15, 10957), (20, 10999), (27, 11068), (38, 11113),

Gene: Yikes_15 Start: 12245, Stop: 12634, Start Num: 11

Candidate Starts for Yikes_15:

(Start: 11 @12245 has 29 MA's), (25, 12401), (26, 12407), (27, 12410), (38, 12455),

Gene: Zany_14 Start: 11374, Stop: 11763, Start Num: 11

Candidate Starts for Zany_14:

(Start: 11 @11374 has 29 MA's), (25, 11530), (26, 11536), (27, 11539), (38, 11584), (60, 11755),