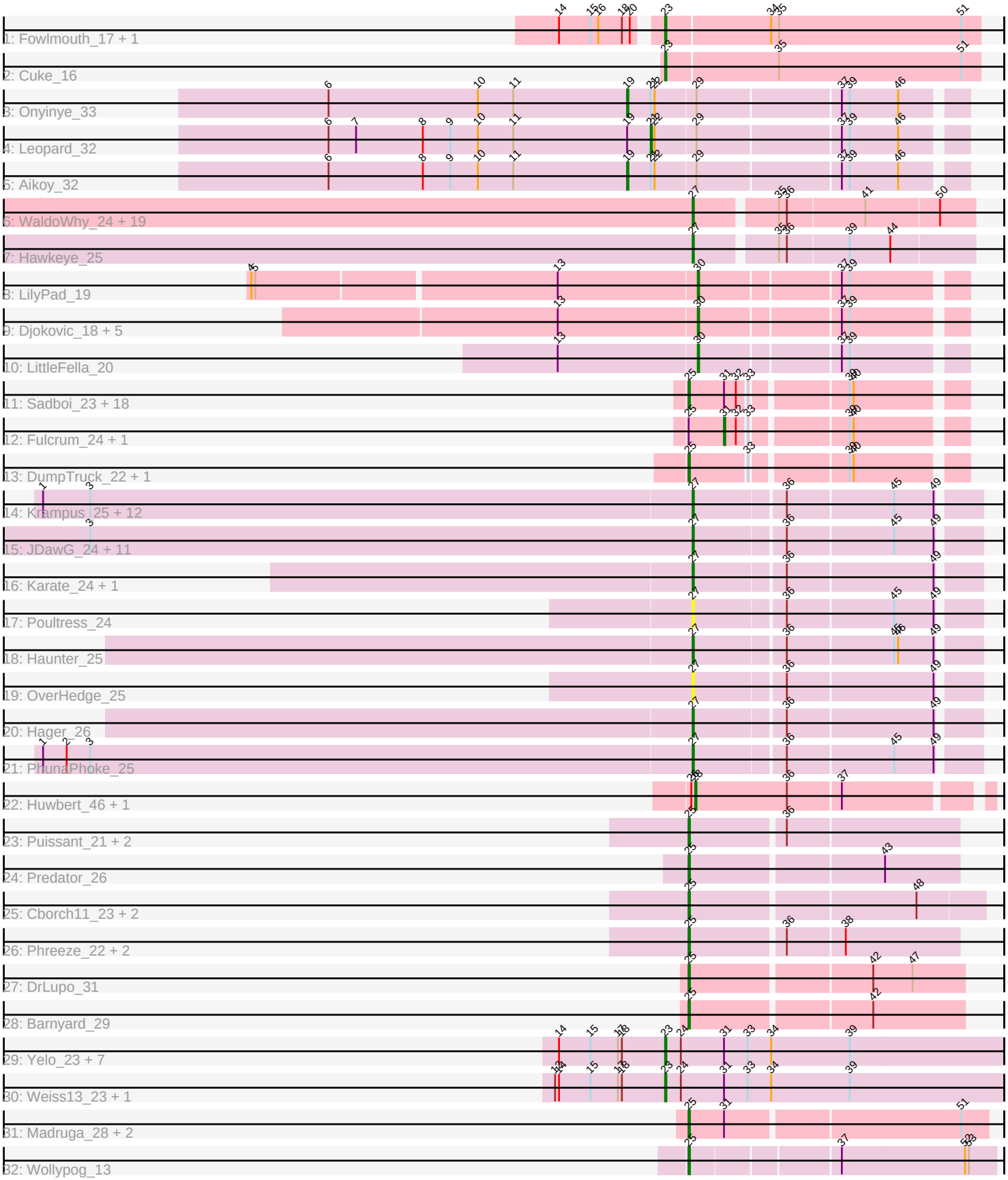
Pham 85279


1: Fowlmouth_17 + 1
2: Cuke_16
3: Onyinye_33
4: Leopard_32
5: Aikoy_32
6: WaldoWhy_24 + 19
7: Hawkeye_25
8: LilyPad_19
9: Djokovic_18 + 5
10: LittleFella_20
11: Sadboi_23 + 18
12: Fulcrum_24 + 1
13: DumpTruck_22 + 1
14: Krampus_25 + 12
15: JDawG_24 + 11
16: Karate_24 + 1
17: Poultress_24
18: Haunter_25
19: OverHedge_25
20: Hager_26
21: PhunaPhoke_25
22: Huwbert_46 + 1
23: Puissant_21 + 2
24: Predator_26
25: Cborch11_23 + 2
26: Phreeze_22 + 2
27: DrLupo_31
28: Barnyard_29
29: Yelo_23 + 7
30: Weiss13_23 + 1
31: Madruga_28 + 2
32: Wollypog_13

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 85279 Report

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

Pham number 85279 has 118 members, 13 are drafts.

Phages represented in each track:
• Track 1 : Fowlmouth_17, MrMiyagi_17
• Track 2 : Cuke_16
• Track 3 : Onyinye_33
• Track 4 : Leopard_32
• Track 5 : Aikoy_32
• Track 6 : WaldoWhy_24, Nova_23, Butterscotch_23, Erk16_23, SirHarley_22, Penelope2018_23, BigMama_21, Thoth_23, Chill_24, KandZ_23, Giuseppe_23, Mopey_23, Prager_23, Troll4_23, PLot_24, Adjutor_24, Visconti_23, Gumball_22, Helpful_24, Delton_23
• Track 7 : Hawkeye_25
• Track 8 : LilyPad_19
• Track 9 : Djokovic_18, Madi_18, Terapin_18, BiteSize_18, Sienna_18, Beyoncage_18
• Track 10 : LittleFella_20
• Track 11 : Sadboi_23, Sampudon_23, ParvusTarda_23, Lambo_23, OtterstedtS21_23, Alyssamiracle_22, Wojtek_22, Genamy16_22, Rumi_22, Gibbin_24, GretelLyn_23, LuckyLeo_22, BirthdayBoy_24, Patos_24, Erutan_23, Ranch_23, Yikes_24, NovaSharks_22, NorManre_24
• Track 12 : Fulcrum_24, GOATification_24
• Track 13 : DumpTruck_22, Xenia2_23
• Track 14 : Krampus_25, Gilda_25, Pharpay_25, Anakin_25, Rachella_25, Kate_25, AnnaSerena_25, CoolCookie_29, Neptune_25, Potty_25, Tedro_25, Cybele_25, NarutoRun_25
• Track 15 : JDawG_24, Hiddenleaf_24, Dauntless_25, Snakehole_26, DannyDe_24, FreddieHg_24, Aesir_24, Crestdrop_25, JingleBells_24, MortySmith_23, Erudite_24, Chivey_24
• Track 16 : Karate_24, Rie18_25
• Track 17 : Poultress_24
• Track 18 : Haunter_25
• Track 19 : OverHedge_25
• Track 20 : Hager_26
• Track 21 : PhunaPhoke_25
• Track 22 : Huwbert_46, Triscuit_45
• Track 23 : Puissant_21, Oaker_22, Damien_22
• Track 24 : Predator_26
• Track 25 : Cborch11_23, Konstantine_27, Megatron06_25
• Track 26 : Phreeze_22, Beckerton_22, Thumb_22

• Track 27 : DrLupo_31
• Track 28 : Barnyard_29
• Track 29 : Yelo_23, Send513_23, MontyDev_23, Candle_23, Nilo_24, Papyrus_23, Riparian_23, Zenon_24
• Track 30 : Weiss13_23, Rope_23
• Track 31 : Madruga_28, Labelle_29, Patience_30
• Track 32 : Wollypog_13

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

The start number called the most often in the published annotations is 27, it was called in 44 of the 105 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Adjutor_24, Aesir_24, Anakin_25, AnnaSerena_25, BigMama_21, Butterscotch_23, Chill_24, Chivey_24, CoolCookie_29, Crestdrop_25, Cybele_25, DannyDe_24, Dauntless_25, Delton_23, Erk16_23, Erudite_24, FreddieHg_24, Gilda_25, Giuseppe_23, Gumball_22, Hager_26, Haunter_25, Hawkeye_25, Helpful_24, Hiddenleaf_24, JDawG_24, JingleBells_24, KandZ_23, Karate_24, Kate_25, Krampus_25, Mopey_23, MortySmith_23, NarutoRun_25, Neptune_25, Nova_23, OverHedge_25, PLot_24, Penelope2018_23, Pharpay_25, PhunaPhoke_25, Potty_25, Poultress_24, Prager_23, Rachella_25, Rie18_25, SirHarley_22, Snakehole_26, Tedro_25, Thoth_23, Troll4_23, Visconti_23, WaldoWhy_24,

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

Genes that do not have the "Most Annotated" start:
• Aikoy_32, Alyssamiracle_22, Barnyard_29, Beckerton_22, Beyoncage_18, BirthdayBoy_24, BiteSize_18, Candle_23, Cborch11_23, Cuke_16, Damien_22, Djokovic_18, DrLupo_31, DumpTruck_22, Erutan_23, Fowlmouth_17, Fulcrum_24, GOATification_24, Genamy16_22, Gibbin_24, GretelLyn_23, Huwbert_46, Konstantine_27, Labelle_29, Lambo_23, Leopard_32, LilyPad_19, LittleFella_20, LuckyLeo_22, Madi_18, Madruga_28, Megatron06_25, MontyDev_23, MrMiyagi_17, Nilo_24, NorManre_24, NovaSharks_22, Oaker_22, Onyinye_33, OtterstedtS21_23, Papyrus_23, ParvusTarda_23, Patience_30, Patos_24, Phreeze_22, Predator_26, Puissant_21, Ranch_23, Riparian_23, Rope_23, Rumi_22, Sadboi_23, Sampudon_23, Send513_23, Sienna_18, Terapin_18, Thumb_22, Triscuit_45, Weiss13_23, Wojtek_22, Wollypog_13, Xenia2_23, Yelo_23, Yikes_24, Zenon_24,

Summary by start number:

Start 19:
• Found in 3 of 118 (2.5%) of genes in pham
• Manual Annotations of this start: 2 of 105
• Called 66.7% of time when present
• Phage (with cluster) where this start called: Aikoy_32 (AE), Onyinye_33 (AE),

Start 21:
• Found in 3 of 118 (2.5%) of genes in pham

• Manual Annotations of this start: 1 of 105
• Called 33.3% of time when present
• Phage (with cluster) where this start called: Leopard_32 (AE),

Start 23:
• Found in 13 of 118 (11.0%) of genes in pham
• Manual Annotations of this start: 11 of 105
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Candle_23 (R), Cuke_16 (AC), Fowlmouth_17 (AC), MontyDev_23 (R), MrMiyagi_17 (AC), Nilo_24 (R), Papyrus_23 (R), Riparian_23 (R), Rope_23 (R), Send513_23 (R), Weiss13_23 (R), Yelo_23 (R), Zenon_24 (R),

Start 25:
• Found in 39 of 118 (33.1%) of genes in pham
• Manual Annotations of this start: 35 of 105
• Called 94.9% of time when present
• Phage (with cluster) where this start called: Alyssamiracle_22 (DV), Barnyard_29 (H2), Beckerton_22 (H1), BirthdayBoy_24 (DV), Cborch11_23 (H1), Damien_22 (H1), DrLupo_31 (H2), DumpTruck_22 (DV), Erutan_23 (DV), Genamy16_22 (DV), Gibbin_24 (DV), GretelLyn_23 (DV), Konstantine_27 (H1), Labelle_29 (U), Lambo_23 (DV), LuckyLeo_22 (DV), Madruga_28 (U), Megatron06_25 (H1), NorManre_24 (DV), NovaSharks_22 (DV), Oaker_22 (H1), OtterstedtS21_23 (DV), ParvusTarda_23 (DV), Patience_30 (U), Patos_24 (DV), Phreeze_22 (H1), Predator_26 (H1), Puissant_21 (H1), Ranch_23 (DV), Rumi_22 (DV), Sadboi_23 (DV), Sampudon_23 (DV), Thumb_22 (H1), Wojtek_22 (DV), Wollypog_13 (singleton), Xenia2_23 (DV), Yikes_24 (DV),

Start 27:
• Found in 53 of 118 (44.9%) of genes in pham
• Manual Annotations of this start: 44 of 105
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Adjutor_24 (D1), Aesir_24 (EF), Anakin_25 (EF), AnnaSerena_25 (EF), BigMama_21 (D1), Butterscotch_23 (D1), Chill_24 (D1), Chivey_24 (EF), CoolCookie_29 (EF), Crestdrop_25 (EF), Cybele_25 (EF), DannyDe_24 (EF), Dauntless_25 (EF), Delton_23 (D1), Erk16_23 (D1), Erudite_24 (EF), FreddieHg_24 (EF), Gilda_25 (EF), Giuseppe_23 (D1), Gumball_22 (D1), Hager_26 (EF), Haunter_25 (EF), Hawkeye_25 (D2), Helpful_24 (D1), Hiddenleaf_24 (EF), JDawG_24 (EF), JingleBells_24 (EF), KandZ_23 (D1), Karate_24 (EF), Kate_25 (EF), Krampus_25 (EF), Mopey_23 (D1), MortySmith_23 (EF), NarutoRun_25 (EF), Neptune_25 (EF), Nova_23 (D1), OverHedge_25 (EF), PLot_24 (D1), Penelope2018_23 (D1), Pharpay_25 (EF), PhunaPhoke_25 (EF), Potty_25 (EF), Poultress_24 (EF), Prager_23 (D1), Rachella_25 (EF), Rie18_25 (EF), SirHarley_22 (D1), Snakehole_26 (EF), Tedro_25 (EF), Thoth_23 (D1), Troll4_23 (D1), Visconti_23 (D1), WaldoWhy_24 (D1),

Start 28:
• Found in 2 of 118 (1.7%) of genes in pham
• Manual Annotations of this start: 2 of 105
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Huwbert_46 (GG), Triscuit_45 (GG),

Start 30:

• Found in 8 of 118 (6.8%) of genes in pham
• Manual Annotations of this start: 8 of 105
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Beyoncage_18 (DG1), BiteSize_18 (DG1), Djokovic_18 (DG1), LilyPad_19 (DG1), LittleFella_20 (DG2), Madi_18 (DG1), Sienna_18 (DG1), Terapin_18 (DG1),

Start 31:
• Found in 34 of 118 (28.8%) of genes in pham
• Manual Annotations of this start: 2 of 105
• Called 5.9% of time when present
• Phage (with cluster) where this start called: Fulcrum_24 (DV), GOATification_24 (DV),

Summary by clusters:

There are 14 clusters represented in this pham: DG2, AC, EF, AE, H2, H1, singleton, GG, DG1, U, DV, R, D2, D1,

Info for manual annotations of cluster AC:
•Start number 23 was manually annotated 3 times for cluster AC.

Info for manual annotations of cluster AE:
•Start number 19 was manually annotated 2 times for cluster AE.
•Start number 21 was manually annotated 1 time for cluster AE.

Info for manual annotations of cluster D1:
•Start number 27 was manually annotated 19 times for cluster D1.

Info for manual annotations of cluster D2:
•Start number 27 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DG1:
•Start number 30 was manually annotated 7 times for cluster DG1.

Info for manual annotations of cluster DG2:
•Start number 30 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:
•Start number 25 was manually annotated 21 times for cluster DV.
•Start number 31 was manually annotated 2 times for cluster DV.

Info for manual annotations of cluster EF:
•Start number 27 was manually annotated 24 times for cluster EF.

Info for manual annotations of cluster GG:
•Start number 28 was manually annotated 2 times for cluster GG.

Info for manual annotations of cluster H1:
•Start number 25 was manually annotated 8 times for cluster H1.

Info for manual annotations of cluster H2:
•Start number 25 was manually annotated 2 times for cluster H2.

Info for manual annotations of cluster R:
•Start number 23 was manually annotated 8 times for cluster R.

Info for manual annotations of cluster U:
•Start number 25 was manually annotated 3 times for cluster U.

Gene Information:

Gene: Adjutor_24 Start: 14312, Stop: 14512, Start Num: 27
Candidate Starts for Adjutor_24:
(Start: 27 @14312 has 44 MA's), (35, 14369), (36, 14375), (41, 14432), (50, 14486),

Gene: Aesir_24 Start: 13019, Stop: 13222, Start Num: 27
Candidate Starts for Aesir_24:
(3, 12560), (Start: 27 @13019 has 44 MA's), (36, 13085), (45, 13163), (49, 13193),

Gene: Aikoy_32 Start: 19906, Stop: 20148, Start Num: 19
Candidate Starts for Aikoy_32:
(6, 19678), (8, 19750), (9, 19771), (10, 19792), (11, 19819), (Start: 19 @19906 has 2 MA's), (Start: 21 @19924 has 1 MA's), (22, 19927), (29, 19957), (37, 20062), (39, 20068), (46, 20104),

Gene: Alyssamiracle_22 Start: 13256, Stop: 13444, Start Num: 25
Candidate Starts for Alyssamiracle_22:
(Start: 25 @13256 has 35 MA's), (Start: 31 @13283 has 2 MA's), (32, 13292), (33, 13298), (39, 13364), (40, 13367),

Gene: Anakin_25 Start: 13226, Stop: 13429, Start Num: 27
Candidate Starts for Anakin_25:
(1, 12734), (3, 12770), (Start: 27 @13226 has 44 MA's), (36, 13292), (45, 13370), (49, 13400),

Gene: AnnaSerena_25 Start: 13235, Stop: 13438, Start Num: 27
Candidate Starts for AnnaSerena_25:
(1, 12743), (3, 12779), (Start: 27 @13235 has 44 MA's), (36, 13301), (45, 13379), (49, 13409),

Gene: Barnyard_29 Start: 16074, Stop: 16274, Start Num: 25
Candidate Starts for Barnyard_29:
(Start: 25 @16074 has 35 MA's), (42, 16206),

Gene: Beckerton_22 Start: 14750, Stop: 14947, Start Num: 25
Candidate Starts for Beckerton_22:
(Start: 25 @14750 has 35 MA's), (36, 14819), (38, 14861),

Gene: Beyoncage_18 Start: 10662, Stop: 10847, Start Num: 30
Candidate Starts for Beyoncage_18:
(13, 10557), (Start: 30 @10662 has 8 MA's), (37, 10761), (39, 10767),

Gene: BigMama_21 Start: 14388, Stop: 14588, Start Num: 27
Candidate Starts for BigMama_21:
(Start: 27 @14388 has 44 MA's), (35, 14445), (36, 14451), (41, 14508), (50, 14562),

Gene: BirthdayBoy_24 Start: 15703, Stop: 15891, Start Num: 25
Candidate Starts for BirthdayBoy_24:
(Start: 25 @15703 has 35 MA's), (Start: 31 @15730 has 2 MA's), (32, 15739), (33, 15745), (39, 15811), (40, 15814),

Gene: BiteSize_18 Start: 10662, Stop: 10847, Start Num: 30
Candidate Starts for BiteSize_18:
(13, 10557), (Start: 30 @10662 has 8 MA's), (37, 10761), (39, 10767),

Gene: Butterscotch_23 Start: 14372, Stop: 14572, Start Num: 27
Candidate Starts for Butterscotch_23:
(Start: 27 @14372 has 44 MA's), (35, 14429), (36, 14435), (41, 14492), (50, 14546),

Gene: Candle_23 Start: 14755, Stop: 15012, Start Num: 23
Candidate Starts for Candle_23:
(14, 14674), (15, 14698), (17, 14719), (18, 14722), (Start: 23 @14755 has 11 MA's), (24, 14767), (Start: 31 @14800 has 2 MA's), (33, 14818), (34, 14836), (39, 14896),

Gene: Cborch11_23 Start: 14213, Stop: 14428, Start Num: 25
Candidate Starts for Cborch11_23:
(Start: 25 @14213 has 35 MA's), (48, 14378),

Gene: Chill_24 Start: 14378, Stop: 14578, Start Num: 27
Candidate Starts for Chill_24:
(Start: 27 @14378 has 44 MA's), (35, 14435), (36, 14441), (41, 14498), (50, 14552),

Gene: Chivey_24 Start: 12431, Stop: 12634, Start Num: 27
Candidate Starts for Chivey_24:
(3, 11972), (Start: 27 @12431 has 44 MA's), (36, 12497), (45, 12575), (49, 12605),

Gene: CoolCookie_29 Start: 13233, Stop: 13436, Start Num: 27
Candidate Starts for CoolCookie_29:
(1, 12741), (3, 12777), (Start: 27 @13233 has 44 MA's), (36, 13299), (45, 13377), (49, 13407),

Gene: Crestdrop_25 Start: 12305, Stop: 12508, Start Num: 27
Candidate Starts for Crestdrop_25:
(3, 11846), (Start: 27 @12305 has 44 MA's), (36, 12371), (45, 12449), (49, 12479),

Gene: Cuke_16 Start: 9908, Stop: 10144, Start Num: 23
Candidate Starts for Cuke_16:
(Start: 23 @9908 has 11 MA's), (35, 9992), (51, 10130),

Gene: Cybele_25 Start: 13203, Stop: 13406, Start Num: 27
Candidate Starts for Cybele_25:
(1, 12711), (3, 12747), (Start: 27 @13203 has 44 MA's), (36, 13269), (45, 13347), (49, 13377),

Gene: Damien_22 Start: 14212, Stop: 14409, Start Num: 25
Candidate Starts for Damien_22:
(Start: 25 @14212 has 35 MA's), (36, 14281),

Gene: DannyDe_24 Start: 12423, Stop: 12626, Start Num: 27
Candidate Starts for DannyDe_24:
(3, 11964), (Start: 27 @12423 has 44 MA's), (36, 12489), (45, 12567), (49, 12597),

Gene: Dauntless_25 Start: 12948, Stop: 13151, Start Num: 27
Candidate Starts for Dauntless_25:
(3, 12489), (Start: 27 @12948 has 44 MA's), (36, 13014), (45, 13092), (49, 13122),

Gene: Delton_23 Start: 14384, Stop: 14584, Start Num: 27
Candidate Starts for Delton_23:
(Start: 27 @14384 has 44 MA's), (35, 14441), (36, 14447), (41, 14504), (50, 14558),

Gene: Djokovic_18 Start: 10662, Stop: 10847, Start Num: 30
Candidate Starts for Djokovic_18:
(13, 10557), (Start: 30 @10662 has 8 MA's), (37, 10761), (39, 10767),

Gene: DrLupo_31 Start: 16478, Stop: 16678, Start Num: 25
Candidate Starts for DrLupo_31:
(Start: 25 @16478 has 35 MA's), (42, 16610), (47, 16640),

Gene: DumpTruck_22 Start: 14879, Stop: 15067, Start Num: 25
Candidate Starts for DumpTruck_22:
(Start: 25 @14879 has 35 MA's), (33, 14921), (39, 14987), (40, 14990),

Gene: Erk16_23 Start: 14375, Stop: 14575, Start Num: 27
Candidate Starts for Erk16_23:
(Start: 27 @14375 has 44 MA's), (35, 14432), (36, 14438), (41, 14495), (50, 14549),

Gene: Erudite_24 Start: 12948, Stop: 13151, Start Num: 27
Candidate Starts for Erudite_24:
(3, 12489), (Start: 27 @12948 has 44 MA's), (36, 13014), (45, 13092), (49, 13122),

Gene: Erutan_23 Start: 15150, Stop: 15338, Start Num: 25
Candidate Starts for Erutan_23:
(Start: 25 @15150 has 35 MA's), (Start: 31 @15177 has 2 MA's), (32, 15186), (33, 15192), (39, 15258), (40, 15261),

Gene: Fowlmouth_17 Start: 10071, Stop: 10307, Start Num: 23
Candidate Starts for Fowlmouth_17:
(14, 10002), (15, 10026), (16, 10032), (18, 10050), (20, 10056), (Start: 23 @10071 has 11 MA's), (34, 10149), (35, 10155), (51, 10293),

Gene: FreddieHg_24 Start: 12447, Stop: 12650, Start Num: 27
Candidate Starts for FreddieHg_24:
(3, 11988), (Start: 27 @12447 has 44 MA's), (36, 12513), (45, 12591), (49, 12621),

Gene: Fulcrum_24 Start: 15710, Stop: 15871, Start Num: 31
Candidate Starts for Fulcrum_24:
(Start: 25 @15683 has 35 MA's), (Start: 31 @15710 has 2 MA's), (32, 15719), (33, 15725), (39, 15791), (40, 15794),

Gene: GOATification_24 Start: 15710, Stop: 15871, Start Num: 31
Candidate Starts for GOATification_24:
(Start: 25 @15683 has 35 MA's), (Start: 31 @15710 has 2 MA's), (32, 15719), (33, 15725), (39, 15791), (40, 15794),

Gene: Genamy16_22 Start: 13256, Stop: 13444, Start Num: 25
Candidate Starts for Genamy16_22:
(Start: 25 @13256 has 35 MA's), (Start: 31 @13283 has 2 MA's), (32, 13292), (33, 13298), (39, 13364), (40, 13367),

Gene: Gibbin_24 Start: 15743, Stop: 15931, Start Num: 25
Candidate Starts for Gibbin_24:
(Start: 25 @15743 has 35 MA's), (Start: 31 @15770 has 2 MA's), (32, 15779), (33, 15785), (39, 15851), (40, 15854),

Gene: Gilda_25 Start: 13227, Stop: 13430, Start Num: 27
Candidate Starts for Gilda_25:
(1, 12735), (3, 12771), (Start: 27 @13227 has 44 MA's), (36, 13293), (45, 13371), (49, 13401),

Gene: Giuseppe_23 Start: 14364, Stop: 14564, Start Num: 27
Candidate Starts for Giuseppe_23:
(Start: 27 @14364 has 44 MA's), (35, 14421), (36, 14427), (41, 14484), (50, 14538),

Gene: GretelLyn_23 Start: 16017, Stop: 16205, Start Num: 25
Candidate Starts for GretelLyn_23:
(Start: 25 @16017 has 35 MA's), (Start: 31 @16044 has 2 MA's), (32, 16053), (33, 16059), (39, 16125), (40, 16128),

Gene: Gumball_22 Start: 14322, Stop: 14522, Start Num: 27
Candidate Starts for Gumball_22:
(Start: 27 @14322 has 44 MA's), (35, 14379), (36, 14385), (41, 14442), (50, 14496),

Gene: Hager_26 Start: 12798, Stop: 13001, Start Num: 27
Candidate Starts for Hager_26:
(Start: 27 @12798 has 44 MA's), (36, 12864), (49, 12972),

Gene: Haunter_25 Start: 12640, Stop: 12843, Start Num: 27
Candidate Starts for Haunter_25:
(Start: 27 @12640 has 44 MA's), (36, 12706), (45, 12784), (46, 12787), (49, 12814),

Gene: Hawkeye_25 Start: 14273, Stop: 14473, Start Num: 27
Candidate Starts for Hawkeye_25:
(Start: 27 @14273 has 44 MA's), (35, 14330), (36, 14336), (39, 14381), (44, 14411),

Gene: Helpful_24 Start: 14372, Stop: 14572, Start Num: 27
Candidate Starts for Helpful_24:
(Start: 27 @14372 has 44 MA's), (35, 14429), (36, 14435), (41, 14492), (50, 14546),

Gene: Hiddenleaf_24 Start: 12431, Stop: 12634, Start Num: 27
Candidate Starts for Hiddenleaf_24:
(3, 11972), (Start: 27 @12431 has 44 MA's), (36, 12497), (45, 12575), (49, 12605),

Gene: Huwbert_46 Start: 23602, Stop: 23808, Start Num: 28
Candidate Starts for Huwbert_46:
(26, 23599), (Start: 28 @23602 has 2 MA's), (36, 23671), (37, 23710),

Gene: JDawG_24 Start: 13013, Stop: 13216, Start Num: 27
Candidate Starts for JDawG_24:

(3, 12554), (Start: 27 @13013 has 44 MA's), (36, 13079), (45, 13157), (49, 13187),

Gene: JingleBells_24 Start: 12512, Stop: 12715, Start Num: 27
Candidate Starts for JingleBells_24:
(3, 12053), (Start: 27 @12512 has 44 MA's), (36, 12578), (45, 12656), (49, 12686),

Gene: KandZ_23 Start: 14472, Stop: 14672, Start Num: 27
Candidate Starts for KandZ_23:
(Start: 27 @14472 has 44 MA's), (35, 14529), (36, 14535), (41, 14592), (50, 14646),

Gene: Karate_24 Start: 12648, Stop: 12851, Start Num: 27
Candidate Starts for Karate_24:
(Start: 27 @12648 has 44 MA's), (36, 12714), (49, 12822),

Gene: Kate_25 Start: 13235, Stop: 13438, Start Num: 27
Candidate Starts for Kate_25:
(1, 12743), (3, 12779), (Start: 27 @13235 has 44 MA's), (36, 13301), (45, 13379), (49, 13409),

Gene: Konstantine_27 Start: 15414, Stop: 15629, Start Num: 25
Candidate Starts for Konstantine_27:
(Start: 25 @15414 has 35 MA's), (48, 15579),

Gene: Krampus_25 Start: 13233, Stop: 13436, Start Num: 27
Candidate Starts for Krampus_25:
(1, 12741), (3, 12777), (Start: 27 @13233 has 44 MA's), (36, 13299), (45, 13377), (49, 13407),

Gene: Labelle_29 Start: 17581, Stop: 17799, Start Num: 25
Candidate Starts for Labelle_29:
(Start: 25 @17581 has 35 MA's), (Start: 31 @17608 has 2 MA's), (51, 17779),

Gene: Lambo_23 Start: 15686, Stop: 15874, Start Num: 25
Candidate Starts for Lambo_23:
(Start: 25 @15686 has 35 MA's), (Start: 31 @15713 has 2 MA's), (32, 15722), (33, 15728), (39, 15794), (40, 15797),

Gene: Leopard_32 Start: 20212, Stop: 20436, Start Num: 21
Candidate Starts for Leopard_32:
(6, 19966), (7, 19987), (8, 20038), (9, 20059), (10, 20080), (11, 20107), (Start: 19 @20194 has 2 MA's), (Start: 21 @20212 has 1 MA's), (22, 20215), (29, 20245), (37, 20350), (39, 20356), (46, 20392),

Gene: LilyPad_19 Start: 11326, Stop: 11511, Start Num: 30
Candidate Starts for LilyPad_19:
(4, 10996), (5, 10999), (13, 11221), (Start: 30 @11326 has 8 MA's), (37, 11425), (39, 11431),

Gene: LittleFella_20 Start: 13201, Stop: 13386, Start Num: 30
Candidate Starts for LittleFella_20:
(13, 13096), (Start: 30 @13201 has 8 MA's), (37, 13300), (39, 13306),

Gene: LuckyLeo_22 Start: 14972, Stop: 15160, Start Num: 25
Candidate Starts for LuckyLeo_22:
(Start: 25 @14972 has 35 MA's), (Start: 31 @14999 has 2 MA's), (32, 15008), (33, 15014), (39, 15080), (40, 15083),

Gene: Madi_18 Start: 10662, Stop: 10847, Start Num: 30
Candidate Starts for Madi_18:
(13, 10557), (Start: 30 @10662 has 8 MA's), (37, 10761), (39, 10767),

Gene: Madruga_28 Start: 17250, Stop: 17468, Start Num: 25
Candidate Starts for Madruga_28:
(Start: 25 @17250 has 35 MA's), (Start: 31 @17277 has 2 MA's), (51, 17448),

Gene: Megatron06_25 Start: 14747, Stop: 14962, Start Num: 25
Candidate Starts for Megatron06_25:
(Start: 25 @14747 has 35 MA's), (48, 14912),

Gene: MontyDev_23 Start: 14413, Stop: 14670, Start Num: 23
Candidate Starts for MontyDev_23:
(14, 14332), (15, 14356), (17, 14377), (18, 14380), (Start: 23 @14413 has 11 MA's), (24, 14425), (Start: 31 @14458 has 2 MA's), (33, 14476), (34, 14494), (39, 14554),

Gene: Mopey_23 Start: 14372, Stop: 14572, Start Num: 27
Candidate Starts for Mopey_23:
(Start: 27 @14372 has 44 MA's), (35, 14429), (36, 14435), (41, 14492), (50, 14546),

Gene: MortySmith_23 Start: 12410, Stop: 12613, Start Num: 27
Candidate Starts for MortySmith_23:
(3, 11951), (Start: 27 @12410 has 44 MA's), (36, 12476), (45, 12554), (49, 12584),

Gene: MrMiyagi_17 Start: 10072, Stop: 10308, Start Num: 23
Candidate Starts for MrMiyagi_17:
(14, 10003), (15, 10027), (16, 10033), (18, 10051), (20, 10057), (Start: 23 @10072 has 11 MA's), (34, 10150), (35, 10156), (51, 10294),

Gene: NarutoRun_25 Start: 13226, Stop: 13429, Start Num: 27
Candidate Starts for NarutoRun_25:
(1, 12734), (3, 12770), (Start: 27 @13226 has 44 MA's), (36, 13292), (45, 13370), (49, 13400),

Gene: Neptune_25 Start: 13203, Stop: 13406, Start Num: 27
Candidate Starts for Neptune_25:
(1, 12711), (3, 12747), (Start: 27 @13203 has 44 MA's), (36, 13269), (45, 13347), (49, 13377),

Gene: Nilo_24 Start: 14752, Stop: 15009, Start Num: 23
Candidate Starts for Nilo_24:
(14, 14671), (15, 14695), (17, 14716), (18, 14719), (Start: 23 @14752 has 11 MA's), (24, 14764), (Start: 31 @14797 has 2 MA's), (33, 14815), (34, 14833), (39, 14893),

Gene: NorManre_24 Start: 15249, Stop: 15437, Start Num: 25
Candidate Starts for NorManre_24:
(Start: 25 @15249 has 35 MA's), (Start: 31 @15276 has 2 MA's), (32, 15285), (33, 15291), (39, 15357), (40, 15360),

Gene: Nova_23 Start: 14799, Stop: 14999, Start Num: 27
Candidate Starts for Nova_23:
(Start: 27 @14799 has 44 MA's), (35, 14856), (36, 14862), (41, 14919), (50, 14973),

Gene: NovaSharks_22 Start: 13256, Stop: 13444, Start Num: 25

Candidate Starts for NovaSharks_22:
(Start: 25 @13256 has 35 MA's), (Start: 31 @13283 has 2 MA's), (32, 13292), (33, 13298), (39, 13364), (40, 13367),

Gene: Oaker_22 Start: 14471, Stop: 14668, Start Num: 25
Candidate Starts for Oaker_22:
(Start: 25 @14471 has 35 MA's), (36, 14540),

Gene: Onyinye_33 Start: 20072, Stop: 20314, Start Num: 19
Candidate Starts for Onyinye_33:
(6, 19844), (10, 19958), (11, 19985), (Start: 19 @20072 has 2 MA's), (Start: 21 @20090 has 1 MA's), (22, 20093), (29, 20123), (37, 20228), (39, 20234), (46, 20270),

Gene: OtterstedtS21_23 Start: 15339, Stop: 15527, Start Num: 25
Candidate Starts for OtterstedtS21_23:
(Start: 25 @15339 has 35 MA's), (Start: 31 @15366 has 2 MA's), (32, 15375), (33, 15381), (39, 15447), (40, 15450),

Gene: OverHedge_25 Start: 13203, Stop: 13406, Start Num: 27
Candidate Starts for OverHedge_25:
(Start: 27 @13203 has 44 MA's), (36, 13269), (49, 13377),

Gene: PLot_24 Start: 14375, Stop: 14575, Start Num: 27
Candidate Starts for PLot_24:
(Start: 27 @14375 has 44 MA's), (35, 14432), (36, 14438), (41, 14495), (50, 14549),

Gene: Papyrus_23 Start: 14414, Stop: 14671, Start Num: 23
Candidate Starts for Papyrus_23:
(14, 14333), (15, 14357), (17, 14378), (18, 14381), (Start: 23 @14414 has 11 MA's), (24, 14426), (Start: 31 @14459 has 2 MA's), (33, 14477), (34, 14495), (39, 14555),

Gene: ParvusTarda_23 Start: 14821, Stop: 15009, Start Num: 25
Candidate Starts for ParvusTarda_23:
(Start: 25 @14821 has 35 MA's), (Start: 31 @14848 has 2 MA's), (32, 14857), (33, 14863), (39, 14929), (40, 14932),

Gene: Patience_30 Start: 18140, Stop: 18358, Start Num: 25
Candidate Starts for Patience_30:
(Start: 25 @18140 has 35 MA's), (Start: 31 @18167 has 2 MA's), (51, 18338),

Gene: Patos_24 Start: 15249, Stop: 15437, Start Num: 25
Candidate Starts for Patos_24:
(Start: 25 @15249 has 35 MA's), (Start: 31 @15276 has 2 MA's), (32, 15285), (33, 15291), (39, 15357), (40, 15360),

Gene: Penelope2018_23 Start: 14372, Stop: 14572, Start Num: 27
Candidate Starts for Penelope2018_23:
(Start: 27 @14372 has 44 MA's), (35, 14429), (36, 14435), (41, 14492), (50, 14546),

Gene: Pharpay_25 Start: 13248, Stop: 13451, Start Num: 27
Candidate Starts for Pharpay_25:
(1, 12756), (3, 12792), (Start: 27 @13248 has 44 MA's), (36, 13314), (45, 13392), (49, 13422),

Gene: Phreeze_22 Start: 14212, Stop: 14409, Start Num: 25
Candidate Starts for Phreeze_22:
(Start: 25 @14212 has 35 MA's), (36, 14281), (38, 14323),

Gene: PhunaPhoke_25 Start: 13221, Stop: 13424, Start Num: 27
Candidate Starts for PhunaPhoke_25:
(1, 12729), (2, 12747), (3, 12765), (Start: 27 @13221 has 44 MA's), (36, 13287), (45, 13365), (49, 13395),

Gene: Potty_25 Start: 13226, Stop: 13429, Start Num: 27
Candidate Starts for Potty_25:
(1, 12734), (3, 12770), (Start: 27 @13226 has 44 MA's), (36, 13292), (45, 13370), (49, 13400),

Gene: Poultress_24 Start: 12999, Stop: 13202, Start Num: 27
Candidate Starts for Poultress_24:
(Start: 27 @12999 has 44 MA's), (36, 13065), (45, 13143), (49, 13173),

Gene: Prager_23 Start: 14384, Stop: 14584, Start Num: 27
Candidate Starts for Prager_23:
(Start: 27 @14384 has 44 MA's), (35, 14441), (36, 14447), (41, 14504), (50, 14558),

Gene: Predator_26 Start: 15750, Stop: 15947, Start Num: 25
Candidate Starts for Predator_26:
(Start: 25 @15750 has 35 MA's), (43, 15891),

Gene: Puissant_21 Start: 14679, Stop: 14876, Start Num: 25
Candidate Starts for Puissant_21:
(Start: 25 @14679 has 35 MA's), (36, 14748),

Gene: Rachella_25 Start: 13229, Stop: 13432, Start Num: 27
Candidate Starts for Rachella_25:
(1, 12737), (3, 12773), (Start: 27 @13229 has 44 MA's), (36, 13295), (45, 13373), (49, 13403),

Gene: Ranch_23 Start: 14187, Stop: 14375, Start Num: 25
Candidate Starts for Ranch_23:
(Start: 25 @14187 has 35 MA's), (Start: 31 @14214 has 2 MA's), (32, 14223), (33, 14229), (39, 14295), (40, 14298),

Gene: Rie18_25 Start: 12580, Stop: 12783, Start Num: 27
Candidate Starts for Rie18_25:
(Start: 27 @12580 has 44 MA's), (36, 12646), (49, 12754),

Gene: Riparian_23 Start: 14213, Stop: 14470, Start Num: 23
Candidate Starts for Riparian_23:
(14, 14132), (15, 14156), (17, 14177), (18, 14180), (Start: 23 @14213 has 11 MA's), (24, 14225), (Start: 31 @14258 has 2 MA's), (33, 14276), (34, 14294), (39, 14354),

Gene: Rope_23 Start: 14405, Stop: 14662, Start Num: 23
Candidate Starts for Rope_23:
(12, 14321), (14, 14324), (15, 14348), (17, 14369), (18, 14372), (Start: 23 @14405 has 11 MA's), (24, 14417), (Start: 31 @14450 has 2 MA's), (33, 14468), (34, 14486), (39, 14546),

Gene: Rumi_22 Start: 13256, Stop: 13444, Start Num: 25

Candidate Starts for Rumi_22:
(Start: 25 @13256 has 35 MA's), (Start: 31 @13283 has 2 MA's), (32, 13292), (33, 13298), (39, 13364), (40, 13367),

Gene: Sadboi_23 Start: 16017, Stop: 16205, Start Num: 25
Candidate Starts for Sadboi_23:
(Start: 25 @16017 has 35 MA's), (Start: 31 @16044 has 2 MA's), (32, 16053), (33, 16059), (39, 16125), (40, 16128),

Gene: Sampudon_23 Start: 16193, Stop: 16381, Start Num: 25
Candidate Starts for Sampudon_23:
(Start: 25 @16193 has 35 MA's), (Start: 31 @16220 has 2 MA's), (32, 16229), (33, 16235), (39, 16301), (40, 16304),

Gene: Send513_23 Start: 14755, Stop: 15012, Start Num: 23
Candidate Starts for Send513_23:
(14, 14674), (15, 14698), (17, 14719), (18, 14722), (Start: 23 @14755 has 11 MA's), (24, 14767), (Start: 31 @14800 has 2 MA's), (33, 14818), (34, 14836), (39, 14896),

Gene: Sienna_18 Start: 10662, Stop: 10847, Start Num: 30
Candidate Starts for Sienna_18:
(13, 10557), (Start: 30 @10662 has 8 MA's), (37, 10761), (39, 10767),

Gene: SirHarley_22 Start: 14304, Stop: 14504, Start Num: 27
Candidate Starts for SirHarley_22:
(Start: 27 @14304 has 44 MA's), (35, 14361), (36, 14367), (41, 14424), (50, 14478),

Gene: Snakehole_26 Start: 12528, Stop: 12731, Start Num: 27
Candidate Starts for Snakehole_26:
(3, 12069), (Start: 27 @12528 has 44 MA's), (36, 12594), (45, 12672), (49, 12702),

Gene: Tedro_25 Start: 12699, Stop: 12902, Start Num: 27
Candidate Starts for Tedro_25:
(1, 12207), (3, 12243), (Start: 27 @12699 has 44 MA's), (36, 12765), (45, 12843), (49, 12873),

Gene: Terapin_18 Start: 10662, Stop: 10847, Start Num: 30
Candidate Starts for Terapin_18:
(13, 10557), (Start: 30 @10662 has 8 MA's), (37, 10761), (39, 10767),

Gene: Thoth_23 Start: 14369, Stop: 14569, Start Num: 27
Candidate Starts for Thoth_23:
(Start: 27 @14369 has 44 MA's), (35, 14426), (36, 14432), (41, 14489), (50, 14543),

Gene: Thumb_22 Start: 14213, Stop: 14410, Start Num: 25
Candidate Starts for Thumb_22:
(Start: 25 @14213 has 35 MA's), (36, 14282), (38, 14324),

Gene: Triscuit_45 Start: 23523, Stop: 23729, Start Num: 28
Candidate Starts for Triscuit_45:
(26, 23520), (Start: 28 @23523 has 2 MA's), (36, 23592), (37, 23631),

Gene: Troll4_23 Start: 14373, Stop: 14573, Start Num: 27
Candidate Starts for Troll4_23:

(Start: 27 @14373 has 44 MA's), (35, 14430), (36, 14436), (41, 14493), (50, 14547),

Gene: Visconti_23 Start: 14382, Stop: 14582, Start Num: 27
Candidate Starts for Visconti_23:
(Start: 27 @14382 has 44 MA's), (35, 14439), (36, 14445), (41, 14502), (50, 14556),

Gene: WaldoWhy_24 Start: 14378, Stop: 14578, Start Num: 27
Candidate Starts for WaldoWhy_24:
(Start: 27 @14378 has 44 MA's), (35, 14435), (36, 14441), (41, 14498), (50, 14552),

Gene: Weiss13_23 Start: 14445, Stop: 14702, Start Num: 23
Candidate Starts for Weiss13_23:
(12, 14361), (14, 14364), (15, 14388), (17, 14409), (18, 14412), (Start: 23 @14445 has 11 MA's), (24, 14457), (Start: 31 @14490 has 2 MA's), (33, 14508), (34, 14526), (39, 14586),

Gene: Wojtek_22 Start: 14894, Stop: 15082, Start Num: 25
Candidate Starts for Wojtek_22:
(Start: 25 @14894 has 35 MA's), (Start: 31 @14921 has 2 MA's), (32, 14930), (33, 14936), (39, 15002), (40, 15005),

Gene: Wollypog_13 Start: 9767, Stop: 9988, Start Num: 25
Candidate Starts for Wollypog_13:
(Start: 25 @9767 has 35 MA's), (37, 9872), (52, 9965), (53, 9968),

Gene: Xenia2_23 Start: 14921, Stop: 15109, Start Num: 25
Candidate Starts for Xenia2_23:
(Start: 25 @14921 has 35 MA's), (33, 14963), (39, 15029), (40, 15032),

Gene: Yelo_23 Start: 14755, Stop: 15012, Start Num: 23
Candidate Starts for Yelo_23:
(14, 14674), (15, 14698), (17, 14719), (18, 14722), (Start: 23 @14755 has 11 MA's), (24, 14767), (Start: 31 @14800 has 2 MA's), (33, 14818), (34, 14836), (39, 14896),

Gene: Yikes_24 Start: 16278, Stop: 16466, Start Num: 25
Candidate Starts for Yikes_24:
(Start: 25 @16278 has 35 MA's), (Start: 31 @16305 has 2 MA's), (32, 16314), (33, 16320), (39, 16386), (40, 16389),

Gene: Zenon_24 Start: 14757, Stop: 15014, Start Num: 23
Candidate Starts for Zenon_24:
(14, 14676), (15, 14700), (17, 14721), (18, 14724), (Start: 23 @14757 has 11 MA's), (24, 14769), (Start: 31 @14802 has 2 MA's), (33, 14820), (34, 14838), (39, 14898),