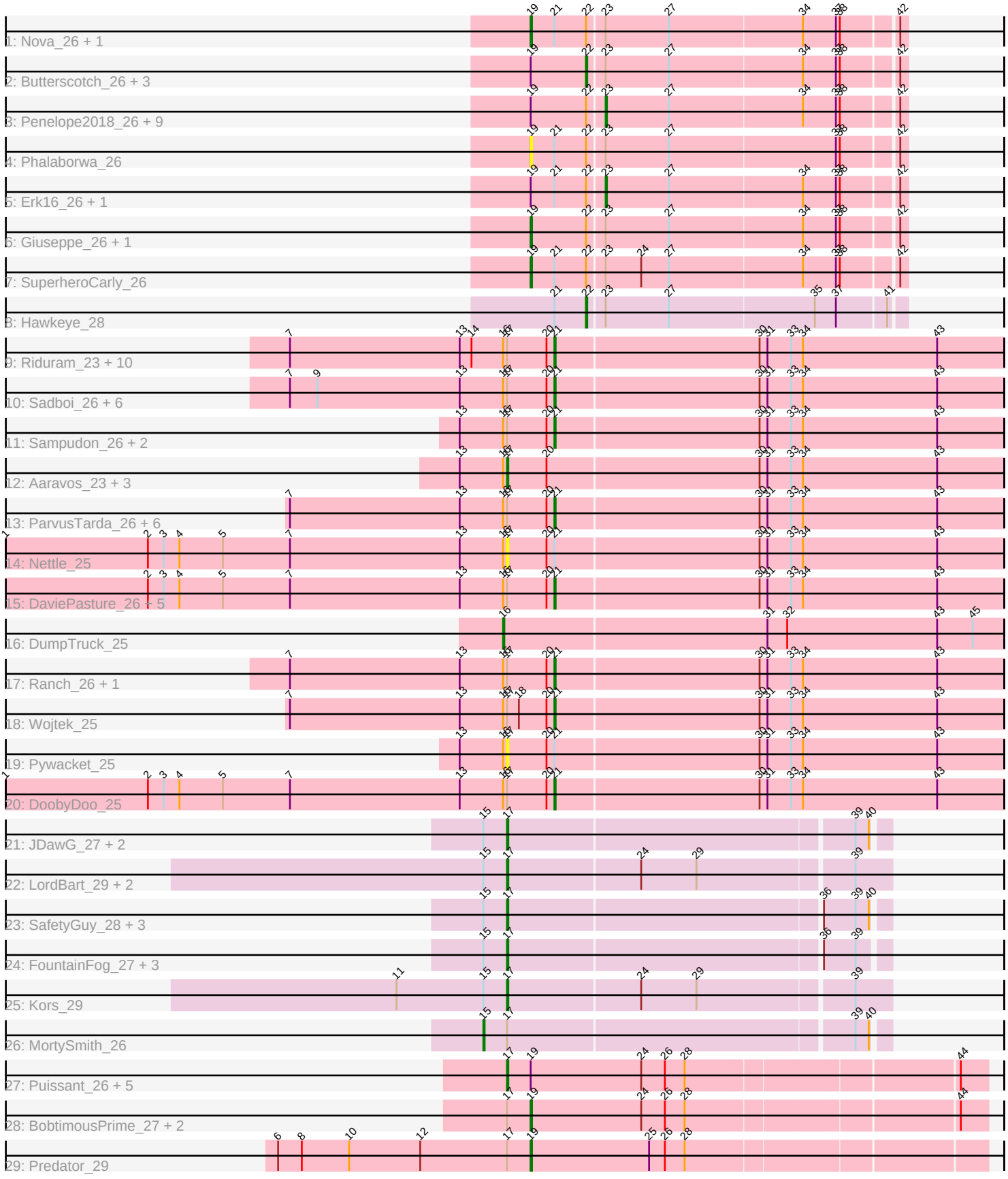
Pham 336609


1: Nova_26 + 1
2: Butterscotch_26 + 3
3: Penelope2018_26 + 9
4: Phalaborwa_26
5: Erk16_26 + 1
6: Giuseppe_26 + 1
7: SuperheroCarly_26
8: Hawkeye_28
9: Riduram_23 + 10
10: Sadboi_26 + 6
11: Sampudon_26 + 2
12: Aaravos_23 + 3
13: ParvusTarda_26 + 6
14: Nettle_25
15: DaviePasture_26 + 5
16: DumpTruck_25
17: Ranch_26 + 1
18: Wojtek_25
19: Pywacket_25
20: DoobyDoo_25
21: JDawG_27 + 2
22: LordBart_29 + 2
23: SafetyGuy_28 + 3
24: FountainFog_27 + 3
25: Kors_29
26: MortySmith_26
27: Puissant_26 + 5
28: BobtimousPrime_27 + 2
29: Predator_29

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 336609 Report

This analysis was run 11/14/26 on database version 672.

Pham number 336609 has 94 members, 11 are drafts.

Phages represented in each track:
• Track 1 : Nova_26, SirHarley_25
• Track 2 : Butterscotch_26, Prager_26, PLot_27, Adjutor_27
• Track 3 : Penelope2018_26, BigMama_24, Thoth_26, WaldoWhy_27, KandZ_26, Chill_27, Mopey_26, Troll4_26, Visconti_26, Helpful_27
• Track 4 : Phalaborwa_26
• Track 5 : Erk16_26, Delton_26
• Track 6 : Giuseppe_26, Gumball_25
• Track 7 : SuperheroCarly_26
• Track 8 : Hawkeye_28
• Track 9 : Riduram_23, Astralis_23, Genamy16_25, Alyssamiracle_25, Avian_23, Rumi_25, Charminar_23, Jamemuya19_23, RazorC_23, Stormer_24, NovaSharks_25
• Track 10 : Sadboi_26, Yikes_27, OtterstedtS21_26, Alephilan_23, GretelLyn_26, Rukungu_26, Zany_24
• Track 11 : Sampudon_26, Lila22_25, Jalebi_25
• Track 12 : Aaravos_23, LuckyLeo_25, Apeppi_23, Tillicus_25
• Track 13 : ParvusTarda_26, Lambo_26, Fulcrum_27, MoiGyank_28, BirthdayBoy_27, GOATification_27, Rota_25
• Track 14 : Nettle_25
• Track 15 : DaviePasture_26, Gibbin_27, Mima20_24, Patos_27, NorManre_27, LavAbarElk_24
• Track 16 : DumpTruck_25
• Track 17 : Ranch_26, Erutan_26
• Track 18 : Wojtek_25
• Track 19 : Pywacket_25
• Track 20 : DoobyDoo_25
• Track 21 : JDawG_27, Annapurna_27, Erudite_27
• Track 22 : LordBart_29, Ajin_29, Bramble_29
• Track 23 : SafetyGuy_28, Rachella_28, OhDear_28, Artiphact_28
• Track 24 : FountainFog_27, WinnieLou_29, Hager_29, Tongui_27
• Track 25 : Kors_29
• Track 26 : MortySmith_26
• Track 27 : Puissant_26, Phreeze_25, Beckerton_25, Megatron06_27, Thumb_25, Nish23_26
• Track 28 : BobtimousPrime_27, Cborch11_26, Damien_25
• Track 29 : Predator_29

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

The start number called the most often in the published annotations is 21, it was called in 35 of the 83 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Alephilan_23, Alyssamiracle_25, Astralis_23, Avian_23, BirthdayBoy_27, Charminar_23, DaviePasture_26, DoobyDoo_25, Erutan_26, Fulcrum_27, GOATification_27, Genamy16_25, Gibbin_27, GretelLyn_26, Jalebi_25, Jamemuya19_23, Lambo_26, LavAbarElk_24, Lila22_25, Mima20_24, MoiGyank_28, NorManre_27, NovaSharks_25, OtterstedtS21_26, ParvusTarda_26, Patos_27, Ranch_26, RazorC_23, Riduram_23, Rota_25, Rukungu_26, Rumi_25, Sadboi_26, Sampudon_26, Stormer_24, Wojtek_25, Yikes_27, Zany_24,

Genes that have the "Most Annotated" start but do not call it:
• Delton_26, Erk16_26, Hawkeye_28, Nettle_25, Nova_26, Phalaborwa_26, Pywacket_25, SirHarley_25, SuperheroCarly_26,

Genes that do not have the "Most Annotated" start:
• Aaravos_23, Adjutor_27, Ajin_29, Annapurna_27, Apeppi_23, Artiphact_28, Beckerton_25, BigMama_24, BobtimousPrime_27, Bramble_29, Butterscotch_26, Cborch11_26, Chill_27, Damien_25, DumpTruck_25, Erudite_27, FountainFog_27, Giuseppe_26, Gumball_25, Hager_29, Helpful_27, JDawG_27, KandZ_26, Kors_29, LordBart_29, LuckyLeo_25, Megatron06_27, Mopey_26, MortySmith_26, Nish23_26, OhDear_28, PLot_27, Penelope2018_26, Phreeze_25, Prager_26, Predator_29, Puissant_26, Rachella_28, SafetyGuy_28, Thoth_26, Thumb_25, Tillicus_25, Tongui_27, Troll4_26, Visconti_26, WaldoWhy_27, WinnieLou_29,

Summary by start number:

Start 15:
• Found in 16 of 94 (17.0%) of genes in pham
• Manual Annotations of this start: 1 of 83
• Called 6.2% of time when present
• Phage (with cluster) where this start called: MortySmith_26 (EF),

Start 16:
• Found in 45 of 94 (47.9%) of genes in pham
• Manual Annotations of this start: 1 of 83
• Called 2.2% of time when present
• Phage (with cluster) where this start called: DumpTruck_25 (DV),

Start 17:
• Found in 70 of 94 (74.5%) of genes in pham
• Manual Annotations of this start: 20 of 83
• Called 38.6% of time when present
• Phage (with cluster) where this start called: Aaravos_23 (DV), Ajin_29 (EF), Annapurna_27 (EF), Apeppi_23 (DV), Artiphact_28 (EF), Beckerton_25 (H1), Bramble_29 (EF), Erudite_27 (EF), FountainFog_27 (EF), Hager_29 (EF), JDawG_27 (EF), Kors_29 (EF), LordBart_29 (EF), LuckyLeo_25 (DV), Megatron06_27 (H1),

Nettle_25 (DV), Nish23_26 (H1), OhDear_28 (EF), Phreeze_25 (H1), Puissant_26 (H1), Pywacket_25 (DV), Rachella_28 (EF), SafetyGuy_28 (EF), Thumb_25 (H1), Tillicus_25 (DV), Tongui_27 (EF), WinnieLou_29 (EF),

Start 19:
• Found in 32 of 94 (34.0%) of genes in pham
• Manual Annotations of this start: 9 of 83
• Called 31.2% of time when present
• Phage (with cluster) where this start called: BobtimousPrime_27 (H1), Cborch11_26 (H1), Damien_25 (H1), Giuseppe_26 (D1), Gumball_25 (D1), Nova_26 (D1), Phalaborwa_26 (D1), Predator_29 (H1), SirHarley_25 (D1), SuperheroCarly_26 (D1),

Start 21:
• Found in 47 of 94 (50.0%) of genes in pham
• Manual Annotations of this start: 35 of 83
• Called 80.9% of time when present
• Phage (with cluster) where this start called: Alephilan_23 (DV), Alyssamiracle_25 (DV), Astralis_23 (DV), Avian_23 (DV), BirthdayBoy_27 (DV), Charminar_23 (DV), DaviePasture_26 (DV), DoobyDoo_25 (DV), Erutan_26 (DV), Fulcrum_27 (DV), GOATification_27 (DV), Genamy16_25 (DV), Gibbin_27 (DV), GretelLyn_26 (DV), Jalebi_25 (DV), Jamemuya19_23 (DV), Lambo_26 (DV), LavAbarElk_24 (DV), Lila22_25 (DV), Mima20_24 (DV), MoiGyank_28 (DV), NorManre_27 (DV), NovaSharks_25 (DV), OtterstedtS21_26 (DV), ParvusTarda_26 (DV), Patos_27 (DV), Ranch_26 (DV), RazorC_23 (DV), Riduram_23 (DV), Rota_25 (DV), Rukungu_26 (DV), Rumi_25 (DV), Sadboi_26 (DV), Sampudon_26 (DV), Stormer_24 (DV), Wojtek_25 (DV), Yikes_27 (DV), Zany_24 (DV),

Start 22:
• Found in 23 of 94 (24.5%) of genes in pham
• Manual Annotations of this start: 5 of 83
• Called 21.7% of time when present
• Phage (with cluster) where this start called: Adjutor_27 (D1), Butterscotch_26 (D1), Hawkeye_28 (D2), PLot_27 (D1), Prager_26 (D1),

Start 23:
• Found in 23 of 94 (24.5%) of genes in pham
• Manual Annotations of this start: 12 of 83
• Called 52.2% of time when present
• Phage (with cluster) where this start called: BigMama_24 (D1), Chill_27 (D1), Delton_26 (D1), Erk16_26 (D1), Helpful_27 (D1), KandZ_26 (D1), Mopey_26 (D1), Penelope2018_26 (D1), Thoth_26 (D1), Troll4_26 (D1), Visconti_26 (D1), WaldoWhy_27 (D1),

Summary by clusters:

There are 5 clusters represented in this pham: DV, H1, D2, EF, D1,

Info for manual annotations of cluster D1:
•Start number 19 was manually annotated 5 times for cluster D1.
•Start number 22 was manually annotated 4 times for cluster D1.
•Start number 23 was manually annotated 12 times for cluster D1.

Info for manual annotations of cluster D2:

•Start number 22 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DV:
•Start number 16 was manually annotated 1 time for cluster DV.
•Start number 17 was manually annotated 3 times for cluster DV.
•Start number 21 was manually annotated 35 times for cluster DV.

Info for manual annotations of cluster EF:
•Start number 15 was manually annotated 1 time for cluster EF.
•Start number 17 was manually annotated 12 times for cluster EF.

Info for manual annotations of cluster H1:
•Start number 17 was manually annotated 5 times for cluster H1.
•Start number 19 was manually annotated 4 times for cluster H1.

Gene Information:

Gene: Aaravos_23 Start: 16456, Stop: 16830, Start Num: 17
Candidate Starts for Aaravos_23:
(13, 16420), (Start: 16 @16453 has 1 MA's), (Start: 17 @16456 has 20 MA's), (20, 16486), (30, 16645), (31, 16651), (33, 16669), (34, 16678), (43, 16780),

Gene: Adjutor_27 Start: 16090, Stop: 16320, Start Num: 22
Candidate Starts for Adjutor_27:
(Start: 19 @16048 has 9 MA's), (Start: 22 @16090 has 5 MA's), (Start: 23 @16102 has 12 MA's), (27, 16150), (34, 16249), (37, 16273), (38, 16276), (42, 16315),

Gene: Ajin_29 Start: 14515, Stop: 14796, Start Num: 17
Candidate Starts for Ajin_29:
(Start: 15 @14497 has 1 MA's), (Start: 17 @14515 has 20 MA's), (24, 14614), (29, 14656), (39, 14770),

Gene: Alephilan_23 Start: 16408, Stop: 16746, Start Num: 21
Candidate Starts for Alephilan_23:
(7, 16207), (9, 16228), (13, 16336), (Start: 16 @16369 has 1 MA's), (Start: 17 @16372 has 20 MA's), (20, 16402), (Start: 21 @16408 has 35 MA's), (30, 16561), (31, 16567), (33, 16585), (34, 16594), (43, 16696),

Gene: Alyssamiracle_25 Start: 14805, Stop: 15143, Start Num: 21
Candidate Starts for Alyssamiracle_25:
(7, 14604), (13, 14733), (14, 14742), (Start: 16 @14766 has 1 MA's), (Start: 17 @14769 has 20 MA's), (20, 14799), (Start: 21 @14805 has 35 MA's), (30, 14958), (31, 14964), (33, 14982), (34, 14991), (43, 15093),

Gene: Annapurna_27 Start: 13840, Stop: 14115, Start Num: 17
Candidate Starts for Annapurna_27:
(Start: 15 @13822 has 1 MA's), (Start: 17 @13840 has 20 MA's), (39, 14095), (40, 14104),

Gene: Apeppi_23 Start: 16506, Stop: 16880, Start Num: 17
Candidate Starts for Apeppi_23:
(13, 16470), (Start: 16 @16503 has 1 MA's), (Start: 17 @16506 has 20 MA's), (20, 16536), (30, 16695), (31, 16701), (33, 16719), (34, 16728), (43, 16830),

Gene: Artiphact_28 Start: 14631, Stop: 14906, Start Num: 17
Candidate Starts for Artiphact_28:
(Start: 15 @14613 has 1 MA's), (Start: 17 @14631 has 20 MA's), (36, 14862), (39, 14886), (40, 14895),

Gene: Astralis_23 Start: 14805, Stop: 15143, Start Num: 21
Candidate Starts for Astralis_23:
(7, 14604), (13, 14733), (14, 14742), (Start: 16 @14766 has 1 MA's), (Start: 17 @14769 has 20 MA's), (20, 14799), (Start: 21 @14805 has 35 MA's), (30, 14958), (31, 14964), (33, 14982), (34, 14991), (43, 15093),

Gene: Avian_23 Start: 14805, Stop: 15143, Start Num: 21
Candidate Starts for Avian_23:
(7, 14604), (13, 14733), (14, 14742), (Start: 16 @14766 has 1 MA's), (Start: 17 @14769 has 20 MA's), (20, 14799), (Start: 21 @14805 has 35 MA's), (30, 14958), (31, 14964), (33, 14982), (34, 14991), (43, 15093),

Gene: Beckerton_25 Start: 16403, Stop: 16753, Start Num: 17
Candidate Starts for Beckerton_25:
(Start: 17 @16403 has 20 MA's), (Start: 19 @16421 has 9 MA's), (24, 16505), (26, 16523), (28, 16538), (44, 16733),

Gene: BigMama_24 Start: 16178, Stop: 16396, Start Num: 23
Candidate Starts for BigMama_24:
(Start: 19 @16124 has 9 MA's), (Start: 22 @16166 has 5 MA's), (Start: 23 @16178 has 12 MA's), (27, 16226), (34, 16325), (37, 16349), (38, 16352), (42, 16391),

Gene: BirthdayBoy_27 Start: 17252, Stop: 17590, Start Num: 21
Candidate Starts for BirthdayBoy_27:
(7, 17051), (13, 17180), (Start: 16 @17213 has 1 MA's), (Start: 17 @17216 has 20 MA's), (20, 17246), (Start: 21 @17252 has 35 MA's), (30, 17405), (31, 17411), (33, 17429), (34, 17438), (43, 17540),

Gene: BobtimousPrime_27 Start: 16341, Stop: 16673, Start Num: 19
Candidate Starts for BobtimousPrime_27:
(Start: 17 @16323 has 20 MA's), (Start: 19 @16341 has 9 MA's), (24, 16425), (26, 16443), (28, 16458), (44, 16653),

Gene: Bramble_29 Start: 14481, Stop: 14762, Start Num: 17
Candidate Starts for Bramble_29:
(Start: 15 @14463 has 1 MA's), (Start: 17 @14481 has 20 MA's), (24, 14580), (29, 14622), (39, 14736),

Gene: Butterscotch_26 Start: 16150, Stop: 16380, Start Num: 22
Candidate Starts for Butterscotch_26:
(Start: 19 @16108 has 9 MA's), (Start: 22 @16150 has 5 MA's), (Start: 23 @16162 has 12 MA's), (27, 16210), (34, 16309), (37, 16333), (38, 16336), (42, 16375),

Gene: Cborch11_26 Start: 15883, Stop: 16215, Start Num: 19
Candidate Starts for Cborch11_26:
(Start: 17 @15865 has 20 MA's), (Start: 19 @15883 has 9 MA's), (24, 15967), (26, 15985), (28, 16000), (44, 16195),

Gene: Charminar_23 Start: 14805, Stop: 15143, Start Num: 21
Candidate Starts for Charminar_23:

(7, 14604), (13, 14733), (14, 14742), (Start: 16 @14766 has 1 MA's), (Start: 17 @14769 has 20 MA's), (20, 14799), (Start: 21 @14805 has 35 MA's), (30, 14958), (31, 14964), (33, 14982), (34, 14991), (43, 15093),

Gene: Chill_27 Start: 16168, Stop: 16386, Start Num: 23
Candidate Starts for Chill_27:
(Start: 19 @16114 has 9 MA's), (Start: 22 @16156 has 5 MA's), (Start: 23 @16168 has 12 MA's), (27, 16216), (34, 16315), (37, 16339), (38, 16342), (42, 16381),

Gene: Damien_25 Start: 15884, Stop: 16216, Start Num: 19
Candidate Starts for Damien_25:
(Start: 17 @15866 has 20 MA's), (Start: 19 @15884 has 9 MA's), (24, 15968), (26, 15986), (28, 16001), (44, 16196),

Gene: DaviePasture_26 Start: 17021, Stop: 17359, Start Num: 21
Candidate Starts for DaviePasture_26:
(2, 16712), (3, 16724), (4, 16736), (5, 16769), (7, 16820), (13, 16949), (Start: 16 @16982 has 1 MA's), (Start: 17 @16985 has 20 MA's), (20, 17015), (Start: 21 @17021 has 35 MA's), (30, 17174), (31, 17180), (33, 17198), (34, 17207), (43, 17309),

Gene: Delton_26 Start: 16174, Stop: 16392, Start Num: 23
Candidate Starts for Delton_26:
(Start: 19 @16120 has 9 MA's), (Start: 21 @16138 has 35 MA's), (Start: 22 @16162 has 5 MA's), (Start: 23 @16174 has 12 MA's), (27, 16222), (34, 16321), (37, 16345), (38, 16348), (42, 16387),

Gene: DoobyDoo_25 Start: 16186, Stop: 16524, Start Num: 21
Candidate Starts for DoobyDoo_25:
(1, 15769), (2, 15877), (3, 15889), (4, 15901), (5, 15934), (7, 15985), (13, 16114), (Start: 16 @16147 has 1 MA's), (Start: 17 @16150 has 20 MA's), (20, 16180), (Start: 21 @16186 has 35 MA's), (30, 16339), (31, 16345), (33, 16363), (34, 16372), (43, 16474),

Gene: DumpTruck_25 Start: 16400, Stop: 16777, Start Num: 16
Candidate Starts for DumpTruck_25:
(Start: 16 @16400 has 1 MA's), (31, 16598), (32, 16613), (43, 16727), (45, 16754),

Gene: Erk16_26 Start: 16165, Stop: 16383, Start Num: 23
Candidate Starts for Erk16_26:
(Start: 19 @16111 has 9 MA's), (Start: 21 @16129 has 35 MA's), (Start: 22 @16153 has 5 MA's), (Start: 23 @16165 has 12 MA's), (27, 16213), (34, 16312), (37, 16336), (38, 16339), (42, 16378),

Gene: Erudite_27 Start: 14346, Stop: 14621, Start Num: 17
Candidate Starts for Erudite_27:
(Start: 15 @14328 has 1 MA's), (Start: 17 @14346 has 20 MA's), (39, 14601), (40, 14610),

Gene: Erutan_26 Start: 16699, Stop: 17037, Start Num: 21
Candidate Starts for Erutan_26:
(7, 16498), (13, 16627), (Start: 16 @16660 has 1 MA's), (Start: 17 @16663 has 20 MA's), (20, 16693), (Start: 21 @16699 has 35 MA's), (30, 16852), (31, 16858), (33, 16876), (34, 16885), (43, 16987),

Gene: FountainFog_27 Start: 13949, Stop: 14224, Start Num: 17
Candidate Starts for FountainFog_27:
(Start: 15 @13931 has 1 MA's), (Start: 17 @13949 has 20 MA's), (36, 14180), (39, 14204),

Gene: Fulcrum_27 Start: 17232, Stop: 17570, Start Num: 21
Candidate Starts for Fulcrum_27:
(7, 17031), (13, 17160), (Start: 16 @17193 has 1 MA's), (Start: 17 @17196 has 20 MA's), (20, 17226), (Start: 21 @17232 has 35 MA's), (30, 17385), (31, 17391), (33, 17409), (34, 17418), (43, 17520),

Gene: GOATification_27 Start: 17232, Stop: 17570, Start Num: 21
Candidate Starts for GOATification_27:
(7, 17031), (13, 17160), (Start: 16 @17193 has 1 MA's), (Start: 17 @17196 has 20 MA's), (20, 17226), (Start: 21 @17232 has 35 MA's), (30, 17385), (31, 17391), (33, 17409), (34, 17418), (43, 17520),

Gene: Genamy16_25 Start: 14805, Stop: 15143, Start Num: 21
Candidate Starts for Genamy16_25:
(7, 14604), (13, 14733), (14, 14742), (Start: 16 @14766 has 1 MA's), (Start: 17 @14769 has 20 MA's), (20, 14799), (Start: 21 @14805 has 35 MA's), (30, 14958), (31, 14964), (33, 14982), (34, 14991), (43, 15093),

Gene: Gibbin_27 Start: 17304, Stop: 17642, Start Num: 21
Candidate Starts for Gibbin_27:
(2, 16995), (3, 17007), (4, 17019), (5, 17052), (7, 17103), (13, 17232), (Start: 16 @17265 has 1 MA's), (Start: 17 @17268 has 20 MA's), (20, 17298), (Start: 21 @17304 has 35 MA's), (30, 17457), (31, 17463), (33, 17481), (34, 17490), (43, 17592),

Gene: Giuseppe_26 Start: 16100, Stop: 16372, Start Num: 19
Candidate Starts for Giuseppe_26:
(Start: 19 @16100 has 9 MA's), (Start: 22 @16142 has 5 MA's), (Start: 23 @16154 has 12 MA's), (27, 16202), (34, 16301), (37, 16325), (38, 16328), (42, 16367),

Gene: GretelLyn_26 Start: 17566, Stop: 17904, Start Num: 21
Candidate Starts for GretelLyn_26:
(7, 17365), (9, 17386), (13, 17494), (Start: 16 @17527 has 1 MA's), (Start: 17 @17530 has 20 MA's), (20, 17560), (Start: 21 @17566 has 35 MA's), (30, 17719), (31, 17725), (33, 17743), (34, 17752), (43, 17854),

Gene: Gumball_25 Start: 16058, Stop: 16330, Start Num: 19
Candidate Starts for Gumball_25:
(Start: 19 @16058 has 9 MA's), (Start: 22 @16100 has 5 MA's), (Start: 23 @16112 has 12 MA's), (27, 16160), (34, 16259), (37, 16283), (38, 16286), (42, 16325),

Gene: Hager_29 Start: 14193, Stop: 14468, Start Num: 17
Candidate Starts for Hager_29:
(Start: 15 @14175 has 1 MA's), (Start: 17 @14193 has 20 MA's), (36, 14424), (39, 14448),

Gene: Hawkeye_28 Start: 16025, Stop: 16255, Start Num: 22
Candidate Starts for Hawkeye_28:
(Start: 21 @16001 has 35 MA's), (Start: 22 @16025 has 5 MA's), (Start: 23 @16037 has 12 MA's), (27, 16085), (35, 16193), (37, 16208), (41, 16244),

Gene: Helpful_27 Start: 16162, Stop: 16380, Start Num: 23
Candidate Starts for Helpful_27:
(Start: 19 @16108 has 9 MA's), (Start: 22 @16150 has 5 MA's), (Start: 23 @16162 has 12 MA's), (27, 16210), (34, 16309), (37, 16333), (38, 16336), (42, 16375),

Gene: JDawG_27 Start: 14376, Stop: 14651, Start Num: 17

Candidate Starts for JDawG_27:
(Start: 15 @14358 has 1 MA's), (Start: 17 @14376 has 20 MA's), (39, 14631), (40, 14640),

Gene: Jalebi_25 Start: 17742, Stop: 18080, Start Num: 21
Candidate Starts for Jalebi_25:
(13, 17670), (Start: 16 @17703 has 1 MA's), (Start: 17 @17706 has 20 MA's), (20, 17736), (Start: 21 @17742 has 35 MA's), (30, 17895), (31, 17901), (33, 17919), (34, 17928), (43, 18030),

Gene: Jamemuya19_23 Start: 14805, Stop: 15143, Start Num: 21
Candidate Starts for Jamemuya19_23:
(7, 14604), (13, 14733), (14, 14742), (Start: 16 @14766 has 1 MA's), (Start: 17 @14769 has 20 MA's), (20, 14799), (Start: 21 @14805 has 35 MA's), (30, 14958), (31, 14964), (33, 14982), (34, 14991), (43, 15093),

Gene: KandZ_26 Start: 16262, Stop: 16480, Start Num: 23
Candidate Starts for KandZ_26:
(Start: 19 @16208 has 9 MA's), (Start: 22 @16250 has 5 MA's), (Start: 23 @16262 has 12 MA's), (27, 16310), (34, 16409), (37, 16433), (38, 16436), (42, 16475),

Gene: Kors_29 Start: 14561, Stop: 14842, Start Num: 17
Candidate Starts for Kors_29:
(11, 14477), (Start: 15 @14543 has 1 MA's), (Start: 17 @14561 has 20 MA's), (24, 14660), (29, 14702), (39, 14816),

Gene: Lambo_26 Start: 17244, Stop: 17582, Start Num: 21
Candidate Starts for Lambo_26:
(7, 17043), (13, 17172), (Start: 16 @17205 has 1 MA's), (Start: 17 @17208 has 20 MA's), (20, 17238), (Start: 21 @17244 has 35 MA's), (30, 17397), (31, 17403), (33, 17421), (34, 17430), (43, 17532),

Gene: LavAbarElk_24 Start: 15681, Stop: 16019, Start Num: 21
Candidate Starts for LavAbarElk_24:
(2, 15372), (3, 15384), (4, 15396), (5, 15429), (7, 15480), (13, 15609), (Start: 16 @15642 has 1 MA's), (Start: 17 @15645 has 20 MA's), (20, 15675), (Start: 21 @15681 has 35 MA's), (30, 15834), (31, 15840), (33, 15858), (34, 15867), (43, 15969),

Gene: Lila22_25 Start: 17190, Stop: 17528, Start Num: 21
Candidate Starts for Lila22_25:
(13, 17118), (Start: 16 @17151 has 1 MA's), (Start: 17 @17154 has 20 MA's), (20, 17184), (Start: 21 @17190 has 35 MA's), (30, 17343), (31, 17349), (33, 17367), (34, 17376), (43, 17478),

Gene: LordBart_29 Start: 14477, Stop: 14758, Start Num: 17
Candidate Starts for LordBart_29:
(Start: 15 @14459 has 1 MA's), (Start: 17 @14477 has 20 MA's), (24, 14576), (29, 14618), (39, 14732),

Gene: LuckyLeo_25 Start: 16506, Stop: 16880, Start Num: 17
Candidate Starts for LuckyLeo_25:
(13, 16470), (Start: 16 @16503 has 1 MA's), (Start: 17 @16506 has 20 MA's), (20, 16536), (30, 16695), (31, 16701), (33, 16719), (34, 16728), (43, 16830),

Gene: Megatron06_27 Start: 16399, Stop: 16749, Start Num: 17
Candidate Starts for Megatron06_27:
(Start: 17 @16399 has 20 MA's), (Start: 19 @16417 has 9 MA's), (24, 16501), (26, 16519), (28, 16534), (44, 16729),

Gene: Mima20_24 Start: 16931, Stop: 17269, Start Num: 21
Candidate Starts for Mima20_24:
(2, 16622), (3, 16634), (4, 16646), (5, 16679), (7, 16730), (13, 16859), (Start: 16 @16892 has 1 MA's), (Start: 17 @16895 has 20 MA's), (20, 16925), (Start: 21 @16931 has 35 MA's), (30, 17084), (31, 17090), (33, 17108), (34, 17117), (43, 17219),

Gene: MoiGyank_28 Start: 17603, Stop: 17941, Start Num: 21
Candidate Starts for MoiGyank_28:
(7, 17402), (13, 17531), (Start: 16 @17564 has 1 MA's), (Start: 17 @17567 has 20 MA's), (20, 17597), (Start: 21 @17603 has 35 MA's), (30, 17756), (31, 17762), (33, 17780), (34, 17789), (43, 17891),

Gene: Mopey_26 Start: 16162, Stop: 16380, Start Num: 23
Candidate Starts for Mopey_26:
(Start: 19 @16108 has 9 MA's), (Start: 22 @16150 has 5 MA's), (Start: 23 @16162 has 12 MA's), (27, 16210), (34, 16309), (37, 16333), (38, 16336), (42, 16375),

Gene: MortySmith_26 Start: 13751, Stop: 14044, Start Num: 15
Candidate Starts for MortySmith_26:
(Start: 15 @13751 has 1 MA's), (Start: 17 @13769 has 20 MA's), (39, 14024), (40, 14033),

Gene: Nettle_25 Start: 17430, Stop: 17804, Start Num: 17
Candidate Starts for Nettle_25:
(1, 17049), (2, 17157), (3, 17169), (4, 17181), (5, 17214), (7, 17265), (13, 17394), (Start: 16 @17427 has 1 MA's), (Start: 17 @17430 has 20 MA's), (20, 17460), (Start: 21 @17466 has 35 MA's), (30, 17619), (31, 17625), (33, 17643), (34, 17652), (43, 17754),

Gene: Nish23_26 Start: 15865, Stop: 16215, Start Num: 17
Candidate Starts for Nish23_26:
(Start: 17 @15865 has 20 MA's), (Start: 19 @15883 has 9 MA's), (24, 15967), (26, 15985), (28, 16000), (44, 16195),

Gene: NorManre_27 Start: 16810, Stop: 17148, Start Num: 21
Candidate Starts for NorManre_27:
(2, 16501), (3, 16513), (4, 16525), (5, 16558), (7, 16609), (13, 16738), (Start: 16 @16771 has 1 MA's), (Start: 17 @16774 has 20 MA's), (20, 16804), (Start: 21 @16810 has 35 MA's), (30, 16963), (31, 16969), (33, 16987), (34, 16996), (43, 17098),

Gene: Nova_26 Start: 16535, Stop: 16807, Start Num: 19
Candidate Starts for Nova_26:
(Start: 19 @16535 has 9 MA's), (Start: 21 @16553 has 35 MA's), (Start: 22 @16577 has 5 MA's), (Start: 23 @16589 has 12 MA's), (27, 16637), (34, 16736), (37, 16760), (38, 16763), (42, 16802),

Gene: NovaSharks_25 Start: 14805, Stop: 15143, Start Num: 21
Candidate Starts for NovaSharks_25:
(7, 14604), (13, 14733), (14, 14742), (Start: 16 @14766 has 1 MA's), (Start: 17 @14769 has 20 MA's), (20, 14799), (Start: 21 @14805 has 35 MA's), (30, 14958), (31, 14964), (33, 14982), (34, 14991), (43, 15093),

Gene: OhDear_28 Start: 14636, Stop: 14911, Start Num: 17
Candidate Starts for OhDear_28:
(Start: 15 @14618 has 1 MA's), (Start: 17 @14636 has 20 MA's), (36, 14867), (39, 14891), (40, 14900),

Gene: OtterstedtS21_26 Start: 16888, Stop: 17226, Start Num: 21
Candidate Starts for OtterstedtS21_26:
(7, 16687), (9, 16708), (13, 16816), (Start: 16 @16849 has 1 MA's), (Start: 17 @16852 has 20 MA's), (20, 16882), (Start: 21 @16888 has 35 MA's), (30, 17041), (31, 17047), (33, 17065), (34, 17074), (43, 17176),

Gene: PLot_27 Start: 16153, Stop: 16383, Start Num: 22
Candidate Starts for PLot_27:
(Start: 19 @16111 has 9 MA's), (Start: 22 @16153 has 5 MA's), (Start: 23 @16165 has 12 MA's), (27, 16213), (34, 16312), (37, 16336), (38, 16339), (42, 16378),

Gene: ParvusTarda_26 Start: 16370, Stop: 16708, Start Num: 21
Candidate Starts for ParvusTarda_26:
(7, 16169), (13, 16298), (Start: 16 @16331 has 1 MA's), (Start: 17 @16334 has 20 MA's), (20, 16364), (Start: 21 @16370 has 35 MA's), (30, 16523), (31, 16529), (33, 16547), (34, 16556), (43, 16658),

Gene: Patos_27 Start: 16810, Stop: 17148, Start Num: 21
Candidate Starts for Patos_27:
(2, 16501), (3, 16513), (4, 16525), (5, 16558), (7, 16609), (13, 16738), (Start: 16 @16771 has 1 MA's), (Start: 17 @16774 has 20 MA's), (20, 16804), (Start: 21 @16810 has 35 MA's), (30, 16963), (31, 16969), (33, 16987), (34, 16996), (43, 17098),

Gene: Penelope2018_26 Start: 16162, Stop: 16380, Start Num: 23
Candidate Starts for Penelope2018_26:
(Start: 19 @16108 has 9 MA's), (Start: 22 @16150 has 5 MA's), (Start: 23 @16162 has 12 MA's), (27, 16210), (34, 16309), (37, 16333), (38, 16336), (42, 16375),

Gene: Phalaborwa_26 Start: 16141, Stop: 16413, Start Num: 19
Candidate Starts for Phalaborwa_26:
(Start: 19 @16141 has 9 MA's), (Start: 21 @16159 has 35 MA's), (Start: 22 @16183 has 5 MA's), (Start: 23 @16195 has 12 MA's), (27, 16243), (37, 16366), (38, 16369), (42, 16408),

Gene: Phreeze_25 Start: 15866, Stop: 16216, Start Num: 17
Candidate Starts for Phreeze_25:
(Start: 17 @15866 has 20 MA's), (Start: 19 @15884 has 9 MA's), (24, 15968), (26, 15986), (28, 16001), (44, 16196),

Gene: Prager_26 Start: 16162, Stop: 16392, Start Num: 22
Candidate Starts for Prager_26:
(Start: 19 @16120 has 9 MA's), (Start: 22 @16162 has 5 MA's), (Start: 23 @16174 has 12 MA's), (27, 16222), (34, 16321), (37, 16345), (38, 16348), (42, 16387),

Gene: Predator_29 Start: 17401, Stop: 17733, Start Num: 19
Candidate Starts for Predator_29:
(6, 17209), (8, 17227), (10, 17263), (12, 17317), (Start: 17 @17383 has 20 MA's), (Start: 19 @17401 has 9 MA's), (25, 17491), (26, 17503), (28, 17518),

Gene: Puissant_26 Start: 16331, Stop: 16681, Start Num: 17
Candidate Starts for Puissant_26:
(Start: 17 @16331 has 20 MA's), (Start: 19 @16349 has 9 MA's), (24, 16433), (26, 16451), (28, 16466), (44, 16661),

Gene: Pywacket_25 Start: 17691, Stop: 18065, Start Num: 17

Candidate Starts for Pywacket_25:
(13, 17655), (Start: 16 @17688 has 1 MA's), (Start: 17 @17691 has 20 MA's), (20, 17721), (Start: 21 @17727 has 35 MA's), (30, 17880), (31, 17886), (33, 17904), (34, 17913), (43, 18015),

Gene: Rachella_28 Start: 14633, Stop: 14908, Start Num: 17
Candidate Starts for Rachella_28:
(Start: 15 @14615 has 1 MA's), (Start: 17 @14633 has 20 MA's), (36, 14864), (39, 14888), (40, 14897),

Gene: Ranch_26 Start: 15736, Stop: 16074, Start Num: 21
Candidate Starts for Ranch_26:
(7, 15535), (13, 15664), (Start: 16 @15697 has 1 MA's), (Start: 17 @15700 has 20 MA's), (20, 15730), (Start: 21 @15736 has 35 MA's), (30, 15889), (31, 15895), (33, 15913), (34, 15922), (43, 16024),

Gene: RazorC_23 Start: 14805, Stop: 15143, Start Num: 21
Candidate Starts for RazorC_23:
(7, 14604), (13, 14733), (14, 14742), (Start: 16 @14766 has 1 MA's), (Start: 17 @14769 has 20 MA's), (20, 14799), (Start: 21 @14805 has 35 MA's), (30, 14958), (31, 14964), (33, 14982), (34, 14991), (43, 15093),

Gene: Riduram_23 Start: 14775, Stop: 15113, Start Num: 21
Candidate Starts for Riduram_23:
(7, 14574), (13, 14703), (14, 14712), (Start: 16 @14736 has 1 MA's), (Start: 17 @14739 has 20 MA's), (20, 14769), (Start: 21 @14775 has 35 MA's), (30, 14928), (31, 14934), (33, 14952), (34, 14961), (43, 15063),

Gene: Rota_25 Start: 16694, Stop: 17032, Start Num: 21
Candidate Starts for Rota_25:
(7, 16493), (13, 16622), (Start: 16 @16655 has 1 MA's), (Start: 17 @16658 has 20 MA's), (20, 16688), (Start: 21 @16694 has 35 MA's), (30, 16847), (31, 16853), (33, 16871), (34, 16880), (43, 16982),

Gene: Rukungu_26 Start: 17435, Stop: 17773, Start Num: 21
Candidate Starts for Rukungu_26:
(7, 17234), (9, 17255), (13, 17363), (Start: 16 @17396 has 1 MA's), (Start: 17 @17399 has 20 MA's), (20, 17429), (Start: 21 @17435 has 35 MA's), (30, 17588), (31, 17594), (33, 17612), (34, 17621), (43, 17723),

Gene: Rumi_25 Start: 14805, Stop: 15143, Start Num: 21
Candidate Starts for Rumi_25:
(7, 14604), (13, 14733), (14, 14742), (Start: 16 @14766 has 1 MA's), (Start: 17 @14769 has 20 MA's), (20, 14799), (Start: 21 @14805 has 35 MA's), (30, 14958), (31, 14964), (33, 14982), (34, 14991), (43, 15093),

Gene: Sadboi_26 Start: 17566, Stop: 17904, Start Num: 21
Candidate Starts for Sadboi_26:
(7, 17365), (9, 17386), (13, 17494), (Start: 16 @17527 has 1 MA's), (Start: 17 @17530 has 20 MA's), (20, 17560), (Start: 21 @17566 has 35 MA's), (30, 17719), (31, 17725), (33, 17743), (34, 17752), (43, 17854),

Gene: SafetyGuy_28 Start: 14636, Stop: 14911, Start Num: 17
Candidate Starts for SafetyGuy_28:
(Start: 15 @14618 has 1 MA's), (Start: 17 @14636 has 20 MA's), (36, 14867), (39, 14891), (40, 14900),

Gene: Sampudon_26 Start: 17742, Stop: 18080, Start Num: 21

Candidate Starts for Sampudon_26:
(13, 17670), (Start: 16 @17703 has 1 MA's), (Start: 17 @17706 has 20 MA's), (20, 17736), (Start: 21 @17742 has 35 MA's), (30, 17895), (31, 17901), (33, 17919), (34, 17928), (43, 18030),

Gene: SirHarley_25 Start: 16040, Stop: 16312, Start Num: 19
Candidate Starts for SirHarley_25:
(Start: 19 @16040 has 9 MA's), (Start: 21 @16058 has 35 MA's), (Start: 22 @16082 has 5 MA's), (Start: 23 @16094 has 12 MA's), (27, 16142), (34, 16241), (37, 16265), (38, 16268), (42, 16307),

Gene: Stormer_24 Start: 14805, Stop: 15143, Start Num: 21
Candidate Starts for Stormer_24:
(7, 14604), (13, 14733), (14, 14742), (Start: 16 @14766 has 1 MA's), (Start: 17 @14769 has 20 MA's), (20, 14799), (Start: 21 @14805 has 35 MA's), (30, 14958), (31, 14964), (33, 14982), (34, 14991), (43, 15093),

Gene: SuperheroCarly_26 Start: 15970, Stop: 16242, Start Num: 19
Candidate Starts for SuperheroCarly_26:
(Start: 19 @15970 has 9 MA's), (Start: 21 @15988 has 35 MA's), (Start: 22 @16012 has 5 MA's), (Start: 23 @16024 has 12 MA's), (24, 16051), (27, 16072), (34, 16171), (37, 16195), (38, 16198), (42, 16237),

Gene: Thoth_26 Start: 16159, Stop: 16377, Start Num: 23
Candidate Starts for Thoth_26:
(Start: 19 @16105 has 9 MA's), (Start: 22 @16147 has 5 MA's), (Start: 23 @16159 has 12 MA's), (27, 16207), (34, 16306), (37, 16330), (38, 16333), (42, 16372),

Gene: Thumb_25 Start: 15866, Stop: 16216, Start Num: 17
Candidate Starts for Thumb_25:
(Start: 17 @15866 has 20 MA's), (Start: 19 @15884 has 9 MA's), (24, 15968), (26, 15986), (28, 16001), (44, 16196),

Gene: Tillicus_25 Start: 16100, Stop: 16474, Start Num: 17
Candidate Starts for Tillicus_25:
(13, 16064), (Start: 16 @16097 has 1 MA's), (Start: 17 @16100 has 20 MA's), (20, 16130), (30, 16289), (31, 16295), (33, 16313), (34, 16322), (43, 16424),

Gene: Tongui_27 Start: 13967, Stop: 14242, Start Num: 17
Candidate Starts for Tongui_27:
(Start: 15 @13949 has 1 MA's), (Start: 17 @13967 has 20 MA's), (36, 14198), (39, 14222),

Gene: Troll4_26 Start: 16163, Stop: 16381, Start Num: 23
Candidate Starts for Troll4_26:
(Start: 19 @16109 has 9 MA's), (Start: 22 @16151 has 5 MA's), (Start: 23 @16163 has 12 MA's), (27, 16211), (34, 16310), (37, 16334), (38, 16337), (42, 16376),

Gene: Visconti_26 Start: 16172, Stop: 16390, Start Num: 23
Candidate Starts for Visconti_26:
(Start: 19 @16118 has 9 MA's), (Start: 22 @16160 has 5 MA's), (Start: 23 @16172 has 12 MA's), (27, 16220), (34, 16319), (37, 16343), (38, 16346), (42, 16385),

Gene: WaldoWhy_27 Start: 16168, Stop: 16386, Start Num: 23
Candidate Starts for WaldoWhy_27:

(Start: 19 @16114 has 9 MA's), (Start: 22 @16156 has 5 MA's), (Start: 23 @16168 has 12 MA's), (27, 16216), (34, 16315), (37, 16339), (38, 16342), (42, 16381),

Gene: WinnieLou_29 Start: 14262, Stop: 14537, Start Num: 17
Candidate Starts for WinnieLou_29:
(Start: 15 @14244 has 1 MA's), (Start: 17 @14262 has 20 MA's), (36, 14493), (39, 14517),

Gene: Wojtek_25 Start: 16443, Stop: 16781, Start Num: 21
Candidate Starts for Wojtek_25:
(7, 16242), (13, 16371), (Start: 16 @16404 has 1 MA's), (Start: 17 @16407 has 20 MA's), (18, 16416), (20, 16437), (Start: 21 @16443 has 35 MA's), (30, 16596), (31, 16602), (33, 16620), (34, 16629), (43, 16731),

Gene: Yikes_27 Start: 17827, Stop: 18165, Start Num: 21
Candidate Starts for Yikes_27:
(7, 17626), (9, 17647), (13, 17755), (Start: 16 @17788 has 1 MA's), (Start: 17 @17791 has 20 MA's), (20, 17821), (Start: 21 @17827 has 35 MA's), (30, 17980), (31, 17986), (33, 18004), (34, 18013), (43, 18115),

Gene: Zany_24 Start: 16956, Stop: 17294, Start Num: 21
Candidate Starts for Zany_24:
(7, 16755), (9, 16776), (13, 16884), (Start: 16 @16917 has 1 MA's), (Start: 17 @16920 has 20 MA's), (20, 16950), (Start: 21 @16956 has 35 MA's), (30, 17109), (31, 17115), (33, 17133), (34, 17142), (43, 17244),