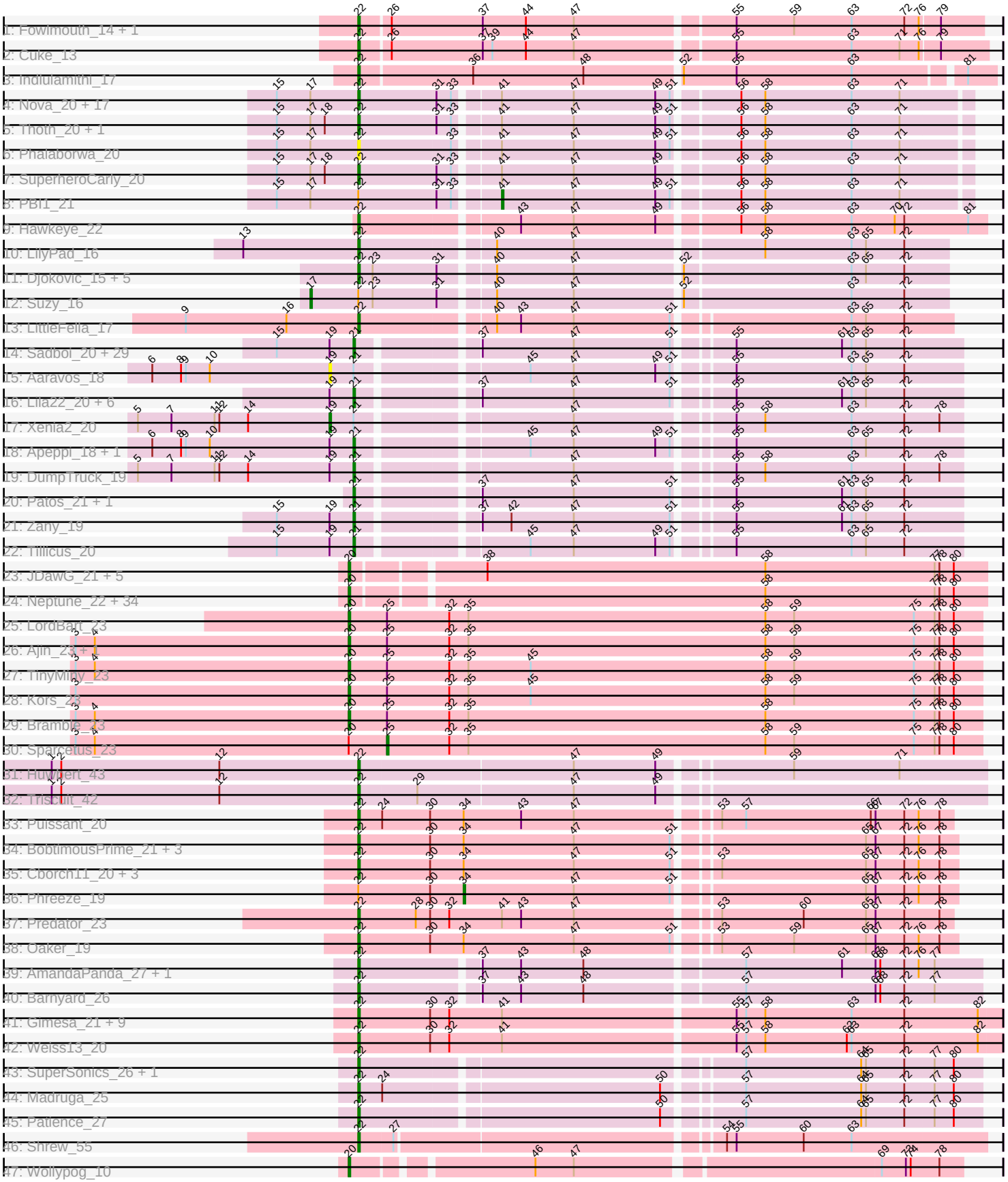
# Pham 347321


1: Fowlmouth_14 + 1
2: Cuke_13
3: Indulamithi_17
4: Nova_20 + 17
5: Thoth_20 + 1
6: Phalaborwa_20
7: SuperheroCarly_20
8: PBI1_21
9: Hawkeye_22
10: LilyPad_16
11: Djokovic_15 + 5
12: Suzy_16
13: LittleFella_17
14: Sadboi_20 + 29
15: Aaravos_18
16: Lila22_20 + 6
17: Xenia2_20
18: Apeppi_18 + 1
19: DumpTruck_19
20: Patos_21 + 1
21: Zany_19
22: Tillicus_20
23: JDawG_21 + 5
24: Neptune_22 + 34
25: LordBart_23
26: Ajin_23 + 1
27: TinyMiny_23
28: Kors_23
29: Bramble_23
30: Spartetus_23
31: Humbert_43
32: Triscuit_42
33: Puissant_20
34: BobtimousPrime_21 + 3
35: Cborch11_20 + 3
36: Phreeze_19
37: Predator_23
38: Oaker_19
39: AmandaPanda_27 + 1
40: Barnyard_26
41: Gimesa_21 + 9
42: Weiss13_20
43: SuperSonics_26 + 1
44: Madruga_25
45: Patience_27
46: Shrew_55
47: Wollypog_10

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 347321 Report

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

Pham number 347321 has 165 members, 14 are drafts.

Phages represented in each track:
• Track 1 : Fowlmouth_14, MrMiyagi_14
• Track 2 : Cuke_13
• Track 3 : Indlulamithi_17
• Track 4 : Nova_20, Butterscotch_20, Gumball_19, Penelope2018_20, Chill_21, KandZ_20, SirHarley_19, Erk16_20, Giuseppe_20, Mopey_20, Helpful_21, Prager_20, BigMama_18, Troll4_20, PLot_21, Adjutor_21, WaldoWhy_21, Delton_20
• Track 5 : Thoth_20, Visconti_20
• Track 6 : Phalaborwa_20
• Track 7 : SuperheroCarly_20
• Track 8 : PBI1_21
• Track 9 : Hawkeye_22
• Track 10 : LilyPad_16
• Track 11 : Djokovic_15, Madi_15, Terapin_15, BiteSize_15, Sienna_15, Beyoncage_15
• Track 12 : Suzy_16
• Track 13 : LittleFella_17
• Track 14 : Sadboi_20, Charminar_18, Gibbin_21, Stormer_18, ParvusTarda_20, Alyssamiracle_19, OtterstedtS21_20, Lambo_20, DaviePasture_20, Rumi_19, Nettle_19, DoobyDoo_19, Riduram_18, Avian_18, GretelLyn_20, Alephilan_18, Genamy16_19, Wojtek_19, Pywacket_19, NovaSharks_19, Erutan_20, Ranch_20, Astralis_18, Rukungu_20, Jamemuya19_18, Sampudon_20, RazorC_18, Mima20_19, Yikes_21, Jalebi_20
• Track 15 : Aaravos_18
• Track 16 : Lila22_20, MoiGyank_22, Fulcrum_21, LavAbarElk_18, BirthdayBoy_21, GOATification_21, Rota_19
• Track 17 : Xenia2_20
• Track 18 : Apeppi_18, LuckyLeo_19
• Track 19 : DumpTruck_19
• Track 20 : Patos_21, NorManre_21
• Track 21 : Zany_19
• Track 22 : Tillicus_20
• Track 23 : JDawG_21, Annapurna_21, Crestdrop_21, Rie18_22, Hager_23, Tongui_21
• Track 24 : Neptune_22, Hiddenleaf_21, FountainFog_21, Dauntless_21, Krampus_22, Pharpay_22, Gilda_22, Anakin_22, Karate_21, Rachella_22, DannyDe_21, Poultress_21, Haunter_22, Kate_22, AnnaSerena_22, CoolCookie_22, FreddieHg_21, OhDear_22, SilentWarrior_21, Aesir_21, Potty_22, WinnieLou_23,

Artiphact_22, Tedro_22, JingleBells_21, PhunaPhoke_22, Cybele_22, OverHedge_22, NarutoRun_22, MortySmith_20, Erudite_21, Chivey_21, SafetyGuy_22, Snakehole_23, Tiggy93_22
• Track 25 : LordBart_23
• Track 26 : Ajin_23, RikSengupta_23
• Track 27 : TinyMiny_23
• Track 28 : Kors_23
• Track 29 : Bramble_23
• Track 30 : Sparcetus_23
• Track 31 : Huwbert_43
• Track 32 : Triscuit_42
• Track 33 : Puissant_20
• Track 34 : BobtimousPrime_21, Damien_19, Thumb_19, Megatron06_21
• Track 35 : Cborch11_20, Nish23_20, Beckerton_19, Konstantine_24
• Track 36 : Phreeze_19
• Track 37 : Predator_23
• Track 38 : Oaker_19
• Track 39 : AmandaPanda_27, DrLupo_28
• Track 40 : Barnyard_26
• Track 41 : Gimesa_21, Yelo_20, Send513_20, MontyDev_20, Candle_20, Nilo_21, Papyrus_20, Riparian_20, Zenon_21, Rope_20
• Track 42 : Weiss13_20
• Track 43 : SuperSonics_26, Labelle_26
• Track 44 : Madruga_25
• Track 45 : Patience_27
• Track 46 : Shrew_55
• Track 47 : Wollypog_10

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

The start number called the most often in the published annotations is 22, it was called in 63 of the 151 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Adjutor_21, AmandaPanda_27, Barnyard_26, Beckerton_19, Beyoncage_15, BigMama_18, BiteSize_15, BobtimousPrime_21, Butterscotch_20, Candle_20, Cborch11_20, Chill_21, Cuke_13, Damien_19, Delton_20, Djokovic_15, DrLupo_28, Erk16_20, Fowlmouth_14, Gimesa_21, Giuseppe_20, Gumball_19, Hawkeye_22, Helpful_21, Huwbert_43, Indlulamithi_17, KandZ_20, Konstantine_24, Labelle_26, LilyPad_16, LittleFella_17, Madi_15, Madruga_25, Megatron06_21, MontyDev_20, Mopey_20, MrMiyagi_14, Nilo_21, Nish23_20, Nova_20, Oaker_19, PLot_21, Papyrus_20, Patience_27, Penelope2018_20, Phalaborwa_20, Prager_20, Predator_23, Puissant_20, Riparian_20, Rope_20, Send513_20, Shrew_55, Sienna_15, SirHarley_19, SuperSonics_26, SuperheroCarly_20, Terapin_15, Thoth_20, Thumb_19, Triscuit_42, Troll4_20, Visconti_20, WaldoWhy_21, Weiss13_20, Yelo_20, Zenon_21,

Genes that have the "Most Annotated" start but do not call it:
• PBI1_21, Phreeze_19, Suzy_16,

Genes that do not have the "Most Annotated" start:
• Aaravos_18, Aesir_21, Ajin_23, Alephilan_18, Alyssamiracle_19, Anakin_22, AnnaSerena_22, Annapurna_21, Apeppi_18, Artiphact_22, Astralis_18, Avian_18, BirthdayBoy_21, Bramble_23, Charminar_18, Chivey_21, CoolCookie_22, Crestdrop_21, Cybele_22, DannyDe_21, Dauntless_21, DaviePasture_20, DoobyDoo_19, DumpTruck_19, Erudite_21, Erutan_20, FountainFog_21, FreddieHg_21, Fulcrum_21, GOATification_21, Genamy16_19, Gibbin_21, Gilda_22, GretelLyn_20, Hager_23, Haunter_22, Hiddenleaf_21, JDawG_21, Jalebi_20, Jamemuya19_18, JingleBells_21, Karate_21, Kate_22, Kors_23, Krampus_22, Lambo_20, LavAbarElk_18, Lila22_20, LordBart_23, LuckyLeo_19, Mima20_19, MoiGyank_22, MortySmith_20, NarutoRun_22, Neptune_22, Nettle_19, NorManre_21, NovaSharks_19, OhDear_22, OtterstedtS21_20, OverHedge_22, ParvusTarda_20, Patos_21, Pharpay_22, PhunaPhoke_22, Potty_22, Poultress_21, Pywacket_19, Rachella_22, Ranch_20, RazorC_18, Riduram_18, Rie18_22, RikSengupta_23, Rota_19, Rukungu_20, Rumi_19, Sadboi_20, SafetyGuy_22, Sampudon_20, SilentWarrior_21, Snakehole_23, Sparcetus_23, Stormer_18, Tedro_22, Tiggy93_22, Tillicus_20, TinyMiny_23, Tongui_21, WinnieLou_23, Wojtek_19, Wollypog_10, Xenia2_20, Yikes_21, Zany_19,

**Summary by start number:**

Start 17:
• Found in 24 of 165 ( 14.5% ) of genes in pham
• Manual Annotations of this start: 1 of 151
• Called 4.2% of time when present
• Phage (with cluster) where this start called: Suzy_16 (DG1),

Start 19:
• Found in 44 of 165 ( 26.7% ) of genes in pham
• Manual Annotations of this start: 1 of 151
• Called 4.5% of time when present
• Phage (with cluster) where this start called: Aaravos_18 (DV), Xenia2_20 (DV),

Start 20:
• Found in 49 of 165 ( 29.7% ) of genes in pham
• Manual Annotations of this start: 44 of 151
• Called 98.0% of time when present
• Phage (with cluster) where this start called: Aesir_21 (EF), Ajin_23 (EF), Anakin_22 (EF), AnnaSerena_22 (EF), Annapurna_21 (EF), Artiphact_22 (EF), Bramble_23 (EF), Chivey_21 (EF), CoolCookie_22 (EF), Crestdrop_21 (EF), Cybele_22 (EF), DannyDe_21 (EF), Dauntless_21 (EF), Erudite_21 (EF), FountainFog_21 (EF), FreddieHg_21 (EF), Gilda_22 (EF), Hager_23 (EF), Haunter_22 (EF), Hiddenleaf_21 (EF), JDawG_21 (EF), JingleBells_21 (EF), Karate_21 (EF), Kate_22 (EF), Kors_23 (EF), Krampus_22 (EF), LordBart_23 (EF), MortySmith_20 (EF), NarutoRun_22 (EF), Neptune_22 (EF), OhDear_22 (EF), OverHedge_22 (EF), Pharpay_22 (EF), PhunaPhoke_22 (EF), Potty_22 (EF), Poultress_21 (EF), Rachella_22 (EF), Rie18_22 (EF), RikSengupta_23 (EF), SafetyGuy_22 (EF), SilentWarrior_21 (EF), Snakehole_23 (EF), Tedro_22 (EF), Tiggy93_22 (EF), TinyMiny_23 (EF), Tongui_21 (EF), WinnieLou_23 (EF), Wollypog_10 (singleton),

Start 21:
• Found in 46 of 165 ( 27.9% ) of genes in pham
• Manual Annotations of this start: 39 of 151

• Called 95.7% of time when present
• Phage (with cluster) where this start called: Alephilan_18 (DV), Alyssamiracle_19 (DV), Apeppi_18 (DV), Astralis_18 (DV), Avian_18 (DV), BirthdayBoy_21 (DV), Charminar_18 (DV), DaviePasture_20 (DV), DoobyDoo_19 (DV), DumpTruck_19 (DV), Erutan_20 (DV), Fulcrum_21 (DV), GOATification_21 (DV), Genamy16_19 (DV), Gibbin_21 (DV), GretelLyn_20 (DV), Jalebi_20 (DV), Jamemuya19_18 (DV), Lambo_20 (DV), LavAbarElk_18 (DV), Lila22_20 (DV), LuckyLeo_19 (DV), Mima20_19 (DV), MoiGyank_22 (DV), Nettle_19 (DV), NorManre_21 (DV), NovaSharks_19 (DV), OtterstedtS21_20 (DV), ParvusTarda_20 (DV), Patos_21 (DV), Pywacket_19 (DV), Ranch_20 (DV), RazorC_18 (DV), Riduram_18 (DV), Rota_19 (DV), Rukungu_20 (DV), Rumi_19 (DV), Sadboi_20 (DV), Sampudon_20 (DV), Stormer_18 (DV), Tillicus_20 (DV), Wojtek_19 (DV), Yikes_21 (DV), Zany_19 (DV),

Start 22:
• Found in 70 of 165 ( 42.4% ) of genes in pham
• Manual Annotations of this start: 63 of 151
• Called 95.7% of time when present
• Phage (with cluster) where this start called: Adjutor_21 (D1), AmandaPanda_27 (H2), Barnyard_26 (H2), Beckerton_19 (H1), Beyoncage_15 (DG1), BigMama_18 (D1), BiteSize_15 (DG1), BobtimousPrime_21 (H1), Butterscotch_20 (D1), Candle_20 (R), Cborch11_20 (H1), Chill_21 (D1), Cuke_13 (AC), Damien_19 (H1), Delton_20 (D1), Djokovic_15 (DG1), DrLupo_28 (H2), Erk16_20 (D1), Fowlmouth_14 (AC), Gimesa_21 (R), Giuseppe_20 (D1), Gumball_19 (D1), Hawkeye_22 (D2), Helpful_21 (D1), Huwbert_43 (GG), Indlulamithi_17 (AC), KandZ_20 (D1), Konstantine_24 (H1), Labelle_26 (U), LilyPad_16 (DG1), LittleFella_17 (DG2), Madi_15 (DG1), Madruga_25 (U), Megatron06_21 (H1), MontyDev_20 (R), Mopey_20 (D1), MrMiyagi_14 (AC), Nilo_21 (R), Nish23_20 (H1), Nova_20 (D1), Oaker_19 (H1), PLot_21 (D1), Papyrus_20 (R), Patience_27 (U), Penelope2018_20 (D1), Phalaborwa_20 (D1), Prager_20 (D1), Predator_23 (H1), Puissant_20 (H1), Riparian_20 (R), Rope_20 (R), Send513_20 (R), Shrew_55 (singleton), Sienna_15 (DG1), SirHarley_19 (D1), SuperSonics_26 (U), SuperheroCarly_20 (D1), Terapin_15 (DG1), Thoth_20 (D1), Thumb_19 (H1), Triscuit_42 (GG), Troll4_20 (D1), Visconti_20 (D1), WaldoWhy_21 (D1), Weiss13_20 (R), Yelo_20 (R), Zenon_21 (R),

Start 25:
• Found in 7 of 165 ( 4.2% ) of genes in pham
• Manual Annotations of this start: 1 of 151
• Called 14.3% of time when present
• Phage (with cluster) where this start called: Sparcetus_23 (EF),

Start 34:
• Found in 11 of 165 ( 6.7% ) of genes in pham
• Manual Annotations of this start: 1 of 151
• Called 9.1% of time when present
• Phage (with cluster) where this start called: Phreeze_19 (H1),

Start 41:
• Found in 35 of 165 ( 21.2% ) of genes in pham
• Manual Annotations of this start: 1 of 151
• Called 2.9% of time when present
• Phage (with cluster) where this start called: PBI1_21 (D1),

**Summary by clusters:**

There are 13 clusters represented in this pham: DG2, singleton, EF, H2, H1, AC, GG, R, U, DV, DG1, D2, D1,

Info for manual annotations of cluster AC:
•Start number 22 was manually annotated 4 times for cluster AC.

Info for manual annotations of cluster D1:
•Start number 22 was manually annotated 21 times for cluster D1.
•Start number 41 was manually annotated 1 time 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 DG1:
•Start number 17 was manually annotated 1 time for cluster DG1.
•Start number 22 was manually annotated 7 times for cluster DG1.

Info for manual annotations of cluster DG2:
•Start number 22 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:
•Start number 19 was manually annotated 1 time for cluster DV.
•Start number 21 was manually annotated 39 times for cluster DV.

Info for manual annotations of cluster EF:
•Start number 20 was manually annotated 43 times for cluster EF.
•Start number 25 was manually annotated 1 time for cluster EF.

Info for manual annotations of cluster GG:
•Start number 22 was manually annotated 2 times for cluster GG.

Info for manual annotations of cluster H1:
•Start number 22 was manually annotated 10 times for cluster H1.
•Start number 34 was manually annotated 1 time for cluster H1.

Info for manual annotations of cluster H2:
•Start number 22 was manually annotated 2 times for cluster H2.

Info for manual annotations of cluster R:
•Start number 22 was manually annotated 10 times for cluster R.

Info for manual annotations of cluster U:
•Start number 22 was manually annotated 4 times for cluster U.

### *Gene Information:*

Gene: Aaravos_18 Start: 13675, Stop: 14043, Start Num: 19
Candidate Starts for Aaravos_18:
(6, 13564), (8, 13582), (9, 13585), (10, 13600), (Start: 19 @13675 has 1 MA's), (Start: 21 @13690 has 39 MA's), (45, 13786), (47, 13813), (49, 13864), (51, 13873), (55, 13903), (63, 13975), (65, 13984),

(72, 14008),

Gene: Adjutor_21 Start: 13129, Stop: 13491, Start Num: 22
Candidate Starts for Adjutor_21:
(15, 13078), (Start: 17 @13099 has 1 MA's), (Start: 22 @13129 has 63 MA's), (31, 13177), (33, 13186), (Start: 41 @13210 has 1 MA's), (47, 13255), (49, 13306), (51, 13315), (56, 13351), (58, 13366), (63, 13420), (71, 13450),

Gene: Aesir_21 Start: 11798, Stop: 12184, Start Num: 20
Candidate Starts for Aesir_21:
(Start: 20 @11798 has 44 MA's), (58, 12047), (77, 12152), (78, 12155), (80, 12164),

Gene: Ajin_23 Start: 11984, Stop: 12379, Start Num: 20
Candidate Starts for Ajin_23:
(3, 11813), (4, 11825), (Start: 20 @11984 has 44 MA's), (Start: 25 @12008 has 1 MA's), (32, 12047), (35, 12059), (58, 12245), (59, 12263), (75, 12338), (77, 12350), (78, 12353), (80, 12362),

Gene: Alephilan_18 Start: 13618, Stop: 13971, Start Num: 21
Candidate Starts for Alephilan_18:
(15, 13570), (Start: 19 @13603 has 1 MA's), (Start: 21 @13618 has 39 MA's), (37, 13684), (47, 13741), (51, 13801), (55, 13831), (61, 13897), (63, 13903), (65, 13912), (72, 13936),

Gene: Alyssamiracle_19 Start: 12025, Stop: 12378, Start Num: 21
Candidate Starts for Alyssamiracle_19:
(15, 11977), (Start: 19 @12010 has 1 MA's), (Start: 21 @12025 has 39 MA's), (37, 12091), (47, 12148), (51, 12208), (55, 12238), (61, 12304), (63, 12310), (65, 12319), (72, 12343),

Gene: AmandaPanda_27 Start: 15206, Stop: 15577, Start Num: 22
Candidate Starts for AmandaPanda_27:
(Start: 22 @15206 has 63 MA's), (37, 15275), (43, 15299), (48, 15338), (57, 15431), (61, 15491), (67, 15512), (68, 15515), (72, 15530), (76, 15539), (77, 15548),

Gene: Anakin_22 Start: 12008, Stop: 12394, Start Num: 20
Candidate Starts for Anakin_22:
(Start: 20 @12008 has 44 MA's), (58, 12257), (77, 12362), (78, 12365), (80, 12374),

Gene: AnnaSerena_22 Start: 12017, Stop: 12403, Start Num: 20
Candidate Starts for AnnaSerena_22:
(Start: 20 @12017 has 44 MA's), (58, 12266), (77, 12371), (78, 12374), (80, 12383),

Gene: Annapurna_21 Start: 11217, Stop: 11603, Start Num: 20
Candidate Starts for Annapurna_21:
(Start: 20 @11217 has 44 MA's), (38, 11292), (58, 11466), (77, 11571), (78, 11574), (80, 11583),

Gene: Apeppi_18 Start: 13740, Stop: 14093, Start Num: 21
Candidate Starts for Apeppi_18:
(6, 13614), (8, 13632), (9, 13635), (10, 13650), (Start: 19 @13725 has 1 MA's), (Start: 21 @13740 has 39 MA's), (45, 13836), (47, 13863), (49, 13914), (51, 13923), (55, 13953), (63, 14025), (65, 14034), (72, 14058),

Gene: Artiphact_22 Start: 12009, Stop: 12395, Start Num: 20
Candidate Starts for Artiphact_22:
(Start: 20 @12009 has 44 MA's), (58, 12258), (77, 12363), (78, 12366), (80, 12375),

Gene: Astralis_18 Start: 12025, Stop: 12378, Start Num: 21
Candidate Starts for Astralis_18:
(15, 11977), (Start: 19 @12010 has 1 MA's), (Start: 21 @12025 has 39 MA's), (37, 12091), (47, 12148), (51, 12208), (55, 12238), (61, 12304), (63, 12310), (65, 12319), (72, 12343),

Gene: Avian_18 Start: 12025, Stop: 12378, Start Num: 21
Candidate Starts for Avian_18:
(15, 11977), (Start: 19 @12010 has 1 MA's), (Start: 21 @12025 has 39 MA's), (37, 12091), (47, 12148), (51, 12208), (55, 12238), (61, 12304), (63, 12310), (65, 12319), (72, 12343),

Gene: Barnyard_26 Start: 14807, Stop: 15178, Start Num: 22
Candidate Starts for Barnyard_26:
(Start: 22 @14807 has 63 MA's), (37, 14876), (43, 14900), (48, 14939), (57, 15032), (67, 15113), (68, 15116), (72, 15131), (77, 15149),

Gene: Beckerton_19 Start: 13539, Stop: 13901, Start Num: 22
Candidate Starts for Beckerton_19:
(Start: 22 @13539 has 63 MA's), (30, 13584), (Start: 34 @13605 has 1 MA's), (47, 13674), (51, 13734), (53, 13755), (65, 13845), (67, 13851), (72, 13869), (76, 13878), (78, 13890),

Gene: Beyoncage_15 Start: 9519, Stop: 9869, Start Num: 22
Candidate Starts for Beyoncage_15:
(Start: 22 @9519 has 63 MA's), (23, 9528), (31, 9567), (40, 9597), (47, 9645), (52, 9708), (63, 9810), (65, 9819), (72, 9843),

Gene: BigMama_18 Start: 13205, Stop: 13567, Start Num: 22
Candidate Starts for BigMama_18:
(15, 13154), (Start: 17 @13175 has 1 MA's), (Start: 22 @13205 has 63 MA's), (31, 13253), (33, 13262), (Start: 41 @13286 has 1 MA's), (47, 13331), (49, 13382), (51, 13391), (56, 13427), (58, 13442), (63, 13496), (71, 13526),

Gene: BirthdayBoy_21 Start: 14471, Stop: 14824, Start Num: 21
Candidate Starts for BirthdayBoy_21:
(Start: 19 @14456 has 1 MA's), (Start: 21 @14471 has 39 MA's), (37, 14537), (47, 14594), (51, 14654), (55, 14684), (61, 14750), (63, 14756), (65, 14765), (72, 14789),

Gene: BiteSize_15 Start: 9519, Stop: 9869, Start Num: 22
Candidate Starts for BiteSize_15:
(Start: 22 @9519 has 63 MA's), (23, 9528), (31, 9567), (40, 9597), (47, 9645), (52, 9708), (63, 9810), (65, 9819), (72, 9843),

Gene: BobtimousPrime_21 Start: 13459, Stop: 13821, Start Num: 22
Candidate Starts for BobtimousPrime_21:
(Start: 22 @13459 has 63 MA's), (30, 13504), (Start: 34 @13525 has 1 MA's), (47, 13594), (51, 13654), (65, 13765), (67, 13771), (72, 13789), (76, 13798), (78, 13810),

Gene: Bramble_23 Start: 11949, Stop: 12344, Start Num: 20
Candidate Starts for Bramble_23:
(3, 11778), (4, 11790), (Start: 20 @11949 has 44 MA's), (Start: 25 @11973 has 1 MA's), (32, 12012), (35, 12024), (58, 12210), (75, 12303), (77, 12315), (78, 12318), (80, 12327),

Gene: Butterscotch_20 Start: 13189, Stop: 13551, Start Num: 22

Candidate Starts for Butterscotch_20:
(15, 13138), (Start: 17 @13159 has 1 MA's), (Start: 22 @13189 has 63 MA's), (31, 13237), (33, 13246), (Start: 41 @13270 has 1 MA's), (47, 13315), (49, 13366), (51, 13375), (56, 13411), (58, 13426), (63, 13480), (71, 13510),

Gene: Candle_20 Start: 13524, Stop: 13919, Start Num: 22
Candidate Starts for Candle_20:
(Start: 22 @13524 has 63 MA's), (30, 13569), (32, 13581), (Start: 41 @13614 has 1 MA's), (55, 13755), (57, 13761), (58, 13773), (63, 13827), (72, 13860), (82, 13905),

Gene: Cborch11_20 Start: 13002, Stop: 13364, Start Num: 22
Candidate Starts for Cborch11_20:
(Start: 22 @13002 has 63 MA's), (30, 13047), (Start: 34 @13068 has 1 MA's), (47, 13137), (51, 13197), (53, 13218), (65, 13308), (67, 13314), (72, 13332), (76, 13341), (78, 13353),

Gene: Charminar_18 Start: 12025, Stop: 12378, Start Num: 21
Candidate Starts for Charminar_18:
(15, 11977), (Start: 19 @12010 has 1 MA's), (Start: 21 @12025 has 39 MA's), (37, 12091), (47, 12148), (51, 12208), (55, 12238), (61, 12304), (63, 12310), (65, 12319), (72, 12343),

Gene: Chill_21 Start: 13195, Stop: 13557, Start Num: 22
Candidate Starts for Chill_21:
(15, 13144), (Start: 17 @13165 has 1 MA's), (Start: 22 @13195 has 63 MA's), (31, 13243), (33, 13252), (Start: 41 @13276 has 1 MA's), (47, 13321), (49, 13372), (51, 13381), (56, 13417), (58, 13432), (63, 13486), (71, 13516),

Gene: Chivey_21 Start: 11210, Stop: 11596, Start Num: 20
Candidate Starts for Chivey_21:
(Start: 20 @11210 has 44 MA's), (58, 11459), (77, 11564), (78, 11567), (80, 11576),

Gene: CoolCookie_22 Start: 12015, Stop: 12401, Start Num: 20
Candidate Starts for CoolCookie_22:
(Start: 20 @12015 has 44 MA's), (58, 12264), (77, 12369), (78, 12372), (80, 12381),

Gene: Crestdrop_21 Start: 11084, Stop: 11470, Start Num: 20
Candidate Starts for Crestdrop_21:
(Start: 20 @11084 has 44 MA's), (38, 11159), (58, 11333), (77, 11438), (78, 11441), (80, 11450),

Gene: Cuke_13 Start: 8734, Stop: 9114, Start Num: 22
Candidate Starts for Cuke_13:
(Start: 22 @8734 has 63 MA's), (26, 8752), (37, 8809), (39, 8815), (44, 8836), (47, 8866), (55, 8959), (63, 9031), (71, 9061), (76, 9073), (79, 9085),

Gene: Cybele_22 Start: 11985, Stop: 12371, Start Num: 20
Candidate Starts for Cybele_22:
(Start: 20 @11985 has 44 MA's), (58, 12234), (77, 12339), (78, 12342), (80, 12351),

Gene: Damien_19 Start: 13001, Stop: 13363, Start Num: 22
Candidate Starts for Damien_19:
(Start: 22 @13001 has 63 MA's), (30, 13046), (Start: 34 @13067 has 1 MA's), (47, 13136), (51, 13196), (65, 13307), (67, 13313), (72, 13331), (76, 13340), (78, 13352),

Gene: DannyDe_21 Start: 11202, Stop: 11588, Start Num: 20

Candidate Starts for DannyDe_21:
(Start: 20 @11202 has 44 MA's), (58, 11451), (77, 11556), (78, 11559), (80, 11568),

Gene: Dauntless_21 Start: 11727, Stop: 12113, Start Num: 20
Candidate Starts for Dauntless_21:
(Start: 20 @11727 has 44 MA's), (58, 11976), (77, 12081), (78, 12084), (80, 12093),

Gene: DaviePasture_20 Start: 14228, Stop: 14581, Start Num: 21
Candidate Starts for DaviePasture_20:
(15, 14180), (Start: 19 @14213 has 1 MA's), (Start: 21 @14228 has 39 MA's), (37, 14294), (47, 14351), (51, 14411), (55, 14441), (61, 14507), (63, 14513), (65, 14522), (72, 14546),

Gene: Delton_20 Start: 13201, Stop: 13563, Start Num: 22
Candidate Starts for Delton_20:
(15, 13150), (Start: 17 @13171 has 1 MA's), (Start: 22 @13201 has 63 MA's), (31, 13249), (33, 13258), (Start: 41 @13282 has 1 MA's), (47, 13327), (49, 13378), (51, 13387), (56, 13423), (58, 13438), (63, 13492), (71, 13522),

Gene: Djokovic_15 Start: 9519, Stop: 9869, Start Num: 22
Candidate Starts for Djokovic_15:
(Start: 22 @9519 has 63 MA's), (23, 9528), (31, 9567), (40, 9597), (47, 9645), (52, 9708), (63, 9810), (65, 9819), (72, 9843),

Gene: DoobyDoo_19 Start: 13405, Stop: 13758, Start Num: 21
Candidate Starts for DoobyDoo_19:
(15, 13357), (Start: 19 @13390 has 1 MA's), (Start: 21 @13405 has 39 MA's), (37, 13471), (47, 13528), (51, 13588), (55, 13618), (61, 13684), (63, 13690), (65, 13699), (72, 13723),

Gene: DrLupo_28 Start: 15206, Stop: 15577, Start Num: 22
Candidate Starts for DrLupo_28:
(Start: 22 @15206 has 63 MA's), (37, 15275), (43, 15299), (48, 15338), (57, 15431), (61, 15491), (67, 15512), (68, 15515), (72, 15530), (76, 15539), (77, 15548),

Gene: DumpTruck_19 Start: 13662, Stop: 14015, Start Num: 21
Candidate Starts for DumpTruck_19:
(5, 13527), (7, 13548), (11, 13575), (12, 13578), (14, 13596), (Start: 19 @13647 has 1 MA's), (Start: 21 @13662 has 39 MA's), (47, 13785), (55, 13875), (58, 13893), (63, 13947), (72, 13980), (78, 14001),

Gene: Erk16_20 Start: 13192, Stop: 13554, Start Num: 22
Candidate Starts for Erk16_20:
(15, 13141), (Start: 17 @13162 has 1 MA's), (Start: 22 @13192 has 63 MA's), (31, 13240), (33, 13249), (Start: 41 @13273 has 1 MA's), (47, 13318), (49, 13369), (51, 13378), (56, 13414), (58, 13429), (63, 13483), (71, 13513),

Gene: Erudite_21 Start: 11727, Stop: 12113, Start Num: 20
Candidate Starts for Erudite_21:
(Start: 20 @11727 has 44 MA's), (58, 11976), (77, 12081), (78, 12084), (80, 12093),

Gene: Erutan_20 Start: 13918, Stop: 14271, Start Num: 21
Candidate Starts for Erutan_20:
(15, 13870), (Start: 19 @13903 has 1 MA's), (Start: 21 @13918 has 39 MA's), (37, 13984), (47, 14041), (51, 14101), (55, 14131), (61, 14197), (63, 14203), (65, 14212), (72, 14236),

Gene: FountainFog_21 Start: 11336, Stop: 11722, Start Num: 20
Candidate Starts for FountainFog_21:
(Start: 20 @11336 has 44 MA's), (58, 11585), (77, 11690), (78, 11693), (80, 11702),

Gene: Fowlmouth_14 Start: 8905, Stop: 9282, Start Num: 22
Candidate Starts for Fowlmouth_14:
(Start: 22 @8905 has 63 MA's), (26, 8923), (37, 8980), (44, 9007), (47, 9037), (55, 9130), (59, 9166), (63, 9202), (72, 9235), (76, 9244), (79, 9256),

Gene: FreddieHg_21 Start: 11226, Stop: 11612, Start Num: 20
Candidate Starts for FreddieHg_21:
(Start: 20 @11226 has 44 MA's), (58, 11475), (77, 11580), (78, 11583), (80, 11592),

Gene: Fulcrum_21 Start: 14451, Stop: 14804, Start Num: 21
Candidate Starts for Fulcrum_21:
(Start: 19 @14436 has 1 MA's), (Start: 21 @14451 has 39 MA's), (37, 14517), (47, 14574), (51, 14634), (55, 14664), (61, 14730), (63, 14736), (65, 14745), (72, 14769),

Gene: GOATification_21 Start: 14451, Stop: 14804, Start Num: 21
Candidate Starts for GOATification_21:
(Start: 19 @14436 has 1 MA's), (Start: 21 @14451 has 39 MA's), (37, 14517), (47, 14574), (51, 14634), (55, 14664), (61, 14730), (63, 14736), (65, 14745), (72, 14769),

Gene: Genamy16_19 Start: 12025, Stop: 12378, Start Num: 21
Candidate Starts for Genamy16_19:
(15, 11977), (Start: 19 @12010 has 1 MA's), (Start: 21 @12025 has 39 MA's), (37, 12091), (47, 12148), (51, 12208), (55, 12238), (61, 12304), (63, 12310), (65, 12319), (72, 12343),

Gene: Gibbin_21 Start: 14511, Stop: 14864, Start Num: 21
Candidate Starts for Gibbin_21:
(15, 14463), (Start: 19 @14496 has 1 MA's), (Start: 21 @14511 has 39 MA's), (37, 14577), (47, 14634), (51, 14694), (55, 14724), (61, 14790), (63, 14796), (65, 14805), (72, 14829),

Gene: Gilda_22 Start: 12009, Stop: 12395, Start Num: 20
Candidate Starts for Gilda_22:
(Start: 20 @12009 has 44 MA's), (58, 12258), (77, 12363), (78, 12366), (80, 12375),

Gene: Gimesa_21 Start: 13334, Stop: 13729, Start Num: 22
Candidate Starts for Gimesa_21:
(Start: 22 @13334 has 63 MA's), (30, 13379), (32, 13391), (Start: 41 @13424 has 1 MA's), (55, 13565), (57, 13571), (58, 13583), (63, 13637), (72, 13670), (82, 13715),

Gene: Giuseppe_20 Start: 13181, Stop: 13543, Start Num: 22
Candidate Starts for Giuseppe_20:
(15, 13130), (Start: 17 @13151 has 1 MA's), (Start: 22 @13181 has 63 MA's), (31, 13229), (33, 13238), (Start: 41 @13262 has 1 MA's), (47, 13307), (49, 13358), (51, 13367), (56, 13403), (58, 13418), (63, 13472), (71, 13502),

Gene: GretelLyn_20 Start: 14785, Stop: 15138, Start Num: 21
Candidate Starts for GretelLyn_20:
(15, 14737), (Start: 19 @14770 has 1 MA's), (Start: 21 @14785 has 39 MA's), (37, 14851), (47, 14908), (51, 14968), (55, 14998), (61, 15064), (63, 15070), (65, 15079), (72, 15103),

Gene: Gumball_19 Start: 13139, Stop: 13501, Start Num: 22
Candidate Starts for Gumball_19:
(15, 13088), (Start: 17 @13109 has 1 MA's), (Start: 22 @13139 has 63 MA's), (31, 13187), (33, 13196), (Start: 41 @13220 has 1 MA's), (47, 13265), (49, 13316), (51, 13325), (56, 13361), (58, 13376), (63, 13430), (71, 13460),

Gene: Hager_23 Start: 11580, Stop: 11966, Start Num: 20
Candidate Starts for Hager_23:
(Start: 20 @11580 has 44 MA's), (38, 11655), (58, 11829), (77, 11934), (78, 11937), (80, 11946),

Gene: Haunter_22 Start: 11422, Stop: 11808, Start Num: 20
Candidate Starts for Haunter_22:
(Start: 20 @11422 has 44 MA's), (58, 11671), (77, 11776), (78, 11779), (80, 11788),

Gene: Hawkeye_22 Start: 13075, Stop: 13449, Start Num: 22
Candidate Starts for Hawkeye_22:
(Start: 22 @13075 has 63 MA's), (43, 13168), (47, 13201), (49, 13252), (56, 13297), (58, 13312), (63, 13366), (70, 13393), (72, 13399), (81, 13438),

Gene: Helpful_21 Start: 13189, Stop: 13551, Start Num: 22
Candidate Starts for Helpful_21:
(15, 13138), (Start: 17 @13159 has 1 MA's), (Start: 22 @13189 has 63 MA's), (31, 13237), (33, 13246), (Start: 41 @13270 has 1 MA's), (47, 13315), (49, 13366), (51, 13375), (56, 13411), (58, 13426), (63, 13480), (71, 13510),

Gene: Hiddenleaf_21 Start: 11210, Stop: 11596, Start Num: 20
Candidate Starts for Hiddenleaf_21:
(Start: 20 @11210 has 44 MA's), (58, 11459), (77, 11564), (78, 11567), (80, 11576),

Gene: Huwbert_43 Start: 22341, Stop: 22718, Start Num: 22
Candidate Starts for Huwbert_43:
(1, 22149), (2, 22155), (12, 22254), (Start: 22 @22341 has 63 MA's), (47, 22473), (49, 22524), (59, 22599), (71, 22665),

Gene: Indlulamithi_17 Start: 10995, Stop: 11375, Start Num: 22
Candidate Starts for Indlulamithi_17:
(Start: 22 @10995 has 63 MA's), (36, 11064), (48, 11133), (52, 11190), (55, 11223), (63, 11295), (81, 11358),

Gene: JDawG_21 Start: 11792, Stop: 12178, Start Num: 20
Candidate Starts for JDawG_21:
(Start: 20 @11792 has 44 MA's), (38, 11867), (58, 12041), (77, 12146), (78, 12149), (80, 12158),

Gene: Jalebi_20 Start: 14961, Stop: 15314, Start Num: 21
Candidate Starts for Jalebi_20:
(15, 14913), (Start: 19 @14946 has 1 MA's), (Start: 21 @14961 has 39 MA's), (37, 15027), (47, 15084), (51, 15144), (55, 15174), (61, 15240), (63, 15246), (65, 15255), (72, 15279),

Gene: Jamemuya19_18 Start: 12025, Stop: 12378, Start Num: 21
Candidate Starts for Jamemuya19_18:
(15, 11977), (Start: 19 @12010 has 1 MA's), (Start: 21 @12025 has 39 MA's), (37, 12091), (47, 12148), (51, 12208), (55, 12238), (61, 12304), (63, 12310), (65, 12319), (72, 12343),

Gene: JingleBells_21 Start: 11291, Stop: 11677, Start Num: 20
Candidate Starts for JingleBells_21:
(Start: 20 @11291 has 44 MA's), (58, 11540), (77, 11645), (78, 11648), (80, 11657),

Gene: KandZ_20 Start: 13289, Stop: 13651, Start Num: 22
Candidate Starts for KandZ_20:
(15, 13238), (Start: 17 @13259 has 1 MA's), (Start: 22 @13289 has 63 MA's), (31, 13337), (33, 13346), (Start: 41 @13370 has 1 MA's), (47, 13415), (49, 13466), (51, 13475), (56, 13511), (58, 13526), (63, 13580), (71, 13610),

Gene: Karate_21 Start: 11430, Stop: 11816, Start Num: 20
Candidate Starts for Karate_21:
(Start: 20 @11430 has 44 MA's), (58, 11679), (77, 11784), (78, 11787), (80, 11796),

Gene: Kate_22 Start: 12017, Stop: 12403, Start Num: 20
Candidate Starts for Kate_22:
(Start: 20 @12017 has 44 MA's), (58, 12266), (77, 12371), (78, 12374), (80, 12383),

Gene: Konstantine_24 Start: 14203, Stop: 14565, Start Num: 22
Candidate Starts for Konstantine_24:
(Start: 22 @14203 has 63 MA's), (30, 14248), (Start: 34 @14269 has 1 MA's), (47, 14338), (51, 14398), (53, 14419), (65, 14509), (67, 14515), (72, 14533), (76, 14542), (78, 14554),

Gene: Kors_23 Start: 12030, Stop: 12425, Start Num: 20
Candidate Starts for Kors_23:
(3, 11859), (Start: 20 @12030 has 44 MA's), (Start: 25 @12054 has 1 MA's), (32, 12093), (35, 12105), (45, 12144), (58, 12291), (59, 12309), (75, 12384), (77, 12396), (78, 12399), (80, 12408),

Gene: Krampus_22 Start: 12015, Stop: 12401, Start Num: 20
Candidate Starts for Krampus_22:
(Start: 20 @12015 has 44 MA's), (58, 12264), (77, 12369), (78, 12372), (80, 12381),

Gene: Labelle_26 Start: 16380, Stop: 16748, Start Num: 22
Candidate Starts for Labelle_26:
(Start: 22 @16380 has 63 MA's), (57, 16602), (64, 16674), (65, 16677), (72, 16701), (77, 16719), (80, 16731),

Gene: Lambo_20 Start: 14455, Stop: 14808, Start Num: 21
Candidate Starts for Lambo_20:
(15, 14407), (Start: 19 @14440 has 1 MA's), (Start: 21 @14455 has 39 MA's), (37, 14521), (47, 14578), (51, 14638), (55, 14668), (61, 14734), (63, 14740), (65, 14749), (72, 14773),

Gene: LavAbarElk_18 Start: 12888, Stop: 13241, Start Num: 21
Candidate Starts for LavAbarElk_18:
(Start: 19 @12873 has 1 MA's), (Start: 21 @12888 has 39 MA's), (37, 12954), (47, 13011), (51, 13071), (55, 13101), (61, 13167), (63, 13173), (65, 13182), (72, 13206),

Gene: Lila22_20 Start: 14409, Stop: 14762, Start Num: 21
Candidate Starts for Lila22_20:
(Start: 19 @14394 has 1 MA's), (Start: 21 @14409 has 39 MA's), (37, 14475), (47, 14532), (51, 14592), (55, 14622), (61, 14688), (63, 14694), (65, 14703), (72, 14727),

Gene: LilyPad_16 Start: 10238, Stop: 10588, Start Num: 22

Candidate Starts for LilyPad_16:
(13, 10166), (Start: 22 @10238 has 63 MA's), (40, 10316), (47, 10364), (58, 10475), (63, 10529), (65, 10538), (72, 10562),

Gene: LittleFella_17 Start: 12130, Stop: 12480, Start Num: 22
Candidate Starts for LittleFella_17:
(9, 12022), (16, 12085), (Start: 22 @12130 has 63 MA's), (40, 12208), (43, 12223), (47, 12256), (51, 12316), (63, 12418), (65, 12427), (72, 12451),

Gene: LordBart_23 Start: 11946, Stop: 12341, Start Num: 20
Candidate Starts for LordBart_23:
(Start: 20 @11946 has 44 MA's), (Start: 25 @11970 has 1 MA's), (32, 12009), (35, 12021), (58, 12207), (59, 12225), (75, 12300), (77, 12312), (78, 12315), (80, 12324),

Gene: LuckyLeo_19 Start: 13740, Stop: 14093, Start Num: 21
Candidate Starts for LuckyLeo_19:
(6, 13614), (8, 13632), (9, 13635), (10, 13650), (Start: 19 @13725 has 1 MA's), (Start: 21 @13740 has 39 MA's), (45, 13836), (47, 13863), (49, 13914), (51, 13923), (55, 13953), (63, 14025), (65, 14034), (72, 14058),

Gene: Madi_15 Start: 9519, Stop: 9869, Start Num: 22
Candidate Starts for Madi_15:
(Start: 22 @9519 has 63 MA's), (23, 9528), (31, 9567), (40, 9597), (47, 9645), (52, 9708), (63, 9810), (65, 9819), (72, 9843),

Gene: Madruga_25 Start: 16049, Stop: 16417, Start Num: 22
Candidate Starts for Madruga_25:
(Start: 22 @16049 has 63 MA's), (24, 16064), (50, 16229), (57, 16271), (64, 16343), (65, 16346), (72, 16370), (77, 16388), (80, 16400),

Gene: Megatron06_21 Start: 13536, Stop: 13898, Start Num: 22
Candidate Starts for Megatron06_21:
(Start: 22 @13536 has 63 MA's), (30, 13581), (Start: 34 @13602 has 1 MA's), (47, 13671), (51, 13731), (65, 13842), (67, 13848), (72, 13866), (76, 13875), (78, 13887),

Gene: Mima20_19 Start: 14138, Stop: 14491, Start Num: 21
Candidate Starts for Mima20_19:
(15, 14090), (Start: 19 @14123 has 1 MA's), (Start: 21 @14138 has 39 MA's), (37, 14204), (47, 14261), (51, 14321), (55, 14351), (61, 14417), (63, 14423), (65, 14432), (72, 14456),

Gene: MoiGyank_22 Start: 14822, Stop: 15175, Start Num: 21
Candidate Starts for MoiGyank_22:
(Start: 19 @14807 has 1 MA's), (Start: 21 @14822 has 39 MA's), (37, 14888), (47, 14945), (51, 15005), (55, 15035), (61, 15101), (63, 15107), (65, 15116), (72, 15140),

Gene: MontyDev_20 Start: 13182, Stop: 13577, Start Num: 22
Candidate Starts for MontyDev_20:
(Start: 22 @13182 has 63 MA's), (30, 13227), (32, 13239), (Start: 41 @13272 has 1 MA's), (55, 13413), (57, 13419), (58, 13431), (63, 13485), (72, 13518), (82, 13563),

Gene: Mopey_20 Start: 13189, Stop: 13551, Start Num: 22
Candidate Starts for Mopey_20:

(15, 13138), (Start: 17 @13159 has 1 MA's), (Start: 22 @13189 has 63 MA's), (31, 13237), (33, 13246), (Start: 41 @13270 has 1 MA's), (47, 13315), (49, 13366), (51, 13375), (56, 13411), (58, 13426), (63, 13480), (71, 13510),

Gene: MortySmith_20 Start: 11189, Stop: 11575, Start Num: 20
Candidate Starts for MortySmith_20:
(Start: 20 @11189 has 44 MA's), (58, 11438), (77, 11543), (78, 11546), (80, 11555),

Gene: MrMiyagi_14 Start: 8905, Stop: 9282, Start Num: 22
Candidate Starts for MrMiyagi_14:
(Start: 22 @8905 has 63 MA's), (26, 8923), (37, 8980), (44, 9007), (47, 9037), (55, 9130), (59, 9166), (63, 9202), (72, 9235), (76, 9244), (79, 9256),

Gene: NarutoRun_22 Start: 12008, Stop: 12394, Start Num: 20
Candidate Starts for NarutoRun_22:
(Start: 20 @12008 has 44 MA's), (58, 12257), (77, 12362), (78, 12365), (80, 12374),

Gene: Neptune_22 Start: 11985, Stop: 12371, Start Num: 20
Candidate Starts for Neptune_22:
(Start: 20 @11985 has 44 MA's), (58, 12234), (77, 12339), (78, 12342), (80, 12351),

Gene: Nettle_19 Start: 14685, Stop: 15038, Start Num: 21
Candidate Starts for Nettle_19:
(15, 14637), (Start: 19 @14670 has 1 MA's), (Start: 21 @14685 has 39 MA's), (37, 14751), (47, 14808), (51, 14868), (55, 14898), (61, 14964), (63, 14970), (65, 14979), (72, 15003),

Gene: Nilo_21 Start: 13521, Stop: 13916, Start Num: 22
Candidate Starts for Nilo_21:
(Start: 22 @13521 has 63 MA's), (30, 13566), (32, 13578), (Start: 41 @13611 has 1 MA's), (55, 13752), (57, 13758), (58, 13770), (63, 13824), (72, 13857), (82, 13902),

Gene: Nish23_20 Start: 13002, Stop: 13364, Start Num: 22
Candidate Starts for Nish23_20:
(Start: 22 @13002 has 63 MA's), (30, 13047), (Start: 34 @13068 has 1 MA's), (47, 13137), (51, 13197), (53, 13218), (65, 13308), (67, 13314), (72, 13332), (76, 13341), (78, 13353),

Gene: NorManre_21 Start: 14017, Stop: 14370, Start Num: 21
Candidate Starts for NorManre_21:
(Start: 21 @14017 has 39 MA's), (37, 14083), (47, 14140), (51, 14200), (55, 14230), (61, 14296), (63, 14302), (65, 14311), (72, 14335),

Gene: Nova_20 Start: 13616, Stop: 13978, Start Num: 22
Candidate Starts for Nova_20:
(15, 13565), (Start: 17 @13586 has 1 MA's), (Start: 22 @13616 has 63 MA's), (31, 13664), (33, 13673), (Start: 41 @13697 has 1 MA's), (47, 13742), (49, 13793), (51, 13802), (56, 13838), (58, 13853), (63, 13907), (71, 13937),

Gene: NovaSharks_19 Start: 12025, Stop: 12378, Start Num: 21
Candidate Starts for NovaSharks_19:
(15, 11977), (Start: 19 @12010 has 1 MA's), (Start: 21 @12025 has 39 MA's), (37, 12091), (47, 12148), (51, 12208), (55, 12238), (61, 12304), (63, 12310), (65, 12319), (72, 12343),

Gene: Oaker_19 Start: 13260, Stop: 13622, Start Num: 22

Candidate Starts for Oaker_19:
(Start: 22 @13260 has 63 MA's), (30, 13305), (Start: 34 @13326 has 1 MA's), (47, 13395), (51, 13455), (53, 13476), (59, 13521), (65, 13566), (67, 13572), (72, 13590), (76, 13599), (78, 13611),

Gene: OhDear_22 Start: 12014, Stop: 12400, Start Num: 20
Candidate Starts for OhDear_22:
(Start: 20 @12014 has 44 MA's), (58, 12263), (77, 12368), (78, 12371), (80, 12380),

Gene: OtterstedtS21_20 Start: 14107, Stop: 14460, Start Num: 21
Candidate Starts for OtterstedtS21_20:
(15, 14059), (Start: 19 @14092 has 1 MA's), (Start: 21 @14107 has 39 MA's), (37, 14173), (47, 14230), (51, 14290), (55, 14320), (61, 14386), (63, 14392), (65, 14401), (72, 14425),

Gene: OverHedge_22 Start: 11982, Stop: 12368, Start Num: 20
Candidate Starts for OverHedge_22:
(Start: 20 @11982 has 44 MA's), (58, 12231), (77, 12336), (78, 12339), (80, 12348),

Gene: PBI1_21 Start: 13201, Stop: 13482, Start Num: 41
Candidate Starts for PBI1_21:
(15, 13069), (Start: 17 @13090 has 1 MA's), (Start: 22 @13120 has 63 MA's), (31, 13168), (33, 13177), (Start: 41 @13201 has 1 MA's), (47, 13246), (49, 13297), (51, 13306), (56, 13342), (58, 13357), (63, 13411), (71, 13441),

Gene: PLot_21 Start: 13192, Stop: 13554, Start Num: 22
Candidate Starts for PLot_21:
(15, 13141), (Start: 17 @13162 has 1 MA's), (Start: 22 @13192 has 63 MA's), (31, 13240), (33, 13249), (Start: 41 @13273 has 1 MA's), (47, 13318), (49, 13369), (51, 13378), (56, 13414), (58, 13429), (63, 13483), (71, 13513),

Gene: Papyrus_20 Start: 13183, Stop: 13578, Start Num: 22
Candidate Starts for Papyrus_20:
(Start: 22 @13183 has 63 MA's), (30, 13228), (32, 13240), (Start: 41 @13273 has 1 MA's), (55, 13414), (57, 13420), (58, 13432), (63, 13486), (72, 13519), (82, 13564),

Gene: ParvusTarda_20 Start: 13589, Stop: 13942, Start Num: 21
Candidate Starts for ParvusTarda_20:
(15, 13541), (Start: 19 @13574 has 1 MA's), (Start: 21 @13589 has 39 MA's), (37, 13655), (47, 13712), (51, 13772), (55, 13802), (61, 13868), (63, 13874), (65, 13883), (72, 13907),

Gene: Patience_27 Start: 16939, Stop: 17307, Start Num: 22
Candidate Starts for Patience_27:
(Start: 22 @16939 has 63 MA's), (50, 17119), (57, 17161), (64, 17233), (65, 17236), (72, 17260), (77, 17278), (80, 17290),

Gene: Patos_21 Start: 14017, Stop: 14370, Start Num: 21
Candidate Starts for Patos_21:
(Start: 21 @14017 has 39 MA's), (37, 14083), (47, 14140), (51, 14200), (55, 14230), (61, 14296), (63, 14302), (65, 14311), (72, 14335),

Gene: Penelope2018_20 Start: 13189, Stop: 13551, Start Num: 22
Candidate Starts for Penelope2018_20:
(15, 13138), (Start: 17 @13159 has 1 MA's), (Start: 22 @13189 has 63 MA's), (31, 13237), (33, 13246), (Start: 41 @13270 has 1 MA's), (47, 13315), (49, 13366), (51, 13375), (56, 13411), (58, 13426), (63,

13480), (71, 13510),

Gene: Phalaborwa_20 Start: 13222, Stop: 13584, Start Num: 22
Candidate Starts for Phalaborwa_20:
(15, 13171), (Start: 17 @13192 has 1 MA's), (Start: 22 @13222 has 63 MA's), (33, 13279), (Start: 41 @13303 has 1 MA's), (47, 13348), (49, 13399), (51, 13408), (56, 13444), (58, 13459), (63, 13513), (71, 13543),

Gene: Pharpay_22 Start: 12030, Stop: 12416, Start Num: 20
Candidate Starts for Pharpay_22:
(Start: 20 @12030 has 44 MA's), (58, 12279), (77, 12384), (78, 12387), (80, 12396),

Gene: Phreeze_19 Start: 13067, Stop: 13363, Start Num: 34
Candidate Starts for Phreeze_19:
(Start: 22 @13001 has 63 MA's), (30, 13046), (Start: 34 @13067 has 1 MA's), (47, 13136), (51, 13196), (65, 13307), (67, 13313), (72, 13331), (76, 13340), (78, 13352),

Gene: PhunaPhoke_22 Start: 12003, Stop: 12389, Start Num: 20
Candidate Starts for PhunaPhoke_22:
(Start: 20 @12003 has 44 MA's), (58, 12252), (77, 12357), (78, 12360), (80, 12369),

Gene: Potty_22 Start: 12008, Stop: 12394, Start Num: 20
Candidate Starts for Potty_22:
(Start: 20 @12008 has 44 MA's), (58, 12257), (77, 12362), (78, 12365), (80, 12374),

Gene: Poultress_21 Start: 11781, Stop: 12167, Start Num: 20
Candidate Starts for Poultress_21:
(Start: 20 @11781 has 44 MA's), (58, 12030), (77, 12135), (78, 12138), (80, 12147),

Gene: Prager_20 Start: 13201, Stop: 13563, Start Num: 22
Candidate Starts for Prager_20:
(15, 13150), (Start: 17 @13171 has 1 MA's), (Start: 22 @13201 has 63 MA's), (31, 13249), (33, 13258), (Start: 41 @13282 has 1 MA's), (47, 13327), (49, 13378), (51, 13387), (56, 13423), (58, 13438), (63, 13492), (71, 13522),

Gene: Predator_23 Start: 14526, Stop: 14885, Start Num: 22
Candidate Starts for Predator_23:
(Start: 22 @14526 has 63 MA's), (28, 14562), (30, 14571), (32, 14583), (Start: 41 @14616 has 1 MA's), (43, 14628), (47, 14661), (53, 14742), (60, 14793), (65, 14832), (67, 14838), (72, 14856), (78, 14877),

Gene: Puissant_20 Start: 13457, Stop: 13816, Start Num: 22
Candidate Starts for Puissant_20:
(Start: 22 @13457 has 63 MA's), (24, 13472), (30, 13502), (Start: 34 @13523 has 1 MA's), (43, 13559), (47, 13592), (53, 13673), (57, 13688), (66, 13766), (67, 13769), (72, 13787), (76, 13796), (78, 13808),

Gene: Pywacket_19 Start: 14946, Stop: 15299, Start Num: 21
Candidate Starts for Pywacket_19:
(15, 14898), (Start: 19 @14931 has 1 MA's), (Start: 21 @14946 has 39 MA's), (37, 15012), (47, 15069), (51, 15129), (55, 15159), (61, 15225), (63, 15231), (65, 15240), (72, 15264),

Gene: Rachella_22 Start: 12011, Stop: 12397, Start Num: 20
Candidate Starts for Rachella_22:
(Start: 20 @12011 has 44 MA's), (58, 12260), (77, 12365), (78, 12368), (80, 12377),

Gene: Ranch_20 Start: 12955, Stop: 13308, Start Num: 21
Candidate Starts for Ranch_20:
(15, 12907), (Start: 19 @12940 has 1 MA's), (Start: 21 @12955 has 39 MA's), (37, 13021), (47, 13078), (51, 13138), (55, 13168), (61, 13234), (63, 13240), (65, 13249), (72, 13273),

Gene: RazorC_18 Start: 12025, Stop: 12378, Start Num: 21
Candidate Starts for RazorC_18:
(15, 11977), (Start: 19 @12010 has 1 MA's), (Start: 21 @12025 has 39 MA's), (37, 12091), (47, 12148), (51, 12208), (55, 12238), (61, 12304), (63, 12310), (65, 12319), (72, 12343),

Gene: Riduram_18 Start: 11995, Stop: 12348, Start Num: 21
Candidate Starts for Riduram_18:
(15, 11947), (Start: 19 @11980 has 1 MA's), (Start: 21 @11995 has 39 MA's), (37, 12061), (47, 12118), (51, 12178), (55, 12208), (61, 12274), (63, 12280), (65, 12289), (72, 12313),

Gene: Rie18_22 Start: 11362, Stop: 11748, Start Num: 20
Candidate Starts for Rie18_22:
(Start: 20 @11362 has 44 MA's), (38, 11437), (58, 11611), (77, 11716), (78, 11719), (80, 11728),

Gene: RikSengupta_23 Start: 12067, Stop: 12462, Start Num: 20
Candidate Starts for RikSengupta_23:
(3, 11896), (4, 11908), (Start: 20 @12067 has 44 MA's), (Start: 25 @12091 has 1 MA's), (32, 12130), (35, 12142), (58, 12328), (59, 12346), (75, 12421), (77, 12433), (78, 12436), (80, 12445),

Gene: Riparian_20 Start: 12982, Stop: 13377, Start Num: 22
Candidate Starts for Riparian_20:
(Start: 22 @12982 has 63 MA's), (30, 13027), (32, 13039), (Start: 41 @13072 has 1 MA's), (55, 13213), (57, 13219), (58, 13231), (63, 13285), (72, 13318), (82, 13363),

Gene: Rope_20 Start: 13174, Stop: 13569, Start Num: 22
Candidate Starts for Rope_20:
(Start: 22 @13174 has 63 MA's), (30, 13219), (32, 13231), (Start: 41 @13264 has 1 MA's), (55, 13405), (57, 13411), (58, 13423), (63, 13477), (72, 13510), (82, 13555),

Gene: Rota_19 Start: 13913, Stop: 14266, Start Num: 21
Candidate Starts for Rota_19:
(Start: 19 @13898 has 1 MA's), (Start: 21 @13913 has 39 MA's), (37, 13979), (47, 14036), (51, 14096), (55, 14126), (61, 14192), (63, 14198), (65, 14207), (72, 14231),

Gene: Rukungu_20 Start: 14654, Stop: 15007, Start Num: 21
Candidate Starts for Rukungu_20:
(15, 14606), (Start: 19 @14639 has 1 MA's), (Start: 21 @14654 has 39 MA's), (37, 14720), (47, 14777), (51, 14837), (55, 14867), (61, 14933), (63, 14939), (65, 14948), (72, 14972),

Gene: Rumi_19 Start: 12025, Stop: 12378, Start Num: 21
Candidate Starts for Rumi_19:
(15, 11977), (Start: 19 @12010 has 1 MA's), (Start: 21 @12025 has 39 MA's), (37, 12091), (47, 12148), (51, 12208), (55, 12238), (61, 12304), (63, 12310), (65, 12319), (72, 12343),

Gene: Sadboi_20 Start: 14785, Stop: 15138, Start Num: 21
Candidate Starts for Sadboi_20:

(15, 14737), (Start: 19 @14770 has 1 MA's), (Start: 21 @14785 has 39 MA's), (37, 14851), (47, 14908), (51, 14968), (55, 14998), (61, 15064), (63, 15070), (65, 15079), (72, 15103),

Gene: SafetyGuy_22 Start: 12014, Stop: 12400, Start Num: 20
Candidate Starts for SafetyGuy_22:
(Start: 20 @12014 has 44 MA's), (58, 12263), (77, 12368), (78, 12371), (80, 12380),

Gene: Sampudon_20 Start: 14961, Stop: 15314, Start Num: 21
Candidate Starts for Sampudon_20:
(15, 14913), (Start: 19 @14946 has 1 MA's), (Start: 21 @14961 has 39 MA's), (37, 15027), (47, 15084), (51, 15144), (55, 15174), (61, 15240), (63, 15246), (65, 15255), (72, 15279),

Gene: Send513_20 Start: 13524, Stop: 13919, Start Num: 22
Candidate Starts for Send513_20:
(Start: 22 @13524 has 63 MA's), (30, 13569), (32, 13581), (Start: 41 @13614 has 1 MA's), (55, 13755), (57, 13761), (58, 13773), (63, 13827), (72, 13860), (82, 13905),

Gene: Shrew_55 Start: 26796, Stop: 27170, Start Num: 22
Candidate Starts for Shrew_55:
(Start: 22 @26796 has 63 MA's), (27, 26817), (54, 27009), (55, 27015), (60, 27057), (63, 27087),

Gene: Sienna_15 Start: 9519, Stop: 9869, Start Num: 22
Candidate Starts for Sienna_15:
(Start: 22 @9519 has 63 MA's), (23, 9528), (31, 9567), (40, 9597), (47, 9645), (52, 9708), (63, 9810), (65, 9819), (72, 9843),

Gene: SilentWarrior_21 Start: 11218, Stop: 11604, Start Num: 20
Candidate Starts for SilentWarrior_21:
(Start: 20 @11218 has 44 MA's), (58, 11467), (77, 11572), (78, 11575), (80, 11584),

Gene: SirHarley_19 Start: 13121, Stop: 13483, Start Num: 22
Candidate Starts for SirHarley_19:
(15, 13070), (Start: 17 @13091 has 1 MA's), (Start: 22 @13121 has 63 MA's), (31, 13169), (33, 13178), (Start: 41 @13202 has 1 MA's), (47, 13247), (49, 13298), (51, 13307), (56, 13343), (58, 13358), (63, 13412), (71, 13442),

Gene: Snakehole_23 Start: 11307, Stop: 11693, Start Num: 20
Candidate Starts for Snakehole_23:
(Start: 20 @11307 has 44 MA's), (58, 11556), (77, 11661), (78, 11664), (80, 11673),

Gene: Sparcetus_23 Start: 11970, Stop: 12341, Start Num: 25
Candidate Starts for Sparcetus_23:
(3, 11775), (4, 11787), (Start: 20 @11946 has 44 MA's), (Start: 25 @11970 has 1 MA's), (32, 12009), (35, 12021), (58, 12207), (59, 12225), (75, 12300), (77, 12312), (78, 12315), (80, 12324),

Gene: Stormer_18 Start: 12025, Stop: 12378, Start Num: 21
Candidate Starts for Stormer_18:
(15, 11977), (Start: 19 @12010 has 1 MA's), (Start: 21 @12025 has 39 MA's), (37, 12091), (47, 12148), (51, 12208), (55, 12238), (61, 12304), (63, 12310), (65, 12319), (72, 12343),

Gene: SuperSonics_26 Start: 16106, Stop: 16474, Start Num: 22
Candidate Starts for SuperSonics_26:

(Start: 22 @16106 has 63 MA's), (57, 16328), (64, 16400), (65, 16403), (72, 16427), (77, 16445), (80, 16457),

Gene: SuperheroCarly_20 Start: 13051, Stop: 13413, Start Num: 22
Candidate Starts for SuperheroCarly_20:
(15, 13000), (Start: 17 @13021 has 1 MA's), (18, 13030), (Start: 22 @13051 has 63 MA's), (31, 13099), (33, 13108), (Start: 41 @13132 has 1 MA's), (47, 13177), (49, 13228), (56, 13273), (58, 13288), (63, 13342), (71, 13372),

Gene: Suzy_16 Start: 10717, Stop: 11097, Start Num: 17
Candidate Starts for Suzy_16:
(Start: 17 @10717 has 1 MA's), (Start: 22 @10747 has 63 MA's), (23, 10756), (31, 10795), (40, 10825), (47, 10873), (52, 10936), (63, 11038), (72, 11071),

Gene: Tedro_22 Start: 11481, Stop: 11867, Start Num: 20
Candidate Starts for Tedro_22:
(Start: 20 @11481 has 44 MA's), (58, 11730), (77, 11835), (78, 11838), (80, 11847),

Gene: Terapin_15 Start: 9519, Stop: 9869, Start Num: 22
Candidate Starts for Terapin_15:
(Start: 22 @9519 has 63 MA's), (23, 9528), (31, 9567), (40, 9597), (47, 9645), (52, 9708), (63, 9810), (65, 9819), (72, 9843),

Gene: Thoth_20 Start: 13186, Stop: 13548, Start Num: 22
Candidate Starts for Thoth_20:
(15, 13135), (Start: 17 @13156 has 1 MA's), (18, 13165), (Start: 22 @13186 has 63 MA's), (31, 13234), (33, 13243), (Start: 41 @13267 has 1 MA's), (47, 13312), (49, 13363), (51, 13372), (56, 13408), (58, 13423), (63, 13477), (71, 13507),

Gene: Thumb_19 Start: 13002, Stop: 13364, Start Num: 22
Candidate Starts for Thumb_19:
(Start: 22 @13002 has 63 MA's), (30, 13047), (Start: 34 @13068 has 1 MA's), (47, 13137), (51, 13197), (65, 13308), (67, 13314), (72, 13332), (76, 13341), (78, 13353),

Gene: Tiggy93_22 Start: 12014, Stop: 12400, Start Num: 20
Candidate Starts for Tiggy93_22:
(Start: 20 @12014 has 44 MA's), (58, 12263), (77, 12368), (78, 12371), (80, 12380),

Gene: Tillicus_20 Start: 13334, Stop: 13687, Start Num: 21
Candidate Starts for Tillicus_20:
(15, 13286), (Start: 19 @13319 has 1 MA's), (Start: 21 @13334 has 39 MA's), (45, 13430), (47, 13457), (49, 13508), (51, 13517), (55, 13547), (63, 13619), (65, 13628), (72, 13652),

Gene: TinyMiny_23 Start: 11965, Stop: 12360, Start Num: 20
Candidate Starts for TinyMiny_23:
(3, 11794), (4, 11806), (Start: 20 @11965 has 44 MA's), (Start: 25 @11989 has 1 MA's), (32, 12028), (35, 12040), (45, 12079), (58, 12226), (59, 12244), (75, 12319), (77, 12331), (78, 12334), (80, 12343),

Gene: Tongui_21 Start: 11354, Stop: 11740, Start Num: 20
Candidate Starts for Tongui_21:
(Start: 20 @11354 has 44 MA's), (38, 11429), (58, 11603), (77, 11708), (78, 11711), (80, 11720),

Gene: Triscuit_42 Start: 22256, Stop: 22633, Start Num: 22

Candidate Starts for Triscuit_42:
(1, 22064), (2, 22070), (12, 22169), (Start: 22 @22256 has 63 MA's), (29, 22292), (47, 22388), (49, 22439),

Gene: Troll4_20 Start: 13190, Stop: 13552, Start Num: 22
Candidate Starts for Troll4_20:
(15, 13139), (Start: 17 @13160 has 1 MA's), (Start: 22 @13190 has 63 MA's), (31, 13238), (33, 13247), (Start: 41 @13271 has 1 MA's), (47, 13316), (49, 13367), (51, 13376), (56, 13412), (58, 13427), (63, 13481), (71, 13511),

Gene: Visconti_20 Start: 13199, Stop: 13561, Start Num: 22
Candidate Starts for Visconti_20:
(15, 13148), (Start: 17 @13169 has 1 MA's), (18, 13178), (Start: 22 @13199 has 63 MA's), (31, 13247), (33, 13256), (Start: 41 @13280 has 1 MA's), (47, 13325), (49, 13376), (51, 13385), (56, 13421), (58, 13436), (63, 13490), (71, 13520),

Gene: WaldoWhy_21 Start: 13195, Stop: 13557, Start Num: 22
Candidate Starts for WaldoWhy_21:
(15, 13144), (Start: 17 @13165 has 1 MA's), (Start: 22 @13195 has 63 MA's), (31, 13243), (33, 13252), (Start: 41 @13276 has 1 MA's), (47, 13321), (49, 13372), (51, 13381), (56, 13417), (58, 13432), (63, 13486), (71, 13516),

Gene: Weiss13_20 Start: 13214, Stop: 13609, Start Num: 22
Candidate Starts for Weiss13_20:
(Start: 22 @13214 has 63 MA's), (30, 13259), (32, 13271), (Start: 41 @13304 has 1 MA's), (55, 13445), (57, 13451), (58, 13463), (62, 13514), (63, 13517), (72, 13550), (82, 13595),

Gene: WinnieLou_23 Start: 11649, Stop: 12035, Start Num: 20
Candidate Starts for WinnieLou_23:
(Start: 20 @11649 has 44 MA's), (58, 11898), (77, 12003), (78, 12006), (80, 12015),

Gene: Wojtek_19 Start: 13662, Stop: 14015, Start Num: 21
Candidate Starts for Wojtek_19:
(15, 13614), (Start: 19 @13647 has 1 MA's), (Start: 21 @13662 has 39 MA's), (37, 13728), (47, 13785), (51, 13845), (55, 13875), (61, 13941), (63, 13947), (65, 13956), (72, 13980),

Gene: Wollypog_10 Start: 8603, Stop: 8959, Start Num: 20
Candidate Starts for Wollypog_10:
(Start: 20 @8603 has 44 MA's), (46, 8705), (47, 8729), (69, 8909), (73, 8924), (74, 8927), (78, 8945),

Gene: Xenia2_20 Start: 13689, Stop: 14057, Start Num: 19
Candidate Starts for Xenia2_20:
(5, 13569), (7, 13590), (11, 13617), (12, 13620), (14, 13638), (Start: 19 @13689 has 1 MA's), (Start: 21 @13704 has 39 MA's), (47, 13827), (55, 13917), (58, 13935), (63, 13989), (72, 14022), (78, 14043),

Gene: Yelo_20 Start: 13524, Stop: 13919, Start Num: 22
Candidate Starts for Yelo_20:
(Start: 22 @13524 has 63 MA's), (30, 13569), (32, 13581), (Start: 41 @13614 has 1 MA's), (55, 13755), (57, 13761), (58, 13773), (63, 13827), (72, 13860), (82, 13905),

Gene: Yikes_21 Start: 15046, Stop: 15399, Start Num: 21
Candidate Starts for Yikes_21:

(15, 14998), (Start: 19 @15031 has 1 MA's), (Start: 21 @15046 has 39 MA's), (37, 15112), (47, 15169), (51, 15229), (55, 15259), (61, 15325), (63, 15331), (65, 15340), (72, 15364),

Gene: Zany_19 Start: 14175, Stop: 14528, Start Num: 21
Candidate Starts for Zany_19:
(15, 14127), (Start: 19 @14160 has 1 MA's), (Start: 21 @14175 has 39 MA's), (37, 14241), (42, 14259), (47, 14298), (51, 14358), (55, 14388), (61, 14454), (63, 14460), (65, 14469), (72, 14493),

Gene: Zenon_21 Start: 13526, Stop: 13921, Start Num: 22
Candidate Starts for Zenon_21:
(Start: 22 @13526 has 63 MA's), (30, 13571), (32, 13583), (Start: 41 @13616 has 1 MA's), (55, 13757), (57, 13763), (58, 13775), (63, 13829), (72, 13862), (82, 13907),