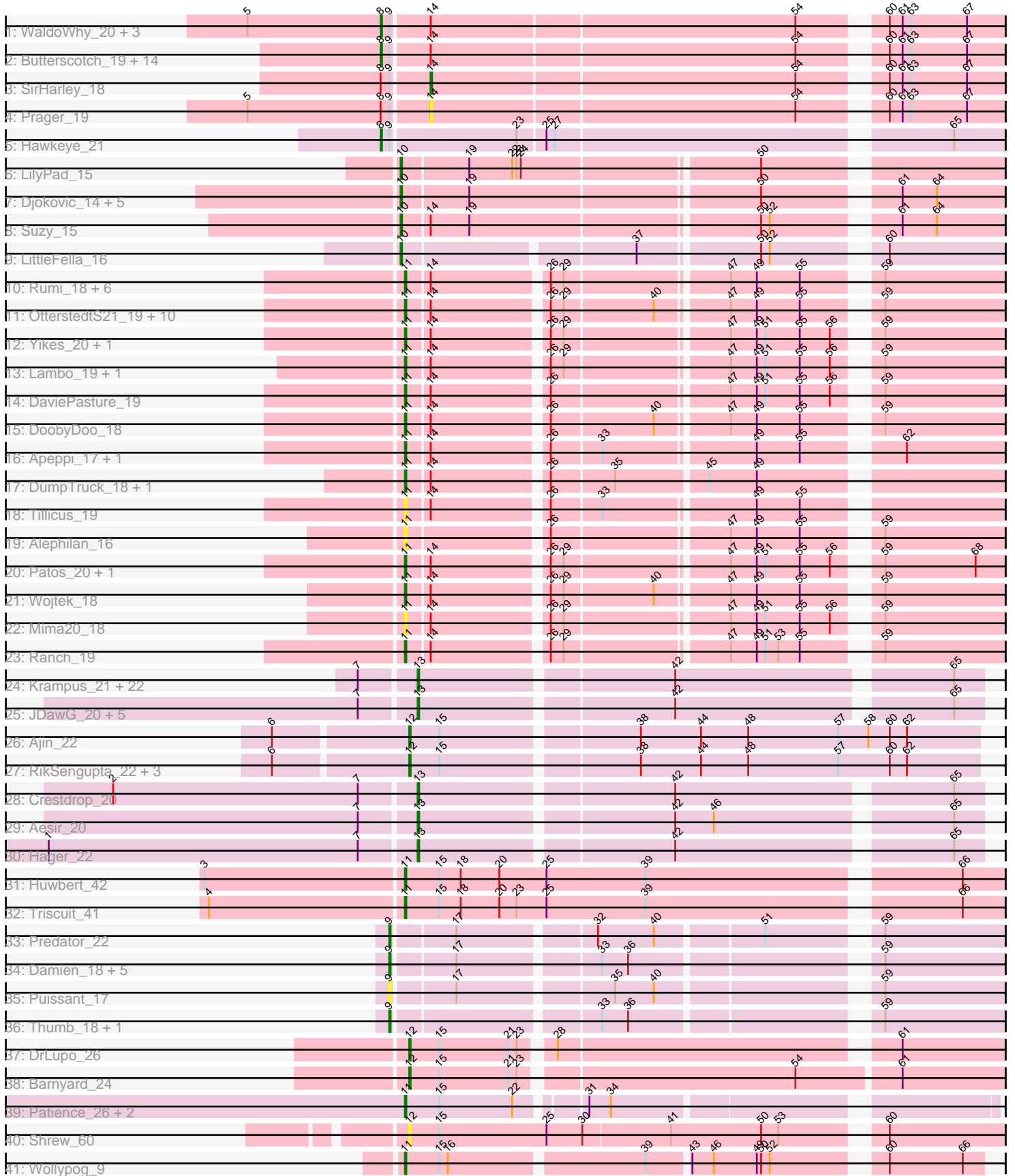


Pham 193846



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 193846 Report

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

Pham number 193846 has 122 members, 11 are drafts.

Phages represented in each track:

- Track 1 : WaldoWhy_20, Chill_20, Delton_19, BigMama_17
- Track 2 : Butterscotch_19, Visconti_19, KandZ_19, Gumball_18, Thoth_19, Nova_19, PLOT_20, Adjutor_20, Penelope2018_19, Troll4_19, Erk16_19, Giuseppe_19, Mopey_19, Helpful_20, PBI1_20
- Track 3 : SirHarley_18
- Track 4 : Prager_19
- Track 5 : Hawkeye_21
- Track 6 : LilyPad_15
- Track 7 : Djokovic_14, Madi_14, Terapin_14, BiteSize_14, Sienna_14, Beyoncage_14
- Track 8 : Suzy_15
- Track 9 : LittleFella_16
- Track 10 : Rumi_18, Alyssamiracle_18, Genamy16_18, Avian_17, Zany_18, NovaSharks_18, Jamemuya19_16
- Track 11 : OtterstedtS21_19, Gibbin_20, Fulcrum_20, Lila22_19, Sampudon_19, Gretellyn_19, MoiGyank_21, Sadboi_19, Jalebi_19, BirthdayBoy_20, GOATification_20
- Track 12 : Yikes_20, ParvusTarda_19
- Track 13 : Lambo_19, Erutan_19
- Track 14 : DaviePasture_19
- Track 15 : DoobyDoo_18
- Track 16 : Apeppi_17, LuckyLeo_18
- Track 17 : DumpTruck_18, Xenia2_16
- Track 18 : Tillicus_19
- Track 19 : Alephilan_16
- Track 20 : Patos_20, NorManre_20
- Track 21 : Wojtek_18
- Track 22 : Mima20_18
- Track 23 : Ranch_19
- Track 24 : Krampus_21, Hiddenleaf_20, Neptune_21, Pharpay_21, Gilda_21, Anakin_21, Rachella_21, DannyDe_20, Poultruss_20, Haunter_21, Kate_21, AnnaSerena_21, FreddieHg_20, Potty_21, Tedro_21, JingleBells_20, Cybele_21, OverHedge_21, NarutoRun_21, CoolCookie_21, Chivey_20, PhunaPhoke_21, Snakehole_22
- Track 25 : JDawG_20, Rie18_21, Dauntless_20, MortySmith_19, Karate_20, Erudite_20
- Track 26 : Ajin_22

- Track 27 : RikSengupta_22, TinyMiny_22, Kors_23, Sparcetus_22
- Track 28 : Crestdrop_20
- Track 29 : Aesir_20
- Track 30 : Hager_22
- Track 31 : Huwbert_42
- Track 32 : Triscuit_41
- Track 33 : Predator_22
- Track 34 : Damien_18, Cborch11_19, Phreeze_18, Konstantine_23, Beckerton_18, Oaker_18
- Track 35 : Puissant_17
- Track 36 : Thumb_18, Megatron06_20
- Track 37 : DrLupo_26
- Track 38 : Barnyard_24
- Track 39 : Patience_26, Labelle_25, Madruga_24
- Track 40 : Shrew_60
- Track 41 : Wollypog_9

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

The start number called the most often in the published annotations is 11, it was called in 35 of the 111 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alephilan_16, Alyssamiracle_18, Apeppi_17, Avian_17, BirthdayBoy_20, DaviePasture_19, DoobyDoo_18, DumpTruck_18, Erutan_19, Fulcrum_20, GOATification_20, Genamy16_18, Gibbin_20, GretellLyn_19, Huwbert_42, Jalebi_19, Jamemuya19_16, Labelle_25, Lambo_19, Lila22_19, LuckyLeo_18, Madruga_24, Mima20_18, MoiGyank_21, NorManre_20, NovaSharks_18, OtterstedtS21_19, ParvusTarda_19, Patience_26, Patos_20, Ranch_19, Rumi_18, Sadboi_19, Sampudon_19, Tillicus_19, Triscuit_41, Wojtek_18, Wollypog_9, Xenia2_16, Yikes_20, Zany_18,

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

-

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

- Adjutor_20, Aesir_20, Ajin_22, Anakin_21, AnnaSerena_21, Barnyard_24, Beckerton_18, Beyoncage_14, BigMama_17, BiteSize_14, Butterscotch_19, Cborch11_19, Chill_20, Chivey_20, CoolCookie_21, Crestdrop_20, Cybele_21, Damien_18, DannyDe_20, Dauntless_20, Delton_19, Djokovic_14, DrLupo_26, Erk16_19, Erudite_20, FreddieHg_20, Gilda_21, Giuseppe_19, Gumball_18, Hager_22, Haunter_21, Hawkeye_21, Helpful_20, Hiddenleaf_20, JDawG_20, JingleBells_20, KandZ_19, Karate_20, Kate_21, Konstantine_23, Kors_23, Krampus_21, LilyPad_15, LittleFella_16, Madi_14, Megatron06_20, Mopey_19, MortySmith_19, NarutoRun_21, Neptune_21, Nova_19, Oaker_18, OverHedge_21, PBl1_20, PLOT_20, Penelope2018_19, Pharpay_21, Phreeze_18, PhunaPhoke_21, Potty_21, Poultress_20, Prager_19, Predator_22, Puissant_17, Rachella_21, Rie18_21, RikSengupta_22, Shrew_60, Sienna_14, SirHarley_18, Snakehole_22, Sparcetus_22, Suzy_15, Tedro_21, Terapin_14, Thoth_19, Thumb_18, TinyMiny_22, Troll4_19, Visconti_19, WaldoWhy_20,

Summary by start number:

Start 8:

- Found in 22 of 122 (18.0%) of genes in pham
- Manual Annotations of this start: 20 of 111
- Called 90.9% of time when present
- Phage (with cluster) where this start called: Adjutor_20 (D1), BigMama_17 (D1), Butterscotch_19 (D1), Chill_20 (D1), Delton_19 (D1), Erk16_19 (D1), Giuseppe_19 (D1), Gumball_18 (D1), Hawkeye_21 (D2), Helpful_20 (D1), KandZ_19 (D1), Mopey_19 (D1), Nova_19 (D1), PBI1_20 (D1), PLOT_20 (D1), Penelope2018_19 (D1), Thoth_19 (D1), Troll4_19 (D1), Visconti_19 (D1), WaldoWhy_20 (D1),

Start 9:

- Found in 32 of 122 (26.2%) of genes in pham
- Manual Annotations of this start: 9 of 111
- Called 31.2% of time when present
- Phage (with cluster) where this start called: Beckerton_18 (H1), Cborch11_19 (H1), Damien_18 (H1), Konstantine_23 (H1), Megatron06_20 (H1), Oaker_18 (H1), Phreeze_18 (H1), Predator_22 (H1), Puissant_17 (H1), Thumb_18 (H1),

Start 10:

- Found in 9 of 122 (7.4%) of genes in pham
- Manual Annotations of this start: 9 of 111
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beyoncage_14 (DG1), BiteSize_14 (DG1), Djokovic_14 (DG1), LilyPad_15 (DG1), LittleFella_16 (DG2), Madi_14 (DG1), Sienna_14 (DG1), Suzy_15 (DG1), Terapin_14 (DG1),

Start 11:

- Found in 41 of 122 (33.6%) of genes in pham
- Manual Annotations of this start: 35 of 111
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alephilan_16 (DV), Alyssamiracle_18 (DV), Apeppi_17 (DV), Avian_17 (DV), BirthdayBoy_20 (DV), DaviePasture_19 (DV), DoobyDoo_18 (DV), DumpTruck_18 (DV), Erutan_19 (DV), Fulcrum_20 (DV), GOATification_20 (DV), Genamy16_18 (DV), Gibbin_20 (DV), GretelLyn_19 (DV), Huwbert_42 (GG), Jalebi_19 (DV), Jamemuya19_16 (DV), Labelle_25 (U), Lambo_19 (DV), Lila22_19 (DV), LuckyLeo_18 (DV), Madruga_24 (U), Mima20_18 (DV), MoiGyank_21 (DV), NorManre_20 (DV), NovaSharks_18 (DV), OtterstedtS21_19 (DV), ParvusTarda_19 (DV), Patience_26 (U), Patos_20 (DV), Ranch_19 (DV), Rumi_18 (DV), Sadboi_19 (DV), Sampudon_19 (DV), Tillicus_19 (DV), Triscuit_41 (GG), Wojtek_18 (DV), Wollypog_9 (singleton), Xenia2_16 (DV), Yikes_20 (DV), Zany_18 (DV),

Start 12:

- Found in 8 of 122 (6.6%) of genes in pham
- Manual Annotations of this start: 6 of 111
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ajin_22 (EF), Barnyard_24 (H2), DrLupo_26 (H2), Kors_23 (EF), RikSengupta_22 (EF), Shrew_60 (singleton), Sparcetus_22 (EF), TinyMiny_22 (EF),

Start 13:

- Found in 32 of 122 (26.2%) of genes in pham
- Manual Annotations of this start: 31 of 111
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aesir_20 (EF), Anakin_21 (EF), AnnaSerena_21 (EF), Chivey_20 (EF), CoolCookie_21 (EF), Crestdrop_20 (EF), Cybele_21 (EF), DannyDe_20 (EF), Dauntless_20 (EF), Erudite_20 (EF), FreddieHg_20 (EF), Gilda_21 (EF), Hager_22 (EF), Haunter_21 (EF), Hiddenleaf_20 (EF), JDawG_20 (EF), JingleBells_20 (EF), Karate_20 (EF), Kate_21 (EF), Krampus_21 (EF), MortySmith_19 (EF), NarutoRun_21 (EF), Neptune_21 (EF), OverHedge_21 (EF), Pharpay_21 (EF), PhunaPhoke_21 (EF), Potty_21 (EF), Poultruss_20 (EF), Rachella_21 (EF), Rie18_21 (EF), Snakehole_22 (EF), Tedro_21 (EF),

Start 14:

- Found in 56 of 122 (45.9%) of genes in pham
- Manual Annotations of this start: 1 of 111
- Called 3.6% of time when present
- Phage (with cluster) where this start called: Prager_19 (D1), SirHarley_18 (D1),

Summary by clusters:

There are 11 clusters represented in this pham: DG2, singleton, H1, H2, EF, GG, DG1, U, DV, D2, D1,

Info for manual annotations of cluster D1:

- Start number 8 was manually annotated 19 times for cluster D1.
- Start number 14 was manually annotated 1 time for cluster D1.

Info for manual annotations of cluster D2:

- Start number 8 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DG1:

- Start number 10 was manually annotated 8 times for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 10 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:

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

Info for manual annotations of cluster EF:

- Start number 12 was manually annotated 4 times for cluster EF.
- Start number 13 was manually annotated 31 times for cluster EF.

Info for manual annotations of cluster GG:

- Start number 11 was manually annotated 2 times for cluster GG.

Info for manual annotations of cluster H1:

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

Info for manual annotations of cluster H2:

- Start number 12 was manually annotated 2 times for cluster H2.

Info for manual annotations of cluster U:

•Start number 11 was manually annotated 3 times for cluster U.

Gene Information:

Gene: Adjutor_20 Start: 12729, Stop: 13136, Start Num: 8

Candidate Starts for Adjutor_20:

(Start: 8 @12729 has 20 MA's), (Start: 9 @12735 has 9 MA's), (Start: 14 @12759 has 1 MA's), (54, 13008), (60, 13056), (61, 13065), (63, 13071), (67, 13110),

Gene: Aesir_20 Start: 11440, Stop: 11808, Start Num: 13

Candidate Starts for Aesir_20:

(7, 11404), (Start: 13 @11440 has 31 MA's), (42, 11608), (46, 11635), (65, 11788),

Gene: Ajin_22 Start: 11605, Stop: 11991, Start Num: 12

Candidate Starts for Ajin_22:

(6, 11515), (Start: 12 @11605 has 6 MA's), (15, 11626), (38, 11755), (44, 11797), (48, 11830), (57, 11893), (58, 11914), (60, 11929), (62, 11941),

Gene: Alephilan_16 Start: 13251, Stop: 13628, Start Num: 11

Candidate Starts for Alephilan_16:

(Start: 11 @13251 has 35 MA's), (26, 13341), (47, 13455), (49, 13473), (55, 13503), (59, 13545),

Gene: Alyssamiracle_18 Start: 11658, Stop: 12035, Start Num: 11

Candidate Starts for Alyssamiracle_18:

(Start: 11 @11658 has 35 MA's), (Start: 14 @11673 has 1 MA's), (26, 11748), (29, 11757), (47, 11862), (49, 11880), (55, 11910), (59, 11952),

Gene: Anakin_21 Start: 11650, Stop: 12018, Start Num: 13

Candidate Starts for Anakin_21:

(7, 11614), (Start: 13 @11650 has 31 MA's), (42, 11818), (65, 11998),

Gene: AnnaSerena_21 Start: 11659, Stop: 12027, Start Num: 13

Candidate Starts for AnnaSerena_21:

(7, 11623), (Start: 13 @11659 has 31 MA's), (42, 11827), (65, 12007),

Gene: Apeppi_17 Start: 13373, Stop: 13750, Start Num: 11

Candidate Starts for Apeppi_17:

(Start: 11 @13373 has 35 MA's), (Start: 14 @13388 has 1 MA's), (26, 13463), (33, 13496), (49, 13595), (55, 13625), (62, 13682),

Gene: Avian_17 Start: 11658, Stop: 12035, Start Num: 11

Candidate Starts for Avian_17:

(Start: 11 @11658 has 35 MA's), (Start: 14 @11673 has 1 MA's), (26, 11748), (29, 11757), (47, 11862), (49, 11880), (55, 11910), (59, 11952),

Gene: Barnyard_24 Start: 14273, Stop: 14668, Start Num: 12

Candidate Starts for Barnyard_24:

(Start: 12 @14273 has 6 MA's), (15, 14294), (21, 14342), (23, 14348), (54, 14528), (61, 14597),

Gene: Beckerton_18 Start: 13163, Stop: 13546, Start Num: 9

Candidate Starts for Beckerton_18:

(Start: 9 @13163 has 9 MA's), (17, 13202), (33, 13292), (36, 13310), (59, 13463),

Gene: Beyoncage_14 Start: 9137, Stop: 9526, Start Num: 10

Candidate Starts for Beyoncage_14:

(Start: 10 @9137 has 9 MA's), (19, 9182), (50, 9374), (61, 9455), (64, 9479),

Gene: BigMama_17 Start: 12805, Stop: 13212, Start Num: 8

Candidate Starts for BigMama_17:

(5, 12712), (Start: 8 @12805 has 20 MA's), (Start: 9 @12811 has 9 MA's), (Start: 14 @12835 has 1 MA's), (54, 13084), (60, 13132), (61, 13141), (63, 13147), (67, 13186),

Gene: BirthdayBoy_20 Start: 14104, Stop: 14481, Start Num: 11

Candidate Starts for BirthdayBoy_20:

(Start: 11 @14104 has 35 MA's), (Start: 14 @14119 has 1 MA's), (26, 14194), (29, 14203), (40, 14263), (47, 14308), (49, 14326), (55, 14356), (59, 14398),

Gene: BiteSize_14 Start: 9137, Stop: 9526, Start Num: 10

Candidate Starts for BiteSize_14:

(Start: 10 @9137 has 9 MA's), (19, 9182), (50, 9374), (61, 9455), (64, 9479),

Gene: Butterscotch_19 Start: 12789, Stop: 13196, Start Num: 8

Candidate Starts for Butterscotch_19:

(Start: 8 @12789 has 20 MA's), (Start: 9 @12795 has 9 MA's), (Start: 14 @12819 has 1 MA's), (54, 13068), (60, 13116), (61, 13125), (63, 13131), (67, 13170),

Gene: Cborch11_19 Start: 12626, Stop: 13009, Start Num: 9

Candidate Starts for Cborch11_19:

(Start: 9 @12626 has 9 MA's), (17, 12665), (33, 12755), (36, 12773), (59, 12926),

Gene: Chill_20 Start: 12795, Stop: 13202, Start Num: 8

Candidate Starts for Chill_20:

(5, 12702), (Start: 8 @12795 has 20 MA's), (Start: 9 @12801 has 9 MA's), (Start: 14 @12825 has 1 MA's), (54, 13074), (60, 13122), (61, 13131), (63, 13137), (67, 13176),

Gene: Chivey_20 Start: 10852, Stop: 11220, Start Num: 13

Candidate Starts for Chivey_20:

(7, 10816), (Start: 13 @10852 has 31 MA's), (42, 11020), (65, 11200),

Gene: CoolCookie_21 Start: 11657, Stop: 12025, Start Num: 13

Candidate Starts for CoolCookie_21:

(7, 11621), (Start: 13 @11657 has 31 MA's), (42, 11825), (65, 12005),

Gene: Crestdrop_20 Start: 10726, Stop: 11094, Start Num: 13

Candidate Starts for Crestdrop_20:

(2, 10519), (7, 10690), (Start: 13 @10726 has 31 MA's), (42, 10894), (65, 11074),

Gene: Cybele_21 Start: 11627, Stop: 11995, Start Num: 13

Candidate Starts for Cybele_21:

(7, 11591), (Start: 13 @11627 has 31 MA's), (42, 11795), (65, 11975),

Gene: Damien_18 Start: 12625, Stop: 13008, Start Num: 9

Candidate Starts for Damien_18:

(Start: 9 @12625 has 9 MA's), (17, 12664), (33, 12754), (36, 12772), (59, 12925),

Gene: DannyDe_20 Start: 10844, Stop: 11212, Start Num: 13

Candidate Starts for DannyDe_20:

(7, 10808), (Start: 13 @10844 has 31 MA's), (42, 11012), (65, 11192),

Gene: Dauntless_20 Start: 11369, Stop: 11737, Start Num: 13

Candidate Starts for Dauntless_20:

(7, 11333), (Start: 13 @11369 has 31 MA's), (42, 11537), (65, 11717),

Gene: DaviePasture_19 Start: 13861, Stop: 14238, Start Num: 11

Candidate Starts for DaviePasture_19:

(Start: 11 @13861 has 35 MA's), (Start: 14 @13876 has 1 MA's), (26, 13951), (47, 14065), (49, 14083), (51, 14089), (55, 14113), (56, 14134), (59, 14155),

Gene: Delton_19 Start: 12801, Stop: 13208, Start Num: 8

Candidate Starts for Delton_19:

(5, 12708), (Start: 8 @12801 has 20 MA's), (Start: 9 @12807 has 9 MA's), (Start: 14 @12831 has 1 MA's), (54, 13080), (60, 13128), (61, 13137), (63, 13143), (67, 13182),

Gene: Djokovic_14 Start: 9137, Stop: 9526, Start Num: 10

Candidate Starts for Djokovic_14:

(Start: 10 @9137 has 9 MA's), (19, 9182), (50, 9374), (61, 9455), (64, 9479),

Gene: DoobyDoo_18 Start: 13038, Stop: 13415, Start Num: 11

Candidate Starts for DoobyDoo_18:

(Start: 11 @13038 has 35 MA's), (Start: 14 @13053 has 1 MA's), (26, 13128), (40, 13197), (47, 13242), (49, 13260), (55, 13290), (59, 13332),

Gene: DrLupo_26 Start: 14684, Stop: 15067, Start Num: 12

Candidate Starts for DrLupo_26:

(Start: 12 @14684 has 6 MA's), (15, 14705), (21, 14753), (23, 14759), (28, 14777), (61, 14996),

Gene: DumpTruck_18 Start: 13292, Stop: 13672, Start Num: 11

Candidate Starts for DumpTruck_18:

(Start: 11 @13292 has 35 MA's), (Start: 14 @13307 has 1 MA's), (26, 13382), (35, 13424), (45, 13484), (49, 13517),

Gene: Erk16_19 Start: 12792, Stop: 13199, Start Num: 8

Candidate Starts for Erk16_19:

(Start: 8 @12792 has 20 MA's), (Start: 9 @12798 has 9 MA's), (Start: 14 @12822 has 1 MA's), (54, 13071), (60, 13119), (61, 13128), (63, 13134), (67, 13173),

Gene: Erudite_20 Start: 11369, Stop: 11737, Start Num: 13

Candidate Starts for Erudite_20:

(7, 11333), (Start: 13 @11369 has 31 MA's), (42, 11537), (65, 11717),

Gene: Erutan_19 Start: 13551, Stop: 13928, Start Num: 11

Candidate Starts for Erutan_19:

(Start: 11 @13551 has 35 MA's), (Start: 14 @13566 has 1 MA's), (26, 13641), (29, 13650), (47, 13755), (49, 13773), (51, 13779), (55, 13803), (56, 13824), (59, 13845),

Gene: FreddieHg_20 Start: 10868, Stop: 11236, Start Num: 13
Candidate Starts for FreddieHg_20:
(7, 10832), (Start: 13 @10868 has 31 MA's), (42, 11036), (65, 11216),

Gene: Fulcrum_20 Start: 14084, Stop: 14461, Start Num: 11
Candidate Starts for Fulcrum_20:
(Start: 11 @14084 has 35 MA's), (Start: 14 @14099 has 1 MA's), (26, 14174), (29, 14183), (40, 14243), (47, 14288), (49, 14306), (55, 14336), (59, 14378),

Gene: GOATification_20 Start: 14084, Stop: 14461, Start Num: 11
Candidate Starts for GOATification_20:
(Start: 11 @14084 has 35 MA's), (Start: 14 @14099 has 1 MA's), (26, 14174), (29, 14183), (40, 14243), (47, 14288), (49, 14306), (55, 14336), (59, 14378),

Gene: Genamy16_18 Start: 11658, Stop: 12035, Start Num: 11
Candidate Starts for Genamy16_18:
(Start: 11 @11658 has 35 MA's), (Start: 14 @11673 has 1 MA's), (26, 11748), (29, 11757), (47, 11862), (49, 11880), (55, 11910), (59, 11952),

Gene: Gibbin_20 Start: 14144, Stop: 14521, Start Num: 11
Candidate Starts for Gibbin_20:
(Start: 11 @14144 has 35 MA's), (Start: 14 @14159 has 1 MA's), (26, 14234), (29, 14243), (40, 14303), (47, 14348), (49, 14366), (55, 14396), (59, 14438),

Gene: Gilda_21 Start: 11651, Stop: 12019, Start Num: 13
Candidate Starts for Gilda_21:
(7, 11615), (Start: 13 @11651 has 31 MA's), (42, 11819), (65, 11999),

Gene: Giuseppe_19 Start: 12781, Stop: 13188, Start Num: 8
Candidate Starts for Giuseppe_19:
(Start: 8 @12781 has 20 MA's), (Start: 9 @12787 has 9 MA's), (Start: 14 @12811 has 1 MA's), (54, 13060), (60, 13108), (61, 13117), (63, 13123), (67, 13162),

Gene: Gretellyn_19 Start: 14418, Stop: 14795, Start Num: 11
Candidate Starts for Gretellyn_19:
(Start: 11 @14418 has 35 MA's), (Start: 14 @14433 has 1 MA's), (26, 14508), (29, 14517), (40, 14577), (47, 14622), (49, 14640), (55, 14670), (59, 14712),

Gene: Gumball_18 Start: 12739, Stop: 13146, Start Num: 8
Candidate Starts for Gumball_18:
(Start: 8 @12739 has 20 MA's), (Start: 9 @12745 has 9 MA's), (Start: 14 @12769 has 1 MA's), (54, 13018), (60, 13066), (61, 13075), (63, 13081), (67, 13120),

Gene: Hager_22 Start: 11222, Stop: 11590, Start Num: 13
Candidate Starts for Hager_22:
(1, 10970), (7, 11186), (Start: 13 @11222 has 31 MA's), (42, 11390), (65, 11570),

Gene: Haunter_21 Start: 11064, Stop: 11432, Start Num: 13
Candidate Starts for Haunter_21:
(7, 11028), (Start: 13 @11064 has 31 MA's), (42, 11232), (65, 11412),

Gene: Hawkeye_21 Start: 12664, Stop: 13071, Start Num: 8
Candidate Starts for Hawkeye_21:

(Start: 8 @12664 has 20 MA's), (Start: 9 @12670 has 9 MA's), (23, 12754), (25, 12772), (27, 12778), (65, 13036),

Gene: Helpful_20 Start: 12789, Stop: 13196, Start Num: 8

Candidate Starts for Helpful_20:

(Start: 8 @12789 has 20 MA's), (Start: 9 @12795 has 9 MA's), (Start: 14 @12819 has 1 MA's), (54, 13068), (60, 13116), (61, 13125), (63, 13131), (67, 13170),

Gene: Hiddenleaf_20 Start: 10852, Stop: 11220, Start Num: 13

Candidate Starts for Hiddenleaf_20:

(7, 10816), (Start: 13 @10852 has 31 MA's), (42, 11020), (65, 11200),

Gene: Huwbert_42 Start: 21947, Stop: 22348, Start Num: 11

Candidate Starts for Huwbert_42:

(3, 21812), (Start: 11 @21947 has 35 MA's), (15, 21971), (18, 21986), (20, 22013), (25, 22046), (39, 22115), (66, 22319),

Gene: JDawG_20 Start: 11434, Stop: 11802, Start Num: 13

Candidate Starts for JDawG_20:

(7, 11398), (Start: 13 @11434 has 31 MA's), (42, 11602), (65, 11782),

Gene: Jalebi_19 Start: 14594, Stop: 14971, Start Num: 11

Candidate Starts for Jalebi_19:

(Start: 11 @14594 has 35 MA's), (Start: 14 @14609 has 1 MA's), (26, 14684), (29, 14693), (40, 14753), (47, 14798), (49, 14816), (55, 14846), (59, 14888),

Gene: Jamemuya19_16 Start: 11658, Stop: 12035, Start Num: 11

Candidate Starts for Jamemuya19_16:

(Start: 11 @11658 has 35 MA's), (Start: 14 @11673 has 1 MA's), (26, 11748), (29, 11757), (47, 11862), (49, 11880), (55, 11910), (59, 11952),

Gene: JingleBells_20 Start: 10933, Stop: 11301, Start Num: 13

Candidate Starts for JingleBells_20:

(7, 10897), (Start: 13 @10933 has 31 MA's), (42, 11101), (65, 11281),

Gene: KandZ_19 Start: 12889, Stop: 13296, Start Num: 8

Candidate Starts for KandZ_19:

(Start: 8 @12889 has 20 MA's), (Start: 9 @12895 has 9 MA's), (Start: 14 @12919 has 1 MA's), (54, 13168), (60, 13216), (61, 13225), (63, 13231), (67, 13270),

Gene: Karate_20 Start: 11072, Stop: 11440, Start Num: 13

Candidate Starts for Karate_20:

(7, 11036), (Start: 13 @11072 has 31 MA's), (42, 11240), (65, 11420),

Gene: Kate_21 Start: 11659, Stop: 12027, Start Num: 13

Candidate Starts for Kate_21:

(7, 11623), (Start: 13 @11659 has 31 MA's), (42, 11827), (65, 12007),

Gene: Konstantine_23 Start: 13827, Stop: 14210, Start Num: 9

Candidate Starts for Konstantine_23:

(Start: 9 @13827 has 9 MA's), (17, 13866), (33, 13956), (36, 13974), (59, 14127),

Gene: Kors_23 Start: 11651, Stop: 12037, Start Num: 12

Candidate Starts for Kors_23:

(6, 11561), (Start: 12 @11651 has 6 MA's), (15, 11672), (38, 11801), (44, 11843), (48, 11876), (57, 11939), (60, 11975), (62, 11987),

Gene: Krampus_21 Start: 11657, Stop: 12025, Start Num: 13

Candidate Starts for Krampus_21:

(7, 11621), (Start: 13 @11657 has 31 MA's), (42, 11825), (65, 12005),

Gene: Labelle_25 Start: 15831, Stop: 16202, Start Num: 11

Candidate Starts for Labelle_25:

(Start: 11 @15831 has 35 MA's), (15, 15855), (22, 15906), (31, 15945), (34, 15960),

Gene: Lambo_19 Start: 14088, Stop: 14465, Start Num: 11

Candidate Starts for Lambo_19:

(Start: 11 @14088 has 35 MA's), (Start: 14 @14103 has 1 MA's), (26, 14178), (29, 14187), (47, 14292), (49, 14310), (51, 14316), (55, 14340), (56, 14361), (59, 14382),

Gene: Lila22_19 Start: 14042, Stop: 14419, Start Num: 11

Candidate Starts for Lila22_19:

(Start: 11 @14042 has 35 MA's), (Start: 14 @14057 has 1 MA's), (26, 14132), (29, 14141), (40, 14201), (47, 14246), (49, 14264), (55, 14294), (59, 14336),

Gene: LilyPad_15 Start: 9856, Stop: 10245, Start Num: 10

Candidate Starts for LilyPad_15:

(Start: 10 @9856 has 9 MA's), (19, 9901), (22, 9931), (23, 9934), (24, 9937), (50, 10093),

Gene: LittleFella_16 Start: 11757, Stop: 12137, Start Num: 10

Candidate Starts for LittleFella_16:

(Start: 10 @11757 has 9 MA's), (37, 11907), (50, 11985), (52, 11991), (60, 12057),

Gene: LuckyLeo_18 Start: 13373, Stop: 13750, Start Num: 11

Candidate Starts for LuckyLeo_18:

(Start: 11 @13373 has 35 MA's), (Start: 14 @13388 has 1 MA's), (26, 13463), (33, 13496), (49, 13595), (55, 13625), (62, 13682),

Gene: Madi_14 Start: 9137, Stop: 9526, Start Num: 10

Candidate Starts for Madi_14:

(Start: 10 @9137 has 9 MA's), (19, 9182), (50, 9374), (61, 9455), (64, 9479),

Gene: Madruga_24 Start: 15500, Stop: 15871, Start Num: 11

Candidate Starts for Madruga_24:

(Start: 11 @15500 has 35 MA's), (15, 15524), (22, 15575), (31, 15614), (34, 15629),

Gene: Megatron06_20 Start: 13160, Stop: 13543, Start Num: 9

Candidate Starts for Megatron06_20:

(Start: 9 @13160 has 9 MA's), (33, 13289), (36, 13307), (59, 13460),

Gene: Mima20_18 Start: 13771, Stop: 14148, Start Num: 11

Candidate Starts for Mima20_18:

(Start: 11 @13771 has 35 MA's), (Start: 14 @13786 has 1 MA's), (26, 13861), (29, 13870), (47, 13975), (49, 13993), (51, 13999), (55, 14023), (56, 14044), (59, 14065),

Gene: MoiGyank_21 Start: 14455, Stop: 14832, Start Num: 11

Candidate Starts for MoiGyank_21:

(Start: 11 @14455 has 35 MA's), (Start: 14 @14470 has 1 MA's), (26, 14545), (29, 14554), (40, 14614), (47, 14659), (49, 14677), (55, 14707), (59, 14749),

Gene: Mopey_19 Start: 12789, Stop: 13196, Start Num: 8

Candidate Starts for Mopey_19:

(Start: 8 @12789 has 20 MA's), (Start: 9 @12795 has 9 MA's), (Start: 14 @12819 has 1 MA's), (54, 13068), (60, 13116), (61, 13125), (63, 13131), (67, 13170),

Gene: MortySmith_19 Start: 10831, Stop: 11199, Start Num: 13

Candidate Starts for MortySmith_19:

(7, 10795), (Start: 13 @10831 has 31 MA's), (42, 10999), (65, 11179),

Gene: NarutoRun_21 Start: 11650, Stop: 12018, Start Num: 13

Candidate Starts for NarutoRun_21:

(7, 11614), (Start: 13 @11650 has 31 MA's), (42, 11818), (65, 11998),

Gene: Neptune_21 Start: 11627, Stop: 11995, Start Num: 13

Candidate Starts for Neptune_21:

(7, 11591), (Start: 13 @11627 has 31 MA's), (42, 11795), (65, 11975),

Gene: NorManre_20 Start: 13650, Stop: 14027, Start Num: 11

Candidate Starts for NorManre_20:

(Start: 11 @13650 has 35 MA's), (Start: 14 @13665 has 1 MA's), (26, 13740), (29, 13749), (47, 13854), (49, 13872), (51, 13878), (55, 13902), (56, 13923), (59, 13944), (68, 14007),

Gene: Nova_19 Start: 13216, Stop: 13623, Start Num: 8

Candidate Starts for Nova_19:

(Start: 8 @13216 has 20 MA's), (Start: 9 @13222 has 9 MA's), (Start: 14 @13246 has 1 MA's), (54, 13495), (60, 13543), (61, 13552), (63, 13558), (67, 13597),

Gene: NovaSharks_18 Start: 11658, Stop: 12035, Start Num: 11

Candidate Starts for NovaSharks_18:

(Start: 11 @11658 has 35 MA's), (Start: 14 @11673 has 1 MA's), (26, 11748), (29, 11757), (47, 11862), (49, 11880), (55, 11910), (59, 11952),

Gene: Oaker_18 Start: 12884, Stop: 13267, Start Num: 9

Candidate Starts for Oaker_18:

(Start: 9 @12884 has 9 MA's), (17, 12923), (33, 13013), (36, 13031), (59, 13184),

Gene: OtterstedtS21_19 Start: 13740, Stop: 14117, Start Num: 11

Candidate Starts for OtterstedtS21_19:

(Start: 11 @13740 has 35 MA's), (Start: 14 @13755 has 1 MA's), (26, 13830), (29, 13839), (40, 13899), (47, 13944), (49, 13962), (55, 13992), (59, 14034),

Gene: OverHedge_21 Start: 11624, Stop: 11992, Start Num: 13

Candidate Starts for OverHedge_21:

(7, 11588), (Start: 13 @11624 has 31 MA's), (42, 11792), (65, 11972),

Gene: PBI1_20 Start: 12720, Stop: 13127, Start Num: 8

Candidate Starts for PBI1_20:

(Start: 8 @12720 has 20 MA's), (Start: 9 @12726 has 9 MA's), (Start: 14 @12750 has 1 MA's), (54, 12999), (60, 13047), (61, 13056), (63, 13062), (67, 13101),

Gene: PLOT_20 Start: 12792, Stop: 13199, Start Num: 8

Candidate Starts for PLOT_20:

(Start: 8 @12792 has 20 MA's), (Start: 9 @12798 has 9 MA's), (Start: 14 @12822 has 1 MA's), (54, 13071), (60, 13119), (61, 13128), (63, 13134), (67, 13173),

Gene: ParvusTarda_19 Start: 13222, Stop: 13599, Start Num: 11

Candidate Starts for ParvusTarda_19:

(Start: 11 @13222 has 35 MA's), (Start: 14 @13237 has 1 MA's), (26, 13312), (29, 13321), (47, 13426), (49, 13444), (51, 13450), (55, 13474), (56, 13495), (59, 13516),

Gene: Patience_26 Start: 16390, Stop: 16761, Start Num: 11

Candidate Starts for Patience_26:

(Start: 11 @16390 has 35 MA's), (15, 16414), (22, 16465), (31, 16504), (34, 16519),

Gene: Patos_20 Start: 13650, Stop: 14027, Start Num: 11

Candidate Starts for Patos_20:

(Start: 11 @13650 has 35 MA's), (Start: 14 @13665 has 1 MA's), (26, 13740), (29, 13749), (47, 13854), (49, 13872), (51, 13878), (55, 13902), (56, 13923), (59, 13944), (68, 14007),

Gene: Penelope2018_19 Start: 12789, Stop: 13196, Start Num: 8

Candidate Starts for Penelope2018_19:

(Start: 8 @12789 has 20 MA's), (Start: 9 @12795 has 9 MA's), (Start: 14 @12819 has 1 MA's), (54, 13068), (60, 13116), (61, 13125), (63, 13131), (67, 13170),

Gene: Pharpay_21 Start: 11672, Stop: 12040, Start Num: 13

Candidate Starts for Pharpay_21:

(7, 11636), (Start: 13 @11672 has 31 MA's), (42, 11840), (65, 12020),

Gene: Phreeze_18 Start: 12625, Stop: 13008, Start Num: 9

Candidate Starts for Phreeze_18:

(Start: 9 @12625 has 9 MA's), (17, 12664), (33, 12754), (36, 12772), (59, 12925),

Gene: PhunaPhoke_21 Start: 11645, Stop: 12013, Start Num: 13

Candidate Starts for PhunaPhoke_21:

(7, 11609), (Start: 13 @11645 has 31 MA's), (42, 11813), (65, 11993),

Gene: Potty_21 Start: 11650, Stop: 12018, Start Num: 13

Candidate Starts for Potty_21:

(7, 11614), (Start: 13 @11650 has 31 MA's), (42, 11818), (65, 11998),

Gene: Poultruss_20 Start: 11423, Stop: 11791, Start Num: 13

Candidate Starts for Poultruss_20:

(7, 11387), (Start: 13 @11423 has 31 MA's), (42, 11591), (65, 11771),

Gene: Prager_19 Start: 12831, Stop: 13208, Start Num: 14

Candidate Starts for Prager_19:

(5, 12708), (Start: 8 @12801 has 20 MA's), (Start: 9 @12807 has 9 MA's), (Start: 14 @12831 has 1 MA's), (54, 13080), (60, 13128), (61, 13137), (63, 13143), (67, 13182),

Gene: Predator_22 Start: 14150, Stop: 14533, Start Num: 9

Candidate Starts for Predator_22:

(Start: 9 @14150 has 9 MA's), (17, 14189), (32, 14276), (40, 14315), (51, 14384), (59, 14450),

Gene: Puissant_17 Start: 13081, Stop: 13464, Start Num: 9

Candidate Starts for Puissant_17:

(Start: 9 @13081 has 9 MA's), (17, 13120), (35, 13219), (40, 13246), (59, 13381),

Gene: Rachella_21 Start: 11653, Stop: 12021, Start Num: 13

Candidate Starts for Rachella_21:

(7, 11617), (Start: 13 @11653 has 31 MA's), (42, 11821), (65, 12001),

Gene: Ranch_19 Start: 12588, Stop: 12965, Start Num: 11

Candidate Starts for Ranch_19:

(Start: 11 @12588 has 35 MA's), (Start: 14 @12603 has 1 MA's), (26, 12678), (29, 12687), (47, 12792), (49, 12810), (51, 12816), (53, 12825), (55, 12840), (59, 12882),

Gene: Rie18_21 Start: 11004, Stop: 11372, Start Num: 13

Candidate Starts for Rie18_21:

(7, 10968), (Start: 13 @11004 has 31 MA's), (42, 11172), (65, 11352),

Gene: RikSengupta_22 Start: 11688, Stop: 12074, Start Num: 12

Candidate Starts for RikSengupta_22:

(6, 11598), (Start: 12 @11688 has 6 MA's), (15, 11709), (38, 11838), (44, 11880), (48, 11913), (57, 11976), (60, 12012), (62, 12024),

Gene: Rumi_18 Start: 11658, Stop: 12035, Start Num: 11

Candidate Starts for Rumi_18:

(Start: 11 @11658 has 35 MA's), (Start: 14 @11673 has 1 MA's), (26, 11748), (29, 11757), (47, 11862), (49, 11880), (55, 11910), (59, 11952),

Gene: Sadboi_19 Start: 14418, Stop: 14795, Start Num: 11

Candidate Starts for Sadboi_19:

(Start: 11 @14418 has 35 MA's), (Start: 14 @14433 has 1 MA's), (26, 14508), (29, 14517), (40, 14577), (47, 14622), (49, 14640), (55, 14670), (59, 14712),

Gene: Sampudon_19 Start: 14594, Stop: 14971, Start Num: 11

Candidate Starts for Sampudon_19:

(Start: 11 @14594 has 35 MA's), (Start: 14 @14609 has 1 MA's), (26, 14684), (29, 14693), (40, 14753), (47, 14798), (49, 14816), (55, 14846), (59, 14888),

Gene: Shrew_60 Start: 26408, Stop: 26803, Start Num: 12

Candidate Starts for Shrew_60:

(Start: 12 @26408 has 6 MA's), (15, 26429), (25, 26504), (30, 26528), (41, 26588), (50, 26651), (53, 26663), (60, 26723),

Gene: Sienna_14 Start: 9137, Stop: 9526, Start Num: 10

Candidate Starts for Sienna_14:

(Start: 10 @9137 has 9 MA's), (19, 9182), (50, 9374), (61, 9455), (64, 9479),

Gene: SirHarley_18 Start: 12751, Stop: 13128, Start Num: 14

Candidate Starts for SirHarley_18:

(Start: 8 @12721 has 20 MA's), (Start: 9 @12727 has 9 MA's), (Start: 14 @12751 has 1 MA's), (54, 13000), (60, 13048), (61, 13057), (63, 13063), (67, 13102),

Gene: Snakehole_22 Start: 10949, Stop: 11317, Start Num: 13

Candidate Starts for Snakehole_22:

(7, 10913), (Start: 13 @10949 has 31 MA's), (42, 11117), (65, 11297),

Gene: Sparcetus_22 Start: 11567, Stop: 11953, Start Num: 12

Candidate Starts for Sparcetus_22:

(6, 11477), (Start: 12 @11567 has 6 MA's), (15, 11588), (38, 11717), (44, 11759), (48, 11792), (57, 11855), (60, 11891), (62, 11903),

Gene: Suzy_15 Start: 10365, Stop: 10754, Start Num: 10

Candidate Starts for Suzy_15:

(Start: 10 @10365 has 9 MA's), (Start: 14 @10383 has 1 MA's), (19, 10410), (50, 10602), (52, 10608), (61, 10683), (64, 10707),

Gene: Tedro_21 Start: 11123, Stop: 11491, Start Num: 13

Candidate Starts for Tedro_21:

(7, 11087), (Start: 13 @11123 has 31 MA's), (42, 11291), (65, 11471),

Gene: Terapin_14 Start: 9137, Stop: 9526, Start Num: 10

Candidate Starts for Terapin_14:

(Start: 10 @9137 has 9 MA's), (19, 9182), (50, 9374), (61, 9455), (64, 9479),

Gene: Thoth_19 Start: 12786, Stop: 13193, Start Num: 8

Candidate Starts for Thoth_19:

(Start: 8 @12786 has 20 MA's), (Start: 9 @12792 has 9 MA's), (Start: 14 @12816 has 1 MA's), (54, 13065), (60, 13113), (61, 13122), (63, 13128), (67, 13167),

Gene: Thumb_18 Start: 12626, Stop: 13009, Start Num: 9

Candidate Starts for Thumb_18:

(Start: 9 @12626 has 9 MA's), (33, 12755), (36, 12773), (59, 12926),

Gene: Tillicus_19 Start: 12967, Stop: 13344, Start Num: 11

Candidate Starts for Tillicus_19:

(Start: 11 @12967 has 35 MA's), (Start: 14 @12982 has 1 MA's), (26, 13057), (33, 13090), (49, 13189), (55, 13219),

Gene: TinyMiny_22 Start: 11586, Stop: 11972, Start Num: 12

Candidate Starts for TinyMiny_22:

(6, 11496), (Start: 12 @11586 has 6 MA's), (15, 11607), (38, 11736), (44, 11778), (48, 11811), (57, 11874), (60, 11910), (62, 11922),

Gene: Triscuit_41 Start: 21862, Stop: 22263, Start Num: 11

Candidate Starts for Triscuit_41:

(4, 21730), (Start: 11 @21862 has 35 MA's), (15, 21886), (18, 21901), (20, 21928), (23, 21940), (25, 21961), (39, 22030), (66, 22234),

Gene: Troll4_19 Start: 12790, Stop: 13197, Start Num: 8

Candidate Starts for Troll4_19:

(Start: 8 @12790 has 20 MA's), (Start: 9 @12796 has 9 MA's), (Start: 14 @12820 has 1 MA's), (54, 13069), (60, 13117), (61, 13126), (63, 13132), (67, 13171),

Gene: Visconti_19 Start: 12799, Stop: 13206, Start Num: 8

Candidate Starts for Visconti_19:

(Start: 8 @12799 has 20 MA's), (Start: 9 @12805 has 9 MA's), (Start: 14 @12829 has 1 MA's), (54, 13078), (60, 13126), (61, 13135), (63, 13141), (67, 13180),

Gene: WaldoWhy_20 Start: 12795, Stop: 13202, Start Num: 8

Candidate Starts for WaldoWhy_20:

(5, 12702), (Start: 8 @12795 has 20 MA's), (Start: 9 @12801 has 9 MA's), (Start: 14 @12825 has 1 MA's), (54, 13074), (60, 13122), (61, 13131), (63, 13137), (67, 13176),

Gene: Wojtek_18 Start: 13295, Stop: 13672, Start Num: 11

Candidate Starts for Wojtek_18:

(Start: 11 @13295 has 35 MA's), (Start: 14 @13310 has 1 MA's), (26, 13385), (29, 13394), (40, 13454), (47, 13499), (49, 13517), (55, 13547), (59, 13589),

Gene: Wollypog_9 Start: 8239, Stop: 8610, Start Num: 11

Candidate Starts for Wollypog_9:

(Start: 11 @8239 has 35 MA's), (15, 8263), (16, 8269), (39, 8398), (43, 8425), (46, 8440), (49, 8470), (50, 8473), (52, 8479), (60, 8545), (66, 8596),

Gene: Xenia2_16 Start: 13334, Stop: 13714, Start Num: 11

Candidate Starts for Xenia2_16:

(Start: 11 @13334 has 35 MA's), (Start: 14 @13349 has 1 MA's), (26, 13424), (35, 13466), (45, 13526), (49, 13559),

Gene: Yikes_20 Start: 14679, Stop: 15056, Start Num: 11

Candidate Starts for Yikes_20:

(Start: 11 @14679 has 35 MA's), (Start: 14 @14694 has 1 MA's), (26, 14769), (29, 14778), (47, 14883), (49, 14901), (51, 14907), (55, 14931), (56, 14952), (59, 14973),

Gene: Zany_18 Start: 13808, Stop: 14185, Start Num: 11

Candidate Starts for Zany_18:

(Start: 11 @13808 has 35 MA's), (Start: 14 @13823 has 1 MA's), (26, 13898), (29, 13907), (47, 14012), (49, 14030), (55, 14060), (59, 14102),