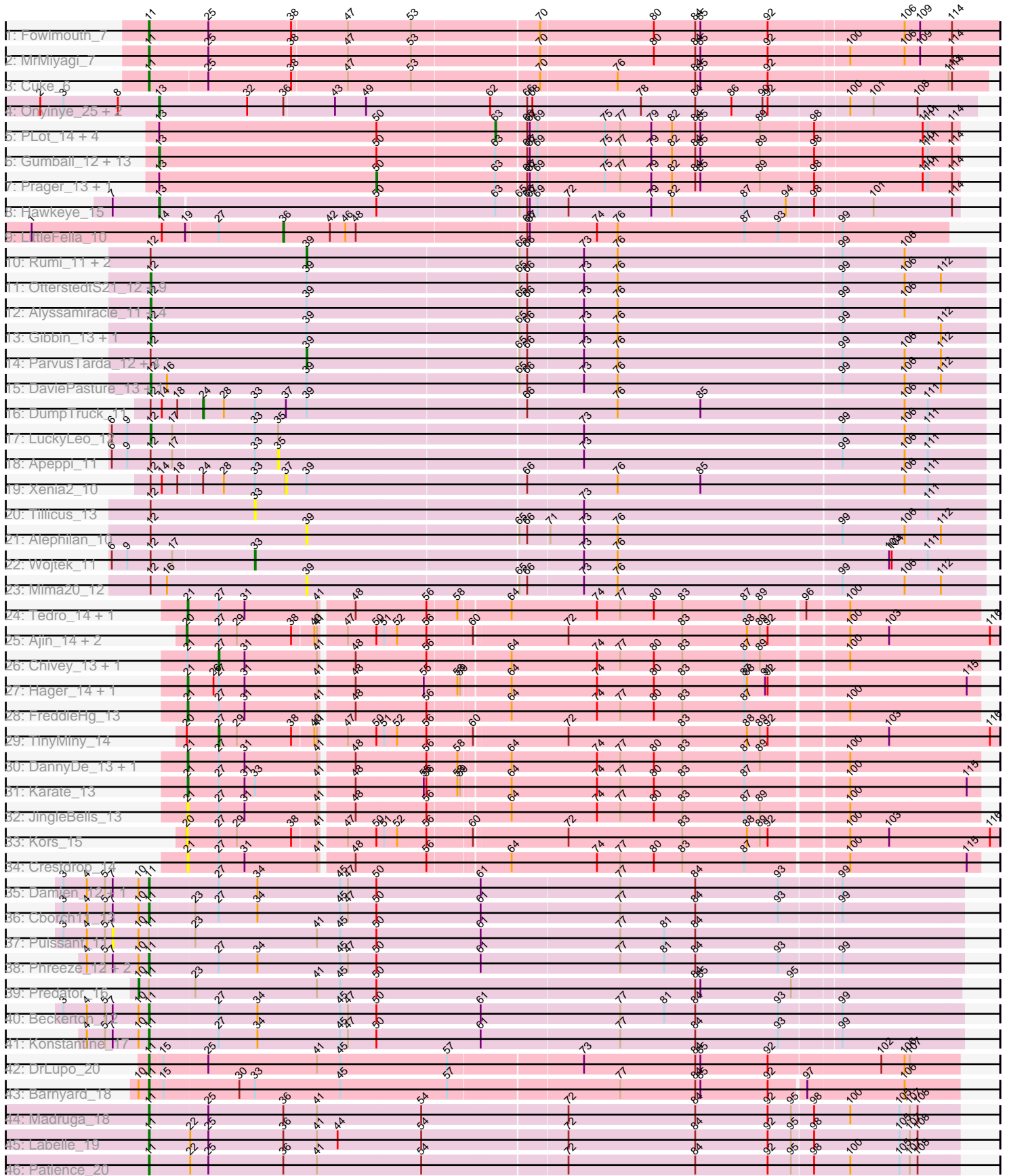


Pham 171360



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 171360 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171360 has 96 members, 17 are drafts.

Phages represented in each track:

- Track 1 : Fowlmouth_7
- Track 2 : MrMiyagi_7
- Track 3 : Cuke_6
- Track 4 : Onyinye_25, Leopard_24, Aikoy_24
- Track 5 : PLOT_14, Helpful_14, Chill_14, Adjutor_14, WaldoWhy_14
- Track 6 : Gumball_12, KandZ_13, SirHarley_12, Delton_13, Thoth_13, Nova_13, BigMama_11, Penelope2018_13, Troll4_13, Visconti_13, Giuseppe_13, Erk16_13, Mopey_13, Butterscotch_13
- Track 7 : Prager_13, PBI1_14
- Track 8 : Hawkeye_15
- Track 9 : LittleFella_10
- Track 10 : Rumi_11, Avian_11, Jamemuya19_10
- Track 11 : OtterstedtS21_12, Fulcrum_13, Ranch_12, Lila22_14, Sampudon_13, Patos_13, Sadboi_12, Yikes_13, NorManre_13, GOATification_13
- Track 12 : Alyssamiracle_11, Genamy16_11, Lambo_12, NovaSharks_11, Erutan_12
- Track 13 : Gibbin_13, BirthdayBoy_13
- Track 14 : ParvusTarda_12, DoobyDoo_11, GretelLyn_12, MoiGyank_13, Jalebi_13
- Track 15 : DaviePasture_13, Zany_12
- Track 16 : DumpTruck_11
- Track 17 : LuckyLeo_12
- Track 18 : Apeppi_11
- Track 19 : Xenia2_10
- Track 20 : Tillicus_13
- Track 21 : Alephilan_10
- Track 22 : Wojtek_11
- Track 23 : Mima20_12
- Track 24 : Tedro_14, Haunter_14
- Track 25 : Ajin_14, RikSengupta_14, Sparcetus_14
- Track 26 : Chivey_13, Hiddenleaf_13
- Track 27 : Hager_14, Rie18_14
- Track 28 : FreddieHg_13
- Track 29 : TinyMiny_14
- Track 30 : DannyDe_13, Snakehole_15
- Track 31 : Karate_13
- Track 32 : JingleBells_13
- Track 33 : Kors_15

- Track 34 : Crestdrop_14
- Track 35 : Damien_12, Megatron06_14
- Track 36 : Cborch11_13
- Track 37 : Puissant_11
- Track 38 : Phreeze_12, Thumb_12, Oaker_12
- Track 39 : Predator_16
- Track 40 : Beckerton_12
- Track 41 : Konstantine_17
- Track 42 : DrLupo_20
- Track 43 : Barnyard_18
- Track 44 : Madruga_18
- Track 45 : Labelle_19
- Track 46 : Patience_20

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

The start number called the most often in the published annotations is 12, it was called in 18 of the 79 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alyssmiracle_11, BirthdayBoy_13, DaviePasture_13, Erutan_12, Fulcrum_13, GOATification_13, Genamy16_11, Gibbin_13, Lambo_12, Lila22_14, LuckyLeo_12, NorManre_13, NovaSharks_11, OtterstedtS21_12, Patos_13, Ranch_12, Sadboi_12, Sampudon_13, Yikes_13, Zany_12,

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

- Alephilan_10, Apeppi_11, Avian_11, DoobyDoo_11, DumpTruck_11, GretelLyn_12, Jalebi_13, Jamemuya19_10, Mima20_12, MoiGyank_13, ParvusTarda_12, Rumi_11, Tillicus_13, Wojtek_11, Xenia2_10,

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

- Adjutor_14, Aikoy_24, Ajin_14, Barnyard_18, Beckerton_12, BigMama_11, Butterscotch_13, Cborch11_13, Chill_14, Chivey_13, Crestdrop_14, Cuke_6, Damien_12, DannyDe_13, Delton_13, DrLupo_20, Erk16_13, Fowlmouth_7, FreddieHg_13, Giuseppe_13, Gumball_12, Hager_14, Haunter_14, Hawkeye_15, Helpful_14, Hiddenleaf_13, JingleBells_13, KandZ_13, Karate_13, Konstantine_17, Kors_15, Labelle_19, Leopard_24, LittleFella_10, Madruga_18, Megatron06_14, Mopey_13, MrMiyagi_7, Nova_13, Oaker_12, Onyinye_25, PBI1_14, PLOT_14, Patience_20, Penelope2018_13, Phreeze_12, Prager_13, Predator_16, Puissant_11, Rie18_14, RikSengupta_14, SirHarley_12, Snakehole_15, Sparcetus_14, Tedro_14, Thoth_13, Thumb_12, TinyMiny_14, Troll4_13, Visconti_13, WaldoWhy_14,

Summary by start number:

Start 7:

- Found in 10 of 96 (10.4%) of genes in pham
- No Manual Annotations of this start.
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Puissant_11 (H1),

Start 10:

- Found in 11 of 96 (11.5%) of genes in pham
- Manual Annotations of this start: 1 of 79
- Called 9.1% of time when present
- Phage (with cluster) where this start called: Predator_16 (H1),

Start 11:

- Found in 18 of 96 (18.8%) of genes in pham
- Manual Annotations of this start: 16 of 79
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Barnyard_18 (H2), Beckerton_12 (H1), Cborch11_13 (H1), Cuke_6 (AC), Damien_12 (H1), DrLupo_20 (H2), Fowlmouth_7 (AC), Konstantine_17 (H1), Labelle_19 (U), Madrugua_18 (U), Megatron06_14 (H1), MrMiyagi_7 (AC), Oaker_12 (H1), Patience_20 (U), Phreeze_12 (H1), Thumb_12 (H1),

Start 12:

- Found in 35 of 96 (36.5%) of genes in pham
- Manual Annotations of this start: 18 of 79
- Called 57.1% of time when present
- Phage (with cluster) where this start called: Alyssamiracle_11 (DV), BirthdayBoy_13 (DV), DaviePasture_13 (DV), Erutan_12 (DV), Fulcrum_13 (DV), GOATification_13 (DV), Genamy16_11 (DV), Gibbin_13 (DV), Lambo_12 (DV), Lila22_14 (DV), LuckyLeo_12 (DV), NorManre_13 (DV), NovaSharks_11 (DV), OtterstedtS21_12 (DV), Patos_13 (DV), Ranch_12 (DV), Sadboi_12 (DV), Sampudon_13 (DV), Yikes_13 (DV), Zany_12 (DV),

Start 13:

- Found in 25 of 96 (26.0%) of genes in pham
- Manual Annotations of this start: 18 of 79
- Called 72.0% of time when present
- Phage (with cluster) where this start called: Aikoy_24 (AE), BigMama_11 (D1), Butterscotch_13 (D1), Delton_13 (D1), Erk16_13 (D1), Giuseppe_13 (D1), Gumball_12 (D1), Hawkeye_15 (D2), KandZ_13 (D1), Leopard_24 (AE), Mopey_13 (D1), Nova_13 (D1), Onyinye_25 (AE), Penelope2018_13 (D1), SirHarley_12 (D1), Thoth_13 (D1), Troll4_13 (D1), Visconti_13 (D1),

Start 20:

- Found in 5 of 96 (5.2%) of genes in pham
- Manual Annotations of this start: 3 of 79
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Ajin_14 (EF), Kors_15 (EF), RikSengupta_14 (EF), Sparcetus_14 (EF),

Start 21:

- Found in 12 of 96 (12.5%) of genes in pham
- Manual Annotations of this start: 7 of 79
- Called 83.3% of time when present
- Phage (with cluster) where this start called: Crestdrop_14 (EF), DannyDe_13 (EF), FreddieHg_13 (EF), Hager_14 (EF), Haunter_14 (EF), JingleBells_13 (EF), Karate_13 (EF), Rie18_14 (EF), Snakehole_15 (EF), Tedro_14 (EF),

Start 24:

- Found in 2 of 96 (2.1%) of genes in pham
- Manual Annotations of this start: 1 of 79
- Called 50.0% of time when present
- Phage (with cluster) where this start called: DumpTruck_11 (DV),

Start 27:

- Found in 26 of 96 (27.1%) of genes in pham
- Manual Annotations of this start: 3 of 79
- Called 11.5% of time when present
- Phage (with cluster) where this start called: Chivey_13 (EF), Hiddenleaf_13 (EF), TinyMiny_14 (EF),

Start 33:

- Found in 8 of 96 (8.3%) of genes in pham
- Manual Annotations of this start: 1 of 79
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Tillicus_13 (DV), Wojtek_11 (DV),

Start 35:

- Found in 2 of 96 (2.1%) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Apeppi_11 (DV),

Start 36:

- Found in 7 of 96 (7.3%) of genes in pham
- Manual Annotations of this start: 1 of 79
- Called 14.3% of time when present
- Phage (with cluster) where this start called: LittleFella_10 (DG2),

Start 37:

- Found in 2 of 96 (2.1%) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Xenia2_10 (DV),

Start 39:

- Found in 31 of 96 (32.3%) of genes in pham
- Manual Annotations of this start: 4 of 79
- Called 32.3% of time when present
- Phage (with cluster) where this start called: Alephilan_10 (DV), Avian_11 (DV), DoobyDoo_11 (DV), GretelLyn_12 (DV), Jalebi_13 (DV), Jamemuya19_10 (DV), Mima20_12 (DV), MoiGyank_13 (DV), ParvusTarda_12 (DV), Rumi_11 (DV),

Start 50:

- Found in 37 of 96 (38.5%) of genes in pham
- Manual Annotations of this start: 1 of 79
- Called 5.4% of time when present
- Phage (with cluster) where this start called: PB11_14 (D1), Prager_13 (D1),

Start 63:

- Found in 22 of 96 (22.9%) of genes in pham
- Manual Annotations of this start: 5 of 79

- Called 22.7% of time when present
- Phage (with cluster) where this start called: Adjutor_14 (D1), Chill_14 (D1), Helpful_14 (D1), PLOT_14 (D1), WaldoWhy_14 (D1),

Summary by clusters:

There are 10 clusters represented in this pham: AC, H1, AE, H2, EF, DG2, U, DV, D2, D1,

Info for manual annotations of cluster AC:

- Start number 11 was manually annotated 3 times for cluster AC.

Info for manual annotations of cluster AE:

- Start number 13 was manually annotated 3 times for cluster AE.

Info for manual annotations of cluster D1:

- Start number 13 was manually annotated 14 times for cluster D1.
- Start number 50 was manually annotated 1 time for cluster D1.
- Start number 63 was manually annotated 5 times for cluster D1.

Info for manual annotations of cluster D2:

- Start number 13 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DG2:

- Start number 36 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:

- Start number 12 was manually annotated 18 times for cluster DV.
- Start number 24 was manually annotated 1 time for cluster DV.
- Start number 33 was manually annotated 1 time for cluster DV.
- Start number 39 was manually annotated 4 times for cluster DV.

Info for manual annotations of cluster EF:

- Start number 20 was manually annotated 3 times for cluster EF.
- Start number 21 was manually annotated 7 times for cluster EF.
- Start number 27 was manually annotated 3 times for cluster EF.

Info for manual annotations of cluster H1:

- Start number 10 was manually annotated 1 time for cluster H1.
- Start number 11 was manually annotated 8 times for cluster H1.

Info for manual annotations of cluster H2:

- Start number 11 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_14 Start: 9115, Stop: 9636, Start Num: 63

Candidate Starts for Adjutor_14:

(Start: 13 @8731 has 18 MA's), (Start: 50 @8983 has 1 MA's), (Start: 63 @9115 has 5 MA's), (66, 9148), (67, 9151), (69, 9160), (75, 9235), (77, 9253), (79, 9289), (82, 9313), (84, 9340), (85, 9346), (89, 9415), (98, 9475), (110, 9595), (111, 9601), (114, 9628),

Gene: Aikoy_24 Start: 14575, Stop: 15495, Start Num: 13

Candidate Starts for Aikoy_24:

(2, 14437), (3, 14464), (8, 14527), (Start: 13 @14575 has 18 MA's), (32, 14674), (Start: 36 @14716 has 1 MA's), (43, 14773), (49, 14809), (62, 14947), (66, 14986), (68, 14992), (78, 15115), (84, 15178), (86, 15220), (90, 15256), (92, 15262), (100, 15349), (101, 15376), (108, 15427),

Gene: Ajin_14 Start: 6294, Stop: 7199, Start Num: 20

Candidate Starts for Ajin_14:

(Start: 20 @6294 has 3 MA's), (Start: 27 @6330 has 3 MA's), (29, 6351), (38, 6414), (40, 6438), (41, 6441), (47, 6468), (Start: 50 @6501 has 1 MA's), (51, 6510), (52, 6525), (56, 6558), (60, 6606), (72, 6711), (83, 6843), (88, 6918), (89, 6933), (92, 6942), (100, 7026), (103, 7071), (116, 7188),

Gene: Alephilan_10 Start: 9149, Stop: 9916, Start Num: 39

Candidate Starts for Alephilan_10:

(Start: 12 @8969 has 18 MA's), (Start: 39 @9149 has 4 MA's), (65, 9386), (66, 9395), (71, 9419), (73, 9458), (76, 9497), (99, 9752), (106, 9824), (112, 9866),

Gene: Alyssamiracle_11 Start: 7442, Stop: 8389, Start Num: 12

Candidate Starts for Alyssamiracle_11:

(Start: 12 @7442 has 18 MA's), (Start: 39 @7622 has 4 MA's), (65, 7859), (66, 7868), (73, 7931), (76, 7970), (99, 8225), (106, 8297),

Gene: Apeppi_11 Start: 9296, Stop: 10096, Start Num: 35

Candidate Starts for Apeppi_11:

(6, 9107), (9, 9125), (Start: 12 @9152 has 18 MA's), (17, 9176), (Start: 33 @9269 has 1 MA's), (35, 9296), (73, 9638), (99, 9932), (106, 10004), (111, 10031),

Gene: Avian_11 Start: 7622, Stop: 8389, Start Num: 39

Candidate Starts for Avian_11:

(Start: 12 @7442 has 18 MA's), (Start: 39 @7622 has 4 MA's), (65, 7859), (66, 7868), (73, 7931), (76, 7970), (99, 8225), (106, 8297),

Gene: Barnyard_18 Start: 9413, Stop: 10318, Start Num: 11

Candidate Starts for Barnyard_18:

(Start: 10 @9401 has 1 MA's), (Start: 11 @9413 has 16 MA's), (15, 9425), (30, 9509), (Start: 33 @9527 has 1 MA's), (45, 9626), (57, 9749), (77, 9938), (84, 10025), (85, 10031), (92, 10109), (97, 10148), (106, 10259),

Gene: Beckerton_12 Start: 8502, Stop: 9422, Start Num: 11

Candidate Starts for Beckerton_12:

(3, 8403), (4, 8430), (5, 8451), (7, 8460), (Start: 10 @8490 has 1 MA's), (Start: 11 @8502 has 16 MA's), (Start: 27 @8574 has 3 MA's), (34, 8619), (45, 8715), (47, 8724), (Start: 50 @8757 has 1 MA's), (61, 8877), (77, 9036), (81, 9087), (84, 9123), (93, 9219), (99, 9285),

Gene: BigMama_11 Start: 8804, Stop: 9709, Start Num: 13

Candidate Starts for BigMama_11:

(Start: 13 @8804 has 18 MA's), (Start: 50 @9056 has 1 MA's), (Start: 63 @9188 has 5 MA's), (66, 9221), (67, 9224), (69, 9233), (75, 9308), (77, 9326), (79, 9362), (82, 9386), (84, 9413), (85, 9419), (89, 9488), (98, 9548), (110, 9668), (111, 9674), (114, 9701),

Gene: BirthdayBoy_13 Start: 9888, Stop: 10835, Start Num: 12

Candidate Starts for BirthdayBoy_13:

(Start: 12 @9888 has 18 MA's), (Start: 39 @10068 has 4 MA's), (65, 10305), (66, 10314), (73, 10377), (76, 10416), (99, 10671), (112, 10785),

Gene: Butterscotch_13 Start: 8791, Stop: 9696, Start Num: 13

Candidate Starts for Butterscotch_13:

(Start: 13 @8791 has 18 MA's), (Start: 50 @9043 has 1 MA's), (Start: 63 @9175 has 5 MA's), (66, 9208), (67, 9211), (69, 9220), (75, 9295), (77, 9313), (79, 9349), (82, 9373), (84, 9400), (85, 9406), (89, 9475), (98, 9535), (110, 9655), (111, 9661), (114, 9688),

Gene: Cborch11_13 Start: 7967, Stop: 8887, Start Num: 11

Candidate Starts for Cborch11_13:

(3, 7868), (4, 7895), (5, 7916), (7, 7925), (Start: 10 @7955 has 1 MA's), (Start: 11 @7967 has 16 MA's), (23, 8012), (Start: 27 @8039 has 3 MA's), (34, 8084), (45, 8180), (47, 8189), (Start: 50 @8222 has 1 MA's), (61, 8342), (77, 8501), (84, 8588), (93, 8684), (99, 8750),

Gene: Chill_14 Start: 9178, Stop: 9699, Start Num: 63

Candidate Starts for Chill_14:

(Start: 13 @8794 has 18 MA's), (Start: 50 @9046 has 1 MA's), (Start: 63 @9178 has 5 MA's), (66, 9211), (67, 9214), (69, 9223), (75, 9298), (77, 9316), (79, 9352), (82, 9376), (84, 9403), (85, 9409), (89, 9478), (98, 9538), (110, 9658), (111, 9664), (114, 9691),

Gene: Chivey_13 Start: 6218, Stop: 7066, Start Num: 27

Candidate Starts for Chivey_13:

(Start: 21 @6182 has 7 MA's), (Start: 27 @6218 has 3 MA's), (31, 6248), (41, 6332), (48, 6368), (56, 6449), (64, 6536), (74, 6635), (77, 6662), (80, 6701), (83, 6734), (87, 6806), (89, 6824), (100, 6917),

Gene: Crestdrop_14 Start: 6055, Stop: 6939, Start Num: 21

Candidate Starts for Crestdrop_14:

(Start: 21 @6055 has 7 MA's), (Start: 27 @6091 has 3 MA's), (31, 6121), (41, 6205), (48, 6241), (56, 6322), (64, 6409), (74, 6508), (77, 6535), (80, 6574), (83, 6607), (87, 6679), (100, 6790), (115, 6925),

Gene: Cuke_6 Start: 4018, Stop: 4962, Start Num: 11

Candidate Starts for Cuke_6:

(Start: 11 @4018 has 16 MA's), (25, 4081), (38, 4177), (47, 4240), (53, 4312), (70, 4453), (76, 4540), (84, 4630), (85, 4636), (92, 4714), (113, 4918), (114, 4921),

Gene: Damien_12 Start: 7967, Stop: 8887, Start Num: 11

Candidate Starts for Damien_12:

(3, 7868), (4, 7895), (5, 7916), (7, 7925), (Start: 10 @7955 has 1 MA's), (Start: 11 @7967 has 16 MA's), (Start: 27 @8039 has 3 MA's), (34, 8084), (45, 8180), (47, 8189), (Start: 50 @8222 has 1 MA's), (61, 8342), (77, 8501), (84, 8588), (93, 8684), (99, 8750),

Gene: DannyDe_13 Start: 6173, Stop: 7057, Start Num: 21

Candidate Starts for DannyDe_13:

(Start: 21 @6173 has 7 MA's), (Start: 27 @6209 has 3 MA's), (31, 6239), (41, 6323), (48, 6359), (56, 6440), (58, 6473), (64, 6527), (74, 6626), (77, 6653), (80, 6692), (83, 6725), (87, 6797), (89, 6815), (100, 6908),

Gene: DaviePasture_13 Start: 9645, Stop: 10592, Start Num: 12

Candidate Starts for DaviePasture_13:

(Start: 12 @9645 has 18 MA's), (16, 9663), (Start: 39 @9825 has 4 MA's), (65, 10062), (66, 10071), (73, 10134), (76, 10173), (99, 10428), (106, 10500), (112, 10542),

Gene: Delton_13 Start: 8800, Stop: 9705, Start Num: 13

Candidate Starts for Delton_13:

(Start: 13 @8800 has 18 MA's), (Start: 50 @9052 has 1 MA's), (Start: 63 @9184 has 5 MA's), (66, 9217), (67, 9220), (69, 9229), (75, 9304), (77, 9322), (79, 9358), (82, 9382), (84, 9409), (85, 9415), (89, 9484), (98, 9544), (110, 9664), (111, 9670), (114, 9697),

Gene: DoobyDoo_11 Start: 9002, Stop: 9769, Start Num: 39

Candidate Starts for DoobyDoo_11:

(Start: 12 @8822 has 18 MA's), (Start: 39 @9002 has 4 MA's), (65, 9239), (66, 9248), (73, 9311), (76, 9350), (99, 9605), (106, 9677), (112, 9719),

Gene: DrLupo_20 Start: 9845, Stop: 10753, Start Num: 11

Candidate Starts for DrLupo_20:

(Start: 11 @9845 has 16 MA's), (15, 9857), (25, 9905), (41, 10031), (45, 10058), (57, 10181), (73, 10328), (84, 10457), (85, 10463), (92, 10541), (102, 10667), (106, 10694), (107, 10700),

Gene: DumpTruck_11 Start: 9142, Stop: 10029, Start Num: 24

Candidate Starts for DumpTruck_11:

(Start: 12 @9085 has 18 MA's), (14, 9097), (18, 9115), (Start: 24 @9142 has 1 MA's), (28, 9166), (Start: 33 @9202 has 1 MA's), (37, 9238), (Start: 39 @9262 has 4 MA's), (66, 9508), (76, 9610), (85, 9706), (106, 9937), (111, 9964),

Gene: Erk16_13 Start: 8794, Stop: 9699, Start Num: 13

Candidate Starts for Erk16_13:

(Start: 13 @8794 has 18 MA's), (Start: 50 @9046 has 1 MA's), (Start: 63 @9178 has 5 MA's), (66, 9211), (67, 9214), (69, 9223), (75, 9298), (77, 9316), (79, 9352), (82, 9376), (84, 9403), (85, 9409), (89, 9478), (98, 9538), (110, 9658), (111, 9664), (114, 9691),

Gene: Erutan_12 Start: 9335, Stop: 10282, Start Num: 12

Candidate Starts for Erutan_12:

(Start: 12 @9335 has 18 MA's), (Start: 39 @9515 has 4 MA's), (65, 9752), (66, 9761), (73, 9824), (76, 9863), (99, 10118), (106, 10190),

Gene: Fowlmouth_7 Start: 4184, Stop: 5143, Start Num: 11

Candidate Starts for Fowlmouth_7:

(Start: 11 @4184 has 16 MA's), (25, 4250), (38, 4346), (47, 4409), (53, 4481), (70, 4622), (80, 4751), (84, 4799), (85, 4805), (92, 4883), (106, 5036), (109, 5054), (114, 5090),

Gene: FreddieHg_13 Start: 6195, Stop: 7079, Start Num: 21

Candidate Starts for FreddieHg_13:

(Start: 21 @6195 has 7 MA's), (Start: 27 @6231 has 3 MA's), (31, 6261), (41, 6345), (48, 6381), (56, 6462), (64, 6549), (74, 6648), (77, 6675), (80, 6714), (83, 6747), (87, 6819), (100, 6930),

Gene: Fulcrum_13 Start: 9868, Stop: 10815, Start Num: 12

Candidate Starts for Fulcrum_13:

(Start: 12 @9868 has 18 MA's), (Start: 39 @10048 has 4 MA's), (65, 10285), (66, 10294), (73, 10357), (76, 10396), (99, 10651), (106, 10723), (112, 10765),

Gene: GOATification_13 Start: 9868, Stop: 10815, Start Num: 12

Candidate Starts for GOATification_13:

(Start: 12 @9868 has 18 MA's), (Start: 39 @10048 has 4 MA's), (65, 10285), (66, 10294), (73, 10357), (76, 10396), (99, 10651), (106, 10723), (112, 10765),

Gene: Genamy16_11 Start: 7442, Stop: 8389, Start Num: 12

Candidate Starts for Genamy16_11:

(Start: 12 @7442 has 18 MA's), (Start: 39 @7622 has 4 MA's), (65, 7859), (66, 7868), (73, 7931), (76, 7970), (99, 8225), (106, 8297),

Gene: Gibbin_13 Start: 9928, Stop: 10875, Start Num: 12

Candidate Starts for Gibbin_13:

(Start: 12 @9928 has 18 MA's), (Start: 39 @10108 has 4 MA's), (65, 10345), (66, 10354), (73, 10417), (76, 10456), (99, 10711), (112, 10825),

Gene: Giuseppe_13 Start: 8783, Stop: 9688, Start Num: 13

Candidate Starts for Giuseppe_13:

(Start: 13 @8783 has 18 MA's), (Start: 50 @9035 has 1 MA's), (Start: 63 @9167 has 5 MA's), (66, 9200), (67, 9203), (69, 9212), (75, 9287), (77, 9305), (79, 9341), (82, 9365), (84, 9392), (85, 9398), (89, 9467), (98, 9527), (110, 9647), (111, 9653), (114, 9680),

Gene: Gretellyn_12 Start: 10382, Stop: 11149, Start Num: 39

Candidate Starts for Gretellyn_12:

(Start: 12 @10202 has 18 MA's), (Start: 39 @10382 has 4 MA's), (65, 10619), (66, 10628), (73, 10691), (76, 10730), (99, 10985), (106, 11057), (112, 11099),

Gene: Gumball_12 Start: 8738, Stop: 9643, Start Num: 13

Candidate Starts for Gumball_12:

(Start: 13 @8738 has 18 MA's), (Start: 50 @8990 has 1 MA's), (Start: 63 @9122 has 5 MA's), (66, 9155), (67, 9158), (69, 9167), (75, 9242), (77, 9260), (79, 9296), (82, 9320), (84, 9347), (85, 9353), (89, 9422), (98, 9482), (110, 9602), (111, 9608), (114, 9635),

Gene: Hager_14 Start: 6443, Stop: 7327, Start Num: 21

Candidate Starts for Hager_14:

(Start: 21 @6443 has 7 MA's), (26, 6473), (Start: 27 @6479 has 3 MA's), (31, 6509), (41, 6593), (48, 6629), (55, 6707), (58, 6743), (59, 6746), (64, 6797), (74, 6896), (80, 6962), (83, 6995), (87, 7067), (88, 7070), (91, 7091), (92, 7094), (115, 7313),

Gene: Haunter_14 Start: 6398, Stop: 7282, Start Num: 21

Candidate Starts for Haunter_14:

(Start: 21 @6398 has 7 MA's), (Start: 27 @6434 has 3 MA's), (31, 6464), (41, 6548), (48, 6584), (56, 6665), (58, 6698), (64, 6752), (74, 6851), (77, 6878), (80, 6917), (83, 6950), (87, 7022), (89, 7040), (96, 7088), (100, 7133),

Gene: Hawkeye_15 Start: 8736, Stop: 9635, Start Num: 13

Candidate Starts for Hawkeye_15:

(7, 8682), (Start: 13 @8736 has 18 MA's), (Start: 50 @8982 has 1 MA's), (Start: 63 @9114 has 5 MA's), (65, 9138), (66, 9147), (67, 9150), (69, 9159), (72, 9192), (79, 9288), (82, 9312), (87, 9396), (94, 9444), (98, 9474), (101, 9537), (114, 9627),

Gene: Helpful_14 Start: 9175, Stop: 9696, Start Num: 63

Candidate Starts for Helpful_14:

(Start: 13 @8791 has 18 MA's), (Start: 50 @9043 has 1 MA's), (Start: 63 @9175 has 5 MA's), (66, 9208), (67, 9211), (69, 9220), (75, 9295), (77, 9313), (79, 9349), (82, 9373), (84, 9400), (85, 9406), (89, 9475), (98, 9535), (110, 9655), (111, 9661), (114, 9688),

Gene: Hiddenleaf_13 Start: 6218, Stop: 7066, Start Num: 27

Candidate Starts for Hiddenleaf_13:

(Start: 21 @6182 has 7 MA's), (Start: 27 @6218 has 3 MA's), (31, 6248), (41, 6332), (48, 6368), (56, 6449), (64, 6536), (74, 6635), (77, 6662), (80, 6701), (83, 6734), (87, 6806), (89, 6824), (100, 6917),

Gene: Jalebi_13 Start: 10558, Stop: 11325, Start Num: 39

Candidate Starts for Jalebi_13:

(Start: 12 @10378 has 18 MA's), (Start: 39 @10558 has 4 MA's), (65, 10795), (66, 10804), (73, 10867), (76, 10906), (99, 11161), (106, 11233), (112, 11275),

Gene: Jamemuya19_10 Start: 7622, Stop: 8389, Start Num: 39

Candidate Starts for Jamemuya19_10:

(Start: 12 @7442 has 18 MA's), (Start: 39 @7622 has 4 MA's), (65, 7859), (66, 7868), (73, 7931), (76, 7970), (99, 8225), (106, 8297),

Gene: JingleBells_13 Start: 6251, Stop: 7135, Start Num: 21

Candidate Starts for JingleBells_13:

(Start: 21 @6251 has 7 MA's), (Start: 27 @6287 has 3 MA's), (31, 6317), (41, 6401), (48, 6437), (56, 6518), (64, 6605), (74, 6704), (77, 6731), (80, 6770), (83, 6803), (87, 6875), (89, 6893), (100, 6986),

Gene: KandZ_13 Start: 8888, Stop: 9793, Start Num: 13

Candidate Starts for KandZ_13:

(Start: 13 @8888 has 18 MA's), (Start: 50 @9140 has 1 MA's), (Start: 63 @9272 has 5 MA's), (66, 9305), (67, 9308), (69, 9317), (75, 9392), (77, 9410), (79, 9446), (82, 9470), (84, 9497), (85, 9503), (89, 9572), (98, 9632), (110, 9752), (111, 9758), (114, 9785),

Gene: Karate_13 Start: 6403, Stop: 7287, Start Num: 21

Candidate Starts for Karate_13:

(Start: 21 @6403 has 7 MA's), (Start: 27 @6439 has 3 MA's), (31, 6469), (Start: 33 @6481 has 1 MA's), (41, 6553), (48, 6589), (55, 6667), (56, 6670), (58, 6703), (59, 6706), (64, 6757), (74, 6856), (77, 6883), (80, 6922), (83, 6955), (87, 7027), (100, 7138), (115, 7273),

Gene: Konstantine_17 Start: 9166, Stop: 10086, Start Num: 11

Candidate Starts for Konstantine_17:

(4, 9094), (5, 9115), (7, 9124), (Start: 10 @9154 has 1 MA's), (Start: 11 @9166 has 16 MA's), (Start: 27 @9238 has 3 MA's), (34, 9283), (45, 9379), (47, 9388), (Start: 50 @9421 has 1 MA's), (61, 9541), (77, 9700), (84, 9787), (93, 9883), (99, 9949),

Gene: Kors_15 Start: 6327, Stop: 7232, Start Num: 20

Candidate Starts for Kors_15:

(Start: 20 @6327 has 3 MA's), (Start: 27 @6363 has 3 MA's), (29, 6384), (38, 6447), (41, 6474), (47, 6501), (Start: 50 @6534 has 1 MA's), (51, 6543), (52, 6558), (56, 6591), (60, 6639), (72, 6744), (83, 6876), (88, 6951), (89, 6966), (92, 6975), (100, 7059), (103, 7104), (116, 7221),

Gene: Labelle_19 Start: 10953, Stop: 11867, Start Num: 11

Candidate Starts for Labelle_19:

(Start: 11 @10953 has 16 MA's), (22, 10992), (25, 11013), (Start: 36 @11100 has 1 MA's), (41, 11139), (44, 11163), (54, 11259), (72, 11421), (84, 11568), (92, 11652), (95, 11679), (98, 11703), (105, 11802), (107, 11814), (108, 11823),

Gene: Lambo_12 Start: 9872, Stop: 10819, Start Num: 12

Candidate Starts for Lambo_12:

(Start: 12 @9872 has 18 MA's), (Start: 39 @10052 has 4 MA's), (65, 10289), (66, 10298), (73, 10361), (76, 10400), (99, 10655), (106, 10727),

Gene: Leopard_24 Start: 14860, Stop: 15780, Start Num: 13

Candidate Starts for Leopard_24:

(2, 14722), (3, 14749), (8, 14812), (Start: 13 @14860 has 18 MA's), (32, 14959), (Start: 36 @15001 has 1 MA's), (43, 15058), (49, 15094), (62, 15232), (66, 15271), (68, 15277), (78, 15400), (84, 15463), (86, 15505), (90, 15541), (92, 15547), (100, 15634), (101, 15661), (108, 15712),

Gene: Lila22_14 Start: 9823, Stop: 10770, Start Num: 12

Candidate Starts for Lila22_14:

(Start: 12 @9823 has 18 MA's), (Start: 39 @10003 has 4 MA's), (65, 10240), (66, 10249), (73, 10312), (76, 10351), (99, 10606), (106, 10678), (112, 10720),

Gene: LittleFella_10 Start: 7738, Stop: 8487, Start Num: 36

Candidate Starts for LittleFella_10:

(1, 7450), (14, 7600), (19, 7627), (Start: 27 @7663 has 3 MA's), (Start: 36 @7738 has 1 MA's), (42, 7792), (46, 7810), (48, 7822), (66, 8011), (67, 8014), (74, 8089), (76, 8113), (87, 8260), (93, 8299), (99, 8365),

Gene: LuckyLeo_12 Start: 9152, Stop: 10096, Start Num: 12

Candidate Starts for LuckyLeo_12:

(6, 9107), (9, 9125), (Start: 12 @9152 has 18 MA's), (17, 9176), (Start: 33 @9269 has 1 MA's), (35, 9296), (73, 9638), (99, 9932), (106, 10004), (111, 10031),

Gene: Madruga_18 Start: 10621, Stop: 11535, Start Num: 11

Candidate Starts for Madruga_18:

(Start: 11 @10621 has 16 MA's), (25, 10681), (Start: 36 @10768 has 1 MA's), (41, 10807), (54, 10927), (72, 11089), (84, 11236), (92, 11320), (95, 11347), (98, 11371), (100, 11413), (105, 11470), (107, 11482), (108, 11491),

Gene: Megatron06_14 Start: 8502, Stop: 9422, Start Num: 11

Candidate Starts for Megatron06_14:

(3, 8403), (4, 8430), (5, 8451), (7, 8460), (Start: 10 @8490 has 1 MA's), (Start: 11 @8502 has 16 MA's), (Start: 27 @8574 has 3 MA's), (34, 8619), (45, 8715), (47, 8724), (Start: 50 @8757 has 1 MA's), (61, 8877), (77, 9036), (84, 9123), (93, 9219), (99, 9285),

Gene: Mima20_12 Start: 9732, Stop: 10499, Start Num: 39

Candidate Starts for Mima20_12:

(Start: 12 @9552 has 18 MA's), (16, 9570), (Start: 39 @9732 has 4 MA's), (65, 9969), (66, 9978), (73, 10041), (76, 10080), (99, 10335), (106, 10407), (112, 10449),

Gene: MoiGyank_13 Start: 10419, Stop: 11186, Start Num: 39

Candidate Starts for MoiGyank_13:

(Start: 12 @10239 has 18 MA's), (Start: 39 @10419 has 4 MA's), (65, 10656), (66, 10665), (73, 10728), (76, 10767), (99, 11022), (106, 11094), (112, 11136),

Gene: Mopey_13 Start: 8791, Stop: 9696, Start Num: 13

Candidate Starts for Mopey_13:

(Start: 13 @8791 has 18 MA's), (Start: 50 @9043 has 1 MA's), (Start: 63 @9175 has 5 MA's), (66, 9208), (67, 9211), (69, 9220), (75, 9295), (77, 9313), (79, 9349), (82, 9373), (84, 9400), (85, 9406), (89, 9475), (98, 9535), (110, 9655), (111, 9661), (114, 9688),

Gene: MrMiyagi_7 Start: 4184, Stop: 5143, Start Num: 11

Candidate Starts for MrMiyagi_7:

(Start: 11 @4184 has 16 MA's), (25, 4250), (38, 4346), (47, 4409), (53, 4481), (70, 4622), (80, 4751), (84, 4799), (85, 4805), (92, 4883), (100, 4973), (106, 5036), (109, 5054), (114, 5090),

Gene: NorManre_13 Start: 9434, Stop: 10381, Start Num: 12

Candidate Starts for NorManre_13:

(Start: 12 @9434 has 18 MA's), (Start: 39 @9614 has 4 MA's), (65, 9851), (66, 9860), (73, 9923), (76, 9962), (99, 10217), (106, 10289), (112, 10331),

Gene: Nova_13 Start: 9215, Stop: 10120, Start Num: 13

Candidate Starts for Nova_13:

(Start: 13 @9215 has 18 MA's), (Start: 50 @9467 has 1 MA's), (Start: 63 @9599 has 5 MA's), (66, 9632), (67, 9635), (69, 9644), (75, 9719), (77, 9737), (79, 9773), (82, 9797), (84, 9824), (85, 9830), (89, 9899), (98, 9959), (110, 10079), (111, 10085), (114, 10112),

Gene: NovaSharks_11 Start: 7442, Stop: 8389, Start Num: 12

Candidate Starts for NovaSharks_11:

(Start: 12 @7442 has 18 MA's), (Start: 39 @7622 has 4 MA's), (65, 7859), (66, 7868), (73, 7931), (76, 7970), (99, 8225), (106, 8297),

Gene: Oaker_12 Start: 8223, Stop: 9143, Start Num: 11

Candidate Starts for Oaker_12:

(4, 8151), (5, 8172), (7, 8181), (Start: 10 @8211 has 1 MA's), (Start: 11 @8223 has 16 MA's), (Start: 27 @8295 has 3 MA's), (34, 8340), (45, 8436), (47, 8445), (Start: 50 @8478 has 1 MA's), (61, 8598), (77, 8757), (81, 8808), (84, 8844), (93, 8940), (99, 9006),

Gene: Onyinye_25 Start: 14741, Stop: 15661, Start Num: 13

Candidate Starts for Onyinye_25:

(2, 14603), (3, 14630), (8, 14693), (Start: 13 @14741 has 18 MA's), (32, 14840), (Start: 36 @14882 has 1 MA's), (43, 14939), (49, 14975), (62, 15113), (66, 15152), (68, 15158), (78, 15281), (84, 15344), (86, 15386), (90, 15422), (92, 15428), (100, 15515), (101, 15542), (108, 15593),

Gene: OtterstedtS21_12 Start: 9524, Stop: 10471, Start Num: 12

Candidate Starts for OtterstedtS21_12:

(Start: 12 @9524 has 18 MA's), (Start: 39 @9704 has 4 MA's), (65, 9941), (66, 9950), (73, 10013), (76, 10052), (99, 10307), (106, 10379), (112, 10421),

Gene: PBI1_14 Start: 8974, Stop: 9627, Start Num: 50

Candidate Starts for PBI1_14:

(Start: 13 @8722 has 18 MA's), (Start: 50 @8974 has 1 MA's), (Start: 63 @9106 has 5 MA's), (66, 9139), (67, 9142), (69, 9151), (75, 9226), (77, 9244), (79, 9280), (82, 9304), (84, 9331), (85, 9337), (89, 9406), (98, 9466), (110, 9586), (111, 9592), (114, 9619),

Gene: PLOT_14 Start: 9178, Stop: 9699, Start Num: 63

Candidate Starts for PLOT_14:

(Start: 13 @8794 has 18 MA's), (Start: 50 @9046 has 1 MA's), (Start: 63 @9178 has 5 MA's), (66, 9211), (67, 9214), (69, 9223), (75, 9298), (77, 9316), (79, 9352), (82, 9376), (84, 9403), (85, 9409), (89, 9478), (98, 9538), (110, 9658), (111, 9664), (114, 9691),

Gene: ParvusTarda_12 Start: 9186, Stop: 9953, Start Num: 39

Candidate Starts for ParvusTarda_12:

(Start: 12 @9006 has 18 MA's), (Start: 39 @9186 has 4 MA's), (65, 9423), (66, 9432), (73, 9495), (76, 9534), (99, 9789), (106, 9861), (112, 9903),

Gene: Patience_20 Start: 11512, Stop: 12426, Start Num: 11

Candidate Starts for Patience_20:

(Start: 11 @11512 has 16 MA's), (22, 11551), (25, 11572), (Start: 36 @11659 has 1 MA's), (41, 11698), (54, 11818), (72, 11980), (84, 12127), (92, 12211), (95, 12238), (98, 12262), (100, 12304), (105, 12361), (107, 12373), (108, 12382),

Gene: Patos_13 Start: 9434, Stop: 10381, Start Num: 12

Candidate Starts for Patos_13:

(Start: 12 @9434 has 18 MA's), (Start: 39 @9614 has 4 MA's), (65, 9851), (66, 9860), (73, 9923), (76, 9962), (99, 10217), (106, 10289), (112, 10331),

Gene: Penelope2018_13 Start: 8791, Stop: 9696, Start Num: 13

Candidate Starts for Penelope2018_13:

(Start: 13 @8791 has 18 MA's), (Start: 50 @9043 has 1 MA's), (Start: 63 @9175 has 5 MA's), (66, 9208), (67, 9211), (69, 9220), (75, 9295), (77, 9313), (79, 9349), (82, 9373), (84, 9400), (85, 9406), (89, 9475), (98, 9535), (110, 9655), (111, 9661), (114, 9688),

Gene: Phreeze_12 Start: 7967, Stop: 8887, Start Num: 11

Candidate Starts for Phreeze_12:

(4, 7895), (5, 7916), (7, 7925), (Start: 10 @7955 has 1 MA's), (Start: 11 @7967 has 16 MA's), (Start: 27 @8039 has 3 MA's), (34, 8084), (45, 8180), (47, 8189), (Start: 50 @8222 has 1 MA's), (61, 8342), (77, 8501), (81, 8552), (84, 8588), (93, 8684), (99, 8750),

Gene: Prager_13 Start: 9052, Stop: 9705, Start Num: 50

Candidate Starts for Prager_13:

(Start: 13 @8800 has 18 MA's), (Start: 50 @9052 has 1 MA's), (Start: 63 @9184 has 5 MA's), (66, 9217), (67, 9220), (69, 9229), (75, 9304), (77, 9322), (79, 9358), (82, 9382), (84, 9409), (85, 9415), (89, 9484), (98, 9544), (110, 9664), (111, 9670), (114, 9697),

Gene: Predator_16 Start: 9457, Stop: 10386, Start Num: 10

Candidate Starts for Predator_16:

(Start: 10 @9457 has 1 MA's), (Start: 11 @9469 has 16 MA's), (23, 9514), (41, 9655), (45, 9682), (Start: 50 @9724 has 1 MA's), (84, 10090), (85, 10096), (95, 10201),

Gene: Puissant_11 Start: 8343, Stop: 9305, Start Num: 7

Candidate Starts for Puissant_11:

(3, 8286), (4, 8313), (5, 8334), (7, 8343), (Start: 10 @8373 has 1 MA's), (Start: 11 @8385 has 16 MA's), (23, 8430), (41, 8571), (45, 8598), (Start: 50 @8640 has 1 MA's), (61, 8760), (77, 8919), (81, 8970), (84, 9006),

Gene: Ranch_12 Start: 8375, Stop: 9322, Start Num: 12

Candidate Starts for Ranch_12:

(Start: 12 @8375 has 18 MA's), (Start: 39 @8555 has 4 MA's), (65, 8792), (66, 8801), (73, 8864), (76, 8903), (99, 9158), (106, 9230), (112, 9272),

Gene: Rie18_14 Start: 6338, Stop: 7222, Start Num: 21

Candidate Starts for Rie18_14:

(Start: 21 @6338 has 7 MA's), (26, 6368), (Start: 27 @6374 has 3 MA's), (31, 6404), (41, 6488), (48, 6524), (55, 6602), (58, 6638), (59, 6641), (64, 6692), (74, 6791), (80, 6857), (83, 6890), (87, 6962), (88, 6965), (91, 6986), (92, 6989), (115, 7208),

Gene: RikSengupta_14 Start: 6397, Stop: 7302, Start Num: 20

Candidate Starts for RikSengupta_14:

(Start: 20 @6397 has 3 MA's), (Start: 27 @6433 has 3 MA's), (29, 6454), (38, 6517), (40, 6541), (41, 6544), (47, 6571), (Start: 50 @6604 has 1 MA's), (51, 6613), (52, 6628), (56, 6661), (60, 6709), (72, 6814), (83, 6946), (88, 7021), (89, 7036), (92, 7045), (100, 7129), (103, 7174), (116, 7291),

Gene: Rumi_11 Start: 7622, Stop: 8389, Start Num: 39

Candidate Starts for Rumi_11:

(Start: 12 @7442 has 18 MA's), (Start: 39 @7622 has 4 MA's), (65, 7859), (66, 7868), (73, 7931), (76, 7970), (99, 8225), (106, 8297),

Gene: Sadboi_12 Start: 10202, Stop: 11149, Start Num: 12

Candidate Starts for Sadboi_12:

(Start: 12 @10202 has 18 MA's), (Start: 39 @10382 has 4 MA's), (65, 10619), (66, 10628), (73, 10691), (76, 10730), (99, 10985), (106, 11057), (112, 11099),

Gene: Sampudon_13 Start: 10378, Stop: 11325, Start Num: 12

Candidate Starts for Sampudon_13:

(Start: 12 @10378 has 18 MA's), (Start: 39 @10558 has 4 MA's), (65, 10795), (66, 10804), (73, 10867), (76, 10906), (99, 11161), (106, 11233), (112, 11275),

Gene: SirHarley_12 Start: 8720, Stop: 9625, Start Num: 13

Candidate Starts for SirHarley_12:

(Start: 13 @8720 has 18 MA's), (Start: 50 @8972 has 1 MA's), (Start: 63 @9104 has 5 MA's), (66, 9137), (67, 9140), (69, 9149), (75, 9224), (77, 9242), (79, 9278), (82, 9302), (84, 9329), (85, 9335), (89, 9404), (98, 9464), (110, 9584), (111, 9590), (114, 9617),

Gene: Snakehole_15 Start: 6277, Stop: 7161, Start Num: 21

Candidate Starts for Snakehole_15:

(Start: 21 @6277 has 7 MA's), (Start: 27 @6313 has 3 MA's), (31, 6343), (41, 6427), (48, 6463), (56, 6544), (58, 6577), (64, 6631), (74, 6730), (77, 6757), (80, 6796), (83, 6829), (87, 6901), (89, 6919), (100, 7012),

Gene: Sparcetus_14 Start: 6276, Stop: 7181, Start Num: 20

Candidate Starts for Sparcetus_14:

(Start: 20 @6276 has 3 MA's), (Start: 27 @6312 has 3 MA's), (29, 6333), (38, 6396), (40, 6420), (41, 6423), (47, 6450), (Start: 50 @6483 has 1 MA's), (51, 6492), (52, 6507), (56, 6540), (60, 6588), (72, 6693), (83, 6825), (88, 6900), (89, 6915), (92, 6924), (100, 7008), (103, 7053), (116, 7170),

Gene: Tedro_14 Start: 6454, Stop: 7338, Start Num: 21

Candidate Starts for Tedro_14:

(Start: 21 @6454 has 7 MA's), (Start: 27 @6490 has 3 MA's), (31, 6520), (41, 6604), (48, 6640), (56, 6721), (58, 6754), (64, 6808), (74, 6907), (77, 6934), (80, 6973), (83, 7006), (87, 7078), (89, 7096), (96, 7144), (100, 7189),

Gene: Thoth_13 Start: 8788, Stop: 9693, Start Num: 13

Candidate Starts for Thoth_13:

(Start: 13 @8788 has 18 MA's), (Start: 50 @9040 has 1 MA's), (Start: 63 @9172 has 5 MA's), (66, 9205), (67, 9208), (69, 9217), (75, 9292), (77, 9310), (79, 9346), (82, 9370), (84, 9397), (85, 9403), (89, 9472), (98, 9532), (110, 9652), (111, 9658), (114, 9685),

Gene: Thumb_12 Start: 7968, Stop: 8888, Start Num: 11

Candidate Starts for Thumb_12:

(4, 7896), (5, 7917), (7, 7926), (Start: 10 @7956 has 1 MA's), (Start: 11 @7968 has 16 MA's), (Start: 27 @8040 has 3 MA's), (34, 8085), (45, 8181), (47, 8190), (Start: 50 @8223 has 1 MA's), (61, 8343), (77, 8502), (81, 8553), (84, 8589), (93, 8685), (99, 8751),

Gene: Tillicus_13 Start: 8861, Stop: 9688, Start Num: 33

Candidate Starts for Tillicus_13:

(Start: 12 @8741 has 18 MA's), (Start: 33 @8861 has 1 MA's), (73, 9230), (111, 9623),

Gene: TinyMiny_14 Start: 6310, Stop: 7179, Start Num: 27

Candidate Starts for TinyMiny_14:

(Start: 20 @6274 has 3 MA's), (Start: 27 @6310 has 3 MA's), (29, 6331), (38, 6394), (40, 6418), (41, 6421), (47, 6448), (Start: 50 @6481 has 1 MA's), (51, 6490), (52, 6505), (56, 6538), (60, 6586), (72, 6691), (83, 6823), (88, 6898), (89, 6913), (92, 6922), (103, 7051), (116, 7168),

Gene: Troll4_13 Start: 8792, Stop: 9697, Start Num: 13

Candidate Starts for Troll4_13:

(Start: 13 @8792 has 18 MA's), (Start: 50 @9044 has 1 MA's), (Start: 63 @9176 has 5 MA's), (66, 9209), (67, 9212), (69, 9221), (75, 9296), (77, 9314), (79, 9350), (82, 9374), (84, 9401), (85, 9407), (89, 9476), (98, 9536), (110, 9656), (111, 9662), (114, 9689),

Gene: Visconti_13 Start: 8801, Stop: 9706, Start Num: 13

Candidate Starts for Visconti_13:

(Start: 13 @8801 has 18 MA's), (Start: 50 @9053 has 1 MA's), (Start: 63 @9185 has 5 MA's), (66, 9218), (67, 9221), (69, 9230), (75, 9305), (77, 9323), (79, 9359), (82, 9383), (84, 9410), (85, 9416), (89, 9485), (98, 9545), (110, 9665), (111, 9671), (114, 9698),

Gene: WaldoWhy_14 Start: 9178, Stop: 9699, Start Num: 63

Candidate Starts for WaldoWhy_14:

(Start: 13 @8794 has 18 MA's), (Start: 50 @9046 has 1 MA's), (Start: 63 @9178 has 5 MA's), (66, 9211), (67, 9214), (69, 9223), (75, 9298), (77, 9316), (79, 9352), (82, 9376), (84, 9403), (85, 9409), (89, 9478), (98, 9538), (110, 9658), (111, 9664), (114, 9691),

Gene: Wojtek_11 Start: 9185, Stop: 10012, Start Num: 33

Candidate Starts for Wojtek_11:

(6, 9023), (9, 9041), (Start: 12 @9068 has 18 MA's), (17, 9092), (Start: 33 @9185 has 1 MA's), (73, 9554), (76, 9593), (103, 9902), (104, 9905), (111, 9947),

Gene: Xenia2_10 Start: 9277, Stop: 10068, Start Num: 37

Candidate Starts for Xenia2_10:

(Start: 12 @9124 has 18 MA's), (14, 9136), (18, 9154), (Start: 24 @9181 has 1 MA's), (28, 9205), (Start: 33 @9241 has 1 MA's), (37, 9277), (Start: 39 @9301 has 4 MA's), (66, 9547), (76, 9649), (85, 9745), (106, 9976), (111, 10003),

Gene: Yikes_13 Start: 10466, Stop: 11413, Start Num: 12

Candidate Starts for Yikes_13:

(Start: 12 @10466 has 18 MA's), (Start: 39 @10646 has 4 MA's), (65, 10883), (66, 10892), (73, 10955), (76, 10994), (99, 11249), (106, 11321), (112, 11363),

Gene: Zany_12 Start: 9592, Stop: 10539, Start Num: 12

Candidate Starts for Zany_12:

(Start: 12 @9592 has 18 MA's), (16, 9610), (Start: 39 @9772 has 4 MA's), (65, 10009), (66, 10018), (73, 10081), (76, 10120), (99, 10375), (106, 10447), (112, 10489),

