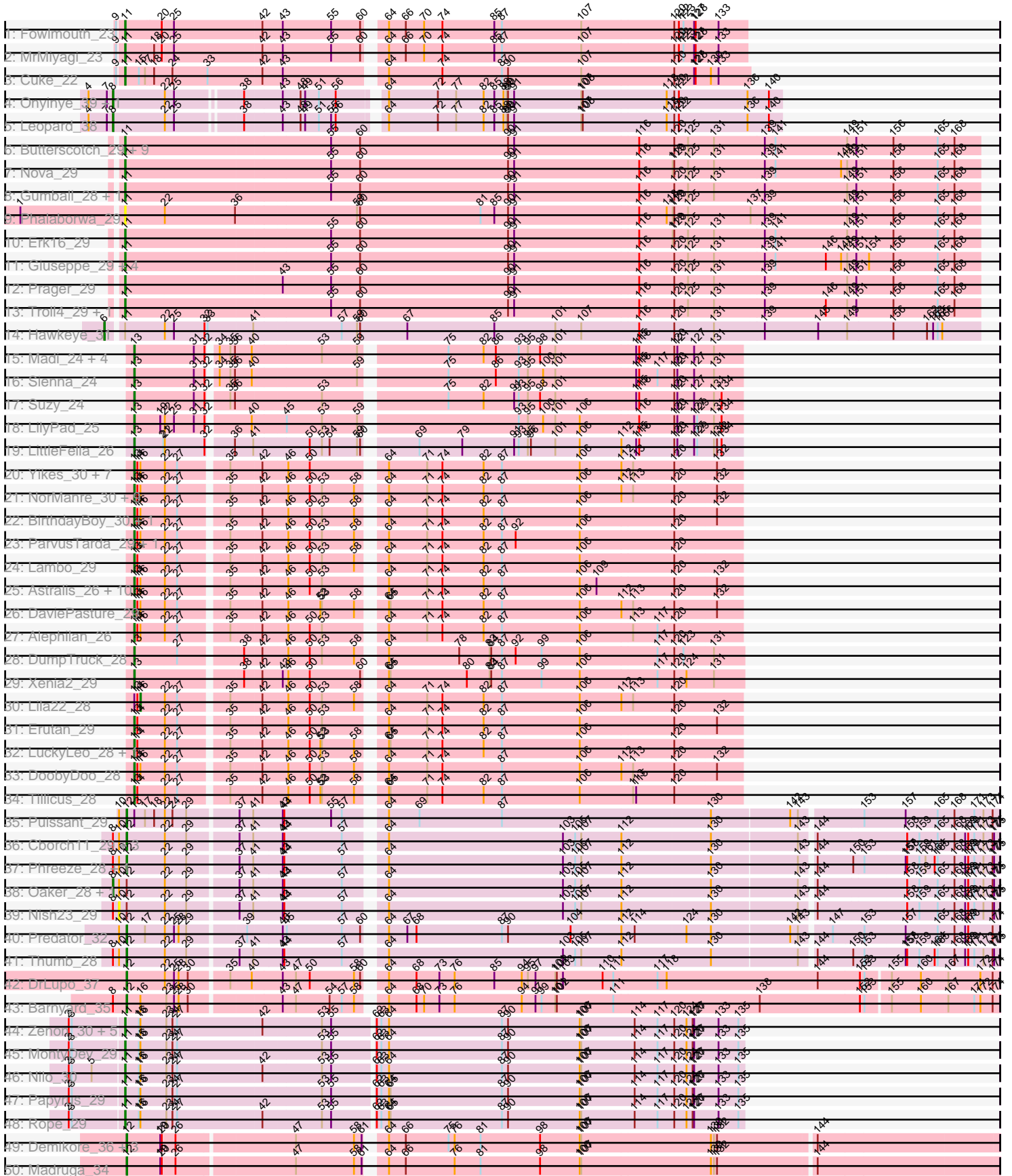


Pham 311400



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 311400 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311400 has 112 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Fowlmouth_23
- Track 2 : MrMiyagi_23
- Track 3 : Cuke_22
- Track 4 : Onyinye_39, Aikoy_38
- Track 5 : Leopard_38
- Track 6 : Butterscotch_29, BigMama_27, Penelope2018_29, Thoth_29, KandZ_29, Chill_30, Adjutor_30, PLOT_30, WaldoWhy_30, PBI1_29
- Track 7 : Nova_29
- Track 8 : Gumball_28, SirHarley_28
- Track 9 : Phalaborwa_29
- Track 10 : Erk16_29
- Track 11 : Giuseppe_29, Mopey_29, SuperheroCarly_29, Delton_29, Helpful_30
- Track 12 : Prager_29
- Track 13 : Troll4_29, Visconti_29
- Track 14 : Hawkeye_31
- Track 15 : Madi_24, BiteSize_24, Terapin_24, Beyoncage_24, Djokovic_24
- Track 16 : Sienna_24
- Track 17 : Suzy_24
- Track 18 : LilyPad_25
- Track 19 : LittleFella_26
- Track 20 : Yikes_30, Sampudon_29, OtterstedtS21_29, MoiGyank_31, Pywacket_28, Jalebi_28, Rota_28, LavAbarElk_27
- Track 21 : NorManre_30, Sadboi_29, Fulcrum_30, Gibbin_30, Mima20_27, Patos_30, GretellLyn_29, Ranch_29, GOATification_30, Rukungu_29
- Track 22 : BirthdayBoy_30, Zany_28
- Track 23 : ParvusTarda_29, Wojtek_28
- Track 24 : Lambo_29
- Track 25 : Astralis_26, Alyssamiracle_29, Avian_26, Genamy16_29, Riduram_26, Rumi_28, Charminar_26, Jamemuya19_26, RazorC_27, Stormer_28, NovaSharks_28
- Track 26 : DaviePasture_29
- Track 27 : Alephilan_26
- Track 28 : DumpTruck_28
- Track 29 : Xenia2_29
- Track 30 : Lila22_28
- Track 31 : Erutan_29
- Track 32 : LuckyLeo_28, Apeppi_26

- Track 33 : DoobyDoo_28
- Track 34 : Tillicus_28
- Track 35 : Puissant_29
- Track 36 : Cborch11_29, Megatron06_30, Damien_28, Beckerton_28
- Track 37 : Phreeze_28, BobtimousPrime_30
- Track 38 : Oaker_28, Konstantine_33
- Track 39 : Nish23_29
- Track 40 : Predator_32
- Track 41 : Thumb_28
- Track 42 : DrLupo_37
- Track 43 : Barnyard_35
- Track 44 : Zenon_30, Yelo_29, Send513_29, Weiss13_29, Candle_29, Riparian_29
- Track 45 : MontyDev_29
- Track 46 : Nilo_30
- Track 47 : Papyrus_29
- Track 48 : Rope_29
- Track 49 : Demikore_36, Labelle_35, SuperSonics_35, Patience_36
- Track 50 : Madruga_34

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

The start number called the most often in the published annotations is 13, it was called in 47 of the 103 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alephilan_26, Alyssamiracle_29, Apeppi_26, Astralis_26, Avian_26, Beyoncage_24, BirthdayBoy_30, BiteSize_24, Charminar_26, DaviePasture_29, Djokovic_24, DoobyDoo_28, DumpTruck_28, Erutan_29, Fulcrum_30, GOATification_30, Genamy16_29, Gibbin_30, Gretellyn_29, Jalebi_28, Jamemuya19_26, Lambo_29, LavAbarEik_27, LilyPad_25, LittleFella_26, LuckyLeo_28, Madi_24, Mima20_27, MoiGyank_31, NorManre_30, NovaSharks_28, OtterstedtS21_29, ParvusTarda_29, Patos_30, Pywacket_28, Ranch_29, RazorC_27, Riduram_26, Rota_28, Rukungu_29, Rumi_28, Sadboi_29, Sampudon_29, Sienna_24, Stormer_28, Suzy_24, Terapin_24, Tillicus_28, Wojtek_28, Xenia2_29, Yikes_30, Zany_28,

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

- Lila22_28, Puissant_29,

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

- Adjutor_30, Aikoy_38, Barnyard_35, Beckerton_28, BigMama_27, BobtimousPrime_30, Butterscotch_29, Candle_29, Cborch11_29, Chill_30, Cuke_22, Damien_28, Delton_29, Demikore_36, DrLupo_37, Erk16_29, Fowlmouth_23, Giuseppe_29, Gumball_28, Hawkeye_31, Helpful_30, KandZ_29, Konstantine_33, Labelle_35, Leopard_38, Madruga_34, Megatron06_30, MontyDev_29, Mopey_29, MrMiyagi_23, Nilo_30, Nish23_29, Nova_29, Oaker_28, Onyinye_39, PB11_29, PLOT_30, Papyrus_29, Patience_36, Penelope2018_29, Phalaborwa_29, Phreeze_28, Prager_29, Predator_32, Riparian_29, Rope_29, Send513_29, SirHarley_28, SuperSonics_35, SuperheroCarly_29, Thoth_29, Thumb_28, Troll4_29, Visconti_29, WaldoWhy_30, Weiss13_29, Yelo_29, Zenon_30,

Summary by start number:

Start 6:

- Found in 1 of 112 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hawkeye_31 (D2),

Start 8:

- Found in 14 of 112 (12.5%) of genes in pham
- Manual Annotations of this start: 5 of 103
- Called 35.7% of time when present
- Phage (with cluster) where this start called: Aikoy_38 (AE), Konstantine_33 (H1), Leopard_38 (AE), Oaker_28 (H1), Onyinye_39 (AE),

Start 10:

- Found in 12 of 112 (10.7%) of genes in pham
- No Manual Annotations of this start.
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Nish23_29 (H1),

Start 11:

- Found in 37 of 112 (33.0%) of genes in pham
- Manual Annotations of this start: 35 of 103
- Called 97.3% of time when present
- Phage (with cluster) where this start called: Adjutor_30 (D1), BigMama_27 (D1), Butterscotch_29 (D1), Candle_29 (R), Chill_30 (D1), Cuke_22 (AC), Delton_29 (D1), Erk16_29 (D1), Fowlmouth_23 (AC), Giuseppe_29 (D1), Gumball_28 (D1), Helpful_30 (D1), KandZ_29 (D1), MontyDev_29 (R), Mopey_29 (D1), MrMiyagi_23 (AC), Nilo_30 (R), Nova_29 (D1), PBI1_29 (D1), PLOT_30 (D1), Papyrus_29 (R), Penelope2018_29 (D1), Phalaborwa_29 (D1), Prager_29 (D1), Riparian_29 (R), Rope_29 (R), Send513_29 (R), SirHarley_28 (D1), SuperheroCarly_29 (D1), Thoth_29 (D1), Troll4_29 (D1), Visconti_29 (D1), WaldoWhy_30 (D1), Weiss13_29 (R), Yelo_29 (R), Zenon_30 (R),

Start 12:

- Found in 19 of 112 (17.0%) of genes in pham
- Manual Annotations of this start: 14 of 103
- Called 84.2% of time when present
- Phage (with cluster) where this start called: Barnyard_35 (H2), Beckerton_28 (H1), BobtimousPrime_30 (H1), Cborch11_29 (H1), Damien_28 (H1), Demikore_36 (U), DrLupo_37 (H2), Labelle_35 (U), Madruga_34 (U), Megatron06_30 (H1), Patience_36 (U), Phreeze_28 (H1), Predator_32 (H1), Puissant_29 (H1), SuperSonics_35 (U), Thumb_28 (H1),

Start 13:

- Found in 54 of 112 (48.2%) of genes in pham
- Manual Annotations of this start: 47 of 103
- Called 96.3% of time when present
- Phage (with cluster) where this start called: Alephilan_26 (DV), Alyssamiracle_29 (DV), Apeppi_26 (DV), Astralis_26 (DV), Avian_26 (DV), Beyoncage_24 (DG1), BirthdayBoy_30 (DV), BiteSize_24 (DG1), Charminar_26 (DV), DaviePasture_29 (DV), Djokovic_24 (DG1), DoobyDoo_28 (DV), DumpTruck_28 (DV), Erutan_29 (DV),

Fulcrum_30 (DV), GOATification_30 (DV), Genamy16_29 (DV), Gibbin_30 (DV), GretellLyn_29 (DV), Jalebi_28 (DV), Jamemuya19_26 (DV), Lambo_29 (DV), LavAbarElk_27 (DV), LilyPad_25 (DG1), LittleFella_26 (DG2), LuckyLeo_28 (DV), Madi_24 (DG1), Mima20_27 (DV), MoiGyank_31 (DV), NorManre_30 (DV), NovaSharks_28 (DV), OtterstedtS21_29 (DV), ParvusTarda_29 (DV), Patos_30 (DV), Pywacket_28 (DV), Ranch_29 (DV), RazorC_27 (DV), Riduram_26 (DV), Rota_28 (DV), Rukungu_29 (DV), Rumi_28 (DV), Sadboi_29 (DV), Sampudon_29 (DV), Sienna_24 (DG1), Stormer_28 (DV), Suzy_24 (DG1), Terapin_24 (DG1), Tillicus_28 (DV), Wojtek_28 (DV), Xenia2_29 (DV), Yikes_30 (DV), Zany_28 (DV),

Start 16:

- Found in 48 of 112 (42.9%) of genes in pham
- Manual Annotations of this start: 1 of 103
- Called 2.1% of time when present
- Phage (with cluster) where this start called: Lila22_28 (DV),

Summary by clusters:

There are 11 clusters represented in this pham: AC, AE, H2, H1, DG2, R, U, DV, DG1, 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 8 was manually annotated 3 times for cluster AE.

Info for manual annotations of cluster D1:

- Start number 11 was manually annotated 22 times for cluster D1.

Info for manual annotations of cluster D2:

- Start number 6 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DG1:

- Start number 13 was manually annotated 8 times for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 13 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:

- Start number 13 was manually annotated 38 times for cluster DV.
- Start number 16 was manually annotated 1 time for cluster DV.

Info for manual annotations of cluster H1:

- Start number 8 was manually annotated 2 times for cluster H1.
- Start number 12 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 R:

- Start number 11 was manually annotated 10 times for cluster R.

Info for manual annotations of cluster U:

- Start number 12 was manually annotated 3 times for cluster U.

Gene Information:

Gene: Adjutor_30 Start: 22601, Stop: 24256, Start Num: 11

Candidate Starts for Adjutor_30:

(Start: 11 @22601 has 35 MA's), (55, 22991), (60, 23048), (90, 23339), (91, 23351), (116, 23594), (120, 23660), (125, 23687), (131, 23738), (139, 23834), (141, 23855), (149, 23996), (151, 24014), (156, 24086), (165, 24173), (168, 24206),

Gene: Aikoy_38 Start: 28234, Stop: 29478, Start Num: 8

Candidate Starts for Aikoy_38:

(4, 28186), (7, 28222), (Start: 8 @28234 has 5 MA's), (22, 28333), (25, 28351), (38, 28468), (43, 28537), (48, 28570), (49, 28579), (51, 28606), (56, 28639), (64, 28714), (72, 28810), (77, 28846), (82, 28900), (85, 28921), (88, 28939), (89, 28945), (90, 28948), (91, 28960), (107, 29092), (108, 29095), (118, 29257), (120, 29269), (122, 29278), (136, 29413), (140, 29455),

Gene: Alephilan_26 Start: 24820, Stop: 25944, Start Num: 13

Candidate Starts for Alephilan_26:

(Start: 13 @24820 has 47 MA's), (14, 24826), (Start: 16 @24832 has 1 MA's), (22, 24877), (27, 24901), (35, 24988), (42, 25045), (46, 25090), (50, 25132), (53, 25156), (64, 25258), (71, 25333), (74, 25363), (82, 25444), (87, 25480), (106, 25633), (113, 25735), (117, 25783), (120, 25813),

Gene: Alyssamiracle_29 Start: 23630, Stop: 24754, Start Num: 13

Candidate Starts for Alyssamiracle_29:

(Start: 13 @23630 has 47 MA's), (14, 23636), (Start: 16 @23642 has 1 MA's), (22, 23687), (27, 23711), (35, 23798), (42, 23855), (46, 23900), (50, 23942), (53, 23966), (64, 24068), (71, 24143), (74, 24173), (82, 24254), (87, 24290), (106, 24443), (109, 24476), (120, 24623), (132, 24704),

Gene: Apeppi_26 Start: 24963, Stop: 26087, Start Num: 13

Candidate Starts for Apeppi_26:

(Start: 13 @24963 has 47 MA's), (14, 24969), (22, 25020), (27, 25044), (35, 25131), (42, 25188), (46, 25233), (50, 25275), (52, 25296), (53, 25299), (58, 25362), (64, 25401), (65, 25404), (71, 25476), (74, 25506), (82, 25587), (87, 25623), (106, 25776), (120, 25956),

Gene: Astralis_26 Start: 23220, Stop: 24344, Start Num: 13

Candidate Starts for Astralis_26:

(Start: 13 @23220 has 47 MA's), (14, 23226), (Start: 16 @23232 has 1 MA's), (22, 23277), (27, 23301), (35, 23388), (42, 23445), (46, 23490), (50, 23532), (53, 23556), (64, 23658), (71, 23733), (74, 23763), (82, 23844), (87, 23880), (106, 24033), (109, 24066), (120, 24213), (132, 24294),

Gene: Avian_26 Start: 23612, Stop: 24736, Start Num: 13

Candidate Starts for Avian_26:

(Start: 13 @23612 has 47 MA's), (14, 23618), (Start: 16 @23624 has 1 MA's), (22, 23669), (27, 23693), (35, 23780), (42, 23837), (46, 23882), (50, 23924), (53, 23948), (64, 24050), (71, 24125), (74, 24155), (82, 24236), (87, 24272), (106, 24425), (109, 24458), (120, 24605), (132, 24686),

Gene: Barnyard_35 Start: 25132, Stop: 26775, Start Num: 12

Candidate Starts for Barnyard_35:

(Start: 8 @25105 has 5 MA's), (Start: 12 @25132 has 14 MA's), (Start: 16 @25159 has 1 MA's), (23, 25207), (25, 25222), (28, 25231), (30, 25249), (43, 25414), (47, 25438), (54, 25504), (57, 25528), (58, 25552), (64, 25591), (68, 25645), (70, 25660), (73, 25690), (76, 25720), (94, 25852), (97, 25879), (99, 25891), (101, 25918), (102, 25921), (111, 26032), (138, 26317), (152, 26512), (153, 26521), (155, 26566), (160, 26623), (167, 26674), (171, 26725), (172, 26737), (174, 26761),

Gene: Beckerton_28 Start: 24591, Stop: 26219, Start Num: 12

Candidate Starts for Beckerton_28:

(Start: 8 @24564 has 5 MA's), (10, 24576), (Start: 12 @24591 has 14 MA's), (22, 24663), (29, 24705), (37, 24795), (41, 24822), (43, 24873), (44, 24876), (57, 24987), (64, 25050), (103, 25392), (105, 25416), (107, 25428), (112, 25506), (130, 25677), (143, 25842), (144, 25866), (158, 26037), (159, 26061), (165, 26097), (168, 26130), (169, 26151), (170, 26157), (171, 26169), (173, 26187), (174, 26205), (175, 26208),

Gene: Beyoncage_24 Start: 20204, Stop: 21337, Start Num: 13

Candidate Starts for Beyoncage_24:

(Start: 13 @20204 has 47 MA's), (31, 20321), (32, 20342), (34, 20354), (35, 20375), (36, 20384), (40, 20417), (53, 20546), (59, 20615), (75, 20765), (82, 20834), (86, 20858), (93, 20903), (95, 20921), (98, 20945), (101, 20975), (115, 21131), (116, 21137), (120, 21203), (121, 21209), (127, 21242), (131, 21281),

Gene: BigMama_27 Start: 22677, Stop: 24332, Start Num: 11

Candidate Starts for BigMama_27:

(Start: 11 @22677 has 35 MA's), (55, 23067), (60, 23124), (90, 23415), (91, 23427), (116, 23670), (120, 23736), (125, 23763), (131, 23814), (139, 23910), (141, 23931), (149, 24072), (151, 24090), (156, 24162), (165, 24249), (168, 24282),

Gene: BirthdayBoy_30 Start: 25673, Stop: 26797, Start Num: 13

Candidate Starts for BirthdayBoy_30:

(Start: 13 @25673 has 47 MA's), (14, 25679), (Start: 16 @25685 has 1 MA's), (22, 25730), (27, 25754), (35, 25841), (42, 25898), (46, 25943), (50, 25985), (53, 26009), (58, 26072), (64, 26111), (71, 26186), (74, 26216), (82, 26297), (87, 26333), (106, 26486), (120, 26666), (132, 26747),

Gene: BiteSize_24 Start: 20204, Stop: 21337, Start Num: 13

Candidate Starts for BiteSize_24:

(Start: 13 @20204 has 47 MA's), (31, 20321), (32, 20342), (34, 20354), (35, 20375), (36, 20384), (40, 20417), (53, 20546), (59, 20615), (75, 20765), (82, 20834), (86, 20858), (93, 20903), (95, 20921), (98, 20945), (101, 20975), (115, 21131), (116, 21137), (120, 21203), (121, 21209), (127, 21242), (131, 21281),

Gene: BobtimousPrime_30 Start: 24511, Stop: 26139, Start Num: 12

Candidate Starts for BobtimousPrime_30:

(Start: 8 @24484 has 5 MA's), (10, 24496), (Start: 12 @24511 has 14 MA's), (22, 24583), (29, 24625), (37, 24715), (41, 24742), (43, 24793), (44, 24796), (57, 24907), (64, 24970), (103, 25312), (105, 25336), (107, 25348), (112, 25426), (130, 25597), (143, 25762), (144, 25786), (150, 25855), (153, 25876), (157, 25954), (158, 25957), (159, 25981), (161, 25993), (164, 26011), (165, 26017), (168, 26050), (169, 26071), (170, 26077), (171, 26089), (173, 26107), (174, 26125), (175, 26128),

Gene: Butterscotch_29 Start: 22661, Stop: 24316, Start Num: 11

Candidate Starts for Butterscotch_29:

(Start: 11 @22661 has 35 MA's), (55, 23051), (60, 23108), (90, 23399), (91, 23411), (116, 23654), (120, 23720), (125, 23747), (131, 23798), (139, 23894), (141, 23915), (149, 24056), (151, 24074), (156, 24146), (165, 24233), (168, 24266),

Gene: Candle_29 Start: 23449, Stop: 24636, Start Num: 11

Candidate Starts for Candle_29:

(2, 23344), (3, 23350), (Start: 11 @23449 has 35 MA's), (15, 23476), (Start: 16 @23479 has 1 MA's), (23, 23524), (24, 23536), (27, 23545), (42, 23710), (53, 23821), (55, 23839), (62, 23917), (63, 23926), (64, 23941), (87, 24163), (90, 24175), (106, 24316), (107, 24319), (114, 24424), (117, 24469), (120, 24499), (124, 24523), (126, 24535), (127, 24538), (133, 24586), (135, 24625),

Gene: Cborch11_29 Start: 24053, Stop: 25681, Start Num: 12

Candidate Starts for Cborch11_29:

(Start: 8 @24026 has 5 MA's), (10, 24038), (Start: 12 @24053 has 14 MA's), (22, 24125), (29, 24167), (37, 24257), (41, 24284), (43, 24335), (44, 24338), (57, 24449), (64, 24512), (103, 24854), (105, 24878), (107, 24890), (112, 24968), (130, 25139), (143, 25304), (144, 25328), (158, 25499), (159, 25523), (165, 25559), (168, 25592), (169, 25613), (170, 25619), (171, 25631), (173, 25649), (174, 25667), (175, 25670),

Gene: Charminar_26 Start: 23223, Stop: 24347, Start Num: 13

Candidate Starts for Charminar_26:

(Start: 13 @23223 has 47 MA's), (14, 23229), (Start: 16 @23235 has 1 MA's), (22, 23280), (27, 23304), (35, 23391), (42, 23448), (46, 23493), (50, 23535), (53, 23559), (64, 23661), (71, 23736), (74, 23766), (82, 23847), (87, 23883), (106, 24036), (109, 24069), (120, 24216), (132, 24297),

Gene: Chill_30 Start: 22667, Stop: 24322, Start Num: 11

Candidate Starts for Chill_30:

(Start: 11 @22667 has 35 MA's), (55, 23057), (60, 23114), (90, 23405), (91, 23417), (116, 23660), (120, 23726), (125, 23753), (131, 23804), (139, 23900), (141, 23921), (149, 24062), (151, 24080), (156, 24152), (165, 24239), (168, 24272),

Gene: Cuke_22 Start: 19244, Stop: 20422, Start Num: 11

Candidate Starts for Cuke_22:

(9, 19232), (Start: 11 @19244 has 35 MA's), (15, 19271), (17, 19283), (18, 19298), (24, 19331), (33, 19400), (42, 19505), (43, 19541), (64, 19718), (74, 19823), (87, 19940), (90, 19952), (107, 20096), (120, 20273), (127, 20312), (128, 20315), (130, 20345), (133, 20360),

Gene: Damien_28 Start: 24054, Stop: 25682, Start Num: 12

Candidate Starts for Damien_28:

(Start: 8 @24027 has 5 MA's), (10, 24039), (Start: 12 @24054 has 14 MA's), (22, 24126), (29, 24168), (37, 24258), (41, 24285), (43, 24336), (44, 24339), (57, 24450), (64, 24513), (103, 24855), (105, 24879), (107, 24891), (112, 24969), (130, 25140), (143, 25305), (144, 25329), (158, 25500), (159, 25524), (165, 25560), (168, 25593), (169, 25614), (170, 25620), (171, 25632), (173, 25650), (174, 25668), (175, 25671),

Gene: DaviePasture_29 Start: 25439, Stop: 26563, Start Num: 13

Candidate Starts for DaviePasture_29:

(Start: 13 @25439 has 47 MA's), (14, 25445), (Start: 16 @25451 has 1 MA's), (22, 25496), (27, 25520), (35, 25607), (42, 25664), (46, 25709), (52, 25772), (53, 25775), (58, 25838), (64, 25877), (65, 25880), (71, 25952), (74, 25982), (82, 26063), (87, 26099), (106, 26252), (112, 26333), (113, 26354), (120, 26432), (132, 26513),

Gene: Delton_29 Start: 22673, Stop: 24328, Start Num: 11

Candidate Starts for Delton_29:

(Start: 11 @22673 has 35 MA's), (55, 23063), (60, 23120), (90, 23411), (91, 23423), (116, 23666), (120, 23732), (125, 23759), (131, 23810), (139, 23906), (141, 23927), (146, 24026), (148, 24056),

(149, 24068), (151, 24086), (154, 24110), (156, 24158), (165, 24245), (168, 24278),

Gene: Demikore_36 Start: 27099, Stop: 28742, Start Num: 12

Candidate Starts for Demikore_36:

(Start: 12 @27099 has 14 MA's), (19, 27165), (20, 27168), (26, 27192), (47, 27414), (58, 27528), (61, 27543), (64, 27567), (66, 27600), (75, 27684), (76, 27696), (81, 27747), (98, 27864), (106, 27942), (107, 27945), (130, 28197), (131, 28203), (132, 28209), (144, 28392),

Gene: Djokovic_24 Start: 20204, Stop: 21337, Start Num: 13

Candidate Starts for Djokovic_24:

(Start: 13 @20204 has 47 MA's), (31, 20321), (32, 20342), (34, 20354), (35, 20375), (36, 20384), (40, 20417), (53, 20546), (59, 20615), (75, 20765), (82, 20834), (86, 20858), (93, 20903), (95, 20921), (98, 20945), (101, 20975), (115, 21131), (116, 21137), (120, 21203), (121, 21209), (127, 21242), (131, 21281),

Gene: DoobyDoo_28 Start: 24595, Stop: 25719, Start Num: 13

Candidate Starts for DoobyDoo_28:

(Start: 13 @24595 has 47 MA's), (14, 24601), (Start: 16 @24607 has 1 MA's), (22, 24652), (27, 24676), (35, 24763), (42, 24820), (46, 24865), (50, 24907), (53, 24931), (58, 24994), (64, 25033), (71, 25108), (74, 25138), (87, 25255), (106, 25408), (112, 25489), (113, 25510), (120, 25588), (132, 25669),

Gene: DrLupo_37 Start: 25532, Stop: 27175, Start Num: 12

Candidate Starts for DrLupo_37:

(Start: 12 @25532 has 14 MA's), (22, 25604), (25, 25622), (28, 25631), (30, 25649), (35, 25721), (40, 25760), (43, 25814), (47, 25838), (50, 25865), (58, 25952), (60, 25964), (64, 25991), (68, 26045), (73, 26090), (76, 26120), (85, 26198), (94, 26252), (95, 26264), (97, 26279), (101, 26318), (102, 26321), (103, 26333), (110, 26411), (111, 26432), (117, 26516), (118, 26534), (144, 26831), (152, 26912), (153, 26921), (155, 26966), (160, 27023), (167, 27074), (172, 27137), (174, 27161),

Gene: DumpTruck_28 Start: 24905, Stop: 26032, Start Num: 13

Candidate Starts for DumpTruck_28:

(Start: 13 @24905 has 47 MA's), (27, 24986), (38, 25097), (42, 25130), (46, 25175), (50, 25217), (53, 25241), (58, 25304), (64, 25343), (78, 25481), (83, 25541), (84, 25544), (87, 25565), (92, 25592), (99, 25643), (106, 25718), (117, 25868), (120, 25898), (123, 25916), (131, 25973),

Gene: Erk16_29 Start: 22664, Stop: 24319, Start Num: 11

Candidate Starts for Erk16_29:

(Start: 11 @22664 has 35 MA's), (55, 23054), (60, 23111), (90, 23402), (91, 23414), (116, 23657), (119, 23720), (120, 23723), (125, 23750), (131, 23801), (139, 23897), (141, 23918), (149, 24059), (151, 24077), (156, 24149), (165, 24236), (168, 24269),

Gene: Erutan_29 Start: 25117, Stop: 26241, Start Num: 13

Candidate Starts for Erutan_29:

(Start: 13 @25117 has 47 MA's), (14, 25123), (22, 25174), (27, 25198), (35, 25285), (42, 25342), (46, 25387), (50, 25429), (53, 25453), (64, 25555), (71, 25630), (74, 25660), (82, 25741), (87, 25777), (106, 25930), (120, 26110), (132, 26191),

Gene: Fowlmouth_23 Start: 19374, Stop: 20546, Start Num: 11

Candidate Starts for Fowlmouth_23:

(9, 19362), (Start: 11 @19374 has 35 MA's), (20, 19443), (25, 19464), (42, 19635), (43, 19671), (55, 19764), (60, 19821), (64, 19848), (66, 19881), (70, 19917), (74, 19953), (85, 20055), (87, 20070), (107, 20226), (120, 20403), (122, 20412), (123, 20421), (127, 20442), (128, 20445), (133, 20490),

Gene: Fulcrum_30 Start: 25641, Stop: 26765, Start Num: 13

Candidate Starts for Fulcrum_30:

(Start: 13 @25641 has 47 MA's), (14, 25647), (Start: 16 @25653 has 1 MA's), (22, 25698), (27, 25722), (35, 25809), (42, 25866), (46, 25911), (50, 25953), (53, 25977), (58, 26040), (64, 26079), (71, 26154), (74, 26184), (82, 26265), (87, 26301), (106, 26454), (112, 26535), (113, 26556), (120, 26634), (132, 26715),

Gene: GOATification_30 Start: 25641, Stop: 26765, Start Num: 13

Candidate Starts for GOATification_30:

(Start: 13 @25641 has 47 MA's), (14, 25647), (Start: 16 @25653 has 1 MA's), (22, 25698), (27, 25722), (35, 25809), (42, 25866), (46, 25911), (50, 25953), (53, 25977), (58, 26040), (64, 26079), (71, 26154), (74, 26184), (82, 26265), (87, 26301), (106, 26454), (112, 26535), (113, 26556), (120, 26634), (132, 26715),

Gene: Genamy16_29 Start: 23630, Stop: 24754, Start Num: 13

Candidate Starts for Genamy16_29:

(Start: 13 @23630 has 47 MA's), (14, 23636), (Start: 16 @23642 has 1 MA's), (22, 23687), (27, 23711), (35, 23798), (42, 23855), (46, 23900), (50, 23942), (53, 23966), (64, 24068), (71, 24143), (74, 24173), (82, 24254), (87, 24290), (106, 24443), (109, 24476), (120, 24623), (132, 24704),

Gene: Gibbin_30 Start: 25722, Stop: 26846, Start Num: 13

Candidate Starts for Gibbin_30:

(Start: 13 @25722 has 47 MA's), (14, 25728), (Start: 16 @25734 has 1 MA's), (22, 25779), (27, 25803), (35, 25890), (42, 25947), (46, 25992), (50, 26034), (53, 26058), (58, 26121), (64, 26160), (71, 26235), (74, 26265), (82, 26346), (87, 26382), (106, 26535), (112, 26616), (113, 26637), (120, 26715), (132, 26796),

Gene: Giuseppe_29 Start: 22653, Stop: 24308, Start Num: 11

Candidate Starts for Giuseppe_29:

(Start: 11 @22653 has 35 MA's), (55, 23043), (60, 23100), (90, 23391), (91, 23403), (116, 23646), (120, 23712), (125, 23739), (131, 23790), (139, 23886), (141, 23907), (146, 24006), (148, 24036), (149, 24048), (151, 24066), (154, 24090), (156, 24138), (165, 24225), (168, 24258),

Gene: Gretellyn_29 Start: 25984, Stop: 27108, Start Num: 13

Candidate Starts for Gretellyn_29:

(Start: 13 @25984 has 47 MA's), (14, 25990), (Start: 16 @25996 has 1 MA's), (22, 26041), (27, 26065), (35, 26152), (42, 26209), (46, 26254), (50, 26296), (53, 26320), (58, 26383), (64, 26422), (71, 26497), (74, 26527), (82, 26608), (87, 26644), (106, 26797), (112, 26878), (113, 26899), (120, 26977), (132, 27058),

Gene: Gumball_28 Start: 22611, Stop: 24266, Start Num: 11

Candidate Starts for Gumball_28:

(Start: 11 @22611 has 35 MA's), (55, 23001), (60, 23058), (90, 23349), (91, 23361), (116, 23604), (120, 23670), (125, 23697), (131, 23748), (139, 23844), (149, 24006), (151, 24024), (156, 24096), (165, 24183), (168, 24216),

Gene: Hawkeye_31 Start: 22619, Stop: 24298, Start Num: 6

Candidate Starts for Hawkeye_31:

(Start: 6 @22619 has 1 MA's), (Start: 11 @22646 has 35 MA's), (22, 22718), (25, 22736), (32, 22796), (33, 22802), (41, 22889), (57, 23054), (59, 23084), (60, 23090), (67, 23183), (85, 23354), (101, 23474), (107, 23525), (116, 23636), (120, 23702), (131, 23780), (139, 23876), (145, 23981), (149, 24038), (156, 24128), (162, 24194), (163, 24206), (165, 24215), (166, 24224),

Gene: Helpful_30 Start: 22661, Stop: 24316, Start Num: 11

Candidate Starts for Helpful_30:

(Start: 11 @22661 has 35 MA's), (55, 23051), (60, 23108), (90, 23399), (91, 23411), (116, 23654), (120, 23720), (125, 23747), (131, 23798), (139, 23894), (141, 23915), (146, 24014), (148, 24044), (149, 24056), (151, 24074), (154, 24098), (156, 24146), (165, 24233), (168, 24266),

Gene: Jalebi_28 Start: 26151, Stop: 27275, Start Num: 13

Candidate Starts for Jalebi_28:

(Start: 13 @26151 has 47 MA's), (14, 26157), (Start: 16 @26163 has 1 MA's), (22, 26208), (27, 26232), (35, 26319), (42, 26376), (46, 26421), (50, 26463), (64, 26589), (71, 26664), (74, 26694), (82, 26775), (87, 26811), (106, 26964), (112, 27045), (113, 27066), (120, 27144), (132, 27225),

Gene: Jamemuya19_26 Start: 23220, Stop: 24344, Start Num: 13

Candidate Starts for Jamemuya19_26:

(Start: 13 @23220 has 47 MA's), (14, 23226), (Start: 16 @23232 has 1 MA's), (22, 23277), (27, 23301), (35, 23388), (42, 23445), (46, 23490), (50, 23532), (53, 23556), (64, 23658), (71, 23733), (74, 23763), (82, 23844), (87, 23880), (106, 24033), (109, 24066), (120, 24213), (132, 24294),

Gene: KandZ_29 Start: 22761, Stop: 24416, Start Num: 11

Candidate Starts for KandZ_29:

(Start: 11 @22761 has 35 MA's), (55, 23151), (60, 23208), (90, 23499), (91, 23511), (116, 23754), (120, 23820), (125, 23847), (131, 23898), (139, 23994), (141, 24015), (149, 24156), (151, 24174), (156, 24246), (165, 24333), (168, 24366),

Gene: Konstantine_33 Start: 25228, Stop: 26883, Start Num: 8

Candidate Starts for Konstantine_33:

(Start: 8 @25228 has 5 MA's), (10, 25240), (Start: 12 @25255 has 14 MA's), (22, 25327), (29, 25369), (37, 25459), (41, 25486), (43, 25537), (44, 25540), (57, 25651), (64, 25714), (103, 26056), (105, 26080), (107, 26092), (112, 26170), (130, 26341), (143, 26506), (144, 26530), (158, 26701), (159, 26725), (165, 26761), (168, 26794), (169, 26815), (170, 26821), (171, 26833), (173, 26851), (174, 26869), (175, 26872),

Gene: Labelle_35 Start: 27101, Stop: 28744, Start Num: 12

Candidate Starts for Labelle_35:

(Start: 12 @27101 has 14 MA's), (19, 27167), (20, 27170), (26, 27194), (47, 27416), (58, 27530), (61, 27545), (64, 27569), (66, 27602), (75, 27686), (76, 27698), (81, 27749), (98, 27866), (106, 27944), (107, 27947), (130, 28199), (131, 28205), (132, 28211), (144, 28394),

Gene: Lambo_29 Start: 25656, Stop: 26780, Start Num: 13

Candidate Starts for Lambo_29:

(Start: 13 @25656 has 47 MA's), (14, 25662), (22, 25713), (27, 25737), (35, 25824), (42, 25881), (46, 25926), (50, 25968), (53, 25992), (58, 26055), (64, 26094), (71, 26169), (74, 26199), (82, 26280), (87, 26316), (106, 26469), (120, 26649),

Gene: LavAbarElk_27 Start: 24090, Stop: 25214, Start Num: 13

Candidate Starts for LavAbarElk_27:

(Start: 13 @24090 has 47 MA's), (14, 24096), (Start: 16 @24102 has 1 MA's), (22, 24147), (27, 24171), (35, 24258), (42, 24315), (46, 24360), (50, 24402), (64, 24528), (71, 24603), (74, 24633), (82, 24714), (87, 24750), (106, 24903), (112, 24984), (113, 25005), (120, 25083), (132, 25164),

Gene: Leopard_38 Start: 28522, Stop: 29766, Start Num: 8

Candidate Starts for Leopard_38:

(4, 28474), (7, 28510), (Start: 8 @28522 has 5 MA's), (22, 28621), (25, 28639), (38, 28756), (43, 28825), (48, 28858), (49, 28867), (51, 28894), (55, 28918), (56, 28927), (64, 29002), (72, 29098), (77, 29134), (82, 29188), (85, 29209), (88, 29227), (89, 29233), (90, 29236), (91, 29248), (107, 29380), (108, 29383), (118, 29545), (120, 29557), (122, 29566), (136, 29701), (140, 29743),

Gene: Lila22_28 Start: 25623, Stop: 26735, Start Num: 16

Candidate Starts for Lila22_28:

(Start: 13 @25611 has 47 MA's), (14, 25617), (Start: 16 @25623 has 1 MA's), (22, 25668), (27, 25692), (35, 25779), (42, 25836), (46, 25881), (50, 25923), (53, 25947), (58, 26010), (64, 26049), (71, 26124), (74, 26154), (82, 26235), (87, 26271), (106, 26424), (112, 26505), (113, 26526), (120, 26604),

Gene: LilyPad_25 Start: 20787, Stop: 21920, Start Num: 13

Candidate Starts for LilyPad_25:

(Start: 13 @20787 has 47 MA's), (19, 20838), (22, 20847), (25, 20865), (31, 20904), (32, 20925), (40, 21000), (45, 21060), (53, 21129), (59, 21198), (93, 21486), (95, 21504), (100, 21534), (101, 21558), (106, 21606), (116, 21720), (120, 21786), (121, 21792), (127, 21825), (129, 21831), (131, 21864), (134, 21879),

Gene: LittleFella_26 Start: 22663, Stop: 23796, Start Num: 13

Candidate Starts for LittleFella_26:

(Start: 13 @22663 has 47 MA's), (21, 22720), (22, 22723), (32, 22801), (36, 22843), (41, 22879), (50, 22981), (53, 23005), (54, 23020), (59, 23074), (60, 23080), (69, 23167), (79, 23251), (91, 23353), (93, 23362), (95, 23380), (96, 23386), (101, 23434), (106, 23482), (112, 23563), (115, 23590), (116, 23596), (120, 23662), (121, 23668), (127, 23701), (129, 23707), (131, 23740), (132, 23746), (134, 23755),

Gene: LuckyLeo_28 Start: 24963, Stop: 26087, Start Num: 13

Candidate Starts for LuckyLeo_28:

(Start: 13 @24963 has 47 MA's), (14, 24969), (22, 25020), (27, 25044), (35, 25131), (42, 25188), (46, 25233), (50, 25275), (52, 25296), (53, 25299), (58, 25362), (64, 25401), (65, 25404), (71, 25476), (74, 25506), (82, 25587), (87, 25623), (106, 25776), (120, 25956),

Gene: Madi_24 Start: 20204, Stop: 21337, Start Num: 13

Candidate Starts for Madi_24:

(Start: 13 @20204 has 47 MA's), (31, 20321), (32, 20342), (34, 20354), (35, 20375), (36, 20384), (40, 20417), (53, 20546), (59, 20615), (75, 20765), (82, 20834), (86, 20858), (93, 20903), (95, 20921), (98, 20945), (101, 20975), (115, 21131), (116, 21137), (120, 21203), (121, 21209), (127, 21242), (131, 21281),

Gene: Madruga_34 Start: 26770, Stop: 28413, Start Num: 12

Candidate Starts for Madruga_34:

(Start: 12 @26770 has 14 MA's), (19, 26836), (20, 26839), (26, 26863), (47, 27085), (58, 27199), (61, 27214), (64, 27238), (66, 27271), (76, 27367), (81, 27418), (98, 27535), (106, 27613), (107, 27616), (130, 27868), (131, 27874), (132, 27880), (144, 28063),

Gene: Megatron06_30 Start: 24587, Stop: 26215, Start Num: 12

Candidate Starts for Megatron06_30:

(Start: 8 @24560 has 5 MA's), (10, 24572), (Start: 12 @24587 has 14 MA's), (22, 24659), (29, 24701), (37, 24791), (41, 24818), (43, 24869), (44, 24872), (57, 24983), (64, 25046), (103, 25388), (105, 25412), (107, 25424), (112, 25502), (130, 25673), (143, 25838), (144, 25862), (158, 26033), (159, 26057), (165, 26093), (168, 26126), (169, 26147), (170, 26153), (171, 26165), (173, 26183), (174, 26201), (175, 26204),

Gene: Mima20_27 Start: 25340, Stop: 26464, Start Num: 13

Candidate Starts for Mima20_27:

(Start: 13 @25340 has 47 MA's), (14, 25346), (Start: 16 @25352 has 1 MA's), (22, 25397), (27, 25421), (35, 25508), (42, 25565), (46, 25610), (50, 25652), (53, 25676), (58, 25739), (64, 25778), (71, 25853), (74, 25883), (82, 25964), (87, 26000), (106, 26153), (112, 26234), (113, 26255), (120, 26333), (132, 26414),

Gene: MoiGyank_31 Start: 26021, Stop: 27145, Start Num: 13

Candidate Starts for MoiGyank_31:

(Start: 13 @26021 has 47 MA's), (14, 26027), (Start: 16 @26033 has 1 MA's), (22, 26078), (27, 26102), (35, 26189), (42, 26246), (46, 26291), (50, 26333), (64, 26459), (71, 26534), (74, 26564), (82, 26645), (87, 26681), (106, 26834), (112, 26915), (113, 26936), (120, 27014), (132, 27095),

Gene: MontyDev_29 Start: 23090, Stop: 24277, Start Num: 11

Candidate Starts for MontyDev_29:

(2, 22985), (3, 22991), (Start: 11 @23090 has 35 MA's), (15, 23117), (Start: 16 @23120 has 1 MA's), (23, 23165), (24, 23177), (27, 23186), (53, 23462), (55, 23480), (62, 23558), (63, 23567), (64, 23582), (87, 23804), (90, 23816), (106, 23957), (107, 23960), (114, 24065), (117, 24110), (120, 24140), (124, 24164), (126, 24176), (127, 24179), (133, 24227), (135, 24266),

Gene: Mopey_29 Start: 22661, Stop: 24316, Start Num: 11

Candidate Starts for Mopey_29:

(Start: 11 @22661 has 35 MA's), (55, 23051), (60, 23108), (90, 23399), (91, 23411), (116, 23654), (120, 23720), (125, 23747), (131, 23798), (139, 23894), (141, 23915), (146, 24014), (148, 24044), (149, 24056), (151, 24074), (154, 24098), (156, 24146), (165, 24233), (168, 24266),

Gene: MrMiyagi_23 Start: 19394, Stop: 20566, Start Num: 11

Candidate Starts for MrMiyagi_23:

(9, 19382), (Start: 11 @19394 has 35 MA's), (18, 19448), (20, 19463), (25, 19484), (42, 19655), (43, 19691), (55, 19784), (60, 19841), (64, 19868), (66, 19901), (70, 19937), (74, 19973), (85, 20075), (87, 20090), (107, 20246), (120, 20423), (122, 20432), (123, 20441), (127, 20462), (128, 20465), (133, 20510),

Gene: Nilo_30 Start: 23446, Stop: 24633, Start Num: 11

Candidate Starts for Nilo_30:

(2, 23341), (3, 23347), (5, 23386), (Start: 11 @23446 has 35 MA's), (15, 23473), (Start: 16 @23476 has 1 MA's), (23, 23521), (24, 23533), (27, 23542), (42, 23707), (53, 23818), (55, 23836), (62, 23914), (63, 23923), (64, 23938), (87, 24160), (90, 24172), (106, 24313), (107, 24316), (114, 24421), (117, 24466), (120, 24496), (124, 24520), (126, 24532), (127, 24535), (133, 24583), (135, 24622),

Gene: Nish23_29 Start: 24038, Stop: 25681, Start Num: 10

Candidate Starts for Nish23_29:

(Start: 8 @24026 has 5 MA's), (10, 24038), (Start: 12 @24053 has 14 MA's), (22, 24125), (29, 24167), (37, 24257), (41, 24284), (43, 24335), (44, 24338), (57, 24449), (64, 24512), (103, 24854), (105, 24878), (107, 24890), (112, 24968), (130, 25139), (143, 25304), (144, 25328), (158, 25499), (159, 25523), (165, 25559), (168, 25592), (169, 25613), (170, 25619), (171, 25631), (173, 25649), (174, 25667), (175, 25670),

Gene: NorManre_30 Start: 25228, Stop: 26352, Start Num: 13

Candidate Starts for NorManre_30:

(Start: 13 @25228 has 47 MA's), (14, 25234), (Start: 16 @25240 has 1 MA's), (22, 25285), (27, 25309), (35, 25396), (42, 25453), (46, 25498), (50, 25540), (53, 25564), (58, 25627), (64, 25666), (71, 25741), (74, 25771), (82, 25852), (87, 25888), (106, 26041), (112, 26122), (113, 26143), (120, 26221), (132,

26302),

Gene: Nova_29 Start: 23088, Stop: 24743, Start Num: 11

Candidate Starts for Nova_29:

(Start: 11 @23088 has 35 MA's), (55, 23478), (60, 23535), (90, 23826), (91, 23838), (116, 24081), (119, 24144), (120, 24147), (125, 24174), (131, 24225), (139, 24321), (141, 24342), (148, 24471), (149, 24483), (151, 24501), (156, 24573), (165, 24660), (168, 24693),

Gene: NovaSharks_28 Start: 23220, Stop: 24344, Start Num: 13

Candidate Starts for NovaSharks_28:

(Start: 13 @23220 has 47 MA's), (14, 23226), (Start: 16 @23232 has 1 MA's), (22, 23277), (27, 23301), (35, 23388), (42, 23445), (46, 23490), (50, 23532), (53, 23556), (64, 23658), (71, 23733), (74, 23763), (82, 23844), (87, 23880), (106, 24033), (109, 24066), (120, 24213), (132, 24294),

Gene: Oaker_28 Start: 24284, Stop: 25939, Start Num: 8

Candidate Starts for Oaker_28:

(Start: 8 @24284 has 5 MA's), (10, 24296), (Start: 12 @24311 has 14 MA's), (22, 24383), (29, 24425), (37, 24515), (41, 24542), (43, 24593), (44, 24596), (57, 24707), (64, 24770), (103, 25112), (105, 25136), (107, 25148), (112, 25226), (130, 25397), (143, 25562), (144, 25586), (158, 25757), (159, 25781), (165, 25817), (168, 25850), (169, 25871), (170, 25877), (171, 25889), (173, 25907), (174, 25925), (175, 25928),

Gene: Onyinye_39 Start: 28401, Stop: 29645, Start Num: 8

Candidate Starts for Onyinye_39:

(4, 28353), (7, 28389), (Start: 8 @28401 has 5 MA's), (22, 28500), (25, 28518), (38, 28635), (43, 28704), (48, 28737), (49, 28746), (51, 28773), (56, 28806), (64, 28881), (72, 28977), (77, 29013), (82, 29067), (85, 29088), (88, 29106), (89, 29112), (90, 29115), (91, 29127), (107, 29259), (108, 29262), (118, 29424), (120, 29436), (122, 29445), (136, 29580), (140, 29622),

Gene: OtterstedtS21_29 Start: 25306, Stop: 26430, Start Num: 13

Candidate Starts for OtterstedtS21_29:

(Start: 13 @25306 has 47 MA's), (14, 25312), (Start: 16 @25318 has 1 MA's), (22, 25363), (27, 25387), (35, 25474), (42, 25531), (46, 25576), (50, 25618), (64, 25744), (71, 25819), (74, 25849), (82, 25930), (87, 25966), (106, 26119), (112, 26200), (113, 26221), (120, 26299), (132, 26380),

Gene: PBI1_29 Start: 22592, Stop: 24247, Start Num: 11

Candidate Starts for PBI1_29:

(Start: 11 @22592 has 35 MA's), (55, 22982), (60, 23039), (90, 23330), (91, 23342), (116, 23585), (120, 23651), (125, 23678), (131, 23729), (139, 23825), (141, 23846), (149, 23987), (151, 24005), (156, 24077), (165, 24164), (168, 24197),

Gene: PLOT_30 Start: 22664, Stop: 24319, Start Num: 11

Candidate Starts for PLOT_30:

(Start: 11 @22664 has 35 MA's), (55, 23054), (60, 23111), (90, 23402), (91, 23414), (116, 23657), (120, 23723), (125, 23750), (131, 23801), (139, 23897), (141, 23918), (149, 24059), (151, 24077), (156, 24149), (165, 24236), (168, 24269),

Gene: Papyrus_29 Start: 23111, Stop: 24298, Start Num: 11

Candidate Starts for Papyrus_29:

(2, 23006), (3, 23012), (Start: 11 @23111 has 35 MA's), (15, 23138), (Start: 16 @23141 has 1 MA's), (23, 23186), (24, 23198), (27, 23207), (53, 23483), (55, 23501), (62, 23579), (63, 23588), (64, 23603), (65, 23606), (87, 23825), (90, 23837), (106, 23978), (107, 23981), (114, 24086), (117, 24131), (120, 24161), (124, 24185), (126, 24197), (127, 24200), (133, 24248), (135, 24287),

Gene: ParvusTarda_29 Start: 24788, Stop: 25912, Start Num: 13

Candidate Starts for ParvusTarda_29:

(Start: 13 @24788 has 47 MA's), (14, 24794), (Start: 16 @24800 has 1 MA's), (22, 24845), (27, 24869), (35, 24956), (42, 25013), (46, 25058), (50, 25100), (53, 25124), (58, 25187), (64, 25226), (71, 25301), (74, 25331), (82, 25412), (87, 25448), (92, 25475), (106, 25601), (120, 25781),

Gene: Patience_36 Start: 27651, Stop: 29294, Start Num: 12

Candidate Starts for Patience_36:

(Start: 12 @27651 has 14 MA's), (19, 27717), (20, 27720), (26, 27744), (47, 27966), (58, 28080), (61, 28095), (64, 28119), (66, 28152), (75, 28236), (76, 28248), (81, 28299), (98, 28416), (106, 28494), (107, 28497), (130, 28749), (131, 28755), (132, 28761), (144, 28944),

Gene: Patos_30 Start: 25228, Stop: 26352, Start Num: 13

Candidate Starts for Patos_30:

(Start: 13 @25228 has 47 MA's), (14, 25234), (Start: 16 @25240 has 1 MA's), (22, 25285), (27, 25309), (35, 25396), (42, 25453), (46, 25498), (50, 25540), (53, 25564), (58, 25627), (64, 25666), (71, 25741), (74, 25771), (82, 25852), (87, 25888), (106, 26041), (112, 26122), (113, 26143), (120, 26221), (132, 26302),

Gene: Penelope2018_29 Start: 22661, Stop: 24316, Start Num: 11

Candidate Starts for Penelope2018_29:

(Start: 11 @22661 has 35 MA's), (55, 23051), (60, 23108), (90, 23399), (91, 23411), (116, 23654), (120, 23720), (125, 23747), (131, 23798), (139, 23894), (141, 23915), (149, 24056), (151, 24074), (156, 24146), (165, 24233), (168, 24266),

Gene: Phalaborwa_29 Start: 22688, Stop: 24343, Start Num: 11

Candidate Starts for Phalaborwa_29:

(1, 22496), (Start: 11 @22688 has 35 MA's), (22, 22763), (36, 22901), (59, 23129), (60, 23135), (81, 23372), (85, 23399), (90, 23426), (91, 23438), (116, 23681), (118, 23735), (119, 23744), (120, 23747), (125, 23774), (137, 23894), (139, 23921), (149, 24083), (151, 24101), (156, 24173), (165, 24260), (168, 24293),

Gene: Phreeze_28 Start: 24054, Stop: 25682, Start Num: 12

Candidate Starts for Phreeze_28:

(Start: 8 @24027 has 5 MA's), (10, 24039), (Start: 12 @24054 has 14 MA's), (22, 24126), (29, 24168), (37, 24258), (41, 24285), (43, 24336), (44, 24339), (57, 24450), (64, 24513), (103, 24855), (105, 24879), (107, 24891), (112, 24969), (130, 25140), (143, 25305), (144, 25329), (150, 25398), (153, 25419), (157, 25497), (158, 25500), (159, 25524), (161, 25536), (164, 25554), (165, 25560), (168, 25593), (169, 25614), (170, 25620), (171, 25632), (173, 25650), (174, 25668), (175, 25671),

Gene: Prager_29 Start: 22673, Stop: 24328, Start Num: 11

Candidate Starts for Prager_29:

(Start: 11 @22673 has 35 MA's), (43, 22970), (55, 23063), (60, 23120), (90, 23411), (91, 23423), (116, 23666), (120, 23732), (125, 23759), (131, 23810), (139, 23906), (149, 24068), (151, 24086), (156, 24158), (165, 24245), (168, 24278),

Gene: Predator_32 Start: 25635, Stop: 27263, Start Num: 12

Candidate Starts for Predator_32:

(10, 25620), (Start: 12 @25635 has 14 MA's), (17, 25671), (22, 25707), (25, 25725), (28, 25734), (29, 25749), (39, 25854), (43, 25917), (45, 25923), (57, 26031), (60, 26067), (64, 26094), (67, 26130), (68, 26148), (87, 26316), (90, 26328), (104, 26451), (112, 26550), (114, 26574), (124, 26673), (130, 26721), (142, 26871), (143, 26886), (147, 26940), (153, 27000), (157, 27078), (165, 27141), (168,

27174), (169, 27195), (170, 27201), (174, 27249),

Gene: Puissant_29 Start: 24517, Stop: 26145, Start Num: 12

Candidate Starts for Puissant_29:

(10, 24502), (Start: 12 @24517 has 14 MA's), (Start: 13 @24532 has 47 MA's), (17, 24553), (18, 24571), (22, 24589), (24, 24604), (29, 24631), (37, 24721), (41, 24748), (43, 24799), (44, 24802), (55, 24892), (57, 24913), (64, 24976), (69, 25036), (87, 25198), (130, 25603), (142, 25753), (143, 25768), (153, 25882), (157, 25960), (165, 26023), (168, 26056), (171, 26095), (173, 26113), (174, 26131),

Gene: Pywacket_28 Start: 26136, Stop: 27260, Start Num: 13

Candidate Starts for Pywacket_28:

(Start: 13 @26136 has 47 MA's), (14, 26142), (Start: 16 @26148 has 1 MA's), (22, 26193), (27, 26217), (35, 26304), (42, 26361), (46, 26406), (50, 26448), (64, 26574), (71, 26649), (74, 26679), (82, 26760), (87, 26796), (106, 26949), (112, 27030), (113, 27051), (120, 27129), (132, 27210),

Gene: Ranch_29 Start: 24142, Stop: 25266, Start Num: 13

Candidate Starts for Ranch_29:

(Start: 13 @24142 has 47 MA's), (14, 24148), (Start: 16 @24154 has 1 MA's), (22, 24199), (27, 24223), (35, 24310), (42, 24367), (46, 24412), (50, 24454), (53, 24478), (58, 24541), (64, 24580), (71, 24655), (74, 24685), (82, 24766), (87, 24802), (106, 24955), (112, 25036), (113, 25057), (120, 25135), (132, 25216),

Gene: RazorC_27 Start: 23612, Stop: 24736, Start Num: 13

Candidate Starts for RazorC_27:

(Start: 13 @23612 has 47 MA's), (14, 23618), (Start: 16 @23624 has 1 MA's), (22, 23669), (27, 23693), (35, 23780), (42, 23837), (46, 23882), (50, 23924), (53, 23948), (64, 24050), (71, 24125), (74, 24155), (82, 24236), (87, 24272), (106, 24425), (109, 24458), (120, 24605), (132, 24686),

Gene: Riduram_26 Start: 23190, Stop: 24314, Start Num: 13

Candidate Starts for Riduram_26:

(Start: 13 @23190 has 47 MA's), (14, 23196), (Start: 16 @23202 has 1 MA's), (22, 23247), (27, 23271), (35, 23358), (42, 23415), (46, 23460), (50, 23502), (53, 23526), (64, 23628), (71, 23703), (74, 23733), (82, 23814), (87, 23850), (106, 24003), (109, 24036), (120, 24183), (132, 24264),

Gene: Riparian_29 Start: 22907, Stop: 24094, Start Num: 11

Candidate Starts for Riparian_29:

(2, 22802), (3, 22808), (Start: 11 @22907 has 35 MA's), (15, 22934), (Start: 16 @22937 has 1 MA's), (23, 22982), (24, 22994), (27, 23003), (42, 23168), (53, 23279), (55, 23297), (62, 23375), (63, 23384), (64, 23399), (87, 23621), (90, 23633), (106, 23774), (107, 23777), (114, 23882), (117, 23927), (120, 23957), (124, 23981), (126, 23993), (127, 23996), (133, 24044), (135, 24083),

Gene: Rope_29 Start: 23093, Stop: 24280, Start Num: 11

Candidate Starts for Rope_29:

(2, 22988), (3, 22994), (Start: 11 @23093 has 35 MA's), (15, 23120), (Start: 16 @23123 has 1 MA's), (23, 23168), (24, 23180), (27, 23189), (42, 23354), (53, 23465), (55, 23483), (62, 23561), (63, 23570), (64, 23585), (65, 23588), (87, 23807), (90, 23819), (106, 23960), (107, 23963), (114, 24068), (117, 24113), (120, 24143), (124, 24167), (126, 24179), (127, 24182), (133, 24230), (135, 24269),

Gene: Rota_28 Start: 25495, Stop: 26619, Start Num: 13

Candidate Starts for Rota_28:

(Start: 13 @25495 has 47 MA's), (14, 25501), (Start: 16 @25507 has 1 MA's), (22, 25552), (27, 25576), (35, 25663), (42, 25720), (46, 25765), (50, 25807), (64, 25933), (71, 26008), (74, 26038), (82, 26119), (87, 26155), (106, 26308), (112, 26389), (113, 26410), (120, 26488), (132, 26569),

Gene: Rukungu_29 Start: 25844, Stop: 26968, Start Num: 13

Candidate Starts for Rukungu_29:

(Start: 13 @25844 has 47 MA's), (14, 25850), (Start: 16 @25856 has 1 MA's), (22, 25901), (27, 25925), (35, 26012), (42, 26069), (46, 26114), (50, 26156), (53, 26180), (58, 26243), (64, 26282), (71, 26357), (74, 26387), (82, 26468), (87, 26504), (106, 26657), (112, 26738), (113, 26759), (120, 26837), (132, 26918),

Gene: Rumi_28 Start: 23223, Stop: 24347, Start Num: 13

Candidate Starts for Rumi_28:

(Start: 13 @23223 has 47 MA's), (14, 23229), (Start: 16 @23235 has 1 MA's), (22, 23280), (27, 23304), (35, 23391), (42, 23448), (46, 23493), (50, 23535), (53, 23559), (64, 23661), (71, 23736), (74, 23766), (82, 23847), (87, 23883), (106, 24036), (109, 24069), (120, 24216), (132, 24297),

Gene: Sadboi_29 Start: 25984, Stop: 27108, Start Num: 13

Candidate Starts for Sadboi_29:

(Start: 13 @25984 has 47 MA's), (14, 25990), (Start: 16 @25996 has 1 MA's), (22, 26041), (27, 26065), (35, 26152), (42, 26209), (46, 26254), (50, 26296), (53, 26320), (58, 26383), (64, 26422), (71, 26497), (74, 26527), (82, 26608), (87, 26644), (106, 26797), (112, 26878), (113, 26899), (120, 26977), (132, 27058),

Gene: Sampudon_29 Start: 26151, Stop: 27275, Start Num: 13

Candidate Starts for Sampudon_29:

(Start: 13 @26151 has 47 MA's), (14, 26157), (Start: 16 @26163 has 1 MA's), (22, 26208), (27, 26232), (35, 26319), (42, 26376), (46, 26421), (50, 26463), (64, 26589), (71, 26664), (74, 26694), (82, 26775), (87, 26811), (106, 26964), (112, 27045), (113, 27066), (120, 27144), (132, 27225),

Gene: Send513_29 Start: 23449, Stop: 24636, Start Num: 11

Candidate Starts for Send513_29:

(2, 23344), (3, 23350), (Start: 11 @23449 has 35 MA's), (15, 23476), (Start: 16 @23479 has 1 MA's), (23, 23524), (24, 23536), (27, 23545), (42, 23710), (53, 23821), (55, 23839), (62, 23917), (63, 23926), (64, 23941), (87, 24163), (90, 24175), (106, 24316), (107, 24319), (114, 24424), (117, 24469), (120, 24499), (124, 24523), (126, 24535), (127, 24538), (133, 24586), (135, 24625),

Gene: Sienna_24 Start: 20204, Stop: 21337, Start Num: 13

Candidate Starts for Sienna_24:

(Start: 13 @20204 has 47 MA's), (31, 20321), (32, 20342), (34, 20354), (35, 20375), (36, 20384), (40, 20417), (59, 20615), (75, 20765), (86, 20858), (93, 20903), (95, 20921), (100, 20951), (101, 20975), (115, 21131), (116, 21137), (117, 21173), (120, 21203), (121, 21209), (127, 21242), (131, 21281),

Gene: SirHarley_28 Start: 22593, Stop: 24248, Start Num: 11

Candidate Starts for SirHarley_28:

(Start: 11 @22593 has 35 MA's), (55, 22983), (60, 23040), (90, 23331), (91, 23343), (116, 23586), (120, 23652), (125, 23679), (131, 23730), (139, 23826), (149, 23988), (151, 24006), (156, 24078), (165, 24165), (168, 24198),

Gene: Stormer_28 Start: 23223, Stop: 24347, Start Num: 13

Candidate Starts for Stormer_28:

(Start: 13 @23223 has 47 MA's), (14, 23229), (Start: 16 @23235 has 1 MA's), (22, 23280), (27, 23304), (35, 23391), (42, 23448), (46, 23493), (50, 23535), (53, 23559), (64, 23661), (71, 23736), (74, 23766), (82, 23847), (87, 23883), (106, 24036), (109, 24069), (120, 24216), (132, 24297),

Gene: SuperSonics_35 Start: 26827, Stop: 28470, Start Num: 12

Candidate Starts for SuperSonics_35:

(Start: 12 @26827 has 14 MA's), (19, 26893), (20, 26896), (26, 26920), (47, 27142), (58, 27256), (61, 27271), (64, 27295), (66, 27328), (75, 27412), (76, 27424), (81, 27475), (98, 27592), (106, 27670), (107, 27673), (130, 27925), (131, 27931), (132, 27937), (144, 28120),

Gene: SuperheroCarly_29 Start: 22523, Stop: 24178, Start Num: 11

Candidate Starts for SuperheroCarly_29:

(Start: 11 @22523 has 35 MA's), (55, 22913), (60, 22970), (90, 23261), (91, 23273), (116, 23516), (120, 23582), (125, 23609), (131, 23660), (139, 23756), (141, 23777), (146, 23876), (148, 23906), (149, 23918), (151, 23936), (154, 23960), (156, 24008), (165, 24095), (168, 24128),

Gene: Suzy_24 Start: 21365, Stop: 22498, Start Num: 13

Candidate Starts for Suzy_24:

(Start: 13 @21365 has 47 MA's), (31, 21482), (32, 21503), (35, 21536), (36, 21545), (53, 21707), (75, 21926), (82, 21995), (91, 22055), (93, 22064), (95, 22082), (98, 22106), (101, 22136), (115, 22292), (116, 22298), (120, 22364), (121, 22370), (127, 22403), (131, 22442), (134, 22457),

Gene: Terapin_24 Start: 20204, Stop: 21337, Start Num: 13

Candidate Starts for Terapin_24:

(Start: 13 @20204 has 47 MA's), (31, 20321), (32, 20342), (34, 20354), (35, 20375), (36, 20384), (40, 20417), (53, 20546), (59, 20615), (75, 20765), (82, 20834), (86, 20858), (93, 20903), (95, 20921), (98, 20945), (101, 20975), (115, 21131), (116, 21137), (120, 21203), (121, 21209), (127, 21242), (131, 21281),

Gene: Thoth_29 Start: 22658, Stop: 24313, Start Num: 11

Candidate Starts for Thoth_29:

(Start: 11 @22658 has 35 MA's), (55, 23048), (60, 23105), (90, 23396), (91, 23408), (116, 23651), (120, 23717), (125, 23744), (131, 23795), (139, 23891), (141, 23912), (149, 24053), (151, 24071), (156, 24143), (165, 24230), (168, 24263),

Gene: Thumb_28 Start: 24054, Stop: 25682, Start Num: 12

Candidate Starts for Thumb_28:

(Start: 8 @24027 has 5 MA's), (10, 24039), (Start: 12 @24054 has 14 MA's), (22, 24126), (29, 24168), (37, 24258), (41, 24285), (43, 24336), (44, 24339), (57, 24450), (64, 24513), (103, 24855), (105, 24879), (107, 24891), (112, 24969), (130, 25140), (143, 25305), (144, 25329), (150, 25398), (153, 25419), (157, 25497), (158, 25500), (159, 25524), (164, 25554), (165, 25560), (168, 25593), (169, 25614), (170, 25620), (171, 25632), (173, 25650), (174, 25668), (175, 25671),

Gene: Tillicus_28 Start: 24557, Stop: 25681, Start Num: 13

Candidate Starts for Tillicus_28:

(Start: 13 @24557 has 47 MA's), (14, 24563), (22, 24614), (27, 24638), (35, 24725), (42, 24782), (46, 24827), (50, 24869), (52, 24890), (53, 24893), (58, 24956), (64, 24995), (65, 24998), (71, 25070), (74, 25100), (82, 25181), (87, 25217), (106, 25370), (113, 25472), (115, 25478), (120, 25550),

Gene: Troll4_29 Start: 22662, Stop: 24317, Start Num: 11

Candidate Starts for Troll4_29:

(Start: 11 @22662 has 35 MA's), (55, 23052), (60, 23109), (90, 23400), (91, 23412), (116, 23655), (120, 23721), (125, 23748), (131, 23799), (139, 23895), (146, 24015), (149, 24057), (151, 24075), (156, 24147), (165, 24234), (168, 24267),

Gene: Visconti_29 Start: 22671, Stop: 24326, Start Num: 11

Candidate Starts for Visconti_29:

(Start: 11 @22671 has 35 MA's), (55, 23061), (60, 23118), (90, 23409), (91, 23421), (116, 23664), (120, 23730), (125, 23757), (131, 23808), (139, 23904), (146, 24024), (149, 24066), (151, 24084), (156, 24156), (165, 24243), (168, 24276),

Gene: WaldoWhy_30 Start: 22667, Stop: 24322, Start Num: 11

Candidate Starts for WaldoWhy_30:

(Start: 11 @22667 has 35 MA's), (55, 23057), (60, 23114), (90, 23405), (91, 23417), (116, 23660), (120, 23726), (125, 23753), (131, 23804), (139, 23900), (141, 23921), (149, 24062), (151, 24080), (156, 24152), (165, 24239), (168, 24272),

Gene: Weiss13_29 Start: 23139, Stop: 24326, Start Num: 11

Candidate Starts for Weiss13_29:

(2, 23034), (3, 23040), (Start: 11 @23139 has 35 MA's), (15, 23166), (Start: 16 @23169 has 1 MA's), (23, 23214), (24, 23226), (27, 23235), (42, 23400), (53, 23511), (55, 23529), (62, 23607), (63, 23616), (64, 23631), (87, 23853), (90, 23865), (106, 24006), (107, 24009), (114, 24114), (117, 24159), (120, 24189), (124, 24213), (126, 24225), (127, 24228), (133, 24276), (135, 24315),

Gene: Wojtek_28 Start: 24861, Stop: 25985, Start Num: 13

Candidate Starts for Wojtek_28:

(Start: 13 @24861 has 47 MA's), (14, 24867), (Start: 16 @24873 has 1 MA's), (22, 24918), (27, 24942), (35, 25029), (42, 25086), (46, 25131), (50, 25173), (53, 25197), (58, 25260), (64, 25299), (71, 25374), (74, 25404), (82, 25485), (87, 25521), (92, 25548), (106, 25674), (120, 25854),

Gene: Xenia2_29 Start: 24947, Stop: 26074, Start Num: 13

Candidate Starts for Xenia2_29:

(Start: 13 @24947 has 47 MA's), (38, 25139), (42, 25172), (43, 25208), (46, 25217), (50, 25259), (60, 25358), (64, 25385), (65, 25388), (80, 25538), (83, 25583), (84, 25586), (87, 25607), (99, 25685), (106, 25760), (117, 25910), (120, 25940), (124, 25964), (131, 26015),

Gene: Yelo_29 Start: 23432, Stop: 24619, Start Num: 11

Candidate Starts for Yelo_29:

(2, 23327), (3, 23333), (Start: 11 @23432 has 35 MA's), (15, 23459), (Start: 16 @23462 has 1 MA's), (23, 23507), (24, 23519), (27, 23528), (42, 23693), (53, 23804), (55, 23822), (62, 23900), (63, 23909), (64, 23924), (87, 24146), (90, 24158), (106, 24299), (107, 24302), (114, 24407), (117, 24452), (120, 24482), (124, 24506), (126, 24518), (127, 24521), (133, 24569), (135, 24608),

Gene: Yikes_30 Start: 26236, Stop: 27360, Start Num: 13

Candidate Starts for Yikes_30:

(Start: 13 @26236 has 47 MA's), (14, 26242), (Start: 16 @26248 has 1 MA's), (22, 26293), (27, 26317), (35, 26404), (42, 26461), (46, 26506), (50, 26548), (64, 26674), (71, 26749), (74, 26779), (82, 26860), (87, 26896), (106, 27049), (112, 27130), (113, 27151), (120, 27229), (132, 27310),

Gene: Zany_28 Start: 25757, Stop: 26881, Start Num: 13

Candidate Starts for Zany_28:

(Start: 13 @25757 has 47 MA's), (14, 25763), (Start: 16 @25769 has 1 MA's), (22, 25814), (27, 25838), (35, 25925), (42, 25982), (46, 26027), (50, 26069), (53, 26093), (58, 26156), (64, 26195), (71, 26270), (74, 26300), (82, 26381), (87, 26417), (106, 26570), (120, 26750), (132, 26831),

Gene: Zenon_30 Start: 23451, Stop: 24638, Start Num: 11

Candidate Starts for Zenon_30:

(2, 23346), (3, 23352), (Start: 11 @23451 has 35 MA's), (15, 23478), (Start: 16 @23481 has 1 MA's), (23, 23526), (24, 23538), (27, 23547), (42, 23712), (53, 23823), (55, 23841), (62, 23919), (63, 23928), (64, 23943), (87, 24165), (90, 24177), (106, 24318), (107, 24321), (114, 24426), (117, 24471), (120,

24501), (124, 24525), (126, 24537), (127, 24540), (133, 24588), (135, 24627),