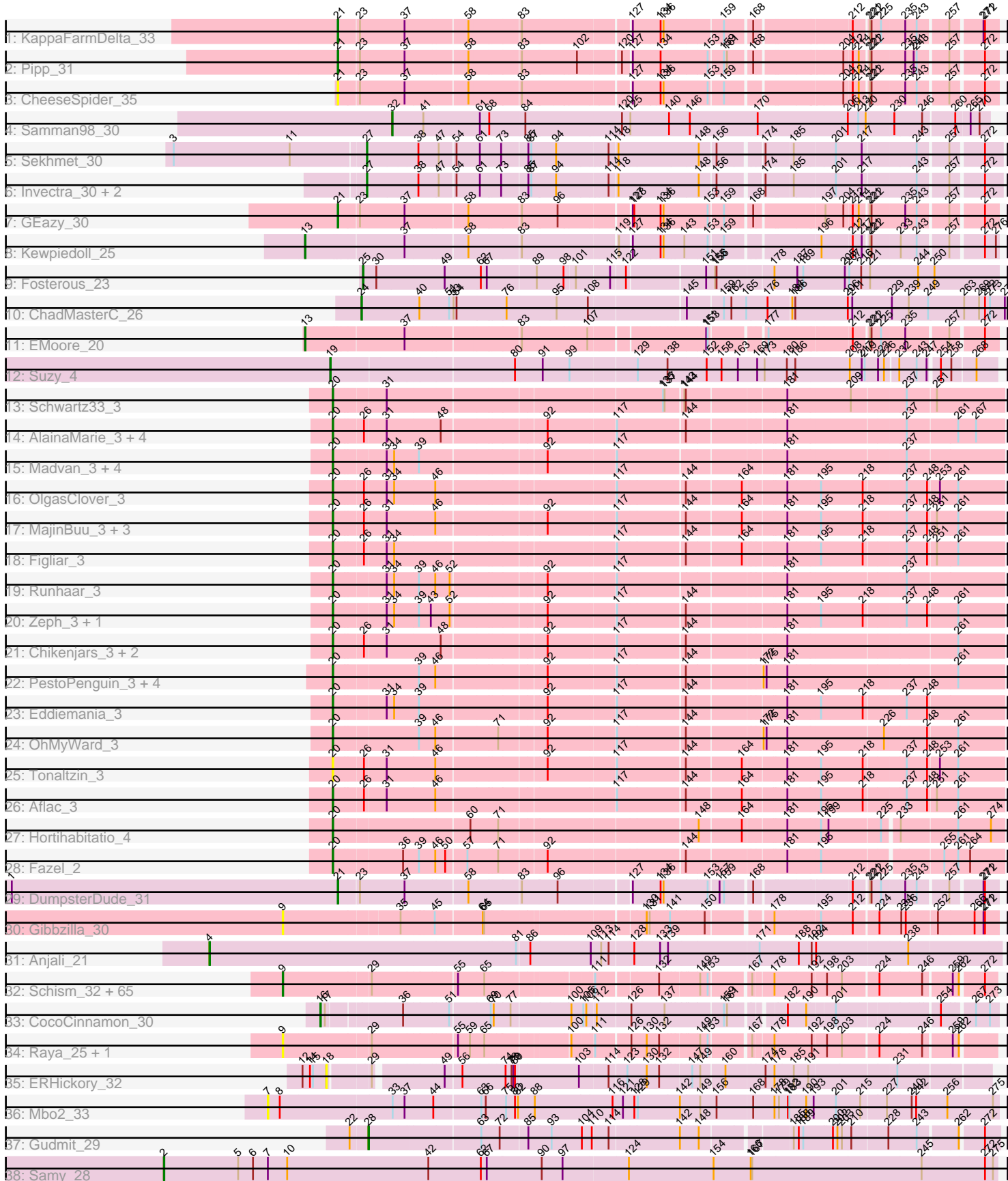


Pham 311378



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 311378 Report

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

Pham number 311378 has 124 members, 26 are drafts.

Phages represented in each track:

- Track 1 : KappaFarmDelta\_33
- Track 2 : Pipp\_31
- Track 3 : CheeseSpider\_35
- Track 4 : Samman98\_30
- Track 5 : Sekhmet\_30
- Track 6 : Invectra\_30, Easley\_30, WinkNick\_30
- Track 7 : GEazy\_30
- Track 8 : Kewpiedoll\_25
- Track 9 : Fosterous\_23
- Track 10 : ChadMasterC\_26
- Track 11 : EMoore\_20
- Track 12 : Suzy\_4
- Track 13 : Schwartz33\_3
- Track 14 : AlainaMarie\_3, Citrus\_3, EndAve\_3, Glintora\_3, Luthien\_3
- Track 15 : Madvan\_3, Phepper\_3, Nadmeg\_3, Vardy\_3, Burley\_3
- Track 16 : OlgasClover\_3
- Track 17 : MajinBuu\_3, BluerMoon\_3, Jodelie19\_3, TenaciousP\_3
- Track 18 : Figliar\_3
- Track 19 : Runhaar\_3
- Track 20 : Zeph\_3, Hydrus\_3
- Track 21 : Chikenjars\_3, Nithya\_3, Duffington\_3
- Track 22 : PestoPenguin\_3, ShaggyRogers\_3, BetterYeti\_3, Gusicorn\_3, Aloe25\_3
- Track 23 : Eddiemania\_3
- Track 24 : OhMyWard\_3
- Track 25 : Tonaltzin\_3
- Track 26 : Aflac\_3
- Track 27 : Hortihabitatio\_4
- Track 28 : Fazel\_2
- Track 29 : DumpsterDude\_31
- Track 30 : Gibbzilla\_30
- Track 31 : Anjali\_21
- Track 32 : Schism\_32, MaterMagnus\_32, MidnightRain\_32, Hillester\_32, Karkharias\_30, Isolde\_32, Sporco\_33, BenchScraper\_32, FosterFrank\_31, CookieBear\_32, Nandita\_32, BellaJr\_29, SonDevVon\_31, ChuckDuck\_31, BigSherm\_33, GumGum\_32, RadFad\_32, Ichiang\_30, Toodles\_33, KayMoney\_31, Lasker\_33, Sakai\_32, BlackSpider\_27, Richie\_32, LilyBell\_30, Satrap\_32, Guinevere\_32, Lenoxika\_32, MillySue\_33, QuinnAvery\_32, Saintcarr\_32,

GoodLuckBabe\_33, Constance\_30, DarwinJr\_36, Yonex\_32, Henrique\_32, MUWow\_31, Kihatsu\_33, Raphaella\_32, Kabloowy\_32, Mapleville\_32, ToastyOats\_35, Zaheer\_32, Gusanita\_30, Bauer\_28, BasketStar\_32, Donatella\_31, CosmicBrownie\_32, BlueShadow\_32, NikkiHotWheels\_32, PeggyLeg03\_30, Shukran\_32, Halloweekend\_30, Hestia\_32, ThayneTheZag\_32, Ryan\_32, GlobiWarming\_31, Popper\_30, DirtDigger\_32, Judy\_31, Lawnathon\_32, Bridgette\_30, Cole\_30, YoungHarleezy\_32, SpicyFrank\_32, Globfish\_32

- Track 33 : CocoCinnamon\_30
- Track 34 : Raya\_25, Skyerus\_25
- Track 35 : ERHickory\_32
- Track 36 : Mbo2\_33
- Track 37 : Gudmit\_29
- Track 38 : Samy\_28

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

The start number called the most often in the published annotations is 9, it was called in 51 of the 98 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- BasketStar\_32, Bauer\_28, BellaJr\_29, BenchScraper\_32, BigSherm\_33, BlackSpider\_27, BlueShadow\_32, Bridgette\_30, ChuckDuck\_31, Cole\_30, Constance\_30, CookieBear\_32, CosmicBrownie\_32, DarwinJr\_36, DirtDigger\_32, Donatella\_31, FosterFrank\_31, Gibbzilla\_30, Globfish\_32, GlobiWarming\_31, GoodLuckBabe\_33, Guinevere\_32, GumGum\_32, Gusanita\_30, Halloweekend\_30, Henrique\_32, Hestia\_32, Hillester\_32, Ichiang\_30, Isolde\_32, Judy\_31, Kabloowy\_32, Karkharias\_30, KayMoney\_31, Kihatsu\_33, Lasker\_33, Lawnathon\_32, Lenoxika\_32, LilyBell\_30, MUWow\_31, Mapleville\_32, MaterMagnus\_32, MidnightRain\_32, MillySue\_33, Nandita\_32, NikkiHotWheels\_32, PeggyLeg03\_30, Popper\_30, QuinnAvery\_32, RadFad\_32, Raphaella\_32, Raya\_25, Richie\_32, Ryan\_32, Saintcarr\_32, Sakai\_32, Satrap\_32, Schism\_32, Shukran\_32, Skyerus\_25, SonDevVon\_31, SpicyFrank\_32, Sporco\_33, ThayneTheZag\_32, ToastyOats\_35, Toodles\_33, Yonex\_32, YoungHarleezy\_32, Zaheer\_32,

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

- 

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

- Aflac\_3, AlainaMarie\_3, Aloe25\_3, Anjali\_21, BetterYeti\_3, BluerMoon\_3, Burley\_3, ChadMasterC\_26, CheeseSpider\_35, Chickenjars\_3, Citrus\_3, CocoCinnamon\_30, Duffington\_3, DumpsterDude\_31, EMoore\_20, ERHickory\_32, Easley\_30, Eddiemania\_3, EndAve\_3, Fazel\_2, Figliar\_3, Fosterous\_23, GEazy\_30, Glintora\_3, Gudmit\_29, Gusicorn\_3, Hortihabitatio\_4, Hydrus\_3, Invecetra\_30, Jodelie19\_3, KappaFarmDelta\_33, Kewpiedoll\_25, Luthien\_3, Madvan\_3, MajinBuu\_3, Mbo2\_33, Nadmeg\_3, Nithya\_3, OhMyWard\_3, OlgasClover\_3, PestoPenguin\_3, Phepper\_3, Pipp\_31, Runhaar\_3, Samman98\_30, Samy\_28, Schwartz33\_3, Sekhmet\_30, ShaggyRogers\_3, Suzy\_4, TenaciousP\_3, Tonaltzin\_3, Vardy\_3, WinkNick\_30, Zeph\_3,

**Summary by start number:**

Start 2:

- Found in 1 of 124 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Samy\_28 (singleton),

Start 4:

- Found in 1 of 124 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anjali\_21 (FD),

Start 7:

- Found in 2 of 124 ( 1.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Mbo2\_33 (singleton),

Start 9:

- Found in 69 of 124 ( 55.6% ) of genes in pham
- Manual Annotations of this start: 51 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BasketStar\_32 (AY), Bauer\_28 (FN), BellaJr\_29 (FN), BenchScraper\_32 (AY), BigSherm\_33 (FF), BlackSpider\_27 (FN), BlueShadow\_32 (AY), Bridgette\_30 (FA), ChuckDuck\_31 (FA), Cole\_30 (FF), Constance\_30 (FA), CookieBear\_32 (AY), CosmicBrownie\_32 (AY), DarwinJr\_36 (AY), DirtDigger\_32 (FF), Donatella\_31 (FF), FosterFrank\_31 (FA), Gibbzilla\_30 (FB), Globfish\_32 (AY), GlobiWarming\_31 (FA), GoodLuckBabe\_33 (FF), Guinevere\_32 (FF), GumGum\_32 (AY), Gusanita\_30 (FF), Halloween\_30 (FF), Henrique\_32 (FA), Hestia\_32 (AY), Hillester\_32 (AY), Ichiang\_30 (FF), Isolde\_32 (AY), Judy\_31 (FA), Kabloowy\_32 (AY), Karkharias\_30 (FA), KayMoney\_31 (FA), Kihatsu\_33 (FF), Lasker\_33 (AY), Lawnathon\_32 (AY), Lenoxika\_32 (FF), LilyBell\_30 (FA), MUWow\_31 (AY), Mapleville\_32 (AY), MaterMagnus\_32 (AY), MidnightRain\_32 (AY), MillySue\_33 (FF), Nandita\_32 (FF), NikkiHotWheels\_32 (FA), PeggyLeg03\_30 (FA), Popper\_30 (FF), QuinnAvery\_32 (FF), RadFad\_32 (AY), Raphaella\_32 (AY), Raya\_25 (FQ2), Richie\_32 (AY), Ryan\_32 (FF), Saintcarr\_32 (FF), Sakai\_32 (AY), Satrap\_32 (AY), Schism\_32 (FF), Shukran\_32 (AY), Skyerus\_25 (FQ2), SonDevVon\_31 (AY), SpicyFrank\_32 (AY), Sporco\_33 (AY), ThayneTheZag\_32 (AY), ToastyOats\_35 (FF), Toodles\_33 (FF), Yonex\_32 (FF), YoungHarleezy\_32 (AY), Zaheer\_32 (FF),

Start 13:

- Found in 2 of 124 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 2 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EMoore\_20 (DE2), Kewpiedoll\_25 (DE1),

Start 16:

- Found in 1 of 124 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 100.0% of time when present

- Phage (with cluster) where this start called: CocoCinnamon\_30 (FO),

#### Start 18:

- Found in 1 of 124 ( 0.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ERHickory\_32 (singleton),

#### Start 19:

- Found in 1 of 124 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Suzy\_4 (DG1),

#### Start 20:

- Found in 34 of 124 ( 27.4% ) of genes in pham
- Manual Annotations of this start: 29 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aflac\_3 (DJ), AlainaMarie\_3 (DJ), Aloe25\_3 (DJ), BetterYeti\_3 (DJ), BluerMoon\_3 (DJ), Burley\_3 (DJ), Chikenjars\_3 (DJ), Citrus\_3 (DJ), Duffington\_3 (DJ), Eddiemania\_3 (DJ), EndAve\_3 (DJ), Fazel\_2 (DJ), Figliar\_3 (DJ), Glintora\_3 (DJ), Gusicorn\_3 (DJ), Hortihabitatio\_4 (DJ), Hydrus\_3 (DJ), Jodelie19\_3 (DJ), Luthien\_3 (DJ), Madvan\_3 (DJ), MajinBuu\_3 (DJ), Nadmeg\_3 (DJ), Nithya\_3 (DJ), OhMyWard\_3 (DJ), OlgasClover\_3 (DJ), PestoPenguin\_3 (DJ), Phepper\_3 (DJ), Runhaar\_3 (DJ), Schwartz33\_3 (DJ), ShaggyRogers\_3 (DJ), TenaciousP\_3 (DJ), Tonaltzin\_3 (DJ), Vardy\_3 (DJ), Zeph\_3 (DJ),

#### Start 21:

- Found in 5 of 124 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 4 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CheeseSpider\_35 (CV), DumpsterDude\_31 (DW), GEazy\_30 (DB), KappaFarmDelta\_33 (CV), Pipp\_31 (CV),

#### Start 24:

- Found in 1 of 124 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ChadMasterC\_26 (DE1),

#### Start 25:

- Found in 1 of 124 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Fosterous\_23 (DE1),

#### Start 27:

- Found in 4 of 124 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 4 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Easley\_30 (CZ4), Invectra\_30 (CZ4), Sekhmet\_30 (CZ4), WinkNick\_30 (CZ4),

Start 28:

- Found in 1 of 124 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gudmit\_29 (singleton),

Start 32:

- Found in 1 of 124 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Samman98\_30 (CZ4),

**Summary by clusters:**

There are 17 clusters represented in this pham: singleton, DJ, FQ2, DE1, DE2, DB, CZ4, FA, FB, DG1, FD, FF, AY, DW, CV, FN, FO,

Info for manual annotations of cluster AY:

- Start number 9 was manually annotated 21 times for cluster AY.

Info for manual annotations of cluster CV:

- Start number 21 was manually annotated 2 times for cluster CV.

Info for manual annotations of cluster CZ4:

- Start number 27 was manually annotated 4 times for cluster CZ4.
- Start number 32 was manually annotated 1 time for cluster CZ4.

Info for manual annotations of cluster DB:

- Start number 21 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DE1:

- Start number 13 was manually annotated 1 time for cluster DE1.
- Start number 24 was manually annotated 1 time for cluster DE1.
- Start number 25 was manually annotated 1 time for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 13 was manually annotated 1 time for cluster DE2.

Info for manual annotations of cluster DG1:

- Start number 19 was manually annotated 1 time for cluster DG1.

Info for manual annotations of cluster DJ:

- Start number 20 was manually annotated 29 times for cluster DJ.

Info for manual annotations of cluster DW:

- Start number 21 was manually annotated 1 time for cluster DW.

Info for manual annotations of cluster FA:

- Start number 9 was manually annotated 10 times for cluster FA.

Info for manual annotations of cluster FD:

- Start number 4 was manually annotated 1 time for cluster FD.

Info for manual annotations of cluster FF:

- Start number 9 was manually annotated 18 times for cluster FF.

Info for manual annotations of cluster FN:

- Start number 9 was manually annotated 2 times for cluster FN.

Info for manual annotations of cluster FO:

- Start number 16 was manually annotated 1 time for cluster FO.

### ***Gene Information:***

Gene: Aflac\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Aflac\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (46, 825), (117, 1155), (144, 1284), (164, 1389), (181, 1467), (195, 1527), (218, 1608), (237, 1686), (248, 1725), (251, 1740), (261, 1782),

Gene: AlainaMarie\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for AlainaMarie\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (48, 834), (92, 1026), (117, 1155), (144, 1284), (181, 1467), (237, 1686), (261, 1782), (267, 1818),

Gene: Aloe25\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Aloe25\_3:

(Start: 20 @630 has 29 MA's), (39, 792), (46, 825), (92, 1026), (117, 1155), (144, 1284), (172, 1422), (175, 1428), (181, 1467), (261, 1782),

Gene: Anjali\_21 Start: 16366, Stop: 17904, Start Num: 4

Candidate Starts for Anjali\_21:

(Start: 4 @16366 has 1 MA's), (81, 16972), (86, 16996), (109, 17116), (113, 17134), (114, 17149), (128, 17194), (133, 17245), (139, 17260), (171, 17437), (188, 17515), (192, 17539), (194, 17548), (238, 17722),

Gene: BasketStar\_32 Start: 21691, Stop: 22944, Start Num: 9

Candidate Starts for BasketStar\_32:

(Start: 9 @21691 has 51 MA's), (29, 21859), (55, 22018), (65, 22069), (111, 22252), (132, 22363), (149, 22435), (153, 22450), (167, 22522), (178, 22558), (192, 22624), (198, 22648), (203, 22675), (224, 22741), (246, 22819), (259, 22867), (262, 22879), (272, 22921),

Gene: Bauer\_28 Start: 21209, Stop: 22462, Start Num: 9

Candidate Starts for Bauer\_28:

(Start: 9 @21209 has 51 MA's), (29, 21377), (55, 21536), (65, 21587), (111, 21770), (132, 21881), (149, 21953), (153, 21968), (167, 22040), (178, 22076), (192, 22142), (198, 22166), (203, 22193), (224, 22259), (246, 22337), (259, 22385), (262, 22397), (272, 22439),

Gene: BellaJr\_29 Start: 22187, Stop: 23440, Start Num: 9

Candidate Starts for BellaJr\_29:

(Start: 9 @22187 has 51 MA's), (29, 22355), (55, 22514), (65, 22565), (111, 22748), (132, 22859), (149, 22931), (153, 22946), (167, 23018), (178, 23054), (192, 23120), (198, 23144), (203, 23171),

(224, 23237), (246, 23315), (259, 23363), (262, 23375), (272, 23417),

Gene: BenchScraper\_32 Start: 21652, Stop: 22905, Start Num: 9

Candidate Starts for BenchScraper\_32:

(Start: 9 @21652 has 51 MA's), (29, 21820), (55, 21979), (65, 22030), (111, 22213), (132, 22324), (149, 22396), (153, 22411), (167, 22483), (178, 22519), (192, 22585), (198, 22609), (203, 22636), (224, 22702), (246, 22780), (259, 22828), (262, 22840), (272, 22882),

Gene: BetterYeti\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for BetterYeti\_3:

(Start: 20 @630 has 29 MA's), (39, 792), (46, 825), (92, 1026), (117, 1155), (144, 1284), (172, 1422), (175, 1428), (181, 1467), (261, 1782),

Gene: BigSherm\_33 Start: 23424, Stop: 24677, Start Num: 9

Candidate Starts for BigSherm\_33:

(Start: 9 @23424 has 51 MA's), (29, 23592), (55, 23751), (65, 23802), (111, 23985), (132, 24096), (149, 24168), (153, 24183), (167, 24255), (178, 24291), (192, 24357), (198, 24381), (203, 24408), (224, 24474), (246, 24552), (259, 24600), (262, 24612), (272, 24654),

Gene: BlackSpider\_27 Start: 21099, Stop: 22352, Start Num: 9

Candidate Starts for BlackSpider\_27:

(Start: 9 @21099 has 51 MA's), (29, 21267), (55, 21426), (65, 21477), (111, 21660), (132, 21771), (149, 21843), (153, 21858), (167, 21930), (178, 21966), (192, 22032), (198, 22056), (203, 22083), (224, 22149), (246, 22227), (259, 22275), (262, 22287), (272, 22329),

Gene: BlueShadow\_32 Start: 21637, Stop: 22890, Start Num: 9

Candidate Starts for BlueShadow\_32:

(Start: 9 @21637 has 51 MA's), (29, 21805), (55, 21964), (65, 22015), (111, 22198), (132, 22309), (149, 22381), (153, 22396), (167, 22468), (178, 22504), (192, 22570), (198, 22594), (203, 22621), (224, 22687), (246, 22765), (259, 22813), (262, 22825), (272, 22867),

Gene: BluerMoon\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for BluerMoon\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (46, 825), (92, 1026), (117, 1155), (144, 1284), (164, 1389), (181, 1467), (195, 1527), (218, 1608), (237, 1686), (248, 1725), (251, 1740), (261, 1782),

Gene: Bridgette\_30 Start: 21703, Stop: 22956, Start Num: 9

Candidate Starts for Bridgette\_30:

(Start: 9 @21703 has 51 MA's), (29, 21871), (55, 22030), (65, 22081), (111, 22264), (132, 22375), (149, 22447), (153, 22462), (167, 22534), (178, 22570), (192, 22636), (198, 22660), (203, 22687), (224, 22753), (246, 22831), (259, 22879), (262, 22891), (272, 22933),

Gene: Burley\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Burley\_3:

(Start: 20 @630 has 29 MA's), (31, 729), (34, 744), (39, 792), (92, 1026), (117, 1155), (181, 1467), (237, 1686),

Gene: ChadMasterC\_26 Start: 20791, Stop: 22044, Start Num: 24

Candidate Starts for ChadMasterC\_26:

(Start: 24 @20791 has 1 MA's), (40, 20908), (51, 20968), (53, 20977), (54, 20983), (76, 21079), (95, 21178), (108, 21241), (145, 21421), (159, 21490), (162, 21505), (165, 21535), (176, 21577), (184, 21622), (186, 21628), (206, 21727), (211, 21736), (229, 21814), (239, 21847), (249, 21886), (263, 21958), (269, 21988), (272, 22000), (273, 22009), (277, 22039),

Gene: CheeseSpider\_35 Start: 26082, Stop: 27251, Start Num: 21

Candidate Starts for CheeseSpider\_35:

(Start: 21 @26082 has 4 MA's), (23, 26121), (37, 26208), (58, 26325), (83, 26418), (127, 26610), (134, 26661), (136, 26667), (153, 26751), (159, 26778), (204, 26982), (212, 26997), (214, 27009), (221, 27024), (222, 27027), (235, 27090), (243, 27111), (257, 27165), (272, 27225),

Gene: Chikenjars\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Chikenjars\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (48, 834), (92, 1026), (117, 1155), (144, 1284), (181, 1467), (261, 1782),

Gene: ChuckDuck\_31 Start: 21471, Stop: 22724, Start Num: 9

Candidate Starts for ChuckDuck\_31:

(Start: 9 @21471 has 51 MA's), (29, 21639), (55, 21798), (65, 21849), (111, 22032), (132, 22143), (149, 22215), (153, 22230), (167, 22302), (178, 22338), (192, 22404), (198, 22428), (203, 22455), (224, 22521), (246, 22599), (259, 22647), (262, 22659), (272, 22701),

Gene: Citrus\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Citrus\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (48, 834), (92, 1026), (117, 1155), (144, 1284), (181, 1467), (237, 1686), (261, 1782), (267, 1818),

Gene: CocoCinnamon\_30 Start: 21380, Stop: 22567, Start Num: 16

Candidate Starts for CocoCinnamon\_30:

(Start: 16 @21380 has 1 MA's), (17, 21389), (36, 21524), (51, 21608), (69, 21683), (70, 21686), (77, 21719), (100, 21830), (105, 21854), (106, 21860), (112, 21875), (126, 21929), (137, 21995), (159, 22103), (161, 22109), (182, 22199), (190, 22235), (201, 22283), (254, 22466), (267, 22523), (273, 22550),

Gene: Cole\_30 Start: 23171, Stop: 24424, Start Num: 9

Candidate Starts for Cole\_30:

(Start: 9 @23171 has 51 MA's), (29, 23339), (55, 23498), (65, 23549), (111, 23732), (132, 23843), (149, 23915), (153, 23930), (167, 24002), (178, 24038), (192, 24104), (198, 24128), (203, 24155), (224, 24221), (246, 24299), (259, 24347), (262, 24359), (272, 24401),

Gene: Constance\_30 Start: 21943, Stop: 23196, Start Num: 9

Candidate Starts for Constance\_30:

(Start: 9 @21943 has 51 MA's), (29, 22111), (55, 22270), (65, 22321), (111, 22504), (132, 22615), (149, 22687), (153, 22702), (167, 22774), (178, 22810), (192, 22876), (198, 22900), (203, 22927), (224, 22993), (246, 23071), (259, 23119), (262, 23131), (272, 23173),

Gene: CookieBear\_32 Start: 21637, Stop: 22890, Start Num: 9

Candidate Starts for CookieBear\_32:

(Start: 9 @21637 has 51 MA's), (29, 21805), (55, 21964), (65, 22015), (111, 22198), (132, 22309), (149, 22381), (153, 22396), (167, 22468), (178, 22504), (192, 22570), (198, 22594), (203, 22621), (224, 22687), (246, 22765), (259, 22813), (262, 22825), (272, 22867),

Gene: CosmicBrownie\_32 Start: 21456, Stop: 22709, Start Num: 9

Candidate Starts for CosmicBrownie\_32:

(Start: 9 @21456 has 51 MA's), (29, 21624), (55, 21783), (65, 21834), (111, 22017), (132, 22128), (149, 22200), (153, 22215), (167, 22287), (178, 22323), (192, 22389), (198, 22413), (203, 22440), (224, 22506), (246, 22584), (259, 22632), (262, 22644), (272, 22686),

Gene: DarwinJr\_36 Start: 23048, Stop: 24301, Start Num: 9

Candidate Starts for DarwinJr\_36:

(Start: 9 @23048 has 51 MA's), (29, 23216), (55, 23375), (65, 23426), (111, 23609), (132, 23720), (149, 23792), (153, 23807), (167, 23879), (178, 23915), (192, 23981), (198, 24005), (203, 24032), (224, 24098), (246, 24176), (259, 24224), (262, 24236), (272, 24278),

Gene: Dirtdigger\_32 Start: 23245, Stop: 24498, Start Num: 9

Candidate Starts for Dirtdigger\_32:

(Start: 9 @23245 has 51 MA's), (29, 23413), (55, 23572), (65, 23623), (111, 23806), (132, 23917), (149, 23989), (153, 24004), (167, 24076), (178, 24112), (192, 24178), (198, 24202), (203, 24229), (224, 24295), (246, 24373), (259, 24421), (262, 24433), (272, 24475),

Gene: Donatella\_31 Start: 23635, Stop: 24888, Start Num: 9

Candidate Starts for Donatella\_31:

(Start: 9 @23635 has 51 MA's), (29, 23803), (55, 23962), (65, 24013), (111, 24196), (132, 24307), (149, 24379), (153, 24394), (167, 24466), (178, 24502), (192, 24568), (198, 24592), (203, 24619), (224, 24685), (246, 24763), (259, 24811), (262, 24823), (272, 24865),

Gene: Duffington\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Duffington\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (48, 834), (92, 1026), (117, 1155), (144, 1284), (181, 1467), (261, 1782),

Gene: DumpsterDude\_31 Start: 27356, Stop: 28525, Start Num: 21

Candidate Starts for DumpsterDude\_31:

(1, 26702), (Start: 21 @27356 has 4 MA's), (23, 27395), (37, 27482), (58, 27599), (83, 27692), (96, 27758), (127, 27884), (134, 27935), (136, 27941), (153, 28025), (157, 28043), (159, 28052), (168, 28100), (212, 28271), (221, 28298), (222, 28301), (225, 28319), (235, 28364), (243, 28385), (257, 28439), (271, 28496), (272, 28499),

Gene: EMoore\_20 Start: 17259, Stop: 18491, Start Num: 13

Candidate Starts for EMoore\_20:

(Start: 13 @17259 has 2 MA's), (37, 17448), (83, 17658), (107, 17781), (151, 17988), (153, 17991), (177, 18087), (212, 18237), (221, 18264), (222, 18267), (225, 18285), (235, 18330), (257, 18405), (272, 18465),

Gene: ERHickory\_32 Start: 13609, Stop: 14778, Start Num: 18

Candidate Starts for ERHickory\_32:

(12, 13561), (14, 13576), (15, 13582), (18, 13609), (29, 13678), (49, 13798), (56, 13828), (74, 13903), (78, 13915), (79, 13918), (80, 13921), (103, 14035), (114, 14086), (123, 14119), (130, 14155), (132, 14179), (147, 14236), (149, 14251), (160, 14293), (174, 14368), (178, 14386), (185, 14422), (191, 14449), (231, 14611),

Gene: Easley\_30 Start: 24149, Stop: 25288, Start Num: 27

Candidate Starts for Easley\_30:

(Start: 27 @24149 has 4 MA's), (38, 24239), (47, 24278), (54, 24308), (61, 24353), (73, 24392), (85, 24440), (87, 24446), (94, 24491), (114, 24584), (118, 24599), (148, 24755), (156, 24785), (174, 24863), (185, 24914), (201, 24989), (217, 25040), (243, 25139), (257, 25193), (272, 25253),

Gene: Eddiemania\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Eddiemania\_3:

(Start: 20 @630 has 29 MA's), (31, 729), (34, 744), (39, 792), (92, 1026), (117, 1155), (144, 1284), (181, 1467), (195, 1527), (218, 1608), (237, 1686), (248, 1725),

Gene: EndAve\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for EndAve\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (48, 834), (92, 1026), (117, 1155), (144, 1284), (181, 1467), (237, 1686), (261, 1782), (267, 1818),

Gene: Fazel\_2 Start: 373, Stop: 1608, Start Num: 20

Candidate Starts for Fazel\_2:

(Start: 20 @373 has 29 MA's), (36, 505), (39, 535), (46, 568), (50, 586), (57, 625), (71, 682), (92, 769), (144, 1027), (181, 1210), (195, 1270), (255, 1489), (261, 1516), (264, 1540),

Gene: Figliar\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Figliar\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (34, 744), (117, 1155), (144, 1284), (164, 1389), (181, 1467), (195, 1527), (218, 1608), (237, 1686), (248, 1725), (251, 1740), (261, 1782),

Gene: FosterFrank\_31 Start: 21545, Stop: 22798, Start Num: 9

Candidate Starts for FosterFrank\_31:

(Start: 9 @21545 has 51 MA's), (29, 21713), (55, 21872), (65, 21923), (111, 22106), (132, 22217), (149, 22289), (153, 22304), (167, 22376), (178, 22412), (192, 22478), (198, 22502), (203, 22529), (224, 22595), (246, 22673), (259, 22721), (262, 22733), (272, 22775),

Gene: Fosterous\_23 Start: 19719, Stop: 20936, Start Num: 25

Candidate Starts for Fosterous\_23:

(Start: 25 @19719 has 1 MA's), (30, 19743), (49, 19878), (62, 19947), (67, 19959), (89, 20055), (98, 20106), (101, 20127), (115, 20187), (122, 20214), (151, 20361), (155, 20376), (156, 20379), (178, 20487), (187, 20532), (189, 20544), (205, 20628), (207, 20637), (216, 20661), (221, 20679), (244, 20775), (250, 20808),

Gene: GEazy\_30 Start: 24987, Stop: 26156, Start Num: 21

Candidate Starts for GEazy\_30:

(Start: 21 @24987 has 4 MA's), (23, 25026), (37, 25113), (58, 25230), (83, 25323), (96, 25389), (127, 25515), (128, 25518), (134, 25566), (136, 25572), (153, 25656), (159, 25683), (168, 25731), (197, 25854), (204, 25887), (212, 25902), (214, 25914), (221, 25929), (222, 25932), (235, 25995), (243, 26016), (257, 26070), (272, 26130),

Gene: Gibbzilla\_30 Start: 19645, Stop: 20925, Start Num: 9

Candidate Starts for Gibbzilla\_30:

(Start: 9 @19645 has 51 MA's), (35, 19867), (45, 19927), (64, 20014), (65, 20017), (130, 20296), (131, 20302), (141, 20341), (150, 20407), (178, 20515), (195, 20599), (212, 20659), (224, 20701), (234, 20740), (236, 20749), (252, 20806), (266, 20878), (271, 20896), (272, 20899),

Gene: Glintora\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Glintora\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (48, 834), (92, 1026), (117, 1155), (144, 1284), (181, 1467), (237, 1686), (261, 1782), (267, 1818),

Gene: Globfish\_32 Start: 21871, Stop: 23124, Start Num: 9

Candidate Starts for Globfish\_32:

(Start: 9 @21871 has 51 MA's), (29, 22039), (55, 22198), (65, 22249), (111, 22432), (132, 22543), (149, 22615), (153, 22630), (167, 22702), (178, 22738), (192, 22804), (198, 22828), (203, 22855),

(224, 22921), (246, 22999), (259, 23047), (262, 23059), (272, 23101),

Gene: GlobiWarming\_31 Start: 21386, Stop: 22639, Start Num: 9

Candidate Starts for GlobiWarming\_31:

(Start: 9 @21386 has 51 MA's), (29, 21554), (55, 21713), (65, 21764), (111, 21947), (132, 22058), (149, 22130), (153, 22145), (167, 22217), (178, 22253), (192, 22319), (198, 22343), (203, 22370), (224, 22436), (246, 22514), (259, 22562), (262, 22574), (272, 22616),

Gene: GoodLuckBabe\_33 Start: 23753, Stop: 25006, Start Num: 9

Candidate Starts for GoodLuckBabe\_33:

(Start: 9 @23753 has 51 MA's), (29, 23921), (55, 24080), (65, 24131), (111, 24314), (132, 24425), (149, 24497), (153, 24512), (167, 24584), (178, 24620), (192, 24686), (198, 24710), (203, 24737), (224, 24803), (246, 24881), (259, 24929), (262, 24941), (272, 24983),

Gene: Gudmit\_29 Start: 22579, Stop: 23712, Start Num: 28

Candidate Starts for Gudmit\_29:

(22, 22546), (Start: 28 @22579 has 1 MA's), (63, 22786), (72, 22819), (85, 22870), (93, 22915), (104, 22972), (110, 22990), (114, 23017), (142, 23152), (148, 23188), (185, 23347), (188, 23356), (189, 23365), (200, 23416), (202, 23425), (203, 23434), (210, 23452), (228, 23521), (243, 23569), (262, 23641), (272, 23683),

Gene: Guinevere\_32 Start: 23343, Stop: 24596, Start Num: 9

Candidate Starts for Guinevere\_32:

(Start: 9 @23343 has 51 MA's), (29, 23511), (55, 23670), (65, 23721), (111, 23904), (132, 24015), (149, 24087), (153, 24102), (167, 24174), (178, 24210), (192, 24276), (198, 24300), (203, 24327), (224, 24393), (246, 24471), (259, 24519), (262, 24531), (272, 24573),

Gene: GumGum\_32 Start: 21800, Stop: 23053, Start Num: 9

Candidate Starts for GumGum\_32:

(Start: 9 @21800 has 51 MA's), (29, 21968), (55, 22127), (65, 22178), (111, 22361), (132, 22472), (149, 22544), (153, 22559), (167, 22631), (178, 22667), (192, 22733), (198, 22757), (203, 22784), (224, 22850), (246, 22928), (259, 22976), (262, 22988), (272, 23030),

Gene: Gusanita\_30 Start: 23106, Stop: 24359, Start Num: 9

Candidate Starts for Gusanita\_30:

(Start: 9 @23106 has 51 MA's), (29, 23274), (55, 23433), (65, 23484), (111, 23667), (132, 23778), (149, 23850), (153, 23865), (167, 23937), (178, 23973), (192, 24039), (198, 24063), (203, 24090), (224, 24156), (246, 24234), (259, 24282), (262, 24294), (272, 24336),

Gene: Gusicorn\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Gusicorn\_3:

(Start: 20 @630 has 29 MA's), (39, 792), (46, 825), (92, 1026), (117, 1155), (144, 1284), (172, 1422), (175, 1428), (181, 1467), (261, 1782),

Gene: Halloweekend\_30 Start: 23050, Stop: 24303, Start Num: 9

Candidate Starts for Halloweekend\_30:

(Start: 9 @23050 has 51 MA's), (29, 23218), (55, 23377), (65, 23428), (111, 23611), (132, 23722), (149, 23794), (153, 23809), (167, 23881), (178, 23917), (192, 23983), (198, 24007), (203, 24034), (224, 24100), (246, 24178), (259, 24226), (262, 24238), (272, 24280),

Gene: Henrique\_32 Start: 21414, Stop: 22667, Start Num: 9

Candidate Starts for Henrique\_32:

(Start: 9 @21414 has 51 MA's), (29, 21582), (55, 21741), (65, 21792), (111, 21975), (132, 22086), (149, 22158), (153, 22173), (167, 22245), (178, 22281), (192, 22347), (198, 22371), (203, 22398), (224, 22464), (246, 22542), (259, 22590), (262, 22602), (272, 22644),

Gene: Hestia\_32 Start: 21676, Stop: 22929, Start Num: 9

Candidate Starts for Hestia\_32:

(Start: 9 @21676 has 51 MA's), (29, 21844), (55, 22003), (65, 22054), (111, 22237), (132, 22348), (149, 22420), (153, 22435), (167, 22507), (178, 22543), (192, 22609), (198, 22633), (203, 22660), (224, 22726), (246, 22804), (259, 22852), (262, 22864), (272, 22906),

Gene: Hillester\_32 Start: 21637, Stop: 22890, Start Num: 9

Candidate Starts for Hillester\_32:

(Start: 9 @21637 has 51 MA's), (29, 21805), (55, 21964), (65, 22015), (111, 22198), (132, 22309), (149, 22381), (153, 22396), (167, 22468), (178, 22504), (192, 22570), (198, 22594), (203, 22621), (224, 22687), (246, 22765), (259, 22813), (262, 22825), (272, 22867),

Gene: Hortihabitatio\_4 Start: 930, Stop: 2165, Start Num: 20

Candidate Starts for Hortihabitatio\_4:

(Start: 20 @930 has 29 MA's), (60, 1188), (71, 1239), (148, 1608), (164, 1689), (181, 1767), (195, 1827), (199, 1842), (225, 1938), (233, 1965), (261, 2073), (274, 2139),

Gene: Hydrus\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Hydrus\_3:

(Start: 20 @630 has 29 MA's), (31, 729), (34, 744), (39, 792), (43, 816), (52, 852), (92, 1026), (117, 1155), (144, 1284), (181, 1467), (195, 1527), (218, 1608), (237, 1686), (248, 1725), (261, 1782),

Gene: Ichiang\_30 Start: 23069, Stop: 24322, Start Num: 9

Candidate Starts for Ichiang\_30:

(Start: 9 @23069 has 51 MA's), (29, 23237), (55, 23396), (65, 23447), (111, 23630), (132, 23741), (149, 23813), (153, 23828), (167, 23900), (178, 23936), (192, 24002), (198, 24026), (203, 24053), (224, 24119), (246, 24197), (259, 24245), (262, 24257), (272, 24299),

Gene: Invectra\_30 Start: 24806, Stop: 25945, Start Num: 27

Candidate Starts for Invectra\_30:

(Start: 27 @24806 has 4 MA's), (38, 24896), (47, 24935), (54, 24965), (61, 25010), (73, 25049), (85, 25097), (87, 25103), (94, 25148), (114, 25241), (118, 25256), (148, 25412), (156, 25442), (174, 25520), (185, 25571), (201, 25646), (217, 25697), (243, 25796), (257, 25850), (272, 25910),

Gene: Isolde\_32 Start: 21406, Stop: 22659, Start Num: 9

Candidate Starts for Isolde\_32:

(Start: 9 @21406 has 51 MA's), (29, 21574), (55, 21733), (65, 21784), (111, 21967), (132, 22078), (149, 22150), (153, 22165), (167, 22237), (178, 22273), (192, 22339), (198, 22363), (203, 22390), (224, 22456), (246, 22534), (259, 22582), (262, 22594), (272, 22636),

Gene: Jodelie19\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Jodelie19\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (46, 825), (92, 1026), (117, 1155), (144, 1284), (164, 1389), (181, 1467), (195, 1527), (218, 1608), (237, 1686), (248, 1725), (251, 1740), (261, 1782),

Gene: Judy\_31 Start: 21954, Stop: 23207, Start Num: 9

Candidate Starts for Judy\_31:

(Start: 9 @21954 has 51 MA's), (29, 22122), (55, 22281), (65, 22332), (111, 22515), (132, 22626), (149, 22698), (153, 22713), (167, 22785), (178, 22821), (192, 22887), (198, 22911), (203, 22938),

(224, 23004), (246, 23082), (259, 23130), (262, 23142), (272, 23184),

Gene: Kabloowy\_32 Start: 21817, Stop: 23070, Start Num: 9

Candidate Starts for Kabloowy\_32:

(Start: 9 @21817 has 51 MA's), (29, 21985), (55, 22144), (65, 22195), (111, 22378), (132, 22489), (149, 22561), (153, 22576), (167, 22648), (178, 22684), (192, 22750), (198, 22774), (203, 22801), (224, 22867), (246, 22945), (259, 22993), (262, 23005), (272, 23047),

Gene: KappaFarmDelta\_33 Start: 25961, Stop: 27130, Start Num: 21

Candidate Starts for KappaFarmDelta\_33:

(Start: 21 @25961 has 4 MA's), (23, 26000), (37, 26087), (58, 26204), (83, 26297), (127, 26489), (134, 26540), (136, 26546), (159, 26657), (168, 26705), (212, 26876), (221, 26903), (222, 26906), (225, 26924), (235, 26969), (243, 26990), (257, 27044), (271, 27101), (272, 27104),

Gene: Karkharias\_30 Start: 21331, Stop: 22584, Start Num: 9

Candidate Starts for Karkharias\_30:

(Start: 9 @21331 has 51 MA's), (29, 21499), (55, 21658), (65, 21709), (111, 21892), (132, 22003), (149, 22075), (153, 22090), (167, 22162), (178, 22198), (192, 22264), (198, 22288), (203, 22315), (224, 22381), (246, 22459), (259, 22507), (262, 22519), (272, 22561),

Gene: KayMoney\_31 Start: 21475, Stop: 22728, Start Num: 9

Candidate Starts for KayMoney\_31:

(Start: 9 @21475 has 51 MA's), (29, 21643), (55, 21802), (65, 21853), (111, 22036), (132, 22147), (149, 22219), (153, 22234), (167, 22306), (178, 22342), (192, 22408), (198, 22432), (203, 22459), (224, 22525), (246, 22603), (259, 22651), (262, 22663), (272, 22705),

Gene: Kewpiedoll\_25 Start: 19354, Stop: 20586, Start Num: 13

Candidate Starts for Kewpiedoll\_25:

(Start: 13 @19354 has 2 MA's), (37, 19543), (58, 19660), (83, 19753), (119, 19924), (127, 19945), (134, 19996), (136, 20002), (143, 20041), (153, 20086), (159, 20113), (196, 20278), (212, 20332), (217, 20350), (221, 20359), (222, 20362), (233, 20416), (243, 20446), (257, 20500), (272, 20560), (276, 20581),

Gene: Kihatsu\_33 Start: 23689, Stop: 24942, Start Num: 9

Candidate Starts for Kihatsu\_33:

(Start: 9 @23689 has 51 MA's), (29, 23857), (55, 24016), (65, 24067), (111, 24250), (132, 24361), (149, 24433), (153, 24448), (167, 24520), (178, 24556), (192, 24622), (198, 24646), (203, 24673), (224, 24739), (246, 24817), (259, 24865), (262, 24877), (272, 24919),

Gene: Lasker\_33 Start: 21645, Stop: 22898, Start Num: 9

Candidate Starts for Lasker\_33:

(Start: 9 @21645 has 51 MA's), (29, 21813), (55, 21972), (65, 22023), (111, 22206), (132, 22317), (149, 22389), (153, 22404), (167, 22476), (178, 22512), (192, 22578), (198, 22602), (203, 22629), (224, 22695), (246, 22773), (259, 22821), (262, 22833), (272, 22875),

Gene: Lawnathon\_32 Start: 21500, Stop: 22753, Start Num: 9

Candidate Starts for Lawnathon\_32:

(Start: 9 @21500 has 51 MA's), (29, 21668), (55, 21827), (65, 21878), (111, 22061), (132, 22172), (149, 22244), (153, 22259), (167, 22331), (178, 22367), (192, 22433), (198, 22457), (203, 22484), (224, 22550), (246, 22628), (259, 22676), (262, 22688), (272, 22730),

Gene: Lenoxika\_32 Start: 23339, Stop: 24592, Start Num: 9

Candidate Starts for Lenoxika\_32:

(Start: 9 @23339 has 51 MA's), (29, 23507), (55, 23666), (65, 23717), (111, 23900), (132, 24011), (149, 24083), (153, 24098), (167, 24170), (178, 24206), (192, 24272), (198, 24296), (203, 24323), (224, 24389), (246, 24467), (259, 24515), (262, 24527), (272, 24569),

Gene: LilyBell\_30 Start: 21343, Stop: 22596, Start Num: 9

Candidate Starts for LilyBell\_30:

(Start: 9 @21343 has 51 MA's), (29, 21511), (55, 21670), (65, 21721), (111, 21904), (132, 22015), (149, 22087), (153, 22102), (167, 22174), (178, 22210), (192, 22276), (198, 22300), (203, 22327), (224, 22393), (246, 22471), (259, 22519), (262, 22531), (272, 22573),

Gene: Luthien\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Luthien\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (48, 834), (92, 1026), (117, 1155), (144, 1284), (181, 1467), (237, 1686), (261, 1782), (267, 1818),

Gene: MUWow\_31 Start: 21664, Stop: 22917, Start Num: 9

Candidate Starts for MUWow\_31:

(Start: 9 @21664 has 51 MA's), (29, 21832), (55, 21991), (65, 22042), (111, 22225), (132, 22336), (149, 22408), (153, 22423), (167, 22495), (178, 22531), (192, 22597), (198, 22621), (203, 22648), (224, 22714), (246, 22792), (259, 22840), (262, 22852), (272, 22894),

Gene: Madvan\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Madvan\_3:

(Start: 20 @630 has 29 MA's), (31, 729), (34, 744), (39, 792), (92, 1026), (117, 1155), (181, 1467), (237, 1686),

Gene: MajinBuu\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for MajinBuu\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (46, 825), (92, 1026), (117, 1155), (144, 1284), (164, 1389), (181, 1467), (195, 1527), (218, 1608), (237, 1686), (248, 1725), (251, 1740), (261, 1782),

Gene: Mapleville\_32 Start: 21570, Stop: 22823, Start Num: 9

Candidate Starts for Mapleville\_32:

(Start: 9 @21570 has 51 MA's), (29, 21738), (55, 21897), (65, 21948), (111, 22131), (132, 22242), (149, 22314), (153, 22329), (167, 22401), (178, 22437), (192, 22503), (198, 22527), (203, 22554), (224, 22620), (246, 22698), (259, 22746), (262, 22758), (272, 22800),

Gene: MaterMagnus\_32 Start: 21647, Stop: 22900, Start Num: 9

Candidate Starts for MaterMagnus\_32:

(Start: 9 @21647 has 51 MA's), (29, 21815), (55, 21974), (65, 22025), (111, 22208), (132, 22319), (149, 22391), (153, 22406), (167, 22478), (178, 22514), (192, 22580), (198, 22604), (203, 22631), (224, 22697), (246, 22775), (259, 22823), (262, 22835), (272, 22877),

Gene: Mbo2\_33 Start: 32558, Stop: 33970, Start Num: 7

Candidate Starts for Mbo2\_33:

(7, 32558), (8, 32582), (33, 32801), (37, 32825), (44, 32882), (63, 32969), (66, 32978), (75, 33017), (80, 33035), (82, 33041), (88, 33071), (116, 33224), (121, 33245), (128, 33266), (129, 33272), (142, 33356), (149, 33395), (156, 33428), (168, 33497), (178, 33539), (179, 33548), (182, 33566), (183, 33569), (190, 33602), (193, 33617), (201, 33659), (215, 33707), (227, 33755), (240, 33800), (242, 33809), (256, 33869), (275, 33959),

Gene: MidnightRain\_32 Start: 21636, Stop: 22889, Start Num: 9

Candidate Starts for MidnightRain\_32:

(Start: 9 @21636 has 51 MA's), (29, 21804), (55, 21963), (65, 22014), (111, 22197), (132, 22308), (149, 22380), (153, 22395), (167, 22467), (178, 22503), (192, 22569), (198, 22593), (203, 22620), (224, 22686), (246, 22764), (259, 22812), (262, 22824), (272, 22866),

Gene: MillySue\_33 Start: 23252, Stop: 24505, Start Num: 9

Candidate Starts for MillySue\_33:

(Start: 9 @23252 has 51 MA's), (29, 23420), (55, 23579), (65, 23630), (111, 23813), (132, 23924), (149, 23996), (153, 24011), (167, 24083), (178, 24119), (192, 24185), (198, 24209), (203, 24236), (224, 24302), (246, 24380), (259, 24428), (262, 24440), (272, 24482),

Gene: Nadmeg\_3 Start: 631, Stop: 1875, Start Num: 20

Candidate Starts for Nadmeg\_3:

(Start: 20 @631 has 29 MA's), (31, 730), (34, 745), (39, 793), (92, 1027), (117, 1156), (181, 1468), (237, 1687),

Gene: Nandita\_32 Start: 23343, Stop: 24596, Start Num: 9

Candidate Starts for Nandita\_32:

(Start: 9 @23343 has 51 MA's), (29, 23511), (55, 23670), (65, 23721), (111, 23904), (132, 24015), (149, 24087), (153, 24102), (167, 24174), (178, 24210), (192, 24276), (198, 24300), (203, 24327), (224, 24393), (246, 24471), (259, 24519), (262, 24531), (272, 24573),

Gene: NikkiHotWheels\_32 Start: 21407, Stop: 22660, Start Num: 9

Candidate Starts for NikkiHotWheels\_32:

(Start: 9 @21407 has 51 MA's), (29, 21575), (55, 21734), (65, 21785), (111, 21968), (132, 22079), (149, 22151), (153, 22166), (167, 22238), (178, 22274), (192, 22340), (198, 22364), (203, 22391), (224, 22457), (246, 22535), (259, 22583), (262, 22595), (272, 22637),

Gene: Nithya\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Nithya\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (48, 834), (92, 1026), (117, 1155), (144, 1284), (181, 1467), (261, 1782),

Gene: OhMyWard\_3 Start: 629, Stop: 1873, Start Num: 20

Candidate Starts for OhMyWard\_3:

(Start: 20 @629 has 29 MA's), (39, 791), (46, 824), (71, 938), (92, 1025), (117, 1154), (144, 1283), (172, 1421), (175, 1427), (181, 1466), (226, 1643), (248, 1724), (261, 1781),

Gene: OlgasClover\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for OlgasClover\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (34, 744), (46, 825), (117, 1155), (144, 1284), (164, 1389), (181, 1467), (195, 1527), (218, 1608), (237, 1686), (248, 1725), (253, 1746), (261, 1782),

Gene: PeggyLeg03\_30 Start: 21943, Stop: 23196, Start Num: 9

Candidate Starts for PeggyLeg03\_30:

(Start: 9 @21943 has 51 MA's), (29, 22111), (55, 22270), (65, 22321), (111, 22504), (132, 22615), (149, 22687), (153, 22702), (167, 22774), (178, 22810), (192, 22876), (198, 22900), (203, 22927), (224, 22993), (246, 23071), (259, 23119), (262, 23131), (272, 23173),

Gene: PestoPenguin\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for PestoPenguin\_3:

(Start: 20 @630 has 29 MA's), (39, 792), (46, 825), (92, 1026), (117, 1155), (144, 1284), (172, 1422), (175, 1428), (181, 1467), (261, 1782),

Gene: Phepper\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Phepper\_3:

(Start: 20 @630 has 29 MA's), (31, 729), (34, 744), (39, 792), (92, 1026), (117, 1155), (181, 1467), (237, 1686),

Gene: Pipp\_31 Start: 26106, Stop: 27275, Start Num: 21

Candidate Starts for Pipp\_31:

(Start: 21 @26106 has 4 MA's), (23, 26145), (37, 26232), (58, 26349), (83, 26442), (102, 26544), (120, 26619), (127, 26634), (134, 26685), (153, 26775), (159, 26802), (161, 26808), (168, 26850), (204, 27006), (212, 27021), (214, 27033), (221, 27048), (222, 27051), (235, 27114), (241, 27129), (243, 27135), (257, 27189), (272, 27249),

Gene: Popper\_30 Start: 23256, Stop: 24509, Start Num: 9

Candidate Starts for Popper\_30:

(Start: 9 @23256 has 51 MA's), (29, 23424), (55, 23583), (65, 23634), (111, 23817), (132, 23928), (149, 24000), (153, 24015), (167, 24087), (178, 24123), (192, 24189), (198, 24213), (203, 24240), (224, 24306), (246, 24384), (259, 24432), (262, 24444), (272, 24486),

Gene: QuinnAvery\_32 Start: 23433, Stop: 24686, Start Num: 9

Candidate Starts for QuinnAvery\_32:

(Start: 9 @23433 has 51 MA's), (29, 23601), (55, 23760), (65, 23811), (111, 23994), (132, 24105), (149, 24177), (153, 24192), (167, 24264), (178, 24300), (192, 24366), (198, 24390), (203, 24417), (224, 24483), (246, 24561), (259, 24609), (262, 24621), (272, 24663),

Gene: RadFad\_32 Start: 21637, Stop: 22890, Start Num: 9

Candidate Starts for RadFad\_32:

(Start: 9 @21637 has 51 MA's), (29, 21805), (55, 21964), (65, 22015), (111, 22198), (132, 22309), (149, 22381), (153, 22396), (167, 22468), (178, 22504), (192, 22570), (198, 22594), (203, 22621), (224, 22687), (246, 22765), (259, 22813), (262, 22825), (272, 22867),

Gene: Raphaella\_32 Start: 21571, Stop: 22824, Start Num: 9

Candidate Starts for Raphaella\_32:

(Start: 9 @21571 has 51 MA's), (29, 21739), (55, 21898), (65, 21949), (111, 22132), (132, 22243), (149, 22315), (153, 22330), (167, 22402), (178, 22438), (192, 22504), (198, 22528), (203, 22555), (224, 22621), (246, 22699), (259, 22747), (262, 22759), (272, 22801),

Gene: Raya\_25 Start: 18185, Stop: 19438, Start Num: 9

Candidate Starts for Raya\_25:

(Start: 9 @18185 has 51 MA's), (29, 18353), (55, 18512), (59, 18536), (65, 18563), (100, 18707), (111, 18746), (126, 18803), (130, 18833), (132, 18857), (149, 18929), (153, 18944), (167, 19016), (178, 19052), (192, 19118), (198, 19142), (203, 19169), (224, 19235), (246, 19313), (259, 19361), (262, 19373),

Gene: Richie\_32 Start: 21652, Stop: 22905, Start Num: 9

Candidate Starts for Richie\_32:

(Start: 9 @21652 has 51 MA's), (29, 21820), (55, 21979), (65, 22030), (111, 22213), (132, 22324), (149, 22396), (153, 22411), (167, 22483), (178, 22519), (192, 22585), (198, 22609), (203, 22636), (224, 22702), (246, 22780), (259, 22828), (262, 22840), (272, 22882),

Gene: Runhaar\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Runhaar\_3:

(Start: 20 @630 has 29 MA's), (31, 729), (34, 744), (39, 792), (46, 825), (52, 852), (92, 1026), (117, 1155), (181, 1467), (237, 1686),

Gene: Ryan\_32 Start: 23954, Stop: 25207, Start Num: 9

Candidate Starts for Ryan\_32:

(Start: 9 @23954 has 51 MA's), (29, 24122), (55, 24281), (65, 24332), (111, 24515), (132, 24626), (149, 24698), (153, 24713), (167, 24785), (178, 24821), (192, 24887), (198, 24911), (203, 24938), (224, 25004), (246, 25082), (259, 25130), (262, 25142), (272, 25184),

Gene: Saintcarr\_32 Start: 23516, Stop: 24769, Start Num: 9

Candidate Starts for Saintcarr\_32:

(Start: 9 @23516 has 51 MA's), (29, 23684), (55, 23843), (65, 23894), (111, 24077), (132, 24188), (149, 24260), (153, 24275), (167, 24347), (178, 24383), (192, 24449), (198, 24473), (203, 24500), (224, 24566), (246, 24644), (259, 24692), (262, 24704), (272, 24746),

Gene: Sakai\_32 Start: 21580, Stop: 22833, Start Num: 9

Candidate Starts for Sakai\_32:

(Start: 9 @21580 has 51 MA's), (29, 21748), (55, 21907), (65, 21958), (111, 22141), (132, 22252), (149, 22324), (153, 22339), (167, 22411), (178, 22447), (192, 22513), (198, 22537), (203, 22564), (224, 22630), (246, 22708), (259, 22756), (262, 22768), (272, 22810),

Gene: Samman98\_30 Start: 24176, Stop: 25330, Start Num: 32

Candidate Starts for Samman98\_30:

(Start: 32 @24176 has 1 MA's), (41, 24239), (61, 24347), (68, 24365), (84, 24434), (120, 24626), (125, 24641), (140, 24719), (146, 24761), (170, 24893), (206, 25067), (213, 25088), (220, 25103), (230, 25154), (246, 25208), (260, 25265), (265, 25292), (270, 25310),

Gene: Samy\_28 Start: 22024, Stop: 23688, Start Num: 2

Candidate Starts for Samy\_28:

(Start: 2 @22024 has 1 MA's), (5, 22174), (6, 22204), (7, 22234), (10, 22273), (42, 22558), (62, 22663), (67, 22675), (90, 22783), (97, 22825), (124, 22951), (154, 23122), (166, 23197), (167, 23200), (245, 23539), (272, 23665), (275, 23680),

Gene: Satrap\_32 Start: 21746, Stop: 22999, Start Num: 9

Candidate Starts for Satrap\_32:

(Start: 9 @21746 has 51 MA's), (29, 21914), (55, 22073), (65, 22124), (111, 22307), (132, 22418), (149, 22490), (153, 22505), (167, 22577), (178, 22613), (192, 22679), (198, 22703), (203, 22730), (224, 22796), (246, 22874), (259, 22922), (262, 22934), (272, 22976),

Gene: Schism\_32 Start: 23343, Stop: 24596, Start Num: 9

Candidate Starts for Schism\_32:

(Start: 9 @23343 has 51 MA's), (29, 23511), (55, 23670), (65, 23721), (111, 23904), (132, 24015), (149, 24087), (153, 24102), (167, 24174), (178, 24210), (192, 24276), (198, 24300), (203, 24327), (224, 24393), (246, 24471), (259, 24519), (262, 24531), (272, 24573),

Gene: Schwartz33\_3 Start: 629, Stop: 1873, Start Num: 20

Candidate Starts for Schwartz33\_3:

(Start: 20 @629 has 29 MA's), (31, 728), (135, 1244), (137, 1247), (143, 1280), (144, 1283), (181, 1466), (209, 1583), (237, 1685), (251, 1739),

Gene: Sekhmet\_30 Start: 24517, Stop: 25656, Start Num: 27

Candidate Starts for Sekhmet\_30:

(3, 24145), (11, 24379), (Start: 27 @24517 has 4 MA's), (38, 24607), (47, 24646), (54, 24676), (61, 24721), (73, 24760), (85, 24808), (87, 24814), (94, 24859), (114, 24952), (118, 24967), (148, 25123), (156, 25153), (174, 25231), (185, 25282), (201, 25357), (217, 25408), (243, 25507), (257, 25561),

(272, 25621),

Gene: ShaggyRogers\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for ShaggyRogers\_3:

(Start: 20 @630 has 29 MA's), (39, 792), (46, 825), (92, 1026), (117, 1155), (144, 1284), (172, 1422), (175, 1428), (181, 1467), (261, 1782),

Gene: Shukran\_32 Start: 21746, Stop: 22999, Start Num: 9

Candidate Starts for Shukran\_32:

(Start: 9 @21746 has 51 MA's), (29, 21914), (55, 22073), (65, 22124), (111, 22307), (132, 22418), (149, 22490), (153, 22505), (167, 22577), (178, 22613), (192, 22679), (198, 22703), (203, 22730), (224, 22796), (246, 22874), (259, 22922), (262, 22934), (272, 22976),

Gene: Skyerus\_25 Start: 18185, Stop: 19438, Start Num: 9

Candidate Starts for Skyerus\_25:

(Start: 9 @18185 has 51 MA's), (29, 18353), (55, 18512), (59, 18536), (65, 18563), (100, 18707), (111, 18746), (126, 18803), (130, 18833), (132, 18857), (149, 18929), (153, 18944), (167, 19016), (178, 19052), (192, 19118), (198, 19142), (203, 19169), (224, 19235), (246, 19313), (259, 19361), (262, 19373),

Gene: SonDevVon\_31 Start: 21573, Stop: 22826, Start Num: 9

Candidate Starts for SonDevVon\_31:

(Start: 9 @21573 has 51 MA's), (29, 21741), (55, 21900), (65, 21951), (111, 22134), (132, 22245), (149, 22317), (153, 22332), (167, 22404), (178, 22440), (192, 22506), (198, 22530), (203, 22557), (224, 22623), (246, 22701), (259, 22749), (262, 22761), (272, 22803),

Gene: SpicyFrank\_32 Start: 21872, Stop: 23125, Start Num: 9

Candidate Starts for SpicyFrank\_32:

(Start: 9 @21872 has 51 MA's), (29, 22040), (55, 22199), (65, 22250), (111, 22433), (132, 22544), (149, 22616), (153, 22631), (167, 22703), (178, 22739), (192, 22805), (198, 22829), (203, 22856), (224, 22922), (246, 23000), (259, 23048), (262, 23060), (272, 23102),

Gene: Sporco\_33 Start: 21628, Stop: 22881, Start Num: 9

Candidate Starts for Sporco\_33:

(Start: 9 @21628 has 51 MA's), (29, 21796), (55, 21955), (65, 22006), (111, 22189), (132, 22300), (149, 22372), (153, 22387), (167, 22459), (178, 22495), (192, 22561), (198, 22585), (203, 22612), (224, 22678), (246, 22756), (259, 22804), (262, 22816), (272, 22858),

Gene: Suzy\_4 Start: 3455, Stop: 4717, Start Num: 19

Candidate Starts for Suzy\_4:

(Start: 19 @3455 has 1 MA's), (80, 3806), (91, 3860), (99, 3914), (129, 4043), (138, 4103), (152, 4175), (158, 4202), (163, 4235), (169, 4274), (173, 4289), (180, 4334), (186, 4349), (208, 4451), (217, 4475), (219, 4481), (223, 4505), (226, 4517), (232, 4541), (243, 4574), (247, 4592), (254, 4610), (258, 4631), (268, 4676),

Gene: TenaciousP\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for TenaciousP\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (46, 825), (92, 1026), (117, 1155), (144, 1284), (164, 1389), (181, 1467), (195, 1527), (218, 1608), (237, 1686), (248, 1725), (251, 1740), (261, 1782),

Gene: ThayneTheZag\_32 Start: 21791, Stop: 23044, Start Num: 9

Candidate Starts for ThayneTheZag\_32:

(Start: 9 @21791 has 51 MA's), (29, 21959), (55, 22118), (65, 22169), (111, 22352), (132, 22463), (149, 22535), (153, 22550), (167, 22622), (178, 22658), (192, 22724), (198, 22748), (203, 22775), (224, 22841), (246, 22919), (259, 22967), (262, 22979), (272, 23021),

Gene: ToastyOats\_35 Start: 23974, Stop: 25227, Start Num: 9

Candidate Starts for ToastyOats\_35:

(Start: 9 @23974 has 51 MA's), (29, 24142), (55, 24301), (65, 24352), (111, 24535), (132, 24646), (149, 24718), (153, 24733), (167, 24805), (178, 24841), (192, 24907), (198, 24931), (203, 24958), (224, 25024), (246, 25102), (259, 25150), (262, 25162), (272, 25204),

Gene: Tonaltzin\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Tonaltzin\_3:

(Start: 20 @630 has 29 MA's), (26, 687), (31, 729), (46, 825), (92, 1026), (117, 1155), (144, 1284), (164, 1389), (181, 1467), (195, 1527), (218, 1608), (237, 1686), (248, 1725), (253, 1746), (261, 1782),

Gene: Toodles\_33 Start: 23804, Stop: 25057, Start Num: 9

Candidate Starts for Toodles\_33:

(Start: 9 @23804 has 51 MA's), (29, 23972), (55, 24131), (65, 24182), (111, 24365), (132, 24476), (149, 24548), (153, 24563), (167, 24635), (178, 24671), (192, 24737), (198, 24761), (203, 24788), (224, 24854), (246, 24932), (259, 24980), (262, 24992), (272, 25034),

Gene: Vardy\_3 Start: 629, Stop: 1873, Start Num: 20

Candidate Starts for Vardy\_3:

(Start: 20 @629 has 29 MA's), (31, 728), (34, 743), (39, 791), (92, 1025), (117, 1154), (181, 1466), (237, 1685),

Gene: WinkNick\_30 Start: 24139, Stop: 25278, Start Num: 27

Candidate Starts for WinkNick\_30:

(Start: 27 @24139 has 4 MA's), (38, 24229), (47, 24268), (54, 24298), (61, 24343), (73, 24382), (85, 24430), (87, 24436), (94, 24481), (114, 24574), (118, 24589), (148, 24745), (156, 24775), (174, 24853), (185, 24904), (201, 24979), (217, 25030), (243, 25129), (257, 25183), (272, 25243),

Gene: Yonex\_32 Start: 23954, Stop: 25207, Start Num: 9

Candidate Starts for Yonex\_32:

(Start: 9 @23954 has 51 MA's), (29, 24122), (55, 24281), (65, 24332), (111, 24515), (132, 24626), (149, 24698), (153, 24713), (167, 24785), (178, 24821), (192, 24887), (198, 24911), (203, 24938), (224, 25004), (246, 25082), (259, 25130), (262, 25142), (272, 25184),

Gene: YoungHarleezy\_32 Start: 21650, Stop: 22903, Start Num: 9

Candidate Starts for YoungHarleezy\_32:

(Start: 9 @21650 has 51 MA's), (29, 21818), (55, 21977), (65, 22028), (111, 22211), (132, 22322), (149, 22394), (153, 22409), (167, 22481), (178, 22517), (192, 22583), (198, 22607), (203, 22634), (224, 22700), (246, 22778), (259, 22826), (262, 22838), (272, 22880),

Gene: Zaheer\_32 Start: 24043, Stop: 25296, Start Num: 9

Candidate Starts for Zaheer\_32:

(Start: 9 @24043 has 51 MA's), (29, 24211), (55, 24370), (65, 24421), (111, 24604), (132, 24715), (149, 24787), (153, 24802), (167, 24874), (178, 24910), (192, 24976), (198, 25000), (203, 25027), (224, 25093), (246, 25171), (259, 25219), (262, 25231), (272, 25273),

Gene: Zeph\_3 Start: 630, Stop: 1874, Start Num: 20

Candidate Starts for Zeph\_3:

(Start: 20 @630 has 29 MA's), (31, 729), (34, 744), (39, 792), (43, 816), (52, 852), (92, 1026), (117, 1155), (144, 1284), (181, 1467), (195, 1527), (218, 1608), (237, 1686), (248, 1725), (261, 1782),