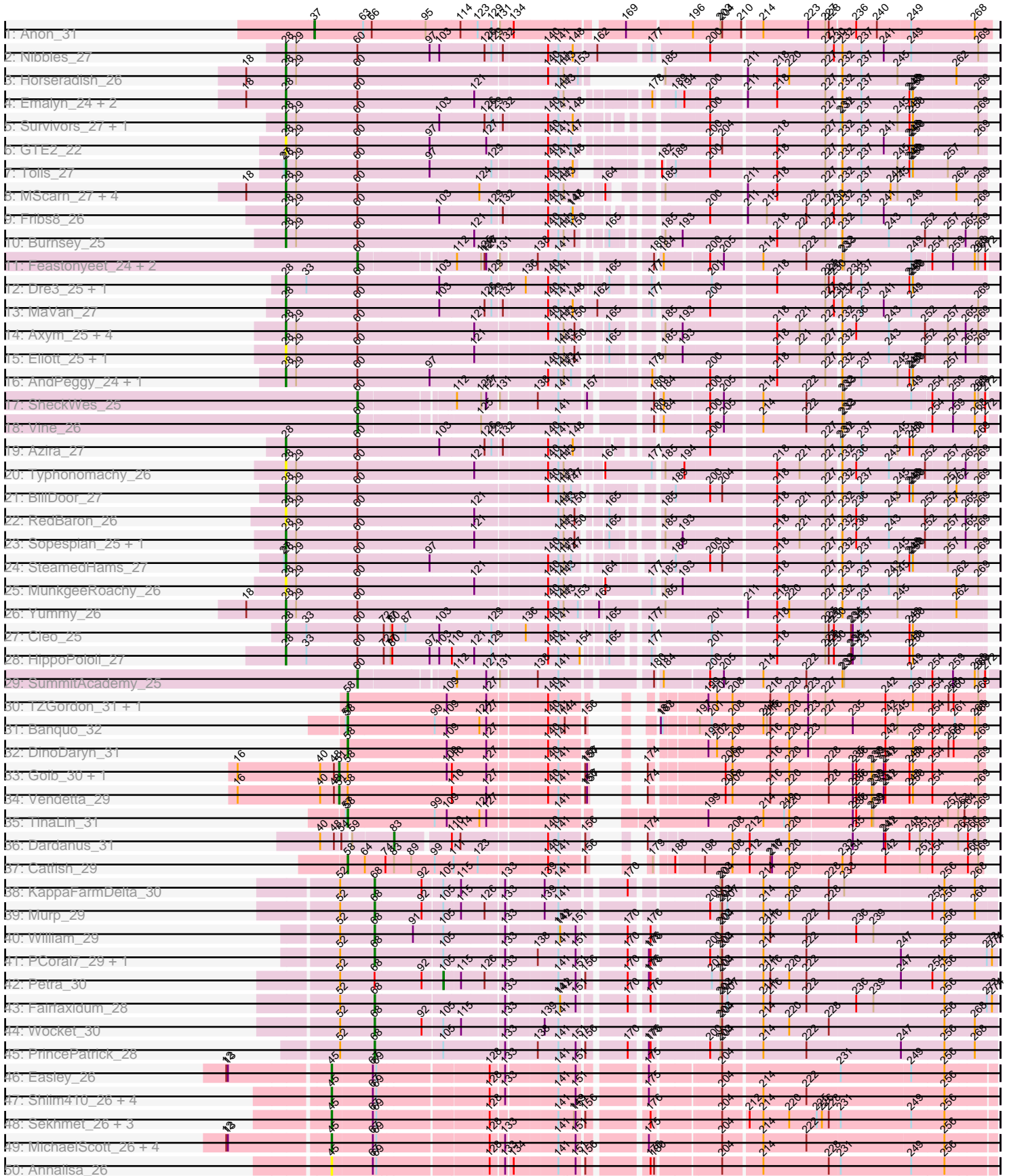
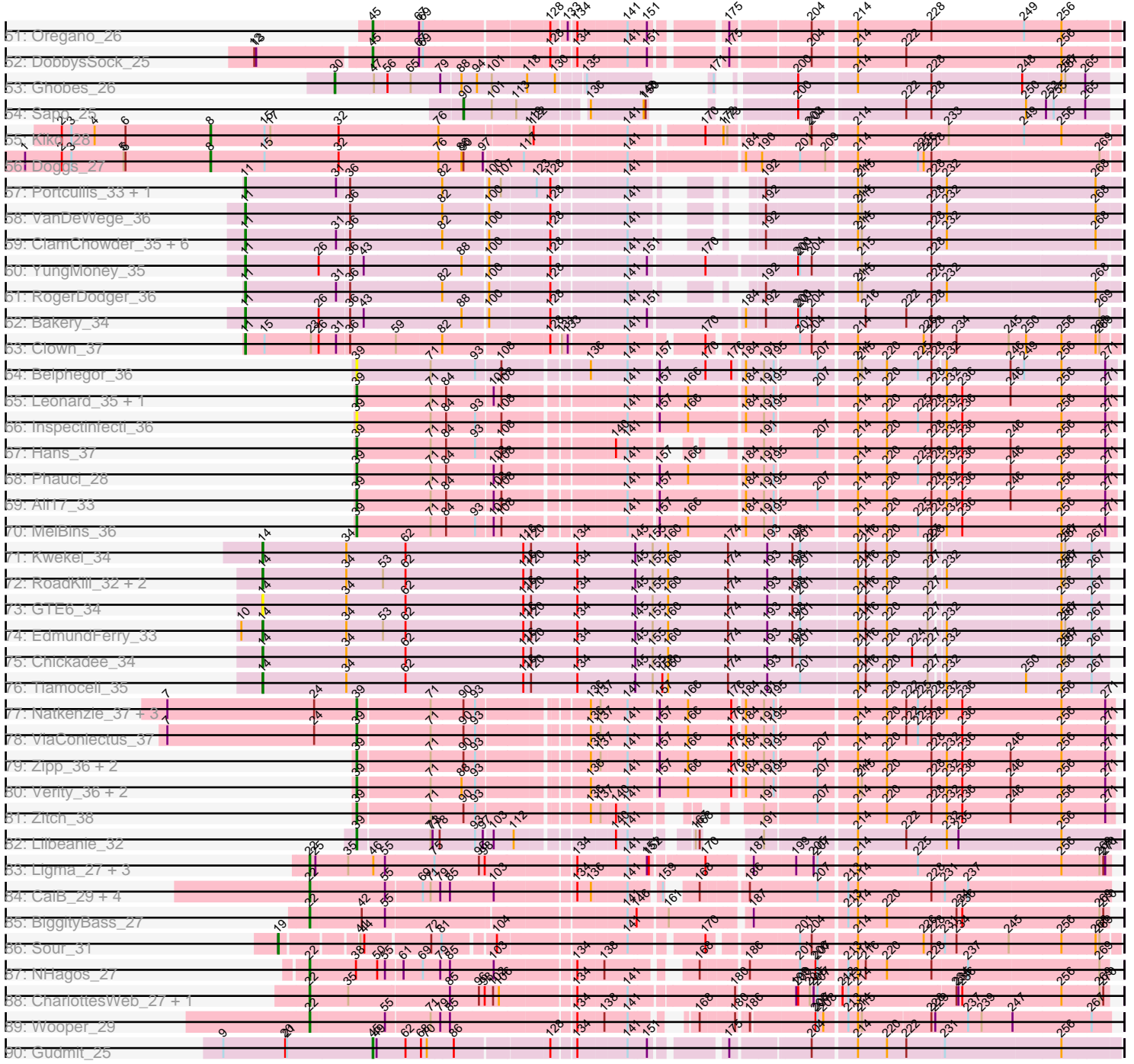


Pham 171259



Pham 171259



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 171259 Report

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

Pham number 171259 has 146 members, 20 are drafts.

Phages represented in each track:

- Track 1 : Anon\_31
- Track 2 : Nibbles\_27
- Track 3 : Horseradish\_26
- Track 4 : Emalyn\_24, Amok\_24, AikoCarson\_24
- Track 5 : Survivors\_27, Zareef\_29
- Track 6 : GTE2\_22
- Track 7 : Tolls\_27
- Track 8 : MScarn\_27, Biskit\_26, Buttrmlkdreams\_25, SketchMex\_24, Troje\_25
- Track 9 : Fribs8\_26
- Track 10 : Burnsey\_25
- Track 11 : Feastonyeet\_24, PotPie\_25, BigChungus\_24
- Track 12 : Dre3\_25, Gibbous\_25
- Track 13 : MaVan\_27
- Track 14 : Axym\_25, Agatha\_25, GoldHunter\_26, Cozz\_25, Quasar\_25
- Track 15 : Elliott\_25, PsychoKiller\_25
- Track 16 : AndPeggy\_24, Yarn\_24
- Track 17 : SheckWes\_25
- Track 18 : Vine\_26
- Track 19 : Azira\_27
- Track 20 : Typhonomachy\_26
- Track 21 : BillDoor\_27
- Track 22 : RedBaron\_26
- Track 23 : Sopespian\_25, Nina\_26
- Track 24 : SteamedHams\_27
- Track 25 : MunkgeeRoachy\_26
- Track 26 : Yummy\_26
- Track 27 : Cleo\_25
- Track 28 : HippoPololi\_27
- Track 29 : SummitAcademy\_25
- Track 30 : TZGordon\_31, Huff\_31
- Track 31 : Banquo\_32
- Track 32 : DinoDaryn\_31
- Track 33 : Goib\_30, Splinter\_29
- Track 34 : Vendetta\_29
- Track 35 : TinaLin\_31
- Track 36 : Dardanus\_31
- Track 37 : Catfish\_29

- Track 38 : KappaFarmDelta\_30
- Track 39 : Murp\_29
- Track 40 : William\_29
- Track 41 : PCoral7\_29, Toast\_29
- Track 42 : Petra\_30
- Track 43 : Fairfaxidum\_28
- Track 44 : Wocket\_30
- Track 45 : PrincePatrick\_28
- Track 46 : Easley\_26
- Track 47 : Shlim410\_26, Adora\_26, Howe\_26, Hortense\_26, Twinkle\_26
- Track 48 : Sekhmet\_26, Dorito\_25, Samman98\_26, PhriskyACE\_25
- Track 49 : MichaelScott\_26, Dolores\_26, WinkNick\_26, Mcklovin\_26, Clark\_26
- Track 50 : Annalisa\_26
- Track 51 : Oregano\_26
- Track 52 : DobbysSock\_25
- Track 53 : Ghobes\_26
- Track 54 : Sapo\_25
- Track 55 : Kiko\_28
- Track 56 : Doggs\_27
- Track 57 : Portcullis\_33, Shinji\_33
- Track 58 : VanDeWege\_36
- Track 59 : ClamChowder\_35, Fugax\_35, PinkCoffee\_35, Barb\_35, Twister6\_35, Arri\_36, Danyall\_35
- Track 60 : YungMoney\_35
- Track 61 : RogerDodger\_36
- Track 62 : Bakery\_34
- Track 63 : Clown\_37
- Track 64 : Belphegor\_36
- Track 65 : Leonard\_35, Phinally\_35
- Track 66 : Inspectinfecti\_36
- Track 67 : Hans\_37
- Track 68 : Phauci\_28
- Track 69 : Ali17\_33
- Track 70 : MelBins\_36
- Track 71 : Kwekel\_34
- Track 72 : RoadKill\_32, Dextert\_35, Twonlo\_32
- Track 73 : GTE6\_34
- Track 74 : EdmundFerry\_33
- Track 75 : Chickadee\_34
- Track 76 : Tiamoceli\_35
- Track 77 : Natkenzie\_37, Abblin\_37, Sampson\_37, Scioto\_37
- Track 78 : ViaConlectus\_37
- Track 79 : Zipp\_36, APunk\_38, Tardus\_38
- Track 80 : Verity\_36, Delrey21\_36, DoctorFroggo\_36
- Track 81 : Zitch\_38
- Track 82 : Lilbeanie\_32
- Track 83 : Ligma\_27, Fresco\_27, Axumite\_27, Shatter\_27
- Track 84 : CaiB\_29, CloverMinnie\_29, MossRose\_29, MakoManhole\_29, AnarQue\_29
- Track 85 : BiggityBass\_27
- Track 86 : Sour\_31
- Track 87 : NHagos\_27
- Track 88 : CharlottesWeb\_27, Mariokart\_27

- Track 89 : Wooper\_29
- Track 90 : Gudmit\_25

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

The start number called the most often in the published annotations is 28, it was called in 30 of the 126 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agatha\_25, AikoCarson\_24, Amok\_24, AndPeggy\_24, Axym\_25, Azira\_27, BillDoor\_27, Biskit\_26, Burnsey\_25, Buttrmlkdreams\_25, Cleo\_25, Cozz\_25, Dre3\_25, Elliott\_25, Emalyn\_24, Fribs8\_26, GTE2\_22, Gibbous\_25, GoldHunter\_26, HippoPololi\_27, Horseradish\_26, MScarn\_27, MaVan\_27, MunkgeeRoachy\_26, Nibbles\_27, Nina\_26, PsychoKiller\_25, Quasar\_25, RedBaron\_26, SketchMex\_24, Sopespian\_25, SteamedHams\_27, Survivors\_27, Tolls\_27, Troje\_25, Typhonomachy\_26, Yarn\_24, Yummy\_26, Zareef\_29,

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

- 

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

- APunk\_38, Abblin\_37, Adora\_26, Ali17\_33, AnarQue\_29, Annalisa\_26, Anon\_31, Arri\_36, Axumite\_27, Bakery\_34, Banquo\_32, Barb\_35, Belphegor\_36, BigChungus\_24, BiggityBass\_27, CaiB\_29, Catfish\_29, CharlottesWeb\_27, Chickadee\_34, ClamChowder\_35, Clark\_26, CloverMinnie\_29, Clown\_37, Danyall\_35, Dardanus\_31, Delrey21\_36, Dextert\_35, DinoDaryn\_31, DobbysSock\_25, DoctorFroggo\_36, Doggs\_27, Dolores\_26, Dorito\_25, Easley\_26, EdmundFerry\_33, Fairfaxidum\_28, Feastonyeet\_24, Fresco\_27, Fugax\_35, GTE6\_34, Ghobes\_26, Goib\_30, Gudmit\_25, Hans\_37, Hortense\_26, Howe\_26, Huffy\_31, Inspectinfecti\_36, KappaFarmDelta\_30, Kiko\_28, Kwekel\_34, Leonard\_35, Ligma\_27, Lilbeanie\_32, MakoManhole\_29, Mariokart\_27, Mcklovin\_26, MelBins\_36, MichaelScott\_26, MossRose\_29, Murp\_29, NHagos\_27, Natkenzie\_37, Oregano\_26, PCoral7\_29, Petra\_30, Phauci\_28, Phinally\_35, PhriskyACE\_25, PinkCoffee\_35, Portcullis\_33, PotPie\_25, PrincePatrick\_28, RoadKill\_32, RogerDodger\_36, Samman98\_26, Sampson\_37, Sapo\_25, Scioto\_37, Sekhmet\_26, Shatter\_27, SheckWes\_25, Shinji\_33, Shlim410\_26, Sour\_31, Splinter\_29, SummitAcademy\_25, TZGordon\_31, Tardus\_38, Tiamoceli\_35, TinaLin\_31, Toast\_29, Twinkle\_26, Twister6\_35, Twonlo\_32, VanDeWege\_36, Vendetta\_29, Verity\_36, ViaConlectus\_37, Vine\_26, William\_29, WinkNick\_26, Wocket\_30, Wooper\_29, YungMoney\_35, Zipp\_36, Zitch\_38,

### **Summary by start number:**

Start 8:

- Found in 2 of 146 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 2 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Doggs\_27 (DB), Kiko\_28 (DB),

Start 11:

- Found in 14 of 146 ( 9.6% ) of genes in pham
- Manual Annotations of this start: 13 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arri\_36 (DC1), Bakery\_34 (DC1), Barb\_35 (DC1), ClamChowder\_35 (DC1), Clown\_37 (DC2), Danyall\_35 (DC1), Fugax\_35 (DC1), PinkCoffee\_35 (DC1), Portcullis\_33 (DC1), RogerDodger\_36 (DC1), Shinji\_33 (DC1), Twister6\_35 (DC1), VanDeWege\_36 (DC1), YungMoney\_35 (DC1),

#### Start 14:

- Found in 8 of 146 ( 5.5% ) of genes in pham
- Manual Annotations of this start: 7 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chickadee\_34 (DE3), Dextert\_35 (DE3), EdmundFerry\_33 (DE3), GTE6\_34 (DE3), Kwekel\_34 (DE3), RoadKill\_32 (DE3), Tiamoceli\_35 (DE3), Twonlo\_32 (DE3),

#### Start 19:

- Found in 1 of 146 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sour\_31 (DR),

#### Start 22:

- Found in 14 of 146 ( 9.6% ) of genes in pham
- Manual Annotations of this start: 12 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AnarQue\_29 (DR), Axumite\_27 (DR), BiggityBass\_27 (DR), CaiB\_29 (DR), CharlottesWeb\_27 (DR), CloverMinnie\_29 (DR), Fresco\_27 (DR), Ligma\_27 (DR), MakoManhole\_29 (DR), Mariokart\_27 (DR), MossRose\_29 (DR), NHagos\_27 (DR), Shatter\_27 (DR), Wooper\_29 (DR),

#### Start 28:

- Found in 39 of 146 ( 26.7% ) of genes in pham
- Manual Annotations of this start: 30 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agatha\_25 (CT), AikoCarson\_24 (CT), Amok\_24 (CT), AndPeggy\_24 (CT), Axym\_25 (CT), Azira\_27 (CT), BillDoor\_27 (CT), Biskit\_26 (CT), Burnsey\_25 (CT), Buttrmlkdreams\_25 (CT), Cleo\_25 (CT), Cozz\_25 (CT), Dre3\_25 (CT), Elliott\_25 (CT), Emalyn\_24 (CT), Fribs8\_26 (CT), GTE2\_22 (CT), Gibbous\_25 (CT), GoldHunter\_26 (CT), HippoPololi\_27 (CT), Horseradish\_26 (CT), MScarn\_27 (CT), MaVan\_27 (CT), MunkgeeRoachy\_26 (CT), Nibbles\_27 (CT), Nina\_26 (CT), PsychoKiller\_25 (CT), Quasar\_25 (CT), RedBaron\_26 (CT), SketchMex\_24 (CT), Sopespian\_25 (CT), SteamedHams\_27 (CT), Survivors\_27 (CT), Tolls\_27 (CT), Troje\_25 (CT), Typhonmarchy\_26 (CT), Yarn\_24 (CT), Yummy\_26 (CT), Zareef\_29 (CT),

#### Start 30:

- Found in 1 of 146 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ghobes\_26 (DA),

Start 37:

- Found in 1 of 146 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anon\_31 (A15),

Start 39:

- Found in 21 of 146 ( 14.4% ) of genes in pham
- Manual Annotations of this start: 16 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: APunk\_38 (DE4), Abblin\_37 (DE4), Ali17\_33 (DE2), Belphegor\_36 (DE), Delrey21\_36 (DE4), DoctorFroggo\_36 (DE4), Hans\_37 (DE2), Inspectinfecti\_36 (DE2), Leonard\_35 (DE2), Lilbeanie\_32 (DE5), MelBins\_36 (DE2), Natkenzie\_37 (DE4), Phauci\_28 (DE2), Phinally\_35 (DE2), Sampson\_37 (DE4), Scioto\_37 (DE4), Tardus\_38 (DE4), Verity\_36 (DE4), ViaConlectus\_37 (DE4), Zipp\_36 (DE4), Zitch\_38 (DE4),

Start 45:

- Found in 19 of 146 ( 13.0% ) of genes in pham
- Manual Annotations of this start: 17 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adora\_26 (CZ4), Annalisa\_26 (CZ4), Clark\_26 (CZ4), DobbysSock\_25 (CZ4), Dolores\_26 (CZ4), Dorito\_25 (CZ4), Easley\_26 (CZ4), Gudmit\_25 (singleton), Hortense\_26 (CZ4), Howe\_26 (CZ4), Mcklovin\_26 (CZ4), MichaelScott\_26 (CZ4), Oregano\_26 (CZ4), PhriskyACE\_25 (CZ4), Samman98\_26 (CZ4), Sekhmet\_26 (CZ4), Shlim410\_26 (CZ4), Twinkle\_26 (CZ4), WinkNick\_26 (CZ4),

Start 51:

- Found in 3 of 146 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 3 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Goib\_30 (CU1), Splinter\_29 (CU1), Vendetta\_29 (CU1),

Start 58:

- Found in 9 of 146 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 6 of 126
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Banquo\_32 (CU1), Catfish\_29 (CU5), DinoDaryn\_31 (CU1), Huffy\_31 (CU1), TZGordon\_31 (CU1), TinaLin\_31 (CU1),

Start 60:

- Found in 45 of 146 ( 30.8% ) of genes in pham
- Manual Annotations of this start: 6 of 126
- Called 13.3% of time when present
- Phage (with cluster) where this start called: BigChungus\_24 (CT), Feastonyeet\_24 (CT), PotPie\_25 (CT), SheckWes\_25 (CT), SummitAcademy\_25 (CT), Vine\_26 (CT),

Start 68:

- Found in 10 of 146 ( 6.8% ) of genes in pham
- Manual Annotations of this start: 8 of 126
- Called 80.0% of time when present

- Phage (with cluster) where this start called: Fairfaxidum\_28 (CV), KappaFarmDelta\_30 (CV), Murp\_29 (CV), PCoral7\_29 (CV), PrincePatrick\_28 (CV), Toast\_29 (CV), William\_29 (CV), Wocket\_30 (CV),

Start 83:

- Found in 2 of 146 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 126
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Dardanus\_31 (CU3),

Start 90:

- Found in 11 of 146 ( 7.5% ) of genes in pham
- Manual Annotations of this start: 1 of 126
- Called 9.1% of time when present
- Phage (with cluster) where this start called: Sapo\_25 (DA),

Start 105:

- Found in 8 of 146 ( 5.5% ) of genes in pham
- Manual Annotations of this start: 1 of 126
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Petra\_30 (CV),

### **Summary by clusters:**

There are 18 clusters represented in this pham: A15, singleton, DE, CU3, DR, CU1, DB, DE2, DE3, DE4, DE5, CZ4, DA, CU5, CT, DC2, CV, DC1,

Info for manual annotations of cluster A15:

- Start number 37 was manually annotated 1 time for cluster A15.

Info for manual annotations of cluster CT:

- Start number 28 was manually annotated 30 times for cluster CT.
- Start number 60 was manually annotated 6 times for cluster CT.

Info for manual annotations of cluster CU1:

- Start number 51 was manually annotated 3 times for cluster CU1.
- Start number 58 was manually annotated 5 times for cluster CU1.

Info for manual annotations of cluster CU3:

- Start number 83 was manually annotated 1 time for cluster CU3.

Info for manual annotations of cluster CU5:

- Start number 58 was manually annotated 1 time for cluster CU5.

Info for manual annotations of cluster CV:

- Start number 68 was manually annotated 8 times for cluster CV.
- Start number 105 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster CZ4:

- Start number 45 was manually annotated 16 times for cluster CZ4.

Info for manual annotations of cluster DA:

- Start number 30 was manually annotated 1 time for cluster DA.



- Start number 90 was manually annotated 1 time for cluster DA.

Info for manual annotations of cluster DB:

- Start number 8 was manually annotated 2 times for cluster DB.

Info for manual annotations of cluster DC1:

- Start number 11 was manually annotated 12 times for cluster DC1.

Info for manual annotations of cluster DC2:

- Start number 11 was manually annotated 1 time for cluster DC2.

Info for manual annotations of cluster DE2:

- Start number 39 was manually annotated 6 times for cluster DE2.

Info for manual annotations of cluster DE3:

- Start number 14 was manually annotated 7 times for cluster DE3.

Info for manual annotations of cluster DE4:

- Start number 39 was manually annotated 9 times for cluster DE4.

Info for manual annotations of cluster DE5:

- Start number 39 was manually annotated 1 time for cluster DE5.

Info for manual annotations of cluster DR:

- Start number 19 was manually annotated 1 time for cluster DR.
- Start number 22 was manually annotated 12 times for cluster DR.

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

Gene: APunk\_38 Start: 32541, Stop: 33617, Start Num: 39

Candidate Starts for APunk\_38:

(Start: 39 @32541 has 16 MA's), (71, 32649), (Start: 90 @32697 has 1 MA's), (93, 32715), (136, 32862), (137, 32874), (141, 32913), (157, 32952), (166, 32994), (176, 33060), (184, 33075), (191, 33102), (195, 33117), (207, 33174), (214, 33228), (220, 33273), (228, 33342), (232, 33363), (236, 33387), (246, 33462), (256, 33540), (271, 33606),

Gene: Abblin\_37 Start: 33084, Stop: 34160, Start Num: 39

Candidate Starts for Abblin\_37:

(7, 32790), (24, 33018), (Start: 39 @33084 has 16 MA's), (71, 33192), (Start: 90 @33240 has 1 MA's), (93, 33258), (136, 33405), (137, 33417), (141, 33456), (157, 33495), (166, 33537), (176, 33603), (184, 33618), (191, 33645), (195, 33660), (214, 33771), (220, 33816), (222, 33846), (225, 33864), (228, 33885), (232, 33906), (236, 33930), (256, 34083), (271, 34149),

Gene: Adora\_26 Start: 22572, Stop: 23609, Start Num: 45

Candidate Starts for Adora\_26:

(Start: 45 @22572 has 17 MA's), (67, 22641), (69, 22647), (128, 22827), (133, 22848), (141, 22929), (151, 22956), (175, 23049), (204, 23157), (214, 23220), (222, 23295), (256, 23526),

Gene: Agatha\_25 Start: 20517, Stop: 21614, Start Num: 28

Candidate Starts for Agatha\_25:

(Start: 28 @20517 has 30 MA's), (29, 20535), (Start: 60 @20640 has 6 MA's), (121, 20838), (140, 20952), (141, 20970), (143, 20979), (150, 20997), (165, 21033), (185, 21093), (193, 21123), (218, 21273), (221, 21312), (227, 21357), (232, 21375), (236, 21399), (243, 21456), (252, 21516), (257, 21552), (265, 21582), (269, 21603),

Gene: AikoCarson\_24 Start: 19778, Stop: 20890, Start Num: 28

Candidate Starts for AikoCarson\_24:

(18, 19709), (Start: 28 @19778 has 30 MA's), (Start: 60 @19901 has 6 MA's), (121, 20099), (141, 20231), (143, 20240), (178, 20357), (189, 20387), (194, 20402), (200, 20441), (211, 20498), (218, 20549), (227, 20633), (232, 20651), (237, 20684), (248, 20765), (249, 20768), (250, 20771), (269, 20879),

Gene: Ali17\_33 Start: 30788, Stop: 31876, Start Num: 39

Candidate Starts for Ali17\_33:

(Start: 39 @30788 has 16 MA's), (71, 30902), (84, 30923), (103, 30992), (108, 31004), (141, 31169), (157, 31208), (184, 31331), (191, 31358), (195, 31373), (207, 31430), (214, 31484), (220, 31529), (228, 31598), (232, 31619), (236, 31643), (246, 31718), (256, 31796), (271, 31862),

Gene: Amok\_24 Start: 19775, Stop: 20848, Start Num: 28

Candidate Starts for Amok\_24:

(18, 19706), (Start: 28 @19775 has 30 MA's), (Start: 60 @19898 has 6 MA's), (121, 20096), (141, 20228), (143, 20237), (178, 20315), (189, 20345), (194, 20360), (200, 20399), (211, 20456), (218, 20507), (227, 20591), (232, 20609), (237, 20642), (248, 20723), (249, 20726), (250, 20729), (269, 20837),

Gene: AnarQue\_29 Start: 28071, Stop: 29183, Start Num: 22

Candidate Starts for AnarQue\_29:

(Start: 22 @28071 has 12 MA's), (55, 28185), (69, 28236), (71, 28245), (79, 28260), (85, 28275), (103, 28341), (134, 28455), (136, 28476), (141, 28527), (159, 28566), (168, 28590), (186, 28650), (207, 28752), (213, 28788), (214, 28803), (228, 28914), (231, 28932), (237, 28968),

Gene: AndPeggy\_24 Start: 20180, Stop: 21292, Start Num: 28

Candidate Starts for AndPeggy\_24:

(Start: 28 @20180 has 30 MA's), (29, 20198), (Start: 60 @20303 has 6 MA's), (97, 20426), (140, 20615), (141, 20633), (143, 20642), (147, 20654), (178, 20759), (200, 20843), (218, 20951), (227, 21035), (232, 21053), (237, 21086), (245, 21149), (248, 21167), (249, 21170), (250, 21173), (257, 21230),

Gene: Annalisa\_26 Start: 22034, Stop: 23074, Start Num: 45

Candidate Starts for Annalisa\_26:

(Start: 45 @22034 has 17 MA's), (67, 22103), (69, 22109), (128, 22289), (133, 22310), (134, 22319), (141, 22391), (151, 22418), (156, 22427), (176, 22514), (180, 22520), (204, 22619), (214, 22682), (228, 22796), (231, 22811), (249, 22934), (256, 22991),

Gene: Anon\_31 Start: 22310, Stop: 23416, Start Num: 37

Candidate Starts for Anon\_31:

(Start: 37 @22310 has 1 MA's), (63, 22391), (66, 22406), (95, 22499), (114, 22559), (123, 22589), (129, 22613), (131, 22622), (134, 22646), (169, 22814), (196, 22919), (203, 22964), (204, 22967), (210, 23000), (214, 23030), (223, 23108), (227, 23138), (228, 23144), (236, 23186), (240, 23222), (249, 23279), (268, 23387),

Gene: Arri\_36 Start: 28916, Stop: 30088, Start Num: 11

Candidate Starts for Arri\_36:

(Start: 11 @28916 has 13 MA's), (31, 29057), (36, 29075), (82, 29210), (100, 29276), (128, 29363), (141, 29465), (192, 29570), (214, 29696), (215, 29702), (228, 29810), (232, 29828), (268, 30053),

Gene: Axumite\_27 Start: 26078, Stop: 27217, Start Num: 22

Candidate Starts for Axumite\_27:

(Start: 22 @26078 has 12 MA's), (25, 26087), (35, 26135), (46, 26174), (55, 26192), (75, 26261), (96, 26330), (98, 26339), (134, 26465), (141, 26537), (151, 26564), (152, 26567), (170, 26639), (187, 26693), (199, 26756), (205, 26783), (207, 26789), (214, 26840), (225, 26930), (256, 27143), (269, 27200), (270, 27206), (271, 27209),

Gene: Axym\_25 Start: 20517, Stop: 21614, Start Num: 28

Candidate Starts for Axym\_25:

(Start: 28 @20517 has 30 MA's), (29, 20535), (Start: 60 @20640 has 6 MA's), (121, 20838), (140, 20952), (141, 20970), (143, 20979), (150, 20997), (165, 21033), (185, 21093), (193, 21123), (218, 21273), (221, 21312), (227, 21357), (232, 21375), (236, 21399), (243, 21456), (252, 21516), (257, 21552), (265, 21582), (269, 21603),

Gene: Azira\_27 Start: 21488, Stop: 22588, Start Num: 28

Candidate Starts for Azira\_27:

(Start: 28 @21488 has 30 MA's), (Start: 60 @21611 has 6 MA's), (103, 21749), (126, 21827), (129, 21839), (132, 21854), (140, 21923), (141, 21941), (148, 21965), (200, 22133), (227, 22325), (231, 22346), (232, 22349), (237, 22382), (245, 22445), (248, 22463), (250, 22469), (269, 22577),

Gene: Bakery\_34 Start: 28127, Stop: 29377, Start Num: 11

Candidate Starts for Bakery\_34:

(Start: 11 @28127 has 13 MA's), (26, 28241), (36, 28286), (43, 28307), (88, 28451), (100, 28487), (128, 28574), (141, 28676), (151, 28703), (184, 28838), (192, 28865), (200, 28907), (201, 28910), (204, 28928), (216, 29003), (222, 29066), (228, 29105), (269, 29354),

Gene: Banquo\_32 Start: 23108, Stop: 24055, Start Num: 58

Candidate Starts for Banquo\_32:

(57, 23105), (Start: 58 @23108 has 6 MA's), (99, 23255), (109, 23276), (124, 23333), (127, 23345), (140, 23438), (141, 23456), (144, 23465), (156, 23492), (181, 23525), (183, 23528), (197, 23576), (201, 23597), (208, 23633), (214, 23684), (215, 23690), (216, 23696), (220, 23729), (223, 23762), (227, 23786), (235, 23834), (242, 23891), (245, 23912), (254, 23969), (261, 24008), (268, 24041), (269, 24047),

Gene: Barb\_35 Start: 28934, Stop: 30106, Start Num: 11

Candidate Starts for Barb\_35:

(Start: 11 @28934 has 13 MA's), (31, 29075), (36, 29093), (82, 29228), (100, 29294), (128, 29381), (141, 29483), (192, 29588), (214, 29714), (215, 29720), (228, 29828), (232, 29846), (268, 30071),

Gene: Belphegor\_36 Start: 32996, Stop: 34081, Start Num: 39

Candidate Starts for Belphegor\_36:

(Start: 39 @32996 has 16 MA's), (71, 33110), (93, 33176), (108, 33212), (136, 33326), (141, 33377), (157, 33416), (170, 33485), (176, 33524), (184, 33539), (191, 33566), (195, 33581), (207, 33638), (214, 33692), (215, 33698), (220, 33737), (225, 33785), (228, 33806), (232, 33824), (246, 33923), (249, 33944), (256, 34001), (271, 34067),

Gene: BigChungus\_24 Start: 20320, Stop: 21312, Start Num: 60

Candidate Starts for BigChungus\_24:

(Start: 60 @20320 has 6 MA's), (112, 20467), (125, 20509), (126, 20515), (127, 20518), (131, 20536), (138, 20593), (141, 20626), (180, 20755), (184, 20764), (200, 20833), (205, 20857), (214, 20917),

(222, 20992), (232, 21052), (233, 21055), (249, 21172), (254, 21205), (259, 21241), (268, 21277), (269, 21283), (272, 21295),

Gene: BiggityBass\_27 Start: 28347, Stop: 29480, Start Num: 22

Candidate Starts for BiggityBass\_27:

(Start: 22 @28347 has 12 MA's), (42, 28425), (55, 28461), (141, 28797), (146, 28809), (161, 28851), (187, 28959), (213, 29091), (214, 29106), (220, 29151), (234, 29250), (236, 29259), (269, 29466), (270, 29472),

Gene: BillDoor\_27 Start: 20148, Stop: 21239, Start Num: 28

Candidate Starts for BillDoor\_27:

(Start: 28 @20148 has 30 MA's), (29, 20166), (Start: 60 @20271 has 6 MA's), (140, 20583), (141, 20601), (143, 20610), (147, 20622), (189, 20736), (200, 20790), (204, 20811), (218, 20898), (227, 20982), (232, 21000), (237, 21033), (245, 21096), (248, 21114), (249, 21117), (250, 21120), (257, 21177), (262, 21192), (269, 21228),

Gene: Biskit\_26 Start: 20168, Stop: 21265, Start Num: 28

Candidate Starts for Biskit\_26:

(18, 20099), (Start: 28 @20168 has 30 MA's), (29, 20186), (Start: 60 @20291 has 6 MA's), (124, 20498), (140, 20603), (141, 20621), (143, 20630), (164, 20684), (185, 20744), (211, 20873), (218, 20924), (227, 21008), (232, 21026), (237, 21059), (244, 21110), (245, 21122), (262, 21218), (269, 21254),

Gene: Burnsey\_25 Start: 20518, Stop: 21615, Start Num: 28

Candidate Starts for Burnsey\_25:

(Start: 28 @20518 has 30 MA's), (29, 20536), (Start: 60 @20641 has 6 MA's), (121, 20839), (140, 20953), (141, 20971), (143, 20980), (150, 20998), (165, 21034), (185, 21094), (193, 21124), (218, 21274), (221, 21313), (227, 21358), (232, 21376), (243, 21457), (252, 21517), (257, 21553), (265, 21583), (269, 21604),

Gene: Buttrmlkdreams\_25 Start: 20150, Stop: 21247, Start Num: 28

Candidate Starts for Buttrmlkdreams\_25:

(18, 20081), (Start: 28 @20150 has 30 MA's), (29, 20168), (Start: 60 @20273 has 6 MA's), (124, 20480), (140, 20585), (141, 20603), (143, 20612), (164, 20666), (185, 20726), (211, 20855), (218, 20906), (227, 20990), (232, 21008), (237, 21041), (244, 21092), (245, 21104), (262, 21200), (269, 21236),

Gene: CaiB\_29 Start: 28057, Stop: 29169, Start Num: 22

Candidate Starts for CaiB\_29:

(Start: 22 @28057 has 12 MA's), (55, 28171), (69, 28222), (71, 28231), (79, 28246), (85, 28261), (103, 28327), (134, 28441), (136, 28462), (141, 28513), (159, 28552), (168, 28576), (186, 28636), (207, 28738), (213, 28774), (214, 28789), (228, 28900), (231, 28918), (237, 28954),

Gene: Catfish\_29 Start: 24416, Stop: 25366, Start Num: 58

Candidate Starts for Catfish\_29:

(Start: 58 @24416 has 6 MA's), (64, 24446), (74, 24482), (Start: 83 @24497 has 1 MA's), (89, 24527), (99, 24566), (111, 24599), (123, 24641), (140, 24749), (141, 24767), (156, 24803), (179, 24830), (188, 24854), (198, 24896), (208, 24944), (212, 24971), (216, 25007), (217, 25010), (220, 25040), (232, 25127), (234, 25142), (242, 25202), (251, 25259), (254, 25280), (266, 25340), (269, 25358),

Gene: CharlottesWeb\_27 Start: 26001, Stop: 27152, Start Num: 22

Candidate Starts for CharlottesWeb\_27:

(Start: 22 @26001 has 12 MA's), (35, 26061), (85, 26211), (96, 26256), (98, 26265), (102, 26277), (106, 26286), (134, 26391), (141, 26463), (180, 26610), (199, 26694), (200, 26697), (203, 26715), (205, 26721), (207, 26727), (212, 26754), (213, 26763), (214, 26778), (234, 26922), (235, 26925), (236, 26931), (256, 27081), (269, 27138), (270, 27144),

Gene: Chickadee\_34 Start: 29877, Stop: 31157, Start Num: 14

Candidate Starts for Chickadee\_34:

(Start: 14 @29877 has 7 MA's), (34, 30006), (62, 30096), (116, 30279), (120, 30291), (134, 30363), (145, 30453), (155, 30480), (160, 30504), (174, 30597), (193, 30657), (198, 30696), (201, 30708), (214, 30792), (216, 30804), (220, 30837), (224, 30876), (227, 30900), (232, 30918), (256, 31086), (257, 31092), (267, 31131),

Gene: ClamChowder\_35 Start: 28934, Stop: 30106, Start Num: 11

Candidate Starts for ClamChowder\_35:

(Start: 11 @28934 has 13 MA's), (31, 29075), (36, 29093), (82, 29228), (100, 29294), (128, 29381), (141, 29483), (192, 29588), (214, 29714), (215, 29720), (228, 29828), (232, 29846), (268, 30071),

Gene: Clark\_26 Start: 22034, Stop: 23071, Start Num: 45

Candidate Starts for Clark\_26:

(12, 21863), (13, 21866), (Start: 45 @22034 has 17 MA's), (67, 22103), (69, 22109), (128, 22289), (133, 22310), (141, 22391), (151, 22418), (175, 22511), (204, 22619), (214, 22682), (222, 22757), (256, 22988),

Gene: Cleo\_25 Start: 20832, Stop: 21935, Start Num: 28

Candidate Starts for Cleo\_25:

(Start: 28 @20832 has 30 MA's), (33, 20868), (Start: 60 @20955 has 6 MA's), (72, 21000), (77, 21012), (80, 21015), (87, 21036), (103, 21093), (129, 21183), (136, 21234), (140, 21267), (141, 21285), (165, 21348), (177, 21396), (201, 21483), (218, 21588), (227, 21672), (228, 21678), (230, 21684), (234, 21711), (235, 21714), (237, 21729), (248, 21810), (250, 21816),

Gene: CloverMinnie\_29 Start: 27997, Stop: 29109, Start Num: 22

Candidate Starts for CloverMinnie\_29:

(Start: 22 @27997 has 12 MA's), (55, 28111), (69, 28162), (71, 28171), (79, 28186), (85, 28201), (103, 28267), (134, 28381), (136, 28402), (141, 28453), (159, 28492), (168, 28516), (186, 28576), (207, 28678), (213, 28714), (214, 28729), (228, 28840), (231, 28858), (237, 28894),

Gene: Clown\_37 Start: 30957, Stop: 32189, Start Num: 11

Candidate Starts for Clown\_37:

(Start: 11 @30957 has 13 MA's), (15, 30987), (23, 31059), (26, 31071), (31, 31098), (36, 31116), (59, 31185), (82, 31251), (128, 31404), (131, 31416), (133, 31425), (141, 31506), (170, 31602), (201, 31719), (204, 31737), (214, 31800), (226, 31902), (228, 31914), (234, 31947), (245, 32028), (250, 32052), (256, 32106), (268, 32157), (269, 32163),

Gene: Cozz\_25 Start: 20518, Stop: 21615, Start Num: 28

Candidate Starts for Cozz\_25:

(Start: 28 @20518 has 30 MA's), (29, 20536), (Start: 60 @20641 has 6 MA's), (121, 20839), (140, 20953), (141, 20971), (143, 20980), (150, 20998), (165, 21034), (185, 21094), (193, 21124), (218, 21274), (221, 21313), (227, 21358), (232, 21376), (236, 21400), (243, 21457), (252, 21517), (257, 21553), (265, 21583), (269, 21604),

Gene: Danyall\_35 Start: 28734, Stop: 29906, Start Num: 11

Candidate Starts for Danyall\_35:

(Start: 11 @28734 has 13 MA's), (31, 28875), (36, 28893), (82, 29028), (100, 29094), (128, 29181), (141, 29283), (192, 29388), (214, 29514), (215, 29520), (228, 29628), (232, 29646), (268, 29871),

Gene: Dardanus\_31 Start: 23524, Stop: 24384, Start Num: 83

Candidate Starts for Dardanus\_31:

(40, 23410), (48, 23434), (54, 23443), (59, 23455), (Start: 83 @23524 has 1 MA's), (110, 23611), (114, 23626), (140, 23764), (141, 23782), (156, 23818), (174, 23836), (208, 23959), (212, 23986), (220, 24055), (235, 24160), (241, 24214), (242, 24217), (248, 24256), (251, 24274), (254, 24295), (263, 24340), (266, 24355), (269, 24373),

Gene: Delrey21\_36 Start: 33271, Stop: 34347, Start Num: 39

Candidate Starts for Delrey21\_36:

(Start: 39 @33271 has 16 MA's), (71, 33379), (88, 33424), (93, 33445), (136, 33592), (141, 33643), (157, 33682), (166, 33724), (176, 33790), (184, 33805), (191, 33832), (195, 33847), (207, 33904), (214, 33958), (215, 33964), (220, 34003), (228, 34072), (232, 34093), (236, 34117), (246, 34192), (256, 34270), (271, 34336),

Gene: Dextert\_35 Start: 30320, Stop: 31600, Start Num: 14

Candidate Starts for Dextert\_35:

(Start: 14 @30320 has 7 MA's), (34, 30449), (53, 30506), (62, 30539), (116, 30722), (120, 30734), (134, 30806), (145, 30896), (155, 30923), (160, 30947), (174, 31040), (193, 31100), (198, 31139), (201, 31151), (214, 31235), (216, 31247), (220, 31280), (227, 31343), (232, 31361), (256, 31529), (257, 31535), (267, 31574),

Gene: DinoDaryn\_31 Start: 22562, Stop: 23509, Start Num: 58

Candidate Starts for DinoDaryn\_31:

(Start: 58 @22562 has 6 MA's), (109, 22733), (127, 22802), (140, 22895), (141, 22913), (199, 23045), (202, 23060), (208, 23087), (216, 23150), (220, 23183), (223, 23216), (242, 23345), (250, 23390), (254, 23420), (258, 23447), (260, 23456), (269, 23498),

Gene: DobbysSock\_25 Start: 21508, Stop: 22545, Start Num: 45

Candidate Starts for DobbysSock\_25:

(12, 21337), (13, 21340), (Start: 45 @21508 has 17 MA's), (67, 21577), (69, 21583), (128, 21763), (134, 21793), (141, 21865), (151, 21892), (175, 21985), (204, 22093), (214, 22156), (222, 22231), (256, 22462),

Gene: DoctorFroggo\_36 Start: 33271, Stop: 34347, Start Num: 39

Candidate Starts for DoctorFroggo\_36:

(Start: 39 @33271 has 16 MA's), (71, 33379), (88, 33424), (93, 33445), (136, 33592), (141, 33643), (157, 33682), (166, 33724), (176, 33790), (184, 33805), (191, 33832), (195, 33847), (207, 33904), (214, 33958), (215, 33964), (220, 34003), (228, 34072), (232, 34093), (236, 34117), (246, 34192), (256, 34270), (271, 34336),

Gene: Doggs\_27 Start: 22931, Stop: 24244, Start Num: 8

Candidate Starts for Doggs\_27:

(1, 22643), (2, 22700), (3, 22715), (5, 22796), (6, 22799), (Start: 8 @22931 has 2 MA's), (15, 23015), (32, 23129), (76, 23282), (88, 23318), (Start: 90 @23321 has 1 MA's), (97, 23351), (117, 23405), (141, 23549), (184, 23705), (190, 23729), (201, 23777), (209, 23816), (214, 23858), (225, 23951), (226, 23960), (228, 23972), (269, 24221),

Gene: Dolores\_26 Start: 22010, Stop: 23047, Start Num: 45

Candidate Starts for Dolores\_26:

(12, 21839), (13, 21842), (Start: 45 @22010 has 17 MA's), (67, 22079), (69, 22085), (128, 22265), (133, 22286), (141, 22367), (151, 22394), (175, 22487), (204, 22595), (214, 22658), (222, 22733), (256, 22964),

Gene: Dorito\_25 Start: 21473, Stop: 22513, Start Num: 45

Candidate Starts for Dorito\_25:

(Start: 45 @21473 has 17 MA's), (67, 21542), (69, 21548), (128, 21728), (141, 21830), (149, 21854), (151, 21857), (156, 21866), (176, 21953), (204, 22058), (212, 22097), (214, 22121), (220, 22166), (225, 22214), (226, 22223), (228, 22235), (231, 22250), (249, 22373), (256, 22430),

Gene: Dre3\_25 Start: 20758, Stop: 21861, Start Num: 28

Candidate Starts for Dre3\_25:

(Start: 28 @20758 has 30 MA's), (33, 20794), (Start: 60 @20881 has 6 MA's), (103, 21019), (129, 21109), (136, 21160), (140, 21193), (141, 21211), (165, 21274), (177, 21322), (201, 21409), (218, 21514), (227, 21598), (228, 21604), (230, 21610), (234, 21637), (237, 21655), (248, 21736), (249, 21739), (250, 21742),

Gene: Easley\_26 Start: 22020, Stop: 23057, Start Num: 45

Candidate Starts for Easley\_26:

(12, 21849), (13, 21852), (Start: 45 @22020 has 17 MA's), (67, 22089), (69, 22095), (128, 22275), (133, 22296), (141, 22377), (151, 22404), (175, 22497), (204, 22605), (231, 22797), (249, 22917), (256, 22974),

Gene: EdmundFerry\_33 Start: 29906, Stop: 31186, Start Num: 14

Candidate Starts for EdmundFerry\_33:

(10, 29873), (Start: 14 @29906 has 7 MA's), (34, 30035), (53, 30092), (62, 30125), (116, 30308), (120, 30320), (134, 30392), (145, 30482), (155, 30509), (160, 30533), (174, 30626), (193, 30686), (198, 30725), (201, 30737), (214, 30821), (216, 30833), (220, 30866), (227, 30929), (232, 30947), (256, 31115), (257, 31121), (267, 31160),

Gene: Elliott\_25 Start: 20517, Stop: 21614, Start Num: 28

Candidate Starts for Elliott\_25:

(Start: 28 @20517 has 30 MA's), (29, 20535), (Start: 60 @20640 has 6 MA's), (121, 20838), (141, 20970), (143, 20979), (150, 20997), (165, 21033), (185, 21093), (193, 21123), (218, 21273), (221, 21312), (227, 21357), (232, 21375), (243, 21456), (252, 21516), (257, 21552), (265, 21582), (269, 21603),

Gene: Emalyn\_24 Start: 19777, Stop: 20889, Start Num: 28

Candidate Starts for Emalyn\_24:

(18, 19708), (Start: 28 @19777 has 30 MA's), (Start: 60 @19900 has 6 MA's), (121, 20098), (141, 20230), (143, 20239), (178, 20356), (189, 20386), (194, 20401), (200, 20440), (211, 20497), (218, 20548), (227, 20632), (232, 20650), (237, 20683), (248, 20764), (249, 20767), (250, 20770), (269, 20878),

Gene: Fairfaxidum\_28 Start: 23698, Stop: 24678, Start Num: 68

Candidate Starts for Fairfaxidum\_28:

(52, 23638), (Start: 68 @23698 has 8 MA's), (133, 23905), (141, 23986), (142, 23989), (151, 24013), (170, 24082), (176, 24109), (203, 24217), (204, 24220), (207, 24229), (214, 24283), (216, 24295), (222, 24358), (236, 24439), (239, 24469), (256, 24589), (273, 24661), (274, 24670),

Gene: Feastonyeet\_24 Start: 20320, Stop: 21312, Start Num: 60

Candidate Starts for Feastonyeet\_24:

(Start: 60 @20320 has 6 MA's), (112, 20467), (125, 20509), (126, 20515), (127, 20518), (131, 20536), (138, 20593), (141, 20626), (180, 20755), (184, 20764), (200, 20833), (205, 20857), (214, 20917), (222, 20992), (232, 21052), (233, 21055), (249, 21172), (254, 21205), (259, 21241), (268, 21277), (269, 21283), (272, 21295),

Gene: Fresco\_27 Start: 26078, Stop: 27217, Start Num: 22

Candidate Starts for Fresco\_27:

(Start: 22 @26078 has 12 MA's), (25, 26087), (35, 26135), (46, 26174), (55, 26192), (75, 26261), (96, 26330), (98, 26339), (134, 26465), (141, 26537), (151, 26564), (152, 26567), (170, 26639), (187, 26693), (199, 26756), (205, 26783), (207, 26789), (214, 26840), (225, 26930), (256, 27143), (269, 27200), (270, 27206), (271, 27209),

Gene: Fribs8\_26 Start: 21343, Stop: 22440, Start Num: 28

Candidate Starts for Fribs8\_26:

(Start: 28 @21343 has 30 MA's), (29, 21361), (Start: 60 @21466 has 6 MA's), (103, 21604), (129, 21694), (132, 21709), (140, 21778), (141, 21796), (147, 21817), (148, 21820), (200, 21985), (211, 22042), (215, 22075), (222, 22144), (227, 22177), (230, 22189), (232, 22201), (237, 22234), (241, 22273), (249, 22318), (269, 22429),

Gene: Fugax\_35 Start: 28934, Stop: 30106, Start Num: 11

Candidate Starts for Fugax\_35:

(Start: 11 @28934 has 13 MA's), (31, 29075), (36, 29093), (82, 29228), (100, 29294), (128, 29381), (141, 29483), (192, 29588), (214, 29714), (215, 29720), (228, 29828), (232, 29846), (268, 30071),

Gene: GTE2\_22 Start: 19853, Stop: 20965, Start Num: 28

Candidate Starts for GTE2\_22:

(Start: 28 @19853 has 30 MA's), (29, 19871), (Start: 60 @19976 has 6 MA's), (97, 20099), (127, 20195), (140, 20288), (141, 20306), (147, 20327), (200, 20516), (204, 20537), (218, 20624), (227, 20708), (232, 20726), (237, 20759), (241, 20798), (248, 20840), (249, 20843), (250, 20846), (269, 20954),

Gene: GTE6\_34 Start: 30398, Stop: 31678, Start Num: 14

Candidate Starts for GTE6\_34:

(Start: 14 @30398 has 7 MA's), (34, 30527), (62, 30617), (116, 30800), (120, 30812), (134, 30884), (145, 30974), (155, 31001), (160, 31025), (174, 31118), (193, 31178), (198, 31217), (201, 31229), (214, 31313), (216, 31325), (220, 31358), (227, 31421), (256, 31607), (267, 31652),

Gene: Ghobes\_26 Start: 21406, Stop: 22404, Start Num: 30

Candidate Starts for Ghobes\_26:

(Start: 30 @21406 has 1 MA's), (47, 21466), (56, 21487), (65, 21523), (79, 21568), (88, 21595), (94, 21619), (101, 21640), (118, 21694), (130, 21736), (135, 21772), (171, 21868), (200, 21952), (214, 22036), (228, 22144), (248, 22276), (256, 22333), (257, 22339), (265, 22369),

Gene: Gibbous\_25 Start: 20758, Stop: 21861, Start Num: 28

Candidate Starts for Gibbous\_25:

(Start: 28 @20758 has 30 MA's), (33, 20794), (Start: 60 @20881 has 6 MA's), (103, 21019), (129, 21109), (136, 21160), (140, 21193), (141, 21211), (165, 21274), (177, 21322), (201, 21409), (218, 21514), (227, 21598), (228, 21604), (230, 21610), (234, 21637), (237, 21655), (248, 21736), (249, 21739), (250, 21742),

Gene: Goib\_30 Start: 22610, Stop: 23578, Start Num: 51

Candidate Starts for Goib\_30:



(16, 22433), (40, 22577), (48, 22601), (Start: 51 @22610 has 3 MA's), (Start: 58 @22625 has 6 MA's), (109, 22796), (110, 22805), (127, 22865), (140, 22958), (141, 22976), (156, 23012), (157, 23015), (174, 23030), (206, 23138), (208, 23150), (216, 23216), (220, 23249), (228, 23312), (235, 23354), (236, 23360), (238, 23387), (239, 23390), (241, 23408), (242, 23411), (248, 23450), (250, 23456), (254, 23489), (269, 23567),

Gene: GoldHunter\_26 Start: 20518, Stop: 21615, Start Num: 28

Candidate Starts for GoldHunter\_26:

(Start: 28 @20518 has 30 MA's), (29, 20536), (Start: 60 @20641 has 6 MA's), (121, 20839), (140, 20953), (141, 20971), (143, 20980), (150, 20998), (165, 21034), (185, 21094), (193, 21124), (218, 21274), (221, 21313), (227, 21358), (232, 21376), (236, 21400), (243, 21457), (252, 21517), (257, 21553), (265, 21583), (269, 21604),

Gene: Gudmit\_25 Start: 20321, Stop: 21364, Start Num: 45

Candidate Starts for Gudmit\_25:

(9, 20090), (20, 20186), (21, 20189), (Start: 45 @20321 has 17 MA's), (49, 20327), (62, 20372), (Start: 68 @20396 has 8 MA's), (70, 20405), (86, 20444), (128, 20579), (134, 20609), (141, 20681), (151, 20708), (175, 20801), (204, 20909), (214, 20972), (220, 21017), (222, 21047), (231, 21101), (256, 21278),

Gene: Hans\_37 Start: 31512, Stop: 32516, Start Num: 39

Candidate Starts for Hans\_37:

(Start: 39 @31512 has 16 MA's), (71, 31626), (84, 31647), (93, 31692), (108, 31728), (140, 31875), (141, 31893), (191, 31998), (207, 32070), (214, 32124), (220, 32169), (228, 32238), (232, 32259), (236, 32283), (246, 32358), (256, 32436), (271, 32502),

Gene: HippoPololi\_27 Start: 21407, Stop: 22510, Start Num: 28

Candidate Starts for HippoPololi\_27:

(Start: 28 @21407 has 30 MA's), (33, 21443), (Start: 60 @21530 has 6 MA's), (72, 21575), (77, 21587), (80, 21590), (97, 21653), (103, 21668), (110, 21689), (121, 21728), (129, 21758), (140, 21842), (141, 21860), (154, 21896), (165, 21923), (177, 21971), (201, 22058), (218, 22163), (227, 22247), (228, 22253), (230, 22259), (234, 22286), (235, 22289), (237, 22304), (248, 22385), (250, 22391),

Gene: Horseradish\_26 Start: 20064, Stop: 21086, Start Num: 28

Candidate Starts for Horseradish\_26:

(18, 19995), (Start: 28 @20064 has 30 MA's), (29, 20082), (Start: 60 @20187 has 6 MA's), (140, 20499), (141, 20517), (143, 20526), (153, 20550), (185, 20565), (211, 20694), (218, 20745), (220, 20766), (227, 20829), (232, 20847), (237, 20880), (245, 20943), (262, 21039),

Gene: Hortense\_26 Start: 22619, Stop: 23656, Start Num: 45

Candidate Starts for Hortense\_26:

(Start: 45 @22619 has 17 MA's), (67, 22688), (69, 22694), (128, 22874), (133, 22895), (141, 22976), (151, 23003), (175, 23096), (204, 23204), (214, 23267), (222, 23342), (256, 23573),

Gene: Howe\_26 Start: 22619, Stop: 23656, Start Num: 45

Candidate Starts for Howe\_26:

(Start: 45 @22619 has 17 MA's), (67, 22688), (69, 22694), (128, 22874), (133, 22895), (141, 22976), (151, 23003), (175, 23096), (204, 23204), (214, 23267), (222, 23342), (256, 23573),

Gene: Huffy\_31 Start: 22562, Stop: 23509, Start Num: 58

Candidate Starts for Huffy\_31:

(Start: 58 @22562 has 6 MA's), (109, 22733), (127, 22802), (140, 22895), (141, 22913), (199, 23045), (202, 23060), (208, 23087), (216, 23150), (220, 23183), (223, 23216), (227, 23240), (242, 23345), (250, 23390), (254, 23420), (258, 23447), (260, 23456), (269, 23498),

Gene: Inspectinfecti\_36 Start: 31874, Stop: 32962, Start Num: 39

Candidate Starts for Inspectinfecti\_36:

(Start: 39 @31874 has 16 MA's), (71, 31988), (84, 32009), (93, 32054), (108, 32090), (141, 32255), (157, 32294), (166, 32336), (184, 32417), (191, 32444), (195, 32459), (214, 32570), (220, 32615), (225, 32663), (228, 32684), (232, 32705), (236, 32729), (256, 32882), (271, 32948),

Gene: KappaFarmDelta\_30 Start: 23868, Stop: 24845, Start Num: 68

Candidate Starts for KappaFarmDelta\_30:

(52, 23808), (Start: 68 @23868 has 8 MA's), (92, 23949), (Start: 105 @23982 has 1 MA's), (115, 24009), (133, 24075), (139, 24132), (141, 24156), (170, 24252), (203, 24387), (204, 24390), (214, 24453), (220, 24498), (228, 24567), (233, 24588), (256, 24759), (268, 24810),

Gene: Kiko\_28 Start: 22114, Stop: 23412, Start Num: 8

Candidate Starts for Kiko\_28:

(2, 21883), (3, 21898), (4, 21934), (6, 21982), (Start: 8 @22114 has 2 MA's), (15, 22198), (17, 22207), (32, 22309), (76, 22462), (119, 22594), (122, 22600), (141, 22729), (170, 22825), (172, 22849), (173, 22852), (203, 22957), (204, 22960), (214, 23023), (233, 23158), (249, 23272), (256, 23329),

Gene: Kwekel\_34 Start: 29835, Stop: 31115, Start Num: 14

Candidate Starts for Kwekel\_34:

(Start: 14 @29835 has 7 MA's), (34, 29964), (62, 30054), (116, 30237), (120, 30249), (134, 30321), (145, 30411), (155, 30438), (160, 30462), (174, 30555), (193, 30615), (198, 30654), (201, 30666), (214, 30750), (216, 30762), (220, 30795), (227, 30858), (228, 30864), (256, 31044), (257, 31050), (267, 31089),

Gene: Leonard\_35 Start: 31510, Stop: 32598, Start Num: 39

Candidate Starts for Leonard\_35:

(Start: 39 @31510 has 16 MA's), (71, 31624), (84, 31645), (103, 31714), (108, 31726), (141, 31891), (157, 31930), (166, 31972), (184, 32053), (191, 32080), (195, 32095), (207, 32152), (214, 32206), (220, 32251), (228, 32320), (232, 32341), (236, 32365), (246, 32440), (256, 32518), (271, 32584),

Gene: Ligma\_27 Start: 26078, Stop: 27217, Start Num: 22

Candidate Starts for Ligma\_27:

(Start: 22 @26078 has 12 MA's), (25, 26087), (35, 26135), (46, 26174), (55, 26192), (75, 26261), (96, 26330), (98, 26339), (134, 26465), (141, 26537), (151, 26564), (152, 26567), (170, 26639), (187, 26693), (199, 26756), (205, 26783), (207, 26789), (214, 26840), (225, 26930), (256, 27143), (269, 27200), (270, 27206), (271, 27209),

Gene: Lilbeanie\_32 Start: 26757, Stop: 27755, Start Num: 39

Candidate Starts for Lilbeanie\_32:

(Start: 39 @26757 has 16 MA's), (71, 26865), (73, 26868), (78, 26877), (93, 26931), (97, 26943), (103, 26955), (112, 26985), (140, 27114), (141, 27132), (167, 27198), (168, 27204), (191, 27234), (214, 27360), (222, 27435), (232, 27495), (235, 27513), (256, 27669),

Gene: MScarn\_27 Start: 20153, Stop: 21250, Start Num: 28

Candidate Starts for MScarn\_27:

(18, 20084), (Start: 28 @20153 has 30 MA's), (29, 20171), (Start: 60 @20276 has 6 MA's), (124, 20483), (140, 20588), (141, 20606), (143, 20615), (164, 20669), (185, 20729), (211, 20858), (218, 20909), (227, 20993), (232, 21011), (237, 21044), (244, 21095), (245, 21107), (262, 21203), (269,

21239),

Gene: MaVan\_27 Start: 21488, Stop: 22621, Start Num: 28

Candidate Starts for MaVan\_27:

(Start: 28 @21488 has 30 MA's), (Start: 60 @21611 has 6 MA's), (103, 21749), (126, 21827), (129, 21839), (132, 21854), (140, 21923), (141, 21941), (148, 21965), (162, 22001), (177, 22082), (200, 22166), (227, 22358), (230, 22370), (232, 22382), (237, 22415), (241, 22454), (249, 22499), (269, 22610),

Gene: MakoManhole\_29 Start: 28075, Stop: 29187, Start Num: 22

Candidate Starts for MakoManhole\_29:

(Start: 22 @28075 has 12 MA's), (55, 28189), (69, 28240), (71, 28249), (79, 28264), (85, 28279), (103, 28345), (134, 28459), (136, 28480), (141, 28531), (159, 28570), (168, 28594), (186, 28654), (207, 28756), (213, 28792), (214, 28807), (228, 28918), (231, 28936), (237, 28972),

Gene: Mariokart\_27 Start: 26000, Stop: 27151, Start Num: 22

Candidate Starts for Mariokart\_27:

(Start: 22 @26000 has 12 MA's), (35, 26060), (85, 26210), (96, 26255), (98, 26264), (102, 26276), (106, 26285), (134, 26390), (141, 26462), (180, 26609), (199, 26693), (200, 26696), (203, 26714), (205, 26720), (207, 26726), (212, 26753), (213, 26762), (214, 26777), (234, 26921), (235, 26924), (236, 26930), (256, 27080), (269, 27137), (270, 27143),

Gene: Mcklovin\_26 Start: 24788, Stop: 25825, Start Num: 45

Candidate Starts for Mcklovin\_26:

(12, 24617), (13, 24620), (Start: 45 @24788 has 17 MA's), (67, 24857), (69, 24863), (128, 25043), (133, 25064), (141, 25145), (151, 25172), (175, 25265), (204, 25373), (214, 25436), (222, 25511), (256, 25742),

Gene: MelBins\_36 Start: 31659, Stop: 32747, Start Num: 39

Candidate Starts for MelBins\_36:

(Start: 39 @31659 has 16 MA's), (71, 31773), (84, 31794), (93, 31839), (103, 31863), (108, 31875), (141, 32040), (157, 32079), (166, 32121), (184, 32202), (191, 32229), (195, 32244), (214, 32355), (220, 32400), (225, 32448), (228, 32469), (232, 32490), (236, 32514), (256, 32667), (271, 32733),

Gene: MichaelScott\_26 Start: 22391, Stop: 23428, Start Num: 45

Candidate Starts for MichaelScott\_26:

(12, 22220), (13, 22223), (Start: 45 @22391 has 17 MA's), (67, 22460), (69, 22466), (128, 22646), (133, 22667), (141, 22748), (151, 22775), (175, 22868), (204, 22976), (214, 23039), (222, 23114), (256, 23345),

Gene: MossRose\_29 Start: 28054, Stop: 29166, Start Num: 22

Candidate Starts for MossRose\_29:

(Start: 22 @28054 has 12 MA's), (55, 28168), (69, 28219), (71, 28228), (79, 28243), (85, 28258), (103, 28324), (134, 28438), (136, 28459), (141, 28510), (159, 28549), (168, 28573), (186, 28633), (207, 28735), (213, 28771), (214, 28786), (228, 28897), (231, 28915), (237, 28951),

Gene: MunkgeeRoachy\_26 Start: 20565, Stop: 21695, Start Num: 28

Candidate Starts for MunkgeeRoachy\_26:

(Start: 28 @20565 has 30 MA's), (29, 20583), (Start: 60 @20688 has 6 MA's), (121, 20886), (140, 21000), (141, 21018), (143, 21027), (164, 21081), (177, 21162), (185, 21174), (193, 21204), (218, 21354), (227, 21438), (232, 21456), (237, 21489), (243, 21537), (245, 21552), (262, 21648), (269, 21684),

Gene: Murp\_29 Start: 23645, Stop: 24622, Start Num: 68

Candidate Starts for Murp\_29:

(52, 23585), (Start: 68 @23645 has 8 MA's), (92, 23726), (Start: 105 @23759 has 1 MA's), (115, 23786), (126, 23825), (133, 23852), (139, 23909), (141, 23933), (200, 24146), (203, 24164), (204, 24167), (207, 24176), (214, 24230), (220, 24275), (228, 24344), (254, 24515), (256, 24536), (268, 24587),

Gene: NHagos\_27 Start: 26589, Stop: 27701, Start Num: 22

Candidate Starts for NHagos\_27:

(Start: 22 @26589 has 12 MA's), (38, 26658), (50, 26691), (55, 26703), (61, 26727), (69, 26754), (79, 26778), (85, 26793), (103, 26859), (134, 26973), (138, 27012), (168, 27111), (186, 27171), (201, 27246), (206, 27270), (207, 27273), (213, 27309), (214, 27324), (216, 27336), (220, 27369), (228, 27435), (237, 27489), (269, 27687),

Gene: Natkenzie\_37 Start: 33084, Stop: 34160, Start Num: 39

Candidate Starts for Natkenzie\_37:

(7, 32790), (24, 33018), (Start: 39 @33084 has 16 MA's), (71, 33192), (Start: 90 @33240 has 1 MA's), (93, 33258), (136, 33405), (137, 33417), (141, 33456), (157, 33495), (166, 33537), (176, 33603), (184, 33618), (191, 33645), (195, 33660), (214, 33771), (220, 33816), (222, 33846), (225, 33864), (228, 33885), (232, 33906), (236, 33930), (256, 34083), (271, 34149),

Gene: Nibbles\_27 Start: 21488, Stop: 22621, Start Num: 28

Candidate Starts for Nibbles\_27:

(Start: 28 @21488 has 30 MA's), (29, 21506), (Start: 60 @21611 has 6 MA's), (97, 21734), (103, 21749), (126, 21827), (129, 21839), (132, 21854), (140, 21923), (141, 21941), (148, 21965), (162, 22001), (177, 22082), (200, 22166), (227, 22358), (230, 22370), (232, 22382), (237, 22415), (241, 22454), (249, 22499), (269, 22610),

Gene: Nina\_26 Start: 21560, Stop: 22657, Start Num: 28

Candidate Starts for Nina\_26:

(Start: 28 @21560 has 30 MA's), (29, 21578), (Start: 60 @21683 has 6 MA's), (121, 21881), (141, 22013), (143, 22022), (150, 22040), (165, 22076), (185, 22136), (193, 22166), (218, 22316), (221, 22355), (227, 22400), (232, 22418), (236, 22442), (243, 22499), (252, 22559), (257, 22595), (265, 22625), (269, 22646),

Gene: Oregano\_26 Start: 22056, Stop: 23096, Start Num: 45

Candidate Starts for Oregano\_26:

(Start: 45 @22056 has 17 MA's), (67, 22125), (69, 22131), (128, 22311), (133, 22332), (134, 22341), (141, 22413), (151, 22440), (175, 22533), (204, 22641), (214, 22704), (228, 22818), (249, 22956), (256, 23013),

Gene: PCoral7\_29 Start: 23615, Stop: 24595, Start Num: 68

Candidate Starts for PCoral7\_29:

(52, 23555), (Start: 68 @23615 has 8 MA's), (Start: 105 @23726 has 1 MA's), (133, 23822), (138, 23870), (141, 23903), (151, 23930), (170, 23999), (175, 24023), (176, 24026), (200, 24116), (203, 24134), (204, 24137), (214, 24200), (222, 24275), (247, 24431), (256, 24506), (273, 24578), (274, 24587),

Gene: Petra\_30 Start: 23485, Stop: 24351, Start Num: 105

Candidate Starts for Petra\_30:

(52, 23311), (Start: 68 @23371 has 8 MA's), (92, 23452), (Start: 105 @23485 has 1 MA's), (115, 23512), (126, 23551), (133, 23578), (141, 23659), (151, 23686), (156, 23695), (170, 23755), (175, 23779), (176, 23782), (201, 23875), (203, 23890), (204, 23893), (214, 23956), (216, 23968), (220,

24001), (222, 24031), (247, 24187), (254, 24241), (256, 24262),

Gene: Phauci\_28 Start: 28099, Stop: 29187, Start Num: 39

Candidate Starts for Phauci\_28:

(Start: 39 @28099 has 16 MA's), (71, 28213), (84, 28234), (103, 28303), (108, 28315), (141, 28480), (157, 28519), (166, 28561), (184, 28642), (191, 28669), (195, 28684), (214, 28795), (220, 28840), (225, 28888), (228, 28909), (232, 28930), (236, 28954), (246, 29029), (256, 29107), (271, 29173),

Gene: Phinally\_35 Start: 31507, Stop: 32595, Start Num: 39

Candidate Starts for Phinally\_35:

(Start: 39 @31507 has 16 MA's), (71, 31621), (84, 31642), (103, 31711), (108, 31723), (141, 31888), (157, 31927), (166, 31969), (184, 32050), (191, 32077), (195, 32092), (207, 32149), (214, 32203), (220, 32248), (228, 32317), (232, 32338), (236, 32362), (246, 32437), (256, 32515), (271, 32581),

Gene: PhriskyACE\_25 Start: 21473, Stop: 22513, Start Num: 45

Candidate Starts for PhriskyACE\_25:

(Start: 45 @21473 has 17 MA's), (67, 21542), (69, 21548), (128, 21728), (141, 21830), (149, 21854), (151, 21857), (156, 21866), (176, 21953), (204, 22058), (212, 22097), (214, 22121), (220, 22166), (225, 22214), (226, 22223), (228, 22235), (231, 22250), (249, 22373), (256, 22430),

Gene: PinkCoffee\_35 Start: 28943, Stop: 30115, Start Num: 11

Candidate Starts for PinkCoffee\_35:

(Start: 11 @28943 has 13 MA's), (31, 29084), (36, 29102), (82, 29237), (100, 29303), (128, 29390), (141, 29492), (192, 29597), (214, 29723), (215, 29729), (228, 29837), (232, 29855), (268, 30080),

Gene: Portcullis\_33 Start: 28253, Stop: 29425, Start Num: 11

Candidate Starts for Portcullis\_33:

(Start: 11 @28253 has 13 MA's), (31, 28394), (36, 28412), (82, 28547), (100, 28613), (107, 28631), (123, 28682), (128, 28700), (141, 28802), (192, 28907), (214, 29033), (215, 29039), (228, 29147), (232, 29165), (268, 29390),

Gene: PotPie\_25 Start: 21139, Stop: 22131, Start Num: 60

Candidate Starts for PotPie\_25:

(Start: 60 @21139 has 6 MA's), (112, 21286), (125, 21328), (126, 21334), (127, 21337), (131, 21355), (138, 21412), (141, 21445), (180, 21574), (184, 21583), (200, 21652), (205, 21676), (214, 21736), (222, 21811), (232, 21871), (233, 21874), (249, 21991), (254, 22024), (259, 22060), (268, 22096), (269, 22102), (272, 22114),

Gene: PrincePatrick\_28 Start: 23694, Stop: 24674, Start Num: 68

Candidate Starts for PrincePatrick\_28:

(52, 23634), (Start: 68 @23694 has 8 MA's), (Start: 105 @23805 has 1 MA's), (133, 23901), (138, 23949), (141, 23982), (151, 24009), (156, 24018), (170, 24078), (175, 24102), (176, 24105), (200, 24195), (203, 24213), (204, 24216), (214, 24279), (222, 24354), (247, 24510), (256, 24585), (268, 24636),

Gene: PsychoKiller\_25 Start: 20517, Stop: 21614, Start Num: 28

Candidate Starts for PsychoKiller\_25:

(Start: 28 @20517 has 30 MA's), (29, 20535), (Start: 60 @20640 has 6 MA's), (121, 20838), (141, 20970), (143, 20979), (150, 20997), (165, 21033), (185, 21093), (193, 21123), (218, 21273), (221, 21312), (227, 21357), (232, 21375), (243, 21456), (252, 21516), (257, 21552), (265, 21582), (269, 21603),

Gene: Quasar\_25 Start: 21126, Stop: 22223, Start Num: 28

Candidate Starts for Quasar\_25:

(Start: 28 @21126 has 30 MA's), (29, 21144), (Start: 60 @21249 has 6 MA's), (121, 21447), (140, 21561), (141, 21579), (143, 21588), (150, 21606), (165, 21642), (185, 21702), (193, 21732), (218, 21882), (221, 21921), (227, 21966), (232, 21984), (236, 22008), (243, 22065), (252, 22125), (257, 22161), (265, 22191), (269, 22212),

Gene: RedBaron\_26 Start: 20561, Stop: 21658, Start Num: 28

Candidate Starts for RedBaron\_26:

(Start: 28 @20561 has 30 MA's), (29, 20579), (Start: 60 @20684 has 6 MA's), (121, 20882), (141, 21014), (143, 21023), (150, 21041), (165, 21077), (185, 21137), (218, 21317), (221, 21356), (227, 21401), (232, 21419), (236, 21443), (243, 21500), (252, 21560), (257, 21596), (265, 21626), (269, 21647),

Gene: RoadKill\_32 Start: 29401, Stop: 30681, Start Num: 14

Candidate Starts for RoadKill\_32:

(Start: 14 @29401 has 7 MA's), (34, 29530), (53, 29587), (62, 29620), (116, 29803), (120, 29815), (134, 29887), (145, 29977), (155, 30004), (160, 30028), (174, 30121), (193, 30181), (198, 30220), (201, 30232), (214, 30316), (216, 30328), (220, 30361), (227, 30424), (232, 30442), (256, 30610), (257, 30616), (267, 30655),

Gene: RogerDodger\_36 Start: 29082, Stop: 30254, Start Num: 11

Candidate Starts for RogerDodger\_36:

(Start: 11 @29082 has 13 MA's), (31, 29223), (36, 29241), (82, 29376), (100, 29442), (128, 29529), (141, 29631), (192, 29736), (214, 29862), (215, 29868), (228, 29976), (232, 29994), (268, 30219),

Gene: Samman98\_26 Start: 22025, Stop: 23065, Start Num: 45

Candidate Starts for Samman98\_26:

(Start: 45 @22025 has 17 MA's), (67, 22094), (69, 22100), (128, 22280), (141, 22382), (149, 22406), (151, 22409), (156, 22418), (176, 22505), (204, 22610), (212, 22649), (214, 22673), (220, 22718), (225, 22766), (226, 22775), (228, 22787), (231, 22802), (249, 22925), (256, 22982),

Gene: Sampson\_37 Start: 33029, Stop: 34105, Start Num: 39

Candidate Starts for Sampson\_37:

(7, 32735), (24, 32963), (Start: 39 @33029 has 16 MA's), (71, 33137), (Start: 90 @33185 has 1 MA's), (93, 33203), (136, 33350), (137, 33362), (141, 33401), (157, 33440), (166, 33482), (176, 33548), (184, 33563), (191, 33590), (195, 33605), (214, 33716), (220, 33761), (222, 33791), (225, 33809), (228, 33830), (232, 33851), (236, 33875), (256, 34028), (271, 34094),

Gene: Sapo\_25 Start: 21383, Stop: 22177, Start Num: 90

Candidate Starts for Sapo\_25:

(Start: 90 @21383 has 1 MA's), (101, 21425), (113, 21461), (136, 21551), (148, 21626), (150, 21629), (200, 21722), (222, 21878), (228, 21917), (250, 22055), (253, 22085), (255, 22094), (265, 22142),

Gene: Scioto\_37 Start: 33084, Stop: 34160, Start Num: 39

Candidate Starts for Scioto\_37:

(7, 32790), (24, 33018), (Start: 39 @33084 has 16 MA's), (71, 33192), (Start: 90 @33240 has 1 MA's), (93, 33258), (136, 33405), (137, 33417), (141, 33456), (157, 33495), (166, 33537), (176, 33603), (184, 33618), (191, 33645), (195, 33660), (214, 33771), (220, 33816), (222, 33846), (225, 33864), (228, 33885), (232, 33906), (236, 33930), (256, 34083), (271, 34149),

Gene: Sekhmet\_26 Start: 22385, Stop: 23425, Start Num: 45

Candidate Starts for Sekhmet\_26:

(Start: 45 @22385 has 17 MA's), (67, 22454), (69, 22460), (128, 22640), (141, 22742), (149, 22766), (151, 22769), (156, 22778), (176, 22865), (204, 22970), (212, 23009), (214, 23033), (220, 23078), (225, 23126), (226, 23135), (228, 23147), (231, 23162), (249, 23285), (256, 23342),

Gene: Shatter\_27 Start: 26078, Stop: 27217, Start Num: 22

Candidate Starts for Shatter\_27:

(Start: 22 @26078 has 12 MA's), (25, 26087), (35, 26135), (46, 26174), (55, 26192), (75, 26261), (96, 26330), (98, 26339), (134, 26465), (141, 26537), (151, 26564), (152, 26567), (170, 26639), (187, 26693), (199, 26756), (205, 26783), (207, 26789), (214, 26840), (225, 26930), (256, 27143), (269, 27200), (270, 27206), (271, 27209),

Gene: SheckWes\_25 Start: 20283, Stop: 21275, Start Num: 60

Candidate Starts for SheckWes\_25:

(Start: 60 @20283 has 6 MA's), (112, 20430), (125, 20472), (127, 20481), (131, 20499), (138, 20556), (141, 20589), (157, 20628), (180, 20718), (184, 20727), (200, 20796), (205, 20820), (214, 20880), (222, 20955), (232, 21015), (233, 21018), (249, 21135), (254, 21168), (259, 21204), (268, 21240), (269, 21246), (272, 21258),

Gene: Shinji\_33 Start: 28194, Stop: 29366, Start Num: 11

Candidate Starts for Shinji\_33:

(Start: 11 @28194 has 13 MA's), (31, 28335), (36, 28353), (82, 28488), (100, 28554), (107, 28572), (123, 28623), (128, 28641), (141, 28743), (192, 28848), (214, 28974), (215, 28980), (228, 29088), (232, 29106), (268, 29331),

Gene: Shlim410\_26 Start: 22619, Stop: 23656, Start Num: 45

Candidate Starts for Shlim410\_26:

(Start: 45 @22619 has 17 MA's), (67, 22688), (69, 22694), (128, 22874), (133, 22895), (141, 22976), (151, 23003), (175, 23096), (204, 23204), (214, 23267), (222, 23342), (256, 23573),

Gene: SketchMex\_24 Start: 20168, Stop: 21265, Start Num: 28

Candidate Starts for SketchMex\_24:

(18, 20099), (Start: 28 @20168 has 30 MA's), (29, 20186), (Start: 60 @20291 has 6 MA's), (124, 20498), (140, 20603), (141, 20621), (143, 20630), (164, 20684), (185, 20744), (211, 20873), (218, 20924), (227, 21008), (232, 21026), (237, 21059), (244, 21110), (245, 21122), (262, 21218), (269, 21254),

Gene: Sopespian\_25 Start: 20518, Stop: 21615, Start Num: 28

Candidate Starts for Sopespian\_25:

(Start: 28 @20518 has 30 MA's), (29, 20536), (Start: 60 @20641 has 6 MA's), (121, 20839), (141, 20971), (143, 20980), (150, 20998), (165, 21034), (185, 21094), (193, 21124), (218, 21274), (221, 21313), (227, 21358), (232, 21376), (236, 21400), (243, 21457), (252, 21517), (257, 21553), (265, 21583), (269, 21604),

Gene: Sour\_31 Start: 30307, Stop: 31437, Start Num: 19

Candidate Starts for Sour\_31:

(Start: 19 @30307 has 1 MA's), (41, 30400), (44, 30406), (72, 30496), (81, 30511), (104, 30577), (141, 30754), (170, 30850), (201, 30967), (204, 30985), (214, 31048), (226, 31150), (228, 31162), (231, 31177), (234, 31195), (245, 31276), (256, 31354), (268, 31405), (269, 31411),

Gene: Splinter\_29 Start: 22610, Stop: 23578, Start Num: 51

Candidate Starts for Splinter\_29:

(16, 22433), (40, 22577), (48, 22601), (Start: 51 @22610 has 3 MA's), (Start: 58 @22625 has 6 MA's), (109, 22796), (110, 22805), (127, 22865), (140, 22958), (141, 22976), (156, 23012), (157, 23015),

(174, 23030), (206, 23138), (208, 23150), (216, 23216), (220, 23249), (228, 23312), (235, 23354), (236, 23360), (238, 23387), (239, 23390), (241, 23408), (242, 23411), (248, 23450), (250, 23456), (254, 23489), (269, 23567),

Gene: SteamedHams\_27 Start: 20181, Stop: 21269, Start Num: 28

Candidate Starts for SteamedHams\_27:

(27, 20178), (Start: 28 @20181 has 30 MA's), (29, 20199), (Start: 60 @20304 has 6 MA's), (97, 20427), (140, 20616), (141, 20634), (143, 20643), (147, 20655), (189, 20766), (200, 20820), (204, 20841), (218, 20928), (227, 21012), (232, 21030), (237, 21063), (245, 21126), (248, 21144), (249, 21147), (250, 21150), (257, 21207), (269, 21258),

Gene: SummitAcademy\_25 Start: 20359, Stop: 21351, Start Num: 60

Candidate Starts for SummitAcademy\_25:

(Start: 60 @20359 has 6 MA's), (112, 20506), (127, 20557), (131, 20575), (138, 20632), (141, 20665), (180, 20794), (184, 20803), (200, 20872), (205, 20896), (214, 20956), (222, 21031), (232, 21091), (233, 21094), (249, 21211), (254, 21244), (259, 21280), (268, 21316), (269, 21322), (272, 21334),

Gene: Survivors\_27 Start: 21337, Stop: 22437, Start Num: 28

Candidate Starts for Survivors\_27:

(Start: 28 @21337 has 30 MA's), (29, 21355), (Start: 60 @21460 has 6 MA's), (103, 21598), (126, 21676), (129, 21688), (132, 21703), (140, 21772), (141, 21790), (148, 21814), (200, 21982), (227, 22174), (231, 22195), (232, 22198), (237, 22231), (245, 22294), (248, 22312), (250, 22318), (269, 22426),

Gene: TZGordon\_31 Start: 22485, Stop: 23432, Start Num: 58

Candidate Starts for TZGordon\_31:

(Start: 58 @22485 has 6 MA's), (109, 22656), (127, 22725), (140, 22818), (141, 22836), (199, 22968), (202, 22983), (208, 23010), (216, 23073), (220, 23106), (223, 23139), (227, 23163), (242, 23268), (250, 23313), (254, 23343), (258, 23370), (260, 23379), (269, 23421),

Gene: Tardus\_38 Start: 32448, Stop: 33524, Start Num: 39

Candidate Starts for Tardus\_38:

(Start: 39 @32448 has 16 MA's), (71, 32556), (Start: 90 @32604 has 1 MA's), (93, 32622), (136, 32769), (137, 32781), (141, 32820), (157, 32859), (166, 32901), (176, 32967), (184, 32982), (191, 33009), (195, 33024), (207, 33081), (214, 33135), (220, 33180), (228, 33249), (232, 33270), (236, 33294), (246, 33369), (256, 33447), (271, 33513),

Gene: Tiamoceli\_35 Start: 30734, Stop: 32014, Start Num: 14

Candidate Starts for Tiamoceli\_35:

(Start: 14 @30734 has 7 MA's), (34, 30863), (62, 30953), (116, 31136), (120, 31148), (134, 31220), (145, 31310), (155, 31337), (158, 31352), (160, 31361), (174, 31454), (193, 31514), (201, 31565), (214, 31649), (216, 31661), (220, 31694), (227, 31757), (232, 31775), (250, 31892), (256, 31943), (267, 31988),

Gene: TinaLin\_31 Start: 22732, Stop: 23730, Start Num: 58

Candidate Starts for TinaLin\_31:

(57, 22729), (Start: 58 @22732 has 6 MA's), (99, 22879), (109, 22900), (124, 22957), (127, 22969), (141, 23080), (199, 23263), (214, 23356), (219, 23392), (220, 23401), (235, 23506), (236, 23512), (238, 23539), (239, 23542), (257, 23668), (263, 23686), (264, 23695), (269, 23719),

Gene: Toast\_29 Start: 23615, Stop: 24595, Start Num: 68

Candidate Starts for Toast\_29:



(52, 23555), (Start: 68 @23615 has 8 MA's), (Start: 105 @23726 has 1 MA's), (133, 23822), (138, 23870), (141, 23903), (151, 23930), (170, 23999), (175, 24023), (176, 24026), (200, 24116), (203, 24134), (204, 24137), (214, 24200), (222, 24275), (247, 24431), (256, 24506), (273, 24578), (274, 24587),

Gene: Tolls\_27 Start: 20184, Stop: 21263, Start Num: 28

Candidate Starts for Tolls\_27:

(27, 20181), (Start: 28 @20184 has 30 MA's), (29, 20202), (Start: 60 @20307 has 6 MA's), (97, 20430), (129, 20535), (140, 20619), (141, 20637), (148, 20661), (182, 20742), (189, 20760), (200, 20814), (218, 20922), (227, 21006), (232, 21024), (237, 21057), (245, 21120), (248, 21138), (249, 21141), (250, 21144), (257, 21201),

Gene: Troje\_25 Start: 20150, Stop: 21247, Start Num: 28

Candidate Starts for Troje\_25:

(18, 20081), (Start: 28 @20150 has 30 MA's), (29, 20168), (Start: 60 @20273 has 6 MA's), (124, 20480), (140, 20585), (141, 20603), (143, 20612), (164, 20666), (185, 20726), (211, 20855), (218, 20906), (227, 20990), (232, 21008), (237, 21041), (244, 21092), (245, 21104), (262, 21200), (269, 21236),

Gene: Twinkle\_26 Start: 23678, Stop: 24715, Start Num: 45

Candidate Starts for Twinkle\_26:

(Start: 45 @23678 has 17 MA's), (67, 23747), (69, 23753), (128, 23933), (133, 23954), (141, 24035), (151, 24062), (175, 24155), (204, 24263), (214, 24326), (222, 24401), (256, 24632),

Gene: Twister6\_35 Start: 28645, Stop: 29817, Start Num: 11

Candidate Starts for Twister6\_35:

(Start: 11 @28645 has 13 MA's), (31, 28786), (36, 28804), (82, 28939), (100, 29005), (128, 29092), (141, 29194), (192, 29299), (214, 29425), (215, 29431), (228, 29539), (232, 29557), (268, 29782),

Gene: Twonlo\_32 Start: 29352, Stop: 30632, Start Num: 14

Candidate Starts for Twonlo\_32:

(Start: 14 @29352 has 7 MA's), (34, 29481), (53, 29538), (62, 29571), (116, 29754), (120, 29766), (134, 29838), (145, 29928), (155, 29955), (160, 29979), (174, 30072), (193, 30132), (198, 30171), (201, 30183), (214, 30267), (216, 30279), (220, 30312), (227, 30375), (232, 30393), (256, 30561), (257, 30567), (267, 30606),

Gene: Typhonomachy\_26 Start: 20517, Stop: 21647, Start Num: 28

Candidate Starts for Typhonomachy\_26:

(Start: 28 @20517 has 30 MA's), (29, 20535), (Start: 60 @20640 has 6 MA's), (121, 20838), (140, 20952), (141, 20970), (143, 20979), (164, 21033), (177, 21114), (185, 21126), (194, 21159), (218, 21306), (221, 21345), (227, 21390), (232, 21408), (236, 21432), (243, 21489), (252, 21549), (257, 21585), (265, 21615), (269, 21636),

Gene: VanDeWege\_36 Start: 28981, Stop: 30153, Start Num: 11

Candidate Starts for VanDeWege\_36:

(Start: 11 @28981 has 13 MA's), (36, 29140), (82, 29275), (100, 29341), (128, 29428), (141, 29530), (192, 29635), (214, 29761), (215, 29767), (228, 29875), (232, 29893), (268, 30118),

Gene: Vendetta\_29 Start: 22610, Stop: 23578, Start Num: 51

Candidate Starts for Vendetta\_29:

(16, 22433), (40, 22577), (48, 22601), (Start: 51 @22610 has 3 MA's), (Start: 58 @22625 has 6 MA's), (110, 22805), (127, 22865), (140, 22958), (141, 22976), (156, 23012), (157, 23015), (174, 23030), (206, 23138), (208, 23150), (216, 23216), (220, 23249), (228, 23312), (235, 23354), (236, 23360),

(238, 23387), (239, 23390), (241, 23408), (242, 23411), (248, 23450), (250, 23456), (254, 23489), (269, 23567),

Gene: Verity\_36 Start: 33271, Stop: 34347, Start Num: 39

Candidate Starts for Verity\_36:

(Start: 39 @33271 has 16 MA's), (71, 33379), (88, 33424), (93, 33445), (136, 33592), (141, 33643), (157, 33682), (166, 33724), (176, 33790), (184, 33805), (191, 33832), (195, 33847), (207, 33904), (214, 33958), (215, 33964), (220, 34003), (228, 34072), (232, 34093), (236, 34117), (246, 34192), (256, 34270), (271, 34336),

Gene: ViaConlectus\_37 Start: 31720, Stop: 32796, Start Num: 39

Candidate Starts for ViaConlectus\_37:

(7, 31426), (24, 31654), (Start: 39 @31720 has 16 MA's), (71, 31828), (Start: 90 @31876 has 1 MA's), (93, 31894), (136, 32041), (137, 32053), (141, 32092), (157, 32131), (166, 32173), (176, 32239), (184, 32254), (191, 32281), (195, 32296), (214, 32407), (220, 32452), (222, 32482), (225, 32500), (228, 32521), (236, 32566), (256, 32719), (271, 32785),

Gene: Vine\_26 Start: 21286, Stop: 22272, Start Num: 60

Candidate Starts for Vine\_26:

(Start: 60 @21286 has 6 MA's), (125, 21475), (141, 21592), (180, 21721), (184, 21730), (200, 21799), (205, 21823), (214, 21883), (222, 21958), (232, 22018), (233, 22021), (254, 22168), (259, 22204), (268, 22240), (272, 22258),

Gene: William\_29 Start: 23441, Stop: 24427, Start Num: 68

Candidate Starts for William\_29:

(52, 23381), (Start: 68 @23441 has 8 MA's), (91, 23504), (Start: 105 @23552 has 1 MA's), (133, 23648), (141, 23729), (142, 23732), (151, 23756), (170, 23825), (176, 23852), (203, 23960), (204, 23963), (214, 24026), (216, 24038), (222, 24101), (236, 24182), (239, 24212), (256, 24332),

Gene: WinkNick\_26 Start: 22010, Stop: 23047, Start Num: 45

Candidate Starts for WinkNick\_26:

(12, 21839), (13, 21842), (Start: 45 @22010 has 17 MA's), (67, 22079), (69, 22085), (128, 22265), (133, 22286), (141, 22367), (151, 22394), (175, 22487), (204, 22595), (214, 22658), (222, 22733), (256, 22964),

Gene: Wocket\_30 Start: 24063, Stop: 25040, Start Num: 68

Candidate Starts for Wocket\_30:

(52, 24003), (Start: 68 @24063 has 8 MA's), (92, 24144), (Start: 105 @24177 has 1 MA's), (115, 24204), (133, 24270), (139, 24327), (141, 24351), (203, 24582), (204, 24585), (214, 24648), (220, 24693), (228, 24762), (256, 24954), (268, 25005),

Gene: Wooper\_29 Start: 28066, Stop: 29163, Start Num: 22

Candidate Starts for Wooper\_29:

(Start: 22 @28066 has 12 MA's), (55, 28180), (71, 28240), (79, 28255), (85, 28270), (134, 28450), (138, 28489), (141, 28522), (168, 28579), (180, 28627), (186, 28639), (206, 28732), (207, 28735), (208, 28744), (213, 28771), (214, 28786), (215, 28792), (228, 28891), (229, 28897), (237, 28948), (239, 28969), (247, 29014), (267, 29134),

Gene: Yarn\_24 Start: 20174, Stop: 21286, Start Num: 28

Candidate Starts for Yarn\_24:

(Start: 28 @20174 has 30 MA's), (29, 20192), (Start: 60 @20297 has 6 MA's), (97, 20420), (140, 20609), (141, 20627), (143, 20636), (147, 20648), (178, 20753), (200, 20837), (218, 20945), (227, 21029), (232, 21047), (237, 21080), (245, 21143), (248, 21161), (249, 21164), (250, 21167), (257,

21224),

Gene: Yummy\_26 Start: 20064, Stop: 21200, Start Num: 28

Candidate Starts for Yummy\_26:

(18, 19995), (Start: 28 @20064 has 30 MA's), (29, 20082), (Start: 60 @20187 has 6 MA's), (140, 20499), (141, 20517), (143, 20526), (153, 20550), (163, 20577), (185, 20679), (211, 20808), (218, 20859), (220, 20880), (227, 20943), (232, 20961), (237, 20994), (245, 21057), (262, 21153),

Gene: YungMoney\_35 Start: 29700, Stop: 30950, Start Num: 11

Candidate Starts for YungMoney\_35:

(Start: 11 @29700 has 13 MA's), (26, 29814), (36, 29859), (43, 29880), (88, 30024), (100, 30060), (128, 30147), (141, 30249), (151, 30276), (170, 30357), (200, 30480), (201, 30483), (204, 30501), (215, 30570), (228, 30678),

Gene: Zareef\_29 Start: 21489, Stop: 22589, Start Num: 28

Candidate Starts for Zareef\_29:

(Start: 28 @21489 has 30 MA's), (29, 21507), (Start: 60 @21612 has 6 MA's), (103, 21750), (126, 21828), (129, 21840), (132, 21855), (140, 21924), (141, 21942), (148, 21966), (200, 22134), (227, 22326), (231, 22347), (232, 22350), (237, 22383), (245, 22446), (248, 22464), (250, 22470), (269, 22578),

Gene: Zipp\_36 Start: 33174, Stop: 34250, Start Num: 39

Candidate Starts for Zipp\_36:

(Start: 39 @33174 has 16 MA's), (71, 33282), (Start: 90 @33330 has 1 MA's), (93, 33348), (136, 33495), (137, 33507), (141, 33546), (157, 33585), (166, 33627), (176, 33693), (184, 33708), (191, 33735), (195, 33750), (207, 33807), (214, 33861), (220, 33906), (228, 33975), (232, 33996), (236, 34020), (246, 34095), (256, 34173), (271, 34239),

Gene: Zitch\_38 Start: 31061, Stop: 32053, Start Num: 39

Candidate Starts for Zitch\_38:

(Start: 39 @31061 has 16 MA's), (71, 31169), (Start: 90 @31217 has 1 MA's), (93, 31235), (136, 31382), (137, 31394), (140, 31415), (141, 31433), (191, 31538), (207, 31610), (214, 31664), (220, 31709), (228, 31778), (232, 31799), (236, 31823), (246, 31898), (256, 31976), (271, 32042),