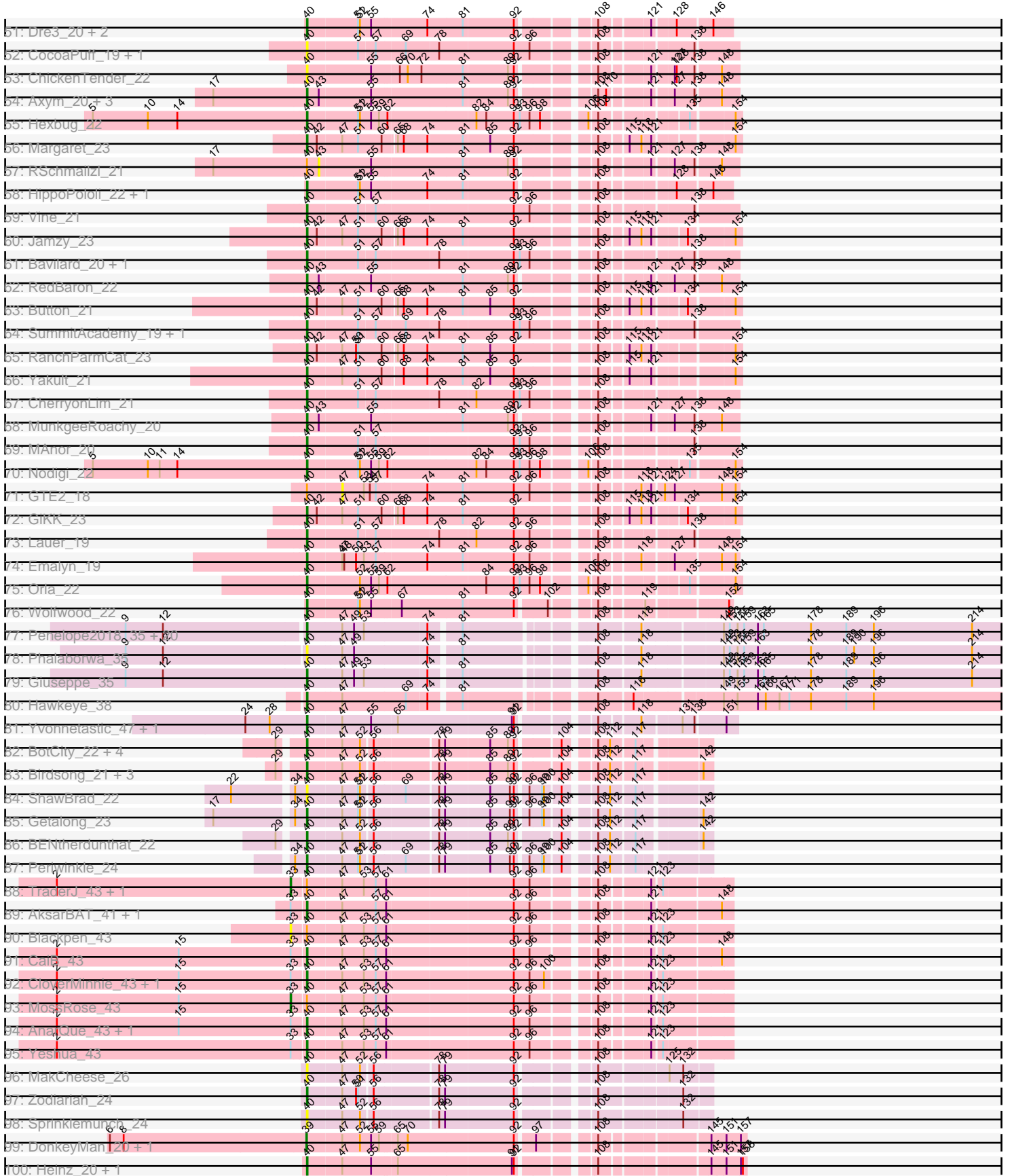
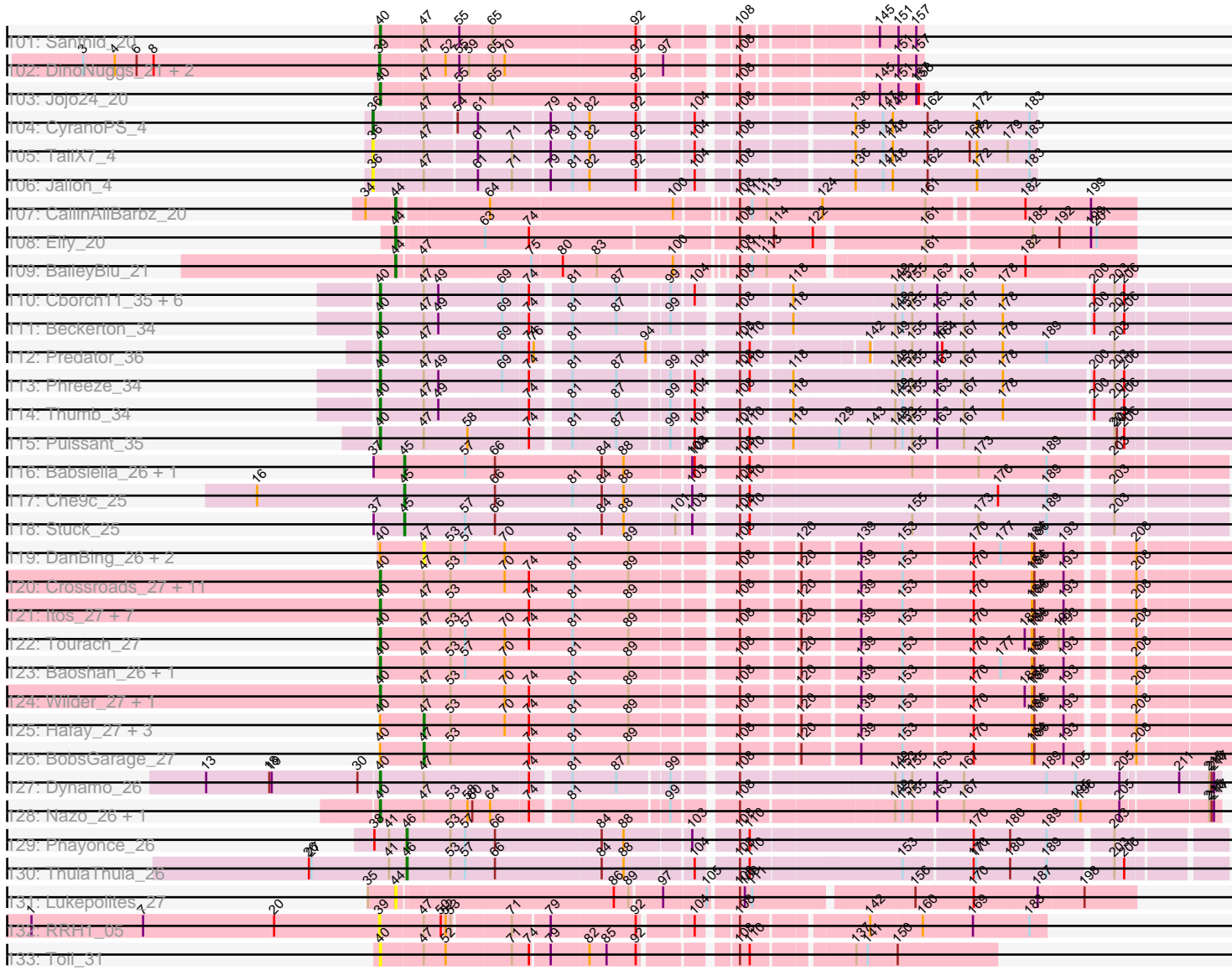




Pham 311178



Pham 311178



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 311178 Report

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

Pham number 311178 has 271 members, 49 are drafts.

Phages represented in each track:

- Track 1 : Aragog\_7, Discoknowium\_7, Zolita\_6, Ghoulboy\_7, SydNat\_7
- Track 2 : Conspiracy\_7, Lev2\_7, PickleBack\_7, Archetta\_7, ForGetIt\_7, Tiger\_7
- Track 3 : UnionJack\_7
- Track 4 : Jabiru\_7, Airmid\_7, Benedict\_7, EITiger69\_7
- Track 5 : HuhtaEnerson15\_7, Coog\_7, LittleCherry\_7, Micasa\_7, Bonamassa\_7, Midas2\_7, Cuco\_7
- Track 6 : Milcery\_7
- Track 7 : George\_6
- Track 8 : Theia\_6
- Track 9 : PetterN\_7
- Track 10 : Florence1\_7
- Track 11 : Chadwick\_7, Scorpia\_7
- Track 12 : Prinasha11\_8
- Track 13 : Bluefalcon\_6
- Track 14 : Naca\_6
- Track 15 : Tarynearal\_6
- Track 16 : Jovo\_7
- Track 17 : Florence4\_8
- Track 18 : MarysWell\_6
- Track 19 : Phlorence\_7
- Track 20 : Twigg\_7
- Track 21 : Swirley\_7
- Track 22 : Dublin\_6
- Track 23 : AgentM\_7
- Track 24 : Stephig9\_7, Expelliarmus\_6, Groundhog\_6, Danforth\_6
- Track 25 : NearlyHeadless\_7
- Track 26 : Phillis\_7
- Track 27 : Saintus\_7
- Track 28 : Dixon\_7
- Track 29 : Smeadley\_7
- Track 30 : Roary\_7
- Track 31 : Caitlin\_7
- Track 32 : Astro\_7
- Track 33 : 8UZL\_27, FF47\_27, Maco6\_25
- Track 34 : Salvus\_28, LongHai\_28
- Track 35 : Muddy\_27
- Track 36 : JacoRen57\_25

- Track 37 : Sparky\_26
- Track 38 : Horseradish\_21, Yummy\_21
- Track 39 : Nibbles\_22, MaVan\_22, Azira\_22, Survivors\_22, Zareef\_22
- Track 40 : AikoCarson\_19, Amok\_19
- Track 41 : Carsonalex\_21, Burnsey\_20, Nina\_21, Typhonomachy\_20, Agatha\_20, Bubble\_20
- Track 42 : Tolls\_22
- Track 43 : Elinal\_21, KayGee\_20, Yucky\_20
- Track 44 : MScarn\_22, Blondies\_21, Biskit\_21, Buttrmlkdreams\_20, Troje\_20, SweatNTears\_22, SketchMex\_19
- Track 45 : GoldHunter\_21, Starburst\_21, RADical\_21, Sopespian\_20, PsychoKiller\_20, Elliott\_20
- Track 46 : Fribs8\_21
- Track 47 : Pons\_20, Feastonyeet\_19, Tarnish\_20, BigChungus\_19
- Track 48 : CaramelLatte\_20, SteamedHams\_22, AndPeggy\_19, CanesSauce\_20, BillDoor\_22, Yarn\_19, ChocoMunchkin\_20
- Track 49 : Wallaby\_24
- Track 50 : ElJefes\_19, McDazzle\_19, SheckWes\_19
- Track 51 : Dre3\_20, Gibbous\_20, Cleo\_20
- Track 52 : CocoaPuff\_19, Balloona\_19
- Track 53 : ChickenTender\_22
- Track 54 : Axym\_20, Cozz\_20, Socotra\_21, Quasar\_20
- Track 55 : Hexbug\_22
- Track 56 : Margaret\_23
- Track 57 : RSchmailzl\_21
- Track 58 : HippoPololi\_22, Malvina\_22
- Track 59 : Vine\_21
- Track 60 : Jamzy\_23
- Track 61 : Bavidard\_20, Mayweather\_21
- Track 62 : RedBaron\_22
- Track 63 : Button\_21
- Track 64 : SummitAcademy\_19, PotPie\_20
- Track 65 : RanchParmCat\_23
- Track 66 : Yakult\_21
- Track 67 : CherryonLim\_21
- Track 68 : MunkgeeRoachy\_20
- Track 69 : MAnor\_20
- Track 70 : Nodigi\_22
- Track 71 : GTE2\_18
- Track 72 : GiKK\_23
- Track 73 : Lauer\_19
- Track 74 : Emalyn\_19
- Track 75 : Orla\_22
- Track 76 : Wolfwood\_22
- Track 77 : Penelope2018\_35, Delton\_35, Nova\_35, Erk16\_35, BigMama\_33, Prager\_35, Chill\_36, SirHarley\_34, KandZ\_35, Troll4\_35, Butterscotch\_35, PLOT\_36, Adjutor\_36, Gumball\_34, Thoth\_35, Mopey\_35, Visconti\_35, PBI1\_35, WaldoWhy\_36, SuperheroCarly\_35, Helpful\_36
- Track 78 : Phalaborwa\_35
- Track 79 : Giuseppe\_35
- Track 80 : Hawkeye\_38
- Track 81 : Yvonnetastic\_47, JonJames\_49
- Track 82 : BotCity\_22, CheeseTouch\_22, Lutum\_22, Kenna\_21, Asapag\_22

- Track 83 : Birdsong\_21, BearBQ\_21, Kuwabara\_21, MortyNRick\_21
- Track 84 : ShawBrad\_22
- Track 85 : Getalong\_23
- Track 86 : BENtherdunthat\_22
- Track 87 : Periwinkle\_24
- Track 88 : TraderJ\_43, Wooper\_43
- Track 89 : AksarBAT\_41, NHagos\_41
- Track 90 : Blackpen\_43
- Track 91 : CaiB\_43
- Track 92 : CloverMinnie\_43, FelixTres\_43
- Track 93 : MossRose\_43
- Track 94 : AnarQue\_43, MakoManhole\_43
- Track 95 : Yeshua\_43
- Track 96 : MakCheese\_26
- Track 97 : Zodiariah\_24
- Track 98 : Sprinklemunch\_24
- Track 99 : DonkeyMan\_20, Tarzan\_20
- Track 100 : Heinz\_20, Hibiscus\_20
- Track 101 : Santhid\_20
- Track 102 : DinoNuggs\_21, DearBasketball\_23, Reyja\_21
- Track 103 : Jojo24\_20
- Track 104 : CyranoPS\_4
- Track 105 : TailX7\_4
- Track 106 : Jalloh\_4
- Track 107 : CallinAllBarbz\_20
- Track 108 : Elfy\_20
- Track 109 : BaileyBlu\_21
- Track 110 : Cborch11\_35, BobtimousPrime\_36, Oaker\_34, Megatron06\_36, Konstantine\_39, Nish23\_35, Damien\_34
- Track 111 : Beckerton\_34
- Track 112 : Predator\_36
- Track 113 : Phreeze\_34
- Track 114 : Thumb\_34
- Track 115 : Puissant\_35
- Track 116 : Babsiella\_26, HC\_27
- Track 117 : Che9c\_25
- Track 118 : Stuck\_25
- Track 119 : DanBing\_26, DHan\_27, ZhongYanYuan\_26
- Track 120 : Crossroads\_27, LilDestine\_27, Loadrie\_27, Vetric\_27, Underpass\_27, Wigglewiggles\_27, Lynnae\_27, Gardann\_27, MkaliMitinis3\_27, Nicholasp3\_27, OverPar\_27, GuuelaD\_27
- Track 121 : Itos\_27, Breezona\_27, DrSeegs\_27, Winky\_27, Netyap\_27, Faith1\_27, BigCheese\_27, Miley16\_27
- Track 122 : Tourach\_27
- Track 123 : Baoshan\_26, Claus\_27
- Track 124 : Wilder\_27, Kahlid\_27
- Track 125 : Hafay\_27, Soap141\_27, Sarshaun\_27, Lewan\_27
- Track 126 : BobsGarage\_27
- Track 127 : Dynamo\_26
- Track 128 : Nazo\_26, BigNuz\_26
- Track 129 : Phayonce\_26
- Track 130 : ThulaThula\_26
- Track 131 : Lukepolitites\_27

- Track 132 : RRH1\_05
- Track 133 : Toil\_31

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

The start number called the most often in the published annotations is 40, it was called in 181 of the 222 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 8UZL\_27, Adjutor\_36, Agatha\_20, AgentM\_7, AikoCarson\_19, AksarBAT\_41, Amok\_19, AnarQue\_43, AndPeggy\_19, Aragog\_7, Archetta\_7, Asapag\_22, Axym\_20, Azira\_22, BENtherdunthat\_22, Balloona\_19, Baoshan\_26, Bavidard\_20, BearBQ\_21, Beckerton\_34, BigCheese\_27, BigChungus\_19, BigMama\_33, BigNuz\_26, BillDoor\_22, Birdsong\_21, Biskit\_21, Blondies\_21, Bluefalcon\_6, BobtimousPrime\_36, Bonamassa\_7, BotCity\_22, Breezona\_27, Bubble\_20, Burnsey\_20, Butterscotch\_35, Button\_21, Buttrmlkdreams\_20, CaiB\_43, CanesSauce\_20, Caramellatte\_20, Carsonalex\_21, Cborch11\_35, CheeseTouch\_22, CherryonLim\_21, ChickenTender\_22, Chill\_36, ChocoMunchkin\_20, Claus\_27, Cleo\_20, CloverMinnie\_43, CocoaPuff\_19, Conspiracy\_7, Coog\_7, Cozz\_20, Crossroads\_27, Cuco\_7, Damien\_34, Delton\_35, Discoknowium\_7, DrSeegs\_27, Dre3\_20, Dublin\_6, Dynamo\_26, ElJefes\_19, Elinal\_21, Emalyn\_19, Erk16\_35, FF47\_27, Faith1\_27, Feastonyeet\_19, FelixTres\_43, Florence4\_8, ForGetIt\_7, Fribs8\_21, Gardann\_27, George\_6, Getalong\_23, Ghoulyboy\_7, GiKK\_23, Gibbous\_20, Giuseppe\_35, Gumball\_34, GuuelaD\_27, Hawkeye\_38, Heinz\_20, Helpful\_36, Hexbug\_22, Hibiscus\_20, HippoPololi\_22, Horseradish\_21, HuhtaEnerson15\_7, Itos\_27, JacoRen57\_25, Jamzy\_23, Jojo24\_20, JonJames\_49, Kahlid\_27, KandZ\_35, KayGee\_20, Kenna\_21, Konstantine\_39, Kuwabara\_21, Lauer\_19, Lev2\_7, LilDestine\_27, LittleCherry\_7, Loadrie\_27, LongHai\_28, Lutum\_22, Lynnae\_27, MAnor\_20, MScarn\_22, MaVan\_22, Maco6\_25, MakCheese\_26, MakoManhole\_43, Malvina\_22, Margaret\_23, Mayweather\_21, McDazzle\_19, Megatron06\_36, Micasa\_7, Midas2\_7, Milcery\_7, Miley16\_27, MkaliMitinis3\_27, Mopey\_35, MortyNRick\_21, Muddy\_27, MunkgeeRoachy\_20, NHagos\_41, Nazo\_26, Netyap\_27, Nibbles\_22, Nicholasp3\_27, Nina\_21, Nish23\_35, Nodigi\_22, Nova\_35, Oaker\_34, Orla\_22, OverPar\_27, PBI1\_35, PLOT\_36, Penelope2018\_35, Periwinkle\_24, Phalaborwa\_35, Phlorence\_7, Phreeze\_34, PickleBack\_7, Pons\_20, PotPie\_20, Prager\_35, Predator\_36, Puissant\_35, Quasar\_20, RanchParmCat\_23, RedBaron\_22, Salvus\_28, Santhid\_20, ShawBrad\_22, SheckWes\_19, SirHarley\_34, SketchMex\_19, Socotra\_21, Sprinklemunch\_24, SteamedHams\_22, SummitAcademy\_19, SuperheroCarly\_35, Survivors\_22, SweatNTears\_22, Swirley\_7, SydNat\_7, Tarnish\_20, Tarynearal\_6, Theia\_6, Thoth\_35, Thumb\_34, Tiger\_7, Toil\_31, Tolls\_22, Tourach\_27, Troje\_20, Troll4\_35, Twigg\_7, Typhonomachy\_20, Underpass\_27, Vetrix\_27, Vine\_21, Visconti\_35, WaldoWhy\_36, Wigglewiggle\_27, Wilder\_27, Winky\_27, Wolfwood\_22, Yakult\_21, Yarn\_19, Yeshua\_43, Yucky\_20, Yummy\_21, Yvonnetastic\_47, Zareef\_22, Zodiariah\_24, Zolita\_6,

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

- Airmid\_7, Benedict\_7, Blackpen\_43, BobsGarage\_27, DHan\_27, DanBing\_26, EITiger69\_7, Elliott\_20, Florence1\_7, GTE2\_18, GoldHunter\_21, Hafay\_27, Jabiru\_7, Jovo\_7, Lewan\_27, MarysWell\_6, MossRose\_43, Prinasha11\_8, PsychoKiller\_20,

RADical\_21, RSchmailzl\_21, Sarshaun\_27, Soap141\_27, Sopespian\_20, Starburst\_21, TraderJ\_43, Wallaby\_24, Wooper\_43, ZhongYanYuan\_26,

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

- Astro\_7, Babsiella\_26, BaileyBlu\_21, Caitlin\_7, CallinAllBarbz\_20, Chadwick\_7, Che9c\_25, CyranoPS\_4, Danforth\_6, DearBasketball\_23, DinoNuggs\_21, Dixon\_7, DonkeyMan\_20, Elfy\_20, Expelliarmus\_6, Groundhog\_6, HC\_27, Jalloh\_4, Lukepolites\_27, Naca\_6, NearlyHeadless\_7, PetterN\_7, Phayonce\_26, Phillis\_7, RRH1\_05, Reyja\_21, Roary\_7, Saintus\_7, Scorpia\_7, Smeadley\_7, Sparky\_26, Stephig9\_7, Stuck\_25, TailX7\_4, Tarzan\_20, ThulaThula\_26, UnionJack\_7,

### Summary by start number:

Start 21:

- Found in 7 of 271 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 1 of 222
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Caitlin\_7 (A8),

Start 31:

- Found in 3 of 271 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 222
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Chadwick\_7 (A5), Scorpia\_7 (A5),

Start 32:

- Found in 4 of 271 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 4 of 222
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Airmid\_7 (A5), Benedict\_7 (A5), EITiger69\_7 (A5), Jabiru\_7 (A5),

Start 33:

- Found in 12 of 271 ( 4.4% ) of genes in pham
- Manual Annotations of this start: 2 of 222
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Blackpen\_43 (DR), MossRose\_43 (DR), TraderJ\_43 (DR), Wooper\_43 (DR),

Start 36:

- Found in 3 of 271 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 222
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CyranoPS\_4 (ER), Jalloh\_4 (ER), TailX7\_4 (ER),

Start 39:

- Found in 23 of 271 ( 8.5% ) of genes in pham
- Manual Annotations of this start: 17 of 222
- Called 87.0% of time when present
- Phage (with cluster) where this start called: Astro\_7 (A8), Danforth\_6 (A8), DearBasketball\_23 (DY), DinoNuggs\_21 (DY), Dixon\_7 (A8), DonkeyMan\_20 (DY), Expelliarmus\_6 (A8), Groundhog\_6 (A8), Naca\_6 (A5), NearlyHeadless\_7 (A8),

PetterN\_7 (A5), Phillis\_7 (A8), RRH1\_05 (singleton), Reyja\_21 (DY), Roary\_7 (A8), Saintus\_7 (A8), Smeadley\_7 (A8), Stephig9\_7 (A8), Tarzan\_20 (DY), UnionJack\_7 (A5),

Start 40:

- Found in 234 of 271 ( 86.3% ) of genes in pham
- Manual Annotations of this start: 181 of 222
- Called 87.6% of time when present
- Phage (with cluster) where this start called: 8UZL\_27 (AB), Adjutor\_36 (D1), Agatha\_20 (CT), AgentM\_7 (A5), AikoCarson\_19 (CT), AksarBAT\_41 (DR), Amok\_19 (CT), AnarQue\_43 (DR), AndPeggy\_19 (CT), Aragog\_7 (A5), Archetta\_7 (A5), Asapag\_22 (DN1), Axym\_20 (CT), Azira\_22 (CT), BENtherdunthat\_22 (DN1), Balloona\_19 (CT), Baoshan\_26 (L2), Bavilard\_20 (CT), BearBQ\_21 (DN), Beckerton\_34 (H1), BigCheese\_27 (L2), BigChungus\_19 (CT), BigMama\_33 (D1), BigNuz\_26 (P4), BillDoor\_22 (CT), Birdsong\_21 (DN), Biskit\_21 (CT), Blondies\_21 (CT), Bluefalcon\_6 (A5), BobtimousPrime\_36 (H1), Bonamassa\_7 (A5), BotCity\_22 (DN), Breezona\_27 (L2), Bubble\_20 (CT), Burnsey\_20 (CT), Butterscotch\_35 (D1), Button\_21 (CT), Buttrmilkdreams\_20 (CT), CaiB\_43 (DR), CanesSauce\_20 (CT), Caramellatte\_20 (CT), Carsonalex\_21 (CT), Cborch11\_35 (H1), CheeseTouch\_22 (DN1), CherryonLim\_21 (CT), ChickenTender\_22 (CT), Chill\_36 (D1), ChocoMunchkin\_20 (CT), Claus\_27 (L2), Cleo\_20 (CT), CloverMinnie\_43 (DR), CocoaPuff\_19 (CT), Conspiracy\_7 (A5), Coog\_7 (A5), Cozz\_20 (CT), Crossroads\_27 (L2), Cuco\_7 (A5), Damien\_34 (H1), Delton\_35 (D1), Discoknowium\_7 (A5), DrSeegs\_27 (L2), Dre3\_20 (CT), Dublin\_6 (A5), Dynamo\_26 (P1), ElJefes\_19 (CT), Elinal\_21 (CT), Emalyn\_19 (CT), Erk16\_35 (D1), FF47\_27 (AB), Faith1\_27 (L2), Feastonyeet\_19 (CT), FelixTres\_43 (DR), Florence4\_8 (A5), ForGetIt\_7 (A5), Fribs8\_21 (CT), Gardann\_27 (L2), George\_6 (A5), Getalong\_23 (DN1), Ghoulboy\_7 (A5), GiKK\_23 (CT), Gibbous\_20 (CT), Giuseppe\_35 (D1), Gumball\_34 (D1), GuuelaD\_27 (L2), Hawkeye\_38 (D2), Heinz\_20 (DY), Helpful\_36 (D1), Hexbug\_22 (CT), Hibiscus\_20 (DY), HippoPololi\_22 (CT), Horseradish\_21 (CT), HuhtaEnerson15\_7 (A5), Itos\_27 (L2), JacoRen57\_25 (AB), Jamzy\_23 (CT), Jojo24\_20 (DY), JonJames\_49 (DD), Kahlid\_27 (L2), KandZ\_35 (D1), KayGee\_20 (CT), Kenna\_21 (DN1), Konstantine\_39 (H1), Kuwabara\_21 (DN4), Lauer\_19 (CT), Lev2\_7 (A5), LilDestine\_27 (L2), LittleCherry\_7 (A5), Loadrie\_27 (L2), LongHai\_28 (AB), Lutum\_22 (DN1), Lynnae\_27 (L2), MAnor\_20 (CT), MScarn\_22 (CT), MaVan\_22 (CT), Maco6\_25 (AB), MakCheese\_26 (DW), MakoManhole\_43 (DR), Malvina\_22 (CT), Margaret\_23 (CT), Mayweather\_21 (CT), McDazzle\_19 (CT), Megatron06\_36 (H1), Micasa\_7 (A5), Midas2\_7 (A5), Milcery\_7 (A5), Miley16\_27 (L2), MkaliMitinis3\_27 (L2), Mopey\_35 (D1), MortyNRick\_21 (DN), Muddy\_27 (AB), MunkgeeRoachy\_20 (CT), NHagos\_41 (DR), Nazo\_26 (P4), Netyap\_27 (L2), Nibbles\_22 (CT), Nicholasp3\_27 (L2), Nina\_21 (CT), Nish23\_35 (H1), Nodigi\_22 (CT), Nova\_35 (D1), Oaker\_34 (H1), Orla\_22 (CT), OverPar\_27 (L2), PBI1\_35 (D1), PLOT\_36 (D1), Penelope2018\_35 (D1), Periwinkle\_24 (DN1), Phalaborwa\_35 (D1), Phlorence\_7 (A5), Phreeze\_34 (H1), PickleBack\_7 (A5), Pons\_20 (CT), PotPie\_20 (CT), Prager\_35 (D1), Predator\_36 (H1), Puissant\_35 (H1), Quasar\_20 (CT), RanchParmCat\_23 (CT), RedBaron\_22 (CT), Salvus\_28 (AB), Santhid\_20 (DY), ShawBrad\_22 (DN1), SheckWes\_19 (CT), SirHarley\_34 (D1), SketchMex\_19 (CT), Socotra\_21 (CT), Sprinklemunch\_24 (DW), SteamedHams\_22 (CT), SummitAcademy\_19 (CT), SuperheroCarly\_35 (D1), Survivors\_22 (CT), SweatNTears\_22 (CT), Swirley\_7 (A5), SydNat\_7 (A5), Tarnish\_20 (CT), Tarynearl\_6 (A5), Theia\_6 (A5), Thoth\_35 (D1), Thumb\_34 (H1), Tiger\_7 (A5), Toil\_31 (singleton), Tolls\_22 (CT), Tourach\_27 (L2), Troje\_20 (CT), Troll4\_35 (D1), Twigg\_7 (A5), Typhonmarchy\_20 (CT), Underpass\_27 (L2), Vetrix\_27 (L2), Vine\_21

(CT), Visconti\_35 (D1), WaldoWhy\_36 (D1), Wigglewobble\_27 (L2), Wilder\_27 (L2), Winky\_27 (L2), Wolfwood\_22 (CT), Yakult\_21 (CT), Yarn\_19 (CT), Yeshua\_43 (DR), Yucky\_20 (CT), Yummy\_21 (CT), Yvonnetastic\_47 (DD), Zareef\_22 (CT), Zodiariah\_24 (DW), Zolita\_6 (A5),

Start 43:

- Found in 19 of 271 ( 7.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 36.8% of time when present
- Phage (with cluster) where this start called: Elliott\_20 (CT), GoldHunter\_21 (CT), PsychoKiller\_20 (CT), RADical\_21 (CT), RSchmailzl\_21 (CT), Sopespian\_20 (CT), Starburst\_21 (CT),

Start 44:

- Found in 4 of 271 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 3 of 222
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BaileyBlu\_21 (FP), CallinAllBarbz\_20 (FP), Elfy\_20 (FP), Lukepolites\_27 (singleton),

Start 45:

- Found in 5 of 271 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 5 of 222
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Babsiella\_26 (I1), Che9c\_25 (I2), HC\_27 (I1), Sparky\_26 (AF), Stuck\_25 (I2),

Start 46:

- Found in 2 of 271 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 2 of 222
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phayonce\_26 (P5), ThulaThula\_26 (P5),

Start 47:

- Found in 205 of 271 ( 75.6% ) of genes in pham
- Manual Annotations of this start: 4 of 222
- Called 6.3% of time when present
- Phage (with cluster) where this start called: BobsGarage\_27 (L2), DHan\_27 (L2), DanBing\_26 (L2), Florence1\_7 (A5), GTE2\_18 (CT), Hafay\_27 (L2), Jovo\_7 (A5), Lewan\_27 (L2), MarysWell\_6 (A5), Prinash11\_8 (A5), Sarshaun\_27 (L2), Soap141\_27 (L2), ZhongYanYuan\_26 (L2),

Start 51:

- Found in 45 of 271 ( 16.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.2% of time when present
- Phage (with cluster) where this start called: Wallaby\_24 (CT),

### Summary by clusters:

There are 24 clusters represented in this pham: FP, DN, singleton, I2, DD, P1, DY, DW, DR, I1, P5, DN4, DN1, A5, CT, AB, P4, AF, L2, A8, ER, H1, D2, D1,

Info for manual annotations of cluster A5:

- Start number 31 was manually annotated 2 times for cluster A5.
- Start number 32 was manually annotated 4 times for cluster A5.
- Start number 39 was manually annotated 3 times for cluster A5.
- Start number 40 was manually annotated 28 times for cluster A5.
- Start number 47 was manually annotated 2 times for cluster A5.

Info for manual annotations of cluster A8:

- Start number 21 was manually annotated 1 time for cluster A8.
- Start number 39 was manually annotated 11 times for cluster A8.

Info for manual annotations of cluster AB:

- Start number 40 was manually annotated 3 times for cluster AB.

Info for manual annotations of cluster AF:

- Start number 45 was manually annotated 1 time for cluster AF.

Info for manual annotations of cluster CT:

- Start number 40 was manually annotated 63 times for cluster CT.

Info for manual annotations of cluster D1:

- Start number 40 was manually annotated 22 times for cluster D1.

Info for manual annotations of cluster D2:

- Start number 40 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DD:

- Start number 40 was manually annotated 2 times for cluster DD.

Info for manual annotations of cluster DN:

- Start number 40 was manually annotated 4 times for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 40 was manually annotated 7 times for cluster DN1.

Info for manual annotations of cluster DN4:

- Start number 40 was manually annotated 1 time for cluster DN4.

Info for manual annotations of cluster DR:

- Start number 33 was manually annotated 2 times for cluster DR.
- Start number 40 was manually annotated 7 times for cluster DR.

Info for manual annotations of cluster DW:

- Start number 40 was manually annotated 1 time for cluster DW.

Info for manual annotations of cluster DY:

- Start number 39 was manually annotated 3 times for cluster DY.
- Start number 40 was manually annotated 4 times for cluster DY.

Info for manual annotations of cluster ER:

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

Info for manual annotations of cluster FP:

- Start number 44 was manually annotated 3 times for cluster FP.

Info for manual annotations of cluster H1:

- Start number 40 was manually annotated 11 times for cluster H1.

Info for manual annotations of cluster I1:

- Start number 45 was manually annotated 2 times for cluster I1.

Info for manual annotations of cluster I2:

- Start number 45 was manually annotated 2 times for cluster I2.

Info for manual annotations of cluster L2:

- Start number 40 was manually annotated 24 times for cluster L2.
- Start number 47 was manually annotated 2 times for cluster L2.

Info for manual annotations of cluster P1:

- Start number 40 was manually annotated 1 time for cluster P1.

Info for manual annotations of cluster P4:

- Start number 40 was manually annotated 2 times for cluster P4.

Info for manual annotations of cluster P5:

- Start number 46 was manually annotated 2 times for cluster P5.

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

Gene: 8UZL\_27 Start: 23139, Stop: 24086, Start Num: 40

Candidate Starts for 8UZL\_27:

(Start: 40 @23139 has 181 MA's), (Start: 47 @23190 has 4 MA's), (64, 23271), (74, 23316), (81, 23358), (97, 23457), (108, 23529), (118, 23589), (133, 23643), (142, 23661), (149, 23688), (155, 23709), (163, 23739), (178, 23820), (184, 23856), (203, 23952),

Gene: Adjutor\_36 Start: 30210, Stop: 31193, Start Num: 40

Candidate Starts for Adjutor\_36:

(9, 29943), (12, 30000), (Start: 40 @30210 has 181 MA's), (Start: 47 @30261 has 4 MA's), (49, 30279), (53, 30294), (74, 30387), (81, 30429), (108, 30597), (118, 30657), (149, 30768), (153, 30777), (155, 30789), (159, 30798), (163, 30819), (165, 30828), (178, 30900), (189, 30954), (196, 30996), (214, 31146),

Gene: Agatha\_20 Start: 17828, Stop: 18406, Start Num: 40

Candidate Starts for Agatha\_20:

(17, 17687), (Start: 40 @17828 has 181 MA's), (43, 17846), (55, 17921), (81, 18053), (89, 18119), (92, 18128), (108, 18221), (121, 18287), (127, 18314), (138, 18344), (148, 18380),

Gene: AgentM\_7 Start: 4522, Stop: 5436, Start Num: 40

Candidate Starts for AgentM\_7:

(23, 4438), (Start: 40 @4522 has 181 MA's), (Start: 47 @4573 has 4 MA's), (50, 4594), (56, 4615), (73, 4687), (92, 4813), (108, 4906), (140, 5032), (154, 5089), (167, 5155), (194, 5278), (196, 5296), (202, 5326), (209, 5368), (212, 5422),

Gene: AikoCarson\_19 Start: 17137, Stop: 17727, Start Num: 40

Candidate Starts for AikoCarson\_19:

(Start: 40 @17137 has 181 MA's), (Start: 47 @17188 has 4 MA's), (57, 17239), (74, 17314), (81, 17365), (92, 17440), (96, 17464), (108, 17542), (118, 17596), (127, 17635), (148, 17701), (154, 17722),

Gene: Airmid\_7 Start: 4242, Stop: 5183, Start Num: 32

Candidate Starts for Airmid\_7:

(Start: 32 @4242 has 4 MA's), (Start: 40 @4266 has 181 MA's), (42, 4281), (Start: 47 @4317 has 4 MA's), (52, 4344), (56, 4359), (71, 4413), (77, 4443), (79, 4455), (92, 4557), (95, 4569), (108, 4650), (117, 4701), (126, 4740), (140, 4776), (153, 4824), (175, 4932), (194, 5025), (202, 5073), (207, 5106), (212, 5169),

Gene: AksarBAT\_41 Start: 34561, Stop: 35139, Start Num: 40

Candidate Starts for AksarBAT\_41:

(Start: 33 @34543 has 2 MA's), (Start: 40 @34561 has 181 MA's), (Start: 47 @34612 has 4 MA's), (57, 34663), (61, 34678), (92, 34864), (96, 34888), (108, 34966), (121, 35032), (148, 35125),

Gene: Amok\_19 Start: 17134, Stop: 17724, Start Num: 40

Candidate Starts for Amok\_19:

(Start: 40 @17134 has 181 MA's), (Start: 47 @17185 has 4 MA's), (57, 17236), (74, 17311), (81, 17362), (92, 17437), (96, 17461), (108, 17539), (118, 17593), (127, 17632), (148, 17698), (154, 17719),

Gene: AnarQue\_43 Start: 35973, Stop: 36551, Start Num: 40

Candidate Starts for AnarQue\_43:

(2, 35598), (15, 35784), (Start: 33 @35955 has 2 MA's), (Start: 40 @35973 has 181 MA's), (Start: 47 @36024 has 4 MA's), (53, 36057), (57, 36075), (61, 36090), (92, 36276), (96, 36300), (108, 36378), (121, 36444), (123, 36456),

Gene: AndPeggy\_19 Start: 17500, Stop: 18096, Start Num: 40

Candidate Starts for AndPeggy\_19:

(Start: 40 @17500 has 181 MA's), (Start: 47 @17551 has 4 MA's), (50, 17572), (53, 17584), (57, 17602), (74, 17677), (92, 17803), (96, 17827), (108, 17905), (124, 17986), (127, 17998), (139, 18031), (148, 18070), (154, 18091),

Gene: Aragog\_7 Start: 4552, Stop: 5466, Start Num: 40

Candidate Starts for Aragog\_7:

(23, 4468), (Start: 40 @4552 has 181 MA's), (Start: 47 @4603 has 4 MA's), (50, 4624), (56, 4645), (78, 4732), (79, 4741), (92, 4843), (108, 4936), (140, 5062), (154, 5119), (167, 5185), (194, 5308), (196, 5326), (202, 5356), (209, 5398), (212, 5452),

Gene: Archetta\_7 Start: 4261, Stop: 5175, Start Num: 40

Candidate Starts for Archetta\_7:

(Start: 40 @4261 has 181 MA's), (Start: 47 @4312 has 4 MA's), (50, 4333), (56, 4354), (73, 4426), (92, 4552), (108, 4645), (140, 4771), (154, 4828), (167, 4894), (175, 4924), (194, 5017), (202, 5065), (209, 5107), (212, 5161),

Gene: Asapag\_22 Start: 18682, Stop: 19215, Start Num: 40

Candidate Starts for Asapag\_22:

(29, 18649), (Start: 40 @18682 has 181 MA's), (Start: 47 @18733 has 4 MA's), (52, 18760), (56, 18775), (78, 18862), (79, 18871), (85, 18937), (89, 18964), (92, 18973), (104, 19030), (108, 19066), (112, 19084), (117, 19117),

Gene: Astro\_7 Start: 4196, Stop: 4876, Start Num: 39

Candidate Starts for Astro\_7:

(Start: 21 @4070 has 1 MA's), (Start: 39 @4196 has 17 MA's), (42, 4211), (Start: 47 @4247 has 4 MA's), (71, 4352), (92, 4496), (96, 4511), (108, 4610), (110, 4622), (130, 4712), (154, 4787), (155, 4790), (168, 4850), (174, 4862),

Gene: Axym\_20 Start: 17828, Stop: 18406, Start Num: 40

Candidate Starts for Axym\_20:

(17, 17687), (Start: 40 @17828 has 181 MA's), (43, 17846), (55, 17921), (81, 18053), (89, 18119), (92, 18128), (108, 18221), (110, 18233), (121, 18287), (127, 18314), (138, 18344), (148, 18380),

Gene: Azira\_22 Start: 18806, Stop: 19369, Start Num: 40

Candidate Starts for Azira\_22:

(Start: 40 @18806 has 181 MA's), (51, 18881), (52, 18884), (55, 18899), (67, 18941), (81, 19031), (92, 19106), (108, 19199), (119, 19256), (152, 19364),

Gene: BENtherdunthat\_22 Start: 18682, Stop: 19215, Start Num: 40

Candidate Starts for BENtherdunthat\_22:

(29, 18649), (Start: 40 @18682 has 181 MA's), (Start: 47 @18733 has 4 MA's), (52, 18760), (56, 18775), (78, 18862), (79, 18871), (85, 18937), (89, 18964), (92, 18973), (104, 19030), (108, 19066), (112, 19084), (117, 19117), (142, 19201),

Gene: Babsiella\_26 Start: 23158, Stop: 24111, Start Num: 45

Candidate Starts for Babsiella\_26:

(37, 23122), (Start: 45 @23158 has 5 MA's), (57, 23233), (66, 23269), (84, 23398), (88, 23425), (103, 23500), (104, 23503), (108, 23542), (110, 23554), (155, 23746), (173, 23821), (189, 23905), (203, 23974),

Gene: BaileyBlu\_21 Start: 17945, Stop: 18781, Start Num: 44

Candidate Starts for BaileyBlu\_21:

(Start: 44 @17945 has 3 MA's), (Start: 47 @17975 has 4 MA's), (75, 18104), (80, 18140), (83, 18182), (100, 18275), (108, 18332), (111, 18347), (113, 18365), (161, 18545), (182, 18650),

Gene: Balloona\_19 Start: 17505, Stop: 18092, Start Num: 40

Candidate Starts for Balloona\_19:

(Start: 40 @17505 has 181 MA's), (51, 17580), (57, 17604), (69, 17646), (78, 17694), (92, 17805), (96, 17829), (108, 17907), (138, 18030),

Gene: Baoshan\_26 Start: 25174, Stop: 26124, Start Num: 40

Candidate Starts for Baoshan\_26:

(Start: 40 @25174 has 181 MA's), (Start: 47 @25225 has 4 MA's), (53, 25258), (57, 25276), (70, 25324), (81, 25408), (89, 25474), (108, 25585), (120, 25645), (139, 25708), (153, 25759), (170, 25840), (177, 25873), (184, 25912), (186, 25915), (193, 25951), (208, 26011),

Gene: Bavilard\_20 Start: 18287, Stop: 18874, Start Num: 40

Candidate Starts for Bavilard\_20:

(Start: 40 @18287 has 181 MA's), (51, 18362), (57, 18386), (78, 18476), (92, 18587), (93, 18596), (96, 18611), (108, 18689), (138, 18812),

Gene: BearBQ\_21 Start: 19522, Stop: 20055, Start Num: 40

Candidate Starts for BearBQ\_21:

(29, 19489), (Start: 40 @19522 has 181 MA's), (Start: 47 @19573 has 4 MA's), (52, 19600), (56, 19615), (78, 19702), (79, 19711), (85, 19777), (89, 19804), (92, 19813), (104, 19870), (108, 19906),

(112, 19924), (117, 19957), (142, 20041),

Gene: Beckerton\_34 Start: 31940, Stop: 32905, Start Num: 40

Candidate Starts for Beckerton\_34:

(Start: 40 @31940 has 181 MA's), (Start: 47 @31991 has 4 MA's), (49, 32009), (69, 32087), (74, 32117), (81, 32159), (87, 32210), (99, 32267), (108, 32330), (118, 32390), (149, 32507), (153, 32516), (155, 32528), (163, 32558), (167, 32591), (178, 32639), (200, 32744), (203, 32765), (206, 32777),

Gene: Benedict\_7 Start: 4244, Stop: 5185, Start Num: 32

Candidate Starts for Benedict\_7:

(Start: 32 @4244 has 4 MA's), (Start: 40 @4268 has 181 MA's), (42, 4283), (Start: 47 @4319 has 4 MA's), (52, 4346), (56, 4361), (71, 4415), (77, 4445), (79, 4457), (92, 4559), (95, 4571), (108, 4652), (117, 4703), (126, 4742), (140, 4778), (153, 4826), (175, 4934), (194, 5027), (202, 5075), (207, 5108), (212, 5171),

Gene: BigCheese\_27 Start: 25353, Stop: 26303, Start Num: 40

Candidate Starts for BigCheese\_27:

(Start: 40 @25353 has 181 MA's), (Start: 47 @25404 has 4 MA's), (53, 25437), (74, 25533), (81, 25587), (89, 25653), (108, 25764), (120, 25824), (139, 25887), (153, 25938), (170, 26019), (184, 26091), (186, 26094), (193, 26130), (208, 26190),

Gene: BigChungus\_19 Start: 17545, Stop: 18132, Start Num: 40

Candidate Starts for BigChungus\_19:

(Start: 40 @17545 has 181 MA's), (51, 17620), (57, 17644), (78, 17734), (92, 17845), (93, 17854), (96, 17869), (108, 17947), (127, 18040),

Gene: BigMama\_33 Start: 30286, Stop: 31269, Start Num: 40

Candidate Starts for BigMama\_33:

(9, 30019), (12, 30076), (Start: 40 @30286 has 181 MA's), (Start: 47 @30337 has 4 MA's), (49, 30355), (53, 30370), (74, 30463), (81, 30505), (108, 30673), (118, 30733), (149, 30844), (153, 30853), (155, 30865), (159, 30874), (163, 30895), (165, 30904), (178, 30976), (189, 31030), (196, 31072), (214, 31222),

Gene: BigNuz\_26 Start: 23755, Stop: 24702, Start Num: 40

Candidate Starts for BigNuz\_26:

(Start: 40 @23755 has 181 MA's), (Start: 47 @23806 has 4 MA's), (53, 23839), (58, 23860), (60, 23866), (64, 23887), (74, 23932), (81, 23974), (99, 24082), (108, 24145), (149, 24319), (153, 24328), (155, 24340), (163, 24370), (167, 24403), (195, 24541), (196, 24547), (205, 24592), (215, 24688), (216, 24691), (217, 24694),

Gene: BillDoor\_22 Start: 17468, Stop: 18064, Start Num: 40

Candidate Starts for BillDoor\_22:

(Start: 40 @17468 has 181 MA's), (Start: 47 @17519 has 4 MA's), (50, 17540), (53, 17552), (57, 17570), (74, 17645), (92, 17771), (96, 17795), (108, 17873), (124, 17954), (127, 17966), (139, 17999), (148, 18038), (154, 18059),

Gene: Birdsong\_21 Start: 18415, Stop: 18948, Start Num: 40

Candidate Starts for Birdsong\_21:

(29, 18382), (Start: 40 @18415 has 181 MA's), (Start: 47 @18466 has 4 MA's), (52, 18493), (56, 18508), (78, 18595), (79, 18604), (85, 18670), (89, 18697), (92, 18706), (104, 18763), (108, 18799), (112, 18817), (117, 18850), (142, 18934),

Gene: Biskit\_21 Start: 17483, Stop: 18073, Start Num: 40

Candidate Starts for Biskit\_21:

(Start: 40 @17483 has 181 MA's), (Start: 47 @17534 has 4 MA's), (50, 17555), (53, 17567), (57, 17585), (74, 17660), (81, 17711), (92, 17786), (96, 17810), (108, 17888), (118, 17942), (121, 17954), (127, 17981), (144, 18026), (148, 18047),

Gene: Blackpen\_43 Start: 35373, Stop: 35969, Start Num: 33

Candidate Starts for Blackpen\_43:

(Start: 33 @35373 has 2 MA's), (Start: 40 @35391 has 181 MA's), (Start: 47 @35442 has 4 MA's), (53, 35475), (57, 35493), (61, 35508), (92, 35694), (96, 35718), (108, 35796), (121, 35862), (123, 35874),

Gene: Blondies\_21 Start: 17466, Stop: 18056, Start Num: 40

Candidate Starts for Blondies\_21:

(Start: 40 @17466 has 181 MA's), (Start: 47 @17517 has 4 MA's), (50, 17538), (53, 17550), (57, 17568), (74, 17643), (81, 17694), (92, 17769), (96, 17793), (108, 17871), (118, 17925), (121, 17937), (127, 17964), (144, 18009), (148, 18030),

Gene: Bluefalcon\_6 Start: 4519, Stop: 5436, Start Num: 40

Candidate Starts for Bluefalcon\_6:

(23, 4435), (Start: 40 @4519 has 181 MA's), (Start: 47 @4570 has 4 MA's), (50, 4591), (56, 4612), (78, 4699), (79, 4708), (81, 4735), (92, 4810), (98, 4840), (108, 4903), (140, 5032), (154, 5089), (175, 5185), (194, 5278), (202, 5326), (210, 5389), (212, 5422),

Gene: BobsGarage\_27 Start: 25404, Stop: 26303, Start Num: 47

Candidate Starts for BobsGarage\_27:

(Start: 40 @25353 has 181 MA's), (Start: 47 @25404 has 4 MA's), (53, 25437), (74, 25533), (81, 25587), (89, 25653), (108, 25764), (120, 25824), (139, 25887), (153, 25938), (170, 26019), (184, 26091), (186, 26094), (193, 26130), (208, 26190),

Gene: BobtimousPrime\_36 Start: 31860, Stop: 32825, Start Num: 40

Candidate Starts for BobtimousPrime\_36:

(Start: 40 @31860 has 181 MA's), (Start: 47 @31911 has 4 MA's), (49, 31929), (69, 32007), (74, 32037), (81, 32079), (87, 32130), (99, 32187), (104, 32211), (108, 32250), (118, 32310), (149, 32427), (153, 32436), (155, 32448), (163, 32478), (167, 32511), (178, 32559), (200, 32664), (203, 32685), (206, 32697),

Gene: Bonamassa\_7 Start: 4441, Stop: 5358, Start Num: 40

Candidate Starts for Bonamassa\_7:

(Start: 40 @4441 has 181 MA's), (Start: 47 @4492 has 4 MA's), (50, 4513), (56, 4534), (73, 4606), (78, 4621), (79, 4630), (81, 4657), (92, 4732), (98, 4762), (108, 4825), (140, 4954), (154, 5011), (175, 5107), (194, 5200), (202, 5248), (210, 5311), (212, 5344), (213, 5347),

Gene: BotCity\_22 Start: 18680, Stop: 19213, Start Num: 40

Candidate Starts for BotCity\_22:

(29, 18647), (Start: 40 @18680 has 181 MA's), (Start: 47 @18731 has 4 MA's), (52, 18758), (56, 18773), (78, 18860), (79, 18869), (85, 18935), (89, 18962), (92, 18971), (104, 19028), (108, 19064), (112, 19082), (117, 19115),

Gene: Breezona\_27 Start: 25353, Stop: 26303, Start Num: 40

Candidate Starts for Breezona\_27:

(Start: 40 @25353 has 181 MA's), (Start: 47 @25404 has 4 MA's), (53, 25437), (74, 25533), (81, 25587), (89, 25653), (108, 25764), (120, 25824), (139, 25887), (153, 25938), (170, 26019), (184, 26091), (186, 26094), (193, 26130), (208, 26190),

Gene: Bubble\_20 Start: 17828, Stop: 18406, Start Num: 40

Candidate Starts for Bubble\_20:

(17, 17687), (Start: 40 @17828 has 181 MA's), (43, 17846), (55, 17921), (81, 18053), (89, 18119), (92, 18128), (108, 18221), (121, 18287), (127, 18314), (138, 18344), (148, 18380),

Gene: Burnsey\_20 Start: 17829, Stop: 18407, Start Num: 40

Candidate Starts for Burnsey\_20:

(17, 17688), (Start: 40 @17829 has 181 MA's), (43, 17847), (55, 17922), (81, 18054), (89, 18120), (92, 18129), (108, 18222), (121, 18288), (127, 18315), (138, 18345), (148, 18381),

Gene: Butterscotch\_35 Start: 30270, Stop: 31253, Start Num: 40

Candidate Starts for Butterscotch\_35:

(9, 30003), (12, 30060), (Start: 40 @30270 has 181 MA's), (Start: 47 @30321 has 4 MA's), (49, 30339), (53, 30354), (74, 30447), (81, 30489), (108, 30657), (118, 30717), (149, 30828), (153, 30837), (155, 30849), (159, 30858), (163, 30879), (165, 30888), (178, 30960), (189, 31014), (196, 31056), (214, 31206),

Gene: Button\_21 Start: 16864, Stop: 17439, Start Num: 40

Candidate Starts for Button\_21:

(Start: 40 @16864 has 181 MA's), (42, 16879), (Start: 47 @16915 has 4 MA's), (51, 16939), (60, 16972), (65, 16987), (68, 16996), (74, 17032), (81, 17083), (85, 17122), (92, 17158), (108, 17260), (115, 17296), (118, 17314), (121, 17326), (134, 17368), (154, 17431),

Gene: Buttrmlkdreams\_20 Start: 17465, Stop: 18055, Start Num: 40

Candidate Starts for Buttrmlkdreams\_20:

(Start: 40 @17465 has 181 MA's), (Start: 47 @17516 has 4 MA's), (50, 17537), (53, 17549), (57, 17567), (74, 17642), (81, 17693), (92, 17768), (96, 17792), (108, 17870), (118, 17924), (121, 17936), (127, 17963), (144, 18008), (148, 18029),

Gene: CaiB\_43 Start: 35959, Stop: 36537, Start Num: 40

Candidate Starts for CaiB\_43:

(2, 35584), (15, 35770), (Start: 33 @35941 has 2 MA's), (Start: 40 @35959 has 181 MA's), (Start: 47 @36010 has 4 MA's), (53, 36043), (57, 36061), (61, 36076), (92, 36262), (96, 36286), (108, 36364), (121, 36430), (123, 36442), (148, 36523),

Gene: Caitlin\_7 Start: 4070, Stop: 4873, Start Num: 21

Candidate Starts for Caitlin\_7:

(Start: 21 @4070 has 1 MA's), (Start: 39 @4193 has 17 MA's), (42, 4208), (Start: 47 @4244 has 4 MA's), (71, 4349), (92, 4493), (96, 4508), (108, 4607), (110, 4619), (130, 4709), (154, 4784), (155, 4787), (168, 4847), (174, 4859),

Gene: CallinAllBarbz\_20 Start: 17943, Stop: 18791, Start Num: 44

Candidate Starts for CallinAllBarbz\_20:

(34, 17910), (Start: 44 @17943 has 3 MA's), (64, 18048), (100, 18270), (108, 18327), (111, 18342), (113, 18360), (124, 18429), (161, 18555), (182, 18660), (199, 18738),

Gene: CanesSauce\_20 Start: 17501, Stop: 18097, Start Num: 40

Candidate Starts for CanesSauce\_20:

(Start: 40 @17501 has 181 MA's), (Start: 47 @17552 has 4 MA's), (50, 17573), (53, 17585), (57, 17603), (74, 17678), (92, 17804), (96, 17828), (108, 17906), (124, 17987), (127, 17999), (139, 18032), (148, 18071), (154, 18092),

Gene: CaramelLatte\_20 Start: 17501, Stop: 18097, Start Num: 40

Candidate Starts for CaramellLatte\_20:

(Start: 40 @17501 has 181 MA's), (Start: 47 @17552 has 4 MA's), (50, 17573), (53, 17585), (57, 17603), (74, 17678), (92, 17804), (96, 17828), (108, 17906), (124, 17987), (127, 17999), (139, 18032), (148, 18071), (154, 18092),

Gene: Carsonalex\_21 Start: 17886, Stop: 18464, Start Num: 40

Candidate Starts for Carsonalex\_21:

(17, 17745), (Start: 40 @17886 has 181 MA's), (43, 17904), (55, 17979), (81, 18111), (89, 18177), (92, 18186), (108, 18279), (121, 18345), (127, 18372), (138, 18402), (148, 18438),

Gene: Cborch11\_35 Start: 31405, Stop: 32370, Start Num: 40

Candidate Starts for Cborch11\_35:

(Start: 40 @31405 has 181 MA's), (Start: 47 @31456 has 4 MA's), (49, 31474), (69, 31552), (74, 31582), (81, 31624), (87, 31675), (99, 31732), (104, 31756), (108, 31795), (118, 31855), (149, 31972), (153, 31981), (155, 31993), (163, 32023), (167, 32056), (178, 32104), (200, 32209), (203, 32230), (206, 32242),

Gene: Chadwick\_7 Start: 4240, Stop: 4944, Start Num: 31

Candidate Starts for Chadwick\_7:

(23, 4180), (Start: 31 @4240 has 2 MA's), (Start: 39 @4264 has 17 MA's), (42, 4279), (Start: 47 @4315 has 4 MA's), (82, 4507), (92, 4564), (104, 4621), (108, 4672), (110, 4684), (174, 4930),

Gene: Che9c\_25 Start: 23257, Stop: 24210, Start Num: 45

Candidate Starts for Che9c\_25:

(16, 23080), (Start: 45 @23257 has 5 MA's), (66, 23368), (81, 23464), (84, 23497), (88, 23524), (103, 23599), (108, 23641), (110, 23653), (176, 23944), (189, 24004), (203, 24073),

Gene: CheeseTouch\_22 Start: 18676, Stop: 19209, Start Num: 40

Candidate Starts for CheeseTouch\_22:

(29, 18643), (Start: 40 @18676 has 181 MA's), (Start: 47 @18727 has 4 MA's), (52, 18754), (56, 18769), (78, 18856), (79, 18865), (85, 18931), (89, 18958), (92, 18967), (104, 19024), (108, 19060), (112, 19078), (117, 19111),

Gene: CherryonLim\_21 Start: 18254, Stop: 18841, Start Num: 40

Candidate Starts for CherryonLim\_21:

(Start: 40 @18254 has 181 MA's), (51, 18329), (57, 18353), (78, 18443), (82, 18497), (92, 18554), (93, 18563), (96, 18578), (108, 18656),

Gene: ChickenTender\_22 Start: 17893, Stop: 18471, Start Num: 40

Candidate Starts for ChickenTender\_22:

(Start: 40 @17893 has 181 MA's), (55, 17986), (66, 18025), (70, 18037), (72, 18058), (81, 18118), (89, 18184), (92, 18193), (108, 18286), (121, 18352), (127, 18379), (128, 18382), (138, 18409), (148, 18445),

Gene: Chill\_36 Start: 30276, Stop: 31259, Start Num: 40

Candidate Starts for Chill\_36:

(9, 30009), (12, 30066), (Start: 40 @30276 has 181 MA's), (Start: 47 @30327 has 4 MA's), (49, 30345), (53, 30360), (74, 30453), (81, 30495), (108, 30663), (118, 30723), (149, 30834), (153, 30843), (155, 30855), (159, 30864), (163, 30885), (165, 30894), (178, 30966), (189, 31020), (196, 31062), (214, 31212),

Gene: ChocoMunchkin\_20 Start: 17501, Stop: 18097, Start Num: 40

Candidate Starts for ChocoMunchkin\_20:

(Start: 40 @17501 has 181 MA's), (Start: 47 @17552 has 4 MA's), (50, 17573), (53, 17585), (57, 17603), (74, 17678), (92, 17804), (96, 17828), (108, 17906), (124, 17987), (127, 17999), (139, 18032), (148, 18071), (154, 18092),

Gene: Claus\_27 Start: 25330, Stop: 26280, Start Num: 40

Candidate Starts for Claus\_27:

(Start: 40 @25330 has 181 MA's), (Start: 47 @25381 has 4 MA's), (53, 25414), (57, 25432), (70, 25480), (81, 25564), (89, 25630), (108, 25741), (120, 25801), (139, 25864), (153, 25915), (170, 25996), (177, 26029), (184, 26068), (186, 26071), (193, 26107), (208, 26167),

Gene: Cleo\_20 Start: 18119, Stop: 18682, Start Num: 40

Candidate Starts for Cleo\_20:

(Start: 40 @18119 has 181 MA's), (51, 18194), (52, 18197), (55, 18212), (74, 18293), (81, 18344), (92, 18419), (108, 18512), (121, 18578), (128, 18608), (146, 18656),

Gene: CloverMinnie\_43 Start: 35899, Stop: 36477, Start Num: 40

Candidate Starts for CloverMinnie\_43:

(2, 35524), (15, 35710), (Start: 33 @35881 has 2 MA's), (Start: 40 @35899 has 181 MA's), (Start: 47 @35950 has 4 MA's), (53, 35983), (57, 36001), (61, 36016), (92, 36202), (96, 36226), (100, 36247), (108, 36304), (121, 36370), (123, 36382),

Gene: CocoaPuff\_19 Start: 17499, Stop: 18086, Start Num: 40

Candidate Starts for CocoaPuff\_19:

(Start: 40 @17499 has 181 MA's), (51, 17574), (57, 17598), (69, 17640), (78, 17688), (92, 17799), (96, 17823), (108, 17901), (138, 18024),

Gene: Conspiracy\_7 Start: 4262, Stop: 5176, Start Num: 40

Candidate Starts for Conspiracy\_7:

(Start: 40 @4262 has 181 MA's), (Start: 47 @4313 has 4 MA's), (50, 4334), (56, 4355), (73, 4427), (92, 4553), (108, 4646), (140, 4772), (154, 4829), (167, 4895), (175, 4925), (194, 5018), (202, 5066), (209, 5108), (212, 5162),

Gene: Coog\_7 Start: 4409, Stop: 5326, Start Num: 40

Candidate Starts for Coog\_7:

(Start: 40 @4409 has 181 MA's), (Start: 47 @4460 has 4 MA's), (50, 4481), (56, 4502), (73, 4574), (78, 4589), (79, 4598), (81, 4625), (92, 4700), (98, 4730), (108, 4793), (140, 4922), (154, 4979), (175, 5075), (194, 5168), (202, 5216), (210, 5279), (212, 5312), (213, 5315),

Gene: Cozz\_20 Start: 17829, Stop: 18407, Start Num: 40

Candidate Starts for Cozz\_20:

(17, 17688), (Start: 40 @17829 has 181 MA's), (43, 17847), (55, 17922), (81, 18054), (89, 18120), (92, 18129), (108, 18222), (110, 18234), (121, 18288), (127, 18315), (138, 18345), (148, 18381),

Gene: Crossroads\_27 Start: 25353, Stop: 26303, Start Num: 40

Candidate Starts for Crossroads\_27:

(Start: 40 @25353 has 181 MA's), (Start: 47 @25404 has 4 MA's), (53, 25437), (70, 25503), (74, 25533), (81, 25587), (89, 25653), (108, 25764), (120, 25824), (139, 25887), (153, 25938), (170, 26019), (184, 26091), (186, 26094), (193, 26130), (208, 26190),

Gene: Cuco\_7 Start: 4440, Stop: 5357, Start Num: 40

Candidate Starts for Cuco\_7:

(Start: 40 @4440 has 181 MA's), (Start: 47 @4491 has 4 MA's), (50, 4512), (56, 4533), (73, 4605), (78, 4620), (79, 4629), (81, 4656), (92, 4731), (98, 4761), (108, 4824), (140, 4953), (154, 5010), (175,

5106), (194, 5199), (202, 5247), (210, 5310), (212, 5343), (213, 5346),

Gene: CyranoPS\_4 Start: 2898, Stop: 3614, Start Num: 36

Candidate Starts for CyranoPS\_4:

(Start: 36 @2898 has 1 MA's), (Start: 47 @2949 has 4 MA's), (54, 2985), (61, 3009), (79, 3090), (81, 3117), (82, 3135), (92, 3192), (104, 3249), (108, 3285), (136, 3405), (147, 3435), (148, 3447), (162, 3489), (172, 3549), (183, 3606),

Gene: DHan\_27 Start: 25317, Stop: 26216, Start Num: 47

Candidate Starts for DHan\_27:

(Start: 40 @25266 has 181 MA's), (Start: 47 @25317 has 4 MA's), (53, 25350), (57, 25368), (70, 25416), (81, 25500), (89, 25566), (108, 25677), (120, 25737), (139, 25800), (153, 25851), (170, 25932), (177, 25965), (184, 26004), (186, 26007), (193, 26043), (208, 26103),

Gene: Damien\_34 Start: 31406, Stop: 32371, Start Num: 40

Candidate Starts for Damien\_34:

(Start: 40 @31406 has 181 MA's), (Start: 47 @31457 has 4 MA's), (49, 31475), (69, 31553), (74, 31583), (81, 31625), (87, 31676), (99, 31733), (104, 31757), (108, 31796), (118, 31856), (149, 31973), (153, 31982), (155, 31994), (163, 32024), (167, 32057), (178, 32105), (200, 32210), (203, 32231), (206, 32243),

Gene: DanBing\_26 Start: 25221, Stop: 26120, Start Num: 47

Candidate Starts for DanBing\_26:

(Start: 40 @25170 has 181 MA's), (Start: 47 @25221 has 4 MA's), (53, 25254), (57, 25272), (70, 25320), (81, 25404), (89, 25470), (108, 25581), (120, 25641), (139, 25704), (153, 25755), (170, 25836), (177, 25869), (184, 25908), (186, 25911), (193, 25947), (208, 26007),

Gene: Danforth\_6 Start: 4175, Stop: 4855, Start Num: 39

Candidate Starts for Danforth\_6:

(Start: 39 @4175 has 17 MA's), (42, 4190), (Start: 47 @4226 has 4 MA's), (71, 4331), (92, 4475), (96, 4490), (108, 4589), (110, 4601), (130, 4691), (154, 4766), (155, 4769), (174, 4841),

Gene: DearBasketball\_23 Start: 17226, Stop: 17810, Start Num: 39

Candidate Starts for DearBasketball\_23:

(3, 16863), (4, 16902), (6, 16929), (8, 16950), (Start: 39 @17226 has 17 MA's), (Start: 47 @17277 has 4 MA's), (52, 17304), (55, 17319), (59, 17331), (65, 17355), (70, 17370), (92, 17526), (97, 17550), (108, 17619), (151, 17781), (157, 17802),

Gene: Delton\_35 Start: 30282, Stop: 31265, Start Num: 40

Candidate Starts for Delton\_35:

(9, 30015), (12, 30072), (Start: 40 @30282 has 181 MA's), (Start: 47 @30333 has 4 MA's), (49, 30351), (53, 30366), (74, 30459), (81, 30501), (108, 30669), (118, 30729), (149, 30840), (153, 30849), (155, 30861), (159, 30870), (163, 30891), (165, 30900), (178, 30972), (189, 31026), (196, 31068), (214, 31218),

Gene: DinoNuggs\_21 Start: 17192, Stop: 17776, Start Num: 39

Candidate Starts for DinoNuggs\_21:

(3, 16829), (4, 16868), (6, 16895), (8, 16916), (Start: 39 @17192 has 17 MA's), (Start: 47 @17243 has 4 MA's), (52, 17270), (55, 17285), (59, 17297), (65, 17321), (70, 17336), (92, 17492), (97, 17516), (108, 17585), (151, 17747), (157, 17768),

Gene: Discoknowium\_7 Start: 4552, Stop: 5466, Start Num: 40

Candidate Starts for Discoknowium\_7:

(23, 4468), (Start: 40 @4552 has 181 MA's), (Start: 47 @4603 has 4 MA's), (50, 4624), (56, 4645), (78, 4732), (79, 4741), (92, 4843), (108, 4936), (140, 5062), (154, 5119), (167, 5185), (194, 5308), (196, 5326), (202, 5356), (209, 5398), (212, 5452),

Gene: Dixon\_7 Start: 4194, Stop: 4874, Start Num: 39

Candidate Starts for Dixon\_7:

(Start: 21 @4071 has 1 MA's), (Start: 39 @4194 has 17 MA's), (42, 4209), (Start: 47 @4245 has 4 MA's), (71, 4350), (92, 4494), (96, 4509), (108, 4608), (110, 4620), (130, 4710), (154, 4785), (155, 4788), (174, 4860),

Gene: DonkeyMan\_20 Start: 16981, Stop: 17565, Start Num: 39

Candidate Starts for DonkeyMan\_20:

(6, 16684), (8, 16705), (Start: 39 @16981 has 17 MA's), (Start: 47 @17032 has 4 MA's), (52, 17059), (55, 17074), (59, 17086), (65, 17110), (70, 17125), (92, 17281), (97, 17305), (108, 17374), (145, 17515), (151, 17536), (157, 17557),

Gene: DrSeegs\_27 Start: 25353, Stop: 26303, Start Num: 40

Candidate Starts for DrSeegs\_27:

(Start: 40 @25353 has 181 MA's), (Start: 47 @25404 has 4 MA's), (53, 25437), (74, 25533), (81, 25587), (89, 25653), (108, 25764), (120, 25824), (139, 25887), (153, 25938), (170, 26019), (184, 26091), (186, 26094), (193, 26130), (208, 26190),

Gene: Dre3\_20 Start: 18066, Stop: 18629, Start Num: 40

Candidate Starts for Dre3\_20:

(Start: 40 @18066 has 181 MA's), (51, 18141), (52, 18144), (55, 18159), (74, 18240), (81, 18291), (92, 18366), (108, 18459), (121, 18525), (128, 18555), (146, 18603),

Gene: Dublin\_6 Start: 4408, Stop: 5325, Start Num: 40

Candidate Starts for Dublin\_6:

(23, 4324), (Start: 40 @4408 has 181 MA's), (Start: 47 @4459 has 4 MA's), (50, 4480), (56, 4501), (78, 4588), (79, 4597), (81, 4624), (92, 4699), (98, 4729), (108, 4792), (140, 4921), (154, 4978), (175, 5074), (194, 5167), (202, 5215), (210, 5278), (212, 5311), (213, 5314),

Gene: Dynamo\_26 Start: 23519, Stop: 24466, Start Num: 40

Candidate Starts for Dynamo\_26:

(13, 23309), (18, 23387), (19, 23390), (30, 23495), (Start: 40 @23519 has 181 MA's), (Start: 47 @23570 has 4 MA's), (74, 23696), (81, 23738), (87, 23789), (99, 23846), (108, 23909), (149, 24083), (153, 24092), (155, 24104), (163, 24134), (167, 24167), (189, 24269), (195, 24305), (205, 24356), (211, 24419), (215, 24452), (216, 24455), (217, 24458),

Gene: ElJefes\_19 Start: 17977, Stop: 18564, Start Num: 40

Candidate Starts for ElJefes\_19:

(Start: 40 @17977 has 181 MA's), (51, 18052), (57, 18076), (69, 18118), (78, 18166), (92, 18277), (93, 18286), (96, 18301), (108, 18379), (127, 18472),

Gene: ElTiger69\_7 Start: 4242, Stop: 5183, Start Num: 32

Candidate Starts for ElTiger69\_7:

(Start: 32 @4242 has 4 MA's), (Start: 40 @4266 has 181 MA's), (42, 4281), (Start: 47 @4317 has 4 MA's), (52, 4344), (56, 4359), (71, 4413), (77, 4443), (79, 4455), (92, 4557), (95, 4569), (108, 4650), (117, 4701), (126, 4740), (140, 4776), (153, 4824), (175, 4932), (194, 5025), (202, 5073), (207, 5106), (212, 5169),

Gene: Elfy\_20 Start: 17934, Stop: 18779, Start Num: 44

Candidate Starts for Elfy\_20:

(Start: 44 @17934 has 3 MA's), (63, 18030), (74, 18084), (108, 18324), (114, 18366), (122, 18411), (161, 18534), (185, 18657), (192, 18690), (199, 18726), (201, 18732),

Gene: Elinal\_21 Start: 17498, Stop: 18085, Start Num: 40

Candidate Starts for Elinal\_21:

(Start: 40 @17498 has 181 MA's), (51, 17573), (57, 17597), (78, 17687), (92, 17798), (96, 17822), (108, 17900), (138, 18023),

Gene: Elliott\_20 Start: 17846, Stop: 18406, Start Num: 43

Candidate Starts for Elliott\_20:

(17, 17687), (Start: 40 @17828 has 181 MA's), (43, 17846), (55, 17921), (81, 18053), (89, 18119), (92, 18128), (108, 18221), (110, 18233), (121, 18287), (127, 18314), (138, 18344), (148, 18380),

Gene: Emalyn\_19 Start: 17133, Stop: 17723, Start Num: 40

Candidate Starts for Emalyn\_19:

(Start: 40 @17133 has 181 MA's), (Start: 47 @17184 has 4 MA's), (48, 17187), (50, 17205), (53, 17217), (57, 17235), (74, 17310), (81, 17361), (92, 17436), (96, 17460), (108, 17538), (118, 17592), (127, 17631), (148, 17697), (154, 17718),

Gene: Erk16\_35 Start: 30273, Stop: 31262, Start Num: 40

Candidate Starts for Erk16\_35:

(9, 30006), (12, 30063), (Start: 40 @30273 has 181 MA's), (Start: 47 @30324 has 4 MA's), (49, 30342), (53, 30357), (74, 30450), (81, 30492), (108, 30660), (118, 30720), (149, 30837), (153, 30846), (155, 30858), (159, 30867), (163, 30888), (165, 30897), (178, 30969), (189, 31023), (196, 31065), (214, 31215),

Gene: Expelliarmus\_6 Start: 4161, Stop: 4841, Start Num: 39

Candidate Starts for Expelliarmus\_6:

(Start: 39 @4161 has 17 MA's), (42, 4176), (Start: 47 @4212 has 4 MA's), (71, 4317), (92, 4461), (96, 4476), (108, 4575), (110, 4587), (130, 4677), (154, 4752), (155, 4755), (174, 4827),

Gene: FF47\_27 Start: 23066, Stop: 24013, Start Num: 40

Candidate Starts for FF47\_27:

(Start: 40 @23066 has 181 MA's), (Start: 47 @23117 has 4 MA's), (64, 23198), (74, 23243), (81, 23285), (97, 23384), (108, 23456), (118, 23516), (133, 23570), (142, 23588), (149, 23615), (155, 23636), (163, 23666), (178, 23747), (184, 23783), (203, 23879),

Gene: Faith1\_27 Start: 25353, Stop: 26303, Start Num: 40

Candidate Starts for Faith1\_27:

(Start: 40 @25353 has 181 MA's), (Start: 47 @25404 has 4 MA's), (53, 25437), (74, 25533), (81, 25587), (89, 25653), (108, 25764), (120, 25824), (139, 25887), (153, 25938), (170, 26019), (184, 26091), (186, 26094), (193, 26130), (208, 26190),

Gene: Feastonyeet\_19 Start: 17545, Stop: 18132, Start Num: 40

Candidate Starts for Feastonyeet\_19:

(Start: 40 @17545 has 181 MA's), (51, 17620), (57, 17644), (78, 17734), (92, 17845), (93, 17854), (96, 17869), (108, 17947), (127, 18040),

Gene: FelixTres\_43 Start: 35962, Stop: 36540, Start Num: 40

Candidate Starts for FelixTres\_43:

(2, 35587), (15, 35773), (Start: 33 @35944 has 2 MA's), (Start: 40 @35962 has 181 MA's), (Start: 47 @36013 has 4 MA's), (53, 36046), (57, 36064), (61, 36079), (92, 36265), (96, 36289), (100, 36310),

(108, 36367), (121, 36433), (123, 36445),

Gene: Florence1\_7 Start: 4280, Stop: 5146, Start Num: 47

Candidate Starts for Florence1\_7:

(Start: 21 @4115 has 1 MA's), (Start: 40 @4229 has 181 MA's), (Start: 47 @4280 has 4 MA's), (50, 4301), (56, 4322), (73, 4394), (78, 4409), (79, 4418), (81, 4445), (92, 4520), (98, 4550), (108, 4613), (140, 4742), (154, 4799), (175, 4895), (194, 4988), (202, 5036), (209, 5078), (210, 5099), (212, 5132),

Gene: Florence4\_8 Start: 4229, Stop: 5146, Start Num: 40

Candidate Starts for Florence4\_8:

(Start: 21 @4115 has 1 MA's), (Start: 40 @4229 has 181 MA's), (Start: 47 @4280 has 4 MA's), (50, 4301), (56, 4322), (73, 4394), (78, 4409), (79, 4418), (81, 4445), (92, 4520), (98, 4550), (108, 4613), (140, 4742), (154, 4799), (175, 4895), (194, 4988), (202, 5036), (209, 5078), (210, 5099), (212, 5132),

Gene: ForGetIt\_7 Start: 4288, Stop: 5202, Start Num: 40

Candidate Starts for ForGetIt\_7:

(Start: 40 @4288 has 181 MA's), (Start: 47 @4339 has 4 MA's), (50, 4360), (56, 4381), (73, 4453), (92, 4579), (108, 4672), (140, 4798), (154, 4855), (167, 4921), (175, 4951), (194, 5044), (202, 5092), (209, 5134), (212, 5188),

Gene: Fribs8\_21 Start: 18650, Stop: 19213, Start Num: 40

Candidate Starts for Fribs8\_21:

(Start: 40 @18650 has 181 MA's), (51, 18725), (52, 18728), (55, 18743), (74, 18824), (92, 18950), (108, 19043), (121, 19109), (128, 19139), (146, 19187),

Gene: GTE2\_18 Start: 17225, Stop: 17770, Start Num: 47

Candidate Starts for GTE2\_18:

(Start: 40 @17174 has 181 MA's), (Start: 47 @17225 has 4 MA's), (53, 17258), (54, 17267), (57, 17276), (74, 17351), (81, 17402), (92, 17477), (96, 17501), (108, 17579), (118, 17633), (121, 17645), (124, 17660), (127, 17672), (148, 17744), (154, 17765),

Gene: Gardann\_27 Start: 25355, Stop: 26305, Start Num: 40

Candidate Starts for Gardann\_27:

(Start: 40 @25355 has 181 MA's), (Start: 47 @25406 has 4 MA's), (53, 25439), (70, 25505), (74, 25535), (81, 25589), (89, 25655), (108, 25766), (120, 25826), (139, 25889), (153, 25940), (170, 26021), (184, 26093), (186, 26096), (193, 26132), (208, 26192),

Gene: George\_6 Start: 4441, Stop: 5358, Start Num: 40

Candidate Starts for George\_6:

(Start: 21 @4324 has 1 MA's), (Start: 40 @4441 has 181 MA's), (Start: 47 @4492 has 4 MA's), (50, 4513), (56, 4534), (73, 4606), (78, 4621), (79, 4630), (81, 4657), (92, 4732), (98, 4762), (108, 4825), (140, 4954), (154, 5011), (175, 5107), (194, 5200), (202, 5248), (210, 5311), (212, 5344), (213, 5347),

Gene: Getalong\_23 Start: 19482, Stop: 20015, Start Num: 40

Candidate Starts for Getalong\_23:

(17, 19353), (34, 19464), (Start: 40 @19482 has 181 MA's), (Start: 47 @19533 has 4 MA's), (51, 19557), (52, 19560), (56, 19575), (78, 19662), (79, 19671), (85, 19737), (90, 19767), (92, 19773), (96, 19788), (99, 19806), (100, 19809), (104, 19830), (108, 19866), (112, 19884), (117, 19917), (142, 20001),

Gene: Ghouboy\_7 Start: 4521, Stop: 5435, Start Num: 40

Candidate Starts for Ghouboy\_7:

(23, 4437), (Start: 40 @4521 has 181 MA's), (Start: 47 @4572 has 4 MA's), (50, 4593), (56, 4614), (78, 4701), (79, 4710), (92, 4812), (108, 4905), (140, 5031), (154, 5088), (167, 5154), (194, 5277), (196, 5295), (202, 5325), (209, 5367), (212, 5421),

Gene: GiKK\_23 Start: 17167, Stop: 17742, Start Num: 40

Candidate Starts for GiKK\_23:

(Start: 40 @17167 has 181 MA's), (42, 17182), (Start: 47 @17218 has 4 MA's), (51, 17242), (60, 17275), (65, 17290), (68, 17299), (74, 17335), (81, 17386), (92, 17461), (108, 17563), (115, 17599), (118, 17617), (121, 17629), (134, 17671), (154, 17734),

Gene: Gibbous\_20 Start: 18066, Stop: 18629, Start Num: 40

Candidate Starts for Gibbous\_20:

(Start: 40 @18066 has 181 MA's), (51, 18141), (52, 18144), (55, 18159), (74, 18240), (81, 18291), (92, 18366), (108, 18459), (121, 18525), (128, 18555), (146, 18603),

Gene: Giuseppe\_35 Start: 30271, Stop: 31254, Start Num: 40

Candidate Starts for Giuseppe\_35:

(9, 29995), (12, 30052), (Start: 40 @30271 has 181 MA's), (Start: 47 @30322 has 4 MA's), (49, 30340), (53, 30355), (74, 30448), (81, 30490), (108, 30658), (118, 30718), (149, 30829), (153, 30838), (155, 30850), (159, 30859), (163, 30880), (165, 30889), (178, 30961), (189, 31015), (196, 31057), (214, 31207),

Gene: GoldHunter\_21 Start: 17847, Stop: 18407, Start Num: 43

Candidate Starts for GoldHunter\_21:

(17, 17688), (Start: 40 @17829 has 181 MA's), (43, 17847), (55, 17922), (81, 18054), (89, 18120), (92, 18129), (108, 18222), (110, 18234), (121, 18288), (127, 18315), (138, 18345), (148, 18381),

Gene: Groundhog\_6 Start: 4162, Stop: 4842, Start Num: 39

Candidate Starts for Groundhog\_6:

(Start: 39 @4162 has 17 MA's), (42, 4177), (Start: 47 @4213 has 4 MA's), (71, 4318), (92, 4462), (96, 4477), (108, 4576), (110, 4588), (130, 4678), (154, 4753), (155, 4756), (174, 4828),

Gene: Gumball\_34 Start: 30220, Stop: 31203, Start Num: 40

Candidate Starts for Gumball\_34:

(9, 29953), (12, 30010), (Start: 40 @30220 has 181 MA's), (Start: 47 @30271 has 4 MA's), (49, 30289), (53, 30304), (74, 30397), (81, 30439), (108, 30607), (118, 30667), (149, 30778), (153, 30787), (155, 30799), (159, 30808), (163, 30829), (165, 30838), (178, 30910), (189, 30964), (196, 31006), (214, 31156),

Gene: GuuelaD\_27 Start: 25387, Stop: 26337, Start Num: 40

Candidate Starts for GuuelaD\_27:

(Start: 40 @25387 has 181 MA's), (Start: 47 @25438 has 4 MA's), (53, 25471), (70, 25537), (74, 25567), (81, 25621), (89, 25687), (108, 25798), (120, 25858), (139, 25921), (153, 25972), (170, 26053), (184, 26125), (186, 26128), (193, 26164), (208, 26224),

Gene: HC\_27 Start: 23214, Stop: 24167, Start Num: 45

Candidate Starts for HC\_27:

(37, 23178), (Start: 45 @23214 has 5 MA's), (57, 23289), (66, 23325), (84, 23454), (88, 23481), (103, 23556), (104, 23559), (108, 23598), (110, 23610), (155, 23802), (173, 23877), (189, 23961), (203, 24030),

Gene: Hafay\_27 Start: 25437, Stop: 26336, Start Num: 47

Candidate Starts for Hafay\_27:

(Start: 40 @25386 has 181 MA's), (Start: 47 @25437 has 4 MA's), (53, 25470), (70, 25536), (74, 25566), (81, 25620), (89, 25686), (108, 25797), (120, 25857), (139, 25920), (153, 25971), (170, 26052), (184, 26124), (186, 26127), (193, 26163), (208, 26223),

Gene: Hawkeye\_38 Start: 30443, Stop: 31420, Start Num: 40

Candidate Starts for Hawkeye\_38:

(Start: 40 @30443 has 181 MA's), (Start: 47 @30494 has 4 MA's), (69, 30590), (74, 30620), (81, 30662), (108, 30830), (116, 30878), (149, 30998), (155, 31019), (163, 31049), (166, 31061), (167, 31082), (171, 31097), (178, 31130), (189, 31184), (196, 31226),

Gene: Heinz\_20 Start: 17073, Stop: 17657, Start Num: 40

Candidate Starts for Heinz\_20:

(Start: 40 @17073 has 181 MA's), (Start: 47 @17124 has 4 MA's), (55, 17166), (65, 17202), (91, 17370), (92, 17373), (108, 17466), (145, 17607), (151, 17628), (157, 17649), (158, 17652),

Gene: Helpful\_36 Start: 30270, Stop: 31253, Start Num: 40

Candidate Starts for Helpful\_36:

(9, 30003), (12, 30060), (Start: 40 @30270 has 181 MA's), (Start: 47 @30321 has 4 MA's), (49, 30339), (53, 30354), (74, 30447), (81, 30489), (108, 30657), (118, 30717), (149, 30828), (153, 30837), (155, 30849), (159, 30858), (163, 30879), (165, 30888), (178, 30960), (189, 31014), (196, 31056), (214, 31206),

Gene: Hexbug\_22 Start: 17853, Stop: 18434, Start Num: 40

Candidate Starts for Hexbug\_22:

(5, 17529), (10, 17613), (14, 17658), (Start: 40 @17853 has 181 MA's), (51, 17928), (52, 17931), (55, 17946), (59, 17958), (62, 17970), (82, 18096), (84, 18111), (92, 18153), (93, 18162), (96, 18177), (98, 18192), (106, 18246), (108, 18255), (135, 18366), (154, 18426),

Gene: Hibiscus\_20 Start: 17021, Stop: 17605, Start Num: 40

Candidate Starts for Hibiscus\_20:

(Start: 40 @17021 has 181 MA's), (Start: 47 @17072 has 4 MA's), (55, 17114), (65, 17150), (91, 17318), (92, 17321), (108, 17414), (145, 17555), (151, 17576), (157, 17597), (158, 17600),

Gene: HippoPololi\_22 Start: 18718, Stop: 19281, Start Num: 40

Candidate Starts for HippoPololi\_22:

(Start: 40 @18718 has 181 MA's), (51, 18793), (52, 18796), (55, 18811), (74, 18892), (81, 18943), (92, 19018), (108, 19111), (128, 19207), (146, 19255),

Gene: Horseradish\_21 Start: 17379, Stop: 17969, Start Num: 40

Candidate Starts for Horseradish\_21:

(Start: 40 @17379 has 181 MA's), (Start: 47 @17430 has 4 MA's), (50, 17451), (53, 17463), (57, 17481), (81, 17607), (92, 17682), (96, 17706), (108, 17784), (118, 17838), (121, 17850), (127, 17877), (144, 17922), (148, 17943),

Gene: HuhtaEnerson15\_7 Start: 4441, Stop: 5358, Start Num: 40

Candidate Starts for HuhtaEnerson15\_7:

(Start: 40 @4441 has 181 MA's), (Start: 47 @4492 has 4 MA's), (50, 4513), (56, 4534), (73, 4606), (78, 4621), (79, 4630), (81, 4657), (92, 4732), (98, 4762), (108, 4825), (140, 4954), (154, 5011), (175, 5107), (194, 5200), (202, 5248), (210, 5311), (212, 5344), (213, 5347),

Gene: Itos\_27 Start: 25353, Stop: 26303, Start Num: 40

Candidate Starts for Itos\_27:

(Start: 40 @25353 has 181 MA's), (Start: 47 @25404 has 4 MA's), (53, 25437), (74, 25533), (81, 25587), (89, 25653), (108, 25764), (120, 25824), (139, 25887), (153, 25938), (170, 26019), (184, 26091), (186, 26094), (193, 26130), (208, 26190),

Gene: Jabiru\_7 Start: 4242, Stop: 5183, Start Num: 32

Candidate Starts for Jabiru\_7:

(Start: 32 @4242 has 4 MA's), (Start: 40 @4266 has 181 MA's), (42, 4281), (Start: 47 @4317 has 4 MA's), (52, 4344), (56, 4359), (71, 4413), (77, 4443), (79, 4455), (92, 4557), (95, 4569), (108, 4650), (117, 4701), (126, 4740), (140, 4776), (153, 4824), (175, 4932), (194, 5025), (202, 5073), (207, 5106), (212, 5169),

Gene: JacoRen57\_25 Start: 24411, Stop: 25172, Start Num: 40

Candidate Starts for JacoRen57\_25:

(Start: 40 @24411 has 181 MA's), (Start: 47 @24462 has 4 MA's), (56, 24510), (60, 24522), (69, 24558), (81, 24633), (89, 24699), (103, 24762), (107, 24798), (108, 24807), (110, 24819), (125, 24906), (139, 24942), (155, 25002), (178, 25110), (188, 25161),

Gene: Jalloh\_4 Start: 2897, Stop: 3613, Start Num: 36

Candidate Starts for Jalloh\_4:

(Start: 36 @2897 has 1 MA's), (Start: 47 @2948 has 4 MA's), (61, 3008), (71, 3047), (79, 3089), (81, 3116), (82, 3134), (92, 3191), (104, 3248), (108, 3284), (136, 3404), (147, 3434), (148, 3446), (162, 3488), (172, 3548), (183, 3605),

Gene: Jamzy\_23 Start: 17177, Stop: 17752, Start Num: 40

Candidate Starts for Jamzy\_23:

(Start: 40 @17177 has 181 MA's), (42, 17192), (Start: 47 @17228 has 4 MA's), (51, 17252), (60, 17285), (65, 17300), (68, 17309), (74, 17345), (81, 17396), (92, 17471), (108, 17573), (115, 17609), (118, 17627), (121, 17639), (134, 17681), (154, 17744),

Gene: Jojo24\_20 Start: 17018, Stop: 17602, Start Num: 40

Candidate Starts for Jojo24\_20:

(Start: 40 @17018 has 181 MA's), (Start: 47 @17069 has 4 MA's), (55, 17111), (65, 17147), (92, 17318), (108, 17411), (145, 17552), (151, 17573), (157, 17594), (158, 17597),

Gene: JonJames\_49 Start: 35611, Stop: 36183, Start Num: 40

Candidate Starts for JonJames\_49:

(24, 35521), (28, 35557), (Start: 40 @35611 has 181 MA's), (Start: 47 @35662 has 4 MA's), (55, 35704), (65, 35740), (91, 35908), (92, 35911), (108, 36004), (118, 36058), (131, 36109), (138, 36127), (151, 36166),

Gene: Jovo\_7 Start: 4604, Stop: 5467, Start Num: 47

Candidate Starts for Jovo\_7:

(23, 4469), (Start: 40 @4553 has 181 MA's), (Start: 47 @4604 has 4 MA's), (50, 4625), (56, 4646), (78, 4733), (79, 4742), (92, 4844), (108, 4937), (140, 5063), (154, 5120), (167, 5186), (194, 5309), (196, 5327), (202, 5357), (209, 5399), (212, 5453),

Gene: Kahlid\_27 Start: 25358, Stop: 26308, Start Num: 40

Candidate Starts for Kahlid\_27:

(Start: 40 @25358 has 181 MA's), (Start: 47 @25409 has 4 MA's), (53, 25442), (70, 25508), (74, 25538), (81, 25592), (89, 25658), (108, 25769), (120, 25829), (139, 25892), (153, 25943), (170, 26024), (181, 26087), (184, 26096), (186, 26099), (193, 26135), (208, 26195),

Gene: KandZ\_35 Start: 30370, Stop: 31353, Start Num: 40

Candidate Starts for KandZ\_35:

(9, 30103), (12, 30160), (Start: 40 @30370 has 181 MA's), (Start: 47 @30421 has 4 MA's), (49, 30439), (53, 30454), (74, 30547), (81, 30589), (108, 30757), (118, 30817), (149, 30928), (153, 30937), (155, 30949), (159, 30958), (163, 30979), (165, 30988), (178, 31060), (189, 31114), (196, 31156), (214, 31306),

Gene: KayGee\_20 Start: 17498, Stop: 18085, Start Num: 40

Candidate Starts for KayGee\_20:

(Start: 40 @17498 has 181 MA's), (51, 17573), (57, 17597), (78, 17687), (92, 17798), (96, 17822), (108, 17900), (138, 18023),

Gene: Kenna\_21 Start: 18683, Stop: 19216, Start Num: 40

Candidate Starts for Kenna\_21:

(29, 18650), (Start: 40 @18683 has 181 MA's), (Start: 47 @18734 has 4 MA's), (52, 18761), (56, 18776), (78, 18863), (79, 18872), (85, 18938), (89, 18965), (92, 18974), (104, 19031), (108, 19067), (112, 19085), (117, 19118),

Gene: Konstantine\_39 Start: 32607, Stop: 33572, Start Num: 40

Candidate Starts for Konstantine\_39:

(Start: 40 @32607 has 181 MA's), (Start: 47 @32658 has 4 MA's), (49, 32676), (69, 32754), (74, 32784), (81, 32826), (87, 32877), (99, 32934), (104, 32958), (108, 32997), (118, 33057), (149, 33174), (153, 33183), (155, 33195), (163, 33225), (167, 33258), (178, 33306), (200, 33411), (203, 33432), (206, 33444),

Gene: Kuwabara\_21 Start: 18109, Stop: 18642, Start Num: 40

Candidate Starts for Kuwabara\_21:

(29, 18076), (Start: 40 @18109 has 181 MA's), (Start: 47 @18160 has 4 MA's), (52, 18187), (56, 18202), (78, 18289), (79, 18298), (85, 18364), (89, 18391), (92, 18400), (104, 18457), (108, 18493), (112, 18511), (117, 18544), (142, 18628),

Gene: Lauer\_19 Start: 17547, Stop: 18134, Start Num: 40

Candidate Starts for Lauer\_19:

(Start: 40 @17547 has 181 MA's), (51, 17622), (57, 17646), (78, 17736), (82, 17790), (92, 17847), (96, 17871), (108, 17949), (138, 18072),

Gene: Lev2\_7 Start: 4261, Stop: 5175, Start Num: 40

Candidate Starts for Lev2\_7:

(Start: 40 @4261 has 181 MA's), (Start: 47 @4312 has 4 MA's), (50, 4333), (56, 4354), (73, 4426), (92, 4552), (108, 4645), (140, 4771), (154, 4828), (167, 4894), (175, 4924), (194, 5017), (202, 5065), (209, 5107), (212, 5161),

Gene: Lewan\_27 Start: 25404, Stop: 26303, Start Num: 47

Candidate Starts for Lewan\_27:

(Start: 40 @25353 has 181 MA's), (Start: 47 @25404 has 4 MA's), (53, 25437), (70, 25503), (74, 25533), (81, 25587), (89, 25653), (108, 25764), (120, 25824), (139, 25887), (153, 25938), (170, 26019), (184, 26091), (186, 26094), (193, 26130), (208, 26190),

Gene: LilDestine\_27 Start: 25352, Stop: 26302, Start Num: 40

Candidate Starts for LilDestine\_27:

(Start: 40 @25352 has 181 MA's), (Start: 47 @25403 has 4 MA's), (53, 25436), (70, 25502), (74, 25532), (81, 25586), (89, 25652), (108, 25763), (120, 25823), (139, 25886), (153, 25937), (170, 26018), (184, 26090), (186, 26093), (193, 26129), (208, 26189),

Gene: LittleCherry\_7 Start: 4442, Stop: 5359, Start Num: 40

Candidate Starts for LittleCherry\_7:

(Start: 40 @4442 has 181 MA's), (Start: 47 @4493 has 4 MA's), (50, 4514), (56, 4535), (73, 4607), (78, 4622), (79, 4631), (81, 4658), (92, 4733), (98, 4763), (108, 4826), (140, 4955), (154, 5012), (175, 5108), (194, 5201), (202, 5249), (210, 5312), (212, 5345), (213, 5348),

Gene: Loadrie\_27 Start: 25385, Stop: 26335, Start Num: 40

Candidate Starts for Loadrie\_27:

(Start: 40 @25385 has 181 MA's), (Start: 47 @25436 has 4 MA's), (53, 25469), (70, 25535), (74, 25565), (81, 25619), (89, 25685), (108, 25796), (120, 25856), (139, 25919), (153, 25970), (170, 26051), (184, 26123), (186, 26126), (193, 26162), (208, 26222),

Gene: LongHai\_28 Start: 23441, Stop: 24388, Start Num: 40

Candidate Starts for LongHai\_28:

(Start: 40 @23441 has 181 MA's), (Start: 47 @23492 has 4 MA's), (64, 23573), (74, 23618), (81, 23660), (97, 23759), (108, 23831), (133, 23945), (142, 23963), (149, 23990), (155, 24011), (163, 24041), (178, 24122), (184, 24158), (197, 24221), (200, 24233), (203, 24254), (216, 24356),

Gene: Lukepolites\_27 Start: 22791, Stop: 23648, Start Num: 44

Candidate Starts for Lukepolites\_27:

(35, 22758), (Start: 44 @22791 has 3 MA's), (86, 23049), (89, 23067), (97, 23103), (105, 23154), (108, 23187), (109, 23193), (111, 23202), (156, 23382), (170, 23454), (187, 23532), (198, 23586),

Gene: Lutum\_22 Start: 18683, Stop: 19216, Start Num: 40

Candidate Starts for Lutum\_22:

(29, 18650), (Start: 40 @18683 has 181 MA's), (Start: 47 @18734 has 4 MA's), (52, 18761), (56, 18776), (78, 18863), (79, 18872), (85, 18938), (89, 18965), (92, 18974), (104, 19031), (108, 19067), (112, 19085), (117, 19118),

Gene: Lynnae\_27 Start: 25341, Stop: 26291, Start Num: 40

Candidate Starts for Lynnae\_27:

(Start: 40 @25341 has 181 MA's), (Start: 47 @25392 has 4 MA's), (53, 25425), (70, 25491), (74, 25521), (81, 25575), (89, 25641), (108, 25752), (120, 25812), (139, 25875), (153, 25926), (170, 26007), (184, 26079), (186, 26082), (193, 26118), (208, 26178),

Gene: MAnor\_20 Start: 17509, Stop: 18096, Start Num: 40

Candidate Starts for MAnor\_20:

(Start: 40 @17509 has 181 MA's), (51, 17584), (57, 17608), (92, 17809), (93, 17818), (96, 17833), (108, 17911), (138, 18034),

Gene: MScarn\_22 Start: 17468, Stop: 18058, Start Num: 40

Candidate Starts for MScarn\_22:

(Start: 40 @17468 has 181 MA's), (Start: 47 @17519 has 4 MA's), (50, 17540), (53, 17552), (57, 17570), (74, 17645), (81, 17696), (92, 17771), (96, 17795), (108, 17873), (118, 17927), (121, 17939), (127, 17966), (144, 18011), (148, 18032),

Gene: MaVan\_22 Start: 18806, Stop: 19369, Start Num: 40

Candidate Starts for MaVan\_22:

(Start: 40 @18806 has 181 MA's), (51, 18881), (52, 18884), (55, 18899), (67, 18941), (81, 19031), (92, 19106), (108, 19199), (119, 19256), (152, 19364),

Gene: Maco6\_25 Start: 22400, Stop: 23347, Start Num: 40

Candidate Starts for Maco6\_25:

(Start: 40 @22400 has 181 MA's), (Start: 47 @22451 has 4 MA's), (64, 22532), (74, 22577), (81, 22619), (97, 22718), (108, 22790), (118, 22850), (133, 22904), (142, 22922), (149, 22949), (155, 22970), (163, 23000), (178, 23081), (184, 23117), (203, 23213),

Gene: MakCheese\_26 Start: 23097, Stop: 23636, Start Num: 40

Candidate Starts for MakCheese\_26:

(Start: 40 @23097 has 181 MA's), (Start: 47 @23148 has 4 MA's), (52, 23175), (56, 23190), (78, 23277), (79, 23286), (92, 23388), (108, 23481), (125, 23574), (132, 23595),

Gene: MakoManhole\_43 Start: 35977, Stop: 36555, Start Num: 40

Candidate Starts for MakoManhole\_43:

(2, 35602), (15, 35788), (Start: 33 @35959 has 2 MA's), (Start: 40 @35977 has 181 MA's), (Start: 47 @36028 has 4 MA's), (53, 36061), (57, 36079), (61, 36094), (92, 36280), (96, 36304), (108, 36382), (121, 36448), (123, 36460),

Gene: Malvina\_22 Start: 18721, Stop: 19284, Start Num: 40

Candidate Starts for Malvina\_22:

(Start: 40 @18721 has 181 MA's), (51, 18796), (52, 18799), (55, 18814), (74, 18895), (81, 18946), (92, 19021), (108, 19114), (128, 19210), (146, 19258),

Gene: Margaret\_23 Start: 17546, Stop: 18121, Start Num: 40

Candidate Starts for Margaret\_23:

(Start: 40 @17546 has 181 MA's), (42, 17561), (Start: 47 @17597 has 4 MA's), (51, 17621), (60, 17654), (65, 17669), (68, 17678), (74, 17714), (81, 17765), (85, 17804), (92, 17840), (108, 17942), (115, 17978), (118, 17996), (121, 18008), (154, 18113),

Gene: MarysWell\_6 Start: 4460, Stop: 5326, Start Num: 47

Candidate Starts for MarysWell\_6:

(23, 4325), (Start: 40 @4409 has 181 MA's), (Start: 47 @4460 has 4 MA's), (50, 4481), (56, 4502), (78, 4589), (79, 4598), (92, 4700), (98, 4730), (108, 4793), (140, 4922), (154, 4979), (175, 5075), (194, 5168), (202, 5216), (210, 5279), (212, 5312), (213, 5315),

Gene: Mayweather\_21 Start: 18124, Stop: 18711, Start Num: 40

Candidate Starts for Mayweather\_21:

(Start: 40 @18124 has 181 MA's), (51, 18199), (57, 18223), (78, 18313), (92, 18424), (93, 18433), (96, 18448), (108, 18526), (138, 18649),

Gene: McDazzle\_19 Start: 17971, Stop: 18558, Start Num: 40

Candidate Starts for McDazzle\_19:

(Start: 40 @17971 has 181 MA's), (51, 18046), (57, 18070), (69, 18112), (78, 18160), (92, 18271), (93, 18280), (96, 18295), (108, 18373), (127, 18466),

Gene: Megatron06\_36 Start: 31939, Stop: 32904, Start Num: 40

Candidate Starts for Megatron06\_36:

(Start: 40 @31939 has 181 MA's), (Start: 47 @31990 has 4 MA's), (49, 32008), (69, 32086), (74, 32116), (81, 32158), (87, 32209), (99, 32266), (104, 32290), (108, 32329), (118, 32389), (149, 32506), (153, 32515), (155, 32527), (163, 32557), (167, 32590), (178, 32638), (200, 32743), (203, 32764), (206, 32776),

Gene: Micasa\_7 Start: 4410, Stop: 5327, Start Num: 40

Candidate Starts for Micasa\_7:

(Start: 40 @4410 has 181 MA's), (Start: 47 @4461 has 4 MA's), (50, 4482), (56, 4503), (73, 4575), (78, 4590), (79, 4599), (81, 4626), (92, 4701), (98, 4731), (108, 4794), (140, 4923), (154, 4980), (175,

5076), (194, 5169), (202, 5217), (210, 5280), (212, 5313), (213, 5316),

Gene: Midas2\_7 Start: 4409, Stop: 5326, Start Num: 40

Candidate Starts for Midas2\_7:

(Start: 40 @4409 has 181 MA's), (Start: 47 @4460 has 4 MA's), (50, 4481), (56, 4502), (73, 4574), (78, 4589), (79, 4598), (81, 4625), (92, 4700), (98, 4730), (108, 4793), (140, 4922), (154, 4979), (175, 5075), (194, 5168), (202, 5216), (210, 5279), (212, 5312), (213, 5315),

Gene: Milcery\_7 Start: 4446, Stop: 5363, Start Num: 40

Candidate Starts for Milcery\_7:

(Start: 40 @4446 has 181 MA's), (Start: 47 @4497 has 4 MA's), (50, 4518), (56, 4539), (73, 4611), (78, 4626), (79, 4635), (81, 4662), (92, 4737), (108, 4830), (140, 4959), (154, 5016), (175, 5112), (194, 5205), (202, 5253), (210, 5316), (212, 5349), (213, 5352),

Gene: Miley16\_27 Start: 25353, Stop: 26303, Start Num: 40

Candidate Starts for Miley16\_27:

(Start: 40 @25353 has 181 MA's), (Start: 47 @25404 has 4 MA's), (53, 25437), (74, 25533), (81, 25587), (89, 25653), (108, 25764), (120, 25824), (139, 25887), (153, 25938), (170, 26019), (184, 26091), (186, 26094), (193, 26130), (208, 26190),

Gene: MkaliMitinis3\_27 Start: 25353, Stop: 26303, Start Num: 40

Candidate Starts for MkaliMitinis3\_27:

(Start: 40 @25353 has 181 MA's), (Start: 47 @25404 has 4 MA's), (53, 25437), (70, 25503), (74, 25533), (81, 25587), (89, 25653), (108, 25764), (120, 25824), (139, 25887), (153, 25938), (170, 26019), (184, 26091), (186, 26094), (193, 26130), (208, 26190),

Gene: Mopey\_35 Start: 30270, Stop: 31253, Start Num: 40

Candidate Starts for Mopey\_35:

(9, 30003), (12, 30060), (Start: 40 @30270 has 181 MA's), (Start: 47 @30321 has 4 MA's), (49, 30339), (53, 30354), (74, 30447), (81, 30489), (108, 30657), (118, 30717), (149, 30828), (153, 30837), (155, 30849), (159, 30858), (163, 30879), (165, 30888), (178, 30960), (189, 31014), (196, 31056), (214, 31206),

Gene: MortyNRick\_21 Start: 18415, Stop: 18948, Start Num: 40

Candidate Starts for MortyNRick\_21:

(29, 18382), (Start: 40 @18415 has 181 MA's), (Start: 47 @18466 has 4 MA's), (52, 18493), (56, 18508), (78, 18595), (79, 18604), (85, 18670), (89, 18697), (92, 18706), (104, 18763), (108, 18799), (112, 18817), (117, 18850), (142, 18934),

Gene: MossRose\_43 Start: 35938, Stop: 36534, Start Num: 33

Candidate Starts for MossRose\_43:

(2, 35581), (15, 35767), (Start: 33 @35938 has 2 MA's), (Start: 40 @35956 has 181 MA's), (Start: 47 @36007 has 4 MA's), (53, 36040), (57, 36058), (61, 36073), (92, 36259), (96, 36283), (108, 36361), (121, 36427), (123, 36439),

Gene: Muddy\_27 Start: 23347, Stop: 24294, Start Num: 40

Candidate Starts for Muddy\_27:

(Start: 40 @23347 has 181 MA's), (Start: 47 @23398 has 4 MA's), (74, 23524), (81, 23566), (97, 23665), (108, 23737), (133, 23851), (142, 23869), (149, 23896), (155, 23917), (163, 23947), (178, 24028), (184, 24064), (197, 24127), (203, 24160), (216, 24262),

Gene: MunkgeeRoachy\_20 Start: 17876, Stop: 18454, Start Num: 40

Candidate Starts for MunkgeeRoachy\_20:

(Start: 40 @17876 has 181 MA's), (43, 17894), (55, 17969), (81, 18101), (89, 18167), (92, 18176), (108, 18269), (121, 18335), (127, 18362), (138, 18392), (148, 18428),

Gene: NHagos\_41 Start: 34560, Stop: 35138, Start Num: 40

Candidate Starts for NHagos\_41:

(Start: 33 @34542 has 2 MA's), (Start: 40 @34560 has 181 MA's), (Start: 47 @34611 has 4 MA's), (57, 34662), (61, 34677), (92, 34863), (96, 34887), (108, 34965), (121, 35031), (148, 35124),

Gene: Naca\_6 Start: 4378, Stop: 5058, Start Num: 39

Candidate Starts for Naca\_6:

(23, 4291), (Start: 39 @4378 has 17 MA's), (42, 4393), (Start: 47 @4429 has 4 MA's), (82, 4621), (92, 4678), (104, 4735), (108, 4786), (110, 4798), (174, 5044),

Gene: Nazo\_26 Start: 23758, Stop: 24705, Start Num: 40

Candidate Starts for Nazo\_26:

(Start: 40 @23758 has 181 MA's), (Start: 47 @23809 has 4 MA's), (53, 23842), (58, 23863), (60, 23869), (64, 23890), (74, 23935), (81, 23977), (99, 24085), (108, 24148), (149, 24322), (153, 24331), (155, 24343), (163, 24373), (167, 24406), (195, 24544), (196, 24550), (205, 24595), (215, 24691), (216, 24694), (217, 24697),

Gene: NearlyHeadless\_7 Start: 4201, Stop: 4878, Start Num: 39

Candidate Starts for NearlyHeadless\_7:

(Start: 39 @4201 has 17 MA's), (42, 4216), (Start: 47 @4252 has 4 MA's), (71, 4357), (92, 4501), (96, 4516), (108, 4615), (110, 4627), (155, 4792), (174, 4864),

Gene: Netyap\_27 Start: 25353, Stop: 26303, Start Num: 40

Candidate Starts for Netyap\_27:

(Start: 40 @25353 has 181 MA's), (Start: 47 @25404 has 4 MA's), (53, 25437), (74, 25533), (81, 25587), (89, 25653), (108, 25764), (120, 25824), (139, 25887), (153, 25938), (170, 26019), (184, 26091), (186, 26094), (193, 26130), (208, 26190),

Gene: Nibbles\_22 Start: 18806, Stop: 19369, Start Num: 40

Candidate Starts for Nibbles\_22:

(Start: 40 @18806 has 181 MA's), (51, 18881), (52, 18884), (55, 18899), (67, 18941), (81, 19031), (92, 19106), (108, 19199), (119, 19256), (152, 19364),

Gene: Nicholasp3\_27 Start: 25355, Stop: 26305, Start Num: 40

Candidate Starts for Nicholasp3\_27:

(Start: 40 @25355 has 181 MA's), (Start: 47 @25406 has 4 MA's), (53, 25439), (70, 25505), (74, 25535), (81, 25589), (89, 25655), (108, 25766), (120, 25826), (139, 25889), (153, 25940), (170, 26021), (184, 26093), (186, 26096), (193, 26132), (208, 26192),

Gene: Nina\_21 Start: 18870, Stop: 19448, Start Num: 40

Candidate Starts for Nina\_21:

(17, 18729), (Start: 40 @18870 has 181 MA's), (43, 18888), (55, 18963), (81, 19095), (89, 19161), (92, 19170), (108, 19263), (121, 19329), (127, 19356), (138, 19386), (148, 19422),

Gene: Nish23\_35 Start: 31405, Stop: 32370, Start Num: 40

Candidate Starts for Nish23\_35:

(Start: 40 @31405 has 181 MA's), (Start: 47 @31456 has 4 MA's), (49, 31474), (69, 31552), (74, 31582), (81, 31624), (87, 31675), (99, 31732), (104, 31756), (108, 31795), (118, 31855), (149, 31972), (153, 31981), (155, 31993), (163, 32023), (167, 32056), (178, 32104), (200, 32209), (203, 32230), (206, 32242),

Gene: Nodigi\_22 Start: 17832, Stop: 18413, Start Num: 40

Candidate Starts for Nodigi\_22:

(5, 17508), (10, 17592), (11, 17610), (14, 17637), (Start: 40 @17832 has 181 MA's), (51, 17907), (52, 17910), (55, 17925), (59, 17937), (62, 17949), (82, 18075), (84, 18090), (92, 18132), (93, 18141), (96, 18156), (98, 18171), (106, 18225), (108, 18234), (135, 18345), (154, 18405),

Gene: Nova\_35 Start: 30697, Stop: 31680, Start Num: 40

Candidate Starts for Nova\_35:

(9, 30430), (12, 30487), (Start: 40 @30697 has 181 MA's), (Start: 47 @30748 has 4 MA's), (49, 30766), (53, 30781), (74, 30874), (81, 30916), (108, 31084), (118, 31144), (149, 31255), (153, 31264), (155, 31276), (159, 31285), (163, 31306), (165, 31315), (178, 31387), (189, 31441), (196, 31483), (214, 31633),

Gene: Oaker\_34 Start: 31663, Stop: 32628, Start Num: 40

Candidate Starts for Oaker\_34:

(Start: 40 @31663 has 181 MA's), (Start: 47 @31714 has 4 MA's), (49, 31732), (69, 31810), (74, 31840), (81, 31882), (87, 31933), (99, 31990), (104, 32014), (108, 32053), (118, 32113), (149, 32230), (153, 32239), (155, 32251), (163, 32281), (167, 32314), (178, 32362), (200, 32467), (203, 32488), (206, 32500),

Gene: Orla\_22 Start: 17836, Stop: 18417, Start Num: 40

Candidate Starts for Orla\_22:

(Start: 40 @17836 has 181 MA's), (52, 17914), (55, 17929), (59, 17941), (62, 17953), (84, 18094), (92, 18136), (93, 18145), (96, 18160), (98, 18175), (106, 18229), (108, 18238), (135, 18349), (154, 18409),

Gene: OverPar\_27 Start: 25385, Stop: 26335, Start Num: 40

Candidate Starts for OverPar\_27:

(Start: 40 @25385 has 181 MA's), (Start: 47 @25436 has 4 MA's), (53, 25469), (70, 25535), (74, 25565), (81, 25619), (89, 25685), (108, 25796), (120, 25856), (139, 25919), (153, 25970), (170, 26051), (184, 26123), (186, 26126), (193, 26162), (208, 26222),

Gene: PBI1\_35 Start: 30201, Stop: 31184, Start Num: 40

Candidate Starts for PBI1\_35:

(9, 29934), (12, 29991), (Start: 40 @30201 has 181 MA's), (Start: 47 @30252 has 4 MA's), (49, 30270), (53, 30285), (74, 30378), (81, 30420), (108, 30588), (118, 30648), (149, 30759), (153, 30768), (155, 30780), (159, 30789), (163, 30810), (165, 30819), (178, 30891), (189, 30945), (196, 30987), (214, 31137),

Gene: PLOT\_36 Start: 30273, Stop: 31256, Start Num: 40

Candidate Starts for PLOT\_36:

(9, 30006), (12, 30063), (Start: 40 @30273 has 181 MA's), (Start: 47 @30324 has 4 MA's), (49, 30342), (53, 30357), (74, 30450), (81, 30492), (108, 30660), (118, 30720), (149, 30831), (153, 30840), (155, 30852), (159, 30861), (163, 30882), (165, 30891), (178, 30963), (189, 31017), (196, 31059), (214, 31209),

Gene: Penelope2018\_35 Start: 30270, Stop: 31253, Start Num: 40

Candidate Starts for Penelope2018\_35:

(9, 30003), (12, 30060), (Start: 40 @30270 has 181 MA's), (Start: 47 @30321 has 4 MA's), (49, 30339), (53, 30354), (74, 30447), (81, 30489), (108, 30657), (118, 30717), (149, 30828), (153, 30837), (155, 30849), (159, 30858), (163, 30879), (165, 30888), (178, 30960), (189, 31014), (196, 31056), (214, 31206),

Gene: Periwinkle\_24 Start: 19149, Stop: 19682, Start Num: 40

Candidate Starts for Periwinkle\_24:

(34, 19131), (Start: 40 @19149 has 181 MA's), (Start: 47 @19200 has 4 MA's), (51, 19224), (52, 19227), (56, 19242), (69, 19284), (78, 19329), (79, 19338), (85, 19404), (90, 19434), (92, 19440), (96, 19455), (99, 19473), (100, 19476), (104, 19497), (108, 19533), (112, 19551), (117, 19584),

Gene: PetterN\_7 Start: 4265, Stop: 4945, Start Num: 39

Candidate Starts for PetterN\_7:

(23, 4181), (Start: 31 @4241 has 2 MA's), (Start: 39 @4265 has 17 MA's), (42, 4280), (Start: 47 @4316 has 4 MA's), (82, 4508), (92, 4565), (104, 4622), (108, 4673), (110, 4685), (174, 4931),

Gene: Phalaborwa\_35 Start: 30297, Stop: 31280, Start Num: 40

Candidate Starts for Phalaborwa\_35:

(9, 30027), (12, 30084), (Start: 40 @30297 has 181 MA's), (Start: 47 @30348 has 4 MA's), (49, 30366), (74, 30474), (81, 30516), (108, 30684), (118, 30744), (149, 30855), (153, 30864), (155, 30876), (159, 30885), (163, 30906), (178, 30987), (189, 31041), (190, 31053), (196, 31083), (214, 31233),

Gene: Phayonce\_26 Start: 23684, Stop: 24628, Start Num: 46

Candidate Starts for Phayonce\_26:

(38, 23645), (41, 23663), (Start: 46 @23684 has 2 MA's), (53, 23738), (57, 23756), (66, 23792), (84, 23921), (88, 23948), (103, 24023), (108, 24065), (110, 24077), (170, 24338), (180, 24383), (189, 24428), (203, 24497),

Gene: Phillis\_7 Start: 4159, Stop: 4836, Start Num: 39

Candidate Starts for Phillis\_7:

(Start: 39 @4159 has 17 MA's), (Start: 47 @4210 has 4 MA's), (71, 4315), (92, 4459), (96, 4474), (108, 4573), (110, 4585), (154, 4747), (155, 4750), (174, 4822),

Gene: Phlorence\_7 Start: 4552, Stop: 5466, Start Num: 40

Candidate Starts for Phlorence\_7:

(23, 4468), (Start: 40 @4552 has 181 MA's), (Start: 47 @4603 has 4 MA's), (50, 4624), (56, 4645), (73, 4717), (92, 4843), (108, 4936), (140, 5062), (154, 5119), (167, 5185), (175, 5215), (194, 5308), (202, 5356), (209, 5398), (212, 5452),

Gene: Phreeze\_34 Start: 31406, Stop: 32371, Start Num: 40

Candidate Starts for Phreeze\_34:

(Start: 40 @31406 has 181 MA's), (Start: 47 @31457 has 4 MA's), (49, 31475), (69, 31553), (74, 31583), (81, 31625), (87, 31676), (99, 31733), (104, 31757), (108, 31796), (110, 31808), (118, 31856), (149, 31973), (153, 31982), (155, 31994), (163, 32024), (167, 32057), (178, 32105), (200, 32210), (203, 32231), (206, 32243),

Gene: PickleBack\_7 Start: 4262, Stop: 5176, Start Num: 40

Candidate Starts for PickleBack\_7:

(Start: 40 @4262 has 181 MA's), (Start: 47 @4313 has 4 MA's), (50, 4334), (56, 4355), (73, 4427), (92, 4553), (108, 4646), (140, 4772), (154, 4829), (167, 4895), (175, 4925), (194, 5018), (202, 5066), (209, 5108), (212, 5162),

Gene: Pons\_20 Start: 17499, Stop: 18086, Start Num: 40

Candidate Starts for Pons\_20:

(Start: 40 @17499 has 181 MA's), (51, 17574), (57, 17598), (78, 17688), (92, 17799), (93, 17808), (96, 17823), (108, 17901), (127, 17994),

Gene: PotPie\_20 Start: 18364, Stop: 18951, Start Num: 40

Candidate Starts for PotPie\_20:

(Start: 40 @18364 has 181 MA's), (51, 18439), (57, 18463), (69, 18505), (78, 18553), (92, 18664), (93, 18673), (96, 18688), (108, 18766), (138, 18889),

Gene: Prager\_35 Start: 30282, Stop: 31265, Start Num: 40

Candidate Starts for Prager\_35:

(9, 30015), (12, 30072), (Start: 40 @30282 has 181 MA's), (Start: 47 @30333 has 4 MA's), (49, 30351), (53, 30366), (74, 30459), (81, 30501), (108, 30669), (118, 30729), (149, 30840), (153, 30849), (155, 30861), (159, 30870), (163, 30891), (165, 30900), (178, 30972), (189, 31026), (196, 31068), (214, 31218),

Gene: Predator\_36 Start: 30631, Stop: 31587, Start Num: 40

Candidate Starts for Predator\_36:

(Start: 40 @30631 has 181 MA's), (Start: 47 @30682 has 4 MA's), (69, 30778), (74, 30808), (76, 30814), (81, 30850), (94, 30937), (108, 31021), (110, 31033), (142, 31159), (149, 31186), (155, 31207), (163, 31237), (164, 31243), (167, 31270), (178, 31318), (189, 31372), (203, 31447),

Gene: Prin Ashe11\_8 Start: 4460, Stop: 5326, Start Num: 47

Candidate Starts for Prin Ashe11\_8:

(Start: 40 @4409 has 181 MA's), (Start: 47 @4460 has 4 MA's), (50, 4481), (56, 4502), (73, 4574), (78, 4589), (79, 4598), (81, 4625), (92, 4700), (98, 4730), (108, 4793), (140, 4922), (154, 4979), (175, 5075), (194, 5168), (202, 5216), (210, 5279), (212, 5312), (213, 5315),

Gene: PsychoKiller\_20 Start: 17846, Stop: 18406, Start Num: 43

Candidate Starts for PsychoKiller\_20:

(17, 17687), (Start: 40 @17828 has 181 MA's), (43, 17846), (55, 17921), (81, 18053), (89, 18119), (92, 18128), (108, 18221), (110, 18233), (121, 18287), (127, 18314), (138, 18344), (148, 18380),

Gene: Puissant\_35 Start: 31894, Stop: 32859, Start Num: 40

Candidate Starts for Puissant\_35:

(Start: 40 @31894 has 181 MA's), (Start: 47 @31945 has 4 MA's), (58, 31999), (74, 32071), (81, 32113), (87, 32164), (99, 32221), (104, 32245), (108, 32284), (110, 32296), (118, 32344), (129, 32395), (143, 32434), (149, 32461), (153, 32470), (155, 32482), (163, 32512), (167, 32545), (203, 32719), (204, 32722), (206, 32731),

Gene: Quasar\_20 Start: 18437, Stop: 19015, Start Num: 40

Candidate Starts for Quasar\_20:

(17, 18296), (Start: 40 @18437 has 181 MA's), (43, 18455), (55, 18530), (81, 18662), (89, 18728), (92, 18737), (108, 18830), (110, 18842), (121, 18896), (127, 18923), (138, 18953), (148, 18989),

Gene: RADical\_21 Start: 17847, Stop: 18407, Start Num: 43

Candidate Starts for RADical\_21:

(17, 17688), (Start: 40 @17829 has 181 MA's), (43, 17847), (55, 17922), (81, 18054), (89, 18120), (92, 18129), (108, 18222), (110, 18234), (121, 18288), (127, 18315), (138, 18345), (148, 18381),

Gene: RRH1\_05 Start: 3586, Stop: 4320, Start Num: 39

Candidate Starts for RRH1\_05:

(1, 3157), (7, 3295), (20, 3457), (Start: 39 @3586 has 17 MA's), (Start: 47 @3637 has 4 MA's), (50, 3658), (52, 3664), (53, 3670), (71, 3736), (79, 3778), (92, 3880), (104, 3937), (108, 3973), (142, 4111), (160, 4171), (169, 4231), (183, 4300),

Gene: RSchmailzl\_21 Start: 17990, Stop: 18550, Start Num: 43

Candidate Starts for RSchmailzl\_21:

(17, 17831), (Start: 40 @17972 has 181 MA's), (43, 17990), (55, 18065), (81, 18197), (89, 18263), (92, 18272), (108, 18365), (121, 18431), (127, 18458), (138, 18488), (148, 18524),

Gene: RanchParmCat\_23 Start: 17546, Stop: 18121, Start Num: 40

Candidate Starts for RanchParmCat\_23:

(Start: 40 @17546 has 181 MA's), (42, 17561), (Start: 47 @17597 has 4 MA's), (50, 17618), (51, 17621), (60, 17654), (65, 17669), (68, 17678), (74, 17714), (81, 17765), (85, 17804), (92, 17840), (108, 17942), (115, 17978), (118, 17996), (121, 18008), (154, 18113),

Gene: RedBaron\_22 Start: 17872, Stop: 18450, Start Num: 40

Candidate Starts for RedBaron\_22:

(Start: 40 @17872 has 181 MA's), (43, 17890), (55, 17965), (81, 18097), (89, 18163), (92, 18172), (108, 18265), (121, 18331), (127, 18358), (138, 18388), (148, 18424),

Gene: Reyja\_21 Start: 17192, Stop: 17776, Start Num: 39

Candidate Starts for Reyja\_21:

(3, 16829), (4, 16868), (6, 16895), (8, 16916), (Start: 39 @17192 has 17 MA's), (Start: 47 @17243 has 4 MA's), (52, 17270), (55, 17285), (59, 17297), (65, 17321), (70, 17336), (92, 17492), (97, 17516), (108, 17585), (151, 17747), (157, 17768),

Gene: Roary\_7 Start: 4160, Stop: 4840, Start Num: 39

Candidate Starts for Roary\_7:

(Start: 39 @4160 has 17 MA's), (42, 4175), (Start: 47 @4211 has 4 MA's), (71, 4316), (92, 4460), (96, 4475), (108, 4574), (110, 4586), (154, 4751), (155, 4754), (174, 4826),

Gene: Saintus\_7 Start: 4176, Stop: 4853, Start Num: 39

Candidate Starts for Saintus\_7:

(Start: 39 @4176 has 17 MA's), (42, 4191), (Start: 47 @4227 has 4 MA's), (71, 4332), (92, 4476), (96, 4491), (108, 4590), (110, 4602), (155, 4767), (174, 4839),

Gene: Salvus\_28 Start: 23441, Stop: 24388, Start Num: 40

Candidate Starts for Salvus\_28:

(Start: 40 @23441 has 181 MA's), (Start: 47 @23492 has 4 MA's), (64, 23573), (74, 23618), (81, 23660), (97, 23759), (108, 23831), (133, 23945), (142, 23963), (149, 23990), (155, 24011), (163, 24041), (178, 24122), (184, 24158), (197, 24221), (200, 24233), (203, 24254), (216, 24356),

Gene: Santhid\_20 Start: 17026, Stop: 17610, Start Num: 40

Candidate Starts for Santhid\_20:

(Start: 40 @17026 has 181 MA's), (Start: 47 @17077 has 4 MA's), (55, 17119), (65, 17155), (92, 17326), (108, 17419), (145, 17560), (151, 17581), (157, 17602),

Gene: Sarshaun\_27 Start: 25437, Stop: 26336, Start Num: 47

Candidate Starts for Sarshaun\_27:

(Start: 40 @25386 has 181 MA's), (Start: 47 @25437 has 4 MA's), (53, 25470), (70, 25536), (74, 25566), (81, 25620), (89, 25686), (108, 25797), (120, 25857), (139, 25920), (153, 25971), (170, 26052), (184, 26124), (186, 26127), (193, 26163), (208, 26223),

Gene: Scorpia\_7 Start: 4242, Stop: 4946, Start Num: 31

Candidate Starts for Scorpia\_7:

(23, 4182), (Start: 31 @4242 has 2 MA's), (Start: 39 @4266 has 17 MA's), (42, 4281), (Start: 47 @4317 has 4 MA's), (82, 4509), (92, 4566), (104, 4623), (108, 4674), (110, 4686), (174, 4932),

Gene: ShawBrad\_22 Start: 18692, Stop: 19225, Start Num: 40

Candidate Starts for ShawBrad\_22:

(22, 18590), (34, 18674), (Start: 40 @18692 has 181 MA's), (Start: 47 @18743 has 4 MA's), (51, 18767), (52, 18770), (56, 18785), (69, 18827), (78, 18872), (79, 18881), (85, 18947), (90, 18977), (92, 18983), (96, 18998), (99, 19016), (100, 19019), (104, 19040), (108, 19076), (112, 19094), (117, 19127),

Gene: SheckWes\_19 Start: 17499, Stop: 18086, Start Num: 40

Candidate Starts for SheckWes\_19:

(Start: 40 @17499 has 181 MA's), (51, 17574), (57, 17598), (69, 17640), (78, 17688), (92, 17799), (93, 17808), (96, 17823), (108, 17901), (127, 17994),

Gene: SirHarley\_34 Start: 30202, Stop: 31185, Start Num: 40

Candidate Starts for SirHarley\_34:

(9, 29935), (12, 29992), (Start: 40 @30202 has 181 MA's), (Start: 47 @30253 has 4 MA's), (49, 30271), (53, 30286), (74, 30379), (81, 30421), (108, 30589), (118, 30649), (149, 30760), (153, 30769), (155, 30781), (159, 30790), (163, 30811), (165, 30820), (178, 30892), (189, 30946), (196, 30988), (214, 31138),

Gene: SketchMex\_19 Start: 17483, Stop: 18073, Start Num: 40

Candidate Starts for SketchMex\_19:

(Start: 40 @17483 has 181 MA's), (Start: 47 @17534 has 4 MA's), (50, 17555), (53, 17567), (57, 17585), (74, 17660), (81, 17711), (92, 17786), (96, 17810), (108, 17888), (118, 17942), (121, 17954), (127, 17981), (144, 18026), (148, 18047),

Gene: Smeadley\_7 Start: 4193, Stop: 4873, Start Num: 39

Candidate Starts for Smeadley\_7:

(Start: 21 @4070 has 1 MA's), (Start: 39 @4193 has 17 MA's), (42, 4208), (Start: 47 @4244 has 4 MA's), (71, 4349), (92, 4493), (96, 4508), (108, 4607), (110, 4619), (130, 4709), (154, 4784), (155, 4787), (168, 4847), (174, 4859),

Gene: Soap141\_27 Start: 25437, Stop: 26336, Start Num: 47

Candidate Starts for Soap141\_27:

(Start: 40 @25386 has 181 MA's), (Start: 47 @25437 has 4 MA's), (53, 25470), (70, 25536), (74, 25566), (81, 25620), (89, 25686), (108, 25797), (120, 25857), (139, 25920), (153, 25971), (170, 26052), (184, 26124), (186, 26127), (193, 26163), (208, 26223),

Gene: Socotra\_21 Start: 17828, Stop: 18406, Start Num: 40

Candidate Starts for Socotra\_21:

(17, 17687), (Start: 40 @17828 has 181 MA's), (43, 17846), (55, 17921), (81, 18053), (89, 18119), (92, 18128), (108, 18221), (110, 18233), (121, 18287), (127, 18314), (138, 18344), (148, 18380),

Gene: Sopespian\_20 Start: 17847, Stop: 18407, Start Num: 43

Candidate Starts for Sopespian\_20:

(17, 17688), (Start: 40 @17829 has 181 MA's), (43, 17847), (55, 17922), (81, 18054), (89, 18120), (92, 18129), (108, 18222), (110, 18234), (121, 18288), (127, 18315), (138, 18345), (148, 18381),

Gene: Sparky\_26 Start: 24326, Stop: 25279, Start Num: 45

Candidate Starts for Sparky\_26:

(25, 24212), (41, 24308), (Start: 45 @24326 has 5 MA's), (57, 24401), (66, 24437), (84, 24566), (88, 24593), (103, 24668), (108, 24710), (110, 24722), (155, 24914), (173, 24989), (189, 25073), (203, 25142),

Gene: Sprinklemunch\_24 Start: 23347, Stop: 23886, Start Num: 40

Candidate Starts for Sprinklemunch\_24:

(Start: 40 @23347 has 181 MA's), (Start: 47 @23398 has 4 MA's), (52, 23425), (56, 23440), (78, 23527), (79, 23536), (92, 23638), (108, 23731), (132, 23845),

Gene: Starburst\_21 Start: 17846, Stop: 18406, Start Num: 43

Candidate Starts for Starburst\_21:

(17, 17687), (Start: 40 @17828 has 181 MA's), (43, 17846), (55, 17921), (81, 18053), (89, 18119), (92, 18128), (108, 18221), (110, 18233), (121, 18287), (127, 18314), (138, 18344), (148, 18380),

Gene: SteamedHams\_22 Start: 17501, Stop: 18097, Start Num: 40

Candidate Starts for SteamedHams\_22:

(Start: 40 @17501 has 181 MA's), (Start: 47 @17552 has 4 MA's), (50, 17573), (53, 17585), (57, 17603), (74, 17678), (92, 17804), (96, 17828), (108, 17906), (124, 17987), (127, 17999), (139, 18032), (148, 18071), (154, 18092),

Gene: Stephig9\_7 Start: 4161, Stop: 4841, Start Num: 39

Candidate Starts for Stephig9\_7:

(Start: 39 @4161 has 17 MA's), (42, 4176), (Start: 47 @4212 has 4 MA's), (71, 4317), (92, 4461), (96, 4476), (108, 4575), (110, 4587), (130, 4677), (154, 4752), (155, 4755), (174, 4827),

Gene: Stuck\_25 Start: 23621, Stop: 24574, Start Num: 45

Candidate Starts for Stuck\_25:

(37, 23585), (Start: 45 @23621 has 5 MA's), (57, 23696), (66, 23732), (84, 23861), (88, 23888), (101, 23948), (103, 23963), (108, 24005), (110, 24017), (155, 24209), (173, 24284), (189, 24368), (203, 24437),

Gene: SummitAcademy\_19 Start: 17579, Stop: 18166, Start Num: 40

Candidate Starts for SummitAcademy\_19:

(Start: 40 @17579 has 181 MA's), (51, 17654), (57, 17678), (69, 17720), (78, 17768), (92, 17879), (93, 17888), (96, 17903), (108, 17981), (138, 18104),

Gene: SuperheroCarly\_35 Start: 30132, Stop: 31115, Start Num: 40

Candidate Starts for SuperheroCarly\_35:

(9, 29865), (12, 29922), (Start: 40 @30132 has 181 MA's), (Start: 47 @30183 has 4 MA's), (49, 30201), (53, 30216), (74, 30309), (81, 30351), (108, 30519), (118, 30579), (149, 30690), (153, 30699), (155, 30711), (159, 30720), (163, 30741), (165, 30750), (178, 30822), (189, 30876), (196, 30918), (214, 31068),

Gene: Survivors\_22 Start: 18655, Stop: 19218, Start Num: 40

Candidate Starts for Survivors\_22:

(Start: 40 @18655 has 181 MA's), (51, 18730), (52, 18733), (55, 18748), (67, 18790), (81, 18880), (92, 18955), (108, 19048), (119, 19105), (152, 19213),

Gene: SweatNTears\_22 Start: 17994, Stop: 18584, Start Num: 40

Candidate Starts for SweatNTears\_22:

(Start: 40 @17994 has 181 MA's), (Start: 47 @18045 has 4 MA's), (50, 18066), (53, 18078), (57, 18096), (74, 18171), (81, 18222), (92, 18297), (96, 18321), (108, 18399), (118, 18453), (121, 18465), (127, 18492), (144, 18537), (148, 18558),

Gene: Swirley\_7 Start: 4411, Stop: 5328, Start Num: 40

Candidate Starts for Swirley\_7:

(23, 4324), (Start: 40 @4411 has 181 MA's), (Start: 47 @4462 has 4 MA's), (50, 4483), (56, 4504), (73, 4576), (78, 4591), (79, 4600), (81, 4627), (92, 4702), (98, 4732), (108, 4795), (140, 4924), (154, 4981),

(175, 5077), (194, 5170), (202, 5218), (210, 5281), (212, 5314), (213, 5317),

Gene: SydNat\_7 Start: 4521, Stop: 5435, Start Num: 40

Candidate Starts for SydNat\_7:

(23, 4437), (Start: 40 @4521 has 181 MA's), (Start: 47 @4572 has 4 MA's), (50, 4593), (56, 4614), (78, 4701), (79, 4710), (92, 4812), (108, 4905), (140, 5031), (154, 5088), (167, 5154), (194, 5277), (196, 5295), (202, 5325), (209, 5367), (212, 5421),

Gene: TailX7\_4 Start: 2898, Stop: 3614, Start Num: 36

Candidate Starts for TailX7\_4:

(Start: 36 @2898 has 1 MA's), (Start: 47 @2949 has 4 MA's), (61, 3009), (71, 3048), (79, 3090), (81, 3117), (82, 3135), (92, 3192), (104, 3249), (108, 3285), (136, 3405), (147, 3435), (148, 3447), (162, 3489), (168, 3540), (172, 3549), (179, 3579), (183, 3606),

Gene: Tarnish\_20 Start: 17869, Stop: 18456, Start Num: 40

Candidate Starts for Tarnish\_20:

(Start: 40 @17869 has 181 MA's), (51, 17944), (57, 17968), (78, 18058), (92, 18169), (93, 18178), (96, 18193), (108, 18271), (127, 18364),

Gene: Tarynearal\_6 Start: 4438, Stop: 5355, Start Num: 40

Candidate Starts for Tarynearal\_6:

(Start: 40 @4438 has 181 MA's), (Start: 47 @4489 has 4 MA's), (50, 4510), (56, 4531), (73, 4603), (81, 4654), (92, 4729), (98, 4759), (108, 4822), (140, 4951), (154, 5008), (175, 5104), (194, 5197), (202, 5245), (210, 5308), (212, 5341), (213, 5344),

Gene: Tarzan\_20 Start: 16995, Stop: 17579, Start Num: 39

Candidate Starts for Tarzan\_20:

(6, 16698), (8, 16719), (Start: 39 @16995 has 17 MA's), (Start: 47 @17046 has 4 MA's), (52, 17073), (55, 17088), (59, 17100), (65, 17124), (70, 17139), (92, 17295), (97, 17319), (108, 17388), (145, 17529), (151, 17550), (157, 17571),

Gene: Theia\_6 Start: 4377, Stop: 5294, Start Num: 40

Candidate Starts for Theia\_6:

(Start: 40 @4377 has 181 MA's), (Start: 47 @4428 has 4 MA's), (50, 4449), (56, 4470), (78, 4557), (79, 4566), (92, 4668), (98, 4698), (100, 4704), (108, 4761), (140, 4890), (154, 4947), (175, 5043), (194, 5136), (202, 5184), (210, 5247), (212, 5280), (213, 5283),

Gene: Thoth\_35 Start: 30267, Stop: 31250, Start Num: 40

Candidate Starts for Thoth\_35:

(9, 30000), (12, 30057), (Start: 40 @30267 has 181 MA's), (Start: 47 @30318 has 4 MA's), (49, 30336), (53, 30351), (74, 30444), (81, 30486), (108, 30654), (118, 30714), (149, 30825), (153, 30834), (155, 30846), (159, 30855), (163, 30876), (165, 30885), (178, 30957), (189, 31011), (196, 31053), (214, 31203),

Gene: ThulaThula\_26 Start: 23690, Stop: 24634, Start Num: 46

Candidate Starts for ThulaThula\_26:

(26, 23570), (27, 23573), (41, 23669), (Start: 46 @23690 has 2 MA's), (53, 23744), (57, 23762), (66, 23798), (84, 23927), (88, 23954), (104, 24032), (108, 24071), (110, 24083), (153, 24263), (170, 24344), (171, 24347), (180, 24389), (189, 24434), (203, 24503), (206, 24515),

Gene: Thumb\_34 Start: 31403, Stop: 32368, Start Num: 40

Candidate Starts for Thumb\_34:

(Start: 40 @31403 has 181 MA's), (Start: 47 @31454 has 4 MA's), (49, 31472), (74, 31580), (81, 31622), (87, 31673), (99, 31730), (104, 31754), (108, 31793), (118, 31853), (149, 31970), (153, 31979), (155, 31991), (163, 32021), (167, 32054), (178, 32102), (200, 32207), (203, 32228), (206, 32240),

Gene: Tiger\_7 Start: 4261, Stop: 5175, Start Num: 40

Candidate Starts for Tiger\_7:

(Start: 40 @4261 has 181 MA's), (Start: 47 @4312 has 4 MA's), (50, 4333), (56, 4354), (73, 4426), (92, 4552), (108, 4645), (140, 4771), (154, 4828), (167, 4894), (175, 4924), (194, 5017), (202, 5065), (209, 5107), (212, 5161),

Gene: Toil\_31 Start: 15291, Stop: 15974, Start Num: 40

Candidate Starts for Toil\_31:

(Start: 40 @15291 has 181 MA's), (Start: 47 @15342 has 4 MA's), (52, 15369), (71, 15447), (74, 15468), (79, 15489), (82, 15534), (85, 15555), (92, 15591), (108, 15684), (110, 15696), (137, 15807), (141, 15819), (150, 15855),

Gene: Tolls\_22 Start: 17504, Stop: 18100, Start Num: 40

Candidate Starts for Tolls\_22:

(Start: 40 @17504 has 181 MA's), (Start: 47 @17555 has 4 MA's), (50, 17576), (57, 17606), (74, 17681), (92, 17807), (96, 17831), (108, 17909), (124, 17990), (127, 18002), (139, 18035), (148, 18074), (154, 18095),

Gene: Tourach\_27 Start: 25350, Stop: 26300, Start Num: 40

Candidate Starts for Tourach\_27:

(Start: 40 @25350 has 181 MA's), (Start: 47 @25401 has 4 MA's), (53, 25434), (57, 25452), (70, 25500), (74, 25530), (81, 25584), (89, 25650), (108, 25761), (120, 25821), (139, 25884), (153, 25935), (170, 26016), (181, 26079), (184, 26088), (186, 26091), (191, 26121), (193, 26127), (208, 26187),

Gene: TraderJ\_43 Start: 35970, Stop: 36566, Start Num: 33

Candidate Starts for TraderJ\_43:

(2, 35613), (Start: 33 @35970 has 2 MA's), (Start: 40 @35988 has 181 MA's), (Start: 47 @36039 has 4 MA's), (53, 36072), (57, 36090), (61, 36105), (92, 36291), (96, 36315), (108, 36393), (121, 36459), (123, 36471),

Gene: Troje\_20 Start: 17465, Stop: 18055, Start Num: 40

Candidate Starts for Troje\_20:

(Start: 40 @17465 has 181 MA's), (Start: 47 @17516 has 4 MA's), (50, 17537), (53, 17549), (57, 17567), (74, 17642), (81, 17693), (92, 17768), (96, 17792), (108, 17870), (118, 17924), (121, 17936), (127, 17963), (144, 18008), (148, 18029),

Gene: Troll4\_35 Start: 30271, Stop: 31254, Start Num: 40

Candidate Starts for Troll4\_35:

(9, 30004), (12, 30061), (Start: 40 @30271 has 181 MA's), (Start: 47 @30322 has 4 MA's), (49, 30340), (53, 30355), (74, 30448), (81, 30490), (108, 30658), (118, 30718), (149, 30829), (153, 30838), (155, 30850), (159, 30859), (163, 30880), (165, 30889), (178, 30961), (189, 31015), (196, 31057), (214, 31207),

Gene: Twigg\_7 Start: 4410, Stop: 5327, Start Num: 40

Candidate Starts for Twigg\_7:

(Start: 40 @4410 has 181 MA's), (Start: 47 @4461 has 4 MA's), (50, 4482), (56, 4503), (73, 4575), (78, 4590), (79, 4599), (81, 4626), (92, 4701), (98, 4731), (108, 4794), (140, 4923), (154, 4980), (175, 5076), (194, 5169), (202, 5217), (210, 5280), (212, 5313), (213, 5316),

Gene: Typhonomachy\_20 Start: 17828, Stop: 18406, Start Num: 40

Candidate Starts for Typhonomachy\_20:

(17, 17687), (Start: 40 @17828 has 181 MA's), (43, 17846), (55, 17921), (81, 18053), (89, 18119), (92, 18128), (108, 18221), (121, 18287), (127, 18314), (138, 18344), (148, 18380),

Gene: Underpass\_27 Start: 25355, Stop: 26305, Start Num: 40

Candidate Starts for Underpass\_27:

(Start: 40 @25355 has 181 MA's), (Start: 47 @25406 has 4 MA's), (53, 25439), (70, 25505), (74, 25535), (81, 25589), (89, 25655), (108, 25766), (120, 25826), (139, 25889), (153, 25940), (170, 26021), (184, 26093), (186, 26096), (193, 26132), (208, 26192),

Gene: UnionJack\_7 Start: 4229, Stop: 4894, Start Num: 39

Candidate Starts for UnionJack\_7:

(Start: 39 @4229 has 17 MA's), (42, 4244), (Start: 47 @4280 has 4 MA's), (92, 4529), (100, 4565), (104, 4586), (108, 4637), (110, 4649), (174, 4880),

Gene: Vetric\_27 Start: 25359, Stop: 26309, Start Num: 40

Candidate Starts for Vetric\_27:

(Start: 40 @25359 has 181 MA's), (Start: 47 @25410 has 4 MA's), (53, 25443), (70, 25509), (74, 25539), (81, 25593), (89, 25659), (108, 25770), (120, 25830), (139, 25893), (153, 25944), (170, 26025), (184, 26097), (186, 26100), (193, 26136), (208, 26196),

Gene: Vine\_21 Start: 18511, Stop: 19098, Start Num: 40

Candidate Starts for Vine\_21:

(Start: 40 @18511 has 181 MA's), (51, 18586), (57, 18610), (92, 18811), (96, 18835), (108, 18913), (138, 19036),

Gene: Visconti\_35 Start: 30280, Stop: 31263, Start Num: 40

Candidate Starts for Visconti\_35:

(9, 30013), (12, 30070), (Start: 40 @30280 has 181 MA's), (Start: 47 @30331 has 4 MA's), (49, 30349), (53, 30364), (74, 30457), (81, 30499), (108, 30667), (118, 30727), (149, 30838), (153, 30847), (155, 30859), (159, 30868), (163, 30889), (165, 30898), (178, 30970), (189, 31024), (196, 31066), (214, 31216),

Gene: WaldoWhy\_36 Start: 30276, Stop: 31259, Start Num: 40

Candidate Starts for WaldoWhy\_36:

(9, 30009), (12, 30066), (Start: 40 @30276 has 181 MA's), (Start: 47 @30327 has 4 MA's), (49, 30345), (53, 30360), (74, 30453), (81, 30495), (108, 30663), (118, 30723), (149, 30834), (153, 30843), (155, 30855), (159, 30864), (163, 30885), (165, 30894), (178, 30966), (189, 31020), (196, 31062), (214, 31212),

Gene: Wallaby\_24 Start: 18874, Stop: 19362, Start Num: 51

Candidate Starts for Wallaby\_24:

(Start: 40 @18799 has 181 MA's), (51, 18874), (52, 18877), (55, 18892), (67, 18934), (81, 19024), (92, 19099), (108, 19192), (119, 19249), (152, 19357),

Gene: Wigglewigg\_27 Start: 25385, Stop: 26335, Start Num: 40

Candidate Starts for Wigglewigg\_27:

(Start: 40 @25385 has 181 MA's), (Start: 47 @25436 has 4 MA's), (53, 25469), (70, 25535), (74, 25565), (81, 25619), (89, 25685), (108, 25796), (120, 25856), (139, 25919), (153, 25970), (170, 26051), (184, 26123), (186, 26126), (193, 26162), (208, 26222),

Gene: Wilder\_27 Start: 25358, Stop: 26308, Start Num: 40

Candidate Starts for Wilder\_27:

(Start: 40 @25358 has 181 MA's), (Start: 47 @25409 has 4 MA's), (53, 25442), (70, 25508), (74, 25538), (81, 25592), (89, 25658), (108, 25769), (120, 25829), (139, 25892), (153, 25943), (170, 26024), (181, 26087), (184, 26096), (186, 26099), (193, 26135), (208, 26195),

Gene: Winky\_27 Start: 25353, Stop: 26303, Start Num: 40

Candidate Starts for Winky\_27:

(Start: 40 @25353 has 181 MA's), (Start: 47 @25404 has 4 MA's), (53, 25437), (74, 25533), (81, 25587), (89, 25653), (108, 25764), (120, 25824), (139, 25887), (153, 25938), (170, 26019), (184, 26091), (186, 26094), (193, 26130), (208, 26190),

Gene: Wolfwood\_22 Start: 18799, Stop: 19362, Start Num: 40

Candidate Starts for Wolfwood\_22:

(Start: 40 @18799 has 181 MA's), (51, 18874), (52, 18877), (55, 18892), (67, 18934), (81, 19024), (92, 19099), (102, 19141), (108, 19192), (119, 19249), (152, 19357),

Gene: Wooper\_43 Start: 35976, Stop: 36572, Start Num: 33

Candidate Starts for Wooper\_43:

(2, 35619), (Start: 33 @35976 has 2 MA's), (Start: 40 @35994 has 181 MA's), (Start: 47 @36045 has 4 MA's), (53, 36078), (57, 36096), (61, 36111), (92, 36297), (96, 36321), (108, 36399), (121, 36465), (123, 36477),

Gene: Yakult\_21 Start: 17400, Stop: 17975, Start Num: 40

Candidate Starts for Yakult\_21:

(Start: 40 @17400 has 181 MA's), (Start: 47 @17451 has 4 MA's), (51, 17475), (60, 17508), (68, 17532), (74, 17568), (81, 17619), (85, 17658), (92, 17694), (108, 17796), (115, 17832), (121, 17862), (154, 17967),

Gene: Yarn\_19 Start: 17494, Stop: 18090, Start Num: 40

Candidate Starts for Yarn\_19:

(Start: 40 @17494 has 181 MA's), (Start: 47 @17545 has 4 MA's), (50, 17566), (53, 17578), (57, 17596), (74, 17671), (92, 17797), (96, 17821), (108, 17899), (124, 17980), (127, 17992), (139, 18025), (148, 18064), (154, 18085),

Gene: Yeshua\_43 Start: 35971, Stop: 36549, Start Num: 40

Candidate Starts for Yeshua\_43:

(2, 35596), (Start: 33 @35953 has 2 MA's), (Start: 40 @35971 has 181 MA's), (Start: 47 @36022 has 4 MA's), (53, 36055), (57, 36073), (61, 36088), (92, 36274), (96, 36298), (108, 36376), (121, 36442), (123, 36454),

Gene: Yucky\_20 Start: 18370, Stop: 18957, Start Num: 40

Candidate Starts for Yucky\_20:

(Start: 40 @18370 has 181 MA's), (51, 18445), (57, 18469), (78, 18559), (92, 18670), (96, 18694), (108, 18772), (138, 18895),

Gene: Yummy\_21 Start: 17379, Stop: 17969, Start Num: 40

Candidate Starts for Yummy\_21:

(Start: 40 @17379 has 181 MA's), (Start: 47 @17430 has 4 MA's), (50, 17451), (53, 17463), (57, 17481), (81, 17607), (92, 17682), (96, 17706), (108, 17784), (118, 17838), (121, 17850), (127, 17877), (144, 17922), (148, 17943),

Gene: Yvonnetastic\_47 Start: 33146, Stop: 33718, Start Num: 40

Candidate Starts for Yvonnetastic\_47:

(24, 33056), (28, 33092), (Start: 40 @33146 has 181 MA's), (Start: 47 @33197 has 4 MA's), (55, 33239), (65, 33275), (91, 33443), (92, 33446), (108, 33539), (118, 33593), (131, 33644), (138, 33662), (151, 33701),

Gene: Zareef\_22 Start: 18807, Stop: 19370, Start Num: 40

Candidate Starts for Zareef\_22:

(Start: 40 @18807 has 181 MA's), (51, 18882), (52, 18885), (55, 18900), (67, 18942), (81, 19032), (92, 19107), (108, 19200), (119, 19257), (152, 19365),

Gene: ZhongYanYuan\_26 Start: 25225, Stop: 26124, Start Num: 47

Candidate Starts for ZhongYanYuan\_26:

(Start: 40 @25174 has 181 MA's), (Start: 47 @25225 has 4 MA's), (53, 25258), (57, 25276), (70, 25324), (81, 25408), (89, 25474), (108, 25585), (120, 25645), (139, 25708), (153, 25759), (170, 25840), (177, 25873), (184, 25912), (186, 25915), (193, 25951), (208, 26011),

Gene: Zodiariah\_24 Start: 23393, Stop: 23932, Start Num: 40

Candidate Starts for Zodiariah\_24:

(Start: 40 @23393 has 181 MA's), (Start: 47 @23444 has 4 MA's), (50, 23465), (51, 23468), (56, 23486), (78, 23573), (79, 23582), (92, 23684), (108, 23777), (132, 23891),

Gene: Zolita\_6 Start: 4522, Stop: 5436, Start Num: 40

Candidate Starts for Zolita\_6:

(23, 4438), (Start: 40 @4522 has 181 MA's), (Start: 47 @4573 has 4 MA's), (50, 4594), (56, 4615), (78, 4702), (79, 4711), (92, 4813), (108, 4906), (140, 5032), (154, 5089), (167, 5155), (194, 5278), (196, 5296), (202, 5326), (209, 5368), (212, 5422),