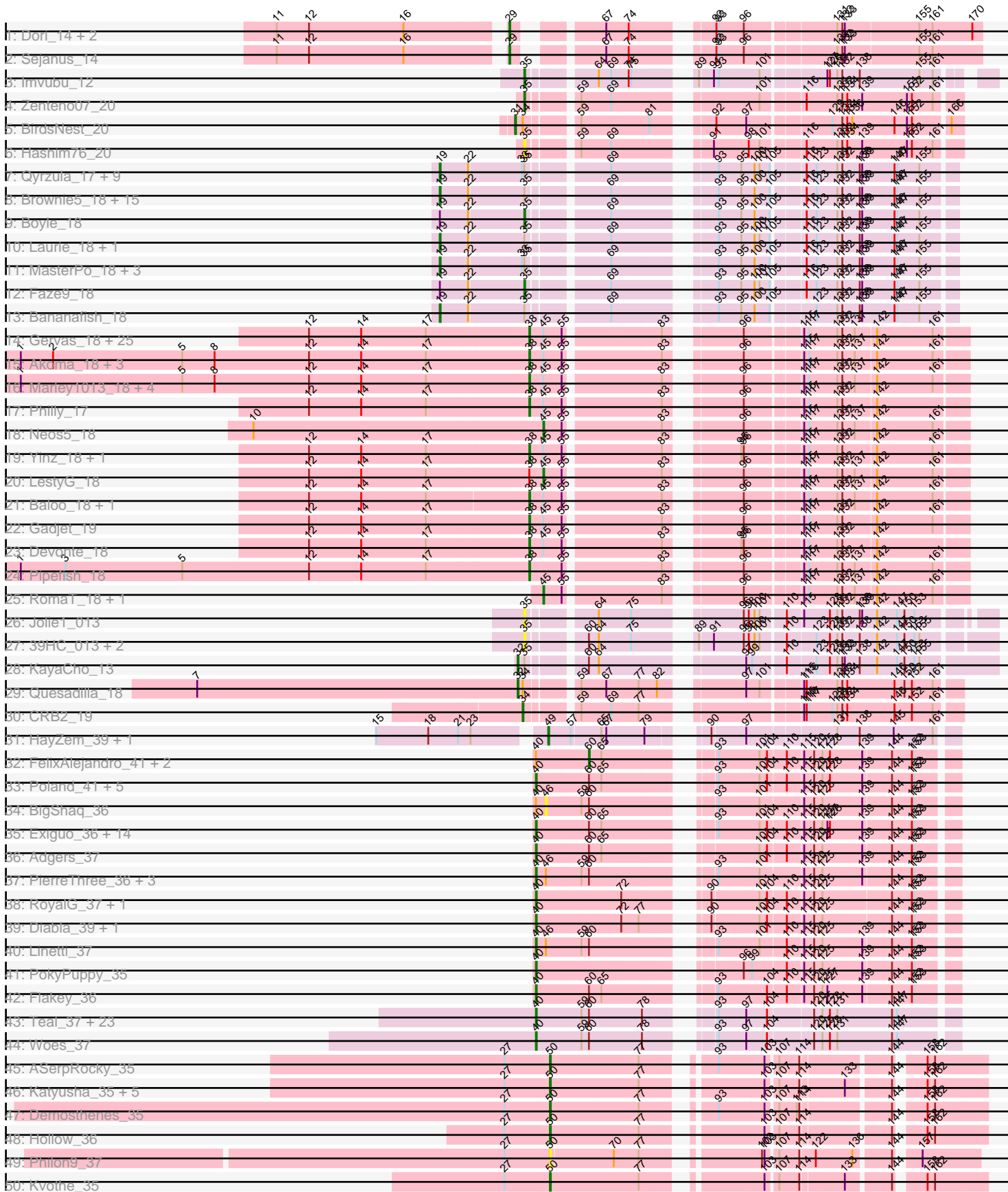
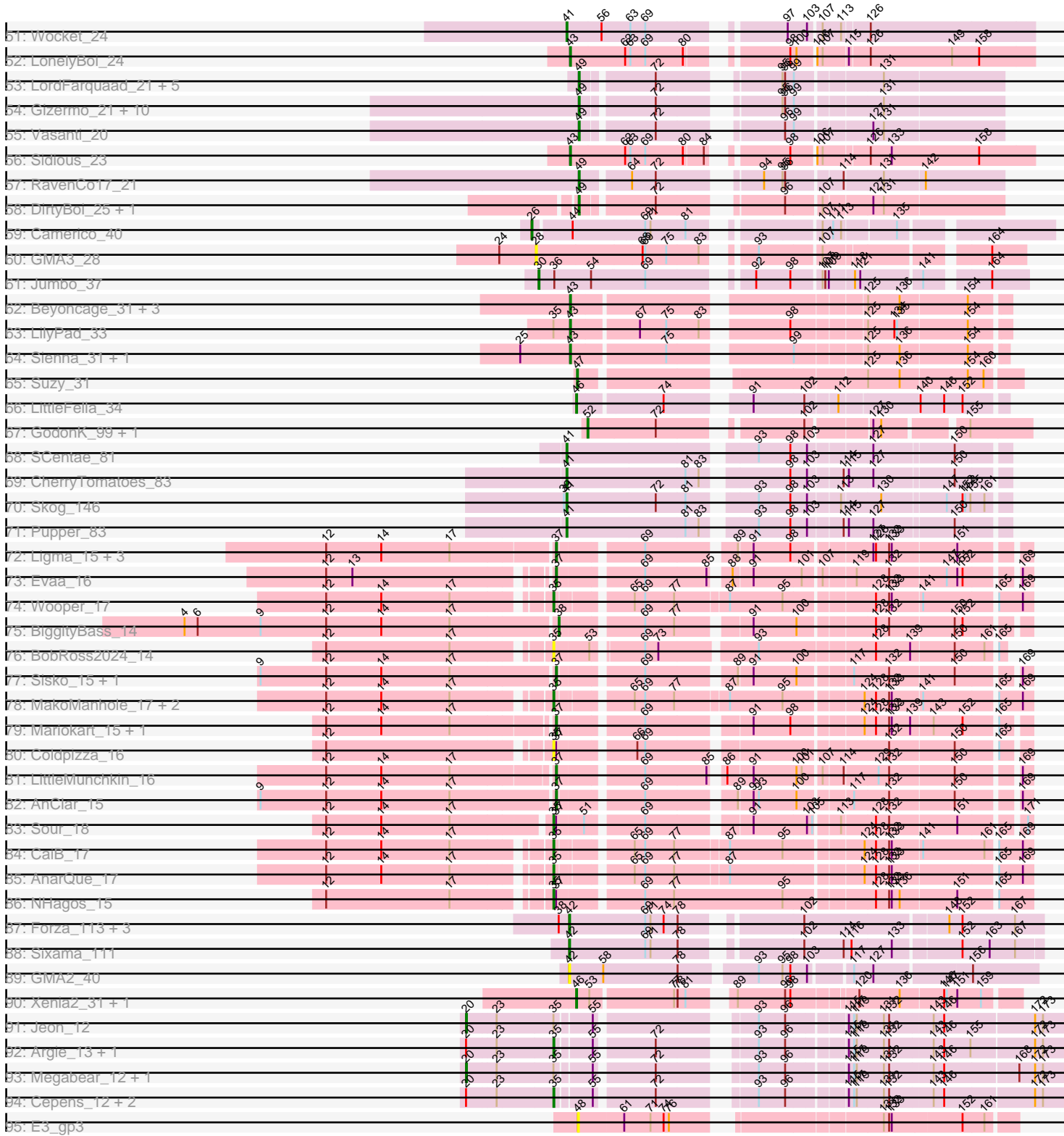


Pham 196268



Pham 196268



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 196268 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196268 has 253 members, 26 are drafts.

Phages represented in each track:

- Track 1 : Dori\_14, Mask\_14, Mao1\_13
- Track 2 : Sejanus\_14
- Track 3 : Imvubu\_12
- Track 4 : Zenteno07\_20
- Track 5 : BirdsNest\_20
- Track 6 : Hashim76\_20
- Track 7 : Qyrzula\_17, Godines\_18, Arbiter\_18, Kheth\_18, Glass\_18, Allegro\_18, LizLemon\_18, Vic9\_19, Calamitous\_18, Holeinone\_18
- Track 8 : Brownie5\_18, Rhinoforte\_18, Ares\_18, Opia\_18, Tres\_18, Rosebush\_18, Eaglehorse\_18, ItsyBitsy1\_18, Sabella\_18, Lephleur\_18, FrenchFry\_18, West99\_18, Blocker23\_18, Tinciduntolum\_19, Lars\_18, Hedgerow\_18
- Track 9 : Boyle\_18
- Track 10 : Laurie\_18, Phantasmagoria\_18
- Track 11 : MasterPo\_18, Kaleb\_18, TA17A\_18, Coffee\_18
- Track 12 : Faze9\_18
- Track 13 : Bananafish\_18
- Track 14 : Gervas\_18, OrangeOswald\_18, Jackstina\_17, Ben11\_17, MmasiCarm\_18, SynergyX\_18, Tydolla\_18, Briakila\_18, Corofin\_18, HarveySr\_18, RagingRooster\_18, Abinghost\_18, SlippinJimmy\_18, Audrey\_18, Deenasa\_18, Kronus\_17, Athena\_19, Obutu\_18, Phaedrus\_17, Casbah\_17, Daisy\_18, Kamiyu\_18, Rita1961\_18, Halfpint\_17, Compostia\_19, Chandler\_18
- Track 15 : Akoma\_18, Yahalom\_18, Bernardo\_18, Phayeta\_18
- Track 16 : Marley1013\_18, GlenHope\_19, Morty007\_18, Mortcellus\_17, ChaChing\_18
- Track 17 : Philly\_17
- Track 18 : Neos5\_18
- Track 19 : YinZ\_18, Heathcliff\_18
- Track 20 : LestyG\_18
- Track 21 : Baloo\_18, Nozo\_18
- Track 22 : Gadget\_19
- Track 23 : Devonte\_18
- Track 24 : Pipefish\_18
- Track 25 : RomaT\_18, Phlyer\_18
- Track 26 : Jolie1\_013
- Track 27 : 39HC\_013, Hosp\_011, 40BC\_013
- Track 28 : KayaCho\_13
- Track 29 : Quesadilla\_18

- Track 30 : CRB2\_19
- Track 31 : HayZem\_39, Amore2\_40
- Track 32 : FelixAlejandro\_41, Msay19\_41, Butterball\_40
- Track 33 : Poland\_41, CinnamonToast\_41, Boneham\_40, BirksAndSocks\_40, Barbochs\_36, Sombrero\_36
- Track 34 : BigShaq\_36
- Track 35 : Exiguo\_36, Jellybones\_40, John316\_40, Beaver\_40, Breezic\_36, Gorko\_36, Ekhein\_37, RemRem\_37, Lizzo\_36, GourdThymes\_36, Squibbles\_35, CathyBurgh\_35, Sam12\_36, Hotorobo\_36, Monty\_35
- Track 36 : Adgers\_37
- Track 37 : PierreThree\_36, Chelms\_36, BenoitCattle\_36, Dakiti\_36
- Track 38 : RoyalG\_37, SteveFrench\_36
- Track 39 : Diabla\_39, Eggsie\_36
- Track 40 : Linetti\_37
- Track 41 : PokyPuppy\_35
- Track 42 : Flakey\_36
- Track 43 : Teal\_37, Jams\_37, Sticker17\_37, Nimi13\_37, Minos\_38, Anamika\_37, Harambe\_37, Lahirium\_37, Hail2Pitt\_37, Neoevie\_37, Guillaume\_37, GalacticEye\_37, Hello\_37, Berries\_37, Shelley\_37, Charianelly\_37, Damp\_37, MrWormie\_37, Lidong\_37, Jormungandr\_37, Bianmat\_37, Newt\_38, Kaseim\_38, Luker\_38
- Track 44 : Woes\_37
- Track 45 : ASerpRocky\_35
- Track 46 : Katyusha\_35, Teech\_35, Tredge\_35, Benczkowski14\_35, Niagara\_35, Teatealatte\_35
- Track 47 : Demosthenes\_35
- Track 48 : Hollow\_36
- Track 49 : Philon9\_37
- Track 50 : Kvothe\_35
- Track 51 : Wocket\_24
- Track 52 : LonelyBoi\_24
- Track 53 : LordFarquaad\_21, Attis\_21, Bjanes7\_21, Yeet412\_21, SoilAssassin\_21, Sahara\_20
- Track 54 : Gizermo\_21, Savage\_21, Haley23\_21, GemG\_21, Cynthia\_21, Ebert\_21, Sproutie\_21, Whiteclaw\_21, Mocha12\_21, Clap\_21, TuertoX\_21
- Track 55 : Vasanti\_20
- Track 56 : Sidious\_23
- Track 57 : RavenCo17\_21
- Track 58 : DirtyBoi\_25, Hedwig\_25
- Track 59 : Camerico\_40
- Track 60 : GMA3\_28
- Track 61 : Jumbo\_37
- Track 62 : Beyoncage\_31, Terapin\_32, Djokovic\_31, BiteSize\_31
- Track 63 : LilyPad\_33
- Track 64 : Sienna\_31, Madi\_31
- Track 65 : Suzy\_31
- Track 66 : LittleFella\_34
- Track 67 : GodonK\_99, Phendrix\_95
- Track 68 : SCentae\_81
- Track 69 : CherryTomatoes\_83
- Track 70 : Skog\_146
- Track 71 : Pupper\_83
- Track 72 : Ligma\_15, Axumite\_15, Shatter\_15, Fresco\_15

- Track 73 : Evaa\_16
- Track 74 : Wooper\_17
- Track 75 : BiggityBass\_14
- Track 76 : BobRoss2024\_14
- Track 77 : Sisko\_15, Yago84\_15
- Track 78 : MakoManhole\_17, CloverMinnie\_17, MossRose\_17
- Track 79 : Mariokart\_15, CharlottesWeb\_15
- Track 80 : Coldpizza\_16
- Track 81 : LittleMunchkin\_16
- Track 82 : AnClar\_15
- Track 83 : Sour\_18
- Track 84 : CaiB\_17
- Track 85 : AnarQue\_17
- Track 86 : NHagos\_15
- Track 87 : Forza\_113, BlueNGold\_112, Boopy\_113, Mareelih\_111
- Track 88 : Sixama\_111
- Track 89 : GMA2\_40
- Track 90 : Xenia2\_31, DumpTruck\_34
- Track 91 : Jeon\_12
- Track 92 : Argie\_13, GodPhather\_13
- Track 93 : Megabear\_12, Taptic\_12
- Track 94 : Cepens\_12, D12\_12, PR\_12
- Track 95 : E3\_gp3

***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 52 of the 227 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adgers\_37, Anamika\_37, Barbochs\_36, Beaver\_40, BenoitCattle\_36, Berries\_37, Bianmat\_37, BirksAndSocks\_40, Boneham\_40, Breezic\_36, CathyBurgh\_35, Charianelly\_37, Chelms\_36, CinnamonToast\_41, Dakiti\_36, Damp\_37, Diabla\_39, Eggsie\_36, Ekhein\_37, Exiguo\_36, Flakey\_36, GalacticEye\_37, Gorko\_36, GourdThymes\_36, Guillaume\_37, Hail2Pitt\_37, Harambe\_37, Hello\_37, Hotorobo\_36, Jams\_37, Jellybones\_40, John316\_40, Jormungandr\_37, Kaseim\_38, Lahirium\_37, Lidong\_37, Linetti\_37, Lizzo\_36, Luker\_38, Minos\_38, Monty\_35, MrWormie\_37, Neoevie\_37, Newt\_38, Nimi13\_37, PierreThree\_36, PokyPuppy\_35, Poland\_41, RemRem\_37, RoyalG\_37, Sam12\_36, Shelley\_37, Sombrero\_36, Squibbles\_35, SteveFrench\_36, Sticker17\_37, Teal\_37, Woes\_37,

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

- BigShaq\_36, Butterball\_40, FelixAlejandro\_41, Msay19\_41,

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

- 39HC\_013, 40BC\_013, ASerpRocky\_35, Abinghost\_18, Akoma\_18, Allegro\_18, Amore2\_40, AnClar\_15, AnarQue\_17, Arbiter\_18, Ares\_18, Argie\_13, Athena\_19, Attis\_21, Audrey\_18, Axumite\_15, Baloo\_18, Bananafish\_18, Ben11\_17, Benczkowski14\_35, Bernardo\_18, Beyoncage\_31, BiggityBass\_14, BirdsNest\_20, BiteSize\_31, Bjanes7\_21, Blocker23\_18, BlueNGold\_112, BobRoss2024\_14,

Boopy\_113, Boyle\_18, Briakila\_18, Brownie5\_18, CRB2\_19, CaiB\_17, Calamitous\_18, Camerico\_40, Casbah\_17, Cepens\_12, ChaChing\_18, Chandler\_18, CharlottesWeb\_15, CherryTomatoes\_83, Clap\_21, CloverMinnie\_17, Coffee\_18, Coldpizza\_16, Compostia\_19, Corofin\_18, Cynthia\_21, D12\_12, Daisy\_18, Deenasa\_18, Demosthenes\_35, Devonte\_18, DirtyBoi\_25, Djokovic\_31, Dori\_14, DumpTruck\_34, E3\_gp3, Eaglehorse\_18, Ebert\_21, Evaa\_16, Faze9\_18, Forza\_113, FrenchFry\_18, Fresco\_15, GMA2\_40, GMA3\_28, Gadget\_19, GemG\_21, Gervas\_18, Gizermo\_21, Glass\_18, GlenHope\_19, GodPhather\_13, Godines\_18, GodonK\_99, Haley23\_21, Halfpint\_17, HarveySr\_18, Hashim76\_20, HayZem\_39, Heathcliff\_18, Hedgerow\_18, Hedwig\_25, Holeinone\_18, Hollow\_36, Hosp\_011, Imvubu\_12, ItsyBitsy1\_18, Jackstina\_17, Jeon\_12, Jolie1\_013, Jumbo\_37, Kaleb\_18, Kamiyu\_18, Katyusha\_35, KayaCho\_13, Kheth\_18, Kronus\_17, Kvothe\_35, Lars\_18, Laurie\_18, Lephleur\_18, LestyG\_18, Ligma\_15, LilyPad\_33, LittleFella\_34, LittleMunchkin\_16, LizLemon\_18, LonelyBoi\_24, LordFarquaad\_21, Madi\_31, MakoManhole\_17, Mao1\_13, Mareelih\_111, Mariokart\_15, Marley1013\_18, Mask\_14, MasterPo\_18, Megabear\_12, MmasiCarm\_18, Mocha12\_21, Mortcellus\_17, Morty007\_18, MossRose\_17, NHagos\_15, Neos5\_18, Niagara\_35, Nozo\_18, Obutu\_18, Opia\_18, OrangeOswald\_18, PR\_12, Phaedrus\_17, Phantasmagoria\_18, Phayeta\_18, Phendrix\_95, Philly\_17, Philon9\_37, Phlyer\_18, Pipefish\_18, Pupper\_83, Quesadilla\_18, Qyrzula\_17, RagingRooster\_18, RavenCo17\_21, Rhinoforte\_18, Rita1961\_18, RomaT\_18, Rosebush\_18, SCentae\_81, Sabella\_18, Sahara\_20, Savage\_21, Sejanus\_14, Shatter\_15, Sidious\_23, Sienna\_31, Sisko\_15, Sixama\_111, Skog\_146, SlippinJimmy\_18, SoilAssassin\_21, Sour\_18, Sproutie\_21, Suzy\_31, SynergyX\_18, TA17A\_18, Taptic\_12, Teatealatte\_35, Teech\_35, Terapin\_32, Tinciduntolum\_19, Tredge\_35, Tres\_18, TuertoX\_21, Tydolla\_18, Vasanti\_20, Vic9\_19, West99\_18, Whiteclaw\_21, Wocket\_24, Wooper\_17, Xenia2\_31, Yago84\_15, Yahalom\_18, Yeet412\_21, Yinz\_18, Zenteno07\_20,

### Summary by start number:

#### Start 19:

- Found in 35 of 253 ( 13.8% ) of genes in pham
- Manual Annotations of this start: 30 of 227
- Called 94.3% of time when present
- Phage (with cluster) where this start called: Allegro\_18 (B2), Arbiter\_18 (B2), Ares\_18 (B2), Bananafish\_18 (B2), Blocker23\_18 (B2), Brownie5\_18 (B2), Calamitous\_18 (B2), Coffee\_18 (B2), Eaglehorse\_18 (B2), FrenchFry\_18 (B2), Glass\_18 (B2), Godines\_18 (B2), Hedgerow\_18 (B2), Holeinone\_18 (B2), ItsyBitsy1\_18 (B2), Kaleb\_18 (B2), Kheth\_18 (B2), Lars\_18 (B2), Laurie\_18 (B2), Lephleur\_18 (B2), LizLemon\_18 (B2), MasterPo\_18 (B2), Opia\_18 (B2), Phantasmagoria\_18 (B2), Qyrzula\_17 (B2), Rhinoforte\_18 (B2), Rosebush\_18 (B2), Sabella\_18 (B2), TA17A\_18 (B2), Tinciduntolum\_19 (B2), Tres\_18 (B2), Vic9\_19 (B2), West99\_18 (B2),

#### Start 20:

- Found in 8 of 253 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 3 of 227
- Called 37.5% of time when present
- Phage (with cluster) where this start called: Jeon\_12 (W), Megabear\_12 (W), Taptic\_12 (W),

#### Start 26:

- Found in 1 of 253 ( 0.4% ) of genes in pham

- Manual Annotations of this start: 1 of 227
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Camerico\_40 (DF),

#### Start 28:

- Found in 1 of 253 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA3\_28 (DF2),

#### Start 29:

- Found in 4 of 253 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 4 of 227
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dori\_14 (AD), Mao1\_13 (AD), Mask\_14 (AD), Sejanus\_14 (AD),

#### Start 30:

- Found in 1 of 253 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 227
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jumbo\_37 (DF3),

#### Start 31:

- Found in 1 of 253 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 227
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BirdsNest\_20 (B13),

#### Start 32:

- Found in 2 of 253 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 2 of 227
- Called 100.0% of time when present
- Phage (with cluster) where this start called: KayaCho\_13 (B6), Quesadilla\_18 (B9),

#### Start 34:

- Found in 3 of 253 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 227
- Called 33.3% of time when present
- Phage (with cluster) where this start called: CRB2\_19 (B9),

#### Start 35:

- Found in 62 of 253 ( 24.5% ) of genes in pham
- Manual Annotations of this start: 17 of 227
- Called 38.7% of time when present
- Phage (with cluster) where this start called: 39HC\_013 (B6), 40BC\_013 (B6), AnarQue\_17 (DR), Argie\_13 (W), BobRoss2024\_14 (DR), Boyle\_18 (B2), CaiB\_17 (DR), Cepens\_12 (W), CloverMinnie\_17 (DR), Coldpizza\_16 (DR), D12\_12 (W), Faze9\_18 (B2), GodPhather\_13 (W), Hashim76\_20 (B13), Hosp\_011 (B6), Imvubu\_12 (B10), Jolie1\_013 (B6), MakoManhole\_17 (DR), MossRose\_17 (DR), NHagos\_15 (DR), PR\_12 (W), Sour\_18 (DR), Wooper\_17 (DR), Zenteno07\_20 (B13),

Start 37:

- Found in 14 of 253 ( 5.5% ) of genes in pham
- Manual Annotations of this start: 10 of 227
- Called 78.6% of time when present
- Phage (with cluster) where this start called: AnClar\_15 (DR), Axumite\_15 (DR), CharlottesWeb\_15 (DR), Evaa\_16 (DR), Fresco\_15 (DR), Ligma\_15 (DR), LittleMunchkin\_16 (DR), Mariokart\_15 (DR), Shatter\_15 (DR), Sisko\_15 (DR), Yago84\_15 (DR),

Start 38:

- Found in 49 of 253 ( 19.4% ) of genes in pham
- Manual Annotations of this start: 42 of 227
- Called 89.8% of time when present
- Phage (with cluster) where this start called: Abinghost\_18 (B3), Akoma\_18 (B3), Athena\_19 (B3), Audrey\_18 (B3), Baloo\_18 (B3), Ben11\_17 (B3), Bernardo\_18 (B3), BiggityBass\_14 (DR), Briakila\_18 (B3), Casbah\_17 (B3), ChaChing\_18 (B3), Chandler\_18 (B3), Compostia\_19 (B3), Corofin\_18 (B3), Daisy\_18 (B3), Deenasa\_18 (B3), Devonte\_18 (B3), Gadjet\_19 (B3), Gervas\_18 (B3), GlenHope\_19 (B3), Halfpint\_17 (B3), HarveySr\_18 (B3), Heathcliff\_18 (B3), Jackstina\_17 (B3), Kamiyu\_18 (B3), Kronus\_17 (B3), Marley1013\_18 (B3), MmasiCarm\_18 (B3), Mortcellus\_17 (B3), Morty007\_18 (B3), Nozo\_18 (B3), Obutu\_18 (B3), OrangeOswald\_18 (B3), Phaedrus\_17 (B3), Phayeta\_18 (B3), Philly\_17 (B3), Pipefish\_18 (B3), RagingRooster\_18 (B3), Rita1961\_18 (B3), SlippinJimmy\_18 (B3), SynergyX\_18 (B3), Tydolla\_18 (B3), Yahalom\_18 (B3), Yinz\_18 (B3),

Start 40:

- Found in 62 of 253 ( 24.5% ) of genes in pham
- Manual Annotations of this start: 52 of 227
- Called 93.5% of time when present
- Phage (with cluster) where this start called: Adgers\_37 (CS2), Anamika\_37 (CS3), Barbochs\_36 (CS2), Beaver\_40 (CS2), BenoitCattle\_36 (CS2), Berries\_37 (CS3), Bianmat\_37 (CS3), BirksAndSocks\_40 (CS2), Boneham\_40 (CS2), Breezic\_36 (CS2), CathyBurgh\_35 (CS2), Charianelly\_37 (CS3), Chelms\_36 (CS2), CinnamonToast\_41 (CS2), Dakiti\_36 (CS2), Damp\_37 (CS3), Diabla\_39 (CS2), Eggsie\_36 (CS2), Ekhein\_37 (CS2), Exiguo\_36 (CS2), Flakey\_36 (CS2), GalacticEye\_37 (CS3), Gorko\_36 (CS2), GourdThymes\_36 (CS2), Guillaume\_37 (CS3), Hail2Pitt\_37 (CS3), Harambe\_37 (CS3), Hello\_37 (CS3), Hotorobo\_36 (CS2), Jams\_37 (CS3), Jellybones\_40 (CS2), John316\_40 (CS2), Jormungandr\_37 (CS3), Kaseim\_38 (CS3), Lahirium\_37 (CS3), Lidong\_37 (CS3), Linetti\_37 (CS2), Lizzo\_36 (CS2), Luker\_38 (CS3), Minos\_38 (CS3), Monty\_35 (CS2), MrWormie\_37 (CS3), Neevie\_37 (CS3), Newt\_38 (CS3), Nimi13\_37 (CS3), PierreThree\_36 (CS2), PokyPuppy\_35 (CS2), Poland\_41 (CS2), RemRem\_37 (CS2), RoyalG\_37 (CS2), Sam12\_36 (CS2), Shelley\_37 (CS3), Sombrero\_36 (CS2), Squibbles\_35 (CS2), SteveFrench\_36 (CS2), Sticker17\_37 (CS3), Teal\_37 (CS3), Woes\_37 (CS3),

Start 41:

- Found in 5 of 253 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 5 of 227
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CherryTomatoes\_83 (DO), Pupper\_83 (DO), SCentae\_81 (DO), Skog\_146 (DO), Wocket\_24 (CV),

Start 42:



- Found in 6 of 253 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 5 of 227
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlueNGold\_112 (DS), Boopy\_113 (DS), Forza\_113 (DS), GMA2\_40 (DS), Mareelih\_111 (DS), Sixama\_111 (DS),

Start 43:

- Found in 9 of 253 ( 3.6% ) of genes in pham
- Manual Annotations of this start: 9 of 227
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beyoncage\_31 (DG1), BiteSize\_31 (DG1), Djokovic\_31 (DG1), LilyPad\_33 (DG1), LonelyBoi\_24 (CY), Madi\_31 (DG1), Sidious\_23 (CZ7), Sienna\_31 (DG1), Terapin\_32 (DG1),

Start 45:

- Found in 46 of 253 ( 18.2% ) of genes in pham
- Manual Annotations of this start: 4 of 227
- Called 8.7% of time when present
- Phage (with cluster) where this start called: LestyG\_18 (B3), Neos5\_18 (B3), Phlyer\_18 (B3), RomaT\_18 (B3),

Start 46:

- Found in 9 of 253 ( 3.6% ) of genes in pham
- Manual Annotations of this start: 2 of 227
- Called 44.4% of time when present
- Phage (with cluster) where this start called: BigShaq\_36 (CS2), DumpTruck\_34 (DV), LittleFella\_34 (DG2), Xenia2\_31 (DV),

Start 47:

- Found in 1 of 253 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 227
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Suzy\_31 (DG1),

Start 48:

- Found in 1 of 253 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: E3\_gp3 (singleton),

Start 49:

- Found in 23 of 253 ( 9.1% ) of genes in pham
- Manual Annotations of this start: 23 of 227
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amore2\_40 (CS1), Attis\_21 (CZ2), Bjanes7\_21 (CZ2), Clap\_21 (CZ2), Cynthia\_21 (CZ2), DirtyBoi\_25 (DB), Ebert\_21 (CZ2), GemG\_21 (CZ2), Gizermo\_21 (CZ2), Haley23\_21 (CZ2), HayZem\_39 (CS1), Hedwig\_25 (DB), LordFarquaad\_21 (CZ2), Mocha12\_21 (CZ2), RavenCo17\_21 (CZ8), Sahara\_20 (CZ2), Savage\_21 (CZ2), SoilAssassin\_21 (CZ2), Sproutie\_21 (CZ2), TuertoX\_21 (CZ2), Vasanti\_20 (CZ2), Whiteclaw\_21 (CZ2), Yeet412\_21 (CZ2),

Start 50:

- Found in 11 of 253 ( 4.3% ) of genes in pham
- Manual Annotations of this start: 9 of 227
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ASerpRocky\_35 (CS4), Benczkowski14\_35 (CS4), Demosthenes\_35 (CS4), Hollow\_36 (CS4), Katyusha\_35 (CS4), Kvothe\_35 (CS4), Niagara\_35 (CS4), Philon9\_37 (CS4), Teatealatte\_35 (CS4), Teech\_35 (CS4), Tredge\_35 (CS4),

Start 52:

- Found in 2 of 253 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 2 of 227
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GodonK\_99 (DK), Phendrix\_95 (DK),

Start 60:

- Found in 61 of 253 ( 24.1% ) of genes in pham
- Manual Annotations of this start: 3 of 227
- Called 4.9% of time when present
- Phage (with cluster) where this start called: Butterball\_40 (CS2), FelixAlejandro\_41 (CS2), Msay19\_41 (CS2),

### **Summary by clusters:**

There are 29 clusters represented in this pham: DO, CZ8, DK, CZ2, DB, CZ7, B13, B10, DV, DR, DS, DF3, DF2, DF, CS4, CS1, CS3, CS2, AD, DG2, CY, DG1, W, singleton, CV, B6, B2, B3, B9,

Info for manual annotations of cluster AD:

- Start number 29 was manually annotated 4 times for cluster AD.

Info for manual annotations of cluster B10:

- Start number 35 was manually annotated 1 time for cluster B10.

Info for manual annotations of cluster B13:

- Start number 31 was manually annotated 1 time for cluster B13.
- Start number 35 was manually annotated 1 time for cluster B13.

Info for manual annotations of cluster B2:

- Start number 19 was manually annotated 30 times for cluster B2.
- Start number 35 was manually annotated 2 times for cluster B2.

Info for manual annotations of cluster B3:

- Start number 38 was manually annotated 41 times for cluster B3.
- Start number 45 was manually annotated 4 times for cluster B3.

Info for manual annotations of cluster B6:

- Start number 32 was manually annotated 1 time for cluster B6.

Info for manual annotations of cluster B9:

- Start number 32 was manually annotated 1 time for cluster B9.
- Start number 34 was manually annotated 1 time for cluster B9.

Info for manual annotations of cluster CS1:

- Start number 49 was manually annotated 2 times for cluster CS1.

Info for manual annotations of cluster CS2:

- Start number 40 was manually annotated 28 times for cluster CS2.
- Start number 60 was manually annotated 3 times for cluster CS2.

Info for manual annotations of cluster CS3:

- Start number 40 was manually annotated 24 times for cluster CS3.

Info for manual annotations of cluster CS4:

- Start number 50 was manually annotated 9 times for cluster CS4.

Info for manual annotations of cluster CV:

- Start number 41 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster CY:

- Start number 43 was manually annotated 1 time for cluster CY.

Info for manual annotations of cluster CZ2:

- Start number 49 was manually annotated 18 times for cluster CZ2.

Info for manual annotations of cluster CZ7:

- Start number 43 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster CZ8:

- Start number 49 was manually annotated 1 time for cluster CZ8.

Info for manual annotations of cluster DB:

- Start number 49 was manually annotated 2 times for cluster DB.

Info for manual annotations of cluster DF:

- Start number 26 was manually annotated 1 time for cluster DF.

Info for manual annotations of cluster DF3:

- Start number 30 was manually annotated 1 time for cluster DF3.

Info for manual annotations of cluster DG1:

- Start number 43 was manually annotated 7 times for cluster DG1.
- Start number 47 was manually annotated 1 time for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 46 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DK:

- Start number 52 was manually annotated 2 times for cluster DK.

Info for manual annotations of cluster DO:

- Start number 41 was manually annotated 4 times for cluster DO.

Info for manual annotations of cluster DR:

- Start number 35 was manually annotated 8 times for cluster DR.
- Start number 37 was manually annotated 10 times for cluster DR.

- Start number 38 was manually annotated 1 time for cluster DR.

Info for manual annotations of cluster DS:

- Start number 42 was manually annotated 5 times for cluster DS.

Info for manual annotations of cluster DV:

- Start number 46 was manually annotated 1 time for cluster DV.

Info for manual annotations of cluster W:

- Start number 20 was manually annotated 3 times for cluster W.
- Start number 35 was manually annotated 5 times for cluster W.

### **Gene Information:**

Gene: 39HC\_013 Start: 13570, Stop: 14058, Start Num: 35

Candidate Starts for 39HC\_013:

(Start: 35 @13570 has 17 MA's), (Start: 60 @13627 has 3 MA's), (64, 13639), (75, 13678), (89, 13732), (91, 13747), (96, 13783), (98, 13789), (100, 13795), (101, 13801), (110, 13825), (123, 13858), (128, 13873), (131, 13882), (132, 13888), (138, 13909), (142, 13927), (147, 13951), (150, 13960), (153, 13972), (155, 13978),

Gene: 40BC\_013 Start: 13570, Stop: 14058, Start Num: 35

Candidate Starts for 40BC\_013:

(Start: 35 @13570 has 17 MA's), (Start: 60 @13627 has 3 MA's), (64, 13639), (75, 13678), (89, 13732), (91, 13747), (96, 13783), (98, 13789), (100, 13795), (101, 13801), (110, 13825), (123, 13858), (128, 13873), (131, 13882), (132, 13888), (138, 13909), (142, 13927), (147, 13951), (150, 13960), (153, 13972), (155, 13978),

Gene: ASerpRocky\_35 Start: 41389, Stop: 41841, Start Num: 50

Candidate Starts for ASerpRocky\_35:

(27, 41335), (Start: 50 @41389 has 9 MA's), (77, 41494), (93, 41557), (103, 41611), (107, 41623), (114, 41647), (144, 41743), (158, 41770), (162, 41779),

Gene: Abinghost\_18 Start: 15003, Stop: 15464, Start Num: 38

Candidate Starts for Abinghost\_18:

(12, 14739), (14, 14802), (17, 14880), (Start: 38 @15003 has 42 MA's), (Start: 45 @15018 has 4 MA's), (55, 15039), (83, 15147), (96, 15216), (115, 15276), (117, 15282), (131, 15315), (132, 15321), (137, 15336), (142, 15360), (161, 15426),

Gene: Adgers\_37 Start: 39896, Stop: 40342, Start Num: 40

Candidate Starts for Adgers\_37:

(Start: 40 @39896 has 52 MA's), (Start: 60 @39956 has 3 MA's), (65, 39971), (101, 40121), (104, 40130), (110, 40151), (115, 40169), (120, 40181), (125, 40190), (139, 40238), (144, 40271), (152, 40295), (153, 40298),

Gene: Akoma\_18 Start: 15003, Stop: 15464, Start Num: 38

Candidate Starts for Akoma\_18:

(1, 14391), (2, 14430), (5, 14586), (8, 14625), (12, 14739), (14, 14802), (17, 14880), (Start: 38 @15003 has 42 MA's), (Start: 45 @15018 has 4 MA's), (55, 15039), (83, 15147), (96, 15216), (115, 15276), (117, 15282), (131, 15315), (132, 15321), (137, 15336), (142, 15360), (161, 15426),

Gene: Allegro\_18 Start: 16139, Stop: 16681, Start Num: 19

Candidate Starts for Allegro\_18:

(Start: 19 @16139 has 30 MA's), (22, 16172), (33, 16232), (Start: 35 @16235 has 17 MA's), (69, 16319), (93, 16418), (95, 16445), (100, 16460), (101, 16466), (105, 16478), (116, 16511), (123, 16523), (131, 16547), (132, 16553), (138, 16574), (139, 16577), (146, 16613), (147, 16616), (155, 16643),

Gene: Amore2\_40 Start: 40418, Stop: 40843, Start Num: 49

Candidate Starts for Amore2\_40:

(15, 40229), (18, 40292), (21, 40328), (23, 40343), (Start: 49 @40418 has 23 MA's), (57, 40445), (65, 40478), (67, 40484), (79, 40529), (90, 40571), (97, 40610), (131, 40709), (138, 40736), (145, 40775), (161, 40820),

Gene: AnClar\_15 Start: 14164, Stop: 14637, Start Num: 37

Candidate Starts for AnClar\_15:

(9, 13834), (12, 13909), (14, 13972), (17, 14050), (Start: 37 @14164 has 10 MA's), (69, 14248), (89, 14338), (91, 14353), (93, 14359), (100, 14401), (117, 14455), (132, 14494), (150, 14566), (169, 14626),

Gene: Anamika\_37 Start: 42271, Stop: 42723, Start Num: 40

Candidate Starts for Anamika\_37:

(Start: 40 @42271 has 52 MA's), (59, 42325), (Start: 60 @42334 has 3 MA's), (78, 42397), (93, 42451), (97, 42484), (104, 42508), (120, 42559), (125, 42568), (128, 42577), (131, 42586), (144, 42652), (147, 42658),

Gene: AnarQue\_17 Start: 14776, Stop: 15270, Start Num: 35

Candidate Starts for AnarQue\_17:

(12, 14545), (14, 14608), (17, 14686), (Start: 35 @14776 has 17 MA's), (65, 14848), (69, 14860), (77, 14893), (87, 14950), (124, 15091), (128, 15103), (132, 15118), (133, 15121), (165, 15232), (169, 15259),

Gene: Arbiter\_18 Start: 16226, Stop: 16768, Start Num: 19

Candidate Starts for Arbiter\_18:

(Start: 19 @16226 has 30 MA's), (22, 16259), (33, 16319), (Start: 35 @16322 has 17 MA's), (69, 16406), (93, 16505), (95, 16532), (100, 16547), (101, 16553), (105, 16565), (116, 16598), (123, 16610), (131, 16634), (132, 16640), (138, 16661), (139, 16664), (146, 16700), (147, 16703), (155, 16730),

Gene: Ares\_18 Start: 16139, Stop: 16681, Start Num: 19

Candidate Starts for Ares\_18:

(Start: 19 @16139 has 30 MA's), (22, 16172), (Start: 35 @16235 has 17 MA's), (69, 16319), (93, 16418), (95, 16445), (100, 16460), (105, 16478), (116, 16511), (123, 16523), (131, 16547), (132, 16553), (138, 16574), (139, 16577), (146, 16613), (147, 16616), (155, 16643),

Gene: Argie\_13 Start: 14276, Stop: 14797, Start Num: 35

Candidate Starts for Argie\_13:

(Start: 20 @14180 has 3 MA's), (23, 14213), (Start: 35 @14276 has 17 MA's), (55, 14312), (72, 14372), (93, 14459), (96, 14489), (115, 14549), (117, 14555), (119, 14558), (131, 14588), (132, 14594), (143, 14642), (146, 14654), (155, 14684), (172, 14753), (173, 14762),

Gene: Athena\_19 Start: 15766, Stop: 16227, Start Num: 38

Candidate Starts for Athena\_19:

(12, 15502), (14, 15565), (17, 15643), (Start: 38 @15766 has 42 MA's), (Start: 45 @15781 has 4 MA's), (55, 15802), (83, 15910), (96, 15979), (115, 16039), (117, 16045), (131, 16078), (132, 16084), (137, 16099), (142, 16123), (161, 16189),

Gene: Attis\_21 Start: 18545, Stop: 18967, Start Num: 49

Candidate Starts for Attis\_21:

(Start: 49 @18545 has 23 MA's), (72, 18620), (95, 18731), (96, 18734), (99, 18743), (131, 18833),

Gene: Audrey\_18 Start: 15003, Stop: 15464, Start Num: 38

Candidate Starts for Audrey\_18:

(12, 14739), (14, 14802), (17, 14880), (Start: 38 @15003 has 42 MA's), (Start: 45 @15018 has 4 MA's), (55, 15039), (83, 15147), (96, 15216), (115, 15276), (117, 15282), (131, 15315), (132, 15321), (137, 15336), (142, 15360), (161, 15426),

Gene: Axumite\_15 Start: 13329, Stop: 13802, Start Num: 37

Candidate Starts for Axumite\_15:

(12, 13077), (14, 13140), (17, 13218), (Start: 37 @13329 has 10 MA's), (69, 13413), (89, 13503), (91, 13518), (98, 13560), (127, 13641), (128, 13644), (132, 13659), (133, 13662), (151, 13734),

Gene: Baloo\_18 Start: 15000, Stop: 15461, Start Num: 38

Candidate Starts for Baloo\_18:

(12, 14739), (14, 14802), (17, 14880), (Start: 38 @15000 has 42 MA's), (Start: 45 @15015 has 4 MA's), (55, 15036), (83, 15144), (96, 15213), (115, 15273), (117, 15279), (131, 15312), (132, 15318), (137, 15333), (142, 15357), (161, 15423),

Gene: Bananafish\_18 Start: 16136, Stop: 16678, Start Num: 19

Candidate Starts for Bananafish\_18:

(Start: 19 @16136 has 30 MA's), (22, 16169), (Start: 35 @16232 has 17 MA's), (69, 16316), (93, 16415), (95, 16442), (100, 16457), (105, 16475), (123, 16520), (131, 16544), (132, 16550), (138, 16571), (139, 16574), (146, 16610), (147, 16613), (155, 16640),

Gene: Barbochs\_36 Start: 39735, Stop: 40181, Start Num: 40

Candidate Starts for Barbochs\_36:

(Start: 40 @39735 has 52 MA's), (Start: 60 @39795 has 3 MA's), (65, 39810), (93, 39912), (101, 39960), (104, 39969), (110, 39990), (115, 40008), (120, 40020), (125, 40029), (128, 40038), (139, 40077), (144, 40110), (152, 40134), (153, 40137),

Gene: Beaver\_40 Start: 41782, Stop: 42228, Start Num: 40

Candidate Starts for Beaver\_40:

(Start: 40 @41782 has 52 MA's), (Start: 60 @41842 has 3 MA's), (65, 41857), (93, 41959), (101, 42007), (104, 42016), (110, 42037), (115, 42055), (120, 42067), (125, 42076), (127, 42082), (128, 42085), (139, 42124), (144, 42157), (152, 42181), (153, 42184),

Gene: Ben11\_17 Start: 14827, Stop: 15288, Start Num: 38

Candidate Starts for Ben11\_17:

(12, 14563), (14, 14626), (17, 14704), (Start: 38 @14827 has 42 MA's), (Start: 45 @14842 has 4 MA's), (55, 14863), (83, 14971), (96, 15040), (115, 15100), (117, 15106), (131, 15139), (132, 15145), (137, 15160), (142, 15184), (161, 15250),

Gene: Benczkowski14\_35 Start: 41422, Stop: 41874, Start Num: 50

Candidate Starts for Benczkowski14\_35:

(27, 41368), (Start: 50 @41422 has 9 MA's), (77, 41527), (103, 41644), (107, 41656), (114, 41680), (133, 41728), (144, 41776), (158, 41803), (162, 41812),

Gene: BenoitCattle\_36 Start: 39840, Stop: 40286, Start Num: 40

Candidate Starts for BenoitCattle\_36:

(Start: 40 @39840 has 52 MA's), (Start: 46 @39852 has 2 MA's), (59, 39891), (Start: 60 @39900 has 3 MA's), (93, 40017), (101, 40065), (115, 40113), (120, 40125), (125, 40134), (139, 40182), (144, 40215), (152, 40239), (153, 40242),

Gene: Bernardo\_18 Start: 15002, Stop: 15463, Start Num: 38

Candidate Starts for Bernardo\_18:

(1, 14390), (2, 14429), (5, 14585), (8, 14624), (12, 14738), (14, 14801), (17, 14879), (Start: 38 @15002 has 42 MA's), (Start: 45 @15017 has 4 MA's), (55, 15038), (83, 15146), (96, 15215), (115, 15275), (117, 15281), (131, 15314), (132, 15320), (137, 15335), (142, 15359), (161, 15425),

Gene: Berries\_37 Start: 42242, Stop: 42694, Start Num: 40

Candidate Starts for Berries\_37:

(Start: 40 @42242 has 52 MA's), (59, 42296), (Start: 60 @42305 has 3 MA's), (78, 42368), (93, 42422), (97, 42455), (104, 42479), (120, 42530), (125, 42539), (128, 42548), (131, 42557), (144, 42623), (147, 42629),

Gene: Beyoncage\_31 Start: 27530, Stop: 27976, Start Num: 43

Candidate Starts for Beyoncage\_31:

(Start: 43 @27530 has 9 MA's), (125, 27824), (136, 27860), (154, 27935),

Gene: Bianmat\_37 Start: 42282, Stop: 42734, Start Num: 40

Candidate Starts for Bianmat\_37:

(Start: 40 @42282 has 52 MA's), (59, 42336), (Start: 60 @42345 has 3 MA's), (78, 42408), (93, 42462), (97, 42495), (104, 42519), (120, 42570), (125, 42579), (128, 42588), (131, 42597), (144, 42663), (147, 42669),

Gene: BigShaq\_36 Start: 39857, Stop: 40291, Start Num: 46

Candidate Starts for BigShaq\_36:

(Start: 40 @39845 has 52 MA's), (Start: 46 @39857 has 2 MA's), (59, 39896), (Start: 60 @39905 has 3 MA's), (93, 40022), (101, 40070), (115, 40118), (120, 40130), (125, 40139), (139, 40187), (144, 40220), (152, 40244), (153, 40247),

Gene: BiggityBass\_14 Start: 13261, Stop: 13734, Start Num: 38

Candidate Starts for BiggityBass\_14:

(4, 12841), (6, 12856), (9, 12928), (12, 13003), (14, 13066), (17, 13144), (Start: 38 @13261 has 42 MA's), (69, 13345), (77, 13378), (91, 13450), (100, 13498), (128, 13576), (132, 13591), (150, 13663), (152, 13672),

Gene: BirdsNest\_20 Start: 14291, Stop: 14755, Start Num: 31

Candidate Starts for BirdsNest\_20:

(Start: 31 @14291 has 1 MA's), (Start: 34 @14300 has 1 MA's), (59, 14348), (81, 14429), (92, 14480), (97, 14516), (129, 14606), (132, 14618), (134, 14624), (136, 14630), (146, 14681), (151, 14696), (152, 14702), (166, 14741),

Gene: BirksAndSocks\_40 Start: 41760, Stop: 42206, Start Num: 40

Candidate Starts for BirksAndSocks\_40:

(Start: 40 @41760 has 52 MA's), (Start: 60 @41820 has 3 MA's), (65, 41835), (93, 41937), (101, 41985), (104, 41994), (110, 42015), (115, 42033), (120, 42045), (125, 42054), (128, 42063), (139, 42102), (144, 42135), (152, 42159), (153, 42162),

Gene: BiteSize\_31 Start: 27530, Stop: 27976, Start Num: 43  
Candidate Starts for BiteSize\_31:  
(Start: 43 @27530 has 9 MA's), (125, 27824), (136, 27860), (154, 27935),

Gene: Bjaner7\_21 Start: 18545, Stop: 18967, Start Num: 49  
Candidate Starts for Bjaner7\_21:  
(Start: 49 @18545 has 23 MA's), (72, 18620), (95, 18731), (96, 18734), (99, 18743), (131, 18833),

Gene: Blocker23\_18 Start: 16256, Stop: 16798, Start Num: 19  
Candidate Starts for Blocker23\_18:  
(Start: 19 @16256 has 30 MA's), (22, 16289), (Start: 35 @16352 has 17 MA's), (69, 16436), (93, 16535), (95, 16562), (100, 16577), (105, 16595), (116, 16628), (123, 16640), (131, 16664), (132, 16670), (138, 16691), (139, 16694), (146, 16730), (147, 16733), (155, 16760),

Gene: BlueNGold\_112 Start: 69605, Stop: 70102, Start Num: 42  
Candidate Starts for BlueNGold\_112:  
(Start: 38 @69593 has 42 MA's), (Start: 42 @69605 has 5 MA's), (69, 69692), (71, 69698), (74, 69713), (78, 69728), (102, 69842), (148, 69998), (152, 70013), (167, 70070),

Gene: BobRoss2024\_14 Start: 13152, Stop: 13616, Start Num: 35  
Candidate Starts for BobRoss2024\_14:  
(12, 12921), (17, 13062), (Start: 35 @13152 has 17 MA's), (53, 13191), (69, 13239), (73, 13254), (93, 13356), (128, 13479), (139, 13518), (150, 13566), (161, 13599), (165, 13608),

Gene: Boneham\_40 Start: 41759, Stop: 42205, Start Num: 40  
Candidate Starts for Boneham\_40:  
(Start: 40 @41759 has 52 MA's), (Start: 60 @41819 has 3 MA's), (65, 41834), (93, 41936), (101, 41984), (104, 41993), (110, 42014), (115, 42032), (120, 42044), (125, 42053), (128, 42062), (139, 42101), (144, 42134), (152, 42158), (153, 42161),

Gene: Boopy\_113 Start: 69617, Stop: 70114, Start Num: 42  
Candidate Starts for Boopy\_113:  
(Start: 38 @69605 has 42 MA's), (Start: 42 @69617 has 5 MA's), (69, 69704), (71, 69710), (74, 69725), (78, 69740), (102, 69854), (148, 70010), (152, 70025), (167, 70082),

Gene: Boyle\_18 Start: 16353, Stop: 16799, Start Num: 35  
Candidate Starts for Boyle\_18:  
(Start: 19 @16257 has 30 MA's), (22, 16290), (Start: 35 @16353 has 17 MA's), (69, 16437), (93, 16536), (95, 16563), (100, 16578), (105, 16596), (116, 16629), (123, 16641), (131, 16665), (132, 16671), (138, 16692), (139, 16695), (146, 16731), (147, 16734), (155, 16761),

Gene: Breezic\_36 Start: 39748, Stop: 40194, Start Num: 40  
Candidate Starts for Breezic\_36:  
(Start: 40 @39748 has 52 MA's), (Start: 60 @39808 has 3 MA's), (65, 39823), (93, 39925), (101, 39973), (104, 39982), (110, 40003), (115, 40021), (120, 40033), (125, 40042), (127, 40048), (128, 40051), (139, 40090), (144, 40123), (152, 40147), (153, 40150),

Gene: Briakila\_18 Start: 15768, Stop: 16229, Start Num: 38  
Candidate Starts for Briakila\_18:  
(12, 15504), (14, 15567), (17, 15645), (Start: 38 @15768 has 42 MA's), (Start: 45 @15783 has 4 MA's), (55, 15804), (83, 15912), (96, 15981), (115, 16041), (117, 16047), (131, 16080), (132, 16086), (137, 16101), (142, 16125), (161, 16191),



Gene: Brownie5\_18 Start: 16256, Stop: 16798, Start Num: 19

Candidate Starts for Brownie5\_18:

(Start: 19 @16256 has 30 MA's), (22, 16289), (Start: 35 @16352 has 17 MA's), (69, 16436), (93, 16535), (95, 16562), (100, 16577), (105, 16595), (116, 16628), (123, 16640), (131, 16664), (132, 16670), (138, 16691), (139, 16694), (146, 16730), (147, 16733), (155, 16760),

Gene: Butterball\_40 Start: 41819, Stop: 42205, Start Num: 60

Candidate Starts for Butterball\_40:

(Start: 40 @41759 has 52 MA's), (Start: 60 @41819 has 3 MA's), (65, 41834), (93, 41936), (101, 41984), (104, 41993), (110, 42014), (115, 42032), (120, 42044), (125, 42053), (128, 42062), (139, 42101), (144, 42134), (152, 42158), (153, 42161),

Gene: CRB2\_19 Start: 16553, Stop: 17008, Start Num: 34

Candidate Starts for CRB2\_19:

(Start: 34 @16553 has 1 MA's), (59, 16601), (69, 16637), (77, 16670), (115, 16826), (116, 16829), (117, 16832), (129, 16859), (131, 16865), (132, 16871), (134, 16877), (146, 16934), (152, 16955), (161, 16979),

Gene: CaiB\_17 Start: 14761, Stop: 15255, Start Num: 35

Candidate Starts for CaiB\_17:

(12, 14530), (14, 14593), (17, 14671), (Start: 35 @14761 has 17 MA's), (65, 14833), (69, 14845), (77, 14878), (87, 14935), (95, 14995), (124, 15076), (128, 15088), (132, 15103), (133, 15106), (141, 15139), (161, 15208), (165, 15217), (169, 15244),

Gene: Calamitous\_18 Start: 16136, Stop: 16678, Start Num: 19

Candidate Starts for Calamitous\_18:

(Start: 19 @16136 has 30 MA's), (22, 16169), (33, 16229), (Start: 35 @16232 has 17 MA's), (69, 16316), (93, 16415), (95, 16442), (100, 16457), (101, 16463), (105, 16475), (116, 16508), (123, 16520), (131, 16544), (132, 16550), (138, 16571), (139, 16574), (146, 16610), (147, 16613), (155, 16640),

Gene: Camerico\_40 Start: 43256, Stop: 43774, Start Num: 26

Candidate Starts for Camerico\_40:

(Start: 26 @43256 has 1 MA's), (44, 43295), (69, 43376), (71, 43382), (81, 43421), (107, 43538), (111, 43550), (113, 43559), (135, 43616),

Gene: Casbah\_17 Start: 14855, Stop: 15316, Start Num: 38

Candidate Starts for Casbah\_17:

(12, 14591), (14, 14654), (17, 14732), (Start: 38 @14855 has 42 MA's), (Start: 45 @14870 has 4 MA's), (55, 14891), (83, 14999), (96, 15068), (115, 15128), (117, 15134), (131, 15167), (132, 15173), (137, 15188), (142, 15212), (161, 15278),

Gene: CathyBurgh\_35 Start: 40602, Stop: 41048, Start Num: 40

Candidate Starts for CathyBurgh\_35:

(Start: 40 @40602 has 52 MA's), (Start: 60 @40662 has 3 MA's), (65, 40677), (93, 40779), (101, 40827), (104, 40836), (110, 40857), (115, 40875), (120, 40887), (125, 40896), (127, 40902), (128, 40905), (139, 40944), (144, 40977), (152, 41001), (153, 41004),

Gene: Cepens\_12 Start: 14000, Stop: 14521, Start Num: 35

Candidate Starts for Cepens\_12:

(Start: 20 @13904 has 3 MA's), (23, 13937), (Start: 35 @14000 has 17 MA's), (55, 14036), (72, 14096), (93, 14183), (96, 14213), (115, 14273), (117, 14279), (119, 14282), (131, 14312), (132, 14318), (143, 14366), (146, 14378), (172, 14477), (173, 14486),

Gene: ChaChing\_18 Start: 15018, Stop: 15479, Start Num: 38

Candidate Starts for ChaChing\_18:

(1, 14406), (5, 14601), (8, 14640), (12, 14754), (14, 14817), (17, 14895), (Start: 38 @15018 has 42 MA's), (Start: 45 @15033 has 4 MA's), (55, 15054), (83, 15162), (96, 15231), (115, 15291), (117, 15297), (131, 15330), (132, 15336), (137, 15351), (142, 15375), (161, 15441),

Gene: Chandler\_18 Start: 15777, Stop: 16238, Start Num: 38

Candidate Starts for Chandler\_18:

(12, 15513), (14, 15576), (17, 15654), (Start: 38 @15777 has 42 MA's), (Start: 45 @15792 has 4 MA's), (55, 15813), (83, 15921), (96, 15990), (115, 16050), (117, 16056), (131, 16089), (132, 16095), (137, 16110), (142, 16134), (161, 16200),

Gene: Charianelly\_37 Start: 41992, Stop: 42444, Start Num: 40

Candidate Starts for Charianelly\_37:

(Start: 40 @41992 has 52 MA's), (59, 42046), (Start: 60 @42055 has 3 MA's), (78, 42118), (93, 42172), (97, 42205), (104, 42229), (120, 42280), (125, 42289), (128, 42298), (131, 42307), (144, 42373), (147, 42379),

Gene: CharlottesWeb\_15 Start: 13239, Stop: 13712, Start Num: 37

Candidate Starts for CharlottesWeb\_15:

(12, 12993), (14, 13056), (17, 13134), (Start: 37 @13239 has 10 MA's), (69, 13323), (91, 13428), (98, 13470), (124, 13542), (128, 13554), (132, 13569), (133, 13572), (139, 13593), (143, 13617), (152, 13650), (165, 13683),

Gene: Chelms\_36 Start: 39848, Stop: 40294, Start Num: 40

Candidate Starts for Chelms\_36:

(Start: 40 @39848 has 52 MA's), (Start: 46 @39860 has 2 MA's), (59, 39899), (Start: 60 @39908 has 3 MA's), (93, 40025), (101, 40073), (115, 40121), (120, 40133), (125, 40142), (139, 40190), (144, 40223), (152, 40247), (153, 40250),

Gene: CherryTomatoes\_83 Start: 31959, Stop: 32417, Start Num: 41

Candidate Starts for CherryTomatoes\_83:

(Start: 41 @31959 has 5 MA's), (81, 32091), (83, 32106), (98, 32190), (103, 32208), (114, 32244), (115, 32247), (127, 32274), (150, 32361),

Gene: CinnamonToast\_41 Start: 41813, Stop: 42259, Start Num: 40

Candidate Starts for CinnamonToast\_41:

(Start: 40 @41813 has 52 MA's), (Start: 60 @41873 has 3 MA's), (65, 41888), (93, 41990), (101, 42038), (104, 42047), (110, 42068), (115, 42086), (120, 42098), (125, 42107), (128, 42116), (139, 42155), (144, 42188), (152, 42212), (153, 42215),

Gene: Clap\_21 Start: 18552, Stop: 18974, Start Num: 49

Candidate Starts for Clap\_21:

(Start: 49 @18552 has 23 MA's), (72, 18627), (95, 18738), (96, 18741), (99, 18750), (131, 18840),

Gene: CloverMinnie\_17 Start: 14701, Stop: 15195, Start Num: 35

Candidate Starts for CloverMinnie\_17:

(12, 14470), (14, 14533), (17, 14611), (Start: 35 @14701 has 17 MA's), (65, 14773), (69, 14785), (77, 14818), (87, 14875), (95, 14935), (124, 15016), (128, 15028), (132, 15043), (133, 15046), (141, 15079), (165, 15157), (169, 15184),

Gene: Coffee\_18 Start: 16253, Stop: 16795, Start Num: 19

Candidate Starts for Coffee\_18:

(Start: 19 @16253 has 30 MA's), (22, 16286), (33, 16346), (Start: 35 @16349 has 17 MA's), (69, 16433), (93, 16532), (95, 16559), (100, 16574), (105, 16592), (116, 16625), (123, 16637), (131, 16661), (132, 16667), (138, 16688), (139, 16691), (146, 16727), (147, 16730), (155, 16757),

Gene: Coldpizza\_16 Start: 15299, Stop: 15778, Start Num: 35

Candidate Starts for Coldpizza\_16:

(12, 15068), (Start: 35 @15299 has 17 MA's), (Start: 37 @15302 has 10 MA's), (66, 15380), (69, 15389), (132, 15635), (150, 15707), (165, 15749),

Gene: Compostia\_19 Start: 15436, Stop: 15897, Start Num: 38

Candidate Starts for Compostia\_19:

(12, 15172), (14, 15235), (17, 15313), (Start: 38 @15436 has 42 MA's), (Start: 45 @15451 has 4 MA's), (55, 15472), (83, 15580), (96, 15649), (115, 15709), (117, 15715), (131, 15748), (132, 15754), (137, 15769), (142, 15793), (161, 15859),

Gene: Corofin\_18 Start: 15028, Stop: 15489, Start Num: 38

Candidate Starts for Corofin\_18:

(12, 14764), (14, 14827), (17, 14905), (Start: 38 @15028 has 42 MA's), (Start: 45 @15043 has 4 MA's), (55, 15064), (83, 15172), (96, 15241), (115, 15301), (117, 15307), (131, 15340), (132, 15346), (137, 15361), (142, 15385), (161, 15451),

Gene: Cynthia\_21 Start: 18552, Stop: 18974, Start Num: 49

Candidate Starts for Cynthia\_21:

(Start: 49 @18552 has 23 MA's), (72, 18627), (95, 18738), (96, 18741), (99, 18750), (131, 18840),

Gene: D12\_12 Start: 13993, Stop: 14514, Start Num: 35

Candidate Starts for D12\_12:

(Start: 20 @13897 has 3 MA's), (23, 13930), (Start: 35 @13993 has 17 MA's), (55, 14029), (72, 14089), (93, 14176), (96, 14206), (115, 14266), (117, 14272), (119, 14275), (131, 14305), (132, 14311), (143, 14359), (146, 14371), (172, 14470), (173, 14479),

Gene: Daisy\_18 Start: 15024, Stop: 15485, Start Num: 38

Candidate Starts for Daisy\_18:

(12, 14760), (14, 14823), (17, 14901), (Start: 38 @15024 has 42 MA's), (Start: 45 @15039 has 4 MA's), (55, 15060), (83, 15168), (96, 15237), (115, 15297), (117, 15303), (131, 15336), (132, 15342), (137, 15357), (142, 15381), (161, 15447),

Gene: Dakiti\_36 Start: 40716, Stop: 41162, Start Num: 40

Candidate Starts for Dakiti\_36:

(Start: 40 @40716 has 52 MA's), (Start: 46 @40728 has 2 MA's), (59, 40767), (Start: 60 @40776 has 3 MA's), (93, 40893), (101, 40941), (115, 40989), (120, 41001), (125, 41010), (139, 41058), (144, 41091), (152, 41115), (153, 41118),

Gene: Damp\_37 Start: 41156, Stop: 41608, Start Num: 40

Candidate Starts for Damp\_37:

(Start: 40 @41156 has 52 MA's), (59, 41210), (Start: 60 @41219 has 3 MA's), (78, 41282), (93, 41336), (97, 41369), (104, 41393), (120, 41444), (125, 41453), (128, 41462), (131, 41471), (144, 41537), (147, 41543),

Gene: Deenasa\_18 Start: 15766, Stop: 16227, Start Num: 38

Candidate Starts for Deenasa\_18:

(12, 15502), (14, 15565), (17, 15643), (Start: 38 @15766 has 42 MA's), (Start: 45 @15781 has 4 MA's), (55, 15802), (83, 15910), (96, 15979), (115, 16039), (117, 16045), (131, 16078), (132, 16084), (137, 16099), (142, 16123), (161, 16189),

Gene: Demosthenes\_35 Start: 41362, Stop: 41814, Start Num: 50

Candidate Starts for Demosthenes\_35:

(27, 41308), (Start: 50 @41362 has 9 MA's), (77, 41467), (93, 41530), (103, 41584), (107, 41596), (113, 41617), (114, 41620), (144, 41716), (158, 41743), (162, 41752),

Gene: Devonte\_18 Start: 15003, Stop: 15464, Start Num: 38

Candidate Starts for Devonte\_18:

(12, 14739), (14, 14802), (17, 14880), (Start: 38 @15003 has 42 MA's), (Start: 45 @15018 has 4 MA's), (55, 15039), (83, 15147), (95, 15213), (96, 15216), (115, 15276), (117, 15282), (131, 15315), (132, 15321), (142, 15360),

Gene: Diabla\_39 Start: 41597, Stop: 42043, Start Num: 40

Candidate Starts for Diabla\_39:

(Start: 40 @41597 has 52 MA's), (72, 41696), (77, 41717), (90, 41768), (101, 41822), (104, 41831), (110, 41852), (115, 41870), (120, 41882), (125, 41891), (144, 41972), (152, 41996), (153, 41999),

Gene: DirtyBoi\_25 Start: 21195, Stop: 21617, Start Num: 49

Candidate Starts for DirtyBoi\_25:

(Start: 49 @21195 has 23 MA's), (72, 21270), (96, 21384), (107, 21420), (127, 21471), (131, 21483),

Gene: Djokovic\_31 Start: 27529, Stop: 27975, Start Num: 43

Candidate Starts for Djokovic\_31:

(Start: 43 @27529 has 9 MA's), (125, 27823), (136, 27859), (154, 27934),

Gene: Dori\_14 Start: 11980, Stop: 12462, Start Num: 29

Candidate Starts for Dori\_14:

(11, 11722), (12, 11761), (16, 11875), (Start: 29 @11980 has 4 MA's), (67, 12058), (74, 12085), (92, 12160), (93, 12163), (96, 12193), (131, 12292), (132, 12298), (133, 12301), (155, 12388), (161, 12403), (170, 12451),

Gene: DumpTruck\_34 Start: 29956, Stop: 30408, Start Num: 46

Candidate Starts for DumpTruck\_34:

(Start: 46 @29956 has 2 MA's), (53, 29971), (77, 30061), (78, 30064), (81, 30073), (89, 30109), (96, 30163), (98, 30169), (120, 30235), (136, 30280), (146, 30328), (147, 30331), (151, 30343), (159, 30370),

Gene: E3\_gp3 Start: 798, Stop: 1244, Start Num: 48

Candidate Starts for E3\_gp3:

(48, 798), (61, 849), (71, 879), (74, 894), (76, 900), (131, 1101), (132, 1107), (133, 1110), (152, 1188), (161, 1212),

Gene: Eaglehorse\_18 Start: 16160, Stop: 16702, Start Num: 19

Candidate Starts for Eaglehorse\_18:

(Start: 19 @16160 has 30 MA's), (22, 16193), (Start: 35 @16256 has 17 MA's), (69, 16340), (93, 16439), (95, 16466), (100, 16481), (105, 16499), (116, 16532), (123, 16544), (131, 16568), (132, 16574), (138, 16595), (139, 16598), (146, 16634), (147, 16637), (155, 16664),

Gene: Ebert\_21 Start: 18552, Stop: 18974, Start Num: 49

Candidate Starts for Ebert\_21:

(Start: 49 @18552 has 23 MA's), (72, 18627), (95, 18738), (96, 18741), (99, 18750), (131, 18840),

Gene: Eggsie\_36 Start: 39866, Stop: 40312, Start Num: 40

Candidate Starts for Eggsie\_36:

(Start: 40 @39866 has 52 MA's), (72, 39965), (77, 39986), (90, 40037), (101, 40091), (104, 40100), (110, 40121), (115, 40139), (120, 40151), (125, 40160), (144, 40241), (152, 40265), (153, 40268),

Gene: Ekhein\_37 Start: 39730, Stop: 40176, Start Num: 40

Candidate Starts for Ekhein\_37:

(Start: 40 @39730 has 52 MA's), (Start: 60 @39790 has 3 MA's), (65, 39805), (93, 39907), (101, 39955), (104, 39964), (110, 39985), (115, 40003), (120, 40015), (125, 40024), (127, 40030), (128, 40033), (139, 40072), (144, 40105), (152, 40129), (153, 40132),

Gene: Evaa\_16 Start: 14619, Stop: 15095, Start Num: 37

Candidate Starts for Evaa\_16:

(12, 14385), (13, 14415), (Start: 37 @14619 has 10 MA's), (69, 14706), (85, 14775), (88, 14790), (91, 14811), (101, 14865), (107, 14883), (119, 14916), (132, 14952), (147, 15015), (151, 15027), (152, 15033), (169, 15084),

Gene: Exiguo\_36 Start: 39742, Stop: 40188, Start Num: 40

Candidate Starts for Exiguo\_36:

(Start: 40 @39742 has 52 MA's), (Start: 60 @39802 has 3 MA's), (65, 39817), (93, 39919), (101, 39967), (104, 39976), (110, 39997), (115, 40015), (120, 40027), (125, 40036), (127, 40042), (128, 40045), (139, 40084), (144, 40117), (152, 40141), (153, 40144),

Gene: Faze9\_18 Start: 16349, Stop: 16795, Start Num: 35

Candidate Starts for Faze9\_18:

(Start: 19 @16253 has 30 MA's), (22, 16286), (Start: 35 @16349 has 17 MA's), (69, 16433), (93, 16532), (95, 16559), (100, 16574), (101, 16580), (105, 16592), (116, 16625), (123, 16637), (131, 16661), (132, 16667), (138, 16688), (139, 16691), (146, 16727), (147, 16730), (155, 16757),

Gene: FelixAlejandro\_41 Start: 42017, Stop: 42403, Start Num: 60

Candidate Starts for FelixAlejandro\_41:

(Start: 40 @41957 has 52 MA's), (Start: 60 @42017 has 3 MA's), (65, 42032), (93, 42134), (101, 42182), (104, 42191), (110, 42212), (115, 42230), (120, 42242), (125, 42251), (128, 42260), (139, 42299), (144, 42332), (152, 42356), (153, 42359),

Gene: Flakey\_36 Start: 40606, Stop: 41052, Start Num: 40

Candidate Starts for Flakey\_36:

(Start: 40 @40606 has 52 MA's), (Start: 60 @40666 has 3 MA's), (65, 40681), (93, 40783), (104, 40840), (110, 40861), (115, 40879), (120, 40891), (125, 40900), (127, 40906), (139, 40948), (144, 40981), (152, 41005), (153, 41008),

Gene: Forza\_113 Start: 69533, Stop: 70030, Start Num: 42

Candidate Starts for Forza\_113:

(Start: 38 @69521 has 42 MA's), (Start: 42 @69533 has 5 MA's), (69, 69620), (71, 69626), (74, 69641), (78, 69656), (102, 69770), (148, 69926), (152, 69941), (167, 69998),

Gene: FrenchFry\_18 Start: 16256, Stop: 16798, Start Num: 19

Candidate Starts for FrenchFry\_18:

(Start: 19 @16256 has 30 MA's), (22, 16289), (Start: 35 @16352 has 17 MA's), (69, 16436), (93, 16535), (95, 16562), (100, 16577), (105, 16595), (116, 16628), (123, 16640), (131, 16664), (132, 16670), (138, 16691), (139, 16694), (146, 16730), (147, 16733), (155, 16760),

Gene: Fresco\_15 Start: 13329, Stop: 13802, Start Num: 37

Candidate Starts for Fresco\_15:

(12, 13077), (14, 13140), (17, 13218), (Start: 37 @13329 has 10 MA's), (69, 13413), (89, 13503), (91, 13518), (98, 13560), (127, 13641), (128, 13644), (132, 13659), (133, 13662), (151, 13734),

Gene: GMA2\_40 Start: 42184, Stop: 42681, Start Num: 42

Candidate Starts for GMA2\_40:

(Start: 42 @42184 has 5 MA's), (58, 42223), (78, 42307), (93, 42385), (95, 42412), (98, 42421), (103, 42439), (117, 42481), (127, 42502), (156, 42607),

Gene: GMA3\_28 Start: 36944, Stop: 37429, Start Num: 28

Candidate Starts for GMA3\_28:

(24, 36902), (28, 36944), (68, 37061), (69, 37064), (75, 37088), (83, 37124), (93, 37160), (107, 37226), (164, 37391),

Gene: Gadget\_19 Start: 15007, Stop: 15468, Start Num: 38

Candidate Starts for Gadget\_19:

(12, 14743), (14, 14806), (17, 14884), (Start: 38 @15007 has 42 MA's), (Start: 45 @15022 has 4 MA's), (55, 15043), (83, 15151), (96, 15220), (115, 15280), (117, 15286), (131, 15319), (132, 15325), (142, 15364), (161, 15430),

Gene: GalacticEye\_37 Start: 41954, Stop: 42406, Start Num: 40

Candidate Starts for GalacticEye\_37:

(Start: 40 @41954 has 52 MA's), (59, 42008), (Start: 60 @42017 has 3 MA's), (78, 42080), (93, 42134), (97, 42167), (104, 42191), (120, 42242), (125, 42251), (128, 42260), (131, 42269), (144, 42335), (147, 42341),

Gene: GemG\_21 Start: 18552, Stop: 18974, Start Num: 49

Candidate Starts for GemG\_21:

(Start: 49 @18552 has 23 MA's), (72, 18627), (95, 18738), (96, 18741), (99, 18750), (131, 18840),

Gene: Gervas\_18 Start: 14986, Stop: 15447, Start Num: 38

Candidate Starts for Gervas\_18:

(12, 14722), (14, 14785), (17, 14863), (Start: 38 @14986 has 42 MA's), (Start: 45 @15001 has 4 MA's), (55, 15022), (83, 15130), (96, 15199), (115, 15259), (117, 15265), (131, 15298), (132, 15304), (137, 15319), (142, 15343), (161, 15409),

Gene: Gizermo\_21 Start: 18552, Stop: 18974, Start Num: 49

Candidate Starts for Gizermo\_21:

(Start: 49 @18552 has 23 MA's), (72, 18627), (95, 18738), (96, 18741), (99, 18750), (131, 18840),

Gene: Glass\_18 Start: 16256, Stop: 16798, Start Num: 19

Candidate Starts for Glass\_18:

(Start: 19 @16256 has 30 MA's), (22, 16289), (33, 16349), (Start: 35 @16352 has 17 MA's), (69, 16436), (93, 16535), (95, 16562), (100, 16577), (101, 16583), (105, 16595), (116, 16628), (123, 16640), (131, 16664), (132, 16670), (138, 16691), (139, 16694), (146, 16730), (147, 16733), (155, 16760),

Gene: GlenHope\_19 Start: 14993, Stop: 15454, Start Num: 38

Candidate Starts for GlenHope\_19:

(1, 14381), (5, 14576), (8, 14615), (12, 14729), (14, 14792), (17, 14870), (Start: 38 @14993 has 42 MA's), (Start: 45 @15008 has 4 MA's), (55, 15029), (83, 15137), (96, 15206), (115, 15266), (117,

15272), (131, 15305), (132, 15311), (137, 15326), (142, 15350), (161, 15416),

Gene: GodPhather\_13 Start: 14258, Stop: 14779, Start Num: 35

Candidate Starts for GodPhather\_13:

(Start: 20 @14162 has 3 MA's), (23, 14195), (Start: 35 @14258 has 17 MA's), (55, 14294), (72, 14354), (93, 14441), (96, 14471), (115, 14531), (117, 14537), (119, 14540), (131, 14570), (132, 14576), (143, 14624), (146, 14636), (155, 14666), (172, 14735), (173, 14744),

Gene: Godines\_18 Start: 16139, Stop: 16693, Start Num: 19

Candidate Starts for Godines\_18:

(Start: 19 @16139 has 30 MA's), (22, 16172), (33, 16232), (Start: 35 @16235 has 17 MA's), (69, 16331), (93, 16430), (95, 16457), (100, 16472), (101, 16478), (105, 16490), (116, 16523), (123, 16535), (131, 16559), (132, 16565), (138, 16586), (139, 16589), (146, 16625), (147, 16628), (155, 16655),

Gene: GodonK\_99 Start: 60239, Stop: 60676, Start Num: 52

Candidate Starts for GodonK\_99:

(Start: 52 @60239 has 2 MA's), (72, 60314), (102, 60449), (127, 60515), (130, 60524), (155, 60608),

Gene: Gorko\_36 Start: 39734, Stop: 40180, Start Num: 40

Candidate Starts for Gorko\_36:

(Start: 40 @39734 has 52 MA's), (Start: 60 @39794 has 3 MA's), (65, 39809), (93, 39911), (101, 39959), (104, 39968), (110, 39989), (115, 40007), (120, 40019), (125, 40028), (127, 40034), (128, 40037), (139, 40076), (144, 40109), (152, 40133), (153, 40136),

Gene: GourdThymes\_36 Start: 40608, Stop: 41054, Start Num: 40

Candidate Starts for GourdThymes\_36:

(Start: 40 @40608 has 52 MA's), (Start: 60 @40668 has 3 MA's), (65, 40683), (93, 40785), (101, 40833), (104, 40842), (110, 40863), (115, 40881), (120, 40893), (125, 40902), (127, 40908), (128, 40911), (139, 40950), (144, 40983), (152, 41007), (153, 41010),

Gene: Guillaume\_37 Start: 42004, Stop: 42456, Start Num: 40

Candidate Starts for Guillaume\_37:

(Start: 40 @42004 has 52 MA's), (59, 42058), (Start: 60 @42067 has 3 MA's), (78, 42130), (93, 42184), (97, 42217), (104, 42241), (120, 42292), (125, 42301), (128, 42310), (131, 42319), (144, 42385), (147, 42391),

Gene: Hail2Pitt\_37 Start: 42480, Stop: 42932, Start Num: 40

Candidate Starts for Hail2Pitt\_37:

(Start: 40 @42480 has 52 MA's), (59, 42534), (Start: 60 @42543 has 3 MA's), (78, 42606), (93, 42660), (97, 42693), (104, 42717), (120, 42768), (125, 42777), (128, 42786), (131, 42795), (144, 42861), (147, 42867),

Gene: Haley23\_21 Start: 18552, Stop: 18974, Start Num: 49

Candidate Starts for Haley23\_21:

(Start: 49 @18552 has 23 MA's), (72, 18627), (95, 18738), (96, 18741), (99, 18750), (131, 18840),

Gene: Halfpint\_17 Start: 14828, Stop: 15289, Start Num: 38

Candidate Starts for Halfpint\_17:

(12, 14564), (14, 14627), (17, 14705), (Start: 38 @14828 has 42 MA's), (Start: 45 @14843 has 4 MA's), (55, 14864), (83, 14972), (96, 15041), (115, 15101), (117, 15107), (131, 15140), (132, 15146), (137, 15161), (142, 15185), (161, 15251),

Gene: Harambe\_37 Start: 42271, Stop: 42723, Start Num: 40

Candidate Starts for Harambe\_37:

(Start: 40 @42271 has 52 MA's), (59, 42325), (Start: 60 @42334 has 3 MA's), (78, 42397), (93, 42451), (97, 42484), (104, 42508), (120, 42559), (125, 42568), (128, 42577), (131, 42586), (144, 42652), (147, 42658),

Gene: HarveySr\_18 Start: 14980, Stop: 15441, Start Num: 38

Candidate Starts for HarveySr\_18:

(12, 14716), (14, 14779), (17, 14857), (Start: 38 @14980 has 42 MA's), (Start: 45 @14995 has 4 MA's), (55, 15016), (83, 15124), (96, 15193), (115, 15253), (117, 15259), (131, 15292), (132, 15298), (137, 15313), (142, 15337), (161, 15403),

Gene: Hashim76\_20 Start: 14543, Stop: 14998, Start Num: 35

Candidate Starts for Hashim76\_20:

(Start: 35 @14543 has 17 MA's), (59, 14591), (69, 14627), (91, 14720), (98, 14762), (101, 14774), (116, 14819), (131, 14855), (132, 14861), (134, 14867), (139, 14885), (151, 14939), (152, 14945), (161, 14969),

Gene: HayZem\_39 Start: 40415, Stop: 40840, Start Num: 49

Candidate Starts for HayZem\_39:

(15, 40226), (18, 40289), (21, 40325), (23, 40340), (Start: 49 @40415 has 23 MA's), (57, 40442), (65, 40475), (67, 40481), (79, 40526), (90, 40568), (97, 40607), (131, 40706), (138, 40733), (145, 40772), (161, 40817),

Gene: Heathcliff\_18 Start: 14965, Stop: 15426, Start Num: 38

Candidate Starts for Heathcliff\_18:

(12, 14701), (14, 14764), (17, 14842), (Start: 38 @14965 has 42 MA's), (Start: 45 @14980 has 4 MA's), (55, 15001), (83, 15109), (95, 15175), (96, 15178), (115, 15238), (117, 15244), (131, 15277), (132, 15283), (142, 15322), (161, 15388),

Gene: Hedgerow\_18 Start: 16238, Stop: 16780, Start Num: 19

Candidate Starts for Hedgerow\_18:

(Start: 19 @16238 has 30 MA's), (22, 16271), (Start: 35 @16334 has 17 MA's), (69, 16418), (93, 16517), (95, 16544), (100, 16559), (105, 16577), (116, 16610), (123, 16622), (131, 16646), (132, 16652), (138, 16673), (139, 16676), (146, 16712), (147, 16715), (155, 16742),

Gene: Hedwig\_25 Start: 21191, Stop: 21613, Start Num: 49

Candidate Starts for Hedwig\_25:

(Start: 49 @21191 has 23 MA's), (72, 21266), (96, 21380), (107, 21416), (127, 21467), (131, 21479),

Gene: Hello\_37 Start: 42233, Stop: 42685, Start Num: 40

Candidate Starts for Hello\_37:

(Start: 40 @42233 has 52 MA's), (59, 42287), (Start: 60 @42296 has 3 MA's), (78, 42359), (93, 42413), (97, 42446), (104, 42470), (120, 42521), (125, 42530), (128, 42539), (131, 42548), (144, 42614), (147, 42620),

Gene: Holeinone\_18 Start: 16138, Stop: 16680, Start Num: 19

Candidate Starts for Holeinone\_18:

(Start: 19 @16138 has 30 MA's), (22, 16171), (33, 16231), (Start: 35 @16234 has 17 MA's), (69, 16318), (93, 16417), (95, 16444), (100, 16459), (101, 16465), (105, 16477), (116, 16510), (123, 16522), (131, 16546), (132, 16552), (138, 16573), (139, 16576), (146, 16612), (147, 16615), (155, 16642),



Gene: Hollow\_36 Start: 41768, Stop: 42220, Start Num: 50

Candidate Starts for Hollow\_36:

(27, 41714), (Start: 50 @41768 has 9 MA's), (77, 41873), (103, 41990), (107, 42002), (114, 42026), (144, 42122), (158, 42149), (162, 42158),

Gene: Hosp\_011 Start: 11772, Stop: 12260, Start Num: 35

Candidate Starts for Hosp\_011:

(Start: 35 @11772 has 17 MA's), (Start: 60 @11829 has 3 MA's), (64, 11841), (75, 11880), (89, 11934), (91, 11949), (96, 11985), (98, 11991), (100, 11997), (101, 12003), (110, 12027), (123, 12060), (128, 12075), (131, 12084), (132, 12090), (138, 12111), (142, 12129), (147, 12153), (150, 12162), (153, 12174), (155, 12180),

Gene: Hotorobo\_36 Start: 40613, Stop: 41059, Start Num: 40

Candidate Starts for Hotorobo\_36:

(Start: 40 @40613 has 52 MA's), (Start: 60 @40673 has 3 MA's), (65, 40688), (93, 40790), (101, 40838), (104, 40847), (110, 40868), (115, 40886), (120, 40898), (125, 40907), (127, 40913), (128, 40916), (139, 40955), (144, 40988), (152, 41012), (153, 41015),

Gene: Imvubu\_12 Start: 12561, Stop: 13034, Start Num: 35

Candidate Starts for Imvubu\_12:

(Start: 35 @12561 has 17 MA's), (64, 12630), (69, 12645), (74, 12666), (75, 12669), (89, 12723), (91, 12738), (93, 12744), (101, 12792), (127, 12861), (128, 12864), (131, 12873), (132, 12879), (138, 12900), (155, 12969), (161, 12984),

Gene: ItsyBitsy1\_18 Start: 16130, Stop: 16672, Start Num: 19

Candidate Starts for ItsyBitsy1\_18:

(Start: 19 @16130 has 30 MA's), (22, 16163), (Start: 35 @16226 has 17 MA's), (69, 16310), (93, 16409), (95, 16436), (100, 16451), (105, 16469), (116, 16502), (123, 16514), (131, 16538), (132, 16544), (138, 16565), (139, 16568), (146, 16604), (147, 16607), (155, 16634),

Gene: Jackstina\_17 Start: 14929, Stop: 15390, Start Num: 38

Candidate Starts for Jackstina\_17:

(12, 14665), (14, 14728), (17, 14806), (Start: 38 @14929 has 42 MA's), (Start: 45 @14944 has 4 MA's), (55, 14965), (83, 15073), (96, 15142), (115, 15202), (117, 15208), (131, 15241), (132, 15247), (137, 15262), (142, 15286), (161, 15352),

Gene: Jams\_37 Start: 41442, Stop: 41894, Start Num: 40

Candidate Starts for Jams\_37:

(Start: 40 @41442 has 52 MA's), (59, 41496), (Start: 60 @41505 has 3 MA's), (78, 41568), (93, 41622), (97, 41655), (104, 41679), (120, 41730), (125, 41739), (128, 41748), (131, 41757), (144, 41823), (147, 41829),

Gene: Jellybones\_40 Start: 41818, Stop: 42264, Start Num: 40

Candidate Starts for Jellybones\_40:

(Start: 40 @41818 has 52 MA's), (Start: 60 @41878 has 3 MA's), (65, 41893), (93, 41995), (101, 42043), (104, 42052), (110, 42073), (115, 42091), (120, 42103), (125, 42112), (127, 42118), (128, 42121), (139, 42160), (144, 42193), (152, 42217), (153, 42220),

Gene: Jeon\_12 Start: 13904, Stop: 14521, Start Num: 20

Candidate Starts for Jeon\_12:

(Start: 20 @13904 has 3 MA's), (23, 13937), (Start: 35 @14000 has 17 MA's), (55, 14036), (93, 14183), (96, 14213), (115, 14273), (117, 14279), (119, 14282), (131, 14312), (132, 14318), (143, 14366), (146, 14378), (172, 14477), (173, 14486),

Gene: John316\_40 Start: 41771, Stop: 42217, Start Num: 40

Candidate Starts for John316\_40:

(Start: 40 @41771 has 52 MA's), (Start: 60 @41831 has 3 MA's), (65, 41846), (93, 41948), (101, 41996), (104, 42005), (110, 42026), (115, 42044), (120, 42056), (125, 42065), (127, 42071), (128, 42074), (139, 42113), (144, 42146), (152, 42170), (153, 42173),

Gene: Jolie1\_013 Start: 13551, Stop: 14030, Start Num: 35

Candidate Starts for Jolie1\_013:

(Start: 35 @13551 has 17 MA's), (64, 13620), (75, 13659), (96, 13764), (98, 13770), (100, 13776), (101, 13782), (110, 13806), (115, 13824), (128, 13854), (131, 13863), (132, 13869), (138, 13890), (139, 13893), (142, 13908), (147, 13932), (150, 13941), (153, 13953),

Gene: Jormungandr\_37 Start: 41986, Stop: 42438, Start Num: 40

Candidate Starts for Jormungandr\_37:

(Start: 40 @41986 has 52 MA's), (59, 42040), (Start: 60 @42049 has 3 MA's), (78, 42112), (93, 42166), (97, 42199), (104, 42223), (120, 42274), (125, 42283), (128, 42292), (131, 42301), (144, 42367), (147, 42373),

Gene: Jumbo\_37 Start: 42278, Stop: 42769, Start Num: 30

Candidate Starts for Jumbo\_37:

(Start: 30 @42278 has 1 MA's), (36, 42296), (54, 42338), (69, 42398), (92, 42491), (98, 42530), (107, 42560), (108, 42563), (109, 42566), (118, 42593), (121, 42599), (141, 42665), (164, 42728),

Gene: Kaleb\_18 Start: 16256, Stop: 16798, Start Num: 19

Candidate Starts for Kaleb\_18:

(Start: 19 @16256 has 30 MA's), (22, 16289), (33, 16349), (Start: 35 @16352 has 17 MA's), (69, 16436), (93, 16535), (95, 16562), (100, 16577), (105, 16595), (116, 16628), (123, 16640), (131, 16664), (132, 16670), (138, 16691), (139, 16694), (146, 16730), (147, 16733), (155, 16760),

Gene: Kamiyu\_18 Start: 14974, Stop: 15435, Start Num: 38

Candidate Starts for Kamiyu\_18:

(12, 14710), (14, 14773), (17, 14851), (Start: 38 @14974 has 42 MA's), (Start: 45 @14989 has 4 MA's), (55, 15010), (83, 15118), (96, 15187), (115, 15247), (117, 15253), (131, 15286), (132, 15292), (137, 15307), (142, 15331), (161, 15397),

Gene: Kaseim\_38 Start: 41427, Stop: 41879, Start Num: 40

Candidate Starts for Kaseim\_38:

(Start: 40 @41427 has 52 MA's), (59, 41481), (Start: 60 @41490 has 3 MA's), (78, 41553), (93, 41607), (97, 41640), (104, 41664), (120, 41715), (125, 41724), (128, 41733), (131, 41742), (144, 41808), (147, 41814),

Gene: Katyusha\_35 Start: 41422, Stop: 41874, Start Num: 50

Candidate Starts for Katyusha\_35:

(27, 41368), (Start: 50 @41422 has 9 MA's), (77, 41527), (103, 41644), (107, 41656), (114, 41680), (133, 41728), (144, 41776), (158, 41803), (162, 41812),

Gene: KayaCho\_13 Start: 13548, Stop: 14048, Start Num: 32

Candidate Starts for KayaCho\_13:

(Start: 32 @13548 has 2 MA's), (Start: 35 @13554 has 17 MA's), (Start: 60 @13611 has 3 MA's), (64, 13623), (97, 13770), (99, 13776), (110, 13809), (123, 13842), (128, 13857), (131, 13866), (132, 13872), (133, 13875), (138, 13893), (142, 13911), (147, 13935), (150, 13944), (153, 13956), (155, 13962),

Gene: Kheth\_18 Start: 16139, Stop: 16681, Start Num: 19

Candidate Starts for Kheth\_18:

(Start: 19 @16139 has 30 MA's), (22, 16172), (33, 16232), (Start: 35 @16235 has 17 MA's), (69, 16319), (93, 16418), (95, 16445), (100, 16460), (101, 16466), (105, 16478), (116, 16511), (123, 16523), (131, 16547), (132, 16553), (138, 16574), (139, 16577), (146, 16613), (147, 16616), (155, 16643),

Gene: Kronus\_17 Start: 15586, Stop: 16047, Start Num: 38

Candidate Starts for Kronus\_17:

(12, 15322), (14, 15385), (17, 15463), (Start: 38 @15586 has 42 MA's), (Start: 45 @15601 has 4 MA's), (55, 15622), (83, 15730), (96, 15799), (115, 15859), (117, 15865), (131, 15898), (132, 15904), (137, 15919), (142, 15943), (161, 16009),

Gene: Kvothe\_35 Start: 41321, Stop: 41773, Start Num: 50

Candidate Starts for Kvothe\_35:

(27, 41267), (Start: 50 @41321 has 9 MA's), (77, 41426), (103, 41543), (107, 41555), (114, 41579), (133, 41627), (144, 41675), (158, 41702), (162, 41711),

Gene: Lahirium\_37 Start: 42508, Stop: 42960, Start Num: 40

Candidate Starts for Lahirium\_37:

(Start: 40 @42508 has 52 MA's), (59, 42562), (Start: 60 @42571 has 3 MA's), (78, 42634), (93, 42688), (97, 42721), (104, 42745), (120, 42796), (125, 42805), (128, 42814), (131, 42823), (144, 42889), (147, 42895),

Gene: Lars\_18 Start: 16256, Stop: 16798, Start Num: 19

Candidate Starts for Lars\_18:

(Start: 19 @16256 has 30 MA's), (22, 16289), (Start: 35 @16352 has 17 MA's), (69, 16436), (93, 16535), (95, 16562), (100, 16577), (105, 16595), (116, 16628), (123, 16640), (131, 16664), (132, 16670), (138, 16691), (139, 16694), (146, 16730), (147, 16733), (155, 16760),

Gene: Laurie\_18 Start: 16134, Stop: 16676, Start Num: 19

Candidate Starts for Laurie\_18:

(Start: 19 @16134 has 30 MA's), (22, 16167), (Start: 35 @16230 has 17 MA's), (69, 16314), (93, 16413), (95, 16440), (100, 16455), (101, 16461), (105, 16473), (116, 16506), (123, 16518), (131, 16542), (132, 16548), (138, 16569), (139, 16572), (146, 16608), (147, 16611), (155, 16638),

Gene: Lephleur\_18 Start: 16136, Stop: 16678, Start Num: 19

Candidate Starts for Lephleur\_18:

(Start: 19 @16136 has 30 MA's), (22, 16169), (Start: 35 @16232 has 17 MA's), (69, 16316), (93, 16415), (95, 16442), (100, 16457), (105, 16475), (116, 16508), (123, 16520), (131, 16544), (132, 16550), (138, 16571), (139, 16574), (146, 16610), (147, 16613), (155, 16640),

Gene: LestyG\_18 Start: 15022, Stop: 15468, Start Num: 45

Candidate Starts for LestyG\_18:

(12, 14743), (14, 14806), (17, 14884), (Start: 38 @15007 has 42 MA's), (Start: 45 @15022 has 4 MA's), (55, 15043), (83, 15151), (96, 15220), (115, 15280), (117, 15286), (131, 15319), (132, 15325), (137, 15340), (142, 15364), (161, 15430),

Gene: Lidong\_37 Start: 42242, Stop: 42694, Start Num: 40

Candidate Starts for Lidong\_37:

(Start: 40 @42242 has 52 MA's), (59, 42296), (Start: 60 @42305 has 3 MA's), (78, 42368), (93, 42422), (97, 42455), (104, 42479), (120, 42530), (125, 42539), (128, 42548), (131, 42557), (144,

42623), (147, 42629),

Gene: Ligma\_15 Start: 13329, Stop: 13802, Start Num: 37

Candidate Starts for Ligma\_15:

(12, 13077), (14, 13140), (17, 13218), (Start: 37 @13329 has 10 MA's), (69, 13413), (89, 13503), (91, 13518), (98, 13560), (127, 13641), (128, 13644), (132, 13659), (133, 13662), (151, 13734),

Gene: LilyPad\_33 Start: 28336, Stop: 28782, Start Num: 43

Candidate Starts for LilyPad\_33:

(Start: 35 @28318 has 17 MA's), (Start: 43 @28336 has 9 MA's), (67, 28408), (75, 28438), (83, 28474), (98, 28555), (125, 28630), (134, 28660), (135, 28663), (154, 28741),

Gene: Linetti\_37 Start: 40842, Stop: 41288, Start Num: 40

Candidate Starts for Linetti\_37:

(Start: 40 @40842 has 52 MA's), (Start: 46 @40854 has 2 MA's), (59, 40893), (Start: 60 @40902 has 3 MA's), (93, 41019), (101, 41067), (110, 41097), (115, 41115), (120, 41127), (125, 41136), (139, 41184), (144, 41217), (152, 41241), (153, 41244),

Gene: LittleFella\_34 Start: 30149, Stop: 30583, Start Num: 46

Candidate Starts for LittleFella\_34:

(Start: 46 @30149 has 2 MA's), (74, 30239), (91, 30317), (102, 30374), (112, 30407), (140, 30491), (146, 30518), (152, 30539),

Gene: LittleMunchkin\_16 Start: 14770, Stop: 15246, Start Num: 37

Candidate Starts for LittleMunchkin\_16:

(12, 14521), (14, 14584), (17, 14662), (Start: 37 @14770 has 10 MA's), (69, 14857), (85, 14926), (86, 14935), (91, 14962), (100, 15010), (101, 15016), (107, 15034), (114, 15055), (129, 15091), (132, 15103), (150, 15175), (169, 15235),

Gene: LizLemon\_18 Start: 16256, Stop: 16798, Start Num: 19

Candidate Starts for LizLemon\_18:

(Start: 19 @16256 has 30 MA's), (22, 16289), (33, 16349), (Start: 35 @16352 has 17 MA's), (69, 16436), (93, 16535), (95, 16562), (100, 16577), (101, 16583), (105, 16595), (116, 16628), (123, 16640), (131, 16664), (132, 16670), (138, 16691), (139, 16694), (146, 16730), (147, 16733), (155, 16760),

Gene: Lizzo\_36 Start: 40602, Stop: 41048, Start Num: 40

Candidate Starts for Lizzo\_36:

(Start: 40 @40602 has 52 MA's), (Start: 60 @40662 has 3 MA's), (65, 40677), (93, 40779), (101, 40827), (104, 40836), (110, 40857), (115, 40875), (120, 40887), (125, 40896), (127, 40902), (128, 40905), (139, 40944), (144, 40977), (152, 41001), (153, 41004),

Gene: LonelyBoi\_24 Start: 21255, Stop: 21728, Start Num: 43

Candidate Starts for LonelyBoi\_24:

(Start: 43 @21255 has 9 MA's), (62, 21315), (63, 21321), (69, 21336), (80, 21378), (98, 21465), (100, 21471), (106, 21489), (107, 21495), (115, 21522), (126, 21543), (149, 21636), (158, 21666),

Gene: LordFarquaad\_21 Start: 18545, Stop: 18967, Start Num: 49

Candidate Starts for LordFarquaad\_21:

(Start: 49 @18545 has 23 MA's), (72, 18620), (95, 18731), (96, 18734), (99, 18743), (131, 18833),

Gene: Luker\_38 Start: 42461, Stop: 42913, Start Num: 40

Candidate Starts for Luker\_38:

(Start: 40 @42461 has 52 MA's), (59, 42515), (Start: 60 @42524 has 3 MA's), (78, 42587), (93, 42641), (97, 42674), (104, 42698), (120, 42749), (125, 42758), (128, 42767), (131, 42776), (144, 42842), (147, 42848),

Gene: Madi\_31 Start: 27530, Stop: 27973, Start Num: 43

Candidate Starts for Madi\_31:

(25, 27476), (Start: 43 @27530 has 9 MA's), (75, 27632), (99, 27752), (125, 27824), (136, 27860), (154, 27935),

Gene: MakoManhole\_17 Start: 14779, Stop: 15273, Start Num: 35

Candidate Starts for MakoManhole\_17:

(12, 14548), (14, 14611), (17, 14689), (Start: 35 @14779 has 17 MA's), (65, 14851), (69, 14863), (77, 14896), (87, 14953), (95, 15013), (124, 15094), (128, 15106), (132, 15121), (133, 15124), (141, 15157), (165, 15235), (169, 15262),

Gene: Mao1\_13 Start: 12376, Stop: 12858, Start Num: 29

Candidate Starts for Mao1\_13:

(11, 12118), (12, 12157), (16, 12271), (Start: 29 @12376 has 4 MA's), (67, 12454), (74, 12481), (92, 12556), (93, 12559), (96, 12589), (131, 12688), (132, 12694), (133, 12697), (155, 12784), (161, 12799), (170, 12847),

Gene: Mareelih\_111 Start: 69035, Stop: 69532, Start Num: 42

Candidate Starts for Mareelih\_111:

(Start: 38 @69023 has 42 MA's), (Start: 42 @69035 has 5 MA's), (69, 69122), (71, 69128), (74, 69143), (78, 69158), (102, 69272), (148, 69428), (152, 69443), (167, 69500),

Gene: Mariokart\_15 Start: 13238, Stop: 13711, Start Num: 37

Candidate Starts for Mariokart\_15:

(12, 12992), (14, 13055), (17, 13133), (Start: 37 @13238 has 10 MA's), (69, 13322), (91, 13427), (98, 13469), (124, 13541), (128, 13553), (132, 13568), (133, 13571), (139, 13592), (143, 13616), (152, 13649), (165, 13682),

Gene: Marley1013\_18 Start: 15787, Stop: 16248, Start Num: 38

Candidate Starts for Marley1013\_18:

(1, 15175), (5, 15370), (8, 15409), (12, 15523), (14, 15586), (17, 15664), (Start: 38 @15787 has 42 MA's), (Start: 45 @15802 has 4 MA's), (55, 15823), (83, 15931), (96, 16000), (115, 16060), (117, 16066), (131, 16099), (132, 16105), (137, 16120), (142, 16144), (161, 16210),

Gene: Mask\_14 Start: 12377, Stop: 12859, Start Num: 29

Candidate Starts for Mask\_14:

(11, 12119), (12, 12158), (16, 12272), (Start: 29 @12377 has 4 MA's), (67, 12455), (74, 12482), (92, 12557), (93, 12560), (96, 12590), (131, 12689), (132, 12695), (133, 12698), (155, 12785), (161, 12800), (170, 12848),

Gene: MasterPo\_18 Start: 16136, Stop: 16678, Start Num: 19

Candidate Starts for MasterPo\_18:

(Start: 19 @16136 has 30 MA's), (22, 16169), (33, 16229), (Start: 35 @16232 has 17 MA's), (69, 16316), (93, 16415), (95, 16442), (100, 16457), (105, 16475), (116, 16508), (123, 16520), (131, 16544), (132, 16550), (138, 16571), (139, 16574), (146, 16610), (147, 16613), (155, 16640),

Gene: Megabear\_12 Start: 13847, Stop: 14464, Start Num: 20

Candidate Starts for Megabear\_12:

(Start: 20 @13847 has 3 MA's), (23, 13880), (Start: 35 @13943 has 17 MA's), (55, 13979), (72, 14039), (93, 14126), (96, 14156), (115, 14216), (117, 14222), (119, 14225), (131, 14255), (132, 14261), (143, 14309), (146, 14321), (168, 14402), (172, 14420), (173, 14429),

Gene: Minos\_38 Start: 41984, Stop: 42436, Start Num: 40

Candidate Starts for Minos\_38:

(Start: 40 @41984 has 52 MA's), (59, 42038), (Start: 60 @42047 has 3 MA's), (78, 42110), (93, 42164), (97, 42197), (104, 42221), (120, 42272), (125, 42281), (128, 42290), (131, 42299), (144, 42365), (147, 42371),

Gene: MmasiCarm\_18 Start: 15000, Stop: 15461, Start Num: 38

Candidate Starts for MmasiCarm\_18:

(12, 14736), (14, 14799), (17, 14877), (Start: 38 @15000 has 42 MA's), (Start: 45 @15015 has 4 MA's), (55, 15036), (83, 15144), (96, 15213), (115, 15273), (117, 15279), (131, 15312), (132, 15318), (137, 15333), (142, 15357), (161, 15423),

Gene: Mocha12\_21 Start: 18552, Stop: 18974, Start Num: 49

Candidate Starts for Mocha12\_21:

(Start: 49 @18552 has 23 MA's), (72, 18627), (95, 18738), (96, 18741), (99, 18750), (131, 18840),

Gene: Monty\_35 Start: 39752, Stop: 40198, Start Num: 40

Candidate Starts for Monty\_35:

(Start: 40 @39752 has 52 MA's), (Start: 60 @39812 has 3 MA's), (65, 39827), (93, 39929), (101, 39977), (104, 39986), (110, 40007), (115, 40025), (120, 40037), (125, 40046), (127, 40052), (128, 40055), (139, 40094), (144, 40127), (152, 40151), (153, 40154),

Gene: Mortcellus\_17 Start: 15641, Stop: 16102, Start Num: 38

Candidate Starts for Mortcellus\_17:

(1, 15029), (5, 15224), (8, 15263), (12, 15377), (14, 15440), (17, 15518), (Start: 38 @15641 has 42 MA's), (Start: 45 @15656 has 4 MA's), (55, 15677), (83, 15785), (96, 15854), (115, 15914), (117, 15920), (131, 15953), (132, 15959), (137, 15974), (142, 15998), (161, 16064),

Gene: Morty007\_18 Start: 15787, Stop: 16248, Start Num: 38

Candidate Starts for Morty007\_18:

(1, 15175), (5, 15370), (8, 15409), (12, 15523), (14, 15586), (17, 15664), (Start: 38 @15787 has 42 MA's), (Start: 45 @15802 has 4 MA's), (55, 15823), (83, 15931), (96, 16000), (115, 16060), (117, 16066), (131, 16099), (132, 16105), (137, 16120), (142, 16144), (161, 16210),

Gene: MossRose\_17 Start: 14758, Stop: 15252, Start Num: 35

Candidate Starts for MossRose\_17:

(12, 14527), (14, 14590), (17, 14668), (Start: 35 @14758 has 17 MA's), (65, 14830), (69, 14842), (77, 14875), (87, 14932), (95, 14992), (124, 15073), (128, 15085), (132, 15100), (133, 15103), (141, 15136), (165, 15214), (169, 15241),

Gene: MrWormie\_37 Start: 41145, Stop: 41597, Start Num: 40

Candidate Starts for MrWormie\_37:

(Start: 40 @41145 has 52 MA's), (59, 41199), (Start: 60 @41208 has 3 MA's), (78, 41271), (93, 41325), (97, 41358), (104, 41382), (120, 41433), (125, 41442), (128, 41451), (131, 41460), (144, 41526), (147, 41532),

Gene: Msay19\_41 Start: 42008, Stop: 42394, Start Num: 60

Candidate Starts for Msay19\_41:

(Start: 40 @41948 has 52 MA's), (Start: 60 @42008 has 3 MA's), (65, 42023), (93, 42125), (101, 42173), (104, 42182), (110, 42203), (115, 42221), (120, 42233), (125, 42242), (128, 42251), (139, 42290), (144, 42323), (152, 42347), (153, 42350),

Gene: NHagos\_15 Start: 13225, Stop: 13731, Start Num: 35

Candidate Starts for NHagos\_15:

(12, 12994), (17, 13135), (Start: 35 @13225 has 17 MA's), (Start: 37 @13228 has 10 MA's), (69, 13315), (77, 13348), (95, 13471), (128, 13564), (132, 13579), (133, 13582), (136, 13591), (151, 13654), (165, 13693),

Gene: Neoevie\_37 Start: 42247, Stop: 42699, Start Num: 40

Candidate Starts for Neoevie\_37:

(Start: 40 @42247 has 52 MA's), (59, 42301), (Start: 60 @42310 has 3 MA's), (78, 42373), (93, 42427), (97, 42460), (104, 42484), (120, 42535), (125, 42544), (128, 42553), (131, 42562), (144, 42628), (147, 42634),

Gene: Neos5\_18 Start: 15810, Stop: 16256, Start Num: 45

Candidate Starts for Neos5\_18:

(10, 15462), (Start: 45 @15810 has 4 MA's), (55, 15831), (83, 15939), (96, 16008), (115, 16068), (117, 16074), (131, 16107), (132, 16113), (137, 16128), (142, 16152), (161, 16218),

Gene: Newt\_38 Start: 42475, Stop: 42927, Start Num: 40

Candidate Starts for Newt\_38:

(Start: 40 @42475 has 52 MA's), (59, 42529), (Start: 60 @42538 has 3 MA's), (78, 42601), (93, 42655), (97, 42688), (104, 42712), (120, 42763), (125, 42772), (128, 42781), (131, 42790), (144, 42856), (147, 42862),

Gene: Niagara\_35 Start: 41379, Stop: 41831, Start Num: 50

Candidate Starts for Niagara\_35:

(27, 41325), (Start: 50 @41379 has 9 MA's), (77, 41484), (103, 41601), (107, 41613), (114, 41637), (133, 41685), (144, 41733), (158, 41760), (162, 41769),

Gene: Nimi13\_37 Start: 41993, Stop: 42445, Start Num: 40

Candidate Starts for Nimi13\_37:

(Start: 40 @41993 has 52 MA's), (59, 42047), (Start: 60 @42056 has 3 MA's), (78, 42119), (93, 42173), (97, 42206), (104, 42230), (120, 42281), (125, 42290), (128, 42299), (131, 42308), (144, 42374), (147, 42380),

Gene: Nozo\_18 Start: 15765, Stop: 16226, Start Num: 38

Candidate Starts for Nozo\_18:

(12, 15504), (14, 15567), (17, 15645), (Start: 38 @15765 has 42 MA's), (Start: 45 @15780 has 4 MA's), (55, 15801), (83, 15909), (96, 15978), (115, 16038), (117, 16044), (131, 16077), (132, 16083), (137, 16098), (142, 16122), (161, 16188),

Gene: Obutu\_18 Start: 14998, Stop: 15459, Start Num: 38

Candidate Starts for Obutu\_18:

(12, 14734), (14, 14797), (17, 14875), (Start: 38 @14998 has 42 MA's), (Start: 45 @15013 has 4 MA's), (55, 15034), (83, 15142), (96, 15211), (115, 15271), (117, 15277), (131, 15310), (132, 15316), (137, 15331), (142, 15355), (161, 15421),

Gene: Opia\_18 Start: 16136, Stop: 16678, Start Num: 19

Candidate Starts for Opia\_18:

(Start: 19 @16136 has 30 MA's), (22, 16169), (Start: 35 @16232 has 17 MA's), (69, 16316), (93, 16415), (95, 16442), (100, 16457), (105, 16475), (116, 16508), (123, 16520), (131, 16544), (132, 16550), (138, 16571), (139, 16574), (146, 16610), (147, 16613), (155, 16640),

Gene: OrangeOswald\_18 Start: 15003, Stop: 15464, Start Num: 38

Candidate Starts for OrangeOswald\_18:

(12, 14739), (14, 14802), (17, 14880), (Start: 38 @15003 has 42 MA's), (Start: 45 @15018 has 4 MA's), (55, 15039), (83, 15147), (96, 15216), (115, 15276), (117, 15282), (131, 15315), (132, 15321), (137, 15336), (142, 15360), (161, 15426),

Gene: PR\_12 Start: 13970, Stop: 14491, Start Num: 35

Candidate Starts for PR\_12:

(Start: 20 @13874 has 3 MA's), (23, 13907), (Start: 35 @13970 has 17 MA's), (55, 14006), (72, 14066), (93, 14153), (96, 14183), (115, 14243), (117, 14249), (119, 14252), (131, 14282), (132, 14288), (143, 14336), (146, 14348), (172, 14447), (173, 14456),

Gene: Phaedrus\_17 Start: 14921, Stop: 15382, Start Num: 38

Candidate Starts for Phaedrus\_17:

(12, 14657), (14, 14720), (17, 14798), (Start: 38 @14921 has 42 MA's), (Start: 45 @14936 has 4 MA's), (55, 14957), (83, 15065), (96, 15134), (115, 15194), (117, 15200), (131, 15233), (132, 15239), (137, 15254), (142, 15278), (161, 15344),

Gene: Phantasmagoria\_18 Start: 16136, Stop: 16678, Start Num: 19

Candidate Starts for Phantasmagoria\_18:

(Start: 19 @16136 has 30 MA's), (22, 16169), (Start: 35 @16232 has 17 MA's), (69, 16316), (93, 16415), (95, 16442), (100, 16457), (101, 16463), (105, 16475), (116, 16508), (123, 16520), (131, 16544), (132, 16550), (138, 16571), (139, 16574), (146, 16610), (147, 16613), (155, 16640),

Gene: Phayeta\_18 Start: 14879, Stop: 15340, Start Num: 38

Candidate Starts for Phayeta\_18:

(1, 14267), (2, 14306), (5, 14462), (8, 14501), (12, 14615), (14, 14678), (17, 14756), (Start: 38 @14879 has 42 MA's), (Start: 45 @14894 has 4 MA's), (55, 14915), (83, 15023), (96, 15092), (115, 15152), (117, 15158), (131, 15191), (132, 15197), (137, 15212), (142, 15236), (161, 15302),

Gene: Phendrix\_95 Start: 60482, Stop: 60919, Start Num: 52

Candidate Starts for Phendrix\_95:

(Start: 52 @60482 has 2 MA's), (72, 60557), (102, 60692), (127, 60758), (130, 60767), (155, 60851),

Gene: Philly\_17 Start: 14869, Stop: 15330, Start Num: 38

Candidate Starts for Philly\_17:

(12, 14605), (14, 14668), (17, 14746), (Start: 38 @14869 has 42 MA's), (Start: 45 @14884 has 4 MA's), (55, 14905), (83, 15013), (96, 15082), (115, 15142), (117, 15148), (131, 15181), (132, 15187), (142, 15226),

Gene: Philon9\_37 Start: 42589, Stop: 43029, Start Num: 50

Candidate Starts for Philon9\_37:

(27, 42535), (Start: 50 @42589 has 9 MA's), (70, 42661), (77, 42691), (102, 42805), (103, 42808), (107, 42820), (114, 42844), (122, 42859), (136, 42901), (144, 42940), (157, 42961),

Gene: Phlyer\_18 Start: 15753, Stop: 16199, Start Num: 45

Candidate Starts for Phlyer\_18:

(Start: 45 @15753 has 4 MA's), (55, 15774), (83, 15882), (96, 15951), (115, 16011), (117, 16017), (131, 16050), (132, 16056), (137, 16071), (142, 16095), (161, 16161),



Gene: PierreThree\_36 Start: 40713, Stop: 41159, Start Num: 40

Candidate Starts for PierreThree\_36:

(Start: 40 @40713 has 52 MA's), (Start: 46 @40725 has 2 MA's), (59, 40764), (Start: 60 @40773 has 3 MA's), (93, 40890), (101, 40938), (115, 40986), (120, 40998), (125, 41007), (139, 41055), (144, 41088), (152, 41112), (153, 41115),

Gene: Pipefish\_18 Start: 15887, Stop: 16348, Start Num: 38

Candidate Starts for Pipefish\_18:

(1, 15275), (3, 15329), (5, 15470), (12, 15623), (14, 15686), (17, 15764), (Start: 38 @15887 has 42 MA's), (55, 15923), (83, 16031), (96, 16100), (115, 16160), (117, 16166), (131, 16199), (132, 16205), (137, 16220), (142, 16244), (161, 16310),

Gene: PokyPuppy\_35 Start: 40656, Stop: 41102, Start Num: 40

Candidate Starts for PokyPuppy\_35:

(Start: 40 @40656 has 52 MA's), (96, 40863), (99, 40872), (110, 40911), (115, 40929), (120, 40941), (125, 40950), (139, 40998), (144, 41031), (152, 41055), (153, 41058),

Gene: Poland\_41 Start: 41927, Stop: 42373, Start Num: 40

Candidate Starts for Poland\_41:

(Start: 40 @41927 has 52 MA's), (Start: 60 @41987 has 3 MA's), (65, 42002), (93, 42104), (101, 42152), (104, 42161), (110, 42182), (115, 42200), (120, 42212), (125, 42221), (128, 42230), (139, 42269), (144, 42302), (152, 42326), (153, 42329),

Gene: Pupper\_83 Start: 32143, Stop: 32601, Start Num: 41

Candidate Starts for Pupper\_83:

(Start: 41 @32143 has 5 MA's), (81, 32275), (83, 32290), (93, 32338), (98, 32374), (103, 32392), (114, 32428), (115, 32431), (127, 32458), (150, 32545),

Gene: Quesadilla\_18 Start: 16370, Stop: 16834, Start Num: 32

Candidate Starts for Quesadilla\_18:

(7, 15986), (Start: 32 @16370 has 2 MA's), (Start: 34 @16376 has 1 MA's), (59, 16427), (67, 16457), (77, 16496), (82, 16517), (97, 16595), (101, 16610), (115, 16652), (116, 16655), (131, 16691), (132, 16697), (134, 16703), (146, 16760), (150, 16772), (152, 16781), (161, 16805),

Gene: Qyrzula\_17 Start: 16226, Stop: 16768, Start Num: 19

Candidate Starts for Qyrzula\_17:

(Start: 19 @16226 has 30 MA's), (22, 16259), (33, 16319), (Start: 35 @16322 has 17 MA's), (69, 16406), (93, 16505), (95, 16532), (100, 16547), (101, 16553), (105, 16565), (116, 16598), (123, 16610), (131, 16634), (132, 16640), (138, 16661), (139, 16664), (146, 16700), (147, 16703), (155, 16730),

Gene: RagingRooster\_18 Start: 15004, Stop: 15465, Start Num: 38

Candidate Starts for RagingRooster\_18:

(12, 14740), (14, 14803), (17, 14881), (Start: 38 @15004 has 42 MA's), (Start: 45 @15019 has 4 MA's), (55, 15040), (83, 15148), (96, 15217), (115, 15277), (117, 15283), (131, 15316), (132, 15322), (137, 15337), (142, 15361), (161, 15427),

Gene: RavenCo17\_21 Start: 19444, Stop: 19869, Start Num: 49

Candidate Starts for RavenCo17\_21:

(Start: 49 @19444 has 23 MA's), (64, 19495), (72, 19522), (94, 19612), (95, 19633), (96, 19636), (114, 19693), (131, 19735), (142, 19780),

Gene: RemRem\_37 Start: 39742, Stop: 40188, Start Num: 40

Candidate Starts for RemRem\_37:

(Start: 40 @39742 has 52 MA's), (Start: 60 @39802 has 3 MA's), (65, 39817), (93, 39919), (101, 39967), (104, 39976), (110, 39997), (115, 40015), (120, 40027), (125, 40036), (127, 40042), (128, 40045), (139, 40084), (144, 40117), (152, 40141), (153, 40144),

Gene: Rhinoforte\_18 Start: 16253, Stop: 16795, Start Num: 19

Candidate Starts for Rhinoforte\_18:

(Start: 19 @16253 has 30 MA's), (22, 16286), (Start: 35 @16349 has 17 MA's), (69, 16433), (93, 16532), (95, 16559), (100, 16574), (105, 16592), (116, 16625), (123, 16637), (131, 16661), (132, 16667), (138, 16688), (139, 16691), (146, 16727), (147, 16730), (155, 16757),

Gene: Rita1961\_18 Start: 14999, Stop: 15460, Start Num: 38

Candidate Starts for Rita1961\_18:

(12, 14735), (14, 14798), (17, 14876), (Start: 38 @14999 has 42 MA's), (Start: 45 @15014 has 4 MA's), (55, 15035), (83, 15143), (96, 15212), (115, 15272), (117, 15278), (131, 15311), (132, 15317), (137, 15332), (142, 15356), (161, 15422),

Gene: RomaT\_18 Start: 15800, Stop: 16246, Start Num: 45

Candidate Starts for RomaT\_18:

(Start: 45 @15800 has 4 MA's), (55, 15821), (83, 15929), (96, 15998), (115, 16058), (117, 16064), (131, 16097), (132, 16103), (137, 16118), (142, 16142), (161, 16208),

Gene: Rosebush\_18 Start: 16253, Stop: 16795, Start Num: 19

Candidate Starts for Rosebush\_18:

(Start: 19 @16253 has 30 MA's), (22, 16286), (Start: 35 @16349 has 17 MA's), (69, 16433), (93, 16532), (95, 16559), (100, 16574), (105, 16592), (116, 16625), (123, 16637), (131, 16661), (132, 16667), (138, 16688), (139, 16691), (146, 16727), (147, 16730), (155, 16757),

Gene: RoyalG\_37 Start: 40209, Stop: 40655, Start Num: 40

Candidate Starts for RoyalG\_37:

(Start: 40 @40209 has 52 MA's), (72, 40308), (90, 40380), (101, 40434), (104, 40443), (110, 40464), (115, 40482), (120, 40494), (125, 40503), (144, 40584), (152, 40608), (153, 40611),

Gene: SCentae\_81 Start: 31817, Stop: 32275, Start Num: 41

Candidate Starts for SCentae\_81:

(Start: 41 @31817 has 5 MA's), (93, 32012), (98, 32048), (103, 32066), (127, 32132), (150, 32219),

Gene: Sabella\_18 Start: 16139, Stop: 16681, Start Num: 19

Candidate Starts for Sabella\_18:

(Start: 19 @16139 has 30 MA's), (22, 16172), (Start: 35 @16235 has 17 MA's), (69, 16319), (93, 16418), (95, 16445), (100, 16460), (105, 16478), (116, 16511), (123, 16523), (131, 16547), (132, 16553), (138, 16574), (139, 16577), (146, 16613), (147, 16616), (155, 16643),

Gene: Sahara\_20 Start: 18224, Stop: 18646, Start Num: 49

Candidate Starts for Sahara\_20:

(Start: 49 @18224 has 23 MA's), (72, 18299), (95, 18410), (96, 18413), (99, 18422), (131, 18512),

Gene: Sam12\_36 Start: 39742, Stop: 40188, Start Num: 40

Candidate Starts for Sam12\_36:

(Start: 40 @39742 has 52 MA's), (Start: 60 @39802 has 3 MA's), (65, 39817), (93, 39919), (101, 39967), (104, 39976), (110, 39997), (115, 40015), (120, 40027), (125, 40036), (127, 40042), (128, 40045), (139, 40084), (144, 40117), (152, 40141), (153, 40144),

Gene: Savage\_21 Start: 18552, Stop: 18974, Start Num: 49

Candidate Starts for Savage\_21:

(Start: 49 @18552 has 23 MA's), (72, 18627), (95, 18738), (96, 18741), (99, 18750), (131, 18840),

Gene: Sejanus\_14 Start: 13310, Stop: 13792, Start Num: 29

Candidate Starts for Sejanus\_14:

(11, 13052), (12, 13091), (16, 13205), (Start: 29 @13310 has 4 MA's), (67, 13388), (74, 13415), (92, 13490), (93, 13493), (96, 13523), (131, 13622), (132, 13628), (133, 13631), (155, 13718), (161, 13733),

Gene: Shatter\_15 Start: 13329, Stop: 13802, Start Num: 37

Candidate Starts for Shatter\_15:

(12, 13077), (14, 13140), (17, 13218), (Start: 37 @13329 has 10 MA's), (69, 13413), (89, 13503), (91, 13518), (98, 13560), (127, 13641), (128, 13644), (132, 13659), (133, 13662), (151, 13734),

Gene: Shelley\_37 Start: 41469, Stop: 41921, Start Num: 40

Candidate Starts for Shelley\_37:

(Start: 40 @41469 has 52 MA's), (59, 41523), (Start: 60 @41532 has 3 MA's), (78, 41595), (93, 41649), (97, 41682), (104, 41706), (120, 41757), (125, 41766), (128, 41775), (131, 41784), (144, 41850), (147, 41856),

Gene: Sidious\_23 Start: 20906, Stop: 21379, Start Num: 43

Candidate Starts for Sidious\_23:

(Start: 43 @20906 has 9 MA's), (62, 20966), (63, 20972), (69, 20987), (80, 21029), (84, 21050), (98, 21116), (106, 21140), (107, 21146), (126, 21194), (133, 21218), (158, 21317),

Gene: Sienna\_31 Start: 27530, Stop: 27973, Start Num: 43

Candidate Starts for Sienna\_31:

(25, 27476), (Start: 43 @27530 has 9 MA's), (75, 27632), (99, 27752), (125, 27824), (136, 27860), (154, 27935),

Gene: Sisko\_15 Start: 13672, Stop: 14145, Start Num: 37

Candidate Starts for Sisko\_15:

(9, 13342), (12, 13417), (14, 13480), (17, 13558), (Start: 37 @13672 has 10 MA's), (69, 13756), (89, 13846), (91, 13861), (100, 13909), (117, 13963), (132, 14002), (150, 14074), (169, 14134),

Gene: Sixama\_111 Start: 69070, Stop: 69564, Start Num: 42

Candidate Starts for Sixama\_111:

(Start: 42 @69070 has 5 MA's), (69, 69157), (71, 69163), (78, 69193), (102, 69307), (114, 69352), (116, 69361), (133, 69406), (152, 69478), (163, 69508), (167, 69535),

Gene: Skog\_146 Start: 61230, Stop: 61688, Start Num: 41

Candidate Starts for Skog\_146:

(39, 61227), (Start: 41 @61230 has 5 MA's), (72, 61329), (81, 61362), (93, 61425), (98, 61461), (103, 61479), (113, 61512), (130, 61554), (147, 61623), (152, 61641), (153, 61644), (155, 61650), (161, 61665),

Gene: SlippinJimmy\_18 Start: 15768, Stop: 16229, Start Num: 38

Candidate Starts for SlippinJimmy\_18:

(12, 15504), (14, 15567), (17, 15645), (Start: 38 @15768 has 42 MA's), (Start: 45 @15783 has 4 MA's), (55, 15804), (83, 15912), (96, 15981), (115, 16041), (117, 16047), (131, 16080), (132, 16086), (137, 16101), (142, 16125), (161, 16191),

Gene: SoilAssassin\_21 Start: 18545, Stop: 18967, Start Num: 49  
Candidate Starts for SoilAssassin\_21:  
(Start: 49 @18545 has 23 MA's), (72, 18620), (95, 18731), (96, 18734), (99, 18743), (131, 18833),

Gene: Sombrero\_36 Start: 39744, Stop: 40190, Start Num: 40  
Candidate Starts for Sombrero\_36:  
(Start: 40 @39744 has 52 MA's), (Start: 60 @39804 has 3 MA's), (65, 39819), (93, 39921), (101, 39969), (104, 39978), (110, 39999), (115, 40017), (120, 40029), (125, 40038), (128, 40047), (139, 40086), (144, 40119), (152, 40143), (153, 40146),

Gene: Sour\_18 Start: 15094, Stop: 15573, Start Num: 35  
Candidate Starts for Sour\_18:  
(12, 14854), (14, 14917), (17, 14995), (Start: 35 @15094 has 17 MA's), (Start: 37 @15097 has 10 MA's), (51, 15127), (69, 15184), (91, 15289), (103, 15349), (105, 15355), (113, 15379), (128, 15415), (132, 15430), (151, 15505), (171, 15568),

Gene: Sproutie\_21 Start: 18552, Stop: 18974, Start Num: 49  
Candidate Starts for Sproutie\_21:  
(Start: 49 @18552 has 23 MA's), (72, 18627), (95, 18738), (96, 18741), (99, 18750), (131, 18840),

Gene: Squibbles\_35 Start: 40605, Stop: 41051, Start Num: 40  
Candidate Starts for Squibbles\_35:  
(Start: 40 @40605 has 52 MA's), (Start: 60 @40665 has 3 MA's), (65, 40680), (93, 40782), (101, 40830), (104, 40839), (110, 40860), (115, 40878), (120, 40890), (125, 40899), (127, 40905), (128, 40908), (139, 40947), (144, 40980), (152, 41004), (153, 41007),

Gene: SteveFrench\_36 Start: 40449, Stop: 40895, Start Num: 40  
Candidate Starts for SteveFrench\_36:  
(Start: 40 @40449 has 52 MA's), (72, 40548), (90, 40620), (101, 40674), (104, 40683), (110, 40704), (115, 40722), (120, 40734), (125, 40743), (144, 40824), (152, 40848), (153, 40851),

Gene: Sticker17\_37 Start: 41984, Stop: 42436, Start Num: 40  
Candidate Starts for Sticker17\_37:  
(Start: 40 @41984 has 52 MA's), (59, 42038), (Start: 60 @42047 has 3 MA's), (78, 42110), (93, 42164), (97, 42197), (104, 42221), (120, 42272), (125, 42281), (128, 42290), (131, 42299), (144, 42365), (147, 42371),

Gene: Suzy\_31 Start: 28673, Stop: 29122, Start Num: 47  
Candidate Starts for Suzy\_31:  
(Start: 47 @28673 has 1 MA's), (125, 28955), (136, 28991), (154, 29066), (160, 29084),

Gene: SynergyX\_18 Start: 15004, Stop: 15465, Start Num: 38  
Candidate Starts for SynergyX\_18:  
(12, 14740), (14, 14803), (17, 14881), (Start: 38 @15004 has 42 MA's), (Start: 45 @15019 has 4 MA's), (55, 15040), (83, 15148), (96, 15217), (115, 15277), (117, 15283), (131, 15316), (132, 15322), (137, 15337), (142, 15361), (161, 15427),

Gene: TA17A\_18 Start: 16136, Stop: 16678, Start Num: 19  
Candidate Starts for TA17A\_18:  
(Start: 19 @16136 has 30 MA's), (22, 16169), (33, 16229), (Start: 35 @16232 has 17 MA's), (69, 16316), (93, 16415), (95, 16442), (100, 16457), (105, 16475), (116, 16508), (123, 16520), (131, 16544), (132, 16550), (138, 16571), (139, 16574), (146, 16610), (147, 16613), (155, 16640),

Gene: Taptic\_12 Start: 13847, Stop: 14464, Start Num: 20

Candidate Starts for Taptic\_12:

(Start: 20 @13847 has 3 MA's), (23, 13880), (Start: 35 @13943 has 17 MA's), (55, 13979), (72, 14039), (93, 14126), (96, 14156), (115, 14216), (117, 14222), (119, 14225), (131, 14255), (132, 14261), (143, 14309), (146, 14321), (168, 14402), (172, 14420), (173, 14429),

Gene: Teal\_37 Start: 42452, Stop: 42904, Start Num: 40

Candidate Starts for Teal\_37:

(Start: 40 @42452 has 52 MA's), (59, 42506), (Start: 60 @42515 has 3 MA's), (78, 42578), (93, 42632), (97, 42665), (104, 42689), (120, 42740), (125, 42749), (128, 42758), (131, 42767), (144, 42833), (147, 42839),

Gene: Teatealatte\_35 Start: 41324, Stop: 41776, Start Num: 50

Candidate Starts for Teatealatte\_35:

(27, 41270), (Start: 50 @41324 has 9 MA's), (77, 41429), (103, 41546), (107, 41558), (114, 41582), (133, 41630), (144, 41678), (158, 41705), (162, 41714),

Gene: Teech\_35 Start: 41125, Stop: 41577, Start Num: 50

Candidate Starts for Teech\_35:

(27, 41071), (Start: 50 @41125 has 9 MA's), (77, 41230), (103, 41347), (107, 41359), (114, 41383), (133, 41431), (144, 41479), (158, 41506), (162, 41515),

Gene: Terapin\_32 Start: 27531, Stop: 27977, Start Num: 43

Candidate Starts for Terapin\_32:

(Start: 43 @27531 has 9 MA's), (125, 27825), (136, 27861), (154, 27936),

Gene: Tinciduntolum\_19 Start: 16255, Stop: 16797, Start Num: 19

Candidate Starts for Tinciduntolum\_19:

(Start: 19 @16255 has 30 MA's), (22, 16288), (Start: 35 @16351 has 17 MA's), (69, 16435), (93, 16534), (95, 16561), (100, 16576), (105, 16594), (116, 16627), (123, 16639), (131, 16663), (132, 16669), (138, 16690), (139, 16693), (146, 16729), (147, 16732), (155, 16759),

Gene: Tredge\_35 Start: 41324, Stop: 41776, Start Num: 50

Candidate Starts for Tredge\_35:

(27, 41270), (Start: 50 @41324 has 9 MA's), (77, 41429), (103, 41546), (107, 41558), (114, 41582), (133, 41630), (144, 41678), (158, 41705), (162, 41714),

Gene: Tres\_18 Start: 16136, Stop: 16678, Start Num: 19

Candidate Starts for Tres\_18:

(Start: 19 @16136 has 30 MA's), (22, 16169), (Start: 35 @16232 has 17 MA's), (69, 16316), (93, 16415), (95, 16442), (100, 16457), (105, 16475), (116, 16508), (123, 16520), (131, 16544), (132, 16550), (138, 16571), (139, 16574), (146, 16610), (147, 16613), (155, 16640),

Gene: TuertoX\_21 Start: 18552, Stop: 18974, Start Num: 49

Candidate Starts for TuertoX\_21:

(Start: 49 @18552 has 23 MA's), (72, 18627), (95, 18738), (96, 18741), (99, 18750), (131, 18840),

Gene: Tydolla\_18 Start: 15741, Stop: 16202, Start Num: 38

Candidate Starts for Tydolla\_18:

(12, 15477), (14, 15540), (17, 15618), (Start: 38 @15741 has 42 MA's), (Start: 45 @15756 has 4 MA's), (55, 15777), (83, 15885), (96, 15954), (115, 16014), (117, 16020), (131, 16053), (132, 16059), (137, 16074), (142, 16098), (161, 16164),

Gene: Vasanti\_20 Start: 18106, Stop: 18528, Start Num: 49

Candidate Starts for Vasanti\_20:

(Start: 49 @18106 has 23 MA's), (72, 18181), (96, 18295), (99, 18304), (127, 18382), (131, 18394),

Gene: Vic9\_19 Start: 16576, Stop: 17118, Start Num: 19

Candidate Starts for Vic9\_19:

(Start: 19 @16576 has 30 MA's), (22, 16609), (33, 16669), (Start: 35 @16672 has 17 MA's), (69, 16756), (93, 16855), (95, 16882), (100, 16897), (101, 16903), (105, 16915), (116, 16948), (123, 16960), (131, 16984), (132, 16990), (138, 17011), (139, 17014), (146, 17050), (147, 17053), (155, 17080),

Gene: West99\_18 Start: 16256, Stop: 16798, Start Num: 19

Candidate Starts for West99\_18:

(Start: 19 @16256 has 30 MA's), (22, 16289), (Start: 35 @16352 has 17 MA's), (69, 16436), (93, 16535), (95, 16562), (100, 16577), (105, 16595), (116, 16628), (123, 16640), (131, 16664), (132, 16670), (138, 16691), (139, 16694), (146, 16730), (147, 16733), (155, 16760),

Gene: Whiteclaw\_21 Start: 18552, Stop: 18974, Start Num: 49

Candidate Starts for Whiteclaw\_21:

(Start: 49 @18552 has 23 MA's), (72, 18627), (95, 18738), (96, 18741), (99, 18750), (131, 18840),

Gene: Wocket\_24 Start: 20570, Stop: 21052, Start Num: 41

Candidate Starts for Wocket\_24:

(Start: 41 @20570 has 5 MA's), (56, 20609), (63, 20642), (69, 20657), (97, 20786), (103, 20807), (107, 20819), (113, 20840), (126, 20867),

Gene: Woes\_37 Start: 42503, Stop: 42955, Start Num: 40

Candidate Starts for Woes\_37:

(Start: 40 @42503 has 52 MA's), (59, 42557), (Start: 60 @42566 has 3 MA's), (78, 42629), (93, 42683), (97, 42716), (104, 42740), (120, 42791), (125, 42800), (128, 42809), (131, 42818), (144, 42884), (147, 42890),

Gene: Wooper\_17 Start: 14767, Stop: 15261, Start Num: 35

Candidate Starts for Wooper\_17:

(12, 14536), (14, 14599), (17, 14677), (Start: 35 @14767 has 17 MA's), (65, 14839), (69, 14851), (77, 14884), (87, 14941), (95, 15001), (128, 15094), (132, 15109), (133, 15112), (141, 15145), (165, 15223), (169, 15250),

Gene: Xenia2\_31 Start: 30001, Stop: 30453, Start Num: 46

Candidate Starts for Xenia2\_31:

(Start: 46 @30001 has 2 MA's), (53, 30016), (77, 30106), (78, 30109), (81, 30118), (89, 30154), (96, 30208), (98, 30214), (120, 30280), (136, 30325), (146, 30373), (147, 30376), (151, 30388), (159, 30415),

Gene: Yago84\_15 Start: 13681, Stop: 14154, Start Num: 37

Candidate Starts for Yago84\_15:

(9, 13351), (12, 13426), (14, 13489), (17, 13567), (Start: 37 @13681 has 10 MA's), (69, 13765), (89, 13855), (91, 13870), (100, 13918), (117, 13972), (132, 14011), (150, 14083), (169, 14143),

Gene: Yahalom\_18 Start: 15015, Stop: 15476, Start Num: 38

Candidate Starts for Yahalom\_18:

(1, 14403), (2, 14442), (5, 14598), (8, 14637), (12, 14751), (14, 14814), (17, 14892), (Start: 38 @15015 has 42 MA's), (Start: 45 @15030 has 4 MA's), (55, 15051), (83, 15159), (96, 15228), (115, 15288), (117, 15294), (131, 15327), (132, 15333), (137, 15348), (142, 15372), (161, 15438),

Gene: Yeet412\_21 Start: 18545, Stop: 18967, Start Num: 49

Candidate Starts for Yeet412\_21:

(Start: 49 @18545 has 23 MA's), (72, 18620), (95, 18731), (96, 18734), (99, 18743), (131, 18833),

Gene: Yinz\_18 Start: 15042, Stop: 15503, Start Num: 38

Candidate Starts for Yinz\_18:

(12, 14778), (14, 14841), (17, 14919), (Start: 38 @15042 has 42 MA's), (Start: 45 @15057 has 4 MA's), (55, 15078), (83, 15186), (95, 15252), (96, 15255), (115, 15315), (117, 15321), (131, 15354), (132, 15360), (142, 15399), (161, 15465),

Gene: Zenteno07\_20 Start: 14497, Stop: 14952, Start Num: 35

Candidate Starts for Zenteno07\_20:

(Start: 35 @14497 has 17 MA's), (59, 14545), (69, 14581), (101, 14728), (116, 14773), (131, 14809), (132, 14815), (134, 14821), (139, 14839), (151, 14893), (152, 14899), (161, 14923),