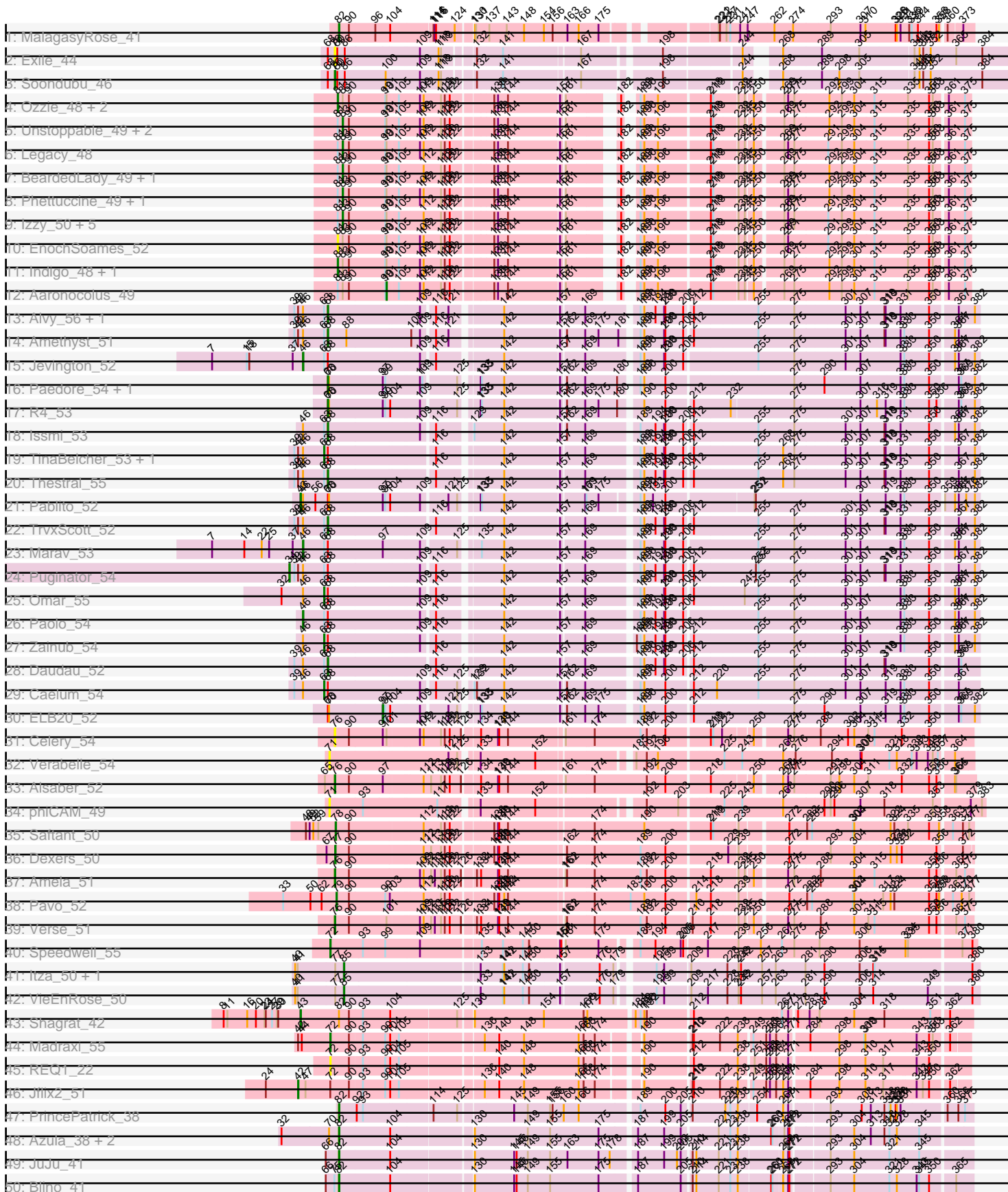
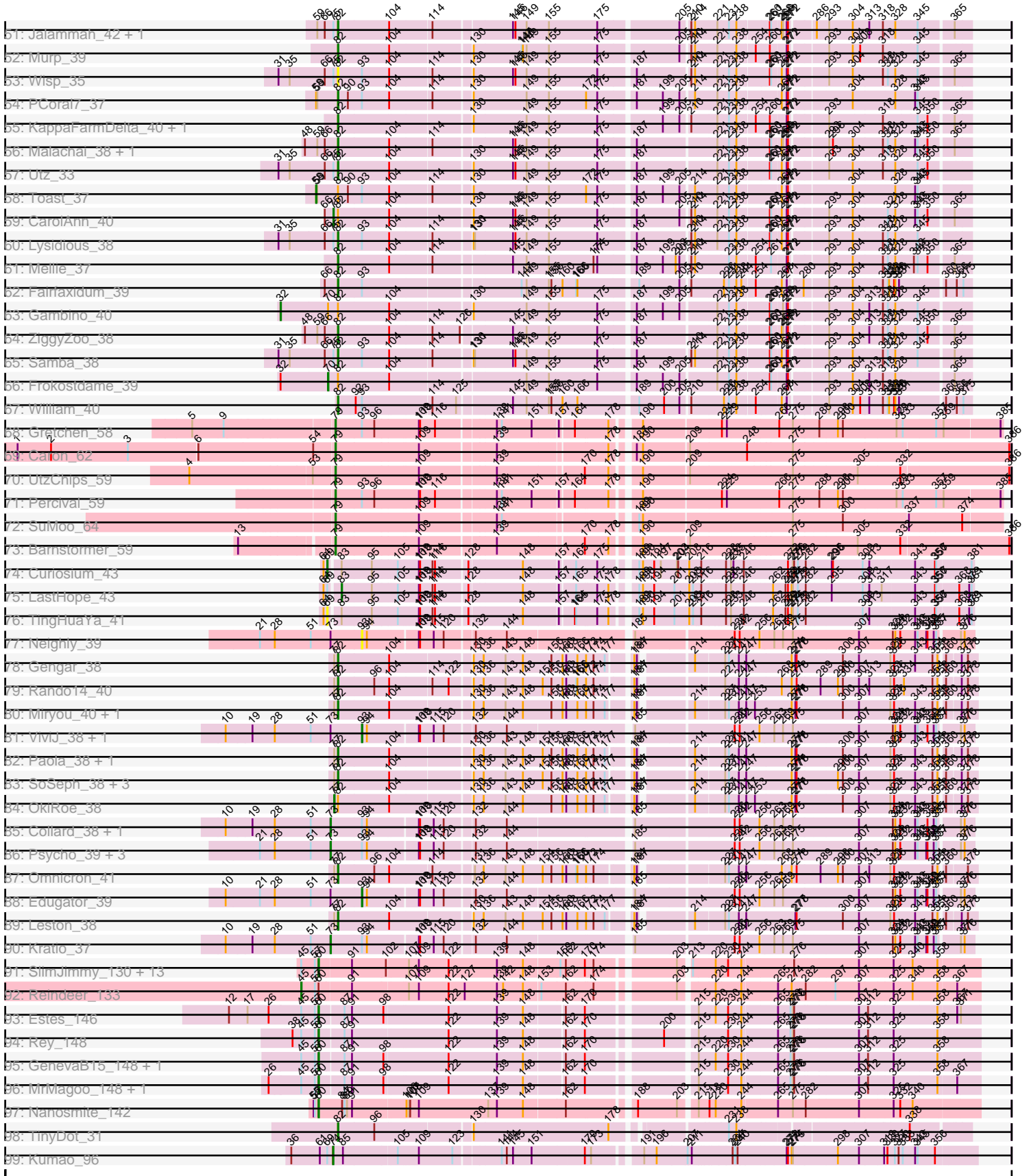


Pham 202744



Pham 202744



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 202744 Report

This analysis was run 01/18/25 on database version 583.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 202744 has 145 members, 12 are drafts.

Phages represented in each track:

- Track 1 : MalagasyRose\_41
- Track 2 : Exile\_44
- Track 3 : Soondubu\_46
- Track 4 : Ozzie\_48, Hydra\_50, Bovely\_49
- Track 5 : Unstoppable\_49, Esperer\_49, Nerdos\_48
- Track 6 : Legacy\_48
- Track 7 : BeardedLady\_49, Caliburn\_48
- Track 8 : Phettuccine\_49, SunsetPointe\_48
- Track 9 : Izzy\_50, Jash\_50, BryanRecycles\_50, Eddasa\_50, Oliynyk\_50, Rusticus\_50
- Track 10 : EnochSoames\_52
- Track 11 : Indigo\_48, Leviticus\_49
- Track 12 : Aaronocolus\_49
- Track 13 : Alvy\_56, BartholomewSD\_56
- Track 14 : Amethyst\_51
- Track 15 : Jevington\_52
- Track 16 : Paedore\_54, Loofah\_55
- Track 17 : R4\_53
- Track 18 : Issmi\_53
- Track 19 : TinaBelcher\_53, Bowden\_53
- Track 20 : Thestral\_55
- Track 21 : Pablito\_52
- Track 22 : TrvxScott\_52
- Track 23 : Marav\_53
- Track 24 : Puginator\_54
- Track 25 : Omar\_55
- Track 26 : Paolo\_54
- Track 27 : Zainub\_54
- Track 28 : Daudau\_52
- Track 29 : Caelum\_54
- Track 30 : ELB20\_52
- Track 31 : Celery\_54
- Track 32 : Verabelle\_54

- Track 33 : Alsaber\_52
- Track 34 : phiCAM\_49
- Track 35 : Saftant\_50
- Track 36 : Dexers\_50
- Track 37 : Amela\_51
- Track 38 : Pavo\_52
- Track 39 : Verse\_51
- Track 40 : Speedwell\_55
- Track 41 : Itza\_50, Urza\_50
- Track 42 : VieEnRose\_50
- Track 43 : Shagrat\_42
- Track 44 : Madraxi\_55
- Track 45 : REQ1\_22
- Track 46 : Jflix2\_51
- Track 47 : PrincePatrick\_38
- Track 48 : Azula\_38, MissRona\_38, Blueberry\_37
- Track 49 : JuJu\_41
- Track 50 : Blino\_41
- Track 51 : Jalammah\_42, Fenry\_37
- Track 52 : Murp\_39
- Track 53 : Wisp\_35
- Track 54 : PCoral7\_37
- Track 55 : KappaFarmDelta\_40, Wocket\_39
- Track 56 : Malachai\_38, Begonia\_38
- Track 57 : Utz\_33
- Track 58 : Toast\_37
- Track 59 : CarolAnn\_40
- Track 60 : Lysidious\_38
- Track 61 : Mellie\_37
- Track 62 : Fairfaxidum\_39
- Track 63 : Gambino\_40
- Track 64 : ZiggyZoo\_38
- Track 65 : Samba\_38
- Track 66 : Frokostdame\_39
- Track 67 : William\_40
- Track 68 : Gretchen\_58
- Track 69 : Caron\_62
- Track 70 : UtzChips\_59
- Track 71 : Percival\_59
- Track 72 : SuMoo\_64
- Track 73 : Barnstormer\_59
- Track 74 : Curiosium\_43
- Track 75 : LastHope\_43
- Track 76 : TingHuaYa\_41
- Track 77 : Neighly\_39
- Track 78 : Gengar\_38
- Track 79 : Rando14\_40
- Track 80 : Miryou\_40, Feyre\_38
- Track 81 : ViviJ\_38, InvictusManeo\_38
- Track 82 : Paola\_38, Guillsminger\_39
- Track 83 : SoSeph\_38, Waterfoul\_39, Heftyboy\_38, Thyatira\_40
- Track 84 : OkiRoe\_38
- Track 85 : Collard\_38, Agent47\_39

- Track 86 : Psycho\_39, Dadosky\_39, Larva\_39, AlleyCat\_39
- Track 87 : Omnicron\_41
- Track 88 : Edugator\_39
- Track 89 : Leston\_38
- Track 90 : Kratio\_37
- Track 91 : SlimJimmy\_130, Auspice\_131, Bongo\_130, Glaske16\_133, LilhomieP\_131, Bricole\_133, PegLeg\_134, Diminimus\_131, FreakyGoo\_129, Izel\_129, Skinny\_137, TyDawg\_126, IPhone7\_129, Dulcita\_131
- Track 92 : Reindeer\_133
- Track 93 : Estes\_146
- Track 94 : Rey\_148
- Track 95 : GenevaB15\_148, Aziz\_145
- Track 96 : MrMagoo\_148, GardenSalsa\_146
- Track 97 : Nanosmite\_142
- Track 98 : TinyDot\_31
- Track 99 : Kumao\_96

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

The start number called the most often in the published annotations is 82, it was called in 35 of the 133 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Azula\_38, Begonia\_38, Blino\_41, Blueberry\_37, Fairfaxidum\_39, Fenry\_37, Feyre\_38, Gengar\_38, Guillsminger\_39, Heftyboy\_38, Jalammah\_42, JuJu\_41, KappaFarmDelta\_40, Leston\_38, Lysidious\_38, Malachai\_38, MalagasyRose\_41, Mellie\_37, Miryou\_40, MissRona\_38, Murp\_39, Omnicron\_41, PCoral7\_37, Paola\_38, PrincePatrick\_38, Rando14\_40, Samba\_38, SoSeph\_38, Thyatira\_40, TinyDot\_31, Utz\_33, Waterfoul\_39, William\_40, Wisp\_35, Wocket\_39, ZiggyZoo\_38,

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

- CarolAnn\_40, Frokostdame\_39, Gambino\_40, OkiRoe\_38, Shagrat\_42, Toast\_37,

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

- Aaronocolus\_49, Agent47\_39, AlleyCat\_39, Alsaber\_52, Alvy\_56, Amela\_51, Amethyst\_51, Auspice\_131, Aziz\_145, Barnstormer\_59, BartholomewSD\_56, BeardedLady\_49, Bongo\_130, Bovely\_49, Bowden\_53, Bricole\_133, BryanRecycles\_50, Caelum\_54, Caliburn\_48, Caron\_62, Celery\_54, Collard\_38, Curiosium\_43, Dadosky\_39, Daudau\_52, Dexers\_50, Diminimus\_131, Dulcita\_131, ELB20\_52, Eddasa\_50, Edugator\_39, EnochSoames\_52, Esperer\_49, Estes\_146, Exile\_44, FreakyGoo\_129, GardenSalsa\_146, GenevaB15\_148, Glaske16\_133, Gretchen\_58, Hydra\_50, IPhone7\_129, Indigo\_48, InvictusManeo\_38, Issmi\_53, Itza\_50, Izel\_129, Izzy\_50, Jash\_50, Jevington\_52, Jflix2\_51, Kratio\_37, Kumao\_96, Larva\_39, LastHope\_43, Legacy\_48, Leviticus\_49, LilhomieP\_131, Loofah\_55, Madraxi\_55, Marav\_53, MrMagoo\_148, Nanosmite\_142, Neighly\_39, Nerdos\_48, Oliynyk\_50, Omar\_55, Ozzie\_48, Pablito\_52, Paedore\_54, Paolo\_54, Pavo\_52, PegLeg\_134, Percival\_59, Phettuccine\_49, Psycho\_39, Puginator\_54, R4\_53, REQ1\_22, Reindeer\_133, Rey\_148, Rusticus\_50, Saftant\_50, Skinny\_137, SlimJimmy\_130, Soondubu\_46, Speedwell\_55, SuMoo\_64, SunsetPointe\_48, Thestral\_55, TinaBelcher\_53, TingHuaYa\_41, TrvxScott\_52, TyDawg\_126,

Unstoppable\_49, Urza\_50, UtzChips\_59, Verabelle\_54, Verse\_51, VieEnRose\_50, ViviJ\_38, Zainub\_54, phiCAM\_49,

### Summary by start number:

#### Start 32:

- Found in 6 of 145 ( 4.1% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Gambino\_40 (CV),

#### Start 34:

- Found in 1 of 145 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Puginator\_54 (BD2),

#### Start 42:

- Found in 10 of 145 ( 6.9% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Jflix2\_51 (CF),

#### Start 43:

- Found in 2 of 145 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 2 of 133
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pablito\_52 (BD2), Shagrat\_42 (CF),

#### Start 45:

- Found in 21 of 145 ( 14.5% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 4.8% of time when present
- Phage (with cluster) where this start called: Reindeer\_133 (M1),

#### Start 46:

- Found in 17 of 145 ( 11.7% ) of genes in pham
- Manual Annotations of this start: 3 of 133
- Called 17.6% of time when present
- Phage (with cluster) where this start called: Jevington\_52 (BD2), Marav\_53 (BD2), Paolo\_54 (BD2),

#### Start 58:

- Found in 2 of 145 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Toast\_37 (CV),

#### Start 60:

- Found in 22 of 145 ( 15.2% ) of genes in pham
- Manual Annotations of this start: 19 of 133
- Called 95.5% of time when present

- Phage (with cluster) where this start called: Auspice\_131 (M1), Aziz\_145 (M2), Bongo\_130 (M1), Bricole\_133 (M1), Diminimus\_131 (M1), Dulcita\_131 (M1), Estes\_146 (M2), FreakyGoo\_129 (M1), GardenSalsa\_146 (M2), GenevaB15\_148 (M2), Glaske16\_133 (M1), IPhane7\_129 (M1), Izel\_129 (M1), LilhomieP\_131 (M1), MrMagoo\_148 (M2), Nanosmite\_142 (M3), PegLeg\_134 (M1), Rey\_148 (M2), Skinny\_137 (M1), SlimJimmy\_130 (M1), TyDawg\_126 (M1),

#### Start 63:

- Found in 16 of 145 ( 11.0% ) of genes in pham
- Manual Annotations of this start: 5 of 133
- Called 31.2% of time when present
- Phage (with cluster) where this start called: Bowden\_53 (BD2), Caelum\_54 (BD2), Omar\_55 (BD2), TinaBelcher\_53 (BD2), Zainub\_54 (BD2),

#### Start 68:

- Found in 23 of 145 ( 15.9% ) of genes in pham
- Manual Annotations of this start: 10 of 133
- Called 43.5% of time when present
- Phage (with cluster) where this start called: Alvy\_56 (BD2), Amethyst\_51 (BD2), BartholomewSD\_56 (BD2), Daudau\_52 (BD2), Issmi\_53 (BD2), Loofah\_55 (BD2), Paedore\_54 (BD2), R4\_53 (BD2), Thestral\_55 (BD2), TrvxScott\_52 (BD2),

#### Start 69:

- Found in 4 of 145 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Curiosium\_43 (K1), TingHuaYa\_41 (K1),

#### Start 70:

- Found in 10 of 145 ( 6.9% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Frokostdame\_39 (CV),

#### Start 71:

- Found in 2 of 145 ( 1.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Verabelle\_54 (BD3), phiCAM\_49 (BD3),

#### Start 72:

- Found in 4 of 145 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 2 of 133
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Madraxi\_55 (CF), REQ1\_22 (CF), Speedwell\_55 (BD3),

#### Start 73:

- Found in 11 of 145 ( 7.6% ) of genes in pham
- Manual Annotations of this start: 7 of 133
- Called 63.6% of time when present
- Phage (with cluster) where this start called: Agent47\_39 (K5), AlleyCat\_39 (K5), Collard\_38 (K5), Dadosky\_39 (K5), Kratio\_37 (K5), Larva\_39 (K5), Psycho\_39 (K5),

Start 74:

- Found in 1 of 145 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kumao\_96 (singleton),

Start 75:

- Found in 8 of 145 ( 5.5% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 12.5% of time when present
- Phage (with cluster) where this start called: CarolAnn\_40 (CV),

Start 76:

- Found in 6 of 145 ( 4.1% ) of genes in pham
- Manual Annotations of this start: 4 of 133
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alsaber\_52 (BD3), Amela\_51 (BD3), Celery\_54 (BD3), Exile\_44 (AZ), Soondubu\_46 (AZ), Verse\_51 (BD3),

Start 77:

- Found in 17 of 145 ( 11.7% ) of genes in pham
- Manual Annotations of this start: 2 of 133
- Called 11.8% of time when present
- Phage (with cluster) where this start called: Dexers\_50 (BD3), OkiRoe\_38 (K5),

Start 78:

- Found in 1 of 145 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Saftant\_50 (BD3),

Start 79:

- Found in 7 of 145 ( 4.8% ) of genes in pham
- Manual Annotations of this start: 7 of 133
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Barnstormer\_59 (EH), Caron\_62 (EH), Gretchen\_58 (EH), Pavo\_52 (BD3), Percival\_59 (EH), SuMoo\_64 (EH), UtzChips\_59 (EH),

Start 81:

- Found in 21 of 145 ( 14.5% ) of genes in pham
- Manual Annotations of this start: 5 of 133
- Called 28.6% of time when present
- Phage (with cluster) where this start called: Bovely\_49 (BD1), EnochSoames\_52 (BD1), Hydra\_50 (BD1), Indigo\_48 (BD1), Leviticus\_49 (BD1), Ozzie\_48 (BD1),

Start 82:

- Found in 42 of 145 ( 29.0% ) of genes in pham
- Manual Annotations of this start: 35 of 133
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Azula\_38 (CV), Begonia\_38 (CV), Blino\_41 (CV), Blueberry\_37 (CV), Fairfaxidum\_39 (CV), Fenry\_37 (CV), Feyre\_38



(K5), Gengar\_38 (K5), Guillsminger\_39 (K5), Heftyboy\_38 (K5), Jalammah\_42 (CV), JuJu\_41 (CV), KappaFarmDelta\_40 (CV), Leston\_38 (K5), Lysidious\_38 (CV), Malachai\_38 (CV), MalagasyRose\_41 (AG), Mellie\_37 (CV), Miryou\_40 (K5), MissRona\_38 (CV), Murp\_39 (CV), Omnicron\_41 (K5), PCoral7\_37 (CV), Paola\_38 (K5), PrincePatrick\_38 (CV), Rando14\_40 (K5), Samba\_38 (CV), SoSeph\_38 (K5), Thyatira\_40 (K5), TinyDot\_31 (singleton), Utz\_33 (CV), Waterfoul\_39 (K5), William\_40 (CV), Wisp\_35 (CV), Wocket\_39 (CV), ZiggyZoo\_38 (CV),

Start 83:

- Found in 24 of 145 ( 16.6% ) of genes in pham
- Manual Annotations of this start: 15 of 133
- Called 62.5% of time when present
- Phage (with cluster) where this start called: BeardedLady\_49 (BD1), BryanRecycles\_50 (BD1), Caliburn\_48 (BD1), Eddasa\_50 (BD1), Esperer\_49 (BD1), Izzy\_50 (BD1), Jash\_50 (BD1), LastHope\_43 (K1), Legacy\_48 (BD1), Nerdos\_48 (BD1), Oliynyk\_50 (BD1), Phettuccine\_49 (BD1), Rusticus\_50 (BD1), SunsetPointe\_48 (BD1), Unstoppable\_49 (BD1),

Start 85:

- Found in 4 of 145 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 3 of 133
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Itza\_50 (BD6), Urza\_50 (BD6), VieEnRose\_50 (BD6),

Start 93:

- Found in 27 of 145 ( 18.6% ) of genes in pham
- Manual Annotations of this start: 2 of 133
- Called 14.8% of time when present
- Phage (with cluster) where this start called: Edugator\_39 (K5), InvictusManeo\_38 (K5), Neighly\_39 (K3), ViviJ\_38 (K5),

Start 97:

- Found in 8 of 145 ( 5.5% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 12.5% of time when present
- Phage (with cluster) where this start called: ELB20\_52 (BD2),

Start 101:

- Found in 23 of 145 ( 15.9% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 4.3% of time when present
- Phage (with cluster) where this start called: Aaronocolus\_49 (BD1),

### Summary by clusters:

There are 16 clusters represented in this pham: singleton, K5, AG, M2, CF, K3, K1, BD6, BD1, BD3, BD2, M1, AZ, CV, M3, EH,

Info for manual annotations of cluster AG:

- Start number 82 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster AZ:

- Start number 76 was manually annotated 1 time for cluster AZ.

Info for manual annotations of cluster BD1:

- Start number 81 was manually annotated 5 times for cluster BD1.
- Start number 83 was manually annotated 14 times for cluster BD1.
- Start number 101 was manually annotated 1 time for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 34 was manually annotated 1 time for cluster BD2.
- Start number 43 was manually annotated 1 time for cluster BD2.
- Start number 46 was manually annotated 3 times for cluster BD2.
- Start number 63 was manually annotated 5 times for cluster BD2.
- Start number 68 was manually annotated 10 times for cluster BD2.
- Start number 97 was manually annotated 1 time for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 72 was manually annotated 1 time for cluster BD3.
- Start number 76 was manually annotated 3 times for cluster BD3.
- Start number 77 was manually annotated 1 time for cluster BD3.
- Start number 78 was manually annotated 1 time for cluster BD3.
- Start number 79 was manually annotated 1 time for cluster BD3.

Info for manual annotations of cluster BD6:

- Start number 85 was manually annotated 3 times for cluster BD6.

Info for manual annotations of cluster CF:

- Start number 42 was manually annotated 1 time for cluster CF.
- Start number 43 was manually annotated 1 time for cluster CF.
- Start number 72 was manually annotated 1 time for cluster CF.

Info for manual annotations of cluster CV:

- Start number 32 was manually annotated 1 time for cluster CV.
- Start number 58 was manually annotated 1 time for cluster CV.
- Start number 70 was manually annotated 1 time for cluster CV.
- Start number 75 was manually annotated 1 time for cluster CV.
- Start number 82 was manually annotated 21 times for cluster CV.

Info for manual annotations of cluster EH:

- Start number 79 was manually annotated 6 times for cluster EH.

Info for manual annotations of cluster K1:

- Start number 69 was manually annotated 1 time for cluster K1.
- Start number 83 was manually annotated 1 time for cluster K1.

Info for manual annotations of cluster K5:

- Start number 73 was manually annotated 7 times for cluster K5.
- Start number 77 was manually annotated 1 time for cluster K5.
- Start number 82 was manually annotated 12 times for cluster K5.
- Start number 93 was manually annotated 2 times for cluster K5.

Info for manual annotations of cluster M1:

- Start number 45 was manually annotated 1 time for cluster M1.

- Start number 60 was manually annotated 12 times for cluster M1.

Info for manual annotations of cluster M2:

- Start number 60 was manually annotated 6 times for cluster M2.

Info for manual annotations of cluster M3:

- Start number 60 was manually annotated 1 time for cluster M3.

### **Gene Information:**

Gene: Aaronocolus\_49 Start: 34181, Stop: 35398, Start Num: 101

Candidate Starts for Aaronocolus\_49:

(Start: 81 @34064 has 5 MA's), (Start: 83 @34076 has 15 MA's), (90, 34091), (99, 34178), (Start: 101 @34181 has 1 MA's), (105, 34205), (109, 34247), (112, 34256), (119, 34298), (120, 34307), (122, 34319), (138, 34409), (139, 34418), (144, 34442), (157, 34562), (161, 34568), (182, 34658), (189, 34673), (190, 34682), (196, 34715), (218, 34826), (219, 34832), (239, 34880), (245, 34895), (250, 34910), (269, 34970), (275, 34994), (292, 35075), (299, 35105), (304, 35135), (315, 35183), (335, 35261), (350, 35309), (353, 35318), (361, 35345), (375, 35384),

Gene: Agent47\_39 Start: 31420, Stop: 32865, Start Num: 73

Candidate Starts for Agent47\_39:

(10, 31168), (19, 31231), (28, 31285), (51, 31372), (Start: 73 @31420 has 7 MA's), (Start: 93 @31495 has 2 MA's), (94, 31507), (109, 31618), (110, 31621), (115, 31654), (120, 31678), (132, 31741), (144, 31816), (185, 32092), (236, 32314), (242, 32326), (256, 32374), (263, 32404), (269, 32425), (275, 32449), (307, 32602), (324, 32683), (328, 32689), (332, 32701), (343, 32737), (345, 32743), (350, 32764), (355, 32779), (357, 32785), (371, 32833), (376, 32842),

Gene: AlleyCat\_39 Start: 31272, Stop: 32717, Start Num: 73

Candidate Starts for AlleyCat\_39:

(21, 31101), (28, 31137), (51, 31224), (Start: 73 @31272 has 7 MA's), (Start: 93 @31347 has 2 MA's), (94, 31359), (109, 31470), (110, 31473), (115, 31506), (120, 31530), (132, 31593), (144, 31668), (185, 31944), (236, 32166), (242, 32178), (256, 32226), (263, 32256), (269, 32277), (275, 32301), (307, 32454), (324, 32535), (328, 32541), (332, 32553), (343, 32589), (345, 32595), (349, 32613), (350, 32616), (355, 32631), (357, 32637), (371, 32685), (376, 32694),

Gene: Alsaber\_52 Start: 36706, Stop: 38124, Start Num: 76

Candidate Starts for Alsaber\_52:

(65, 36682), (Start: 76 @36706 has 4 MA's), (90, 36736), (Start: 97 @36817 has 1 MA's), (112, 36901), (113, 36919), (119, 36943), (120, 36952), (122, 36964), (126, 36991), (134, 37024), (139, 37063), (140, 37066), (144, 37087), (161, 37213), (174, 37276), (192, 37402), (200, 37447), (218, 37540), (250, 37624), (268, 37681), (271, 37693), (275, 37708), (293, 37792), (298, 37813), (304, 37849), (311, 37882), (332, 37960), (350, 38023), (356, 38041), (364, 38074), (365, 38077),

Gene: Alvy\_56 Start: 38642, Stop: 40063, Start Num: 68

Candidate Starts for Alvy\_56:

(39, 38561), (Start: 42 @38570 has 1 MA's), (Start: 46 @38582 has 3 MA's), (Start: 63 @38633 has 5 MA's), (Start: 68 @38642 has 10 MA's), (109, 38852), (116, 38879), (121, 38909), (142, 39017), (157, 39146), (169, 39194), (189, 39305), (190, 39314), (194, 39341), (199, 39362), (200, 39365), (206, 39404), (212, 39419), (255, 39563), (275, 39647), (301, 39764), (307, 39800), (318, 39854), (319, 39857), (331, 39890), (350, 39956), (367, 40013), (382, 40052),

Gene: Amela\_51 Start: 37563, Stop: 38975, Start Num: 76

Candidate Starts for Amela\_51:

(Start: 76 @37563 has 4 MA's), (90, 37593), (109, 37749), (112, 37758), (113, 37776), (115, 37785), (119, 37800), (120, 37809), (122, 37821), (126, 37848), (132, 37872), (134, 37881), (139, 37920), (140, 37923), (144, 37944), (161, 38070), (162, 38073), (174, 38133), (189, 38244), (192, 38259), (200, 38304), (218, 38397), (239, 38451), (245, 38466), (250, 38481), (271, 38550), (275, 38565), (288, 38628), (304, 38706), (315, 38754), (350, 38880), (356, 38898), (365, 38934), (375, 38955),

Gene: Amethyst\_51 Start: 36872, Stop: 38293, Start Num: 68

Candidate Starts for Amethyst\_51:

(39, 36791), (Start: 42 @36800 has 1 MA's), (Start: 46 @36812 has 3 MA's), (Start: 63 @36863 has 5 MA's), (Start: 68 @36872 has 10 MA's), (88, 36917), (108, 37061), (109, 37082), (116, 37109), (121, 37139), (142, 37247), (157, 37376), (162, 37385), (169, 37424), (175, 37454), (181, 37502), (189, 37535), (190, 37544), (199, 37592), (200, 37595), (206, 37634), (212, 37649), (255, 37793), (275, 37877), (301, 37994), (307, 38030), (318, 38084), (319, 38087), (331, 38120), (333, 38129), (350, 38186), (364, 38234), (367, 38243),

Gene: Auspice\_131 Start: 69640, Stop: 68180, Start Num: 60

Candidate Starts for Auspice\_131:

(Start: 45 @69682 has 1 MA's), (57, 69649), (Start: 60 @69640 has 19 MA's), (91, 69568), (102, 69487), (107, 69445), (109, 69421), (122, 69349), (139, 69232), (148, 69169), (159, 69085), (162, 69073), (170, 69031), (174, 69013), (203, 68851), (213, 68830), (220, 68779), (230, 68752), (244, 68725), (276, 68605), (307, 68455), (325, 68377), (340, 68332), (358, 68275),

Gene: Aziz\_145 Start: 70550, Stop: 69096, Start Num: 60

Candidate Starts for Aziz\_145:

(Start: 45 @70592 has 1 MA's), (57, 70559), (Start: 60 @70550 has 19 MA's), (87, 70496), (91, 70478), (98, 70403), (122, 70259), (139, 70142), (148, 70079), (162, 69989), (170, 69947), (215, 69734), (220, 69695), (230, 69668), (244, 69641), (265, 69560), (273, 69530), (275, 69524), (276, 69521), (307, 69371), (312, 69350), (325, 69293), (358, 69191),

Gene: Azula\_38 Start: 30375, Stop: 31766, Start Num: 82

Candidate Starts for Azula\_38:

(Start: 32 @30240 has 1 MA's), (Start: 70 @30354 has 1 MA's), (Start: 82 @30375 has 35 MA's), (104, 30495), (130, 30672), (149, 30798), (155, 30852), (175, 30969), (187, 31047), (199, 31110), (205, 31146), (221, 31224), (231, 31251), (238, 31266), (260, 31332), (261, 31335), (269, 31359), (271, 31368), (272, 31371), (293, 31449), (304, 31506), (313, 31542), (318, 31575), (321, 31584), (328, 31602), (345, 31653),

Gene: Barnstormer\_59 Start: 38306, Stop: 39811, Start Num: 79

Candidate Starts for Barnstormer\_59:

(13, 38096), (Start: 79 @38306 has 7 MA's), (109, 38498), (139, 38669), (170, 38861), (178, 38915), (190, 38963), (209, 39065), (275, 39302), (305, 39452), (332, 39551), (386, 39806),

Gene: BartholomewSD\_56 Start: 37761, Stop: 39182, Start Num: 68

Candidate Starts for BartholomewSD\_56:

(39, 37680), (Start: 42 @37689 has 1 MA's), (Start: 46 @37701 has 3 MA's), (Start: 63 @37752 has 5 MA's), (Start: 68 @37761 has 10 MA's), (109, 37971), (116, 37998), (121, 38028), (142, 38136), (157, 38265), (169, 38313), (189, 38424), (190, 38433), (194, 38460), (199, 38481), (200, 38484), (206, 38523), (212, 38538), (255, 38682), (275, 38766), (301, 38883), (307, 38919), (318, 38973), (319, 38976), (331, 39009), (350, 39075), (367, 39132), (382, 39171),

Gene: BeardedLady\_49 Start: 34453, Stop: 35775, Start Num: 83

Candidate Starts for BeardedLady\_49:

(Start: 81 @34441 has 5 MA's), (Start: 83 @34453 has 15 MA's), (90, 34468), (99, 34555), (Start: 101 @34558 has 1 MA's), (105, 34582), (112, 34633), (119, 34675), (120, 34684), (122, 34696), (138, 34786), (139, 34795), (144, 34819), (157, 34939), (161, 34945), (182, 35035), (189, 35050), (190, 35059), (196, 35092), (218, 35203), (219, 35209), (239, 35257), (245, 35272), (250, 35287), (269, 35347), (275, 35371), (292, 35452), (299, 35482), (304, 35512), (315, 35560), (335, 35638), (350, 35686), (353, 35695), (361, 35722), (375, 35761),

Gene: Begonia\_38 Start: 31872, Stop: 33263, Start Num: 82

Candidate Starts for Begonia\_38:

(48, 31794), (59, 31824), (66, 31842), (Start: 82 @31872 has 35 MA's), (104, 31992), (114, 32085), (145, 32262), (146, 32268), (149, 32295), (155, 32349), (175, 32466), (187, 32544), (221, 32721), (231, 32748), (238, 32763), (260, 32829), (261, 32832), (268, 32853), (269, 32856), (271, 32865), (272, 32868), (293, 32946), (296, 32955), (304, 33003), (318, 33072), (321, 33081), (328, 33099), (343, 33144), (345, 33150), (350, 33171), (365, 33225),

Gene: Blino\_41 Start: 33377, Stop: 34768, Start Num: 82

Candidate Starts for Blino\_41:

(66, 33347), (Start: 75 @33368 has 1 MA's), (Start: 82 @33377 has 35 MA's), (104, 33497), (130, 33674), (145, 33767), (146, 33773), (149, 33800), (155, 33854), (175, 33971), (187, 34049), (205, 34148), (210, 34166), (214, 34175), (221, 34226), (231, 34253), (238, 34268), (260, 34334), (261, 34337), (268, 34358), (271, 34370), (272, 34373), (293, 34451), (304, 34508), (321, 34586), (328, 34604), (343, 34649), (345, 34655), (350, 34676), (365, 34730),

Gene: Blueberry\_37 Start: 30375, Stop: 31766, Start Num: 82

Candidate Starts for Blueberry\_37:

(Start: 32 @30240 has 1 MA's), (Start: 70 @30354 has 1 MA's), (Start: 82 @30375 has 35 MA's), (104, 30495), (130, 30672), (149, 30798), (155, 30852), (175, 30969), (187, 31047), (199, 31110), (205, 31146), (221, 31224), (231, 31251), (238, 31266), (260, 31332), (261, 31335), (269, 31359), (271, 31368), (272, 31371), (293, 31449), (304, 31506), (313, 31542), (318, 31575), (321, 31584), (328, 31602), (345, 31653),

Gene: Bongo\_130 Start: 69256, Stop: 67796, Start Num: 60

Candidate Starts for Bongo\_130:

(Start: 45 @69298 has 1 MA's), (57, 69265), (Start: 60 @69256 has 19 MA's), (91, 69184), (102, 69103), (107, 69061), (109, 69037), (122, 68965), (139, 68848), (148, 68785), (159, 68701), (162, 68689), (170, 68647), (174, 68629), (203, 68467), (213, 68446), (220, 68395), (230, 68368), (244, 68341), (276, 68221), (307, 68071), (325, 67993), (340, 67948), (358, 67891),

Gene: Bovely\_49 Start: 34070, Stop: 35404, Start Num: 81

Candidate Starts for Bovely\_49:

(Start: 81 @34070 has 5 MA's), (Start: 83 @34082 has 15 MA's), (90, 34097), (99, 34184), (Start: 101 @34187 has 1 MA's), (105, 34211), (109, 34253), (112, 34262), (119, 34304), (120, 34313), (122, 34325), (138, 34415), (139, 34424), (144, 34448), (157, 34568), (161, 34574), (182, 34664), (189, 34679), (190, 34688), (196, 34721), (218, 34832), (219, 34838), (239, 34886), (245, 34901), (250, 34916), (269, 34976), (271, 34985), (275, 35000), (292, 35081), (299, 35111), (304, 35141), (315, 35189), (335, 35267), (350, 35315), (353, 35324), (361, 35351), (375, 35390),

Gene: Bowden\_53 Start: 38547, Stop: 39977, Start Num: 63

Candidate Starts for Bowden\_53:

(39, 38475), (Start: 42 @38484 has 1 MA's), (Start: 46 @38496 has 3 MA's), (Start: 63 @38547 has 5 MA's), (Start: 68 @38556 has 10 MA's), (116, 38793), (142, 38931), (157, 39060), (169, 39108), (189, 39219), (190, 39228), (194, 39255), (199, 39276), (200, 39279), (206, 39318), (212, 39333), (255,

39477), (268, 39534), (275, 39561), (301, 39678), (307, 39714), (318, 39768), (319, 39771), (331, 39804), (350, 39870), (367, 39927), (382, 39966),

Gene: Bricole\_133 Start: 69404, Stop: 67944, Start Num: 60

Candidate Starts for Bricole\_133:

(Start: 45 @69446 has 1 MA's), (57, 69413), (Start: 60 @69404 has 19 MA's), (91, 69332), (102, 69251), (107, 69209), (109, 69185), (122, 69113), (139, 68996), (148, 68933), (159, 68849), (162, 68837), (170, 68795), (174, 68777), (203, 68615), (213, 68594), (220, 68543), (230, 68516), (244, 68489), (276, 68369), (307, 68219), (325, 68141), (340, 68096), (358, 68039),

Gene: BryanRecycles\_50 Start: 34372, Stop: 35694, Start Num: 83

Candidate Starts for BryanRecycles\_50:

(Start: 81 @34360 has 5 MA's), (Start: 83 @34372 has 15 MA's), (90, 34387), (99, 34474), (Start: 101 @34477 has 1 MA's), (105, 34501), (112, 34552), (119, 34594), (120, 34603), (122, 34615), (138, 34705), (139, 34714), (144, 34738), (157, 34858), (161, 34864), (182, 34954), (189, 34969), (190, 34978), (196, 35011), (218, 35122), (219, 35128), (239, 35176), (245, 35191), (250, 35206), (269, 35266), (271, 35275), (275, 35290), (291, 35368), (299, 35401), (304, 35431), (315, 35479), (335, 35557), (350, 35605), (353, 35614), (361, 35641), (375, 35680),

Gene: Caelum\_54 Start: 37075, Stop: 38505, Start Num: 63

Candidate Starts for Caelum\_54:

(39, 37003), (Start: 46 @37024 has 3 MA's), (Start: 63 @37075 has 5 MA's), (Start: 68 @37084 has 10 MA's), (109, 37294), (116, 37321), (125, 37372), (129, 37387), (132, 37393), (142, 37459), (157, 37588), (162, 37597), (169, 37636), (189, 37747), (190, 37756), (200, 37807), (212, 37861), (220, 37915), (255, 38005), (275, 38089), (301, 38206), (307, 38242), (319, 38299), (331, 38332), (333, 38341), (350, 38398), (367, 38455),

Gene: Caliburn\_48 Start: 34183, Stop: 35505, Start Num: 83

Candidate Starts for Caliburn\_48:

(Start: 81 @34171 has 5 MA's), (Start: 83 @34183 has 15 MA's), (90, 34198), (99, 34285), (Start: 101 @34288 has 1 MA's), (105, 34312), (112, 34363), (119, 34405), (120, 34414), (122, 34426), (138, 34516), (139, 34525), (144, 34549), (157, 34669), (161, 34675), (182, 34765), (189, 34780), (190, 34789), (196, 34822), (218, 34933), (219, 34939), (239, 34987), (245, 35002), (250, 35017), (269, 35077), (275, 35101), (292, 35182), (299, 35212), (304, 35242), (315, 35290), (335, 35368), (350, 35416), (353, 35425), (361, 35452), (375, 35491),

Gene: CarolAnn\_40 Start: 33367, Stop: 34767, Start Num: 75

Candidate Starts for CarolAnn\_40:

(66, 33346), (Start: 75 @33367 has 1 MA's), (Start: 82 @33376 has 35 MA's), (104, 33496), (130, 33673), (145, 33766), (146, 33772), (149, 33799), (155, 33853), (175, 33970), (187, 34048), (205, 34147), (210, 34165), (214, 34174), (221, 34225), (231, 34252), (238, 34267), (260, 34333), (261, 34336), (268, 34357), (271, 34369), (272, 34372), (293, 34450), (304, 34507), (321, 34585), (328, 34603), (343, 34648), (345, 34654), (350, 34675), (365, 34729),

Gene: Caron\_62 Start: 38824, Stop: 40329, Start Num: 79

Candidate Starts for Caron\_62:

(1, 38068), (2, 38149), (3, 38335), (6, 38500), (54, 38776), (Start: 79 @38824 has 7 MA's), (109, 39016), (139, 39187), (178, 39433), (187, 39466), (190, 39481), (209, 39583), (248, 39715), (275, 39820), (386, 40324),

Gene: Celery\_54 Start: 36669, Stop: 38081, Start Num: 76

Candidate Starts for Celery\_54:

(Start: 76 @36669 has 4 MA's), (90, 36699), (Start: 97 @36780 has 1 MA's), (Start: 101 @36789 has 1 MA's), (109, 36855), (112, 36864), (119, 36906), (120, 36915), (122, 36927), (126, 36954), (134, 36987), (139, 37026), (140, 37029), (144, 37050), (161, 37176), (174, 37239), (189, 37350), (192, 37365), (200, 37410), (218, 37503), (219, 37509), (223, 37530), (250, 37587), (271, 37656), (275, 37671), (288, 37734), (302, 37797), (304, 37812), (311, 37845), (315, 37860), (332, 37923), (350, 37986),

Gene: Collard\_38 Start: 31381, Stop: 32826, Start Num: 73

Candidate Starts for Collard\_38:

(10, 31129), (19, 31192), (28, 31246), (51, 31333), (Start: 73 @31381 has 7 MA's), (Start: 93 @31456 has 2 MA's), (94, 31468), (109, 31579), (110, 31582), (115, 31615), (120, 31639), (132, 31702), (144, 31777), (185, 32053), (236, 32275), (242, 32287), (256, 32335), (263, 32365), (269, 32386), (275, 32410), (307, 32563), (324, 32644), (328, 32650), (332, 32662), (343, 32698), (345, 32704), (350, 32725), (355, 32740), (357, 32746), (371, 32794), (376, 32803),

Gene: Curiosium\_43 Start: 31007, Stop: 32419, Start Num: 69

Candidate Starts for Curiosium\_43:

(64, 30998), (Start: 69 @31007 has 1 MA's), (Start: 83 @31028 has 15 MA's), (95, 31100), (105, 31157), (109, 31199), (110, 31202), (114, 31232), (116, 31238), (128, 31310), (148, 31433), (157, 31511), (165, 31541), (175, 31589), (189, 31658), (190, 31667), (194, 31694), (197, 31709), (203, 31748), (204, 31751), (208, 31778), (216, 31805), (228, 31859), (233, 31871), (235, 31877), (246, 31901), (272, 31994), (275, 32006), (276, 32009), (279, 32018), (282, 32036), (295, 32093), (296, 32096), (309, 32168), (313, 32183), (343, 32285), (356, 32330), (357, 32333), (381, 32414),

Gene: Dadosky\_39 Start: 31274, Stop: 32719, Start Num: 73

Candidate Starts for Dadosky\_39:

(21, 31103), (28, 31139), (51, 31226), (Start: 73 @31274 has 7 MA's), (Start: 93 @31349 has 2 MA's), (94, 31361), (109, 31472), (110, 31475), (115, 31508), (120, 31532), (132, 31595), (144, 31670), (185, 31946), (236, 32168), (242, 32180), (256, 32228), (263, 32258), (269, 32279), (275, 32303), (307, 32456), (324, 32537), (328, 32543), (332, 32555), (343, 32591), (345, 32597), (349, 32615), (350, 32618), (355, 32633), (357, 32639), (371, 32687), (376, 32696),

Gene: Daudau\_52 Start: 37034, Stop: 38455, Start Num: 68

Candidate Starts for Daudau\_52:

(39, 36953), (Start: 46 @36974 has 3 MA's), (Start: 63 @37025 has 5 MA's), (Start: 68 @37034 has 10 MA's), (116, 37271), (142, 37409), (157, 37538), (169, 37586), (189, 37697), (190, 37706), (194, 37733), (199, 37754), (200, 37757), (206, 37796), (212, 37811), (255, 37955), (275, 38039), (301, 38156), (307, 38192), (318, 38246), (319, 38249), (350, 38348), (367, 38405), (369, 38411),

Gene: Dexers\_50 Start: 36616, Stop: 38022, Start Num: 77

Candidate Starts for Dexers\_50:

(67, 36595), (Start: 77 @36616 has 2 MA's), (90, 36646), (112, 36811), (113, 36829), (119, 36853), (120, 36862), (122, 36874), (138, 36964), (139, 36973), (140, 36976), (144, 36997), (162, 37126), (174, 37186), (189, 37297), (200, 37357), (229, 37489), (239, 37504), (272, 37606), (293, 37702), (304, 37759), (322, 37843), (328, 37858), (332, 37870), (356, 37951), (372, 38002),

Gene: Diminimus\_131 Start: 69072, Stop: 67612, Start Num: 60

Candidate Starts for Diminimus\_131:

(Start: 45 @69114 has 1 MA's), (57, 69081), (Start: 60 @69072 has 19 MA's), (91, 69000), (102, 68919), (107, 68877), (109, 68853), (122, 68781), (139, 68664), (148, 68601), (159, 68517), (162, 68505), (170, 68463), (174, 68445), (203, 68283), (213, 68262), (220, 68211), (230, 68184), (244, 68157), (276, 68037), (307, 67887), (325, 67809), (340, 67764), (358, 67707),

Gene: Dulcita\_131 Start: 69073, Stop: 67613, Start Num: 60

Candidate Starts for Dulcita\_131:

(Start: 45 @69115 has 1 MA's), (57, 69082), (Start: 60 @69073 has 19 MA's), (91, 69001), (102, 68920), (107, 68878), (109, 68854), (122, 68782), (139, 68665), (148, 68602), (159, 68518), (162, 68506), (170, 68464), (174, 68446), (203, 68284), (213, 68263), (220, 68212), (230, 68185), (244, 68158), (276, 68038), (307, 67888), (325, 67810), (340, 67765), (358, 67708),

Gene: ELB20\_52 Start: 37707, Stop: 38996, Start Num: 97

Candidate Starts for ELB20\_52:

(Start: 68 @37578 has 10 MA's), (Start: 70 @37581 has 1 MA's), (Start: 97 @37707 has 1 MA's), (99, 37713), (104, 37722), (109, 37785), (121, 37842), (125, 37863), (133, 37893), (135, 37896), (142, 37950), (157, 38079), (162, 38088), (169, 38127), (175, 38157), (189, 38238), (190, 38247), (200, 38298), (212, 38352), (275, 38580), (290, 38649), (307, 38733), (319, 38790), (331, 38823), (333, 38832), (350, 38889), (367, 38946), (369, 38952), (382, 38985),

Gene: Eddasa\_50 Start: 34372, Stop: 35694, Start Num: 83

Candidate Starts for Eddasa\_50:

(Start: 81 @34360 has 5 MA's), (Start: 83 @34372 has 15 MA's), (90, 34387), (99, 34474), (Start: 101 @34477 has 1 MA's), (105, 34501), (112, 34552), (119, 34594), (120, 34603), (122, 34615), (138, 34705), (139, 34714), (144, 34738), (157, 34858), (161, 34864), (182, 34954), (189, 34969), (190, 34978), (196, 35011), (218, 35122), (219, 35128), (239, 35176), (245, 35191), (250, 35206), (269, 35266), (271, 35275), (275, 35290), (291, 35368), (299, 35401), (304, 35431), (315, 35479), (335, 35557), (350, 35605), (353, 35614), (361, 35641), (375, 35680),

Gene: Edugator\_39 Start: 31774, Stop: 33144, Start Num: 93

Candidate Starts for Edugator\_39:

(10, 31447), (21, 31528), (28, 31564), (51, 31651), (Start: 73 @31699 has 7 MA's), (Start: 93 @31774 has 2 MA's), (94, 31786), (109, 31897), (110, 31900), (115, 31933), (120, 31957), (132, 32020), (144, 32095), (185, 32371), (236, 32593), (242, 32605), (256, 32653), (263, 32683), (269, 32704), (307, 32881), (324, 32962), (328, 32968), (332, 32980), (343, 33016), (345, 33022), (349, 33040), (350, 33043), (355, 33058), (357, 33064), (371, 33112), (376, 33121),

Gene: EnochSoames\_52 Start: 34356, Stop: 35690, Start Num: 81

Candidate Starts for EnochSoames\_52:

(Start: 81 @34356 has 5 MA's), (Start: 83 @34368 has 15 MA's), (90, 34383), (99, 34470), (Start: 101 @34473 has 1 MA's), (105, 34497), (109, 34539), (112, 34548), (119, 34590), (120, 34599), (122, 34611), (138, 34701), (139, 34710), (144, 34734), (157, 34854), (161, 34860), (182, 34950), (189, 34965), (190, 34974), (196, 35007), (218, 35118), (219, 35124), (239, 35172), (245, 35187), (250, 35202), (269, 35262), (271, 35271), (291, 35364), (299, 35397), (304, 35427), (315, 35475), (335, 35553), (350, 35601), (353, 35610), (361, 35637), (375, 35676),

Gene: Esperer\_49 Start: 33895, Stop: 35217, Start Num: 83

Candidate Starts for Esperer\_49:

(Start: 81 @33883 has 5 MA's), (Start: 83 @33895 has 15 MA's), (90, 33910), (99, 33997), (Start: 101 @34000 has 1 MA's), (105, 34024), (109, 34066), (112, 34075), (119, 34117), (120, 34126), (122, 34138), (138, 34228), (139, 34237), (144, 34261), (157, 34381), (161, 34387), (182, 34477), (189, 34492), (190, 34501), (196, 34534), (218, 34645), (219, 34651), (239, 34699), (245, 34714), (250, 34729), (269, 34789), (275, 34813), (292, 34894), (299, 34924), (304, 34954), (315, 35002), (335, 35080), (350, 35128), (353, 35137), (361, 35164), (375, 35203),

Gene: Estes\_146 Start: 70719, Stop: 69265, Start Num: 60

Candidate Starts for Estes\_146:



(12, 70932), (17, 70887), (26, 70836), (Start: 45 @70761 has 1 MA's), (57, 70728), (Start: 60 @70719 has 19 MA's), (87, 70665), (91, 70647), (98, 70572), (122, 70428), (139, 70311), (148, 70248), (162, 70158), (170, 70116), (215, 69903), (220, 69864), (230, 69837), (244, 69810), (265, 69729), (273, 69699), (275, 69693), (276, 69690), (307, 69540), (312, 69519), (325, 69462), (358, 69360), (367, 69318), (371, 69312),

Gene: Exile\_44 Start: 37249, Stop: 38688, Start Num: 76

Candidate Starts for Exile\_44:

(Start: 68 @37237 has 10 MA's), (Start: 76 @37249 has 4 MA's), (80, 37255), (86, 37273), (109, 37441), (118, 37486), (119, 37492), (132, 37552), (141, 37612), (167, 37780), (198, 37939), (244, 38107), (268, 38161), (289, 38254), (305, 38341), (341, 38464), (346, 38476), (348, 38482), (352, 38500), (365, 38560), (384, 38620),

Gene: Fairfaxidum\_39 Start: 30789, Stop: 32177, Start Num: 82

Candidate Starts for Fairfaxidum\_39:

(66, 30759), (Start: 82 @30789 has 35 MA's), (Start: 93 @30846 has 2 MA's), (147, 31200), (149, 31212), (155, 31266), (156, 31272), (160, 31299), (165, 31332), (166, 31335), (189, 31467), (205, 31560), (210, 31578), (226, 31653), (231, 31665), (238, 31680), (244, 31689), (254, 31716), (268, 31770), (271, 31782), (280, 31812), (293, 31863), (304, 31920), (318, 31989), (321, 31998), (322, 32001), (326, 32013), (328, 32016), (331, 32025), (360, 32121), (366, 32142), (375, 32157),

Gene: Fenry\_37 Start: 30762, Stop: 32153, Start Num: 82

Candidate Starts for Fenry\_37:

(59, 30714), (66, 30732), (Start: 75 @30753 has 1 MA's), (Start: 82 @30762 has 35 MA's), (104, 30882), (114, 30975), (145, 31152), (146, 31158), (149, 31185), (155, 31239), (175, 31356), (205, 31533), (210, 31551), (214, 31560), (221, 31611), (231, 31638), (238, 31653), (260, 31719), (261, 31722), (268, 31743), (269, 31746), (271, 31755), (272, 31758), (286, 31809), (293, 31836), (304, 31893), (313, 31929), (318, 31962), (328, 31989), (345, 32040), (365, 32115),

Gene: Feyre\_38 Start: 31236, Stop: 32642, Start Num: 82

Candidate Starts for Feyre\_38:

(Start: 77 @31227 has 2 MA's), (Start: 82 @31236 has 35 MA's), (104, 31356), (130, 31533), (136, 31557), (143, 31608), (148, 31650), (156, 31719), (160, 31746), (163, 31755), (166, 31782), (172, 31803), (174, 31821), (177, 31848), (184, 31893), (187, 31899), (214, 32004), (227, 32070), (231, 32079), (241, 32100), (247, 32118), (253, 32139), (274, 32226), (277, 32235), (278, 32238), (300, 32346), (307, 32382), (323, 32454), (326, 32463), (343, 32514), (354, 32553), (358, 32565), (360, 32574), (373, 32604), (378, 32619),

Gene: FreakyGoo\_129 Start: 69557, Stop: 68097, Start Num: 60

Candidate Starts for FreakyGoo\_129:

(Start: 45 @69599 has 1 MA's), (57, 69566), (Start: 60 @69557 has 19 MA's), (91, 69485), (102, 69404), (107, 69362), (109, 69338), (122, 69266), (139, 69149), (148, 69086), (159, 69002), (162, 68990), (170, 68948), (174, 68930), (203, 68768), (213, 68747), (220, 68696), (230, 68669), (244, 68642), (276, 68522), (307, 68372), (325, 68294), (340, 68249), (358, 68192),

Gene: Frokostdame\_39 Start: 30677, Stop: 32089, Start Num: 70

Candidate Starts for Frokostdame\_39:

(Start: 32 @30563 has 1 MA's), (Start: 70 @30677 has 1 MA's), (Start: 82 @30698 has 35 MA's), (104, 30818), (149, 31121), (155, 31175), (175, 31292), (187, 31370), (199, 31433), (205, 31469), (221, 31547), (231, 31574), (238, 31589), (260, 31655), (261, 31658), (271, 31691), (272, 31694), (293, 31772), (304, 31829), (313, 31865), (318, 31898), (328, 31925), (365, 32051),

Gene: Gambino\_40 Start: 30240, Stop: 31766, Start Num: 32

Candidate Starts for Gambino\_40:

(Start: 32 @30240 has 1 MA's), (Start: 70 @30354 has 1 MA's), (Start: 82 @30375 has 35 MA's), (104, 30495), (130, 30672), (149, 30798), (155, 30852), (175, 30969), (187, 31047), (199, 31110), (205, 31146), (221, 31224), (231, 31251), (238, 31266), (260, 31332), (261, 31335), (269, 31359), (271, 31368), (272, 31371), (293, 31449), (304, 31506), (313, 31542), (318, 31575), (321, 31584), (328, 31602), (345, 31653),

Gene: GardenSalsa\_146 Start: 70892, Stop: 69438, Start Num: 60

Candidate Starts for GardenSalsa\_146:

(26, 71009), (Start: 45 @70934 has 1 MA's), (57, 70901), (Start: 60 @70892 has 19 MA's), (87, 70838), (91, 70820), (98, 70745), (122, 70601), (139, 70484), (148, 70421), (162, 70331), (170, 70289), (215, 70076), (230, 70010), (244, 69983), (265, 69902), (273, 69872), (275, 69866), (276, 69863), (307, 69713), (312, 69692), (325, 69635), (358, 69533), (367, 69491),

Gene: GenevaB15\_148 Start: 70550, Stop: 69096, Start Num: 60

Candidate Starts for GenevaB15\_148:

(Start: 45 @70592 has 1 MA's), (57, 70559), (Start: 60 @70550 has 19 MA's), (87, 70496), (91, 70478), (98, 70403), (122, 70259), (139, 70142), (148, 70079), (162, 69989), (170, 69947), (215, 69734), (220, 69695), (230, 69668), (244, 69641), (265, 69560), (273, 69530), (275, 69524), (276, 69521), (307, 69371), (312, 69350), (325, 69293), (358, 69191),

Gene: Gengar\_38 Start: 31346, Stop: 32752, Start Num: 82

Candidate Starts for Gengar\_38:

(Start: 77 @31337 has 2 MA's), (Start: 82 @31346 has 35 MA's), (104, 31466), (130, 31643), (136, 31667), (143, 31718), (148, 31760), (156, 31829), (160, 31856), (163, 31865), (166, 31892), (172, 31913), (174, 31931), (177, 31958), (184, 32003), (187, 32009), (214, 32114), (227, 32180), (231, 32189), (241, 32210), (247, 32228), (274, 32336), (277, 32345), (278, 32348), (300, 32456), (307, 32492), (323, 32564), (326, 32573), (343, 32624), (354, 32663), (358, 32675), (360, 32684), (373, 32714), (378, 32729),

Gene: Glaske16\_133 Start: 70191, Stop: 68731, Start Num: 60

Candidate Starts for Glaske16\_133:

(Start: 45 @70233 has 1 MA's), (57, 70200), (Start: 60 @70191 has 19 MA's), (91, 70119), (102, 70038), (107, 69996), (109, 69972), (122, 69900), (139, 69783), (148, 69720), (159, 69636), (162, 69624), (170, 69582), (174, 69564), (203, 69402), (213, 69381), (220, 69330), (230, 69303), (244, 69276), (276, 69156), (307, 69006), (325, 68928), (340, 68883), (358, 68826),

Gene: Gretchen\_58 Start: 38919, Stop: 40406, Start Num: 79

Candidate Starts for Gretchen\_58:

(5, 38601), (9, 38670), (Start: 79 @38919 has 7 MA's), (Start: 93 @38982 has 2 MA's), (96, 39012), (109, 39111), (110, 39114), (116, 39150), (139, 39282), (141, 39294), (151, 39366), (157, 39423), (164, 39450), (178, 39528), (190, 39576), (224, 39753), (229, 39765), (266, 39885), (275, 39918), (288, 39978), (298, 40020), (300, 40032), (329, 40158), (333, 40173), (357, 40251), (359, 40269), (385, 40401),

Gene: Guillsminger\_39 Start: 31317, Stop: 32723, Start Num: 82

Candidate Starts for Guillsminger\_39:

(Start: 77 @31308 has 2 MA's), (Start: 82 @31317 has 35 MA's), (104, 31437), (130, 31614), (136, 31638), (143, 31689), (148, 31731), (154, 31779), (156, 31800), (160, 31827), (163, 31836), (166, 31863), (172, 31884), (174, 31902), (177, 31929), (184, 31974), (187, 31980), (214, 32085), (227, 32151), (231, 32160), (241, 32181), (247, 32199), (274, 32307), (277, 32316), (278, 32319), (300, 32427), (307, 32463), (323, 32535), (326, 32544), (343, 32595), (354, 32634), (358, 32646), (360, 32655), (373, 32685), (378, 32700),

Gene: Heftyboy\_38 Start: 31463, Stop: 32869, Start Num: 82

Candidate Starts for Heftyboy\_38:

(Start: 77 @31454 has 2 MA's), (Start: 82 @31463 has 35 MA's), (104, 31583), (130, 31760), (136, 31784), (143, 31835), (148, 31877), (154, 31925), (156, 31946), (160, 31973), (163, 31982), (166, 32009), (172, 32030), (174, 32048), (177, 32075), (184, 32120), (187, 32126), (214, 32231), (227, 32297), (231, 32306), (241, 32327), (247, 32345), (274, 32453), (277, 32462), (278, 32465), (298, 32561), (300, 32573), (307, 32609), (323, 32681), (326, 32690), (343, 32741), (354, 32780), (358, 32792), (360, 32801), (373, 32831), (378, 32846),

Gene: Hydra\_50 Start: 34719, Stop: 36053, Start Num: 81

Candidate Starts for Hydra\_50:

(Start: 81 @34719 has 5 MA's), (Start: 83 @34731 has 15 MA's), (90, 34746), (99, 34833), (Start: 101 @34836 has 1 MA's), (105, 34860), (109, 34902), (112, 34911), (119, 34953), (120, 34962), (122, 34974), (138, 35064), (139, 35073), (144, 35097), (157, 35217), (161, 35223), (182, 35313), (189, 35328), (190, 35337), (196, 35370), (218, 35481), (219, 35487), (239, 35535), (245, 35550), (250, 35565), (269, 35625), (271, 35634), (275, 35649), (292, 35730), (299, 35760), (304, 35790), (315, 35838), (335, 35916), (350, 35964), (353, 35973), (361, 36000), (375, 36039),

Gene: IPHane7\_129 Start: 69256, Stop: 67796, Start Num: 60

Candidate Starts for IPHane7\_129:

(Start: 45 @69298 has 1 MA's), (57, 69265), (Start: 60 @69256 has 19 MA's), (91, 69184), (102, 69103), (107, 69061), (109, 69037), (122, 68965), (139, 68848), (148, 68785), (159, 68701), (162, 68689), (170, 68647), (174, 68629), (203, 68467), (213, 68446), (220, 68395), (230, 68368), (244, 68341), (276, 68221), (307, 68071), (325, 67993), (340, 67948), (358, 67891),

Gene: Indigo\_48 Start: 34063, Stop: 35397, Start Num: 81

Candidate Starts for Indigo\_48:

(Start: 81 @34063 has 5 MA's), (Start: 83 @34075 has 15 MA's), (90, 34090), (99, 34177), (Start: 101 @34180 has 1 MA's), (105, 34204), (109, 34246), (112, 34255), (119, 34297), (120, 34306), (122, 34318), (138, 34408), (139, 34417), (144, 34441), (157, 34561), (161, 34567), (182, 34657), (189, 34672), (190, 34681), (196, 34714), (218, 34825), (219, 34831), (239, 34879), (245, 34894), (250, 34909), (269, 34969), (275, 34993), (292, 35074), (299, 35104), (304, 35134), (315, 35182), (335, 35260), (350, 35308), (353, 35317), (361, 35344), (375, 35383),

Gene: InvictusManeo\_38 Start: 31499, Stop: 32869, Start Num: 93

Candidate Starts for InvictusManeo\_38:

(10, 31172), (19, 31235), (28, 31289), (51, 31376), (Start: 73 @31424 has 7 MA's), (Start: 93 @31499 has 2 MA's), (94, 31511), (109, 31622), (110, 31625), (115, 31658), (120, 31682), (132, 31745), (144, 31820), (185, 32096), (236, 32318), (242, 32330), (256, 32378), (263, 32408), (269, 32429), (275, 32453), (307, 32606), (324, 32687), (328, 32693), (332, 32705), (343, 32741), (345, 32747), (350, 32768), (355, 32783), (357, 32789), (371, 32837), (376, 32846),

Gene: Issmi\_53 Start: 37574, Stop: 38995, Start Num: 68

Candidate Starts for Issmi\_53:

(Start: 46 @37514 has 3 MA's), (Start: 63 @37565 has 5 MA's), (Start: 68 @37574 has 10 MA's), (109, 37784), (116, 37811), (129, 37877), (142, 37949), (157, 38078), (162, 38087), (169, 38126), (189, 38237), (194, 38273), (199, 38294), (200, 38297), (206, 38336), (212, 38351), (255, 38495), (275, 38579), (301, 38696), (307, 38732), (318, 38786), (319, 38789), (331, 38822), (350, 38888), (364, 38936), (367, 38945), (382, 38984),

Gene: Itza\_50 Start: 33245, Stop: 34663, Start Num: 85

Candidate Starts for Itza\_50:

(40, 33131), (41, 33137), (Start: 77 @33224 has 2 MA's), (Start: 85 @33245 has 3 MA's), (133, 33557), (141, 33611), (142, 33614), (147, 33659), (150, 33674), (157, 33740), (176, 33824), (179, 33857), (195, 33929), (199, 33947), (209, 34001), (228, 34082), (239, 34106), (242, 34112), (257, 34163), (263, 34196), (281, 34265), (290, 34310), (306, 34391), (314, 34424), (315, 34427), (380, 34646),

Gene: Izel\_129 Start: 69072, Stop: 67612, Start Num: 60

Candidate Starts for Izel\_129:

(Start: 45 @69114 has 1 MA's), (57, 69081), (Start: 60 @69072 has 19 MA's), (91, 69000), (102, 68919), (107, 68877), (109, 68853), (122, 68781), (139, 68664), (148, 68601), (159, 68517), (162, 68505), (170, 68463), (174, 68445), (203, 68283), (213, 68262), (220, 68211), (230, 68184), (244, 68157), (276, 68037), (307, 67887), (325, 67809), (340, 67764), (358, 67707),

Gene: Izzy\_50 Start: 34419, Stop: 35741, Start Num: 83

Candidate Starts for Izzy\_50:

(Start: 81 @34407 has 5 MA's), (Start: 83 @34419 has 15 MA's), (90, 34434), (99, 34521), (Start: 101 @34524 has 1 MA's), (105, 34548), (112, 34599), (119, 34641), (120, 34650), (122, 34662), (138, 34752), (139, 34761), (144, 34785), (157, 34905), (161, 34911), (182, 35001), (189, 35016), (190, 35025), (196, 35058), (218, 35169), (219, 35175), (239, 35223), (245, 35238), (250, 35253), (269, 35313), (271, 35322), (275, 35337), (291, 35415), (299, 35448), (304, 35478), (315, 35526), (335, 35604), (350, 35652), (353, 35661), (361, 35688), (375, 35727),

Gene: Jalammah\_42 Start: 32075, Stop: 33466, Start Num: 82

Candidate Starts for Jalammah\_42:

(59, 32027), (66, 32045), (Start: 75 @32066 has 1 MA's), (Start: 82 @32075 has 35 MA's), (104, 32195), (114, 32288), (145, 32465), (146, 32471), (149, 32498), (155, 32552), (175, 32669), (205, 32846), (210, 32864), (214, 32873), (221, 32924), (231, 32951), (238, 32966), (260, 33032), (261, 33035), (268, 33056), (269, 33059), (271, 33068), (272, 33071), (286, 33122), (293, 33149), (304, 33206), (313, 33242), (318, 33275), (328, 33302), (345, 33353), (365, 33428),

Gene: Jash\_50 Start: 34372, Stop: 35694, Start Num: 83

Candidate Starts for Jash\_50:

(Start: 81 @34360 has 5 MA's), (Start: 83 @34372 has 15 MA's), (90, 34387), (99, 34474), (Start: 101 @34477 has 1 MA's), (105, 34501), (112, 34552), (119, 34594), (120, 34603), (122, 34615), (138, 34705), (139, 34714), (144, 34738), (157, 34858), (161, 34864), (182, 34954), (189, 34969), (190, 34978), (196, 35011), (218, 35122), (219, 35128), (239, 35176), (245, 35191), (250, 35206), (269, 35266), (271, 35275), (275, 35290), (291, 35368), (299, 35401), (304, 35431), (315, 35479), (335, 35557), (350, 35605), (353, 35614), (361, 35641), (375, 35680),

Gene: Jevington\_52 Start: 36147, Stop: 37628, Start Num: 46

Candidate Starts for Jevington\_52:

(7, 35931), (15, 36015), (18, 36021), (37, 36123), (Start: 46 @36147 has 3 MA's), (Start: 63 @36198 has 5 MA's), (Start: 68 @36207 has 10 MA's), (109, 36417), (116, 36444), (142, 36582), (157, 36711), (169, 36759), (189, 36870), (190, 36879), (199, 36927), (200, 36930), (206, 36969), (255, 37128), (275, 37212), (301, 37329), (307, 37365), (331, 37455), (333, 37464), (350, 37521), (364, 37569), (367, 37578), (382, 37617),

Gene: Jflix2\_51 Start: 35443, Stop: 36906, Start Num: 42

Candidate Starts for Jflix2\_51:

(24, 35365), (Start: 42 @35443 has 1 MA's), (47, 35461), (Start: 72 @35521 has 2 MA's), (90, 35566), (Start: 93 @35596 has 2 MA's), (99, 35650), (104, 35659), (105, 35677), (136, 35860), (140, 35893), (148, 35953), (166, 36085), (168, 36097), (174, 36124), (190, 36208), (210, 36310), (212, 36313), (222, 36373), (238, 36412), (249, 36439), (258, 36469), (259, 36475), (264, 36490), (268, 36502), (271, 36514), (284, 36556), (298, 36619), (310, 36679), (317, 36721), (343, 36796), (347, 36808),

(350, 36823), (362, 36862),

Gene: JuJu\_41 Start: 31203, Stop: 32594, Start Num: 82

Candidate Starts for JuJu\_41:

(66, 31173), (Start: 82 @31203 has 35 MA's), (104, 31323), (130, 31500), (145, 31593), (146, 31599), (149, 31626), (155, 31680), (163, 31722), (175, 31797), (178, 31824), (187, 31875), (199, 31938), (202, 31965), (205, 31974), (210, 31992), (214, 32001), (221, 32052), (231, 32079), (238, 32094), (268, 32184), (271, 32196), (272, 32199), (293, 32277), (304, 32334), (321, 32412), (345, 32481),

Gene: KappaFarmDelta\_40 Start: 29698, Stop: 31089, Start Num: 82

Candidate Starts for KappaFarmDelta\_40:

(Start: 82 @29698 has 35 MA's), (130, 29995), (149, 30121), (155, 30175), (175, 30292), (199, 30433), (205, 30469), (210, 30487), (221, 30547), (231, 30574), (238, 30589), (254, 30625), (260, 30655), (271, 30691), (272, 30694), (293, 30772), (318, 30898), (345, 30976), (350, 30997), (365, 31051),

Gene: Kratio\_37 Start: 30972, Stop: 32417, Start Num: 73

Candidate Starts for Kratio\_37:

(10, 30720), (19, 30783), (28, 30837), (51, 30924), (Start: 73 @30972 has 7 MA's), (Start: 93 @31047 has 2 MA's), (94, 31059), (109, 31170), (110, 31173), (115, 31206), (120, 31230), (132, 31293), (144, 31368), (185, 31644), (236, 31866), (242, 31878), (256, 31926), (263, 31956), (269, 31977), (275, 32001), (307, 32154), (324, 32235), (328, 32241), (332, 32253), (343, 32289), (345, 32295), (349, 32313), (350, 32316), (355, 32331), (357, 32337), (371, 32385), (376, 32394),

Gene: Kumao\_96 Start: 59042, Stop: 60475, Start Num: 74

Candidate Starts for Kumao\_96:

(36, 58946), (61, 59015), (Start: 69 @59033 has 1 MA's), (Start: 74 @59042 has 1 MA's), (Start: 85 @59066 has 3 MA's), (105, 59189), (109, 59231), (123, 59312), (141, 59414), (144, 59426), (145, 59441), (151, 59486), (170, 59609), (173, 59621), (191, 59714), (196, 59744), (207, 59816), (211, 59825), (234, 59915), (237, 59921), (240, 59927), (271, 60035), (272, 60038), (274, 60047), (275, 60050), (298, 60155), (307, 60206), (319, 60263), (320, 60269), (327, 60287), (330, 60296), (333, 60305), (343, 60335), (345, 60341), (356, 60380),

Gene: Larva\_39 Start: 31141, Stop: 32586, Start Num: 73

Candidate Starts for Larva\_39:

(21, 30970), (28, 31006), (51, 31093), (Start: 73 @31141 has 7 MA's), (Start: 93 @31216 has 2 MA's), (94, 31228), (109, 31339), (110, 31342), (115, 31375), (120, 31399), (132, 31462), (144, 31537), (185, 31813), (236, 32035), (242, 32047), (256, 32095), (263, 32125), (269, 32146), (275, 32170), (307, 32323), (324, 32404), (328, 32410), (332, 32422), (343, 32458), (345, 32464), (349, 32482), (350, 32485), (355, 32500), (357, 32506), (371, 32554), (376, 32563),

Gene: LastHope\_43 Start: 31352, Stop: 32743, Start Num: 83

Candidate Starts for LastHope\_43:

(64, 31322), (Start: 69 @31331 has 1 MA's), (Start: 83 @31352 has 15 MA's), (95, 31424), (105, 31481), (109, 31523), (110, 31526), (114, 31556), (116, 31562), (128, 31634), (148, 31757), (157, 31835), (165, 31865), (175, 31913), (178, 31940), (189, 31982), (190, 31991), (194, 32018), (201, 32066), (208, 32102), (213, 32111), (216, 32129), (228, 32183), (233, 32195), (246, 32225), (262, 32285), (270, 32312), (272, 32318), (274, 32327), (275, 32330), (279, 32342), (282, 32360), (295, 32417), (309, 32492), (313, 32507), (317, 32534), (343, 32609), (356, 32654), (357, 32657), (368, 32708), (379, 32732), (381, 32738),

Gene: Legacy\_48 Start: 34174, Stop: 35496, Start Num: 83

Candidate Starts for Legacy\_48:

(Start: 81 @34162 has 5 MA's), (Start: 83 @34174 has 15 MA's), (90, 34189), (99, 34276), (Start: 101 @34279 has 1 MA's), (105, 34303), (109, 34345), (112, 34354), (119, 34396), (120, 34405), (122, 34417), (138, 34507), (139, 34516), (144, 34540), (157, 34660), (161, 34666), (182, 34756), (189, 34771), (190, 34780), (196, 34813), (218, 34924), (219, 34930), (239, 34978), (245, 34993), (250, 35008), (269, 35068), (271, 35077), (275, 35092), (291, 35170), (299, 35203), (304, 35233), (315, 35281), (335, 35359), (350, 35407), (353, 35416), (361, 35443), (375, 35482),

Gene: Leston\_38 Start: 31447, Stop: 32853, Start Num: 82

Candidate Starts for Leston\_38:

(Start: 77 @31438 has 2 MA's), (Start: 82 @31447 has 35 MA's), (104, 31567), (130, 31744), (136, 31768), (143, 31819), (148, 31861), (154, 31909), (156, 31930), (160, 31957), (163, 31966), (166, 31993), (172, 32014), (174, 32032), (177, 32059), (184, 32104), (187, 32110), (214, 32215), (227, 32281), (231, 32290), (241, 32311), (247, 32329), (277, 32446), (278, 32449), (300, 32557), (307, 32593), (323, 32665), (326, 32674), (343, 32725), (354, 32764), (358, 32776), (360, 32785), (373, 32815), (378, 32830),

Gene: Leviticus\_49 Start: 34067, Stop: 35401, Start Num: 81

Candidate Starts for Leviticus\_49:

(Start: 81 @34067 has 5 MA's), (Start: 83 @34079 has 15 MA's), (90, 34094), (99, 34181), (Start: 101 @34184 has 1 MA's), (105, 34208), (109, 34250), (112, 34259), (119, 34301), (120, 34310), (122, 34322), (138, 34412), (139, 34421), (144, 34445), (157, 34565), (161, 34571), (182, 34661), (189, 34676), (190, 34685), (196, 34718), (218, 34829), (219, 34835), (239, 34883), (245, 34898), (250, 34913), (269, 34973), (275, 34997), (292, 35078), (299, 35108), (304, 35138), (315, 35186), (335, 35264), (350, 35312), (353, 35321), (361, 35348), (375, 35387),

Gene: LilhomieP\_131 Start: 70102, Stop: 68642, Start Num: 60

Candidate Starts for LilhomieP\_131:

(Start: 45 @70144 has 1 MA's), (57, 70111), (Start: 60 @70102 has 19 MA's), (91, 70030), (102, 69949), (107, 69907), (109, 69883), (122, 69811), (139, 69694), (148, 69631), (159, 69547), (162, 69535), (170, 69493), (174, 69475), (203, 69313), (213, 69292), (220, 69241), (230, 69214), (244, 69187), (276, 69067), (307, 68917), (325, 68839), (340, 68794), (358, 68737),

Gene: Loofah\_55 Start: 37744, Stop: 39162, Start Num: 68

Candidate Starts for Loofah\_55:

(Start: 68 @37744 has 10 MA's), (Start: 70 @37747 has 1 MA's), (Start: 97 @37873 has 1 MA's), (99, 37879), (109, 37951), (111, 37957), (125, 38029), (133, 38059), (135, 38062), (142, 38116), (157, 38245), (162, 38254), (169, 38293), (180, 38368), (189, 38404), (190, 38413), (200, 38464), (275, 38746), (290, 38815), (307, 38899), (331, 38989), (333, 38998), (350, 39055), (367, 39112), (369, 39118), (382, 39151),

Gene: Lysidious\_38 Start: 30792, Stop: 32183, Start Num: 82

Candidate Starts for Lysidious\_38:

(31, 30651), (35, 30678), (66, 30762), (Start: 75 @30783 has 1 MA's), (Start: 82 @30792 has 35 MA's), (Start: 93 @30849 has 2 MA's), (104, 30912), (114, 31005), (130, 31089), (131, 31092), (145, 31182), (146, 31188), (149, 31215), (155, 31269), (175, 31386), (187, 31464), (210, 31581), (214, 31590), (221, 31641), (231, 31668), (238, 31683), (260, 31749), (261, 31752), (268, 31773), (271, 31785), (272, 31788), (293, 31866), (304, 31923), (318, 31992), (321, 32001), (328, 32019), (345, 32070),

Gene: Madraxi\_55 Start: 38153, Stop: 39541, Start Num: 72

Candidate Starts for Madraxi\_55:

(Start: 42 @38075 has 1 MA's), (44, 38084), (Start: 72 @38153 has 2 MA's), (90, 38198), (Start: 93 @38228 has 2 MA's), (99, 38282), (104, 38291), (105, 38309), (136, 38492), (140, 38525), (148, 38585), (166, 38717), (168, 38729), (174, 38756), (190, 38840), (210, 38942), (212, 38945), (222,

39005), (238, 39044), (249, 39071), (258, 39101), (259, 39107), (264, 39122), (271, 39146), (284, 39188), (298, 39251), (309, 39311), (310, 39314), (343, 39431), (350, 39458), (353, 39467), (362, 39497),

Gene: Malachai\_38 Start: 31872, Stop: 33263, Start Num: 82

Candidate Starts for Malachai\_38:

(48, 31794), (59, 31824), (66, 31842), (Start: 82 @31872 has 35 MA's), (104, 31992), (114, 32085), (145, 32262), (146, 32268), (149, 32295), (155, 32349), (175, 32466), (187, 32544), (221, 32721), (231, 32748), (238, 32763), (260, 32829), (261, 32832), (268, 32853), (269, 32856), (271, 32865), (272, 32868), (293, 32946), (296, 32955), (304, 33003), (318, 33072), (321, 33081), (328, 33099), (343, 33144), (345, 33150), (350, 33171), (365, 33225),

Gene: MalagasyRose\_41 Start: 30932, Stop: 32326, Start Num: 82

Candidate Starts for MalagasyRose\_41:

(Start: 82 @30932 has 35 MA's), (90, 30956), (96, 31019), (104, 31052), (114, 31145), (115, 31148), (116, 31151), (124, 31196), (130, 31229), (131, 31232), (137, 31262), (143, 31304), (148, 31346), (154, 31394), (156, 31415), (163, 31451), (166, 31478), (175, 31526), (221, 31748), (222, 31751), (227, 31766), (231, 31775), (241, 31796), (247, 31814), (262, 31877), (274, 31922), (293, 32006), (307, 32075), (310, 32087), (326, 32156), (328, 32159), (331, 32168), (336, 32189), (339, 32195), (344, 32210), (356, 32255), (358, 32261), (360, 32270), (373, 32300),

Gene: Marav\_53 Start: 36467, Stop: 37948, Start Num: 46

Candidate Starts for Marav\_53:

(7, 36248), (14, 36326), (22, 36368), (25, 36386), (37, 36443), (Start: 46 @36467 has 3 MA's), (Start: 63 @36518 has 5 MA's), (Start: 68 @36527 has 10 MA's), (Start: 97 @36659 has 1 MA's), (109, 36737), (125, 36815), (135, 36848), (142, 36902), (157, 37031), (169, 37079), (189, 37190), (190, 37199), (199, 37247), (200, 37250), (206, 37289), (255, 37448), (275, 37532), (301, 37649), (307, 37685), (331, 37775), (333, 37784), (350, 37841), (364, 37889), (367, 37898), (382, 37937),

Gene: Mellie\_37 Start: 29588, Stop: 30979, Start Num: 82

Candidate Starts for Mellie\_37:

(Start: 82 @29588 has 35 MA's), (104, 29708), (114, 29801), (145, 29978), (149, 30011), (155, 30065), (174, 30173), (175, 30182), (187, 30260), (199, 30323), (202, 30350), (205, 30359), (210, 30377), (214, 30386), (231, 30464), (238, 30479), (254, 30515), (261, 30548), (271, 30581), (272, 30584), (293, 30662), (304, 30719), (318, 30788), (321, 30797), (328, 30815), (342, 30857), (345, 30866), (350, 30887), (365, 30941),

Gene: Miryou\_40 Start: 33649, Stop: 35055, Start Num: 82

Candidate Starts for Miryou\_40:

(Start: 77 @33640 has 2 MA's), (Start: 82 @33649 has 35 MA's), (104, 33769), (130, 33946), (136, 33970), (143, 34021), (148, 34063), (156, 34132), (160, 34159), (163, 34168), (166, 34195), (172, 34216), (174, 34234), (177, 34261), (184, 34306), (187, 34312), (214, 34417), (227, 34483), (231, 34492), (241, 34513), (247, 34531), (253, 34552), (274, 34639), (277, 34648), (278, 34651), (300, 34759), (307, 34795), (323, 34867), (326, 34876), (343, 34927), (354, 34966), (358, 34978), (360, 34987), (373, 35017), (378, 35032),

Gene: MissRona\_38 Start: 30376, Stop: 31767, Start Num: 82

Candidate Starts for MissRona\_38:

(Start: 32 @30241 has 1 MA's), (Start: 70 @30355 has 1 MA's), (Start: 82 @30376 has 35 MA's), (104, 30496), (130, 30673), (149, 30799), (155, 30853), (175, 30970), (187, 31048), (199, 31111), (205, 31147), (221, 31225), (231, 31252), (238, 31267), (260, 31333), (261, 31336), (269, 31360), (271, 31369), (272, 31372), (293, 31450), (304, 31507), (313, 31543), (318, 31576), (321, 31585), (328, 31603), (345, 31654),

Gene: MrMagoo\_148 Start: 70893, Stop: 69439, Start Num: 60

Candidate Starts for MrMagoo\_148:

(26, 71010), (Start: 45 @70935 has 1 MA's), (57, 70902), (Start: 60 @70893 has 19 MA's), (87, 70839), (91, 70821), (98, 70746), (122, 70602), (139, 70485), (148, 70422), (162, 70332), (170, 70290), (215, 70077), (230, 70011), (244, 69984), (265, 69903), (273, 69873), (275, 69867), (276, 69864), (307, 69714), (312, 69693), (325, 69636), (358, 69534), (367, 69492),

Gene: Murp\_39 Start: 32170, Stop: 33561, Start Num: 82

Candidate Starts for Murp\_39:

(Start: 82 @32170 has 35 MA's), (104, 32290), (130, 32467), (147, 32581), (148, 32584), (149, 32593), (155, 32647), (175, 32764), (205, 32941), (210, 32959), (214, 32968), (221, 33019), (238, 33061), (254, 33097), (260, 33127), (271, 33163), (272, 33166), (293, 33244), (304, 33301), (308, 33316), (318, 33370), (345, 33448),

Gene: Nanosmite\_142 Start: 71091, Stop: 69622, Start Num: 60

Candidate Starts for Nanosmite\_142:

(55, 71103), (57, 71100), (Start: 60 @71091 has 19 MA's), (84, 71034), (87, 71028), (89, 71022), (91, 71010), (106, 70893), (107, 70887), (108, 70884), (109, 70863), (137, 70695), (139, 70674), (148, 70611), (162, 70515), (188, 70383), (203, 70293), (215, 70260), (218, 70236), (220, 70221), (244, 70167), (265, 70086), (275, 70050), (282, 70020), (307, 69897), (325, 69819), (332, 69804), (340, 69774),

Gene: Neighly\_39 Start: 31215, Stop: 32585, Start Num: 93

Candidate Starts for Neighly\_39:

(21, 30969), (28, 31005), (51, 31092), (Start: 73 @31140 has 7 MA's), (Start: 93 @31215 has 2 MA's), (94, 31227), (109, 31338), (110, 31341), (115, 31374), (120, 31398), (132, 31461), (144, 31536), (185, 31812), (236, 32034), (242, 32046), (256, 32094), (263, 32124), (269, 32145), (275, 32169), (307, 32322), (324, 32403), (328, 32409), (332, 32421), (343, 32457), (345, 32463), (349, 32481), (350, 32484), (355, 32499), (357, 32505), (371, 32553), (376, 32562),

Gene: Nerdos\_48 Start: 34074, Stop: 35396, Start Num: 83

Candidate Starts for Nerdos\_48:

(Start: 81 @34062 has 5 MA's), (Start: 83 @34074 has 15 MA's), (90, 34089), (99, 34176), (Start: 101 @34179 has 1 MA's), (105, 34203), (109, 34245), (112, 34254), (119, 34296), (120, 34305), (122, 34317), (138, 34407), (139, 34416), (144, 34440), (157, 34560), (161, 34566), (182, 34656), (189, 34671), (190, 34680), (196, 34713), (218, 34824), (219, 34830), (239, 34878), (245, 34893), (250, 34908), (269, 34968), (275, 34992), (292, 35073), (299, 35103), (304, 35133), (315, 35181), (335, 35259), (350, 35307), (353, 35316), (361, 35343), (375, 35382),

Gene: OkiRoe\_38 Start: 31310, Stop: 32725, Start Num: 77

Candidate Starts for OkiRoe\_38:

(Start: 77 @31310 has 2 MA's), (Start: 82 @31319 has 35 MA's), (104, 31439), (130, 31616), (136, 31640), (143, 31691), (148, 31733), (156, 31802), (160, 31829), (163, 31838), (166, 31865), (172, 31886), (174, 31904), (177, 31931), (184, 31976), (187, 31982), (214, 32087), (227, 32153), (231, 32162), (241, 32183), (247, 32201), (253, 32222), (274, 32309), (277, 32318), (278, 32321), (300, 32429), (307, 32465), (323, 32537), (326, 32546), (343, 32597), (354, 32636), (358, 32648), (360, 32657), (373, 32687), (378, 32702),

Gene: Oliynyk\_50 Start: 34372, Stop: 35694, Start Num: 83

Candidate Starts for Oliynyk\_50:

(Start: 81 @34360 has 5 MA's), (Start: 83 @34372 has 15 MA's), (90, 34387), (99, 34474), (Start: 101 @34477 has 1 MA's), (105, 34501), (112, 34552), (119, 34594), (120, 34603), (122, 34615), (138,



34705), (139, 34714), (144, 34738), (157, 34858), (161, 34864), (182, 34954), (189, 34969), (190, 34978), (196, 35011), (218, 35122), (219, 35128), (239, 35176), (245, 35191), (250, 35206), (269, 35266), (271, 35275), (275, 35290), (291, 35368), (299, 35401), (304, 35431), (315, 35479), (335, 35557), (350, 35605), (353, 35614), (361, 35641), (375, 35680),

Gene: Omar\_55 Start: 36249, Stop: 37679, Start Num: 63

Candidate Starts for Omar\_55:

(Start: 32 @36147 has 1 MA's), (Start: 46 @36198 has 3 MA's), (Start: 63 @36249 has 5 MA's), (Start: 68 @36258 has 10 MA's), (109, 36468), (116, 36495), (142, 36633), (157, 36762), (169, 36810), (189, 36921), (190, 36930), (199, 36978), (200, 36981), (206, 37020), (212, 37035), (245, 37149), (255, 37179), (275, 37263), (301, 37380), (307, 37416), (331, 37506), (333, 37515), (350, 37572), (364, 37620), (367, 37629), (382, 37668),

Gene: Omnicron\_41 Start: 30937, Stop: 32343, Start Num: 82

Candidate Starts for Omnicron\_41:

(Start: 77 @30928 has 2 MA's), (Start: 82 @30937 has 35 MA's), (96, 31024), (104, 31057), (114, 31150), (131, 31237), (136, 31258), (143, 31309), (148, 31351), (154, 31399), (156, 31420), (160, 31447), (163, 31456), (165, 31480), (166, 31483), (172, 31504), (174, 31522), (184, 31594), (187, 31600), (227, 31771), (231, 31780), (241, 31801), (247, 31819), (268, 31903), (274, 31927), (278, 31939), (289, 31996), (298, 32035), (300, 32047), (307, 32083), (313, 32107), (323, 32155), (326, 32164), (354, 32254), (358, 32266), (360, 32275), (378, 32320),

Gene: Ozzie\_48 Start: 34171, Stop: 35505, Start Num: 81

Candidate Starts for Ozzie\_48:

(Start: 81 @34171 has 5 MA's), (Start: 83 @34183 has 15 MA's), (90, 34198), (99, 34285), (Start: 101 @34288 has 1 MA's), (105, 34312), (109, 34354), (112, 34363), (119, 34405), (120, 34414), (122, 34426), (138, 34516), (139, 34525), (144, 34549), (157, 34669), (161, 34675), (182, 34765), (189, 34780), (190, 34789), (196, 34822), (218, 34933), (219, 34939), (239, 34987), (245, 35002), (250, 35017), (269, 35077), (271, 35086), (275, 35101), (292, 35182), (299, 35212), (304, 35242), (315, 35290), (335, 35368), (350, 35416), (353, 35425), (361, 35452), (375, 35491),

Gene: PCoral7\_37 Start: 30351, Stop: 31742, Start Num: 82

Candidate Starts for PCoral7\_37:

(Start: 58 @30300 has 1 MA's), (59, 30303), (Start: 82 @30351 has 35 MA's), (90, 30375), (Start: 93 @30408 has 2 MA's), (104, 30471), (114, 30564), (130, 30648), (149, 30774), (155, 30828), (172, 30918), (175, 30945), (187, 31023), (199, 31086), (205, 31122), (214, 31149), (221, 31200), (231, 31227), (238, 31242), (268, 31332), (271, 31344), (272, 31347), (304, 31482), (328, 31578), (343, 31623), (345, 31629),

Gene: Pablito\_52 Start: 36745, Stop: 38214, Start Num: 43

Candidate Starts for Pablito\_52:

(Start: 43 @36745 has 2 MA's), (Start: 46 @36751 has 3 MA's), (56, 36781), (Start: 68 @36811 has 10 MA's), (Start: 70 @36814 has 1 MA's), (Start: 97 @36940 has 1 MA's), (99, 36946), (104, 36955), (109, 37018), (121, 37075), (125, 37096), (133, 37126), (135, 37129), (142, 37183), (157, 37312), (169, 37360), (171, 37363), (175, 37390), (189, 37462), (190, 37471), (193, 37492), (200, 37522), (251, 37708), (252, 37711), (307, 37951), (319, 38008), (331, 38041), (333, 38050), (350, 38107), (359, 38131), (364, 38155), (367, 38164), (376, 38182), (382, 38203),

Gene: Paedore\_54 Start: 37729, Stop: 39147, Start Num: 68

Candidate Starts for Paedore\_54:

(Start: 68 @37729 has 10 MA's), (Start: 70 @37732 has 1 MA's), (Start: 97 @37858 has 1 MA's), (99, 37864), (109, 37936), (111, 37942), (125, 38014), (133, 38044), (135, 38047), (142, 38101), (157, 38230), (162, 38239), (169, 38278), (180, 38353), (189, 38389), (190, 38398), (200, 38449), (275,

38731), (290, 38800), (307, 38884), (331, 38974), (333, 38983), (350, 39040), (367, 39097), (369, 39103), (382, 39136),

Gene: Paola\_38 Start: 31317, Stop: 32723, Start Num: 82

Candidate Starts for Paola\_38:

(Start: 77 @31308 has 2 MA's), (Start: 82 @31317 has 35 MA's), (104, 31437), (130, 31614), (136, 31638), (143, 31689), (148, 31731), (154, 31779), (156, 31800), (160, 31827), (163, 31836), (166, 31863), (172, 31884), (174, 31902), (177, 31929), (184, 31974), (187, 31980), (214, 32085), (227, 32151), (231, 32160), (241, 32181), (247, 32199), (274, 32307), (277, 32316), (278, 32319), (300, 32427), (307, 32463), (323, 32535), (326, 32544), (343, 32595), (354, 32634), (358, 32646), (360, 32655), (373, 32685), (378, 32700),

Gene: Paolo\_54 Start: 37643, Stop: 39124, Start Num: 46

Candidate Starts for Paolo\_54:

(Start: 46 @37643 has 3 MA's), (Start: 63 @37694 has 5 MA's), (Start: 68 @37703 has 10 MA's), (109, 37913), (116, 37940), (142, 38078), (157, 38207), (169, 38255), (189, 38366), (190, 38375), (194, 38402), (199, 38423), (200, 38426), (206, 38465), (255, 38624), (275, 38708), (301, 38825), (307, 38861), (331, 38951), (333, 38960), (350, 39017), (364, 39065), (367, 39074), (382, 39113),

Gene: Pavo\_52 Start: 36851, Stop: 38260, Start Num: 79

Candidate Starts for Pavo\_52:

(33, 36722), (50, 36788), (62, 36815), (Start: 79 @36851 has 7 MA's), (90, 36881), (99, 36968), (103, 36977), (112, 37046), (119, 37088), (120, 37097), (122, 37109), (138, 37199), (139, 37208), (140, 37211), (142, 37223), (144, 37232), (174, 37421), (183, 37508), (190, 37541), (200, 37592), (214, 37652), (218, 37685), (239, 37739), (272, 37841), (282, 37883), (285, 37895), (303, 37991), (304, 37994), (317, 38060), (322, 38078), (324, 38087), (350, 38168), (356, 38186), (358, 38192), (363, 38213), (370, 38234), (377, 38252),

Gene: PegLeg\_134 Start: 69986, Stop: 68526, Start Num: 60

Candidate Starts for PegLeg\_134:

(Start: 45 @70028 has 1 MA's), (57, 69995), (Start: 60 @69986 has 19 MA's), (91, 69914), (102, 69833), (107, 69791), (109, 69767), (122, 69695), (139, 69578), (148, 69515), (159, 69431), (162, 69419), (170, 69377), (174, 69359), (203, 69197), (213, 69176), (220, 69125), (230, 69098), (244, 69071), (276, 68951), (307, 68801), (325, 68723), (340, 68678), (358, 68621),

Gene: Percival\_59 Start: 38819, Stop: 40306, Start Num: 79

Candidate Starts for Percival\_59:

(Start: 79 @38819 has 7 MA's), (Start: 93 @38882 has 2 MA's), (96, 38912), (109, 39011), (110, 39014), (116, 39050), (139, 39182), (141, 39194), (151, 39266), (157, 39323), (164, 39350), (178, 39428), (190, 39476), (224, 39653), (229, 39665), (266, 39785), (275, 39818), (288, 39878), (298, 39920), (300, 39932), (329, 40058), (333, 40073), (357, 40151), (359, 40169), (385, 40301),

Gene: Phettuccine\_49 Start: 34075, Stop: 35397, Start Num: 83

Candidate Starts for Phettuccine\_49:

(Start: 81 @34063 has 5 MA's), (Start: 83 @34075 has 15 MA's), (90, 34090), (99, 34177), (Start: 101 @34180 has 1 MA's), (105, 34204), (109, 34246), (112, 34255), (119, 34297), (120, 34306), (122, 34318), (138, 34408), (139, 34417), (144, 34441), (157, 34561), (161, 34567), (182, 34657), (189, 34672), (190, 34681), (196, 34714), (218, 34825), (219, 34831), (239, 34879), (245, 34894), (250, 34909), (269, 34969), (271, 34978), (275, 34993), (292, 35074), (299, 35104), (304, 35134), (315, 35182), (335, 35260), (350, 35308), (353, 35317), (361, 35344), (375, 35383),

Gene: PrincePatrick\_38 Start: 29413, Stop: 30801, Start Num: 82

Candidate Starts for PrincePatrick\_38:

(Start: 82 @29413 has 35 MA's), (92, 29455), (Start: 93 @29470 has 2 MA's), (114, 29626), (125, 29683), (145, 29803), (149, 29836), (155, 29890), (156, 29896), (160, 29923), (166, 29959), (189, 30091), (200, 30151), (205, 30184), (210, 30202), (226, 30277), (231, 30289), (238, 30304), (254, 30340), (268, 30394), (271, 30406), (293, 30487), (308, 30559), (313, 30580), (318, 30613), (321, 30622), (322, 30625), (326, 30637), (328, 30640), (331, 30649), (360, 30745), (366, 30766), (375, 30781),

Gene: Psycho\_39 Start: 31271, Stop: 32716, Start Num: 73

Candidate Starts for Psycho\_39:

(21, 31100), (28, 31136), (51, 31223), (Start: 73 @31271 has 7 MA's), (Start: 93 @31346 has 2 MA's), (94, 31358), (109, 31469), (110, 31472), (115, 31505), (120, 31529), (132, 31592), (144, 31667), (185, 31943), (236, 32165), (242, 32177), (256, 32225), (263, 32255), (269, 32276), (275, 32300), (307, 32453), (324, 32534), (328, 32540), (332, 32552), (343, 32588), (345, 32594), (349, 32612), (350, 32615), (355, 32630), (357, 32636), (371, 32684), (376, 32693),

Gene: Puginator\_54 Start: 37656, Stop: 39170, Start Num: 34

Candidate Starts for Puginator\_54:

(Start: 34 @37656 has 1 MA's), (39, 37668), (Start: 42 @37677 has 1 MA's), (Start: 46 @37689 has 3 MA's), (Start: 63 @37740 has 5 MA's), (Start: 68 @37749 has 10 MA's), (109, 37959), (116, 37986), (142, 38124), (157, 38253), (169, 38301), (189, 38412), (190, 38421), (194, 38448), (199, 38469), (200, 38472), (206, 38511), (212, 38526), (252, 38667), (255, 38670), (275, 38754), (301, 38871), (307, 38907), (318, 38961), (319, 38964), (331, 38997), (350, 39063), (367, 39120), (382, 39159),

Gene: R4\_53 Start: 37594, Stop: 39006, Start Num: 68

Candidate Starts for R4\_53:

(Start: 68 @37594 has 10 MA's), (Start: 70 @37597 has 1 MA's), (Start: 97 @37723 has 1 MA's), (99, 37729), (104, 37738), (109, 37801), (125, 37879), (133, 37909), (135, 37912), (142, 37966), (157, 38095), (162, 38104), (169, 38143), (175, 38173), (180, 38218), (190, 38263), (200, 38314), (212, 38368), (232, 38452), (275, 38590), (307, 38743), (316, 38782), (319, 38800), (331, 38833), (333, 38842), (350, 38899), (356, 38914), (367, 38956), (369, 38962), (382, 38995),

Gene: REQ1\_22 Start: 7618, Stop: 9012, Start Num: 72

Candidate Starts for REQ1\_22:

(Start: 72 @7618 has 2 MA's), (90, 7663), (Start: 93 @7693 has 2 MA's), (99, 7747), (104, 7756), (105, 7774), (140, 7990), (148, 8050), (166, 8182), (168, 8194), (174, 8221), (190, 8305), (212, 8410), (238, 8509), (251, 8539), (258, 8566), (259, 8572), (264, 8587), (271, 8611), (298, 8719), (310, 8779), (317, 8821), (343, 8896), (350, 8923),

Gene: Rando14\_40 Start: 30508, Stop: 31914, Start Num: 82

Candidate Starts for Rando14\_40:

(Start: 77 @30499 has 2 MA's), (Start: 82 @30508 has 35 MA's), (96, 30595), (104, 30628), (114, 30721), (122, 30760), (130, 30805), (136, 30829), (143, 30880), (148, 30922), (154, 30970), (156, 30991), (160, 31018), (163, 31027), (165, 31051), (166, 31054), (172, 31075), (174, 31093), (184, 31165), (187, 31171), (227, 31342), (241, 31372), (247, 31390), (268, 31474), (274, 31498), (278, 31510), (289, 31567), (298, 31606), (300, 31618), (307, 31654), (313, 31678), (323, 31726), (326, 31735), (334, 31759), (354, 31825), (358, 31837), (360, 31846), (373, 31876), (378, 31891),

Gene: Reindeer\_133 Start: 71279, Stop: 69777, Start Num: 45

Candidate Starts for Reindeer\_133:

(Start: 45 @71279 has 1 MA's), (57, 71246), (Start: 60 @71237 has 19 MA's), (91, 71165), (107, 71042), (109, 71018), (122, 70946), (127, 70907), (139, 70829), (142, 70814), (148, 70766), (153, 70727), (162, 70670), (174, 70610), (203, 70448), (220, 70376), (244, 70322), (265, 70241), (274, 70208), (282, 70175), (297, 70109), (307, 70052), (325, 69974), (340, 69929), (358, 69872), (367,

69830),

Gene: Rey\_148 Start: 70427, Stop: 68973, Start Num: 60

Candidate Starts for Rey\_148:

(38, 70490), (Start: 45 @70469 has 1 MA's), (57, 70436), (Start: 60 @70427 has 19 MA's), (87, 70373), (91, 70355), (122, 70136), (139, 70019), (148, 69956), (162, 69866), (170, 69824), (200, 69671), (215, 69611), (230, 69545), (244, 69518), (265, 69437), (273, 69407), (275, 69401), (276, 69398), (307, 69248), (312, 69227), (325, 69170), (358, 69068),

Gene: Rusticus\_50 Start: 34372, Stop: 35694, Start Num: 83

Candidate Starts for Rusticus\_50:

(Start: 81 @34360 has 5 MA's), (Start: 83 @34372 has 15 MA's), (90, 34387), (99, 34474), (Start: 101 @34477 has 1 MA's), (105, 34501), (112, 34552), (119, 34594), (120, 34603), (122, 34615), (138, 34705), (139, 34714), (144, 34738), (157, 34858), (161, 34864), (182, 34954), (189, 34969), (190, 34978), (196, 35011), (218, 35122), (219, 35128), (239, 35176), (245, 35191), (250, 35206), (269, 35266), (271, 35275), (275, 35290), (291, 35368), (299, 35401), (304, 35431), (315, 35479), (335, 35557), (350, 35605), (353, 35614), (361, 35641), (375, 35680),

Gene: Saftant\_50 Start: 36790, Stop: 38202, Start Num: 78

Candidate Starts for Saftant\_50:

(48, 36718), (49, 36727), (52, 36736), (59, 36748), (Start: 78 @36790 has 1 MA's), (90, 36820), (112, 36985), (119, 37027), (120, 37036), (122, 37048), (138, 37138), (139, 37147), (140, 37150), (144, 37171), (174, 37360), (190, 37480), (218, 37624), (219, 37630), (239, 37678), (272, 37780), (282, 37822), (285, 37834), (303, 37930), (304, 37933), (322, 38017), (324, 38026), (335, 38059), (350, 38107), (358, 38131), (363, 38152), (372, 38176), (377, 38191),

Gene: Samba\_38 Start: 31981, Stop: 33372, Start Num: 82

Candidate Starts for Samba\_38:

(31, 31840), (35, 31867), (66, 31951), (Start: 75 @31972 has 1 MA's), (Start: 82 @31981 has 35 MA's), (Start: 93 @32038 has 2 MA's), (104, 32101), (114, 32194), (130, 32278), (131, 32281), (145, 32371), (146, 32377), (149, 32404), (155, 32458), (175, 32575), (187, 32653), (210, 32770), (214, 32779), (221, 32830), (231, 32857), (238, 32872), (260, 32938), (261, 32941), (268, 32962), (271, 32974), (272, 32977), (293, 33055), (304, 33112), (318, 33181), (321, 33190), (328, 33208), (345, 33259), (365, 33334),

Gene: Shagrat\_42 Start: 32662, Stop: 34170, Start Num: 43

Candidate Starts for Shagrat\_42:

(8, 32476), (11, 32485), (16, 32533), (20, 32554), (23, 32575), (24, 32578), (27, 32593), (29, 32605), (30, 32608), (Start: 43 @32662 has 2 MA's), (Start: 82 @32755 has 35 MA's), (90, 32779), (Start: 93 @32812 has 2 MA's), (104, 32875), (125, 33028), (130, 33055), (154, 33220), (168, 33316), (172, 33325), (184, 33427), (189, 33439), (190, 33448), (192, 33454), (212, 33553), (267, 33754), (271, 33769), (278, 33781), (283, 33805), (287, 33829), (304, 33910), (318, 33979), (351, 34084), (362, 34120),

Gene: Skinny\_137 Start: 71103, Stop: 69643, Start Num: 60

Candidate Starts for Skinny\_137:

(Start: 45 @71145 has 1 MA's), (57, 71112), (Start: 60 @71103 has 19 MA's), (91, 71031), (102, 70950), (107, 70908), (109, 70884), (122, 70812), (139, 70695), (148, 70632), (159, 70548), (162, 70536), (170, 70494), (174, 70476), (203, 70314), (213, 70293), (220, 70242), (230, 70215), (244, 70188), (276, 70068), (307, 69918), (325, 69840), (340, 69795), (358, 69738),

Gene: SlimJimmy\_130 Start: 69812, Stop: 68352, Start Num: 60

Candidate Starts for SlimJimmy\_130:

(Start: 45 @69854 has 1 MA's), (57, 69821), (Start: 60 @69812 has 19 MA's), (91, 69740), (102, 69659), (107, 69617), (109, 69593), (122, 69521), (139, 69404), (148, 69341), (159, 69257), (162, 69245), (170, 69203), (174, 69185), (203, 69023), (213, 69002), (220, 68951), (230, 68924), (244, 68897), (276, 68777), (307, 68627), (325, 68549), (340, 68504), (358, 68447),

Gene: SoSeph\_38 Start: 31463, Stop: 32869, Start Num: 82

Candidate Starts for SoSeph\_38:

(Start: 77 @31454 has 2 MA's), (Start: 82 @31463 has 35 MA's), (104, 31583), (130, 31760), (136, 31784), (143, 31835), (148, 31877), (154, 31925), (156, 31946), (160, 31973), (163, 31982), (166, 32009), (172, 32030), (174, 32048), (177, 32075), (184, 32120), (187, 32126), (214, 32231), (227, 32297), (231, 32306), (241, 32327), (247, 32345), (274, 32453), (277, 32462), (278, 32465), (298, 32561), (300, 32573), (307, 32609), (323, 32681), (326, 32690), (343, 32741), (354, 32780), (358, 32792), (360, 32801), (373, 32831), (378, 32846),

Gene: Soondubu\_46 Start: 37732, Stop: 39171, Start Num: 76

Candidate Starts for Soondubu\_46:

(Start: 68 @37720 has 10 MA's), (Start: 76 @37732 has 4 MA's), (80, 37738), (86, 37756), (100, 37852), (109, 37924), (118, 37969), (119, 37975), (132, 38035), (141, 38095), (167, 38263), (198, 38422), (244, 38590), (268, 38644), (289, 38737), (298, 38776), (305, 38824), (341, 38947), (346, 38959), (348, 38965), (352, 38983), (384, 39103),

Gene: Speedwell\_55 Start: 37976, Stop: 39418, Start Num: 72

Candidate Starts for Speedwell\_55:

(Start: 72 @37976 has 2 MA's), (Start: 93 @38051 has 2 MA's), (99, 38105), (109, 38186), (135, 38321), (141, 38372), (147, 38420), (150, 38435), (157, 38501), (158, 38504), (161, 38507), (175, 38582), (189, 38651), (194, 38687), (205, 38744), (206, 38750), (217, 38801), (239, 38867), (256, 38921), (267, 38972), (275, 39002), (287, 39062), (306, 39152), (334, 39260), (335, 39266), (371, 39383), (380, 39407),

Gene: SuMoo\_64 Start: 40543, Stop: 42009, Start Num: 79

Candidate Starts for SuMoo\_64:

(Start: 79 @40543 has 7 MA's), (109, 40735), (139, 40906), (141, 40918), (189, 41191), (190, 41200), (275, 41539), (300, 41653), (337, 41803), (374, 41917),

Gene: SunsetPointe\_48 Start: 34190, Stop: 35512, Start Num: 83

Candidate Starts for SunsetPointe\_48:

(Start: 81 @34178 has 5 MA's), (Start: 83 @34190 has 15 MA's), (90, 34205), (99, 34292), (Start: 101 @34295 has 1 MA's), (105, 34319), (109, 34361), (112, 34370), (119, 34412), (120, 34421), (122, 34433), (138, 34523), (139, 34532), (144, 34556), (157, 34676), (161, 34682), (182, 34772), (189, 34787), (190, 34796), (196, 34829), (218, 34940), (219, 34946), (239, 34994), (245, 35009), (250, 35024), (269, 35084), (271, 35093), (275, 35108), (292, 35189), (299, 35219), (304, 35249), (315, 35297), (335, 35375), (350, 35423), (353, 35432), (361, 35459), (375, 35498),

Gene: Thestral\_55 Start: 38547, Stop: 39968, Start Num: 68

Candidate Starts for Thestral\_55:

(39, 38466), (Start: 42 @38475 has 1 MA's), (Start: 46 @38487 has 3 MA's), (Start: 63 @38538 has 5 MA's), (Start: 68 @38547 has 10 MA's), (116, 38784), (142, 38922), (157, 39051), (169, 39099), (189, 39210), (190, 39219), (194, 39246), (199, 39267), (200, 39270), (206, 39309), (212, 39324), (255, 39468), (268, 39525), (275, 39552), (301, 39669), (307, 39705), (318, 39759), (319, 39762), (331, 39795), (350, 39861), (367, 39918), (382, 39957),

Gene: Thyatira\_40 Start: 33664, Stop: 35070, Start Num: 82

Candidate Starts for Thyatira\_40:

(Start: 77 @33655 has 2 MA's), (Start: 82 @33664 has 35 MA's), (104, 33784), (130, 33961), (136, 33985), (143, 34036), (148, 34078), (154, 34126), (156, 34147), (160, 34174), (163, 34183), (166, 34210), (172, 34231), (174, 34249), (177, 34276), (184, 34321), (187, 34327), (214, 34432), (227, 34498), (231, 34507), (241, 34528), (247, 34546), (274, 34654), (277, 34663), (278, 34666), (298, 34762), (300, 34774), (307, 34810), (323, 34882), (326, 34891), (343, 34942), (354, 34981), (358, 34993), (360, 35002), (373, 35032), (378, 35047),

Gene: TinaBelcher\_53 Start: 38486, Stop: 39916, Start Num: 63

Candidate Starts for TinaBelcher\_53:

(39, 38414), (Start: 42 @38423 has 1 MA's), (Start: 46 @38435 has 3 MA's), (Start: 63 @38486 has 5 MA's), (Start: 68 @38495 has 10 MA's), (116, 38732), (142, 38870), (157, 38999), (169, 39047), (189, 39158), (190, 39167), (194, 39194), (199, 39215), (200, 39218), (206, 39257), (212, 39272), (255, 39416), (268, 39473), (275, 39500), (301, 39617), (307, 39653), (318, 39707), (319, 39710), (331, 39743), (350, 39809), (367, 39866), (382, 39905),

Gene: TingHuaYa\_41 Start: 31113, Stop: 32525, Start Num: 69

Candidate Starts for TingHuaYa\_41:

(64, 31104), (Start: 69 @31113 has 1 MA's), (Start: 83 @31134 has 15 MA's), (95, 31206), (105, 31263), (109, 31305), (110, 31308), (114, 31338), (116, 31344), (128, 31416), (148, 31539), (157, 31617), (164, 31644), (165, 31647), (175, 31695), (178, 31722), (189, 31764), (190, 31773), (194, 31800), (201, 31848), (208, 31884), (213, 31893), (216, 31911), (228, 31965), (233, 31977), (246, 32007), (262, 32067), (270, 32094), (272, 32100), (274, 32109), (275, 32112), (279, 32124), (282, 32142), (309, 32274), (313, 32289), (343, 32391), (356, 32436), (357, 32439), (368, 32490), (379, 32514), (381, 32520),

Gene: TinyDot\_31 Start: 24778, Stop: 26145, Start Num: 82

Candidate Starts for TinyDot\_31:

(Start: 82 @24778 has 35 MA's), (96, 24865), (130, 25075), (178, 25399), (231, 25633), (238, 25648), (338, 26017),

Gene: Toast\_37 Start: 30300, Stop: 31742, Start Num: 58

Candidate Starts for Toast\_37:

(Start: 58 @30300 has 1 MA's), (59, 30303), (Start: 82 @30351 has 35 MA's), (90, 30375), (Start: 93 @30408 has 2 MA's), (104, 30471), (114, 30564), (130, 30648), (149, 30774), (155, 30828), (172, 30918), (175, 30945), (187, 31023), (199, 31086), (205, 31122), (214, 31149), (221, 31200), (231, 31227), (238, 31242), (268, 31332), (271, 31344), (272, 31347), (304, 31482), (328, 31578), (343, 31623), (345, 31629),

Gene: TrvxScott\_52 Start: 38541, Stop: 39962, Start Num: 68

Candidate Starts for TrvxScott\_52:

(39, 38460), (Start: 42 @38469 has 1 MA's), (Start: 46 @38481 has 3 MA's), (Start: 63 @38532 has 5 MA's), (Start: 68 @38541 has 10 MA's), (116, 38778), (142, 38916), (157, 39045), (169, 39093), (189, 39204), (190, 39213), (194, 39240), (199, 39261), (200, 39264), (206, 39303), (212, 39318), (255, 39462), (275, 39546), (301, 39663), (307, 39699), (318, 39753), (319, 39756), (331, 39789), (350, 39855), (367, 39912), (382, 39951),

Gene: TyDawg\_126 Start: 69259, Stop: 67799, Start Num: 60

Candidate Starts for TyDawg\_126:

(Start: 45 @69301 has 1 MA's), (57, 69268), (Start: 60 @69259 has 19 MA's), (91, 69187), (102, 69106), (107, 69064), (109, 69040), (122, 68968), (139, 68851), (148, 68788), (159, 68704), (162, 68692), (170, 68650), (174, 68632), (203, 68470), (213, 68449), (220, 68398), (230, 68371), (244, 68344), (276, 68224), (307, 68074), (325, 67996), (340, 67951), (358, 67894),

Gene: Unstoppable\_49 Start: 34070, Stop: 35392, Start Num: 83

Candidate Starts for Unstoppable\_49:

(Start: 81 @34058 has 5 MA's), (Start: 83 @34070 has 15 MA's), (90, 34085), (99, 34172), (Start: 101 @34175 has 1 MA's), (105, 34199), (109, 34241), (112, 34250), (119, 34292), (120, 34301), (122, 34313), (138, 34403), (139, 34412), (144, 34436), (157, 34556), (161, 34562), (182, 34652), (189, 34667), (190, 34676), (196, 34709), (218, 34820), (219, 34826), (239, 34874), (245, 34889), (250, 34904), (269, 34964), (275, 34988), (292, 35069), (299, 35099), (304, 35129), (315, 35177), (335, 35255), (350, 35303), (353, 35312), (361, 35339), (375, 35378),

Gene: Urza\_50 Start: 33266, Stop: 34684, Start Num: 85

Candidate Starts for Urza\_50:

(40, 33152), (41, 33158), (Start: 77 @33245 has 2 MA's), (Start: 85 @33266 has 3 MA's), (133, 33578), (141, 33632), (142, 33635), (147, 33680), (150, 33695), (157, 33761), (176, 33845), (179, 33878), (195, 33950), (199, 33968), (209, 34022), (228, 34103), (239, 34127), (242, 34133), (257, 34184), (263, 34217), (281, 34286), (290, 34331), (306, 34412), (314, 34445), (315, 34448), (380, 34667),

Gene: Utz\_33 Start: 30671, Stop: 32062, Start Num: 82

Candidate Starts for Utz\_33:

(31, 30530), (35, 30557), (66, 30641), (Start: 75 @30662 has 1 MA's), (Start: 82 @30671 has 35 MA's), (104, 30791), (130, 30968), (145, 31061), (146, 31067), (149, 31094), (155, 31148), (175, 31265), (187, 31343), (221, 31520), (231, 31547), (238, 31562), (260, 31628), (261, 31631), (268, 31652), (271, 31664), (272, 31667), (293, 31745), (304, 31802), (318, 31871), (328, 31898), (345, 31949), (350, 31970),

Gene: UtzChips\_59 Start: 38303, Stop: 39808, Start Num: 79

Candidate Starts for UtzChips\_59:

(4, 37964), (53, 38255), (Start: 79 @38303 has 7 MA's), (109, 38495), (139, 38666), (170, 38858), (178, 38912), (190, 38960), (209, 39062), (275, 39299), (305, 39449), (332, 39548), (386, 39803),

Gene: Verabelle\_54 Start: 36387, Stop: 37772, Start Num: 71

Candidate Starts for Verabelle\_54:

(71, 36387), (121, 36657), (125, 36678), (133, 36708), (152, 36840), (185, 37026), (192, 37047), (196, 37074), (225, 37206), (243, 37245), (268, 37341), (276, 37371), (294, 37452), (307, 37521), (308, 37524), (321, 37584), (328, 37602), (339, 37638), (343, 37650), (349, 37674), (353, 37686), (357, 37698), (364, 37728),

Gene: Verse\_51 Start: 37557, Stop: 38969, Start Num: 76

Candidate Starts for Verse\_51:

(Start: 76 @37557 has 4 MA's), (90, 37587), (Start: 101 @37677 has 1 MA's), (109, 37743), (112, 37752), (113, 37770), (115, 37779), (119, 37794), (120, 37803), (122, 37815), (126, 37842), (132, 37866), (134, 37875), (139, 37914), (140, 37917), (144, 37938), (161, 38064), (162, 38067), (174, 38127), (189, 38238), (192, 38253), (200, 38298), (210, 38349), (218, 38391), (239, 38445), (245, 38460), (250, 38475), (271, 38544), (275, 38559), (288, 38622), (304, 38700), (311, 38733), (315, 38748), (350, 38874), (356, 38892), (365, 38928), (375, 38949),

Gene: VieEnRose\_50 Start: 33329, Stop: 34747, Start Num: 85

Candidate Starts for VieEnRose\_50:

(40, 33215), (41, 33221), (Start: 77 @33308 has 2 MA's), (Start: 85 @33329 has 3 MA's), (133, 33641), (141, 33695), (142, 33698), (147, 33743), (150, 33758), (157, 33824), (176, 33908), (179, 33941), (195, 34013), (199, 34031), (209, 34085), (217, 34124), (228, 34166), (239, 34190), (242, 34196), (257, 34247), (263, 34280), (281, 34349), (290, 34394), (306, 34475), (314, 34508), (349, 34634), (380, 34730),

Gene: ViviJ\_38 Start: 31256, Stop: 32626, Start Num: 93

Candidate Starts for ViviJ\_38:

(10, 30929), (19, 30992), (28, 31046), (51, 31133), (Start: 73 @31181 has 7 MA's), (Start: 93 @31256 has 2 MA's), (94, 31268), (109, 31379), (110, 31382), (115, 31415), (120, 31439), (132, 31502), (144, 31577), (185, 31853), (236, 32075), (242, 32087), (256, 32135), (263, 32165), (269, 32186), (275, 32210), (307, 32363), (324, 32444), (328, 32450), (332, 32462), (343, 32498), (345, 32504), (350, 32525), (355, 32540), (357, 32546), (371, 32594), (376, 32603),

Gene: Waterfoul\_39 Start: 31558, Stop: 32964, Start Num: 82

Candidate Starts for Waterfoul\_39:

(Start: 77 @31549 has 2 MA's), (Start: 82 @31558 has 35 MA's), (104, 31678), (130, 31855), (136, 31879), (143, 31930), (148, 31972), (154, 32020), (156, 32041), (160, 32068), (163, 32077), (166, 32104), (172, 32125), (174, 32143), (177, 32170), (184, 32215), (187, 32221), (214, 32326), (227, 32392), (231, 32401), (241, 32422), (247, 32440), (274, 32548), (277, 32557), (278, 32560), (298, 32656), (300, 32668), (307, 32704), (323, 32776), (326, 32785), (343, 32836), (354, 32875), (358, 32887), (360, 32896), (373, 32926), (378, 32941),

Gene: William\_40 Start: 31099, Stop: 32487, Start Num: 82

Candidate Starts for William\_40:

(Start: 82 @31099 has 35 MA's), (92, 31141), (Start: 93 @31156 has 2 MA's), (114, 31312), (125, 31369), (145, 31489), (149, 31522), (155, 31576), (156, 31582), (160, 31609), (166, 31645), (189, 31777), (200, 31837), (205, 31870), (210, 31888), (226, 31963), (231, 31975), (238, 31990), (254, 32026), (268, 32080), (271, 32092), (293, 32173), (304, 32230), (308, 32245), (313, 32266), (318, 32299), (321, 32308), (322, 32311), (326, 32323), (328, 32326), (331, 32335), (360, 32431), (366, 32452), (375, 32467),

Gene: Wisp\_35 Start: 29114, Stop: 30505, Start Num: 82

Candidate Starts for Wisp\_35:

(31, 28973), (35, 29000), (66, 29084), (Start: 75 @29105 has 1 MA's), (Start: 82 @29114 has 35 MA's), (Start: 93 @29171 has 2 MA's), (104, 29234), (114, 29327), (130, 29411), (145, 29504), (146, 29510), (149, 29537), (155, 29591), (175, 29708), (187, 29786), (210, 29903), (214, 29912), (221, 29963), (231, 29990), (238, 30005), (260, 30071), (261, 30074), (268, 30095), (271, 30107), (272, 30110), (293, 30188), (304, 30245), (318, 30314), (321, 30323), (328, 30341), (345, 30392), (365, 30467),

Gene: Wocket\_39 Start: 29863, Stop: 31254, Start Num: 82

Candidate Starts for Wocket\_39:

(Start: 82 @29863 has 35 MA's), (130, 30160), (149, 30286), (155, 30340), (175, 30457), (199, 30598), (205, 30634), (210, 30652), (221, 30712), (231, 30739), (238, 30754), (254, 30790), (260, 30820), (271, 30856), (272, 30859), (293, 30937), (318, 31063), (345, 31141), (350, 31162), (365, 31216),

Gene: Zainub\_54 Start: 37669, Stop: 39099, Start Num: 63

Candidate Starts for Zainub\_54:

(Start: 46 @37618 has 3 MA's), (Start: 63 @37669 has 5 MA's), (Start: 68 @37678 has 10 MA's), (109, 37888), (116, 37915), (142, 38053), (157, 38182), (169, 38230), (186, 38332), (189, 38341), (190, 38350), (194, 38377), (199, 38398), (200, 38401), (206, 38440), (212, 38455), (255, 38599), (275, 38683), (301, 38800), (307, 38836), (331, 38926), (333, 38935), (350, 38992), (364, 39040), (367, 39049), (382, 39088),

Gene: ZiggyZoo\_38 Start: 30330, Stop: 31721, Start Num: 82

Candidate Starts for ZiggyZoo\_38:

(48, 30252), (59, 30282), (66, 30300), (Start: 82 @30330 has 35 MA's), (104, 30450), (114, 30543), (126, 30609), (145, 30720), (149, 30753), (155, 30807), (175, 30924), (187, 31002), (221, 31179), (231, 31206), (238, 31221), (260, 31287), (261, 31290), (268, 31311), (269, 31314), (271, 31323),



(272, 31326), (293, 31404), (304, 31461), (313, 31497), (318, 31530), (321, 31539), (328, 31557),  
(345, 31608), (350, 31629), (365, 31683),

Gene: phiCAM\_49 Start: 38659, Stop: 40071, Start Num: 71

Candidate Starts for phiCAM\_49:

(71, 38659), (Start: 93 @38737 has 2 MA's), (117, 38902), (133, 38980), (152, 39112), (192, 39319),  
(203, 39391), (225, 39478), (243, 39517), (268, 39613), (290, 39709), (293, 39721), (296, 39730),  
(307, 39793), (318, 39847), (353, 39958), (379, 40036), (383, 40063),