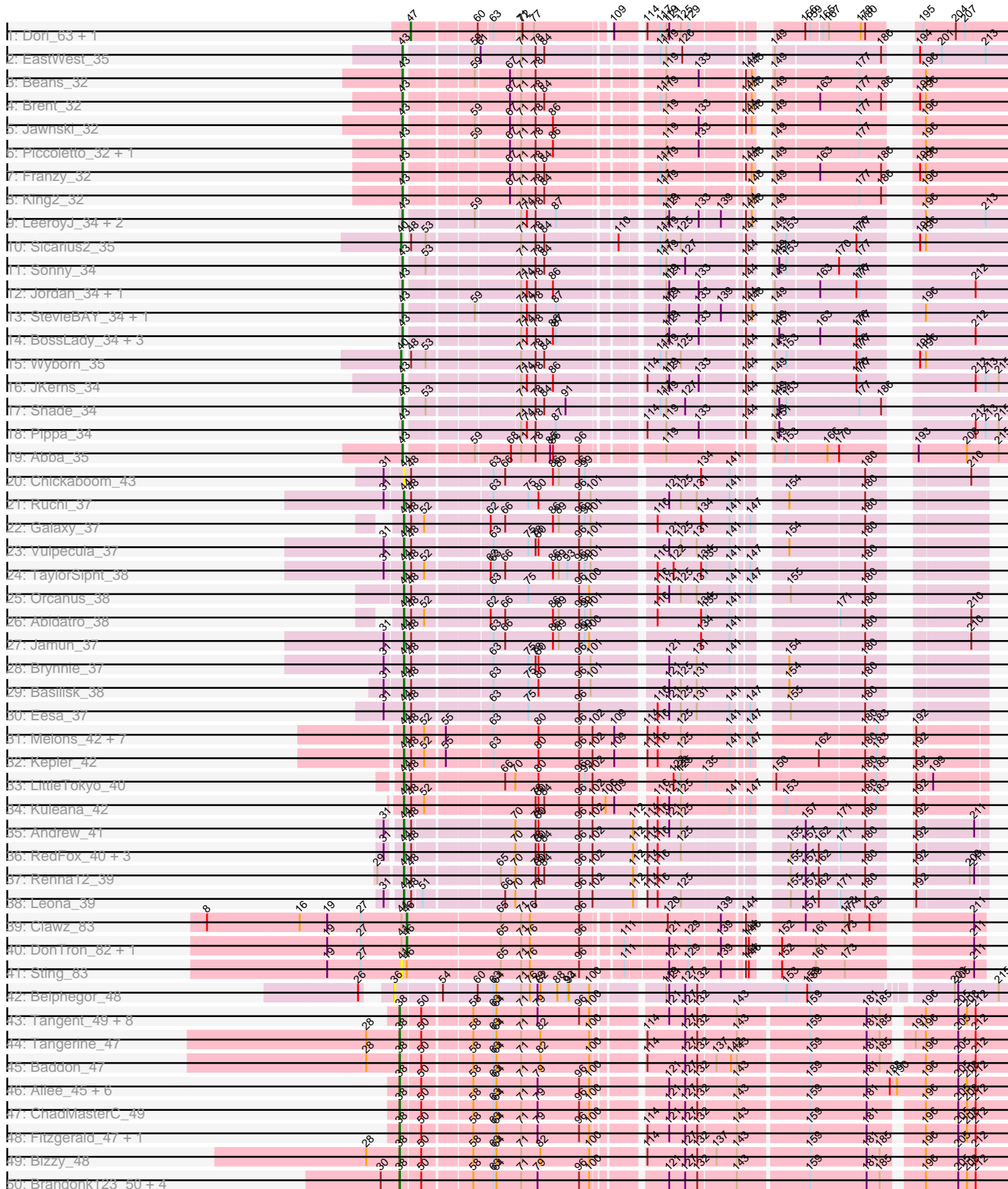
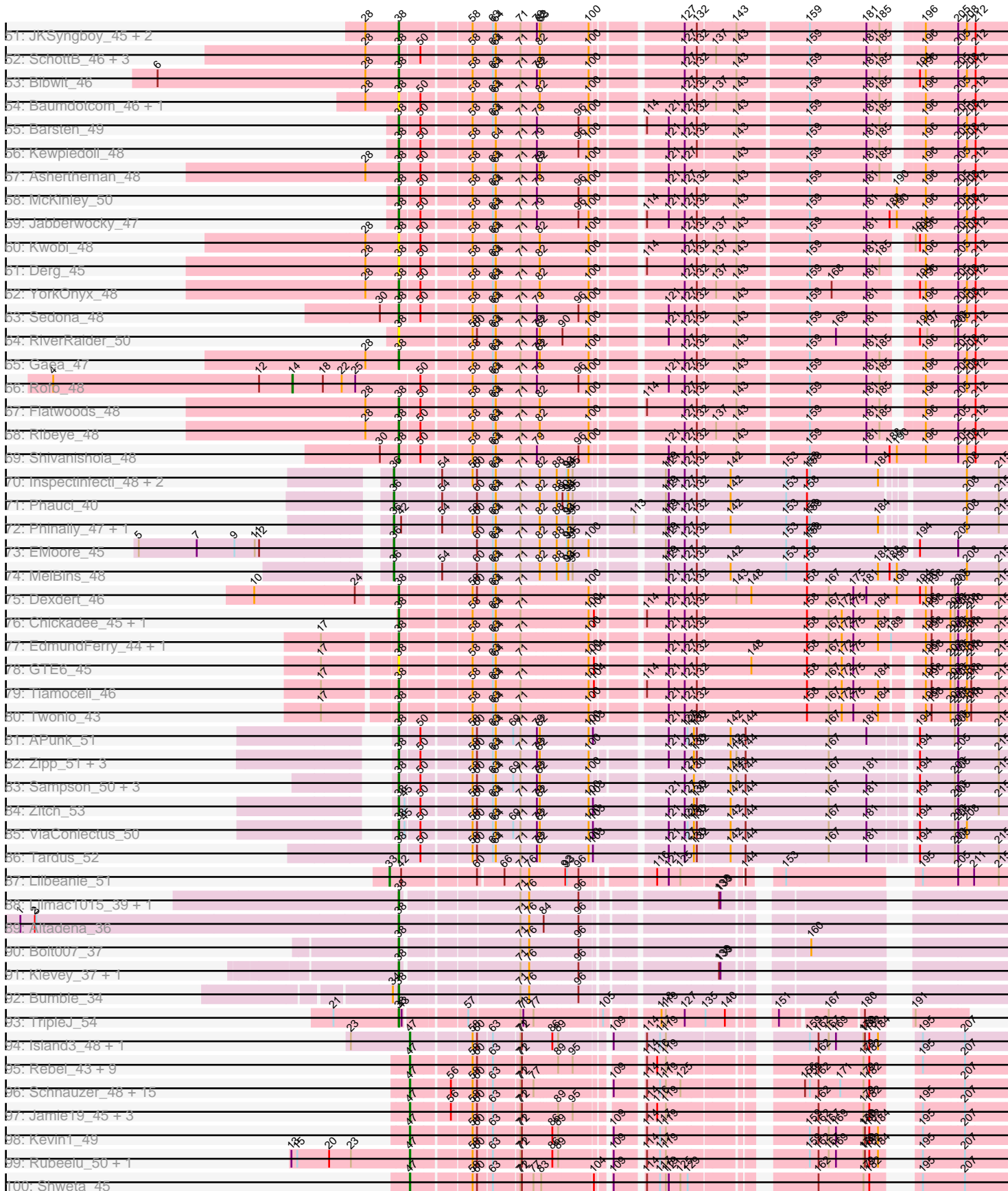


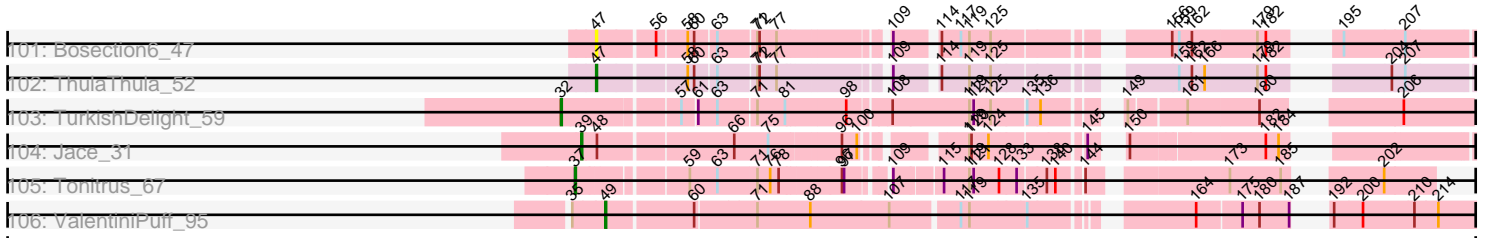
Pham 171219



Pham 171219



# Pham 171219



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 171219 Report

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

Pham number 171219 has 193 members, 27 are drafts.

Phages represented in each track:

- Track 1 : Dori\_63, Mask\_63
- Track 2 : EastWest\_35
- Track 3 : Beans\_32
- Track 4 : Brent\_32
- Track 5 : Jawnski\_32
- Track 6 : Piccoletto\_32, NathanVaag\_32
- Track 7 : Franzy\_32
- Track 8 : King2\_32
- Track 9 : LeeroyJ\_34, BarretLemon\_34, Timinator\_34
- Track 10 : Sicarius2\_35
- Track 11 : Sonny\_34
- Track 12 : Jordan\_34, Zartrosa\_34
- Track 13 : StevieBAY\_34, GravityBall\_34
- Track 14 : BossLady\_34, Martha\_34, TaeYoung\_34, Grekaycon\_34
- Track 15 : Wyborn\_35
- Track 16 : JKerns\_34
- Track 17 : Shade\_34
- Track 18 : Pippa\_34
- Track 19 : Abba\_35
- Track 20 : Chickaboom\_43
- Track 21 : Ruchi\_37
- Track 22 : Galaxy\_37
- Track 23 : Vulpecula\_37
- Track 24 : TaylorSipht\_38
- Track 25 : Orcanus\_38
- Track 26 : Abidatro\_38
- Track 27 : Jamun\_37
- Track 28 : Brynnie\_37
- Track 29 : Basilisk\_38
- Track 30 : Eesa\_37
- Track 31 : Melons\_42, Coral\_40, Amelia\_40, HannahPhantana\_48, Daob\_42, Lunar\_42, Cote\_42, Polka\_40
- Track 32 : Kepler\_42
- Track 33 : LittleTokyo\_40
- Track 34 : Kuleana\_42
- Track 35 : Andrew\_41
- Track 36 : RedFox\_40, Juno112\_40, PhluffyCoco\_40, KHumphrey\_39

- Track 37 : Renna12\_39
- Track 38 : Leona\_39
- Track 39 : Clawz\_83
- Track 40 : DonTron\_82, Soos\_78
- Track 41 : Sting\_83
- Track 42 : Belphegor\_48
- Track 43 : Tangent\_49, Charming\_49, Geodirt\_47, Vivi2\_51, Fosterous\_46, Love\_52, MoontowerMania\_48, Kamashten\_46, Thing3\_46
- Track 44 : Tangerine\_47
- Track 45 : Baddon\_47
- Track 46 : Ailee\_45, Sitar\_48, Affeca\_46, Stultus\_47, Keitabear\_48, Lennon\_48, Angelicage\_46
- Track 47 : ChadMasterC\_49
- Track 48 : Fitzgerald\_47, Sanjuju\_47
- Track 49 : Bizzy\_48
- Track 50 : Brandonk123\_50, Galadriel\_48, Nordenberg\_43, Paries\_51, BobBob\_46
- Track 51 : JKSyngboy\_45, Saronaya\_47, Gustavo\_47
- Track 52 : SchottB\_46, StorminNorm\_47, Kroos\_48, Tycho\_47
- Track 53 : Bibwit\_46
- Track 54 : Baumdotcom\_46, LilHam\_45
- Track 55 : Barsten\_49
- Track 56 : Kewpiedoll\_48
- Track 57 : Ashertheman\_48
- Track 58 : McKinley\_50
- Track 59 : Jabberwocky\_47
- Track 60 : Kwobi\_48
- Track 61 : Derg\_45
- Track 62 : YorkOnyx\_48
- Track 63 : Sedona\_48
- Track 64 : RiverRaider\_50
- Track 65 : Gaea\_47
- Track 66 : Rofo\_48
- Track 67 : Flatwoods\_48
- Track 68 : Ribeye\_48
- Track 69 : Shivanishola\_48
- Track 70 : Inspectinfecti\_48, Ali17\_45, Hans\_49
- Track 71 : Phauci\_40
- Track 72 : Phinally\_47, Leonard\_47
- Track 73 : EMoore\_45
- Track 74 : MelBins\_48
- Track 75 : Dxdert\_46
- Track 76 : Chickadee\_45, Kwekel\_45
- Track 77 : EdmundFerry\_44, RoadKill\_43
- Track 78 : GTE6\_45
- Track 79 : Tiamoceli\_46
- Track 80 : Twonlo\_43
- Track 81 : APunk\_51
- Track 82 : Zipp\_51, Delrey21\_50, DoctorFroggo\_50, Verity\_50
- Track 83 : Sampson\_50, Scioto\_51, Natkenzie\_50, Abblin\_50
- Track 84 : Zitch\_53
- Track 85 : ViaConlectus\_50
- Track 86 : Tardus\_52
- Track 87 : Lilbeanie\_51

- Track 88 : Lilmac1015\_39, CalWood4100\_39
- Track 89 : Altadena\_36
- Track 90 : Bolt007\_37
- Track 91 : Klevey\_37, Prairie\_36
- Track 92 : Bumble\_34
- Track 93 : TripleJ\_54
- Track 94 : Island3\_48, Brujita\_48
- Track 95 : Rebel\_43, ShrimpFriedEgg\_51, Nenae\_51, Purgamenstris\_51, Raymond7\_45, BabeRuth\_52, Redi\_51, Andies\_44, PhancyPhin\_51, Phrann\_48
- Track 96 : Schnauzer\_48, Fulbright\_46, Melville\_51, ParmesanJohn\_47, Magsby\_47, Scitech\_44, Silvafighter\_48, Carcharodon\_47, Gex\_47, Xerxes\_47, Pipsqueaks\_47, Smurph\_47, Phloss\_45, Tapioca\_49, Chewbacca\_49, Duplicity\_47
- Track 97 : Jamie19\_45, Panchino\_44, SpongeBob\_45, Snekmaggedon\_45
- Track 98 : Kevin1\_49
- Track 99 : Rubeelu\_50, Butters\_50
- Track 100 : Shweta\_45
- Track 101 : Bosection6\_47
- Track 102 : ThulaThula\_52
- Track 103 : TurkishDelight\_59
- Track 104 : Jace\_31
- Track 105 : Tonitrus\_67
- Track 106 : ValentiniPuff\_95

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

The start number called the most often in the published annotations is 38, it was called in 65 of the 166 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- APunk\_51, Abblin\_50, Affeca\_46, Ailee\_45, Altadena\_36, Angelicage\_46, Ashertheman\_48, Baddon\_47, Barsten\_49, Baumdotcom\_46, Bibwit\_46, Bizzy\_48, BobBob\_46, Bolt007\_37, Brandonk123\_50, Bumble\_34, CalWood4100\_39, ChadMasterC\_49, Charming\_49, Chickadee\_45, Delrey21\_50, Derg\_45, Dexdert\_46, DoctorFroggo\_50, EdmundFerry\_44, Fitzgerald\_47, Flatwoods\_48, Fosterous\_46, GTE6\_45, Gaea\_47, Galadriel\_48, Geodirt\_47, Gustavo\_47, JKSyngboy\_45, Jabberwocky\_47, Kamashten\_46, Keitabear\_48, Kewpiedoll\_48, Klevey\_37, Kroos\_48, Kwekel\_45, Kwobi\_48, Lennon\_48, LilHam\_45, Lilmac1015\_39, Love\_52, McKinley\_50, MoontowerMania\_48, Natkenzie\_50, Nordenberg\_43, Paries\_51, Prairie\_36, Ribeye\_48, RiverRaider\_50, RoadKill\_43, Sampson\_50, Sanjuju\_47, Saronaya\_47, SchottB\_46, Scioto\_51, Sedona\_48, Shivanishola\_48, Sitar\_48, StorminNorm\_47, Stultus\_47, Tangent\_49, Tangerine\_47, Tardus\_52, Thing3\_46, Tiamoceli\_46, TripleJ\_54, Twonlo\_43, Tycho\_47, Verity\_50, ViaConlectus\_50, Vivi2\_51, YorkOnyx\_48, Zipp\_51, Zitch\_53,

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

- 

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

- Abba\_35, Abidatro\_38, Ali17\_45, Amelia\_40, Andies\_44, Andrew\_41, BabeRuth\_52, BarretLemon\_34, Basilisk\_38, Beans\_32, Belphegor\_48,

Bosection6\_47, BossLady\_34, Brent\_32, Brujita\_48, Brynnie\_37, Butters\_50, Carcharodon\_47, Chewbacca\_49, Chickaboom\_43, Clawz\_83, Coral\_40, Cote\_42, Daob\_42, DonTron\_82, Dori\_63, Duplicity\_47, EMOore\_45, EastWest\_35, Eesa\_37, Franzy\_32, Fulbright\_46, Galaxy\_37, Gex\_47, GravityBall\_34, Grekaycon\_34, HannahPhantana\_48, Hans\_49, Inspectinfecti\_48, Island3\_48, JKerns\_34, Jace\_31, Jamie19\_45, Jamun\_37, Jawnski\_32, Jordan\_34, Juno112\_40, KHumphrey\_39, Kepler\_42, Kevin1\_49, King2\_32, Kuleana\_42, LeeroyJ\_34, Leona\_39, Leonard\_47, Lilbeanie\_51, LittleTokyo\_40, Lunar\_42, Magsby\_47, Martha\_34, Mask\_63, MelBins\_48, Melons\_42, Melville\_51, NathanVaag\_32, Nenae\_51, Orcanus\_38, Panchino\_44, Parmesanjohn\_47, PhancyPhin\_51, Phauci\_40, Phinally\_47, Phloss\_45, PhluffyCoco\_40, Phrann\_48, Piccoletto\_32, Pippa\_34, Pipsqueaks\_47, Polka\_40, Purgamenstris\_51, Raymond7\_45, Rebel\_43, RedFox\_40, Redi\_51, Renna12\_39, Rofo\_48, Rubeelu\_50, Ruchi\_37, Schnauzer\_48, Scitech\_44, Shade\_34, ShrimpFriedEgg\_51, Shweta\_45, Sicarius2\_35, Silvafighter\_48, Smurph\_47, Snekmaggon\_45, Sonny\_34, Soos\_78, SpongeBob\_45, StevieBAY\_34, Sting\_83, TaeYoung\_34, Tapioca\_49, TaylorSipht\_38, ThulaThula\_52, Timinator\_34, Tonitrus\_67, TurkishDelight\_59, ValentiniPuff\_95, Vulpecula\_37, Wyborn\_35, Xerxes\_47, Zartrosa\_34,

### Summary by start number:

#### Start 14:

- Found in 1 of 193 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 166
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rofo\_48 (DE1),

#### Start 32:

- Found in 1 of 193 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 166
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TurkishDelight\_59 (singleton),

#### Start 33:

- Found in 1 of 193 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 166
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Lilbeanie\_51 (DE5),

#### Start 36:

- Found in 9 of 193 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 7 of 166
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ali17\_45 (DE2), Belphegor\_48 (DE), EMOore\_45 (DE2), Hans\_49 (DE2), Inspectinfecti\_48 (DE2), Leonard\_47 (DE2), MelBins\_48 (DE2), Phauci\_40 (DE2), Phinally\_47 (DE2),

#### Start 37:

- Found in 1 of 193 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 166
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Tonitrus\_67 (singleton),

#### Start 38:

- Found in 79 of 193 ( 40.9% ) of genes in pham
- Manual Annotations of this start: 65 of 166
- Called 100.0% of time when present
- Phage (with cluster) where this start called: APunk\_51 (DE4), Abblin\_50 (DE4), Affeca\_46 (DE1), Ailee\_45 (DE1), Altadena\_36 (FH), Angelicage\_46 (DE1), Ashertheman\_48 (DE1), Baddon\_47 (DE1), Barsten\_49 (DE1), Baumdotcom\_46 (DE1), Bibwit\_46 (DE1), Bizzy\_48 (DE1), BobBob\_46 (DE1), Bolt007\_37 (FH), Brandonk123\_50 (DE1), Bumble\_34 (FH), CalWood4100\_39 (FH), ChadMasterC\_49 (DE1), Charming\_49 (DE1), Chickadee\_45 (DE3), Delrey21\_50 (DE4), Derg\_45 (DE1), Dextert\_46 (DE3), DoctorFroggo\_50 (DE4), EdmundFerry\_44 (DE3), Fitzgerald\_47 (DE1), Flatwoods\_48 (DE1), Fosterous\_46 (DE1), GTE6\_45 (DE3), Gaea\_47 (DE1), Galadriel\_48 (DE1), Geodirt\_47 (DE1), Gustavo\_47 (DE1), JKSyngboy\_45 (DE1), Jabberwocky\_47 (DE1), Kamashten\_46 (DE1), Keitabear\_48 (DE1), Kewpiedoll\_48 (DE1), Klevey\_37 (FH), Kroos\_48 (DE1), Kwekel\_45 (DE3), Kwobi\_48 (DE1), Lennon\_48 (DE1), LilHam\_45 (DE1), Lilmac1015\_39 (FH), Love\_52 (DE1), McKinley\_50 (DE1), MoontowerMania\_48 (DE1), Natkenzie\_50 (DE4), Nordenberg\_43 (DE1), Paries\_51 (DE1), Prairie\_36 (FH), Ribeye\_48 (DE1), RiverRaider\_50 (DE1), RoadKill\_43 (DE3), Sampson\_50 (DE4), Sanjuju\_47 (DE1), Saronaya\_47 (DE1), SchottB\_46 (DE1), Scioto\_51 (DE4), Sedona\_48 (DE1), Shivanishola\_48 (DE1), Sitar\_48 (DE1), StorminNorm\_47 (DE1), Stultus\_47 (DE1), Tangent\_49 (DE1), Tangerine\_47 (DE1), Tardus\_52 (DE4), Thing3\_46 (DE1), Tiamoceli\_46 (DE3), TripleJ\_54 (FJ), Twonlo\_43 (DE3), Tycho\_47 (DE1), Verity\_50 (DE4), ViaConlectus\_50 (DE4), Vivi2\_51 (DE1), YorkOnyx\_48 (DE1), Zipp\_51 (DE4), Zitch\_53 (DE4),

#### Start 39:

- Found in 1 of 193 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 166
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jace\_31 (singleton),

#### Start 40:

- Found in 2 of 193 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 2 of 166
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sicarius2\_35 (AO2), Wyborn\_35 (AO2),

#### Start 41:

- Found in 4 of 193 ( 2.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Sting\_83 (CP),

#### Start 43:

- Found in 25 of 193 ( 13.0% ) of genes in pham
- Manual Annotations of this start: 23 of 166
- Called 96.0% of time when present
- Phage (with cluster) where this start called: Abba\_35 (AO3), BarretLemon\_34 (AO2), Beans\_32 (AO1), BossLady\_34 (AO2), Brent\_32 (AO1), EastWest\_35 (AO), Franzy\_32 (AO1), GravityBall\_34 (AO2), Grekaycon\_34 (AO2), JKerns\_34 (AO2), Jawnski\_32 (AO1), Jordan\_34 (AO2), King2\_32 (AO1), LeeroyJ\_34 (AO2), Martha\_34 (AO2), NathanVaag\_32 (AO1), Piccoletto\_32 (AO1), Pippa\_34 (AO2),



Shade\_34 (AO2), Sonny\_34 (AO2), StevieBAY\_34 (AO2), TaeYoung\_34 (AO2), Timinator\_34 (AO2), Zartrosa\_34 (AO2),

Start 44:

- Found in 29 of 193 ( 15.0% ) of genes in pham
- Manual Annotations of this start: 24 of 166
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abidatro\_38 (AS1), Amelia\_40 (AS2), Andrew\_41 (AS3), Basilisk\_38 (AS1), Brynnie\_37 (AS1), Chickaboom\_43 (AS1), Coral\_40 (AS2), Cote\_42 (AS2), Daob\_42 (AS2), Eesa\_37 (AS1), Galaxy\_37 (AS1), HannahPhantana\_48 (AS2), Jamun\_37 (AS1), Juno112\_40 (AS3), KHumphrey\_39 (AS3), Kepler\_42 (AS2), Kuleana\_42 (AS2), Leona\_39 (AS3), LittleTokyo\_40 (AS2), Lunar\_42 (AS2), Melons\_42 (AS2), Orcanus\_38 (AS1), PhluffyCoco\_40 (AS3), Polka\_40 (AS2), RedFox\_40 (AS3), Renna12\_39 (AS3), Ruchi\_37 (AS1), TaylorSipt\_38 (AS1), Vulpecula\_37 (AS1),

Start 46:

- Found in 4 of 193 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 2 of 166
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Clawz\_83 (CP), DonTron\_82 (CP), Soos\_78 (CP),

Start 47:

- Found in 40 of 193 ( 20.7% ) of genes in pham
- Manual Annotations of this start: 37 of 166
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Andies\_44 (N), BabeRuth\_52 (N), Bosection6\_47 (N), Brujita\_48 (I1), Butters\_50 (N), Carcharodon\_47 (N), Chewbacca\_49 (N), Dori\_63 (AD), Duplicity\_47 (N), Fulbright\_46 (N), Gex\_47 (N), Island3\_48 (I1), Jamie19\_45 (N), Kevin1\_49 (N), Magsby\_47 (N), Mask\_63 (AD), Melville\_51 (N), Nenae\_51 (N), Panchino\_44 (N), Parmesanjohn\_47 (N), PhancyPhin\_51 (N), Phloss\_45 (N), Phrann\_48 (N), Pipsqueaks\_47 (N), Purgamenstris\_51 (N), Raymond7\_45 (N), Rebel\_43 (N), Redi\_51 (N), Rubeelu\_50 (N), Schnauzer\_48 (N), Scitech\_44 (N), ShrimpFriedEgg\_51 (N), Shweta\_45 (N), Silvafighter\_48 (N), Smurph\_47 (N), Snekmaggon\_45 (N), SpongeBob\_45 (N), Tapioca\_49 (N), ThulaThula\_52 (P5), Xerxes\_47 (N),

Start 49:

- Found in 1 of 193 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 166
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ValentiniPuff\_95 (singleton),

### Summary by clusters:

There are 21 clusters represented in this pham: AS3, AS2, AS1, DE, AD, DE5, P5, I1, DE1, DE2, DE3, DE4, singleton, AO, N, AO3, AO2, AO1, FH, FJ, CP,

Info for manual annotations of cluster AD:

- Start number 47 was manually annotated 2 times for cluster AD.

Info for manual annotations of cluster AO:

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

Info for manual annotations of cluster AO1:

- Start number 43 was manually annotated 7 times for cluster AO1.

Info for manual annotations of cluster AO2:

- Start number 40 was manually annotated 2 times for cluster AO2.
- Start number 43 was manually annotated 14 times for cluster AO2.

Info for manual annotations of cluster AO3:

- Start number 43 was manually annotated 1 time for cluster AO3.

Info for manual annotations of cluster AS1:

- Start number 44 was manually annotated 10 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 44 was manually annotated 10 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 44 was manually annotated 4 times for cluster AS3.

Info for manual annotations of cluster CP:

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

Info for manual annotations of cluster DE1:

- Start number 14 was manually annotated 1 time for cluster DE1.
- Start number 38 was manually annotated 42 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 36 was manually annotated 7 times for cluster DE2.

Info for manual annotations of cluster DE3:

- Start number 38 was manually annotated 7 times for cluster DE3.

Info for manual annotations of cluster DE4:

- Start number 38 was manually annotated 9 times for cluster DE4.

Info for manual annotations of cluster DE5:

- Start number 33 was manually annotated 1 time for cluster DE5.

Info for manual annotations of cluster FH:

- Start number 38 was manually annotated 6 times for cluster FH.

Info for manual annotations of cluster FJ:

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

Info for manual annotations of cluster I1:

- Start number 47 was manually annotated 2 times for cluster I1.

Info for manual annotations of cluster N:

- Start number 47 was manually annotated 32 times for cluster N.

Info for manual annotations of cluster P5:

- Start number 47 was manually annotated 1 time for cluster P5.

### **Gene Information:**

Gene: APunk\_51 Start: 41866, Stop: 43041, Start Num: 38

Candidate Starts for APunk\_51:

(Start: 38 @41866 has 65 MA's), (50, 41905), (58, 41998), (60, 42007), (63, 42040), (64, 42046), (69, 42082), (71, 42097), (79, 42130), (82, 42136), (100, 42229), (103, 42238), (121, 42373), (127, 42406), (129, 42409), (130, 42421), (132, 42427), (142, 42490), (144, 42520), (167, 42691), (181, 42766), (194, 42850), (203, 42922), (205, 42928), (215, 43009),

Gene: Abba\_35 Start: 27714, Stop: 28745, Start Num: 43

Candidate Starts for Abba\_35:

(Start: 43 @27714 has 23 MA's), (59, 27831), (68, 27897), (71, 27915), (78, 27945), (85, 27969), (86, 27975), (96, 28023), (119, 28155), (149, 28317), (153, 28341), (166, 28416), (170, 28437), (193, 28542), (208, 28635), (215, 28701),

Gene: Abblin\_50 Start: 42409, Stop: 43563, Start Num: 38

Candidate Starts for Abblin\_50:

(Start: 38 @42409 has 65 MA's), (50, 42448), (58, 42541), (60, 42550), (63, 42583), (64, 42589), (69, 42625), (71, 42640), (79, 42673), (82, 42679), (100, 42772), (127, 42928), (130, 42943), (142, 43012), (143, 43024), (144, 43042), (167, 43213), (181, 43288), (194, 43372), (203, 43444), (205, 43450), (215, 43531),

Gene: Abidatro\_38 Start: 25301, Stop: 26326, Start Num: 44

Candidate Starts for Abidatro\_38:

(Start: 44 @25301 has 24 MA's), (48, 25316), (52, 25343), (62, 25460), (66, 25490), (86, 25586), (89, 25598), (96, 25640), (99, 25652), (101, 25664), (116, 25778), (134, 25865), (135, 25871), (141, 25919), (171, 26090), (180, 26138), (210, 26291),

Gene: Affeca\_46 Start: 40965, Stop: 42128, Start Num: 38

Candidate Starts for Affeca\_46:

(Start: 38 @40965 has 65 MA's), (50, 41004), (58, 41097), (63, 41139), (64, 41145), (71, 41196), (79, 41229), (96, 41304), (100, 41325), (121, 41448), (127, 41481), (132, 41502), (143, 41577), (159, 41715), (181, 41829), (188, 41877), (190, 41892), (196, 41952), (205, 42018), (208, 42033), (212, 42051),

Gene: Ailee\_45 Start: 40558, Stop: 41721, Start Num: 38

Candidate Starts for Ailee\_45:

(Start: 38 @40558 has 65 MA's), (50, 40597), (58, 40690), (63, 40732), (64, 40738), (71, 40789), (79, 40822), (96, 40897), (100, 40918), (121, 41041), (127, 41074), (132, 41095), (143, 41170), (159, 41308), (181, 41422), (188, 41470), (190, 41485), (196, 41545), (205, 41611), (208, 41626), (212, 41644),

Gene: Ali17\_45 Start: 39857, Stop: 41008, Start Num: 36

Candidate Starts for Ali17\_45:

(Start: 36 @39857 has 7 MA's), (54, 39941), (58, 39998), (60, 40007), (63, 40040), (64, 40046), (71, 40094), (82, 40133), (88, 40163), (93, 40181), (94, 40184), (95, 40193), (119, 40343), (121, 40349), (127, 40382), (132, 40403), (142, 40466), (153, 40580), (158, 40622), (159, 40628), (184, 40766), (208, 40910), (215, 40976),

Gene: Altadena\_36 Start: 26934, Stop: 28001, Start Num: 38

Candidate Starts for Altadena\_36:

(1, 26163), (2, 26193), (3, 26196), (Start: 38 @26934 has 65 MA's), (71, 27156), (76, 27174), (84, 27201), (96, 27264),

Gene: Amelia\_40 Start: 25064, Stop: 26086, Start Num: 44

Candidate Starts for Amelia\_40:

(Start: 44 @25064 has 24 MA's), (48, 25079), (52, 25106), (55, 25142), (63, 25229), (80, 25322), (96, 25403), (102, 25430), (109, 25475), (114, 25523), (116, 25544), (125, 25592), (141, 25688), (147, 25715), (180, 25907), (183, 25928), (192, 25952),

Gene: Andies\_44 Start: 31627, Stop: 32637, Start Num: 47

Candidate Starts for Andies\_44:

(Start: 47 @31627 has 37 MA's), (58, 31741), (60, 31750), (63, 31777), (71, 31828), (72, 31831), (89, 31897), (95, 31924), (114, 32032), (116, 32050), (119, 32068), (162, 32317), (179, 32407), (182, 32419), (195, 32467), (207, 32548),

Gene: Andrew\_41 Start: 24893, Stop: 25906, Start Num: 44

Candidate Starts for Andrew\_41:

(31, 24869), (Start: 44 @24893 has 24 MA's), (48, 24908), (70, 25097), (78, 25139), (80, 25145), (96, 25226), (102, 25253), (112, 25334), (114, 25343), (116, 25364), (121, 25388), (125, 25412), (157, 25613), (171, 25679), (180, 25727), (192, 25772), (211, 25883),

Gene: Angelicage\_46 Start: 41383, Stop: 42546, Start Num: 38

Candidate Starts for Angelicage\_46:

(Start: 38 @41383 has 65 MA's), (50, 41422), (58, 41515), (63, 41557), (64, 41563), (71, 41614), (79, 41647), (96, 41722), (100, 41743), (121, 41866), (127, 41899), (132, 41920), (143, 41995), (159, 42133), (181, 42247), (188, 42295), (190, 42310), (196, 42370), (205, 42436), (208, 42451), (212, 42469),

Gene: Ashertheman\_48 Start: 41154, Stop: 42287, Start Num: 38

Candidate Starts for Ashertheman\_48:

(28, 41085), (Start: 38 @41154 has 65 MA's), (50, 41199), (58, 41292), (63, 41334), (64, 41340), (71, 41391), (79, 41424), (82, 41430), (100, 41520), (121, 41643), (127, 41676), (143, 41772), (159, 41910), (181, 42024), (185, 42051), (196, 42111), (205, 42177), (212, 42210),

Gene: BabeRuth\_52 Start: 33348, Stop: 34358, Start Num: 47

Candidate Starts for BabeRuth\_52:

(Start: 47 @33348 has 37 MA's), (58, 33462), (60, 33471), (63, 33498), (71, 33549), (72, 33552), (89, 33618), (95, 33645), (114, 33753), (116, 33771), (119, 33789), (162, 34038), (179, 34128), (182, 34140), (195, 34188), (207, 34269),

Gene: Baddon\_47 Start: 41688, Stop: 42815, Start Num: 38

Candidate Starts for Baddon\_47:

(28, 41619), (Start: 38 @41688 has 65 MA's), (50, 41727), (58, 41820), (63, 41862), (64, 41868), (71, 41919), (82, 41958), (100, 42048), (114, 42129), (127, 42204), (132, 42225), (137, 42258), (142, 42288), (143, 42300), (159, 42438), (181, 42552), (185, 42579), (196, 42639), (205, 42705), (212, 42738),

Gene: BarretLemon\_34 Start: 28805, Stop: 29824, Start Num: 43

Candidate Starts for BarretLemon\_34:

(Start: 43 @28805 has 23 MA's), (59, 28922), (71, 29006), (74, 29018), (78, 29036), (87, 29072), (119, 29246), (121, 29252), (133, 29309), (139, 29348), (144, 29384), (148, 29396), (149, 29408), (196, 29651), (213, 29771),

Gene: Barsten\_49 Start: 41538, Stop: 42665, Start Num: 38

Candidate Starts for Barsten\_49:

(Start: 38 @41538 has 65 MA's), (50, 41577), (58, 41670), (63, 41712), (64, 41718), (71, 41769), (79, 41802), (96, 41877), (100, 41898), (114, 41979), (121, 42021), (127, 42054), (132, 42075), (143, 42150), (159, 42288), (181, 42402), (185, 42429), (196, 42489), (205, 42555), (208, 42570), (212, 42588),

Gene: Basilisk\_38 Start: 25812, Stop: 26840, Start Num: 44

Candidate Starts for Basilisk\_38:

(31, 25779), (Start: 44 @25812 has 24 MA's), (48, 25827), (63, 25977), (75, 26049), (80, 26070), (96, 26151), (101, 26175), (121, 26313), (125, 26337), (131, 26370), (154, 26505), (180, 26652),

Gene: Baumdotcom\_46 Start: 40560, Stop: 41684, Start Num: 38

Candidate Starts for Baumdotcom\_46:

(28, 40491), (Start: 38 @40560 has 65 MA's), (50, 40596), (58, 40689), (63, 40731), (64, 40737), (71, 40788), (82, 40827), (100, 40917), (127, 41073), (132, 41094), (137, 41127), (143, 41169), (159, 41307), (181, 41421), (185, 41448), (196, 41508), (205, 41574), (212, 41607),

Gene: Beans\_32 Start: 28492, Stop: 29520, Start Num: 43

Candidate Starts for Beans\_32:

(Start: 43 @28492 has 23 MA's), (59, 28609), (67, 28675), (71, 28693), (78, 28723), (119, 28933), (133, 28996), (144, 29071), (148, 29083), (149, 29095), (177, 29260), (196, 29338),

Gene: Belphegor\_48 Start: 41897, Stop: 43045, Start Num: 36

Candidate Starts for Belphegor\_48:

(26, 41861), (Start: 36 @41897 has 7 MA's), (54, 41978), (60, 42044), (63, 42077), (64, 42083), (71, 42131), (76, 42149), (79, 42164), (82, 42170), (88, 42200), (93, 42218), (94, 42221), (100, 42263), (119, 42380), (121, 42386), (127, 42419), (132, 42440), (153, 42617), (158, 42659), (159, 42665), (203, 42926), (205, 42932), (215, 43013),

Gene: Bibwit\_46 Start: 40244, Stop: 41377, Start Num: 38

Candidate Starts for Bibwit\_46:

(6, 39749), (28, 40175), (Start: 38 @40244 has 65 MA's), (58, 40382), (63, 40424), (64, 40430), (71, 40481), (79, 40514), (82, 40520), (100, 40610), (127, 40766), (132, 40787), (143, 40862), (159, 41000), (181, 41114), (185, 41141), (194, 41189), (196, 41201), (205, 41267), (208, 41282), (212, 41300),

Gene: Bizzy\_48 Start: 40845, Stop: 41972, Start Num: 38

Candidate Starts for Bizzy\_48:

(28, 40776), (Start: 38 @40845 has 65 MA's), (50, 40884), (58, 40977), (63, 41019), (64, 41025), (71, 41076), (82, 41115), (100, 41205), (114, 41286), (127, 41361), (132, 41382), (137, 41415), (143, 41457), (159, 41595), (181, 41709), (185, 41736), (196, 41796), (205, 41862), (212, 41895),

Gene: BobBob\_46 Start: 40656, Stop: 41780, Start Num: 38

Candidate Starts for BobBob\_46:

(30, 40617), (Start: 38 @40656 has 65 MA's), (50, 40692), (58, 40785), (63, 40827), (64, 40833), (71, 40884), (79, 40917), (96, 40992), (100, 41013), (121, 41136), (127, 41169), (132, 41190), (143, 41265), (159, 41403), (181, 41517), (185, 41544), (196, 41604), (205, 41670), (208, 41685), (212, 41703),

Gene: Bolt007\_37 Start: 29435, Stop: 30487, Start Num: 38

Candidate Starts for Bolt007\_37:

(Start: 38 @29435 has 65 MA's), (71, 29645), (76, 29663), (96, 29753), (160, 30122),

Gene: Bosection6\_47 Start: 31093, Stop: 32103, Start Num: 47

Candidate Starts for Bosection6\_47:

(Start: 47 @31093 has 37 MA's), (56, 31168), (58, 31207), (60, 31216), (63, 31243), (71, 31294), (72, 31297), (77, 31321), (109, 31447), (114, 31498), (117, 31522), (119, 31534), (125, 31564), (156, 31756), (159, 31765), (162, 31783), (179, 31873), (182, 31885), (195, 31933), (207, 32014),

Gene: BossLady\_34 Start: 28774, Stop: 29793, Start Num: 43

Candidate Starts for BossLady\_34:

(Start: 43 @28774 has 23 MA's), (71, 28975), (74, 28987), (78, 29005), (86, 29035), (87, 29041), (119, 29215), (121, 29221), (133, 29278), (144, 29353), (149, 29377), (151, 29386), (163, 29464), (176, 29536), (177, 29542), (212, 29719),

Gene: Brandonk123\_50 Start: 41790, Stop: 42914, Start Num: 38

Candidate Starts for Brandonk123\_50:

(30, 41751), (Start: 38 @41790 has 65 MA's), (50, 41826), (58, 41919), (63, 41961), (64, 41967), (71, 42018), (79, 42051), (96, 42126), (100, 42147), (121, 42270), (127, 42303), (132, 42324), (143, 42399), (159, 42537), (181, 42651), (185, 42678), (196, 42738), (205, 42804), (208, 42819), (212, 42837),

Gene: Brent\_32 Start: 28455, Stop: 29483, Start Num: 43

Candidate Starts for Brent\_32:

(Start: 43 @28455 has 23 MA's), (67, 28638), (71, 28656), (78, 28686), (84, 28701), (117, 28884), (119, 28896), (144, 29034), (148, 29046), (149, 29058), (163, 29145), (177, 29223), (186, 29265), (194, 29289), (196, 29301),

Gene: Brujita\_48 Start: 33774, Stop: 34781, Start Num: 47

Candidate Starts for Brujita\_48:

(23, 33654), (Start: 47 @33774 has 37 MA's), (58, 33885), (60, 33894), (63, 33921), (71, 33972), (72, 33975), (86, 34032), (89, 34041), (109, 34125), (114, 34176), (117, 34200), (119, 34212), (159, 34443), (162, 34461), (167, 34482), (169, 34497), (179, 34551), (180, 34554), (182, 34563), (184, 34581), (195, 34611), (207, 34692),

Gene: Brynnie\_37 Start: 25690, Stop: 26718, Start Num: 44

Candidate Starts for Brynnie\_37:

(31, 25657), (Start: 44 @25690 has 24 MA's), (48, 25705), (63, 25855), (75, 25927), (78, 25942), (80, 25948), (96, 26029), (101, 26053), (121, 26191), (131, 26248), (141, 26311), (154, 26383), (180, 26530),

Gene: Bumble\_34 Start: 26999, Stop: 28066, Start Num: 38

Candidate Starts for Bumble\_34:

(34, 26987), (Start: 38 @26999 has 65 MA's), (71, 27221), (76, 27239), (96, 27329),

Gene: Butters\_50 Start: 33050, Stop: 34057, Start Num: 47

Candidate Starts for Butters\_50:

(13, 32807), (15, 32819), (20, 32885), (23, 32930), (Start: 47 @33050 has 37 MA's), (58, 33161), (60, 33170), (63, 33197), (71, 33248), (72, 33251), (86, 33308), (89, 33317), (109, 33401), (114, 33452), (117, 33476), (119, 33488), (159, 33719), (162, 33737), (167, 33758), (169, 33773), (179, 33827), (180, 33830), (182, 33839), (184, 33857), (195, 33887), (207, 33968),

Gene: CalWood4100\_39 Start: 28926, Stop: 29978, Start Num: 38

Candidate Starts for CalWood4100\_39:

(Start: 38 @28926 has 65 MA's), (71, 29136), (76, 29154), (96, 29244), (138, 29481), (139, 29484),

Gene: Carcharodon\_47 Start: 32442, Stop: 33452, Start Num: 47

Candidate Starts for Carcharodon\_47:

(Start: 47 @32442 has 37 MA's), (56, 32517), (58, 32556), (60, 32565), (63, 32592), (71, 32643), (72, 32646), (77, 32670), (109, 32796), (114, 32847), (117, 32871), (119, 32883), (125, 32913), (156, 33105), (159, 33114), (162, 33132), (171, 33174), (179, 33222), (182, 33234), (207, 33363),

Gene: ChadMasterC\_49 Start: 42937, Stop: 44064, Start Num: 38

Candidate Starts for ChadMasterC\_49:

(Start: 38 @42937 has 65 MA's), (50, 42976), (58, 43069), (63, 43111), (64, 43117), (71, 43168), (79, 43201), (96, 43276), (100, 43297), (121, 43420), (127, 43453), (132, 43474), (143, 43549), (159, 43687), (181, 43801), (196, 43888), (205, 43954), (208, 43969), (212, 43987),

Gene: Charming\_49 Start: 41293, Stop: 42420, Start Num: 38

Candidate Starts for Charming\_49:

(Start: 38 @41293 has 65 MA's), (50, 41332), (58, 41425), (63, 41467), (64, 41473), (71, 41524), (79, 41557), (96, 41632), (100, 41653), (121, 41776), (127, 41809), (132, 41830), (143, 41905), (159, 42043), (181, 42157), (185, 42184), (196, 42244), (205, 42310), (208, 42325), (212, 42343),

Gene: Chewbacca\_49 Start: 32442, Stop: 33452, Start Num: 47

Candidate Starts for Chewbacca\_49:

(Start: 47 @32442 has 37 MA's), (56, 32517), (58, 32556), (60, 32565), (63, 32592), (71, 32643), (72, 32646), (77, 32670), (109, 32796), (114, 32847), (117, 32871), (119, 32883), (125, 32913), (156, 33105), (159, 33114), (162, 33132), (171, 33174), (179, 33222), (182, 33234), (207, 33363),

Gene: Chickaboom\_43 Start: 25312, Stop: 26337, Start Num: 44

Candidate Starts for Chickaboom\_43:

(31, 25279), (Start: 44 @25312 has 24 MA's), (48, 25327), (63, 25477), (66, 25501), (86, 25597), (89, 25609), (96, 25651), (99, 25663), (134, 25876), (141, 25930), (180, 26149), (210, 26302),

Gene: Chickadee\_45 Start: 37929, Stop: 39083, Start Num: 38

Candidate Starts for Chickadee\_45:

(Start: 38 @37929 has 65 MA's), (58, 38058), (63, 38100), (64, 38106), (71, 38157), (100, 38286), (104, 38292), (114, 38370), (121, 38412), (127, 38445), (132, 38466), (158, 38685), (167, 38730), (172, 38754), (175, 38778), (184, 38829), (196, 38898), (198, 38910), (202, 38949), (203, 38958), (205, 38964), (208, 38979), (210, 38988), (215, 39045),

Gene: Clawz\_83 Start: 52842, Stop: 53858, Start Num: 46

Candidate Starts for Clawz\_83:

(8, 52431), (16, 52623), (19, 52680), (27, 52749), (41, 52833), (Start: 46 @52842 has 2 MA's), (65, 53031), (71, 53070), (76, 53088), (96, 53181), (120, 53328), (139, 53430), (144, 53466), (157, 53550), (173, 53628), (174, 53637), (182, 53679), (211, 53835),

Gene: Coral\_40 Start: 24912, Stop: 25934, Start Num: 44

Candidate Starts for Coral\_40:

(Start: 44 @24912 has 24 MA's), (48, 24927), (52, 24954), (55, 24990), (63, 25077), (80, 25170), (96, 25251), (102, 25278), (109, 25323), (114, 25371), (116, 25392), (125, 25440), (141, 25536), (147, 25563), (180, 25755), (183, 25776), (192, 25800),

Gene: Cote\_42 Start: 25389, Stop: 26411, Start Num: 44

Candidate Starts for Cote\_42:

(Start: 44 @25389 has 24 MA's), (48, 25404), (52, 25431), (55, 25467), (63, 25554), (80, 25647), (96, 25728), (102, 25755), (109, 25800), (114, 25848), (116, 25869), (125, 25917), (141, 26013), (147, 26040), (180, 26232), (183, 26253), (192, 26277),

Gene: Daob\_42 Start: 25397, Stop: 26419, Start Num: 44

Candidate Starts for Daob\_42:

(Start: 44 @25397 has 24 MA's), (48, 25412), (52, 25439), (55, 25475), (63, 25562), (80, 25655), (96, 25736), (102, 25763), (109, 25808), (114, 25856), (116, 25877), (125, 25925), (141, 26021), (147, 26048), (180, 26240), (183, 26261), (192, 26285),

Gene: Delrey21\_50 Start: 43180, Stop: 44334, Start Num: 38

Candidate Starts for Delrey21\_50:

(Start: 38 @43180 has 65 MA's), (50, 43219), (58, 43312), (60, 43321), (63, 43354), (64, 43360), (71, 43411), (79, 43444), (82, 43450), (100, 43543), (121, 43666), (127, 43699), (130, 43714), (132, 43720), (142, 43783), (143, 43795), (144, 43813), (167, 43984), (194, 44143), (205, 44221), (215, 44302),

Gene: Derg\_45 Start: 40440, Stop: 41564, Start Num: 38

Candidate Starts for Derg\_45:

(28, 40371), (Start: 38 @40440 has 65 MA's), (50, 40476), (58, 40569), (63, 40611), (64, 40617), (71, 40668), (82, 40707), (100, 40797), (114, 40878), (127, 40953), (132, 40974), (137, 41007), (143, 41049), (159, 41187), (181, 41301), (185, 41328), (196, 41388), (205, 41454), (212, 41487),

Gene: Dxdert\_46 Start: 38194, Stop: 39375, Start Num: 38

Candidate Starts for Dxdert\_46:

(10, 37912), (24, 38119), (Start: 38 @38194 has 65 MA's), (58, 38326), (60, 38335), (63, 38368), (64, 38374), (71, 38425), (100, 38554), (121, 38680), (127, 38713), (132, 38734), (143, 38809), (148, 38839), (158, 38953), (167, 38998), (175, 39046), (181, 39073), (190, 39136), (194, 39184), (196, 39196), (198, 39208), (203, 39256), (205, 39262), (215, 39343),

Gene: DoctorFroggo\_50 Start: 43180, Stop: 44334, Start Num: 38

Candidate Starts for DoctorFroggo\_50:

(Start: 38 @43180 has 65 MA's), (50, 43219), (58, 43312), (60, 43321), (63, 43354), (64, 43360), (71, 43411), (79, 43444), (82, 43450), (100, 43543), (121, 43666), (127, 43699), (130, 43714), (132, 43720), (142, 43783), (143, 43795), (144, 43813), (167, 43984), (194, 44143), (205, 44221), (215, 44302),

Gene: DonTron\_82 Start: 52715, Stop: 53728, Start Num: 46

Candidate Starts for DonTron\_82:

(19, 52553), (27, 52622), (41, 52706), (Start: 46 @52715 has 2 MA's), (65, 52901), (71, 52940), (76, 52958), (96, 53051), (111, 53120), (121, 53201), (129, 53240), (139, 53300), (144, 53336), (146, 53342), (152, 53375), (161, 53441), (173, 53498), (211, 53705),

Gene: Dori\_63 Start: 49123, Stop: 50127, Start Num: 47

Candidate Starts for Dori\_63:

(Start: 47 @49123 has 37 MA's), (60, 49246), (63, 49273), (71, 49324), (72, 49327), (77, 49351), (109, 49477), (114, 49528), (117, 49552), (119, 49564), (121, 49570), (125, 49594), (129, 49606), (156, 49786), (159, 49795), (165, 49816), (167, 49828), (178, 49891), (180, 49900), (195, 49957), (204, 50023), (207, 50038),

Gene: Duplicity\_47 Start: 32451, Stop: 33461, Start Num: 47



Candidate Starts for Duplicity\_47:

(Start: 47 @32451 has 37 MA's), (56, 32526), (58, 32565), (60, 32574), (63, 32601), (71, 32652), (72, 32655), (77, 32679), (109, 32805), (114, 32856), (117, 32880), (119, 32892), (125, 32922), (156, 33114), (159, 33123), (162, 33141), (171, 33183), (179, 33231), (182, 33243), (207, 33372),

Gene: EMoore\_45 Start: 41058, Stop: 42209, Start Num: 36

Candidate Starts for EMoore\_45:

(5, 40575), (7, 40695), (9, 40773), (11, 40815), (12, 40824), (Start: 36 @41058 has 7 MA's), (60, 41208), (63, 41241), (64, 41247), (71, 41295), (82, 41334), (88, 41364), (93, 41382), (94, 41385), (95, 41394), (100, 41427), (119, 41544), (121, 41550), (127, 41583), (132, 41604), (153, 41781), (158, 41823), (159, 41829), (194, 42018), (205, 42096),

Gene: EastWest\_35 Start: 28014, Stop: 29039, Start Num: 43

Candidate Starts for EastWest\_35:

(Start: 43 @28014 has 23 MA's), (59, 28131), (61, 28137), (71, 28215), (78, 28245), (84, 28260), (117, 28443), (119, 28455), (126, 28488), (149, 28617), (186, 28824), (194, 28848), (201, 28893), (213, 28980),

Gene: EdmundFerry\_44 Start: 37970, Stop: 39154, Start Num: 38

Candidate Starts for EdmundFerry\_44:

(17, 37829), (Start: 38 @37970 has 65 MA's), (58, 38099), (63, 38141), (64, 38147), (71, 38198), (100, 38327), (121, 38453), (127, 38486), (132, 38507), (158, 38726), (167, 38771), (172, 38795), (175, 38819), (184, 38870), (189, 38897), (196, 38969), (198, 38981), (202, 39020), (203, 39029), (205, 39035), (208, 39050), (210, 39059), (215, 39116),

Gene: Eesa\_37 Start: 26191, Stop: 27219, Start Num: 44

Candidate Starts for Eesa\_37:

(31, 26149), (Start: 44 @26191 has 24 MA's), (48, 26206), (63, 26356), (75, 26428), (96, 26530), (116, 26668), (121, 26692), (125, 26716), (131, 26749), (141, 26812), (147, 26839), (155, 26887), (180, 27031),

Gene: Fitzgerald\_47 Start: 42195, Stop: 43319, Start Num: 38

Candidate Starts for Fitzgerald\_47:

(Start: 38 @42195 has 65 MA's), (50, 42231), (58, 42324), (63, 42366), (64, 42372), (71, 42423), (79, 42456), (96, 42531), (100, 42552), (114, 42633), (121, 42675), (127, 42708), (132, 42729), (143, 42804), (159, 42942), (181, 43056), (196, 43143), (205, 43209), (208, 43224), (212, 43242),

Gene: Flatwoods\_48 Start: 40789, Stop: 41913, Start Num: 38

Candidate Starts for Flatwoods\_48:

(28, 40720), (Start: 38 @40789 has 65 MA's), (50, 40825), (58, 40918), (63, 40960), (64, 40966), (71, 41017), (82, 41056), (100, 41146), (114, 41227), (127, 41302), (132, 41323), (143, 41398), (159, 41536), (181, 41650), (185, 41677), (196, 41737), (205, 41803), (212, 41836),

Gene: Fosterous\_46 Start: 40754, Stop: 41881, Start Num: 38

Candidate Starts for Fosterous\_46:

(Start: 38 @40754 has 65 MA's), (50, 40793), (58, 40886), (63, 40928), (64, 40934), (71, 40985), (79, 41018), (96, 41093), (100, 41114), (121, 41237), (127, 41270), (132, 41291), (143, 41366), (159, 41504), (181, 41618), (185, 41645), (196, 41705), (205, 41771), (208, 41786), (212, 41804),

Gene: Franzy\_32 Start: 28454, Stop: 29482, Start Num: 43

Candidate Starts for Franzy\_32:

(Start: 43 @28454 has 23 MA's), (67, 28637), (71, 28655), (78, 28685), (84, 28700), (117, 28883), (119, 28895), (144, 29033), (148, 29045), (149, 29057), (163, 29144), (186, 29264), (194, 29288),

(196, 29300),

Gene: Fulbright\_46 Start: 31531, Stop: 32541, Start Num: 47

Candidate Starts for Fulbright\_46:

(Start: 47 @31531 has 37 MA's), (56, 31606), (58, 31645), (60, 31654), (63, 31681), (71, 31732), (72, 31735), (77, 31759), (109, 31885), (114, 31936), (117, 31960), (119, 31972), (125, 32002), (156, 32194), (159, 32203), (162, 32221), (171, 32263), (179, 32311), (182, 32323), (207, 32452),

Gene: GTE6\_45 Start: 38462, Stop: 39616, Start Num: 38

Candidate Starts for GTE6\_45:

(17, 38321), (Start: 38 @38462 has 65 MA's), (58, 38591), (63, 38633), (64, 38639), (71, 38690), (100, 38819), (104, 38825), (121, 38945), (127, 38978), (132, 38999), (148, 39104), (158, 39218), (167, 39263), (172, 39287), (175, 39311), (196, 39431), (198, 39443), (202, 39482), (203, 39491), (205, 39497), (208, 39512), (210, 39521), (215, 39578),

Gene: Gaea\_47 Start: 40432, Stop: 41565, Start Num: 38

Candidate Starts for Gaea\_47:

(28, 40363), (Start: 38 @40432 has 65 MA's), (58, 40570), (63, 40612), (64, 40618), (71, 40669), (79, 40702), (82, 40708), (100, 40798), (127, 40954), (132, 40975), (143, 41050), (159, 41188), (181, 41302), (185, 41329), (196, 41389), (205, 41455), (208, 41470), (212, 41488),

Gene: Galadriel\_48 Start: 41561, Stop: 42682, Start Num: 38

Candidate Starts for Galadriel\_48:

(30, 41522), (Start: 38 @41561 has 65 MA's), (50, 41597), (58, 41690), (63, 41732), (64, 41738), (71, 41789), (79, 41822), (96, 41897), (100, 41918), (121, 42041), (127, 42074), (132, 42095), (143, 42170), (159, 42308), (181, 42422), (185, 42449), (196, 42509), (205, 42575), (208, 42590), (212, 42608),

Gene: Galaxy\_37 Start: 25067, Stop: 26092, Start Num: 44

Candidate Starts for Galaxy\_37:

(Start: 44 @25067 has 24 MA's), (48, 25082), (52, 25109), (62, 25226), (66, 25256), (86, 25352), (89, 25364), (96, 25406), (99, 25418), (101, 25430), (116, 25544), (134, 25631), (141, 25685), (147, 25712), (180, 25904),

Gene: Geodirt\_47 Start: 42173, Stop: 43297, Start Num: 38

Candidate Starts for Geodirt\_47:

(Start: 38 @42173 has 65 MA's), (50, 42212), (58, 42305), (63, 42347), (64, 42353), (71, 42404), (79, 42437), (96, 42512), (100, 42533), (121, 42656), (127, 42689), (132, 42710), (143, 42785), (159, 42923), (181, 43037), (185, 43064), (196, 43124), (205, 43190), (208, 43205), (212, 43223),

Gene: Gex\_47 Start: 32458, Stop: 33468, Start Num: 47

Candidate Starts for Gex\_47:

(Start: 47 @32458 has 37 MA's), (56, 32533), (58, 32572), (60, 32581), (63, 32608), (71, 32659), (72, 32662), (77, 32686), (109, 32812), (114, 32863), (117, 32887), (119, 32899), (125, 32929), (156, 33121), (159, 33130), (162, 33148), (171, 33190), (179, 33238), (182, 33250), (207, 33379),

Gene: GravityBall\_34 Start: 28804, Stop: 29823, Start Num: 43

Candidate Starts for GravityBall\_34:

(Start: 43 @28804 has 23 MA's), (59, 28921), (71, 29005), (74, 29017), (78, 29035), (87, 29071), (119, 29245), (121, 29251), (133, 29308), (139, 29347), (144, 29383), (148, 29395), (149, 29407), (196, 29650),

Gene: Grekaycon\_34 Start: 28720, Stop: 29739, Start Num: 43

Candidate Starts for Grekaycon\_34:

(Start: 43 @28720 has 23 MA's), (71, 28921), (74, 28933), (78, 28951), (86, 28981), (87, 28987), (119, 29161), (121, 29167), (133, 29224), (144, 29299), (149, 29323), (151, 29332), (163, 29410), (176, 29482), (177, 29488), (212, 29665),

Gene: Gustavo\_47 Start: 40605, Stop: 41738, Start Num: 38

Candidate Starts for Gustavo\_47:

(28, 40536), (Start: 38 @40605 has 65 MA's), (58, 40743), (63, 40785), (64, 40791), (71, 40842), (79, 40875), (82, 40881), (83, 40884), (100, 40971), (127, 41127), (132, 41148), (143, 41223), (159, 41361), (181, 41475), (185, 41502), (196, 41562), (205, 41628), (208, 41643), (212, 41661),

Gene: HannahPhantana\_48 Start: 25059, Stop: 26081, Start Num: 44

Candidate Starts for HannahPhantana\_48:

(Start: 44 @25059 has 24 MA's), (48, 25074), (52, 25101), (55, 25137), (63, 25224), (80, 25317), (96, 25398), (102, 25425), (109, 25470), (114, 25518), (116, 25539), (125, 25587), (141, 25683), (147, 25710), (180, 25902), (183, 25923), (192, 25947),

Gene: Hans\_49 Start: 40497, Stop: 41648, Start Num: 36

Candidate Starts for Hans\_49:

(Start: 36 @40497 has 7 MA's), (54, 40581), (58, 40638), (60, 40647), (63, 40680), (64, 40686), (71, 40734), (82, 40773), (88, 40803), (93, 40821), (94, 40824), (95, 40833), (119, 40983), (121, 40989), (127, 41022), (132, 41043), (142, 41106), (153, 41220), (158, 41262), (159, 41268), (184, 41406), (208, 41550), (215, 41616),

Gene: Inspectinfecti\_48 Start: 40943, Stop: 42094, Start Num: 36

Candidate Starts for Inspectinfecti\_48:

(Start: 36 @40943 has 7 MA's), (54, 41027), (58, 41084), (60, 41093), (63, 41126), (64, 41132), (71, 41180), (82, 41219), (88, 41249), (93, 41267), (94, 41270), (95, 41279), (119, 41429), (121, 41435), (127, 41468), (132, 41489), (142, 41552), (153, 41666), (158, 41708), (159, 41714), (184, 41852), (208, 41996), (215, 42062),

Gene: Island3\_48 Start: 33774, Stop: 34781, Start Num: 47

Candidate Starts for Island3\_48:

(23, 33654), (Start: 47 @33774 has 37 MA's), (58, 33885), (60, 33894), (63, 33921), (71, 33972), (72, 33975), (86, 34032), (89, 34041), (109, 34125), (114, 34176), (117, 34200), (119, 34212), (159, 34443), (162, 34461), (167, 34482), (169, 34497), (179, 34551), (180, 34554), (182, 34563), (184, 34581), (195, 34611), (207, 34692),

Gene: JKSyngboy\_45 Start: 41204, Stop: 42337, Start Num: 38

Candidate Starts for JKSyngboy\_45:

(28, 41135), (Start: 38 @41204 has 65 MA's), (58, 41342), (63, 41384), (64, 41390), (71, 41441), (79, 41474), (82, 41480), (83, 41483), (100, 41570), (127, 41726), (132, 41747), (143, 41822), (159, 41960), (181, 42074), (185, 42101), (196, 42161), (205, 42227), (208, 42242), (212, 42260),

Gene: JKerns\_34 Start: 28666, Stop: 29685, Start Num: 43

Candidate Starts for JKerns\_34:

(Start: 43 @28666 has 23 MA's), (71, 28867), (74, 28879), (78, 28897), (86, 28927), (114, 29071), (119, 29107), (121, 29113), (133, 29170), (144, 29245), (149, 29269), (176, 29428), (177, 29434), (212, 29611), (213, 29632), (215, 29659),

Gene: Jabberwocky\_47 Start: 42599, Stop: 43762, Start Num: 38

Candidate Starts for Jabberwocky\_47:

(Start: 38 @42599 has 65 MA's), (50, 42638), (58, 42731), (63, 42773), (64, 42779), (71, 42830), (79, 42863), (96, 42938), (100, 42959), (114, 43040), (121, 43082), (127, 43115), (132, 43136), (143, 43211), (159, 43349), (181, 43463), (188, 43511), (190, 43526), (196, 43586), (205, 43652), (208, 43667), (212, 43685),

Gene: Jace\_31 Start: 25322, Stop: 26353, Start Num: 39

Candidate Starts for Jace\_31:

(Start: 39 @25322 has 1 MA's), (48, 25343), (66, 25523), (75, 25571), (96, 25664), (100, 25685), (119, 25793), (120, 25796), (124, 25820), (145, 25934), (150, 25955), (182, 26132), (184, 26150),

Gene: Jamie19\_45 Start: 31639, Stop: 32649, Start Num: 47

Candidate Starts for Jamie19\_45:

(Start: 47 @31639 has 37 MA's), (56, 31714), (58, 31753), (60, 31762), (63, 31789), (71, 31840), (72, 31843), (89, 31909), (95, 31936), (114, 32044), (116, 32062), (119, 32080), (162, 32329), (179, 32419), (182, 32431), (195, 32479), (207, 32560),

Gene: Jamun\_37 Start: 25352, Stop: 26377, Start Num: 44

Candidate Starts for Jamun\_37:

(31, 25319), (Start: 44 @25352 has 24 MA's), (48, 25367), (63, 25517), (66, 25541), (86, 25637), (89, 25649), (96, 25691), (99, 25703), (100, 25712), (134, 25916), (141, 25970), (180, 26189), (210, 26342),

Gene: Jawnski\_32 Start: 28461, Stop: 29489, Start Num: 43

Candidate Starts for Jawnski\_32:

(Start: 43 @28461 has 23 MA's), (59, 28578), (67, 28644), (71, 28662), (78, 28692), (86, 28722), (119, 28902), (133, 28965), (144, 29040), (148, 29052), (149, 29064), (177, 29229), (196, 29307),

Gene: Jordan\_34 Start: 28716, Stop: 29735, Start Num: 43

Candidate Starts for Jordan\_34:

(Start: 43 @28716 has 23 MA's), (71, 28917), (74, 28929), (78, 28947), (86, 28977), (119, 29157), (121, 29163), (133, 29220), (144, 29295), (149, 29319), (163, 29406), (176, 29478), (177, 29484), (212, 29661),

Gene: Juno112\_40 Start: 25003, Stop: 26016, Start Num: 44

Candidate Starts for Juno112\_40:

(31, 24979), (Start: 44 @25003 has 24 MA's), (48, 25018), (70, 25207), (78, 25249), (80, 25255), (84, 25264), (96, 25336), (102, 25363), (112, 25444), (114, 25453), (116, 25474), (125, 25522), (155, 25693), (157, 25723), (162, 25750), (171, 25789), (180, 25837), (192, 25882),

Gene: KHumphrey\_39 Start: 25002, Stop: 26015, Start Num: 44

Candidate Starts for KHumphrey\_39:

(31, 24978), (Start: 44 @25002 has 24 MA's), (48, 25017), (70, 25206), (78, 25248), (80, 25254), (84, 25263), (96, 25335), (102, 25362), (112, 25443), (114, 25452), (116, 25473), (125, 25521), (155, 25692), (157, 25722), (162, 25749), (171, 25788), (180, 25836), (192, 25881),

Gene: Kamashten\_46 Start: 40534, Stop: 41661, Start Num: 38

Candidate Starts for Kamashten\_46:

(Start: 38 @40534 has 65 MA's), (50, 40573), (58, 40666), (63, 40708), (64, 40714), (71, 40765), (79, 40798), (96, 40873), (100, 40894), (121, 41017), (127, 41050), (132, 41071), (143, 41146), (159, 41284), (181, 41398), (185, 41425), (196, 41485), (205, 41551), (208, 41566), (212, 41584),

Gene: Keitabear\_48 Start: 42189, Stop: 43352, Start Num: 38

Candidate Starts for Keitabear\_48:

(Start: 38 @42189 has 65 MA's), (50, 42228), (58, 42321), (63, 42363), (64, 42369), (71, 42420), (79, 42453), (96, 42528), (100, 42549), (121, 42672), (127, 42705), (132, 42726), (143, 42801), (159, 42939), (181, 43053), (188, 43101), (190, 43116), (196, 43176), (205, 43242), (208, 43257), (212, 43275),

Gene: Kepler\_42 Start: 25807, Stop: 26829, Start Num: 44

Candidate Starts for Kepler\_42:

(Start: 44 @25807 has 24 MA's), (48, 25822), (52, 25849), (55, 25885), (63, 25972), (80, 26065), (96, 26146), (102, 26173), (109, 26218), (114, 26266), (116, 26287), (125, 26335), (141, 26431), (147, 26458), (162, 26563), (180, 26650), (183, 26671), (192, 26695),

Gene: Kevin1\_49 Start: 32486, Stop: 33493, Start Num: 47

Candidate Starts for Kevin1\_49:

(Start: 47 @32486 has 37 MA's), (58, 32597), (60, 32606), (63, 32633), (71, 32684), (72, 32687), (86, 32744), (89, 32753), (109, 32837), (114, 32888), (117, 32912), (119, 32924), (159, 33155), (162, 33173), (167, 33194), (169, 33209), (179, 33263), (180, 33266), (182, 33275), (184, 33293), (195, 33323), (207, 33404),

Gene: Kewpiedoll\_48 Start: 41475, Stop: 42602, Start Num: 38

Candidate Starts for Kewpiedoll\_48:

(Start: 38 @41475 has 65 MA's), (50, 41514), (58, 41607), (64, 41655), (71, 41706), (79, 41739), (96, 41814), (100, 41835), (121, 41958), (127, 41991), (132, 42012), (143, 42087), (159, 42225), (181, 42339), (185, 42366), (196, 42426), (205, 42492), (208, 42507), (212, 42525),

Gene: King2\_32 Start: 28450, Stop: 29478, Start Num: 43

Candidate Starts for King2\_32:

(Start: 43 @28450 has 23 MA's), (67, 28633), (71, 28651), (78, 28681), (84, 28696), (117, 28879), (119, 28891), (148, 29041), (149, 29053), (177, 29218), (186, 29260), (196, 29296),

Gene: Klevey\_37 Start: 28353, Stop: 29405, Start Num: 38

Candidate Starts for Klevey\_37:

(Start: 38 @28353 has 65 MA's), (71, 28563), (76, 28581), (96, 28671), (138, 28908), (139, 28911),

Gene: Kroos\_48 Start: 41345, Stop: 42472, Start Num: 38

Candidate Starts for Kroos\_48:

(28, 41276), (Start: 38 @41345 has 65 MA's), (50, 41384), (58, 41477), (63, 41519), (64, 41525), (71, 41576), (82, 41615), (100, 41705), (127, 41861), (132, 41882), (137, 41915), (143, 41957), (159, 42095), (181, 42209), (185, 42236), (196, 42296), (205, 42362), (212, 42395),

Gene: Kuleana\_42 Start: 25383, Stop: 26405, Start Num: 44

Candidate Starts for Kuleana\_42:

(Start: 44 @25383 has 24 MA's), (48, 25398), (52, 25425), (78, 25635), (80, 25641), (84, 25650), (96, 25722), (102, 25749), (106, 25776), (109, 25794), (116, 25863), (121, 25887), (125, 25911), (141, 26007), (147, 26034), (153, 26073), (180, 26226), (183, 26247), (192, 26271),

Gene: Kwekel\_45 Start: 37890, Stop: 39044, Start Num: 38

Candidate Starts for Kwekel\_45:

(Start: 38 @37890 has 65 MA's), (58, 38019), (63, 38061), (64, 38067), (71, 38118), (100, 38247), (104, 38253), (114, 38331), (121, 38373), (127, 38406), (132, 38427), (158, 38646), (167, 38691), (172, 38715), (175, 38739), (184, 38790), (196, 38859), (198, 38871), (202, 38910), (203, 38919), (205, 38925), (208, 38940), (210, 38949), (215, 39006),

Gene: Kwobi\_48 Start: 41331, Stop: 42458, Start Num: 38

Candidate Starts for Kwobi\_48:

(28, 41262), (Start: 38 @41331 has 65 MA's), (50, 41370), (58, 41463), (63, 41505), (64, 41511), (71, 41562), (82, 41601), (100, 41691), (127, 41847), (132, 41868), (137, 41901), (143, 41943), (159, 42081), (181, 42195), (191, 42261), (194, 42270), (196, 42282), (205, 42348), (208, 42363), (212, 42381),

Gene: LeeroyJ\_34 Start: 28804, Stop: 29823, Start Num: 43

Candidate Starts for LeeroyJ\_34:

(Start: 43 @28804 has 23 MA's), (59, 28921), (71, 29005), (74, 29017), (78, 29035), (87, 29071), (119, 29245), (121, 29251), (133, 29308), (139, 29347), (144, 29383), (148, 29395), (149, 29407), (196, 29650), (213, 29770),

Gene: Lennon\_48 Start: 42278, Stop: 43441, Start Num: 38

Candidate Starts for Lennon\_48:

(Start: 38 @42278 has 65 MA's), (50, 42317), (58, 42410), (63, 42452), (64, 42458), (71, 42509), (79, 42542), (96, 42617), (100, 42638), (121, 42761), (127, 42794), (132, 42815), (143, 42890), (159, 43028), (181, 43142), (188, 43190), (190, 43205), (196, 43265), (205, 43331), (208, 43346), (212, 43364),

Gene: Leona\_39 Start: 25074, Stop: 26087, Start Num: 44

Candidate Starts for Leona\_39:

(31, 25050), (Start: 44 @25074 has 24 MA's), (48, 25089), (51, 25107), (66, 25257), (70, 25278), (78, 25320), (96, 25407), (102, 25434), (112, 25515), (114, 25524), (116, 25545), (125, 25593), (155, 25764), (157, 25794), (162, 25821), (171, 25860), (180, 25908), (192, 25953),

Gene: Leonard\_47 Start: 40587, Stop: 41741, Start Num: 36

Candidate Starts for Leonard\_47:

(Start: 36 @40587 has 7 MA's), (42, 40602), (54, 40671), (58, 40728), (60, 40737), (63, 40770), (64, 40776), (71, 40824), (82, 40863), (88, 40893), (93, 40911), (94, 40914), (95, 40923), (113, 41031), (119, 41076), (121, 41082), (127, 41115), (132, 41136), (142, 41199), (153, 41313), (158, 41355), (159, 41361), (184, 41499), (208, 41643), (215, 41709),

Gene: LilHam\_45 Start: 39953, Stop: 41077, Start Num: 38

Candidate Starts for LilHam\_45:

(28, 39884), (Start: 38 @39953 has 65 MA's), (50, 39989), (58, 40082), (63, 40124), (64, 40130), (71, 40181), (82, 40220), (100, 40310), (127, 40466), (132, 40487), (137, 40520), (143, 40562), (159, 40700), (181, 40814), (185, 40841), (196, 40901), (205, 40967), (212, 41000),

Gene: Lilbeanie\_51 Start: 37513, Stop: 38625, Start Num: 33

Candidate Starts for Lilbeanie\_51:

(Start: 33 @37513 has 1 MA's), (42, 37537), (60, 37675), (66, 37723), (71, 37753), (76, 37771), (92, 37837), (93, 37840), (96, 37864), (116, 37981), (121, 38005), (125, 38029), (144, 38137), (153, 38179), (195, 38395), (205, 38467), (211, 38497), (215, 38548),

Gene: Lilmac1015\_39 Start: 28926, Stop: 29978, Start Num: 38

Candidate Starts for Lilmac1015\_39:

(Start: 38 @28926 has 65 MA's), (71, 29136), (76, 29154), (96, 29244), (138, 29481), (139, 29484),

Gene: LittleTokyo\_40 Start: 24933, Stop: 25961, Start Num: 44

Candidate Starts for LittleTokyo\_40:

(Start: 44 @24933 has 24 MA's), (48, 24948), (66, 25128), (70, 25149), (80, 25197), (96, 25278), (99, 25290), (102, 25305), (122, 25452), (123, 25461), (125, 25467), (135, 25515), (150, 25608), (180, 25782), (183, 25803), (192, 25827), (199, 25857),

Gene: Love\_52 Start: 42726, Stop: 43853, Start Num: 38

Candidate Starts for Love\_52:

(Start: 38 @42726 has 65 MA's), (50, 42765), (58, 42858), (63, 42900), (64, 42906), (71, 42957), (79, 42990), (96, 43065), (100, 43086), (121, 43209), (127, 43242), (132, 43263), (143, 43338), (159, 43476), (181, 43590), (185, 43617), (196, 43677), (205, 43743), (208, 43758), (212, 43776),

Gene: Lunar\_42 Start: 25723, Stop: 26745, Start Num: 44

Candidate Starts for Lunar\_42:

(Start: 44 @25723 has 24 MA's), (48, 25738), (52, 25765), (55, 25801), (63, 25888), (80, 25981), (96, 26062), (102, 26089), (109, 26134), (114, 26182), (116, 26203), (125, 26251), (141, 26347), (147, 26374), (180, 26566), (183, 26587), (192, 26611),

Gene: Magsby\_47 Start: 32459, Stop: 33469, Start Num: 47

Candidate Starts for Magsby\_47:

(Start: 47 @32459 has 37 MA's), (56, 32534), (58, 32573), (60, 32582), (63, 32609), (71, 32660), (72, 32663), (77, 32687), (109, 32813), (114, 32864), (117, 32888), (119, 32900), (125, 32930), (156, 33122), (159, 33131), (162, 33149), (171, 33191), (179, 33239), (182, 33251), (207, 33380),

Gene: Martha\_34 Start: 28721, Stop: 29740, Start Num: 43

Candidate Starts for Martha\_34:

(Start: 43 @28721 has 23 MA's), (71, 28922), (74, 28934), (78, 28952), (86, 28982), (87, 28988), (119, 29162), (121, 29168), (133, 29225), (144, 29300), (149, 29324), (151, 29333), (163, 29411), (176, 29483), (177, 29489), (212, 29666),

Gene: Mask\_63 Start: 49866, Stop: 50870, Start Num: 47

Candidate Starts for Mask\_63:

(Start: 47 @49866 has 37 MA's), (60, 49989), (63, 50016), (71, 50067), (72, 50070), (77, 50094), (109, 50220), (114, 50271), (117, 50295), (119, 50307), (121, 50313), (125, 50337), (129, 50349), (156, 50529), (159, 50538), (165, 50559), (167, 50571), (178, 50634), (180, 50643), (195, 50700), (204, 50766), (207, 50781),

Gene: McKinley\_50 Start: 42099, Stop: 43259, Start Num: 38

Candidate Starts for McKinley\_50:

(Start: 38 @42099 has 65 MA's), (50, 42138), (58, 42231), (63, 42273), (64, 42279), (71, 42330), (79, 42363), (96, 42438), (100, 42459), (121, 42582), (127, 42615), (132, 42636), (143, 42711), (159, 42849), (181, 42963), (190, 43026), (196, 43086), (205, 43152), (208, 43167), (212, 43185),

Gene: MelBins\_48 Start: 40737, Stop: 41921, Start Num: 36

Candidate Starts for MelBins\_48:

(Start: 36 @40737 has 7 MA's), (54, 40821), (60, 40887), (63, 40920), (64, 40926), (71, 40974), (82, 41013), (88, 41043), (93, 41061), (94, 41064), (95, 41073), (119, 41223), (121, 41229), (127, 41262), (132, 41283), (142, 41346), (153, 41460), (158, 41502), (184, 41646), (188, 41667), (190, 41682), (208, 41823), (215, 41889),

Gene: Melons\_42 Start: 25537, Stop: 26559, Start Num: 44

Candidate Starts for Melons\_42:

(Start: 44 @25537 has 24 MA's), (48, 25552), (52, 25579), (55, 25615), (63, 25702), (80, 25795), (96, 25876), (102, 25903), (109, 25948), (114, 25996), (116, 26017), (125, 26065), (141, 26161), (147, 26188), (180, 26380), (183, 26401), (192, 26425),

Gene: Melville\_51 Start: 32443, Stop: 33453, Start Num: 47

Candidate Starts for Melville\_51:

(Start: 47 @32443 has 37 MA's), (56, 32518), (58, 32557), (60, 32566), (63, 32593), (71, 32644), (72, 32647), (77, 32671), (109, 32797), (114, 32848), (117, 32872), (119, 32884), (125, 32914), (156, 33106), (159, 33115), (162, 33133), (171, 33175), (179, 33223), (182, 33235), (207, 33364),

Gene: MoontowerMania\_48 Start: 41934, Stop: 43061, Start Num: 38

Candidate Starts for MoontowerMania\_48:

(Start: 38 @41934 has 65 MA's), (50, 41973), (58, 42066), (63, 42108), (64, 42114), (71, 42165), (79, 42198), (96, 42273), (100, 42294), (121, 42417), (127, 42450), (132, 42471), (143, 42546), (159, 42684), (181, 42798), (185, 42825), (196, 42885), (205, 42951), (208, 42966), (212, 42984),

Gene: NathanVaag\_32 Start: 28464, Stop: 29492, Start Num: 43

Candidate Starts for NathanVaag\_32:

(Start: 43 @28464 has 23 MA's), (59, 28581), (67, 28647), (71, 28665), (78, 28695), (86, 28725), (119, 28905), (133, 28968), (149, 29067), (177, 29232), (196, 29310),

Gene: Natkenzie\_50 Start: 42409, Stop: 43563, Start Num: 38

Candidate Starts for Natkenzie\_50:

(Start: 38 @42409 has 65 MA's), (50, 42448), (58, 42541), (60, 42550), (63, 42583), (64, 42589), (69, 42625), (71, 42640), (79, 42673), (82, 42679), (100, 42772), (127, 42928), (130, 42943), (142, 43012), (143, 43024), (144, 43042), (167, 43213), (181, 43288), (194, 43372), (203, 43444), (205, 43450), (215, 43531),

Gene: Nenae\_51 Start: 33350, Stop: 34360, Start Num: 47

Candidate Starts for Nenae\_51:

(Start: 47 @33350 has 37 MA's), (58, 33464), (60, 33473), (63, 33500), (71, 33551), (72, 33554), (89, 33620), (95, 33647), (114, 33755), (116, 33773), (119, 33791), (162, 34040), (179, 34130), (182, 34142), (195, 34190), (207, 34271),

Gene: Nordenberg\_43 Start: 40917, Stop: 42038, Start Num: 38

Candidate Starts for Nordenberg\_43:

(30, 40878), (Start: 38 @40917 has 65 MA's), (50, 40953), (58, 41046), (63, 41088), (64, 41094), (71, 41145), (79, 41178), (96, 41253), (100, 41274), (121, 41397), (127, 41430), (132, 41451), (143, 41526), (159, 41664), (181, 41778), (185, 41805), (196, 41865), (205, 41931), (208, 41946), (212, 41964),

Gene: Orcanus\_38 Start: 25714, Stop: 26742, Start Num: 44

Candidate Starts for Orcanus\_38:

(Start: 44 @25714 has 24 MA's), (48, 25729), (63, 25879), (75, 25951), (96, 26053), (100, 26074), (116, 26191), (121, 26215), (125, 26239), (131, 26272), (141, 26335), (147, 26362), (155, 26410), (180, 26554),

Gene: Panchino\_44 Start: 32985, Stop: 33995, Start Num: 47

Candidate Starts for Panchino\_44:

(Start: 47 @32985 has 37 MA's), (56, 33060), (58, 33099), (60, 33108), (63, 33135), (71, 33186), (72, 33189), (89, 33255), (95, 33282), (114, 33390), (116, 33408), (119, 33426), (162, 33675), (179, 33765), (182, 33777), (195, 33825), (207, 33906),

Gene: Paries\_51 Start: 42388, Stop: 43509, Start Num: 38

Candidate Starts for Paries\_51:

(30, 42349), (Start: 38 @42388 has 65 MA's), (50, 42424), (58, 42517), (63, 42559), (64, 42565), (71, 42616), (79, 42649), (96, 42724), (100, 42745), (121, 42868), (127, 42901), (132, 42922), (143, 42997), (159, 43135), (181, 43249), (185, 43276), (196, 43336), (205, 43402), (208, 43417), (212, 43435),



Gene: Parmesanjohn\_47 Start: 32462, Stop: 33472, Start Num: 47

Candidate Starts for Parmesanjohn\_47:

(Start: 47 @32462 has 37 MA's), (56, 32537), (58, 32576), (60, 32585), (63, 32612), (71, 32663), (72, 32666), (77, 32690), (109, 32816), (114, 32867), (117, 32891), (119, 32903), (125, 32933), (156, 33125), (159, 33134), (162, 33152), (171, 33194), (179, 33242), (182, 33254), (207, 33383),

Gene: PhancyPhin\_51 Start: 33344, Stop: 34354, Start Num: 47

Candidate Starts for PhancyPhin\_51:

(Start: 47 @33344 has 37 MA's), (58, 33458), (60, 33467), (63, 33494), (71, 33545), (72, 33548), (89, 33614), (95, 33641), (114, 33749), (116, 33767), (119, 33785), (162, 34034), (179, 34124), (182, 34136), (195, 34184), (207, 34265),

Gene: Phauci\_40 Start: 37439, Stop: 38590, Start Num: 36

Candidate Starts for Phauci\_40:

(Start: 36 @37439 has 7 MA's), (54, 37523), (60, 37589), (63, 37622), (64, 37628), (71, 37676), (82, 37715), (88, 37745), (90, 37754), (93, 37763), (94, 37766), (95, 37775), (119, 37925), (121, 37931), (127, 37964), (132, 37985), (142, 38048), (153, 38162), (158, 38204), (208, 38492), (215, 38558),

Gene: Phinally\_47 Start: 40584, Stop: 41738, Start Num: 36

Candidate Starts for Phinally\_47:

(Start: 36 @40584 has 7 MA's), (42, 40599), (54, 40668), (58, 40725), (60, 40734), (63, 40767), (64, 40773), (71, 40821), (82, 40860), (88, 40890), (93, 40908), (94, 40911), (95, 40920), (113, 41028), (119, 41073), (121, 41079), (127, 41112), (132, 41133), (142, 41196), (153, 41310), (158, 41352), (159, 41358), (184, 41496), (208, 41640), (215, 41706),

Gene: Phloss\_45 Start: 31869, Stop: 32879, Start Num: 47

Candidate Starts for Phloss\_45:

(Start: 47 @31869 has 37 MA's), (56, 31944), (58, 31983), (60, 31992), (63, 32019), (71, 32070), (72, 32073), (77, 32097), (109, 32223), (114, 32274), (117, 32298), (119, 32310), (125, 32340), (156, 32532), (159, 32541), (162, 32559), (171, 32601), (179, 32649), (182, 32661), (207, 32790),

Gene: PhluffyCoco\_40 Start: 24999, Stop: 26012, Start Num: 44

Candidate Starts for PhluffyCoco\_40:

(31, 24975), (Start: 44 @24999 has 24 MA's), (48, 25014), (70, 25203), (78, 25245), (80, 25251), (84, 25260), (96, 25332), (102, 25359), (112, 25440), (114, 25449), (116, 25470), (125, 25518), (155, 25689), (157, 25719), (162, 25746), (171, 25785), (180, 25833), (192, 25878),

Gene: Phrann\_48 Start: 33627, Stop: 34637, Start Num: 47

Candidate Starts for Phrann\_48:

(Start: 47 @33627 has 37 MA's), (58, 33741), (60, 33750), (63, 33777), (71, 33828), (72, 33831), (89, 33897), (95, 33924), (114, 34032), (116, 34050), (119, 34068), (162, 34317), (179, 34407), (182, 34419), (195, 34467), (207, 34548),

Gene: Piccoletto\_32 Start: 28465, Stop: 29493, Start Num: 43

Candidate Starts for Piccoletto\_32:

(Start: 43 @28465 has 23 MA's), (59, 28582), (67, 28648), (71, 28666), (78, 28696), (86, 28726), (119, 28906), (133, 28969), (149, 29068), (177, 29233), (196, 29311),

Gene: Pippa\_34 Start: 28845, Stop: 29864, Start Num: 43

Candidate Starts for Pippa\_34:

(Start: 43 @28845 has 23 MA's), (71, 29046), (74, 29058), (78, 29076), (87, 29112), (114, 29250), (119, 29286), (133, 29349), (144, 29424), (149, 29448), (151, 29457), (212, 29790), (213, 29811),

(215, 29838),

Gene: Pipsqueaks\_47 Start: 32439, Stop: 33449, Start Num: 47

Candidate Starts for Pipsqueaks\_47:

(Start: 47 @32439 has 37 MA's), (56, 32514), (58, 32553), (60, 32562), (63, 32589), (71, 32640), (72, 32643), (77, 32667), (109, 32793), (114, 32844), (117, 32868), (119, 32880), (125, 32910), (156, 33102), (159, 33111), (162, 33129), (171, 33171), (179, 33219), (182, 33231), (207, 33360),

Gene: Polka\_40 Start: 24913, Stop: 25935, Start Num: 44

Candidate Starts for Polka\_40:

(Start: 44 @24913 has 24 MA's), (48, 24928), (52, 24955), (55, 24991), (63, 25078), (80, 25171), (96, 25252), (102, 25279), (109, 25324), (114, 25372), (116, 25393), (125, 25441), (141, 25537), (147, 25564), (180, 25756), (183, 25777), (192, 25801),

Gene: Prairie\_36 Start: 28272, Stop: 29321, Start Num: 38

Candidate Starts for Prairie\_36:

(Start: 38 @28272 has 65 MA's), (71, 28482), (76, 28500), (96, 28590), (138, 28827), (139, 28830),

Gene: Purgamenstris\_51 Start: 33348, Stop: 34358, Start Num: 47

Candidate Starts for Purgamenstris\_51:

(Start: 47 @33348 has 37 MA's), (58, 33462), (60, 33471), (63, 33498), (71, 33549), (72, 33552), (89, 33618), (95, 33645), (114, 33753), (116, 33771), (119, 33789), (162, 34038), (179, 34128), (182, 34140), (195, 34188), (207, 34269),

Gene: Raymond7\_45 Start: 33136, Stop: 34146, Start Num: 47

Candidate Starts for Raymond7\_45:

(Start: 47 @33136 has 37 MA's), (58, 33250), (60, 33259), (63, 33286), (71, 33337), (72, 33340), (89, 33406), (95, 33433), (114, 33541), (116, 33559), (119, 33577), (162, 33826), (179, 33916), (182, 33928), (195, 33976), (207, 34057),

Gene: Rebel\_43 Start: 29478, Stop: 30488, Start Num: 47

Candidate Starts for Rebel\_43:

(Start: 47 @29478 has 37 MA's), (58, 29592), (60, 29601), (63, 29628), (71, 29679), (72, 29682), (89, 29748), (95, 29775), (114, 29883), (116, 29901), (119, 29919), (162, 30168), (179, 30258), (182, 30270), (195, 30318), (207, 30399),

Gene: RedFox\_40 Start: 24998, Stop: 26011, Start Num: 44

Candidate Starts for RedFox\_40:

(31, 24974), (Start: 44 @24998 has 24 MA's), (48, 25013), (70, 25202), (78, 25244), (80, 25250), (84, 25259), (96, 25331), (102, 25358), (112, 25439), (114, 25448), (116, 25469), (125, 25517), (155, 25688), (157, 25718), (162, 25745), (171, 25784), (180, 25832), (192, 25877),

Gene: Redi\_51 Start: 33347, Stop: 34357, Start Num: 47

Candidate Starts for Redi\_51:

(Start: 47 @33347 has 37 MA's), (58, 33461), (60, 33470), (63, 33497), (71, 33548), (72, 33551), (89, 33617), (95, 33644), (114, 33752), (116, 33770), (119, 33788), (162, 34037), (179, 34127), (182, 34139), (195, 34187), (207, 34268),

Gene: Renna12\_39 Start: 25056, Stop: 26069, Start Num: 44

Candidate Starts for Renna12\_39:

(29, 25014), (Start: 44 @25056 has 24 MA's), (48, 25071), (65, 25230), (70, 25260), (78, 25302), (80, 25308), (84, 25317), (96, 25389), (102, 25416), (112, 25497), (114, 25506), (116, 25527), (155, 25746), (157, 25776), (162, 25803), (180, 25890), (192, 25935), (209, 26037), (211, 26046),

Gene: Ribeye\_48 Start: 41766, Stop: 42890, Start Num: 38

Candidate Starts for Ribeye\_48:

(28, 41697), (Start: 38 @41766 has 65 MA's), (50, 41802), (58, 41895), (63, 41937), (64, 41943), (71, 41994), (82, 42033), (100, 42123), (127, 42279), (132, 42300), (137, 42333), (143, 42375), (159, 42513), (181, 42627), (185, 42654), (196, 42714), (205, 42780), (212, 42813),

Gene: RiverRaider\_50 Start: 40177, Stop: 41307, Start Num: 38

Candidate Starts for RiverRaider\_50:

(Start: 38 @40177 has 65 MA's), (58, 40315), (60, 40324), (63, 40357), (64, 40363), (71, 40414), (79, 40447), (82, 40453), (90, 40489), (100, 40543), (121, 40666), (127, 40699), (132, 40720), (143, 40795), (159, 40933), (169, 40987), (181, 41047), (194, 41122), (197, 41137), (203, 41194), (205, 41200), (212, 41233),

Gene: RoadKill\_43 Start: 37465, Stop: 38649, Start Num: 38

Candidate Starts for RoadKill\_43:

(17, 37324), (Start: 38 @37465 has 65 MA's), (58, 37594), (63, 37636), (64, 37642), (71, 37693), (100, 37822), (121, 37948), (127, 37981), (132, 38002), (158, 38221), (167, 38266), (172, 38290), (175, 38314), (184, 38365), (189, 38392), (196, 38464), (198, 38476), (202, 38515), (203, 38524), (205, 38530), (208, 38545), (210, 38554), (215, 38611),

Gene: Rofo\_48 Start: 41463, Stop: 42809, Start Num: 14

Candidate Starts for Rofo\_48:

(4, 40968), (12, 41394), (Start: 14 @41463 has 1 MA's), (18, 41526), (22, 41565), (25, 41592), (50, 41721), (58, 41814), (63, 41856), (64, 41862), (71, 41913), (79, 41946), (96, 42021), (100, 42042), (121, 42165), (127, 42198), (132, 42219), (143, 42294), (159, 42432), (181, 42546), (185, 42573), (196, 42633), (205, 42699), (208, 42714), (212, 42732),

Gene: Rubeelu\_50 Start: 33050, Stop: 34057, Start Num: 47

Candidate Starts for Rubeelu\_50:

(13, 32807), (15, 32819), (20, 32885), (23, 32930), (Start: 47 @33050 has 37 MA's), (58, 33161), (60, 33170), (63, 33197), (71, 33248), (72, 33251), (86, 33308), (89, 33317), (109, 33401), (114, 33452), (117, 33476), (119, 33488), (159, 33719), (162, 33737), (167, 33758), (169, 33773), (179, 33827), (180, 33830), (182, 33839), (184, 33857), (195, 33887), (207, 33968),

Gene: Ruchi\_37 Start: 25758, Stop: 26786, Start Num: 44

Candidate Starts for Ruchi\_37:

(31, 25725), (Start: 44 @25758 has 24 MA's), (48, 25773), (63, 25923), (75, 25995), (80, 26016), (96, 26097), (101, 26121), (121, 26259), (125, 26283), (131, 26316), (141, 26379), (154, 26451), (180, 26598),

Gene: Sampson\_50 Start: 42354, Stop: 43508, Start Num: 38

Candidate Starts for Sampson\_50:

(Start: 38 @42354 has 65 MA's), (50, 42393), (58, 42486), (60, 42495), (63, 42528), (64, 42534), (69, 42570), (71, 42585), (79, 42618), (82, 42624), (100, 42717), (127, 42873), (130, 42888), (142, 42957), (143, 42969), (144, 42987), (167, 43158), (181, 43233), (194, 43317), (203, 43389), (205, 43395), (215, 43476),

Gene: Sanjuju\_47 Start: 42328, Stop: 43452, Start Num: 38

Candidate Starts for Sanjuju\_47:

(Start: 38 @42328 has 65 MA's), (50, 42364), (58, 42457), (63, 42499), (64, 42505), (71, 42556), (79, 42589), (96, 42664), (100, 42685), (114, 42766), (121, 42808), (127, 42841), (132, 42862), (143, 42937), (159, 43075), (181, 43189), (196, 43276), (205, 43342), (208, 43357), (212, 43375),

Gene: Saronaya\_47 Start: 40605, Stop: 41738, Start Num: 38

Candidate Starts for Saronaya\_47:

(28, 40536), (Start: 38 @40605 has 65 MA's), (58, 40743), (63, 40785), (64, 40791), (71, 40842), (79, 40875), (82, 40881), (83, 40884), (100, 40971), (127, 41127), (132, 41148), (143, 41223), (159, 41361), (181, 41475), (185, 41502), (196, 41562), (205, 41628), (208, 41643), (212, 41661),

Gene: Schnauzer\_48 Start: 32462, Stop: 33472, Start Num: 47

Candidate Starts for Schnauzer\_48:

(Start: 47 @32462 has 37 MA's), (56, 32537), (58, 32576), (60, 32585), (63, 32612), (71, 32663), (72, 32666), (77, 32690), (109, 32816), (114, 32867), (117, 32891), (119, 32903), (125, 32933), (156, 33125), (159, 33134), (162, 33152), (171, 33194), (179, 33242), (182, 33254), (207, 33383),

Gene: SchottB\_46 Start: 41605, Stop: 42732, Start Num: 38

Candidate Starts for SchottB\_46:

(28, 41536), (Start: 38 @41605 has 65 MA's), (50, 41644), (58, 41737), (63, 41779), (64, 41785), (71, 41836), (82, 41875), (100, 41965), (127, 42121), (132, 42142), (137, 42175), (143, 42217), (159, 42355), (181, 42469), (185, 42496), (196, 42556), (205, 42622), (212, 42655),

Gene: Scioto\_51 Start: 42410, Stop: 43564, Start Num: 38

Candidate Starts for Scioto\_51:

(Start: 38 @42410 has 65 MA's), (50, 42449), (58, 42542), (60, 42551), (63, 42584), (64, 42590), (69, 42626), (71, 42641), (79, 42674), (82, 42680), (100, 42773), (127, 42929), (130, 42944), (142, 43013), (143, 43025), (144, 43043), (167, 43214), (181, 43289), (194, 43373), (203, 43445), (205, 43451), (215, 43532),

Gene: Scitech\_44 Start: 30478, Stop: 31488, Start Num: 47

Candidate Starts for Scitech\_44:

(Start: 47 @30478 has 37 MA's), (56, 30553), (58, 30592), (60, 30601), (63, 30628), (71, 30679), (72, 30682), (77, 30706), (109, 30832), (114, 30883), (117, 30907), (119, 30919), (125, 30949), (156, 31141), (159, 31150), (162, 31168), (171, 31210), (179, 31258), (182, 31270), (207, 31399),

Gene: Sedona\_48 Start: 41923, Stop: 43047, Start Num: 38

Candidate Starts for Sedona\_48:

(30, 41884), (Start: 38 @41923 has 65 MA's), (50, 41959), (58, 42052), (63, 42094), (64, 42100), (71, 42151), (79, 42184), (96, 42259), (100, 42280), (121, 42403), (127, 42436), (132, 42457), (143, 42532), (159, 42670), (181, 42784), (196, 42871), (205, 42937), (208, 42952), (212, 42970),

Gene: Shade\_34 Start: 28686, Stop: 29714, Start Num: 43

Candidate Starts for Shade\_34:

(Start: 43 @28686 has 23 MA's), (53, 28722), (71, 28887), (78, 28917), (84, 28932), (91, 28968), (117, 29115), (119, 29127), (127, 29166), (144, 29265), (149, 29289), (151, 29298), (153, 29313), (177, 29454), (186, 29496),

Gene: Shivanishola\_48 Start: 40593, Stop: 41753, Start Num: 38

Candidate Starts for Shivanishola\_48:

(30, 40554), (Start: 38 @40593 has 65 MA's), (50, 40629), (58, 40722), (63, 40764), (64, 40770), (71, 40821), (79, 40854), (96, 40929), (100, 40950), (121, 41073), (127, 41106), (132, 41127), (143, 41202), (159, 41340), (181, 41454), (188, 41502), (190, 41517), (196, 41577), (205, 41643), (208, 41658), (212, 41676),

Gene: ShrimpFriedEgg\_51 Start: 33347, Stop: 34357, Start Num: 47

Candidate Starts for ShrimpFriedEgg\_51:

(Start: 47 @33347 has 37 MA's), (58, 33461), (60, 33470), (63, 33497), (71, 33548), (72, 33551), (89, 33617), (95, 33644), (114, 33752), (116, 33770), (119, 33788), (162, 34037), (179, 34127), (182, 34139), (195, 34187), (207, 34268),

Gene: Shweta\_45 Start: 31406, Stop: 32416, Start Num: 47

Candidate Starts for Shweta\_45:

(Start: 47 @31406 has 37 MA's), (58, 31520), (60, 31529), (63, 31556), (71, 31607), (72, 31610), (77, 31634), (83, 31649), (104, 31742), (109, 31760), (114, 31811), (117, 31835), (119, 31847), (121, 31853), (125, 31877), (129, 31889), (162, 32096), (179, 32186), (182, 32198), (195, 32246), (207, 32327),

Gene: Sicarius2\_35 Start: 28313, Stop: 29347, Start Num: 40

Candidate Starts for Sicarius2\_35:

(Start: 40 @28313 has 2 MA's), (48, 28322), (53, 28352), (71, 28520), (78, 28550), (84, 28565), (110, 28685), (117, 28748), (119, 28760), (125, 28790), (144, 28898), (149, 28922), (153, 28946), (176, 29081), (177, 29087), (194, 29153), (196, 29165),

Gene: Silvafighter\_48 Start: 32435, Stop: 33445, Start Num: 47

Candidate Starts for Silvafighter\_48:

(Start: 47 @32435 has 37 MA's), (56, 32510), (58, 32549), (60, 32558), (63, 32585), (71, 32636), (72, 32639), (77, 32663), (109, 32789), (114, 32840), (117, 32864), (119, 32876), (125, 32906), (156, 33098), (159, 33107), (162, 33125), (171, 33167), (179, 33215), (182, 33227), (207, 33356),

Gene: Sitar\_48 Start: 42278, Stop: 43441, Start Num: 38

Candidate Starts for Sitar\_48:

(Start: 38 @42278 has 65 MA's), (50, 42317), (58, 42410), (63, 42452), (64, 42458), (71, 42509), (79, 42542), (96, 42617), (100, 42638), (121, 42761), (127, 42794), (132, 42815), (143, 42890), (159, 43028), (181, 43142), (188, 43190), (190, 43205), (196, 43265), (205, 43331), (208, 43346), (212, 43364),

Gene: Smurph\_47 Start: 32462, Stop: 33472, Start Num: 47

Candidate Starts for Smurph\_47:

(Start: 47 @32462 has 37 MA's), (56, 32537), (58, 32576), (60, 32585), (63, 32612), (71, 32663), (72, 32666), (77, 32690), (109, 32816), (114, 32867), (117, 32891), (119, 32903), (125, 32933), (156, 33125), (159, 33134), (162, 33152), (171, 33194), (179, 33242), (182, 33254), (207, 33383),

Gene: Snekmaggedon\_45 Start: 31639, Stop: 32649, Start Num: 47

Candidate Starts for Snekmaggedon\_45:

(Start: 47 @31639 has 37 MA's), (56, 31714), (58, 31753), (60, 31762), (63, 31789), (71, 31840), (72, 31843), (89, 31909), (95, 31936), (114, 32044), (116, 32062), (119, 32080), (162, 32329), (179, 32419), (182, 32431), (195, 32479), (207, 32560),

Gene: Sonny\_34 Start: 28716, Stop: 29744, Start Num: 43

Candidate Starts for Sonny\_34:

(Start: 43 @28716 has 23 MA's), (53, 28752), (71, 28917), (78, 28947), (84, 28962), (117, 29145), (119, 29157), (127, 29196), (144, 29295), (149, 29319), (151, 29328), (153, 29343), (170, 29442), (177, 29484),

Gene: Soos\_78 Start: 52041, Stop: 53054, Start Num: 46

Candidate Starts for Soos\_78:

(19, 51879), (27, 51948), (41, 52032), (Start: 46 @52041 has 2 MA's), (65, 52227), (71, 52266), (76, 52284), (96, 52377), (111, 52446), (121, 52527), (129, 52566), (139, 52626), (144, 52662), (146, 52668), (152, 52701), (161, 52767), (173, 52824), (211, 53031),

Gene: SpongeBob\_45 Start: 31639, Stop: 32649, Start Num: 47

Candidate Starts for SpongeBob\_45:

(Start: 47 @31639 has 37 MA's), (56, 31714), (58, 31753), (60, 31762), (63, 31789), (71, 31840), (72, 31843), (89, 31909), (95, 31936), (114, 32044), (116, 32062), (119, 32080), (162, 32329), (179, 32419), (182, 32431), (195, 32479), (207, 32560),

Gene: StevieBAY\_34 Start: 28804, Stop: 29823, Start Num: 43

Candidate Starts for StevieBAY\_34:

(Start: 43 @28804 has 23 MA's), (59, 28921), (71, 29005), (74, 29017), (78, 29035), (87, 29071), (119, 29245), (121, 29251), (133, 29308), (139, 29347), (144, 29383), (148, 29395), (149, 29407), (196, 29650),

Gene: Sting\_83 Start: 52471, Stop: 53493, Start Num: 41

Candidate Starts for Sting\_83:

(19, 52318), (27, 52387), (41, 52471), (Start: 46 @52480 has 2 MA's), (65, 52666), (71, 52705), (76, 52723), (96, 52816), (111, 52885), (121, 52966), (129, 53005), (139, 53065), (144, 53101), (146, 53107), (152, 53140), (161, 53206), (173, 53263), (211, 53470),

Gene: StorminNorm\_47 Start: 40696, Stop: 41823, Start Num: 38

Candidate Starts for StorminNorm\_47:

(28, 40627), (Start: 38 @40696 has 65 MA's), (50, 40735), (58, 40828), (63, 40870), (64, 40876), (71, 40927), (82, 40966), (100, 41056), (127, 41212), (132, 41233), (137, 41266), (143, 41308), (159, 41446), (181, 41560), (185, 41587), (196, 41647), (205, 41713), (212, 41746),

Gene: Stultus\_47 Start: 41231, Stop: 42394, Start Num: 38

Candidate Starts for Stultus\_47:

(Start: 38 @41231 has 65 MA's), (50, 41270), (58, 41363), (63, 41405), (64, 41411), (71, 41462), (79, 41495), (96, 41570), (100, 41591), (121, 41714), (127, 41747), (132, 41768), (143, 41843), (159, 41981), (181, 42095), (188, 42143), (190, 42158), (196, 42218), (205, 42284), (208, 42299), (212, 42317),

Gene: TaeYoung\_34 Start: 28721, Stop: 29740, Start Num: 43

Candidate Starts for TaeYoung\_34:

(Start: 43 @28721 has 23 MA's), (71, 28922), (74, 28934), (78, 28952), (86, 28982), (87, 28988), (119, 29162), (121, 29168), (133, 29225), (144, 29300), (149, 29324), (151, 29333), (163, 29411), (176, 29483), (177, 29489), (212, 29666),

Gene: Tangent\_49 Start: 41305, Stop: 42432, Start Num: 38

Candidate Starts for Tangent\_49:

(Start: 38 @41305 has 65 MA's), (50, 41344), (58, 41437), (63, 41479), (64, 41485), (71, 41536), (79, 41569), (96, 41644), (100, 41665), (121, 41788), (127, 41821), (132, 41842), (143, 41917), (159, 42055), (181, 42169), (185, 42196), (196, 42256), (205, 42322), (208, 42337), (212, 42355),

Gene: Tangerine\_47 Start: 40477, Stop: 41601, Start Num: 38

Candidate Starts for Tangerine\_47:

(28, 40408), (Start: 38 @40477 has 65 MA's), (50, 40513), (58, 40606), (63, 40648), (64, 40654), (71, 40705), (82, 40744), (100, 40834), (114, 40915), (127, 40990), (132, 41011), (143, 41086), (159, 41224), (181, 41338), (185, 41365), (191, 41404), (196, 41425), (205, 41491), (212, 41524),

Gene: Tapioca\_49 Start: 32428, Stop: 33438, Start Num: 47

Candidate Starts for Tapioca\_49:

(Start: 47 @32428 has 37 MA's), (56, 32503), (58, 32542), (60, 32551), (63, 32578), (71, 32629), (72, 32632), (77, 32656), (109, 32782), (114, 32833), (117, 32857), (119, 32869), (125, 32899), (156, 33091), (159, 33100), (162, 33118), (171, 33160), (179, 33208), (182, 33220), (207, 33349),

Gene: Tardus\_52 Start: 42085, Stop: 43260, Start Num: 38

Candidate Starts for Tardus\_52:

(Start: 38 @42085 has 65 MA's), (50, 42124), (58, 42217), (60, 42226), (63, 42259), (64, 42265), (71, 42316), (79, 42349), (82, 42355), (100, 42448), (103, 42457), (121, 42592), (127, 42625), (130, 42640), (132, 42646), (142, 42709), (144, 42739), (167, 42910), (181, 42985), (194, 43069), (203, 43141), (205, 43147), (215, 43228),

Gene: TaylorSipt\_38 Start: 25131, Stop: 26156, Start Num: 44

Candidate Starts for TaylorSipt\_38:

(31, 25098), (Start: 44 @25131 has 24 MA's), (48, 25146), (52, 25173), (62, 25290), (63, 25296), (66, 25320), (86, 25416), (89, 25428), (93, 25446), (96, 25470), (99, 25482), (101, 25494), (116, 25608), (122, 25641), (134, 25695), (135, 25701), (141, 25749), (147, 25776), (180, 25968),

Gene: Thing3\_46 Start: 40534, Stop: 41661, Start Num: 38

Candidate Starts for Thing3\_46:

(Start: 38 @40534 has 65 MA's), (50, 40573), (58, 40666), (63, 40708), (64, 40714), (71, 40765), (79, 40798), (96, 40873), (100, 40894), (121, 41017), (127, 41050), (132, 41071), (143, 41146), (159, 41284), (181, 41398), (185, 41425), (196, 41485), (205, 41551), (208, 41566), (212, 41584),

Gene: ThulaThula\_52 Start: 36104, Stop: 37114, Start Num: 47

Candidate Starts for ThulaThula\_52:

(Start: 47 @36104 has 37 MA's), (58, 36218), (60, 36227), (63, 36254), (71, 36305), (72, 36308), (77, 36332), (109, 36458), (114, 36509), (119, 36545), (125, 36575), (159, 36776), (162, 36794), (166, 36812), (179, 36884), (182, 36896), (204, 37010), (207, 37025),

Gene: Tiamoceli\_46 Start: 38786, Stop: 39940, Start Num: 38

Candidate Starts for Tiamoceli\_46:

(17, 38645), (Start: 38 @38786 has 65 MA's), (58, 38915), (63, 38957), (64, 38963), (71, 39014), (100, 39143), (104, 39149), (114, 39227), (121, 39269), (127, 39302), (132, 39323), (158, 39542), (167, 39587), (172, 39611), (175, 39635), (184, 39686), (196, 39755), (198, 39767), (202, 39806), (203, 39815), (205, 39821), (208, 39836), (210, 39845), (215, 39902),

Gene: Timinator\_34 Start: 28804, Stop: 29823, Start Num: 43

Candidate Starts for Timinator\_34:

(Start: 43 @28804 has 23 MA's), (59, 28921), (71, 29005), (74, 29017), (78, 29035), (87, 29071), (119, 29245), (121, 29251), (133, 29308), (139, 29347), (144, 29383), (148, 29395), (149, 29407), (196, 29650), (213, 29770),

Gene: Tonitrus\_67 Start: 48810, Stop: 49829, Start Num: 37

Candidate Starts for Tonitrus\_67:

(Start: 37 @48810 has 1 MA's), (59, 48945), (63, 48984), (71, 49038), (76, 49056), (78, 49068), (96, 49146), (97, 49149), (109, 49194), (115, 49254), (119, 49287), (121, 49293), (128, 49329), (133, 49353), (138, 49389), (140, 49401), (144, 49428), (173, 49596), (185, 49668), (202, 49758),

Gene: TripleJ\_54 Start: 32997, Stop: 33923, Start Num: 38

Candidate Starts for TripleJ\_54:

(21, 32865), (Start: 38 @32997 has 65 MA's), (Start: 43 @33003 has 23 MA's), (57, 33111), (71, 33207), (73, 33213), (77, 33234), (105, 33354), (118, 33441), (119, 33450), (127, 33489), (135, 33528), (140, 33567), (151, 33627), (167, 33711), (180, 33774), (191, 33819),

Gene: TurkishDelight\_59 Start: 49631, Stop: 50719, Start Num: 32

Candidate Starts for TurkishDelight\_59:

(Start: 32 @49631 has 1 MA's), (57, 49781), (61, 49799), (63, 49826), (71, 49874), (81, 49913), (98, 49991), (108, 50042), (119, 50150), (121, 50156), (125, 50180), (135, 50222), (136, 50240), (149, 50312), (161, 50384), (180, 50483), (206, 50621),

Gene: Twonlo\_43 Start: 37416, Stop: 38570, Start Num: 38

Candidate Starts for Twonlo\_43:

(17, 37275), (Start: 38 @37416 has 65 MA's), (58, 37545), (63, 37587), (64, 37593), (71, 37644), (100, 37773), (121, 37899), (127, 37932), (132, 37953), (158, 38172), (167, 38217), (172, 38241), (175, 38265), (184, 38316), (196, 38385), (198, 38397), (202, 38436), (203, 38445), (205, 38451), (208, 38466), (210, 38475), (215, 38532),

Gene: Tycho\_47 Start: 40564, Stop: 41691, Start Num: 38

Candidate Starts for Tycho\_47:

(28, 40495), (Start: 38 @40564 has 65 MA's), (50, 40603), (58, 40696), (63, 40738), (64, 40744), (71, 40795), (82, 40834), (100, 40924), (127, 41080), (132, 41101), (137, 41134), (143, 41176), (159, 41314), (181, 41428), (185, 41455), (196, 41515), (205, 41581), (212, 41614),

Gene: ValentiniPuff\_95 Start: 54258, Stop: 55337, Start Num: 49

Candidate Starts for ValentiniPuff\_95:

(35, 54216), (Start: 49 @54258 has 1 MA's), (60, 54375), (71, 54453), (88, 54528), (107, 54639), (117, 54729), (119, 54741), (135, 54813), (164, 54993), (175, 55053), (180, 55077), (187, 55116), (192, 55122), (200, 55161), (210, 55233), (214, 55266),

Gene: Verity\_50 Start: 43180, Stop: 44334, Start Num: 38

Candidate Starts for Verity\_50:

(Start: 38 @43180 has 65 MA's), (50, 43219), (58, 43312), (60, 43321), (63, 43354), (64, 43360), (71, 43411), (79, 43444), (82, 43450), (100, 43543), (121, 43666), (127, 43699), (130, 43714), (132, 43720), (142, 43783), (143, 43795), (144, 43813), (167, 43984), (194, 44143), (205, 44221), (215, 44302),

Gene: ViaConlectus\_50 Start: 41038, Stop: 42213, Start Num: 38

Candidate Starts for ViaConlectus\_50:

(Start: 38 @41038 has 65 MA's), (45, 41050), (50, 41077), (58, 41170), (60, 41179), (63, 41212), (64, 41218), (69, 41254), (71, 41269), (79, 41302), (82, 41308), (100, 41401), (103, 41410), (121, 41545), (127, 41578), (129, 41581), (130, 41593), (132, 41599), (142, 41662), (144, 41692), (167, 41863), (181, 41938), (194, 42022), (203, 42094), (205, 42100), (208, 42115),

Gene: Vivi2\_51 Start: 42332, Stop: 43459, Start Num: 38

Candidate Starts for Vivi2\_51:

(Start: 38 @42332 has 65 MA's), (50, 42371), (58, 42464), (63, 42506), (64, 42512), (71, 42563), (79, 42596), (96, 42671), (100, 42692), (121, 42815), (127, 42848), (132, 42869), (143, 42944), (159, 43082), (181, 43196), (185, 43223), (196, 43283), (205, 43349), (208, 43364), (212, 43382),

Gene: Vulpecula\_37 Start: 25435, Stop: 26463, Start Num: 44

Candidate Starts for Vulpecula\_37:

(31, 25402), (Start: 44 @25435 has 24 MA's), (48, 25450), (63, 25600), (75, 25672), (78, 25687), (80, 25693), (96, 25774), (101, 25798), (121, 25936), (125, 25960), (131, 25993), (141, 26056), (154, 26128), (180, 26275),

Gene: Wyborn\_35 Start: 28951, Stop: 29985, Start Num: 40



Candidate Starts for Wyborn\_35:

(Start: 40 @28951 has 2 MA's), (48, 28960), (53, 28990), (71, 29158), (78, 29188), (84, 29203), (117, 29386), (119, 29398), (125, 29428), (144, 29536), (149, 29560), (153, 29584), (176, 29719), (177, 29725), (194, 29791), (196, 29803),

Gene: Xerxes\_47 Start: 32459, Stop: 33469, Start Num: 47

Candidate Starts for Xerxes\_47:

(Start: 47 @32459 has 37 MA's), (56, 32534), (58, 32573), (60, 32582), (63, 32609), (71, 32660), (72, 32663), (77, 32687), (109, 32813), (114, 32864), (117, 32888), (119, 32900), (125, 32930), (156, 33122), (159, 33131), (162, 33149), (171, 33191), (179, 33239), (182, 33251), (207, 33380),

Gene: YorkOnyx\_48 Start: 40821, Stop: 41948, Start Num: 38

Candidate Starts for YorkOnyx\_48:

(28, 40752), (Start: 38 @40821 has 65 MA's), (50, 40860), (58, 40953), (63, 40995), (64, 41001), (71, 41052), (82, 41091), (100, 41181), (127, 41337), (132, 41358), (137, 41391), (143, 41433), (159, 41571), (168, 41616), (181, 41685), (194, 41760), (196, 41772), (205, 41838), (208, 41853), (212, 41871),

Gene: Zartrosa\_34 Start: 28629, Stop: 29648, Start Num: 43

Candidate Starts for Zartrosa\_34:

(Start: 43 @28629 has 23 MA's), (71, 28830), (74, 28842), (78, 28860), (86, 28890), (119, 29070), (121, 29076), (133, 29133), (144, 29208), (149, 29232), (163, 29319), (176, 29391), (177, 29397), (212, 29574),

Gene: Zipp\_51 Start: 43095, Stop: 44249, Start Num: 38

Candidate Starts for Zipp\_51:

(Start: 38 @43095 has 65 MA's), (50, 43134), (58, 43227), (60, 43236), (63, 43269), (64, 43275), (71, 43326), (79, 43359), (82, 43365), (100, 43458), (121, 43581), (127, 43614), (130, 43629), (132, 43635), (142, 43698), (143, 43710), (144, 43728), (167, 43899), (194, 44058), (205, 44136), (215, 44217),

Gene: Zitch\_53 Start: 41194, Stop: 42369, Start Num: 38

Candidate Starts for Zitch\_53:

(Start: 38 @41194 has 65 MA's), (45, 41206), (50, 41233), (58, 41326), (60, 41335), (63, 41368), (64, 41374), (71, 41425), (79, 41458), (82, 41464), (100, 41557), (103, 41566), (121, 41701), (127, 41734), (130, 41749), (132, 41755), (142, 41818), (144, 41848), (167, 42019), (181, 42094), (194, 42178), (203, 42250), (205, 42256), (215, 42337),