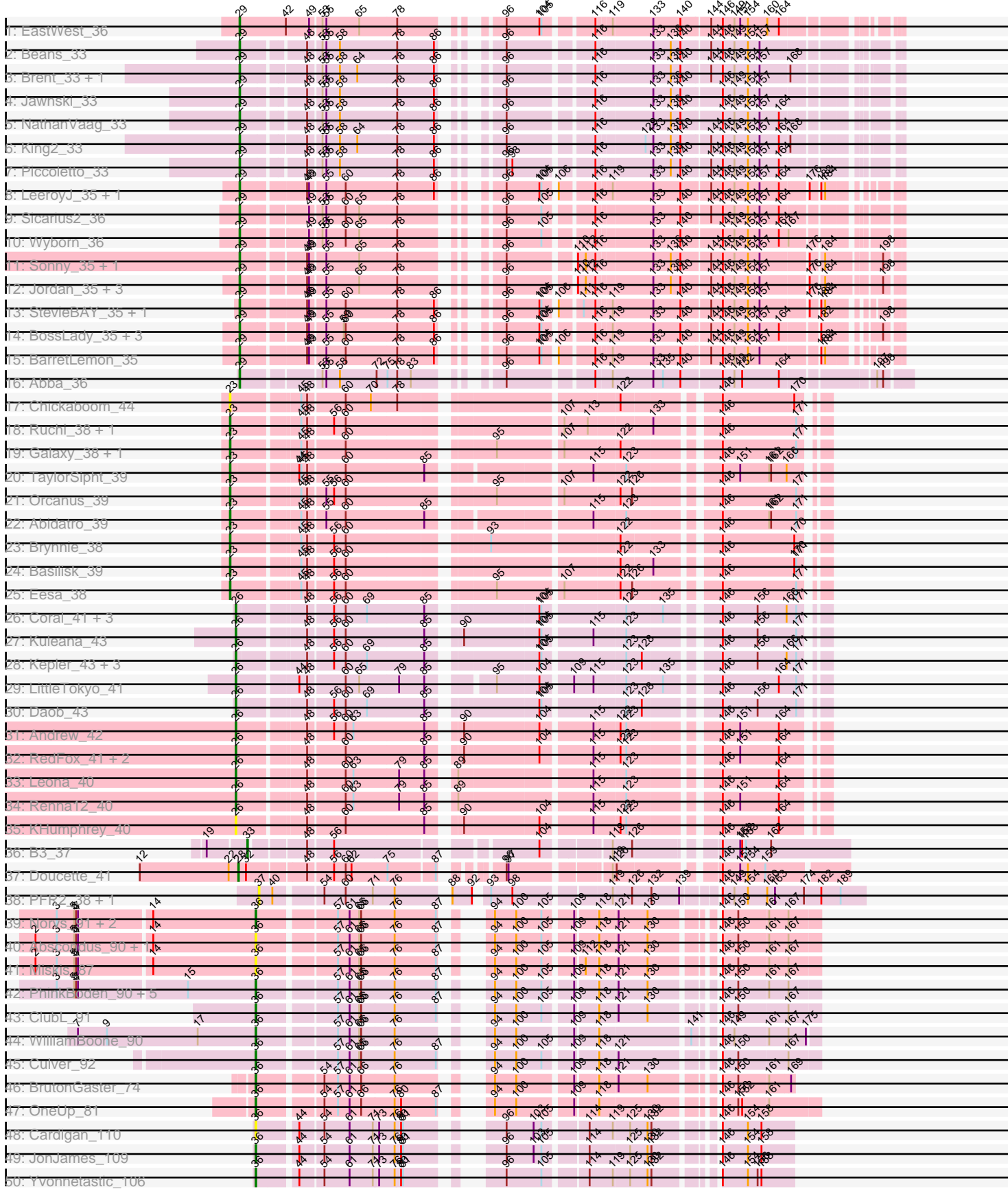
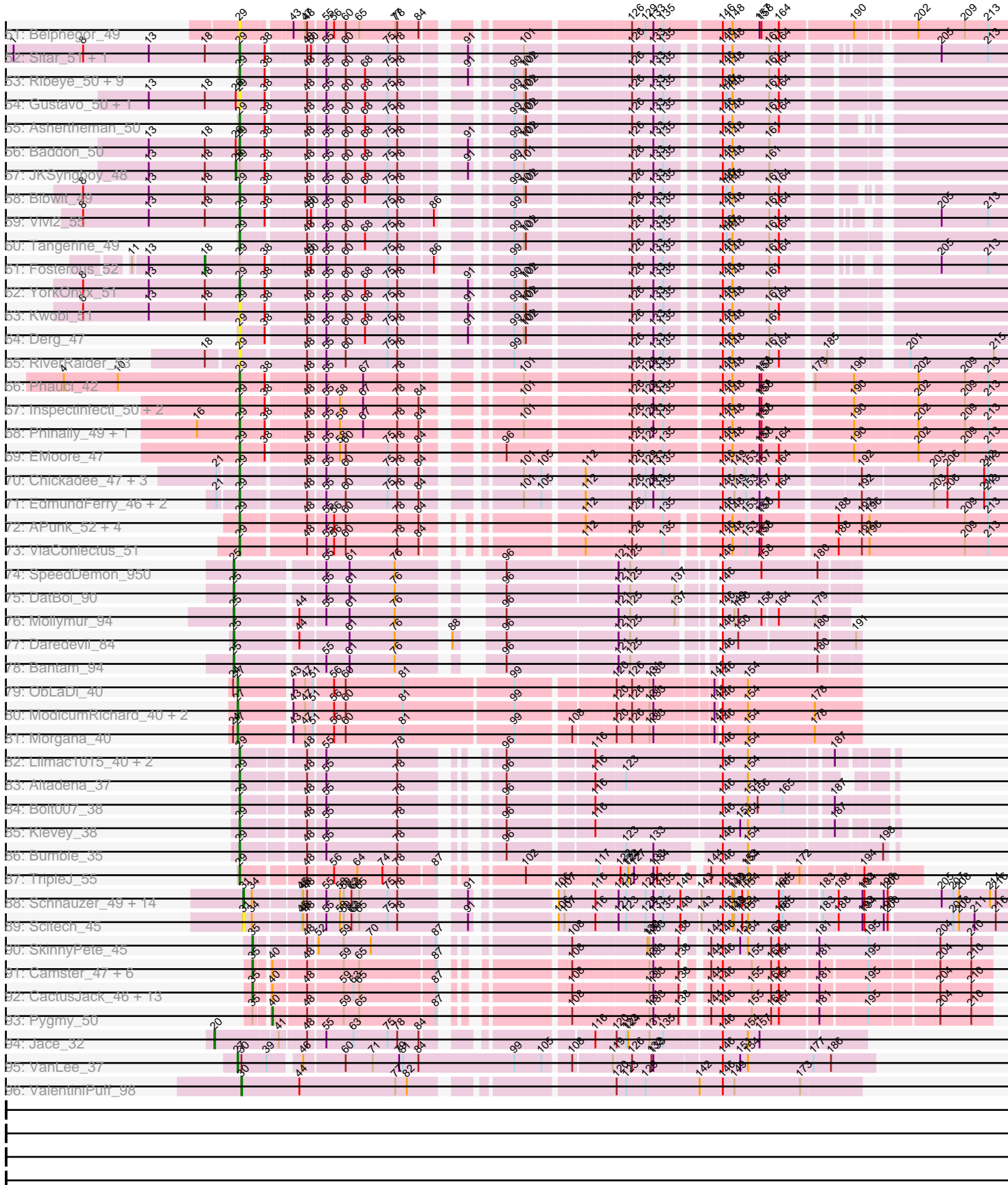


Pham 171230



Pham 171230



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 171230 Report

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

Pham number 171230 has 185 members, 30 are drafts.

Phages represented in each track:

- Track 1 : EastWest\_36
- Track 2 : Beans\_33
- Track 3 : Brent\_33, Franzy\_33
- Track 4 : Jawnski\_33
- Track 5 : NathanVaag\_33
- Track 6 : King2\_33
- Track 7 : Piccoletto\_33
- Track 8 : LeeroyJ\_35, Timinator\_35
- Track 9 : Sicarius2\_36
- Track 10 : Wyborn\_36
- Track 11 : Sonny\_35, Shade\_35
- Track 12 : Jordan\_35, Zartrosa\_35, JKerns\_35, Pippa\_35
- Track 13 : StevieBAY\_35, GravityBall\_35
- Track 14 : BossLady\_35, Grekaycon\_35, TaeYoung\_35, Martha\_35
- Track 15 : BarretLemon\_35
- Track 16 : Abba\_36
- Track 17 : Chickaboom\_44
- Track 18 : Ruchi\_38, Vulpecula\_38
- Track 19 : Galaxy\_38, Jamun\_38
- Track 20 : TaylorSipht\_39
- Track 21 : Orcanus\_39
- Track 22 : Abidatro\_39
- Track 23 : Brynnie\_38
- Track 24 : Basilisk\_39
- Track 25 : Eesa\_38
- Track 26 : Coral\_41, HannahPhantana\_49, Amelia\_41, Cote\_43
- Track 27 : Kuleana\_43
- Track 28 : Kepler\_43, Melons\_43, Lunar\_43, Polka\_41
- Track 29 : LittleTokyo\_41
- Track 30 : Daob\_43
- Track 31 : Andrew\_42
- Track 32 : RedFox\_41, Juno112\_41, PhluffyCoco\_41
- Track 33 : Leona\_40
- Track 34 : Renna12\_40
- Track 35 : KHumphrey\_40
- Track 36 : B3\_37
- Track 37 : Doucette\_41

- Track 38 : PFR2\_38, PFR1\_36
- Track 39 : Norvs\_91, Toniann\_91, Aphelion\_90
- Track 40 : Abscondus\_90, Dusty\_87
- Track 41 : Miskis\_87
- Track 42 : PhinkBoden\_90, Cucurbita\_92, Lozinak\_91, Bachita\_93, Engineer\_92, Smoothie\_92
- Track 43 : ClubL\_91
- Track 44 : WilliamBoone\_90
- Track 45 : Culver\_92
- Track 46 : BrutonGaster\_74
- Track 47 : OneUp\_81
- Track 48 : Cardigan\_110
- Track 49 : JonJames\_109
- Track 50 : Yvonnetastic\_106
- Track 51 : Belphegor\_49
- Track 52 : Sitar\_51, Lennon\_51
- Track 53 : Ribeye\_50, Bizzy\_50, Baumdotcom\_48, Flatwoods\_50, Gaea\_49, StorminNorm\_49, SchottB\_48, Tycho\_49, LilHam\_47, Kroos\_50
- Track 54 : Gustavo\_50, Saronaya\_50
- Track 55 : Ashertheman\_50
- Track 56 : Baddon\_50
- Track 57 : JKSyngboy\_48
- Track 58 : Bibwit\_49
- Track 59 : Vivi2\_55
- Track 60 : Tangerine\_49
- Track 61 : Fosterous\_52
- Track 62 : YorkOnyx\_51
- Track 63 : Kwobi\_51
- Track 64 : Derg\_47
- Track 65 : RiverRaider\_53
- Track 66 : Phauci\_42
- Track 67 : Inspectinfecti\_50, Ali17\_47, Hans\_51
- Track 68 : Phinally\_49, Leonard\_49
- Track 69 : EMoore\_47
- Track 70 : Chickadee\_47, Kwekel\_47, Tiamoceli\_48, Twonlo\_45
- Track 71 : EdmundFerry\_46, GTE6\_47, RoadKill\_45
- Track 72 : APunk\_52, Sampson\_51, Scioto\_52, Natkenzie\_51, Abblin\_51
- Track 73 : ViaConlectus\_51
- Track 74 : SpeedDemon\_950
- Track 75 : DatBoi\_90
- Track 76 : Mollymur\_94
- Track 77 : Daredevil\_84
- Track 78 : Bantam\_94
- Track 79 : ObLaDi\_40
- Track 80 : ModicumRichard\_40, Aleemily\_39, Cafasso\_40
- Track 81 : Morgana\_40
- Track 82 : Lilmac1015\_40, CalWood4100\_40, Prairie\_37
- Track 83 : Altadena\_37
- Track 84 : Bolt007\_38
- Track 85 : Klevey\_38
- Track 86 : Bumble\_35
- Track 87 : TripleJ\_55

- Track 88 : Schnauzer\_49, Fulbright\_47, Melville\_52, Duplicity\_48, Parmesanjohn\_48, Phloss\_46, Magsby\_48, Silvafighter\_49, Tapioca\_50, Gex\_48, Xerxes\_48, Chewbacca\_50, Pipsqueaks\_48, Smurph\_48, Carcharodon\_48
- Track 89 : Scitech\_45
- Track 90 : SkinnyPete\_45
- Track 91 : Camster\_47, Bogie\_50, GreaseLightnin\_47, Phineas\_48, Shipwreck\_50, HUHilltop\_48, Sonah\_47
- Track 92 : CactusJack\_46, Xeno\_48, StevieRay\_46, Willsammy\_45, Atcoo\_46, Glaske\_46, Thespis\_46, Brusacoram\_46, KilKor\_46, Phalm\_46, Juniormint\_47, Bunnies\_47, Ksquared\_46, StressBall\_46
- Track 93 : Pygmy\_50
- Track 94 : Jace\_32
- Track 95 : VanLee\_37
- Track 96 : ValentiniPuff\_98

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

The start number called the most often in the published annotations is 29, it was called in 62 of the 155 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- APunk\_52, Abba\_36, Abblin\_51, Ali17\_47, Altadena\_37, Ashertheman\_50, Baddon\_50, BarretLemon\_35, Baumdotcom\_48, Beans\_33, Belphegor\_49, Bibwit\_49, Bizzy\_50, Bolt007\_38, BossLady\_35, Brent\_33, Bumble\_35, CalWood4100\_40, Chickadee\_47, Derg\_47, EMOore\_47, EastWest\_36, EdmundFerry\_46, Flatwoods\_50, Franzy\_33, GTE6\_47, Gaea\_49, GravityBall\_35, Grekaycon\_35, Gustavo\_50, Hans\_51, Inspectinfecti\_50, JKerns\_35, Jawnski\_33, Jordan\_35, King2\_33, Klevey\_38, Kroos\_50, Kwekel\_47, Kwobi\_51, LeeroyJ\_35, Lennon\_51, Leonard\_49, LilHam\_47, Lilmac1015\_40, Martha\_35, NathanVaag\_33, Natkenzie\_51, Phauci\_42, Phinally\_49, Piccoletto\_33, Pippa\_35, Prairie\_37, Ribeye\_50, RiverRaider\_53, RoadKill\_45, Sampson\_51, Saronaya\_50, SchottB\_48, Scioto\_52, Shade\_35, Sicarius2\_36, Sitar\_51, Sonny\_35, StevieBAY\_35, StorminNorm\_49, TaeYoung\_35, Tangerine\_49, Tiamoceli\_48, Timinator\_35, TripleJ\_55, Twonlo\_45, Tycho\_49, ViaConlectus\_51, Vivi2\_55, Wyborn\_36, YorkOnyx\_51, Zartrosa\_35,

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

- Fosterous\_52, JKSyngboy\_48,

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

- Abidatro\_39, Abscondus\_90, Aleemily\_39, Amelia\_41, Andrew\_42, Aphelion\_90, Atcoo\_46, B3\_37, Bachita\_93, Bantam\_94, Basilisk\_39, Bogie\_50, Brusacoram\_46, BrutonGaster\_74, Brynnie\_38, Bunnies\_47, CactusJack\_46, Cafasso\_40, Camster\_47, Carcharodon\_48, Cardigan\_110, Chewbacca\_50, Chickaboom\_44, ClubL\_91, Coral\_41, Cote\_43, Cucurbita\_92, Culver\_92, Daob\_43, Daredevil\_84, DatBoi\_90, Doucette\_41, Duplicity\_48, Dusty\_87, Eesa\_38, Engineer\_92, Fulbright\_47, Galaxy\_38, Gex\_48, Glaske\_46, GreaseLightnin\_47, HUHilltop\_48, HannahPhantana\_49, Jace\_32, Jamun\_38, JonJames\_109, Juniormint\_47, Juno112\_41, KHumphrey\_40, Kepler\_43, KilKor\_46, Ksquared\_46, Kuleana\_43, Leona\_40, LittleTokyo\_41, Lozinak\_91, Lunar\_43, Magsby\_48, Melons\_43,

Melville\_52, Miskis\_87, ModicumRichard\_40, Mollymur\_94, Morgana\_40, Norvs\_91, ObLaDi\_40, OneUp\_81, Orcanus\_39, PFR1\_36, PFR2\_38, Parmesanjohn\_48, Phalm\_46, Phineas\_48, PhinkBoden\_90, Phloss\_46, PhluffyCoco\_41, Pipsqueaks\_48, Polka\_41, Pygmy\_50, RedFox\_41, Renna12\_40, Ruchi\_38, Schnauzer\_49, Scitech\_45, Shipwreck\_50, Silvafighter\_49, SkinnyPete\_45, Smoothie\_92, Smurph\_48, Sonah\_47, SpeedDemon\_950, StevieRay\_46, StressBall\_46, Tapioca\_50, TaylorSipht\_39, Thespis\_46, Toniann\_91, ValentiniPuff\_98, VanLee\_37, Vulpecula\_38, WilliamBoone\_90, Willsammy\_45, Xeno\_48, Xerxes\_48, Yvonnestic\_106,

### Summary by start number:

#### Start 18:

- Found in 12 of 185 ( 6.5% ) of genes in pham
- Manual Annotations of this start: 1 of 155
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Fosterous\_52 (DE1),

#### Start 20:

- Found in 1 of 185 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 155
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jace\_32 (singleton),

#### Start 23:

- Found in 11 of 185 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 10 of 155
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abidatro\_39 (AS1), Basilisk\_39 (AS1), Brynnie\_38 (AS1), Chickaboom\_44 (AS1), Eesa\_38 (AS1), Galaxy\_38 (AS1), Jamun\_38 (AS1), Orcanus\_39 (AS1), Ruchi\_38 (AS1), TaylorSipht\_39 (AS1), Vulpecula\_38 (AS1),

#### Start 25:

- Found in 5 of 185 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 5 of 155
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bantam\_94 (DL), Daredevil\_84 (DL), DatBoi\_90 (DL), Mollymur\_94 (DL), SpeedDemon\_950 (DL),

#### Start 26:

- Found in 22 of 185 ( 11.9% ) of genes in pham
- Manual Annotations of this start: 15 of 155
- Called 86.4% of time when present
- Phage (with cluster) where this start called: Amelia\_41 (AS2), Andrew\_42 (AS3), Coral\_41 (AS2), Cote\_43 (AS2), Daob\_43 (AS2), HannahPhantana\_49 (AS2), JKSyngboy\_48 (DE1), Juno112\_41 (AS3), KHumphrey\_40 (AS3), Kepler\_43 (AS2), Kuleana\_43 (AS2), Leona\_40 (AS3), LittleTokyo\_41 (AS2), Lunar\_43 (AS2), Melons\_43 (AS2), PhluffyCoco\_41 (AS3), Polka\_41 (AS2), RedFox\_41 (AS3), Renna12\_40 (AS3),

#### Start 27:

- Found in 6 of 185 ( 3.2% ) of genes in pham

- Manual Annotations of this start: 5 of 155
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aleemily\_39 (DZ), Cafasso\_40 (DZ), ModicumRichard\_40 (DZ), Morgana\_40 (DZ), ObLaDi\_40 (DZ), VanLee\_37 (singleton),

#### Start 28:

- Found in 1 of 185 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 155
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Doucette\_41 (BW),

#### Start 29:

- Found in 80 of 185 ( 43.2% ) of genes in pham
- Manual Annotations of this start: 62 of 155
- Called 97.5% of time when present
- Phage (with cluster) where this start called: APunk\_52 (DE4), Abba\_36 (AO3), Abblin\_51 (DE4), Ali17\_47 (DE2), Altadena\_37 (FH), Ashertheman\_50 (DE1), Baddon\_50 (DE1), BarretLemon\_35 (AO2), Baumdotcom\_48 (DE1), Beans\_33 (AO1), Belphegor\_49 (DE), Bibwit\_49 (DE1), Bizzy\_50 (DE1), Bolt007\_38 (FH), BossLady\_35 (AO2), Brent\_33 (AO1), Bumble\_35 (FH), CalWood4100\_40 (FH), Chickadee\_47 (DE3), Derg\_47 (DE1), EMOore\_47 (DE2), EastWest\_36 (AO), EdmundFerry\_46 (DE3), Flatwoods\_50 (DE1), Franzy\_33 (AO1), GTE6\_47 (DE3), Gaea\_49 (DE1), GravityBall\_35 (AO2), Grekaycon\_35 (AO2), Gustavo\_50 (DE1), Hans\_51 (DE2), Inspectinfecti\_50 (DE2), JKerns\_35 (AO2), Jawnski\_33 (AO1), Jordan\_35 (AO2), King2\_33 (AO1), Klevey\_38 (FH), Kroos\_50 (DE1), Kwekel\_47 (DE3), Kwobi\_51 (DE1), LeeroyJ\_35 (AO2), Lennon\_51 (DE1), Leonard\_49 (DE2), LilHam\_47 (DE1), Lilmac1015\_40 (FH), Martha\_35 (AO2), NathanVaag\_33 (AO1), Natkenzie\_51 (DE4), Phauci\_42 (DE2), Phinally\_49 (DE2), Piccoletto\_33 (AO1), Pippa\_35 (AO2), Prairie\_37 (FH), Ribeye\_50 (DE1), RiverRaider\_53 (DE1), RoadKill\_45 (DE3), Sampson\_51 (DE4), Saronaya\_50 (DE1), SchottB\_48 (DE1), Scioto\_52 (DE4), Shade\_35 (AO2), Sicarius2\_36 (AO2), Sitar\_51 (DE1), Sonny\_35 (AO2), StevieBAY\_35 (AO2), StorminNorm\_49 (DE1), TaeYoung\_35 (AO2), Tangerine\_49 (DE1), Tiamoceli\_48 (DE3), Timinator\_35 (AO2), TripleJ\_55 (FJ), Twonlo\_45 (DE3), Tycho\_49 (DE1), ViaConlectus\_51 (DE4), Vivi2\_55 (DE1), Wyborn\_36 (AO2), YorkOnyx\_51 (DE1), Zartrosa\_35 (AO2),

#### Start 30:

- Found in 2 of 185 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 155
- Called 50.0% of time when present
- Phage (with cluster) where this start called: ValentiniPuff\_98 (singleton),

#### Start 31:

- Found in 16 of 185 ( 8.6% ) of genes in pham
- Manual Annotations of this start: 14 of 155
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Carcharodon\_48 (N), Chewbacca\_50 (N), Duplicity\_48 (N), Fulbright\_47 (N), Gex\_48 (N), Magsby\_48 (N), Melville\_52 (N), Parmesanjohn\_48 (N), Phloss\_46 (N), Pipsqueaks\_48 (N), Schnauzer\_49 (N), Scitech\_45 (N), Silvafighter\_49 (N), Smurph\_48 (N), Tapioca\_50 (N), Xerxes\_48 (N),

#### Start 33:

- Found in 1 of 185 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 155
- Called 100.0% of time when present
- Phage (with cluster) where this start called: B3\_37 (BV),

#### Start 35:

- Found in 23 of 185 ( 12.4% ) of genes in pham
- Manual Annotations of this start: 22 of 155
- Called 95.7% of time when present
- Phage (with cluster) where this start called: Atcoo\_46 (P1), Bogie\_50 (P1), Brusacoram\_46 (P1), Bunnies\_47 (P1), CactusJack\_46 (P1), Camster\_47 (P1), Glaske\_46 (P1), GreaseLightnin\_47 (P1), HUHilltop\_48 (P1), Juniormint\_47 (P1), KilKor\_46 (P1), Ksquared\_46 (P1), Phalm\_46 (P1), Phineas\_48 (P1), Shipwreck\_50 (P1), SkinnyPete\_45 (N), Sonah\_47 (P1), StevieRay\_46 (P1), StressBall\_46 (P1), Thespis\_46 (P1), Willsammy\_45 (P1), Xeno\_48 (N),

#### Start 36:

- Found in 20 of 185 ( 10.8% ) of genes in pham
- Manual Annotations of this start: 16 of 155
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abscondus\_90 (CQ), Aphelion\_90 (CQ1), Bachita\_93 (CQ1), BrutonGaster\_74 (CQ2), Cardigan\_110 (DD), ClubL\_91 (CQ1), Cucurbita\_92 (CQ1), Culver\_92 (CQ1), Dusty\_87 (CQ), Engineer\_92 (CQ1), JonJames\_109 (DD), Lozinak\_91 (CQ1), Miskis\_87 (CQ), Norvs\_91 (CQ), OneUp\_81 (CQ2), PhinkBoden\_90 (CQ1), Smoothie\_92 (CQ1), Toniann\_91 (CQ1), WilliamBoone\_90 (CQ1), Yvonnetastic\_106 (DD),

#### Start 37:

- Found in 2 of 185 ( 1.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PFR1\_36 (BX), PFR2\_38 (BX),

#### Start 40:

- Found in 24 of 185 ( 13.0% ) of genes in pham
- Manual Annotations of this start: 1 of 155
- Called 4.2% of time when present
- Phage (with cluster) where this start called: Pygmy\_50 (P1),

### Summary by clusters:

There are 26 clusters represented in this pham: singleton, DD, DE, DL, BV, BW, DZ, FH, FJ, BX, CQ2, CQ1, AS3, AS2, AS1, P1, AO, N, AO3, AO2, AO1, CQ, DE1, DE2, DE3, DE4,

Info for manual annotations of cluster AO:

- Start number 29 was manually annotated 1 time for cluster AO.

Info for manual annotations of cluster AO1:

- Start number 29 was manually annotated 7 times for cluster AO1.

Info for manual annotations of cluster AO2:

- Start number 29 was manually annotated 16 times for cluster AO2.



Info for manual annotations of cluster AO3:

- Start number 29 was manually annotated 1 time for cluster AO3.

Info for manual annotations of cluster AS1:

- Start number 23 was manually annotated 10 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 26 was manually annotated 10 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 26 was manually annotated 4 times for cluster AS3.

Info for manual annotations of cluster BV:

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

Info for manual annotations of cluster BW:

- Start number 28 was manually annotated 1 time for cluster BW.

Info for manual annotations of cluster CQ:

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

Info for manual annotations of cluster CQ1:

- Start number 36 was manually annotated 11 times for cluster CQ1.

Info for manual annotations of cluster CQ2:

- Start number 36 was manually annotated 2 times for cluster CQ2.

Info for manual annotations of cluster DD:

- Start number 36 was manually annotated 2 times for cluster DD.

Info for manual annotations of cluster DE1:

- Start number 18 was manually annotated 1 time for cluster DE1.
- Start number 26 was manually annotated 1 time for cluster DE1.
- Start number 29 was manually annotated 15 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 29 was manually annotated 6 times for cluster DE2.

Info for manual annotations of cluster DE3:

- Start number 29 was manually annotated 6 times for cluster DE3.

Info for manual annotations of cluster DE4:

- Start number 29 was manually annotated 3 times for cluster DE4.

Info for manual annotations of cluster DL:

- Start number 25 was manually annotated 5 times for cluster DL.

Info for manual annotations of cluster DZ:

- Start number 27 was manually annotated 4 times for cluster DZ.

Info for manual annotations of cluster FH:

- Start number 29 was manually annotated 6 times for cluster FH.

Info for manual annotations of cluster FJ:

- Start number 29 was manually annotated 1 time for cluster FJ.

Info for manual annotations of cluster N:

- Start number 31 was manually annotated 14 times for cluster N.
- Start number 35 was manually annotated 2 times for cluster N.

Info for manual annotations of cluster P1:

- Start number 35 was manually annotated 20 times for cluster P1.
- Start number 40 was manually annotated 1 time for cluster P1.

### **Gene Information:**

Gene: APunk\_52 Start: 43066, Stop: 44106, Start Num: 29

Candidate Starts for APunk\_52:

(Start: 29 @43066 has 62 MA's), (48, 43156), (55, 43180), (56, 43192), (60, 43210), (78, 43288), (84, 43321), (112, 43495), (126, 43561), (135, 43609), (146, 43681), (148, 43696), (153, 43717), (157, 43738), (158, 43741), (188, 43846), (192, 43879), (196, 43891), (209, 44038), (213, 44074),

Gene: Abba\_36 Start: 28749, Stop: 29633, Start Num: 29

Candidate Starts for Abba\_36:

(Start: 29 @28749 has 62 MA's), (53, 28854), (55, 28860), (58, 28881), (72, 28938), (75, 28953), (78, 28968), (83, 28989), (96, 29073), (116, 29190), (119, 29211), (133, 29271), (135, 29286), (140, 29313), (146, 29370), (149, 29388), (152, 29400), (164, 29457), (197, 29586), (198, 29595),

Gene: Abblin\_51 Start: 43588, Stop: 44628, Start Num: 29

Candidate Starts for Abblin\_51:

(Start: 29 @43588 has 62 MA's), (48, 43678), (55, 43702), (56, 43714), (60, 43732), (78, 43810), (84, 43843), (112, 44017), (126, 44083), (135, 44131), (146, 44203), (148, 44218), (153, 44239), (157, 44260), (158, 44263), (188, 44368), (192, 44401), (196, 44413), (209, 44560), (213, 44596),

Gene: Abidatro\_39 Start: 26326, Stop: 27126, Start Num: 23

Candidate Starts for Abidatro\_39:

(Start: 23 @26326 has 10 MA's), (45, 26422), (48, 26431), (55, 26455), (60, 26485), (85, 26602), (115, 26815), (123, 26860), (146, 26980), (161, 27052), (162, 27055), (171, 27094),

Gene: Abscondus\_90 Start: 55792, Stop: 56517, Start Num: 36

Candidate Starts for Abscondus\_90:

(2, 55459), (3, 55492), (5, 55519), (6, 55522), (7, 55525), (14, 55633), (Start: 36 @55792 has 16 MA's), (57, 55900), (61, 55918), (65, 55933), (66, 55936), (76, 55987), (87, 56050), (94, 56077), (100, 56110), (105, 56149), (109, 56188), (118, 56218), (121, 56245), (130, 56290), (146, 56371), (150, 56395), (161, 56440), (167, 56470),

Gene: Aleemily\_39 Start: 32837, Stop: 33721, Start Num: 27

Candidate Starts for Aleemily\_39:

(Start: 27 @32837 has 5 MA's), (43, 32909), (47, 32927), (51, 32939), (56, 32966), (60, 32984), (81, 33071), (99, 33236), (120, 33368), (126, 33392), (131, 33419), (133, 33425), (145, 33506), (146, 33512), (154, 33551), (178, 33653),

Gene: Ali17\_47 Start: 41267, Stop: 42328, Start Num: 29

Candidate Starts for Ali17\_47:

(Start: 29 @41267 has 62 MA's), (38, 41303), (48, 41354), (55, 41378), (58, 41399), (67, 41435), (78, 41486), (84, 41519), (101, 41630), (126, 41777), (129, 41798), (133, 41810), (135, 41825), (146, 41906), (148, 41921), (157, 41963), (158, 41966), (190, 42095), (202, 42191), (209, 42263), (213, 42299),

Gene: Altadena\_37 Start: 28014, Stop: 28847, Start Num: 29

Candidate Starts for Altadena\_37:

(Start: 29 @28014 has 62 MA's), (48, 28104), (55, 28128), (78, 28236), (96, 28341), (116, 28461), (123, 28500), (146, 28638), (154, 28677),

Gene: Amelia\_41 Start: 26090, Stop: 26884, Start Num: 26

Candidate Starts for Amelia\_41:

(Start: 26 @26090 has 15 MA's), (48, 26183), (56, 26219), (60, 26237), (69, 26270), (85, 26354), (104, 26501), (105, 26504), (123, 26618), (135, 26672), (146, 26738), (156, 26792), (166, 26837), (171, 26852),

Gene: Andrew\_42 Start: 25907, Stop: 26704, Start Num: 26

Candidate Starts for Andrew\_42:

(Start: 26 @25907 has 15 MA's), (48, 26003), (56, 26039), (60, 26057), (63, 26069), (85, 26174), (90, 26210), (104, 26321), (115, 26393), (122, 26429), (123, 26438), (146, 26558), (151, 26585), (164, 26645),

Gene: Aphelion\_90 Start: 56388, Stop: 57113, Start Num: 36

Candidate Starts for Aphelion\_90:

(3, 56088), (5, 56115), (6, 56118), (7, 56121), (14, 56229), (Start: 36 @56388 has 16 MA's), (57, 56496), (61, 56514), (65, 56529), (66, 56532), (76, 56583), (87, 56646), (94, 56673), (100, 56706), (105, 56745), (109, 56784), (118, 56814), (121, 56841), (130, 56886), (146, 56967), (150, 56991), (161, 57036), (167, 57066),

Gene: Ashertheman\_50 Start: 42632, Stop: 43633, Start Num: 29

Candidate Starts for Ashertheman\_50:

(Start: 29 @42632 has 62 MA's), (38, 42668), (48, 42722), (55, 42746), (60, 42776), (68, 42806), (75, 42839), (78, 42854), (99, 42983), (101, 42998), (102, 43001), (126, 43145), (133, 43178), (135, 43193), (146, 43262), (148, 43277), (161, 43334), (164, 43349),

Gene: Atcoo\_46 Start: 33030, Stop: 34004, Start Num: 35

Candidate Starts for Atcoo\_46:

(Start: 35 @33030 has 22 MA's), (Start: 40 @33048 has 1 MA's), (48, 33096), (59, 33147), (63, 33162), (65, 33171), (87, 33282), (108, 33417), (131, 33528), (133, 33531), (138, 33570), (144, 33594), (146, 33612), (155, 33657), (162, 33687), (164, 33699), (181, 33756), (195, 33825), (204, 33924), (210, 33972),

Gene: B3\_37 Start: 26812, Stop: 27609, Start Num: 33

Candidate Starts for B3\_37:

(19, 26755), (Start: 33 @26812 has 1 MA's), (48, 26887), (56, 26923), (104, 27193), (119, 27280), (126, 27307), (146, 27412), (151, 27439), (152, 27442), (153, 27448), (162, 27487),

Gene: Bachita\_93 Start: 56837, Stop: 57562, Start Num: 36

Candidate Starts for Bachita\_93:

(3, 56537), (5, 56564), (6, 56567), (7, 56570), (15, 56732), (Start: 36 @56837 has 16 MA's), (57, 56945), (61, 56963), (65, 56978), (66, 56981), (76, 57032), (87, 57095), (94, 57122), (100, 57155), (105, 57194), (109, 57233), (118, 57263), (121, 57290), (130, 57335), (146, 57416), (150, 57440), (161, 57485), (167, 57515),

Gene: Baddon\_50 Start: 43605, Stop: 44627, Start Num: 29

Candidate Starts for Baddon\_50:

(13, 43464), (Start: 18 @43551 has 1 MA's), (Start: 26 @43599 has 15 MA's), (Start: 29 @43605 has 62 MA's), (38, 43641), (48, 43695), (55, 43719), (60, 43749), (68, 43779), (75, 43812), (78, 43827), (91, 43908), (99, 43956), (101, 43971), (102, 43974), (126, 44118), (133, 44151), (135, 44166), (146, 44235), (148, 44250), (161, 44307),

Gene: Bantam\_94 Start: 63033, Stop: 62203, Start Num: 25

Candidate Starts for Bantam\_94:

(Start: 25 @63033 has 5 MA's), (55, 62910), (61, 62874), (76, 62805), (96, 62697), (121, 62532), (125, 62514), (146, 62406), (180, 62262),

Gene: BarretLemon\_35 Start: 29827, Stop: 30672, Start Num: 29

Candidate Starts for BarretLemon\_35:

(Start: 29 @29827 has 62 MA's), (48, 29920), (49, 29923), (55, 29944), (60, 29974), (78, 30052), (86, 30109), (96, 30157), (104, 30208), (105, 30211), (106, 30226), (116, 30274), (119, 30292), (133, 30352), (140, 30394), (144, 30433), (146, 30451), (149, 30469), (154, 30490), (157, 30508), (182, 30589), (184, 30595),

Gene: Basilisk\_39 Start: 26840, Stop: 27646, Start Num: 23

Candidate Starts for Basilisk\_39:

(Start: 23 @26840 has 10 MA's), (45, 26936), (48, 26945), (56, 26981), (60, 26999), (122, 27374), (133, 27419), (146, 27500), (170, 27611), (171, 27614),

Gene: Baumdotcom\_48 Start: 42032, Stop: 43054, Start Num: 29

Candidate Starts for Baumdotcom\_48:

(Start: 29 @42032 has 62 MA's), (38, 42068), (48, 42122), (55, 42146), (60, 42176), (68, 42206), (75, 42239), (78, 42254), (91, 42335), (99, 42383), (101, 42398), (102, 42401), (126, 42545), (133, 42578), (135, 42593), (146, 42662), (148, 42677), (161, 42734), (164, 42749),

Gene: Beans\_33 Start: 29523, Stop: 30368, Start Num: 29

Candidate Starts for Beans\_33:

(Start: 29 @29523 has 62 MA's), (48, 29610), (53, 29628), (55, 29634), (58, 29655), (78, 29742), (86, 29799), (96, 29847), (116, 29964), (133, 30042), (136, 30069), (140, 30084), (144, 30123), (146, 30141), (149, 30159), (154, 30180), (157, 30198),

Gene: Belphegor\_49 Start: 43122, Stop: 44186, Start Num: 29

Candidate Starts for Belphegor\_49:

(Start: 29 @43122 has 62 MA's), (43, 43188), (47, 43206), (48, 43209), (55, 43233), (56, 43245), (60, 43263), (65, 43284), (77, 43338), (78, 43341), (84, 43374), (126, 43632), (129, 43653), (133, 43665), (135, 43680), (146, 43761), (148, 43776), (157, 43818), (158, 43821), (164, 43848), (190, 43959), (202, 44040), (209, 44112), (213, 44148),

Gene: Bibwit\_49 Start: 42164, Stop: 43165, Start Num: 29

Candidate Starts for Bibwit\_49:

(8, 41921), (13, 42023), (Start: 18 @42110 has 1 MA's), (Start: 29 @42164 has 62 MA's), (38, 42200), (48, 42254), (55, 42278), (60, 42308), (68, 42338), (75, 42371), (78, 42386), (99, 42515), (101, 42530), (102, 42533), (126, 42677), (133, 42710), (135, 42725), (146, 42794), (147, 42800), (148,

42809), (161, 42866), (164, 42881),

Gene: Bizzy\_50 Start: 42320, Stop: 43342, Start Num: 29

Candidate Starts for Bizzy\_50:

(Start: 29 @42320 has 62 MA's), (38, 42356), (48, 42410), (55, 42434), (60, 42464), (68, 42494), (75, 42527), (78, 42542), (91, 42623), (99, 42671), (101, 42686), (102, 42689), (126, 42833), (133, 42866), (135, 42881), (146, 42950), (148, 42965), (161, 43022), (164, 43037),

Gene: Bogie\_50 Start: 34801, Stop: 35775, Start Num: 35

Candidate Starts for Bogie\_50:

(Start: 35 @34801 has 22 MA's), (Start: 40 @34819 has 1 MA's), (48, 34867), (59, 34918), (65, 34942), (87, 35053), (108, 35188), (131, 35299), (133, 35302), (138, 35341), (144, 35365), (146, 35383), (155, 35428), (162, 35458), (164, 35470), (181, 35527), (195, 35596), (204, 35695), (210, 35743),

Gene: Bolt007\_38 Start: 30497, Stop: 31360, Start Num: 29

Candidate Starts for Bolt007\_38:

(Start: 29 @30497 has 62 MA's), (48, 30587), (55, 30611), (78, 30719), (96, 30824), (116, 30944), (146, 31121), (154, 31160), (156, 31175), (165, 31214), (187, 31277),

Gene: BossLady\_35 Start: 29796, Stop: 30644, Start Num: 29

Candidate Starts for BossLady\_35:

(Start: 29 @29796 has 62 MA's), (48, 29886), (49, 29889), (55, 29910), (59, 29937), (60, 29940), (78, 30018), (86, 30075), (96, 30123), (104, 30174), (105, 30177), (116, 30240), (119, 30258), (133, 30318), (140, 30360), (144, 30399), (146, 30417), (149, 30435), (154, 30456), (157, 30474), (164, 30504), (182, 30555), (198, 30621),

Gene: Brent\_33 Start: 29486, Stop: 30331, Start Num: 29

Candidate Starts for Brent\_33:

(Start: 29 @29486 has 62 MA's), (48, 29576), (53, 29594), (55, 29600), (58, 29621), (64, 29648), (78, 29708), (86, 29765), (96, 29813), (116, 29930), (133, 30008), (136, 30035), (140, 30050), (144, 30089), (146, 30107), (149, 30125), (154, 30146), (157, 30164), (168, 30209),

Gene: Brusacoram\_46 Start: 32536, Stop: 33510, Start Num: 35

Candidate Starts for Brusacoram\_46:

(Start: 35 @32536 has 22 MA's), (Start: 40 @32554 has 1 MA's), (48, 32602), (59, 32653), (63, 32668), (65, 32677), (87, 32788), (108, 32923), (131, 33034), (133, 33037), (138, 33076), (144, 33100), (146, 33118), (155, 33163), (162, 33193), (164, 33205), (181, 33262), (195, 33331), (204, 33430), (210, 33478),

Gene: BrutonGaster\_74 Start: 51893, Stop: 52576, Start Num: 36

Candidate Starts for BrutonGaster\_74:

(Start: 36 @51893 has 16 MA's), (54, 51980), (57, 52001), (61, 52019), (66, 52037), (76, 52088), (94, 52178), (100, 52211), (109, 52289), (118, 52319), (121, 52346), (130, 52391), (146, 52472), (150, 52496), (161, 52541), (169, 52571),

Gene: Brynnie\_38 Start: 26718, Stop: 27524, Start Num: 23

Candidate Starts for Brynnie\_38:

(Start: 23 @26718 has 10 MA's), (45, 26814), (48, 26823), (56, 26859), (60, 26877), (93, 27069), (122, 27252), (146, 27378), (170, 27489),

Gene: Bumble\_35 Start: 28079, Stop: 28930, Start Num: 29

Candidate Starts for Bumble\_35:

(Start: 29 @28079 has 62 MA's), (48, 28169), (55, 28193), (78, 28301), (96, 28406), (123, 28565), (133, 28604), (146, 28685), (154, 28724), (198, 28919),

Gene: Bunnies\_47 Start: 32550, Stop: 33524, Start Num: 35

Candidate Starts for Bunnies\_47:

(Start: 35 @32550 has 22 MA's), (Start: 40 @32568 has 1 MA's), (48, 32616), (59, 32667), (63, 32682), (65, 32691), (87, 32802), (108, 32937), (131, 33048), (133, 33051), (138, 33090), (144, 33114), (146, 33132), (155, 33177), (162, 33207), (164, 33219), (181, 33276), (195, 33345), (204, 33444), (210, 33492),

Gene: CactusJack\_46 Start: 32800, Stop: 33774, Start Num: 35

Candidate Starts for CactusJack\_46:

(Start: 35 @32800 has 22 MA's), (Start: 40 @32818 has 1 MA's), (48, 32866), (59, 32917), (63, 32932), (65, 32941), (87, 33052), (108, 33187), (131, 33298), (133, 33301), (138, 33340), (144, 33364), (146, 33382), (155, 33427), (162, 33457), (164, 33469), (181, 33526), (195, 33595), (204, 33694), (210, 33742),

Gene: Cafasso\_40 Start: 33411, Stop: 34295, Start Num: 27

Candidate Starts for Cafasso\_40:

(Start: 27 @33411 has 5 MA's), (43, 33483), (47, 33501), (51, 33513), (56, 33540), (60, 33558), (81, 33645), (99, 33810), (120, 33942), (126, 33966), (131, 33993), (133, 33999), (145, 34080), (146, 34086), (154, 34125), (178, 34227),

Gene: CalWood4100\_40 Start: 29991, Stop: 30845, Start Num: 29

Candidate Starts for CalWood4100\_40:

(Start: 29 @29991 has 62 MA's), (48, 30081), (55, 30105), (78, 30213), (96, 30318), (116, 30438), (146, 30615), (154, 30654), (187, 30771),

Gene: Camster\_47 Start: 32557, Stop: 33531, Start Num: 35

Candidate Starts for Camster\_47:

(Start: 35 @32557 has 22 MA's), (Start: 40 @32575 has 1 MA's), (48, 32623), (59, 32674), (65, 32698), (87, 32809), (108, 32944), (131, 33055), (133, 33058), (138, 33097), (144, 33121), (146, 33139), (155, 33184), (162, 33214), (164, 33226), (181, 33283), (195, 33352), (204, 33451), (210, 33499),

Gene: Carcharodon\_48 Start: 33458, Stop: 34519, Start Num: 31

Candidate Starts for Carcharodon\_48:

(Start: 31 @33458 has 14 MA's), (34, 33470), (45, 33536), (46, 33539), (48, 33545), (55, 33569), (58, 33590), (59, 33596), (62, 33608), (63, 33611), (65, 33620), (75, 33662), (78, 33677), (91, 33764), (106, 33869), (107, 33878), (116, 33923), (121, 33950), (123, 33962), (129, 33992), (133, 34004), (135, 34019), (140, 34046), (143, 34067), (146, 34100), (148, 34115), (149, 34118), (152, 34130), (154, 34139), (164, 34187), (165, 34193), (183, 34244), (188, 34268), (193, 34301), (194, 34304), (199, 34334), (200, 34340), (205, 34412), (207, 34430), (208, 34439), (214, 34487), (216, 34496),

Gene: Cardigan\_110 Start: 63451, Stop: 64143, Start Num: 36

Candidate Starts for Cardigan\_110:

(Start: 36 @63451 has 16 MA's), (44, 63505), (54, 63538), (61, 63577), (71, 63613), (73, 63622), (76, 63646), (80, 63655), (81, 63658), (96, 63754), (103, 63796), (105, 63808), (114, 63865), (119, 63901), (125, 63925), (130, 63952), (132, 63958), (146, 64033), (154, 64072), (158, 64093),

Gene: Chewbacca\_50 Start: 33458, Stop: 34519, Start Num: 31

Candidate Starts for Chewbacca\_50:

(Start: 31 @33458 has 14 MA's), (34, 33470), (45, 33536), (46, 33539), (48, 33545), (55, 33569), (58, 33590), (59, 33596), (62, 33608), (63, 33611), (65, 33620), (75, 33662), (78, 33677), (91, 33764), (106, 33869), (107, 33878), (116, 33923), (121, 33950), (123, 33962), (129, 33992), (133, 34004), (135, 34019), (140, 34046), (143, 34067), (146, 34100), (148, 34115), (149, 34118), (152, 34130), (154, 34139), (164, 34187), (165, 34193), (183, 34244), (188, 34268), (193, 34301), (194, 34304), (199, 34334), (200, 34340), (205, 34412), (207, 34430), (208, 34439), (214, 34487), (216, 34496),

Gene: Chickaboom\_44 Start: 26337, Stop: 27143, Start Num: 23

Candidate Starts for Chickaboom\_44:

(Start: 23 @26337 has 10 MA's), (45, 26433), (48, 26442), (60, 26496), (70, 26535), (78, 26574), (122, 26871), (146, 26997), (170, 27108),

Gene: Chickadee\_47 Start: 39366, Stop: 40424, Start Num: 29

Candidate Starts for Chickadee\_47:

(21, 39336), (Start: 29 @39366 has 62 MA's), (48, 39453), (55, 39477), (60, 39507), (75, 39570), (78, 39585), (84, 39618), (101, 39729), (105, 39756), (112, 39810), (126, 39876), (129, 39897), (133, 39909), (135, 39924), (146, 40008), (149, 40026), (153, 40044), (157, 40065), (164, 40095), (192, 40206), (203, 40311), (206, 40332), (212, 40389), (213, 40395),

Gene: ClubL\_91 Start: 55523, Stop: 56248, Start Num: 36

Candidate Starts for ClubL\_91:

(Start: 36 @55523 has 16 MA's), (57, 55631), (61, 55649), (65, 55664), (66, 55667), (76, 55718), (87, 55781), (94, 55808), (100, 55841), (105, 55880), (109, 55919), (118, 55949), (121, 55976), (130, 56021), (146, 56102), (150, 56126), (167, 56201),

Gene: Coral\_41 Start: 25938, Stop: 26732, Start Num: 26

Candidate Starts for Coral\_41:

(Start: 26 @25938 has 15 MA's), (48, 26031), (56, 26067), (60, 26085), (69, 26118), (85, 26202), (104, 26349), (105, 26352), (123, 26466), (135, 26520), (146, 26586), (156, 26640), (166, 26685), (171, 26700),

Gene: Cote\_43 Start: 26415, Stop: 27209, Start Num: 26

Candidate Starts for Cote\_43:

(Start: 26 @26415 has 15 MA's), (48, 26508), (56, 26544), (60, 26562), (69, 26595), (85, 26679), (104, 26826), (105, 26829), (123, 26943), (135, 26997), (146, 27063), (156, 27117), (166, 27162), (171, 27177),

Gene: Cucurbita\_92 Start: 57344, Stop: 58069, Start Num: 36

Candidate Starts for Cucurbita\_92:

(3, 57044), (5, 57071), (6, 57074), (7, 57077), (15, 57239), (Start: 36 @57344 has 16 MA's), (57, 57452), (61, 57470), (65, 57485), (66, 57488), (76, 57539), (87, 57602), (94, 57629), (100, 57662), (105, 57701), (109, 57740), (118, 57770), (121, 57797), (130, 57842), (146, 57923), (150, 57947), (161, 57992), (167, 58022),

Gene: Culver\_92 Start: 55420, Stop: 56145, Start Num: 36

Candidate Starts for Culver\_92:

(Start: 36 @55420 has 16 MA's), (57, 55528), (61, 55546), (65, 55561), (66, 55564), (76, 55615), (87, 55678), (94, 55705), (100, 55738), (105, 55777), (109, 55816), (118, 55846), (121, 55873), (146, 55999), (150, 56023), (167, 56098),

Gene: Daob\_43 Start: 26423, Stop: 27217, Start Num: 26

Candidate Starts for Daob\_43:

(Start: 26 @26423 has 15 MA's), (48, 26516), (56, 26552), (60, 26570), (69, 26603), (85, 26687), (104, 26834), (105, 26837), (123, 26951), (128, 26975), (146, 27071), (156, 27125), (171, 27185),

Gene: Daredevil\_84 Start: 58699, Stop: 57869, Start Num: 25

Candidate Starts for Daredevil\_84:

(Start: 25 @58699 has 5 MA's), (44, 58609), (61, 58537), (76, 58468), (88, 58402), (96, 58360), (121, 58195), (125, 58177), (146, 58069), (150, 58045), (180, 57931), (191, 57877),

Gene: DatBoi\_90 Start: 62181, Stop: 61351, Start Num: 25

Candidate Starts for DatBoi\_90:

(Start: 25 @62181 has 5 MA's), (55, 62058), (61, 62022), (76, 61953), (96, 61845), (121, 61680), (125, 61662), (137, 61593), (146, 61554),

Gene: Derg\_47 Start: 41912, Stop: 42934, Start Num: 29

Candidate Starts for Derg\_47:

(Start: 29 @41912 has 62 MA's), (38, 41948), (48, 42002), (55, 42026), (60, 42056), (68, 42086), (75, 42119), (78, 42134), (91, 42215), (99, 42263), (101, 42278), (102, 42281), (126, 42425), (133, 42458), (135, 42473), (146, 42542), (148, 42557), (161, 42614),

Gene: Doucette\_41 Start: 28699, Stop: 29496, Start Num: 28

Candidate Starts for Doucette\_41:

(12, 28546), (22, 28684), (Start: 28 @28699 has 1 MA's), (32, 28711), (48, 28795), (56, 28831), (60, 28849), (62, 28858), (75, 28912), (87, 28981), (96, 29038), (97, 29041), (119, 29176), (120, 29179), (146, 29311), (151, 29338), (154, 29350), (159, 29377),

Gene: Duplicity\_48 Start: 33467, Stop: 34528, Start Num: 31

Candidate Starts for Duplicity\_48:

(Start: 31 @33467 has 14 MA's), (34, 33479), (45, 33545), (46, 33548), (48, 33554), (55, 33578), (58, 33599), (59, 33605), (62, 33617), (63, 33620), (65, 33629), (75, 33671), (78, 33686), (91, 33773), (106, 33878), (107, 33887), (116, 33932), (121, 33959), (123, 33971), (129, 34001), (133, 34013), (135, 34028), (140, 34055), (143, 34076), (146, 34109), (148, 34124), (149, 34127), (152, 34139), (154, 34148), (164, 34196), (165, 34202), (183, 34253), (188, 34277), (193, 34310), (194, 34313), (199, 34343), (200, 34349), (205, 34421), (207, 34439), (208, 34448), (214, 34496), (216, 34505),

Gene: Dusty\_87 Start: 55039, Stop: 55764, Start Num: 36

Candidate Starts for Dusty\_87:

(2, 54706), (3, 54739), (5, 54766), (6, 54769), (7, 54772), (14, 54880), (Start: 36 @55039 has 16 MA's), (57, 55147), (61, 55165), (65, 55180), (66, 55183), (76, 55234), (87, 55297), (94, 55324), (100, 55357), (105, 55396), (109, 55435), (118, 55465), (121, 55492), (130, 55537), (146, 55618), (150, 55642), (161, 55687), (167, 55717),

Gene: EMoore\_47 Start: 42468, Stop: 43541, Start Num: 29

Candidate Starts for EMoore\_47:

(Start: 29 @42468 has 62 MA's), (38, 42504), (48, 42555), (55, 42579), (58, 42600), (60, 42609), (75, 42672), (78, 42687), (84, 42720), (96, 42804), (126, 42978), (129, 42999), (135, 43026), (146, 43107), (148, 43122), (157, 43164), (158, 43167), (164, 43194), (190, 43305), (202, 43401), (209, 43473), (213, 43509),

Gene: EastWest\_36 Start: 29042, Stop: 29902, Start Num: 29

Candidate Starts for EastWest\_36:

(Start: 29 @29042 has 62 MA's), (42, 29114), (49, 29150), (53, 29165), (55, 29171), (65, 29222), (78, 29279), (96, 29384), (104, 29435), (105, 29438), (116, 29501), (119, 29519), (133, 29579), (140, 29621), (144, 29660), (146, 29678), (149, 29696), (151, 29705), (154, 29717), (160, 29747), (164,



29765),

Gene: EdmundFerry\_46 Start: 39437, Stop: 40492, Start Num: 29

Candidate Starts for EdmundFerry\_46:

(21, 39407), (Start: 29 @39437 has 62 MA's), (48, 39524), (55, 39548), (60, 39578), (75, 39641), (78, 39656), (84, 39689), (101, 39800), (105, 39827), (112, 39881), (126, 39947), (129, 39968), (133, 39980), (135, 39995), (146, 40079), (149, 40097), (153, 40115), (157, 40136), (164, 40166), (192, 40274), (203, 40379), (206, 40400), (212, 40457), (213, 40463),

Gene: Eesa\_38 Start: 27219, Stop: 28025, Start Num: 23

Candidate Starts for Eesa\_38:

(Start: 23 @27219 has 10 MA's), (45, 27315), (48, 27324), (56, 27360), (60, 27378), (95, 27579), (107, 27672), (122, 27753), (126, 27771), (146, 27879), (171, 27993),

Gene: Engineer\_92 Start: 56810, Stop: 57535, Start Num: 36

Candidate Starts for Engineer\_92:

(3, 56510), (5, 56537), (6, 56540), (7, 56543), (15, 56705), (Start: 36 @56810 has 16 MA's), (57, 56918), (61, 56936), (65, 56951), (66, 56954), (76, 57005), (87, 57068), (94, 57095), (100, 57128), (105, 57167), (109, 57206), (118, 57236), (121, 57263), (130, 57308), (146, 57389), (150, 57413), (161, 57458), (167, 57488),

Gene: Flatwoods\_50 Start: 42261, Stop: 43283, Start Num: 29

Candidate Starts for Flatwoods\_50:

(Start: 29 @42261 has 62 MA's), (38, 42297), (48, 42351), (55, 42375), (60, 42405), (68, 42435), (75, 42468), (78, 42483), (91, 42564), (99, 42612), (101, 42627), (102, 42630), (126, 42774), (133, 42807), (135, 42822), (146, 42891), (148, 42906), (161, 42963), (164, 42978),

Gene: Fosterous\_52 Start: 43368, Stop: 44420, Start Num: 18

Candidate Starts for Fosterous\_52:

(11, 43260), (13, 43281), (Start: 18 @43368 has 1 MA's), (Start: 29 @43422 has 62 MA's), (38, 43458), (48, 43509), (50, 43515), (55, 43533), (60, 43563), (75, 43626), (78, 43641), (86, 43692), (99, 43770), (126, 43932), (133, 43965), (135, 43980), (146, 44049), (148, 44064), (161, 44121), (164, 44136), (205, 44313), (213, 44385),

Gene: Franzy\_33 Start: 29485, Stop: 30330, Start Num: 29

Candidate Starts for Franzy\_33:

(Start: 29 @29485 has 62 MA's), (48, 29575), (53, 29593), (55, 29599), (58, 29620), (64, 29647), (78, 29707), (86, 29764), (96, 29812), (116, 29929), (133, 30007), (136, 30034), (140, 30049), (144, 30088), (146, 30106), (149, 30124), (154, 30145), (157, 30163), (168, 30208),

Gene: Fulbright\_47 Start: 32547, Stop: 33608, Start Num: 31

Candidate Starts for Fulbright\_47:

(Start: 31 @32547 has 14 MA's), (34, 32559), (45, 32625), (46, 32628), (48, 32634), (55, 32658), (58, 32679), (59, 32685), (62, 32697), (63, 32700), (65, 32709), (75, 32751), (78, 32766), (91, 32853), (106, 32958), (107, 32967), (116, 33012), (121, 33039), (123, 33051), (129, 33081), (133, 33093), (135, 33108), (140, 33135), (143, 33156), (146, 33189), (148, 33204), (149, 33207), (152, 33219), (154, 33228), (164, 33276), (165, 33282), (183, 33333), (188, 33357), (193, 33390), (194, 33393), (199, 33423), (200, 33429), (205, 33501), (207, 33519), (208, 33528), (214, 33576), (216, 33585),

Gene: GTE6\_47 Start: 39899, Stop: 40960, Start Num: 29

Candidate Starts for GTE6\_47:

(21, 39869), (Start: 29 @39899 has 62 MA's), (48, 39986), (55, 40010), (60, 40040), (75, 40103), (78, 40118), (84, 40151), (101, 40262), (105, 40289), (112, 40343), (126, 40409), (129, 40430), (133,

40442), (135, 40457), (146, 40541), (149, 40559), (153, 40577), (157, 40598), (164, 40628), (192, 40739), (203, 40847), (206, 40868), (212, 40925), (213, 40931),

Gene: Gaea\_49 Start: 41917, Stop: 42939, Start Num: 29

Candidate Starts for Gaea\_49:

(Start: 29 @41917 has 62 MA's), (38, 41953), (48, 42007), (55, 42031), (60, 42061), (68, 42091), (75, 42124), (78, 42139), (91, 42220), (99, 42268), (101, 42283), (102, 42286), (126, 42430), (133, 42463), (135, 42478), (146, 42547), (148, 42562), (161, 42619), (164, 42634),

Gene: Galaxy\_38 Start: 26092, Stop: 26898, Start Num: 23

Candidate Starts for Galaxy\_38:

(Start: 23 @26092 has 10 MA's), (45, 26188), (48, 26197), (60, 26251), (95, 26452), (107, 26545), (122, 26626), (146, 26752), (171, 26866),

Gene: Gex\_48 Start: 33474, Stop: 34535, Start Num: 31

Candidate Starts for Gex\_48:

(Start: 31 @33474 has 14 MA's), (34, 33486), (45, 33552), (46, 33555), (48, 33561), (55, 33585), (58, 33606), (59, 33612), (62, 33624), (63, 33627), (65, 33636), (75, 33678), (78, 33693), (91, 33780), (106, 33885), (107, 33894), (116, 33939), (121, 33966), (123, 33978), (129, 34008), (133, 34020), (135, 34035), (140, 34062), (143, 34083), (146, 34116), (148, 34131), (149, 34134), (152, 34146), (154, 34155), (164, 34203), (165, 34209), (183, 34260), (188, 34284), (193, 34317), (194, 34320), (199, 34350), (200, 34356), (205, 34428), (207, 34446), (208, 34455), (214, 34503), (216, 34512),

Gene: Glaske\_46 Start: 32800, Stop: 33774, Start Num: 35

Candidate Starts for Glaske\_46:

(Start: 35 @32800 has 22 MA's), (Start: 40 @32818 has 1 MA's), (48, 32866), (59, 32917), (63, 32932), (65, 32941), (87, 33052), (108, 33187), (131, 33298), (133, 33301), (138, 33340), (144, 33364), (146, 33382), (155, 33427), (162, 33457), (164, 33469), (181, 33526), (195, 33595), (204, 33694), (210, 33742),

Gene: GravityBall\_35 Start: 29827, Stop: 30672, Start Num: 29

Candidate Starts for GravityBall\_35:

(Start: 29 @29827 has 62 MA's), (48, 29920), (49, 29923), (55, 29944), (60, 29974), (78, 30052), (86, 30109), (96, 30157), (104, 30208), (105, 30211), (106, 30226), (111, 30256), (116, 30274), (119, 30292), (133, 30352), (140, 30394), (144, 30433), (146, 30451), (149, 30469), (154, 30490), (157, 30508), (176, 30577), (182, 30589), (184, 30595),

Gene: GreaseLightnin\_47 Start: 32779, Stop: 33753, Start Num: 35

Candidate Starts for GreaseLightnin\_47:

(Start: 35 @32779 has 22 MA's), (Start: 40 @32797 has 1 MA's), (48, 32845), (59, 32896), (65, 32920), (87, 33031), (108, 33166), (131, 33277), (133, 33280), (138, 33319), (144, 33343), (146, 33361), (155, 33406), (162, 33436), (164, 33448), (181, 33505), (195, 33574), (204, 33673), (210, 33721),

Gene: Grekaycon\_35 Start: 29742, Stop: 30590, Start Num: 29

Candidate Starts for Grekaycon\_35:

(Start: 29 @29742 has 62 MA's), (48, 29832), (49, 29835), (55, 29856), (59, 29883), (60, 29886), (78, 29964), (86, 30021), (96, 30069), (104, 30120), (105, 30123), (116, 30186), (119, 30204), (133, 30264), (140, 30306), (144, 30345), (146, 30363), (149, 30381), (154, 30402), (157, 30420), (164, 30450), (182, 30501), (198, 30567),

Gene: Gustavo\_50 Start: 42537, Stop: 43559, Start Num: 29

Candidate Starts for Gustavo\_50:

(13, 42396), (Start: 18 @42483 has 1 MA's), (Start: 26 @42531 has 15 MA's), (Start: 29 @42537 has 62 MA's), (38, 42573), (48, 42627), (55, 42651), (60, 42681), (68, 42711), (75, 42744), (78, 42759), (99, 42888), (101, 42903), (102, 42906), (126, 43050), (133, 43083), (135, 43098), (146, 43167), (147, 43173), (148, 43182), (161, 43239), (164, 43254),

Gene: HUHilltop\_48 Start: 33058, Stop: 34032, Start Num: 35

Candidate Starts for HUHilltop\_48:

(Start: 35 @33058 has 22 MA's), (Start: 40 @33076 has 1 MA's), (48, 33124), (59, 33175), (65, 33199), (87, 33310), (108, 33445), (131, 33556), (133, 33559), (138, 33598), (144, 33622), (146, 33640), (155, 33685), (162, 33715), (164, 33727), (181, 33784), (195, 33853), (204, 33952), (210, 34000),

Gene: HannahPhantana\_49 Start: 26085, Stop: 26879, Start Num: 26

Candidate Starts for HannahPhantana\_49:

(Start: 26 @26085 has 15 MA's), (48, 26178), (56, 26214), (60, 26232), (69, 26265), (85, 26349), (104, 26496), (105, 26499), (123, 26613), (135, 26667), (146, 26733), (156, 26787), (166, 26832), (171, 26847),

Gene: Hans\_51 Start: 41907, Stop: 42968, Start Num: 29

Candidate Starts for Hans\_51:

(Start: 29 @41907 has 62 MA's), (38, 41943), (48, 41994), (55, 42018), (58, 42039), (67, 42075), (78, 42126), (84, 42159), (101, 42270), (126, 42417), (129, 42438), (133, 42450), (135, 42465), (146, 42546), (148, 42561), (157, 42603), (158, 42606), (190, 42735), (202, 42831), (209, 42903), (213, 42939),

Gene: Inspectinfecti\_50 Start: 42353, Stop: 43414, Start Num: 29

Candidate Starts for Inspectinfecti\_50:

(Start: 29 @42353 has 62 MA's), (38, 42389), (48, 42440), (55, 42464), (58, 42485), (67, 42521), (78, 42572), (84, 42605), (101, 42716), (126, 42863), (129, 42884), (133, 42896), (135, 42911), (146, 42992), (148, 43007), (157, 43049), (158, 43052), (190, 43181), (202, 43277), (209, 43349), (213, 43385),

Gene: JKSyngboy\_48 Start: 43130, Stop: 44158, Start Num: 26

Candidate Starts for JKSyngboy\_48:

(13, 42995), (Start: 18 @43082 has 1 MA's), (Start: 26 @43130 has 15 MA's), (Start: 29 @43136 has 62 MA's), (38, 43172), (48, 43226), (55, 43250), (60, 43280), (68, 43310), (75, 43343), (78, 43358), (91, 43439), (99, 43487), (101, 43502), (126, 43649), (133, 43682), (135, 43697), (146, 43766), (148, 43781), (161, 43838),

Gene: JKerns\_35 Start: 29691, Stop: 30554, Start Num: 29

Candidate Starts for JKerns\_35:

(Start: 29 @29691 has 62 MA's), (48, 29781), (49, 29784), (55, 29805), (65, 29856), (78, 29913), (96, 30018), (110, 30108), (112, 30120), (116, 30135), (133, 30213), (136, 30240), (140, 30255), (144, 30297), (146, 30315), (149, 30333), (154, 30354), (157, 30372), (176, 30441), (184, 30459), (198, 30531),

Gene: Jace\_32 Start: 26355, Stop: 27233, Start Num: 20

Candidate Starts for Jace\_32:

(Start: 20 @26355 has 1 MA's), (41, 26445), (48, 26478), (55, 26502), (63, 26544), (75, 26595), (78, 26610), (84, 26643), (116, 26847), (120, 26871), (123, 26886), (124, 26889), (131, 26922), (135, 26940), (146, 27024), (154, 27063), (157, 27081),

Gene: Jamun\_38 Start: 26377, Stop: 27183, Start Num: 23

Candidate Starts for Jamun\_38:

(Start: 23 @26377 has 10 MA's), (45, 26473), (48, 26482), (60, 26536), (95, 26737), (107, 26830), (122, 26911), (146, 27037), (171, 27151),

Gene: Jawnski\_33 Start: 29492, Stop: 30337, Start Num: 29

Candidate Starts for Jawnski\_33:

(Start: 29 @29492 has 62 MA's), (48, 29579), (53, 29597), (55, 29603), (58, 29624), (78, 29711), (86, 29768), (96, 29816), (116, 29933), (133, 30011), (136, 30038), (140, 30053), (146, 30110), (149, 30128), (154, 30149), (157, 30167),

Gene: JonJames\_109 Start: 63983, Stop: 64675, Start Num: 36

Candidate Starts for JonJames\_109:

(Start: 36 @63983 has 16 MA's), (44, 64037), (54, 64070), (61, 64109), (71, 64145), (73, 64154), (76, 64178), (80, 64187), (81, 64190), (96, 64286), (103, 64328), (105, 64340), (114, 64397), (125, 64457), (130, 64484), (132, 64490), (146, 64565), (154, 64604), (158, 64625),

Gene: Jordan\_35 Start: 29741, Stop: 30604, Start Num: 29

Candidate Starts for Jordan\_35:

(Start: 29 @29741 has 62 MA's), (48, 29831), (49, 29834), (55, 29855), (65, 29906), (78, 29963), (96, 30068), (110, 30158), (112, 30170), (116, 30185), (133, 30263), (136, 30290), (140, 30305), (144, 30347), (146, 30365), (149, 30383), (154, 30404), (157, 30422), (176, 30491), (184, 30509), (198, 30581),

Gene: Juniormint\_47 Start: 32572, Stop: 33546, Start Num: 35

Candidate Starts for Juniormint\_47:

(Start: 35 @32572 has 22 MA's), (Start: 40 @32590 has 1 MA's), (48, 32638), (59, 32689), (63, 32704), (65, 32713), (87, 32824), (108, 32959), (131, 33070), (133, 33073), (138, 33112), (144, 33136), (146, 33154), (155, 33199), (162, 33229), (164, 33241), (181, 33298), (195, 33367), (204, 33466), (210, 33514),

Gene: Juno112\_41 Start: 26017, Stop: 26814, Start Num: 26

Candidate Starts for Juno112\_41:

(Start: 26 @26017 has 15 MA's), (48, 26113), (60, 26167), (85, 26284), (90, 26320), (104, 26431), (115, 26503), (122, 26539), (123, 26548), (146, 26668), (151, 26695), (164, 26755),

Gene: KHumphrey\_40 Start: 26016, Stop: 26813, Start Num: 26

Candidate Starts for KHumphrey\_40:

(Start: 26 @26016 has 15 MA's), (48, 26112), (60, 26166), (85, 26283), (90, 26319), (104, 26430), (115, 26502), (122, 26538), (123, 26547), (146, 26667), (164, 26754),

Gene: Kepler\_43 Start: 26833, Stop: 27627, Start Num: 26

Candidate Starts for Kepler\_43:

(Start: 26 @26833 has 15 MA's), (48, 26926), (56, 26962), (60, 26980), (69, 27013), (85, 27097), (104, 27244), (105, 27247), (123, 27361), (128, 27385), (146, 27481), (156, 27535), (166, 27580), (171, 27595),

Gene: KilKor\_46 Start: 32800, Stop: 33774, Start Num: 35

Candidate Starts for KilKor\_46:

(Start: 35 @32800 has 22 MA's), (Start: 40 @32818 has 1 MA's), (48, 32866), (59, 32917), (63, 32932), (65, 32941), (87, 33052), (108, 33187), (131, 33298), (133, 33301), (138, 33340), (144, 33364), (146, 33382), (155, 33427), (162, 33457), (164, 33469), (181, 33526), (195, 33595), (204, 33694), (210, 33742),

Gene: King2\_33 Start: 29481, Stop: 30326, Start Num: 29

Candidate Starts for King2\_33:

(Start: 29 @29481 has 62 MA's), (48, 29571), (53, 29589), (55, 29595), (58, 29616), (64, 29643), (78, 29703), (86, 29760), (96, 29808), (116, 29925), (129, 29991), (133, 30003), (136, 30030), (140, 30045), (144, 30084), (146, 30102), (149, 30120), (154, 30141), (157, 30159), (164, 30189), (168, 30204),

Gene: Klevey\_38 Start: 29418, Stop: 30272, Start Num: 29

Candidate Starts for Klevey\_38:

(Start: 29 @29418 has 62 MA's), (48, 29508), (55, 29532), (78, 29640), (96, 29745), (116, 29865), (146, 30042), (151, 30069), (154, 30081), (187, 30198),

Gene: Kroos\_50 Start: 42820, Stop: 43842, Start Num: 29

Candidate Starts for Kroos\_50:

(Start: 29 @42820 has 62 MA's), (38, 42856), (48, 42910), (55, 42934), (60, 42964), (68, 42994), (75, 43027), (78, 43042), (91, 43123), (99, 43171), (101, 43186), (102, 43189), (126, 43333), (133, 43366), (135, 43381), (146, 43450), (148, 43465), (161, 43522), (164, 43537),

Gene: Ksquared\_46 Start: 32550, Stop: 33524, Start Num: 35

Candidate Starts for Ksquared\_46:

(Start: 35 @32550 has 22 MA's), (Start: 40 @32568 has 1 MA's), (48, 32616), (59, 32667), (63, 32682), (65, 32691), (87, 32802), (108, 32937), (131, 33048), (133, 33051), (138, 33090), (144, 33114), (146, 33132), (155, 33177), (162, 33207), (164, 33219), (181, 33276), (195, 33345), (204, 33444), (210, 33492),

Gene: Kuleana\_43 Start: 26408, Stop: 27208, Start Num: 26

Candidate Starts for Kuleana\_43:

(Start: 26 @26408 has 15 MA's), (48, 26504), (56, 26540), (60, 26558), (85, 26675), (90, 26711), (104, 26825), (105, 26828), (115, 26897), (123, 26942), (146, 27062), (156, 27116), (171, 27176),

Gene: Kwekel\_47 Start: 39327, Stop: 40385, Start Num: 29

Candidate Starts for Kwekel\_47:

(21, 39297), (Start: 29 @39327 has 62 MA's), (48, 39414), (55, 39438), (60, 39468), (75, 39531), (78, 39546), (84, 39579), (101, 39690), (105, 39717), (112, 39771), (126, 39837), (129, 39858), (133, 39870), (135, 39885), (146, 39969), (149, 39987), (153, 40005), (157, 40026), (164, 40056), (192, 40167), (203, 40272), (206, 40293), (212, 40350), (213, 40356),

Gene: Kwobi\_51 Start: 43246, Stop: 44268, Start Num: 29

Candidate Starts for Kwobi\_51:

(8, 43003), (13, 43105), (Start: 18 @43192 has 1 MA's), (Start: 29 @43246 has 62 MA's), (38, 43282), (48, 43336), (55, 43360), (60, 43390), (68, 43420), (75, 43453), (78, 43468), (91, 43549), (99, 43597), (101, 43612), (102, 43615), (126, 43759), (133, 43792), (135, 43807), (146, 43876), (148, 43891), (161, 43948), (164, 43963),

Gene: LeeroyJ\_35 Start: 29826, Stop: 30671, Start Num: 29

Candidate Starts for LeeroyJ\_35:

(Start: 29 @29826 has 62 MA's), (48, 29919), (49, 29922), (55, 29943), (60, 29973), (78, 30051), (86, 30108), (96, 30156), (104, 30207), (105, 30210), (106, 30225), (116, 30273), (119, 30291), (133, 30351), (140, 30393), (144, 30432), (146, 30450), (149, 30468), (154, 30489), (157, 30507), (164, 30537), (176, 30576), (182, 30588), (184, 30594),

Gene: Lennon\_51 Start: 44231, Stop: 45241, Start Num: 29

Candidate Starts for Lennon\_51:

(1, 43880), (8, 43988), (13, 44090), (Start: 18 @44177 has 1 MA's), (Start: 29 @44231 has 62 MA's), (38, 44267), (48, 44318), (50, 44324), (55, 44342), (60, 44372), (75, 44435), (78, 44450), (91, 44531), (101, 44594), (126, 44741), (133, 44774), (135, 44789), (146, 44858), (148, 44873), (161, 44930), (164, 44945), (205, 45134), (213, 45206),

Gene: Leona\_40 Start: 26088, Stop: 26888, Start Num: 26

Candidate Starts for Leona\_40:

(Start: 26 @26088 has 15 MA's), (48, 26184), (60, 26238), (63, 26250), (79, 26319), (85, 26355), (89, 26385), (115, 26577), (123, 26622), (146, 26742), (164, 26829),

Gene: Leonard\_49 Start: 42000, Stop: 43061, Start Num: 29

Candidate Starts for Leonard\_49:

(16, 41934), (Start: 29 @42000 has 62 MA's), (38, 42036), (48, 42087), (55, 42111), (58, 42132), (67, 42168), (78, 42219), (84, 42252), (101, 42363), (126, 42510), (129, 42531), (133, 42543), (135, 42558), (146, 42639), (148, 42654), (157, 42696), (158, 42699), (190, 42828), (202, 42924), (209, 42996), (213, 43032),

Gene: LilHam\_47 Start: 41425, Stop: 42447, Start Num: 29

Candidate Starts for LilHam\_47:

(Start: 29 @41425 has 62 MA's), (38, 41461), (48, 41515), (55, 41539), (60, 41569), (68, 41599), (75, 41632), (78, 41647), (91, 41728), (99, 41776), (101, 41791), (102, 41794), (126, 41938), (133, 41971), (135, 41986), (146, 42055), (148, 42070), (161, 42127), (164, 42142),

Gene: Lilmac1015\_40 Start: 29991, Stop: 30845, Start Num: 29

Candidate Starts for Lilmac1015\_40:

(Start: 29 @29991 has 62 MA's), (48, 30081), (55, 30105), (78, 30213), (96, 30318), (116, 30438), (146, 30615), (154, 30654), (187, 30771),

Gene: LittleTokyo\_41 Start: 25961, Stop: 26755, Start Num: 26

Candidate Starts for LittleTokyo\_41:

(Start: 26 @25961 has 15 MA's), (44, 26048), (48, 26060), (60, 26114), (65, 26135), (79, 26195), (85, 26231), (95, 26309), (104, 26372), (109, 26414), (115, 26444), (123, 26489), (135, 26543), (146, 26609), (164, 26696), (171, 26723),

Gene: Lozinak\_91 Start: 56648, Stop: 57373, Start Num: 36

Candidate Starts for Lozinak\_91:

(3, 56348), (5, 56375), (6, 56378), (7, 56381), (15, 56543), (Start: 36 @56648 has 16 MA's), (57, 56756), (61, 56774), (65, 56789), (66, 56792), (76, 56843), (87, 56906), (94, 56933), (100, 56966), (105, 57005), (109, 57044), (118, 57074), (121, 57101), (130, 57146), (146, 57227), (150, 57251), (161, 57296), (167, 57326),

Gene: Lunar\_43 Start: 26749, Stop: 27543, Start Num: 26

Candidate Starts for Lunar\_43:

(Start: 26 @26749 has 15 MA's), (48, 26842), (56, 26878), (60, 26896), (69, 26929), (85, 27013), (104, 27160), (105, 27163), (123, 27277), (128, 27301), (146, 27397), (156, 27451), (166, 27496), (171, 27511),

Gene: Magsby\_48 Start: 33475, Stop: 34536, Start Num: 31

Candidate Starts for Magsby\_48:

(Start: 31 @33475 has 14 MA's), (34, 33487), (45, 33553), (46, 33556), (48, 33562), (55, 33586), (58, 33607), (59, 33613), (62, 33625), (63, 33628), (65, 33637), (75, 33679), (78, 33694), (91, 33781), (106, 33886), (107, 33895), (116, 33940), (121, 33967), (123, 33979), (129, 34009), (133, 34021), (135, 34036), (140, 34063), (143, 34084), (146, 34117), (148, 34132), (149, 34135), (152, 34147),

(154, 34156), (164, 34204), (165, 34210), (183, 34261), (188, 34285), (193, 34318), (194, 34321), (199, 34351), (200, 34357), (205, 34429), (207, 34447), (208, 34456), (214, 34504), (216, 34513),

Gene: Martha\_35 Start: 29743, Stop: 30591, Start Num: 29

Candidate Starts for Martha\_35:

(Start: 29 @29743 has 62 MA's), (48, 29833), (49, 29836), (55, 29857), (59, 29884), (60, 29887), (78, 29965), (86, 30022), (96, 30070), (104, 30121), (105, 30124), (116, 30187), (119, 30205), (133, 30265), (140, 30307), (144, 30346), (146, 30364), (149, 30382), (154, 30403), (157, 30421), (164, 30451), (182, 30502), (198, 30568),

Gene: Melons\_43 Start: 26563, Stop: 27357, Start Num: 26

Candidate Starts for Melons\_43:

(Start: 26 @26563 has 15 MA's), (48, 26656), (56, 26692), (60, 26710), (69, 26743), (85, 26827), (104, 26974), (105, 26977), (123, 27091), (128, 27115), (146, 27211), (156, 27265), (166, 27310), (171, 27325),

Gene: Melville\_52 Start: 33459, Stop: 34520, Start Num: 31

Candidate Starts for Melville\_52:

(Start: 31 @33459 has 14 MA's), (34, 33471), (45, 33537), (46, 33540), (48, 33546), (55, 33570), (58, 33591), (59, 33597), (62, 33609), (63, 33612), (65, 33621), (75, 33663), (78, 33678), (91, 33765), (106, 33870), (107, 33879), (116, 33924), (121, 33951), (123, 33963), (129, 33993), (133, 34005), (135, 34020), (140, 34047), (143, 34068), (146, 34101), (148, 34116), (149, 34119), (152, 34131), (154, 34140), (164, 34188), (165, 34194), (183, 34245), (188, 34269), (193, 34302), (194, 34305), (199, 34335), (200, 34341), (205, 34413), (207, 34431), (208, 34440), (214, 34488), (216, 34497),

Gene: Miskis\_87 Start: 54557, Stop: 55282, Start Num: 36

Candidate Starts for Miskis\_87:

(2, 54224), (3, 54257), (5, 54284), (6, 54287), (7, 54290), (14, 54398), (Start: 36 @54557 has 16 MA's), (57, 54665), (61, 54683), (65, 54698), (66, 54701), (76, 54752), (87, 54815), (94, 54842), (100, 54875), (105, 54914), (109, 54953), (112, 54965), (118, 54983), (121, 55010), (130, 55055), (146, 55136), (150, 55160), (161, 55205), (167, 55235),

Gene: ModicumRichard\_40 Start: 33410, Stop: 34294, Start Num: 27

Candidate Starts for ModicumRichard\_40:

(Start: 27 @33410 has 5 MA's), (43, 33482), (47, 33500), (51, 33512), (56, 33539), (60, 33557), (81, 33644), (99, 33809), (120, 33941), (126, 33965), (131, 33992), (133, 33998), (145, 34079), (146, 34085), (154, 34124), (178, 34226),

Gene: Mollymur\_94 Start: 63842, Stop: 63024, Start Num: 25

Candidate Starts for Mollymur\_94:

(Start: 25 @63842 has 5 MA's), (44, 63752), (55, 63716), (61, 63680), (76, 63611), (96, 63503), (121, 63332), (125, 63314), (137, 63245), (146, 63206), (149, 63188), (150, 63182), (158, 63146), (164, 63125), (179, 63071),

Gene: Morgana\_40 Start: 33361, Stop: 34245, Start Num: 27

Candidate Starts for Morgana\_40:

(24, 33355), (Start: 27 @33361 has 5 MA's), (43, 33433), (47, 33451), (51, 33463), (56, 33490), (60, 33508), (81, 33595), (99, 33760), (108, 33838), (120, 33892), (126, 33916), (131, 33943), (133, 33949), (145, 34030), (146, 34036), (154, 34075), (178, 34177),

Gene: NathanVaag\_33 Start: 29495, Stop: 30340, Start Num: 29

Candidate Starts for NathanVaag\_33:

(Start: 29 @29495 has 62 MA's), (48, 29582), (53, 29600), (55, 29606), (58, 29627), (78, 29714), (86, 29771), (96, 29819), (116, 29936), (133, 30014), (136, 30041), (140, 30056), (146, 30113), (149, 30131), (154, 30152), (157, 30170), (164, 30200),

Gene: Natkenzie\_51 Start: 43588, Stop: 44628, Start Num: 29

Candidate Starts for Natkenzie\_51:

(Start: 29 @43588 has 62 MA's), (48, 43678), (55, 43702), (56, 43714), (60, 43732), (78, 43810), (84, 43843), (112, 44017), (126, 44083), (135, 44131), (146, 44203), (148, 44218), (153, 44239), (157, 44260), (158, 44263), (188, 44368), (192, 44401), (196, 44413), (209, 44560), (213, 44596),

Gene: Norvs\_91 Start: 56033, Stop: 56758, Start Num: 36

Candidate Starts for Norvs\_91:

(3, 55733), (5, 55760), (6, 55763), (7, 55766), (14, 55874), (Start: 36 @56033 has 16 MA's), (57, 56141), (61, 56159), (65, 56174), (66, 56177), (76, 56228), (87, 56291), (94, 56318), (100, 56351), (105, 56390), (109, 56429), (118, 56459), (121, 56486), (130, 56531), (146, 56612), (150, 56636), (161, 56681), (167, 56711),

Gene: ObLaDi\_40 Start: 33395, Stop: 34282, Start Num: 27

Candidate Starts for ObLaDi\_40:

(24, 33389), (Start: 27 @33395 has 5 MA's), (43, 33467), (47, 33485), (51, 33497), (56, 33524), (60, 33542), (81, 33629), (99, 33794), (120, 33929), (126, 33953), (131, 33980), (133, 33986), (145, 34067), (146, 34073), (154, 34112),

Gene: OneUp\_81 Start: 54043, Stop: 54768, Start Num: 36

Candidate Starts for OneUp\_81:

(Start: 36 @54043 has 16 MA's), (54, 54130), (57, 54151), (61, 54169), (66, 54187), (76, 54238), (80, 54247), (87, 54301), (94, 54328), (100, 54361), (109, 54439), (118, 54469), (146, 54622), (150, 54646), (152, 54652), (161, 54691),

Gene: Orcanus\_39 Start: 26742, Stop: 27548, Start Num: 23

Candidate Starts for Orcanus\_39:

(Start: 23 @26742 has 10 MA's), (45, 26838), (48, 26847), (55, 26871), (56, 26883), (60, 26901), (95, 27102), (107, 27195), (122, 27276), (126, 27294), (146, 27402), (171, 27516),

Gene: PFR1\_36 Start: 27536, Stop: 28372, Start Num: 37

Candidate Starts for PFR1\_36:

(37, 27536), (Start: 40 @27557 has 1 MA's), (54, 27620), (60, 27653), (71, 27695), (76, 27728), (88, 27794), (92, 27824), (93, 27836), (98, 27869), (119, 28004), (126, 28031), (132, 28061), (139, 28103), (146, 28151), (149, 28169), (154, 28190), (160, 28220), (163, 28232), (174, 28277), (182, 28304), (189, 28334),

Gene: PFR2\_38 Start: 29105, Stop: 29941, Start Num: 37

Candidate Starts for PFR2\_38:

(37, 29105), (Start: 40 @29126 has 1 MA's), (54, 29189), (60, 29222), (71, 29264), (76, 29297), (88, 29363), (92, 29393), (93, 29405), (98, 29438), (119, 29573), (126, 29600), (132, 29630), (139, 29672), (146, 29720), (149, 29738), (154, 29759), (160, 29789), (163, 29801), (174, 29846), (182, 29873), (189, 29903),

Gene: Parmesanjohn\_48 Start: 33478, Stop: 34539, Start Num: 31

Candidate Starts for Parmesanjohn\_48:

(Start: 31 @33478 has 14 MA's), (34, 33490), (45, 33556), (46, 33559), (48, 33565), (55, 33589), (58, 33610), (59, 33616), (62, 33628), (63, 33631), (65, 33640), (75, 33682), (78, 33697), (91, 33784), (106, 33889), (107, 33898), (116, 33943), (121, 33970), (123, 33982), (129, 34012), (133, 34024),



(135, 34039), (140, 34066), (143, 34087), (146, 34120), (148, 34135), (149, 34138), (152, 34150), (154, 34159), (164, 34207), (165, 34213), (183, 34264), (188, 34288), (193, 34321), (194, 34324), (199, 34354), (200, 34360), (205, 34432), (207, 34450), (208, 34459), (214, 34507), (216, 34516),

Gene: Phalm\_46 Start: 32800, Stop: 33774, Start Num: 35

Candidate Starts for Phalm\_46:

(Start: 35 @32800 has 22 MA's), (Start: 40 @32818 has 1 MA's), (48, 32866), (59, 32917), (63, 32932), (65, 32941), (87, 33052), (108, 33187), (131, 33298), (133, 33301), (138, 33340), (144, 33364), (146, 33382), (155, 33427), (162, 33457), (164, 33469), (181, 33526), (195, 33595), (204, 33694), (210, 33742),

Gene: Phauci\_42 Start: 38921, Stop: 39982, Start Num: 29

Candidate Starts for Phauci\_42:

(4, 38648), (10, 38732), (Start: 29 @38921 has 62 MA's), (38, 38957), (48, 39008), (55, 39032), (67, 39089), (78, 39140), (101, 39284), (126, 39431), (129, 39452), (133, 39464), (135, 39479), (146, 39560), (148, 39575), (157, 39617), (158, 39620), (179, 39689), (190, 39749), (202, 39845), (209, 39917), (213, 39953),

Gene: Phinally\_49 Start: 41997, Stop: 43058, Start Num: 29

Candidate Starts for Phinally\_49:

(16, 41931), (Start: 29 @41997 has 62 MA's), (38, 42033), (48, 42084), (55, 42108), (58, 42129), (67, 42165), (78, 42216), (84, 42249), (101, 42360), (126, 42507), (129, 42528), (133, 42540), (135, 42555), (146, 42636), (148, 42651), (157, 42693), (158, 42696), (190, 42825), (202, 42921), (209, 42993), (213, 43029),

Gene: Phineas\_48 Start: 33393, Stop: 34367, Start Num: 35

Candidate Starts for Phineas\_48:

(Start: 35 @33393 has 22 MA's), (Start: 40 @33411 has 1 MA's), (48, 33459), (59, 33510), (65, 33534), (87, 33645), (108, 33780), (131, 33891), (133, 33894), (138, 33933), (144, 33957), (146, 33975), (155, 34020), (162, 34050), (164, 34062), (181, 34119), (195, 34188), (204, 34287), (210, 34335),

Gene: PhinkBoden\_90 Start: 56438, Stop: 57163, Start Num: 36

Candidate Starts for PhinkBoden\_90:

(3, 56138), (5, 56165), (6, 56168), (7, 56171), (15, 56333), (Start: 36 @56438 has 16 MA's), (57, 56546), (61, 56564), (65, 56579), (66, 56582), (76, 56633), (87, 56696), (94, 56723), (100, 56756), (105, 56795), (109, 56834), (118, 56864), (121, 56891), (130, 56936), (146, 57017), (150, 57041), (161, 57086), (167, 57116),

Gene: Phloss\_46 Start: 32885, Stop: 33946, Start Num: 31

Candidate Starts for Phloss\_46:

(Start: 31 @32885 has 14 MA's), (34, 32897), (45, 32963), (46, 32966), (48, 32972), (55, 32996), (58, 33017), (59, 33023), (62, 33035), (63, 33038), (65, 33047), (75, 33089), (78, 33104), (91, 33191), (106, 33296), (107, 33305), (116, 33350), (121, 33377), (123, 33389), (129, 33419), (133, 33431), (135, 33446), (140, 33473), (143, 33494), (146, 33527), (148, 33542), (149, 33545), (152, 33557), (154, 33566), (164, 33614), (165, 33620), (183, 33671), (188, 33695), (193, 33728), (194, 33731), (199, 33761), (200, 33767), (205, 33839), (207, 33857), (208, 33866), (214, 33914), (216, 33923),

Gene: PhluffyCoco\_41 Start: 26013, Stop: 26810, Start Num: 26

Candidate Starts for PhluffyCoco\_41:

(Start: 26 @26013 has 15 MA's), (48, 26109), (60, 26163), (85, 26280), (90, 26316), (104, 26427), (115, 26499), (122, 26535), (123, 26544), (146, 26664), (151, 26691), (164, 26751),

Gene: Piccoletto\_33 Start: 29496, Stop: 30341, Start Num: 29

Candidate Starts for Piccoletto\_33:

(Start: 29 @29496 has 62 MA's), (48, 29583), (53, 29601), (55, 29607), (58, 29628), (78, 29715), (86, 29772), (96, 29820), (98, 29829), (116, 29937), (133, 30015), (136, 30042), (140, 30057), (144, 30096), (146, 30114), (149, 30132), (154, 30153), (157, 30171), (164, 30201),

Gene: Pippa\_35 Start: 29870, Stop: 30733, Start Num: 29

Candidate Starts for Pippa\_35:

(Start: 29 @29870 has 62 MA's), (48, 29960), (49, 29963), (55, 29984), (65, 30035), (78, 30092), (96, 30197), (110, 30287), (112, 30299), (116, 30314), (133, 30392), (136, 30419), (140, 30434), (144, 30476), (146, 30494), (149, 30512), (154, 30533), (157, 30551), (176, 30620), (184, 30638), (198, 30710),

Gene: Pipsqueaks\_48 Start: 33455, Stop: 34516, Start Num: 31

Candidate Starts for Pipsqueaks\_48:

(Start: 31 @33455 has 14 MA's), (34, 33467), (45, 33533), (46, 33536), (48, 33542), (55, 33566), (58, 33587), (59, 33593), (62, 33605), (63, 33608), (65, 33617), (75, 33659), (78, 33674), (91, 33761), (106, 33866), (107, 33875), (116, 33920), (121, 33947), (123, 33959), (129, 33989), (133, 34001), (135, 34016), (140, 34043), (143, 34064), (146, 34097), (148, 34112), (149, 34115), (152, 34127), (154, 34136), (164, 34184), (165, 34190), (183, 34241), (188, 34265), (193, 34298), (194, 34301), (199, 34331), (200, 34337), (205, 34409), (207, 34427), (208, 34436), (214, 34484), (216, 34493),

Gene: Polka\_41 Start: 25939, Stop: 26733, Start Num: 26

Candidate Starts for Polka\_41:

(Start: 26 @25939 has 15 MA's), (48, 26032), (56, 26068), (60, 26086), (69, 26119), (85, 26203), (104, 26350), (105, 26353), (123, 26467), (128, 26491), (146, 26587), (156, 26641), (166, 26686), (171, 26701),

Gene: Prairie\_37 Start: 29334, Stop: 30188, Start Num: 29

Candidate Starts for Prairie\_37:

(Start: 29 @29334 has 62 MA's), (48, 29424), (55, 29448), (78, 29556), (96, 29661), (116, 29781), (146, 29958), (154, 29997), (187, 30114),

Gene: Pygmy\_50 Start: 34875, Stop: 35831, Start Num: 40

Candidate Starts for Pygmy\_50:

(Start: 35 @34857 has 22 MA's), (Start: 40 @34875 has 1 MA's), (48, 34923), (59, 34974), (65, 34998), (87, 35109), (108, 35244), (131, 35355), (133, 35358), (138, 35397), (144, 35421), (146, 35439), (155, 35484), (162, 35514), (164, 35526), (181, 35583), (195, 35652), (204, 35751), (210, 35799),

Gene: RedFox\_41 Start: 26012, Stop: 26809, Start Num: 26

Candidate Starts for RedFox\_41:

(Start: 26 @26012 has 15 MA's), (48, 26108), (60, 26162), (85, 26279), (90, 26315), (104, 26426), (115, 26498), (122, 26534), (123, 26543), (146, 26663), (151, 26690), (164, 26750),

Gene: Renna12\_40 Start: 26070, Stop: 26870, Start Num: 26

Candidate Starts for Renna12\_40:

(Start: 26 @26070 has 15 MA's), (48, 26166), (60, 26220), (63, 26232), (79, 26301), (85, 26337), (89, 26367), (115, 26559), (123, 26604), (146, 26724), (151, 26751), (164, 26811),

Gene: Ribeye\_50 Start: 43238, Stop: 44260, Start Num: 29

Candidate Starts for Ribeye\_50:

(Start: 29 @43238 has 62 MA's), (38, 43274), (48, 43328), (55, 43352), (60, 43382), (68, 43412), (75, 43445), (78, 43460), (91, 43541), (99, 43589), (101, 43604), (102, 43607), (126, 43751), (133, 43784), (135, 43799), (146, 43868), (148, 43883), (161, 43940), (164, 43955),

Gene: RiverRaider\_53 Start: 41929, Stop: 42948, Start Num: 29

Candidate Starts for RiverRaider\_53:

(Start: 18 @41884 has 1 MA's), (Start: 29 @41929 has 62 MA's), (48, 42016), (55, 42040), (60, 42070), (75, 42133), (78, 42148), (99, 42277), (126, 42439), (133, 42472), (135, 42487), (146, 42556), (148, 42571), (161, 42628), (164, 42643), (185, 42706), (201, 42796), (215, 42925),

Gene: RoadKill\_45 Start: 38932, Stop: 39990, Start Num: 29

Candidate Starts for RoadKill\_45:

(21, 38902), (Start: 29 @38932 has 62 MA's), (48, 39019), (55, 39043), (60, 39073), (75, 39136), (78, 39151), (84, 39184), (101, 39295), (105, 39322), (112, 39376), (126, 39442), (129, 39463), (133, 39475), (135, 39490), (146, 39574), (149, 39592), (153, 39610), (157, 39631), (164, 39661), (192, 39772), (203, 39877), (206, 39898), (212, 39955), (213, 39961),

Gene: Ruchi\_38 Start: 26786, Stop: 27592, Start Num: 23

Candidate Starts for Ruchi\_38:

(Start: 23 @26786 has 10 MA's), (45, 26882), (48, 26891), (56, 26927), (60, 26945), (107, 27239), (113, 27275), (133, 27365), (146, 27446), (171, 27560),

Gene: Sampson\_51 Start: 43533, Stop: 44573, Start Num: 29

Candidate Starts for Sampson\_51:

(Start: 29 @43533 has 62 MA's), (48, 43623), (55, 43647), (56, 43659), (60, 43677), (78, 43755), (84, 43788), (112, 43962), (126, 44028), (135, 44076), (146, 44148), (148, 44163), (153, 44184), (157, 44205), (158, 44208), (188, 44313), (192, 44346), (196, 44358), (209, 44505), (213, 44541),

Gene: Saronaya\_50 Start: 42537, Stop: 43559, Start Num: 29

Candidate Starts for Saronaya\_50:

(13, 42396), (Start: 18 @42483 has 1 MA's), (Start: 26 @42531 has 15 MA's), (Start: 29 @42537 has 62 MA's), (38, 42573), (48, 42627), (55, 42651), (60, 42681), (68, 42711), (75, 42744), (78, 42759), (99, 42888), (101, 42903), (102, 42906), (126, 43050), (133, 43083), (135, 43098), (146, 43167), (147, 43173), (148, 43182), (161, 43239), (164, 43254),

Gene: Schnauzer\_49 Start: 33478, Stop: 34539, Start Num: 31

Candidate Starts for Schnauzer\_49:

(Start: 31 @33478 has 14 MA's), (34, 33490), (45, 33556), (46, 33559), (48, 33565), (55, 33589), (58, 33610), (59, 33616), (62, 33628), (63, 33631), (65, 33640), (75, 33682), (78, 33697), (91, 33784), (106, 33889), (107, 33898), (116, 33943), (121, 33970), (123, 33982), (129, 34012), (133, 34024), (135, 34039), (140, 34066), (143, 34087), (146, 34120), (148, 34135), (149, 34138), (152, 34150), (154, 34159), (164, 34207), (165, 34213), (183, 34264), (188, 34288), (193, 34321), (194, 34324), (199, 34354), (200, 34360), (205, 34432), (207, 34450), (208, 34459), (214, 34507), (216, 34516),

Gene: SchottB\_48 Start: 43080, Stop: 44102, Start Num: 29

Candidate Starts for SchottB\_48:

(Start: 29 @43080 has 62 MA's), (38, 43116), (48, 43170), (55, 43194), (60, 43224), (68, 43254), (75, 43287), (78, 43302), (91, 43383), (99, 43431), (101, 43446), (102, 43449), (126, 43593), (133, 43626), (135, 43641), (146, 43710), (148, 43725), (161, 43782), (164, 43797),

Gene: Scioto\_52 Start: 43589, Stop: 44629, Start Num: 29

Candidate Starts for Scioto\_52:

(Start: 29 @43589 has 62 MA's), (48, 43679), (55, 43703), (56, 43715), (60, 43733), (78, 43811), (84, 43844), (112, 44018), (126, 44084), (135, 44132), (146, 44204), (148, 44219), (153, 44240), (157, 44261), (158, 44264), (188, 44369), (192, 44402), (196, 44414), (209, 44561), (213, 44597),

Gene: Scitech\_45 Start: 31494, Stop: 32558, Start Num: 31

Candidate Starts for Scitech\_45:

(Start: 31 @31494 has 14 MA's), (34, 31506), (45, 31572), (46, 31575), (48, 31581), (55, 31605), (58, 31626), (59, 31632), (62, 31644), (63, 31647), (65, 31656), (75, 31698), (78, 31713), (91, 31800), (106, 31905), (107, 31914), (116, 31959), (121, 31986), (123, 31998), (129, 32028), (133, 32040), (135, 32055), (140, 32082), (143, 32103), (146, 32136), (148, 32151), (149, 32154), (152, 32166), (154, 32175), (164, 32223), (165, 32229), (183, 32280), (188, 32304), (193, 32337), (194, 32340), (199, 32370), (200, 32376), (207, 32469), (208, 32478), (211, 32502), (216, 32535),

Gene: Shade\_35 Start: 29715, Stop: 30578, Start Num: 29

Candidate Starts for Shade\_35:

(Start: 29 @29715 has 62 MA's), (48, 29805), (49, 29808), (55, 29829), (65, 29880), (78, 29937), (96, 30042), (110, 30132), (112, 30144), (116, 30159), (133, 30237), (136, 30264), (140, 30279), (144, 30321), (146, 30339), (149, 30357), (154, 30378), (157, 30396), (176, 30465), (184, 30483), (198, 30555),

Gene: Shipwreck\_50 Start: 34832, Stop: 35806, Start Num: 35

Candidate Starts for Shipwreck\_50:

(Start: 35 @34832 has 22 MA's), (Start: 40 @34850 has 1 MA's), (48, 34898), (59, 34949), (65, 34973), (87, 35084), (108, 35219), (131, 35330), (133, 35333), (138, 35372), (144, 35396), (146, 35414), (155, 35459), (162, 35489), (164, 35501), (181, 35558), (195, 35627), (204, 35726), (210, 35774),

Gene: Sicarius2\_36 Start: 29347, Stop: 30198, Start Num: 29

Candidate Starts for Sicarius2\_36:

(Start: 29 @29347 has 62 MA's), (49, 29440), (53, 29455), (55, 29461), (60, 29491), (65, 29512), (78, 29569), (96, 29674), (105, 29728), (116, 29791), (133, 29869), (140, 29911), (144, 29950), (146, 29968), (149, 29986), (154, 30007), (157, 30025), (164, 30055),

Gene: Silvafighter\_49 Start: 33451, Stop: 34512, Start Num: 31

Candidate Starts for Silvafighter\_49:

(Start: 31 @33451 has 14 MA's), (34, 33463), (45, 33529), (46, 33532), (48, 33538), (55, 33562), (58, 33583), (59, 33589), (62, 33601), (63, 33604), (65, 33613), (75, 33655), (78, 33670), (91, 33757), (106, 33862), (107, 33871), (116, 33916), (121, 33943), (123, 33955), (129, 33985), (133, 33997), (135, 34012), (140, 34039), (143, 34060), (146, 34093), (148, 34108), (149, 34111), (152, 34123), (154, 34132), (164, 34180), (165, 34186), (183, 34237), (188, 34261), (193, 34294), (194, 34297), (199, 34327), (200, 34333), (205, 34405), (207, 34423), (208, 34432), (214, 34480), (216, 34489),

Gene: Sitar\_51 Start: 44231, Stop: 45241, Start Num: 29

Candidate Starts for Sitar\_51:

(1, 43880), (8, 43988), (13, 44090), (Start: 18 @44177 has 1 MA's), (Start: 29 @44231 has 62 MA's), (38, 44267), (48, 44318), (50, 44324), (55, 44342), (60, 44372), (75, 44435), (78, 44450), (91, 44531), (101, 44594), (126, 44741), (133, 44774), (135, 44789), (146, 44858), (148, 44873), (161, 44930), (164, 44945), (205, 45134), (213, 45206),

Gene: SkinnyPete\_45 Start: 31602, Stop: 32585, Start Num: 35

Candidate Starts for SkinnyPete\_45:

(Start: 35 @31602 has 22 MA's), (48, 31668), (52, 31680), (59, 31719), (70, 31761), (87, 31854), (108, 31989), (130, 32097), (131, 32100), (133, 32103), (138, 32142), (144, 32166), (146, 32184), (151,

32211), (154, 32223), (162, 32259), (164, 32271), (181, 32328), (195, 32403), (204, 32505), (210, 32553),

Gene: Smoothie\_92 Start: 56648, Stop: 57373, Start Num: 36

Candidate Starts for Smoothie\_92:

(3, 56348), (5, 56375), (6, 56378), (7, 56381), (15, 56543), (Start: 36 @56648 has 16 MA's), (57, 56756), (61, 56774), (65, 56789), (66, 56792), (76, 56843), (87, 56906), (94, 56933), (100, 56966), (105, 57005), (109, 57044), (118, 57074), (121, 57101), (130, 57146), (146, 57227), (150, 57251), (161, 57296), (167, 57326),

Gene: Smurph\_48 Start: 33478, Stop: 34539, Start Num: 31

Candidate Starts for Smurph\_48:

(Start: 31 @33478 has 14 MA's), (34, 33490), (45, 33556), (46, 33559), (48, 33565), (55, 33589), (58, 33610), (59, 33616), (62, 33628), (63, 33631), (65, 33640), (75, 33682), (78, 33697), (91, 33784), (106, 33889), (107, 33898), (116, 33943), (121, 33970), (123, 33982), (129, 34012), (133, 34024), (135, 34039), (140, 34066), (143, 34087), (146, 34120), (148, 34135), (149, 34138), (152, 34150), (154, 34159), (164, 34207), (165, 34213), (183, 34264), (188, 34288), (193, 34321), (194, 34324), (199, 34354), (200, 34360), (205, 34432), (207, 34450), (208, 34459), (214, 34507), (216, 34516),

Gene: Sonah\_47 Start: 32529, Stop: 33503, Start Num: 35

Candidate Starts for Sonah\_47:

(Start: 35 @32529 has 22 MA's), (Start: 40 @32547 has 1 MA's), (48, 32595), (59, 32646), (65, 32670), (87, 32781), (108, 32916), (131, 33027), (133, 33030), (138, 33069), (144, 33093), (146, 33111), (155, 33156), (162, 33186), (164, 33198), (181, 33255), (195, 33324), (204, 33423), (210, 33471),

Gene: Sonny\_35 Start: 29745, Stop: 30608, Start Num: 29

Candidate Starts for Sonny\_35:

(Start: 29 @29745 has 62 MA's), (48, 29835), (49, 29838), (55, 29859), (65, 29910), (78, 29967), (96, 30072), (110, 30162), (112, 30174), (116, 30189), (133, 30267), (136, 30294), (140, 30309), (144, 30351), (146, 30369), (149, 30387), (154, 30408), (157, 30426), (176, 30495), (184, 30513), (198, 30585),

Gene: SpeedDemon\_950 Start: 64954, Stop: 64124, Start Num: 25

Candidate Starts for SpeedDemon\_950:

(Start: 25 @64954 has 5 MA's), (55, 64831), (61, 64795), (76, 64726), (96, 64618), (121, 64453), (125, 64435), (146, 64327), (158, 64267), (180, 64183),

Gene: StevieBAY\_35 Start: 29827, Stop: 30672, Start Num: 29

Candidate Starts for StevieBAY\_35:

(Start: 29 @29827 has 62 MA's), (48, 29920), (49, 29923), (55, 29944), (60, 29974), (78, 30052), (86, 30109), (96, 30157), (104, 30208), (105, 30211), (106, 30226), (111, 30256), (116, 30274), (119, 30292), (133, 30352), (140, 30394), (144, 30433), (146, 30451), (149, 30469), (154, 30490), (157, 30508), (176, 30577), (182, 30589), (184, 30595),

Gene: StevieRay\_46 Start: 32502, Stop: 33476, Start Num: 35

Candidate Starts for StevieRay\_46:

(Start: 35 @32502 has 22 MA's), (Start: 40 @32520 has 1 MA's), (48, 32568), (59, 32619), (63, 32634), (65, 32643), (87, 32754), (108, 32889), (131, 33000), (133, 33003), (138, 33042), (144, 33066), (146, 33084), (155, 33129), (162, 33159), (164, 33171), (181, 33228), (195, 33297), (204, 33396), (210, 33444),

Gene: StorminNorm\_49 Start: 42171, Stop: 43193, Start Num: 29

Candidate Starts for StorminNorm\_49:

(Start: 29 @42171 has 62 MA's), (38, 42207), (48, 42261), (55, 42285), (60, 42315), (68, 42345), (75, 42378), (78, 42393), (91, 42474), (99, 42522), (101, 42537), (102, 42540), (126, 42684), (133, 42717), (135, 42732), (146, 42801), (148, 42816), (161, 42873), (164, 42888),

Gene: StressBall\_46 Start: 32800, Stop: 33774, Start Num: 35

Candidate Starts for StressBall\_46:

(Start: 35 @32800 has 22 MA's), (Start: 40 @32818 has 1 MA's), (48, 32866), (59, 32917), (63, 32932), (65, 32941), (87, 33052), (108, 33187), (131, 33298), (133, 33301), (138, 33340), (144, 33364), (146, 33382), (155, 33427), (162, 33457), (164, 33469), (181, 33526), (195, 33595), (204, 33694), (210, 33742),

Gene: TaeYoung\_35 Start: 29743, Stop: 30591, Start Num: 29

Candidate Starts for TaeYoung\_35:

(Start: 29 @29743 has 62 MA's), (48, 29833), (49, 29836), (55, 29857), (59, 29884), (60, 29887), (78, 29965), (86, 30022), (96, 30070), (104, 30121), (105, 30124), (116, 30187), (119, 30205), (133, 30265), (140, 30307), (144, 30346), (146, 30364), (149, 30382), (154, 30403), (157, 30421), (164, 30451), (182, 30502), (198, 30568),

Gene: Tangerine\_49 Start: 41949, Stop: 42971, Start Num: 29

Candidate Starts for Tangerine\_49:

(Start: 29 @41949 has 62 MA's), (48, 42039), (55, 42063), (60, 42093), (68, 42123), (75, 42156), (78, 42171), (99, 42300), (101, 42315), (102, 42318), (126, 42462), (133, 42495), (135, 42510), (146, 42579), (147, 42585), (148, 42594), (161, 42651), (164, 42666),

Gene: Tapioca\_50 Start: 33444, Stop: 34505, Start Num: 31

Candidate Starts for Tapioca\_50:

(Start: 31 @33444 has 14 MA's), (34, 33456), (45, 33522), (46, 33525), (48, 33531), (55, 33555), (58, 33576), (59, 33582), (62, 33594), (63, 33597), (65, 33606), (75, 33648), (78, 33663), (91, 33750), (106, 33855), (107, 33864), (116, 33909), (121, 33936), (123, 33948), (129, 33978), (133, 33990), (135, 34005), (140, 34032), (143, 34053), (146, 34086), (148, 34101), (149, 34104), (152, 34116), (154, 34125), (164, 34173), (165, 34179), (183, 34230), (188, 34254), (193, 34287), (194, 34290), (199, 34320), (200, 34326), (205, 34398), (207, 34416), (208, 34425), (214, 34473), (216, 34482),

Gene: TaylorSipht\_39 Start: 26156, Stop: 26953, Start Num: 23

Candidate Starts for TaylorSipht\_39:

(Start: 23 @26156 has 10 MA's), (44, 26246), (45, 26249), (48, 26258), (60, 26312), (85, 26429), (115, 26642), (123, 26687), (146, 26807), (151, 26834), (161, 26879), (162, 26882), (166, 26906),

Gene: Thespis\_46 Start: 32536, Stop: 33510, Start Num: 35

Candidate Starts for Thespis\_46:

(Start: 35 @32536 has 22 MA's), (Start: 40 @32554 has 1 MA's), (48, 32602), (59, 32653), (63, 32668), (65, 32677), (87, 32788), (108, 32923), (131, 33034), (133, 33037), (138, 33076), (144, 33100), (146, 33118), (155, 33163), (162, 33193), (164, 33205), (181, 33262), (195, 33331), (204, 33430), (210, 33478),

Gene: Tiamoceli\_48 Start: 40223, Stop: 41281, Start Num: 29

Candidate Starts for Tiamoceli\_48:

(21, 40193), (Start: 29 @40223 has 62 MA's), (48, 40310), (55, 40334), (60, 40364), (75, 40427), (78, 40442), (84, 40475), (101, 40586), (105, 40613), (112, 40667), (126, 40733), (129, 40754), (133, 40766), (135, 40781), (146, 40865), (149, 40883), (153, 40901), (157, 40922), (164, 40952), (192, 41063), (203, 41168), (206, 41189), (212, 41246), (213, 41252),

Gene: Timinator\_35 Start: 29826, Stop: 30671, Start Num: 29

Candidate Starts for Timinator\_35:

(Start: 29 @29826 has 62 MA's), (48, 29919), (49, 29922), (55, 29943), (60, 29973), (78, 30051), (86, 30108), (96, 30156), (104, 30207), (105, 30210), (106, 30225), (116, 30273), (119, 30291), (133, 30351), (140, 30393), (144, 30432), (146, 30450), (149, 30468), (154, 30489), (157, 30507), (164, 30537), (176, 30576), (182, 30588), (184, 30594),

Gene: Toniann\_91 Start: 55976, Stop: 56701, Start Num: 36

Candidate Starts for Toniann\_91:

(3, 55676), (5, 55703), (6, 55706), (7, 55709), (14, 55817), (Start: 36 @55976 has 16 MA's), (57, 56084), (61, 56102), (65, 56117), (66, 56120), (76, 56171), (87, 56234), (94, 56261), (100, 56294), (105, 56333), (109, 56372), (118, 56402), (121, 56429), (130, 56474), (146, 56555), (150, 56579), (161, 56624), (167, 56654),

Gene: TripleJ\_55 Start: 33927, Stop: 34802, Start Num: 29

Candidate Starts for TripleJ\_55:

(Start: 29 @33927 has 62 MA's), (48, 34017), (56, 34053), (64, 34089), (74, 34128), (78, 34149), (87, 34203), (102, 34278), (117, 34368), (122, 34395), (123, 34404), (124, 34407), (127, 34416), (133, 34443), (134, 34449), (144, 34506), (146, 34524), (153, 34560), (154, 34563), (172, 34632), (194, 34716),

Gene: Twonlo\_45 Start: 38853, Stop: 39911, Start Num: 29

Candidate Starts for Twonlo\_45:

(21, 38823), (Start: 29 @38853 has 62 MA's), (48, 38940), (55, 38964), (60, 38994), (75, 39057), (78, 39072), (84, 39105), (101, 39216), (105, 39243), (112, 39297), (126, 39363), (129, 39384), (133, 39396), (135, 39411), (146, 39495), (149, 39513), (153, 39531), (157, 39552), (164, 39582), (192, 39693), (203, 39798), (206, 39819), (212, 39876), (213, 39882),

Gene: Tycho\_49 Start: 42039, Stop: 43061, Start Num: 29

Candidate Starts for Tycho\_49:

(Start: 29 @42039 has 62 MA's), (38, 42075), (48, 42129), (55, 42153), (60, 42183), (68, 42213), (75, 42246), (78, 42261), (91, 42342), (99, 42390), (101, 42405), (102, 42408), (126, 42552), (133, 42585), (135, 42600), (146, 42669), (148, 42684), (161, 42741), (164, 42756),

Gene: ValentiniPuff\_98 Start: 56073, Stop: 56969, Start Num: 30

Candidate Starts for ValentiniPuff\_98:

(Start: 30 @56073 has 1 MA's), (44, 56163), (77, 56310), (82, 56328), (120, 56592), (123, 56607), (129, 56637), (142, 56721), (146, 56757), (149, 56775), (173, 56877),

Gene: VanLee\_37 Start: 30355, Stop: 31278, Start Num: 27

Candidate Starts for VanLee\_37:

(Start: 27 @30355 has 5 MA's), (Start: 30 @30361 has 1 MA's), (39, 30400), (46, 30439), (60, 30499), (71, 30541), (79, 30580), (81, 30586), (84, 30610), (99, 30757), (105, 30799), (108, 30835), (119, 30889), (126, 30916), (132, 30946), (133, 30949), (146, 31048), (151, 31075), (154, 31087), (177, 31186), (186, 31210),

Gene: ViaConlectus\_51 Start: 42237, Stop: 43280, Start Num: 29

Candidate Starts for ViaConlectus\_51:

(Start: 29 @42237 has 62 MA's), (48, 42330), (55, 42354), (56, 42366), (60, 42384), (78, 42462), (84, 42495), (112, 42669), (126, 42735), (135, 42783), (146, 42855), (148, 42870), (153, 42891), (157, 42912), (158, 42915), (188, 43020), (192, 43053), (196, 43065), (209, 43212), (213, 43248),

Gene: Vivi2\_55 Start: 44459, Stop: 45457, Start Num: 29

Candidate Starts for Vivi2\_55:

(8, 44216), (13, 44318), (Start: 18 @44405 has 1 MA's), (Start: 29 @44459 has 62 MA's), (38, 44495), (48, 44546), (50, 44552), (55, 44570), (60, 44600), (75, 44663), (78, 44678), (86, 44729), (99, 44807), (126, 44969), (133, 45002), (135, 45017), (146, 45086), (148, 45101), (161, 45158), (164, 45173), (205, 45350), (213, 45422),

Gene: Vulpecula\_38 Start: 26463, Stop: 27269, Start Num: 23

Candidate Starts for Vulpecula\_38:

(Start: 23 @26463 has 10 MA's), (45, 26559), (48, 26568), (56, 26604), (60, 26622), (107, 26916), (113, 26952), (133, 27042), (146, 27123), (171, 27237),

Gene: WilliamBoone\_90 Start: 54745, Stop: 55467, Start Num: 36

Candidate Starts for WilliamBoone\_90:

(7, 54469), (9, 54514), (17, 54655), (Start: 36 @54745 has 16 MA's), (57, 54853), (61, 54871), (65, 54886), (66, 54889), (76, 54940), (94, 55030), (100, 55063), (109, 55141), (118, 55171), (141, 55300), (146, 55324), (149, 55342), (161, 55393), (167, 55423), (175, 55450),

Gene: Willsammy\_45 Start: 32283, Stop: 33257, Start Num: 35

Candidate Starts for Willsammy\_45:

(Start: 35 @32283 has 22 MA's), (Start: 40 @32301 has 1 MA's), (48, 32349), (59, 32400), (63, 32415), (65, 32424), (87, 32535), (108, 32670), (131, 32781), (133, 32784), (138, 32823), (144, 32847), (146, 32865), (155, 32910), (162, 32940), (164, 32952), (181, 33009), (195, 33078), (204, 33177), (210, 33225),

Gene: Wyborn\_36 Start: 29985, Stop: 30836, Start Num: 29

Candidate Starts for Wyborn\_36:

(Start: 29 @29985 has 62 MA's), (49, 30078), (53, 30093), (55, 30099), (60, 30129), (65, 30150), (78, 30207), (96, 30312), (105, 30366), (116, 30429), (133, 30507), (140, 30549), (146, 30606), (149, 30624), (154, 30645), (157, 30663), (164, 30693), (167, 30705),

Gene: Xeno\_48 Start: 31878, Stop: 32852, Start Num: 35

Candidate Starts for Xeno\_48:

(Start: 35 @31878 has 22 MA's), (Start: 40 @31896 has 1 MA's), (48, 31944), (59, 31995), (63, 32010), (65, 32019), (87, 32130), (108, 32265), (131, 32376), (133, 32379), (138, 32418), (144, 32442), (146, 32460), (155, 32505), (162, 32535), (164, 32547), (181, 32604), (195, 32673), (204, 32772), (210, 32820),

Gene: Xerxes\_48 Start: 33475, Stop: 34536, Start Num: 31

Candidate Starts for Xerxes\_48:

(Start: 31 @33475 has 14 MA's), (34, 33487), (45, 33553), (46, 33556), (48, 33562), (55, 33586), (58, 33607), (59, 33613), (62, 33625), (63, 33628), (65, 33637), (75, 33679), (78, 33694), (91, 33781), (106, 33886), (107, 33895), (116, 33940), (121, 33967), (123, 33979), (129, 34009), (133, 34021), (135, 34036), (140, 34063), (143, 34084), (146, 34117), (148, 34132), (149, 34135), (152, 34147), (154, 34156), (164, 34204), (165, 34210), (183, 34261), (188, 34285), (193, 34318), (194, 34321), (199, 34351), (200, 34357), (205, 34429), (207, 34447), (208, 34456), (214, 34504), (216, 34513),

Gene: YorkOnyx\_51 Start: 42735, Stop: 43757, Start Num: 29

Candidate Starts for YorkOnyx\_51:

(8, 42492), (13, 42594), (Start: 18 @42681 has 1 MA's), (Start: 29 @42735 has 62 MA's), (38, 42771), (48, 42825), (55, 42849), (60, 42879), (68, 42909), (75, 42942), (78, 42957), (91, 43038), (99, 43086), (101, 43101), (102, 43104), (126, 43248), (133, 43281), (135, 43296), (146, 43365), (148, 43380), (161, 43437),



Gene: Yvonnetastic\_106 Start: 61147, Stop: 61839, Start Num: 36

Candidate Starts for Yvonnetastic\_106:

(Start: 36 @61147 has 16 MA's), (44, 61201), (54, 61234), (61, 61273), (71, 61309), (73, 61318), (76, 61342), (80, 61351), (81, 61354), (96, 61450), (105, 61504), (114, 61561), (119, 61597), (125, 61621), (130, 61648), (132, 61654), (146, 61729), (154, 61768), (156, 61783), (158, 61789),

Gene: Zartrosa\_35 Start: 29654, Stop: 30517, Start Num: 29

Candidate Starts for Zartrosa\_35:

(Start: 29 @29654 has 62 MA's), (48, 29744), (49, 29747), (55, 29768), (65, 29819), (78, 29876), (96, 29981), (110, 30071), (112, 30083), (116, 30098), (133, 30176), (136, 30203), (140, 30218), (144, 30260), (146, 30278), (149, 30296), (154, 30317), (157, 30335), (176, 30404), (184, 30422), (198, 30494),