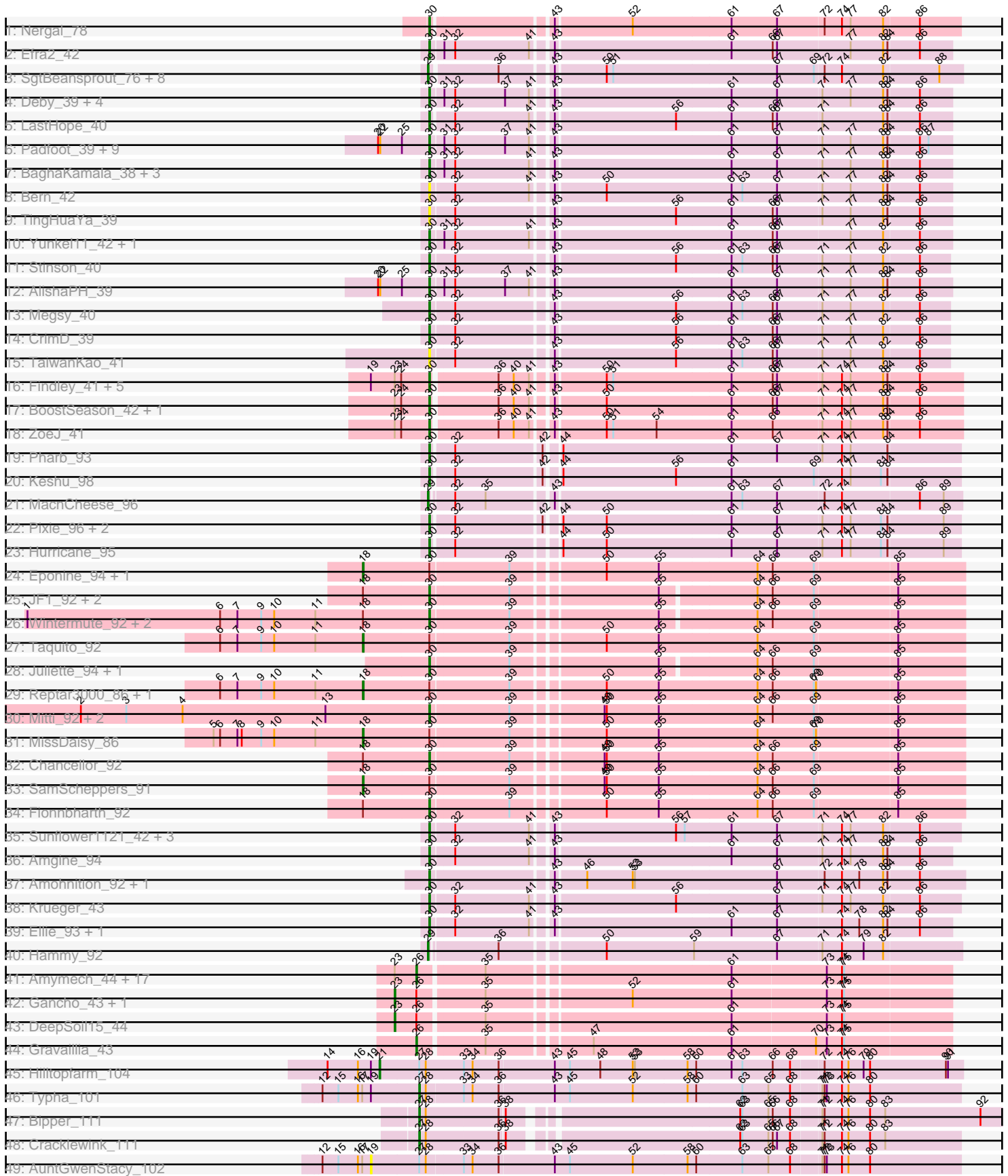


Pham 202796



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 202796 Report

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

Pham number 202796 has 114 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Nergal\_78
- Track 2 : Efra2\_42
- Track 3 : SgtBeansprout\_76, Nikao\_78, Torres\_77, LilPharaoh\_76, Nutello\_75, Enkosi\_77, Mdavu\_76, Amelie\_75, Binglebops\_75
- Track 4 : Deby\_39, QuincyRose\_38, Sulley\_39, Angelica\_39, Ganymede\_40
- Track 5 : LastHope\_40
- Track 6 : Padfoot\_39, Piatt\_39, BEEST\_39, Asayake\_39, ShiaSurprise\_40, Boiiii\_39, CaseJules\_40, Blizzard\_39, Hyperbowlee\_39, Durfee\_39
- Track 7 : BaghaKamala\_38, Tiri\_40, CheetoDust\_38, Adonis\_39
- Track 8 : Bern\_42
- Track 9 : TingHuaYa\_39
- Track 10 : Yunkel11\_42, Guanica15\_42
- Track 11 : Stinson\_40
- Track 12 : AlishaPH\_39
- Track 13 : Megsy\_40
- Track 14 : CrimD\_39
- Track 15 : TaiwanKao\_41
- Track 16 : Findley\_41, Strobilo\_41, DismalStressor\_41, Milly\_41, Marcoliusprime\_41, DismalFunk\_41
- Track 17 : BoostSeason\_42, Mufasa\_42
- Track 18 : ZoeJ\_41
- Track 19 : Pharb\_93
- Track 20 : Keshu\_98
- Track 21 : MacnCheese\_96
- Track 22 : Pixie\_96, ShedlockHolmes\_97, TBond007\_93
- Track 23 : Hurricane\_95
- Track 24 : Eponine\_94, OmniCritical\_92
- Track 25 : JF1\_92, Y2\_88, Y10\_88
- Track 26 : Wintermute\_92, Malthus\_93, Kraw\_93
- Track 27 : Taquito\_92
- Track 28 : Juliette\_94, Ruthiejr\_94
- Track 29 : Reptar3000\_86, Patt\_85
- Track 30 : Mitti\_92, Cheetobro\_90, Slarp\_90
- Track 31 : MissDaisy\_86
- Track 32 : Chancellor\_92
- Track 33 : SamScheppers\_91
- Track 34 : Fionnbharth\_92

- Track 35 : Sunflower1121\_42, Syra333\_43, Ximenita\_44, Shadow1\_42
- Track 36 : Amgine\_94
- Track 37 : Amohnition\_92, DarthP\_92
- Track 38 : Krueger\_43
- Track 39 : Ellie\_93, Fefferhead\_95
- Track 40 : Hammy\_92
- Track 41 : Amymech\_44, LilHazelnut\_44, Giles\_42, Ein37\_44, Luke\_44, Luna22\_42, Hadrien\_44, Wishmaker\_42, OBUpride\_44, Forge\_42, Kinbote\_44, Ubuntu\_44, Evanesce\_43, Dewey\_42, HH92\_43, Amochick\_44, Hail\_42, Webster2\_44
- Track 42 : Gancho\_43, Daegal\_46
- Track 43 : DeepSoil15\_44
- Track 44 : Gravaillia\_43
- Track 45 : Hilltopfarm\_104
- Track 46 : Typha\_101
- Track 47 : Bipper\_111
- Track 48 : Cracklewink\_111
- Track 49 : AuntGwenStacy\_102

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

The start number called the most often in the published annotations is 30, it was called in 65 of the 108 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adonis\_39, AlishaPH\_39, Amgine\_94, Amohnition\_92, Angelica\_39, Asayake\_39, BEEST\_39, BaghaKamala\_38, Bern\_42, Blizzard\_39, Boiii\_39, BoostSeason\_42, CaseJules\_40, Chancellor\_92, CheetoDust\_38, Cheetobro\_90, CrimD\_39, DarthP\_92, Deby\_39, DismalFunk\_41, DismalStressor\_41, Durfee\_39, Efra2\_42, Ellie\_93, Fefferhead\_95, Findley\_41, Fionnbharth\_92, Ganymede\_40, Guanica15\_42, Hurricane\_95, Hyperbowlee\_39, JF1\_92, Juliette\_94, Keshu\_98, Kraw\_93, Krueger\_43, LastHope\_40, Malthus\_93, Marcoliusprime\_41, Megsy\_40, Milly\_41, Mitti\_92, Mufasa\_42, Nergal\_78, Padfoot\_39, Pharb\_93, Piatt\_39, Pixie\_96, QuincyRose\_38, Ruthiejr\_94, Shadow1\_42, ShedlockHolmes\_97, ShiaSurprise\_40, Slarp\_90, Stinson\_40, Strobilo\_41, Sulley\_39, Sunflower1121\_42, Syra333\_43, TBond007\_93, TaiwanKao\_41, TingHuaYa\_39, Tiri\_40, Wintermute\_92, Ximenita\_44, Y10\_88, Y2\_88, Yunkel11\_42, ZoeJ\_41,

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

- Eponine\_94, MissDaisy\_86, OmniCritical\_92, Patt\_85, Reptar3000\_86, SamScheppers\_91, Taquito\_92,

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

- Amelie\_75, Amochick\_44, Amymech\_44, AuntGwenStacy\_102, Biglebops\_75, Bipper\_111, Cracklewink\_111, Daegal\_46, DeepSoil15\_44, Dewey\_42, Ein37\_44, Enkosi\_77, Evanesce\_43, Forge\_42, Gancho\_43, Giles\_42, Gravaillia\_43, HH92\_43, Hadrien\_44, Hail\_42, Hammy\_92, Hilltopfarm\_104, Kinbote\_44, LilHazelnut\_44, LilPharaoh\_76, Luke\_44, Luna22\_42, MacnCheese\_96, Mdavu\_76, Nikao\_78, Nutello\_75, OBUpride\_44, SgtBeansprout\_76, Torres\_77, Typha\_101, Ubuntu\_44, Webster2\_44, Wishmaker\_42,

## Summary by start number:

### Start 18:

- Found in 15 of 114 ( 13.2% ) of genes in pham
- Manual Annotations of this start: 7 of 108
- Called 46.7% of time when present
- Phage (with cluster) where this start called: Eponine\_94 (K4), MissDaisy\_86 (K4), OmniCritical\_92 (K4), Patt\_85 (K4), Reptar3000\_86 (K4), SamScheppers\_91 (K4), Taquito\_92 (K4),

### Start 19:

- Found in 9 of 114 ( 7.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 11.1% of time when present
- Phage (with cluster) where this start called: AuntGwenStacy\_102 (Y),

### Start 21:

- Found in 1 of 114 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 108
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hilltopfarm\_104 (Y),

### Start 23:

- Found in 30 of 114 ( 26.3% ) of genes in pham
- Manual Annotations of this start: 3 of 108
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Daegal\_46 (Q), DeepSoil15\_44 (Q), Gancho\_43 (Q),

### Start 26:

- Found in 22 of 114 ( 19.3% ) of genes in pham
- Manual Annotations of this start: 19 of 108
- Called 86.4% of time when present
- Phage (with cluster) where this start called: Amochick\_44 (Q), Amymech\_44 (Q), Dewey\_42 (Q), Ein37\_44 (Q), Evanesce\_43 (Q), Forge\_42 (Q), Giles\_42 (Q), Gravaiilia\_43 (Q), HH92\_43 (Q), Hadrien\_44 (Q), Hail\_42 (Q), Kinbote\_44 (Q), LilHazelNut\_44 (Q), Luke\_44 (Q), Luna22\_42 (Q), OBUpride\_44 (Q), Ubuntu\_44 (Q), Webster2\_44 (Q), Wishmaker\_42 (Q),

### Start 27:

- Found in 5 of 114 ( 4.4% ) of genes in pham
- Manual Annotations of this start: 3 of 108
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Bipper\_111 (Y), Cracklewink\_111 (Y), Typha\_101 (Y),

### Start 29:

- Found in 11 of 114 ( 9.6% ) of genes in pham
- Manual Annotations of this start: 10 of 108
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amelie\_75 (K1), Binglebops\_75 (K1), Enkosi\_77 (K1), Hammy\_92 (K6), LilPharaoh\_76 (K1), MacnCheese\_96 (K3),

Mdavu\_76 (K1), Nikao\_78 (K1), Nutello\_75 (K1), SgtBeansprout\_76 (K1), Torres\_77 (K1),

Start 30:

- Found in 76 of 114 ( 66.7% ) of genes in pham
- Manual Annotations of this start: 65 of 108
- Called 90.8% of time when present
- Phage (with cluster) where this start called: Adonis\_39 (K1), AlishaPH\_39 (K1), Amgine\_94 (K6), Amohnition\_92 (K6), Angelica\_39 (K1), Asayake\_39 (K1), BEEST\_39 (K1), BaghaKamala\_38 (K1), Bern\_42 (K1), Blizzard\_39 (K1), Boiii\_39 (K1), BoostSeason\_42 (K2), CaseJules\_40 (K1), Chancellor\_92 (K4), CheetoDust\_38 (K1), Cheetobro\_90 (K4), CrimD\_39 (K1), DarthP\_92 (K6), Deby\_39 (K1), DismalFunk\_41 (K2), DismalStressor\_41 (K2), Durfee\_39 (K1), Efra2\_42 (K1), Ellie\_93 (K6), Fefferhead\_95 (K6), Findley\_41 (K2), Fionnbharth\_92 (K4), Ganymede\_40 (K1), Guanica15\_42 (K1), Hurricane\_95 (K3), Hyperbowlee\_39 (K1), JF1\_92 (K4), Juliette\_94 (K4), Keshu\_98 (K3), Kraw\_93 (K4), Krueger\_43 (K6), LastHope\_40 (K1), Malthus\_93 (K4), Marcoliusprime\_41 (K2), Megsy\_40 (K1), Milly\_41 (K2), Mitti\_92 (K4), Mufasa\_42 (K2), Nergal\_78 (AG), Padfoot\_39 (K1), Pharb\_93 (K3), Piatt\_39 (K1), Pixie\_96 (K3), QuincyRose\_38 (K1), Ruthiejr\_94 (K4), Shadow1\_42 (K6), ShedlockHolmes\_97 (K3), ShiaSurprise\_40 (K1), Slarp\_90 (K4), Stinson\_40 (K1), Strobilo\_41 (K2), Sulley\_39 (K1), Sunflower1121\_42 (K6), Syra333\_43 (K6), TBond007\_93 (K3), TaiwanKao\_41 (K1), TingHuaYa\_39 (K1), Tiri\_40 (K1), Wintermute\_92 (K4), Ximenita\_44 (K6), Y10\_88 (K4), Y2\_88 (K4), Yunkel11\_42 (K1), ZoeJ\_41 (K2),

### Summary by clusters:

There are 8 clusters represented in this pham: Q, AG, K3, K2, K1, K6, K4, Y,

Info for manual annotations of cluster AG:

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

Info for manual annotations of cluster K1:

- Start number 29 was manually annotated 8 times for cluster K1.
- Start number 30 was manually annotated 27 times for cluster K1.

Info for manual annotations of cluster K2:

- Start number 30 was manually annotated 9 times for cluster K2.

Info for manual annotations of cluster K3:

- Start number 29 was manually annotated 1 time for cluster K3.
- Start number 30 was manually annotated 6 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 18 was manually annotated 7 times for cluster K4.
- Start number 30 was manually annotated 12 times for cluster K4.

Info for manual annotations of cluster K6:

- Start number 29 was manually annotated 1 time for cluster K6.
- Start number 30 was manually annotated 10 times for cluster K6.

Info for manual annotations of cluster Q:

- Start number 23 was manually annotated 3 times for cluster Q.

- Start number 26 was manually annotated 19 times for cluster Q.

Info for manual annotations of cluster Y:

- Start number 21 was manually annotated 1 time for cluster Y.
- Start number 27 was manually annotated 3 times for cluster Y.

### **Gene Information:**

Gene: Adonis\_39 Start: 31362, Stop: 32051, Start Num: 30

Candidate Starts for Adonis\_39:

(Start: 30 @31362 has 65 MA's), (31, 31377), (32, 31392), (41, 31494), (43, 31515), (61, 31752), (67, 31815), (71, 31875), (77, 31914), (82, 31959), (84, 31965), (86, 32007),

Gene: AlishaPH\_39 Start: 31339, Stop: 32028, Start Num: 30

Candidate Starts for AlishaPH\_39:

(20, 31270), (22, 31273), (25, 31303), (Start: 30 @31339 has 65 MA's), (31, 31354), (32, 31369), (37, 31438), (41, 31471), (43, 31492), (61, 31729), (67, 31792), (71, 31852), (77, 31891), (82, 31936), (84, 31942), (86, 31984),

Gene: Amelie\_75 Start: 54769, Stop: 55470, Start Num: 29

Candidate Starts for Amelie\_75:

(Start: 29 @54769 has 10 MA's), (36, 54856), (43, 54919), (50, 54985), (51, 54994), (67, 55219), (69, 55270), (72, 55282), (74, 55306), (82, 55363), (88, 55438),

Gene: Amgine\_94 Start: 60238, Stop: 60927, Start Num: 30

Candidate Starts for Amgine\_94:

(Start: 30 @60238 has 65 MA's), (32, 60268), (41, 60370), (43, 60391), (61, 60628), (67, 60691), (71, 60751), (74, 60778), (77, 60790), (82, 60835), (84, 60841), (86, 60883),

Gene: Amochick\_44 Start: 34132, Stop: 33431, Start Num: 26

Candidate Starts for Amochick\_44:

(Start: 23 @34162 has 3 MA's), (Start: 26 @34132 has 19 MA's), (35, 34048), (61, 33730), (73, 33601), (74, 33580), (75, 33577),

Gene: Amohnition\_92 Start: 59731, Stop: 60438, Start Num: 30

Candidate Starts for Amohnition\_92:

(Start: 30 @59731 has 65 MA's), (43, 59884), (46, 59923), (52, 59986), (53, 59989), (67, 60184), (72, 60247), (74, 60271), (78, 60295), (82, 60328), (84, 60334), (86, 60376),

Gene: Amymech\_44 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for Amymech\_44:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Angelica\_39 Start: 31296, Stop: 31985, Start Num: 30

Candidate Starts for Angelica\_39:

(Start: 30 @31296 has 65 MA's), (31, 31311), (32, 31326), (37, 31395), (41, 31428), (43, 31449), (61, 31686), (67, 31749), (71, 31809), (77, 31848), (82, 31893), (84, 31899), (86, 31941),

Gene: Asayake\_39 Start: 31380, Stop: 32069, Start Num: 30

Candidate Starts for Asayake\_39:

(20, 31311), (22, 31314), (25, 31344), (Start: 30 @31380 has 65 MA's), (31, 31395), (32, 31410), (37, 31479), (41, 31512), (43, 31533), (61, 31770), (67, 31833), (71, 31893), (77, 31932), (82, 31977), (84, 31983), (86, 32025), (87, 32037),

Gene: AuntGwenStacy\_102 Start: 63173, Stop: 63973, Start Num: 19

Candidate Starts for AuntGwenStacy\_102:

(12, 63107), (15, 63128), (16, 63155), (17, 63161), (19, 63173), (Start: 27 @63239 has 3 MA's), (28, 63248), (33, 63296), (34, 63308), (36, 63344), (43, 63419), (45, 63440), (52, 63527), (58, 63602), (60, 63614), (63, 63677), (65, 63713), (68, 63743), (71, 63782), (72, 63785), (73, 63788), (74, 63809), (76, 63818), (80, 63848),

Gene: BEEST\_39 Start: 31380, Stop: 32069, Start Num: 30

Candidate Starts for BEEST\_39:

(20, 31311), (22, 31314), (25, 31344), (Start: 30 @31380 has 65 MA's), (31, 31395), (32, 31410), (37, 31479), (41, 31512), (43, 31533), (61, 31770), (67, 31833), (71, 31893), (77, 31932), (82, 31977), (84, 31983), (86, 32025), (87, 32037),

Gene: BaghaKamala\_38 Start: 30505, Stop: 31194, Start Num: 30

Candidate Starts for BaghaKamala\_38:

(Start: 30 @30505 has 65 MA's), (31, 30520), (32, 30535), (41, 30637), (43, 30658), (61, 30895), (67, 30958), (71, 31018), (77, 31057), (82, 31102), (84, 31108), (86, 31150),

Gene: Bern\_42 Start: 31642, Stop: 32331, Start Num: 30

Candidate Starts for Bern\_42:

(Start: 30 @31642 has 65 MA's), (32, 31672), (41, 31774), (43, 31795), (50, 31861), (61, 32032), (63, 32047), (67, 32095), (71, 32155), (77, 32194), (82, 32239), (84, 32245), (86, 32287),

Gene: Biglebops\_75 Start: 54784, Stop: 55485, Start Num: 29

Candidate Starts for Biglebops\_75:

(Start: 29 @54784 has 10 MA's), (36, 54871), (43, 54934), (50, 55000), (51, 55009), (67, 55234), (69, 55285), (72, 55297), (74, 55321), (82, 55378), (88, 55453),

Gene: Bipper\_111 Start: 66961, Stop: 67743, Start Num: 27

Candidate Starts for Bipper\_111:

(Start: 27 @66961 has 3 MA's), (28, 66970), (36, 67069), (38, 67075), (62, 67363), (63, 67366), (65, 67402), (66, 67408), (68, 67432), (71, 67471), (72, 67474), (74, 67498), (76, 67507), (80, 67537), (83, 67558), (92, 67690),

Gene: Blizzard\_39 Start: 31380, Stop: 32069, Start Num: 30

Candidate Starts for Blizzard\_39:

(20, 31311), (22, 31314), (25, 31344), (Start: 30 @31380 has 65 MA's), (31, 31395), (32, 31410), (37, 31479), (41, 31512), (43, 31533), (61, 31770), (67, 31833), (71, 31893), (77, 31932), (82, 31977), (84, 31983), (86, 32025), (87, 32037),

Gene: Boiiii\_39 Start: 31382, Stop: 32071, Start Num: 30

Candidate Starts for Boiiii\_39:

(20, 31313), (22, 31316), (25, 31346), (Start: 30 @31382 has 65 MA's), (31, 31397), (32, 31412), (37, 31481), (41, 31514), (43, 31535), (61, 31772), (67, 31835), (71, 31895), (77, 31934), (82, 31979), (84, 31985), (86, 32027), (87, 32039),

Gene: BoostSeason\_42 Start: 32103, Stop: 32801, Start Num: 30

Candidate Starts for BoostSeason\_42:

(Start: 23 @32055 has 3 MA's), (24, 32064), (Start: 30 @32103 has 65 MA's), (36, 32187), (40, 32208), (41, 32229), (43, 32250), (50, 32316), (61, 32487), (66, 32544), (67, 32550), (71, 32610), (74, 32637), (77, 32649), (82, 32694), (84, 32700), (86, 32742),

Gene: CaseJules\_40 Start: 31380, Stop: 32069, Start Num: 30

Candidate Starts for CaseJules\_40:

(20, 31311), (22, 31314), (25, 31344), (Start: 30 @31380 has 65 MA's), (31, 31395), (32, 31410), (37, 31479), (41, 31512), (43, 31533), (61, 31770), (67, 31833), (71, 31893), (77, 31932), (82, 31977), (84, 31983), (86, 32025), (87, 32037),

Gene: Chancellor\_92 Start: 55691, Stop: 56398, Start Num: 30

Candidate Starts for Chancellor\_92:

(Start: 18 @55601 has 7 MA's), (Start: 30 @55691 has 65 MA's), (39, 55796), (49, 55907), (50, 55910), (55, 55982), (64, 56117), (66, 56138), (69, 56195), (85, 56306),

Gene: CheetoDust\_38 Start: 30553, Stop: 31242, Start Num: 30

Candidate Starts for CheetoDust\_38:

(Start: 30 @30553 has 65 MA's), (31, 30568), (32, 30583), (41, 30685), (43, 30706), (61, 30943), (67, 31006), (71, 31066), (77, 31105), (82, 31150), (84, 31156), (86, 31198),

Gene: Cheetobro\_90 Start: 55247, Stop: 55954, Start Num: 30

Candidate Starts for Cheetobro\_90:

(2, 54764), (3, 54827), (4, 54905), (13, 55103), (Start: 30 @55247 has 65 MA's), (39, 55352), (49, 55463), (50, 55466), (55, 55538), (64, 55673), (66, 55694), (69, 55751), (85, 55862),

Gene: Cracklewink\_111 Start: 66196, Stop: 66897, Start Num: 27

Candidate Starts for Cracklewink\_111:

(Start: 27 @66196 has 3 MA's), (28, 66205), (36, 66304), (38, 66310), (62, 66598), (63, 66601), (65, 66637), (66, 66643), (67, 66649), (68, 66667), (71, 66706), (72, 66709), (74, 66733), (76, 66742), (80, 66772), (83, 66793),

Gene: CrimD\_39 Start: 31313, Stop: 31999, Start Num: 30

Candidate Starts for CrimD\_39:

(Start: 30 @31313 has 65 MA's), (32, 31343), (43, 31466), (56, 31628), (61, 31703), (66, 31760), (67, 31766), (71, 31826), (77, 31865), (82, 31910), (86, 31958),

Gene: Daegal\_46 Start: 34740, Stop: 34009, Start Num: 23

Candidate Starts for Daegal\_46:

(Start: 23 @34740 has 3 MA's), (Start: 26 @34710 has 19 MA's), (35, 34626), (52, 34443), (61, 34308), (73, 34179), (74, 34158), (75, 34155),

Gene: DARTH\_P\_92 Start: 59564, Stop: 60271, Start Num: 30

Candidate Starts for DARTH\_P\_92:

(Start: 30 @59564 has 65 MA's), (43, 59717), (46, 59756), (52, 59819), (53, 59822), (67, 60017), (72, 60080), (74, 60104), (78, 60128), (82, 60161), (84, 60167), (86, 60209),

Gene: Deby\_39 Start: 31314, Stop: 32003, Start Num: 30

Candidate Starts for Deby\_39:

(Start: 30 @31314 has 65 MA's), (31, 31329), (32, 31344), (37, 31413), (41, 31446), (43, 31467), (61, 31704), (67, 31767), (71, 31827), (77, 31866), (82, 31911), (84, 31917), (86, 31959),

Gene: DeepSoil15\_44 Start: 34156, Stop: 33425, Start Num: 23

Candidate Starts for DeepSoil15\_44:



(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Dewey\_42 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for Dewey\_42:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: DismalFunk\_41 Start: 32195, Stop: 32893, Start Num: 30

Candidate Starts for DismalFunk\_41:

(19, 32114), (Start: 23 @32147 has 3 MA's), (24, 32156), (Start: 30 @32195 has 65 MA's), (36, 32279), (40, 32300), (41, 32321), (43, 32342), (50, 32408), (51, 32417), (61, 32579), (66, 32636), (67, 32642), (71, 32702), (74, 32729), (77, 32741), (82, 32786), (84, 32792), (86, 32834),

Gene: DismalStressor\_41 Start: 32195, Stop: 32893, Start Num: 30

Candidate Starts for DismalStressor\_41:

(19, 32114), (Start: 23 @32147 has 3 MA's), (24, 32156), (Start: 30 @32195 has 65 MA's), (36, 32279), (40, 32300), (41, 32321), (43, 32342), (50, 32408), (51, 32417), (61, 32579), (66, 32636), (67, 32642), (71, 32702), (74, 32729), (77, 32741), (82, 32786), (84, 32792), (86, 32834),

Gene: Durfee\_39 Start: 31380, Stop: 32069, Start Num: 30

Candidate Starts for Durfee\_39:

(20, 31311), (22, 31314), (25, 31344), (Start: 30 @31380 has 65 MA's), (31, 31395), (32, 31410), (37, 31479), (41, 31512), (43, 31533), (61, 31770), (67, 31833), (71, 31893), (77, 31932), (82, 31977), (84, 31983), (86, 32025), (87, 32037),

Gene: Efra2\_42 Start: 31156, Stop: 31845, Start Num: 30

Candidate Starts for Efra2\_42:

(Start: 30 @31156 has 65 MA's), (31, 31171), (32, 31186), (41, 31288), (43, 31309), (61, 31546), (66, 31603), (67, 31609), (77, 31708), (82, 31753), (84, 31759), (86, 31801),

Gene: Ein37\_44 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for Ein37\_44:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Ellie\_93 Start: 59948, Stop: 60637, Start Num: 30

Candidate Starts for Ellie\_93:

(Start: 30 @59948 has 65 MA's), (32, 59978), (41, 60080), (43, 60101), (61, 60338), (67, 60401), (74, 60488), (78, 60512), (82, 60545), (84, 60551), (86, 60593),

Gene: Enkosi\_77 Start: 57382, Stop: 58083, Start Num: 29

Candidate Starts for Enkosi\_77:

(Start: 29 @57382 has 10 MA's), (36, 57469), (43, 57532), (50, 57598), (51, 57607), (67, 57832), (69, 57883), (72, 57895), (74, 57919), (82, 57976), (88, 58051),

Gene: Eponine\_94 Start: 56581, Stop: 57378, Start Num: 18

Candidate Starts for Eponine\_94:

(Start: 18 @56581 has 7 MA's), (Start: 30 @56671 has 65 MA's), (39, 56776), (50, 56890), (55, 56962), (64, 57097), (66, 57118), (69, 57175), (85, 57286),

Gene: Evanesce\_43 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for Evanesce\_43:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Fefferhead\_95 Start: 59369, Stop: 60058, Start Num: 30

Candidate Starts for Fefferhead\_95:

(Start: 30 @59369 has 65 MA's), (32, 59399), (41, 59501), (43, 59522), (61, 59759), (67, 59822), (74, 59909), (78, 59933), (82, 59966), (84, 59972), (86, 60014),

Gene: Findley\_41 Start: 32188, Stop: 32886, Start Num: 30

Candidate Starts for Findley\_41:

(19, 32107), (Start: 23 @32140 has 3 MA's), (24, 32149), (Start: 30 @32188 has 65 MA's), (36, 32272), (40, 32293), (41, 32314), (43, 32335), (50, 32401), (51, 32410), (61, 32572), (66, 32629), (67, 32635), (71, 32695), (74, 32722), (77, 32734), (82, 32779), (84, 32785), (86, 32827),

Gene: Fionnbharth\_92 Start: 56069, Stop: 56776, Start Num: 30

Candidate Starts for Fionnbharth\_92:

(Start: 18 @55979 has 7 MA's), (Start: 30 @56069 has 65 MA's), (39, 56174), (50, 56288), (55, 56360), (64, 56495), (66, 56516), (69, 56573), (85, 56684),

Gene: Forge\_42 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for Forge\_42:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Gancho\_43 Start: 33879, Stop: 33148, Start Num: 23

Candidate Starts for Gancho\_43:

(Start: 23 @33879 has 3 MA's), (Start: 26 @33849 has 19 MA's), (35, 33765), (52, 33582), (61, 33447), (73, 33318), (74, 33297), (75, 33294),

Gene: Ganymede\_40 Start: 31369, Stop: 32058, Start Num: 30

Candidate Starts for Ganymede\_40:

(Start: 30 @31369 has 65 MA's), (31, 31384), (32, 31399), (37, 31468), (41, 31501), (43, 31522), (61, 31759), (67, 31822), (71, 31882), (77, 31921), (82, 31966), (84, 31972), (86, 32014),

Gene: Giles\_42 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for Giles\_42:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Gravaillia\_43 Start: 34169, Stop: 33468, Start Num: 26

Candidate Starts for Gravaillia\_43:

(Start: 26 @34169 has 19 MA's), (35, 34085), (47, 33956), (61, 33767), (70, 33653), (73, 33638), (74, 33617), (75, 33614),

Gene: Guanica15\_42 Start: 31112, Stop: 31801, Start Num: 30

Candidate Starts for Guanica15\_42:

(Start: 30 @31112 has 65 MA's), (31, 31127), (32, 31142), (41, 31244), (43, 31265), (61, 31502), (66, 31559), (67, 31565), (77, 31664), (82, 31709), (86, 31757),

Gene: HH92\_43 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for HH92\_43:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Hadrien\_44 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for Hadrien\_44:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Hail\_42 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for Hail\_42:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Hammy\_92 Start: 59794, Stop: 60492, Start Num: 29

Candidate Starts for Hammy\_92:

(Start: 29 @59794 has 10 MA's), (36, 59881), (50, 60010), (59, 60130), (67, 60244), (71, 60304), (74, 60331), (79, 60361), (82, 60388),

Gene: Hilltopfarm\_104 Start: 63963, Stop: 64757, Start Num: 21

Candidate Starts for Hilltopfarm\_104:

(14, 63891), (16, 63933), (19, 63951), (Start: 21 @63963 has 1 MA's), (Start: 27 @64017 has 3 MA's), (28, 64026), (33, 64077), (34, 64089), (36, 64125), (43, 64200), (45, 64221), (48, 64263), (52, 64308), (53, 64311), (58, 64383), (60, 64395), (61, 64443), (63, 64458), (66, 64500), (68, 64524), (72, 64566), (74, 64590), (76, 64599), (79, 64620), (80, 64629), (90, 64734), (91, 64737),

Gene: Hurricane\_95 Start: 59141, Stop: 59839, Start Num: 30

Candidate Starts for Hurricane\_95:

(Start: 30 @59141 has 65 MA's), (32, 59168), (44, 59297), (50, 59357), (61, 59528), (67, 59591), (71, 59651), (74, 59678), (77, 59690), (81, 59732), (84, 59741), (89, 59816),

Gene: Hyperbowlee\_39 Start: 31380, Stop: 32069, Start Num: 30

Candidate Starts for Hyperbowlee\_39:

(20, 31311), (22, 31314), (25, 31344), (Start: 30 @31380 has 65 MA's), (31, 31395), (32, 31410), (37, 31479), (41, 31512), (43, 31533), (61, 31770), (67, 31833), (71, 31893), (77, 31932), (82, 31977), (84, 31983), (86, 32025), (87, 32037),

Gene: JF1\_92 Start: 55993, Stop: 56691, Start Num: 30

Candidate Starts for JF1\_92:

(Start: 18 @55903 has 7 MA's), (Start: 30 @55993 has 65 MA's), (39, 56098), (55, 56284), (64, 56410), (66, 56431), (69, 56488), (85, 56599),

Gene: Juliette\_94 Start: 56074, Stop: 56772, Start Num: 30

Candidate Starts for Juliette\_94:

(Start: 30 @56074 has 65 MA's), (39, 56179), (55, 56365), (64, 56491), (66, 56512), (69, 56569), (85, 56680),

Gene: Keshu\_98 Start: 59072, Stop: 59770, Start Num: 30

Candidate Starts for Keshu\_98:

(Start: 30 @59072 has 65 MA's), (32, 59099), (42, 59213), (44, 59228), (56, 59384), (61, 59459), (69, 59573), (74, 59609), (77, 59621), (81, 59663), (84, 59672),

Gene: Kinbote\_44 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for Kinbote\_44:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Kraw\_93 Start: 55800, Stop: 56507, Start Num: 30

Candidate Starts for Kraw\_93:

(1, 55245), (6, 55512), (7, 55536), (9, 55569), (10, 55587), (11, 55644), (Start: 18 @55710 has 7 MA's), (Start: 30 @55800 has 65 MA's), (39, 55905), (55, 56091), (64, 56226), (66, 56247), (69, 56304), (85, 56415),

Gene: Krueger\_43 Start: 31392, Stop: 32093, Start Num: 30

Candidate Starts for Krueger\_43:

(Start: 30 @31392 has 65 MA's), (32, 31422), (41, 31524), (43, 31545), (56, 31707), (67, 31845), (71, 31905), (74, 31932), (77, 31944), (82, 31989), (86, 32037),

Gene: LastHope\_40 Start: 30142, Stop: 30828, Start Num: 30

Candidate Starts for LastHope\_40:

(Start: 30 @30142 has 65 MA's), (32, 30169), (41, 30271), (43, 30292), (56, 30454), (61, 30529), (66, 30586), (67, 30592), (71, 30652), (82, 30736), (84, 30742), (86, 30784),

Gene: LilHazelnut\_44 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for LilHazelnut\_44:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: LilPharaoh\_76 Start: 54497, Stop: 55198, Start Num: 29

Candidate Starts for LilPharaoh\_76:

(Start: 29 @54497 has 10 MA's), (36, 54584), (43, 54647), (50, 54713), (51, 54722), (67, 54947), (69, 54998), (72, 55010), (74, 55034), (82, 55091), (88, 55166),

Gene: Luke\_44 Start: 34081, Stop: 33380, Start Num: 26

Candidate Starts for Luke\_44:

(Start: 23 @34111 has 3 MA's), (Start: 26 @34081 has 19 MA's), (35, 33997), (61, 33679), (73, 33550), (74, 33529), (75, 33526),

Gene: Luna22\_42 Start: 34110, Stop: 33463, Start Num: 26

Candidate Starts for Luna22\_42:

(Start: 23 @34140 has 3 MA's), (Start: 26 @34110 has 19 MA's), (35, 34026), (61, 33708), (73, 33579), (74, 33558), (75, 33555),

Gene: MacnCheese\_96 Start: 59356, Stop: 60054, Start Num: 29

Candidate Starts for MacnCheese\_96:

(Start: 29 @59356 has 10 MA's), (32, 59383), (35, 59425), (43, 59506), (61, 59743), (63, 59758), (67, 59806), (72, 59869), (74, 59893), (86, 59998), (89, 60031),

Gene: Malthus\_93 Start: 55794, Stop: 56501, Start Num: 30

Candidate Starts for Malthus\_93:

(1, 55239), (6, 55506), (7, 55530), (9, 55563), (10, 55581), (11, 55638), (Start: 18 @55704 has 7 MA's), (Start: 30 @55794 has 65 MA's), (39, 55899), (55, 56085), (64, 56220), (66, 56241), (69, 56298), (85, 56409),

Gene: Marcoliusprime\_41 Start: 32195, Stop: 32893, Start Num: 30

Candidate Starts for Marcoliusprime\_41:

(19, 32114), (Start: 23 @32147 has 3 MA's), (24, 32156), (Start: 30 @32195 has 65 MA's), (36, 32279), (40, 32300), (41, 32321), (43, 32342), (50, 32408), (51, 32417), (61, 32579), (66, 32636), (67, 32642), (71, 32702), (74, 32729), (77, 32741), (82, 32786), (84, 32792), (86, 32834),

Gene: Mdavu\_76 Start: 54773, Stop: 55474, Start Num: 29

Candidate Starts for Mdavu\_76:

(Start: 29 @54773 has 10 MA's), (36, 54860), (43, 54923), (50, 54989), (51, 54998), (67, 55223), (69, 55274), (72, 55286), (74, 55310), (82, 55367), (88, 55442),

Gene: Megsy\_40 Start: 31313, Stop: 31999, Start Num: 30

Candidate Starts for Megsy\_40:

(Start: 30 @31313 has 65 MA's), (32, 31343), (43, 31466), (56, 31628), (61, 31703), (63, 31718), (66, 31760), (67, 31766), (71, 31826), (77, 31865), (82, 31910), (86, 31958),

Gene: Milly\_41 Start: 32168, Stop: 32866, Start Num: 30

Candidate Starts for Milly\_41:

(19, 32087), (Start: 23 @32120 has 3 MA's), (24, 32129), (Start: 30 @32168 has 65 MA's), (36, 32252), (40, 32273), (41, 32294), (43, 32315), (50, 32381), (51, 32390), (61, 32552), (66, 32609), (67, 32615), (71, 32675), (74, 32702), (77, 32714), (82, 32759), (84, 32765), (86, 32807),

Gene: MissDaisy\_86 Start: 52298, Stop: 53095, Start Num: 18

Candidate Starts for MissDaisy\_86:

(5, 52091), (6, 52100), (7, 52124), (8, 52130), (9, 52157), (10, 52175), (11, 52232), (Start: 18 @52298 has 7 MA's), (Start: 30 @52388 has 65 MA's), (39, 52493), (50, 52607), (55, 52679), (64, 52814), (69, 52892), (70, 52895), (85, 53003),

Gene: Mitti\_92 Start: 55889, Stop: 56596, Start Num: 30

Candidate Starts for Mitti\_92:

(2, 55406), (3, 55469), (4, 55547), (13, 55745), (Start: 30 @55889 has 65 MA's), (39, 55994), (49, 56105), (50, 56108), (55, 56180), (64, 56315), (66, 56336), (69, 56393), (85, 56504),

Gene: Mufasa\_42 Start: 32093, Stop: 32791, Start Num: 30

Candidate Starts for Mufasa\_42:

(Start: 23 @32045 has 3 MA's), (24, 32054), (Start: 30 @32093 has 65 MA's), (36, 32177), (40, 32198), (41, 32219), (43, 32240), (50, 32306), (61, 32477), (66, 32534), (67, 32540), (71, 32600), (74, 32627), (77, 32639), (82, 32684), (84, 32690), (86, 32732),

Gene: Nergal\_78 Start: 52735, Stop: 53433, Start Num: 30

Candidate Starts for Nergal\_78:

(Start: 30 @52735 has 65 MA's), (43, 52885), (52, 52987), (61, 53122), (67, 53185), (72, 53248), (74, 53272), (77, 53284), (82, 53329), (86, 53377),

Gene: Nikao\_78 Start: 57382, Stop: 58083, Start Num: 29

Candidate Starts for Nikao\_78:

(Start: 29 @57382 has 10 MA's), (36, 57469), (43, 57532), (50, 57598), (51, 57607), (67, 57832), (69, 57883), (72, 57895), (74, 57919), (82, 57976), (88, 58051),

Gene: Nutello\_75 Start: 54769, Stop: 55470, Start Num: 29

Candidate Starts for Nutello\_75:

(Start: 29 @54769 has 10 MA's), (36, 54856), (43, 54919), (50, 54985), (51, 54994), (67, 55219), (69, 55270), (72, 55282), (74, 55306), (82, 55363), (88, 55438),

Gene: OBUpride\_44 Start: 34120, Stop: 33419, Start Num: 26

Candidate Starts for OBUpride\_44:

(Start: 23 @34150 has 3 MA's), (Start: 26 @34120 has 19 MA's), (35, 34036), (61, 33718), (73, 33589), (74, 33568), (75, 33565),

Gene: OmniCritical\_92 Start: 55877, Stop: 56674, Start Num: 18

Candidate Starts for OmniCritical\_92:

(Start: 18 @55877 has 7 MA's), (Start: 30 @55967 has 65 MA's), (39, 56072), (50, 56186), (55, 56258), (64, 56393), (66, 56414), (69, 56471), (85, 56582),

Gene: Padfoot\_39 Start: 31380, Stop: 32069, Start Num: 30

Candidate Starts for Padfoot\_39:

(20, 31311), (22, 31314), (25, 31344), (Start: 30 @31380 has 65 MA's), (31, 31395), (32, 31410), (37, 31479), (41, 31512), (43, 31533), (61, 31770), (67, 31833), (71, 31893), (77, 31932), (82, 31977), (84, 31983), (86, 32025), (87, 32037),

Gene: Patt\_85 Start: 52445, Stop: 53242, Start Num: 18

Candidate Starts for Patt\_85:

(6, 52247), (7, 52271), (9, 52304), (10, 52322), (11, 52379), (Start: 18 @52445 has 7 MA's), (Start: 30 @52535 has 65 MA's), (39, 52640), (50, 52754), (55, 52826), (64, 52961), (66, 52982), (69, 53039), (70, 53042), (85, 53150),

Gene: Pharb\_93 Start: 58357, Stop: 59055, Start Num: 30

Candidate Starts for Pharb\_93:

(Start: 30 @58357 has 65 MA's), (32, 58384), (42, 58498), (44, 58513), (61, 58744), (67, 58807), (71, 58867), (74, 58894), (77, 58906), (84, 58957),

Gene: Piatt\_39 Start: 31380, Stop: 32069, Start Num: 30

Candidate Starts for Piatt\_39:

(20, 31311), (22, 31314), (25, 31344), (Start: 30 @31380 has 65 MA's), (31, 31395), (32, 31410), (37, 31479), (41, 31512), (43, 31533), (61, 31770), (67, 31833), (71, 31893), (77, 31932), (82, 31977), (84, 31983), (86, 32025), (87, 32037),

Gene: Pixie\_96 Start: 58971, Stop: 59669, Start Num: 30

Candidate Starts for Pixie\_96:

(Start: 30 @58971 has 65 MA's), (32, 58998), (42, 59112), (44, 59127), (50, 59187), (61, 59358), (67, 59421), (71, 59481), (74, 59508), (77, 59520), (81, 59562), (84, 59571), (89, 59646),

Gene: QuincyRose\_38 Start: 31369, Stop: 32058, Start Num: 30

Candidate Starts for QuincyRose\_38:

(Start: 30 @31369 has 65 MA's), (31, 31384), (32, 31399), (37, 31468), (41, 31501), (43, 31522), (61, 31759), (67, 31822), (71, 31882), (77, 31921), (82, 31966), (84, 31972), (86, 32014),

Gene: Reptar3000\_86 Start: 52435, Stop: 53232, Start Num: 18

Candidate Starts for Reptar3000\_86:

(6, 52237), (7, 52261), (9, 52294), (10, 52312), (11, 52369), (Start: 18 @52435 has 7 MA's), (Start: 30 @52525 has 65 MA's), (39, 52630), (50, 52744), (55, 52816), (64, 52951), (66, 52972), (69, 53029), (70, 53032), (85, 53140),

Gene: Ruthiejr\_94 Start: 55861, Stop: 56559, Start Num: 30

Candidate Starts for Ruthiejr\_94:

(Start: 30 @55861 has 65 MA's), (39, 55966), (55, 56152), (64, 56278), (66, 56299), (69, 56356), (85, 56467),

Gene: SamScheppers\_91 Start: 56255, Stop: 57052, Start Num: 18

Candidate Starts for SamScheppers\_91:

(Start: 18 @56255 has 7 MA's), (Start: 30 @56345 has 65 MA's), (39, 56450), (49, 56561), (50, 56564), (55, 56636), (64, 56771), (66, 56792), (69, 56849), (85, 56960),

Gene: SgtBeansprout\_76 Start: 54769, Stop: 55470, Start Num: 29

Candidate Starts for SgtBeansprout\_76:

(Start: 29 @54769 has 10 MA's), (36, 54856), (43, 54919), (50, 54985), (51, 54994), (67, 55219), (69, 55270), (72, 55282), (74, 55306), (82, 55363), (88, 55438),

Gene: Shadow1\_42 Start: 31293, Stop: 31994, Start Num: 30

Candidate Starts for Shadow1\_42:

(Start: 30 @31293 has 65 MA's), (32, 31323), (41, 31425), (43, 31446), (56, 31608), (57, 31620), (61, 31683), (67, 31746), (71, 31806), (74, 31833), (77, 31845), (82, 31890), (86, 31938),

Gene: ShedlockHolmes\_97 Start: 58904, Stop: 59602, Start Num: 30

Candidate Starts for ShedlockHolmes\_97:

(Start: 30 @58904 has 65 MA's), (32, 58931), (42, 59045), (44, 59060), (50, 59120), (61, 59291), (67, 59354), (71, 59414), (74, 59441), (77, 59453), (81, 59495), (84, 59504), (89, 59579),

Gene: ShiaSurprise\_40 Start: 31380, Stop: 32069, Start Num: 30

Candidate Starts for ShiaSurprise\_40:

(20, 31311), (22, 31314), (25, 31344), (Start: 30 @31380 has 65 MA's), (31, 31395), (32, 31410), (37, 31479), (41, 31512), (43, 31533), (61, 31770), (67, 31833), (71, 31893), (77, 31932), (82, 31977), (84, 31983), (86, 32025), (87, 32037),

Gene: Slarp\_90 Start: 55250, Stop: 55957, Start Num: 30

Candidate Starts for Slarp\_90:

(2, 54767), (3, 54830), (4, 54908), (13, 55106), (Start: 30 @55250 has 65 MA's), (39, 55355), (49, 55466), (50, 55469), (55, 55541), (64, 55676), (66, 55697), (69, 55754), (85, 55865),

Gene: Stinson\_40 Start: 31579, Stop: 32265, Start Num: 30

Candidate Starts for Stinson\_40:

(Start: 30 @31579 has 65 MA's), (32, 31609), (43, 31732), (56, 31894), (61, 31969), (63, 31984), (66, 32026), (67, 32032), (71, 32092), (77, 32131), (82, 32176), (86, 32224),

Gene: Strobilo\_41 Start: 32169, Stop: 32867, Start Num: 30

Candidate Starts for Strobilo\_41:

(19, 32088), (Start: 23 @32121 has 3 MA's), (24, 32130), (Start: 30 @32169 has 65 MA's), (36, 32253), (40, 32274), (41, 32295), (43, 32316), (50, 32382), (51, 32391), (61, 32553), (66, 32610), (67, 32616), (71, 32676), (74, 32703), (77, 32715), (82, 32760), (84, 32766), (86, 32808),

Gene: Sulley\_39 Start: 31313, Stop: 32002, Start Num: 30

Candidate Starts for Sulley\_39:

(Start: 30 @31313 has 65 MA's), (31, 31328), (32, 31343), (37, 31412), (41, 31445), (43, 31466), (61, 31703), (67, 31766), (71, 31826), (77, 31865), (82, 31910), (84, 31916), (86, 31958),

Gene: Sunflower1121\_42 Start: 31388, Stop: 32089, Start Num: 30

Candidate Starts for Sunflower1121\_42:

(Start: 30 @31388 has 65 MA's), (32, 31418), (41, 31520), (43, 31541), (56, 31703), (57, 31715), (61, 31778), (67, 31841), (71, 31901), (74, 31928), (77, 31940), (82, 31985), (86, 32033),

Gene: Syra333\_43 Start: 31311, Stop: 32012, Start Num: 30

Candidate Starts for Syra333\_43:

(Start: 30 @31311 has 65 MA's), (32, 31341), (41, 31443), (43, 31464), (56, 31626), (57, 31638), (61, 31701), (67, 31764), (71, 31824), (74, 31851), (77, 31863), (82, 31908), (86, 31956),

Gene: TBond007\_93 Start: 58969, Stop: 59667, Start Num: 30

Candidate Starts for TBond007\_93:

(Start: 30 @58969 has 65 MA's), (32, 58996), (42, 59110), (44, 59125), (50, 59185), (61, 59356), (67, 59419), (71, 59479), (74, 59506), (77, 59518), (81, 59560), (84, 59569), (89, 59644),

Gene: TaiwanKao\_41 Start: 31310, Stop: 31996, Start Num: 30

Candidate Starts for TaiwanKao\_41:

(Start: 30 @31310 has 65 MA's), (32, 31340), (43, 31463), (56, 31625), (61, 31700), (63, 31715), (66, 31757), (67, 31763), (71, 31823), (77, 31862), (82, 31907), (86, 31955),

Gene: Taquito\_92 Start: 56224, Stop: 57021, Start Num: 18

Candidate Starts for Taquito\_92:

(6, 56026), (7, 56050), (9, 56083), (10, 56101), (11, 56158), (Start: 18 @56224 has 7 MA's), (Start: 30 @56314 has 65 MA's), (39, 56419), (50, 56533), (55, 56605), (64, 56740), (69, 56818), (85, 56929),

Gene: TingHuaYa\_39 Start: 29921, Stop: 30610, Start Num: 30

Candidate Starts for TingHuaYa\_39:

(Start: 30 @29921 has 65 MA's), (32, 29951), (43, 30074), (56, 30236), (61, 30311), (66, 30368), (67, 30374), (71, 30434), (77, 30473), (82, 30518), (84, 30524), (86, 30566),

Gene: Tiri\_40 Start: 31359, Stop: 32048, Start Num: 30

Candidate Starts for Tiri\_40:

(Start: 30 @31359 has 65 MA's), (31, 31374), (32, 31389), (41, 31491), (43, 31512), (61, 31749), (67, 31812), (71, 31872), (77, 31911), (82, 31956), (84, 31962), (86, 32004),

Gene: Torres\_77 Start: 57383, Stop: 58084, Start Num: 29

Candidate Starts for Torres\_77:

(Start: 29 @57383 has 10 MA's), (36, 57470), (43, 57533), (50, 57599), (51, 57608), (67, 57833), (69, 57884), (72, 57896), (74, 57920), (82, 57977), (88, 58052),

Gene: Typha\_101 Start: 63240, Stop: 63974, Start Num: 27

Candidate Starts for Typha\_101:

(12, 63108), (15, 63129), (16, 63156), (17, 63162), (19, 63174), (Start: 27 @63240 has 3 MA's), (28, 63249), (33, 63297), (34, 63309), (36, 63345), (43, 63420), (45, 63441), (52, 63528), (58, 63603), (60, 63615), (63, 63678), (65, 63714), (68, 63744), (71, 63783), (72, 63786), (73, 63789), (74, 63810), (76, 63819), (80, 63849),

Gene: Ubuntu\_44 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for Ubuntu\_44:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Webster2\_44 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for Webster2\_44:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Wintermute\_92 Start: 56049, Stop: 56747, Start Num: 30

Candidate Starts for Wintermute\_92:



(1, 55494), (6, 55761), (7, 55785), (9, 55818), (10, 55836), (11, 55893), (Start: 18 @55959 has 7 MA's), (Start: 30 @56049 has 65 MA's), (39, 56154), (55, 56340), (64, 56466), (66, 56487), (69, 56544), (85, 56655),

Gene: Wishmaker\_42 Start: 34126, Stop: 33425, Start Num: 26

Candidate Starts for Wishmaker\_42:

(Start: 23 @34156 has 3 MA's), (Start: 26 @34126 has 19 MA's), (35, 34042), (61, 33724), (73, 33595), (74, 33574), (75, 33571),

Gene: Ximenita\_44 Start: 31496, Stop: 32197, Start Num: 30

Candidate Starts for Ximenita\_44:

(Start: 30 @31496 has 65 MA's), (32, 31526), (41, 31628), (43, 31649), (56, 31811), (57, 31823), (61, 31886), (67, 31949), (71, 32009), (74, 32036), (77, 32048), (82, 32093), (86, 32141),

Gene: Y10\_88 Start: 55993, Stop: 56691, Start Num: 30

Candidate Starts for Y10\_88:

(Start: 18 @55903 has 7 MA's), (Start: 30 @55993 has 65 MA's), (39, 56098), (55, 56284), (64, 56410), (66, 56431), (69, 56488), (85, 56599),

Gene: Y2\_88 Start: 55993, Stop: 56691, Start Num: 30

Candidate Starts for Y2\_88:

(Start: 18 @55903 has 7 MA's), (Start: 30 @55993 has 65 MA's), (39, 56098), (55, 56284), (64, 56410), (66, 56431), (69, 56488), (85, 56599),

Gene: Yunkel11\_42 Start: 31111, Stop: 31800, Start Num: 30

Candidate Starts for Yunkel11\_42:

(Start: 30 @31111 has 65 MA's), (31, 31126), (32, 31141), (41, 31243), (43, 31264), (61, 31501), (66, 31558), (67, 31564), (77, 31663), (82, 31708), (86, 31756),

Gene: ZoeJ\_41 Start: 31857, Stop: 32555, Start Num: 30

Candidate Starts for ZoeJ\_41:

(Start: 23 @31809 has 3 MA's), (24, 31818), (Start: 30 @31857 has 65 MA's), (36, 31941), (40, 31962), (41, 31983), (43, 32004), (50, 32070), (51, 32079), (54, 32139), (61, 32241), (66, 32298), (71, 32364), (74, 32391), (77, 32403), (82, 32448), (84, 32454), (86, 32496),