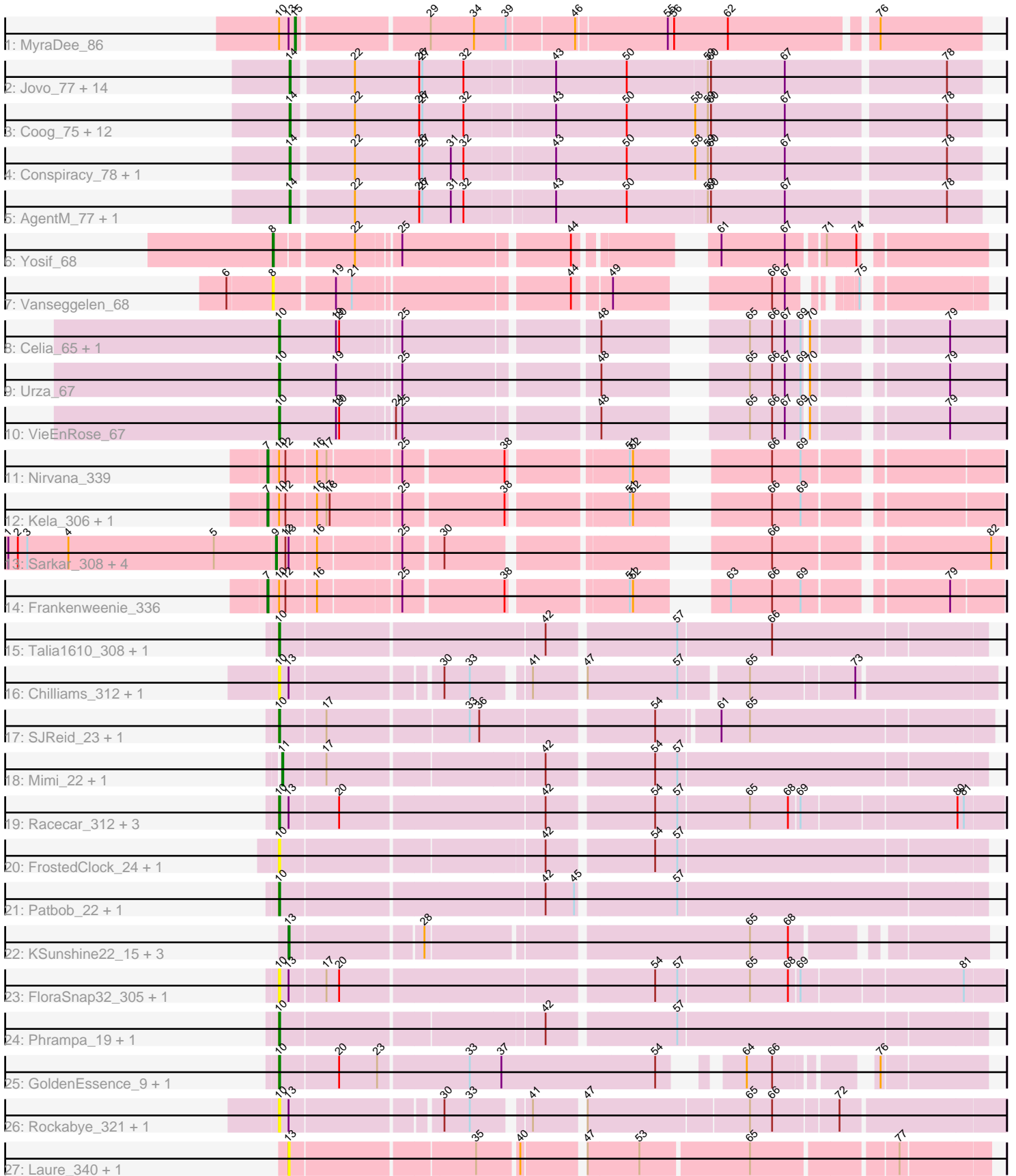


Pham 311514



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 311514 Report

This analysis was run 06/27/26 on database version 652.

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

Pham number 311514 has 78 members, 18 are drafts.

Phages represented in each track:

- Track 1 : MyraDee\_86
- Track 2 : Jovo\_77, Florence1\_75, George\_73, Discoknowium\_75, PickleBack\_78, Prinasha11\_76, Lev2\_78, HuhtaEnerson15\_76, Twigg\_78, ForGetIt\_78, Bonamassa\_78, Tarynearal\_77, Aragog\_77, LittleCherry\_77, Florence4\_76
- Track 3 : Coog\_75, Cuco\_77, Ghoulboy\_77, Dublin\_78, Theia\_78, SydNat\_77, Zolita\_76, Bluefalcon\_73, Midas2\_75, Swirley\_78, MarysWell\_78, Micasa\_78, Milcery\_77
- Track 4 : Conspiracy\_78, Tiger\_76
- Track 5 : AgentM\_77, Phlorence\_76
- Track 6 : Yosif\_68
- Track 7 : Vanseggelen\_68
- Track 8 : Celia\_65, Itza\_68
- Track 9 : Urza\_67
- Track 10 : VieEnRose\_67
- Track 11 : Nirvana\_339
- Track 12 : Kela\_306, JustBecause\_308
- Track 13 : Sarkar\_308, EhyElimayoE\_313, Kradal\_310, Quantum\_308, Satis\_310
- Track 14 : Frankenweenie\_336
- Track 15 : Talia1610\_308, Talia1610\_22
- Track 16 : Chilliams\_312, Chilliams\_21
- Track 17 : SJReid\_23, SJReid\_332
- Track 18 : Mimi\_22, Mimi\_307
- Track 19 : Racecar\_312, Bloom\_24, Bloom\_311, Racecar\_23
- Track 20 : FrostedClock\_24, FrostedClock\_309
- Track 21 : Patbob\_22, Patbob\_308
- Track 22 : KSunshine22\_15, Ellewin\_14, Ellewin\_307, KSunshine22\_307
- Track 23 : FloraSnap32\_305, FloraSnap32\_20
- Track 24 : Phrampa\_19, Phrampa\_303
- Track 25 : GoldenEssence\_9, GoldenEssence\_290
- Track 26 : Rockabye\_321, Rockabye\_22
- Track 27 : Laure\_340, Laure\_22

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

The start number called the most often in the published annotations is 14, it was called in 29 of the 60 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AgentM\_77, Aragog\_77, Bluefalcon\_73, Bonamassa\_78, Conspiracy\_78, Coog\_75, Cuco\_77, Discoknowium\_75, Dublin\_78, Florence1\_75, Florence4\_76, ForGetIt\_78, George\_73, Ghoulboy\_77, HuhtaEnerson15\_76, Jovo\_77, Lev2\_78, LittleCherry\_77, MarysWell\_78, Micasa\_78, Midas2\_75, Milcery\_77, Phlorence\_76, PickleBack\_78, Prinash11\_76, Swirley\_78, SydNat\_77, Tarynearal\_77, Theia\_78, Tiger\_76, Twigg\_78, Zolita\_76,

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

- 

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

- Bloom\_24, Bloom\_311, Celia\_65, Chilliams\_21, Chilliams\_312, EhyElimayoE\_313, Ellewin\_14, Ellewin\_307, FloraSnap32\_20, FloraSnap32\_305, Frankenweenie\_336, FrostedClock\_24, FrostedClock\_309, GoldenEssence\_290, GoldenEssence\_9, Itza\_68, JustBecause\_308, KSunshine22\_15, KSunshine22\_307, Kela\_306, Kradal\_310, Laure\_22, Laure\_340, Mimi\_22, Mimi\_307, MyraDee\_86, Nirvana\_339, Patbob\_22, Patbob\_308, Phrampa\_19, Phrampa\_303, Quantum\_308, Racecar\_23, Racecar\_312, Rockabye\_22, Rockabye\_321, SJReid\_23, SJReid\_332, Sarkar\_308, Satis\_310, Talia1610\_22, Talia1610\_308, Urza\_67, Vanseggelen\_68, VieEnRose\_67, Yosif\_68,

### **Summary by start number:**

Start 7:

- Found in 4 of 78 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 4 of 60
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Frankenweenie\_336 (BM), JustBecause\_308 (BM), Kela\_306 (BM), Nirvana\_339 (BM),

Start 8:

- Found in 2 of 78 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 1 of 60
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Vanseggelen\_68 (BD3), Yosif\_68 (BD3),

Start 9:

- Found in 5 of 78 ( 6.4% ) of genes in pham
- Manual Annotations of this start: 5 of 60
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EhyElimayoE\_313 (BM), Kradal\_310 (BM), Quantum\_308 (BM), Sarkar\_308 (BM), Satis\_310 (BM),

Start 10:

- Found in 31 of 78 ( 39.7% ) of genes in pham
- Manual Annotations of this start: 16 of 60

- Called 83.9% of time when present
- Phage (with cluster) where this start called: Bloom\_24 (FC), Bloom\_311 (FC), Celia\_65 (BD6), Chilliams\_21 (FC), Chilliams\_312 (FC), FloraSnap32\_20 (FC), FloraSnap32\_305 (FC), FrostedClock\_24 (FC), FrostedClock\_309 (FC), GoldenEssence\_290 (FC), GoldenEssence\_9 (FC), Itza\_68 (BD6), Patbob\_22 (FC), Patbob\_308 (FC), Phrampa\_19 (FC), Phrampa\_303 (FC), Racecar\_23 (FC), Racecar\_312 (FC), Rockabye\_22 (FC), Rockabye\_321 (FC), SJReid\_23 (FC), SJReid\_332 (FC), Talia1610\_22 (FC), Talia1610\_308 (FC), Urza\_67 (BD6), VieEnRose\_67 (BD6),

Start 11:

- Found in 2 of 78 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 2 of 60
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mimi\_22 (FC), Mimi\_307 (FC),

Start 13:

- Found in 22 of 78 ( 28.2% ) of genes in pham
- Manual Annotations of this start: 2 of 60
- Called 27.3% of time when present
- Phage (with cluster) where this start called: Ellewin\_14 (FC), Ellewin\_307 (FC), KSunshine22\_15 (FC), KSunshine22\_307 (FC), Laure\_22 (UNK), Laure\_340 (UNK),

Start 14:

- Found in 32 of 78 ( 41.0% ) of genes in pham
- Manual Annotations of this start: 29 of 60
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AgentM\_77 (A5), Aragog\_77 (A5), Bluefalcon\_73 (A5), Bonamassa\_78 (A5), Conspiracy\_78 (A5), Coog\_75 (A5), Cuco\_77 (A5), Discoknowium\_75 (A5), Dublin\_78 (A5), Florence1\_75 (A5), Florence4\_76 (A5), ForGetIt\_78 (A5), George\_73 (A5), Ghouboy\_77 (A5), HuhtaEnerson15\_76 (A5), Jovo\_77 (A5), Lev2\_78 (A5), LittleCherry\_77 (A5), MarysWell\_78 (A5), Micasa\_78 (A5), Midas2\_75 (A5), Milcery\_77 (A5), Phlarence\_76 (A5), PickleBack\_78 (A5), Prinash11\_76 (A5), Swirley\_78 (A5), SydNat\_77 (A5), Tarynearal\_77 (A5), Theia\_78 (A5), Tiger\_76 (A5), Twigg\_78 (A5), Zolita\_76 (A5),

Start 15:

- Found in 1 of 78 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 60
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MyraDee\_86 (A18),

### Summary by clusters:

There are 7 clusters represented in this pham: BM, A18, FC, A5, BD6, BD3, UNK,

Info for manual annotations of cluster A18:

- Start number 15 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A5:

- Start number 14 was manually annotated 29 times for cluster A5.

Info for manual annotations of cluster BD3:

- Start number 8 was manually annotated 1 time for cluster BD3.

Info for manual annotations of cluster BD6:

- Start number 10 was manually annotated 4 times for cluster BD6.

Info for manual annotations of cluster BM:

- Start number 7 was manually annotated 4 times for cluster BM.
- Start number 9 was manually annotated 5 times for cluster BM.

Info for manual annotations of cluster FC:

- Start number 10 was manually annotated 12 times for cluster FC.
- Start number 11 was manually annotated 2 times for cluster FC.
- Start number 13 was manually annotated 2 times for cluster FC.

### ***Gene Information:***

Gene: AgentM\_77 Start: 46138, Stop: 45512, Start Num: 14

Candidate Starts for AgentM\_77:

(Start: 14 @46138 has 29 MA's), (22, 46084), (26, 46024), (27, 46021), (31, 45994), (32, 45982), (43, 45901), (50, 45835), (59, 45760), (60, 45757), (67, 45688), (78, 45544),

Gene: Aragog\_77 Start: 46156, Stop: 45530, Start Num: 14

Candidate Starts for Aragog\_77:

(Start: 14 @46156 has 29 MA's), (22, 46102), (26, 46042), (27, 46039), (32, 46000), (43, 45919), (50, 45853), (59, 45778), (60, 45775), (67, 45706), (78, 45562),

Gene: Bloom\_24 Start: 10896, Stop: 11540, Start Num: 10

Candidate Starts for Bloom\_24:

(Start: 10 @10896 has 16 MA's), (Start: 13 @10905 has 2 MA's), (20, 10950), (42, 11136), (54, 11229), (57, 11250), (65, 11316), (68, 11352), (69, 11361), (80, 11499), (81, 11505),

Gene: Bloom\_311 Start: 184371, Stop: 185015, Start Num: 10

Candidate Starts for Bloom\_311:

(Start: 10 @184371 has 16 MA's), (Start: 13 @184380 has 2 MA's), (20, 184425), (42, 184611), (54, 184704), (57, 184725), (65, 184791), (68, 184827), (69, 184836), (80, 184974), (81, 184980),

Gene: Bluefalcon\_73 Start: 46087, Stop: 45461, Start Num: 14

Candidate Starts for Bluefalcon\_73:

(Start: 14 @46087 has 29 MA's), (22, 46033), (26, 45973), (27, 45970), (32, 45931), (43, 45850), (50, 45784), (58, 45721), (59, 45709), (60, 45706), (67, 45637), (78, 45493),

Gene: Bonamassa\_78 Start: 46477, Stop: 45851, Start Num: 14

Candidate Starts for Bonamassa\_78:

(Start: 14 @46477 has 29 MA's), (22, 46423), (26, 46363), (27, 46360), (32, 46321), (43, 46240), (50, 46174), (59, 46099), (60, 46096), (67, 46027), (78, 45883),

Gene: Celia\_65 Start: 44395, Stop: 43802, Start Num: 10

Candidate Starts for Celia\_65:

(Start: 10 @44395 has 16 MA's), (19, 44341), (20, 44338), (25, 44287), (48, 44119), (65, 44017), (66, 43996), (67, 43984), (69, 43969), (70, 43966), (79, 43855),

Gene: Chilliams\_312 Start: 183128, Stop: 183736, Start Num: 10

Candidate Starts for Chilliams\_312:

(Start: 10 @183128 has 16 MA's), (Start: 13 @183137 has 2 MA's), (30, 183266), (33, 183290), (41, 183335), (47, 183377), (57, 183461), (65, 183518), (73, 183611),

Gene: Chilliams\_21 Start: 10394, Stop: 11002, Start Num: 10

Candidate Starts for Chilliams\_21:

(Start: 10 @10394 has 16 MA's), (Start: 13 @10403 has 2 MA's), (30, 10532), (33, 10556), (41, 10601), (47, 10643), (57, 10727), (65, 10784), (73, 10877),

Gene: Conspiracy\_78 Start: 46378, Stop: 45752, Start Num: 14

Candidate Starts for Conspiracy\_78:

(Start: 14 @46378 has 29 MA's), (22, 46324), (26, 46264), (27, 46261), (31, 46234), (32, 46222), (43, 46141), (50, 46075), (58, 46012), (59, 46000), (60, 45997), (67, 45928), (78, 45784),

Gene: Coog\_75 Start: 46289, Stop: 45663, Start Num: 14

Candidate Starts for Coog\_75:

(Start: 14 @46289 has 29 MA's), (22, 46235), (26, 46175), (27, 46172), (32, 46133), (43, 46052), (50, 45986), (58, 45923), (59, 45911), (60, 45908), (67, 45839), (78, 45695),

Gene: Cuco\_77 Start: 46149, Stop: 45523, Start Num: 14

Candidate Starts for Cuco\_77:

(Start: 14 @46149 has 29 MA's), (22, 46095), (26, 46035), (27, 46032), (32, 45993), (43, 45912), (50, 45846), (58, 45783), (59, 45771), (60, 45768), (67, 45699), (78, 45555),

Gene: Discoknowium\_75 Start: 45895, Stop: 45269, Start Num: 14

Candidate Starts for Discoknowium\_75:

(Start: 14 @45895 has 29 MA's), (22, 45841), (26, 45781), (27, 45778), (32, 45739), (43, 45658), (50, 45592), (59, 45517), (60, 45514), (67, 45445), (78, 45301),

Gene: Dublin\_78 Start: 46421, Stop: 45795, Start Num: 14

Candidate Starts for Dublin\_78:

(Start: 14 @46421 has 29 MA's), (22, 46367), (26, 46307), (27, 46304), (32, 46265), (43, 46184), (50, 46118), (58, 46055), (59, 46043), (60, 46040), (67, 45971), (78, 45827),

Gene: EhyElimayoE\_313 Start: 170133, Stop: 169549, Start Num: 9

Candidate Starts for EhyElimayoE\_313:

(1, 170385), (2, 170376), (3, 170367), (4, 170328), (5, 170190), (Start: 9 @170133 has 5 MA's), (12, 170124), (Start: 13 @170121 has 2 MA's), (16, 170097), (25, 170025), (30, 169992), (66, 169746), (82, 169560),

Gene: Ellewin\_14 Start: 6471, Stop: 7067, Start Num: 13

Candidate Starts for Ellewin\_14:

(Start: 13 @6471 has 2 MA's), (28, 6588), (65, 6873), (68, 6909),

Gene: Ellewin\_307 Start: 185585, Stop: 186181, Start Num: 13

Candidate Starts for Ellewin\_307:

(Start: 13 @185585 has 2 MA's), (28, 185702), (65, 185987), (68, 186023),

Gene: FloraSnap32\_305 Start: 183796, Stop: 184440, Start Num: 10

Candidate Starts for FloraSnap32\_305:

(Start: 10 @183796 has 16 MA's), (Start: 13 @183805 has 2 MA's), (17, 183838), (20, 183850), (54, 184129), (57, 184150), (65, 184216), (68, 184252), (69, 184261), (81, 184405),

Gene: FloraSnap32\_20 Start: 9658, Stop: 10302, Start Num: 10

Candidate Starts for FloraSnap32\_20:

(Start: 10 @9658 has 16 MA's), (Start: 13 @9667 has 2 MA's), (17, 9700), (20, 9712), (54, 9991), (57, 10012), (65, 10078), (68, 10114), (69, 10123), (81, 10267),

Gene: Florence1\_75 Start: 45987, Stop: 45361, Start Num: 14

Candidate Starts for Florence1\_75:

(Start: 14 @45987 has 29 MA's), (22, 45933), (26, 45873), (27, 45870), (32, 45831), (43, 45750), (50, 45684), (59, 45609), (60, 45606), (67, 45537), (78, 45393),

Gene: Florence4\_76 Start: 45987, Stop: 45361, Start Num: 14

Candidate Starts for Florence4\_76:

(Start: 14 @45987 has 29 MA's), (22, 45933), (26, 45873), (27, 45870), (32, 45831), (43, 45750), (50, 45684), (59, 45609), (60, 45606), (67, 45537), (78, 45393),

Gene: ForGetIt\_78 Start: 46406, Stop: 45780, Start Num: 14

Candidate Starts for ForGetIt\_78:

(Start: 14 @46406 has 29 MA's), (22, 46352), (26, 46292), (27, 46289), (32, 46250), (43, 46169), (50, 46103), (59, 46028), (60, 46025), (67, 45956), (78, 45812),

Gene: Frankenweenie\_336 Start: 182525, Stop: 181935, Start Num: 7

Candidate Starts for Frankenweenie\_336:

(Start: 7 @182525 has 4 MA's), (Start: 10 @182516 has 16 MA's), (12, 182510), (16, 182483), (25, 182411), (38, 182321), (51, 182222), (52, 182219), (63, 182168), (66, 182129), (69, 182102), (79, 181982),

Gene: FrostedClock\_24 Start: 10424, Stop: 11053, Start Num: 10

Candidate Starts for FrostedClock\_24:

(Start: 10 @10424 has 16 MA's), (42, 10658), (54, 10751), (57, 10772),

Gene: FrostedClock\_309 Start: 184224, Stop: 184853, Start Num: 10

Candidate Starts for FrostedClock\_309:

(Start: 10 @184224 has 16 MA's), (42, 184458), (54, 184551), (57, 184572),

Gene: George\_73 Start: 46648, Stop: 46022, Start Num: 14

Candidate Starts for George\_73:

(Start: 14 @46648 has 29 MA's), (22, 46594), (26, 46534), (27, 46531), (32, 46492), (43, 46411), (50, 46345), (59, 46270), (60, 46267), (67, 46198), (78, 46054),

Gene: Ghouboy\_77 Start: 46362, Stop: 45736, Start Num: 14

Candidate Starts for Ghouboy\_77:

(Start: 14 @46362 has 29 MA's), (22, 46308), (26, 46248), (27, 46245), (32, 46206), (43, 46125), (50, 46059), (58, 45996), (59, 45984), (60, 45981), (67, 45912), (78, 45768),

Gene: GoldenEssence\_9 Start: 5099, Stop: 5680, Start Num: 10

Candidate Starts for GoldenEssence\_9:

(Start: 10 @5099 has 16 MA's), (20, 5153), (23, 5189), (33, 5270), (37, 5300), (54, 5444), (64, 5489), (66, 5513), (76, 5585),

Gene: GoldenEssence\_290 Start: 175652, Stop: 176233, Start Num: 10

Candidate Starts for GoldenEssence\_290:

(Start: 10 @175652 has 16 MA's), (20, 175706), (23, 175742), (33, 175823), (37, 175853), (54, 175997), (64, 176042), (66, 176066), (76, 176138),

Gene: HuhtaEnerson15\_76 Start: 46130, Stop: 45504, Start Num: 14

Candidate Starts for HuhtaEnerson15\_76:

(Start: 14 @46130 has 29 MA's), (22, 46076), (26, 46016), (27, 46013), (32, 45974), (43, 45893), (50, 45827), (59, 45752), (60, 45749), (67, 45680), (78, 45536),

Gene: Itza\_68 Start: 44328, Stop: 43735, Start Num: 10

Candidate Starts for Itza\_68:

(Start: 10 @44328 has 16 MA's), (19, 44274), (20, 44271), (25, 44220), (48, 44052), (65, 43950), (66, 43929), (67, 43917), (69, 43902), (70, 43899), (79, 43788),

Gene: Jovo\_77 Start: 46662, Stop: 46036, Start Num: 14

Candidate Starts for Jovo\_77:

(Start: 14 @46662 has 29 MA's), (22, 46608), (26, 46548), (27, 46545), (32, 46506), (43, 46425), (50, 46359), (59, 46284), (60, 46281), (67, 46212), (78, 46068),

Gene: JustBecause\_308 Start: 166368, Stop: 165775, Start Num: 7

Candidate Starts for JustBecause\_308:

(Start: 7 @166368 has 4 MA's), (Start: 10 @166359 has 16 MA's), (12, 166353), (16, 166326), (17, 166317), (18, 166314), (25, 166251), (38, 166161), (51, 166062), (52, 166059), (66, 165969), (69, 165942),

Gene: KSunshine22\_15 Start: 6996, Stop: 7592, Start Num: 13

Candidate Starts for KSunshine22\_15:

(Start: 13 @6996 has 2 MA's), (28, 7113), (65, 7398), (68, 7434),

Gene: KSunshine22\_307 Start: 183897, Stop: 184493, Start Num: 13

Candidate Starts for KSunshine22\_307:

(Start: 13 @183897 has 2 MA's), (28, 184014), (65, 184299), (68, 184335),

Gene: Kela\_306 Start: 167263, Stop: 166670, Start Num: 7

Candidate Starts for Kela\_306:

(Start: 7 @167263 has 4 MA's), (Start: 10 @167254 has 16 MA's), (12, 167248), (16, 167221), (17, 167212), (18, 167209), (25, 167146), (38, 167056), (51, 166957), (52, 166954), (66, 166864), (69, 166837),

Gene: Kradal\_310 Start: 170130, Stop: 169546, Start Num: 9

Candidate Starts for Kradal\_310:

(1, 170382), (2, 170373), (3, 170364), (4, 170325), (5, 170187), (Start: 9 @170130 has 5 MA's), (12, 170121), (Start: 13 @170118 has 2 MA's), (16, 170094), (25, 170022), (30, 169989), (66, 169743), (82, 169557),

Gene: Laure\_340 Start: 178108, Stop: 178713, Start Num: 13

Candidate Starts for Laure\_340:

(Start: 13 @178108 has 2 MA's), (35, 178273), (40, 178309), (47, 178360), (53, 178408), (65, 178507), (77, 178633),

Gene: Laure\_22 Start: 9760, Stop: 10365, Start Num: 13

Candidate Starts for Laure\_22:

(Start: 13 @9760 has 2 MA's), (35, 9925), (40, 9961), (47, 10012), (53, 10060), (65, 10159), (77, 10285),

Gene: Lev2\_78 Start: 46294, Stop: 45668, Start Num: 14

Candidate Starts for Lev2\_78:

(Start: 14 @46294 has 29 MA's), (22, 46240), (26, 46180), (27, 46177), (32, 46138), (43, 46057), (50, 45991), (59, 45916), (60, 45913), (67, 45844), (78, 45700),

Gene: LittleCherry\_77 Start: 46000, Stop: 45374, Start Num: 14

Candidate Starts for LittleCherry\_77:

(Start: 14 @46000 has 29 MA's), (22, 45946), (26, 45886), (27, 45883), (32, 45844), (43, 45763), (50, 45697), (59, 45622), (60, 45619), (67, 45550), (78, 45406),

Gene: MarysWell\_78 Start: 46664, Stop: 46038, Start Num: 14

Candidate Starts for MarysWell\_78:

(Start: 14 @46664 has 29 MA's), (22, 46610), (26, 46550), (27, 46547), (32, 46508), (43, 46427), (50, 46361), (58, 46298), (59, 46286), (60, 46283), (67, 46214), (78, 46070),

Gene: Micasa\_78 Start: 46386, Stop: 45760, Start Num: 14

Candidate Starts for Micasa\_78:

(Start: 14 @46386 has 29 MA's), (22, 46332), (26, 46272), (27, 46269), (32, 46230), (43, 46149), (50, 46083), (58, 46020), (59, 46008), (60, 46005), (67, 45936), (78, 45792),

Gene: Midas2\_75 Start: 46289, Stop: 45663, Start Num: 14

Candidate Starts for Midas2\_75:

(Start: 14 @46289 has 29 MA's), (22, 46235), (26, 46175), (27, 46172), (32, 46133), (43, 46052), (50, 45986), (58, 45923), (59, 45911), (60, 45908), (67, 45839), (78, 45695),

Gene: Milcery\_77 Start: 46294, Stop: 45668, Start Num: 14

Candidate Starts for Milcery\_77:

(Start: 14 @46294 has 29 MA's), (22, 46240), (26, 46180), (27, 46177), (32, 46138), (43, 46057), (50, 45991), (58, 45928), (59, 45916), (60, 45913), (67, 45844), (78, 45700),

Gene: Mimi\_22 Start: 10326, Stop: 10952, Start Num: 11

Candidate Starts for Mimi\_22:

(Start: 11 @10326 has 2 MA's), (17, 10365), (42, 10557), (54, 10650), (57, 10671),

Gene: Mimi\_307 Start: 182986, Stop: 183612, Start Num: 11

Candidate Starts for Mimi\_307:

(Start: 11 @182986 has 2 MA's), (17, 183025), (42, 183217), (54, 183310), (57, 183331),

Gene: MyraDee\_86 Start: 46509, Stop: 45904, Start Num: 15

Candidate Starts for MyraDee\_86:

(Start: 10 @46524 has 16 MA's), (Start: 13 @46515 has 2 MA's), (Start: 15 @46509 has 1 MA's), (29, 46392), (34, 46353), (39, 46323), (46, 46263), (55, 46182), (56, 46176), (62, 46125), (76, 45999),

Gene: Nirvana\_339 Start: 185496, Stop: 184906, Start Num: 7

Candidate Starts for Nirvana\_339:

(Start: 7 @185496 has 4 MA's), (Start: 10 @185487 has 16 MA's), (12, 185481), (16, 185454), (17, 185445), (25, 185382), (38, 185292), (51, 185193), (52, 185190), (66, 185100), (69, 185073),

Gene: Patbob\_22 Start: 10846, Stop: 11484, Start Num: 10

Candidate Starts for Patbob\_22:

(Start: 10 @10846 has 16 MA's), (42, 11086), (45, 11113), (57, 11200),

Gene: Patbob\_308 Start: 186305, Stop: 186943, Start Num: 10

Candidate Starts for Patbob\_308:

(Start: 10 @186305 has 16 MA's), (42, 186545), (45, 186572), (57, 186659),

Gene: Phlorence\_76 Start: 46038, Stop: 45412, Start Num: 14

Candidate Starts for Phlorence\_76:

(Start: 14 @46038 has 29 MA's), (22, 45984), (26, 45924), (27, 45921), (31, 45894), (32, 45882), (43, 45801), (50, 45735), (59, 45660), (60, 45657), (67, 45588), (78, 45444),

Gene: Phrampa\_19 Start: 8984, Stop: 9613, Start Num: 10

Candidate Starts for Phrampa\_19:

(Start: 10 @8984 has 16 MA's), (42, 9218), (57, 9332),

Gene: Phrampa\_303 Start: 185355, Stop: 185984, Start Num: 10

Candidate Starts for Phrampa\_303:

(Start: 10 @185355 has 16 MA's), (42, 185589), (57, 185703),

Gene: PickleBack\_78 Start: 46213, Stop: 45587, Start Num: 14

Candidate Starts for PickleBack\_78:

(Start: 14 @46213 has 29 MA's), (22, 46159), (26, 46099), (27, 46096), (32, 46057), (43, 45976), (50, 45910), (59, 45835), (60, 45832), (67, 45763), (78, 45619),

Gene: Prin Ashe11\_76 Start: 46225, Stop: 45599, Start Num: 14

Candidate Starts for Prin Ashe11\_76:

(Start: 14 @46225 has 29 MA's), (22, 46171), (26, 46111), (27, 46108), (32, 46069), (43, 45988), (50, 45922), (59, 45847), (60, 45844), (67, 45775), (78, 45631),

Gene: Quantum\_308 Start: 170124, Stop: 169540, Start Num: 9

Candidate Starts for Quantum\_308:

(1, 170376), (2, 170367), (3, 170358), (4, 170319), (5, 170181), (Start: 9 @170124 has 5 MA's), (12, 170115), (Start: 13 @170112 has 2 MA's), (16, 170088), (25, 170016), (30, 169983), (66, 169737), (82, 169551),

Gene: Racecar\_312 Start: 184605, Stop: 185249, Start Num: 10

Candidate Starts for Racecar\_312:

(Start: 10 @184605 has 16 MA's), (Start: 13 @184614 has 2 MA's), (20, 184659), (42, 184845), (54, 184938), (57, 184959), (65, 185025), (68, 185061), (69, 185070), (80, 185208), (81, 185214),

Gene: Racecar\_23 Start: 10896, Stop: 11540, Start Num: 10

Candidate Starts for Racecar\_23:

(Start: 10 @10896 has 16 MA's), (Start: 13 @10905 has 2 MA's), (20, 10950), (42, 11136), (54, 11229), (57, 11250), (65, 11316), (68, 11352), (69, 11361), (80, 11499), (81, 11505),

Gene: Rockabye\_321 Start: 182778, Stop: 183401, Start Num: 10

Candidate Starts for Rockabye\_321:

(Start: 10 @182778 has 16 MA's), (Start: 13 @182787 has 2 MA's), (30, 182916), (33, 182940), (41, 182985), (47, 183027), (65, 183174), (66, 183195), (72, 183252),

Gene: Rockabye\_22 Start: 10165, Stop: 10788, Start Num: 10

Candidate Starts for Rockabye\_22:

(Start: 10 @10165 has 16 MA's), (Start: 13 @10174 has 2 MA's), (30, 10303), (33, 10327), (41, 10372), (47, 10414), (65, 10561), (66, 10582), (72, 10639),

Gene: SJReid\_23 Start: 10577, Stop: 11209, Start Num: 10

Candidate Starts for SJReid\_23:

(Start: 10 @10577 has 16 MA's), (17, 10619), (33, 10745), (36, 10754), (54, 10907), (61, 10961), (65, 10988),

Gene: SJReid\_332 Start: 183416, Stop: 184048, Start Num: 10

Candidate Starts for SJReid\_332:

(Start: 10 @183416 has 16 MA's), (17, 183458), (33, 183584), (36, 183593), (54, 183746), (61, 183800), (65, 183827),

Gene: Sarkar\_308 Start: 170174, Stop: 169590, Start Num: 9

Candidate Starts for Sarkar\_308:

(1, 170426), (2, 170417), (3, 170408), (4, 170369), (5, 170231), (Start: 9 @170174 has 5 MA's), (12, 170165), (Start: 13 @170162 has 2 MA's), (16, 170138), (25, 170066), (30, 170033), (66, 169787), (82, 169601),

Gene: Satis\_310 Start: 170467, Stop: 169883, Start Num: 9

Candidate Starts for Satis\_310:

(1, 170719), (2, 170710), (3, 170701), (4, 170662), (5, 170524), (Start: 9 @170467 has 5 MA's), (12, 170458), (Start: 13 @170455 has 2 MA's), (16, 170431), (25, 170359), (30, 170326), (66, 170080), (82, 169894),

Gene: Swirley\_78 Start: 46321, Stop: 45695, Start Num: 14

Candidate Starts for Swirley\_78:

(Start: 14 @46321 has 29 MA's), (22, 46267), (26, 46207), (27, 46204), (32, 46165), (43, 46084), (50, 46018), (58, 45955), (59, 45943), (60, 45940), (67, 45871), (78, 45727),

Gene: SydNat\_77 Start: 46371, Stop: 45745, Start Num: 14

Candidate Starts for SydNat\_77:

(Start: 14 @46371 has 29 MA's), (22, 46317), (26, 46257), (27, 46254), (32, 46215), (43, 46134), (50, 46068), (58, 46005), (59, 45993), (60, 45990), (67, 45921), (78, 45777),

Gene: Talia1610\_308 Start: 184802, Stop: 185437, Start Num: 10

Candidate Starts for Talia1610\_308:

(Start: 10 @184802 has 16 MA's), (42, 185042), (57, 185156), (66, 185243),

Gene: Talia1610\_22 Start: 10330, Stop: 10965, Start Num: 10

Candidate Starts for Talia1610\_22:

(Start: 10 @10330 has 16 MA's), (42, 10570), (57, 10684), (66, 10771),

Gene: Tarynearal\_77 Start: 46169, Stop: 45543, Start Num: 14

Candidate Starts for Tarynearal\_77:

(Start: 14 @46169 has 29 MA's), (22, 46115), (26, 46055), (27, 46052), (32, 46013), (43, 45932), (50, 45866), (59, 45791), (60, 45788), (67, 45719), (78, 45575),

Gene: Theia\_78 Start: 46652, Stop: 46026, Start Num: 14

Candidate Starts for Theia\_78:

(Start: 14 @46652 has 29 MA's), (22, 46598), (26, 46538), (27, 46535), (32, 46496), (43, 46415), (50, 46349), (58, 46286), (59, 46274), (60, 46271), (67, 46202), (78, 46058),

Gene: Tiger\_76 Start: 45959, Stop: 45333, Start Num: 14

Candidate Starts for Tiger\_76:

(Start: 14 @45959 has 29 MA's), (22, 45905), (26, 45845), (27, 45842), (31, 45815), (32, 45803), (43, 45722), (50, 45656), (58, 45593), (59, 45581), (60, 45578), (67, 45509), (78, 45365),

Gene: Twigg\_78 Start: 46414, Stop: 45788, Start Num: 14

Candidate Starts for Twigg\_78:

(Start: 14 @46414 has 29 MA's), (22, 46360), (26, 46300), (27, 46297), (32, 46258), (43, 46177), (50, 46111), (59, 46036), (60, 46033), (67, 45964), (78, 45820),

Gene: Urza\_67 Start: 44349, Stop: 43756, Start Num: 10

Candidate Starts for Urza\_67:

(Start: 10 @44349 has 16 MA's), (19, 44295), (25, 44241), (48, 44073), (65, 43971), (66, 43950), (67, 43938), (69, 43923), (70, 43920), (79, 43809),

Gene: Vanseggelen\_68 Start: 43163, Stop: 42615, Start Num: 8

Candidate Starts for Vanseggelen\_68:

(6, 43202), (Start: 8 @43163 has 1 MA's), (19, 43109), (21, 43094), (44, 42908), (49, 42878), (66, 42767), (67, 42755), (75, 42716),

Gene: VieEnRose\_67 Start: 44202, Stop: 43609, Start Num: 10

Candidate Starts for VieEnRose\_67:

(Start: 10 @44202 has 16 MA's), (19, 44148), (20, 44145), (24, 44100), (25, 44094), (48, 43926), (65, 43824), (66, 43803), (67, 43791), (69, 43776), (70, 43773), (79, 43662),

Gene: Yosif\_68 Start: 44529, Stop: 43960, Start Num: 8

Candidate Starts for Yosif\_68:

(Start: 8 @44529 has 1 MA's), (22, 44460), (25, 44424), (44, 44277), (61, 44184), (67, 44124), (71, 44094), (74, 44067),

Gene: Zolita\_76 Start: 46354, Stop: 45728, Start Num: 14

Candidate Starts for Zolita\_76:

(Start: 14 @46354 has 29 MA's), (22, 46300), (26, 46240), (27, 46237), (32, 46198), (43, 46117), (50, 46051), (58, 45988), (59, 45976), (60, 45973), (67, 45904), (78, 45760),