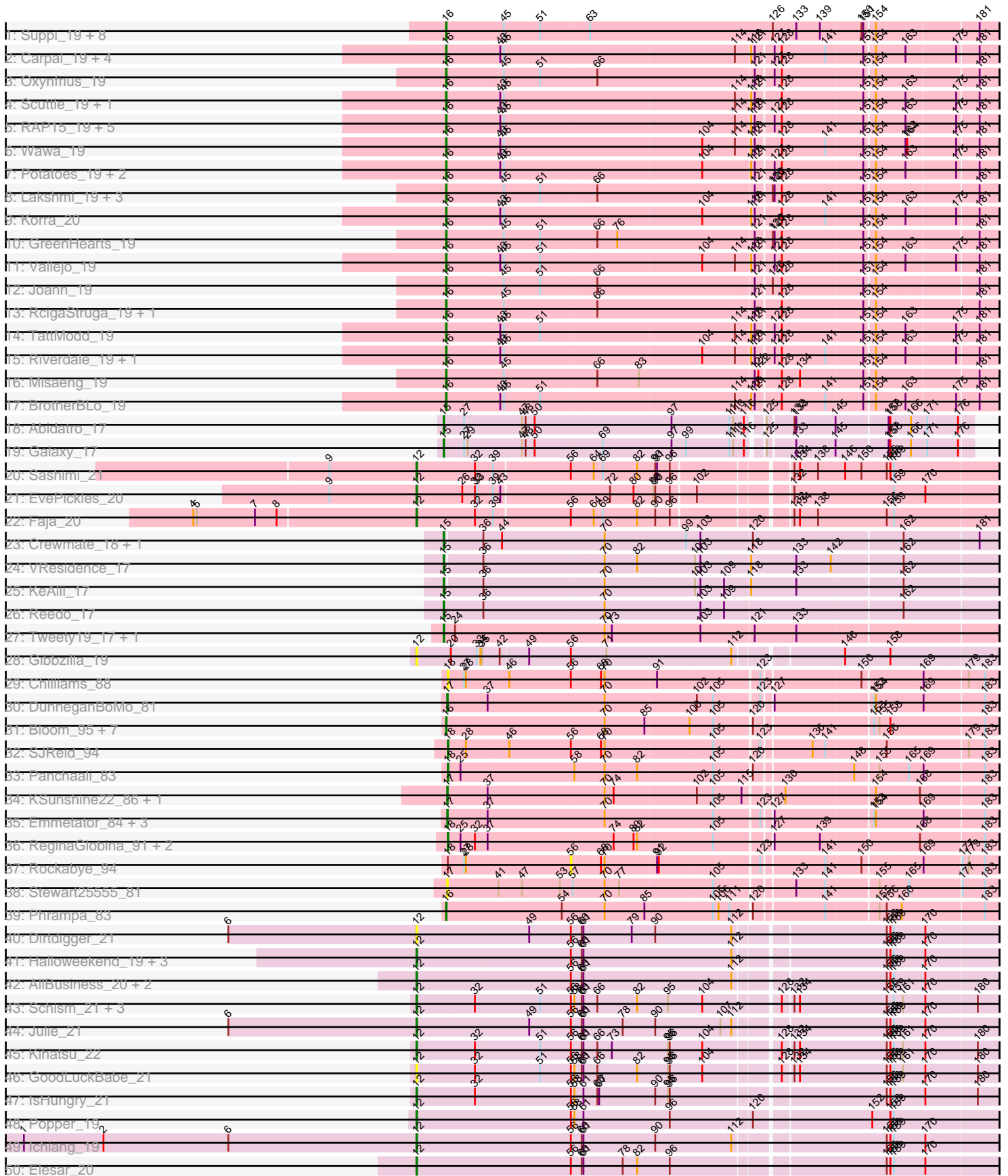
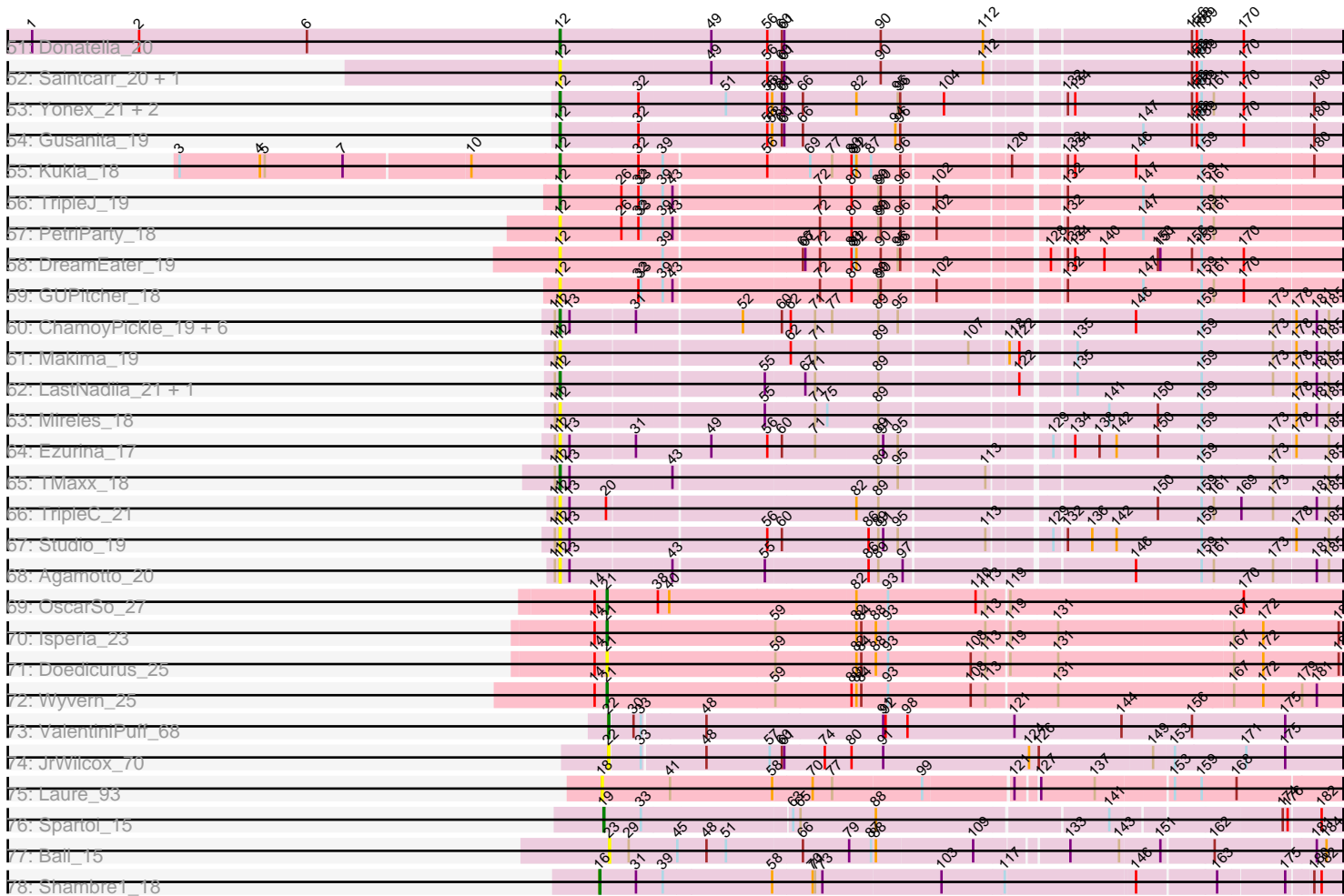


Pham 294523



Pham 294523



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 294523 Report

This analysis was run 04/18/26 on database version 643.

Pham number 294523 has 136 members, 44 are drafts.

Phages represented in each track:

- Track 1 : Suppi\_19, Canowicakte\_19, Litotes\_19, Wayne\_19, PartyCup\_19, Graynor\_19, MrBoss\_19, CallieOMalley\_19, AppleCider\_19
- Track 2 : Carpal\_19, Dino\_19, Glenn\_19, Kalizoi\_19, Zorro\_19
- Track 3 : Oxynfrius\_19
- Track 4 : Scuttle\_19, Beethoven\_19
- Track 5 : RAP15\_19, Fluke\_19, Jumboset\_19, Savage2526\_19, MrGloopy\_19, MeganNoll\_19
- Track 6 : Wawa\_19
- Track 7 : Potatoes\_19, Cholula\_19, Immaculata\_19
- Track 8 : Lakshmi\_19, Albanese\_19, Greenhouse\_19, Nubia\_19
- Track 9 : Korra\_20
- Track 10 : GreenHearts\_19
- Track 11 : Vallejo\_19
- Track 12 : Joann\_19
- Track 13 : RcigaStruga\_19, Huntingdon\_19
- Track 14 : TattModd\_19
- Track 15 : Riverdale\_19, Rozby\_19
- Track 16 : Misaeng\_19
- Track 17 : BrotherBLo\_19
- Track 18 : Abidatro\_17
- Track 19 : Galaxy\_17
- Track 20 : Sashimi\_21
- Track 21 : EvePickles\_20
- Track 22 : Faja\_20
- Track 23 : Crewmate\_18, ObiToo\_17
- Track 24 : VResidence\_17
- Track 25 : KeAlii\_17
- Track 26 : Reedo\_17
- Track 27 : Tweety19\_17, Snek\_17
- Track 28 : Gibbzilla\_19
- Track 29 : Chilliams\_88
- Track 30 : DunneganBoMo\_81
- Track 31 : Bloom\_95, Patbob\_90, FloraSnap32\_91, GoldenEssence\_77, Talia1610\_91, Mimi\_91, Racecar\_92, FrostedClock\_93
- Track 32 : SJReid\_94
- Track 33 : Panchaali\_83
- Track 34 : KSunshine22\_86, Ellewin\_80

- Track 35 : Emmetator\_84, WaddleDee\_79, BooTeria\_88, Artu\_84
- Track 36 : ReginaGlobina\_91, Atuin\_86, LeoJr\_91
- Track 37 : Rockabye\_94
- Track 38 : Stewart25555\_81
- Track 39 : Phrampa\_83
- Track 40 : Dirdigger\_21
- Track 41 : Halloween\_19, QuinnAvery\_21, Cole\_19, BigSherm\_20
- Track 42 : AllBusiness\_20, Toodles\_22, MillySue\_21
- Track 43 : Schism\_21, Guinevere\_21, Lenoxika\_21, Nandita\_21
- Track 44 : Julie\_21
- Track 45 : Kihatsu\_22
- Track 46 : GoodLuckBabe\_21
- Track 47 : IsHungry\_21
- Track 48 : Popper\_19
- Track 49 : Ichiang\_19
- Track 50 : Elesar\_20
- Track 51 : Donatella\_20
- Track 52 : Saintcarr\_20, ToastyOats\_23
- Track 53 : Yonex\_21, Ryan\_21, Zaheer\_21
- Track 54 : Gusanita\_19
- Track 55 : Kukla\_18
- Track 56 : TripleJ\_19
- Track 57 : PetriParty\_18
- Track 58 : DreamEater\_19
- Track 59 : GUPitcher\_18
- Track 60 : ChamoyPickle\_19, AnnabelLee\_18, Gerri43\_19, Neuville\_18, CardboardBox\_19, Roberts\_18, ChipsNGuac\_19
- Track 61 : Makima\_19
- Track 62 : LastNadiia\_21, Audell\_21
- Track 63 : Mireles\_18
- Track 64 : Ezurina\_17
- Track 65 : TMaxx\_18
- Track 66 : TripleC\_21
- Track 67 : Studio\_19
- Track 68 : Agamoto\_20
- Track 69 : OscarSo\_27
- Track 70 : Isperia\_23
- Track 71 : Doedicurus\_25
- Track 72 : Wyvern\_25
- Track 73 : ValentiniPuff\_68
- Track 74 : JrWilcox\_70
- Track 75 : Laure\_93
- Track 76 : Spatoi\_15
- Track 77 : Ball\_15
- Track 78 : Shambre1\_18

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

The start number called the most often in the published annotations is 16, it was called in 47 of the 92 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Albanese\_19, AppleCider\_19, Beethoven\_19, Bloom\_95, BrotherBLo\_19, CallieOMalley\_19, Canowicakte\_19, Carpal\_19, Cholula\_19, Dino\_19, FloraSnap32\_91, Fluke\_19, FrostedClock\_93, Glenn\_19, GoldenEssence\_77, Graynor\_19, GreenHearts\_19, Greenhouse\_19, Huntingdon\_19, Immaculata\_19, Joann\_19, Jumboset\_19, Kalizoi\_19, Korra\_20, Lakshmi\_19, Litotes\_19, MeganNoll\_19, Mimi\_91, Misaeng\_19, MrBoss\_19, MrGloopy\_19, Nubia\_19, Oxyfnrius\_19, PartyCup\_19, Patbob\_90, Phrampa\_83, Potatoes\_19, RAP15\_19, Racecar\_92, RcigaStruga\_19, Riverdale\_19, Rozby\_19, Savage2526\_19, Scuttle\_19, Shambre1\_18, Suppi\_19, Talia1610\_91, TattModd\_19, Vallejo\_19, Wawa\_19, Wayne\_19, Zorro\_19,

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

- 

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

- Abidatro\_17, Agamoto\_20, AllBusiness\_20, AnnabelLee\_18, Artu\_84, Atuin\_86, Audell\_21, Ball\_15, BigSherm\_20, BooTeria\_88, CardboardBox\_19, ChamoyPickle\_19, Chilliams\_88, ChipsNGuac\_19, Cole\_19, Crewmate\_18, Dirdigger\_21, Doedicurus\_25, Donatella\_20, DreamEater\_19, DunneganBoMo\_81, Elesar\_20, Ellewin\_80, Emmetator\_84, EvePickles\_20, Ezurina\_17, Faja\_20, GUPitcher\_18, Galaxy\_17, Gerri43\_19, Gibbzilla\_19, GoodLuckBabe\_21, Guinevere\_21, Gusanita\_19, Halloween\_19, Ichiang\_19, IsHungry\_21, Isperia\_23, JrWilcox\_70, Julie\_21, KSunshine22\_86, KeAlii\_17, Kihatsu\_22, Kukla\_18, LastNadiia\_21, Laure\_93, Lenoxika\_21, LeoJr\_91, Makima\_19, MillySue\_21, Mireles\_18, Nandita\_21, Neuville\_18, ObiToo\_17, OscarSo\_27, Panchaali\_83, PetriParty\_18, Popper\_19, QuinnAvery\_21, Reedo\_17, ReginaGlobina\_91, Roberts\_18, Rockabye\_94, Ryan\_21, SJReid\_94, Saintcarr\_20, Sashimi\_21, Schism\_21, Snek\_17, Spartoi\_15, Stewart25555\_81, Studio\_19, TMaxx\_18, ToastyOats\_23, Toodles\_22, TripleC\_21, TripleJ\_19, Tweety19\_17, VResidence\_17, ValentiniPuff\_68, WaddleDee\_79, Wyvern\_25, Yonex\_21, Zaheer\_21,

### Summary by start number:

Start 12:

- Found in 51 of 136 ( 37.5% ) of genes in pham
- Manual Annotations of this start: 25 of 92
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agamoto\_20 (FR), AllBusiness\_20 (FF), AnnabelLee\_18 (FR), Audell\_21 (FR), BigSherm\_20 (FF), CardboardBox\_19 (FR), ChamoyPickle\_19 (FR), ChipsNGuac\_19 (FR), Cole\_19 (FF), Dirdigger\_21 (FF), Donatella\_20 (FF), DreamEater\_19 (FJ), Elesar\_20 (FF), EvePickles\_20 (AY), Ezurina\_17 (FR), Faja\_20 (AY), GUPitcher\_18 (FJ), Gerri43\_19 (FR), Gibbzilla\_19 (FB), GoodLuckBabe\_21 (FF), Guinevere\_21 (FF), Gusanita\_19 (FF), Halloween\_19 (FF), Ichiang\_19 (FF), IsHungry\_21 (FF), Julie\_21 (FF), Kihatsu\_22 (FF), Kukla\_18 (FJ), LastNadiia\_21 (FR), Lenoxika\_21 (FF), Makima\_19 (FR), MillySue\_21 (FF), Mireles\_18 (FR), Nandita\_21 (FF), Neuville\_18 (FR), PetriParty\_18 (FJ), Popper\_19 (FF), QuinnAvery\_21 (FF), Roberts\_18 (FR), Ryan\_21 (FF), Saintcarr\_20 (FF), Sashimi\_21 (AY), Schism\_21 (FF), Studio\_19 (FR), TMaxx\_18 (FR), ToastyOats\_23 (FF), Toodles\_22 (FF), TripleC\_21 (FR), TripleJ\_19 (FJ), Yonex\_21 (FF), Zaheer\_21 (FF),

Start 15:

- Found in 9 of 136 ( 6.6% ) of genes in pham
- Manual Annotations of this start: 9 of 92
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abidatro\_17 (AS1), Crewmate\_18 (AZ1), Galaxy\_17 (AS1), KeAlii\_17 (AZ1), ObiToo\_17 (AZ1), Reedo\_17 (AZ1), Snek\_17 (AZ3), Tweety19\_17 (AZ3), VResidence\_17 (AZ1),

Start 16:

- Found in 52 of 136 ( 38.2% ) of genes in pham
- Manual Annotations of this start: 47 of 92
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Albanese\_19 (AK), AppleCider\_19 (AK), Beethoven\_19 (AK), Bloom\_95 (FC), BrotherBlo\_19 (AK), CallieOMalley\_19 (AK), Canowicakte\_19 (AK), Carpal\_19 (AK), Cholula\_19 (AK), Dino\_19 (AK), FloraSnap32\_91 (FC), Fluke\_19 (AK), FrostedClock\_93 (FC), Glenn\_19 (AK), GoldenEssence\_77 (FC), Graynor\_19 (AK), GreenHearts\_19 (AK), Greenhouse\_19 (AK), Huntingdon\_19 (AK), Immaculata\_19 (AK), Joann\_19 (AK), Jumboset\_19 (AK), Kalzoi\_19 (AK), Korra\_20 (AK), Lakshmi\_19 (AK), Litotes\_19 (AK), MeganNoll\_19 (AK), Mimi\_91 (FC), Misaeng\_19 (AK), MrBoss\_19 (AK), MrGloopy\_19 (AK), Nubia\_19 (AK), Oxynfrius\_19 (AK), PartyCup\_19 (AK), Patbob\_90 (FC), Phrampa\_83 (FC), Potatoes\_19 (AK), RAP15\_19 (AK), Racecar\_92 (FC), RcigaStruga\_19 (AK), Riverdale\_19 (AK), Rozby\_19 (AK), Savage2526\_19 (AK), Scuttle\_19 (AK), Shambre1\_18 (singleton), Suppi\_19 (AK), Talia1610\_91 (FC), TattModd\_19 (AK), Vallejo\_19 (AK), Wawa\_19 (AK), Wayne\_19 (AK), Zorro\_19 (AK),

Start 17:

- Found in 8 of 136 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 3 of 92
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Artu\_84 (FC), BooTeria\_88 (FC), DunneganBoMo\_81 (FC), Ellewin\_80 (FC), Emmetator\_84 (FC), KSunshine22\_86 (FC), Stewart25555\_81 (FC), WaddleDee\_79 (FC),

Start 18:

- Found in 8 of 136 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 3 of 92
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Atuin\_86 (FC), Chilliams\_88 (FC), Laure\_93 (UNK), LeoJr\_91 (FC), Panchaali\_83 (FC), ReginaGlobina\_91 (FC), SJReid\_94 (FC),

Start 19:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 92
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Spartoi\_15 (singleton),

Start 21:

- Found in 4 of 136 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 3 of 92
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Doedicurus\_25 (GJ), Isperia\_23 (GJ), OscarSo\_27 (GJ), Wyvern\_25 (GJ),

Start 22:

- Found in 2 of 136 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 92
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JrWilcox\_70 (GL), ValentiniPuff\_68 (GL),

Start 23:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ball\_15 (singleton),

Start 56:

- Found in 35 of 136 ( 25.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.9% of time when present
- Phage (with cluster) where this start called: Rockabye\_94 (FC),

**Summary by clusters:**

There are 14 clusters represented in this pham: UNK, FR, GL, AK, singleton, FB, FC, FF, AY, AZ1, FJ, AZ3, AS1, GJ,

Info for manual annotations of cluster AK:

- Start number 16 was manually annotated 40 times for cluster AK.

Info for manual annotations of cluster AS1:

- Start number 15 was manually annotated 2 times for cluster AS1.

Info for manual annotations of cluster AY:

- Start number 12 was manually annotated 3 times for cluster AY.

Info for manual annotations of cluster AZ1:

- Start number 15 was manually annotated 5 times for cluster AZ1.

Info for manual annotations of cluster AZ3:

- Start number 15 was manually annotated 2 times for cluster AZ3.

Info for manual annotations of cluster FC:

- Start number 16 was manually annotated 6 times for cluster FC.
- Start number 17 was manually annotated 3 times for cluster FC.
- Start number 18 was manually annotated 3 times for cluster FC.

Info for manual annotations of cluster FF:

- Start number 12 was manually annotated 17 times for cluster FF.

Info for manual annotations of cluster FJ:

- Start number 12 was manually annotated 2 times for cluster FJ.

Info for manual annotations of cluster FR:

- Start number 12 was manually annotated 3 times for cluster FR.

Info for manual annotations of cluster GJ:

- Start number 21 was manually annotated 3 times for cluster GJ.

Info for manual annotations of cluster GL:

- Start number 22 was manually annotated 1 time for cluster GL.

### **Gene Information:**

Gene: Abidatro\_17 Start: 12853, Stop: 13671, Start Num: 15

Candidate Starts for Abidatro\_17:

(Start: 15 @12853 has 9 MA's), (27, 12886), (47, 12979), (48, 12985), (50, 13000), (97, 13222), (111, 13315), (113, 13321), (116, 13336), (125, 13357), (132, 13396), (133, 13399), (145, 13462), (157, 13540), (158, 13543), (166, 13576), (171, 13600), (176, 13651),

Gene: Agamoto\_20 Start: 14950, Stop: 15855, Start Num: 12

Candidate Starts for Agamoto\_20:

(11, 14944), (Start: 12 @14950 has 25 MA's), (13, 14962), (43, 15082), (55, 15190), (86, 15310), (89, 15322), (97, 15352), (146, 15607), (159, 15688), (161, 15703), (173, 15775), (181, 15823), (185, 15838),

Gene: Albanese\_19 Start: 15218, Stop: 16090, Start Num: 16

Candidate Starts for Albanese\_19:

(Start: 16 @15218 has 47 MA's), (45, 15311), (51, 15371), (66, 15461), (121, 15716), (126, 15740), (127, 15743), (128, 15755), (151, 15884), (154, 15899), (181, 16058),

Gene: AllBusiness\_20 Start: 15893, Stop: 16813, Start Num: 12

Candidate Starts for AllBusiness\_20:

(Start: 12 @15893 has 25 MA's), (56, 16145), (60, 16160), (61, 16163), (112, 16403), (156, 16634), (158, 16640), (159, 16646), (170, 16697),

Gene: AnnabelLee\_18 Start: 11910, Stop: 12815, Start Num: 12

Candidate Starts for AnnabelLee\_18:

(11, 11904), (Start: 12 @11910 has 25 MA's), (13, 11922), (31, 12000), (52, 12123), (60, 12168), (62, 12177), (71, 12207), (77, 12228), (89, 12282), (95, 12306), (146, 12567), (159, 12648), (173, 12735), (178, 12759), (181, 12783), (185, 12798),

Gene: AppleCider\_19 Start: 15167, Stop: 16048, Start Num: 16

Candidate Starts for AppleCider\_19:

(Start: 16 @15167 has 47 MA's), (45, 15260), (51, 15320), (63, 15398), (126, 15698), (133, 15734), (139, 15773), (150, 15839), (151, 15842), (154, 15857), (181, 16016),

Gene: Artu\_84 Start: 57307, Stop: 58158, Start Num: 17

Candidate Starts for Artu\_84:

(Start: 17 @57307 has 3 MA's), (37, 57373), (70, 57559), (105, 57733), (123, 57799), (127, 57811), (153, 57961), (154, 57964), (169, 58039), (183, 58135),

Gene: Atuin\_86 Start: 59949, Stop: 60800, Start Num: 18

Candidate Starts for Atuin\_86:

(Start: 18 @59949 has 3 MA's), (25, 59970), (32, 59994), (37, 60015), (74, 60216), (80, 60249), (82, 60255), (105, 60375), (127, 60453), (139, 60525), (168, 60678), (183, 60777),

Gene: Audell\_21 Start: 15231, Stop: 16136, Start Num: 12

Candidate Starts for Audell\_21:

(11, 15225), (Start: 12 @15231 has 25 MA's), (55, 15471), (67, 15516), (71, 15528), (89, 15603), (122, 15762), (135, 15816), (159, 15969), (173, 16056), (178, 16080), (181, 16104), (185, 16119),

Gene: Ball\_15 Start: 12363, Stop: 13217, Start Num: 23

Candidate Starts for Ball\_15:

(23, 12363), (29, 12387), (45, 12447), (48, 12483), (51, 12507), (66, 12597), (79, 12654), (87, 12681), (88, 12687), (109, 12801), (133, 12897), (143, 12957), (151, 13005), (162, 13065), (181, 13185), (184, 13197),

Gene: Beethoven\_19 Start: 15125, Stop: 15994, Start Num: 16

Candidate Starts for Beethoven\_19:

(Start: 16 @15125 has 47 MA's), (43, 15212), (45, 15218), (114, 15593), (118, 15614), (121, 15620), (128, 15659), (151, 15788), (154, 15803), (163, 15851), (175, 15929), (181, 15962),

Gene: BigSherm\_20 Start: 15821, Stop: 16741, Start Num: 12

Candidate Starts for BigSherm\_20:

(Start: 12 @15821 has 25 MA's), (56, 16073), (60, 16088), (61, 16091), (112, 16331), (156, 16562), (158, 16568), (159, 16574), (170, 16625),

Gene: Bloom\_95 Start: 60812, Stop: 61663, Start Num: 16

Candidate Starts for Bloom\_95:

(Start: 16 @60812 has 47 MA's), (70, 61064), (85, 61130), (100, 61202), (105, 61238), (120, 61292), (153, 61466), (155, 61475), (158, 61493), (183, 61640),

Gene: BooTeria\_88 Start: 57375, Stop: 58226, Start Num: 17

Candidate Starts for BooTeria\_88:

(Start: 17 @57375 has 3 MA's), (37, 57441), (70, 57627), (105, 57801), (123, 57867), (127, 57879), (153, 58029), (154, 58032), (169, 58107), (183, 58203),

Gene: BrotherBLo\_19 Start: 15131, Stop: 16000, Start Num: 16

Candidate Starts for BrotherBLo\_19:

(Start: 16 @15131 has 47 MA's), (43, 15218), (45, 15224), (51, 15284), (114, 15599), (118, 15620), (121, 15626), (128, 15665), (141, 15734), (151, 15794), (154, 15809), (163, 15857), (175, 15935), (181, 15968),

Gene: CallieOMalley\_19 Start: 15167, Stop: 16048, Start Num: 16

Candidate Starts for CallieOMalley\_19:

(Start: 16 @15167 has 47 MA's), (45, 15260), (51, 15320), (63, 15398), (126, 15698), (133, 15734), (139, 15773), (150, 15839), (151, 15842), (154, 15857), (181, 16016),

Gene: Canowicakte\_19 Start: 15202, Stop: 16083, Start Num: 16

Candidate Starts for Canowicakte\_19:

(Start: 16 @15202 has 47 MA's), (45, 15295), (51, 15355), (63, 15433), (126, 15733), (133, 15769), (139, 15808), (150, 15874), (151, 15877), (154, 15892), (181, 16051),

Gene: CardboardBox\_19 Start: 11910, Stop: 12815, Start Num: 12

Candidate Starts for CardboardBox\_19:

(11, 11904), (Start: 12 @11910 has 25 MA's), (13, 11922), (31, 12000), (52, 12123), (60, 12168), (62, 12177), (71, 12207), (77, 12228), (89, 12282), (95, 12306), (146, 12567), (159, 12648), (173, 12735), (178, 12759), (181, 12783), (185, 12798),

Gene: Carpal\_19 Start: 15132, Stop: 16001, Start Num: 16

Candidate Starts for Carpal\_19:

(Start: 16 @15132 has 47 MA's), (43, 15219), (45, 15225), (114, 15600), (118, 15621), (121, 15627), (127, 15654), (128, 15666), (141, 15735), (151, 15795), (154, 15810), (163, 15858), (175, 15936), (181, 15969),

Gene: ChamoyPickle\_19 Start: 11910, Stop: 12815, Start Num: 12

Candidate Starts for ChamoyPickle\_19:

(11, 11904), (Start: 12 @11910 has 25 MA's), (13, 11922), (31, 12000), (52, 12123), (60, 12168), (62, 12177), (71, 12207), (77, 12228), (89, 12282), (95, 12306), (146, 12567), (159, 12648), (173, 12735), (178, 12759), (181, 12783), (185, 12798),

Gene: Chilliams\_88 Start: 61239, Stop: 62090, Start Num: 18

Candidate Starts for Chilliams\_88:

(Start: 18 @61239 has 3 MA's), (27, 61266), (28, 61269), (46, 61338), (56, 61440), (68, 61485), (70, 61491), (91, 61575), (123, 61731), (150, 61878), (169, 61971), (179, 62040), (183, 62067),

Gene: ChipsNGuac\_19 Start: 11910, Stop: 12815, Start Num: 12

Candidate Starts for ChipsNGuac\_19:

(11, 11904), (Start: 12 @11910 has 25 MA's), (13, 11922), (31, 12000), (52, 12123), (60, 12168), (62, 12177), (71, 12207), (77, 12228), (89, 12282), (95, 12306), (146, 12567), (159, 12648), (173, 12735), (178, 12759), (181, 12783), (185, 12798),

Gene: Cholula\_19 Start: 15177, Stop: 16046, Start Num: 16

Candidate Starts for Cholula\_19:

(Start: 16 @15177 has 47 MA's), (43, 15264), (45, 15270), (104, 15591), (118, 15666), (121, 15672), (127, 15699), (128, 15711), (151, 15840), (154, 15855), (163, 15903), (175, 15981), (181, 16014),

Gene: Cole\_19 Start: 15483, Stop: 16403, Start Num: 12

Candidate Starts for Cole\_19:

(Start: 12 @15483 has 25 MA's), (56, 15735), (60, 15750), (61, 15753), (112, 15993), (156, 16224), (158, 16230), (159, 16236), (170, 16287),

Gene: Crewmate\_18 Start: 13486, Stop: 14358, Start Num: 15

Candidate Starts for Crewmate\_18:

(Start: 15 @13486 has 9 MA's), (36, 13543), (44, 13573), (70, 13738), (99, 13870), (103, 13894), (120, 13972), (162, 14206), (181, 14326),

Gene: Dino\_19 Start: 15130, Stop: 15999, Start Num: 16

Candidate Starts for Dino\_19:

(Start: 16 @15130 has 47 MA's), (43, 15217), (45, 15223), (114, 15598), (118, 15619), (121, 15625), (127, 15652), (128, 15664), (141, 15733), (151, 15793), (154, 15808), (163, 15856), (175, 15934), (181, 15967),

Gene: Dirdigger\_21 Start: 15801, Stop: 16721, Start Num: 12

Candidate Starts for Dirdigger\_21:

(6, 15489), (Start: 12 @15801 has 25 MA's), (49, 15984), (56, 16053), (60, 16068), (61, 16071), (79, 16146), (90, 16185), (112, 16311), (156, 16542), (158, 16548), (159, 16554), (170, 16605),

Gene: Doedicurus\_25 Start: 15959, Stop: 16837, Start Num: 21

Candidate Starts for Doedicurus\_25:

(14, 15944), (Start: 21 @15959 has 3 MA's), (59, 16163), (82, 16256), (84, 16262), (88, 16280), (93, 16295), (108, 16397), (113, 16415), (119, 16439), (131, 16496), (167, 16703), (172, 16739), (186, 16832),

Gene: Donatella\_20 Start: 15947, Stop: 16867, Start Num: 12

Candidate Starts for Donatella\_20:

(1, 15296), (2, 15428), (6, 15635), (Start: 12 @15947 has 25 MA's), (49, 16130), (56, 16199), (60, 16214), (61, 16217), (90, 16331), (112, 16457), (156, 16688), (158, 16694), (159, 16700), (170, 16751),

Gene: DreamEater\_19 Start: 15472, Stop: 16380, Start Num: 12

Candidate Starts for DreamEater\_19:

(Start: 12 @15472 has 25 MA's), (39, 15595), (66, 15757), (67, 15760), (72, 15778), (80, 15814), (81, 15817), (82, 15820), (90, 15850), (95, 15871), (96, 15874), (128, 16033), (132, 16048), (134, 16057), (140, 16093), (150, 16159), (151, 16162), (156, 16201), (159, 16213), (170, 16264),

Gene: DunneganBoMo\_81 Start: 56806, Stop: 57657, Start Num: 17

Candidate Starts for DunneganBoMo\_81:

(Start: 17 @56806 has 3 MA's), (37, 56872), (70, 57058), (102, 57205), (105, 57232), (123, 57298), (127, 57310), (153, 57460), (154, 57463), (169, 57538), (183, 57634),

Gene: Elesar\_20 Start: 15874, Stop: 16794, Start Num: 12

Candidate Starts for Elesar\_20:

(Start: 12 @15874 has 25 MA's), (56, 16126), (60, 16141), (61, 16144), (78, 16207), (82, 16228), (96, 16282), (156, 16615), (158, 16621), (159, 16627), (170, 16678),

Gene: Ellewin\_80 Start: 56395, Stop: 57246, Start Num: 17

Candidate Starts for Ellewin\_80:

(Start: 17 @56395 has 3 MA's), (37, 56461), (70, 56647), (74, 56662), (102, 56794), (105, 56821), (115, 56863), (130, 56917), (154, 57052), (168, 57124), (183, 57223),

Gene: Emmetator\_84 Start: 57640, Stop: 58491, Start Num: 17

Candidate Starts for Emmetator\_84:

(Start: 17 @57640 has 3 MA's), (37, 57706), (70, 57892), (105, 58066), (123, 58132), (127, 58144), (153, 58294), (154, 58297), (169, 58372), (183, 58468),

Gene: EvePickles\_20 Start: 15163, Stop: 16071, Start Num: 12

Candidate Starts for EvePickles\_20:

(9, 15019), (Start: 12 @15163 has 25 MA's), (26, 15238), (32, 15259), (33, 15262), (39, 15286), (43, 15298), (72, 15469), (80, 15505), (89, 15538), (90, 15541), (96, 15565), (102, 15604), (132, 15739), (159, 15904), (170, 15955),

Gene: Ezurina\_17 Start: 11479, Stop: 12387, Start Num: 12

Candidate Starts for Ezurina\_17:

(11, 11473), (Start: 12 @11479 has 25 MA's), (13, 11491), (31, 11569), (49, 11656), (56, 11725), (60, 11740), (71, 11779), (89, 11854), (91, 11860), (95, 11878), (129, 12043), (134, 12064), (138, 12094), (142, 12115), (150, 12166), (159, 12220), (173, 12307), (178, 12331), (185, 12370),

Gene: Faja\_20 Start: 15058, Stop: 15966, Start Num: 12

Candidate Starts for Faja\_20:

(4, 14695), (5, 14701), (7, 14797), (8, 14833), (Start: 12 @15058 has 25 MA's), (32, 15154), (39, 15181), (56, 15304), (64, 15337), (69, 15352), (82, 15406), (90, 15436), (96, 15460), (132, 15634), (134, 15643), (138, 15673), (156, 15787), (159, 15799),

Gene: FloraSnap32\_91 Start: 59852, Stop: 60703, Start Num: 16

Candidate Starts for FloraSnap32\_91:

(Start: 16 @59852 has 47 MA's), (70, 60104), (85, 60170), (100, 60242), (105, 60278), (120, 60332), (153, 60506), (155, 60515), (158, 60533), (183, 60680),

Gene: Fluke\_19 Start: 15173, Stop: 16042, Start Num: 16

Candidate Starts for Fluke\_19:

(Start: 16 @15173 has 47 MA's), (43, 15260), (45, 15266), (114, 15641), (118, 15662), (121, 15668), (127, 15695), (128, 15707), (151, 15836), (154, 15851), (163, 15899), (175, 15977), (181, 16010),

Gene: FrostedClock\_93 Start: 60300, Stop: 61151, Start Num: 16

Candidate Starts for FrostedClock\_93:

(Start: 16 @60300 has 47 MA's), (70, 60552), (85, 60618), (100, 60690), (105, 60726), (120, 60780), (153, 60954), (155, 60963), (158, 60981), (183, 61128),

Gene: GUPitcher\_18 Start: 14815, Stop: 15723, Start Num: 12

Candidate Starts for GUPitcher\_18:

(Start: 12 @14815 has 25 MA's), (32, 14911), (33, 14914), (39, 14938), (43, 14950), (72, 15121), (80, 15157), (89, 15190), (90, 15193), (102, 15256), (132, 15391), (147, 15484), (159, 15556), (161, 15571), (170, 15607),

Gene: Galaxy\_17 Start: 12859, Stop: 13677, Start Num: 15

Candidate Starts for Galaxy\_17:

(Start: 15 @12859 has 9 MA's), (27, 12892), (29, 12898), (47, 12985), (48, 12991), (50, 13006), (69, 13114), (97, 13228), (99, 13249), (111, 13321), (113, 13327), (116, 13342), (125, 13363), (133, 13405), (145, 13468), (157, 13546), (158, 13549), (166, 13582), (171, 13606), (176, 13657),

Gene: Gerri43\_19 Start: 11910, Stop: 12815, Start Num: 12

Candidate Starts for Gerri43\_19:

(11, 11904), (Start: 12 @11910 has 25 MA's), (13, 11922), (31, 12000), (52, 12123), (60, 12168), (62, 12177), (71, 12207), (77, 12228), (89, 12282), (95, 12306), (146, 12567), (159, 12648), (173, 12735), (178, 12759), (181, 12783), (185, 12798),

Gene: Gibbzilla\_19 Start: 12866, Stop: 13765, Start Num: 12

Candidate Starts for Gibbzilla\_19:

(Start: 12 @12866 has 25 MA's), (20, 12923), (33, 12959), (34, 12965), (35, 12968), (42, 12992), (49, 13034), (56, 13103), (71, 13157), (112, 13355), (146, 13517), (158, 13592),

Gene: Glenn\_19 Start: 15182, Stop: 16051, Start Num: 16

Candidate Starts for Glenn\_19:

(Start: 16 @15182 has 47 MA's), (43, 15269), (45, 15275), (114, 15650), (118, 15671), (121, 15677), (127, 15704), (128, 15716), (141, 15785), (151, 15845), (154, 15860), (163, 15908), (175, 15986), (181, 16019),

Gene: GoldenEssence\_77 Start: 54608, Stop: 55459, Start Num: 16

Candidate Starts for GoldenEssence\_77:

(Start: 16 @54608 has 47 MA's), (70, 54860), (85, 54926), (100, 54998), (105, 55034), (120, 55088), (153, 55262), (155, 55271), (158, 55289), (183, 55436),

Gene: GoodLuckBabe\_21 Start: 15778, Stop: 16698, Start Num: 12

Candidate Starts for GoodLuckBabe\_21:

(Start: 12 @15778 has 25 MA's), (32, 15874), (51, 15979), (56, 16030), (58, 16036), (60, 16045), (61, 16048), (66, 16069), (82, 16132), (95, 16183), (96, 16186), (104, 16240), (128, 16351), (132, 16366), (134, 16375), (156, 16519), (158, 16525), (159, 16531), (161, 16546), (170, 16582), (180, 16663),

Gene: Graynor\_19 Start: 15188, Stop: 16069, Start Num: 16

Candidate Starts for Graynor\_19:

(Start: 16 @15188 has 47 MA's), (45, 15281), (51, 15341), (63, 15419), (126, 15719), (133, 15755), (139, 15794), (150, 15860), (151, 15863), (154, 15878), (181, 16037),

Gene: GreenHearts\_19 Start: 15265, Stop: 16137, Start Num: 16

Candidate Starts for GreenHearts\_19:

(Start: 16 @15265 has 47 MA's), (45, 15358), (51, 15418), (66, 15508), (76, 15541), (121, 15763), (126, 15787), (127, 15790), (128, 15802), (151, 15931), (154, 15946), (181, 16105),

Gene: Greenhouse\_19 Start: 15189, Stop: 16061, Start Num: 16

Candidate Starts for Greenhouse\_19:

(Start: 16 @15189 has 47 MA's), (45, 15282), (51, 15342), (66, 15432), (121, 15687), (126, 15711), (127, 15714), (128, 15726), (151, 15855), (154, 15870), (181, 16029),

Gene: Guinevere\_21 Start: 15809, Stop: 16729, Start Num: 12

Candidate Starts for Guinevere\_21:

(Start: 12 @15809 has 25 MA's), (32, 15905), (51, 16010), (56, 16061), (58, 16067), (60, 16076), (61, 16079), (66, 16100), (82, 16163), (95, 16214), (104, 16271), (128, 16382), (132, 16397), (134, 16406), (156, 16550), (159, 16562), (161, 16577), (170, 16613), (180, 16694),

Gene: Gusanita\_19 Start: 15698, Stop: 16618, Start Num: 12

Candidate Starts for Gusanita\_19:

(Start: 12 @15698 has 25 MA's), (32, 15794), (56, 15950), (58, 15956), (60, 15965), (61, 15968), (66, 15989), (94, 16100), (96, 16106), (147, 16379), (156, 16439), (158, 16445), (159, 16451), (170, 16502), (180, 16583),

Gene: Halloweekend\_19 Start: 15447, Stop: 16367, Start Num: 12

Candidate Starts for Halloweekend\_19:

(Start: 12 @15447 has 25 MA's), (56, 15699), (60, 15714), (61, 15717), (112, 15957), (156, 16188), (158, 16194), (159, 16200), (170, 16251),

Gene: Huntingdon\_19 Start: 15175, Stop: 16047, Start Num: 16

Candidate Starts for Huntingdon\_19:

(Start: 16 @15175 has 47 MA's), (45, 15268), (66, 15418), (121, 15673), (128, 15712), (151, 15841), (154, 15856), (181, 16015),

Gene: Ichiang\_19 Start: 15464, Stop: 16384, Start Num: 12

Candidate Starts for Ichiang\_19:

(1, 14813), (2, 14945), (6, 15152), (Start: 12 @15464 has 25 MA's), (56, 15716), (60, 15731), (61, 15734), (90, 15848), (112, 15974), (156, 16205), (158, 16211), (159, 16217), (170, 16268),

Gene: Immaculata\_19 Start: 15176, Stop: 16045, Start Num: 16

Candidate Starts for Immaculata\_19:

(Start: 16 @15176 has 47 MA's), (43, 15263), (45, 15269), (104, 15590), (118, 15665), (121, 15671), (127, 15698), (128, 15710), (151, 15839), (154, 15854), (163, 15902), (175, 15980), (181, 16013),

Gene: IsHungry\_21 Start: 15775, Stop: 16695, Start Num: 12

Candidate Starts for IsHungry\_21:

(Start: 12 @15775 has 25 MA's), (32, 15871), (56, 16027), (58, 16033), (61, 16045), (66, 16066), (67, 16069), (90, 16159), (95, 16180), (96, 16183), (156, 16516), (158, 16522), (159, 16528), (170, 16579), (180, 16660),

Gene: Isperia\_23 Start: 15256, Stop: 16134, Start Num: 21

Candidate Starts for Isperia\_23:

(14, 15241), (Start: 21 @15256 has 3 MA's), (59, 15460), (82, 15553), (84, 15559), (88, 15577), (93, 15592), (113, 15712), (119, 15736), (131, 15793), (167, 16000), (172, 16036), (186, 16129),

Gene: Joann\_19 Start: 15169, Stop: 16041, Start Num: 16

Candidate Starts for Joann\_19:

(Start: 16 @15169 has 47 MA's), (45, 15262), (51, 15322), (66, 15412), (121, 15667), (126, 15691), (128, 15706), (151, 15835), (154, 15850), (181, 16009),

Gene: JrWilcox\_70 Start: 35777, Stop: 36652, Start Num: 22

Candidate Starts for JrWilcox\_70:

(Start: 22 @35777 has 1 MA's), (33, 35813), (48, 35885), (57, 35963), (60, 35978), (61, 35981), (74, 36029), (80, 36059), (91, 36098), (124, 36278), (126, 36290), (149, 36422), (153, 36446), (171, 36533), (175, 36581),

Gene: Julie\_21 Start: 16037, Stop: 16957, Start Num: 12

Candidate Starts for Julie\_21:

(6, 15725), (Start: 12 @16037 has 25 MA's), (49, 16220), (56, 16289), (60, 16304), (61, 16307), (78, 16370), (90, 16421), (107, 16529), (112, 16547), (156, 16778), (158, 16784), (159, 16790), (170, 16841),

Gene: Jumboset\_19 Start: 15125, Stop: 15994, Start Num: 16

Candidate Starts for Jumboset\_19:

(Start: 16 @15125 has 47 MA's), (43, 15212), (45, 15218), (114, 15593), (118, 15614), (121, 15620), (127, 15647), (128, 15659), (151, 15788), (154, 15803), (163, 15851), (175, 15929), (181, 15962),

Gene: KSunshine22\_86 Start: 58028, Stop: 58879, Start Num: 17

Candidate Starts for KSunshine22\_86:

(Start: 17 @58028 has 3 MA's), (37, 58094), (70, 58280), (74, 58295), (102, 58427), (105, 58454), (115, 58496), (130, 58550), (154, 58685), (168, 58757), (183, 58856),

Gene: Kalizoi\_19 Start: 15124, Stop: 15993, Start Num: 16

Candidate Starts for Kalizoi\_19:

(Start: 16 @15124 has 47 MA's), (43, 15211), (45, 15217), (114, 15592), (118, 15613), (121, 15619), (127, 15646), (128, 15658), (141, 15727), (151, 15787), (154, 15802), (163, 15850), (175, 15928), (181, 15961),

Gene: KeAlii\_17 Start: 13071, Stop: 13943, Start Num: 15

Candidate Starts for KeAlii\_17:

(Start: 15 @13071 has 9 MA's), (36, 13128), (70, 13323), (101, 13470), (103, 13479), (109, 13515), (118, 13554), (133, 13626), (162, 13791),

Gene: Kihatsu\_22 Start: 16131, Stop: 17051, Start Num: 12

Candidate Starts for Kihatsu\_22:

(Start: 12 @16131 has 25 MA's), (32, 16227), (51, 16332), (56, 16383), (60, 16398), (61, 16401), (66, 16422), (73, 16446), (95, 16536), (96, 16539), (104, 16593), (128, 16704), (132, 16719), (134, 16728),

(156, 16872), (158, 16878), (159, 16884), (161, 16899), (170, 16935), (180, 17016),

Gene: Korra\_20 Start: 15130, Stop: 15999, Start Num: 16

Candidate Starts for Korra\_20:

(Start: 16 @15130 has 47 MA's), (43, 15217), (45, 15223), (104, 15544), (118, 15619), (121, 15625), (128, 15664), (141, 15733), (151, 15793), (154, 15808), (163, 15856), (175, 15934), (181, 15967),

Gene: Kukla\_18 Start: 14545, Stop: 15453, Start Num: 12

Candidate Starts for Kukla\_18:

(3, 14086), (4, 14185), (5, 14191), (7, 14287), (10, 14437), (Start: 12 @14545 has 25 MA's), (32, 14641), (39, 14668), (56, 14791), (69, 14839), (77, 14866), (80, 14887), (81, 14890), (82, 14893), (87, 14911), (96, 14947), (120, 15070), (132, 15121), (134, 15130), (146, 15205), (159, 15286), (180, 15418),

Gene: Lakshmi\_19 Start: 15194, Stop: 16066, Start Num: 16

Candidate Starts for Lakshmi\_19:

(Start: 16 @15194 has 47 MA's), (45, 15287), (51, 15347), (66, 15437), (121, 15692), (126, 15716), (127, 15719), (128, 15731), (151, 15860), (154, 15875), (181, 16034),

Gene: LastNadiia\_21 Start: 14183, Stop: 15088, Start Num: 12

Candidate Starts for LastNadiia\_21:

(11, 14177), (Start: 12 @14183 has 25 MA's), (55, 14423), (67, 14468), (71, 14480), (89, 14555), (122, 14714), (135, 14768), (159, 14921), (173, 15008), (178, 15032), (181, 15056), (185, 15071),

Gene: Laure\_93 Start: 59200, Stop: 60060, Start Num: 18

Candidate Starts for Laure\_93:

(Start: 18 @59200 has 3 MA's), (41, 59284), (58, 59410), (70, 59455), (77, 59479), (99, 59587), (121, 59689), (127, 59710), (137, 59776), (153, 59863), (159, 59896), (168, 59938),

Gene: Lenoxika\_21 Start: 15805, Stop: 16725, Start Num: 12

Candidate Starts for Lenoxika\_21:

(Start: 12 @15805 has 25 MA's), (32, 15901), (51, 16006), (56, 16057), (58, 16063), (60, 16072), (61, 16075), (66, 16096), (82, 16159), (95, 16210), (104, 16267), (128, 16378), (132, 16393), (134, 16402), (156, 16546), (159, 16558), (161, 16573), (170, 16609), (180, 16690),

Gene: LeoJr\_91 Start: 60077, Stop: 60928, Start Num: 18

Candidate Starts for LeoJr\_91:

(Start: 18 @60077 has 3 MA's), (25, 60098), (32, 60122), (37, 60143), (74, 60344), (80, 60377), (82, 60383), (105, 60503), (127, 60581), (139, 60653), (168, 60806), (183, 60905),

Gene: Litotes\_19 Start: 15152, Stop: 16033, Start Num: 16

Candidate Starts for Litotes\_19:

(Start: 16 @15152 has 47 MA's), (45, 15245), (51, 15305), (63, 15383), (126, 15683), (133, 15719), (139, 15758), (150, 15824), (151, 15827), (154, 15842), (181, 16001),

Gene: Makima\_19 Start: 13266, Stop: 14171, Start Num: 12

Candidate Starts for Makima\_19:

(11, 13260), (Start: 12 @13266 has 25 MA's), (62, 13533), (71, 13563), (89, 13638), (107, 13743), (118, 13785), (122, 13797), (135, 13851), (159, 14004), (173, 14091), (178, 14115), (181, 14139), (185, 14154),

Gene: MeganNoll\_19 Start: 15182, Stop: 16051, Start Num: 16

Candidate Starts for MeganNoll\_19:

(Start: 16 @15182 has 47 MA's), (43, 15269), (45, 15275), (114, 15650), (118, 15671), (121, 15677), (127, 15704), (128, 15716), (151, 15845), (154, 15860), (163, 15908), (175, 15986), (181, 16019),

Gene: MillySue\_21 Start: 15823, Stop: 16743, Start Num: 12

Candidate Starts for MillySue\_21:

(Start: 12 @15823 has 25 MA's), (56, 16075), (60, 16090), (61, 16093), (112, 16333), (156, 16564), (158, 16570), (159, 16576), (170, 16627),

Gene: Mimi\_91 Start: 60159, Stop: 61010, Start Num: 16

Candidate Starts for Mimi\_91:

(Start: 16 @60159 has 47 MA's), (70, 60411), (85, 60477), (100, 60549), (105, 60585), (120, 60639), (153, 60813), (155, 60822), (158, 60840), (183, 60987),

Gene: Mireles\_18 Start: 11674, Stop: 12579, Start Num: 12

Candidate Starts for Mireles\_18:

(11, 11668), (Start: 12 @11674 has 25 MA's), (55, 11914), (71, 11971), (75, 11986), (89, 12046), (141, 12298), (150, 12358), (159, 12412), (178, 12523), (181, 12547), (185, 12562),

Gene: Misaeng\_19 Start: 15239, Stop: 16111, Start Num: 16

Candidate Starts for Misaeng\_19:

(Start: 16 @15239 has 47 MA's), (45, 15332), (66, 15482), (83, 15551), (121, 15737), (122, 15743), (128, 15776), (134, 15803), (151, 15905), (154, 15920), (181, 16079),

Gene: MrBoss\_19 Start: 15152, Stop: 16033, Start Num: 16

Candidate Starts for MrBoss\_19:

(Start: 16 @15152 has 47 MA's), (45, 15245), (51, 15305), (63, 15383), (126, 15683), (133, 15719), (139, 15758), (150, 15824), (151, 15827), (154, 15842), (181, 16001),

Gene: MrGloopy\_19 Start: 15116, Stop: 15985, Start Num: 16

Candidate Starts for MrGloopy\_19:

(Start: 16 @15116 has 47 MA's), (43, 15203), (45, 15209), (114, 15584), (118, 15605), (121, 15611), (127, 15638), (128, 15650), (151, 15779), (154, 15794), (163, 15842), (175, 15920), (181, 15953),

Gene: Nandita\_21 Start: 15809, Stop: 16729, Start Num: 12

Candidate Starts for Nandita\_21:

(Start: 12 @15809 has 25 MA's), (32, 15905), (51, 16010), (56, 16061), (58, 16067), (60, 16076), (61, 16079), (66, 16100), (82, 16163), (95, 16214), (104, 16271), (128, 16382), (132, 16397), (134, 16406), (156, 16550), (159, 16562), (161, 16577), (170, 16613), (180, 16694),

Gene: Neuville\_18 Start: 11910, Stop: 12815, Start Num: 12

Candidate Starts for Neuville\_18:

(11, 11904), (Start: 12 @11910 has 25 MA's), (13, 11922), (31, 12000), (52, 12123), (60, 12168), (62, 12177), (71, 12207), (77, 12228), (89, 12282), (95, 12306), (146, 12567), (159, 12648), (173, 12735), (178, 12759), (181, 12783), (185, 12798),

Gene: Nubia\_19 Start: 15154, Stop: 16026, Start Num: 16

Candidate Starts for Nubia\_19:

(Start: 16 @15154 has 47 MA's), (45, 15247), (51, 15307), (66, 15397), (121, 15652), (126, 15676), (127, 15679), (128, 15691), (151, 15820), (154, 15835), (181, 15994),

Gene: ObiToo\_17 Start: 13223, Stop: 14095, Start Num: 15

Candidate Starts for ObiToo\_17:

(Start: 15 @13223 has 9 MA's), (36, 13280), (44, 13310), (70, 13475), (99, 13607), (103, 13631), (120, 13709), (162, 13943), (181, 14063),

Gene: OscarSo\_27 Start: 17801, Stop: 18682, Start Num: 21

Candidate Starts for OscarSo\_27:

(14, 17786), (Start: 21 @17801 has 3 MA's), (38, 17864), (40, 17876), (82, 18098), (93, 18137), (110, 18245), (113, 18257), (119, 18281), (170, 18560),

Gene: Oxynfrius\_19 Start: 15167, Stop: 16039, Start Num: 16

Candidate Starts for Oxynfrius\_19:

(Start: 16 @15167 has 47 MA's), (45, 15260), (51, 15320), (66, 15410), (121, 15665), (127, 15692), (128, 15704), (151, 15833), (154, 15848), (181, 16007),

Gene: Panchaali\_83 Start: 57905, Stop: 58756, Start Num: 18

Candidate Starts for Panchaali\_83:

(Start: 18 @57905 has 3 MA's), (25, 57926), (58, 58112), (70, 58157), (82, 58211), (105, 58331), (120, 58385), (148, 58532), (155, 58568), (165, 58616), (169, 58637), (183, 58733),

Gene: PartyCup\_19 Start: 15199, Stop: 16080, Start Num: 16

Candidate Starts for PartyCup\_19:

(Start: 16 @15199 has 47 MA's), (45, 15292), (51, 15352), (63, 15430), (126, 15730), (133, 15766), (139, 15805), (150, 15871), (151, 15874), (154, 15889), (181, 16048),

Gene: Patbob\_90 Start: 61031, Stop: 61882, Start Num: 16

Candidate Starts for Patbob\_90:

(Start: 16 @61031 has 47 MA's), (70, 61283), (85, 61349), (100, 61421), (105, 61457), (120, 61511), (153, 61685), (155, 61694), (158, 61712), (183, 61859),

Gene: PetriParty\_18 Start: 15448, Stop: 16356, Start Num: 12

Candidate Starts for PetriParty\_18:

(Start: 12 @15448 has 25 MA's), (26, 15523), (32, 15544), (33, 15547), (39, 15571), (43, 15583), (72, 15754), (80, 15790), (89, 15823), (90, 15826), (96, 15850), (102, 15889), (132, 16024), (147, 16117), (159, 16189), (161, 16204),

Gene: Phrampa\_83 Start: 58344, Stop: 59195, Start Num: 16

Candidate Starts for Phrampa\_83:

(Start: 16 @58344 has 47 MA's), (54, 58530), (70, 58596), (85, 58662), (105, 58770), (106, 58779), (111, 58797), (120, 58824), (141, 58929), (155, 59007), (156, 59019), (160, 59043), (183, 59172),

Gene: Popper\_19 Start: 15336, Stop: 16256, Start Num: 12

Candidate Starts for Popper\_19:

(Start: 12 @15336 has 25 MA's), (56, 15588), (58, 15594), (61, 15606), (96, 15744), (120, 15873), (152, 16053), (158, 16083), (159, 16089),

Gene: Potatoes\_19 Start: 15177, Stop: 16046, Start Num: 16

Candidate Starts for Potatoes\_19:

(Start: 16 @15177 has 47 MA's), (43, 15264), (45, 15270), (104, 15591), (118, 15666), (121, 15672), (127, 15699), (128, 15711), (151, 15840), (154, 15855), (163, 15903), (175, 15981), (181, 16014),

Gene: QuinnAvery\_21 Start: 15821, Stop: 16741, Start Num: 12

Candidate Starts for QuinnAvery\_21:

(Start: 12 @15821 has 25 MA's), (56, 16073), (60, 16088), (61, 16091), (112, 16331), (156, 16562), (158, 16568), (159, 16574), (170, 16625),

Gene: RAP15\_19 Start: 15182, Stop: 16051, Start Num: 16

Candidate Starts for RAP15\_19:

(Start: 16 @15182 has 47 MA's), (43, 15269), (45, 15275), (114, 15650), (118, 15671), (121, 15677), (127, 15704), (128, 15716), (151, 15845), (154, 15860), (163, 15908), (175, 15986), (181, 16019),

Gene: Racecar\_92 Start: 60812, Stop: 61663, Start Num: 16

Candidate Starts for Racecar\_92:

(Start: 16 @60812 has 47 MA's), (70, 61064), (85, 61130), (100, 61202), (105, 61238), (120, 61292), (153, 61466), (155, 61475), (158, 61493), (183, 61640),

Gene: RcigaStruga\_19 Start: 15175, Stop: 16047, Start Num: 16

Candidate Starts for RcigaStruga\_19:

(Start: 16 @15175 has 47 MA's), (45, 15268), (66, 15418), (121, 15673), (128, 15712), (151, 15841), (154, 15856), (181, 16015),

Gene: Reedo\_17 Start: 13087, Stop: 13962, Start Num: 15

Candidate Starts for Reedo\_17:

(Start: 15 @13087 has 9 MA's), (36, 13147), (70, 13342), (103, 13498), (109, 13534), (162, 13810),

Gene: ReginaGlobina\_91 Start: 60830, Stop: 61681, Start Num: 18

Candidate Starts for ReginaGlobina\_91:

(Start: 18 @60830 has 3 MA's), (25, 60851), (32, 60875), (37, 60896), (74, 61097), (80, 61130), (82, 61136), (105, 61256), (127, 61334), (139, 61406), (168, 61559), (183, 61658),

Gene: Riverdale\_19 Start: 15112, Stop: 15981, Start Num: 16

Candidate Starts for Riverdale\_19:

(Start: 16 @15112 has 47 MA's), (43, 15199), (45, 15205), (104, 15526), (114, 15580), (118, 15601), (121, 15607), (127, 15634), (128, 15646), (141, 15715), (151, 15775), (154, 15790), (163, 15838), (175, 15916), (181, 15949),

Gene: Roberts\_18 Start: 11910, Stop: 12815, Start Num: 12

Candidate Starts for Roberts\_18:

(11, 11904), (Start: 12 @11910 has 25 MA's), (13, 11922), (31, 12000), (52, 12123), (60, 12168), (62, 12177), (71, 12207), (77, 12228), (89, 12282), (95, 12306), (146, 12567), (159, 12648), (173, 12735), (178, 12759), (181, 12783), (185, 12798),

Gene: Rockabye\_94 Start: 61799, Stop: 62449, Start Num: 56

Candidate Starts for Rockabye\_94:

(Start: 18 @61598 has 3 MA's), (27, 61625), (28, 61628), (56, 61799), (68, 61844), (70, 61850), (91, 61934), (92, 61937), (123, 62090), (141, 62183), (150, 62237), (169, 62330), (177, 62390), (179, 62399), (183, 62426),

Gene: Rozby\_19 Start: 15113, Stop: 15982, Start Num: 16

Candidate Starts for Rozby\_19:

(Start: 16 @15113 has 47 MA's), (43, 15200), (45, 15206), (104, 15527), (114, 15581), (118, 15602), (121, 15608), (127, 15635), (128, 15647), (141, 15716), (151, 15776), (154, 15791), (163, 15839), (175, 15917), (181, 15950),

Gene: Ryan\_21 Start: 15955, Stop: 16875, Start Num: 12

Candidate Starts for Ryan\_21:

(Start: 12 @15955 has 25 MA's), (32, 16051), (51, 16156), (56, 16207), (58, 16213), (60, 16222), (61, 16225), (66, 16246), (82, 16309), (95, 16360), (96, 16363), (104, 16417), (132, 16543), (134, 16552),

(156, 16696), (158, 16702), (159, 16708), (161, 16723), (170, 16759), (180, 16840),

Gene: SJReid\_94 Start: 60651, Stop: 61502, Start Num: 18

Candidate Starts for SJReid\_94:

(Start: 18 @60651 has 3 MA's), (28, 60681), (46, 60750), (56, 60852), (68, 60897), (70, 60903), (105, 61077), (123, 61143), (136, 61215), (141, 61236), (156, 61326), (179, 61452), (183, 61479),

Gene: Saintcarr\_20 Start: 15831, Stop: 16751, Start Num: 12

Candidate Starts for Saintcarr\_20:

(Start: 12 @15831 has 25 MA's), (49, 16014), (56, 16083), (60, 16098), (61, 16101), (90, 16215), (112, 16341), (156, 16572), (158, 16578), (159, 16584), (170, 16635),

Gene: Sashimi\_21 Start: 15164, Stop: 16072, Start Num: 12

Candidate Starts for Sashimi\_21:

(9, 15020), (Start: 12 @15164 has 25 MA's), (32, 15260), (39, 15287), (56, 15410), (64, 15443), (69, 15458), (82, 15512), (90, 15542), (91, 15545), (96, 15566), (132, 15740), (134, 15749), (138, 15779), (146, 15824), (150, 15851), (156, 15893), (158, 15899), (159, 15905),

Gene: Savage2526\_19 Start: 15176, Stop: 16045, Start Num: 16

Candidate Starts for Savage2526\_19:

(Start: 16 @15176 has 47 MA's), (43, 15263), (45, 15269), (114, 15644), (118, 15665), (121, 15671), (127, 15698), (128, 15710), (151, 15839), (154, 15854), (163, 15902), (175, 15980), (181, 16013),

Gene: Schism\_21 Start: 15809, Stop: 16729, Start Num: 12

Candidate Starts for Schism\_21:

(Start: 12 @15809 has 25 MA's), (32, 15905), (51, 16010), (56, 16061), (58, 16067), (60, 16076), (61, 16079), (66, 16100), (82, 16163), (95, 16214), (104, 16271), (128, 16382), (132, 16397), (134, 16406), (156, 16550), (159, 16562), (161, 16577), (170, 16613), (180, 16694),

Gene: Scuttle\_19 Start: 15181, Stop: 16050, Start Num: 16

Candidate Starts for Scuttle\_19:

(Start: 16 @15181 has 47 MA's), (43, 15268), (45, 15274), (114, 15649), (118, 15670), (121, 15676), (128, 15715), (151, 15844), (154, 15859), (163, 15907), (175, 15985), (181, 16018),

Gene: Shambre1\_18 Start: 14673, Stop: 15542, Start Num: 16

Candidate Starts for Shambre1\_18:

(Start: 16 @14673 has 47 MA's), (31, 14718), (39, 14751), (58, 14883), (70, 14928), (71, 14931), (73, 14940), (103, 15084), (117, 15159), (146, 15309), (163, 15402), (175, 15480), (180, 15507), (182, 15516),

Gene: Snek\_17 Start: 12117, Stop: 12995, Start Num: 15

Candidate Starts for Snek\_17:

(Start: 15 @12117 has 9 MA's), (24, 12135), (70, 12375), (73, 12387), (103, 12531), (121, 12612), (133, 12678),

Gene: Spartoi\_15 Start: 11996, Stop: 12856, Start Num: 19

Candidate Starts for Spartoi\_15:

(Start: 19 @11996 has 1 MA's), (33, 12041), (63, 12218), (65, 12227), (88, 12320), (141, 12593), (174, 12788), (176, 12794), (182, 12830),

Gene: Stewart25555\_81 Start: 57329, Stop: 58180, Start Num: 17

Candidate Starts for Stewart25555\_81:

(Start: 17 @57329 has 3 MA's), (41, 57410), (47, 57449), (53, 57512), (57, 57533), (70, 57581), (77, 57605), (105, 57755), (133, 57866), (141, 57914), (155, 57992), (165, 58040), (177, 58121), (183, 58157),

Gene: Studio\_19 Start: 11670, Stop: 12578, Start Num: 12

Candidate Starts for Studio\_19:

(11, 11664), (Start: 12 @11670 has 25 MA's), (13, 11682), (56, 11916), (60, 11931), (86, 12033), (89, 12045), (91, 12051), (95, 12069), (113, 12171), (129, 12234), (132, 12246), (136, 12276), (142, 12306), (159, 12411), (178, 12522), (185, 12561),

Gene: Suppi\_19 Start: 15202, Stop: 16083, Start Num: 16

Candidate Starts for Suppi\_19:

(Start: 16 @15202 has 47 MA's), (45, 15295), (51, 15355), (63, 15433), (126, 15733), (133, 15769), (139, 15808), (150, 15874), (151, 15877), (154, 15892), (181, 16051),

Gene: TMaxx\_18 Start: 11767, Stop: 12675, Start Num: 12

Candidate Starts for TMaxx\_18:

(11, 11761), (Start: 12 @11767 has 25 MA's), (13, 11779), (43, 11902), (89, 12142), (95, 12166), (113, 12268), (159, 12508), (173, 12595), (185, 12658),

Gene: Talia1610\_91 Start: 60177, Stop: 61028, Start Num: 16

Candidate Starts for Talia1610\_91:

(Start: 16 @60177 has 47 MA's), (70, 60429), (85, 60495), (100, 60567), (105, 60603), (120, 60657), (153, 60831), (155, 60840), (158, 60858), (183, 61005),

Gene: TattModd\_19 Start: 15175, Stop: 16044, Start Num: 16

Candidate Starts for TattModd\_19:

(Start: 16 @15175 has 47 MA's), (43, 15262), (45, 15268), (51, 15328), (114, 15643), (118, 15664), (121, 15670), (127, 15697), (128, 15709), (151, 15838), (154, 15853), (163, 15901), (175, 15979), (181, 16012),

Gene: ToastyOats\_23 Start: 16286, Stop: 17206, Start Num: 12

Candidate Starts for ToastyOats\_23:

(Start: 12 @16286 has 25 MA's), (49, 16469), (56, 16538), (60, 16553), (61, 16556), (90, 16670), (112, 16796), (156, 17027), (158, 17033), (159, 17039), (170, 17090),

Gene: Toodles\_22 Start: 16032, Stop: 16952, Start Num: 12

Candidate Starts for Toodles\_22:

(Start: 12 @16032 has 25 MA's), (56, 16284), (60, 16299), (61, 16302), (112, 16542), (156, 16773), (158, 16779), (159, 16785), (170, 16836),

Gene: TripleC\_21 Start: 15266, Stop: 16171, Start Num: 12

Candidate Starts for TripleC\_21:

(11, 15260), (Start: 12 @15266 has 25 MA's), (13, 15278), (20, 15323), (82, 15611), (89, 15638), (150, 15950), (159, 16004), (161, 16019), (169, 16052), (173, 16091), (181, 16139), (185, 16154),

Gene: TripleJ\_19 Start: 15465, Stop: 16373, Start Num: 12

Candidate Starts for TripleJ\_19:

(Start: 12 @15465 has 25 MA's), (26, 15540), (32, 15561), (33, 15564), (39, 15588), (43, 15600), (72, 15771), (80, 15807), (89, 15840), (90, 15843), (96, 15867), (102, 15906), (132, 16041), (147, 16134), (159, 16206), (161, 16221),

Gene: Tweety19\_17 Start: 12116, Stop: 12994, Start Num: 15

Candidate Starts for Tweety19\_17:

(Start: 15 @12116 has 9 MA's), (24, 12134), (70, 12374), (73, 12386), (103, 12530), (121, 12611), (133, 12677),

Gene: VResidence\_17 Start: 13143, Stop: 14015, Start Num: 15

Candidate Starts for VResidence\_17:

(Start: 15 @13143 has 9 MA's), (36, 13200), (70, 13395), (82, 13449), (101, 13542), (103, 13551), (118, 13626), (133, 13698), (142, 13755), (162, 13863),

Gene: ValentiniPuff\_68 Start: 36653, Stop: 37528, Start Num: 22

Candidate Starts for ValentiniPuff\_68:

(Start: 22 @36653 has 1 MA's), (30, 36680), (33, 36689), (48, 36761), (91, 36974), (92, 36977), (98, 37004), (121, 37136), (144, 37262), (156, 37343), (175, 37457),

Gene: Vallejo\_19 Start: 15114, Stop: 15983, Start Num: 16

Candidate Starts for Vallejo\_19:

(Start: 16 @15114 has 47 MA's), (43, 15201), (45, 15207), (51, 15267), (104, 15528), (114, 15582), (118, 15603), (121, 15609), (127, 15636), (128, 15648), (151, 15777), (154, 15792), (163, 15840), (175, 15918), (181, 15951),

Gene: WaddleDee\_79 Start: 56661, Stop: 57512, Start Num: 17

Candidate Starts for WaddleDee\_79:

(Start: 17 @56661 has 3 MA's), (37, 56727), (70, 56913), (105, 57087), (123, 57153), (127, 57165), (153, 57315), (154, 57318), (169, 57393), (183, 57489),

Gene: Wawa\_19 Start: 15151, Stop: 16020, Start Num: 16

Candidate Starts for Wawa\_19:

(Start: 16 @15151 has 47 MA's), (43, 15238), (45, 15244), (104, 15565), (114, 15619), (118, 15640), (121, 15646), (128, 15685), (141, 15754), (151, 15814), (154, 15829), (163, 15877), (164, 15880), (175, 15955), (181, 15988),

Gene: Wayne\_19 Start: 15248, Stop: 16129, Start Num: 16

Candidate Starts for Wayne\_19:

(Start: 16 @15248 has 47 MA's), (45, 15341), (51, 15401), (63, 15479), (126, 15779), (133, 15815), (139, 15854), (150, 15920), (151, 15923), (154, 15938), (181, 16097),

Gene: Wyvern\_25 Start: 16066, Stop: 16947, Start Num: 21

Candidate Starts for Wyvern\_25:

(14, 16051), (Start: 21 @16066 has 3 MA's), (59, 16273), (80, 16360), (82, 16366), (84, 16372), (93, 16405), (108, 16507), (113, 16525), (131, 16606), (167, 16813), (172, 16849), (179, 16897), (181, 16915),

Gene: Yonex\_21 Start: 15955, Stop: 16875, Start Num: 12

Candidate Starts for Yonex\_21:

(Start: 12 @15955 has 25 MA's), (32, 16051), (51, 16156), (56, 16207), (58, 16213), (60, 16222), (61, 16225), (66, 16246), (82, 16309), (95, 16360), (96, 16363), (104, 16417), (132, 16543), (134, 16552), (156, 16696), (158, 16702), (159, 16708), (161, 16723), (170, 16759), (180, 16840),

Gene: Zaheer\_21 Start: 16044, Stop: 16964, Start Num: 12

Candidate Starts for Zaheer\_21:

(Start: 12 @16044 has 25 MA's), (32, 16140), (51, 16245), (56, 16296), (58, 16302), (60, 16311), (61, 16314), (66, 16335), (82, 16398), (95, 16449), (96, 16452), (104, 16506), (132, 16632), (134, 16641), (156, 16785), (158, 16791), (159, 16797), (161, 16812), (170, 16848), (180, 16929),

Gene: Zorro\_19 Start: 15130, Stop: 15999, Start Num: 16

Candidate Starts for Zorro\_19:

(Start: 16 @15130 has 47 MA's), (43, 15217), (45, 15223), (114, 15598), (118, 15619), (121, 15625), (127, 15652), (128, 15664), (141, 15733), (151, 15793), (154, 15808), (163, 15856), (175, 15934), (181, 15967),