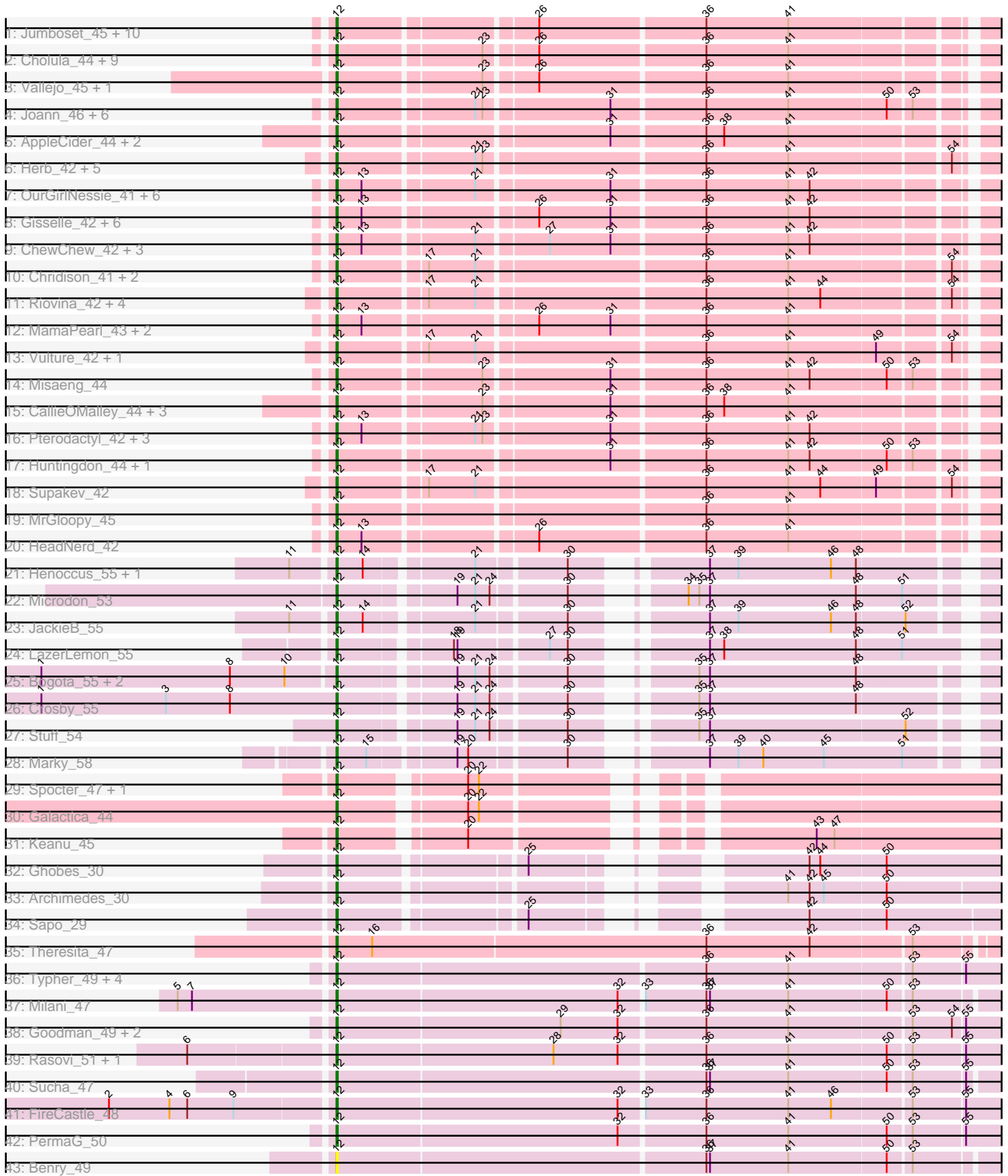


Pham 163454



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 163454 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163454 has 118 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Jumboset\_45, MeganNoll\_44, Zorro\_45, Wawa\_44, BigMack\_42, Dino\_45, RAP15\_45, Glenn\_45, Savage2526\_45, Rozby\_44, Korra\_44
- Track 2 : Cholula\_44, TattModd\_43, Beethoven\_44, Immaculata\_44, Scuttle\_44, BrotherBLo\_44, Kalizoi\_45, Carpal\_44, Potatoes\_44, Fluke\_45
- Track 3 : Vallejo\_45, Riverdale\_45
- Track 4 : Joann\_46, GreenHearts\_46, Lakshmi\_45, Nubia\_45, Oxynfrius\_45, Albanese\_45, Greenhouse\_46
- Track 5 : AppleCider\_44, Litotes\_44, PartyCup\_47
- Track 6 : Herb\_42, Daiboju\_42, Maria1952\_41, KingBob\_42, Sergei\_42, Temper16\_42
- Track 7 : OurGirlNessie\_41, Lennox\_42, Christian\_42, Lucy\_42, WonderBoy\_41, Lasagna\_41, Bodacious\_42
- Track 8 : Gisselle\_42, DreamTeam\_42, Moki\_42, Preamble\_43, Urla\_43, Huckleberry\_42, Bennie\_42
- Track 9 : ChewChew\_42, CristinaYang\_42, LilStuart\_42, Nancia\_42
- Track 10 : Chridison\_41, PinkFriday\_42, Pumancara\_42
- Track 11 : Riovina\_42, AustinPowers\_43, OMalley\_42, Eunoia\_42, Aledel\_42
- Track 12 : MamaPearl\_43, EstebanJulior\_43, Kittykat\_44
- Track 13 : Vulture\_42, HunterDalle\_42
- Track 14 : Misaeng\_44
- Track 15 : CallieOMalley\_44, Wayne\_44, Suppi\_44, Canowicakte\_44
- Track 16 : Pterodactyl\_42, DrRobert\_41, Makoto\_42, PitaDog\_43
- Track 17 : Huntingdon\_44, RcigaStruga\_44
- Track 18 : Supakev\_42
- Track 19 : MrGloopy\_45
- Track 20 : HeadNerd\_42
- Track 21 : Henoccus\_55, Araceli\_54
- Track 22 : Microdon\_53
- Track 23 : JackieB\_55
- Track 24 : LazerLemon\_55
- Track 25 : Bogota\_55, UNTPL\_56, Intolerant\_52
- Track 26 : Crosby\_55
- Track 27 : Stuff\_54
- Track 28 : Marky\_58
- Track 29 : Spocter\_47, Hiyaa\_46
- Track 30 : Galactica\_44
- Track 31 : Keanu\_45

- Track 32 : Ghobes\_30
- Track 33 : Archimedes\_30
- Track 34 : Sapo\_29
- Track 35 : Theresita\_47
- Track 36 : Typher\_49, Zanella\_48, Jera\_49, TurboVicky\_49, SBlackberry\_47
- Track 37 : Milani\_47
- Track 38 : Goodman\_49, Cicada\_50, Johann\_49
- Track 39 : Rasovi\_51, Htur\_48
- Track 40 : Sucha\_47
- Track 41 : FireCastle\_48
- Track 42 : PermaG\_50
- Track 43 : Benry\_49

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

The start number called the most often in the published annotations is 12, it was called in 111 of the 111 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Albanese\_45, Aledel\_42, AppleCider\_44, Araceli\_54, Archimedes\_30, AustinPowers\_43, Beethoven\_44, Bennie\_42, Benry\_49, BigMack\_42, Bodacious\_42, Bogota\_55, BrotherBLo\_44, CallieOMalley\_44, Canowicakte\_44, Carpal\_44, ChewChew\_42, Cholula\_44, Chridison\_41, Christian\_42, Cicada\_50, CristinaYang\_42, Crosby\_55, Daiboju\_42, Dino\_45, DrRobert\_41, DreamTeam\_42, EstebanJulior\_43, Eunoia\_42, FireCastle\_48, Fluke\_45, Galactica\_44, Ghobes\_30, Gisselle\_42, Glenn\_45, Goodman\_49, GreenHearts\_46, Greenhouse\_46, HeadNerd\_42, Henoccus\_55, Herb\_42, Hiyaa\_46, Htur\_48, Huckleberry\_42, HunterDalle\_42, Huntingdon\_44, Immaculata\_44, Intolerant\_52, JackieB\_55, Jera\_49, Joann\_46, Johann\_49, Jumboset\_45, Kalizoi\_45, Keanu\_45, KingBob\_42, Kittykat\_44, Korra\_44, Lakshmi\_45, Lasagna\_41, LazerLemon\_55, Lennox\_42, LilStuart\_42, Litotes\_44, Lucy\_42, Makoto\_42, MamaPearl\_43, Maria1952\_41, Marky\_58, MeganNoll\_44, Microdon\_53, Milani\_47, Misaeng\_44, Moki\_42, MrGloopy\_45, Nancia\_42, Nubia\_45, OMalley\_42, OurGirlNessie\_41, Oxynfrius\_45, PartyCup\_47, PermaG\_50, PinkFriday\_42, PitaDog\_43, Potatoes\_44, Preamble\_43, Pterodactyl\_42, Pumancara\_42, RAP15\_45, Rasovi\_51, RcigaStruga\_44, Rivovina\_42, Riverdale\_45, Rozby\_44, SBlackberry\_47, Sapo\_29, Savage2526\_45, Scuttle\_44, Sergei\_42, Spocter\_47, Stuff\_54, Sucha\_47, Supakev\_42, Suppi\_44, TattModd\_43, Temper16\_42, Theresita\_47, TurboVicky\_49, Typher\_49, UNTPL\_56, Urla\_43, Vallejo\_45, Vulture\_42, Wawa\_44, Wayne\_44, WonderBoy\_41, Zanella\_48, Zorro\_45,

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

- 

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

- 

**Summary by start number:**

Start 12:

- Found in 118 of 118 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 111 of 111
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Albanese\_45 (AK), Aledel\_42 (AK), AppleCider\_44 (AK), Araceli\_54 (BH), Archimedes\_30 (DA), AustinPowers\_43 (AK), Beethoven\_44 (AK), Bennie\_42 (AK), Benry\_49 (EJ), BigMack\_42 (AK), Bodacious\_42 (AK), Bogota\_55 (BH), BrotherBLo\_44 (AK), CallieOMalley\_44 (AK), Canowicakte\_44 (AK), Carpal\_44 (AK), ChewChew\_42 (AK), Cholula\_44 (AK), Chridison\_41 (AK), Christian\_42 (AK), Cicada\_50 (EJ), CristinaYang\_42 (AK), Crosby\_55 (BH), Daiboju\_42 (AK), Dino\_45 (AK), DrRobert\_41 (AK), DreamTeam\_42 (AK), EstebanJulior\_43 (AK), Eunoia\_42 (AK), FireCastle\_48 (EJ), Fluke\_45 (AK), Galactica\_44 (BQ), Ghobes\_30 (DA), Gisselle\_42 (AK), Glenn\_45 (AK), Goodman\_49 (EJ), GreenHearts\_46 (AK), Greenhouse\_46 (AK), HeadNerd\_42 (AK), Henoccus\_55 (BH), Herb\_42 (AK), Hiyaa\_46 (BQ), Htur\_48 (EJ), Huckleberry\_42 (AK), HunterDalle\_42 (AK), Huntingdon\_44 (AK), Immaculata\_44 (AK), Intolerant\_52 (BH), JackieB\_55 (BH), Jera\_49 (EJ), Joann\_46 (AK), Johann\_49 (EJ), Jumboset\_45 (AK), Kalizoi\_45 (AK), Keanu\_45 (BQ), KingBob\_42 (AK), Kittykat\_44 (AK), Korra\_44 (AK), Lakshmi\_45 (AK), Lasagna\_41 (AK), LazerLemon\_55 (BH), Lennox\_42 (AK), LilStuart\_42 (AK), Litotes\_44 (AK), Lucy\_42 (AK), Makoto\_42 (AK), MamaPearl\_43 (AK), Maria1952\_41 (AK), Marky\_58 (BH), MeganNoll\_44 (AK), Microdon\_53 (BH), Milani\_47 (EJ), Misaeng\_44 (AK), Moki\_42 (AK), MrGloopy\_45 (AK), Nancia\_42 (AK), Nubia\_45 (AK), OMalley\_42 (AK), OurGirlNessie\_41 (AK), Oxyfrius\_45 (AK), PartyCup\_47 (AK), PermaG\_50 (EJ), PinkFriday\_42 (AK), PitaDog\_43 (AK), Potatoes\_44 (AK), Preamble\_43 (AK), Pterodactyl\_42 (AK), Pumancara\_42 (AK), RAP15\_45 (AK), Rasovi\_51 (EJ), RcigaStruga\_44 (AK), Rivovina\_42 (AK), Riverdale\_45 (AK), Rozby\_44 (AK), SBlackberry\_47 (EJ), Sapo\_29 (DA), Savage2526\_45 (AK), Scuttle\_44 (AK), Sergei\_42 (AK), Spocter\_47 (BQ), Stuff\_54 (BH), Sucha\_47 (EJ), Supakev\_42 (AK), Suppi\_44 (AK), TattModd\_43 (AK), Temper16\_42 (AK), Theresita\_47 (EA7), TurboVicky\_49 (EJ), Typher\_49 (EJ), UNTPL\_56 (BH), Urla\_43 (AK), Vallejo\_45 (AK), Vulture\_42 (AK), Wawa\_44 (AK), Wayne\_44 (AK), WonderBoy\_41 (AK), Zanella\_48 (EJ), Zorro\_45 (AK),

### Summary by clusters:

There are 6 clusters represented in this pham: EJ, AK, BH, DA, BQ, EA7,

Info for manual annotations of cluster AK:

- Start number 12 was manually annotated 80 times for cluster AK.

Info for manual annotations of cluster BH:

- Start number 12 was manually annotated 11 times for cluster BH.

Info for manual annotations of cluster BQ:

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

Info for manual annotations of cluster DA:

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

Info for manual annotations of cluster EA7:

- Start number 12 was manually annotated 1 time for cluster EA7.

Info for manual annotations of cluster EJ:

- Start number 12 was manually annotated 13 times for cluster EJ.

**Gene Information:**

Gene: Albanese\_45 Start: 30570, Stop: 31082, Start Num: 12

Candidate Starts for Albanese\_45:

(Start: 12 @30570 has 111 MA's), (21, 30678), (23, 30684), (31, 30783), (36, 30858), (41, 30927), (50, 31008), (53, 31026),

Gene: Aledel\_42 Start: 29939, Stop: 30451, Start Num: 12

Candidate Starts for Aledel\_42:

(Start: 12 @29939 has 111 MA's), (17, 30008), (21, 30047), (36, 30227), (41, 30296), (44, 30323), (54, 30422),

Gene: AppleCider\_44 Start: 29981, Stop: 30493, Start Num: 12

Candidate Starts for AppleCider\_44:

(Start: 12 @29981 has 111 MA's), (31, 30194), (36, 30269), (38, 30284), (41, 30338),

Gene: Araceli\_54 Start: 38538, Stop: 39008, Start Num: 12

Candidate Starts for Araceli\_54:

(11, 38505), (Start: 12 @38538 has 111 MA's), (14, 38559), (21, 38640), (30, 38709), (37, 38790), (39, 38814), (46, 38892), (48, 38913),

Gene: Archimedes\_30 Start: 28177, Stop: 27710, Start Num: 12

Candidate Starts for Archimedes\_30:

(Start: 12 @28177 has 111 MA's), (41, 27886), (42, 27868), (45, 27856), (50, 27805),

Gene: AustinPowers\_43 Start: 29937, Stop: 30449, Start Num: 12

Candidate Starts for AustinPowers\_43:

(Start: 12 @29937 has 111 MA's), (17, 30006), (21, 30045), (36, 30225), (41, 30294), (44, 30321), (54, 30420),

Gene: Beethoven\_44 Start: 29923, Stop: 30435, Start Num: 12

Candidate Starts for Beethoven\_44:

(Start: 12 @29923 has 111 MA's), (23, 30037), (26, 30076), (36, 30211), (41, 30280),

Gene: Bennie\_42 Start: 28740, Stop: 29252, Start Num: 12

Candidate Starts for Bennie\_42:

(Start: 12 @28740 has 111 MA's), (13, 28761), (26, 28893), (31, 28953), (36, 29028), (41, 29097), (42, 29115),

Gene: Benry\_49 Start: 30452, Stop: 30991, Start Num: 12

Candidate Starts for Benry\_49:

(Start: 12 @30452 has 111 MA's), (36, 30755), (37, 30758), (41, 30824), (50, 30905), (53, 30923),

Gene: BigMack\_42 Start: 28834, Stop: 29346, Start Num: 12

Candidate Starts for BigMack\_42:

(Start: 12 @28834 has 111 MA's), (26, 28987), (36, 29122), (41, 29191),

Gene: Bodacious\_42 Start: 28801, Stop: 29313, Start Num: 12

Candidate Starts for Bodacious\_42:

(Start: 12 @28801 has 111 MA's), (13, 28822), (21, 28909), (31, 29014), (36, 29089), (41, 29158), (42, 29176),

Gene: Bogota\_55 Start: 38866, Stop: 39336, Start Num: 12

Candidate Starts for Bogota\_55:

(1, 38623), (8, 38782), (10, 38827), (Start: 12 @38866 has 111 MA's), (19, 38953), (21, 38968), (24, 38980), (30, 39037), (35, 39109), (37, 39118), (48, 39241),

Gene: BrotherBLo\_44 Start: 29955, Stop: 30467, Start Num: 12

Candidate Starts for BrotherBLo\_44:

(Start: 12 @29955 has 111 MA's), (23, 30069), (26, 30108), (36, 30243), (41, 30312),

Gene: CallieOMalley\_44 Start: 29981, Stop: 30493, Start Num: 12

Candidate Starts for CallieOMalley\_44:

(Start: 12 @29981 has 111 MA's), (23, 30095), (31, 30194), (36, 30269), (38, 30284), (41, 30338),

Gene: Canowicakte\_44 Start: 30016, Stop: 30528, Start Num: 12

Candidate Starts for Canowicakte\_44:

(Start: 12 @30016 has 111 MA's), (23, 30130), (31, 30229), (36, 30304), (38, 30319), (41, 30373),

Gene: Carpal\_44 Start: 29935, Stop: 30447, Start Num: 12

Candidate Starts for Carpal\_44:

(Start: 12 @29935 has 111 MA's), (23, 30049), (26, 30088), (36, 30223), (41, 30292),

Gene: ChewChew\_42 Start: 28932, Stop: 29444, Start Num: 12

Candidate Starts for ChewChew\_42:

(Start: 12 @28932 has 111 MA's), (13, 28953), (21, 29040), (27, 29094), (31, 29145), (36, 29220), (41, 29289), (42, 29307),

Gene: Cholula\_44 Start: 29981, Stop: 30493, Start Num: 12

Candidate Starts for Cholula\_44:

(Start: 12 @29981 has 111 MA's), (23, 30095), (26, 30134), (36, 30269), (41, 30338),

Gene: Chridison\_41 Start: 29870, Stop: 30382, Start Num: 12

Candidate Starts for Chridison\_41:

(Start: 12 @29870 has 111 MA's), (17, 29939), (21, 29978), (36, 30158), (41, 30227), (54, 30353),

Gene: Christian\_42 Start: 28789, Stop: 29301, Start Num: 12

Candidate Starts for Christian\_42:

(Start: 12 @28789 has 111 MA's), (13, 28810), (21, 28897), (31, 29002), (36, 29077), (41, 29146), (42, 29164),

Gene: Cicada\_50 Start: 31830, Stop: 32375, Start Num: 12

Candidate Starts for Cicada\_50:

(Start: 12 @31830 has 111 MA's), (29, 32016), (32, 32064), (36, 32133), (41, 32202), (53, 32301), (54, 32334), (55, 32343),

Gene: CristinaYang\_42 Start: 28928, Stop: 29440, Start Num: 12

Candidate Starts for CristinaYang\_42:

(Start: 12 @28928 has 111 MA's), (13, 28949), (21, 29036), (27, 29090), (31, 29141), (36, 29216), (41, 29285), (42, 29303),

Gene: Crosby\_55 Start: 38632, Stop: 39102, Start Num: 12

Candidate Starts for Crosby\_55:

(1, 38383), (3, 38488), (8, 38542), (Start: 12 @38632 has 111 MA's), (19, 38719), (21, 38734), (24, 38746), (30, 38803), (35, 38875), (37, 38884), (48, 39007),

Gene: Daiboju\_42 Start: 29951, Stop: 30463, Start Num: 12

Candidate Starts for Daiboju\_42:

(Start: 12 @29951 has 111 MA's), (21, 30059), (23, 30065), (36, 30239), (41, 30308), (54, 30434),

Gene: Dino\_45 Start: 30082, Stop: 30594, Start Num: 12

Candidate Starts for Dino\_45:

(Start: 12 @30082 has 111 MA's), (26, 30235), (36, 30370), (41, 30439),

Gene: DrRobert\_41 Start: 28569, Stop: 29081, Start Num: 12

Candidate Starts for DrRobert\_41:

(Start: 12 @28569 has 111 MA's), (13, 28590), (21, 28677), (23, 28683), (31, 28782), (36, 28857), (41, 28926), (42, 28944),

Gene: DreamTeam\_42 Start: 28898, Stop: 29410, Start Num: 12

Candidate Starts for DreamTeam\_42:

(Start: 12 @28898 has 111 MA's), (13, 28919), (26, 29051), (31, 29111), (36, 29186), (41, 29255), (42, 29273),

Gene: EstebanJulior\_43 Start: 29947, Stop: 30459, Start Num: 12

Candidate Starts for EstebanJulior\_43:

(Start: 12 @29947 has 111 MA's), (13, 29968), (26, 30100), (31, 30160), (36, 30235), (41, 30304),

Gene: Eunoia\_42 Start: 29939, Stop: 30451, Start Num: 12

Candidate Starts for Eunoia\_42:

(Start: 12 @29939 has 111 MA's), (17, 30008), (21, 30047), (36, 30227), (41, 30296), (44, 30323), (54, 30422),

Gene: FireCastle\_48 Start: 31729, Stop: 32274, Start Num: 12

Candidate Starts for FireCastle\_48:

(2, 31546), (4, 31597), (6, 31612), (9, 31651), (Start: 12 @31729 has 111 MA's), (32, 31963), (33, 31981), (36, 32032), (41, 32101), (46, 32137), (53, 32200), (55, 32242),

Gene: Fluke\_45 Start: 30198, Stop: 30710, Start Num: 12

Candidate Starts for Fluke\_45:

(Start: 12 @30198 has 111 MA's), (23, 30312), (26, 30351), (36, 30486), (41, 30555),

Gene: Galactica\_44 Start: 32161, Stop: 32637, Start Num: 12

Candidate Starts for Galactica\_44:

(Start: 12 @32161 has 111 MA's), (20, 32254), (22, 32263),

Gene: Ghobes\_30 Start: 28065, Stop: 27595, Start Num: 12

Candidate Starts for Ghobes\_30:

(Start: 12 @28065 has 111 MA's), (25, 27924), (42, 27756), (44, 27747), (50, 27693),

Gene: Gisselle\_42 Start: 28898, Stop: 29410, Start Num: 12

Candidate Starts for Gisselle\_42:

(Start: 12 @28898 has 111 MA's), (13, 28919), (26, 29051), (31, 29111), (36, 29186), (41, 29255), (42, 29273),

Gene: Glenn\_45 Start: 30189, Stop: 30701, Start Num: 12  
Candidate Starts for Glenn\_45:  
(Start: 12 @30189 has 111 MA's), (26, 30342), (36, 30477), (41, 30546),

Gene: Goodman\_49 Start: 31598, Stop: 32143, Start Num: 12  
Candidate Starts for Goodman\_49:  
(Start: 12 @31598 has 111 MA's), (29, 31784), (32, 31832), (36, 31901), (41, 31970), (53, 32069), (54, 32102), (55, 32111),

Gene: GreenHearts\_46 Start: 30865, Stop: 31377, Start Num: 12  
Candidate Starts for GreenHearts\_46:  
(Start: 12 @30865 has 111 MA's), (21, 30973), (23, 30979), (31, 31078), (36, 31153), (41, 31222), (50, 31303), (53, 31321),

Gene: Greenhouse\_46 Start: 30581, Stop: 31093, Start Num: 12  
Candidate Starts for Greenhouse\_46:  
(Start: 12 @30581 has 111 MA's), (21, 30689), (23, 30695), (31, 30794), (36, 30869), (41, 30938), (50, 31019), (53, 31037),

Gene: HeadNerd\_42 Start: 28739, Stop: 29251, Start Num: 12  
Candidate Starts for HeadNerd\_42:  
(Start: 12 @28739 has 111 MA's), (13, 28760), (26, 28892), (36, 29027), (41, 29096),

Gene: Henoccus\_55 Start: 38561, Stop: 39031, Start Num: 12  
Candidate Starts for Henoccus\_55:  
(11, 38528), (Start: 12 @38561 has 111 MA's), (14, 38582), (21, 38663), (30, 38732), (37, 38813), (39, 38837), (46, 38915), (48, 38936),

Gene: Herb\_42 Start: 29950, Stop: 30462, Start Num: 12  
Candidate Starts for Herb\_42:  
(Start: 12 @29950 has 111 MA's), (21, 30058), (23, 30064), (36, 30238), (41, 30307), (54, 30433),

Gene: Hiyaa\_46 Start: 33634, Stop: 34110, Start Num: 12  
Candidate Starts for Hiyaa\_46:  
(Start: 12 @33634 has 111 MA's), (20, 33727), (22, 33736),

Gene: Htur\_48 Start: 32095, Stop: 32640, Start Num: 12  
Candidate Starts for Htur\_48:  
(6, 31981), (Start: 12 @32095 has 111 MA's), (28, 32275), (32, 32329), (36, 32398), (41, 32467), (50, 32548), (53, 32566), (55, 32608),

Gene: Huckleberry\_42 Start: 28722, Stop: 29234, Start Num: 12  
Candidate Starts for Huckleberry\_42:  
(Start: 12 @28722 has 111 MA's), (13, 28743), (26, 28875), (31, 28935), (36, 29010), (41, 29079), (42, 29097),

Gene: HunterDalle\_42 Start: 29870, Stop: 30382, Start Num: 12  
Candidate Starts for HunterDalle\_42:  
(Start: 12 @29870 has 111 MA's), (17, 29939), (21, 29978), (36, 30158), (41, 30227), (49, 30299), (54, 30353),

Gene: Huntingdon\_44 Start: 30396, Stop: 30908, Start Num: 12  
Candidate Starts for Huntingdon\_44:



(Start: 12 @30396 has 111 MA's), (31, 30609), (36, 30684), (41, 30753), (42, 30771), (50, 30834), (53, 30852),

Gene: Immaculata\_44 Start: 29981, Stop: 30493, Start Num: 12

Candidate Starts for Immaculata\_44:

(Start: 12 @29981 has 111 MA's), (23, 30095), (26, 30134), (36, 30269), (41, 30338),

Gene: Intolerant\_52 Start: 38567, Stop: 39037, Start Num: 12

Candidate Starts for Intolerant\_52:

(1, 38324), (8, 38483), (10, 38528), (Start: 12 @38567 has 111 MA's), (19, 38654), (21, 38669), (24, 38681), (30, 38738), (35, 38810), (37, 38819), (48, 38942),

Gene: JackieB\_55 Start: 38393, Stop: 38863, Start Num: 12

Candidate Starts for JackieB\_55:

(11, 38360), (Start: 12 @38393 has 111 MA's), (14, 38414), (21, 38495), (30, 38564), (37, 38645), (39, 38669), (46, 38747), (48, 38768), (52, 38807),

Gene: Jera\_49 Start: 30464, Stop: 31009, Start Num: 12

Candidate Starts for Jera\_49:

(Start: 12 @30464 has 111 MA's), (36, 30767), (41, 30836), (53, 30935), (55, 30977),

Gene: Joann\_46 Start: 30656, Stop: 31168, Start Num: 12

Candidate Starts for Joann\_46:

(Start: 12 @30656 has 111 MA's), (21, 30764), (23, 30770), (31, 30869), (36, 30944), (41, 31013), (50, 31094), (53, 31112),

Gene: Johann\_49 Start: 31598, Stop: 32143, Start Num: 12

Candidate Starts for Johann\_49:

(Start: 12 @31598 has 111 MA's), (29, 31784), (32, 31832), (36, 31901), (41, 31970), (53, 32069), (54, 32102), (55, 32111),

Gene: Jumboset\_45 Start: 30097, Stop: 30609, Start Num: 12

Candidate Starts for Jumboset\_45:

(Start: 12 @30097 has 111 MA's), (26, 30250), (36, 30385), (41, 30454),

Gene: Kalizoi\_45 Start: 29922, Stop: 30434, Start Num: 12

Candidate Starts for Kalizoi\_45:

(Start: 12 @29922 has 111 MA's), (23, 30036), (26, 30075), (36, 30210), (41, 30279),

Gene: Keanu\_45 Start: 33308, Stop: 33784, Start Num: 12

Candidate Starts for Keanu\_45:

(Start: 12 @33308 has 111 MA's), (20, 33401), (43, 33629), (47, 33644),

Gene: KingBob\_42 Start: 29951, Stop: 30463, Start Num: 12

Candidate Starts for KingBob\_42:

(Start: 12 @29951 has 111 MA's), (21, 30059), (23, 30065), (36, 30239), (41, 30308), (54, 30434),

Gene: Kittykat\_44 Start: 29193, Stop: 29705, Start Num: 12

Candidate Starts for Kittykat\_44:

(Start: 12 @29193 has 111 MA's), (13, 29214), (26, 29346), (31, 29406), (36, 29481), (41, 29550),

Gene: Korra\_44 Start: 29934, Stop: 30446, Start Num: 12

Candidate Starts for Korra\_44:

(Start: 12 @29934 has 111 MA's), (26, 30087), (36, 30222), (41, 30291),

Gene: Lakshmi\_45 Start: 30544, Stop: 31056, Start Num: 12

Candidate Starts for Lakshmi\_45:

(Start: 12 @30544 has 111 MA's), (21, 30652), (23, 30658), (31, 30757), (36, 30832), (41, 30901), (50, 30982), (53, 31000),

Gene: Lasagna\_41 Start: 28567, Stop: 29079, Start Num: 12

Candidate Starts for Lasagna\_41:

(Start: 12 @28567 has 111 MA's), (13, 28588), (21, 28675), (31, 28780), (36, 28855), (41, 28924), (42, 28942),

Gene: LazerLemon\_55 Start: 39090, Stop: 39566, Start Num: 12

Candidate Starts for LazerLemon\_55:

(Start: 12 @39090 has 111 MA's), (18, 39174), (19, 39177), (27, 39246), (30, 39261), (37, 39342), (38, 39354), (48, 39465), (51, 39501),

Gene: Lennox\_42 Start: 28775, Stop: 29287, Start Num: 12

Candidate Starts for Lennox\_42:

(Start: 12 @28775 has 111 MA's), (13, 28796), (21, 28883), (31, 28988), (36, 29063), (41, 29132), (42, 29150),

Gene: LilStuart\_42 Start: 28916, Stop: 29428, Start Num: 12

Candidate Starts for LilStuart\_42:

(Start: 12 @28916 has 111 MA's), (13, 28937), (21, 29024), (27, 29078), (31, 29129), (36, 29204), (41, 29273), (42, 29291),

Gene: Litotes\_44 Start: 29969, Stop: 30481, Start Num: 12

Candidate Starts for Litotes\_44:

(Start: 12 @29969 has 111 MA's), (31, 30182), (36, 30257), (38, 30272), (41, 30326),

Gene: Lucy\_42 Start: 28913, Stop: 29425, Start Num: 12

Candidate Starts for Lucy\_42:

(Start: 12 @28913 has 111 MA's), (13, 28934), (21, 29021), (31, 29126), (36, 29201), (41, 29270), (42, 29288),

Gene: Makoto\_42 Start: 28786, Stop: 29298, Start Num: 12

Candidate Starts for Makoto\_42:

(Start: 12 @28786 has 111 MA's), (13, 28807), (21, 28894), (23, 28900), (31, 28999), (36, 29074), (41, 29143), (42, 29161),

Gene: MamaPearl\_43 Start: 29947, Stop: 30459, Start Num: 12

Candidate Starts for MamaPearl\_43:

(Start: 12 @29947 has 111 MA's), (13, 29968), (26, 30100), (31, 30160), (36, 30235), (41, 30304),

Gene: Maria1952\_41 Start: 29950, Stop: 30462, Start Num: 12

Candidate Starts for Maria1952\_41:

(Start: 12 @29950 has 111 MA's), (21, 30058), (23, 30064), (36, 30238), (41, 30307), (54, 30433),

Gene: Marky\_58 Start: 39550, Stop: 40026, Start Num: 12

Candidate Starts for Marky\_58:

(Start: 12 @39550 has 111 MA's), (15, 39574), (19, 39640), (20, 39649), (30, 39724), (37, 39805), (39, 39829), (40, 39850), (45, 39901), (51, 39967),

Gene: MeganNoll\_44 Start: 30154, Stop: 30666, Start Num: 12  
Candidate Starts for MeganNoll\_44:  
(Start: 12 @30154 has 111 MA's), (26, 30307), (36, 30442), (41, 30511),

Gene: Microdon\_53 Start: 38365, Stop: 38835, Start Num: 12  
Candidate Starts for Microdon\_53:  
(Start: 12 @38365 has 111 MA's), (19, 38452), (21, 38467), (24, 38479), (30, 38536), (34, 38599), (35, 38608), (37, 38617), (48, 38740), (51, 38776),

Gene: Milani\_47 Start: 31092, Stop: 31631, Start Num: 12  
Candidate Starts for Milani\_47:  
(5, 30966), (7, 30978), (Start: 12 @31092 has 111 MA's), (32, 31326), (33, 31344), (36, 31395), (37, 31398), (41, 31464), (50, 31545), (53, 31563),

Gene: Misaeng\_44 Start: 30521, Stop: 31033, Start Num: 12  
Candidate Starts for Misaeng\_44:  
(Start: 12 @30521 has 111 MA's), (23, 30635), (31, 30734), (36, 30809), (41, 30878), (42, 30896), (50, 30959), (53, 30977),

Gene: Moki\_42 Start: 28886, Stop: 29398, Start Num: 12  
Candidate Starts for Moki\_42:  
(Start: 12 @28886 has 111 MA's), (13, 28907), (26, 29039), (31, 29099), (36, 29174), (41, 29243), (42, 29261),

Gene: MrGloopy\_45 Start: 30083, Stop: 30595, Start Num: 12  
Candidate Starts for MrGloopy\_45:  
(Start: 12 @30083 has 111 MA's), (36, 30371), (41, 30440),

Gene: Nancia\_42 Start: 28801, Stop: 29313, Start Num: 12  
Candidate Starts for Nancia\_42:  
(Start: 12 @28801 has 111 MA's), (13, 28822), (21, 28909), (27, 28963), (31, 29014), (36, 29089), (41, 29158), (42, 29176),

Gene: Nubia\_45 Start: 30489, Stop: 31001, Start Num: 12  
Candidate Starts for Nubia\_45:  
(Start: 12 @30489 has 111 MA's), (21, 30597), (23, 30603), (31, 30702), (36, 30777), (41, 30846), (50, 30927), (53, 30945),

Gene: OMalley\_42 Start: 29939, Stop: 30451, Start Num: 12  
Candidate Starts for OMalley\_42:  
(Start: 12 @29939 has 111 MA's), (17, 30008), (21, 30047), (36, 30227), (41, 30296), (44, 30323), (54, 30422),

Gene: OurGirlNessie\_41 Start: 28530, Stop: 29042, Start Num: 12  
Candidate Starts for OurGirlNessie\_41:  
(Start: 12 @28530 has 111 MA's), (13, 28551), (21, 28638), (31, 28743), (36, 28818), (41, 28887), (42, 28905),

Gene: Oxynfrius\_45 Start: 30510, Stop: 31022, Start Num: 12  
Candidate Starts for Oxynfrius\_45:  
(Start: 12 @30510 has 111 MA's), (21, 30618), (23, 30624), (31, 30723), (36, 30798), (41, 30867), (50, 30948), (53, 30966),

Gene: PartyCup\_47 Start: 30195, Stop: 30707, Start Num: 12

Candidate Starts for PartyCup\_47:

(Start: 12 @30195 has 111 MA's), (31, 30408), (36, 30483), (38, 30498), (41, 30552),

Gene: PermaG\_50 Start: 31756, Stop: 32301, Start Num: 12

Candidate Starts for PermaG\_50:

(Start: 12 @31756 has 111 MA's), (32, 31990), (36, 32059), (41, 32128), (50, 32209), (53, 32227), (55, 32269),

Gene: PinkFriday\_42 Start: 29060, Stop: 29572, Start Num: 12

Candidate Starts for PinkFriday\_42:

(Start: 12 @29060 has 111 MA's), (17, 29129), (21, 29168), (36, 29348), (41, 29417), (54, 29543),

Gene: PitaDog\_43 Start: 28926, Stop: 29438, Start Num: 12

Candidate Starts for PitaDog\_43:

(Start: 12 @28926 has 111 MA's), (13, 28947), (21, 29034), (23, 29040), (31, 29139), (36, 29214), (41, 29283), (42, 29301),

Gene: Potatoes\_44 Start: 29981, Stop: 30493, Start Num: 12

Candidate Starts for Potatoes\_44:

(Start: 12 @29981 has 111 MA's), (23, 30095), (26, 30134), (36, 30269), (41, 30338),

Gene: Preamble\_43 Start: 29058, Stop: 29570, Start Num: 12

Candidate Starts for Preamble\_43:

(Start: 12 @29058 has 111 MA's), (13, 29079), (26, 29211), (31, 29271), (36, 29346), (41, 29415), (42, 29433),

Gene: Pterodactyl\_42 Start: 28767, Stop: 29279, Start Num: 12

Candidate Starts for Pterodactyl\_42:

(Start: 12 @28767 has 111 MA's), (13, 28788), (21, 28875), (23, 28881), (31, 28980), (36, 29055), (41, 29124), (42, 29142),

Gene: Pumancara\_42 Start: 28973, Stop: 29485, Start Num: 12

Candidate Starts for Pumancara\_42:

(Start: 12 @28973 has 111 MA's), (17, 29042), (21, 29081), (36, 29261), (41, 29330), (54, 29456),

Gene: RAP15\_45 Start: 30154, Stop: 30666, Start Num: 12

Candidate Starts for RAP15\_45:

(Start: 12 @30154 has 111 MA's), (26, 30307), (36, 30442), (41, 30511),

Gene: Rasovi\_51 Start: 32095, Stop: 32640, Start Num: 12

Candidate Starts for Rasovi\_51:

(6, 31981), (Start: 12 @32095 has 111 MA's), (28, 32275), (32, 32329), (36, 32398), (41, 32467), (50, 32548), (53, 32566), (55, 32608),

Gene: RcigaStruga\_44 Start: 30396, Stop: 30908, Start Num: 12

Candidate Starts for RcigaStruga\_44:

(Start: 12 @30396 has 111 MA's), (31, 30609), (36, 30684), (41, 30753), (42, 30771), (50, 30834), (53, 30852),

Gene: Riovina\_42 Start: 29939, Stop: 30451, Start Num: 12

Candidate Starts for Riovina\_42:

(Start: 12 @29939 has 111 MA's), (17, 30008), (21, 30047), (36, 30227), (41, 30296), (44, 30323), (54, 30422),

Gene: Riverdale\_45 Start: 30120, Stop: 30632, Start Num: 12

Candidate Starts for Riverdale\_45:

(Start: 12 @30120 has 111 MA's), (23, 30234), (26, 30273), (36, 30408), (41, 30477),

Gene: Rozby\_44 Start: 29911, Stop: 30423, Start Num: 12

Candidate Starts for Rozby\_44:

(Start: 12 @29911 has 111 MA's), (26, 30064), (36, 30199), (41, 30268),

Gene: SBlackberry\_47 Start: 31535, Stop: 32080, Start Num: 12

Candidate Starts for SBlackberry\_47:

(Start: 12 @31535 has 111 MA's), (36, 31838), (41, 31907), (53, 32006), (55, 32048),

Gene: Sapo\_29 Start: 28026, Stop: 27559, Start Num: 12

Candidate Starts for Sapo\_29:

(Start: 12 @28026 has 111 MA's), (25, 27885), (42, 27717), (50, 27654),

Gene: Savage2526\_45 Start: 30148, Stop: 30660, Start Num: 12

Candidate Starts for Savage2526\_45:

(Start: 12 @30148 has 111 MA's), (26, 30301), (36, 30436), (41, 30505),

Gene: Scuttle\_44 Start: 30109, Stop: 30621, Start Num: 12

Candidate Starts for Scuttle\_44:

(Start: 12 @30109 has 111 MA's), (23, 30223), (26, 30262), (36, 30397), (41, 30466),

Gene: Sergei\_42 Start: 29951, Stop: 30463, Start Num: 12

Candidate Starts for Sergei\_42:

(Start: 12 @29951 has 111 MA's), (21, 30059), (23, 30065), (36, 30239), (41, 30308), (54, 30434),

Gene: Spocter\_47 Start: 33664, Stop: 34140, Start Num: 12

Candidate Starts for Spocter\_47:

(Start: 12 @33664 has 111 MA's), (20, 33757), (22, 33766),

Gene: Stuff\_54 Start: 38872, Stop: 39342, Start Num: 12

Candidate Starts for Stuff\_54:

(Start: 12 @38872 has 111 MA's), (19, 38959), (21, 38974), (24, 38986), (30, 39043), (35, 39115), (37, 39124), (52, 39286),

Gene: Sucha\_47 Start: 30068, Stop: 30607, Start Num: 12

Candidate Starts for Sucha\_47:

(Start: 12 @30068 has 111 MA's), (36, 30371), (37, 30374), (41, 30440), (50, 30521), (53, 30539), (55, 30581),

Gene: Supakev\_42 Start: 29940, Stop: 30452, Start Num: 12

Candidate Starts for Supakev\_42:

(Start: 12 @29940 has 111 MA's), (17, 30009), (21, 30048), (36, 30228), (41, 30297), (44, 30324), (49, 30369), (54, 30423),

Gene: Suppi\_44 Start: 30016, Stop: 30528, Start Num: 12

Candidate Starts for Suppi\_44:

(Start: 12 @30016 has 111 MA's), (23, 30130), (31, 30229), (36, 30304), (38, 30319), (41, 30373),

Gene: TattModd\_43 Start: 29768, Stop: 30280, Start Num: 12  
Candidate Starts for TattModd\_43:  
(Start: 12 @29768 has 111 MA's), (23, 29882), (26, 29921), (36, 30056), (41, 30125),

Gene: Temper16\_42 Start: 29951, Stop: 30463, Start Num: 12  
Candidate Starts for Temper16\_42:  
(Start: 12 @29951 has 111 MA's), (21, 30059), (23, 30065), (36, 30239), (41, 30308), (54, 30434),

Gene: Theresita\_47 Start: 29401, Stop: 29943, Start Num: 12  
Candidate Starts for Theresita\_47:  
(Start: 12 @29401 has 111 MA's), (16, 29431), (36, 29710), (42, 29797), (53, 29878),

Gene: TurboVicky\_49 Start: 31753, Stop: 32298, Start Num: 12  
Candidate Starts for TurboVicky\_49:  
(Start: 12 @31753 has 111 MA's), (36, 32056), (41, 32125), (53, 32224), (55, 32266),

Gene: Typher\_49 Start: 31311, Stop: 31856, Start Num: 12  
Candidate Starts for Typher\_49:  
(Start: 12 @31311 has 111 MA's), (36, 31614), (41, 31683), (53, 31782), (55, 31824),

Gene: UNTPL\_56 Start: 38901, Stop: 39371, Start Num: 12  
Candidate Starts for UNTPL\_56:  
(1, 38658), (8, 38817), (10, 38862), (Start: 12 @38901 has 111 MA's), (19, 38988), (21, 39003), (24, 39015), (30, 39072), (35, 39144), (37, 39153), (48, 39276),

Gene: Urla\_43 Start: 29942, Stop: 30454, Start Num: 12  
Candidate Starts for Urla\_43:  
(Start: 12 @29942 has 111 MA's), (13, 29963), (26, 30095), (31, 30155), (36, 30230), (41, 30299), (42, 30317),

Gene: Vallejo\_45 Start: 30123, Stop: 30635, Start Num: 12  
Candidate Starts for Vallejo\_45:  
(Start: 12 @30123 has 111 MA's), (23, 30237), (26, 30276), (36, 30411), (41, 30480),

Gene: Vulture\_42 Start: 29870, Stop: 30382, Start Num: 12  
Candidate Starts for Vulture\_42:  
(Start: 12 @29870 has 111 MA's), (17, 29939), (21, 29978), (36, 30158), (41, 30227), (49, 30299), (54, 30353),

Gene: Wawa\_44 Start: 29955, Stop: 30467, Start Num: 12  
Candidate Starts for Wawa\_44:  
(Start: 12 @29955 has 111 MA's), (26, 30108), (36, 30243), (41, 30312),

Gene: Wayne\_44 Start: 30062, Stop: 30574, Start Num: 12  
Candidate Starts for Wayne\_44:  
(Start: 12 @30062 has 111 MA's), (23, 30176), (31, 30275), (36, 30350), (38, 30365), (41, 30419),

Gene: WonderBoy\_41 Start: 28758, Stop: 29270, Start Num: 12  
Candidate Starts for WonderBoy\_41:  
(Start: 12 @28758 has 111 MA's), (13, 28779), (21, 28866), (31, 28971), (36, 29046), (41, 29115), (42, 29133),

Gene: Zanella\_48 Start: 31519, Stop: 32064, Start Num: 12

Candidate Starts for Zanella\_48:

(Start: 12 @31519 has 111 MA's), (36, 31822), (41, 31891), (53, 31990), (55, 32032),

Gene: Zorro\_45 Start: 30082, Stop: 30594, Start Num: 12

Candidate Starts for Zorro\_45:

(Start: 12 @30082 has 111 MA's), (26, 30235), (36, 30370), (41, 30439),