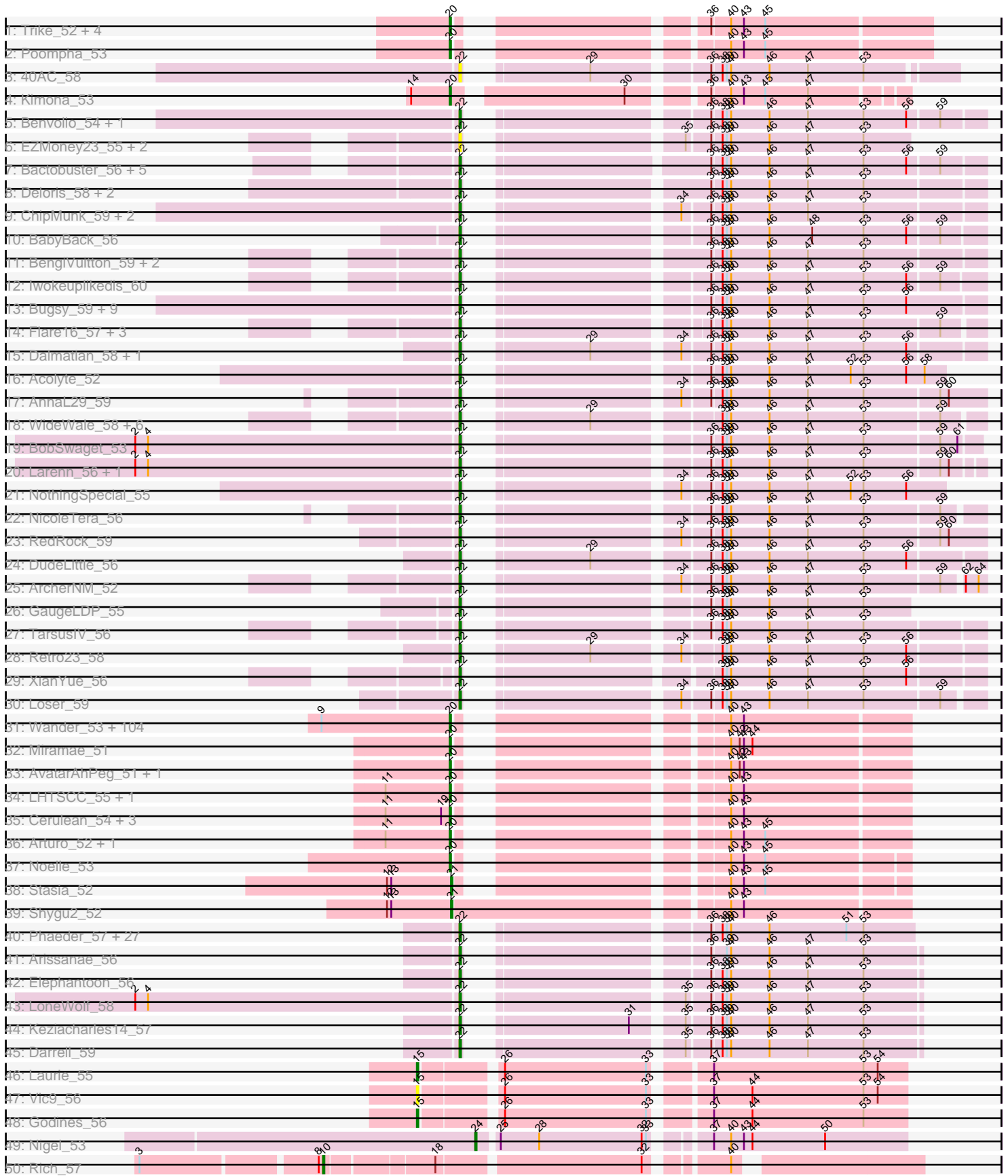
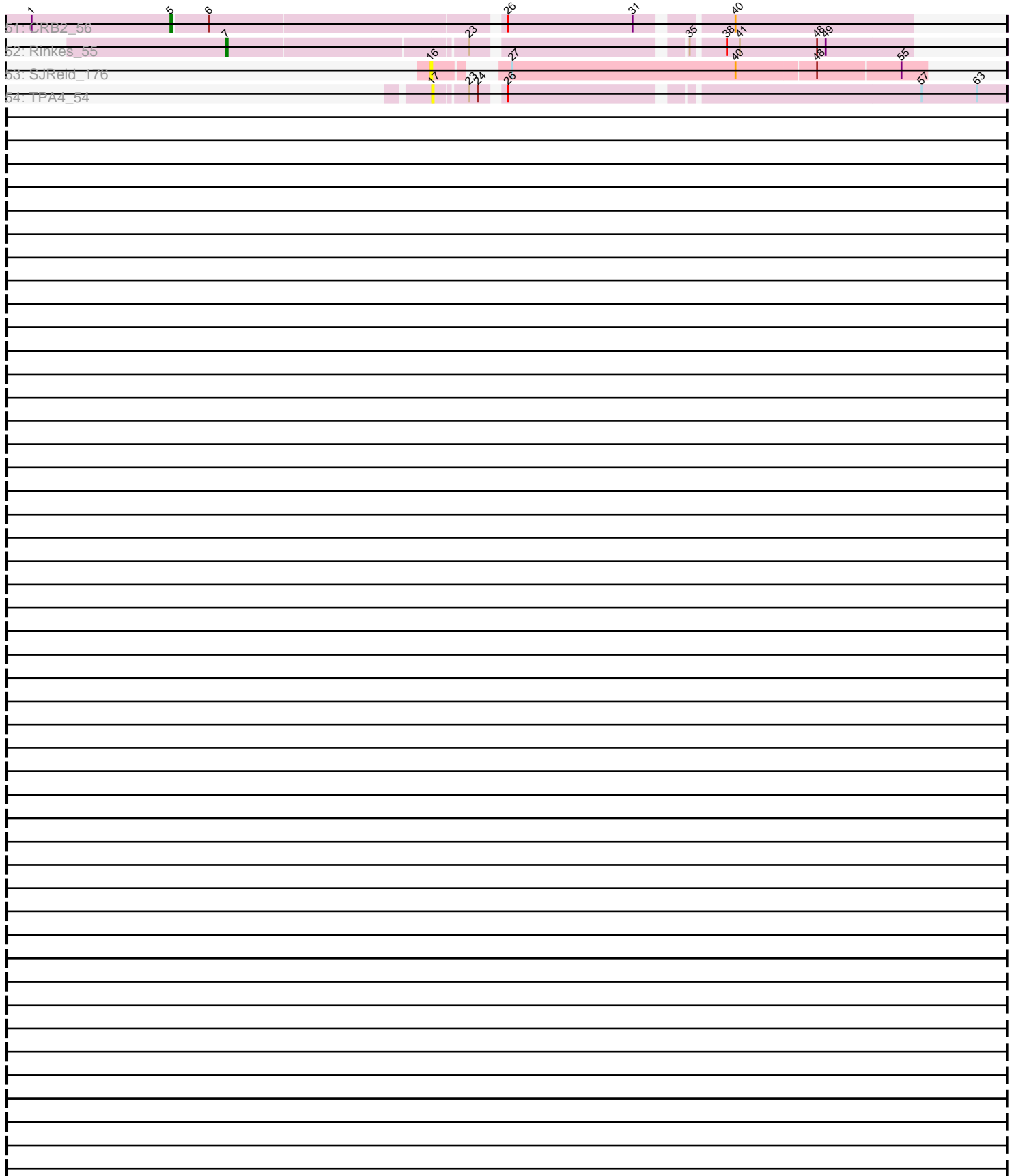


Pham 193719



Pham 193719



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 193719 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193719 has 229 members, 16 are drafts.

Phages represented in each track:

- Track 1 : Trike\_52, KittenMittens\_51, Drake94\_52, Severus\_52, PeaceMeal1\_52
- Track 2 : Poompha\_53
- Track 3 : 40AC\_58
- Track 4 : Kimona\_53
- Track 5 : Benvolio\_54, Echid\_57
- Track 6 : EZMoney23\_55, 20ES\_60, First\_0059
- Track 7 : Bactobuster\_56, Pukovnik\_56, IronMan\_57, Jaan\_57, Landor\_57, Phaded\_58
- Track 8 : Deloris\_58, AN3\_60, VA6\_58
- Track 9 : ChipMunk\_59, KingCyrus\_59, EvilGenius\_59
- Track 10 : BabyBack\_56
- Track 11 : BengiVuitton\_59, BiancaTri92\_57, Leogania\_57
- Track 12 : Iwokeuplikedis\_60
- Track 13 : Buggy\_59, AbbyPaige\_59, Smeagan\_60, Dignity\_59, Turbido\_58, Whabigail7\_58, Leviathan\_59, LilTurb\_58, Agape74\_59, Jerm\_59
- Track 14 : Flare16\_57, Centaur\_58, MiculUcigas\_57, NaSiaTalie\_57
- Track 15 : Dalmatian\_58, Anselm\_58
- Track 16 : Acolyte\_52
- Track 17 : AnnaL29\_59
- Track 18 : WideWale\_58, Updawg\_58, HarryHoudini\_58, Piro94\_57, Drake55\_59, Equemioh13\_58, Baehexic\_56
- Track 19 : BobSwaget\_53
- Track 20 : Larenn\_56, Malec\_57
- Track 21 : NothingSpecial\_55
- Track 22 : NicoleTera\_56
- Track 23 : RedRock\_59
- Track 24 : DudeLittle\_56
- Track 25 : ArcherNM\_52
- Track 26 : GaugeLDP\_55
- Track 27 : TarsusIV\_56
- Track 28 : Retro23\_58
- Track 29 : XianYue\_56
- Track 30 : Loser\_59
- Track 31 : Wander\_53, Nyxis\_53, Commander\_53, Lemur\_53, Nemo27\_53, LittleGuy\_53, Millski\_52, Ulysses\_52, Gadost\_53, Taquarus\_53, TygerBlood\_53, Nebs\_54, Avle17\_53, Bombshell\_53, Medusa\_53, Chaph\_53, Polymorphads\_54, Bartimeaus\_53, Connomayer\_53, JetBlade\_53, Ruin\_53, Eros\_53, Sabertooth\_53,

Phighter1804\_53, TroyPia\_54, Caelakin\_53, KFPoly\_52, LittleB\_53, Lunsford\_54, Blackmoor\_53, Morrow\_54, Phelipe\_54, Alberto7\_54, Citius\_53, Bruiser\_52, Iceman\_53, Camperdownii\_51, DirtyDunning\_52, Phacado\_53, Burger\_51, Kye\_53, JoongJeon\_52, Romney\_53, Thanksgivukkah\_52, Iracema64\_54, Clarenza\_52, Wizard007\_53, Shaka\_53, Scamp\_53, Eapen\_53, Maxo\_54, Flux\_53, Houdini22\_53, Jaykayelowell\_51, Cintron\_52, BubbleTrouble\_52, Tinybot\_52, LappelDuVide\_53, Phontbonne\_53, Eurydice\_54, Ohfah\_54, Skipitt\_52, Eris\_52, Baby16\_53, Albee\_53, Annyong\_53, Abdiel\_53, Kremtemulon\_53, Funston\_52, Broseidon\_53, Palestino\_52, Sparxx\_54, OKaNui\_53, Holli\_52, Pumbaa\_53, Cocoaberry\_53, Druantia\_53, TiroTheta9\_53, LeoAvram\_53, Lorenzo\_53, Roosevelt\_52, Florean\_53, MeeZee\_53, ICleared\_53, YoSam321\_53, Spino\_52, Kingmustik0402\_53, Wilbur\_53, Koreni\_52, Dhanush\_53, Pipcraft\_51, LochMonster\_54, Deano\_52, Maverick\_53, NotAPhaseMom\_53, Peaches\_53, Relief\_52, Mazhar510\_53, Eagle\_53, Rosa24\_52, CentreCat\_53, Melvin\_55, NorthStar\_52, BellusTerra\_54, PeterPeter\_53

- Track 32 : Miramae\_51
- Track 33 : AvatarAhPeg\_51, Stink\_52
- Track 34 : LHTSCC\_55, Obama12\_54
- Track 35 : Cerulean\_54, BangNhom\_54, Happiness\_52, ChampagnePapi\_55
- Track 36 : Arturo\_52, Kratak\_53
- Track 37 : Noelle\_53
- Track 38 : Stasia\_52
- Track 39 : Shygu2\_52
- Track 40 : Phaeder\_57, Pioneer\_57, Lilleskat\_55, Spouty\_57, Priya\_57, Hanray\_55, RyeScarlet\_58, ExplosioNervosa\_57, PackMan\_56, Catalina\_58, EmyBug\_56, Beemo\_57, Jiawan\_55, EdogawaKiddo\_55, Aliter\_57, Ugenie5\_54, Fayely\_57, Qobbit\_57, Onglai\_55, Eidsmoe\_57, Scherzo\_57, HortumSL17\_57, Conquerage\_57, Myxus\_57, Phonnegut\_57, Sachima\_54, Halex\_56, Tubs\_57
- Track 41 : Arissanae\_56
- Track 42 : Elephantoon\_56
- Track 43 : LoneWolf\_58
- Track 44 : Keziacharles14\_57
- Track 45 : Darrell\_59
- Track 46 : Laurie\_55
- Track 47 : Vic9\_56
- Track 48 : Godines\_56
- Track 49 : Nigel\_53
- Track 50 : Rich\_57
- Track 51 : CRB2\_56
- Track 52 : Rinkes\_55
- Track 53 : SJReid\_176
- Track 54 : TPA4\_54

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

The start number called the most often in the published annotations is 20, it was called in 123 of the 213 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abdiel\_53, Albee\_53, Alberto7\_54, Annyong\_53, Arturo\_52, AvatarAhPeg\_51, Avle17\_53, Baby16\_53, BangNhom\_54, Bartimeaus\_53, BellusTerra\_54,

Blackmoor\_53, Bombshell\_53, Broseidon\_53, Bruiser\_52, BubbleTrouble\_52, Burger\_51, Caelakin\_53, Camperdownii\_51, CentreCat\_53, Cerulean\_54, ChampagnePapi\_55, Chaph\_53, Cintron\_52, Citius\_53, Clarenza\_52, Cocoaberry\_53, Commander\_53, Connomayer\_53, Deano\_52, Dhanush\_53, DirtyDunning\_52, Drake94\_52, Druantia\_53, Eagle\_53, Eapen\_53, Eris\_52, Eros\_53, Eurydice\_54, Florean\_53, Flux\_53, Funston\_52, Gadost\_53, Happiness\_52, Holli\_52, Houdini22\_53, ICleared\_53, Iceman\_53, Iracema64\_54, Jaykayelowell\_51, JetBlade\_53, JoongJeon\_52, KFPoly\_52, Kimona\_53, Kingmustik0402\_53, KittenMittens\_51, Koreni\_52, Kratark\_53, Kremtemulon\_53, Kyee\_53, LHTSCC\_55, LappelDuVide\_53, Lemur\_53, LeoAvram\_53, LittleB\_53, LittleGuy\_53, LochMonster\_54, Lorenzo\_53, Lunsford\_54, Maverick\_53, Maxo\_54, Mazhar510\_53, Medusa\_53, MeeZee\_53, Melvin\_55, Millski\_52, Miramae\_51, Morrow\_54, Nebs\_54, Nemo27\_53, Noelle\_53, NorthStar\_52, NotAPhaseMom\_53, Nyxis\_53, OKaNui\_53, Obama12\_54, Ohfah\_54, Palestino\_52, PeaceMeal1\_52, Peaches\_53, PeterPeter\_53, Phacado\_53, Phelipe\_54, Phighter1804\_53, Phontbonne\_53, Pipcraft\_51, Polymorphads\_54, Poompha\_53, Pumbaa\_53, Relief\_52, Romney\_53, Roosevelt\_52, Rosa24\_52, Ruin\_53, Sabertooth\_53, Scamp\_53, Severus\_52, Shaka\_53, Skipitt\_52, Sparxx\_54, Spino\_52, Stink\_52, Taquarus\_53, Thanksgivukkah\_52, Tinybot\_52, TiroTheta9\_53, Trike\_52, TroyPia\_54, TygerBlood\_53, Ulysses\_52, Wander\_53, Wilbur\_53, Wizard007\_53, YoSam321\_53,

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

- 

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

- 20ES\_60, 40AC\_58, AN3\_60, AbbyPaige\_59, Acolyte\_52, Agape74\_59, Aliter\_57, AnnaL29\_59, Anselm\_58, ArcherNM\_52, Arissanae\_56, BabyBack\_56, Bactobuster\_56, Baehexic\_56, Beemo\_57, BengiVuitton\_59, Benvolio\_54, BiancaTri92\_57, BobSwaget\_53, Buggy\_59, CRB2\_56, Catalina\_58, Centaur\_58, ChipMunk\_59, Conquerage\_57, Dalmatian\_58, Darrell\_59, Deloris\_58, Dignity\_59, Drake55\_59, DudeLittle\_56, EZMoney23\_55, Echild\_57, EdogawaKiddo\_55, Eidsmoe\_57, Elephantoon\_56, EmyBug\_56, Equemioh13\_58, EvilGenius\_59, ExplosioNervosa\_57, Fayely\_57, First\_0059, Flare16\_57, GaugeLDP\_55, Godines\_56, Hanray\_55, HarryHoudini\_58, Halex\_56, HortumSL17\_57, IronMan\_57, Iwokeuplikedis\_60, Jaan\_57, Jerm\_59, Jiawan\_55, Keziacharles14\_57, KingCyrus\_59, Landor\_57, Larenn\_56, Laurie\_55, Leogania\_57, Leviathan\_59, LilTurb\_58, Lilleskat\_55, LoneWolf\_58, Loser\_59, Malec\_57, MiculUcigas\_57, Myxus\_57, NaSiaTalie\_57, NicoleTera\_56, Nigel\_53, NothingSpecial\_55, Onglai\_55, PackMan\_56, Phaded\_58, Phaeder\_57, Phonnegut\_57, Pioneer\_57, Piro94\_57, Priya\_57, Pukovnik\_56, Qobbit\_57, RedRock\_59, Retro23\_58, Rich\_57, Rinkes\_55, RyeScarlet\_58, SJReid\_176, Sachima\_54, Scherzo\_57, Shygu2\_52, Smeagan\_60, Spouty\_57, Stasia\_52, TPA4\_54, TarsusIV\_56, Tubs\_57, Turbido\_58, Ugenie5\_54, Updawg\_58, VA6\_58, Vic9\_56, Whabigail7\_58, WideWale\_58, XianYue\_56,

### Summary by start number:

Start 5:

- Found in 1 of 229 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 213
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CRB2\_56 (B9),

Start 7:

- Found in 1 of 229 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 213
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rinkes\_55 (B9),

#### Start 10:

- Found in 1 of 229 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 213
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rich\_57 (B5),

#### Start 15:

- Found in 3 of 229 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 2 of 213
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Godines\_56 (B2), Laurie\_55 (B2), Vic9\_56 (B2),

#### Start 16:

- Found in 1 of 229 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SJReid\_176 (FC),

#### Start 17:

- Found in 1 of 229 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TPA4\_54 (singleton),

#### Start 20:

- Found in 124 of 229 ( 54.1% ) of genes in pham
- Manual Annotations of this start: 123 of 213
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abdiel\_53 (A4), Albee\_53 (A4), Alberto7\_54 (A4), Annyong\_53 (A4), Arturo\_52 (A4), AvatarAhPeg\_51 (A4), Avle17\_53 (A4), Baby16\_53 (A4), BangNhom\_54 (A4), Bartimeaus\_53 (A4), BellusTerra\_54 (A4), Blackmoor\_53 (A4), Bombshell\_53 (A4), Broseidon\_53 (A4), Bruiser\_52 (A4), BubbleTrouble\_52 (A4), Burger\_51 (A4), Caelakin\_53 (A4), Camperdownii\_51 (A4), CentreCat\_53 (A4), Cerulean\_54 (A4), ChampagnePapi\_55 (A4), Chaph\_53 (A4), Cintron\_52 (A4), Citius\_53 (A4), Clarenza\_52 (A4), Cocoaberry\_53 (A4), Commander\_53 (A4), Connomayer\_53 (A4), Deano\_52 (A4), Dhanush\_53 (A4), DirtyDunning\_52 (A4), Drake94\_52 (A10), Druantia\_53 (A4), Eagle\_53 (A4), Eapen\_53 (A4), Eris\_52 (A4), Eros\_53 (A4), Eurydice\_54 (A4), Florean\_53 (A4), Flux\_53 (A4), Funston\_52 (A4), Gadost\_53 (A4), Happiness\_52 (A4), Holli\_52 (A4), Houdini22\_53 (A4), ICleared\_53 (A4), Iceman\_53 (A4), Iracema64\_54 (A4), Jaykayelowell\_51 (A4), JetBlade\_53 (A4), JoongJeon\_52 (A4), KFPoly\_52 (A4), Kimona\_53 (A19), Kingmustik0402\_53 (A4), KittenMittens\_51 (A10), Koreni\_52 (A4), Kratak\_53 (A4), Kremtemulon\_53 (A4), Kyee\_53 (A4), LHTSCC\_55 (A4), LappelDuVide\_53 (A4), Lemur\_53 (A4), LeoAvram\_53 (A4), LittleB\_53 (A4), LittleGuy\_53 (A4), LochMonster\_54 (A4), Lorenzo\_53 (A4), Lunsford\_54 (A4), Maverick\_53 (A4), Maxo\_54 (A4), Mazhar510\_53 (A4), Medusa\_53 (A4), MeeZee\_53 (A4), Melvin\_55 (A4), Millski\_52 (A4), Miramae\_51 (A4), Morrow\_54 (A4), Nebs\_54

(A4), Nemo27\_53 (A4), Noelle\_53 (A4), NorthStar\_52 (A4), NotAPhaseMom\_53 (A4), Nyxis\_53 (A4), OKaNui\_53 (A4), Obama12\_54 (A4), Ohfah\_54 (A4), Palestino\_52 (A4), PeaceMeal1\_52 (A10), Peaches\_53 (A4), PeterPeter\_53 (A4), Phacado\_53 (A4), Phelipe\_54 (A4), Phighter1804\_53 (A4), Phontbonne\_53 (A4), Pipcraft\_51 (A4), Polymorphads\_54 (A4), Poompha\_53 (A10), Pumbaa\_53 (A4), Relief\_52 (A4), Romney\_53 (A4), Roosevelt\_52 (A4), Rosa24\_52 (A4), Ruin\_53 (A4), Sabertooth\_53 (A4), Scamp\_53 (A4), Severus\_52 (A10), Shaka\_53 (A4), Skipitt\_52 (A4), Sparxx\_54 (A4), Spino\_52 (A4), Stink\_52 (A4), Taquarus\_53 (A4), Thanksgivukkah\_52 (A4), Tinybot\_52 (A4), TiroTheta9\_53 (A4), Trike\_52 (A10), TroyPia\_54 (A4), TygerBlood\_53 (A4), Ulysses\_52 (A4), Wander\_53 (A4), Wilbur\_53 (A4), Wizard007\_53 (A4), YoSam321\_53 (A4),

#### Start 21:

- Found in 2 of 229 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 2 of 213
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Shygu2\_52 (A4), Stasia\_52 (A4),

#### Start 22:

- Found in 94 of 229 ( 41.0% ) of genes in pham
- Manual Annotations of this start: 82 of 213
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 20ES\_60 (A2), 40AC\_58 (A17), AN3\_60 (A2), AbbyPaige\_59 (A2), Acolyte\_52 (A2), Agape74\_59 (A2), Aliter\_57 (A9), AnnaL29\_59 (A2), Anselm\_58 (A2), ArcherNM\_52 (A2), Arissanee\_56 (A9), BabyBack\_56 (A2), Bactobuster\_56 (A2), Baehexic\_56 (A2), Beemo\_57 (A9), BengiVuitton\_59 (A2), Benvolio\_54 (A2), BiancaTri92\_57 (A2), BobSwaget\_53 (A2), Buggy\_59 (A2), Catalina\_58 (A9), Centaur\_58 (A2), ChipMunk\_59 (A2), Conquerage\_57 (A9), Dalmatian\_58 (A2), Darrell\_59 (A9), Deloris\_58 (A2), Dignity\_59 (A2), Drake55\_59 (A2), DudeLittle\_56 (A2), EZMoney23\_55 (A2), Echild\_57 (A2), EdogawaKiddo\_55 (A9), Eidsmoe\_57 (A9), Elephantoon\_56 (A9), EmyBug\_56 (A9), Equemioh13\_58 (A2), EvilGenius\_59 (A2), ExplosioNervosa\_57 (A9), Fayely\_57 (A9), First\_0059 (A2), Flare16\_57 (A2), GaugeLDP\_55 (A2), Hanray\_55 (A9), HarryHoudini\_58 (A2), Horex\_56 (A9), HortumSL17\_57 (A9), IronMan\_57 (A2), Iwokeuplikedis\_60 (A2), Jaan\_57 (A2), Jerm\_59 (A2), Jiawan\_55 (A9), Keziacharles14\_57 (A9), KingCyrus\_59 (A2), Landor\_57 (A2), Larenn\_56 (A2), Leogania\_57 (A2), Leviathan\_59 (A2), LilTurb\_58 (A2), Lilleskat\_55 (A9), LoneWolf\_58 (A9), Loser\_59 (A2), Malec\_57 (A2), MiculUcigas\_57 (A2), Myxus\_57 (A9), NaSiaTalie\_57 (A2), NicoleTera\_56 (A2), NothingSpecial\_55 (A2), Onglai\_55 (A9), PackMan\_56 (A9), Phaded\_58 (A2), Phaeder\_57 (A9), Phonnegut\_57 (A9), Pioneer\_57 (A9), Piro94\_57 (A2), Priya\_57 (A9), Pukovnik\_56 (A2), Qobbit\_57 (A9), RedRock\_59 (A2), Retro23\_58 (A2), RyeScarlet\_58 (A9), Sachima\_54 (A9), Scherzo\_57 (A9), Smeagan\_60 (A2), Spouty\_57 (A9), TarsusIV\_56 (A2), Tubs\_57 (A9), Turbido\_58 (A2), Ugenie5\_54 (A9), Updawg\_58 (A2), VA6\_58 (A2), Whabigail7\_58 (A2), WideWale\_58 (A2), XianYue\_56 (A2),

#### Start 24:

- Found in 2 of 229 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 213
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Nigel\_53 (B4),

#### Summary by clusters:

There are 12 clusters represented in this pham: singleton, A10, A19, A17, B9, B4, B5, FC, A4, B2, A9, A2,

Info for manual annotations of cluster A10:

- Start number 20 was manually annotated 6 times for cluster A10.

Info for manual annotations of cluster A19:

- Start number 20 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A2:

- Start number 22 was manually annotated 57 times for cluster A2.

Info for manual annotations of cluster A4:

- Start number 20 was manually annotated 116 times for cluster A4.
- Start number 21 was manually annotated 2 times for cluster A4.

Info for manual annotations of cluster A9:

- Start number 22 was manually annotated 25 times for cluster A9.

Info for manual annotations of cluster B2:

- Start number 15 was manually annotated 2 times for cluster B2.

Info for manual annotations of cluster B4:

- Start number 24 was manually annotated 1 time for cluster B4.

Info for manual annotations of cluster B5:

- Start number 10 was manually annotated 1 time for cluster B5.

Info for manual annotations of cluster B9:

- Start number 5 was manually annotated 1 time for cluster B9.
- Start number 7 was manually annotated 1 time for cluster B9.

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

Gene: 20ES\_60 Start: 38647, Stop: 38324, Start Num: 22

Candidate Starts for 20ES\_60:

(Start: 22 @38647 has 82 MA's), (35, 38524), (36, 38509), (38, 38503), (39, 38500), (40, 38497), (46, 38470), (47, 38443), (53, 38404),

Gene: 40AC\_58 Start: 39262, Stop: 38960, Start Num: 22

Candidate Starts for 40AC\_58:

(Start: 22 @39262 has 82 MA's), (29, 39196), (36, 39124), (38, 39118), (39, 39115), (40, 39112), (46, 39085), (47, 39058), (53, 39019),

Gene: AN3\_60 Start: 37335, Stop: 37009, Start Num: 22

Candidate Starts for AN3\_60:

(Start: 22 @37335 has 82 MA's), (36, 37194), (38, 37188), (39, 37185), (40, 37182), (46, 37155), (47, 37128), (53, 37089),



Gene: AbbyPaige\_59 Start: 38506, Stop: 38180, Start Num: 22

Candidate Starts for AbbyPaige\_59:

(Start: 22 @38506 has 82 MA's), (36, 38368), (38, 38362), (39, 38359), (40, 38356), (46, 38329), (47, 38302), (53, 38263), (56, 38233),

Gene: Abdiel\_53 Start: 37381, Stop: 37106, Start Num: 20

Candidate Starts for Abdiel\_53:

(9, 37471), (Start: 20 @37381 has 123 MA's), (40, 37228), (43, 37219),

Gene: Acolyte\_52 Start: 37328, Stop: 37029, Start Num: 22

Candidate Starts for Acolyte\_52:

(Start: 22 @37328 has 82 MA's), (36, 37190), (38, 37184), (39, 37181), (40, 37178), (46, 37151), (47, 37124), (52, 37094), (53, 37085), (56, 37055), (58, 37043),

Gene: Agape74\_59 Start: 38500, Stop: 38174, Start Num: 22

Candidate Starts for Agape74\_59:

(Start: 22 @38500 has 82 MA's), (36, 38362), (38, 38356), (39, 38353), (40, 38350), (46, 38323), (47, 38296), (53, 38257), (56, 38227),

Gene: Albee\_53 Start: 37380, Stop: 37105, Start Num: 20

Candidate Starts for Albee\_53:

(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Alberto7\_54 Start: 37717, Stop: 37442, Start Num: 20

Candidate Starts for Alberto7\_54:

(9, 37807), (Start: 20 @37717 has 123 MA's), (40, 37564), (43, 37555),

Gene: Aliter\_57 Start: 37884, Stop: 37606, Start Num: 22

Candidate Starts for Aliter\_57:

(Start: 22 @37884 has 82 MA's), (36, 37746), (38, 37740), (39, 37737), (40, 37734), (46, 37707), (51, 37653), (53, 37641),

Gene: AnnaL29\_59 Start: 39057, Stop: 38731, Start Num: 22

Candidate Starts for AnnaL29\_59:

(Start: 22 @39057 has 82 MA's), (34, 38937), (36, 38919), (38, 38913), (39, 38910), (40, 38907), (46, 38880), (47, 38853), (53, 38814), (59, 38763), (60, 38757),

Gene: Annyong\_53 Start: 37425, Stop: 37150, Start Num: 20

Candidate Starts for Annyong\_53:

(9, 37515), (Start: 20 @37425 has 123 MA's), (40, 37272), (43, 37263),

Gene: Anselm\_58 Start: 38407, Stop: 38084, Start Num: 22

Candidate Starts for Anselm\_58:

(Start: 22 @38407 has 82 MA's), (29, 38341), (34, 38287), (36, 38269), (38, 38263), (39, 38260), (40, 38257), (46, 38230), (47, 38203), (53, 38164), (56, 38134),

Gene: ArcherNM\_52 Start: 38061, Stop: 37741, Start Num: 22

Candidate Starts for ArcherNM\_52:

(Start: 22 @38061 has 82 MA's), (34, 37941), (36, 37923), (38, 37917), (39, 37914), (40, 37911), (46, 37884), (47, 37857), (53, 37818), (59, 37767), (62, 37755), (64, 37746),

Gene: Arissanae\_56 Start: 38575, Stop: 38294, Start Num: 22

Candidate Starts for Arissanae\_56:

(Start: 22 @38575 has 82 MA's), (36, 38437), (39, 38428), (40, 38425), (46, 38398), (47, 38371), (53, 38332),

Gene: Arturo\_52 Start: 37652, Stop: 37377, Start Num: 20

Candidate Starts for Arturo\_52:

(11, 37697), (Start: 20 @37652 has 123 MA's), (40, 37499), (43, 37490), (45, 37475),

Gene: AvatarAhPeg\_51 Start: 37165, Stop: 36890, Start Num: 20

Candidate Starts for AvatarAhPeg\_51:

(Start: 20 @37165 has 123 MA's), (40, 37012), (42, 37006), (43, 37003),

Gene: Avle17\_53 Start: 37377, Stop: 37102, Start Num: 20

Candidate Starts for Avle17\_53:

(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: Baby16\_53 Start: 37391, Stop: 37116, Start Num: 20

Candidate Starts for Baby16\_53:

(9, 37481), (Start: 20 @37391 has 123 MA's), (40, 37238), (43, 37229),

Gene: BabyBack\_56 Start: 38693, Stop: 38370, Start Num: 22

Candidate Starts for BabyBack\_56:

(Start: 22 @38693 has 82 MA's), (36, 38555), (38, 38549), (39, 38546), (40, 38543), (46, 38516), (48, 38486), (53, 38450), (56, 38420), (59, 38399),

Gene: Bactobuster\_56 Start: 39010, Stop: 38684, Start Num: 22

Candidate Starts for Bactobuster\_56:

(Start: 22 @39010 has 82 MA's), (36, 38869), (38, 38863), (39, 38860), (40, 38857), (46, 38830), (47, 38803), (53, 38764), (56, 38734), (59, 38713),

Gene: Baehexic\_56 Start: 38173, Stop: 37853, Start Num: 22

Candidate Starts for Baehexic\_56:

(Start: 22 @38173 has 82 MA's), (29, 38107), (38, 38029), (39, 38026), (40, 38023), (46, 37996), (47, 37969), (53, 37930), (59, 37879),

Gene: BangNhom\_54 Start: 37816, Stop: 37541, Start Num: 20

Candidate Starts for BangNhom\_54:

(11, 37861), (19, 37822), (Start: 20 @37816 has 123 MA's), (40, 37663), (43, 37654),

Gene: Bartimeaus\_53 Start: 37382, Stop: 37107, Start Num: 20

Candidate Starts for Bartimeaus\_53:

(9, 37472), (Start: 20 @37382 has 123 MA's), (40, 37229), (43, 37220),

Gene: Beemo\_57 Start: 38054, Stop: 37776, Start Num: 22

Candidate Starts for Beemo\_57:

(Start: 22 @38054 has 82 MA's), (36, 37916), (38, 37910), (39, 37907), (40, 37904), (46, 37877), (51, 37823), (53, 37811),

Gene: BellusTerra\_54 Start: 37381, Stop: 37106, Start Num: 20

Candidate Starts for BellusTerra\_54:

(9, 37471), (Start: 20 @37381 has 123 MA's), (40, 37228), (43, 37219),

Gene: BengiVuitton\_59 Start: 38618, Stop: 38292, Start Num: 22

Candidate Starts for BengiVuitton\_59:

(Start: 22 @38618 has 82 MA's), (36, 38477), (38, 38471), (39, 38468), (40, 38465), (46, 38438), (47, 38411), (53, 38372),

Gene: Benvolio\_54 Start: 37431, Stop: 37108, Start Num: 22

Candidate Starts for Benvolio\_54:

(Start: 22 @37431 has 82 MA's), (36, 37293), (38, 37287), (39, 37284), (40, 37281), (46, 37254), (47, 37227), (53, 37188), (56, 37158), (59, 37137),

Gene: BiancaTri92\_57 Start: 38766, Stop: 38494, Start Num: 22

Candidate Starts for BiancaTri92\_57:

(Start: 22 @38766 has 82 MA's), (36, 38631), (38, 38625), (39, 38622), (40, 38619), (46, 38592), (47, 38565), (53, 38526),

Gene: Blackmoor\_53 Start: 37382, Stop: 37107, Start Num: 20

Candidate Starts for Blackmoor\_53:

(9, 37472), (Start: 20 @37382 has 123 MA's), (40, 37229), (43, 37220),

Gene: BobSwaget\_53 Start: 36907, Stop: 36587, Start Num: 22

Candidate Starts for BobSwaget\_53:

(2, 37132), (4, 37123), (Start: 22 @36907 has 82 MA's), (36, 36769), (38, 36763), (39, 36760), (40, 36757), (46, 36730), (47, 36703), (53, 36664), (59, 36613), (61, 36601),

Gene: Bombshell\_53 Start: 37377, Stop: 37102, Start Num: 20

Candidate Starts for Bombshell\_53:

(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: Broseidon\_53 Start: 37382, Stop: 37107, Start Num: 20

Candidate Starts for Broseidon\_53:

(9, 37472), (Start: 20 @37382 has 123 MA's), (40, 37229), (43, 37220),

Gene: Bruiser\_52 Start: 37380, Stop: 37105, Start Num: 20

Candidate Starts for Bruiser\_52:

(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: BubbleTrouble\_52 Start: 37380, Stop: 37105, Start Num: 20

Candidate Starts for BubbleTrouble\_52:

(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Buggy\_59 Start: 38557, Stop: 38231, Start Num: 22

Candidate Starts for Buggy\_59:

(Start: 22 @38557 has 82 MA's), (36, 38419), (38, 38413), (39, 38410), (40, 38407), (46, 38380), (47, 38353), (53, 38314), (56, 38284),

Gene: Burger\_51 Start: 37380, Stop: 37105, Start Num: 20

Candidate Starts for Burger\_51:

(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: CRB2\_56 Start: 53718, Stop: 53233, Start Num: 5

Candidate Starts for CRB2\_56:

(1, 53814), (Start: 5 @53718 has 1 MA's), (6, 53694), (26, 53499), (31, 53412), (40, 53355),

Gene: Caelakin\_53 Start: 37380, Stop: 37105, Start Num: 20

Candidate Starts for Caelakin\_53:  
(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Camperdownii\_51 Start: 37054, Stop: 36779, Start Num: 20  
Candidate Starts for Camperdownii\_51:  
(9, 37144), (Start: 20 @37054 has 123 MA's), (40, 36901), (43, 36892),

Gene: Catalina\_58 Start: 37957, Stop: 37679, Start Num: 22  
Candidate Starts for Catalina\_58:  
(Start: 22 @37957 has 82 MA's), (36, 37819), (38, 37813), (39, 37810), (40, 37807), (46, 37780), (51, 37726), (53, 37714),

Gene: Centaur\_58 Start: 38387, Stop: 38070, Start Num: 22  
Candidate Starts for Centaur\_58:  
(Start: 22 @38387 has 82 MA's), (36, 38252), (38, 38246), (39, 38243), (40, 38240), (46, 38213), (47, 38186), (53, 38147), (59, 38096),

Gene: CentreCat\_53 Start: 37383, Stop: 37108, Start Num: 20  
Candidate Starts for CentreCat\_53:  
(9, 37473), (Start: 20 @37383 has 123 MA's), (40, 37230), (43, 37221),

Gene: Cerulean\_54 Start: 37817, Stop: 37542, Start Num: 20  
Candidate Starts for Cerulean\_54:  
(11, 37862), (19, 37823), (Start: 20 @37817 has 123 MA's), (40, 37664), (43, 37655),

Gene: ChampagnePapi\_55 Start: 37816, Stop: 37541, Start Num: 20  
Candidate Starts for ChampagnePapi\_55:  
(11, 37861), (19, 37822), (Start: 20 @37816 has 123 MA's), (40, 37663), (43, 37654),

Gene: Chaph\_53 Start: 37391, Stop: 37116, Start Num: 20  
Candidate Starts for Chaph\_53:  
(9, 37481), (Start: 20 @37391 has 123 MA's), (40, 37238), (43, 37229),

Gene: ChipMunk\_59 Start: 39757, Stop: 39434, Start Num: 22  
Candidate Starts for ChipMunk\_59:  
(Start: 22 @39757 has 82 MA's), (34, 39637), (36, 39619), (38, 39613), (39, 39610), (40, 39607), (46, 39580), (47, 39553), (53, 39514),

Gene: Cintron\_52 Start: 37357, Stop: 37082, Start Num: 20  
Candidate Starts for Cintron\_52:  
(9, 37447), (Start: 20 @37357 has 123 MA's), (40, 37204), (43, 37195),

Gene: Citius\_53 Start: 37401, Stop: 37126, Start Num: 20  
Candidate Starts for Citius\_53:  
(9, 37491), (Start: 20 @37401 has 123 MA's), (40, 37248), (43, 37239),

Gene: Clarenza\_52 Start: 37377, Stop: 37102, Start Num: 20  
Candidate Starts for Clarenza\_52:  
(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: Cocoaberry\_53 Start: 37384, Stop: 37109, Start Num: 20  
Candidate Starts for Cocoaberry\_53:  
(9, 37474), (Start: 20 @37384 has 123 MA's), (40, 37231), (43, 37222),

Gene: Commander\_53 Start: 37379, Stop: 37104, Start Num: 20  
Candidate Starts for Commander\_53:  
(9, 37469), (Start: 20 @37379 has 123 MA's), (40, 37226), (43, 37217),

Gene: Connomayer\_53 Start: 37380, Stop: 37105, Start Num: 20  
Candidate Starts for Connomayer\_53:  
(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Conquerage\_57 Start: 38028, Stop: 37750, Start Num: 22  
Candidate Starts for Conquerage\_57:  
(Start: 22 @38028 has 82 MA's), (36, 37890), (38, 37884), (39, 37881), (40, 37878), (46, 37851), (51, 37797), (53, 37785),

Gene: Dalmatian\_58 Start: 38380, Stop: 38057, Start Num: 22  
Candidate Starts for Dalmatian\_58:  
(Start: 22 @38380 has 82 MA's), (29, 38314), (34, 38260), (36, 38242), (38, 38236), (39, 38233), (40, 38230), (46, 38203), (47, 38176), (53, 38137), (56, 38107),

Gene: Darrell\_59 Start: 38653, Stop: 38372, Start Num: 22  
Candidate Starts for Darrell\_59:  
(Start: 22 @38653 has 82 MA's), (35, 38530), (36, 38515), (38, 38509), (39, 38506), (40, 38503), (46, 38476), (47, 38449), (53, 38410),

Gene: Deano\_52 Start: 37388, Stop: 37113, Start Num: 20  
Candidate Starts for Deano\_52:  
(9, 37478), (Start: 20 @37388 has 123 MA's), (40, 37235), (43, 37226),

Gene: Deloris\_58 Start: 38287, Stop: 37961, Start Num: 22  
Candidate Starts for Deloris\_58:  
(Start: 22 @38287 has 82 MA's), (36, 38146), (38, 38140), (39, 38137), (40, 38134), (46, 38107), (47, 38080), (53, 38041),

Gene: Dhanush\_53 Start: 37383, Stop: 37108, Start Num: 20  
Candidate Starts for Dhanush\_53:  
(9, 37473), (Start: 20 @37383 has 123 MA's), (40, 37230), (43, 37221),

Gene: Dignity\_59 Start: 38580, Stop: 38254, Start Num: 22  
Candidate Starts for Dignity\_59:  
(Start: 22 @38580 has 82 MA's), (36, 38442), (38, 38436), (39, 38433), (40, 38430), (46, 38403), (47, 38376), (53, 38337), (56, 38307),

Gene: DirtyDunning\_52 Start: 37392, Stop: 37117, Start Num: 20  
Candidate Starts for DirtyDunning\_52:  
(9, 37482), (Start: 20 @37392 has 123 MA's), (40, 37239), (43, 37230),

Gene: Drake55\_59 Start: 38469, Stop: 38149, Start Num: 22  
Candidate Starts for Drake55\_59:  
(Start: 22 @38469 has 82 MA's), (29, 38403), (38, 38325), (39, 38322), (40, 38319), (46, 38292), (47, 38265), (53, 38226), (59, 38175),

Gene: Drake94\_52 Start: 36531, Stop: 36241, Start Num: 20  
Candidate Starts for Drake94\_52:

(Start: 20 @36531 has 123 MA's), (36, 36390), (40, 36378), (43, 36369), (45, 36354),

Gene: Druantia\_53 Start: 37383, Stop: 37108, Start Num: 20

Candidate Starts for Druantia\_53:

(9, 37473), (Start: 20 @37383 has 123 MA's), (40, 37230), (43, 37221),

Gene: DudeLittle\_56 Start: 38146, Stop: 37823, Start Num: 22

Candidate Starts for DudeLittle\_56:

(Start: 22 @38146 has 82 MA's), (29, 38080), (36, 38008), (38, 38002), (39, 37999), (40, 37996), (46, 37969), (47, 37942), (53, 37903), (56, 37873),

Gene: EZMoney23\_55 Start: 37861, Stop: 37586, Start Num: 22

Candidate Starts for EZMoney23\_55:

(Start: 22 @37861 has 82 MA's), (35, 37738), (36, 37723), (38, 37717), (39, 37714), (40, 37711), (46, 37684), (47, 37657), (53, 37618),

Gene: Eagle\_53 Start: 37405, Stop: 37130, Start Num: 20

Candidate Starts for Eagle\_53:

(9, 37495), (Start: 20 @37405 has 123 MA's), (40, 37252), (43, 37243),

Gene: Eapen\_53 Start: 37375, Stop: 37100, Start Num: 20

Candidate Starts for Eapen\_53:

(9, 37465), (Start: 20 @37375 has 123 MA's), (40, 37222), (43, 37213),

Gene: Echild\_57 Start: 37455, Stop: 37132, Start Num: 22

Candidate Starts for Echild\_57:

(Start: 22 @37455 has 82 MA's), (36, 37317), (38, 37311), (39, 37308), (40, 37305), (46, 37278), (47, 37251), (53, 37212), (56, 37182), (59, 37161),

Gene: EdogawaKiddo\_55 Start: 38005, Stop: 37727, Start Num: 22

Candidate Starts for EdogawaKiddo\_55:

(Start: 22 @38005 has 82 MA's), (36, 37867), (38, 37861), (39, 37858), (40, 37855), (46, 37828), (51, 37774), (53, 37762),

Gene: Eidsmoe\_57 Start: 38020, Stop: 37742, Start Num: 22

Candidate Starts for Eidsmoe\_57:

(Start: 22 @38020 has 82 MA's), (36, 37882), (38, 37876), (39, 37873), (40, 37870), (46, 37843), (51, 37789), (53, 37777),

Gene: Elephantoon\_56 Start: 37395, Stop: 37114, Start Num: 22

Candidate Starts for Elephantoon\_56:

(Start: 22 @37395 has 82 MA's), (36, 37257), (38, 37251), (39, 37248), (40, 37245), (46, 37218), (47, 37191), (53, 37152),

Gene: EmyBug\_56 Start: 38022, Stop: 37744, Start Num: 22

Candidate Starts for EmyBug\_56:

(Start: 22 @38022 has 82 MA's), (36, 37884), (38, 37878), (39, 37875), (40, 37872), (46, 37845), (51, 37791), (53, 37779),

Gene: Equemioh13\_58 Start: 38292, Stop: 37972, Start Num: 22

Candidate Starts for Equemioh13\_58:

(Start: 22 @38292 has 82 MA's), (29, 38226), (38, 38148), (39, 38145), (40, 38142), (46, 38115), (47, 38088), (53, 38049), (59, 37998),

Gene: Eris\_52 Start: 37380, Stop: 37105, Start Num: 20  
Candidate Starts for Eris\_52:  
(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Eros\_53 Start: 37382, Stop: 37107, Start Num: 20  
Candidate Starts for Eros\_53:  
(9, 37472), (Start: 20 @37382 has 123 MA's), (40, 37229), (43, 37220),

Gene: Eurydice\_54 Start: 37377, Stop: 37102, Start Num: 20  
Candidate Starts for Eurydice\_54:  
(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: EvilGenius\_59 Start: 39758, Stop: 39435, Start Num: 22  
Candidate Starts for EvilGenius\_59:  
(Start: 22 @39758 has 82 MA's), (34, 39638), (36, 39620), (38, 39614), (39, 39611), (40, 39608), (46, 39581), (47, 39554), (53, 39515),

Gene: ExplosioNervosa\_57 Start: 38088, Stop: 37810, Start Num: 22  
Candidate Starts for ExplosioNervosa\_57:  
(Start: 22 @38088 has 82 MA's), (36, 37950), (38, 37944), (39, 37941), (40, 37938), (46, 37911), (51, 37857), (53, 37845),

Gene: Fayely\_57 Start: 37989, Stop: 37711, Start Num: 22  
Candidate Starts for Fayely\_57:  
(Start: 22 @37989 has 82 MA's), (36, 37851), (38, 37845), (39, 37842), (40, 37839), (46, 37812), (51, 37758), (53, 37746),

Gene: First\_0059 Start: 38547, Stop: 38224, Start Num: 22  
Candidate Starts for First\_0059:  
(Start: 22 @38547 has 82 MA's), (35, 38424), (36, 38409), (38, 38403), (39, 38400), (40, 38397), (46, 38370), (47, 38343), (53, 38304),

Gene: Flare16\_57 Start: 38048, Stop: 37731, Start Num: 22  
Candidate Starts for Flare16\_57:  
(Start: 22 @38048 has 82 MA's), (36, 37913), (38, 37907), (39, 37904), (40, 37901), (46, 37874), (47, 37847), (53, 37808), (59, 37757),

Gene: Florean\_53 Start: 37379, Stop: 37104, Start Num: 20  
Candidate Starts for Florean\_53:  
(9, 37469), (Start: 20 @37379 has 123 MA's), (40, 37226), (43, 37217),

Gene: Flux\_53 Start: 37379, Stop: 37104, Start Num: 20  
Candidate Starts for Flux\_53:  
(9, 37469), (Start: 20 @37379 has 123 MA's), (40, 37226), (43, 37217),

Gene: Funston\_52 Start: 37380, Stop: 37105, Start Num: 20  
Candidate Starts for Funston\_52:  
(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Gadost\_53 Start: 37384, Stop: 37109, Start Num: 20  
Candidate Starts for Gadost\_53:  
(9, 37474), (Start: 20 @37384 has 123 MA's), (40, 37231), (43, 37222),

Gene: GaugeLDP\_55 Start: 38243, Stop: 37968, Start Num: 22

Candidate Starts for GaugeLDP\_55:

(Start: 22 @38243 has 82 MA's), (36, 38105), (38, 38099), (39, 38096), (40, 38093), (46, 38066), (47, 38039), (53, 38000),

Gene: Godines\_56 Start: 50854, Stop: 50540, Start Num: 15

Candidate Starts for Godines\_56:

(Start: 15 @50854 has 2 MA's), (26, 50806), (33, 50707), (37, 50674), (44, 50647), (53, 50569),

Gene: Hanray\_55 Start: 38009, Stop: 37731, Start Num: 22

Candidate Starts for Hanray\_55:

(Start: 22 @38009 has 82 MA's), (36, 37871), (38, 37865), (39, 37862), (40, 37859), (46, 37832), (51, 37778), (53, 37766),

Gene: Happiness\_52 Start: 37399, Stop: 37124, Start Num: 20

Candidate Starts for Happiness\_52:

(11, 37444), (19, 37405), (Start: 20 @37399 has 123 MA's), (40, 37246), (43, 37237),

Gene: HarryHoudini\_58 Start: 38478, Stop: 38158, Start Num: 22

Candidate Starts for HarryHoudini\_58:

(Start: 22 @38478 has 82 MA's), (29, 38412), (38, 38334), (39, 38331), (40, 38328), (46, 38301), (47, 38274), (53, 38235), (59, 38184),

Gene: Horex\_56 Start: 38025, Stop: 37747, Start Num: 22

Candidate Starts for Horex\_56:

(Start: 22 @38025 has 82 MA's), (36, 37887), (38, 37881), (39, 37878), (40, 37875), (46, 37848), (51, 37794), (53, 37782),

Gene: Holli\_52 Start: 37170, Stop: 36895, Start Num: 20

Candidate Starts for Holli\_52:

(9, 37260), (Start: 20 @37170 has 123 MA's), (40, 37017), (43, 37008),

Gene: HortumSL17\_57 Start: 37956, Stop: 37678, Start Num: 22

Candidate Starts for HortumSL17\_57:

(Start: 22 @37956 has 82 MA's), (36, 37818), (38, 37812), (39, 37809), (40, 37806), (46, 37779), (51, 37725), (53, 37713),

Gene: Houdini22\_53 Start: 37384, Stop: 37109, Start Num: 20

Candidate Starts for Houdini22\_53:

(9, 37474), (Start: 20 @37384 has 123 MA's), (40, 37231), (43, 37222),

Gene: ICleared\_53 Start: 37409, Stop: 37134, Start Num: 20

Candidate Starts for ICleared\_53:

(9, 37499), (Start: 20 @37409 has 123 MA's), (40, 37256), (43, 37247),

Gene: Iceman\_53 Start: 37666, Stop: 37391, Start Num: 20

Candidate Starts for Iceman\_53:

(9, 37756), (Start: 20 @37666 has 123 MA's), (40, 37513), (43, 37504),

Gene: Iracema64\_54 Start: 37644, Stop: 37369, Start Num: 20

Candidate Starts for Iracema64\_54:

(9, 37734), (Start: 20 @37644 has 123 MA's), (40, 37491), (43, 37482),



Gene: IronMan\_57 Start: 39193, Stop: 38867, Start Num: 22

Candidate Starts for IronMan\_57:

(Start: 22 @39193 has 82 MA's), (36, 39052), (38, 39046), (39, 39043), (40, 39040), (46, 39013), (47, 38986), (53, 38947), (56, 38917), (59, 38896),

Gene: Iwokeuplikedis\_60 Start: 38111, Stop: 37788, Start Num: 22

Candidate Starts for Iwokeuplikedis\_60:

(Start: 22 @38111 has 82 MA's), (36, 37973), (38, 37967), (39, 37964), (40, 37961), (46, 37934), (47, 37907), (53, 37868), (56, 37838), (59, 37817),

Gene: Jaan\_57 Start: 39353, Stop: 39033, Start Num: 22

Candidate Starts for Jaan\_57:

(Start: 22 @39353 has 82 MA's), (36, 39218), (38, 39212), (39, 39209), (40, 39206), (46, 39179), (47, 39152), (53, 39113), (56, 39083), (59, 39062),

Gene: Jaykayelowell\_51 Start: 37373, Stop: 37098, Start Num: 20

Candidate Starts for Jaykayelowell\_51:

(9, 37463), (Start: 20 @37373 has 123 MA's), (40, 37220), (43, 37211),

Gene: Jerm\_59 Start: 38572, Stop: 38246, Start Num: 22

Candidate Starts for Jerm\_59:

(Start: 22 @38572 has 82 MA's), (36, 38434), (38, 38428), (39, 38425), (40, 38422), (46, 38395), (47, 38368), (53, 38329), (56, 38299),

Gene: JetBlade\_53 Start: 37374, Stop: 37099, Start Num: 20

Candidate Starts for JetBlade\_53:

(9, 37464), (Start: 20 @37374 has 123 MA's), (40, 37221), (43, 37212),

Gene: Jiawan\_55 Start: 38041, Stop: 37763, Start Num: 22

Candidate Starts for Jiawan\_55:

(Start: 22 @38041 has 82 MA's), (36, 37903), (38, 37897), (39, 37894), (40, 37891), (46, 37864), (51, 37810), (53, 37798),

Gene: JoongJeon\_52 Start: 37377, Stop: 37102, Start Num: 20

Candidate Starts for JoongJeon\_52:

(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: KFPoly\_52 Start: 37374, Stop: 37099, Start Num: 20

Candidate Starts for KFPoly\_52:

(9, 37464), (Start: 20 @37374 has 123 MA's), (40, 37221), (43, 37212),

Gene: Keziacharles14\_57 Start: 39097, Stop: 38816, Start Num: 22

Candidate Starts for Keziacharles14\_57:

(Start: 22 @39097 has 82 MA's), (31, 39004), (35, 38974), (36, 38959), (38, 38953), (39, 38950), (40, 38947), (46, 38920), (47, 38893), (53, 38854),

Gene: Kimona\_53 Start: 35989, Stop: 35708, Start Num: 20

Candidate Starts for Kimona\_53:

(14, 36016), (Start: 20 @35989 has 123 MA's), (30, 35881), (36, 35836), (40, 35824), (43, 35815), (45, 35800), (47, 35770),

Gene: KingCyrus\_59 Start: 39753, Stop: 39430, Start Num: 22

Candidate Starts for KingCyrus\_59:

(Start: 22 @39753 has 82 MA's), (34, 39633), (36, 39615), (38, 39609), (39, 39606), (40, 39603), (46, 39576), (47, 39549), (53, 39510),

Gene: Kingmustik0402\_53 Start: 37369, Stop: 37094, Start Num: 20

Candidate Starts for Kingmustik0402\_53:

(9, 37459), (Start: 20 @37369 has 123 MA's), (40, 37216), (43, 37207),

Gene: KittenMittens\_51 Start: 36539, Stop: 36249, Start Num: 20

Candidate Starts for KittenMittens\_51:

(Start: 20 @36539 has 123 MA's), (36, 36398), (40, 36386), (43, 36377), (45, 36362),

Gene: Koreni\_52 Start: 37061, Stop: 36786, Start Num: 20

Candidate Starts for Koreni\_52:

(9, 37151), (Start: 20 @37061 has 123 MA's), (40, 36908), (43, 36899),

Gene: Kratark\_53 Start: 37535, Stop: 37260, Start Num: 20

Candidate Starts for Kratark\_53:

(11, 37580), (Start: 20 @37535 has 123 MA's), (40, 37382), (43, 37373), (45, 37358),

Gene: Kremtemulon\_53 Start: 37328, Stop: 37053, Start Num: 20

Candidate Starts for Kremtemulon\_53:

(9, 37418), (Start: 20 @37328 has 123 MA's), (40, 37175), (43, 37166),

Gene: Kyee\_53 Start: 37378, Stop: 37103, Start Num: 20

Candidate Starts for Kyee\_53:

(9, 37468), (Start: 20 @37378 has 123 MA's), (40, 37225), (43, 37216),

Gene: LHTSCC\_55 Start: 37816, Stop: 37541, Start Num: 20

Candidate Starts for LHTSCC\_55:

(11, 37861), (Start: 20 @37816 has 123 MA's), (40, 37663), (43, 37654),

Gene: Landor\_57 Start: 39271, Stop: 38945, Start Num: 22

Candidate Starts for Landor\_57:

(Start: 22 @39271 has 82 MA's), (36, 39130), (38, 39124), (39, 39121), (40, 39118), (46, 39091), (47, 39064), (53, 39025), (56, 38995), (59, 38974),

Gene: LappelDuVide\_53 Start: 37379, Stop: 37104, Start Num: 20

Candidate Starts for LappelDuVide\_53:

(9, 37469), (Start: 20 @37379 has 123 MA's), (40, 37226), (43, 37217),

Gene: Larenn\_56 Start: 38162, Stop: 37842, Start Num: 22

Candidate Starts for Larenn\_56:

(2, 38387), (4, 38378), (Start: 22 @38162 has 82 MA's), (36, 38024), (38, 38018), (39, 38015), (40, 38012), (46, 37985), (47, 37958), (53, 37919), (59, 37868), (60, 37862),

Gene: Laurie\_55 Start: 50282, Stop: 49968, Start Num: 15

Candidate Starts for Laurie\_55:

(Start: 15 @50282 has 2 MA's), (26, 50234), (33, 50135), (37, 50102), (53, 49997), (54, 49988),

Gene: Lemur\_53 Start: 37377, Stop: 37102, Start Num: 20

Candidate Starts for Lemur\_53:

(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: LeoAvram\_53 Start: 37380, Stop: 37105, Start Num: 20  
Candidate Starts for LeoAvram\_53:  
(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Leogania\_57 Start: 39144, Stop: 38872, Start Num: 22  
Candidate Starts for Leogania\_57:  
(Start: 22 @39144 has 82 MA's), (36, 39009), (38, 39003), (39, 39000), (40, 38997), (46, 38970), (47, 38943), (53, 38904),

Gene: Leviathan\_59 Start: 38629, Stop: 38303, Start Num: 22  
Candidate Starts for Leviathan\_59:  
(Start: 22 @38629 has 82 MA's), (36, 38491), (38, 38485), (39, 38482), (40, 38479), (46, 38452), (47, 38425), (53, 38386), (56, 38356),

Gene: LilTurb\_58 Start: 38453, Stop: 38127, Start Num: 22  
Candidate Starts for LilTurb\_58:  
(Start: 22 @38453 has 82 MA's), (36, 38315), (38, 38309), (39, 38306), (40, 38303), (46, 38276), (47, 38249), (53, 38210), (56, 38180),

Gene: Lilleskat\_55 Start: 37958, Stop: 37680, Start Num: 22  
Candidate Starts for Lilleskat\_55:  
(Start: 22 @37958 has 82 MA's), (36, 37820), (38, 37814), (39, 37811), (40, 37808), (46, 37781), (51, 37727), (53, 37715),

Gene: LittleB\_53 Start: 37381, Stop: 37106, Start Num: 20  
Candidate Starts for LittleB\_53:  
(9, 37471), (Start: 20 @37381 has 123 MA's), (40, 37228), (43, 37219),

Gene: LittleGuy\_53 Start: 37276, Stop: 37001, Start Num: 20  
Candidate Starts for LittleGuy\_53:  
(9, 37366), (Start: 20 @37276 has 123 MA's), (40, 37123), (43, 37114),

Gene: LochMonster\_54 Start: 37616, Stop: 37341, Start Num: 20  
Candidate Starts for LochMonster\_54:  
(9, 37706), (Start: 20 @37616 has 123 MA's), (40, 37463), (43, 37454),

Gene: LoneWolf\_58 Start: 37989, Stop: 37708, Start Num: 22  
Candidate Starts for LoneWolf\_58:  
(2, 38214), (4, 38205), (Start: 22 @37989 has 82 MA's), (35, 37866), (36, 37851), (38, 37845), (39, 37842), (40, 37839), (46, 37812), (47, 37785), (53, 37746),

Gene: Lorenzo\_53 Start: 37380, Stop: 37105, Start Num: 20  
Candidate Starts for Lorenzo\_53:  
(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Loser\_59 Start: 39004, Stop: 38684, Start Num: 22  
Candidate Starts for Loser\_59:  
(Start: 22 @39004 has 82 MA's), (34, 38884), (36, 38866), (38, 38860), (39, 38857), (40, 38854), (46, 38827), (47, 38800), (53, 38761), (59, 38710),

Gene: Lunsford\_54 Start: 37374, Stop: 37099, Start Num: 20  
Candidate Starts for Lunsford\_54:

(9, 37464), (Start: 20 @37374 has 123 MA's), (40, 37221), (43, 37212),

Gene: Malec\_57 Start: 38729, Stop: 38409, Start Num: 22

Candidate Starts for Malec\_57:

(2, 38954), (4, 38945), (Start: 22 @38729 has 82 MA's), (36, 38591), (38, 38585), (39, 38582), (40, 38579), (46, 38552), (47, 38525), (53, 38486), (59, 38435), (60, 38429),

Gene: Maverick\_53 Start: 37380, Stop: 37105, Start Num: 20

Candidate Starts for Maverick\_53:

(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Maxo\_54 Start: 37382, Stop: 37107, Start Num: 20

Candidate Starts for Maxo\_54:

(9, 37472), (Start: 20 @37382 has 123 MA's), (40, 37229), (43, 37220),

Gene: Mazhar510\_53 Start: 37381, Stop: 37106, Start Num: 20

Candidate Starts for Mazhar510\_53:

(9, 37471), (Start: 20 @37381 has 123 MA's), (40, 37228), (43, 37219),

Gene: Medusa\_53 Start: 37379, Stop: 37104, Start Num: 20

Candidate Starts for Medusa\_53:

(9, 37469), (Start: 20 @37379 has 123 MA's), (40, 37226), (43, 37217),

Gene: MeeZee\_53 Start: 37377, Stop: 37102, Start Num: 20

Candidate Starts for MeeZee\_53:

(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: Melvin\_55 Start: 37375, Stop: 37100, Start Num: 20

Candidate Starts for Melvin\_55:

(9, 37465), (Start: 20 @37375 has 123 MA's), (40, 37222), (43, 37213),

Gene: MiculUcigas\_57 Start: 37951, Stop: 37634, Start Num: 22

Candidate Starts for MiculUcigas\_57:

(Start: 22 @37951 has 82 MA's), (36, 37816), (38, 37810), (39, 37807), (40, 37804), (46, 37777), (47, 37750), (53, 37711), (59, 37660),

Gene: Millski\_52 Start: 37381, Stop: 37106, Start Num: 20

Candidate Starts for Millski\_52:

(9, 37471), (Start: 20 @37381 has 123 MA's), (40, 37228), (43, 37219),

Gene: Miramae\_51 Start: 36827, Stop: 36552, Start Num: 20

Candidate Starts for Miramae\_51:

(Start: 20 @36827 has 123 MA's), (40, 36674), (42, 36668), (43, 36665), (44, 36659),

Gene: Morrow\_54 Start: 37386, Stop: 37111, Start Num: 20

Candidate Starts for Morrow\_54:

(9, 37476), (Start: 20 @37386 has 123 MA's), (40, 37233), (43, 37224),

Gene: Myxus\_57 Start: 37956, Stop: 37678, Start Num: 22

Candidate Starts for Myxus\_57:

(Start: 22 @37956 has 82 MA's), (36, 37818), (38, 37812), (39, 37809), (40, 37806), (46, 37779), (51, 37725), (53, 37713),

Gene: NaSiaTalie\_57 Start: 38045, Stop: 37728, Start Num: 22  
Candidate Starts for NaSiaTalie\_57:  
(Start: 22 @38045 has 82 MA's), (36, 37910), (38, 37904), (39, 37901), (40, 37898), (46, 37871), (47, 37844), (53, 37805), (59, 37754),

Gene: Nebs\_54 Start: 37380, Stop: 37105, Start Num: 20  
Candidate Starts for Nebs\_54:  
(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Nemo27\_53 Start: 37379, Stop: 37104, Start Num: 20  
Candidate Starts for Nemo27\_53:  
(9, 37469), (Start: 20 @37379 has 123 MA's), (40, 37226), (43, 37217),

Gene: NicoleTera\_56 Start: 38338, Stop: 38018, Start Num: 22  
Candidate Starts for NicoleTera\_56:  
(Start: 22 @38338 has 82 MA's), (36, 38200), (38, 38194), (39, 38191), (40, 38188), (46, 38161), (47, 38134), (53, 38095), (59, 38044),

Gene: Nigel\_53 Start: 51747, Stop: 51469, Start Num: 24  
Candidate Starts for Nigel\_53:  
(Start: 24 @51747 has 1 MA's), (25, 51735), (28, 51708), (32, 51636), (33, 51633), (37, 51603), (40, 51591), (43, 51582), (44, 51576), (50, 51525),

Gene: Noelle\_53 Start: 37655, Stop: 37383, Start Num: 20  
Candidate Starts for Noelle\_53:  
(Start: 20 @37655 has 123 MA's), (40, 37502), (43, 37493), (45, 37478),

Gene: NorthStar\_52 Start: 37380, Stop: 37105, Start Num: 20  
Candidate Starts for NorthStar\_52:  
(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: NotAPhaseMom\_53 Start: 37384, Stop: 37109, Start Num: 20  
Candidate Starts for NotAPhaseMom\_53:  
(9, 37474), (Start: 20 @37384 has 123 MA's), (40, 37231), (43, 37222),

Gene: NothingSpecial\_55 Start: 38538, Stop: 38239, Start Num: 22  
Candidate Starts for NothingSpecial\_55:  
(Start: 22 @38538 has 82 MA's), (34, 38418), (36, 38400), (38, 38394), (39, 38391), (40, 38388), (46, 38361), (47, 38334), (52, 38304), (53, 38295), (56, 38265),

Gene: Nyxis\_53 Start: 37270, Stop: 36995, Start Num: 20  
Candidate Starts for Nyxis\_53:  
(9, 37360), (Start: 20 @37270 has 123 MA's), (40, 37117), (43, 37108),

Gene: OKaNui\_53 Start: 37430, Stop: 37155, Start Num: 20  
Candidate Starts for OKaNui\_53:  
(9, 37520), (Start: 20 @37430 has 123 MA's), (40, 37277), (43, 37268),

Gene: Obama12\_54 Start: 37800, Stop: 37525, Start Num: 20  
Candidate Starts for Obama12\_54:  
(11, 37845), (Start: 20 @37800 has 123 MA's), (40, 37647), (43, 37638),

Gene: Ohfah\_54 Start: 37380, Stop: 37105, Start Num: 20

Candidate Starts for Ohfah\_54:

(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Onglai\_55 Start: 36297, Stop: 36019, Start Num: 22

Candidate Starts for Onglai\_55:

(Start: 22 @36297 has 82 MA's), (36, 36159), (38, 36153), (39, 36150), (40, 36147), (46, 36120), (51, 36066), (53, 36054),

Gene: PackMan\_56 Start: 37956, Stop: 37678, Start Num: 22

Candidate Starts for PackMan\_56:

(Start: 22 @37956 has 82 MA's), (36, 37818), (38, 37812), (39, 37809), (40, 37806), (46, 37779), (51, 37725), (53, 37713),

Gene: Palestino\_52 Start: 37380, Stop: 37105, Start Num: 20

Candidate Starts for Palestino\_52:

(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: PeaceMeal1\_52 Start: 36540, Stop: 36250, Start Num: 20

Candidate Starts for PeaceMeal1\_52:

(Start: 20 @36540 has 123 MA's), (36, 36399), (40, 36387), (43, 36378), (45, 36363),

Gene: Peaches\_53 Start: 37379, Stop: 37104, Start Num: 20

Candidate Starts for Peaches\_53:

(9, 37469), (Start: 20 @37379 has 123 MA's), (40, 37226), (43, 37217),

Gene: PeterPeter\_53 Start: 37377, Stop: 37102, Start Num: 20

Candidate Starts for PeterPeter\_53:

(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: Phacado\_53 Start: 37379, Stop: 37104, Start Num: 20

Candidate Starts for Phacado\_53:

(9, 37469), (Start: 20 @37379 has 123 MA's), (40, 37226), (43, 37217),

Gene: Phaded\_58 Start: 39250, Stop: 38924, Start Num: 22

Candidate Starts for Phaded\_58:

(Start: 22 @39250 has 82 MA's), (36, 39109), (38, 39103), (39, 39100), (40, 39097), (46, 39070), (47, 39043), (53, 39004), (56, 38974), (59, 38953),

Gene: Phaeder\_57 Start: 37956, Stop: 37678, Start Num: 22

Candidate Starts for Phaeder\_57:

(Start: 22 @37956 has 82 MA's), (36, 37818), (38, 37812), (39, 37809), (40, 37806), (46, 37779), (51, 37725), (53, 37713),

Gene: Phelipe\_54 Start: 37380, Stop: 37105, Start Num: 20

Candidate Starts for Phelipe\_54:

(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Phighter1804\_53 Start: 37441, Stop: 37166, Start Num: 20

Candidate Starts for Phighter1804\_53:

(9, 37531), (Start: 20 @37441 has 123 MA's), (40, 37288), (43, 37279),

Gene: Phonnegut\_57 Start: 38053, Stop: 37775, Start Num: 22

Candidate Starts for Phonnegut\_57:

(Start: 22 @38053 has 82 MA's), (36, 37915), (38, 37909), (39, 37906), (40, 37903), (46, 37876), (51, 37822), (53, 37810),

Gene: Phontbonne\_53 Start: 37271, Stop: 36996, Start Num: 20

Candidate Starts for Phontbonne\_53:

(9, 37361), (Start: 20 @37271 has 123 MA's), (40, 37118), (43, 37109),

Gene: Pioneer\_57 Start: 38053, Stop: 37775, Start Num: 22

Candidate Starts for Pioneer\_57:

(Start: 22 @38053 has 82 MA's), (36, 37915), (38, 37909), (39, 37906), (40, 37903), (46, 37876), (51, 37822), (53, 37810),

Gene: Pipcraft\_51 Start: 37380, Stop: 37105, Start Num: 20

Candidate Starts for Pipcraft\_51:

(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Piro94\_57 Start: 38395, Stop: 38075, Start Num: 22

Candidate Starts for Piro94\_57:

(Start: 22 @38395 has 82 MA's), (29, 38329), (38, 38251), (39, 38248), (40, 38245), (46, 38218), (47, 38191), (53, 38152), (59, 38101),

Gene: Polymorphads\_54 Start: 37373, Stop: 37098, Start Num: 20

Candidate Starts for Polymorphads\_54:

(9, 37463), (Start: 20 @37373 has 123 MA's), (40, 37220), (43, 37211),

Gene: Poompha\_53 Start: 36538, Stop: 36248, Start Num: 20

Candidate Starts for Poompha\_53:

(Start: 20 @36538 has 123 MA's), (40, 36385), (43, 36376), (45, 36361),

Gene: Priya\_57 Start: 38023, Stop: 37745, Start Num: 22

Candidate Starts for Priya\_57:

(Start: 22 @38023 has 82 MA's), (36, 37885), (38, 37879), (39, 37876), (40, 37873), (46, 37846), (51, 37792), (53, 37780),

Gene: Pukovnik\_56 Start: 38902, Stop: 38582, Start Num: 22

Candidate Starts for Pukovnik\_56:

(Start: 22 @38902 has 82 MA's), (36, 38767), (38, 38761), (39, 38758), (40, 38755), (46, 38728), (47, 38701), (53, 38662), (56, 38632), (59, 38611),

Gene: Pumbaa\_53 Start: 37325, Stop: 37050, Start Num: 20

Candidate Starts for Pumbaa\_53:

(9, 37415), (Start: 20 @37325 has 123 MA's), (40, 37172), (43, 37163),

Gene: Qobbit\_57 Start: 37985, Stop: 37707, Start Num: 22

Candidate Starts for Qobbit\_57:

(Start: 22 @37985 has 82 MA's), (36, 37847), (38, 37841), (39, 37838), (40, 37835), (46, 37808), (51, 37754), (53, 37742),

Gene: RedRock\_59 Start: 39237, Stop: 38911, Start Num: 22

Candidate Starts for RedRock\_59:

(Start: 22 @39237 has 82 MA's), (34, 39117), (36, 39099), (38, 39093), (39, 39090), (40, 39087), (46, 39060), (47, 39033), (53, 38994), (59, 38943), (60, 38937),

Gene: Relief\_52 Start: 37377, Stop: 37102, Start Num: 20  
Candidate Starts for Relief\_52:  
(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: Retro23\_58 Start: 38400, Stop: 38077, Start Num: 22  
Candidate Starts for Retro23\_58:  
(Start: 22 @38400 has 82 MA's), (29, 38334), (34, 38280), (38, 38256), (39, 38253), (40, 38250), (46, 38223), (47, 38196), (53, 38157), (56, 38127),

Gene: Rich\_57 Start: 53862, Stop: 53494, Start Num: 10  
Candidate Starts for Rich\_57:  
(3, 53979), (8, 53865), (Start: 10 @53862 has 1 MA's), (18, 53793), (32, 53658), (40, 53613),

Gene: Rinkes\_55 Start: 52581, Stop: 52141, Start Num: 7  
Candidate Starts for Rinkes\_55:  
(Start: 7 @52581 has 1 MA's), (23, 52422), (35, 52290), (38, 52269), (41, 52260), (48, 52206), (49, 52200),

Gene: Romney\_53 Start: 37377, Stop: 37102, Start Num: 20  
Candidate Starts for Romney\_53:  
(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: Roosevelt\_52 Start: 37382, Stop: 37107, Start Num: 20  
Candidate Starts for Roosevelt\_52:  
(9, 37472), (Start: 20 @37382 has 123 MA's), (40, 37229), (43, 37220),

Gene: Rosa24\_52 Start: 37408, Stop: 37133, Start Num: 20  
Candidate Starts for Rosa24\_52:  
(9, 37498), (Start: 20 @37408 has 123 MA's), (40, 37255), (43, 37246),

Gene: Ruin\_53 Start: 37373, Stop: 37098, Start Num: 20  
Candidate Starts for Ruin\_53:  
(9, 37463), (Start: 20 @37373 has 123 MA's), (40, 37220), (43, 37211),

Gene: RyeScarlet\_58 Start: 38028, Stop: 37750, Start Num: 22  
Candidate Starts for RyeScarlet\_58:  
(Start: 22 @38028 has 82 MA's), (36, 37890), (38, 37884), (39, 37881), (40, 37878), (46, 37851), (51, 37797), (53, 37785),

Gene: SJReid\_176 Start: 105039, Stop: 105353, Start Num: 16  
Candidate Starts for SJReid\_176:  
(16, 105039), (27, 105069), (40, 105225), (48, 105279), (55, 105336),

Gene: Sabertooth\_53 Start: 37382, Stop: 37107, Start Num: 20  
Candidate Starts for Sabertooth\_53:  
(9, 37472), (Start: 20 @37382 has 123 MA's), (40, 37229), (43, 37220),

Gene: Sachima\_54 Start: 37938, Stop: 37660, Start Num: 22  
Candidate Starts for Sachima\_54:  
(Start: 22 @37938 has 82 MA's), (36, 37800), (38, 37794), (39, 37791), (40, 37788), (46, 37761), (51, 37707), (53, 37695),

Gene: Scamp\_53 Start: 37382, Stop: 37107, Start Num: 20



Candidate Starts for Scamp\_53:  
(9, 37472), (Start: 20 @37382 has 123 MA's), (40, 37229), (43, 37220),

Gene: Scherzo\_57 Start: 38242, Stop: 37964, Start Num: 22  
Candidate Starts for Scherzo\_57:  
(Start: 22 @38242 has 82 MA's), (36, 38104), (38, 38098), (39, 38095), (40, 38092), (46, 38065), (51, 38011), (53, 37999),

Gene: Severus\_52 Start: 36538, Stop: 36248, Start Num: 20  
Candidate Starts for Severus\_52:  
(Start: 20 @36538 has 123 MA's), (36, 36397), (40, 36385), (43, 36376), (45, 36361),

Gene: Shaka\_53 Start: 37377, Stop: 37102, Start Num: 20  
Candidate Starts for Shaka\_53:  
(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: Shygu2\_52 Start: 37381, Stop: 37082, Start Num: 21  
Candidate Starts for Shygu2\_52:  
(12, 37426), (13, 37423), (Start: 21 @37381 has 2 MA's), (40, 37204), (43, 37195),

Gene: Skipitt\_52 Start: 37374, Stop: 37099, Start Num: 20  
Candidate Starts for Skipitt\_52:  
(9, 37464), (Start: 20 @37374 has 123 MA's), (40, 37221), (43, 37212),

Gene: Smeagan\_60 Start: 38716, Stop: 38390, Start Num: 22  
Candidate Starts for Smeagan\_60:  
(Start: 22 @38716 has 82 MA's), (36, 38578), (38, 38572), (39, 38569), (40, 38566), (46, 38539), (47, 38512), (53, 38473), (56, 38443),

Gene: Sparxx\_54 Start: 37375, Stop: 37100, Start Num: 20  
Candidate Starts for Sparxx\_54:  
(9, 37465), (Start: 20 @37375 has 123 MA's), (40, 37222), (43, 37213),

Gene: Spino\_52 Start: 37380, Stop: 37105, Start Num: 20  
Candidate Starts for Spino\_52:  
(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Spouty\_57 Start: 38022, Stop: 37744, Start Num: 22  
Candidate Starts for Spouty\_57:  
(Start: 22 @38022 has 82 MA's), (36, 37884), (38, 37878), (39, 37875), (40, 37872), (46, 37845), (51, 37791), (53, 37779),

Gene: Stasia\_52 Start: 37257, Stop: 36985, Start Num: 21  
Candidate Starts for Stasia\_52:  
(12, 37302), (13, 37299), (Start: 21 @37257 has 2 MA's), (40, 37104), (43, 37095), (45, 37080),

Gene: Stink\_52 Start: 37107, Stop: 36832, Start Num: 20  
Candidate Starts for Stink\_52:  
(Start: 20 @37107 has 123 MA's), (40, 36954), (42, 36948), (43, 36945),

Gene: TPA4\_54 Start: 39893, Stop: 40261, Start Num: 17  
Candidate Starts for TPA4\_54:  
(17, 39893), (23, 39914), (Start: 24 @39920 has 1 MA's), (26, 39932), (57, 40202), (63, 40241),

Gene: Taquarus\_53 Start: 37383, Stop: 37108, Start Num: 20  
Candidate Starts for Taquarus\_53:  
(9, 37473), (Start: 20 @37383 has 123 MA's), (40, 37230), (43, 37221),

Gene: TarsusIV\_56 Start: 38026, Stop: 37703, Start Num: 22  
Candidate Starts for TarsusIV\_56:  
(Start: 22 @38026 has 82 MA's), (36, 37888), (38, 37882), (39, 37879), (40, 37876), (46, 37849), (47, 37822), (53, 37783),

Gene: Thanksgivukkah\_52 Start: 37378, Stop: 37103, Start Num: 20  
Candidate Starts for Thanksgivukkah\_52:  
(9, 37468), (Start: 20 @37378 has 123 MA's), (40, 37225), (43, 37216),

Gene: Tinybot\_52 Start: 37407, Stop: 37132, Start Num: 20  
Candidate Starts for Tinybot\_52:  
(9, 37497), (Start: 20 @37407 has 123 MA's), (40, 37254), (43, 37245),

Gene: TiroTheta9\_53 Start: 37374, Stop: 37099, Start Num: 20  
Candidate Starts for TiroTheta9\_53:  
(9, 37464), (Start: 20 @37374 has 123 MA's), (40, 37221), (43, 37212),

Gene: Trike\_52 Start: 36547, Stop: 36257, Start Num: 20  
Candidate Starts for Trike\_52:  
(Start: 20 @36547 has 123 MA's), (36, 36406), (40, 36394), (43, 36385), (45, 36370),

Gene: TroyPia\_54 Start: 37378, Stop: 37103, Start Num: 20  
Candidate Starts for TroyPia\_54:  
(9, 37468), (Start: 20 @37378 has 123 MA's), (40, 37225), (43, 37216),

Gene: Tubs\_57 Start: 37956, Stop: 37678, Start Num: 22  
Candidate Starts for Tubs\_57:  
(Start: 22 @37956 has 82 MA's), (36, 37818), (38, 37812), (39, 37809), (40, 37806), (46, 37779), (51, 37725), (53, 37713),

Gene: Turbido\_58 Start: 38450, Stop: 38124, Start Num: 22  
Candidate Starts for Turbido\_58:  
(Start: 22 @38450 has 82 MA's), (36, 38312), (38, 38306), (39, 38303), (40, 38300), (46, 38273), (47, 38246), (53, 38207), (56, 38177),

Gene: TygerBlood\_53 Start: 37380, Stop: 37105, Start Num: 20  
Candidate Starts for TygerBlood\_53:  
(9, 37470), (Start: 20 @37380 has 123 MA's), (40, 37227), (43, 37218),

Gene: Ugenie5\_54 Start: 38241, Stop: 37963, Start Num: 22  
Candidate Starts for Ugenie5\_54:  
(Start: 22 @38241 has 82 MA's), (36, 38103), (38, 38097), (39, 38094), (40, 38091), (46, 38064), (51, 38010), (53, 37998),

Gene: Ulysses\_52 Start: 37057, Stop: 36782, Start Num: 20  
Candidate Starts for Ulysses\_52:  
(9, 37147), (Start: 20 @37057 has 123 MA's), (40, 36904), (43, 36895),

Gene: Updawg\_58 Start: 38292, Stop: 37972, Start Num: 22

Candidate Starts for Updawg\_58:

(Start: 22 @38292 has 82 MA's), (29, 38226), (38, 38148), (39, 38145), (40, 38142), (46, 38115), (47, 38088), (53, 38049), (59, 37998),

Gene: VA6\_58 Start: 38513, Stop: 38187, Start Num: 22

Candidate Starts for VA6\_58:

(Start: 22 @38513 has 82 MA's), (36, 38372), (38, 38366), (39, 38363), (40, 38360), (46, 38333), (47, 38306), (53, 38267),

Gene: Vic9\_56 Start: 51306, Stop: 50992, Start Num: 15

Candidate Starts for Vic9\_56:

(Start: 15 @51306 has 2 MA's), (26, 51258), (33, 51159), (37, 51126), (44, 51099), (53, 51021), (54, 51012),

Gene: Wander\_53 Start: 37377, Stop: 37102, Start Num: 20

Candidate Starts for Wander\_53:

(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: Whabigail7\_58 Start: 38435, Stop: 38109, Start Num: 22

Candidate Starts for Whabigail7\_58:

(Start: 22 @38435 has 82 MA's), (36, 38297), (38, 38291), (39, 38288), (40, 38285), (46, 38258), (47, 38231), (53, 38192), (56, 38162),

Gene: WideWale\_58 Start: 38292, Stop: 37972, Start Num: 22

Candidate Starts for WideWale\_58:

(Start: 22 @38292 has 82 MA's), (29, 38226), (38, 38148), (39, 38145), (40, 38142), (46, 38115), (47, 38088), (53, 38049), (59, 37998),

Gene: Wilbur\_53 Start: 37377, Stop: 37102, Start Num: 20

Candidate Starts for Wilbur\_53:

(9, 37467), (Start: 20 @37377 has 123 MA's), (40, 37224), (43, 37215),

Gene: Wizard007\_53 Start: 37385, Stop: 37110, Start Num: 20

Candidate Starts for Wizard007\_53:

(9, 37475), (Start: 20 @37385 has 123 MA's), (40, 37232), (43, 37223),

Gene: XianYue\_56 Start: 37791, Stop: 37468, Start Num: 22

Candidate Starts for XianYue\_56:

(Start: 22 @37791 has 82 MA's), (38, 37647), (39, 37644), (40, 37641), (46, 37614), (47, 37587), (53, 37548), (56, 37518),

Gene: YoSam321\_53 Start: 37374, Stop: 37099, Start Num: 20

Candidate Starts for YoSam321\_53:

(9, 37464), (Start: 20 @37374 has 123 MA's), (40, 37221), (43, 37212),