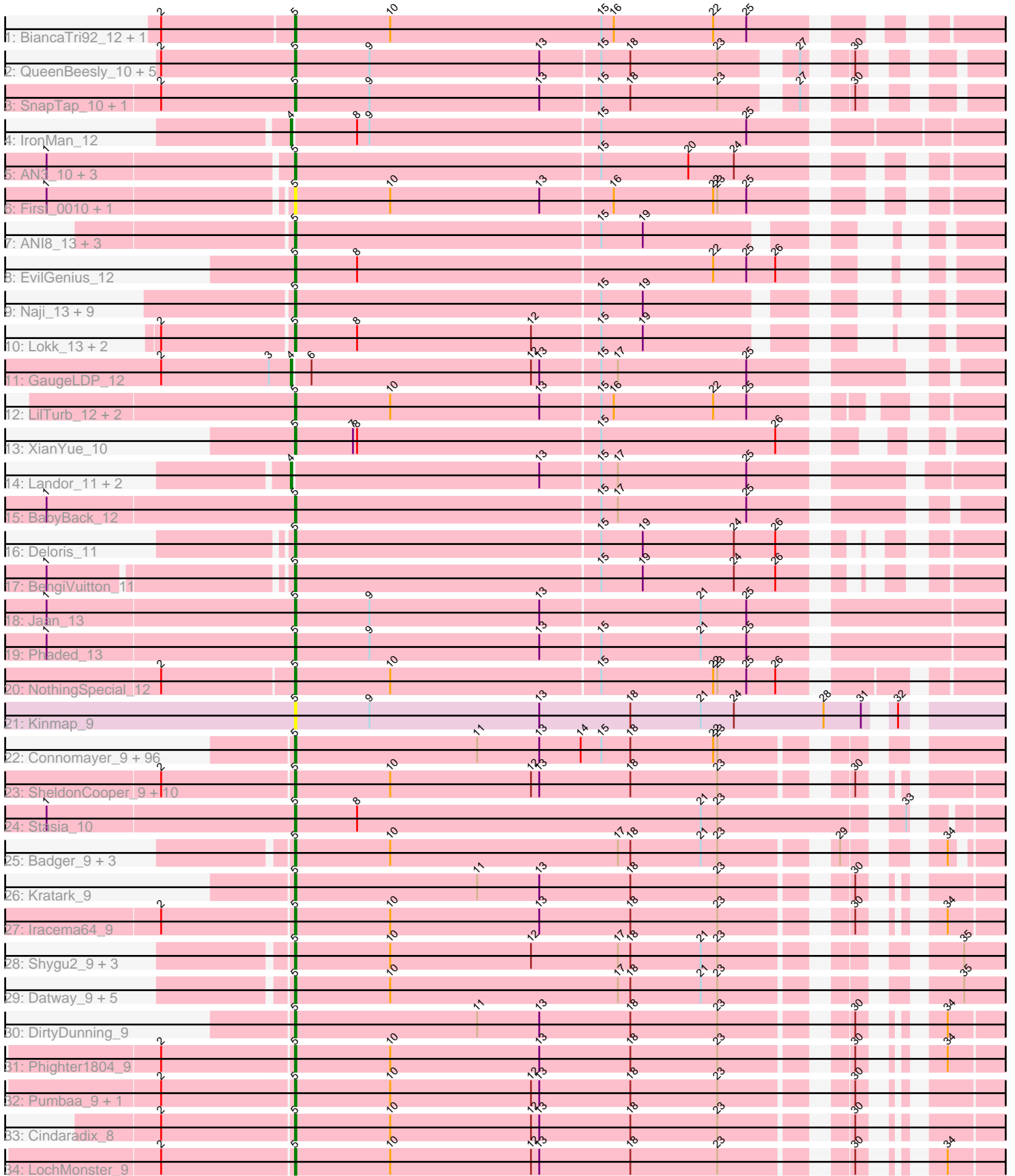


Pham 196318



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 196318 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196318 has 181 members, 6 are drafts.

Phages represented in each track:

- Track 1 : BiancaTri92\_12, Leogania\_12
- Track 2 : QueenBeesly\_10, Georgie2\_11, SemperFi\_12, FiringLine\_10, SweetiePie\_10, Power\_10
- Track 3 : SnapTap\_10, Crucio\_10
- Track 4 : IronMan\_12
- Track 5 : AN3\_10, Benvolio\_10, VA6\_10, Echild\_10
- Track 6 : First\_0010, 20ES\_10
- Track 7 : ANI8\_13, AN9\_13, VC3\_13, C3\_08
- Track 8 : EvilGenius\_12
- Track 9 : Naji\_13, Duplo\_13, Pomar16\_13, D29\_11, D32\_13, Travvers\_13, StarStuff\_13, Kerberos\_13, Tomathan\_13, DBQu4n\_13
- Track 10 : Lokk\_13, Rachaly\_13, Miko\_13
- Track 11 : GaugeLDP\_12
- Track 12 : LilTurb\_12, Jerm\_12, Turbido\_12
- Track 13 : XianYue\_10
- Track 14 : Landor\_11, Bactobuster\_11, Pukovnik\_12
- Track 15 : BabyBack\_12
- Track 16 : Deloris\_11
- Track 17 : BengiVuitton\_11
- Track 18 : Jaan\_13
- Track 19 : Phaded\_13
- Track 20 : NothingSpecial\_12
- Track 21 : Kinmap\_9
- Track 22 : Connomayer\_9, ICleared\_9, Blackmoor\_9, Avle17\_9, Taquarus\_9, PeterPeter\_9, Flux\_9, TiroTheta9\_9, HamSlice\_8, Anyong\_9, Kamy\_9, Polymorphads\_9, LeoAvram\_9, Wizard007\_9, Palestino\_9, Medusa\_9, Lorenzo\_9, Houdini22\_9, Nemo27\_9, TroyPia\_9, Koreni\_8, MeeZee\_9, OKaNui\_9, BubbleTrouble\_9, Broseidon\_9, Happiness\_9, Sabertooth\_9, Burger\_8, YoSam321\_9, Millski\_9, Citius\_9, Jaykayelowell\_9, JetBlade\_9, CentreCat\_9, Clarenza\_9, Commander\_9, Holli\_9, Ruin\_9, Romney\_9, Sparxx\_9, Lemur\_9, Noelle\_9, Eagle\_8, Nebs\_9, Eris\_9, Caelakin\_9, Arturo\_8, Dhanush\_9, NotAPhaseMom\_9, TinaFeyge\_9, Florean\_9, Kyee\_9, Cocoaberry\_9, Skipitt\_9, Shaka\_9, Relief\_9, TygerBlood\_9, Bartimeaus\_9, Ohfah\_9, Maxo\_9, Chaph\_9, BellusTerra\_9, Alberto7\_10, LappelDuVide\_9, Mazhar510\_9, Lunsford\_10, Spino\_9, Roosevelt\_9, Albee\_9, Phacado\_9, Druantia\_9, Iceman\_9, Eurydice\_9, Eros\_9, Gadost\_9, Deano\_9, Funston\_9, Thanksgivukkah\_9, Bombshell\_9, Maverick\_9, JoongJeon\_9, LittleB\_9, Melvin\_9, Pipcraft\_9, KFPoly\_9, Baby16\_9, NorthStar\_9,

Morrow\_9, Phelipe\_9, Peaches\_9, Wilbur\_9, Scamp\_9, Eapen\_9, Bruiser\_9, Wander\_9, Abdiel\_9, Kingmustik0402\_9

- Track 23 : SheldonCooper\_9, Huxley\_9, Obama12\_9, Rosa24\_8, Cerulean\_9, ChampagnePapi\_9, Ulysses\_8, LHTSCC\_9, BangNhom\_8, Tinybot\_8, Camperdownii\_8
- Track 24 : Stasia\_10
- Track 25 : Badger\_9, Cici\_9, Xena\_9, Achebe\_9
- Track 26 : Kratak\_9
- Track 27 : Iracema64\_9
- Track 28 : Shygu2\_9, Morpher26\_9, AbbysRanger\_9, Bumblebee11\_9
- Track 29 : Datway\_9, PetiteSangsue\_9, Wile\_9, Katalie136\_9, Backyardigan\_9, Perplexer\_9
- Track 30 : DirtyDunning\_9
- Track 31 : Phighter1804\_9
- Track 32 : Pumbaa\_9, Mundrea\_9
- Track 33 : Cindaradix\_8
- Track 34 : LochMonster\_9

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

The start number called the most often in the published annotations is 5, it was called in 170 of the 175 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 20ES\_10, AN3\_10, AN9\_13, ANI8\_13, AbbysRanger\_9, Abdiel\_9, Achebe\_9, Albee\_9, Alberto7\_10, Annyong\_9, Arturo\_8, Avle17\_9, Baby16\_9, BabyBack\_12, Backyardigan\_9, Badger\_9, BangNhom\_8, Bartimeaus\_9, BellusTerra\_9, BengiVuitton\_11, Benvolio\_10, BiancaTri92\_12, Blackmoor\_9, Bombshell\_9, Broseidon\_9, Bruiser\_9, BubbleTrouble\_9, Bumblebee11\_9, Burger\_8, C3\_08, Caelakin\_9, Camperdownii\_8, CentreCat\_9, Cerulean\_9, ChampagnePapi\_9, Chaph\_9, Cici\_9, Cindaradix\_8, Citius\_9, Clarenza\_9, Cocoaberry\_9, Commander\_9, Connomayer\_9, Crucio\_10, D29\_11, D32\_13, DBQu4n\_13, Datway\_9, Deano\_9, Deloris\_11, Dhanush\_9, DirtyDunning\_9, Druantia\_9, Duplo\_13, Eagle\_8, Eapen\_9, Echild\_10, Eris\_9, Eros\_9, Eurydice\_9, EvilGenius\_12, FiringLine\_10, First\_0010, Floean\_9, Flux\_9, Funston\_9, Gadost\_9, Georgie2\_11, HamSlice\_8, Happiness\_9, Holli\_9, Houdini22\_9, Huxley\_9, ICleared\_9, Iceman\_9, Iracema64\_9, Jaan\_13, Jaykayelowell\_9, Jerm\_12, JetBlade\_9, JoongJeon\_9, KFPoly\_9, Kamy\_9, Katalie136\_9, Kerberos\_13, Kingmustik0402\_9, Kinmap\_9, Koreni\_8, Kratak\_9, Kyee\_9, LHTSCC\_9, LappelDuVide\_9, Lemur\_9, LeoAvram\_9, Leogania\_12, LilTurb\_12, LittleB\_9, LochMonster\_9, Lokk\_13, Lorenzo\_9, Lunsford\_10, Maverick\_9, Maxo\_9, Mazhar510\_9, Medusa\_9, MeeZee\_9, Melvin\_9, Miko\_13, Millski\_9, Morpher26\_9, Morrow\_9, Mundrea\_9, Naji\_13, Nebs\_9, Nemo27\_9, Noelle\_9, NorthStar\_9, NotAPhaseMom\_9, NothingSpecial\_12, OKaNui\_9, Obama12\_9, Ohfah\_9, Palestino\_9, Peaches\_9, Perplexer\_9, PeterPeter\_9, PetiteSangsue\_9, Phacado\_9, Phaded\_13, Phelipe\_9, Phighter1804\_9, Pipcraft\_9, Polymorphads\_9, Pomar16\_13, Power\_10, Pumbaa\_9, QueenBeesly\_10, Rachaly\_13, Relief\_9, Romney\_9, Roosevelt\_9, Rosa24\_8, Ruin\_9, Sabertooth\_9, Scamp\_9, SemperFi\_12, Shaka\_9, SheldonCooper\_9, Shygu2\_9, Skipitt\_9, SnapTap\_10, Sparxx\_9, Spino\_9, StarStuff\_13, Stasia\_10, SweetiePie\_10, Taquarus\_9, Thanksgivukkah\_9, TinaFeyge\_9, Tinybot\_8, TiroTheta9\_9,

Tomathan\_13, Travvers\_13, TroyPia\_9, Turbido\_12, TygerBlood\_9, Ulysses\_8, VA6\_10, VC3\_13, Wander\_9, Wilbur\_9, Wile\_9, Wizard007\_9, Xena\_9, XianYue\_10, YoSam321\_9,

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

- 

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

- Bactobuster\_11, GaugeLDP\_12, IronMan\_12, Landor\_11, Pukovnik\_12,

### Summary by start number:

Start 4:

- Found in 5 of 181 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 5 of 175
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bactobuster\_11 (A2), GaugeLDP\_12 (A2), IronMan\_12 (A2), Landor\_11 (A2), Pukovnik\_12 (A2),

Start 5:

- Found in 176 of 181 ( 97.2% ) of genes in pham
- Manual Annotations of this start: 170 of 175
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 20ES\_10 (A2), AN3\_10 (A2), AN9\_13 (A2), ANi8\_13 (A2), AbbysRanger\_9 (A4), Abdiel\_9 (A4), Achebe\_9 (A4), Albee\_9 (A4), Alberto7\_10 (A4), Annyong\_9 (A4), Arturo\_8 (A4), Avle17\_9 (A4), Baby16\_9 (A4), BabyBack\_12 (A2), Backyardigan\_9 (A4), Badger\_9 (A4), BangNhom\_8 (A4), Bartimeaus\_9 (A4), BellusTerra\_9 (A4), BengiVuitton\_11 (A2), Benvolio\_10 (A2), BiancaTri92\_12 (A2), Blackmoor\_9 (A4), Bombshell\_9 (A4), Broseidon\_9 (A4), Bruiser\_9 (A4), BubbleTrouble\_9 (A4), Bumblebee11\_9 (A4), Burger\_8 (A4), C3\_08 (A2), Caelakin\_9 (A4), Camperdownii\_8 (A4), CentreCat\_9 (A4), Cerulean\_9 (A4), ChampagnePapi\_9 (A4), Chaph\_9 (A4), Cici\_9 (A4), Cindaradix\_8 (A4), Citius\_9 (A4), Clarenza\_9 (A4), Cocoaberry\_9 (A4), Commander\_9 (A4), Connomayer\_9 (A4), Crucio\_10 (A2), D29\_11 (A2), D32\_13 (A2), DBQu4n\_13 (A2), Datway\_9 (A4), Deano\_9 (A4), Deloris\_11 (A2), Dhanush\_9 (A4), DirtyDunning\_9 (A4), Druantia\_9 (A4), Duplo\_13 (A2), Eagle\_8 (A4), Eapen\_9 (A4), Echild\_10 (A2), Eris\_9 (A4), Eros\_9 (A4), Eurydice\_9 (A4), EvilGenius\_12 (A2), FiringLine\_10 (A2), First\_0010 (A2), Floean\_9 (A4), Flux\_9 (A4), Funston\_9 (A4), Gadost\_9 (A4), Georgie2\_11 (A2), HamSlice\_8 (A4), Happiness\_9 (A4), Holli\_9 (A4), Houdini22\_9 (A4), Huxley\_9 (A4), ICleared\_9 (A4), Iceman\_9 (A4), Iracema64\_9 (A4), Jaan\_13 (A2), Jaykayelowell\_9 (A4), Jerm\_12 (A2), JetBlade\_9 (A4), JoongJeon\_9 (A4), KFPoly\_9 (A4), Kamy\_9 (A4), Katalie136\_9 (A4), Kerberos\_13 (A2), Kingmustik0402\_9 (A4), Kinmap\_9 (A21), Koreni\_8 (A4), Kratark\_9 (A4), Kye\_9 (A4), LHTSCC\_9 (A4), LappelDuVide\_9 (A4), Lemur\_9 (A4), LeoAvram\_9 (A4), Leogania\_12 (A2), LilTurb\_12 (A2), LittleB\_9 (A4), LochMonster\_9 (A4), Lokk\_13 (A2), Lorenzo\_9 (A4), Lunsford\_10 (A4), Maverick\_9 (A4), Maxo\_9 (A4), Mazhar510\_9 (A4), Medusa\_9 (A4), MeeZee\_9 (A4), Melvin\_9 (A4), Miko\_13 (A2), Millski\_9 (A4), Morpher26\_9 (A4), Morrow\_9 (A4), Mundrea\_9 (A4), Naji\_13 (A2), Nebs\_9 (A4), Nemo27\_9 (A4), Noelle\_9 (A4), NorthStar\_9 (A4), NotAPhaseMom\_9 (A4), NothingSpecial\_12 (A2), OKaNui\_9 (A4), Obama12\_9 (A4), Ohfah\_9 (A4), Palestino\_9 (A4), Peaches\_9 (A4), Perplexer\_9 (A4), PeterPeter\_9 (A4), PetiteSangsue\_9 (A4), Phacado\_9 (A4), Phaded\_13 (A2), Phelipe\_9 (A4), Phighter1804\_9 (A4), Pipcraft\_9 (A4), Polymorphads\_9 (A4), Pomar16\_13 (A2), Power\_10 (A2), Pumbaa\_9 (A4),

QueenBeesly\_10 (A2), Rachaly\_13 (A2), Relief\_9 (A4), Romney\_9 (A4), Roosevelt\_9 (A4), Rosa24\_8 (A4), Ruin\_9 (A4), Sabertooth\_9 (A4), Scamp\_9 (A4), SemperFi\_12 (A2), Shaka\_9 (A4), SheldonCooper\_9 (A4), Shygu2\_9 (A4), Skipitt\_9 (A4), SnapTap\_10 (A2), Sparxx\_9 (A4), Spino\_9 (A4), StarStuff\_13 (A2), Stasia\_10 (A4), SweetiePie\_10 (A2), Taquarus\_9 (A4), Thanksgivukkah\_9 (A4), TinaFeyge\_9 (A4), Tinybot\_8 (A4), TiroTheta9\_9 (A4), Tomathan\_13 (A2), Travvers\_13 (A2), TroyPia\_9 (A4), Turbido\_12 (A2), TygerBlood\_9 (A4), Ulysses\_8 (A4), VA6\_10 (A2), VC3\_13 (A2), Wander\_9 (A4), Wilbur\_9 (A4), Wile\_9 (A4), Wizard007\_9 (A4), Xena\_9 (A4), XianYue\_10 (A2), YoSam321\_9 (A4),

### **Summary by clusters:**

There are 3 clusters represented in this pham: A21, A2, A4,

Info for manual annotations of cluster A2:

- Start number 4 was manually annotated 5 times for cluster A2.
- Start number 5 was manually annotated 41 times for cluster A2.

Info for manual annotations of cluster A4:

- Start number 5 was manually annotated 129 times for cluster A4.

### **Gene Information:**

Gene: 20ES\_10 Start: 5985, Stop: 6446, Start Num: 5

Candidate Starts for 20ES\_10:

(1, 5817), (Start: 5 @5985 has 170 MA's), (10, 6054), (13, 6162), (16, 6213), (22, 6285), (23, 6288), (25, 6309),

Gene: AN3\_10 Start: 5970, Stop: 6431, Start Num: 5

Candidate Starts for AN3\_10:

(1, 5799), (Start: 5 @5970 has 170 MA's), (15, 6189), (20, 6252), (24, 6285),

Gene: AN9\_13 Start: 6174, Stop: 6599, Start Num: 5

Candidate Starts for AN9\_13:

(Start: 5 @6174 has 170 MA's), (15, 6393), (19, 6423),

Gene: ANI8\_13 Start: 6174, Stop: 6599, Start Num: 5

Candidate Starts for ANI8\_13:

(Start: 5 @6174 has 170 MA's), (15, 6393), (19, 6423),

Gene: AbbysRanger\_9 Start: 5429, Stop: 5890, Start Num: 5

Candidate Starts for AbbysRanger\_9:

(Start: 5 @5429 has 170 MA's), (10, 5498), (12, 5600), (17, 5663), (18, 5672), (21, 5723), (23, 5735), (35, 5858),

Gene: Abdiel\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Abdiel\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Achebe\_9 Start: 5429, Stop: 5878, Start Num: 5

Candidate Starts for Achebe\_9:

(Start: 5 @5429 has 170 MA's), (10, 5498), (17, 5663), (18, 5672), (21, 5723), (23, 5735), (29, 5801), (34, 5846),

Gene: Albee\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Albee\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Alberto7\_10 Start: 5725, Stop: 6186, Start Num: 5

Candidate Starts for Alberto7\_10:

(Start: 5 @5725 has 170 MA's), (11, 5857), (13, 5902), (14, 5932), (15, 5947), (18, 5968), (22, 6028), (23, 6031),

Gene: Annyong\_9 Start: 5421, Stop: 5882, Start Num: 5

Candidate Starts for Annyong\_9:

(Start: 5 @5421 has 170 MA's), (11, 5553), (13, 5598), (14, 5628), (15, 5643), (18, 5664), (22, 5724), (23, 5727),

Gene: Arturo\_8 Start: 5531, Stop: 5992, Start Num: 5

Candidate Starts for Arturo\_8:

(Start: 5 @5531 has 170 MA's), (11, 5663), (13, 5708), (14, 5738), (15, 5753), (18, 5774), (22, 5834), (23, 5837),

Gene: Avle17\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Avle17\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Baby16\_9 Start: 5429, Stop: 5890, Start Num: 5

Candidate Starts for Baby16\_9:

(Start: 5 @5429 has 170 MA's), (11, 5561), (13, 5606), (14, 5636), (15, 5651), (18, 5672), (22, 5732), (23, 5735),

Gene: BabyBack\_12 Start: 7641, Stop: 8111, Start Num: 5

Candidate Starts for BabyBack\_12:

(1, 7464), (Start: 5 @7641 has 170 MA's), (15, 7860), (17, 7872), (25, 7965),

Gene: Backyardigan\_9 Start: 5429, Stop: 5890, Start Num: 5

Candidate Starts for Backyardigan\_9:

(Start: 5 @5429 has 170 MA's), (10, 5498), (17, 5663), (18, 5672), (21, 5723), (23, 5735), (35, 5858),

Gene: Bactobuster\_11 Start: 7711, Stop: 8190, Start Num: 4

Candidate Starts for Bactobuster\_11:

(Start: 4 @7711 has 5 MA's), (13, 7888), (15, 7930), (17, 7942), (25, 8035),

Gene: Badger\_9 Start: 5430, Stop: 5879, Start Num: 5

Candidate Starts for Badger\_9:

(Start: 5 @5430 has 170 MA's), (10, 5499), (17, 5664), (18, 5673), (21, 5724), (23, 5736), (29, 5802), (34, 5847),

Gene: BangNhom\_8 Start: 5406, Stop: 5858, Start Num: 5

Candidate Starts for BangNhom\_8:

(2, 5313), (Start: 5 @5406 has 170 MA's), (10, 5475), (12, 5577), (13, 5583), (18, 5649), (23, 5712), (30, 5787),

Gene: Bartimeaus\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Bartimeaus\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: BellusTerra\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for BellusTerra\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: BengiVuitton\_11 Start: 6419, Stop: 6868, Start Num: 5

Candidate Starts for BengiVuitton\_11:

(1, 6257), (Start: 5 @6419 has 170 MA's), (15, 6638), (19, 6668), (24, 6734), (26, 6764),

Gene: Benvolio\_10 Start: 6083, Stop: 6544, Start Num: 5

Candidate Starts for Benvolio\_10:

(1, 5912), (Start: 5 @6083 has 170 MA's), (15, 6302), (20, 6365), (24, 6398),

Gene: BiancaTri92\_12 Start: 7749, Stop: 8213, Start Num: 5

Candidate Starts for BiancaTri92\_12:

(2, 7656), (Start: 5 @7749 has 170 MA's), (10, 7818), (15, 7971), (16, 7980), (22, 8052), (25, 8076),

Gene: Blackmoor\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Blackmoor\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Bombshell\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Bombshell\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Broseidon\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Broseidon\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Bruiser\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Bruiser\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: BubbleTrouble\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for BubbleTrouble\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Bumblebee11\_9 Start: 5429, Stop: 5890, Start Num: 5

Candidate Starts for Bumblebee11\_9:

(Start: 5 @5429 has 170 MA's), (10, 5498), (12, 5600), (17, 5663), (18, 5672), (21, 5723), (23, 5735), (35, 5858),

Gene: Burger\_8 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Burger\_8:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: C3\_08 Start: 6174, Stop: 6599, Start Num: 5

Candidate Starts for C3\_08:

(Start: 5 @6174 has 170 MA's), (15, 6393), (19, 6423),

Gene: Caelakin\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Caelakin\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Camperdownii\_8 Start: 5046, Stop: 5498, Start Num: 5

Candidate Starts for Camperdownii\_8:

(2, 4953), (Start: 5 @5046 has 170 MA's), (10, 5115), (12, 5217), (13, 5223), (18, 5289), (23, 5352), (30, 5427),

Gene: CentreCat\_9 Start: 5421, Stop: 5882, Start Num: 5

Candidate Starts for CentreCat\_9:

(Start: 5 @5421 has 170 MA's), (11, 5553), (13, 5598), (14, 5628), (15, 5643), (18, 5664), (22, 5724), (23, 5727),

Gene: Cerulean\_9 Start: 5407, Stop: 5859, Start Num: 5

Candidate Starts for Cerulean\_9:

(2, 5314), (Start: 5 @5407 has 170 MA's), (10, 5476), (12, 5578), (13, 5584), (18, 5650), (23, 5713), (30, 5788),

Gene: ChampagnePapi\_9 Start: 5406, Stop: 5858, Start Num: 5

Candidate Starts for ChampagnePapi\_9:

(2, 5313), (Start: 5 @5406 has 170 MA's), (10, 5475), (12, 5577), (13, 5583), (18, 5649), (23, 5712), (30, 5787),

Gene: Chaph\_9 Start: 5429, Stop: 5890, Start Num: 5

Candidate Starts for Chaph\_9:

(Start: 5 @5429 has 170 MA's), (11, 5561), (13, 5606), (14, 5636), (15, 5651), (18, 5672), (22, 5732), (23, 5735),

Gene: Cici\_9 Start: 5429, Stop: 5878, Start Num: 5

Candidate Starts for Cici\_9:

(Start: 5 @5429 has 170 MA's), (10, 5498), (17, 5663), (18, 5672), (21, 5723), (23, 5735), (29, 5801), (34, 5846),

Gene: Cindaradix\_8 Start: 5135, Stop: 5587, Start Num: 5

Candidate Starts for Cindaradix\_8:

(2, 5042), (Start: 5 @5135 has 170 MA's), (10, 5204), (12, 5306), (13, 5312), (18, 5378), (23, 5441), (30, 5516),

Gene: Citius\_9 Start: 5420, Stop: 5881, Start Num: 5



Candidate Starts for Citius\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Clarenza\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Clarenza\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Cocoaberry\_9 Start: 5424, Stop: 5885, Start Num: 5

Candidate Starts for Cocoaberry\_9:

(Start: 5 @5424 has 170 MA's), (11, 5556), (13, 5601), (14, 5631), (15, 5646), (18, 5667), (22, 5727), (23, 5730),

Gene: Commander\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Commander\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Connomayer\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Connomayer\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Crucio\_10 Start: 5938, Stop: 6375, Start Num: 5

Candidate Starts for Crucio\_10:

(2, 5842), (Start: 5 @5938 has 170 MA's), (9, 5992), (13, 6115), (15, 6157), (18, 6178), (23, 6241), (27, 6283), (30, 6304),

Gene: D29\_11 Start: 6175, Stop: 6600, Start Num: 5

Candidate Starts for D29\_11:

(Start: 5 @6175 has 170 MA's), (15, 6394), (19, 6424),

Gene: D32\_13 Start: 6175, Stop: 6600, Start Num: 5

Candidate Starts for D32\_13:

(Start: 5 @6175 has 170 MA's), (15, 6394), (19, 6424),

Gene: DBQu4n\_13 Start: 6175, Stop: 6600, Start Num: 5

Candidate Starts for DBQu4n\_13:

(Start: 5 @6175 has 170 MA's), (15, 6394), (19, 6424),

Gene: Datway\_9 Start: 5429, Stop: 5890, Start Num: 5

Candidate Starts for Datway\_9:

(Start: 5 @5429 has 170 MA's), (10, 5498), (17, 5663), (18, 5672), (21, 5723), (23, 5735), (35, 5858),

Gene: Deano\_9 Start: 5426, Stop: 5887, Start Num: 5

Candidate Starts for Deano\_9:

(Start: 5 @5426 has 170 MA's), (11, 5558), (13, 5603), (14, 5633), (15, 5648), (18, 5669), (22, 5729), (23, 5732),

Gene: Deloris\_11 Start: 6419, Stop: 6868, Start Num: 5

Candidate Starts for Deloris\_11:

(Start: 5 @6419 has 170 MA's), (15, 6638), (19, 6668), (24, 6734), (26, 6764),

Gene: Dhanush\_9 Start: 5423, Stop: 5884, Start Num: 5

Candidate Starts for Dhanush\_9:

(Start: 5 @5423 has 170 MA's), (11, 5555), (13, 5600), (14, 5630), (15, 5645), (18, 5666), (22, 5726), (23, 5729),

Gene: DirtyDunning\_9 Start: 5425, Stop: 5877, Start Num: 5

Candidate Starts for DirtyDunning\_9:

(Start: 5 @5425 has 170 MA's), (11, 5557), (13, 5602), (18, 5668), (23, 5731), (30, 5806), (34, 5836),

Gene: Druantia\_9 Start: 5421, Stop: 5882, Start Num: 5

Candidate Starts for Druantia\_9:

(Start: 5 @5421 has 170 MA's), (11, 5553), (13, 5598), (14, 5628), (15, 5643), (18, 5664), (22, 5724), (23, 5727),

Gene: Duplo\_13 Start: 6216, Stop: 6641, Start Num: 5

Candidate Starts for Duplo\_13:

(Start: 5 @6216 has 170 MA's), (15, 6435), (19, 6465),

Gene: Eagle\_8 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Eagle\_8:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Eapen\_9 Start: 5422, Stop: 5883, Start Num: 5

Candidate Starts for Eapen\_9:

(Start: 5 @5422 has 170 MA's), (11, 5554), (13, 5599), (14, 5629), (15, 5644), (18, 5665), (22, 5725), (23, 5728),

Gene: Echild\_10 Start: 6083, Stop: 6544, Start Num: 5

Candidate Starts for Echild\_10:

(1, 5912), (Start: 5 @6083 has 170 MA's), (15, 6302), (20, 6365), (24, 6398),

Gene: Eris\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Eris\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Eros\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Eros\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Eurydice\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Eurydice\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: EvilGenius\_12 Start: 6384, Stop: 6953, Start Num: 5

Candidate Starts for EvilGenius\_12:

(Start: 5 @6384 has 170 MA's), (8, 6429), (22, 6684), (25, 6708), (26, 6729),

Gene: FiringLine\_10 Start: 5938, Stop: 6375, Start Num: 5

Candidate Starts for FiringLine\_10:

(2, 5842), (Start: 5 @5938 has 170 MA's), (9, 5992), (13, 6115), (15, 6157), (18, 6178), (23, 6241), (27, 6283), (30, 6304),

Gene: First\_0010 Start: 5985, Stop: 6446, Start Num: 5

Candidate Starts for First\_0010:

(1, 5817), (Start: 5 @5985 has 170 MA's), (10, 6054), (13, 6162), (16, 6213), (22, 6285), (23, 6288), (25, 6309),

Gene: Florean\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Florean\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Flux\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Flux\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Funston\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Funston\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Gadost\_9 Start: 5424, Stop: 5885, Start Num: 5

Candidate Starts for Gadost\_9:

(Start: 5 @5424 has 170 MA's), (11, 5556), (13, 5601), (14, 5631), (15, 5646), (18, 5667), (22, 5727), (23, 5730),

Gene: GaugeLDP\_12 Start: 7318, Stop: 7788, Start Num: 4

Candidate Starts for GaugeLDP\_12:

(2, 7225), (3, 7303), (Start: 4 @7318 has 5 MA's), (6, 7330), (12, 7489), (13, 7495), (15, 7537), (17, 7549), (25, 7642),

Gene: Georgie2\_11 Start: 5939, Stop: 6376, Start Num: 5

Candidate Starts for Georgie2\_11:

(2, 5843), (Start: 5 @5939 has 170 MA's), (9, 5993), (13, 6116), (15, 6158), (18, 6179), (23, 6242), (27, 6284), (30, 6305),

Gene: HamSlice\_8 Start: 5421, Stop: 5882, Start Num: 5

Candidate Starts for HamSlice\_8:

(Start: 5 @5421 has 170 MA's), (11, 5553), (13, 5598), (14, 5628), (15, 5643), (18, 5664), (22, 5724), (23, 5727),

Gene: Happiness\_9 Start: 5425, Stop: 5886, Start Num: 5

Candidate Starts for Happiness\_9:

(Start: 5 @5425 has 170 MA's), (11, 5557), (13, 5602), (14, 5632), (15, 5647), (18, 5668), (22, 5728), (23, 5731),

Gene: Holli\_9 Start: 5213, Stop: 5674, Start Num: 5

Candidate Starts for Holli\_9:

(Start: 5 @5213 has 170 MA's), (11, 5345), (13, 5390), (14, 5420), (15, 5435), (18, 5456), (22, 5516), (23, 5519),

Gene: Houdini22\_9 Start: 5424, Stop: 5885, Start Num: 5

Candidate Starts for Houdini22\_9:

(Start: 5 @5424 has 170 MA's), (11, 5556), (13, 5601), (14, 5631), (15, 5646), (18, 5667), (22, 5727), (23, 5730),

Gene: Huxley\_9 Start: 5493, Stop: 5945, Start Num: 5

Candidate Starts for Huxley\_9:

(2, 5400), (Start: 5 @5493 has 170 MA's), (10, 5562), (12, 5664), (13, 5670), (18, 5736), (23, 5799), (30, 5874),

Gene: ICleared\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for ICleared\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Iceman\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Iceman\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Iracema64\_9 Start: 5406, Stop: 5858, Start Num: 5

Candidate Starts for Iracema64\_9:

(2, 5313), (Start: 5 @5406 has 170 MA's), (10, 5475), (13, 5583), (18, 5649), (23, 5712), (30, 5787), (34, 5817),

Gene: IronMan\_12 Start: 7666, Stop: 8154, Start Num: 4

Candidate Starts for IronMan\_12:

(Start: 4 @7666 has 5 MA's), (8, 7711), (9, 7720), (15, 7885), (25, 7990),

Gene: Jaan\_13 Start: 8050, Stop: 8544, Start Num: 5

Candidate Starts for Jaan\_13:

(1, 7873), (Start: 5 @8050 has 170 MA's), (9, 8104), (13, 8227), (21, 8341), (25, 8374),

Gene: Jaykayelowell\_9 Start: 5419, Stop: 5880, Start Num: 5

Candidate Starts for Jaykayelowell\_9:

(Start: 5 @5419 has 170 MA's), (11, 5551), (13, 5596), (14, 5626), (15, 5641), (18, 5662), (22, 5722), (23, 5725),

Gene: Jerm\_12 Start: 6372, Stop: 6836, Start Num: 5

Candidate Starts for Jerm\_12:

(Start: 5 @6372 has 170 MA's), (10, 6441), (13, 6549), (15, 6591), (16, 6600), (22, 6672), (25, 6696),

Gene: JetBlade\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for JetBlade\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: JoongJeon\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for JoongJeon\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: KFPoly\_9 Start: 5420, Stop: 5881, Start Num: 5  
Candidate Starts for KFPoly\_9:  
(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723),  
(23, 5726),

Gene: Kamy\_9 Start: 5421, Stop: 5882, Start Num: 5  
Candidate Starts for Kamy\_9:  
(Start: 5 @5421 has 170 MA's), (11, 5553), (13, 5598), (14, 5628), (15, 5643), (18, 5664), (22, 5724),  
(23, 5727),

Gene: Katalie136\_9 Start: 5429, Stop: 5890, Start Num: 5  
Candidate Starts for Katalie136\_9:  
(Start: 5 @5429 has 170 MA's), (10, 5498), (17, 5663), (18, 5672), (21, 5723), (23, 5735), (35, 5858),

Gene: Kerberos\_13 Start: 6175, Stop: 6600, Start Num: 5  
Candidate Starts for Kerberos\_13:  
(Start: 5 @6175 has 170 MA's), (15, 6394), (19, 6424),

Gene: Kingmustik0402\_9 Start: 5412, Stop: 5873, Start Num: 5  
Candidate Starts for Kingmustik0402\_9:  
(Start: 5 @5412 has 170 MA's), (11, 5544), (13, 5589), (14, 5619), (15, 5634), (18, 5655), (22, 5715),  
(23, 5718),

Gene: Kinmap\_9 Start: 5941, Stop: 6426, Start Num: 5  
Candidate Starts for Kinmap\_9:  
(Start: 5 @5941 has 170 MA's), (9, 5995), (13, 6118), (18, 6184), (21, 6235), (24, 6259), (28, 6322),  
(31, 6349), (32, 6361),

Gene: Koreni\_8 Start: 5069, Stop: 5530, Start Num: 5  
Candidate Starts for Koreni\_8:  
(Start: 5 @5069 has 170 MA's), (11, 5201), (13, 5246), (14, 5276), (15, 5291), (18, 5312), (22, 5372),  
(23, 5375),

Gene: Kratak\_9 Start: 5424, Stop: 5876, Start Num: 5  
Candidate Starts for Kratak\_9:  
(Start: 5 @5424 has 170 MA's), (11, 5556), (13, 5601), (18, 5667), (23, 5730), (30, 5805),

Gene: Kyee\_9 Start: 5421, Stop: 5882, Start Num: 5  
Candidate Starts for Kyee\_9:  
(Start: 5 @5421 has 170 MA's), (11, 5553), (13, 5598), (14, 5628), (15, 5643), (18, 5664), (22, 5724),  
(23, 5727),

Gene: LHTSCC\_9 Start: 5406, Stop: 5858, Start Num: 5  
Candidate Starts for LHTSCC\_9:  
(2, 5313), (Start: 5 @5406 has 170 MA's), (10, 5475), (12, 5577), (13, 5583), (18, 5649), (23, 5712),  
(30, 5787),

Gene: Landor\_11 Start: 7717, Stop: 8196, Start Num: 4  
Candidate Starts for Landor\_11:  
(Start: 4 @7717 has 5 MA's), (13, 7894), (15, 7936), (17, 7948), (25, 8041),

Gene: LappelDuVide\_9 Start: 5420, Stop: 5881, Start Num: 5  
Candidate Starts for LappelDuVide\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Lemur\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Lemur\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: LeoAvram\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for LeoAvram\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Leogania\_12 Start: 8106, Stop: 8570, Start Num: 5

Candidate Starts for Leogania\_12:

(2, 8013), (Start: 5 @8106 has 170 MA's), (10, 8175), (15, 8328), (16, 8337), (22, 8409), (25, 8433),

Gene: LilTurb\_12 Start: 6431, Stop: 6895, Start Num: 5

Candidate Starts for LilTurb\_12:

(Start: 5 @6431 has 170 MA's), (10, 6500), (13, 6608), (15, 6650), (16, 6659), (22, 6731), (25, 6755),

Gene: LittleB\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for LittleB\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: LochMonster\_9 Start: 5404, Stop: 5856, Start Num: 5

Candidate Starts for LochMonster\_9:

(2, 5311), (Start: 5 @5404 has 170 MA's), (10, 5473), (12, 5575), (13, 5581), (18, 5647), (23, 5710), (30, 5785), (34, 5815),

Gene: Lokk\_13 Start: 7712, Stop: 8134, Start Num: 5

Candidate Starts for Lokk\_13:

(2, 7619), (Start: 5 @7712 has 170 MA's), (8, 7757), (12, 7883), (15, 7931), (19, 7961),

Gene: Lorenzo\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Lorenzo\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Lunsford\_10 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Lunsford\_10:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Maverick\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Maverick\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Maxo\_9 Start: 5421, Stop: 5882, Start Num: 5

Candidate Starts for Maxo\_9:

(Start: 5 @5421 has 170 MA's), (11, 5553), (13, 5598), (14, 5628), (15, 5643), (18, 5664), (22, 5724), (23, 5727),

Gene: Mazhar510\_9 Start: 5421, Stop: 5882, Start Num: 5

Candidate Starts for Mazhar510\_9:

(Start: 5 @5421 has 170 MA's), (11, 5553), (13, 5598), (14, 5628), (15, 5643), (18, 5664), (22, 5724), (23, 5727),

Gene: Medusa\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Medusa\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: MeeZee\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for MeeZee\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Melvin\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Melvin\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Miko\_13 Start: 7681, Stop: 8103, Start Num: 5

Candidate Starts for Miko\_13:

(2, 7588), (Start: 5 @7681 has 170 MA's), (8, 7726), (12, 7852), (15, 7900), (19, 7930),

Gene: Millski\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Millski\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Morpher26\_9 Start: 5429, Stop: 5890, Start Num: 5

Candidate Starts for Morpher26\_9:

(Start: 5 @5429 has 170 MA's), (10, 5498), (12, 5600), (17, 5663), (18, 5672), (21, 5723), (23, 5735), (35, 5858),

Gene: Morrow\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Morrow\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Mundrea\_9 Start: 5391, Stop: 5843, Start Num: 5

Candidate Starts for Mundrea\_9:

(2, 5298), (Start: 5 @5391 has 170 MA's), (10, 5460), (12, 5562), (13, 5568), (18, 5634), (23, 5697), (30, 5772),

Gene: Naji\_13 Start: 6175, Stop: 6600, Start Num: 5

Candidate Starts for Naji\_13:

(Start: 5 @6175 has 170 MA's), (15, 6394), (19, 6424),

Gene: Nebs\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Nebs\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Nemo27\_9 Start: 5419, Stop: 5880, Start Num: 5

Candidate Starts for Nemo27\_9:

(Start: 5 @5419 has 170 MA's), (11, 5551), (13, 5596), (14, 5626), (15, 5641), (18, 5662), (22, 5722), (23, 5725),

Gene: Noelle\_9 Start: 5486, Stop: 5947, Start Num: 5

Candidate Starts for Noelle\_9:

(Start: 5 @5486 has 170 MA's), (11, 5618), (13, 5663), (14, 5693), (15, 5708), (18, 5729), (22, 5789), (23, 5792),

Gene: NorthStar\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for NorthStar\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: NotAPhaseMom\_9 Start: 5424, Stop: 5885, Start Num: 5

Candidate Starts for NotAPhaseMom\_9:

(Start: 5 @5424 has 170 MA's), (11, 5556), (13, 5601), (14, 5631), (15, 5646), (18, 5667), (22, 5727), (23, 5730),

Gene: NothingSpecial\_12 Start: 7983, Stop: 8459, Start Num: 5

Candidate Starts for NothingSpecial\_12:

(2, 7890), (Start: 5 @7983 has 170 MA's), (10, 8052), (15, 8202), (22, 8283), (23, 8286), (25, 8307), (26, 8328),

Gene: OKaNui\_9 Start: 5185, Stop: 5646, Start Num: 5

Candidate Starts for OKaNui\_9:

(Start: 5 @5185 has 170 MA's), (11, 5317), (13, 5362), (14, 5392), (15, 5407), (18, 5428), (22, 5488), (23, 5491),

Gene: Obama12\_9 Start: 5408, Stop: 5860, Start Num: 5

Candidate Starts for Obama12\_9:

(2, 5315), (Start: 5 @5408 has 170 MA's), (10, 5477), (12, 5579), (13, 5585), (18, 5651), (23, 5714), (30, 5789),

Gene: Ohfah\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Ohfah\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Palestino\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Palestino\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Peaches\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Peaches\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),



Gene: Perplexer\_9 Start: 5423, Stop: 5884, Start Num: 5  
Candidate Starts for Perplexer\_9:  
(Start: 5 @5423 has 170 MA's), (10, 5492), (17, 5657), (18, 5666), (21, 5717), (23, 5729), (35, 5852),

Gene: PeterPeter\_9 Start: 5420, Stop: 5881, Start Num: 5  
Candidate Starts for PeterPeter\_9:  
(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723),  
(23, 5726),

Gene: PetiteSangsue\_9 Start: 5429, Stop: 5890, Start Num: 5  
Candidate Starts for PetiteSangsue\_9:  
(Start: 5 @5429 has 170 MA's), (10, 5498), (17, 5663), (18, 5672), (21, 5723), (23, 5735), (35, 5858),

Gene: Phacado\_9 Start: 5419, Stop: 5880, Start Num: 5  
Candidate Starts for Phacado\_9:  
(Start: 5 @5419 has 170 MA's), (11, 5551), (13, 5596), (14, 5626), (15, 5641), (18, 5662), (22, 5722),  
(23, 5725),

Gene: Phaded\_13 Start: 8049, Stop: 8543, Start Num: 5  
Candidate Starts for Phaded\_13:  
(1, 7872), (Start: 5 @8049 has 170 MA's), (9, 8103), (13, 8226), (15, 8268), (21, 8340), (25, 8373),

Gene: Phelipe\_9 Start: 5420, Stop: 5881, Start Num: 5  
Candidate Starts for Phelipe\_9:  
(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723),  
(23, 5726),

Gene: Phighter1804\_9 Start: 5405, Stop: 5857, Start Num: 5  
Candidate Starts for Phighter1804\_9:  
(2, 5312), (Start: 5 @5405 has 170 MA's), (10, 5474), (13, 5582), (18, 5648), (23, 5711), (30, 5786),  
(34, 5816),

Gene: Pipcraft\_9 Start: 5420, Stop: 5881, Start Num: 5  
Candidate Starts for Pipcraft\_9:  
(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723),  
(23, 5726),

Gene: Polymorphads\_9 Start: 5420, Stop: 5881, Start Num: 5  
Candidate Starts for Polymorphads\_9:  
(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723),  
(23, 5726),

Gene: Pomar16\_13 Start: 6216, Stop: 6641, Start Num: 5  
Candidate Starts for Pomar16\_13:  
(Start: 5 @6216 has 170 MA's), (15, 6435), (19, 6465),

Gene: Power\_10 Start: 5938, Stop: 6375, Start Num: 5  
Candidate Starts for Power\_10:  
(2, 5842), (Start: 5 @5938 has 170 MA's), (9, 5992), (13, 6115), (15, 6157), (18, 6178), (23, 6241), (27,  
6283), (30, 6304),

Gene: Pukovnik\_12 Start: 7625, Stop: 8104, Start Num: 4  
Candidate Starts for Pukovnik\_12:

(Start: 4 @7625 has 5 MA's), (13, 7802), (15, 7844), (17, 7856), (25, 7949),

Gene: Pumbaa\_9 Start: 5404, Stop: 5856, Start Num: 5

Candidate Starts for Pumbaa\_9:

(2, 5311), (Start: 5 @5404 has 170 MA's), (10, 5473), (12, 5575), (13, 5581), (18, 5647), (23, 5710), (30, 5785),

Gene: QueenBeesly\_10 Start: 5938, Stop: 6375, Start Num: 5

Candidate Starts for QueenBeesly\_10:

(2, 5842), (Start: 5 @5938 has 170 MA's), (9, 5992), (13, 6115), (15, 6157), (18, 6178), (23, 6241), (27, 6283), (30, 6304),

Gene: Rachaly\_13 Start: 7710, Stop: 8132, Start Num: 5

Candidate Starts for Rachaly\_13:

(2, 7617), (Start: 5 @7710 has 170 MA's), (8, 7755), (12, 7881), (15, 7929), (19, 7959),

Gene: Relief\_9 Start: 5421, Stop: 5882, Start Num: 5

Candidate Starts for Relief\_9:

(Start: 5 @5421 has 170 MA's), (11, 5553), (13, 5598), (14, 5628), (15, 5643), (18, 5664), (22, 5724), (23, 5727),

Gene: Romney\_9 Start: 5419, Stop: 5880, Start Num: 5

Candidate Starts for Romney\_9:

(Start: 5 @5419 has 170 MA's), (11, 5551), (13, 5596), (14, 5626), (15, 5641), (18, 5662), (22, 5722), (23, 5725),

Gene: Roosevelt\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Roosevelt\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Rosa24\_8 Start: 5404, Stop: 5856, Start Num: 5

Candidate Starts for Rosa24\_8:

(2, 5311), (Start: 5 @5404 has 170 MA's), (10, 5473), (12, 5575), (13, 5581), (18, 5647), (23, 5710), (30, 5785),

Gene: Ruin\_9 Start: 5419, Stop: 5880, Start Num: 5

Candidate Starts for Ruin\_9:

(Start: 5 @5419 has 170 MA's), (11, 5551), (13, 5596), (14, 5626), (15, 5641), (18, 5662), (22, 5722), (23, 5725),

Gene: Sabertooth\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Sabertooth\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Scamp\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Scamp\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: SemperFi\_12 Start: 6366, Stop: 6803, Start Num: 5

Candidate Starts for SemperFi\_12:

(2, 6270), (Start: 5 @6366 has 170 MA's), (9, 6420), (13, 6543), (15, 6585), (18, 6606), (23, 6669), (27, 6711), (30, 6732),

Gene: Shaka\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Shaka\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: SheldonCooper\_9 Start: 5407, Stop: 5859, Start Num: 5

Candidate Starts for SheldonCooper\_9:

(2, 5314), (Start: 5 @5407 has 170 MA's), (10, 5476), (12, 5578), (13, 5584), (18, 5650), (23, 5713), (30, 5788),

Gene: Shygu2\_9 Start: 5423, Stop: 5884, Start Num: 5

Candidate Starts for Shygu2\_9:

(Start: 5 @5423 has 170 MA's), (10, 5492), (12, 5594), (17, 5657), (18, 5666), (21, 5717), (23, 5729), (35, 5852),

Gene: Skipitt\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Skipitt\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: SnapTap\_10 Start: 5938, Stop: 6375, Start Num: 5

Candidate Starts for SnapTap\_10:

(2, 5842), (Start: 5 @5938 has 170 MA's), (9, 5992), (13, 6115), (15, 6157), (18, 6178), (23, 6241), (27, 6283), (30, 6304),

Gene: Sparxx\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Sparxx\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Spino\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for Spino\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: StarStuff\_13 Start: 6175, Stop: 6600, Start Num: 5

Candidate Starts for StarStuff\_13:

(Start: 5 @6175 has 170 MA's), (15, 6394), (19, 6424),

Gene: Stasia\_10 Start: 5853, Stop: 6326, Start Num: 5

Candidate Starts for Stasia\_10:

(1, 5676), (Start: 5 @5853 has 170 MA's), (8, 5898), (21, 6147), (23, 6159), (33, 6276),

Gene: SweetiePie\_10 Start: 5938, Stop: 6375, Start Num: 5

Candidate Starts for SweetiePie\_10:

(2, 5842), (Start: 5 @5938 has 170 MA's), (9, 5992), (13, 6115), (15, 6157), (18, 6178), (23, 6241), (27, 6283), (30, 6304),

Gene: Taquarus\_9 Start: 5423, Stop: 5884, Start Num: 5

Candidate Starts for Taquarus\_9:

(Start: 5 @5423 has 170 MA's), (11, 5555), (13, 5600), (14, 5630), (15, 5645), (18, 5666), (22, 5726), (23, 5729),

Gene: Thanksgivukkah\_9 Start: 5425, Stop: 5886, Start Num: 5

Candidate Starts for Thanksgivukkah\_9:

(Start: 5 @5425 has 170 MA's), (11, 5557), (13, 5602), (14, 5632), (15, 5647), (18, 5668), (22, 5728), (23, 5731),

Gene: TinaFeyge\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for TinaFeyge\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Tinybot\_8 Start: 5409, Stop: 5861, Start Num: 5

Candidate Starts for Tinybot\_8:

(2, 5316), (Start: 5 @5409 has 170 MA's), (10, 5478), (12, 5580), (13, 5586), (18, 5652), (23, 5715), (30, 5790),

Gene: TiroTheta9\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for TiroTheta9\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Tomathan\_13 Start: 6175, Stop: 6600, Start Num: 5

Candidate Starts for Tomathan\_13:

(Start: 5 @6175 has 170 MA's), (15, 6394), (19, 6424),

Gene: Travvers\_13 Start: 6175, Stop: 6600, Start Num: 5

Candidate Starts for Travvers\_13:

(Start: 5 @6175 has 170 MA's), (15, 6394), (19, 6424),

Gene: TroyPia\_9 Start: 5420, Stop: 5881, Start Num: 5

Candidate Starts for TroyPia\_9:

(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723), (23, 5726),

Gene: Turbido\_12 Start: 6434, Stop: 6898, Start Num: 5

Candidate Starts for Turbido\_12:

(Start: 5 @6434 has 170 MA's), (10, 6503), (13, 6611), (15, 6653), (16, 6662), (22, 6734), (25, 6758),

Gene: TygerBlood\_9 Start: 5422, Stop: 5883, Start Num: 5

Candidate Starts for TygerBlood\_9:

(Start: 5 @5422 has 170 MA's), (11, 5554), (13, 5599), (14, 5629), (15, 5644), (18, 5665), (22, 5725), (23, 5728),

Gene: Ulysses\_8 Start: 5148, Stop: 5600, Start Num: 5

Candidate Starts for Ulysses\_8:

(2, 5055), (Start: 5 @5148 has 170 MA's), (10, 5217), (12, 5319), (13, 5325), (18, 5391), (23, 5454), (30, 5529),

Gene: VA6\_10 Start: 5970, Stop: 6431, Start Num: 5

Candidate Starts for VA6\_10:

(1, 5799), (Start: 5 @5970 has 170 MA's), (15, 6189), (20, 6252), (24, 6285),

Gene: VC3\_13 Start: 6174, Stop: 6599, Start Num: 5  
Candidate Starts for VC3\_13:  
(Start: 5 @6174 has 170 MA's), (15, 6393), (19, 6423),

Gene: Wander\_9 Start: 5420, Stop: 5881, Start Num: 5  
Candidate Starts for Wander\_9:  
(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723),  
(23, 5726),

Gene: Wilbur\_9 Start: 5419, Stop: 5880, Start Num: 5  
Candidate Starts for Wilbur\_9:  
(Start: 5 @5419 has 170 MA's), (11, 5551), (13, 5596), (14, 5626), (15, 5641), (18, 5662), (22, 5722),  
(23, 5725),

Gene: Wile\_9 Start: 5430, Stop: 5891, Start Num: 5  
Candidate Starts for Wile\_9:  
(Start: 5 @5430 has 170 MA's), (10, 5499), (17, 5664), (18, 5673), (21, 5724), (23, 5736), (35, 5859),

Gene: Wizard007\_9 Start: 5422, Stop: 5883, Start Num: 5  
Candidate Starts for Wizard007\_9:  
(Start: 5 @5422 has 170 MA's), (11, 5554), (13, 5599), (14, 5629), (15, 5644), (18, 5665), (22, 5725),  
(23, 5728),

Gene: Xena\_9 Start: 5429, Stop: 5878, Start Num: 5  
Candidate Starts for Xena\_9:  
(Start: 5 @5429 has 170 MA's), (10, 5498), (17, 5663), (18, 5672), (21, 5723), (23, 5735), (29, 5801),  
(34, 5846),

Gene: XianYue\_10 Start: 5913, Stop: 6362, Start Num: 5  
Candidate Starts for XianYue\_10:  
(Start: 5 @5913 has 170 MA's), (7, 5955), (8, 5958), (15, 6132), (26, 6258),

Gene: YoSam321\_9 Start: 5420, Stop: 5881, Start Num: 5  
Candidate Starts for YoSam321\_9:  
(Start: 5 @5420 has 170 MA's), (11, 5552), (13, 5597), (14, 5627), (15, 5642), (18, 5663), (22, 5723),  
(23, 5726),