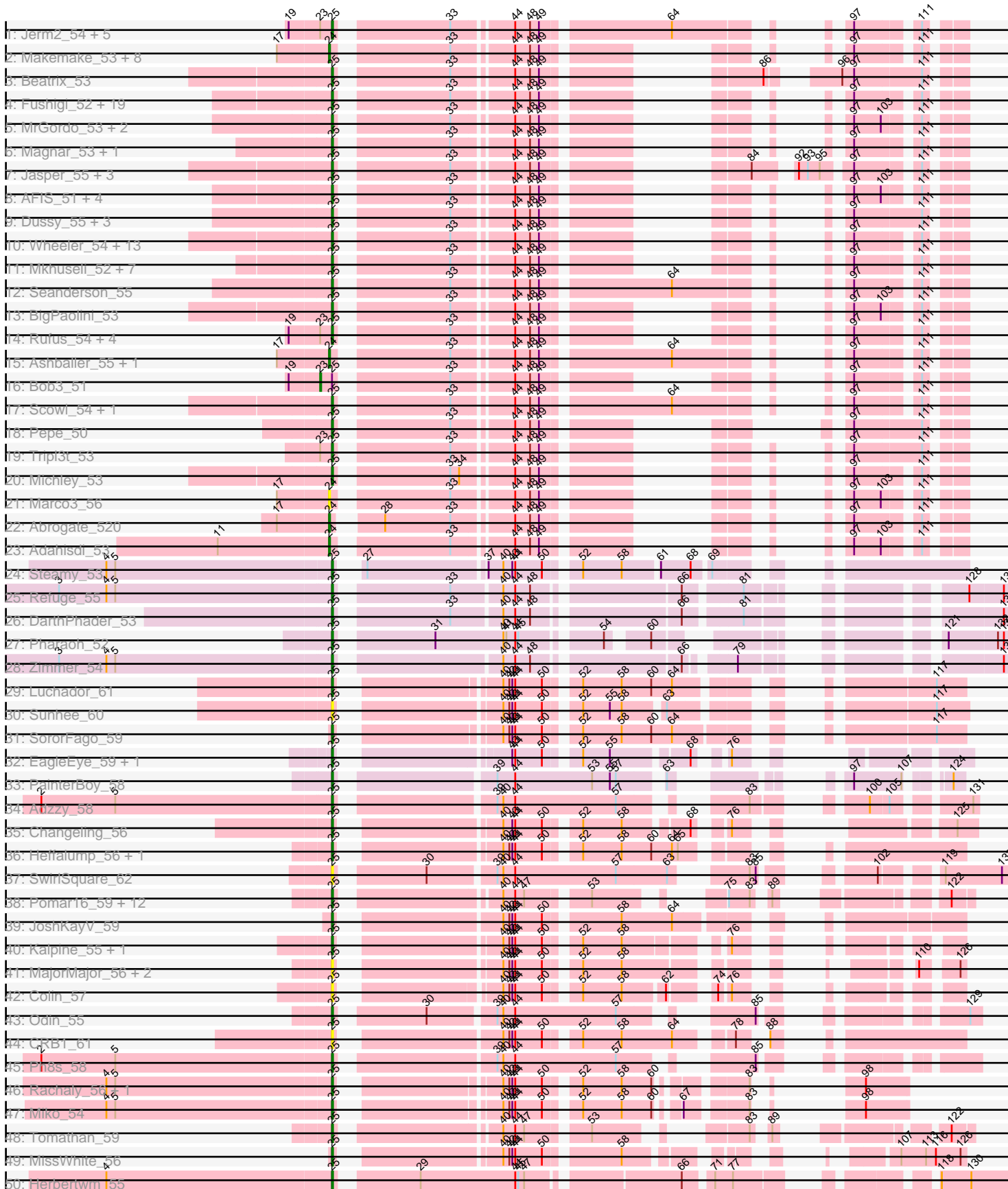
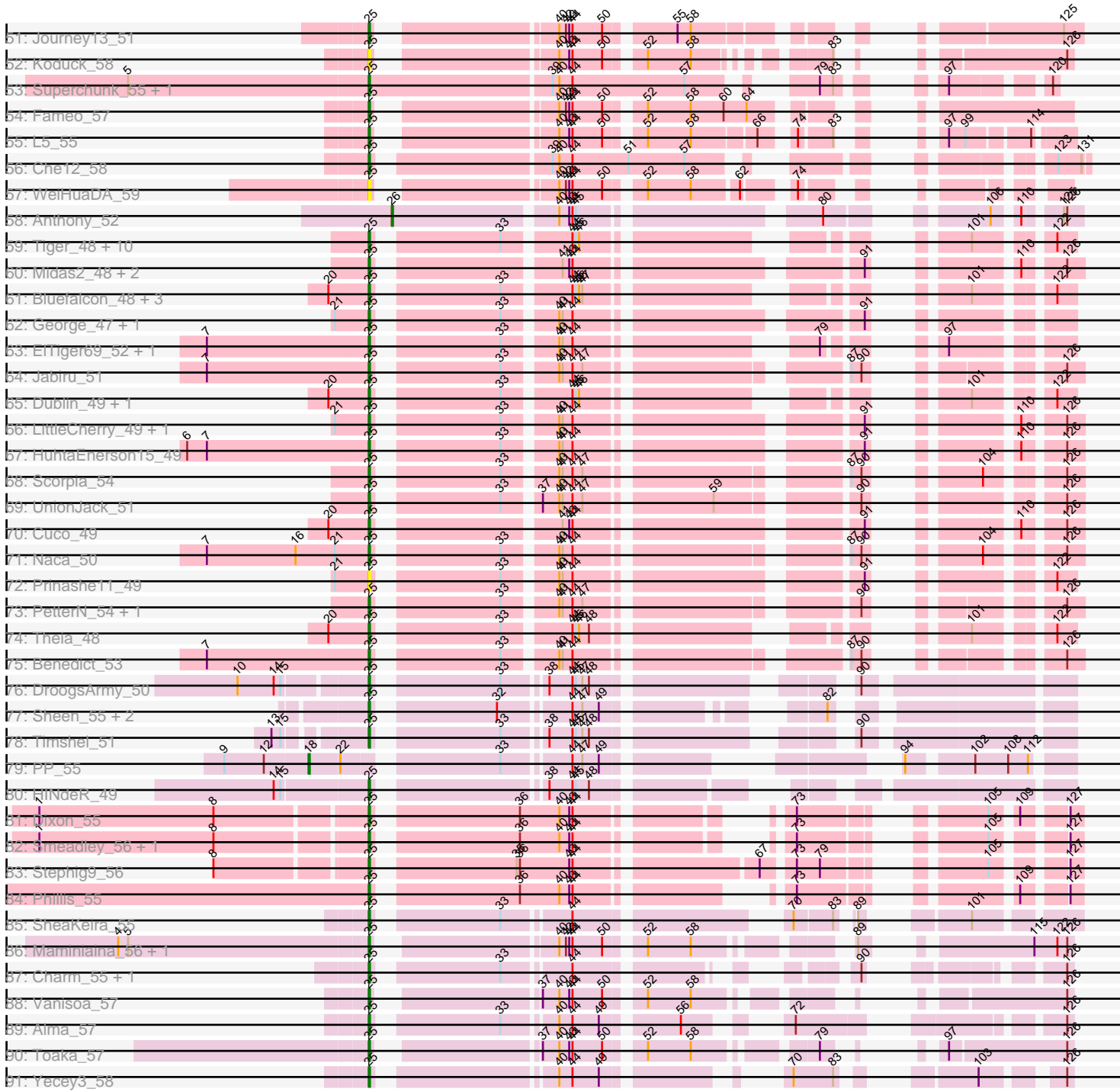


Pham 215848



Pham 215848



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 215848 Report

This analysis was run 02/22/25 on database version 588.

Pham number 215848 has 206 members, 23 are drafts.

Phages represented in each track:

- Track 1 : Jerm2\_54, PSullivan\_53, Rohr\_54, BigMau\_54, Pita2\_56, HermioneGrange\_53
- Track 2 : Makemake\_53, Smairt\_55, Perseus\_53, Zeeculate\_51, Violet\_51, Aeneas\_55, Pelly\_53, Mule\_50, PhrostyMug\_52
- Track 3 : Beatrix\_53
- Track 4 : Fushigi\_52, Inyanga\_50, BluSpix\_52, Froghopper\_51, PacerPaul\_53, IgnatiusPatJac\_54, Ajay\_55, Francis47\_52, MPlant7149\_52, Trouble\_56, Gompeii16\_52, DrFeelGood\_51, Applejack\_48, Alvin\_53, Bones\_54, Agaliana\_49, Hami1\_47, Bircsak\_52, Iqorha\_50, Acme\_55
- Track 5 : MrGordo\_53, Rutherferd\_55, Big3\_53
- Track 6 : Magnar\_53, Blue\_53
- Track 7 : Jasper\_55, PherrisBueller\_53, Dreamboat\_55, Petruchio\_53
- Track 8 : AFIS\_51, Lesedi\_50, SpikeBT\_53, Crispicous1\_51, GageAP\_54
- Track 9 : Dussy\_55, Abbyshoes\_56, Espresso\_53, Kenmech\_57
- Track 10 : Wheeler\_54, Rhynn\_52, Manatee\_55, Carlyle\_52, Levia\_50, Chanagan\_50, Anglerfish\_55, Payneful\_53, PhineBark\_54, Marchy\_48, Teodoridan\_52, Zeuska\_52, Niza\_56, Euphoria\_51
- Track 11 : Mkhuseli\_52, LunarLander\_58, Monet\_56, Graduation\_57, Eyeball\_55, Treddle\_54, Edtherson\_53, Cueylyss\_55
- Track 12 : Seanderson\_55
- Track 13 : BigPaolini\_53
- Track 14 : Rufus\_54, Arlo\_51, Bruns\_52, Sibs6\_55, TwoPeat\_54
- Track 15 : Ashballer\_55, JC27\_55
- Track 16 : Bob3\_51
- Track 17 : Scowl\_54, Barriga\_54
- Track 18 : Pepe\_50
- Track 19 : Tripl3t\_53
- Track 20 : Michley\_53
- Track 21 : Marco3\_56
- Track 22 : Abrogate\_520
- Track 23 : Adahisdi\_53
- Track 24 : Steamy\_53
- Track 25 : Refuge\_55
- Track 26 : DarthPhader\_53
- Track 27 : Pharaoh\_52
- Track 28 : Zimmer\_54
- Track 29 : Luchador\_61

- Track 30 : Sunhee\_60
- Track 31 : SororFago\_59
- Track 32 : EagleEye\_59, Lucyedi\_58
- Track 33 : PainterBoy\_58
- Track 34 : Adzzy\_58
- Track 35 : Changeling\_56
- Track 36 : Heffalump\_56, QueenB2\_56
- Track 37 : SwirlSquare\_62
- Track 38 : Pomar16\_59, C3\_55, AN9\_60, D29\_55, D32\_58, DBQu4n\_59, Travvers\_59, Naji\_59, Kerberos\_59, Duplo\_59, ANI8\_60, VC3\_60, StarStuff\_59
- Track 39 : JoshKayV\_59
- Track 40 : Kalpine\_55, Trixie\_55
- Track 41 : MajorMajor\_56, Bradman\_56, Quokka\_55
- Track 42 : Colin\_57
- Track 43 : Odin\_55
- Track 44 : CRB1\_61
- Track 45 : Ph8s\_58
- Track 46 : Rachaly\_56, Lokk\_54
- Track 47 : Miko\_54
- Track 48 : Tomathan\_59
- Track 49 : MissWhite\_56
- Track 50 : Herbertwm\_55
- Track 51 : Journey13\_51
- Track 52 : Koduck\_58
- Track 53 : Superchunk\_55, Caraxes\_57
- Track 54 : Fameo\_57
- Track 55 : L5\_55
- Track 56 : Che12\_58
- Track 57 : WeiHuaDA\_59
- Track 58 : Anthony\_52
- Track 59 : Tiger\_48, Jovo\_49, Aragog\_48, Phlorence\_47, Conspiracy\_49, AgentM\_48, PickleBack\_49, Lev2\_49, Archetta\_48, ForGetIt\_49, Discoknowium\_47
- Track 60 : Midas2\_48, Coog\_48, Micasa\_50
- Track 61 : Bluefalcon\_48, SydNat\_52, Ghoulboy\_52, Zolita\_51
- Track 62 : George\_47, Milcery\_49
- Track 63 : EITiger69\_52, Airmid\_50
- Track 64 : Jabiru\_51
- Track 65 : Dublin\_49, MarysWell\_49
- Track 66 : LittleCherry\_49, Bonamassa\_49
- Track 67 : HuhtaEnerson15\_49
- Track 68 : Scorpia\_54
- Track 69 : UnionJack\_51
- Track 70 : Cuco\_49
- Track 71 : Naca\_50
- Track 72 : Prinashe11\_49
- Track 73 : PetterN\_54, Chadwick\_53
- Track 74 : Theia\_48
- Track 75 : Benedict\_53
- Track 76 : DroogsArmy\_50
- Track 77 : Sheen\_55, Toro\_57, FlyCatcher\_59
- Track 78 : Timshel\_51
- Track 79 : PP\_55
- Track 80 : HINdeR\_49

- Track 81 : Dixon\_55
- Track 82 : Smeadley\_56, Expelliarmus\_54
- Track 83 : StepHig9\_56
- Track 84 : Phillis\_55
- Track 85 : SheaKeira\_55
- Track 86 : Maminaiaina\_56, BogosyJay\_56
- Track 87 : Charm\_55, DreamTeam1\_55
- Track 88 : Vanisoa\_57
- Track 89 : Alma\_57
- Track 90 : Toaka\_57
- Track 91 : Yecey3\_58

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

The start number called the most often in the published annotations is 25, it was called in 167 of the 183 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AFIS\_51, AN9\_60, ANI8\_60, Abbyshoes\_56, Acme\_55, Adzzy\_58, Agaliana\_49, AgentM\_48, Airmid\_50, Ajay\_55, Alma\_57, Alvin\_53, Anglerfish\_55, Applejack\_48, Aragog\_48, Archetta\_48, Arlo\_51, Barriga\_54, Beatrix\_53, Benedict\_53, Big3\_53, BigMau\_54, BigPaolini\_53, Bircsak\_52, BluSpix\_52, Blue\_53, Bluefalcon\_48, BogosyJay\_56, Bonamassa\_49, Bones\_54, Bradman\_56, Bruns\_52, C3\_55, CRB1\_61, Caraxes\_57, Carlyle\_52, Chadwick\_53, Chanagan\_50, Changeling\_56, Charm\_55, Che12\_58, Colin\_57, Conspiracy\_49, Coog\_48, Crispicous1\_51, Cuco\_49, Cueyllyss\_55, D29\_55, D32\_58, DBQu4n\_59, DarthPhader\_53, Discoknowium\_47, Dixon\_55, DrFeelGood\_51, DreamTeam1\_55, Dreamboat\_55, DroogsArmy\_50, Dublin\_49, Duplo\_59, Dussy\_55, EagleEye\_59, Edtherson\_53, EITiger69\_52, Espresso\_53, Euphoria\_51, Expelliarmus\_54, Eyeball\_55, Fameo\_57, FlyCatcher\_59, ForGetIt\_49, Francis47\_52, FrogHopper\_51, Fushigi\_52, GageAP\_54, George\_47, Ghoulyboy\_52, Gompeii16\_52, Graduation\_57, HINdeR\_49, Hami1\_47, Heffalump\_56, Herbertwm\_55, HermioneGrange\_53, HuhtaEnerson15\_49, IgnatiusPatJac\_54, Inyanga\_50, Iqorha\_50, Jabiru\_51, Jasper\_55, Jerm2\_54, JoshKayV\_59, Journey13\_51, Jovo\_49, Kalpine\_55, Kenmech\_57, Kerberos\_59, Koduck\_58, L5\_55, Lesedi\_50, Lev2\_49, Levia\_50, LittleCherry\_49, Lokk\_54, Luchador\_61, Lucyedi\_58, LunarLander\_58, MPlant7149\_52, Magnar\_53, MajorMajor\_56, Maminaiaina\_56, Manatee\_55, Marchy\_48, MarysWell\_49, Micasa\_50, Michley\_53, Midas2\_48, Miko\_54, Milcery\_49, MissWhite\_56, Mkhuseleli\_52, Monet\_56, MrGordo\_53, Naca\_50, Naji\_59, Niza\_56, Odin\_55, PSullivan\_53, PacerPaul\_53, PainterBoy\_58, Payneful\_53, Pepe\_50, Petruchio\_53, PetterN\_54, Ph8s\_58, Pharaoh\_52, PherrisBueller\_53, Phillis\_55, PhineBark\_54, Phlorence\_47, PickleBack\_49, Pita2\_56, Pomar16\_59, Prinashe11\_49, QueenB2\_56, Quokka\_55, Rachaly\_56, Refuge\_55, Rhynn\_52, Rohr\_54, Rufus\_54, Rutherford\_55, Scorpia\_54, Scowl\_54, Seanderson\_55, SheaKeira\_55, Sheen\_55, Sibs6\_55, Smeadley\_56, SororFago\_59, SpikeBT\_53, StarStuff\_59, Steamy\_53, StepHig9\_56, Sunhee\_60, Superchunk\_55, SwirlSquare\_62, SydNat\_52, Teodoridan\_52, Theia\_48, Tiger\_48, Timshel\_51, Toaka\_57, Tomathan\_59, Toro\_57, Travvers\_59, Treddle\_54, Trip13t\_53, Trixie\_55, Trouble\_56, TwoPeat\_54, UnionJack\_51, VC3\_60, Vanisoa\_57, WeiHuaDA\_59, Wheeler\_54, Yecey3\_58, Zeuska\_52, Zimmer\_54, Zolita\_51,

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

- Bob3\_51,

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

- Abrogate\_520, Adahisdi\_53, Aeneas\_55, Anthony\_52, Ashballer\_55, JC27\_55, Makemake\_53, Marco3\_56, Mule\_50, PP\_55, Pelly\_53, Perseus\_53, PhrostyMug\_52, Smairt\_55, Violet\_51, Zeeculate\_51,

### Summary by start number:

Start 18:

- Found in 1 of 206 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 183
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PP\_55 (A7),

Start 23:

- Found in 13 of 206 ( 6.3% ) of genes in pham
- Manual Annotations of this start: 1 of 183
- Called 7.7% of time when present
- Phage (with cluster) where this start called: Bob3\_51 (A1),

Start 24:

- Found in 14 of 206 ( 6.8% ) of genes in pham
- Manual Annotations of this start: 13 of 183
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abrogate\_520 (A1), Adahisdi\_53 (A1), Aeneas\_55 (A1), Ashballer\_55 (A1), JC27\_55 (A1), Makemake\_53 (A1), Marco3\_56 (A1), Mule\_50 (A1), Pelly\_53 (A1), Perseus\_53 (A1), PhrostyMug\_52 (A1), Smairt\_55 (A1), Violet\_51 (A1), Zeeculate\_51 (A1),

Start 25:

- Found in 190 of 206 ( 92.2% ) of genes in pham
- Manual Annotations of this start: 167 of 183
- Called 99.5% of time when present
- Phage (with cluster) where this start called: AFIS\_51 (A1), AN9\_60 (A2), ANI8\_60 (A2), Abbyshoes\_56 (A1), Acme\_55 (A1), Adzzy\_58 (A2), Agaliana\_49 (A1), AgentM\_48 (A5), Airmid\_50 (A5), Ajay\_55 (A1), Alma\_57 (A9), Alvin\_53 (A1), Anglerfish\_55 (A1), Applejack\_48 (A1), Aragog\_48 (A5), Archetta\_48 (A5), Arlo\_51 (A1), Barriga\_54 (A1), Beatrix\_53 (A1), Benedict\_53 (A5), Big3\_53 (A1), BigMau\_54 (A1), BigPaolini\_53 (A1), Bircsak\_52 (A1), BluSpix\_52 (A1), Blue\_53 (A1), Bluefalcon\_48 (A5), BogosyJay\_56 (A9), Bonamassa\_49 (A5), Bones\_54 (A1), Bradman\_56 (A2), Bruns\_52 (A1), C3\_55 (A2), CRB1\_61 (A2), Caraxes\_57 (A2), Carlyle\_52 (A1), Chadwick\_53 (A5), Chanagan\_50 (A1), Changeling\_56 (A2), Charm\_55 (A9), Che12\_58 (A2), Colin\_57 (A2), Conspiracy\_49 (A5), Coog\_48 (A5), Crispicous1\_51 (A1), Cuco\_49 (A5), Cueylyss\_55 (A1), D29\_55 (A2), D32\_58 (A2), DBQu4n\_59 (A2), DarthPhader\_53 (A12), Discoknowium\_47 (A5), Dixon\_55 (A8), DrFeelGood\_51 (A1), DreamTeam1\_55 (A9), Dreamboat\_55 (A1), DroogsArmy\_50 (A7), Dublin\_49 (A5), Duplo\_59 (A2), Dussy\_55 (A1), EagleEye\_59 (A16), Edtherson\_53 (A1), EITiger69\_52 (A5), Espresso\_53 (A1), Euphoria\_51 (A1), Expelliarmus\_54 (A8), Eyeball\_55 (A1), Fameo\_57 (A2), FlyCatcher\_59 (A7), ForGetIt\_49 (A5), Francis47\_52 (A1), Frogopper\_51 (A1), Fushigi\_52 (A1),

GageAP\_54 (A1), George\_47 (A5), Ghouboy\_52 (A5), Gompeii16\_52 (A1), Graduation\_57 (A1), HINdeR\_49 (A7), Hami1\_47 (A1), Heffalump\_56 (A2), Herbertwm\_55 (A2), HermioneGrange\_53 (A1), HuhtaEnerson15\_49 (A5), IgnatiusPatJac\_54 (A1), Inyanga\_50 (A1), Iqorha\_50 (A1), Jabiru\_51 (A5), Jasper\_55 (A1), Jerm2\_54 (A1), JoshKayV\_59 (A2), Journey13\_51 (A2), Jovo\_49 (A5), Kalpine\_55 (A2), Kenmech\_57 (A1), Kerberos\_59 (A2), Koduck\_58 (A2), L5\_55 (A2), Lesedi\_50 (A1), Lev2\_49 (A5), Levia\_50 (A1), LittleCherry\_49 (A5), Lokk\_54 (A2), Luchador\_61 (A14), Lucyedi\_58 (A16), LunarLander\_58 (A1), MPlant7149\_52 (A1), Magnar\_53 (A1), MajorMajor\_56 (A2), Maminaiaina\_56 (A9), Manatee\_55 (A1), Marchy\_48 (A1), MarysWell\_49 (A5), Micasa\_50 (A5), Michley\_53 (A1), Midas2\_48 (A5), Miko\_54 (A2), Milcery\_49 (A5), MissWhite\_56 (A2), Mkhuseleli\_52 (A1), Monet\_56 (A1), MrGordo\_53 (A1), Naca\_50 (A5), Naji\_59 (A2), Niza\_56 (A1), Odin\_55 (A2), PSullivan\_53 (A1), PacerPaul\_53 (A1), PainterBoy\_58 (A16), Payneful\_53 (A1), Pepe\_50 (A1), Petruccio\_53 (A1), PetterN\_54 (A5), Ph8s\_58 (A2), Pharaoh\_52 (A12), PherrisBueller\_53 (A1), Phillis\_55 (A8), PhineBark\_54 (A1), Phlorence\_47 (A5), PickleBack\_49 (A5), Pita2\_56 (A1), Pomar16\_59 (A2), Prinash11\_49 (A5), QueenB2\_56 (A2), Quokka\_55 (A2), Rachaly\_56 (A2), Refuge\_55 (A12), Rhynn\_52 (A1), Rohr\_54 (A1), Rufus\_54 (A1), Rutherford\_55 (A1), Scorpia\_54 (A5), Scowl\_54 (A1), Seanderson\_55 (A1), SheaKeira\_55 (A9), Sheen\_55 (A7), Sibs6\_55 (A1), Smeadley\_56 (A8), SororFago\_59 (A14), SpikeBT\_53 (A1), StarStuff\_59 (A2), Steamy\_53 (A12), Stephig9\_56 (A8), Sunhee\_60 (A14), Superchunk\_55 (A2), SwirlSquare\_62 (A2), SydNat\_52 (A5), Teodoridan\_52 (A1), Theia\_48 (A5), Tiger\_48 (A5), Timshel\_51 (A7), Toaka\_57 (A9), Tomathan\_59 (A2), Toro\_57 (A7), Travvers\_59 (A2), Treddle\_54 (A1), Tripl3t\_53 (A1), Trixie\_55 (A2), Trouble\_56 (A1), TwoPeat\_54 (A1), UnionJack\_51 (A5), VC3\_60 (A2), Vanisoa\_57 (A9), WeiHuaDA\_59 (A2), Wheeler\_54 (A1), Yecey3\_58 (A9), Zeuska\_52 (A1), Zimmer\_54 (A12), Zolita\_51 (A5),

Start 26:

- Found in 1 of 206 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 183
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anthony\_52 (A20),

### Summary by clusters:

There are 10 clusters represented in this pham: A20, A14, A16, A12, A1, A2, A5, A7, A9, A8,

Info for manual annotations of cluster A1:

- Start number 23 was manually annotated 1 time for cluster A1.
- Start number 24 was manually annotated 13 times for cluster A1.
- Start number 25 was manually annotated 71 times for cluster A1.

Info for manual annotations of cluster A12:

- Start number 25 was manually annotated 5 times for cluster A12.

Info for manual annotations of cluster A14:

- Start number 25 was manually annotated 2 times for cluster A14.

Info for manual annotations of cluster A16:

- Start number 25 was manually annotated 3 times for cluster A16.

Info for manual annotations of cluster A2:

- Start number 25 was manually annotated 32 times for cluster A2.

Info for manual annotations of cluster A20:

- Start number 26 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A5:

- Start number 25 was manually annotated 36 times for cluster A5.

Info for manual annotations of cluster A7:

- Start number 18 was manually annotated 1 time for cluster A7.
- Start number 25 was manually annotated 4 times for cluster A7.

Info for manual annotations of cluster A8:

- Start number 25 was manually annotated 5 times for cluster A8.

Info for manual annotations of cluster A9:

- Start number 25 was manually annotated 9 times for cluster A9.

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

Gene: AFIS\_51 Start: 37581, Stop: 37183, Start Num: 25

Candidate Starts for AFIS\_51:

(Start: 25 @37581 has 167 MA's), (33, 37482), (44, 37428), (48, 37413), (49, 37404), (97, 37269), (103, 37242), (111, 37215),

Gene: AN9\_60 Start: 38397, Stop: 37942, Start Num: 25

Candidate Starts for AN9\_60:

(Start: 25 @38397 has 167 MA's), (40, 38256), (44, 38244), (47, 38235), (53, 38181), (75, 38106), (83, 38085), (89, 38076), (122, 37962),

Gene: ANI8\_60 Start: 38397, Stop: 37942, Start Num: 25

Candidate Starts for ANI8\_60:

(Start: 25 @38397 has 167 MA's), (40, 38256), (44, 38244), (47, 38235), (53, 38181), (75, 38106), (83, 38085), (89, 38076), (122, 37962),

Gene: Abbysshoes\_56 Start: 39189, Stop: 38779, Start Num: 25

Candidate Starts for Abbysshoes\_56:

(Start: 25 @39189 has 167 MA's), (33, 39090), (44, 39036), (48, 39021), (49, 39012), (97, 38877), (111, 38811),

Gene: Abrogate\_520 Start: 39189, Stop: 38791, Start Num: 24

Candidate Starts for Abrogate\_520:

(17, 39240), (Start: 24 @39189 has 13 MA's), (28, 39156), (33, 39090), (44, 39036), (48, 39021), (49, 39012), (97, 38877), (111, 38823),

Gene: Acme\_55 Start: 38115, Stop: 37717, Start Num: 25

Candidate Starts for Acme\_55:

(Start: 25 @38115 has 167 MA's), (33, 38016), (44, 37962), (48, 37947), (49, 37938), (97, 37803), (111, 37749),



Gene: Adahisdi\_53 Start: 38922, Stop: 38521, Start Num: 24

Candidate Starts for Adahisdi\_53:

(11, 39033), (Start: 24 @38922 has 13 MA's), (33, 38820), (44, 38766), (48, 38751), (49, 38742), (97, 38607), (103, 38580), (111, 38553),

Gene: Adzzy\_58 Start: 36978, Stop: 36487, Start Num: 25

Candidate Starts for Adzzy\_58:

(2, 37269), (5, 37194), (Start: 25 @36978 has 167 MA's), (39, 36840), (40, 36834), (44, 36822), (57, 36720), (83, 36639), (100, 36573), (105, 36555), (131, 36492),

Gene: Aeneas\_55 Start: 39139, Stop: 38738, Start Num: 24

Candidate Starts for Aeneas\_55:

(17, 39190), (Start: 24 @39139 has 13 MA's), (33, 39037), (44, 38983), (48, 38968), (49, 38959), (97, 38824), (111, 38770),

Gene: Agaliana\_49 Start: 35783, Stop: 35385, Start Num: 25

Candidate Starts for Agaliana\_49:

(Start: 25 @35783 has 167 MA's), (33, 35684), (44, 35630), (48, 35615), (49, 35606), (97, 35471), (111, 35417),

Gene: AgentM\_48 Start: 36508, Stop: 36041, Start Num: 25

Candidate Starts for AgentM\_48:

(Start: 25 @36508 has 167 MA's), (33, 36409), (44, 36355), (45, 36352), (46, 36349), (101, 36112), (122, 36058),

Gene: Airmid\_50 Start: 36667, Stop: 36200, Start Num: 25

Candidate Starts for Airmid\_50:

(7, 36814), (Start: 25 @36667 has 167 MA's), (33, 36568), (40, 36526), (41, 36523), (44, 36514), (79, 36343), (97, 36292),

Gene: Ajay\_55 Start: 39243, Stop: 38845, Start Num: 25

Candidate Starts for Ajay\_55:

(Start: 25 @39243 has 167 MA's), (33, 39144), (44, 39090), (48, 39075), (49, 39066), (97, 38931), (111, 38877),

Gene: Alma\_57 Start: 38259, Stop: 37786, Start Num: 25

Candidate Starts for Alma\_57:

(Start: 25 @38259 has 167 MA's), (33, 38160), (40, 38118), (44, 38106), (49, 38082), (56, 38022), (72, 37971), (126, 37791),

Gene: Alvin\_53 Start: 38568, Stop: 38170, Start Num: 25

Candidate Starts for Alvin\_53:

(Start: 25 @38568 has 167 MA's), (33, 38469), (44, 38415), (48, 38400), (49, 38391), (97, 38256), (111, 38202),

Gene: Anglerfish\_55 Start: 39478, Stop: 38999, Start Num: 25

Candidate Starts for Anglerfish\_55:

(Start: 25 @39478 has 167 MA's), (33, 39379), (44, 39325), (48, 39310), (49, 39301), (97, 39085), (111, 39031),

Gene: Anthony\_52 Start: 35777, Stop: 35280, Start Num: 26

Candidate Starts for Anthony\_52:

(Start: 26 @35777 has 1 MA's), (40, 35636), (43, 35627), (44, 35624), (45, 35621), (80, 35435), (106, 35339), (110, 35324), (125, 35297), (126, 35294),

Gene: Applejack\_48 Start: 35405, Stop: 35007, Start Num: 25

Candidate Starts for Applejack\_48:

(Start: 25 @35405 has 167 MA's), (33, 35306), (44, 35252), (48, 35237), (49, 35228), (97, 35093), (111, 35039),

Gene: Aragog\_48 Start: 36528, Stop: 36061, Start Num: 25

Candidate Starts for Aragog\_48:

(Start: 25 @36528 has 167 MA's), (33, 36429), (44, 36375), (45, 36372), (46, 36369), (101, 36132), (122, 36078),

Gene: Archetta\_48 Start: 36938, Stop: 36471, Start Num: 25

Candidate Starts for Archetta\_48:

(Start: 25 @36938 has 167 MA's), (33, 36839), (44, 36785), (45, 36782), (46, 36779), (101, 36542), (122, 36488),

Gene: Arlo\_51 Start: 37427, Stop: 37029, Start Num: 25

Candidate Starts for Arlo\_51:

(19, 37469), (Start: 23 @37439 has 1 MA's), (Start: 25 @37427 has 167 MA's), (33, 37328), (44, 37274), (48, 37259), (49, 37250), (97, 37115), (111, 37061),

Gene: Ashballer\_55 Start: 39002, Stop: 38520, Start Num: 24

Candidate Starts for Ashballer\_55:

(17, 39053), (Start: 24 @39002 has 13 MA's), (33, 38900), (44, 38846), (48, 38831), (49, 38822), (64, 38702), (97, 38606), (111, 38552),

Gene: Barriga\_54 Start: 37755, Stop: 37276, Start Num: 25

Candidate Starts for Barriga\_54:

(Start: 25 @37755 has 167 MA's), (33, 37656), (44, 37602), (48, 37587), (49, 37578), (64, 37458), (97, 37362), (111, 37308),

Gene: Beatrix\_53 Start: 39461, Stop: 39000, Start Num: 25

Candidate Starts for Beatrix\_53:

(Start: 25 @39461 has 167 MA's), (33, 39362), (44, 39308), (48, 39293), (49, 39284), (86, 39155), (96, 39110), (97, 39098), (111, 39032),

Gene: Benedict\_53 Start: 36915, Stop: 36427, Start Num: 25

Candidate Starts for Benedict\_53:

(7, 37062), (Start: 25 @36915 has 167 MA's), (33, 36816), (40, 36774), (41, 36771), (44, 36762), (87, 36558), (90, 36549), (126, 36441),

Gene: Big3\_53 Start: 39260, Stop: 38862, Start Num: 25

Candidate Starts for Big3\_53:

(Start: 25 @39260 has 167 MA's), (33, 39161), (44, 39107), (48, 39092), (49, 39083), (97, 38948), (103, 38921), (111, 38894),

Gene: BigMau\_54 Start: 37762, Stop: 37283, Start Num: 25

Candidate Starts for BigMau\_54:

(19, 37804), (Start: 23 @37774 has 1 MA's), (Start: 25 @37762 has 167 MA's), (33, 37663), (44, 37609), (48, 37594), (49, 37585), (64, 37465), (97, 37369), (111, 37315),

Gene: BigPaolini\_53 Start: 36840, Stop: 36442, Start Num: 25

Candidate Starts for BigPaolini\_53:

(Start: 25 @36840 has 167 MA's), (33, 36741), (44, 36687), (48, 36672), (49, 36663), (97, 36528), (103, 36501), (111, 36474),

Gene: Bircsak\_52 Start: 39359, Stop: 38961, Start Num: 25

Candidate Starts for Bircsak\_52:

(Start: 25 @39359 has 167 MA's), (33, 39260), (44, 39206), (48, 39191), (49, 39182), (97, 39047), (111, 38993),

Gene: BluSpix\_52 Start: 34621, Stop: 34223, Start Num: 25

Candidate Starts for BluSpix\_52:

(Start: 25 @34621 has 167 MA's), (33, 34522), (44, 34468), (48, 34453), (49, 34444), (97, 34309), (111, 34255),

Gene: Blue\_53 Start: 39272, Stop: 38880, Start Num: 25

Candidate Starts for Blue\_53:

(Start: 25 @39272 has 167 MA's), (33, 39173), (44, 39119), (48, 39104), (49, 39095), (97, 38960), (111, 38912),

Gene: Bluefalcon\_48 Start: 37083, Stop: 36616, Start Num: 25

Candidate Starts for Bluefalcon\_48:

(20, 37119), (Start: 25 @37083 has 167 MA's), (33, 36984), (44, 36930), (45, 36927), (46, 36924), (47, 36921), (101, 36687), (122, 36633),

Gene: Bob3\_51 Start: 37043, Stop: 36633, Start Num: 23

Candidate Starts for Bob3\_51:

(19, 37073), (Start: 23 @37043 has 1 MA's), (Start: 25 @37031 has 167 MA's), (33, 36932), (44, 36878), (48, 36863), (49, 36854), (97, 36719), (111, 36665),

Gene: BogosyJay\_56 Start: 37976, Stop: 37491, Start Num: 25

Candidate Starts for BogosyJay\_56:

(4, 38201), (5, 38192), (Start: 25 @37976 has 167 MA's), (40, 37838), (42, 37832), (43, 37829), (44, 37826), (50, 37799), (52, 37772), (58, 37733), (89, 37628), (115, 37526), (122, 37505), (126, 37496),

Gene: Bonamassa\_49 Start: 36951, Stop: 36457, Start Num: 25

Candidate Starts for Bonamassa\_49:

(21, 36981), (Start: 25 @36951 has 167 MA's), (33, 36852), (40, 36810), (41, 36807), (44, 36798), (91, 36579), (110, 36501), (126, 36471),

Gene: Bones\_54 Start: 38722, Stop: 38324, Start Num: 25

Candidate Starts for Bones\_54:

(Start: 25 @38722 has 167 MA's), (33, 38623), (44, 38569), (48, 38554), (49, 38545), (97, 38410), (111, 38356),

Gene: Bradman\_56 Start: 37152, Stop: 36703, Start Num: 25

Candidate Starts for Bradman\_56:

(Start: 25 @37152 has 167 MA's), (40, 37014), (42, 37008), (43, 37005), (44, 37002), (50, 36975), (52, 36948), (58, 36909), (110, 36738), (126, 36708),

Gene: Bruns\_52 Start: 37599, Stop: 37201, Start Num: 25

Candidate Starts for Bruns\_52:

(19, 37641), (Start: 23 @37611 has 1 MA's), (Start: 25 @37599 has 167 MA's), (33, 37500), (44, 37446), (48, 37431), (49, 37422), (97, 37287), (111, 37233),

Gene: C3\_55 Start: 38397, Stop: 37942, Start Num: 25

Candidate Starts for C3\_55:

(Start: 25 @38397 has 167 MA's), (40, 38256), (44, 38244), (47, 38235), (53, 38181), (75, 38106), (83, 38085), (89, 38076), (122, 37962),

Gene: CRB1\_61 Start: 39164, Stop: 38667, Start Num: 25

Candidate Starts for CRB1\_61:

(Start: 25 @39164 has 167 MA's), (40, 39023), (42, 39017), (43, 39014), (44, 39011), (50, 38984), (52, 38957), (58, 38918), (64, 38867), (78, 38822), (88, 38807),

Gene: Caraxes\_57 Start: 36675, Stop: 36196, Start Num: 25

Candidate Starts for Caraxes\_57:

(5, 36891), (Start: 25 @36675 has 167 MA's), (39, 36513), (40, 36507), (44, 36495), (57, 36393), (79, 36324), (83, 36312), (97, 36270), (120, 36201),

Gene: Carlyle\_52 Start: 36053, Stop: 35655, Start Num: 25

Candidate Starts for Carlyle\_52:

(Start: 25 @36053 has 167 MA's), (33, 35954), (44, 35900), (48, 35885), (49, 35876), (97, 35741), (111, 35687),

Gene: Chadwick\_53 Start: 36756, Stop: 36268, Start Num: 25

Candidate Starts for Chadwick\_53:

(Start: 25 @36756 has 167 MA's), (33, 36657), (40, 36615), (41, 36612), (44, 36603), (47, 36594), (90, 36390), (126, 36282),

Gene: Chanagan\_50 Start: 36851, Stop: 36453, Start Num: 25

Candidate Starts for Chanagan\_50:

(Start: 25 @36851 has 167 MA's), (33, 36752), (44, 36698), (48, 36683), (49, 36674), (97, 36539), (111, 36485),

Gene: Changeling\_56 Start: 38803, Stop: 38336, Start Num: 25

Candidate Starts for Changeling\_56:

(Start: 25 @38803 has 167 MA's), (40, 38665), (43, 38656), (44, 38653), (50, 38626), (52, 38599), (58, 38560), (68, 38503), (76, 38482), (125, 38356),

Gene: Charm\_55 Start: 37821, Stop: 37384, Start Num: 25

Candidate Starts for Charm\_55:

(Start: 25 @37821 has 167 MA's), (33, 37722), (44, 37668), (90, 37500), (126, 37389),

Gene: Che12\_58 Start: 37116, Stop: 36628, Start Num: 25

Candidate Starts for Che12\_58:

(Start: 25 @37116 has 167 MA's), (39, 36975), (40, 36969), (44, 36957), (51, 36906), (57, 36855), (123, 36654), (131, 36633),

Gene: Colin\_57 Start: 38509, Stop: 38060, Start Num: 25

Candidate Starts for Colin\_57:

(Start: 25 @38509 has 167 MA's), (40, 38374), (42, 38368), (43, 38365), (44, 38362), (50, 38335), (52, 38308), (58, 38269), (62, 38230), (74, 38197), (76, 38188),

Gene: Conspiracy\_49 Start: 36750, Stop: 36283, Start Num: 25

Candidate Starts for Conspiracy\_49:

(Start: 25 @36750 has 167 MA's), (33, 36651), (44, 36597), (45, 36594), (46, 36591), (101, 36354), (122, 36300),

Gene: Coog\_48 Start: 36935, Stop: 36441, Start Num: 25

Candidate Starts for Coog\_48:

(Start: 25 @36935 has 167 MA's), (41, 36791), (43, 36785), (44, 36782), (91, 36563), (110, 36485), (126, 36455),

Gene: Crispicious1\_51 Start: 37176, Stop: 36778, Start Num: 25

Candidate Starts for Crispicious1\_51:

(Start: 25 @37176 has 167 MA's), (33, 37077), (44, 37023), (48, 37008), (49, 36999), (97, 36864), (103, 36837), (111, 36810),

Gene: Cuco\_49 Start: 36807, Stop: 36313, Start Num: 25

Candidate Starts for Cuco\_49:

(20, 36843), (Start: 25 @36807 has 167 MA's), (41, 36663), (43, 36657), (44, 36654), (91, 36435), (110, 36357), (126, 36327),

Gene: Cueyllyss\_55 Start: 39855, Stop: 39457, Start Num: 25

Candidate Starts for Cueyllyss\_55:

(Start: 25 @39855 has 167 MA's), (33, 39756), (44, 39702), (48, 39687), (49, 39678), (97, 39543), (111, 39489),

Gene: D29\_55 Start: 38000, Stop: 37545, Start Num: 25

Candidate Starts for D29\_55:

(Start: 25 @38000 has 167 MA's), (40, 37859), (44, 37847), (47, 37838), (53, 37784), (75, 37709), (83, 37688), (89, 37679), (122, 37565),

Gene: D32\_58 Start: 38000, Stop: 37545, Start Num: 25

Candidate Starts for D32\_58:

(Start: 25 @38000 has 167 MA's), (40, 37859), (44, 37847), (47, 37838), (53, 37784), (75, 37709), (83, 37688), (89, 37679), (122, 37565),

Gene: DBQu4n\_59 Start: 37981, Stop: 37526, Start Num: 25

Candidate Starts for DBQu4n\_59:

(Start: 25 @37981 has 167 MA's), (40, 37840), (44, 37828), (47, 37819), (53, 37765), (75, 37690), (83, 37669), (89, 37660), (122, 37546),

Gene: DarthPhader\_53 Start: 38914, Stop: 38369, Start Num: 25

Candidate Starts for DarthPhader\_53:

(Start: 25 @38914 has 167 MA's), (33, 38815), (40, 38767), (44, 38755), (48, 38740), (66, 38608), (81, 38557), (134, 38374),

Gene: Discoknowium\_47 Start: 36417, Stop: 35950, Start Num: 25

Candidate Starts for Discoknowium\_47:

(Start: 25 @36417 has 167 MA's), (33, 36318), (44, 36264), (45, 36261), (46, 36258), (101, 36021), (122, 35967),

Gene: Dixon\_55 Start: 36492, Stop: 36022, Start Num: 25

Candidate Starts for Dixon\_55:

(1, 36777), (8, 36618), (Start: 25 @36492 has 167 MA's), (36, 36375), (40, 36339), (43, 36330), (44, 36327), (73, 36201), (105, 36084), (109, 36066), (127, 36033),

Gene: DrFeelGood\_51 Start: 38016, Stop: 37618, Start Num: 25  
Candidate Starts for DrFeelGood\_51:  
(Start: 25 @38016 has 167 MA's), (33, 37917), (44, 37863), (48, 37848), (49, 37839), (97, 37704),  
(111, 37650),

Gene: DreamTeam1\_55 Start: 37653, Stop: 37216, Start Num: 25  
Candidate Starts for DreamTeam1\_55:  
(Start: 25 @37653 has 167 MA's), (33, 37554), (44, 37500), (90, 37332), (126, 37221),

Gene: Dreamboat\_55 Start: 37826, Stop: 37371, Start Num: 25  
Candidate Starts for Dreamboat\_55:  
(Start: 25 @37826 has 167 MA's), (33, 37727), (44, 37673), (48, 37658), (49, 37649), (84, 37532), (92,  
37502), (93, 37493), (95, 37481), (97, 37457), (111, 37403),

Gene: DroogsArmy\_50 Start: 38758, Stop: 38237, Start Num: 25  
Candidate Starts for DroogsArmy\_50:  
(10, 38866), (14, 38833), (15, 38827), (Start: 25 @38758 has 167 MA's), (33, 38659), (38, 38626), (44,  
38605), (45, 38602), (47, 38596), (48, 38590), (90, 38407),

Gene: Dublin\_49 Start: 36919, Stop: 36452, Start Num: 25  
Candidate Starts for Dublin\_49:  
(20, 36955), (Start: 25 @36919 has 167 MA's), (33, 36820), (44, 36766), (45, 36763), (46, 36760),  
(101, 36523), (122, 36469),

Gene: Duplo\_59 Start: 38037, Stop: 37582, Start Num: 25  
Candidate Starts for Duplo\_59:  
(Start: 25 @38037 has 167 MA's), (40, 37896), (44, 37884), (47, 37875), (53, 37821), (75, 37746), (83,  
37725), (89, 37716), (122, 37602),

Gene: Dussy\_55 Start: 39209, Stop: 38799, Start Num: 25  
Candidate Starts for Dussy\_55:  
(Start: 25 @39209 has 167 MA's), (33, 39110), (44, 39056), (48, 39041), (49, 39032), (97, 38897),  
(111, 38831),

Gene: EagleEye\_59 Start: 37874, Stop: 37425, Start Num: 25  
Candidate Starts for EagleEye\_59:  
(Start: 25 @37874 has 167 MA's), (43, 37730), (44, 37727), (50, 37700), (52, 37673), (55, 37646), (68,  
37577), (76, 37559),

Gene: Edtherson\_53 Start: 38507, Stop: 38109, Start Num: 25  
Candidate Starts for Edtherson\_53:  
(Start: 25 @38507 has 167 MA's), (33, 38408), (44, 38354), (48, 38339), (49, 38330), (97, 38195),  
(111, 38141),

Gene: EITiger69\_52 Start: 36876, Stop: 36409, Start Num: 25  
Candidate Starts for EITiger69\_52:  
(7, 37023), (Start: 25 @36876 has 167 MA's), (33, 36777), (40, 36735), (41, 36732), (44, 36723), (79,  
36552), (97, 36501),

Gene: Espresso\_53 Start: 39063, Stop: 38665, Start Num: 25  
Candidate Starts for Espresso\_53:

(Start: 25 @39063 has 167 MA's), (33, 38964), (44, 38910), (48, 38895), (49, 38886), (97, 38751), (111, 38697),

Gene: Euphoria\_51 Start: 38314, Stop: 37916, Start Num: 25

Candidate Starts for Euphoria\_51:

(Start: 25 @38314 has 167 MA's), (33, 38215), (44, 38161), (48, 38146), (49, 38137), (97, 38002), (111, 37948),

Gene: Expelliarmus\_54 Start: 36696, Stop: 36226, Start Num: 25

Candidate Starts for Expelliarmus\_54:

(1, 36981), (8, 36822), (Start: 25 @36696 has 167 MA's), (36, 36579), (40, 36543), (43, 36534), (44, 36531), (73, 36405), (105, 36288), (127, 36237),

Gene: Eyeball\_55 Start: 38602, Stop: 38204, Start Num: 25

Candidate Starts for Eyeball\_55:

(Start: 25 @38602 has 167 MA's), (33, 38503), (44, 38449), (48, 38434), (49, 38425), (97, 38290), (111, 38236),

Gene: Fameo\_57 Start: 38505, Stop: 38011, Start Num: 25

Candidate Starts for Fameo\_57:

(Start: 25 @38505 has 167 MA's), (40, 38367), (42, 38361), (43, 38358), (44, 38355), (50, 38328), (52, 38301), (58, 38262), (60, 38232), (64, 38211),

Gene: FlyCatcher\_59 Start: 40134, Stop: 39640, Start Num: 25

Candidate Starts for FlyCatcher\_59:

(Start: 25 @40134 has 167 MA's), (32, 40038), (44, 39981), (47, 39972), (49, 39957), (82, 39819),

Gene: ForGetIt\_49 Start: 36775, Stop: 36308, Start Num: 25

Candidate Starts for ForGetIt\_49:

(Start: 25 @36775 has 167 MA's), (33, 36676), (44, 36622), (45, 36619), (46, 36616), (101, 36379), (122, 36325),

Gene: Francis47\_52 Start: 39627, Stop: 39229, Start Num: 25

Candidate Starts for Francis47\_52:

(Start: 25 @39627 has 167 MA's), (33, 39528), (44, 39474), (48, 39459), (49, 39450), (97, 39315), (111, 39261),

Gene: Froghopper\_51 Start: 37352, Stop: 36957, Start Num: 25

Candidate Starts for Froghopper\_51:

(Start: 25 @37352 has 167 MA's), (33, 37253), (44, 37199), (48, 37184), (49, 37175), (97, 37040), (111, 36986),

Gene: Fushigi\_52 Start: 36313, Stop: 35915, Start Num: 25

Candidate Starts for Fushigi\_52:

(Start: 25 @36313 has 167 MA's), (33, 36214), (44, 36160), (48, 36145), (49, 36136), (97, 36001), (111, 35947),

Gene: GageAP\_54 Start: 39103, Stop: 38705, Start Num: 25

Candidate Starts for GageAP\_54:

(Start: 25 @39103 has 167 MA's), (33, 39004), (44, 38950), (48, 38935), (49, 38926), (97, 38791), (103, 38764), (111, 38737),

Gene: George\_47 Start: 36848, Stop: 36360, Start Num: 25

Candidate Starts for George\_47:

(21, 36878), (Start: 25 @36848 has 167 MA's), (33, 36749), (40, 36707), (41, 36704), (44, 36695), (91, 36476),

Gene: Ghoulboy\_52 Start: 37654, Stop: 37187, Start Num: 25

Candidate Starts for Ghoulboy\_52:

(20, 37690), (Start: 25 @37654 has 167 MA's), (33, 37555), (44, 37501), (45, 37498), (46, 37495), (47, 37492), (101, 37258), (122, 37204),

Gene: Gompeii16\_52 Start: 39360, Stop: 38962, Start Num: 25

Candidate Starts for Gompeii16\_52:

(Start: 25 @39360 has 167 MA's), (33, 39261), (44, 39207), (48, 39192), (49, 39183), (97, 39048), (111, 38994),

Gene: Graduation\_57 Start: 39927, Stop: 39529, Start Num: 25

Candidate Starts for Graduation\_57:

(Start: 25 @39927 has 167 MA's), (33, 39828), (44, 39774), (48, 39759), (49, 39750), (97, 39615), (111, 39561),

Gene: HINdeR\_49 Start: 38405, Stop: 37899, Start Num: 25

Candidate Starts for HINdeR\_49:

(14, 38486), (15, 38480), (Start: 25 @38405 has 167 MA's), (38, 38273), (44, 38252), (45, 38249), (48, 38237),

Gene: Hami1\_47 Start: 33410, Stop: 33012, Start Num: 25

Candidate Starts for Hami1\_47:

(Start: 25 @33410 has 167 MA's), (33, 33311), (44, 33257), (48, 33242), (49, 33233), (97, 33098), (111, 33044),

Gene: Heffalump\_56 Start: 38973, Stop: 38479, Start Num: 25

Candidate Starts for Heffalump\_56:

(Start: 25 @38973 has 167 MA's), (40, 38835), (42, 38829), (43, 38826), (44, 38823), (50, 38796), (52, 38769), (58, 38730), (60, 38700), (64, 38679), (65, 38673),

Gene: Herbertwm\_55 Start: 37937, Stop: 37377, Start Num: 25

Candidate Starts for Herbertwm\_55:

(4, 38162), (Start: 25 @37937 has 167 MA's), (29, 37868), (44, 37772), (45, 37769), (47, 37763), (66, 37625), (71, 37601), (77, 37583), (118, 37448), (130, 37418),

Gene: HermioneGrange\_53 Start: 38256, Stop: 37777, Start Num: 25

Candidate Starts for HermioneGrange\_53:

(19, 38298), (Start: 23 @38268 has 1 MA's), (Start: 25 @38256 has 167 MA's), (33, 38157), (44, 38103), (48, 38088), (49, 38079), (64, 37959), (97, 37863), (111, 37809),

Gene: HuhtaEnerson15\_49 Start: 36845, Stop: 36351, Start Num: 25

Candidate Starts for HuhtaEnerson15\_49:

(6, 37010), (7, 36992), (Start: 25 @36845 has 167 MA's), (33, 36746), (40, 36704), (41, 36701), (44, 36692), (91, 36473), (110, 36395), (126, 36365),

Gene: IgnatiusPatJac\_54 Start: 38566, Stop: 38168, Start Num: 25

Candidate Starts for IgnatiusPatJac\_54:

(Start: 25 @38566 has 167 MA's), (33, 38467), (44, 38413), (48, 38398), (49, 38389), (97, 38254), (111, 38200),



Gene: Inyanga\_50 Start: 36800, Stop: 36402, Start Num: 25

Candidate Starts for Inyanga\_50:

(Start: 25 @36800 has 167 MA's), (33, 36701), (44, 36647), (48, 36632), (49, 36623), (97, 36488), (111, 36434),

Gene: Iqorha\_50 Start: 36799, Stop: 36401, Start Num: 25

Candidate Starts for Iqorha\_50:

(Start: 25 @36799 has 167 MA's), (33, 36700), (44, 36646), (48, 36631), (49, 36622), (97, 36487), (111, 36433),

Gene: JC27\_55 Start: 38691, Stop: 38209, Start Num: 24

Candidate Starts for JC27\_55:

(17, 38742), (Start: 24 @38691 has 13 MA's), (33, 38589), (44, 38535), (48, 38520), (49, 38511), (64, 38391), (97, 38295), (111, 38241),

Gene: Jabiru\_51 Start: 36770, Stop: 36282, Start Num: 25

Candidate Starts for Jabiru\_51:

(7, 36917), (Start: 25 @36770 has 167 MA's), (33, 36671), (40, 36629), (41, 36626), (44, 36617), (47, 36608), (87, 36413), (90, 36404), (126, 36296),

Gene: Jasper\_55 Start: 37712, Stop: 37257, Start Num: 25

Candidate Starts for Jasper\_55:

(Start: 25 @37712 has 167 MA's), (33, 37613), (44, 37559), (48, 37544), (49, 37535), (84, 37418), (92, 37388), (93, 37379), (95, 37367), (97, 37343), (111, 37289),

Gene: Jerm2\_54 Start: 38511, Stop: 38032, Start Num: 25

Candidate Starts for Jerm2\_54:

(19, 38553), (Start: 23 @38523 has 1 MA's), (Start: 25 @38511 has 167 MA's), (33, 38412), (44, 38358), (48, 38343), (49, 38334), (64, 38214), (97, 38118), (111, 38064),

Gene: JoshKayV\_59 Start: 38828, Stop: 38325, Start Num: 25

Candidate Starts for JoshKayV\_59:

(Start: 25 @38828 has 167 MA's), (40, 38687), (42, 38681), (43, 38678), (44, 38675), (50, 38648), (58, 38582), (64, 38531),

Gene: Journey13\_51 Start: 36542, Stop: 36054, Start Num: 25

Candidate Starts for Journey13\_51:

(Start: 25 @36542 has 167 MA's), (40, 36404), (42, 36398), (43, 36395), (44, 36392), (50, 36365), (55, 36311), (58, 36299), (125, 36071),

Gene: Jovo\_49 Start: 37031, Stop: 36564, Start Num: 25

Candidate Starts for Jovo\_49:

(Start: 25 @37031 has 167 MA's), (33, 36932), (44, 36878), (45, 36875), (46, 36872), (101, 36635), (122, 36581),

Gene: Kalpine\_55 Start: 38383, Stop: 37931, Start Num: 25

Candidate Starts for Kalpine\_55:

(Start: 25 @38383 has 167 MA's), (40, 38245), (42, 38239), (43, 38236), (44, 38233), (50, 38206), (52, 38179), (58, 38140), (76, 38059),

Gene: Kenmech\_57 Start: 40335, Stop: 39925, Start Num: 25

Candidate Starts for Kenmech\_57:

(Start: 25 @40335 has 167 MA's), (33, 40236), (44, 40182), (48, 40167), (49, 40158), (97, 40023), (111, 39957),

Gene: Kerberos\_59 Start: 37999, Stop: 37544, Start Num: 25

Candidate Starts for Kerberos\_59:

(Start: 25 @37999 has 167 MA's), (40, 37858), (44, 37846), (47, 37837), (53, 37783), (75, 37708), (83, 37687), (89, 37678), (122, 37564),

Gene: Koduck\_58 Start: 37415, Stop: 36957, Start Num: 25

Candidate Starts for Koduck\_58:

(Start: 25 @37415 has 167 MA's), (40, 37277), (43, 37268), (44, 37265), (50, 37238), (52, 37211), (58, 37172), (83, 37082), (126, 36962),

Gene: L5\_55 Start: 37502, Stop: 37032, Start Num: 25

Candidate Starts for L5\_55:

(Start: 25 @37502 has 167 MA's), (40, 37364), (43, 37355), (44, 37352), (50, 37325), (52, 37298), (58, 37259), (66, 37205), (74, 37184), (83, 37157), (97, 37130), (99, 37115), (114, 37064),

Gene: Lesedi\_50 Start: 37197, Stop: 36799, Start Num: 25

Candidate Starts for Lesedi\_50:

(Start: 25 @37197 has 167 MA's), (33, 37098), (44, 37044), (48, 37029), (49, 37020), (97, 36885), (103, 36858), (111, 36831),

Gene: Lev2\_49 Start: 36663, Stop: 36196, Start Num: 25

Candidate Starts for Lev2\_49:

(Start: 25 @36663 has 167 MA's), (33, 36564), (44, 36510), (45, 36507), (46, 36504), (101, 36267), (122, 36213),

Gene: Levia\_50 Start: 38035, Stop: 37625, Start Num: 25

Candidate Starts for Levia\_50:

(Start: 25 @38035 has 167 MA's), (33, 37936), (44, 37882), (48, 37867), (49, 37858), (97, 37723), (111, 37657),

Gene: LittleCherry\_49 Start: 36865, Stop: 36371, Start Num: 25

Candidate Starts for LittleCherry\_49:

(21, 36895), (Start: 25 @36865 has 167 MA's), (33, 36766), (40, 36724), (41, 36721), (44, 36712), (91, 36493), (110, 36415), (126, 36385),

Gene: Lokk\_54 Start: 37531, Stop: 37127, Start Num: 25

Candidate Starts for Lokk\_54:

(4, 37756), (5, 37747), (Start: 25 @37531 has 167 MA's), (40, 37396), (42, 37390), (43, 37387), (44, 37384), (50, 37357), (52, 37330), (58, 37291), (60, 37261), (83, 37192), (98, 37168),

Gene: Luchador\_61 Start: 39939, Stop: 39442, Start Num: 25

Candidate Starts for Luchador\_61:

(Start: 25 @39939 has 167 MA's), (40, 39804), (42, 39798), (43, 39795), (44, 39792), (50, 39765), (52, 39738), (58, 39699), (60, 39669), (64, 39648), (117, 39471),

Gene: Lucyedi\_58 Start: 38070, Stop: 37621, Start Num: 25

Candidate Starts for Lucyedi\_58:

(Start: 25 @38070 has 167 MA's), (43, 37926), (44, 37923), (50, 37896), (52, 37869), (55, 37842), (68, 37773), (76, 37755),

Gene: LunarLander\_58 Start: 38494, Stop: 38096, Start Num: 25  
Candidate Starts for LunarLander\_58:  
(Start: 25 @38494 has 167 MA's), (33, 38395), (44, 38341), (48, 38326), (49, 38317), (97, 38182),  
(111, 38128),

Gene: MPlant7149\_52 Start: 37293, Stop: 36895, Start Num: 25  
Candidate Starts for MPlant7149\_52:  
(Start: 25 @37293 has 167 MA's), (33, 37194), (44, 37140), (48, 37125), (49, 37116), (97, 36981),  
(111, 36927),

Gene: Magnar\_53 Start: 38738, Stop: 38340, Start Num: 25  
Candidate Starts for Magnar\_53:  
(Start: 25 @38738 has 167 MA's), (33, 38639), (44, 38585), (48, 38570), (49, 38561), (97, 38426),  
(111, 38372),

Gene: MajorMajor\_56 Start: 37152, Stop: 36703, Start Num: 25  
Candidate Starts for MajorMajor\_56:  
(Start: 25 @37152 has 167 MA's), (40, 37014), (42, 37008), (43, 37005), (44, 37002), (50, 36975), (52,  
36948), (58, 36909), (110, 36738), (126, 36708),

Gene: Makemake\_53 Start: 38800, Stop: 38399, Start Num: 24  
Candidate Starts for Makemake\_53:  
(17, 38851), (Start: 24 @38800 has 13 MA's), (33, 38698), (44, 38644), (48, 38629), (49, 38620), (97,  
38485), (111, 38431),

Gene: Maminiaina\_56 Start: 37958, Stop: 37473, Start Num: 25  
Candidate Starts for Maminiaina\_56:  
(4, 38183), (5, 38174), (Start: 25 @37958 has 167 MA's), (40, 37820), (42, 37814), (43, 37811), (44,  
37808), (50, 37781), (52, 37754), (58, 37715), (89, 37610), (115, 37508), (122, 37487), (126, 37478),

Gene: Manatee\_55 Start: 38824, Stop: 38426, Start Num: 25  
Candidate Starts for Manatee\_55:  
(Start: 25 @38824 has 167 MA's), (33, 38725), (44, 38671), (48, 38656), (49, 38647), (97, 38512),  
(111, 38458),

Gene: Marchy\_48 Start: 35728, Stop: 35330, Start Num: 25  
Candidate Starts for Marchy\_48:  
(Start: 25 @35728 has 167 MA's), (33, 35629), (44, 35575), (48, 35560), (49, 35551), (97, 35416),  
(111, 35362),

Gene: Marco3\_56 Start: 40086, Stop: 39685, Start Num: 24  
Candidate Starts for Marco3\_56:  
(17, 40137), (Start: 24 @40086 has 13 MA's), (33, 39984), (44, 39930), (48, 39915), (49, 39906), (97,  
39771), (103, 39744), (111, 39717),

Gene: MarysWell\_49 Start: 37162, Stop: 36695, Start Num: 25  
Candidate Starts for MarysWell\_49:  
(20, 37198), (Start: 25 @37162 has 167 MA's), (33, 37063), (44, 37009), (45, 37006), (46, 37003),  
(101, 36766), (122, 36712),

Gene: Micasa\_50 Start: 37033, Stop: 36539, Start Num: 25  
Candidate Starts for Micasa\_50:

(Start: 25 @37033 has 167 MA's), (41, 36889), (43, 36883), (44, 36880), (91, 36661), (110, 36583), (126, 36553),

Gene: Michley\_53 Start: 37767, Stop: 37369, Start Num: 25

Candidate Starts for Michley\_53:

(Start: 25 @37767 has 167 MA's), (33, 37668), (34, 37659), (44, 37614), (48, 37599), (49, 37590), (97, 37455), (111, 37401),

Gene: Midas2\_48 Start: 36935, Stop: 36441, Start Num: 25

Candidate Starts for Midas2\_48:

(Start: 25 @36935 has 167 MA's), (41, 36791), (43, 36785), (44, 36782), (91, 36563), (110, 36485), (126, 36455),

Gene: Miko\_54 Start: 38309, Stop: 37905, Start Num: 25

Candidate Starts for Miko\_54:

(4, 38534), (5, 38525), (Start: 25 @38309 has 167 MA's), (40, 38174), (42, 38168), (43, 38165), (44, 38162), (50, 38135), (52, 38108), (58, 38069), (60, 38039), (67, 38024), (83, 37970), (98, 37946),

Gene: Milcery\_49 Start: 36816, Stop: 36328, Start Num: 25

Candidate Starts for Milcery\_49:

(21, 36846), (Start: 25 @36816 has 167 MA's), (33, 36717), (40, 36675), (41, 36672), (44, 36663), (91, 36444),

Gene: MissWhite\_56 Start: 36656, Stop: 36198, Start Num: 25

Candidate Starts for MissWhite\_56:

(Start: 25 @36656 has 167 MA's), (40, 36518), (42, 36512), (43, 36509), (44, 36506), (50, 36479), (58, 36413), (107, 36260), (113, 36236), (116, 36227), (126, 36203),

Gene: Mkhuseleli\_52 Start: 37334, Stop: 36936, Start Num: 25

Candidate Starts for Mkhuseleli\_52:

(Start: 25 @37334 has 167 MA's), (33, 37235), (44, 37181), (48, 37166), (49, 37157), (97, 37022), (111, 36968),

Gene: Monet\_56 Start: 39466, Stop: 39068, Start Num: 25

Candidate Starts for Monet\_56:

(Start: 25 @39466 has 167 MA's), (33, 39367), (44, 39313), (48, 39298), (49, 39289), (97, 39154), (111, 39100),

Gene: MrGordo\_53 Start: 38500, Stop: 38102, Start Num: 25

Candidate Starts for MrGordo\_53:

(Start: 25 @38500 has 167 MA's), (33, 38401), (44, 38347), (48, 38332), (49, 38323), (97, 38188), (103, 38161), (111, 38134),

Gene: Mule\_50 Start: 36434, Stop: 36033, Start Num: 24

Candidate Starts for Mule\_50:

(17, 36485), (Start: 24 @36434 has 13 MA's), (33, 36332), (44, 36278), (48, 36263), (49, 36254), (97, 36119), (111, 36065),

Gene: Naca\_50 Start: 37309, Stop: 36818, Start Num: 25

Candidate Starts for Naca\_50:

(7, 37456), (16, 37375), (21, 37339), (Start: 25 @37309 has 167 MA's), (33, 37210), (40, 37168), (41, 37165), (44, 37156), (87, 36952), (90, 36943), (104, 36886), (126, 36832),

Gene: Naji\_59 Start: 38000, Stop: 37545, Start Num: 25

Candidate Starts for Naji\_59:

(Start: 25 @38000 has 167 MA's), (40, 37859), (44, 37847), (47, 37838), (53, 37784), (75, 37709), (83, 37688), (89, 37679), (122, 37565),

Gene: Niza\_56 Start: 40289, Stop: 39891, Start Num: 25

Candidate Starts for Niza\_56:

(Start: 25 @40289 has 167 MA's), (33, 40190), (44, 40136), (48, 40121), (49, 40112), (97, 39977), (111, 39923),

Gene: Odin\_55 Start: 37059, Stop: 36571, Start Num: 25

Candidate Starts for Odin\_55:

(Start: 25 @37059 has 167 MA's), (30, 36984), (39, 36921), (40, 36915), (44, 36903), (57, 36801), (85, 36714), (129, 36582),

Gene: PP\_55 Start: 41225, Stop: 40698, Start Num: 18

Candidate Starts for PP\_55:

(9, 41300), (12, 41264), (Start: 18 @41225 has 1 MA's), (22, 41198), (33, 41075), (44, 41021), (47, 41012), (49, 40997), (94, 40829), (102, 40778), (108, 40748), (112, 40730),

Gene: PSullivan\_53 Start: 37380, Stop: 36901, Start Num: 25

Candidate Starts for PSullivan\_53:

(19, 37422), (Start: 23 @37392 has 1 MA's), (Start: 25 @37380 has 167 MA's), (33, 37281), (44, 37227), (48, 37212), (49, 37203), (64, 37083), (97, 36987), (111, 36933),

Gene: PacerPaul\_53 Start: 38994, Stop: 38596, Start Num: 25

Candidate Starts for PacerPaul\_53:

(Start: 25 @38994 has 167 MA's), (33, 38895), (44, 38841), (48, 38826), (49, 38817), (97, 38682), (111, 38628),

Gene: PainterBoy\_58 Start: 38029, Stop: 37562, Start Num: 25

Candidate Starts for PainterBoy\_58:

(Start: 25 @38029 has 167 MA's), (39, 37891), (44, 37873), (53, 37795), (55, 37777), (57, 37771), (63, 37735), (97, 37648), (107, 37600), (124, 37573),

Gene: Payneful\_53 Start: 38445, Stop: 38047, Start Num: 25

Candidate Starts for Payneful\_53:

(Start: 25 @38445 has 167 MA's), (33, 38346), (44, 38292), (48, 38277), (49, 38268), (97, 38133), (111, 38079),

Gene: Pelly\_53 Start: 38399, Stop: 37998, Start Num: 24

Candidate Starts for Pelly\_53:

(17, 38450), (Start: 24 @38399 has 13 MA's), (33, 38297), (44, 38243), (48, 38228), (49, 38219), (97, 38084), (111, 38030),

Gene: Pepe\_50 Start: 37214, Stop: 36804, Start Num: 25

Candidate Starts for Pepe\_50:

(Start: 25 @37214 has 167 MA's), (33, 37115), (44, 37061), (48, 37046), (49, 37037), (97, 36902), (111, 36836),

Gene: Perseus\_53 Start: 39320, Stop: 38919, Start Num: 24

Candidate Starts for Perseus\_53:

(17, 39371), (Start: 24 @39320 has 13 MA's), (33, 39218), (44, 39164), (48, 39149), (49, 39140), (97, 39005), (111, 38951),

Gene: Petruccio\_53 Start: 38090, Stop: 37635, Start Num: 25

Candidate Starts for Petruccio\_53:

(Start: 25 @38090 has 167 MA's), (33, 37991), (44, 37937), (48, 37922), (49, 37913), (84, 37796), (92, 37766), (93, 37757), (95, 37745), (97, 37721), (111, 37667),

Gene: PetterN\_54 Start: 36924, Stop: 36436, Start Num: 25

Candidate Starts for PetterN\_54:

(Start: 25 @36924 has 167 MA's), (33, 36825), (40, 36783), (41, 36780), (44, 36771), (47, 36762), (90, 36558), (126, 36450),

Gene: Ph8s\_58 Start: 37416, Stop: 36925, Start Num: 25

Candidate Starts for Ph8s\_58:

(2, 37707), (5, 37632), (Start: 25 @37416 has 167 MA's), (39, 37275), (40, 37269), (44, 37257), (57, 37155), (85, 37068),

Gene: Pharaoh\_52 Start: 38002, Stop: 37490, Start Num: 25

Candidate Starts for Pharaoh\_52:

(Start: 25 @38002 has 167 MA's), (31, 37918), (40, 37849), (41, 37846), (44, 37837), (45, 37834), (54, 37765), (60, 37732), (121, 37549), (132, 37501), (134, 37495),

Gene: PherrisBueller\_53 Start: 37363, Stop: 36890, Start Num: 25

Candidate Starts for PherrisBueller\_53:

(Start: 25 @37363 has 167 MA's), (33, 37264), (44, 37210), (48, 37195), (49, 37186), (84, 37069), (92, 37021), (93, 37012), (95, 37000), (97, 36976), (111, 36922),

Gene: Phillis\_55 Start: 36641, Stop: 36165, Start Num: 25

Candidate Starts for Phillis\_55:

(Start: 25 @36641 has 167 MA's), (36, 36524), (40, 36488), (43, 36479), (44, 36476), (73, 36344), (109, 36209), (127, 36176),

Gene: PhineBark\_54 Start: 39053, Stop: 38643, Start Num: 25

Candidate Starts for PhineBark\_54:

(Start: 25 @39053 has 167 MA's), (33, 38954), (44, 38900), (48, 38885), (49, 38876), (97, 38741), (111, 38675),

Gene: Phlorence\_47 Start: 36408, Stop: 35941, Start Num: 25

Candidate Starts for Phlorence\_47:

(Start: 25 @36408 has 167 MA's), (33, 36309), (44, 36255), (45, 36252), (46, 36249), (101, 36012), (122, 35958),

Gene: PhrostyMug\_52 Start: 38599, Stop: 38198, Start Num: 24

Candidate Starts for PhrostyMug\_52:

(17, 38650), (Start: 24 @38599 has 13 MA's), (33, 38497), (44, 38443), (48, 38428), (49, 38419), (97, 38284), (111, 38230),

Gene: PickleBack\_49 Start: 36655, Stop: 36188, Start Num: 25

Candidate Starts for PickleBack\_49:

(Start: 25 @36655 has 167 MA's), (33, 36556), (44, 36502), (45, 36499), (46, 36496), (101, 36259), (122, 36205),

Gene: Pita2\_56 Start: 38877, Stop: 38398, Start Num: 25

Candidate Starts for Pita2\_56:

(19, 38919), (Start: 23 @38889 has 1 MA's), (Start: 25 @38877 has 167 MA's), (33, 38778), (44, 38724), (48, 38709), (49, 38700), (64, 38580), (97, 38484), (111, 38430),

Gene: Pomar16\_59 Start: 38040, Stop: 37585, Start Num: 25

Candidate Starts for Pomar16\_59:

(Start: 25 @38040 has 167 MA's), (40, 37899), (44, 37887), (47, 37878), (53, 37824), (75, 37749), (83, 37728), (89, 37719), (122, 37605),

Gene: Prin Ashe11\_49 Start: 36718, Stop: 36230, Start Num: 25

Candidate Starts for Prin Ashe11\_49:

(21, 36748), (Start: 25 @36718 has 167 MA's), (33, 36619), (40, 36577), (41, 36574), (44, 36565), (91, 36346), (122, 36247),

Gene: QueenB2\_56 Start: 38186, Stop: 37692, Start Num: 25

Candidate Starts for QueenB2\_56:

(Start: 25 @38186 has 167 MA's), (40, 38048), (42, 38042), (43, 38039), (44, 38036), (50, 38009), (52, 37982), (58, 37943), (60, 37913), (64, 37892), (65, 37886),

Gene: Quokka\_55 Start: 37152, Stop: 36703, Start Num: 25

Candidate Starts for Quokka\_55:

(Start: 25 @37152 has 167 MA's), (40, 37014), (42, 37008), (43, 37005), (44, 37002), (50, 36975), (52, 36948), (58, 36909), (110, 36738), (126, 36708),

Gene: Rachaly\_56 Start: 38454, Stop: 38050, Start Num: 25

Candidate Starts for Rachaly\_56:

(4, 38679), (5, 38670), (Start: 25 @38454 has 167 MA's), (40, 38319), (42, 38313), (43, 38310), (44, 38307), (50, 38280), (52, 38253), (58, 38214), (60, 38184), (83, 38115), (98, 38091),

Gene: Refuge\_55 Start: 39270, Stop: 38728, Start Num: 25

Candidate Starts for Refuge\_55:

(3, 39543), (4, 39495), (5, 39486), (Start: 25 @39270 has 167 MA's), (33, 39171), (40, 39123), (44, 39111), (48, 39096), (66, 38964), (81, 38913), (128, 38766), (134, 38733),

Gene: Rhynn\_52 Start: 37733, Stop: 37335, Start Num: 25

Candidate Starts for Rhynn\_52:

(Start: 25 @37733 has 167 MA's), (33, 37634), (44, 37580), (48, 37565), (49, 37556), (97, 37421), (111, 37367),

Gene: Rohr\_54 Start: 38557, Stop: 38078, Start Num: 25

Candidate Starts for Rohr\_54:

(19, 38599), (Start: 23 @38569 has 1 MA's), (Start: 25 @38557 has 167 MA's), (33, 38458), (44, 38404), (48, 38389), (49, 38380), (64, 38260), (97, 38164), (111, 38110),

Gene: Rufus\_54 Start: 38103, Stop: 37705, Start Num: 25

Candidate Starts for Rufus\_54:

(19, 38145), (Start: 23 @38115 has 1 MA's), (Start: 25 @38103 has 167 MA's), (33, 38004), (44, 37950), (48, 37935), (49, 37926), (97, 37791), (111, 37737),

Gene: Rutherferd\_55 Start: 38949, Stop: 38551, Start Num: 25

Candidate Starts for Rutherferd\_55:

(Start: 25 @38949 has 167 MA's), (33, 38850), (44, 38796), (48, 38781), (49, 38772), (97, 38637), (103, 38610), (111, 38583),

Gene: Scorpia\_54 Start: 36983, Stop: 36492, Start Num: 25

Candidate Starts for Scorpia\_54:

(Start: 25 @36983 has 167 MA's), (33, 36884), (40, 36842), (41, 36839), (44, 36830), (47, 36821), (87, 36626), (90, 36617), (104, 36560), (126, 36506),

Gene: Scowl\_54 Start: 38673, Stop: 38194, Start Num: 25

Candidate Starts for Scowl\_54:

(Start: 25 @38673 has 167 MA's), (33, 38574), (44, 38520), (48, 38505), (49, 38496), (64, 38376), (97, 38280), (111, 38226),

Gene: Seanderson\_55 Start: 40050, Stop: 39571, Start Num: 25

Candidate Starts for Seanderson\_55:

(Start: 25 @40050 has 167 MA's), (33, 39951), (44, 39897), (48, 39882), (49, 39873), (64, 39753), (97, 39657), (111, 39603),

Gene: SheaKeira\_55 Start: 37666, Stop: 37181, Start Num: 25

Candidate Starts for SheaKeira\_55:

(Start: 25 @37666 has 167 MA's), (33, 37567), (44, 37513), (70, 37360), (83, 37327), (89, 37321), (101, 37264),

Gene: Sheen\_55 Start: 40022, Stop: 39528, Start Num: 25

Candidate Starts for Sheen\_55:

(Start: 25 @40022 has 167 MA's), (32, 39926), (44, 39869), (47, 39860), (49, 39845), (82, 39707),

Gene: Sibs6\_55 Start: 37137, Stop: 36739, Start Num: 25

Candidate Starts for Sibs6\_55:

(19, 37179), (Start: 23 @37149 has 1 MA's), (Start: 25 @37137 has 167 MA's), (33, 37038), (44, 36984), (48, 36969), (49, 36960), (97, 36825), (111, 36771),

Gene: Smairt\_55 Start: 39592, Stop: 39191, Start Num: 24

Candidate Starts for Smairt\_55:

(17, 39643), (Start: 24 @39592 has 13 MA's), (33, 39490), (44, 39436), (48, 39421), (49, 39412), (97, 39277), (111, 39223),

Gene: Smeadley\_56 Start: 36818, Stop: 36348, Start Num: 25

Candidate Starts for Smeadley\_56:

(1, 37103), (8, 36944), (Start: 25 @36818 has 167 MA's), (36, 36701), (40, 36665), (43, 36656), (44, 36653), (73, 36527), (105, 36410), (127, 36359),

Gene: SororFago\_59 Start: 39270, Stop: 38767, Start Num: 25

Candidate Starts for SororFago\_59:

(Start: 25 @39270 has 167 MA's), (40, 39135), (42, 39129), (43, 39126), (44, 39123), (50, 39096), (52, 39069), (58, 39030), (60, 39000), (64, 38979), (117, 38796),

Gene: SpikeBT\_53 Start: 38361, Stop: 37963, Start Num: 25

Candidate Starts for SpikeBT\_53:

(Start: 25 @38361 has 167 MA's), (33, 38262), (44, 38208), (48, 38193), (49, 38184), (97, 38049), (103, 38022), (111, 37995),

Gene: StarStuff\_59 Start: 38002, Stop: 37547, Start Num: 25



Candidate Starts for StarStuff\_59:

(Start: 25 @38002 has 167 MA's), (40, 37861), (44, 37849), (47, 37840), (53, 37786), (75, 37711), (83, 37690), (89, 37681), (122, 37567),

Gene: Steamy\_53 Start: 37734, Stop: 37234, Start Num: 25

Candidate Starts for Steamy\_53:

(4, 37959), (5, 37950), (Start: 25 @37734 has 167 MA's), (27, 37725), (37, 37611), (40, 37596), (43, 37587), (44, 37584), (50, 37557), (52, 37530), (58, 37491), (61, 37458), (68, 37428), (69, 37413),

Gene: Stephig9\_56 Start: 36929, Stop: 36414, Start Num: 25

Candidate Starts for Stephig9\_56:

(8, 37055), (Start: 25 @36929 has 167 MA's), (35, 36815), (36, 36812), (43, 36767), (44, 36764), (67, 36617), (73, 36593), (79, 36572), (105, 36476), (127, 36425),

Gene: Sunhee\_60 Start: 37715, Stop: 37224, Start Num: 25

Candidate Starts for Sunhee\_60:

(Start: 25 @37715 has 167 MA's), (40, 37577), (42, 37571), (43, 37568), (44, 37565), (50, 37538), (52, 37511), (55, 37484), (58, 37472), (63, 37436), (117, 37256),

Gene: Superchunk\_55 Start: 36675, Stop: 36196, Start Num: 25

Candidate Starts for Superchunk\_55:

(5, 36891), (Start: 25 @36675 has 167 MA's), (39, 36513), (40, 36507), (44, 36495), (57, 36393), (79, 36324), (83, 36312), (97, 36270), (120, 36201),

Gene: SwirlSquare\_62 Start: 37597, Stop: 37061, Start Num: 25

Candidate Starts for SwirlSquare\_62:

(Start: 25 @37597 has 167 MA's), (30, 37522), (39, 37459), (40, 37453), (44, 37441), (57, 37339), (63, 37288), (83, 37240), (85, 37234), (102, 37168), (119, 37123), (133, 37066),

Gene: SydNat\_52 Start: 37663, Stop: 37196, Start Num: 25

Candidate Starts for SydNat\_52:

(20, 37699), (Start: 25 @37663 has 167 MA's), (33, 37564), (44, 37510), (45, 37507), (46, 37504), (47, 37501), (101, 37267), (122, 37213),

Gene: Teodoridan\_52 Start: 37810, Stop: 37400, Start Num: 25

Candidate Starts for Teodoridan\_52:

(Start: 25 @37810 has 167 MA's), (33, 37711), (44, 37657), (48, 37642), (49, 37633), (97, 37498), (111, 37432),

Gene: Theia\_48 Start: 37140, Stop: 36673, Start Num: 25

Candidate Starts for Theia\_48:

(20, 37176), (Start: 25 @37140 has 167 MA's), (33, 37041), (44, 36987), (45, 36984), (46, 36981), (48, 36972), (101, 36744), (122, 36690),

Gene: Tiger\_48 Start: 36329, Stop: 35862, Start Num: 25

Candidate Starts for Tiger\_48:

(Start: 25 @36329 has 167 MA's), (33, 36230), (44, 36176), (45, 36173), (46, 36170), (101, 35933), (122, 35879),

Gene: Timshel\_51 Start: 38839, Stop: 38318, Start Num: 25

Candidate Starts for Timshel\_51:

(13, 38905), (15, 38899), (Start: 25 @38839 has 167 MA's), (33, 38740), (38, 38707), (44, 38686), (45, 38683), (47, 38677), (48, 38671), (90, 38488),

Gene: Toaka\_57 Start: 37937, Stop: 37467, Start Num: 25

Candidate Starts for Toaka\_57:

(Start: 25 @37937 has 167 MA's), (37, 37814), (40, 37799), (43, 37790), (44, 37787), (50, 37760), (52, 37733), (58, 37694), (79, 37604), (97, 37574), (126, 37472),

Gene: Tomathan\_59 Start: 38049, Stop: 37594, Start Num: 25

Candidate Starts for Tomathan\_59:

(Start: 25 @38049 has 167 MA's), (40, 37908), (44, 37896), (47, 37887), (53, 37833), (83, 37737), (89, 37728), (122, 37614),

Gene: Toro\_57 Start: 40134, Stop: 39640, Start Num: 25

Candidate Starts for Toro\_57:

(Start: 25 @40134 has 167 MA's), (32, 40038), (44, 39981), (47, 39972), (49, 39957), (82, 39819),

Gene: Travvers\_59 Start: 37999, Stop: 37544, Start Num: 25

Candidate Starts for Travvers\_59:

(Start: 25 @37999 has 167 MA's), (40, 37858), (44, 37846), (47, 37837), (53, 37783), (75, 37708), (83, 37687), (89, 37678), (122, 37564),

Gene: Treddle\_54 Start: 38978, Stop: 38580, Start Num: 25

Candidate Starts for Treddle\_54:

(Start: 25 @38978 has 167 MA's), (33, 38879), (44, 38825), (48, 38810), (49, 38801), (97, 38666), (111, 38612),

Gene: Tripl3t\_53 Start: 39615, Stop: 39205, Start Num: 25

Candidate Starts for Tripl3t\_53:

(Start: 23 @39627 has 1 MA's), (Start: 25 @39615 has 167 MA's), (33, 39516), (44, 39462), (48, 39447), (49, 39438), (97, 39303), (111, 39237),

Gene: Trixie\_55 Start: 38251, Stop: 37799, Start Num: 25

Candidate Starts for Trixie\_55:

(Start: 25 @38251 has 167 MA's), (40, 38113), (42, 38107), (43, 38104), (44, 38101), (50, 38074), (52, 38047), (58, 38008), (76, 37927),

Gene: Trouble\_56 Start: 39709, Stop: 39311, Start Num: 25

Candidate Starts for Trouble\_56:

(Start: 25 @39709 has 167 MA's), (33, 39610), (44, 39556), (48, 39541), (49, 39532), (97, 39397), (111, 39343),

Gene: TwoPeat\_54 Start: 38091, Stop: 37693, Start Num: 25

Candidate Starts for TwoPeat\_54:

(19, 38133), (Start: 23 @38103 has 1 MA's), (Start: 25 @38091 has 167 MA's), (33, 37992), (44, 37938), (48, 37923), (49, 37914), (97, 37779), (111, 37725),

Gene: UnionJack\_51 Start: 36473, Stop: 35982, Start Num: 25

Candidate Starts for UnionJack\_51:

(Start: 25 @36473 has 167 MA's), (33, 36374), (37, 36347), (40, 36332), (41, 36329), (44, 36320), (47, 36311), (59, 36209), (90, 36107), (126, 35996),

Gene: VC3\_60 Start: 38397, Stop: 37942, Start Num: 25

Candidate Starts for VC3\_60:

(Start: 25 @38397 has 167 MA's), (40, 38256), (44, 38244), (47, 38235), (53, 38181), (75, 38106), (83, 38085), (89, 38076), (122, 37962),

Gene: Vanisoa\_57 Start: 39057, Stop: 38596, Start Num: 25

Candidate Starts for Vanisoa\_57:

(Start: 25 @39057 has 167 MA's), (37, 38934), (40, 38919), (43, 38910), (44, 38907), (50, 38880), (52, 38853), (58, 38814), (126, 38601),

Gene: Violet\_51 Start: 38989, Stop: 38588, Start Num: 24

Candidate Starts for Violet\_51:

(17, 39040), (Start: 24 @38989 has 13 MA's), (33, 38887), (44, 38833), (48, 38818), (49, 38809), (97, 38674), (111, 38620),

Gene: WeiHuaDA\_59 Start: 39056, Stop: 38604, Start Num: 25

Candidate Starts for WeiHuaDA\_59:

(Start: 25 @39056 has 167 MA's), (40, 38918), (42, 38912), (43, 38909), (44, 38906), (50, 38879), (52, 38852), (58, 38813), (62, 38774), (74, 38741),

Gene: Wheeler\_54 Start: 38471, Stop: 38073, Start Num: 25

Candidate Starts for Wheeler\_54:

(Start: 25 @38471 has 167 MA's), (33, 38372), (44, 38318), (48, 38303), (49, 38294), (97, 38159), (111, 38105),

Gene: Yecey3\_58 Start: 37824, Stop: 37375, Start Num: 25

Candidate Starts for Yecey3\_58:

(Start: 25 @37824 has 167 MA's), (40, 37683), (44, 37671), (49, 37647), (70, 37545), (83, 37509), (103, 37437), (126, 37380),

Gene: Zeeculate\_51 Start: 39028, Stop: 38627, Start Num: 24

Candidate Starts for Zeeculate\_51:

(17, 39079), (Start: 24 @39028 has 13 MA's), (33, 38926), (44, 38872), (48, 38857), (49, 38848), (97, 38713), (111, 38659),

Gene: Zeuska\_52 Start: 38962, Stop: 38564, Start Num: 25

Candidate Starts for Zeuska\_52:

(Start: 25 @38962 has 167 MA's), (33, 38863), (44, 38809), (48, 38794), (49, 38785), (97, 38650), (111, 38596),

Gene: Zimmer\_54 Start: 38954, Stop: 38418, Start Num: 25

Candidate Starts for Zimmer\_54:

(3, 39227), (4, 39179), (5, 39170), (Start: 25 @38954 has 167 MA's), (40, 38807), (44, 38795), (48, 38780), (66, 38648), (79, 38609), (134, 38423),

Gene: Zolita\_51 Start: 37667, Stop: 37200, Start Num: 25

Candidate Starts for Zolita\_51:

(20, 37703), (Start: 25 @37667 has 167 MA's), (33, 37568), (44, 37514), (45, 37511), (46, 37508), (47, 37505), (101, 37271), (122, 37217),