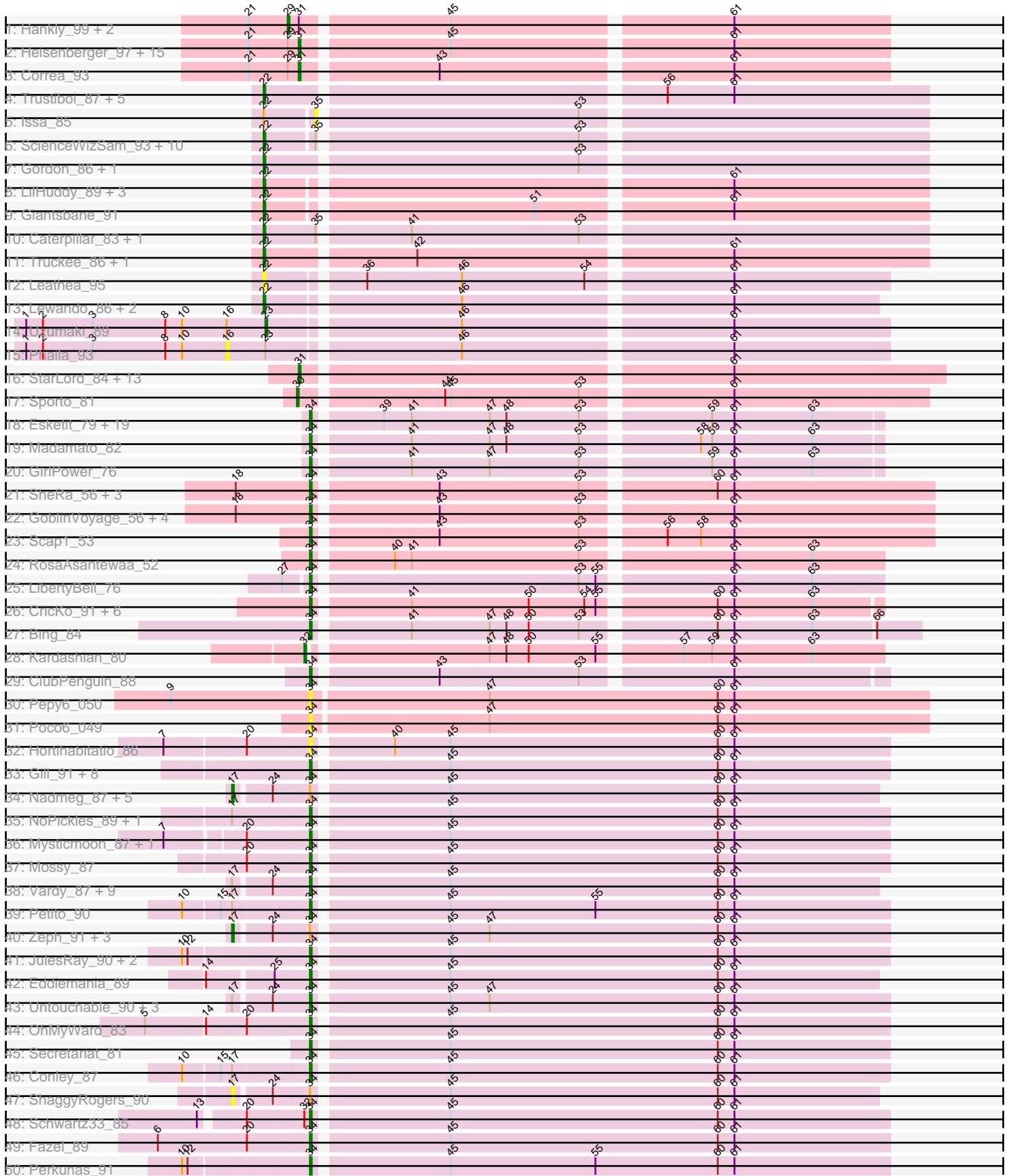
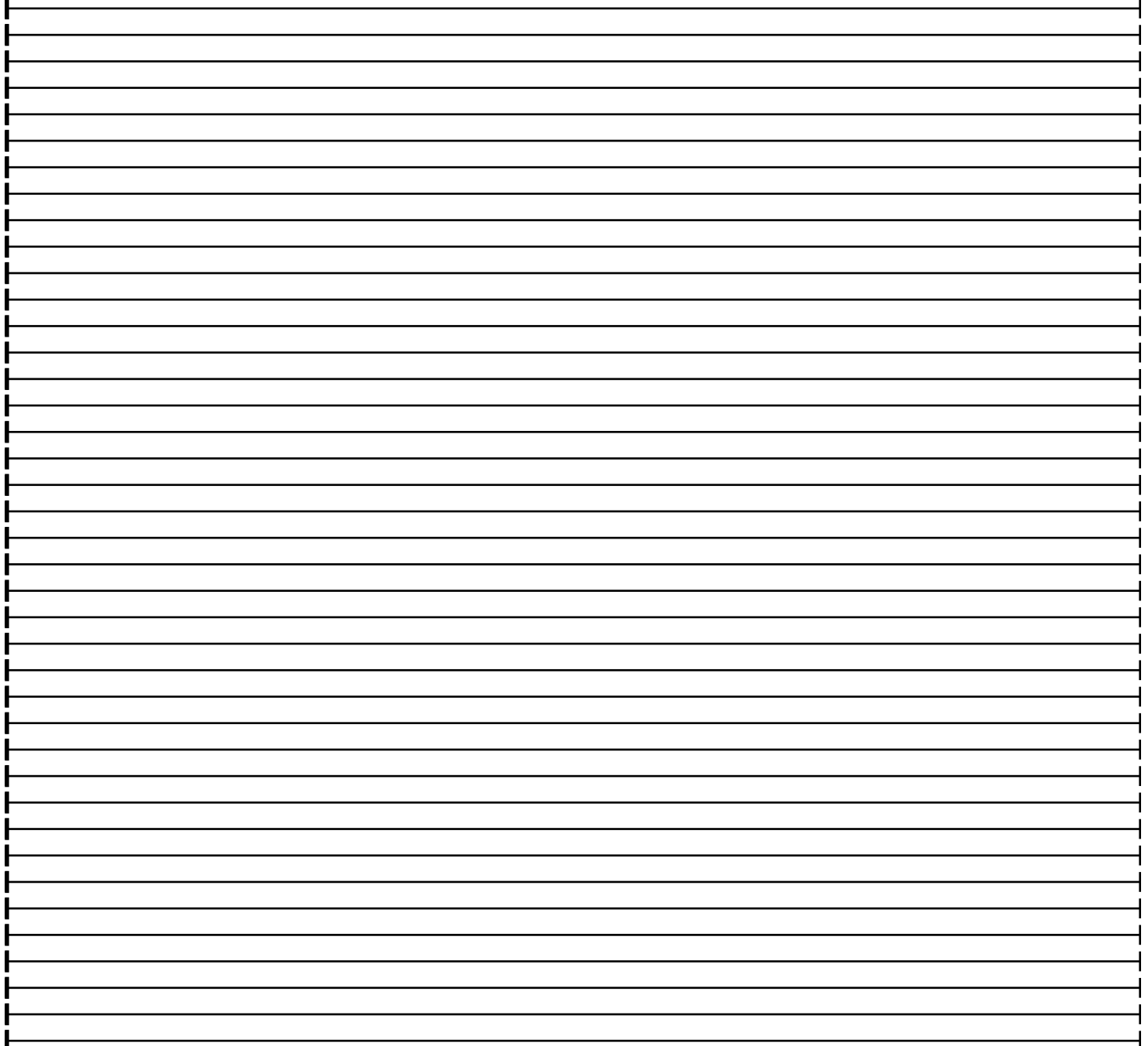
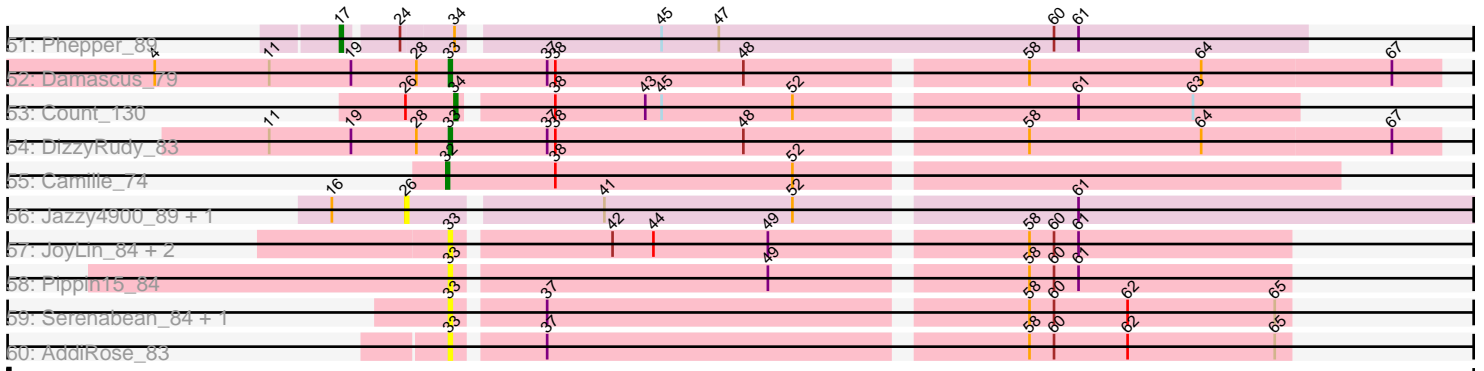


Pham 195437



Pham 195437



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 195437 Report

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

Pham number 195437 has 181 members, 29 are drafts.

Phages represented in each track:

- Track 1 : Hankly\_99, Circum\_96, NapoleonB\_97
- Track 2 : Heisenberger\_97, Elsa\_94, Arcadia\_94, Mudcat\_92, Nason\_94, Kardesai\_97, KeaneyLin\_92, GoCrazy\_92, Dynamite\_96, Xenomorph\_92, Mooshroom\_98, BenitoAntonio\_96, JEGGS\_97, Benllo\_97, Tribby\_99, Cheesy\_98
- Track 3 : Correa\_93
- Track 4 : Trustiboi\_87, Darby\_86, CastorTray\_90, Ingrid\_92, Loretta\_88, AreFloNak\_97
- Track 5 : Issa\_85
- Track 6 : ScienceWizSam\_93, Nightmare\_89, Tenno\_89, CapnMurica\_85, Teacup\_85, Brunswick\_93, Inked\_92, Niktson\_90, DevitoJr\_89, MiniBagel\_90, ElephantMan\_90
- Track 7 : Gordon\_86, Synopsis\_81
- Track 8 : LilHuddy\_89, Phaby\_89, Tokki\_95, Shepard\_89
- Track 9 : Giantsbane\_91
- Track 10 : Caterpillar\_83, MediumFry\_82
- Track 11 : Truckee\_86, Makai\_89
- Track 12 : Leathea\_95
- Track 13 : Lewando\_86, BarbieDoll\_89, Renaldo\_90
- Track 14 : Uzumaki\_89
- Track 15 : Phaila\_93
- Track 16 : StarLord\_84, Shiba\_83, DoctorPepper\_83, Sloopyjoe\_84, MrAaronian\_84, Stayer\_84, Linda\_84, Djungelskog\_83, Michelle\_84, ProfFrink\_84, BronxBay\_84, Egad\_85, Salk\_84, Raunak\_85
- Track 17 : Sporto\_81
- Track 18 : Esketit\_79, OlympicHelado\_85, FidgetOrca\_85, Spectropatronm\_82, DrGrey\_79, Rima\_84, TonyStarch\_82, Soshi\_82, TieDye\_79, FrodoSwaggins\_81, Jaylociraptor\_83, Meibysrarus\_81, TaidaOne\_83, IceWarrior\_83, Indigenous\_85, Hoshi\_84, Maya\_83, Namu\_85, CherryBlossom\_83, Popy\_81
- Track 19 : Madamato\_82
- Track 20 : GirlPower\_76
- Track 21 : SheRa\_56, Annihilus\_56, HotFries\_54, Moozy\_55
- Track 22 : GoblinVoyage\_56, RavenPuff\_56, Bilo\_55, PherryCruz\_55, Doxi13\_57
- Track 23 : Scap1\_53
- Track 24 : RosaAsantewaa\_52
- Track 25 : LibertyBell\_76
- Track 26 : CricKo\_91, Rainydai\_88, Regigigas\_91, FromIndy\_89, SendItCS\_83, Miek\_85, Thiqqums\_91

- Track 27 : Bing\_84
- Track 28 : Kardashian\_80
- Track 29 : ClubPenguin\_88
- Track 30 : Pepy6\_050
- Track 31 : Poco6\_049
- Track 32 : Hortihabitatio\_86
- Track 33 : Gill\_91, Kerry\_90, Magel\_92, Roney\_89, Tanis\_90, Capybara\_88, Odesza\_89, Avazak\_90, Gravy\_90
- Track 34 : Nadmeg\_87, Figliar\_87, Crocheter\_88, Runhaar\_86, Burley\_87, AlainaMarie\_89
- Track 35 : NoPickles\_89, Captrips\_88
- Track 36 : Mysticmoon\_87, Pherobrine\_86
- Track 37 : Mossy\_87
- Track 38 : Vardy\_87, Jodelie19\_88, Aflac\_89, Duffington\_89, Rickmore\_89, BluerMoon\_92, TenaciousP\_90, EndAve\_90, Gusicorn\_91, OlgasClover\_90
- Track 39 : Petite\_90
- Track 40 : Zeph\_91, Arataki\_86, Nithya\_88, Hydrus\_88
- Track 41 : JulesRay\_90, Artorias\_89, FortCran\_89
- Track 42 : Eddiemania\_89
- Track 43 : Untouchable\_90, Kenosha\_87, Chikenjars\_89, Madvan\_87
- Track 44 : OhMyWard\_83
- Track 45 : Secretariat\_81
- Track 46 : Conley\_87
- Track 47 : ShaggyRogers\_90
- Track 48 : Schwartz33\_85
- Track 49 : Fazel\_89
- Track 50 : Perkunas\_91
- Track 51 : Phepper\_89
- Track 52 : Damascus\_79
- Track 53 : Count\_130
- Track 54 : DizzyRudy\_83
- Track 55 : Camille\_74
- Track 56 : Jazzy4900\_89, Sunny4976\_88
- Track 57 : JoyLin\_84, Yotsuba\_83, Eevee\_83
- Track 58 : Pippin15\_84
- Track 59 : Serenabean\_84, Daddyjeff\_84
- Track 60 : AddiRose\_83

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

The start number called the most often in the published annotations is 34, it was called in 76 of the 152 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Aflac\_89, Annihilus\_56, Artorias\_89, Avazak\_90, Bilo\_55, Bing\_84, BluerMoon\_92, Captrips\_88, Capybara\_88, CherryBlossom\_83, Chikenjars\_89, ClubPenguin\_88, Conley\_87, Count\_130, CricKo\_91, Doxi13\_57, DrGrey\_79, Duffington\_89, Eddiemania\_89, EndAve\_90, Esketit\_79, Fazel\_89, FidgetOrca\_85, FortCran\_89, FrodoSwaggins\_81, FromIndy\_89, Gill\_91, GirlPower\_76, GoblinVoyage\_56, Gravy\_90, Gusicorn\_91, Hortihabitatio\_86, Hoshi\_84, HotFries\_54, IceWarrior\_83,

Indigenous\_85, Jaylociraptor\_83, Jodelie19\_88, JulesRay\_90, Kenosha\_87, Kerry\_90, LibertyBell\_76, Madamato\_82, Madvan\_87, Magel\_92, Maya\_83, Meibysrarus\_81, Miek\_85, Moozy\_55, Mossy\_87, Mysticmoon\_87, Namu\_85, NoPickles\_89, Odesza\_89, OhMyWard\_83, OlgasClover\_90, OlympicHelado\_85, Pepy6\_050, Perkunas\_91, Petite\_90, Pherobrine\_86, PherryCruz\_55, Poco6\_049, Popy\_81, Rainydai\_88, RavenPuff\_56, Regigigas\_91, Rickmore\_89, Rima\_84, Roney\_89, RosaAsantewaa\_52, Scap1\_53, Schwartz33\_85, Secretariat\_81, SendItCS\_83, SheRa\_56, Soshi\_82, Spectropatronm\_82, TaidaOne\_83, Tanis\_90, TenaciousP\_90, Thiqqums\_91, TieDye\_79, TonyStarch\_82, Untouchable\_90, Vardy\_87,

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

- AlainaMarie\_89, Arataki\_86, Burley\_87, Crocheter\_88, Figliar\_87, Hydrus\_88, Nadmeg\_87, Nithya\_88, Phepper\_89, Runhaar\_86, ShaggyRogers\_90, Zeph\_91,

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

- AddiRose\_83, Arcadia\_94, AreFloNak\_97, BarbieDoll\_89, BenitoAntonio\_96, Benllo\_97, BronxBay\_84, Brunswick\_93, Camille\_74, CapnMurica\_85, CastorTray\_90, Caterpillar\_83, Cheesy\_98, Circum\_96, Correa\_93, Daddyjeff\_84, Damascus\_79, Darby\_86, DevitoJr\_89, DizzyRudy\_83, Djungelskog\_83, DoctorPepper\_83, Dynamite\_96, Eevee\_83, Egad\_85, ElephantMan\_90, Elsa\_94, Giantsbane\_91, GoCrazy\_92, Gordon\_86, Hankly\_99, Heisenberger\_97, Ingrid\_92, Inked\_92, Issa\_85, JEGGS\_97, Jazzy4900\_89, JoyLin\_84, Kardashian\_80, Kardesai\_97, KeaneyLin\_92, Leatheia\_95, Lewando\_86, LilHuddy\_89, Linda\_84, Loretta\_88, Makai\_89, MediumFry\_82, Michelle\_84, MiniBagel\_90, Mooshroom\_98, MrAaronian\_84, Mudcat\_92, NapoleonB\_97, Nason\_94, Nightmare\_89, Niktson\_90, Phaby\_89, Phaila\_93, Pippin15\_84, ProfFrink\_84, Raunak\_85, Renaldo\_90, Salk\_84, ScienceWizSam\_93, Serenabean\_84, Shepard\_89, Shiba\_83, Sloopyjoe\_84, Sporto\_81, StarLord\_84, Stayer\_84, Sunny4976\_88, Synepsis\_81, Teacup\_85, Tenno\_89, Tokki\_95, Tribby\_99, Truckee\_86, Trustiboi\_87, Uzumaki\_89, Xenomorph\_92, Yotsuba\_83,

### Summary by start number:

Start 16:

- Found in 4 of 181 ( 2.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Phaila\_93 (AU6),

Start 17:

- Found in 30 of 181 ( 16.6% ) of genes in pham
- Manual Annotations of this start: 10 of 152
- Called 40.0% of time when present
- Phage (with cluster) where this start called: AlainaMarie\_89 (DJ), Arataki\_86 (DJ), Burley\_87 (DJ), Crocheter\_88 (DJ), Figliar\_87 (DJ), Hydrus\_88 (DJ), Nadmeg\_87 (DJ), Nithya\_88 (DJ), Phepper\_89 (DJ), Runhaar\_86 (DJ), ShaggyRogers\_90 (DJ), Zeph\_91 (DJ),

Start 22:

- Found in 33 of 181 ( 18.2% ) of genes in pham
- Manual Annotations of this start: 28 of 152
- Called 97.0% of time when present

- Phage (with cluster) where this start called: AreFloNak\_97 (AU1), BarbieDoll\_89 (AU6), Brunswick\_93 (AU1), CapnMurica\_85 (AU1), CastorTray\_90 (AU1), Caterpillar\_83 (AU4), Darby\_86 (AU1), DevitoJr\_89 (AU1), ElephantMan\_90 (AU1), Giantsbane\_91 (AU2), Gordon\_86 (AU1), Ingrid\_92 (AU3), Inked\_92 (AU), Leathea\_95 (AU6), Lewando\_86 (AU6), LilHuddy\_89 (AU2), Loretta\_88 (AU3), Makai\_89 (AU5), MediumFry\_82 (AU4), MiniBagel\_90 (AU1), Nightmare\_89 (AU1), Niktson\_90 (AU1), Phaby\_89 (AU2), Renaldo\_90 (AU6), ScienceWizSam\_93 (AU1), Shepard\_89 (AU2), Synopsis\_81 (AU1), Teacup\_85 (AU1), Tenno\_89 (AU1), Tokki\_95 (AU2), Truckee\_86 (AU5), Trustiboi\_87 (AU1),

#### Start 23:

- Found in 2 of 181 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 152
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Uzumaki\_89 (AU6),

#### Start 26:

- Found in 3 of 181 ( 1.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Jazzy4900\_89 (FI), Sunny4976\_88 (FI),

#### Start 29:

- Found in 20 of 181 ( 11.0% ) of genes in pham
- Manual Annotations of this start: 3 of 152
- Called 15.0% of time when present
- Phage (with cluster) where this start called: Circum\_96 (AM), Hankly\_99 (AM), NapoleonB\_97 (AM),

#### Start 30:

- Found in 1 of 181 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 152
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sporto\_81 (AW),

#### Start 31:

- Found in 34 of 181 ( 18.8% ) of genes in pham
- Manual Annotations of this start: 29 of 152
- Called 91.2% of time when present
- Phage (with cluster) where this start called: Arcadia\_94 (AM), BenitoAntonio\_96 (AM), Benllo\_97 (AM), BronxBay\_84 (AW), Cheesy\_98 (AM), Correa\_93 (AM), Djungelskog\_83 (AW), DoctorPepper\_83 (AW), Dynamite\_96 (AM), Egad\_85 (AW), Elsa\_94 (AM), GoCrazy\_92 (AM), Heisenberger\_97 (AM), JEGGS\_97 (AM), Kardesai\_97 (AM), KeaneyLin\_92 (AM), Linda\_84 (AW), Michelle\_84 (AW), Mooshroom\_98 (AM), MrAaronian\_84 (AW), Mudcat\_92 (AM), Nason\_94 (AM), ProfFrink\_84 (AW), Raunak\_85 (AW), Salk\_84 (AW), Shiba\_83 (AW), Sloopyjoe\_84 (AW), StarLord\_84 (AW), Stayer\_84 (AW), Tribby\_99 (AM), Xenomorph\_92 (AM),

#### Start 32:

- Found in 3 of 181 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 2 of 152
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Camille\_74 (EL), Kardashian\_80 (BI6),

Start 33:

- Found in 9 of 181 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 2 of 152
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AddiRose\_83 (JA), Daddyjeff\_84 (JA), Damascus\_79 (EL), DizzyRudy\_83 (EL), Eevee\_83 (JA), JoyLin\_84 (JA), Pippin15\_84 (JA), Serenabean\_84 (JA), Yotsuba\_83 (JA),

Start 34:

- Found in 98 of 181 ( 54.1% ) of genes in pham
- Manual Annotations of this start: 76 of 152
- Called 87.8% of time when present
- Phage (with cluster) where this start called: Aflac\_89 (DJ), Annihilus\_56 (BI2), Artorias\_89 (DJ), Avazak\_90 (DJ), Bilo\_55 (BI2), Bing\_84 (BI5), BluerMoon\_92 (DJ), Captrips\_88 (DJ), Capybara\_88 (DJ), CherryBlossom\_83 (BI1), Chikenjars\_89 (DJ), ClubPenguin\_88 (BI7), Conley\_87 (DJ), Count\_130 (EL), CricKo\_91 (BI4), Doxi13\_57 (BI2), DrGrey\_79 (BI1), Duffington\_89 (DJ), Eddiemania\_89 (DJ), EndAve\_90 (DJ), Esketit\_79 (BI1), Fazel\_89 (DJ), FidgetOrca\_85 (BI1), FortCran\_89 (DJ), FrodoSwaggins\_81 (BI1), FromIndy\_89 (BI4), Gill\_91 (DJ), GirlPower\_76 (BI1), GoblinVoyage\_56 (BI2), Gravy\_90 (DJ), Gusicorn\_91 (DJ), Hortihabitatio\_86 (DJ), Hoshi\_84 (BI1), HotFries\_54 (BI2), IceWarrior\_83 (BI1), Indigenous\_85 (BI1), Jaylociraptor\_83 (BI1), Jodelie19\_88 (DJ), JulesRay\_90 (DJ), Kenosha\_87 (DJ), Kerry\_90 (DJ), LibertyBell\_76 (BI3), Madamoto\_82 (BI1), Madvan\_87 (DJ), Magel\_92 (DJ), Maya\_83 (BI1), Meibysrarus\_81 (BI1), Miek\_85 (BI4), Moozy\_55 (BI2), Mossy\_87 (DJ), Mysticmoon\_87 (DJ), Namu\_85 (BI1), NoPickles\_89 (DJ), Odesza\_89 (DJ), OhMyWard\_83 (DJ), OlgasClover\_90 (DJ), OlympicHelado\_85 (BI1), Pepy6\_050 (CC), Perkunas\_91 (DJ), Petite\_90 (DJ), Pherobrine\_86 (DJ), PherryCruz\_55 (BI2), Poco6\_049 (CC), Popy\_81 (BI1), Rainydai\_88 (BI4), RavenPuff\_56 (BI2), Regigigas\_91 (BI4), Rickmore\_89 (DJ), Rima\_84 (BI1), Roney\_89 (DJ), RosaAsantewaa\_52 (BI2), Scap1\_53 (BI2), Schwartz33\_85 (DJ), Secretariat\_81 (DJ), SendItCS\_83 (BI4), SheRa\_56 (BI2), Soshi\_82 (BI1), Spectropatronm\_82 (BI1), TaidaOne\_83 (BI1), Tanis\_90 (DJ), TenaciousP\_90 (DJ), Thiqqums\_91 (BI4), TieDye\_79 (BI1), TonyStarch\_82 (BI1), Untouchable\_90 (DJ), Vardy\_87 (DJ),

Start 35:

- Found in 14 of 181 ( 7.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 7.1% of time when present
- Phage (with cluster) where this start called: Issa\_85 (AU1),

**Summary by clusters:**

There are 21 clusters represented in this pham: EL, AU, DJ, CC, AM, AU3, BI3, AU1, BI7, AU2, AU5, AU4, AW, AU6, BI6, FI, BI4, BI5, BI2, JA, BI1,

Info for manual annotations of cluster AM:

- Start number 29 was manually annotated 3 times for cluster AM.
- Start number 31 was manually annotated 16 times for cluster AM.

Info for manual annotations of cluster AU:

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

Info for manual annotations of cluster AU1:

- Start number 22 was manually annotated 15 times for cluster AU1.

Info for manual annotations of cluster AU2:

- Start number 22 was manually annotated 5 times for cluster AU2.

Info for manual annotations of cluster AU3:

- Start number 22 was manually annotated 2 times for cluster AU3.

Info for manual annotations of cluster AU4:

- Start number 22 was manually annotated 2 times for cluster AU4.

Info for manual annotations of cluster AU5:

- Start number 22 was manually annotated 2 times for cluster AU5.

Info for manual annotations of cluster AU6:

- Start number 22 was manually annotated 1 time for cluster AU6.
- Start number 23 was manually annotated 1 time for cluster AU6.

Info for manual annotations of cluster AW:

- Start number 30 was manually annotated 1 time for cluster AW.
- Start number 31 was manually annotated 13 times for cluster AW.

Info for manual annotations of cluster BI1:

- Start number 34 was manually annotated 22 times for cluster BI1.

Info for manual annotations of cluster BI2:

- Start number 34 was manually annotated 11 times for cluster BI2.

Info for manual annotations of cluster BI3:

- Start number 34 was manually annotated 1 time for cluster BI3.

Info for manual annotations of cluster BI4:

- Start number 34 was manually annotated 5 times for cluster BI4.

Info for manual annotations of cluster BI5:

- Start number 34 was manually annotated 1 time for cluster BI5.

Info for manual annotations of cluster BI6:

- Start number 32 was manually annotated 1 time for cluster BI6.

Info for manual annotations of cluster BI7:

- Start number 34 was manually annotated 1 time for cluster BI7.

Info for manual annotations of cluster DJ:

- Start number 17 was manually annotated 10 times for cluster DJ.
- Start number 34 was manually annotated 34 times for cluster DJ.

Info for manual annotations of cluster EL:

- Start number 32 was manually annotated 1 time for cluster EL.
- Start number 33 was manually annotated 2 times for cluster EL.



- Start number 34 was manually annotated 1 time for cluster EL.

**Gene Information:**

Gene: AddiRose\_83 Start: 50887, Stop: 51180, Start Num: 33

Candidate Starts for AddiRose\_83:

(Start: 33 @50887 has 2 MA's), (37, 50917), (58, 51085), (60, 51094), (62, 51121), (65, 51175),

Gene: Aflac\_89 Start: 57301, Stop: 57600, Start Num: 34

Candidate Starts for Aflac\_89:

(Start: 17 @57265 has 10 MA's), (24, 57283), (Start: 34 @57301 has 76 MA's), (45, 57370), (60, 57514), (61, 57523),

Gene: AlainaMarie\_89 Start: 57292, Stop: 57627, Start Num: 17

Candidate Starts for AlainaMarie\_89:

(Start: 17 @57292 has 10 MA's), (24, 57310), (Start: 34 @57328 has 76 MA's), (45, 57397), (60, 57541), (61, 57550),

Gene: Annihilus\_56 Start: 39529, Stop: 39849, Start Num: 34

Candidate Starts for Annihilus\_56:

(18, 39490), (Start: 34 @39529 has 76 MA's), (43, 39592), (53, 39667), (60, 39733), (61, 39742),

Gene: Arataki\_86 Start: 56409, Stop: 56750, Start Num: 17

Candidate Starts for Arataki\_86:

(Start: 17 @56409 has 10 MA's), (24, 56427), (Start: 34 @56445 has 76 MA's), (45, 56514), (47, 56535), (60, 56658), (61, 56667),

Gene: Arcadia\_94 Start: 54217, Stop: 54519, Start Num: 31

Candidate Starts for Arcadia\_94:

(21, 54190), (Start: 29 @54211 has 3 MA's), (Start: 31 @54217 has 29 MA's), (45, 54292), (61, 54436),

Gene: AreFloNak\_97 Start: 54422, Stop: 54763, Start Num: 22

Candidate Starts for AreFloNak\_97:

(Start: 22 @54422 has 28 MA's), (56, 54623), (61, 54659),

Gene: Artorias\_89 Start: 55853, Stop: 56158, Start Num: 34

Candidate Starts for Artorias\_89:

(10, 55790), (12, 55793), (Start: 34 @55853 has 76 MA's), (45, 55922), (60, 56066), (61, 56075),

Gene: Avazak\_90 Start: 56283, Stop: 56588, Start Num: 34

Candidate Starts for Avazak\_90:

(Start: 34 @56283 has 76 MA's), (45, 56352), (60, 56496), (61, 56505),

Gene: BarbieDoll\_89 Start: 51742, Stop: 52053, Start Num: 22

Candidate Starts for BarbieDoll\_89:

(Start: 22 @51742 has 28 MA's), (46, 51838), (61, 51976),

Gene: BenitoAntonio\_96 Start: 54148, Stop: 54450, Start Num: 31

Candidate Starts for BenitoAntonio\_96:

(21, 54121), (Start: 29 @54142 has 3 MA's), (Start: 31 @54148 has 29 MA's), (45, 54223), (61, 54367),

Gene: Benllo\_97 Start: 54986, Stop: 55288, Start Num: 31

Candidate Starts for Benllo\_97:

(21, 54959), (Start: 29 @54980 has 3 MA's), (Start: 31 @54986 has 29 MA's), (45, 55061), (61, 55205),

Gene: Bilo\_55 Start: 39823, Stop: 40143, Start Num: 34

Candidate Starts for Bilo\_55:

(18, 39784), (Start: 34 @39823 has 76 MA's), (43, 39886), (53, 39961), (61, 40036),

Gene: Bing\_84 Start: 52233, Stop: 52544, Start Num: 34

Candidate Starts for Bing\_84:

(Start: 34 @52233 has 76 MA's), (41, 52281), (47, 52323), (48, 52332), (50, 52344), (53, 52371), (60, 52437), (61, 52446), (63, 52488), (66, 52521),

Gene: BluerMoon\_92 Start: 57131, Stop: 57430, Start Num: 34

Candidate Starts for BluerMoon\_92:

(Start: 17 @57095 has 10 MA's), (24, 57113), (Start: 34 @57131 has 76 MA's), (45, 57200), (60, 57344), (61, 57353),

Gene: BronxBay\_84 Start: 50569, Stop: 50901, Start Num: 31

Candidate Starts for BronxBay\_84:

(Start: 31 @50569 has 29 MA's), (61, 50788),

Gene: Brunswick\_93 Start: 54283, Stop: 54621, Start Num: 22

Candidate Starts for Brunswick\_93:

(Start: 22 @54283 has 28 MA's), (35, 54307), (53, 54442),

Gene: Burley\_87 Start: 56095, Stop: 56430, Start Num: 17

Candidate Starts for Burley\_87:

(Start: 17 @56095 has 10 MA's), (24, 56113), (Start: 34 @56131 has 76 MA's), (45, 56200), (60, 56344), (61, 56353),

Gene: Camille\_74 Start: 49086, Stop: 49403, Start Num: 32

Candidate Starts for Camille\_74:

(Start: 32 @49086 has 2 MA's), (38, 49125), (52, 49212),

Gene: CapnMurica\_85 Start: 54229, Stop: 54567, Start Num: 22

Candidate Starts for CapnMurica\_85:

(Start: 22 @54229 has 28 MA's), (35, 54253), (53, 54388),

Gene: Captrips\_88 Start: 55634, Stop: 55939, Start Num: 34

Candidate Starts for Captrips\_88:

(Start: 17 @55595 has 10 MA's), (Start: 34 @55634 has 76 MA's), (45, 55703), (60, 55847), (61, 55856),

Gene: Capybara\_88 Start: 55857, Stop: 56162, Start Num: 34

Candidate Starts for Capybara\_88:

(Start: 34 @55857 has 76 MA's), (45, 55926), (60, 56070), (61, 56079),

Gene: CastorTray\_90 Start: 54445, Stop: 54786, Start Num: 22  
Candidate Starts for CastorTray\_90:  
(Start: 22 @54445 has 28 MA's), (56, 54646), (61, 54682),

Gene: Caterpillar\_83 Start: 52687, Stop: 53028, Start Num: 22  
Candidate Starts for Caterpillar\_83:  
(Start: 22 @52687 has 28 MA's), (35, 52714), (41, 52759), (53, 52849),

Gene: Cheesy\_98 Start: 54899, Stop: 55201, Start Num: 31  
Candidate Starts for Cheesy\_98:  
(21, 54872), (Start: 29 @54893 has 3 MA's), (Start: 31 @54899 has 29 MA's), (45, 54974), (61, 55118),

Gene: CherryBlossom\_83 Start: 51474, Stop: 51764, Start Num: 34  
Candidate Starts for CherryBlossom\_83:  
(Start: 34 @51474 has 76 MA's), (39, 51507), (41, 51522), (47, 51564), (48, 51573), (53, 51612), (59, 51675), (61, 51687), (63, 51729),

Gene: Chikenjars\_89 Start: 57556, Stop: 57855, Start Num: 34  
Candidate Starts for Chikenjars\_89:  
(Start: 17 @57520 has 10 MA's), (24, 57538), (Start: 34 @57556 has 76 MA's), (45, 57625), (47, 57646), (60, 57769), (61, 57778),

Gene: Circum\_96 Start: 54506, Stop: 54814, Start Num: 29  
Candidate Starts for Circum\_96:  
(21, 54485), (Start: 29 @54506 has 3 MA's), (Start: 31 @54512 has 29 MA's), (45, 54587), (61, 54731),

Gene: ClubPenguin\_88 Start: 52169, Stop: 52462, Start Num: 34  
Candidate Starts for ClubPenguin\_88:  
(Start: 34 @52169 has 76 MA's), (43, 52232), (53, 52307), (61, 52382),

Gene: Conley\_87 Start: 56148, Stop: 56453, Start Num: 34  
Candidate Starts for Conley\_87:  
(10, 56085), (15, 56103), (Start: 17 @56109 has 10 MA's), (Start: 34 @56148 has 76 MA's), (45, 56217), (60, 56361), (61, 56370),

Gene: Correa\_93 Start: 53560, Stop: 53862, Start Num: 31  
Candidate Starts for Correa\_93:  
(21, 53533), (Start: 29 @53554 has 3 MA's), (Start: 31 @53560 has 29 MA's), (43, 53629), (61, 53779),

Gene: Count\_130 Start: 74858, Stop: 75151, Start Num: 34  
Candidate Starts for Count\_130:  
(26, 74840), (Start: 34 @74858 has 76 MA's), (38, 74888), (43, 74921), (45, 74927), (52, 74975), (61, 75071), (63, 75113),

Gene: CricKo\_91 Start: 53655, Stop: 53945, Start Num: 34  
Candidate Starts for CricKo\_91:  
(Start: 34 @53655 has 76 MA's), (41, 53703), (50, 53766), (54, 53796), (55, 53802), (60, 53859), (61, 53868), (63, 53910),

Gene: Crocheter\_88 Start: 56515, Stop: 56850, Start Num: 17

Candidate Starts for Crocheter\_88:

(Start: 17 @56515 has 10 MA's), (24, 56533), (Start: 34 @56551 has 76 MA's), (45, 56620), (60, 56764), (61, 56773),

Gene: Daddyjeff\_84 Start: 51237, Stop: 51530, Start Num: 33

Candidate Starts for Daddyjeff\_84:

(Start: 33 @51237 has 2 MA's), (37, 51267), (58, 51435), (60, 51444), (62, 51471), (65, 51525),

Gene: Damascus\_79 Start: 52477, Stop: 52830, Start Num: 33

Candidate Starts for Damascus\_79:

(4, 52369), (11, 52411), (19, 52441), (28, 52465), (Start: 33 @52477 has 2 MA's), (37, 52513), (38, 52516), (48, 52585), (58, 52681), (64, 52744), (67, 52813),

Gene: Darby\_86 Start: 53826, Stop: 54167, Start Num: 22

Candidate Starts for Darby\_86:

(Start: 22 @53826 has 28 MA's), (56, 54027), (61, 54063),

Gene: DevitoJr\_89 Start: 54115, Stop: 54453, Start Num: 22

Candidate Starts for DevitoJr\_89:

(Start: 22 @54115 has 28 MA's), (35, 54139), (53, 54274),

Gene: DizzyRudy\_83 Start: 51813, Stop: 52166, Start Num: 33

Candidate Starts for DizzyRudy\_83:

(11, 51747), (19, 51777), (28, 51801), (Start: 33 @51813 has 2 MA's), (37, 51849), (38, 51852), (48, 51921), (58, 52017), (64, 52080), (67, 52149),

Gene: Djungelskog\_83 Start: 50571, Stop: 50903, Start Num: 31

Candidate Starts for Djungelskog\_83:

(Start: 31 @50571 has 29 MA's), (61, 50790),

Gene: DoctorPepper\_83 Start: 50302, Stop: 50634, Start Num: 31

Candidate Starts for DoctorPepper\_83:

(Start: 31 @50302 has 29 MA's), (61, 50521),

Gene: Doxi13\_57 Start: 39659, Stop: 39979, Start Num: 34

Candidate Starts for Doxi13\_57:

(18, 39620), (Start: 34 @39659 has 76 MA's), (43, 39722), (53, 39797), (61, 39872),

Gene: DrGrey\_79 Start: 51987, Stop: 52277, Start Num: 34

Candidate Starts for DrGrey\_79:

(Start: 34 @51987 has 76 MA's), (39, 52020), (41, 52035), (47, 52077), (48, 52086), (53, 52125), (59, 52188), (61, 52200), (63, 52242),

Gene: Duffington\_89 Start: 57356, Stop: 57655, Start Num: 34

Candidate Starts for Duffington\_89:

(Start: 17 @57320 has 10 MA's), (24, 57338), (Start: 34 @57356 has 76 MA's), (45, 57425), (60, 57569), (61, 57578),

Gene: Dynamite\_96 Start: 54004, Stop: 54306, Start Num: 31

Candidate Starts for Dynamite\_96:

(21, 53977), (Start: 29 @53998 has 3 MA's), (Start: 31 @54004 has 29 MA's), (45, 54079), (61, 54223),

Gene: Eddiemania\_89 Start: 57446, Stop: 57745, Start Num: 34  
Candidate Starts for Eddiemania\_89:  
(14, 57395), (25, 57428), (Start: 34 @57446 has 76 MA's), (45, 57515), (60, 57659), (61, 57668),

Gene: Eevee\_83 Start: 52573, Stop: 52866, Start Num: 33  
Candidate Starts for Eevee\_83:  
(Start: 33 @52573 has 2 MA's), (42, 52627), (44, 52642), (49, 52684), (58, 52771), (60, 52780), (61, 52789),

Gene: Egad\_85 Start: 50576, Stop: 50908, Start Num: 31  
Candidate Starts for Egad\_85:  
(Start: 31 @50576 has 29 MA's), (61, 50795),

Gene: ElephantMan\_90 Start: 54476, Stop: 54814, Start Num: 22  
Candidate Starts for ElephantMan\_90:  
(Start: 22 @54476 has 28 MA's), (35, 54500), (53, 54635),

Gene: Elsa\_94 Start: 54217, Stop: 54519, Start Num: 31  
Candidate Starts for Elsa\_94:  
(21, 54190), (Start: 29 @54211 has 3 MA's), (Start: 31 @54217 has 29 MA's), (45, 54292), (61, 54436),

Gene: EndAve\_90 Start: 57266, Stop: 57565, Start Num: 34  
Candidate Starts for EndAve\_90:  
(Start: 17 @57230 has 10 MA's), (24, 57248), (Start: 34 @57266 has 76 MA's), (45, 57335), (60, 57479), (61, 57488),

Gene: Esketit\_79 Start: 50575, Stop: 50865, Start Num: 34  
Candidate Starts for Esketit\_79:  
(Start: 34 @50575 has 76 MA's), (39, 50608), (41, 50623), (47, 50665), (48, 50674), (53, 50713), (59, 50776), (61, 50788), (63, 50830),

Gene: Fazel\_89 Start: 56115, Stop: 56420, Start Num: 34  
Candidate Starts for Fazel\_89:  
(6, 56034), (20, 56082), (Start: 34 @56115 has 76 MA's), (45, 56184), (60, 56328), (61, 56337),

Gene: FidgetOrca\_85 Start: 52025, Stop: 52315, Start Num: 34  
Candidate Starts for FidgetOrca\_85:  
(Start: 34 @52025 has 76 MA's), (39, 52058), (41, 52073), (47, 52115), (48, 52124), (53, 52163), (59, 52226), (61, 52238), (63, 52280),

Gene: Figliar\_87 Start: 57124, Stop: 57459, Start Num: 17  
Candidate Starts for Figliar\_87:  
(Start: 17 @57124 has 10 MA's), (24, 57142), (Start: 34 @57160 has 76 MA's), (45, 57229), (60, 57373), (61, 57382),

Gene: FortCran\_89 Start: 55854, Stop: 56159, Start Num: 34  
Candidate Starts for FortCran\_89:  
(10, 55791), (12, 55794), (Start: 34 @55854 has 76 MA's), (45, 55923), (60, 56067), (61, 56076),

Gene: FrodoSwaggins\_81 Start: 52382, Stop: 52672, Start Num: 34  
Candidate Starts for FrodoSwaggins\_81:

(Start: 34 @52382 has 76 MA's), (39, 52415), (41, 52430), (47, 52472), (48, 52481), (53, 52520), (59, 52583), (61, 52595), (63, 52637),

Gene: FromIndy\_89 Start: 52855, Stop: 53145, Start Num: 34

Candidate Starts for FromIndy\_89:

(Start: 34 @52855 has 76 MA's), (41, 52903), (50, 52966), (54, 52996), (55, 53002), (60, 53059), (61, 53068), (63, 53110),

Gene: Giantsbane\_91 Start: 52822, Stop: 53160, Start Num: 22

Candidate Starts for Giantsbane\_91:

(Start: 22 @52822 has 28 MA's), (51, 52957), (61, 53056),

Gene: Gill\_91 Start: 55884, Stop: 56189, Start Num: 34

Candidate Starts for Gill\_91:

(Start: 34 @55884 has 76 MA's), (45, 55953), (60, 56097), (61, 56106),

Gene: GirlPower\_76 Start: 51444, Stop: 51734, Start Num: 34

Candidate Starts for GirlPower\_76:

(Start: 34 @51444 has 76 MA's), (41, 51492), (47, 51534), (53, 51582), (59, 51645), (61, 51657), (63, 51699),

Gene: GoCrazy\_92 Start: 52968, Stop: 53270, Start Num: 31

Candidate Starts for GoCrazy\_92:

(21, 52941), (Start: 29 @52962 has 3 MA's), (Start: 31 @52968 has 29 MA's), (45, 53043), (61, 53187),

Gene: GoblinVoyage\_56 Start: 39503, Stop: 39823, Start Num: 34

Candidate Starts for GoblinVoyage\_56:

(18, 39464), (Start: 34 @39503 has 76 MA's), (43, 39566), (53, 39641), (61, 39716),

Gene: Gordon\_86 Start: 54346, Stop: 54687, Start Num: 22

Candidate Starts for Gordon\_86:

(Start: 22 @54346 has 28 MA's), (53, 54508),

Gene: Gravy\_90 Start: 55547, Stop: 55852, Start Num: 34

Candidate Starts for Gravy\_90:

(Start: 34 @55547 has 76 MA's), (45, 55616), (60, 55760), (61, 55769),

Gene: Gusicorn\_91 Start: 56458, Stop: 56757, Start Num: 34

Candidate Starts for Gusicorn\_91:

(Start: 17 @56422 has 10 MA's), (24, 56440), (Start: 34 @56458 has 76 MA's), (45, 56527), (60, 56671), (61, 56680),

Gene: Hankly\_99 Start: 54591, Stop: 54899, Start Num: 29

Candidate Starts for Hankly\_99:

(21, 54570), (Start: 29 @54591 has 3 MA's), (Start: 31 @54597 has 29 MA's), (45, 54672), (61, 54816),

Gene: Heisenberger\_97 Start: 54367, Stop: 54669, Start Num: 31

Candidate Starts for Heisenberger\_97:

(21, 54340), (Start: 29 @54361 has 3 MA's), (Start: 31 @54367 has 29 MA's), (45, 54442), (61, 54586),

Gene: Hortihabitatio\_86 Start: 55884, Stop: 56189, Start Num: 34  
Candidate Starts for Hortihabitatio\_86:  
(7, 55809), (20, 55851), (Start: 34 @55884 has 76 MA's), (40, 55923), (45, 55953), (60, 56097), (61, 56106),

Gene: Hoshi\_84 Start: 51639, Stop: 51929, Start Num: 34  
Candidate Starts for Hoshi\_84:  
(Start: 34 @51639 has 76 MA's), (39, 51672), (41, 51687), (47, 51729), (48, 51738), (53, 51777), (59, 51840), (61, 51852), (63, 51894),

Gene: HotFries\_54 Start: 39686, Stop: 40006, Start Num: 34  
Candidate Starts for HotFries\_54:  
(18, 39647), (Start: 34 @39686 has 76 MA's), (43, 39749), (53, 39824), (60, 39890), (61, 39899),

Gene: Hydrus\_88 Start: 56826, Stop: 57167, Start Num: 17  
Candidate Starts for Hydrus\_88:  
(Start: 17 @56826 has 10 MA's), (24, 56844), (Start: 34 @56862 has 76 MA's), (45, 56931), (47, 56952), (60, 57075), (61, 57084),

Gene: IceWarrior\_83 Start: 51444, Stop: 51734, Start Num: 34  
Candidate Starts for IceWarrior\_83:  
(Start: 34 @51444 has 76 MA's), (39, 51477), (41, 51492), (47, 51534), (48, 51543), (53, 51582), (59, 51645), (61, 51657), (63, 51699),

Gene: Indigenous\_85 Start: 52030, Stop: 52320, Start Num: 34  
Candidate Starts for Indigenous\_85:  
(Start: 34 @52030 has 76 MA's), (39, 52063), (41, 52078), (47, 52120), (48, 52129), (53, 52168), (59, 52231), (61, 52243), (63, 52285),

Gene: Ingrid\_92 Start: 53005, Stop: 53346, Start Num: 22  
Candidate Starts for Ingrid\_92:  
(Start: 22 @53005 has 28 MA's), (56, 53206), (61, 53242),

Gene: Inked\_92 Start: 53930, Stop: 54268, Start Num: 22  
Candidate Starts for Inked\_92:  
(Start: 22 @53930 has 28 MA's), (35, 53954), (53, 54089),

Gene: Issa\_85 Start: 53558, Stop: 53872, Start Num: 35  
Candidate Starts for Issa\_85:  
(Start: 22 @53534 has 28 MA's), (35, 53558), (53, 53693),

Gene: JEGGS\_97 Start: 54446, Stop: 54748, Start Num: 31  
Candidate Starts for JEGGS\_97:  
(21, 54419), (Start: 29 @54440 has 3 MA's), (Start: 31 @54446 has 29 MA's), (45, 54521), (61, 54665),

Gene: Jaylociraptor\_83 Start: 51610, Stop: 51900, Start Num: 34  
Candidate Starts for Jaylociraptor\_83:  
(Start: 34 @51610 has 76 MA's), (39, 51643), (41, 51658), (47, 51700), (48, 51709), (53, 51748), (59, 51811), (61, 51823), (63, 51865),

Gene: Jazzy4900\_89 Start: 54541, Stop: 54918, Start Num: 26  
Candidate Starts for Jazzy4900\_89:

(16, 54514), (26, 54541), (41, 54607), (52, 54676), (61, 54772),

Gene: Jodelie19\_88 Start: 58344, Stop: 58643, Start Num: 34

Candidate Starts for Jodelie19\_88:

(Start: 17 @58308 has 10 MA's), (24, 58326), (Start: 34 @58344 has 76 MA's), (45, 58413), (60, 58557), (61, 58566),

Gene: JoyLin\_84 Start: 53326, Stop: 53619, Start Num: 33

Candidate Starts for JoyLin\_84:

(Start: 33 @53326 has 2 MA's), (42, 53380), (44, 53395), (49, 53437), (58, 53524), (60, 53533), (61, 53542),

Gene: JulesRay\_90 Start: 55949, Stop: 56254, Start Num: 34

Candidate Starts for JulesRay\_90:

(10, 55886), (12, 55889), (Start: 34 @55949 has 76 MA's), (45, 56018), (60, 56162), (61, 56171),

Gene: Kardashian\_80 Start: 51975, Stop: 52268, Start Num: 32

Candidate Starts for Kardashian\_80:

(Start: 32 @51975 has 2 MA's), (47, 52065), (48, 52074), (50, 52086), (55, 52122), (57, 52161), (59, 52176), (61, 52188), (63, 52230),

Gene: Kardesai\_97 Start: 54025, Stop: 54327, Start Num: 31

Candidate Starts for Kardesai\_97:

(21, 53998), (Start: 29 @54019 has 3 MA's), (Start: 31 @54025 has 29 MA's), (45, 54100), (61, 54244),

Gene: KeaneyLin\_92 Start: 54006, Stop: 54308, Start Num: 31

Candidate Starts for KeaneyLin\_92:

(21, 53979), (Start: 29 @54000 has 3 MA's), (Start: 31 @54006 has 29 MA's), (45, 54081), (61, 54225),

Gene: Kenosha\_87 Start: 56919, Stop: 57224, Start Num: 34

Candidate Starts for Kenosha\_87:

(Start: 17 @56883 has 10 MA's), (24, 56901), (Start: 34 @56919 has 76 MA's), (45, 56988), (47, 57009), (60, 57132), (61, 57141),

Gene: Kerry\_90 Start: 55610, Stop: 55915, Start Num: 34

Candidate Starts for Kerry\_90:

(Start: 34 @55610 has 76 MA's), (45, 55679), (60, 55823), (61, 55832),

Gene: Leathea\_95 Start: 51147, Stop: 51464, Start Num: 22

Candidate Starts for Leathea\_95:

(Start: 22 @51147 has 28 MA's), (36, 51192), (46, 51243), (54, 51309), (61, 51381),

Gene: Lewando\_86 Start: 51174, Stop: 51485, Start Num: 22

Candidate Starts for Lewando\_86:

(Start: 22 @51174 has 28 MA's), (46, 51270), (61, 51408),

Gene: LibertyBell\_76 Start: 48692, Stop: 48985, Start Num: 34

Candidate Starts for LibertyBell\_76:

(27, 48680), (Start: 34 @48692 has 76 MA's), (53, 48830), (55, 48839), (61, 48905), (63, 48947),

Gene: LilHuddy\_89 Start: 53435, Stop: 53773, Start Num: 22



Candidate Starts for LilHuddy\_89:  
(Start: 22 @53435 has 28 MA's), (61, 53669),

Gene: Linda\_84 Start: 50589, Stop: 50921, Start Num: 31  
Candidate Starts for Linda\_84:  
(Start: 31 @50589 has 29 MA's), (61, 50808),

Gene: Loretta\_88 Start: 53005, Stop: 53346, Start Num: 22  
Candidate Starts for Loretta\_88:  
(Start: 22 @53005 has 28 MA's), (56, 53206), (61, 53242),

Gene: Madamoto\_82 Start: 51285, Stop: 51575, Start Num: 34  
Candidate Starts for Madamoto\_82:  
(Start: 34 @51285 has 76 MA's), (41, 51333), (47, 51375), (48, 51384), (53, 51423), (58, 51480), (59, 51486), (61, 51498), (63, 51540),

Gene: Madvan\_87 Start: 56174, Stop: 56479, Start Num: 34  
Candidate Starts for Madvan\_87:  
(Start: 17 @56138 has 10 MA's), (24, 56156), (Start: 34 @56174 has 76 MA's), (45, 56243), (47, 56264), (60, 56387), (61, 56396),

Gene: Magel\_92 Start: 55799, Stop: 56104, Start Num: 34  
Candidate Starts for Magel\_92:  
(Start: 34 @55799 has 76 MA's), (45, 55868), (60, 56012), (61, 56021),

Gene: Makai\_89 Start: 54043, Stop: 54384, Start Num: 22  
Candidate Starts for Makai\_89:  
(Start: 22 @54043 has 28 MA's), (42, 54118), (61, 54280),

Gene: Maya\_83 Start: 51624, Stop: 51914, Start Num: 34  
Candidate Starts for Maya\_83:  
(Start: 34 @51624 has 76 MA's), (39, 51657), (41, 51672), (47, 51714), (48, 51723), (53, 51762), (59, 51825), (61, 51837), (63, 51879),

Gene: MediumFry\_82 Start: 53043, Stop: 53384, Start Num: 22  
Candidate Starts for MediumFry\_82:  
(Start: 22 @53043 has 28 MA's), (35, 53070), (41, 53115), (53, 53205),

Gene: Meibysrarus\_81 Start: 51008, Stop: 51298, Start Num: 34  
Candidate Starts for Meibysrarus\_81:  
(Start: 34 @51008 has 76 MA's), (39, 51041), (41, 51056), (47, 51098), (48, 51107), (53, 51146), (59, 51209), (61, 51221), (63, 51263),

Gene: Michelle\_84 Start: 50568, Stop: 50900, Start Num: 31  
Candidate Starts for Michelle\_84:  
(Start: 31 @50568 has 29 MA's), (61, 50787),

Gene: Miek\_85 Start: 52037, Stop: 52327, Start Num: 34  
Candidate Starts for Miek\_85:  
(Start: 34 @52037 has 76 MA's), (41, 52085), (50, 52148), (54, 52178), (55, 52184), (60, 52241), (61, 52250), (63, 52292),

Gene: MiniBagel\_90 Start: 54346, Stop: 54684, Start Num: 22

Candidate Starts for MiniBagel\_90:  
(Start: 22 @54346 has 28 MA's), (35, 54370), (53, 54505),

Gene: Mooshroom\_98 Start: 54025, Stop: 54327, Start Num: 31  
Candidate Starts for Mooshroom\_98:  
(21, 53998), (Start: 29 @54019 has 3 MA's), (Start: 31 @54025 has 29 MA's), (45, 54100), (61, 54244),

Gene: Moozy\_55 Start: 39513, Stop: 39833, Start Num: 34  
Candidate Starts for Moozy\_55:  
(18, 39474), (Start: 34 @39513 has 76 MA's), (43, 39576), (53, 39651), (60, 39717), (61, 39726),

Gene: Mossy\_87 Start: 57201, Stop: 57506, Start Num: 34  
Candidate Starts for Mossy\_87:  
(20, 57168), (Start: 34 @57201 has 76 MA's), (45, 57270), (60, 57414), (61, 57423),

Gene: MrAaronian\_84 Start: 50568, Stop: 50900, Start Num: 31  
Candidate Starts for MrAaronian\_84:  
(Start: 31 @50568 has 29 MA's), (61, 50787),

Gene: Mudcat\_92 Start: 55602, Stop: 55904, Start Num: 31  
Candidate Starts for Mudcat\_92:  
(21, 55575), (Start: 29 @55596 has 3 MA's), (Start: 31 @55602 has 29 MA's), (45, 55677), (61, 55821),

Gene: Mysticmoon\_87 Start: 56297, Stop: 56602, Start Num: 34  
Candidate Starts for Mysticmoon\_87:  
(7, 56225), (20, 56264), (Start: 34 @56297 has 76 MA's), (45, 56366), (60, 56510), (61, 56519),

Gene: Nadmeg\_87 Start: 57121, Stop: 57456, Start Num: 17  
Candidate Starts for Nadmeg\_87:  
(Start: 17 @57121 has 10 MA's), (24, 57139), (Start: 34 @57157 has 76 MA's), (45, 57226), (60, 57370), (61, 57379),

Gene: Namo\_85 Start: 52079, Stop: 52369, Start Num: 34  
Candidate Starts for Namo\_85:  
(Start: 34 @52079 has 76 MA's), (39, 52112), (41, 52127), (47, 52169), (48, 52178), (53, 52217), (59, 52280), (61, 52292), (63, 52334),

Gene: NapoleonB\_97 Start: 53998, Stop: 54306, Start Num: 29  
Candidate Starts for NapoleonB\_97:  
(21, 53977), (Start: 29 @53998 has 3 MA's), (Start: 31 @54004 has 29 MA's), (45, 54079), (61, 54223),

Gene: Nason\_94 Start: 54217, Stop: 54519, Start Num: 31  
Candidate Starts for Nason\_94:  
(21, 54190), (Start: 29 @54211 has 3 MA's), (Start: 31 @54217 has 29 MA's), (45, 54292), (61, 54436),

Gene: Nightmare\_89 Start: 54909, Stop: 55247, Start Num: 22  
Candidate Starts for Nightmare\_89:  
(Start: 22 @54909 has 28 MA's), (35, 54933), (53, 55068),

Gene: Niktson\_90 Start: 54476, Stop: 54814, Start Num: 22

Candidate Starts for Niktson\_90:

(Start: 22 @54476 has 28 MA's), (35, 54500), (53, 54635),

Gene: Nithya\_88 Start: 57069, Stop: 57404, Start Num: 17

Candidate Starts for Nithya\_88:

(Start: 17 @57069 has 10 MA's), (24, 57087), (Start: 34 @57105 has 76 MA's), (45, 57174), (47, 57195), (60, 57318), (61, 57327),

Gene: NoPickles\_89 Start: 55706, Stop: 56011, Start Num: 34

Candidate Starts for NoPickles\_89:

(Start: 17 @55667 has 10 MA's), (Start: 34 @55706 has 76 MA's), (45, 55775), (60, 55919), (61, 55928),

Gene: Odesza\_89 Start: 55746, Stop: 56051, Start Num: 34

Candidate Starts for Odesza\_89:

(Start: 34 @55746 has 76 MA's), (45, 55815), (60, 55959), (61, 55968),

Gene: OhMyWard\_83 Start: 56996, Stop: 57301, Start Num: 34

Candidate Starts for OhMyWard\_83:

(5, 56912), (14, 56942), (20, 56963), (Start: 34 @56996 has 76 MA's), (45, 57065), (60, 57209), (61, 57218),

Gene: OlgasClover\_90 Start: 57939, Stop: 58238, Start Num: 34

Candidate Starts for OlgasClover\_90:

(Start: 17 @57903 has 10 MA's), (24, 57921), (Start: 34 @57939 has 76 MA's), (45, 58008), (60, 58152), (61, 58161),

Gene: OlympicHelado\_85 Start: 52100, Stop: 52390, Start Num: 34

Candidate Starts for OlympicHelado\_85:

(Start: 34 @52100 has 76 MA's), (39, 52133), (41, 52148), (47, 52190), (48, 52199), (53, 52238), (59, 52301), (61, 52313), (63, 52355),

Gene: Pepy6\_050 Start: 72684, Stop: 73013, Start Num: 34

Candidate Starts for Pepy6\_050:

(9, 72609), (Start: 34 @72684 has 76 MA's), (47, 72777), (60, 72900), (61, 72909),

Gene: Perkunas\_91 Start: 55643, Stop: 55948, Start Num: 34

Candidate Starts for Perkunas\_91:

(10, 55580), (12, 55583), (Start: 34 @55643 has 76 MA's), (45, 55712), (55, 55790), (60, 55856), (61, 55865),

Gene: Petito\_90 Start: 56517, Stop: 56822, Start Num: 34

Candidate Starts for Petito\_90:

(10, 56454), (15, 56472), (Start: 17 @56478 has 10 MA's), (Start: 34 @56517 has 76 MA's), (45, 56586), (55, 56664), (60, 56730), (61, 56739),

Gene: Phaby\_89 Start: 53367, Stop: 53705, Start Num: 22

Candidate Starts for Phaby\_89:

(Start: 22 @53367 has 28 MA's), (61, 53601),

Gene: Phaila\_93 Start: 51735, Stop: 52073, Start Num: 16

Candidate Starts for Phaila\_93:

(1, 51627), (2, 51636), (3, 51663), (8, 51702), (10, 51711), (16, 51735), (Start: 23 @51756 has 1 MA's), (46, 51852), (61, 51990),

Gene: Phepper\_89 Start: 56610, Stop: 56951, Start Num: 17

Candidate Starts for Phepper\_89:

(Start: 17 @56610 has 10 MA's), (24, 56628), (Start: 34 @56646 has 76 MA's), (45, 56715), (47, 56736), (60, 56859), (61, 56868),

Gene: Pherobrine\_86 Start: 56340, Stop: 56645, Start Num: 34

Candidate Starts for Pherobrine\_86:

(7, 56268), (20, 56307), (Start: 34 @56340 has 76 MA's), (45, 56409), (60, 56553), (61, 56562),

Gene: PherryCruz\_55 Start: 39702, Stop: 40022, Start Num: 34

Candidate Starts for PherryCruz\_55:

(18, 39663), (Start: 34 @39702 has 76 MA's), (43, 39765), (53, 39840), (61, 39915),

Gene: Pippin15\_84 Start: 50675, Stop: 50968, Start Num: 33

Candidate Starts for Pippin15\_84:

(Start: 33 @50675 has 2 MA's), (49, 50786), (58, 50873), (60, 50882), (61, 50891),

Gene: Poco6\_049 Start: 73946, Stop: 74275, Start Num: 34

Candidate Starts for Poco6\_049:

(Start: 34 @73946 has 76 MA's), (47, 74039), (60, 74162), (61, 74171),

Gene: Popy\_81 Start: 52381, Stop: 52671, Start Num: 34

Candidate Starts for Popy\_81:

(Start: 34 @52381 has 76 MA's), (39, 52414), (41, 52429), (47, 52471), (48, 52480), (53, 52519), (59, 52582), (61, 52594), (63, 52636),

Gene: ProfFrink\_84 Start: 50537, Stop: 50869, Start Num: 31

Candidate Starts for ProfFrink\_84:

(Start: 31 @50537 has 29 MA's), (61, 50756),

Gene: Rainydai\_88 Start: 53655, Stop: 53945, Start Num: 34

Candidate Starts for Rainydai\_88:

(Start: 34 @53655 has 76 MA's), (41, 53703), (50, 53766), (54, 53796), (55, 53802), (60, 53859), (61, 53868), (63, 53910),

Gene: Raunak\_85 Start: 50247, Stop: 50579, Start Num: 31

Candidate Starts for Raunak\_85:

(Start: 31 @50247 has 29 MA's), (61, 50466),

Gene: RavenPuff\_56 Start: 39672, Stop: 39992, Start Num: 34

Candidate Starts for RavenPuff\_56:

(18, 39633), (Start: 34 @39672 has 76 MA's), (43, 39735), (53, 39810), (61, 39885),

Gene: Regigigas\_91 Start: 53267, Stop: 53557, Start Num: 34

Candidate Starts for Regigigas\_91:

(Start: 34 @53267 has 76 MA's), (41, 53315), (50, 53378), (54, 53408), (55, 53414), (60, 53471), (61, 53480), (63, 53522),

Gene: Renaldo\_90 Start: 51279, Stop: 51590, Start Num: 22

Candidate Starts for Renaldo\_90:

(Start: 22 @51279 has 28 MA's), (46, 51375), (61, 51513),

Gene: Rickmore\_89 Start: 56232, Stop: 56531, Start Num: 34

Candidate Starts for Rickmore\_89:

(Start: 17 @56196 has 10 MA's), (24, 56214), (Start: 34 @56232 has 76 MA's), (45, 56301), (60, 56445), (61, 56454),

Gene: Rima\_84 Start: 52079, Stop: 52369, Start Num: 34

Candidate Starts for Rima\_84:

(Start: 34 @52079 has 76 MA's), (39, 52112), (41, 52127), (47, 52169), (48, 52178), (53, 52217), (59, 52280), (61, 52292), (63, 52334),

Gene: Roney\_89 Start: 55909, Stop: 56214, Start Num: 34

Candidate Starts for Roney\_89:

(Start: 34 @55909 has 76 MA's), (45, 55978), (60, 56122), (61, 56131),

Gene: RosaAsantewaa\_52 Start: 38783, Stop: 39076, Start Num: 34

Candidate Starts for RosaAsantewaa\_52:

(Start: 34 @38783 has 76 MA's), (40, 38822), (41, 38831), (53, 38921), (61, 38996), (63, 39038),

Gene: Runhaar\_86 Start: 56213, Stop: 56548, Start Num: 17

Candidate Starts for Runhaar\_86:

(Start: 17 @56213 has 10 MA's), (24, 56231), (Start: 34 @56249 has 76 MA's), (45, 56318), (60, 56462), (61, 56471),

Gene: Salk\_84 Start: 50551, Stop: 50883, Start Num: 31

Candidate Starts for Salk\_84:

(Start: 31 @50551 has 29 MA's), (61, 50770),

Gene: Scap1\_53 Start: 39048, Stop: 39368, Start Num: 34

Candidate Starts for Scap1\_53:

(Start: 34 @39048 has 76 MA's), (43, 39111), (53, 39186), (56, 39225), (58, 39243), (61, 39261),

Gene: Schwartz33\_85 Start: 55529, Stop: 55834, Start Num: 34

Candidate Starts for Schwartz33\_85:

(13, 55475), (20, 55496), (Start: 32 @55526 has 2 MA's), (Start: 34 @55529 has 76 MA's), (45, 55598), (60, 55742), (61, 55751),

Gene: ScienceWizSam\_93 Start: 54288, Stop: 54626, Start Num: 22

Candidate Starts for ScienceWizSam\_93:

(Start: 22 @54288 has 28 MA's), (35, 54312), (53, 54447),

Gene: Secretariat\_81 Start: 53797, Stop: 54102, Start Num: 34

Candidate Starts for Secretariat\_81:

(Start: 34 @53797 has 76 MA's), (45, 53866), (60, 54010), (61, 54019),

Gene: SendItCS\_83 Start: 52025, Stop: 52315, Start Num: 34

Candidate Starts for SendItCS\_83:

(Start: 34 @52025 has 76 MA's), (41, 52073), (50, 52136), (54, 52166), (55, 52172), (60, 52229), (61, 52238), (63, 52280),

Gene: Serenabean\_84 Start: 51398, Stop: 51691, Start Num: 33

Candidate Starts for Serenabean\_84:

(Start: 33 @51398 has 2 MA's), (37, 51428), (58, 51596), (60, 51605), (62, 51632), (65, 51686),

Gene: ShaggyRogers\_90 Start: 56181, Stop: 56516, Start Num: 17

Candidate Starts for ShaggyRogers\_90:

(Start: 17 @56181 has 10 MA's), (24, 56199), (Start: 34 @56217 has 76 MA's), (45, 56286), (60, 56430), (61, 56439),

Gene: SheRa\_56 Start: 39582, Stop: 39902, Start Num: 34

Candidate Starts for SheRa\_56:

(18, 39543), (Start: 34 @39582 has 76 MA's), (43, 39645), (53, 39720), (60, 39786), (61, 39795),

Gene: Shepard\_89 Start: 53355, Stop: 53693, Start Num: 22

Candidate Starts for Shepard\_89:

(Start: 22 @53355 has 28 MA's), (61, 53589),

Gene: Shiba\_83 Start: 50263, Stop: 50595, Start Num: 31

Candidate Starts for Shiba\_83:

(Start: 31 @50263 has 29 MA's), (61, 50482),

Gene: Sloopyjoe\_84 Start: 50570, Stop: 50902, Start Num: 31

Candidate Starts for Sloopyjoe\_84:

(Start: 31 @50570 has 29 MA's), (61, 50789),

Gene: Soshi\_82 Start: 52222, Stop: 52512, Start Num: 34

Candidate Starts for Soshi\_82:

(Start: 34 @52222 has 76 MA's), (39, 52255), (41, 52270), (47, 52312), (48, 52321), (53, 52360), (59, 52423), (61, 52435), (63, 52477),

Gene: Spectropatronm\_82 Start: 51618, Stop: 51908, Start Num: 34

Candidate Starts for Spectropatronm\_82:

(Start: 34 @51618 has 76 MA's), (39, 51651), (41, 51666), (47, 51708), (48, 51717), (53, 51756), (59, 51819), (61, 51831), (63, 51873),

Gene: Sporto\_81 Start: 50849, Stop: 51172, Start Num: 30

Candidate Starts for Sporto\_81:

(Start: 30 @50849 has 1 MA's), (44, 50921), (45, 50924), (53, 50993), (61, 51068),

Gene: StarLord\_84 Start: 50563, Stop: 50895, Start Num: 31

Candidate Starts for StarLord\_84:

(Start: 31 @50563 has 29 MA's), (61, 50782),

Gene: Stayer\_84 Start: 50566, Stop: 50898, Start Num: 31

Candidate Starts for Stayer\_84:

(Start: 31 @50566 has 29 MA's), (61, 50785),

Gene: Sunny4976\_88 Start: 54541, Stop: 54918, Start Num: 26

Candidate Starts for Sunny4976\_88:

(16, 54514), (26, 54541), (41, 54607), (52, 54676), (61, 54772),

Gene: Synopsis\_81 Start: 53610, Stop: 53951, Start Num: 22

Candidate Starts for Synopsis\_81:

(Start: 22 @53610 has 28 MA's), (53, 53772),

Gene: TaidaOne\_83 Start: 52094, Stop: 52384, Start Num: 34

Candidate Starts for TaidaOne\_83:

(Start: 34 @52094 has 76 MA's), (39, 52127), (41, 52142), (47, 52184), (48, 52193), (53, 52232), (59, 52295), (61, 52307), (63, 52349),

Gene: Tanis\_90 Start: 55729, Stop: 56034, Start Num: 34

Candidate Starts for Tanis\_90:

(Start: 34 @55729 has 76 MA's), (45, 55798), (60, 55942), (61, 55951),

Gene: Teacup\_85 Start: 54308, Stop: 54646, Start Num: 22

Candidate Starts for Teacup\_85:

(Start: 22 @54308 has 28 MA's), (35, 54332), (53, 54467),

Gene: TenaciousP\_90 Start: 58307, Stop: 58606, Start Num: 34

Candidate Starts for TenaciousP\_90:

(Start: 17 @58271 has 10 MA's), (24, 58289), (Start: 34 @58307 has 76 MA's), (45, 58376), (60, 58520), (61, 58529),

Gene: Tenno\_89 Start: 54263, Stop: 54601, Start Num: 22

Candidate Starts for Tenno\_89:

(Start: 22 @54263 has 28 MA's), (35, 54287), (53, 54422),

Gene: Thiqqums\_91 Start: 53655, Stop: 53945, Start Num: 34

Candidate Starts for Thiqqums\_91:

(Start: 34 @53655 has 76 MA's), (41, 53703), (50, 53766), (54, 53796), (55, 53802), (60, 53859), (61, 53868), (63, 53910),

Gene: TieDye\_79 Start: 50942, Stop: 51232, Start Num: 34

Candidate Starts for TieDye\_79:

(Start: 34 @50942 has 76 MA's), (39, 50975), (41, 50990), (47, 51032), (48, 51041), (53, 51080), (59, 51143), (61, 51155), (63, 51197),

Gene: Tokki\_95 Start: 53736, Stop: 54074, Start Num: 22

Candidate Starts for Tokki\_95:

(Start: 22 @53736 has 28 MA's), (61, 53970),

Gene: TonyStarch\_82 Start: 51380, Stop: 51670, Start Num: 34

Candidate Starts for TonyStarch\_82:

(Start: 34 @51380 has 76 MA's), (39, 51413), (41, 51428), (47, 51470), (48, 51479), (53, 51518), (59, 51581), (61, 51593), (63, 51635),

Gene: Tribby\_99 Start: 55243, Stop: 55545, Start Num: 31

Candidate Starts for Tribby\_99:

(21, 55216), (Start: 29 @55237 has 3 MA's), (Start: 31 @55243 has 29 MA's), (45, 55318), (61, 55462),

Gene: Truckee\_86 Start: 53795, Stop: 54136, Start Num: 22

Candidate Starts for Truckee\_86:

(Start: 22 @53795 has 28 MA's), (42, 53870), (61, 54032),

Gene: Trustiboi\_87 Start: 54309, Stop: 54650, Start Num: 22

Candidate Starts for Trustiboi\_87:

(Start: 22 @54309 has 28 MA's), (56, 54510), (61, 54546),

Gene: Untouchable\_90 Start: 57643, Stop: 57948, Start Num: 34

Candidate Starts for Untouchable\_90:

(Start: 17 @57607 has 10 MA's), (24, 57625), (Start: 34 @57643 has 76 MA's), (45, 57712), (47, 57733), (60, 57856), (61, 57865),

Gene: Uzumaki\_89 Start: 51465, Stop: 51782, Start Num: 23

Candidate Starts for Uzumaki\_89:

(1, 51336), (2, 51345), (3, 51372), (8, 51411), (10, 51420), (16, 51444), (Start: 23 @51465 has 1 MA's), (46, 51561), (61, 51699),

Gene: Vardy\_87 Start: 56164, Stop: 56463, Start Num: 34

Candidate Starts for Vardy\_87:

(Start: 17 @56128 has 10 MA's), (24, 56146), (Start: 34 @56164 has 76 MA's), (45, 56233), (60, 56377), (61, 56386),

Gene: Xenomorph\_92 Start: 54848, Stop: 55150, Start Num: 31

Candidate Starts for Xenomorph\_92:

(21, 54821), (Start: 29 @54842 has 3 MA's), (Start: 31 @54848 has 29 MA's), (45, 54923), (61, 55067),

Gene: Yotsuba\_83 Start: 53343, Stop: 53636, Start Num: 33

Candidate Starts for Yotsuba\_83:

(Start: 33 @53343 has 2 MA's), (42, 53397), (44, 53412), (49, 53454), (58, 53541), (60, 53550), (61, 53559),

Gene: Zeph\_91 Start: 57411, Stop: 57752, Start Num: 17

Candidate Starts for Zeph\_91:

(Start: 17 @57411 has 10 MA's), (24, 57429), (Start: 34 @57447 has 76 MA's), (45, 57516), (47, 57537), (60, 57660), (61, 57669),