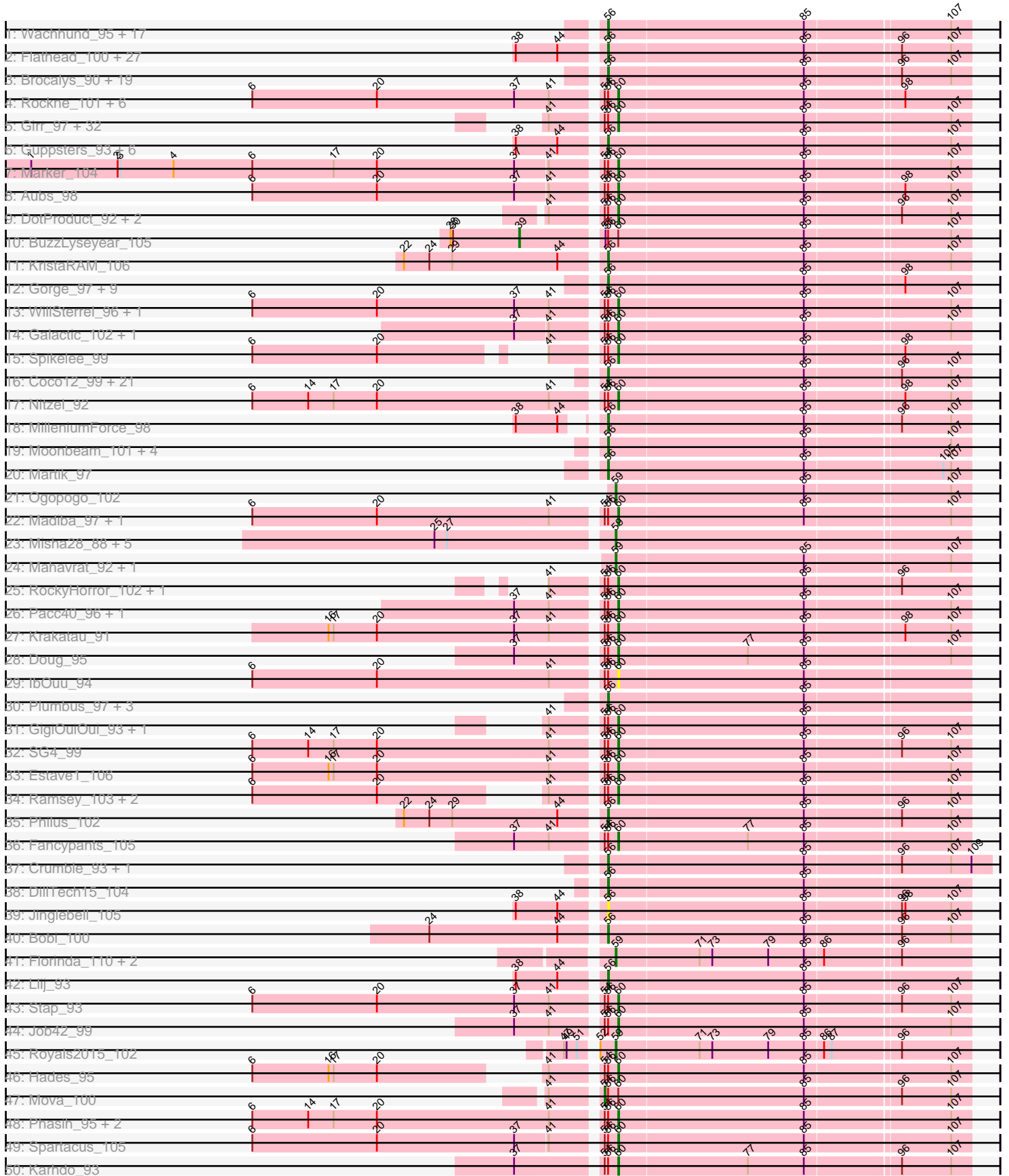
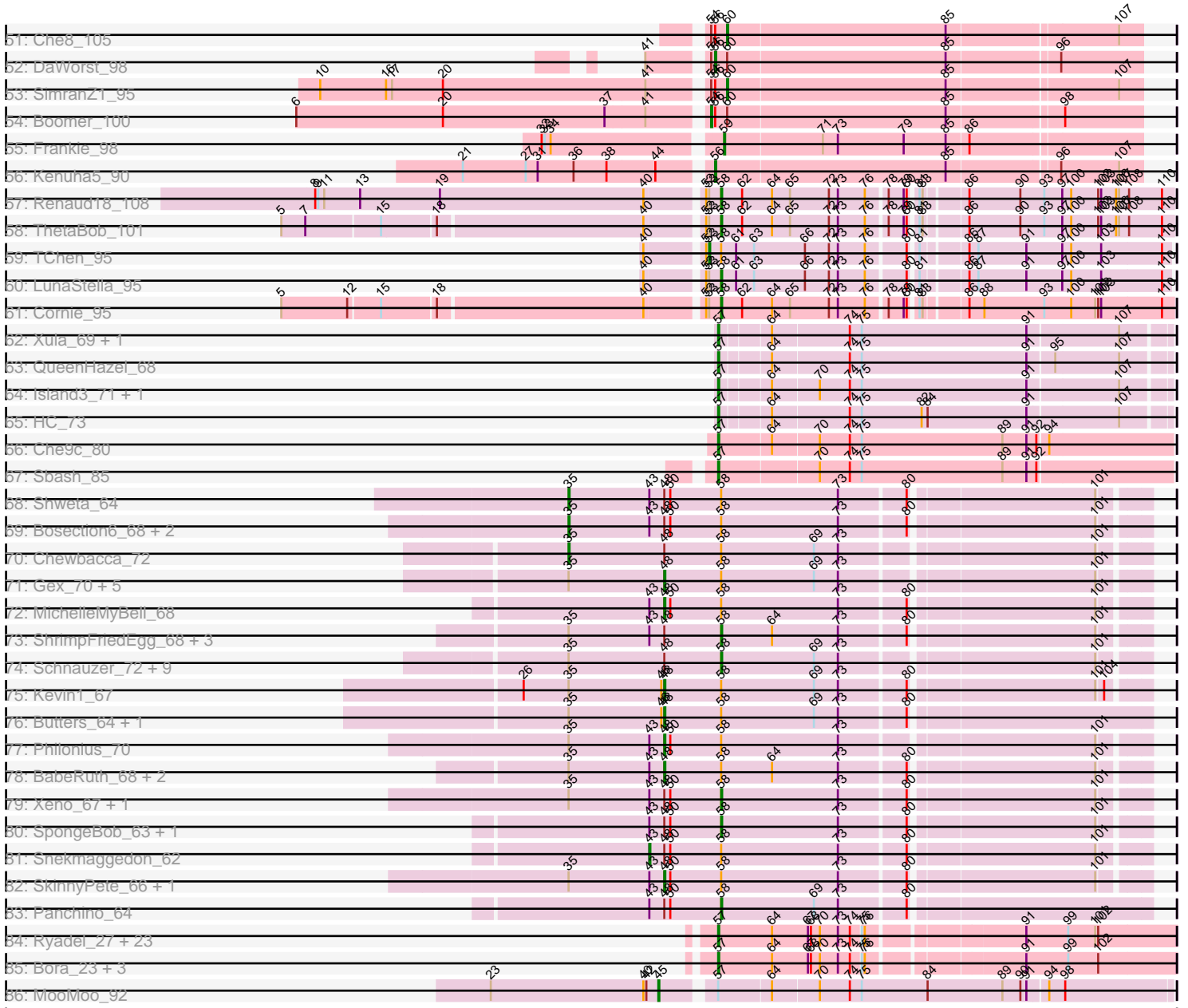


Pham 169627



Pham 169627



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 169627 Report

This analysis was run 07/09/24 on database version 566.

Pham number 169627 has 304 members, 20 are drafts.

Phages represented in each track:

- Track 1 : Wachhund\_95, ArcusAngelus\_98, AlpineSix\_96, Llama\_105, Seabastian\_105, Latretium\_101, Ochi17\_104, Ovechkin\_101, ByChance\_89, Yorick\_94, OfUltron\_105, Ibhubesi\_95, Kersh\_101, Eradicator\_90, Modragons\_102, Harley\_100, Chevrolet\_105, Byougenkin\_95
- Track 2 : Flathead\_100, JalFarm20\_107, CaptainTrips\_100, Hlubikazi\_96, DosHalletts\_95, Tootsieroll\_92, Phalconet\_99, Ardmore\_82, Hamulus\_98, Firehouse51\_92, Ms6\_100, Squirty\_97, Phatniss\_96, MilanaBonita\_91, Seagreen\_99, DLane\_98, Whatsapiecost\_92, Mandlovu\_96, Zerg\_96, Strokeseat\_96, Filuzino\_98, Melissauren88\_88, Sabbb\_101, Beakin\_90, SuperGrey\_98, OwlsT2W\_96, Akhila\_92, Dante\_96
- Track 3 : Brocalys\_90, Zizzle\_101, Cabrinians\_95, Clifton\_90, Eish\_103, Bubbles123\_92, LastJedi\_89, BobaPhett\_100, Pippy\_96, Burwell21\_92, James\_102, FreddyB\_108, Lizziana\_99, NormanBulbieJr\_96, Maravista\_95, SwagPiggett\_100, Blexus\_95, Koella\_91, Priscilla\_99, ShowerHandel\_99
- Track 4 : Rockne\_101, Enby\_102, DirtMcgirt\_99, UncleRicky\_98, Drago\_97, PMC\_97, Lorde\_101
- Track 5 : Girr\_97, Ruby\_95, BodEinwohner17\_108, Juice456\_97, Inventum\_96, Sassafras\_100, Scottish\_98, PHappiness\_98, Poenanya\_102, RitaG\_97, KingMidas\_98, Dorothy\_99, JoeyJr\_101, Polka14\_102, Leperchaun\_100, SiSi\_94, OldBen\_95, MadMen\_103, Deb65\_90, RedBird\_99, Leozinho\_95, Radiance\_96, Veteran\_89, Empress\_98, DaddyRickover\_100, Nimbo\_90, MisterCuddles\_98, Pollywog\_100, Daenerys\_96, Doomphist\_103, Geralt\_91, Kimberlium\_100, QuickMath\_99
- Track 6 : Guppsters\_93, Donkeykong\_104, PhesterPhotato\_101, StAnnes\_102, Alexphander\_99, EleanorGeorge\_102, MinionDave\_96
- Track 7 : Marker\_104
- Track 8 : Aubs\_98
- Track 9 : DotProduct\_92, Tweety\_99, Fastidio\_99
- Track 10 : BuzzLyseyear\_105
- Track 11 : KristaRAM\_106
- Track 12 : Gorge\_97, Saal\_96, Mattes\_99, LilMoolah\_101, Nivrat\_98, Jarcob\_101, Sandalphon\_98, Spoonbill\_98, Minnie\_93, ShiLan\_101
- Track 13 : WillSterrel\_96, IrishSherpFalk\_98
- Track 14 : Galactic\_102, LunaBlu\_105
- Track 15 : Spikelee\_99
- Track 16 : Coco12\_99, DeadP\_98, Phanphagia\_103, Batiatus\_98, Mozy\_102, Chuckly\_95, Cerasum\_97, LittleShirley\_106, Fruitloop\_96, Kingsley\_107,

Hegedechwinu\_106, Taj\_104, SassyB\_89, Velveteen\_95, PopTart\_89, XFactor\_89, Wee\_101, Bipolar\_100, Emma\_103, BigPhil\_95, Sarma624\_100, Shauna1\_100

- Track 17 : Nitzel\_92
- Track 18 : MilleniumForce\_98
- Track 19 : Moonbeam\_101, Starcevich\_100, Oksu\_102, Rialto\_103, Totinger\_101
- Track 20 : Martik\_97
- Track 21 : Ogopogo\_102
- Track 22 : Madiba\_97, MulchSalad\_100
- Track 23 : Misha28\_88, Awesomesauce\_89, TootsiePop\_88, DocMcStuffins\_85, Piper2020\_93, ChickenDinner\_92
- Track 24 : Mahavrat\_92, Juniper1\_93
- Track 25 : RockyHorror\_102, GUmbie\_97
- Track 26 : Pacc40\_96, BlueCrab\_101
- Track 27 : Krakatau\_91
- Track 28 : Doug\_95
- Track 29 : IbOuu\_94
- Track 30 : Plumbus\_97, DRBy19\_98, TDanisky\_106, Sparkdehlily\_105
- Track 31 : GigiOuiOui\_93, Mantra\_96
- Track 32 : SG4\_99
- Track 33 : Estave1\_106
- Track 34 : Ramsey\_103, VRedHorse\_99, Cornucopia\_98
- Track 35 : Philus\_102
- Track 36 : Fancypants\_105
- Track 37 : Crumble\_93, OlympiaSaint\_102
- Track 38 : DillTech15\_104
- Track 39 : Jinglebell\_105
- Track 40 : Bobi\_100
- Track 41 : Florinda\_110, Girafales\_107, Quico\_107
- Track 42 : Llij\_93
- Track 43 : Stap\_93
- Track 44 : Job42\_99
- Track 45 : Royals2015\_102
- Track 46 : Hades\_95
- Track 47 : Mova\_100
- Track 48 : Phasih\_95, Gandalph\_98, ShroomBoi\_96
- Track 49 : Spartacus\_105
- Track 50 : Karhdo\_93
- Track 51 : Che8\_105
- Track 52 : DaWorst\_98
- Track 53 : SimranZ1\_95
- Track 54 : Boomer\_100
- Track 55 : Frankie\_98
- Track 56 : Kenuha5\_90
- Track 57 : Renaud18\_108
- Track 58 : ThetaBob\_101
- Track 59 : TChen\_95
- Track 60 : LunaStella\_95
- Track 61 : Cornie\_95
- Track 62 : Xula\_69, Babsiella\_73
- Track 63 : QueenHazel\_68
- Track 64 : Island3\_71, Brujita\_69
- Track 65 : HC\_73
- Track 66 : Che9c\_80

- Track 67 : Sbash\_85
- Track 68 : Shweta\_64
- Track 69 : Bosection6\_68, Phrann\_65, Journey\_64
- Track 70 : Chewbacca\_72
- Track 71 : Gex\_70, Aggie\_65, Pipsqueaks\_71, Carcharodon\_69, Silvy\_66, Xerxes\_70
- Track 72 : MichelleMyBell\_68
- Track 73 : ShrimpFriedEgg\_68, Rebel\_64, Purgamenstris\_68, Raymond7\_61
- Track 74 : Schnauzer\_72, Silvafighter\_72, Phloss\_68, Tapioca\_68, Duplicity\_68, Parmesanjohn\_70, Andies\_63, Magsby\_69, Scitech\_65, Smurph\_70
- Track 75 : Kevin1\_67
- Track 76 : Butters\_64, Rubeelu\_64
- Track 77 : Philonius\_70
- Track 78 : BabeRuth\_68, Nenae\_68, Redi\_67
- Track 79 : Xeno\_67, PhancyPhin\_67
- Track 80 : SpongeBob\_63, Jamie19\_63
- Track 81 : Snekmaggon\_62
- Track 82 : SkinnyPete\_66, Charlie\_66
- Track 83 : Panchino\_64
- Track 84 : Ryadel\_27, MadKillah\_26, Ashwin\_26, Murai\_25, Familton\_25, Mori\_25, Wildflower\_25, NiebruSaylor\_25, Idergollasper\_24, Vorrps\_25, FoulBall\_22, SchoolBus\_24, Winget\_25, YungJamal\_27, Schuy\_26, Smooch\_28, Shida\_25, JangDynasty\_24, Alkhayr\_23, TelAviv\_22, Catdawg\_24, Krili\_25, Firecracker\_25, Blessica\_25
- Track 85 : Bora\_23, Dylan\_24, Zakhe101\_25, Corndog\_27
- Track 86 : MooMoo\_92

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

The start number called the most often in the published annotations is 56, it was called in 119 of the 284 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Akhila\_92, Alexphander\_99, AlpineSix\_96, ArcusAngelus\_98, Ardmore\_82, Batiatus\_98, Beakin\_90, BigPhil\_95, Bipolar\_100, Blexus\_95, BobaPhett\_100, Bobi\_100, Brocalys\_90, Bubbles123\_92, Burwell21\_92, ByChance\_89, Byougenkin\_95, Cabrinians\_95, CaptainTrips\_100, Cerasum\_97, Chevrolet\_105, Chuckly\_95, Clifton\_90, Coco12\_99, Crumble\_93, DLane\_98, DRBy19\_98, DaWorst\_98, Dante\_96, DeadP\_98, DillTech15\_104, Donkeykong\_104, DosHalletts\_95, Eish\_103, EleanorGeorge\_102, Emma\_103, Eradicator\_90, Filuzino\_98, Firehouse51\_92, Flathead\_100, FreddyB\_108, Fruitloop\_96, Gorge\_97, Guppsters\_93, Hamulus\_98, Harley\_100, Hegedechwinu\_106, Hlubikazi\_96, Ihubesi\_95, JalFarm20\_107, James\_102, Jarcob\_101, Jinglebell\_105, Kenuha5\_90, Kersh\_101, Kingsley\_107, Koella\_91, KristaRAM\_106, LastJedi\_89, Latretium\_101, LilMoolah\_101, LittleShirley\_106, Lizziana\_99, Llama\_105, Llij\_93, Mandlovu\_96, Maravista\_95, Martik\_97, Mattes\_99, Melissauren88\_88, MilanaBonita\_91, MilleniumForce\_98, MinionDave\_96, Minnie\_93, Modragons\_102, Moonbeam\_101, Mozy\_102, Ms6\_100, Nivrat\_98, NormanBulbieJr\_96, Ochi17\_104, OfUltron\_105, Oksu\_102, OlympiaSaint\_102, Ovechkin\_101, OwlsT2W\_96, Phalconet\_99, Phanphagia\_103, Phatniss\_96, PhesterPhotato\_101, Philus\_102, Pippy\_96,

Plumbus\_97, PopTart\_89, Priscilla\_99, Rialto\_103, Saal\_96, Sabbb\_101, Sandalphon\_98, Sarma624\_100, SassyB\_89, Seabastian\_105, Seagreen\_99, Shauna1\_100, ShiLan\_101, ShowerHandel\_99, Sparkdehlily\_105, Spoonbill\_98, Squirty\_97, StAnnes\_102, Starceвич\_100, Strokeseat\_96, SuperGrey\_98, SwagPiggett\_100, TDanisky\_106, Taj\_104, Tootsieroll\_92, Totinger\_101, Velveteen\_95, Wachhund\_95, Wee\_101, Whatsapiecost\_92, XFactor\_89, Yorick\_94, Zerg\_96, Zizzle\_101,

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

- Aubs\_98, BlueCrab\_101, BodEinwohner17\_108, Boomer\_100, BuzzLyseyear\_105, Che8\_105, Cornucopia\_98, DaddyRickover\_100, Daenerys\_96, Deb65\_90, DirtMcgirt\_99, Doomphist\_103, Dorothy\_99, DotProduct\_92, Doug\_95, Drago\_97, Empress\_98, Enby\_102, Estave1\_106, Fancypants\_105, Fastidio\_99, GUmble\_97, Galactic\_102, Gandolph\_98, Geralt\_91, GigiOuiOui\_93, Girr\_97, Hades\_95, IbOuu\_94, Inventum\_96, IrishSherpFalk\_98, Job42\_99, JoeyJr\_101, Juice456\_97, Karhdo\_93, Kimberlium\_100, KingMidas\_98, Krakatau\_91, Leozinho\_95, Leperchaun\_100, Lorde\_101, LunaBlu\_105, MadMen\_103, Madiba\_97, Mantra\_96, Marker\_104, MisterCuddles\_98, Mova\_100, MulchSalad\_100, Nimbo\_90, Nitzel\_92, OldBen\_95, PHappiness\_98, PMC\_97, Pacc40\_96, Phasih\_95, Poenanya\_102, Polka14\_102, Pollywog\_100, QuickMath\_99, Radiance\_96, Ramsey\_103, RedBird\_99, RitaG\_97, Rockne\_101, RockyHorror\_102, Ruby\_95, SG4\_99, Sassafras\_100, Scottish\_98, ShroomBoi\_96, SiSi\_94, SimranZ1\_95, Spartacus\_105, Spikelee\_99, Stap\_93, Tweety\_99, UncleRicky\_98, VRedHorse\_99, Veteran\_89, WillSterrel\_96,

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

- Aggie\_65, Alkhayr\_23, Andies\_63, Ashwin\_26, Awesomesauce\_89, BabeRuth\_68, Babsiella\_73, Blessica\_25, Bora\_23, Bosection6\_68, Brujita\_69, Butters\_64, Carcharodon\_69, Catdawg\_24, Charlie\_66, Che9c\_80, Chewbacca\_72, ChickenDinner\_92, Corndog\_27, Cornie\_95, DocMcStuffins\_85, Duplicity\_68, Dylan\_24, Familton\_25, Firecracker\_25, Florinda\_110, FoulBall\_22, Frankie\_98, Gex\_70, Girafales\_107, HC\_73, Idergollasper\_24, Island3\_71, Jamie19\_63, JangDynasty\_24, Journey\_64, Juniper1\_93, Kevin1\_67, Krili\_25, LunaStella\_95, MadKillah\_26, Magsby\_69, Mahavrat\_92, MichelleMyBell\_68, Misha28\_88, MooMoo\_92, Mori\_25, Murai\_25, Nenae\_68, NiebruSaylor\_25, Ogopogo\_102, Panchino\_64, Parmesanjohn\_70, PhancyPhin\_67, Philonius\_70, Phloss\_68, Phrann\_65, Piper2020\_93, Pipsqueaks\_71, Purgamenstris\_68, QueenHazel\_68, Quico\_107, Raymond7\_61, Rebel\_64, Redi\_67, Renaud18\_108, Royals2015\_102, Rubeelu\_64, Ryadel\_27, Sbash\_85, Schnauzer\_72, SchoolBus\_24, Schuy\_26, Scitech\_65, Shida\_25, ShrimpFriedEgg\_68, Shweta\_64, Silvafighter\_72, Silvy\_66, SkinnyPete\_66, Smooch\_28, Smurph\_70, Snekmaggon\_62, SpongeBob\_63, TChen\_95, Tapioca\_68, TelAviv\_22, ThetaBob\_101, TootsiePop\_88, Vorrrps\_25, Wildflower\_25, Winget\_25, Xeno\_67, Xerxes\_70, Xula\_69, YungJamal\_27, Zakhe101\_25,

### Summary by start number:

Start 35:

- Found in 36 of 304 ( 11.8% ) of genes in pham
- Manual Annotations of this start: 3 of 284
- Called 13.9% of time when present
- Phage (with cluster) where this start called: Bosection6\_68 (N), Chewbacca\_72 (N), Journey\_64 (N), Phrann\_65 (N), Shweta\_64 (N),

Start 39:

- Found in 1 of 304 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 284
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BuzzLyseyear\_105 (F1),

Start 43:

- Found in 21 of 304 ( 6.9% ) of genes in pham
- Manual Annotations of this start: 1 of 284
- Called 4.8% of time when present
- Phage (with cluster) where this start called: Snekmaggedon\_62 (N),

Start 45:

- Found in 1 of 304 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 284
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MooMoo\_92 (singleton),

Start 48:

- Found in 41 of 304 ( 13.5% ) of genes in pham
- Manual Annotations of this start: 16 of 284
- Called 39.0% of time when present
- Phage (with cluster) where this start called: Aggie\_65 (N), BabeRuth\_68 (N), Butters\_64 (N), Carcharodon\_69 (N), Charlie\_66 (N), Gex\_70 (N), Kevin1\_67 (N), MichelleMyBell\_68 (N), Nenae\_68 (N), Philonius\_70 (N), Pipsqueaks\_71 (N), Redi\_67 (N), Rubeelu\_64 (N), Silvy\_66 (N), SkinnyPete\_66 (N), Xerxes\_70 (N),

Start 53:

- Found in 5 of 304 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 284
- Called 20.0% of time when present
- Phage (with cluster) where this start called: TChen\_95 (F4),

Start 54:

- Found in 81 of 304 ( 26.6% ) of genes in pham
- Manual Annotations of this start: 2 of 284
- Called 2.5% of time when present
- Phage (with cluster) where this start called: Boomer\_100 (F1), Mova\_100 (F1),

Start 56:

- Found in 207 of 304 ( 68.1% ) of genes in pham
- Manual Annotations of this start: 119 of 284
- Called 60.9% of time when present
- Phage (with cluster) where this start called: Akhila\_92 (F1), Alexphander\_99 (F1), AlpineSix\_96 (F1), ArcusAngelus\_98 (F1), Ardmore\_82 (F1), Batiatus\_98 (F1), Beakin\_90 (F1), BigPhil\_95 (F1), Bipolar\_100 (F1), Blexus\_95 (F1), BobaPhett\_100 (F1), Bobi\_100 (F1), Brocalys\_90 (F1), Bubbles123\_92 (F1), Burwell21\_92 (F1), ByChance\_89 (F1), Byougenkin\_95 (F1), Cabrinians\_95 (F1), CaptainTrips\_100 (F1), Cerasum\_97 (F1), Chevrolet\_105 (F1), Chuckly\_95 (F1), Clifton\_90 (F1), Coco12\_99 (F1), Crumble\_93 (F1), DLane\_98 (F1), DRBy19\_98 (F1), DaWorst\_98 (F1), Dante\_96 (F1), DeadP\_98 (F1), DillTech15\_104 (F1), Donkeykong\_104 (F1), DosHalletts\_95 (F1), Eish\_103 (F1), EleanorGeorge\_102 (F1), Emma\_103 (F1),

Eradicator\_90 (F1), Filuzino\_98 (F1), Firehouse51\_92 (F1), Flathead\_100 (F1), FreddyB\_108 (F1), Fruitloop\_96 (F1), Gorge\_97 (F1), Guppsters\_93 (F1), Hamulus\_98 (F1), Harley\_100 (F1), Hegedechwinu\_106 (F1), Hlubikazi\_96 (F1), Ibhubesi\_95 (F1), JalFarm20\_107 (F1), James\_102 (F1), Jarcob\_101 (F1), Jinglebell\_105 (F1), Kenuha5\_90 (F1), Kersh\_101 (F1), Kingsley\_107 (F1), Koella\_91 (F1), KristaRAM\_106 (F1), LastJedi\_89 (F1), Latretium\_101 (F1), LilMoolah\_101 (F1), LittleShirley\_106 (F1), Lizziana\_99 (F1), Llama\_105 (F1), Llij\_93 (F1), Mandlovu\_96 (F1), Maravista\_95 (F1), Martik\_97 (F1), Mattes\_99 (F1), Melissauren88\_88 (F1), MilanaBonita\_91 (F1), MilleniumForce\_98 (F1), MinionDave\_96 (F1), Minnie\_93 (F1), Modragons\_102 (F1), Moonbeam\_101 (F1), Mozy\_102 (F1), Ms6\_100 (F1), Nivrat\_98 (F1), NormanBulbieJr\_96 (F1), Ochi17\_104 (F1), OfUltron\_105 (F1), Oksu\_102 (F1), OlympiaSaint\_102 (F1), Ovechkin\_101 (F1), OwlsT2W\_96 (F1), Phalconet\_99 (F1), Phanphagia\_103 (F1), Phatniss\_96 (F1), PhesterPhotato\_101 (F1), Philus\_102 (F1), Pippy\_96 (F1), Plumbus\_97 (F1), PopTart\_89 (F1), Priscilla\_99 (F1), Rialto\_103 (F1), Saal\_96 (F1), Sabbb\_101 (F1), Sandalphon\_98 (F1), Sarma624\_100 (F1), SassyB\_89 (F1), Seabastian\_105 (F1), Seagreen\_99 (F1), Shauna1\_100 (F1), ShiLan\_101 (F1), ShowerHandel\_99 (F1), Sparkdehlily\_105 (F1), Spoonbill\_98 (F1), Squirty\_97 (F3), StAnnes\_102 (F1), Starcevich\_100 (F1), Strokeseat\_96 (F1), SuperGrey\_98 (F1), SwagPiggett\_100 (F1), TDanisky\_106 (F1), Taj\_104 (F1), Tootsieroll\_92 (F1), Totinger\_101 (F1), Velveteen\_95 (F1), Wachhund\_95 (F1), Wee\_101 (F1), Whatsapiecost\_92 (F1), XFactor\_89 (F1), Yorick\_94 (F1), Zerg\_96 (F1), Zizzle\_101 (F1),

#### Start 57:

- Found in 37 of 304 ( 12.2% ) of genes in pham
- Manual Annotations of this start: 34 of 284
- Called 97.3% of time when present
- Phage (with cluster) where this start called: Alkhayr\_23 (O), Ashwin\_26 (O), Babsiella\_73 (I1), Blessica\_25 (O), Bora\_23 (O), Brujita\_69 (I1), Catdawg\_24 (O), Che9c\_80 (I2), Corndog\_27 (O), Dylan\_24 (O), Familton\_25 (O), Firecracker\_25 (O), FoulBall\_22 (O), HC\_73 (I1), Idergollasper\_24 (O), Island3\_71 (I1), JangDynasty\_24 (O), Krili\_25 (O), MadKillah\_26 (O), Mori\_25 (O), Murai\_25 (O), NiebruSaylor\_25 (O), QueenHazel\_68 (I1), Ryadel\_27 (O), Sbash\_85 (I2), SchoolBus\_24 (O), Schuy\_26 (O), Shida\_25 (O), Smooch\_28 (O), TelAviv\_22 (O), Vorrps\_25 (O), Wildflower\_25 (O), Winget\_25 (O), Xula\_69 (I1), YungJamal\_27 (O), Zakhe101\_25 (O),

#### Start 58:

- Found in 46 of 304 ( 15.1% ) of genes in pham
- Manual Annotations of this start: 22 of 284
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Andies\_63 (N), Cornie\_95 (F5), Duplicity\_68 (N), Jamie19\_63 (N), LunaStella\_95 (F4), Magsby\_69 (N), Panchino\_64 (N), Parmesanjohn\_70 (N), PhancyPhin\_67 (N), Phloss\_68 (N), Purgamenstris\_68 (N), Raymond7\_61 (N), Rebel\_64 (N), Renaud18\_108 (F4), Schnauzer\_72 (N), Scitech\_65 (N), ShrimpFriedEgg\_68 (N), Silvafighter\_72 (N), Smurph\_70 (N), SpongeBob\_63 (N), Tapioca\_68 (N), ThetaBob\_101 (F4), Xeno\_67 (N),

#### Start 59:

- Found in 14 of 304 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 11 of 284
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Awesomesauce\_89 (F1), ChickenDinner\_92 (F1), DocMcStuffins\_85 (F1), Florinda\_110 (F1), Frankie\_98 (F1),



Girafales\_107 (F1), Juniper1\_93 (F1), Mahavrat\_92 (F1), Misha28\_88 (F1), Ogoopogo\_102 (F1), Piper2020\_93 (F1), Quico\_107 (F1), Royals2015\_102 (F1), TootsiePop\_88 (F1),

Start 60:

- Found in 82 of 304 ( 27.0% ) of genes in pham
- Manual Annotations of this start: 73 of 284
- Called 95.1% of time when present
- Phage (with cluster) where this start called: Aubs\_98 (F1), BlueCrab\_101 (F1), BodEinwohner17\_108 (F1), Che8\_105 (F1), Cornucopia\_98 (F1), DaddyRickover\_100 (F1), Daenerys\_96 (F1), Deb65\_90 (F1), DirtMcgirt\_99 (F1), Doomphist\_103 (F1), Dorothy\_99 (F1), DotProduct\_92 (F1), Doug\_95 (F1), Drago\_97 (F1), Empress\_98 (F1), Enby\_102 (F1), Estave1\_106 (F1), Fancypants\_105 (F1), Fastidio\_99 (F1), GUmbie\_97 (F1), Galactic\_102 (F1), Gandolph\_98 (F1), Geralt\_91 (F1), GigiOuiOui\_93 (F1), Girr\_97 (F1), Hades\_95 (F1), IbOuu\_94 (F1), Inventum\_96 (F1), IrishSherpFalk\_98 (F1), Job42\_99 (F1), JoeyJr\_101 (F1), Juice456\_97 (F1), Karhdo\_93 (F1), Kimberlium\_100 (F1), KingMidas\_98 (F1), Krakatau\_91 (F1), Leozinho\_95 (F1), Leperchaun\_100 (F1), Lorde\_101 (F1), LunaBlu\_105 (F1), MadMen\_103 (F1), Madiba\_97 (F1), Mantra\_96 (F1), Marker\_104 (F1), MisterCuddles\_98 (F1), MulchSalad\_100 (F), Nimbo\_90 (F1), Nitzel\_92 (F1), OldBen\_95 (F1), PHappiness\_98 (F1), PMC\_97 (F1), Pacc40\_96 (F1), Phasih\_95 (F1), Poenanya\_102 (F1), Polka14\_102 (F1), Pollywog\_100 (F1), QuickMath\_99 (F1), Radiance\_96 (F1), Ramsey\_103 (F1), RedBird\_99 (F1), RitaG\_97 (F1), Rockne\_101 (F1), RockyHorror\_102 (F1), Ruby\_95 (F1), SG4\_99 (F1), Sassafras\_100 (F1), Scottish\_98 (F1), ShroomBoi\_96 (F1), SiSi\_94 (F1), SimranZ1\_95 (F1), Spartacus\_105 (F1), Spikelee\_99 (F1), Stap\_93 (F1), Tweety\_99 (F1), UncleRicky\_98 (F1), VRedHorse\_99 (F1), Veteran\_89 (F1), WillSterrel\_96 (F1),

### Summary by clusters:

There are 10 clusters represented in this pham: F1, singleton, F3, F4, F5, F, I1, I2, O, N,

Info for manual annotations of cluster F1:

- Start number 39 was manually annotated 1 time for cluster F1.
- Start number 54 was manually annotated 2 times for cluster F1.
- Start number 56 was manually annotated 118 times for cluster F1.
- Start number 59 was manually annotated 11 times for cluster F1.
- Start number 60 was manually annotated 73 times for cluster F1.

Info for manual annotations of cluster F3:

- Start number 56 was manually annotated 1 time for cluster F3.

Info for manual annotations of cluster F4:

- Start number 53 was manually annotated 1 time for cluster F4.
- Start number 58 was manually annotated 3 times for cluster F4.

Info for manual annotations of cluster F5:

- Start number 58 was manually annotated 1 time for cluster F5.

Info for manual annotations of cluster I1:

- Start number 57 was manually annotated 6 times for cluster I1.

Info for manual annotations of cluster I2:

- Start number 57 was manually annotated 2 times for cluster I2.

Info for manual annotations of cluster N:

- Start number 35 was manually annotated 3 times for cluster N.
- Start number 43 was manually annotated 1 time for cluster N.
- Start number 48 was manually annotated 16 times for cluster N.
- Start number 58 was manually annotated 18 times for cluster N.

Info for manual annotations of cluster O:

- Start number 57 was manually annotated 26 times for cluster O.

### **Gene Information:**

Gene: Aggie\_65 Start: 43172, Stop: 43627, Start Num: 48

Candidate Starts for Aggie\_65:

(Start: 35 @43076 has 3 MA's), (Start: 48 @43172 has 16 MA's), (Start: 58 @43229 has 22 MA's), (69, 43322), (73, 43346), (101, 43583),

Gene: Akhila\_92 Start: 52219, Stop: 52632, Start Num: 56

Candidate Starts for Akhila\_92:

(38, 52126), (44, 52174), (Start: 56 @52219 has 119 MA's), (85, 52447), (96, 52552), (107, 52609),

Gene: Alexphander\_99 Start: 54553, Stop: 54966, Start Num: 56

Candidate Starts for Alexphander\_99:

(38, 54460), (44, 54508), (Start: 56 @54553 has 119 MA's), (85, 54781), (107, 54943),

Gene: Alkhayr\_23 Start: 11416, Stop: 11850, Start Num: 57

Candidate Starts for Alkhayr\_23:

(Start: 57 @11416 has 34 MA's), (64, 11470), (67, 11506), (68, 11509), (70, 11518), (73, 11536), (74, 11548), (75, 11557), (76, 11560), (91, 11701), (99, 11743), (101, 11770), (102, 11773),

Gene: AlpineSix\_96 Start: 52937, Stop: 53350, Start Num: 56

Candidate Starts for AlpineSix\_96:

(Start: 56 @52937 has 119 MA's), (85, 53165), (107, 53327),

Gene: Andies\_63 Start: 42675, Stop: 43073, Start Num: 58

Candidate Starts for Andies\_63:

(Start: 35 @42522 has 3 MA's), (Start: 48 @42618 has 16 MA's), (Start: 58 @42675 has 22 MA's), (69, 42768), (73, 42792), (101, 43029),

Gene: ArcusAngelus\_98 Start: 54470, Stop: 54883, Start Num: 56

Candidate Starts for ArcusAngelus\_98:

(Start: 56 @54470 has 119 MA's), (85, 54698), (107, 54860),

Gene: Ardmore\_82 Start: 48108, Stop: 48521, Start Num: 56

Candidate Starts for Ardmore\_82:

(38, 48015), (44, 48063), (Start: 56 @48108 has 119 MA's), (85, 48336), (96, 48441), (107, 48498),

Gene: Ashwin\_26 Start: 11636, Stop: 12070, Start Num: 57

Candidate Starts for Ashwin\_26:

(Start: 57 @11636 has 34 MA's), (64, 11690), (67, 11726), (68, 11729), (70, 11738), (73, 11756), (74, 11768), (75, 11777), (76, 11780), (91, 11921), (99, 11963), (101, 11990), (102, 11993),

Gene: Aubs\_98 Start: 55122, Stop: 55523, Start Num: 60

Candidate Starts for Aubs\_98:

(6, 54711), (20, 54858), (37, 55020), (41, 55056), (Start: 54 @55107 has 2 MA's), (Start: 56 @55110 has 119 MA's), (Start: 60 @55122 has 73 MA's), (85, 55338), (98, 55446), (107, 55500),

Gene: Awesomesauce\_89 Start: 53602, Stop: 54006, Start Num: 59

Candidate Starts for Awesomesauce\_89:

(25, 53404), (27, 53419), (Start: 59 @53602 has 11 MA's),

Gene: BabeRuth\_68 Start: 41426, Stop: 41881, Start Num: 48

Candidate Starts for BabeRuth\_68:

(Start: 35 @41330 has 3 MA's), (Start: 43 @41411 has 1 MA's), (Start: 48 @41426 has 16 MA's), (Start: 58 @41483 has 22 MA's), (64, 41534), (73, 41600), (80, 41663), (101, 41837),

Gene: Babsiella\_73 Start: 45112, Stop: 45540, Start Num: 57

Candidate Starts for Babsiella\_73:

(Start: 57 @45112 has 34 MA's), (64, 45157), (74, 45232), (75, 45244), (91, 45409), (107, 45496),

Gene: Batiatus\_98 Start: 53658, Stop: 54071, Start Num: 56

Candidate Starts for Batiatus\_98:

(Start: 56 @53658 has 119 MA's), (85, 53886), (96, 53991), (107, 54048),

Gene: Beakin\_90 Start: 50631, Stop: 51044, Start Num: 56

Candidate Starts for Beakin\_90:

(38, 50538), (44, 50586), (Start: 56 @50631 has 119 MA's), (85, 50859), (96, 50964), (107, 51021),

Gene: BigPhil\_95 Start: 50450, Stop: 50863, Start Num: 56

Candidate Starts for BigPhil\_95:

(Start: 56 @50450 has 119 MA's), (85, 50678), (96, 50783), (107, 50840),

Gene: Bipolar\_100 Start: 55427, Stop: 55840, Start Num: 56

Candidate Starts for Bipolar\_100:

(Start: 56 @55427 has 119 MA's), (85, 55655), (96, 55760), (107, 55817),

Gene: Blessica\_25 Start: 11439, Stop: 11873, Start Num: 57

Candidate Starts for Blessica\_25:

(Start: 57 @11439 has 34 MA's), (64, 11493), (67, 11529), (68, 11532), (70, 11541), (73, 11559), (74, 11571), (75, 11580), (76, 11583), (91, 11724), (99, 11766), (101, 11793), (102, 11796),

Gene: Blexus\_95 Start: 54034, Stop: 54447, Start Num: 56

Candidate Starts for Blexus\_95:

(Start: 56 @54034 has 119 MA's), (85, 54262), (96, 54367), (107, 54424),

Gene: BlueCrab\_101 Start: 55042, Stop: 55443, Start Num: 60

Candidate Starts for BlueCrab\_101:

(37, 54937), (41, 54976), (Start: 54 @55027 has 2 MA's), (Start: 56 @55030 has 119 MA's), (Start: 60 @55042 has 73 MA's), (85, 55258), (107, 55420),

Gene: BobaPhett\_100 Start: 55716, Stop: 56129, Start Num: 56

Candidate Starts for BobaPhett\_100:

(Start: 56 @55716 has 119 MA's), (85, 55944), (96, 56049), (107, 56106),

Gene: Bobi\_100 Start: 55132, Stop: 55545, Start Num: 56

Candidate Starts for Bobi\_100:

(24, 54937), (44, 55087), (Start: 56 @55132 has 119 MA's), (85, 55360), (96, 55465), (107, 55522),

Gene: BodEinwohner17\_108 Start: 56098, Stop: 56499, Start Num: 60

Candidate Starts for BodEinwohner17\_108:

(41, 56032), (Start: 54 @56083 has 2 MA's), (Start: 56 @56086 has 119 MA's), (Start: 60 @56098 has 73 MA's), (85, 56314), (107, 56476),

Gene: Boomer\_100 Start: 54380, Stop: 54796, Start Num: 54

Candidate Starts for Boomer\_100:

(6, 53981), (20, 54128), (37, 54290), (41, 54329), (Start: 54 @54380 has 2 MA's), (Start: 56 @54383 has 119 MA's), (Start: 60 @54395 has 73 MA's), (85, 54611), (98, 54719),

Gene: Bora\_23 Start: 11089, Stop: 11523, Start Num: 57

Candidate Starts for Bora\_23:

(Start: 57 @11089 has 34 MA's), (64, 11143), (67, 11179), (68, 11182), (70, 11191), (73, 11209), (74, 11221), (75, 11230), (76, 11233), (91, 11374), (99, 11416), (102, 11446),

Gene: Bosection6\_68 Start: 42146, Stop: 42697, Start Num: 35

Candidate Starts for Bosection6\_68:

(Start: 35 @42146 has 3 MA's), (Start: 43 @42227 has 1 MA's), (Start: 48 @42242 has 16 MA's), (50, 42248), (Start: 58 @42299 has 22 MA's), (73, 42416), (80, 42479), (101, 42653),

Gene: Brocalys\_90 Start: 51195, Stop: 51608, Start Num: 56

Candidate Starts for Brocalys\_90:

(Start: 56 @51195 has 119 MA's), (85, 51423), (96, 51528), (107, 51585),

Gene: Brujita\_69 Start: 44086, Stop: 44514, Start Num: 57

Candidate Starts for Brujita\_69:

(Start: 57 @44086 has 34 MA's), (64, 44131), (70, 44176), (74, 44206), (75, 44218), (91, 44383), (107, 44470),

Gene: Bubbles123\_92 Start: 53470, Stop: 53883, Start Num: 56

Candidate Starts for Bubbles123\_92:

(Start: 56 @53470 has 119 MA's), (85, 53698), (96, 53803), (107, 53860),

Gene: Burwell21\_92 Start: 53481, Stop: 53894, Start Num: 56

Candidate Starts for Burwell21\_92:

(Start: 56 @53481 has 119 MA's), (85, 53709), (96, 53814), (107, 53871),

Gene: Butters\_64 Start: 40322, Stop: 40789, Start Num: 48

Candidate Starts for Butters\_64:

(Start: 35 @40226 has 3 MA's), (46, 40319), (Start: 48 @40322 has 16 MA's), (Start: 58 @40379 has 22 MA's), (69, 40472), (73, 40496), (80, 40559),

Gene: BuzzLyseyear\_105 Start: 56154, Stop: 56654, Start Num: 39

Candidate Starts for BuzzLyseyear\_105:

(28, 56073), (30, 56076), (Start: 39 @56154 has 1 MA's), (55, 56238), (Start: 56 @56241 has 119 MA's), (Start: 60 @56253 has 73 MA's), (85, 56469), (107, 56631),

Gene: ByChance\_89 Start: 49553, Stop: 49966, Start Num: 56

Candidate Starts for ByChance\_89:

(Start: 56 @49553 has 119 MA's), (85, 49781), (107, 49943),

Gene: Byougenkin\_95 Start: 50517, Stop: 50930, Start Num: 56

Candidate Starts for Byougenkin\_95:

(Start: 56 @50517 has 119 MA's), (85, 50745), (107, 50907),

Gene: Cabrinians\_95 Start: 53116, Stop: 53529, Start Num: 56

Candidate Starts for Cabrinians\_95:

(Start: 56 @53116 has 119 MA's), (85, 53344), (96, 53449), (107, 53506),

Gene: CaptainTrips\_100 Start: 53296, Stop: 53709, Start Num: 56

Candidate Starts for CaptainTrips\_100:

(38, 53203), (44, 53251), (Start: 56 @53296 has 119 MA's), (85, 53524), (96, 53629), (107, 53686),

Gene: Carcharodon\_69 Start: 42519, Stop: 42974, Start Num: 48

Candidate Starts for Carcharodon\_69:

(Start: 35 @42423 has 3 MA's), (Start: 48 @42519 has 16 MA's), (Start: 58 @42576 has 22 MA's), (69, 42669), (73, 42693), (101, 42930),

Gene: Catdawg\_24 Start: 11045, Stop: 11479, Start Num: 57

Candidate Starts for Catdawg\_24:

(Start: 57 @11045 has 34 MA's), (64, 11099), (67, 11135), (68, 11138), (70, 11147), (73, 11165), (74, 11177), (75, 11186), (76, 11189), (91, 11330), (99, 11372), (101, 11399), (102, 11402),

Gene: Cerasum\_97 Start: 50468, Stop: 50881, Start Num: 56

Candidate Starts for Cerasum\_97:

(Start: 56 @50468 has 119 MA's), (85, 50696), (96, 50801), (107, 50858),

Gene: Charlie\_66 Start: 41866, Stop: 42321, Start Num: 48

Candidate Starts for Charlie\_66:

(Start: 35 @41770 has 3 MA's), (Start: 43 @41851 has 1 MA's), (Start: 48 @41866 has 16 MA's), (50, 41872), (Start: 58 @41923 has 22 MA's), (73, 42040), (80, 42103), (101, 42277),

Gene: Che8\_105 Start: 55307, Stop: 55708, Start Num: 60

Candidate Starts for Che8\_105:

(Start: 54 @55292 has 2 MA's), (Start: 56 @55295 has 119 MA's), (Start: 60 @55307 has 73 MA's), (85, 55523), (107, 55685),

Gene: Che9c\_80 Start: 53858, Stop: 54301, Start Num: 57

Candidate Starts for Che9c\_80:

(Start: 57 @53858 has 34 MA's), (64, 53909), (70, 53954), (74, 53984), (75, 53996), (89, 54137), (91, 54161), (92, 54170), (94, 54179),

Gene: Chevrolet\_105 Start: 54471, Stop: 54884, Start Num: 56

Candidate Starts for Chevrolet\_105:

(Start: 56 @54471 has 119 MA's), (85, 54699), (107, 54861),

Gene: Chewbacca\_72 Start: 42318, Stop: 42869, Start Num: 35

Candidate Starts for Chewbacca\_72:

(Start: 35 @42318 has 3 MA's), (Start: 48 @42414 has 16 MA's), (Start: 58 @42471 has 22 MA's), (69, 42564), (73, 42588), (101, 42825),

Gene: ChickenDinner\_92 Start: 53366, Stop: 53770, Start Num: 59  
Candidate Starts for ChickenDinner\_92:  
(25, 53168), (27, 53183), (Start: 59 @53366 has 11 MA's),

Gene: Chuckly\_95 Start: 50338, Stop: 50751, Start Num: 56  
Candidate Starts for Chuckly\_95:  
(Start: 56 @50338 has 119 MA's), (85, 50566), (96, 50671), (107, 50728),

Gene: Clifton\_90 Start: 52170, Stop: 52583, Start Num: 56  
Candidate Starts for Clifton\_90:  
(Start: 56 @52170 has 119 MA's), (85, 52398), (96, 52503), (107, 52560),

Gene: Coco12\_99 Start: 54525, Stop: 54938, Start Num: 56  
Candidate Starts for Coco12\_99:  
(Start: 56 @54525 has 119 MA's), (85, 54753), (96, 54858), (107, 54915),

Gene: Corndog\_27 Start: 11715, Stop: 12149, Start Num: 57  
Candidate Starts for Corndog\_27:  
(Start: 57 @11715 has 34 MA's), (64, 11769), (67, 11805), (68, 11808), (70, 11817), (73, 11835), (74, 11847), (75, 11856), (76, 11859), (91, 12000), (99, 12042), (102, 12072),

Gene: Cornie\_95 Start: 52934, Stop: 53362, Start Num: 58  
Candidate Starts for Cornie\_95:  
(5, 52520), (12, 52586), (15, 52616), (18, 52667), (40, 52868), (52, 52919), (Start: 53 @52922 has 1 MA's), (Start: 58 @52934 has 22 MA's), (62, 52955), (64, 52985), (65, 53003), (72, 53042), (73, 53051), (76, 53078), (78, 53096), (79, 53111), (80, 53114), (81, 53120), (83, 53123), (86, 53159), (88, 53174), (93, 53234), (100, 53261), (101, 53285), (102, 53288), (103, 53291), (110, 53351),

Gene: Cornucopia\_98 Start: 51608, Stop: 52009, Start Num: 60  
Candidate Starts for Cornucopia\_98:  
(6, 51260), (20, 51407), (41, 51542), (Start: 54 @51593 has 2 MA's), (Start: 56 @51596 has 119 MA's), (Start: 60 @51608 has 73 MA's), (85, 51824), (107, 51986),

Gene: Crumble\_93 Start: 49840, Stop: 50277, Start Num: 56  
Candidate Starts for Crumble\_93:  
(Start: 56 @49840 has 119 MA's), (85, 50068), (96, 50173), (107, 50230), (109, 50254),

Gene: DLane\_98 Start: 54578, Stop: 54988, Start Num: 56  
Candidate Starts for DLane\_98:  
(38, 54485), (44, 54533), (Start: 56 @54578 has 119 MA's), (85, 54806), (96, 54911), (107, 54968),

Gene: DRBy19\_98 Start: 54797, Stop: 55210, Start Num: 56  
Candidate Starts for DRBy19\_98:  
(Start: 56 @54797 has 119 MA's), (85, 55025),

Gene: DaWorst\_98 Start: 53412, Stop: 53825, Start Num: 56  
Candidate Starts for DaWorst\_98:  
(41, 53358), (Start: 54 @53409 has 2 MA's), (Start: 56 @53412 has 119 MA's), (Start: 60 @53424 has 73 MA's), (85, 53640), (96, 53745),

Gene: DaddyRickover\_100 Start: 54292, Stop: 54693, Start Num: 60  
Candidate Starts for DaddyRickover\_100:  
(41, 54226), (Start: 54 @54277 has 2 MA's), (Start: 56 @54280 has 119 MA's), (Start: 60 @54292 has 73 MA's), (85, 54508), (107, 54670),

Gene: Daenerys\_96 Start: 54459, Stop: 54860, Start Num: 60  
Candidate Starts for Daenerys\_96:  
(41, 54393), (Start: 54 @54444 has 2 MA's), (Start: 56 @54447 has 119 MA's), (Start: 60 @54459 has 73 MA's), (85, 54675), (107, 54837),

Gene: Dante\_96 Start: 54928, Stop: 55341, Start Num: 56  
Candidate Starts for Dante\_96:  
(38, 54835), (44, 54883), (Start: 56 @54928 has 119 MA's), (85, 55156), (96, 55261), (107, 55318),

Gene: DeadP\_98 Start: 52156, Stop: 52569, Start Num: 56  
Candidate Starts for DeadP\_98:  
(Start: 56 @52156 has 119 MA's), (85, 52384), (96, 52489), (107, 52546),

Gene: Deb65\_90 Start: 52183, Stop: 52584, Start Num: 60  
Candidate Starts for Deb65\_90:  
(41, 52117), (Start: 54 @52168 has 2 MA's), (Start: 56 @52171 has 119 MA's), (Start: 60 @52183 has 73 MA's), (85, 52399), (107, 52561),

Gene: DillTech15\_104 Start: 53753, Stop: 54166, Start Num: 56  
Candidate Starts for DillTech15\_104:  
(Start: 56 @53753 has 119 MA's), (85, 53981),

Gene: DirtMcgirt\_99 Start: 51005, Stop: 51406, Start Num: 60  
Candidate Starts for DirtMcgirt\_99:  
(6, 50591), (20, 50738), (37, 50900), (41, 50939), (Start: 54 @50990 has 2 MA's), (Start: 56 @50993 has 119 MA's), (Start: 60 @51005 has 73 MA's), (85, 51221), (98, 51329),

Gene: DocMcStuffins\_85 Start: 54996, Stop: 55400, Start Num: 59  
Candidate Starts for DocMcStuffins\_85:  
(25, 54798), (27, 54813), (Start: 59 @54996 has 11 MA's),

Gene: Donkeykong\_104 Start: 55913, Stop: 56326, Start Num: 56  
Candidate Starts for Donkeykong\_104:  
(38, 55820), (44, 55868), (Start: 56 @55913 has 119 MA's), (85, 56141), (107, 56303),

Gene: Doomphist\_103 Start: 55112, Stop: 55513, Start Num: 60  
Candidate Starts for Doomphist\_103:  
(41, 55046), (Start: 54 @55097 has 2 MA's), (Start: 56 @55100 has 119 MA's), (Start: 60 @55112 has 73 MA's), (85, 55328), (107, 55490),

Gene: Dorothy\_99 Start: 55281, Stop: 55682, Start Num: 60  
Candidate Starts for Dorothy\_99:  
(41, 55215), (Start: 54 @55266 has 2 MA's), (Start: 56 @55269 has 119 MA's), (Start: 60 @55281 has 73 MA's), (85, 55497), (107, 55659),

Gene: DosHalletts\_95 Start: 53918, Stop: 54331, Start Num: 56  
Candidate Starts for DosHalletts\_95:  
(38, 53825), (44, 53873), (Start: 56 @53918 has 119 MA's), (85, 54146), (96, 54251), (107, 54308),

Gene: DotProduct\_92 Start: 51297, Stop: 51698, Start Num: 60

Candidate Starts for DotProduct\_92:

(41, 51231), (Start: 54 @51282 has 2 MA's), (Start: 56 @51285 has 119 MA's), (Start: 60 @51297 has 73 MA's), (85, 51513), (96, 51618), (107, 51675),

Gene: Doug\_95 Start: 54844, Stop: 55245, Start Num: 60

Candidate Starts for Doug\_95:

(37, 54739), (Start: 54 @54829 has 2 MA's), (Start: 56 @54832 has 119 MA's), (Start: 60 @54844 has 73 MA's), (77, 54994), (85, 55060), (107, 55222),

Gene: Drago\_97 Start: 51008, Stop: 51409, Start Num: 60

Candidate Starts for Drago\_97:

(6, 50594), (20, 50741), (37, 50903), (41, 50942), (Start: 54 @50993 has 2 MA's), (Start: 56 @50996 has 119 MA's), (Start: 60 @51008 has 73 MA's), (85, 51224), (98, 51332),

Gene: Duplicity\_68 Start: 41833, Stop: 42231, Start Num: 58

Candidate Starts for Duplicity\_68:

(Start: 35 @41680 has 3 MA's), (Start: 48 @41776 has 16 MA's), (Start: 58 @41833 has 22 MA's), (69, 41926), (73, 41950), (101, 42187),

Gene: Dylan\_24 Start: 11441, Stop: 11875, Start Num: 57

Candidate Starts for Dylan\_24:

(Start: 57 @11441 has 34 MA's), (64, 11495), (67, 11531), (68, 11534), (70, 11543), (73, 11561), (74, 11573), (75, 11582), (76, 11585), (91, 11726), (99, 11768), (102, 11798),

Gene: Eish\_103 Start: 54594, Stop: 55007, Start Num: 56

Candidate Starts for Eish\_103:

(Start: 56 @54594 has 119 MA's), (85, 54822), (96, 54927), (107, 54984),

Gene: EleanorGeorge\_102 Start: 55861, Stop: 56274, Start Num: 56

Candidate Starts for EleanorGeorge\_102:

(38, 55768), (44, 55816), (Start: 56 @55861 has 119 MA's), (85, 56089), (107, 56251),

Gene: Emma\_103 Start: 52862, Stop: 53275, Start Num: 56

Candidate Starts for Emma\_103:

(Start: 56 @52862 has 119 MA's), (85, 53090), (96, 53195), (107, 53252),

Gene: Empress\_98 Start: 53375, Stop: 53776, Start Num: 60

Candidate Starts for Empress\_98:

(41, 53309), (Start: 54 @53360 has 2 MA's), (Start: 56 @53363 has 119 MA's), (Start: 60 @53375 has 73 MA's), (85, 53591), (107, 53753),

Gene: Enby\_102 Start: 51284, Stop: 51685, Start Num: 60

Candidate Starts for Enby\_102:

(6, 50870), (20, 51017), (37, 51179), (41, 51218), (Start: 54 @51269 has 2 MA's), (Start: 56 @51272 has 119 MA's), (Start: 60 @51284 has 73 MA's), (85, 51500), (98, 51608),

Gene: Eradicator\_90 Start: 52133, Stop: 52546, Start Num: 56

Candidate Starts for Eradicator\_90:

(Start: 56 @52133 has 119 MA's), (85, 52361), (107, 52523),

Gene: Estave1\_106 Start: 57168, Stop: 57569, Start Num: 60



Candidate Starts for Estave1\_106:

(6, 56754), (16, 56844), (17, 56850), (20, 56901), (41, 57102), (Start: 54 @57153 has 2 MA's), (Start: 56 @57156 has 119 MA's), (Start: 60 @57168 has 73 MA's), (85, 57384), (107, 57546),

Gene: Familton\_25 Start: 11046, Stop: 11480, Start Num: 57

Candidate Starts for Familton\_25:

(Start: 57 @11046 has 34 MA's), (64, 11100), (67, 11136), (68, 11139), (70, 11148), (73, 11166), (74, 11178), (75, 11187), (76, 11190), (91, 11331), (99, 11373), (101, 11400), (102, 11403),

Gene: Fancypants\_105 Start: 56674, Stop: 57075, Start Num: 60

Candidate Starts for Fancypants\_105:

(37, 56569), (41, 56608), (Start: 54 @56659 has 2 MA's), (Start: 56 @56662 has 119 MA's), (Start: 60 @56674 has 73 MA's), (77, 56824), (85, 56890), (107, 57052),

Gene: Fastidio\_99 Start: 51689, Stop: 52090, Start Num: 60

Candidate Starts for Fastidio\_99:

(41, 51623), (Start: 54 @51674 has 2 MA's), (Start: 56 @51677 has 119 MA's), (Start: 60 @51689 has 73 MA's), (85, 51905), (96, 52010), (107, 52067),

Gene: Filuzino\_98 Start: 55273, Stop: 55686, Start Num: 56

Candidate Starts for Filuzino\_98:

(38, 55180), (44, 55228), (Start: 56 @55273 has 119 MA's), (85, 55501), (96, 55606), (107, 55663),

Gene: Firecracker\_25 Start: 11339, Stop: 11773, Start Num: 57

Candidate Starts for Firecracker\_25:

(Start: 57 @11339 has 34 MA's), (64, 11393), (67, 11429), (68, 11432), (70, 11441), (73, 11459), (74, 11471), (75, 11480), (76, 11483), (91, 11624), (99, 11666), (101, 11693), (102, 11696),

Gene: Firehouse51\_92 Start: 54090, Stop: 54503, Start Num: 56

Candidate Starts for Firehouse51\_92:

(38, 53997), (44, 54045), (Start: 56 @54090 has 119 MA's), (85, 54318), (96, 54423), (107, 54480),

Gene: Flathead\_100 Start: 53594, Stop: 54007, Start Num: 56

Candidate Starts for Flathead\_100:

(38, 53501), (44, 53549), (Start: 56 @53594 has 119 MA's), (85, 53822), (96, 53927), (107, 53984),

Gene: Florinda\_110 Start: 55688, Stop: 56092, Start Num: 59

Candidate Starts for Florinda\_110:

(Start: 59 @55688 has 11 MA's), (71, 55784), (73, 55799), (79, 55865), (85, 55907), (86, 55928), (96, 56012),

Gene: FoulBall\_22 Start: 11046, Stop: 11480, Start Num: 57

Candidate Starts for FoulBall\_22:

(Start: 57 @11046 has 34 MA's), (64, 11100), (67, 11136), (68, 11139), (70, 11148), (73, 11166), (74, 11178), (75, 11187), (76, 11190), (91, 11331), (99, 11373), (101, 11400), (102, 11403),

Gene: Frankie\_98 Start: 53511, Stop: 53915, Start Num: 59

Candidate Starts for Frankie\_98:

(32, 53346), (33, 53349), (34, 53355), (Start: 59 @53511 has 11 MA's), (71, 53607), (73, 53622), (79, 53688), (85, 53730), (86, 53751),

Gene: FreddyB\_108 Start: 54762, Stop: 55175, Start Num: 56

Candidate Starts for FreddyB\_108:

(Start: 56 @54762 has 119 MA's), (85, 54990), (96, 55095), (107, 55152),

Gene: Fruitloop\_96 Start: 54438, Stop: 54851, Start Num: 56

Candidate Starts for Fruitloop\_96:

(Start: 56 @54438 has 119 MA's), (85, 54666), (96, 54771), (107, 54828),

Gene: GUmbie\_97 Start: 53311, Stop: 53712, Start Num: 60

Candidate Starts for GUmbie\_97:

(41, 53245), (Start: 54 @53296 has 2 MA's), (Start: 56 @53299 has 119 MA's), (Start: 60 @53311 has 73 MA's), (85, 53527), (96, 53632),

Gene: Galactic\_102 Start: 53734, Stop: 54135, Start Num: 60

Candidate Starts for Galactic\_102:

(37, 53632), (41, 53668), (Start: 54 @53719 has 2 MA's), (Start: 56 @53722 has 119 MA's), (Start: 60 @53734 has 73 MA's), (85, 53950), (107, 54112),

Gene: Gandalph\_98 Start: 51417, Stop: 51818, Start Num: 60

Candidate Starts for Gandalph\_98:

(6, 51003), (14, 51069), (17, 51099), (20, 51150), (41, 51351), (Start: 54 @51402 has 2 MA's), (Start: 56 @51405 has 119 MA's), (Start: 60 @51417 has 73 MA's), (85, 51633), (107, 51795),

Gene: Geralt\_91 Start: 52181, Stop: 52582, Start Num: 60

Candidate Starts for Geralt\_91:

(41, 52115), (Start: 54 @52166 has 2 MA's), (Start: 56 @52169 has 119 MA's), (Start: 60 @52181 has 73 MA's), (85, 52397), (107, 52559),

Gene: Gex\_70 Start: 42535, Stop: 42990, Start Num: 48

Candidate Starts for Gex\_70:

(Start: 35 @42439 has 3 MA's), (Start: 48 @42535 has 16 MA's), (Start: 58 @42592 has 22 MA's), (69, 42685), (73, 42709), (101, 42946),

Gene: GigiOuiOui\_93 Start: 52314, Stop: 52715, Start Num: 60

Candidate Starts for GigiOuiOui\_93:

(41, 52248), (Start: 54 @52299 has 2 MA's), (Start: 56 @52302 has 119 MA's), (Start: 60 @52314 has 73 MA's), (85, 52530),

Gene: Girafales\_107 Start: 55293, Stop: 55697, Start Num: 59

Candidate Starts for Girafales\_107:

(Start: 59 @55293 has 11 MA's), (71, 55389), (73, 55404), (79, 55470), (85, 55512), (86, 55533), (96, 55617),

Gene: Girr\_97 Start: 54180, Stop: 54581, Start Num: 60

Candidate Starts for Girr\_97:

(41, 54114), (Start: 54 @54165 has 2 MA's), (Start: 56 @54168 has 119 MA's), (Start: 60 @54180 has 73 MA's), (85, 54396), (107, 54558),

Gene: Gorge\_97 Start: 54389, Stop: 54802, Start Num: 56

Candidate Starts for Gorge\_97:

(Start: 56 @54389 has 119 MA's), (85, 54617), (98, 54725),

Gene: Guppsters\_93 Start: 51279, Stop: 51692, Start Num: 56

Candidate Starts for Guppsters\_93:

(38, 51186), (44, 51234), (Start: 56 @51279 has 119 MA's), (85, 51507), (107, 51669),

Gene: HC\_73 Start: 43335, Stop: 43763, Start Num: 57

Candidate Starts for HC\_73:

(Start: 57 @43335 has 34 MA's), (64, 43380), (74, 43455), (75, 43467), (82, 43527), (84, 43533), (91, 43632), (107, 43719),

Gene: Hades\_95 Start: 50900, Stop: 51301, Start Num: 60

Candidate Starts for Hades\_95:

(6, 50552), (16, 50642), (17, 50648), (20, 50699), (41, 50834), (Start: 54 @50885 has 2 MA's), (Start: 56 @50888 has 119 MA's), (Start: 60 @50900 has 73 MA's), (85, 51116), (107, 51278),

Gene: Hamulus\_98 Start: 53123, Stop: 53536, Start Num: 56

Candidate Starts for Hamulus\_98:

(38, 53030), (44, 53078), (Start: 56 @53123 has 119 MA's), (85, 53351), (96, 53456), (107, 53513),

Gene: Harley\_100 Start: 54295, Stop: 54708, Start Num: 56

Candidate Starts for Harley\_100:

(Start: 56 @54295 has 119 MA's), (85, 54523), (107, 54685),

Gene: Hegedechwinu\_106 Start: 53659, Stop: 54072, Start Num: 56

Candidate Starts for Hegedechwinu\_106:

(Start: 56 @53659 has 119 MA's), (85, 53887), (96, 53992), (107, 54049),

Gene: Hlubikazi\_96 Start: 51902, Stop: 52315, Start Num: 56

Candidate Starts for Hlubikazi\_96:

(38, 51809), (44, 51857), (Start: 56 @51902 has 119 MA's), (85, 52130), (96, 52235), (107, 52292),

Gene: lbOuu\_94 Start: 51277, Stop: 51678, Start Num: 60

Candidate Starts for lbOuu\_94:

(6, 50863), (20, 51010), (41, 51211), (Start: 54 @51262 has 2 MA's), (Start: 56 @51265 has 119 MA's), (Start: 60 @51277 has 73 MA's), (85, 51493),

Gene: lbhubesi\_95 Start: 51164, Stop: 51577, Start Num: 56

Candidate Starts for lbhubesi\_95:

(Start: 56 @51164 has 119 MA's), (85, 51392), (107, 51554),

Gene: ldergollasper\_24 Start: 11046, Stop: 11480, Start Num: 57

Candidate Starts for ldergollasper\_24:

(Start: 57 @11046 has 34 MA's), (64, 11100), (67, 11136), (68, 11139), (70, 11148), (73, 11166), (74, 11178), (75, 11187), (76, 11190), (91, 11331), (99, 11373), (101, 11400), (102, 11403),

Gene: Inventum\_96 Start: 53469, Stop: 53870, Start Num: 60

Candidate Starts for Inventum\_96:

(41, 53403), (Start: 54 @53454 has 2 MA's), (Start: 56 @53457 has 119 MA's), (Start: 60 @53469 has 73 MA's), (85, 53685), (107, 53847),

Gene: IrishSherpFalk\_98 Start: 53804, Stop: 54205, Start Num: 60

Candidate Starts for IrishSherpFalk\_98:

(6, 53390), (20, 53537), (37, 53699), (41, 53738), (Start: 54 @53789 has 2 MA's), (Start: 56 @53792 has 119 MA's), (Start: 60 @53804 has 73 MA's), (85, 54020), (107, 54182),

Gene: Island3\_71 Start: 44316, Stop: 44744, Start Num: 57

Candidate Starts for Island3\_71:

(Start: 57 @44316 has 34 MA's), (64, 44361), (70, 44406), (74, 44436), (75, 44448), (91, 44613), (107, 44700),

Gene: JalFarm20\_107 Start: 55600, Stop: 56013, Start Num: 56

Candidate Starts for JalFarm20\_107:

(38, 55507), (44, 55555), (Start: 56 @55600 has 119 MA's), (85, 55828), (96, 55933), (107, 55990),

Gene: James\_102 Start: 55771, Stop: 56184, Start Num: 56

Candidate Starts for James\_102:

(Start: 56 @55771 has 119 MA's), (85, 55999), (96, 56104), (107, 56161),

Gene: Jamie19\_63 Start: 40165, Stop: 40563, Start Num: 58

Candidate Starts for Jamie19\_63:

(Start: 43 @40093 has 1 MA's), (Start: 48 @40108 has 16 MA's), (50, 40114), (Start: 58 @40165 has 22 MA's), (73, 40282), (80, 40345), (101, 40519),

Gene: JangDynasty\_24 Start: 11135, Stop: 11569, Start Num: 57

Candidate Starts for JangDynasty\_24:

(Start: 57 @11135 has 34 MA's), (64, 11189), (67, 11225), (68, 11228), (70, 11237), (73, 11255), (74, 11267), (75, 11276), (76, 11279), (91, 11420), (99, 11462), (101, 11489), (102, 11492),

Gene: Jacob\_101 Start: 55370, Stop: 55783, Start Num: 56

Candidate Starts for Jacob\_101:

(Start: 56 @55370 has 119 MA's), (85, 55598), (98, 55706),

Gene: Jinglebell\_105 Start: 55047, Stop: 55460, Start Num: 56

Candidate Starts for Jinglebell\_105:

(38, 54954), (44, 55002), (Start: 56 @55047 has 119 MA's), (85, 55275), (96, 55380), (98, 55383), (107, 55437),

Gene: Job42\_99 Start: 55957, Stop: 56358, Start Num: 60

Candidate Starts for Job42\_99:

(37, 55852), (41, 55891), (Start: 54 @55942 has 2 MA's), (Start: 56 @55945 has 119 MA's), (Start: 60 @55957 has 73 MA's), (85, 56173), (107, 56335),

Gene: JoeyJr\_101 Start: 55377, Stop: 55778, Start Num: 60

Candidate Starts for JoeyJr\_101:

(41, 55311), (Start: 54 @55362 has 2 MA's), (Start: 56 @55365 has 119 MA's), (Start: 60 @55377 has 73 MA's), (85, 55593), (107, 55755),

Gene: Journey\_64 Start: 40729, Stop: 41280, Start Num: 35

Candidate Starts for Journey\_64:

(Start: 35 @40729 has 3 MA's), (Start: 43 @40810 has 1 MA's), (Start: 48 @40825 has 16 MA's), (50, 40831), (Start: 58 @40882 has 22 MA's), (73, 40999), (80, 41062), (101, 41236),

Gene: Juice456\_97 Start: 53087, Stop: 53488, Start Num: 60

Candidate Starts for Juice456\_97:

(41, 53021), (Start: 54 @53072 has 2 MA's), (Start: 56 @53075 has 119 MA's), (Start: 60 @53087 has 73 MA's), (85, 53303), (107, 53465),

Gene: Juniper1\_93 Start: 52071, Stop: 52475, Start Num: 59

Candidate Starts for Juniper1\_93:

(Start: 59 @52071 has 11 MA's), (85, 52290), (107, 52452),

Gene: Karhdo\_93 Start: 51546, Stop: 51947, Start Num: 60

Candidate Starts for Karhdo\_93:

(37, 51441), (Start: 54 @51531 has 2 MA's), (Start: 56 @51534 has 119 MA's), (Start: 60 @51546 has 73 MA's), (77, 51696), (85, 51762), (96, 51867), (107, 51924),

Gene: Kenuha5\_90 Start: 52947, Stop: 53360, Start Num: 56

Candidate Starts for Kenuha5\_90:

(21, 52710), (27, 52773), (31, 52785), (36, 52821), (38, 52854), (44, 52902), (Start: 56 @52947 has 119 MA's), (85, 53175), (96, 53280), (107, 53337),

Gene: Kersh\_101 Start: 56116, Stop: 56529, Start Num: 56

Candidate Starts for Kersh\_101:

(Start: 56 @56116 has 119 MA's), (85, 56344), (107, 56506),

Gene: Kevin1\_67 Start: 40831, Stop: 41286, Start Num: 48

Candidate Starts for Kevin1\_67:

(26, 40690), (Start: 35 @40735 has 3 MA's), (46, 40828), (Start: 48 @40831 has 16 MA's), (Start: 58 @40888 has 22 MA's), (69, 40981), (73, 41005), (80, 41068), (101, 41242), (104, 41248),

Gene: Kimberlium\_100 Start: 53187, Stop: 53588, Start Num: 60

Candidate Starts for Kimberlium\_100:

(41, 53121), (Start: 54 @53172 has 2 MA's), (Start: 56 @53175 has 119 MA's), (Start: 60 @53187 has 73 MA's), (85, 53403), (107, 53565),

Gene: KingMidas\_98 Start: 53606, Stop: 54007, Start Num: 60

Candidate Starts for KingMidas\_98:

(41, 53540), (Start: 54 @53591 has 2 MA's), (Start: 56 @53594 has 119 MA's), (Start: 60 @53606 has 73 MA's), (85, 53822), (107, 53984),

Gene: Kingsley\_107 Start: 57132, Stop: 57545, Start Num: 56

Candidate Starts for Kingsley\_107:

(Start: 56 @57132 has 119 MA's), (85, 57360), (96, 57465), (107, 57522),

Gene: Koella\_91 Start: 50533, Stop: 50946, Start Num: 56

Candidate Starts for Koella\_91:

(Start: 56 @50533 has 119 MA's), (85, 50761), (96, 50866), (107, 50923),

Gene: Krakatau\_91 Start: 49504, Stop: 49905, Start Num: 60

Candidate Starts for Krakatau\_91:

(16, 49180), (17, 49186), (20, 49237), (37, 49399), (41, 49438), (Start: 54 @49489 has 2 MA's), (Start: 56 @49492 has 119 MA's), (Start: 60 @49504 has 73 MA's), (85, 49720), (98, 49828), (107, 49882),

Gene: Krili\_25 Start: 11405, Stop: 11839, Start Num: 57

Candidate Starts for Krili\_25:

(Start: 57 @11405 has 34 MA's), (64, 11459), (67, 11495), (68, 11498), (70, 11507), (73, 11525), (74, 11537), (75, 11546), (76, 11549), (91, 11690), (99, 11732), (101, 11759), (102, 11762),

Gene: KristaRAM\_106 Start: 54855, Stop: 55268, Start Num: 56

Candidate Starts for KristaRAM\_106:

(22, 54630), (24, 54660), (29, 54687), (44, 54810), (Start: 56 @54855 has 119 MA's), (85, 55083), (107, 55245),

Gene: LastJedi\_89 Start: 51590, Stop: 52003, Start Num: 56  
Candidate Starts for LastJedi\_89:  
(Start: 56 @51590 has 119 MA's), (85, 51818), (96, 51923), (107, 51980),

Gene: Latretium\_101 Start: 54636, Stop: 55049, Start Num: 56  
Candidate Starts for Latretium\_101:  
(Start: 56 @54636 has 119 MA's), (85, 54864), (107, 55026),

Gene: Leozinho\_95 Start: 51125, Stop: 51526, Start Num: 60  
Candidate Starts for Leozinho\_95:  
(41, 51059), (Start: 54 @51110 has 2 MA's), (Start: 56 @51113 has 119 MA's), (Start: 60 @51125 has 73 MA's), (85, 51341), (107, 51503),

Gene: Leperchaun\_100 Start: 54611, Stop: 55012, Start Num: 60  
Candidate Starts for Leperchaun\_100:  
(41, 54545), (Start: 54 @54596 has 2 MA's), (Start: 56 @54599 has 119 MA's), (Start: 60 @54611 has 73 MA's), (85, 54827), (107, 54989),

Gene: LilMoolah\_101 Start: 54570, Stop: 54983, Start Num: 56  
Candidate Starts for LilMoolah\_101:  
(Start: 56 @54570 has 119 MA's), (85, 54798), (98, 54906),

Gene: LittleShirley\_106 Start: 54967, Stop: 55380, Start Num: 56  
Candidate Starts for LittleShirley\_106:  
(Start: 56 @54967 has 119 MA's), (85, 55195), (96, 55300), (107, 55357),

Gene: Lizziana\_99 Start: 54838, Stop: 55251, Start Num: 56  
Candidate Starts for Lizziana\_99:  
(Start: 56 @54838 has 119 MA's), (85, 55066), (96, 55171), (107, 55228),

Gene: Llama\_105 Start: 54690, Stop: 55103, Start Num: 56  
Candidate Starts for Llama\_105:  
(Start: 56 @54690 has 119 MA's), (85, 54918), (107, 55080),

Gene: Llij\_93 Start: 52521, Stop: 52934, Start Num: 56  
Candidate Starts for Llij\_93:  
(38, 52428), (44, 52476), (Start: 56 @52521 has 119 MA's), (85, 52749),

Gene: Lorde\_101 Start: 50449, Stop: 50850, Start Num: 60  
Candidate Starts for Lorde\_101:  
(6, 50035), (20, 50182), (37, 50344), (41, 50383), (Start: 54 @50434 has 2 MA's), (Start: 56 @50437 has 119 MA's), (Start: 60 @50449 has 73 MA's), (85, 50665), (98, 50773),

Gene: LunaBlu\_105 Start: 55220, Stop: 55621, Start Num: 60  
Candidate Starts for LunaBlu\_105:  
(37, 55118), (41, 55154), (Start: 54 @55205 has 2 MA's), (Start: 56 @55208 has 119 MA's), (Start: 60 @55220 has 73 MA's), (85, 55436), (107, 55598),

Gene: LunaStella\_95 Start: 51843, Stop: 52268, Start Num: 58  
Candidate Starts for LunaStella\_95:  
(40, 51777), (52, 51828), (Start: 53 @51831 has 1 MA's), (Start: 58 @51843 has 22 MA's), (61, 51858), (63, 51876), (66, 51927), (72, 51951), (73, 51960), (76, 51987), (80, 52023), (81, 52029), (86, 52068), (87, 52077), (91, 52125), (97, 52161), (100, 52170), (103, 52200), (110, 52260),

Gene: MadKillah\_26 Start: 11438, Stop: 11872, Start Num: 57

Candidate Starts for MadKillah\_26:

(Start: 57 @11438 has 34 MA's), (64, 11492), (67, 11528), (68, 11531), (70, 11540), (73, 11558), (74, 11570), (75, 11579), (76, 11582), (91, 11723), (99, 11765), (101, 11792), (102, 11795),

Gene: MadMen\_103 Start: 54148, Stop: 54549, Start Num: 60

Candidate Starts for MadMen\_103:

(41, 54082), (Start: 54 @54133 has 2 MA's), (Start: 56 @54136 has 119 MA's), (Start: 60 @54148 has 73 MA's), (85, 54364), (107, 54526),

Gene: Madiba\_97 Start: 52890, Stop: 53291, Start Num: 60

Candidate Starts for Madiba\_97:

(6, 52476), (20, 52623), (41, 52824), (Start: 54 @52875 has 2 MA's), (Start: 56 @52878 has 119 MA's), (Start: 60 @52890 has 73 MA's), (85, 53106), (107, 53268),

Gene: Magsby\_69 Start: 42538, Stop: 42936, Start Num: 58

Candidate Starts for Magsby\_69:

(Start: 35 @42385 has 3 MA's), (Start: 48 @42481 has 16 MA's), (Start: 58 @42538 has 22 MA's), (69, 42631), (73, 42655), (101, 42892),

Gene: Mahavrat\_92 Start: 51100, Stop: 51504, Start Num: 59

Candidate Starts for Mahavrat\_92:

(Start: 59 @51100 has 11 MA's), (85, 51319), (107, 51481),

Gene: Mandlovu\_96 Start: 51844, Stop: 52257, Start Num: 56

Candidate Starts for Mandlovu\_96:

(38, 51751), (44, 51799), (Start: 56 @51844 has 119 MA's), (85, 52072), (96, 52177), (107, 52234),

Gene: Mantra\_96 Start: 53210, Stop: 53611, Start Num: 60

Candidate Starts for Mantra\_96:

(41, 53144), (Start: 54 @53195 has 2 MA's), (Start: 56 @53198 has 119 MA's), (Start: 60 @53210 has 73 MA's), (85, 53426),

Gene: Maravista\_95 Start: 55498, Stop: 55911, Start Num: 56

Candidate Starts for Maravista\_95:

(Start: 56 @55498 has 119 MA's), (85, 55726), (96, 55831), (107, 55888),

Gene: Marker\_104 Start: 54993, Stop: 55394, Start Num: 60

Candidate Starts for Marker\_104:

(1, 54321), (2, 54423), (3, 54426), (4, 54489), (6, 54582), (17, 54678), (20, 54729), (37, 54891), (41, 54927), (Start: 54 @54978 has 2 MA's), (Start: 56 @54981 has 119 MA's), (Start: 60 @54993 has 73 MA's), (85, 55209), (107, 55371),

Gene: Martik\_97 Start: 55301, Stop: 55714, Start Num: 56

Candidate Starts for Martik\_97:

(Start: 56 @55301 has 119 MA's), (85, 55529), (105, 55682), (107, 55691),

Gene: Mattes\_99 Start: 54507, Stop: 54920, Start Num: 56

Candidate Starts for Mattes\_99:

(Start: 56 @54507 has 119 MA's), (85, 54735), (98, 54843),

Gene: Melissauren88\_88 Start: 50323, Stop: 50736, Start Num: 56

Candidate Starts for Melissauren88\_88:

(38, 50230), (44, 50278), (Start: 56 @50323 has 119 MA's), (85, 50551), (96, 50656), (107, 50713),

Gene: MichelleMyBell\_68 Start: 41071, Stop: 41526, Start Num: 48

Candidate Starts for MichelleMyBell\_68:

(Start: 43 @41056 has 1 MA's), (Start: 48 @41071 has 16 MA's), (50, 41077), (Start: 58 @41128 has 22 MA's), (73, 41245), (80, 41308), (101, 41482),

Gene: MilanaBonita\_91 Start: 52219, Stop: 52632, Start Num: 56

Candidate Starts for MilanaBonita\_91:

(38, 52126), (44, 52174), (Start: 56 @52219 has 119 MA's), (85, 52447), (96, 52552), (107, 52609),

Gene: MilleniumForce\_98 Start: 54026, Stop: 54439, Start Num: 56

Candidate Starts for MilleniumForce\_98:

(38, 53957), (44, 54005), (Start: 56 @54026 has 119 MA's), (85, 54254), (96, 54359), (107, 54416),

Gene: MinionDave\_96 Start: 53928, Stop: 54341, Start Num: 56

Candidate Starts for MinionDave\_96:

(38, 53835), (44, 53883), (Start: 56 @53928 has 119 MA's), (85, 54156), (107, 54318),

Gene: Minnie\_93 Start: 54919, Stop: 55332, Start Num: 56

Candidate Starts for Minnie\_93:

(Start: 56 @54919 has 119 MA's), (85, 55147), (98, 55255),

Gene: Misha28\_88 Start: 54301, Stop: 54705, Start Num: 59

Candidate Starts for Misha28\_88:

(25, 54103), (27, 54118), (Start: 59 @54301 has 11 MA's),

Gene: MisterCuddles\_98 Start: 54180, Stop: 54581, Start Num: 60

Candidate Starts for MisterCuddles\_98:

(41, 54114), (Start: 54 @54165 has 2 MA's), (Start: 56 @54168 has 119 MA's), (Start: 60 @54180 has 73 MA's), (85, 54396), (107, 54558),

Gene: Modragons\_102 Start: 54678, Stop: 55091, Start Num: 56

Candidate Starts for Modragons\_102:

(Start: 56 @54678 has 119 MA's), (85, 54906), (107, 55068),

Gene: MooMoo\_92 Start: 51379, Stop: 51864, Start Num: 45

Candidate Starts for MooMoo\_92:

(23, 51211), (40, 51364), (42, 51367), (Start: 45 @51379 has 1 MA's), (Start: 57 @51424 has 34 MA's), (64, 51475), (70, 51520), (74, 51550), (75, 51562), (84, 51628), (89, 51703), (90, 51721), (91, 51727), (94, 51745), (98, 51760),

Gene: Moonbeam\_101 Start: 54414, Stop: 54827, Start Num: 56

Candidate Starts for Moonbeam\_101:

(Start: 56 @54414 has 119 MA's), (85, 54642), (107, 54804),

Gene: Mori\_25 Start: 11276, Stop: 11710, Start Num: 57

Candidate Starts for Mori\_25:

(Start: 57 @11276 has 34 MA's), (64, 11330), (67, 11366), (68, 11369), (70, 11378), (73, 11396), (74, 11408), (75, 11417), (76, 11420), (91, 11561), (99, 11603), (101, 11630), (102, 11633),

Gene: Mova\_100 Start: 53953, Stop: 54369, Start Num: 54



Candidate Starts for Mova\_100:

(41, 53902), (Start: 54 @53953 has 2 MA's), (Start: 56 @53956 has 119 MA's), (Start: 60 @53968 has 73 MA's), (85, 54184), (96, 54289), (107, 54346),

Gene: Mozy\_102 Start: 53591, Stop: 54004, Start Num: 56

Candidate Starts for Mozy\_102:

(Start: 56 @53591 has 119 MA's), (85, 53819), (96, 53924), (107, 53981),

Gene: Ms6\_100 Start: 50214, Stop: 50627, Start Num: 56

Candidate Starts for Ms6\_100:

(38, 50121), (44, 50169), (Start: 56 @50214 has 119 MA's), (85, 50442), (96, 50547), (107, 50604),

Gene: MulchSalad\_100 Start: 54859, Stop: 55260, Start Num: 60

Candidate Starts for MulchSalad\_100:

(6, 54445), (20, 54592), (41, 54793), (Start: 54 @54844 has 2 MA's), (Start: 56 @54847 has 119 MA's), (Start: 60 @54859 has 73 MA's), (85, 55075), (107, 55237),

Gene: Murai\_25 Start: 11277, Stop: 11711, Start Num: 57

Candidate Starts for Murai\_25:

(Start: 57 @11277 has 34 MA's), (64, 11331), (67, 11367), (68, 11370), (70, 11379), (73, 11397), (74, 11409), (75, 11418), (76, 11421), (91, 11562), (99, 11604), (101, 11631), (102, 11634),

Gene: Nenae\_68 Start: 41428, Stop: 41883, Start Num: 48

Candidate Starts for Nenae\_68:

(Start: 35 @41332 has 3 MA's), (Start: 43 @41413 has 1 MA's), (Start: 48 @41428 has 16 MA's), (Start: 58 @41485 has 22 MA's), (64, 41536), (73, 41602), (80, 41665), (101, 41839),

Gene: NiebruSaylor\_25 Start: 11277, Stop: 11711, Start Num: 57

Candidate Starts for NiebruSaylor\_25:

(Start: 57 @11277 has 34 MA's), (64, 11331), (67, 11367), (68, 11370), (70, 11379), (73, 11397), (74, 11409), (75, 11418), (76, 11421), (91, 11562), (99, 11604), (101, 11631), (102, 11634),

Gene: Nimbo\_90 Start: 52183, Stop: 52584, Start Num: 60

Candidate Starts for Nimbo\_90:

(41, 52117), (Start: 54 @52168 has 2 MA's), (Start: 56 @52171 has 119 MA's), (Start: 60 @52183 has 73 MA's), (85, 52399), (107, 52561),

Gene: Nitzel\_92 Start: 50796, Stop: 51197, Start Num: 60

Candidate Starts for Nitzel\_92:

(6, 50382), (14, 50448), (17, 50478), (20, 50529), (41, 50730), (Start: 54 @50781 has 2 MA's), (Start: 56 @50784 has 119 MA's), (Start: 60 @50796 has 73 MA's), (85, 51012), (98, 51120), (107, 51174),

Gene: Nivrat\_98 Start: 54443, Stop: 54856, Start Num: 56

Candidate Starts for Nivrat\_98:

(Start: 56 @54443 has 119 MA's), (85, 54671), (98, 54779),

Gene: NormanBulbieJr\_96 Start: 54547, Stop: 54960, Start Num: 56

Candidate Starts for NormanBulbieJr\_96:

(Start: 56 @54547 has 119 MA's), (85, 54775), (96, 54880), (107, 54937),

Gene: Ochi17\_104 Start: 54285, Stop: 54698, Start Num: 56

Candidate Starts for Ochi17\_104:

(Start: 56 @54285 has 119 MA's), (85, 54513), (107, 54675),

Gene: OfUltron\_105 Start: 54834, Stop: 55247, Start Num: 56  
Candidate Starts for OfUltron\_105:  
(Start: 56 @54834 has 119 MA's), (85, 55062), (107, 55224),

Gene: Ogotopogo\_102 Start: 52785, Stop: 53189, Start Num: 59  
Candidate Starts for Ogotopogo\_102:  
(Start: 59 @52785 has 11 MA's), (85, 53004), (107, 53166),

Gene: Oksu\_102 Start: 55924, Stop: 56337, Start Num: 56  
Candidate Starts for Oksu\_102:  
(Start: 56 @55924 has 119 MA's), (85, 56152), (107, 56314),

Gene: OldBen\_95 Start: 53575, Stop: 53976, Start Num: 60  
Candidate Starts for OldBen\_95:  
(41, 53509), (Start: 54 @53560 has 2 MA's), (Start: 56 @53563 has 119 MA's), (Start: 60 @53575 has 73 MA's), (85, 53791), (107, 53953),

Gene: OlympiaSaint\_102 Start: 54713, Stop: 55150, Start Num: 56  
Candidate Starts for OlympiaSaint\_102:  
(Start: 56 @54713 has 119 MA's), (85, 54941), (96, 55046), (107, 55103), (109, 55127),

Gene: Ovechkin\_101 Start: 54263, Stop: 54676, Start Num: 56  
Candidate Starts for Ovechkin\_101:  
(Start: 56 @54263 has 119 MA's), (85, 54491), (107, 54653),

Gene: OwlsT2W\_96 Start: 52467, Stop: 52880, Start Num: 56  
Candidate Starts for OwlsT2W\_96:  
(38, 52374), (44, 52422), (Start: 56 @52467 has 119 MA's), (85, 52695), (96, 52800), (107, 52857),

Gene: PHappiness\_98 Start: 54404, Stop: 54805, Start Num: 60  
Candidate Starts for PHappiness\_98:  
(41, 54338), (Start: 54 @54389 has 2 MA's), (Start: 56 @54392 has 119 MA's), (Start: 60 @54404 has 73 MA's), (85, 54620), (107, 54782),

Gene: PMC\_97 Start: 52619, Stop: 53020, Start Num: 60  
Candidate Starts for PMC\_97:  
(6, 52205), (20, 52352), (37, 52514), (41, 52553), (Start: 54 @52604 has 2 MA's), (Start: 56 @52607 has 119 MA's), (Start: 60 @52619 has 73 MA's), (85, 52835), (98, 52943),

Gene: Pacc40\_96 Start: 54998, Stop: 55399, Start Num: 60  
Candidate Starts for Pacc40\_96:  
(37, 54893), (41, 54932), (Start: 54 @54983 has 2 MA's), (Start: 56 @54986 has 119 MA's), (Start: 60 @54998 has 73 MA's), (85, 55214), (107, 55376),

Gene: Panchino\_64 Start: 42391, Stop: 42801, Start Num: 58  
Candidate Starts for Panchino\_64:  
(Start: 43 @42319 has 1 MA's), (Start: 48 @42334 has 16 MA's), (50, 42340), (Start: 58 @42391 has 22 MA's), (69, 42484), (73, 42508), (80, 42571),

Gene: Parmesanjohn\_70 Start: 42596, Stop: 42994, Start Num: 58  
Candidate Starts for Parmesanjohn\_70:

(Start: 35 @42443 has 3 MA's), (Start: 48 @42539 has 16 MA's), (Start: 58 @42596 has 22 MA's), (69, 42689), (73, 42713), (101, 42950),

Gene: Phalconet\_99 Start: 53616, Stop: 54029, Start Num: 56

Candidate Starts for Phalconet\_99:

(38, 53523), (44, 53571), (Start: 56 @53616 has 119 MA's), (85, 53844), (96, 53949), (107, 54006),

Gene: PhancyPhin\_67 Start: 41342, Stop: 41740, Start Num: 58

Candidate Starts for PhancyPhin\_67:

(Start: 35 @41189 has 3 MA's), (Start: 43 @41270 has 1 MA's), (Start: 48 @41285 has 16 MA's), (50, 41291), (Start: 58 @41342 has 22 MA's), (73, 41459), (80, 41522), (101, 41696),

Gene: Phanphagia\_103 Start: 55371, Stop: 55784, Start Num: 56

Candidate Starts for Phanphagia\_103:

(Start: 56 @55371 has 119 MA's), (85, 55599), (96, 55704), (107, 55761),

Gene: Phasih\_95 Start: 52516, Stop: 52917, Start Num: 60

Candidate Starts for Phasih\_95:

(6, 52102), (14, 52168), (17, 52198), (20, 52249), (41, 52450), (Start: 54 @52501 has 2 MA's), (Start: 56 @52504 has 119 MA's), (Start: 60 @52516 has 73 MA's), (85, 52732), (107, 52894),

Gene: Phatniss\_96 Start: 52948, Stop: 53361, Start Num: 56

Candidate Starts for Phatniss\_96:

(38, 52855), (44, 52903), (Start: 56 @52948 has 119 MA's), (85, 53176), (96, 53281), (107, 53338),

Gene: PhesterPhotato\_101 Start: 53590, Stop: 54003, Start Num: 56

Candidate Starts for PhesterPhotato\_101:

(38, 53497), (44, 53545), (Start: 56 @53590 has 119 MA's), (85, 53818), (107, 53980),

Gene: Philonius\_70 Start: 42725, Stop: 43180, Start Num: 48

Candidate Starts for Philonius\_70:

(Start: 35 @42629 has 3 MA's), (Start: 43 @42710 has 1 MA's), (Start: 48 @42725 has 16 MA's), (50, 42731), (Start: 58 @42782 has 22 MA's), (73, 42899), (101, 43136),

Gene: Philus\_102 Start: 55678, Stop: 56091, Start Num: 56

Candidate Starts for Philus\_102:

(22, 55453), (24, 55483), (29, 55510), (44, 55633), (Start: 56 @55678 has 119 MA's), (85, 55906), (96, 56011), (107, 56068),

Gene: Phloss\_68 Start: 42003, Stop: 42401, Start Num: 58

Candidate Starts for Phloss\_68:

(Start: 35 @41850 has 3 MA's), (Start: 48 @41946 has 16 MA's), (Start: 58 @42003 has 22 MA's), (69, 42096), (73, 42120), (101, 42357),

Gene: Phrann\_65 Start: 43606, Stop: 44157, Start Num: 35

Candidate Starts for Phrann\_65:

(Start: 35 @43606 has 3 MA's), (Start: 43 @43687 has 1 MA's), (Start: 48 @43702 has 16 MA's), (50, 43708), (Start: 58 @43759 has 22 MA's), (73, 43876), (80, 43939), (101, 44113),

Gene: Piper2020\_93 Start: 54549, Stop: 54953, Start Num: 59

Candidate Starts for Piper2020\_93:

(25, 54351), (27, 54366), (Start: 59 @54549 has 11 MA's),

Gene: Pippy\_96 Start: 52818, Stop: 53231, Start Num: 56  
Candidate Starts for Pippy\_96:  
(Start: 56 @52818 has 119 MA's), (85, 53046), (96, 53151), (107, 53208),

Gene: Pipsqueaks\_71 Start: 42517, Stop: 42972, Start Num: 48  
Candidate Starts for Pipsqueaks\_71:  
(Start: 35 @42421 has 3 MA's), (Start: 48 @42517 has 16 MA's), (Start: 58 @42574 has 22 MA's),  
(69, 42667), (73, 42691), (101, 42928),

Gene: Plumbus\_97 Start: 51288, Stop: 51701, Start Num: 56  
Candidate Starts for Plumbus\_97:  
(Start: 56 @51288 has 119 MA's), (85, 51516),

Gene: Poenanya\_102 Start: 55112, Stop: 55513, Start Num: 60  
Candidate Starts for Poenanya\_102:  
(41, 55046), (Start: 54 @55097 has 2 MA's), (Start: 56 @55100 has 119 MA's), (Start: 60 @55112 has  
73 MA's), (85, 55328), (107, 55490),

Gene: Polka14\_102 Start: 55173, Stop: 55574, Start Num: 60  
Candidate Starts for Polka14\_102:  
(41, 55107), (Start: 54 @55158 has 2 MA's), (Start: 56 @55161 has 119 MA's), (Start: 60 @55173 has  
73 MA's), (85, 55389), (107, 55551),

Gene: Pollywog\_100 Start: 55231, Stop: 55632, Start Num: 60  
Candidate Starts for Pollywog\_100:  
(41, 55165), (Start: 54 @55216 has 2 MA's), (Start: 56 @55219 has 119 MA's), (Start: 60 @55231 has  
73 MA's), (85, 55447), (107, 55609),

Gene: PopTart\_89 Start: 51020, Stop: 51433, Start Num: 56  
Candidate Starts for PopTart\_89:  
(Start: 56 @51020 has 119 MA's), (85, 51248), (96, 51353), (107, 51410),

Gene: Priscilla\_99 Start: 54645, Stop: 55058, Start Num: 56  
Candidate Starts for Priscilla\_99:  
(Start: 56 @54645 has 119 MA's), (85, 54873), (96, 54978), (107, 55035),

Gene: Purgamenstris\_68 Start: 41483, Stop: 41881, Start Num: 58  
Candidate Starts for Purgamenstris\_68:  
(Start: 35 @41330 has 3 MA's), (Start: 43 @41411 has 1 MA's), (Start: 48 @41426 has 16 MA's),  
(Start: 58 @41483 has 22 MA's), (64, 41534), (73, 41600), (80, 41663), (101, 41837),

Gene: QueenHazel\_68 Start: 44336, Stop: 44764, Start Num: 57  
Candidate Starts for QueenHazel\_68:  
(Start: 57 @44336 has 34 MA's), (64, 44381), (74, 44456), (75, 44468), (91, 44633), (95, 44657), (107,  
44720),

Gene: QuickMath\_99 Start: 53439, Stop: 53840, Start Num: 60  
Candidate Starts for QuickMath\_99:  
(41, 53373), (Start: 54 @53424 has 2 MA's), (Start: 56 @53427 has 119 MA's), (Start: 60 @53439 has  
73 MA's), (85, 53655), (107, 53817),

Gene: Quico\_107 Start: 55508, Stop: 55912, Start Num: 59  
Candidate Starts for Quico\_107:

(Start: 59 @55508 has 11 MA's), (71, 55604), (73, 55619), (79, 55685), (85, 55727), (86, 55748), (96, 55832),

Gene: Radiance\_96 Start: 53516, Stop: 53917, Start Num: 60

Candidate Starts for Radiance\_96:

(41, 53450), (Start: 54 @53501 has 2 MA's), (Start: 56 @53504 has 119 MA's), (Start: 60 @53516 has 73 MA's), (85, 53732), (107, 53894),

Gene: Ramsey\_103 Start: 55412, Stop: 55813, Start Num: 60

Candidate Starts for Ramsey\_103:

(6, 55064), (20, 55211), (41, 55346), (Start: 54 @55397 has 2 MA's), (Start: 56 @55400 has 119 MA's), (Start: 60 @55412 has 73 MA's), (85, 55628), (107, 55790),

Gene: Raymond7\_61 Start: 41271, Stop: 41669, Start Num: 58

Candidate Starts for Raymond7\_61:

(Start: 35 @41118 has 3 MA's), (Start: 43 @41199 has 1 MA's), (Start: 48 @41214 has 16 MA's), (Start: 58 @41271 has 22 MA's), (64, 41322), (73, 41388), (80, 41451), (101, 41625),

Gene: Rebel\_64 Start: 39467, Stop: 39865, Start Num: 58

Candidate Starts for Rebel\_64:

(Start: 35 @39314 has 3 MA's), (Start: 43 @39395 has 1 MA's), (Start: 48 @39410 has 16 MA's), (Start: 58 @39467 has 22 MA's), (64, 39518), (73, 39584), (80, 39647), (101, 39821),

Gene: RedBird\_99 Start: 55151, Stop: 55552, Start Num: 60

Candidate Starts for RedBird\_99:

(41, 55085), (Start: 54 @55136 has 2 MA's), (Start: 56 @55139 has 119 MA's), (Start: 60 @55151 has 73 MA's), (85, 55367), (107, 55529),

Gene: Redi\_67 Start: 41425, Stop: 41880, Start Num: 48

Candidate Starts for Redi\_67:

(Start: 35 @41329 has 3 MA's), (Start: 43 @41410 has 1 MA's), (Start: 48 @41425 has 16 MA's), (Start: 58 @41482 has 22 MA's), (64, 41533), (73, 41599), (80, 41662), (101, 41836),

Gene: Renaud18\_108 Start: 54756, Stop: 55184, Start Num: 58

Candidate Starts for Renaud18\_108:

(8, 54363), (9, 54366), (11, 54372), (13, 54408), (19, 54486), (40, 54690), (52, 54741), (Start: 53 @54744 has 1 MA's), (Start: 58 @54756 has 22 MA's), (62, 54777), (64, 54807), (65, 54825), (72, 54864), (73, 54873), (76, 54900), (78, 54918), (79, 54933), (80, 54936), (81, 54942), (83, 54945), (86, 54981), (90, 55032), (93, 55056), (97, 55074), (100, 55083), (102, 55110), (103, 55113), (106, 55128), (107, 55131), (108, 55140), (110, 55173),

Gene: Rialto\_103 Start: 54755, Stop: 55168, Start Num: 56

Candidate Starts for Rialto\_103:

(Start: 56 @54755 has 119 MA's), (85, 54983), (107, 55145),

Gene: RitaG\_97 Start: 54206, Stop: 54607, Start Num: 60

Candidate Starts for RitaG\_97:

(41, 54140), (Start: 54 @54191 has 2 MA's), (Start: 56 @54194 has 119 MA's), (Start: 60 @54206 has 73 MA's), (85, 54422), (107, 54584),

Gene: Rockne\_101 Start: 52631, Stop: 53032, Start Num: 60

Candidate Starts for Rockne\_101:

(6, 52217), (20, 52364), (37, 52526), (41, 52565), (Start: 54 @52616 has 2 MA's), (Start: 56 @52619 has 119 MA's), (Start: 60 @52631 has 73 MA's), (85, 52847), (98, 52955),

Gene: RockyHorror\_102 Start: 53316, Stop: 53717, Start Num: 60

Candidate Starts for RockyHorror\_102:

(41, 53250), (Start: 54 @53301 has 2 MA's), (Start: 56 @53304 has 119 MA's), (Start: 60 @53316 has 73 MA's), (85, 53532), (96, 53637),

Gene: Royals2015\_102 Start: 52759, Stop: 53163, Start Num: 59

Candidate Starts for Royals2015\_102:

(47, 52714), (49, 52717), (51, 52729), (52, 52741), (Start: 59 @52759 has 11 MA's), (71, 52855), (73, 52870), (79, 52936), (85, 52978), (86, 52999), (87, 53008), (96, 53083),

Gene: Rubeelu\_64 Start: 40322, Stop: 40789, Start Num: 48

Candidate Starts for Rubeelu\_64:

(Start: 35 @40226 has 3 MA's), (46, 40319), (Start: 48 @40322 has 16 MA's), (Start: 58 @40379 has 22 MA's), (69, 40472), (73, 40496), (80, 40559),

Gene: Ruby\_95 Start: 54182, Stop: 54583, Start Num: 60

Candidate Starts for Ruby\_95:

(41, 54116), (Start: 54 @54167 has 2 MA's), (Start: 56 @54170 has 119 MA's), (Start: 60 @54182 has 73 MA's), (85, 54398), (107, 54560),

Gene: Ryadel\_27 Start: 11859, Stop: 12293, Start Num: 57

Candidate Starts for Ryadel\_27:

(Start: 57 @11859 has 34 MA's), (64, 11913), (67, 11949), (68, 11952), (70, 11961), (73, 11979), (74, 11991), (75, 12000), (76, 12003), (91, 12144), (99, 12186), (101, 12213), (102, 12216),

Gene: SG4\_99 Start: 54996, Stop: 55397, Start Num: 60

Candidate Starts for SG4\_99:

(6, 54582), (14, 54648), (17, 54678), (20, 54729), (41, 54930), (Start: 54 @54981 has 2 MA's), (Start: 56 @54984 has 119 MA's), (Start: 60 @54996 has 73 MA's), (85, 55212), (96, 55317), (107, 55374),

Gene: Saal\_96 Start: 54209, Stop: 54622, Start Num: 56

Candidate Starts for Saal\_96:

(Start: 56 @54209 has 119 MA's), (85, 54437), (98, 54545),

Gene: Sabbb\_101 Start: 52175, Stop: 52588, Start Num: 56

Candidate Starts for Sabbb\_101:

(38, 52082), (44, 52130), (Start: 56 @52175 has 119 MA's), (85, 52403), (96, 52508), (107, 52565),

Gene: Sandalphon\_98 Start: 55202, Stop: 55615, Start Num: 56

Candidate Starts for Sandalphon\_98:

(Start: 56 @55202 has 119 MA's), (85, 55430), (98, 55538),

Gene: Sarma624\_100 Start: 51144, Stop: 51557, Start Num: 56

Candidate Starts for Sarma624\_100:

(Start: 56 @51144 has 119 MA's), (85, 51372), (96, 51477), (107, 51534),

Gene: Sassafras\_100 Start: 53468, Stop: 53869, Start Num: 60

Candidate Starts for Sassafras\_100:

(41, 53402), (Start: 54 @53453 has 2 MA's), (Start: 56 @53456 has 119 MA's), (Start: 60 @53468 has 73 MA's), (85, 53684), (107, 53846),

Gene: SassyB\_89 Start: 51020, Stop: 51433, Start Num: 56  
Candidate Starts for SassyB\_89:  
(Start: 56 @51020 has 119 MA's), (85, 51248), (96, 51353), (107, 51410),

Gene: Sbash\_85 Start: 52628, Stop: 53071, Start Num: 57  
Candidate Starts for Sbash\_85:  
(Start: 57 @52628 has 34 MA's), (70, 52724), (74, 52754), (75, 52766), (89, 52907), (91, 52931), (92, 52940),

Gene: Schnauzer\_72 Start: 42596, Stop: 42994, Start Num: 58  
Candidate Starts for Schnauzer\_72:  
(Start: 35 @42443 has 3 MA's), (Start: 48 @42539 has 16 MA's), (Start: 58 @42596 has 22 MA's),  
(69, 42689), (73, 42713), (101, 42950),

Gene: SchoolBus\_24 Start: 11046, Stop: 11480, Start Num: 57  
Candidate Starts for SchoolBus\_24:  
(Start: 57 @11046 has 34 MA's), (64, 11100), (67, 11136), (68, 11139), (70, 11148), (73, 11166), (74, 11178), (75, 11187), (76, 11190), (91, 11331), (99, 11373), (101, 11400), (102, 11403),

Gene: Schuy\_26 Start: 11438, Stop: 11872, Start Num: 57  
Candidate Starts for Schuy\_26:  
(Start: 57 @11438 has 34 MA's), (64, 11492), (67, 11528), (68, 11531), (70, 11540), (73, 11558), (74, 11570), (75, 11579), (76, 11582), (91, 11723), (99, 11765), (101, 11792), (102, 11795),

Gene: Scitech\_65 Start: 41999, Stop: 42397, Start Num: 58  
Candidate Starts for Scitech\_65:  
(Start: 35 @41846 has 3 MA's), (Start: 48 @41942 has 16 MA's), (Start: 58 @41999 has 22 MA's),  
(69, 42092), (73, 42116), (101, 42353),

Gene: Scottish\_98 Start: 53045, Stop: 53446, Start Num: 60  
Candidate Starts for Scottish\_98:  
(41, 52979), (Start: 54 @53030 has 2 MA's), (Start: 56 @53033 has 119 MA's), (Start: 60 @53045 has 73 MA's), (85, 53261), (107, 53423),

Gene: Seabastian\_105 Start: 54835, Stop: 55248, Start Num: 56  
Candidate Starts for Seabastian\_105:  
(Start: 56 @54835 has 119 MA's), (85, 55063), (107, 55225),

Gene: Seagreen\_99 Start: 54122, Stop: 54535, Start Num: 56  
Candidate Starts for Seagreen\_99:  
(38, 54029), (44, 54077), (Start: 56 @54122 has 119 MA's), (85, 54350), (96, 54455), (107, 54512),

Gene: Shauna1\_100 Start: 54987, Stop: 55400, Start Num: 56  
Candidate Starts for Shauna1\_100:  
(Start: 56 @54987 has 119 MA's), (85, 55215), (96, 55320), (107, 55377),

Gene: ShiLan\_101 Start: 56226, Stop: 56639, Start Num: 56  
Candidate Starts for ShiLan\_101:  
(Start: 56 @56226 has 119 MA's), (85, 56454), (98, 56562),

Gene: Shida\_25 Start: 11343, Stop: 11777, Start Num: 57  
Candidate Starts for Shida\_25:

(Start: 57 @11343 has 34 MA's), (64, 11397), (67, 11433), (68, 11436), (70, 11445), (73, 11463), (74, 11475), (75, 11484), (76, 11487), (91, 11628), (99, 11670), (101, 11697), (102, 11700),

Gene: ShowerHandel\_99 Start: 53491, Stop: 53904, Start Num: 56

Candidate Starts for ShowerHandel\_99:

(Start: 56 @53491 has 119 MA's), (85, 53719), (96, 53824), (107, 53881),

Gene: ShrimpFriedEgg\_68 Start: 41482, Stop: 41880, Start Num: 58

Candidate Starts for ShrimpFriedEgg\_68:

(Start: 35 @41329 has 3 MA's), (Start: 43 @41410 has 1 MA's), (Start: 48 @41425 has 16 MA's), (Start: 58 @41482 has 22 MA's), (64, 41533), (73, 41599), (80, 41662), (101, 41836),

Gene: ShroomBoi\_96 Start: 53551, Stop: 53952, Start Num: 60

Candidate Starts for ShroomBoi\_96:

(6, 53137), (14, 53203), (17, 53233), (20, 53284), (41, 53485), (Start: 54 @53536 has 2 MA's), (Start: 56 @53539 has 119 MA's), (Start: 60 @53551 has 73 MA's), (85, 53767), (107, 53929),

Gene: Shweta\_64 Start: 41425, Stop: 41976, Start Num: 35

Candidate Starts for Shweta\_64:

(Start: 35 @41425 has 3 MA's), (Start: 43 @41506 has 1 MA's), (Start: 48 @41521 has 16 MA's), (50, 41527), (Start: 58 @41578 has 22 MA's), (73, 41695), (80, 41758), (101, 41932),

Gene: SiSi\_94 Start: 52735, Stop: 53136, Start Num: 60

Candidate Starts for SiSi\_94:

(41, 52669), (Start: 54 @52720 has 2 MA's), (Start: 56 @52723 has 119 MA's), (Start: 60 @52735 has 73 MA's), (85, 52951), (107, 53113),

Gene: Silvafighter\_72 Start: 42139, Stop: 42537, Start Num: 58

Candidate Starts for Silvafighter\_72:

(Start: 35 @41986 has 3 MA's), (Start: 48 @42082 has 16 MA's), (Start: 58 @42139 has 22 MA's), (69, 42232), (73, 42256), (101, 42493),

Gene: Silvy\_66 Start: 43172, Stop: 43627, Start Num: 48

Candidate Starts for Silvy\_66:

(Start: 35 @43076 has 3 MA's), (Start: 48 @43172 has 16 MA's), (Start: 58 @43229 has 22 MA's), (69, 43322), (73, 43346), (101, 43583),

Gene: SimranZ1\_95 Start: 52098, Stop: 52499, Start Num: 60

Candidate Starts for SimranZ1\_95:

(10, 51708), (16, 51774), (17, 51780), (20, 51831), (41, 52032), (Start: 54 @52083 has 2 MA's), (Start: 56 @52086 has 119 MA's), (Start: 60 @52098 has 73 MA's), (85, 52314), (107, 52476),

Gene: SkinnyPete\_66 Start: 42308, Stop: 42763, Start Num: 48

Candidate Starts for SkinnyPete\_66:

(Start: 35 @42212 has 3 MA's), (Start: 43 @42293 has 1 MA's), (Start: 48 @42308 has 16 MA's), (50, 42314), (Start: 58 @42365 has 22 MA's), (73, 42482), (80, 42545), (101, 42719),

Gene: Smooch\_28 Start: 12792, Stop: 13226, Start Num: 57

Candidate Starts for Smooch\_28:

(Start: 57 @12792 has 34 MA's), (64, 12846), (67, 12882), (68, 12885), (70, 12894), (73, 12912), (74, 12924), (75, 12933), (76, 12936), (91, 13077), (99, 13119), (101, 13146), (102, 13149),

Gene: Smurph\_70 Start: 42596, Stop: 42994, Start Num: 58



Candidate Starts for Smurph\_70:

(Start: 35 @42443 has 3 MA's), (Start: 48 @42539 has 16 MA's), (Start: 58 @42596 has 22 MA's), (69, 42689), (73, 42713), (101, 42950),

Gene: Snekmaggedon\_62 Start: 40093, Stop: 40563, Start Num: 43

Candidate Starts for Snekmaggedon\_62:

(Start: 43 @40093 has 1 MA's), (Start: 48 @40108 has 16 MA's), (50, 40114), (Start: 58 @40165 has 22 MA's), (73, 40282), (80, 40345), (101, 40519),

Gene: Sparkdehlily\_105 Start: 52704, Stop: 53117, Start Num: 56

Candidate Starts for Sparkdehlily\_105:

(Start: 56 @52704 has 119 MA's), (85, 52932),

Gene: Spartacus\_105 Start: 56830, Stop: 57231, Start Num: 60

Candidate Starts for Spartacus\_105:

(6, 56419), (20, 56566), (37, 56728), (41, 56764), (Start: 54 @56815 has 2 MA's), (Start: 56 @56818 has 119 MA's), (Start: 60 @56830 has 73 MA's), (85, 57046), (107, 57208),

Gene: Spikelee\_99 Start: 55210, Stop: 55611, Start Num: 60

Candidate Starts for Spikelee\_99:

(6, 54862), (20, 55009), (41, 55144), (Start: 54 @55195 has 2 MA's), (Start: 56 @55198 has 119 MA's), (Start: 60 @55210 has 73 MA's), (85, 55426), (98, 55534),

Gene: SpongeBob\_63 Start: 40165, Stop: 40563, Start Num: 58

Candidate Starts for SpongeBob\_63:

(Start: 43 @40093 has 1 MA's), (Start: 48 @40108 has 16 MA's), (50, 40114), (Start: 58 @40165 has 22 MA's), (73, 40282), (80, 40345), (101, 40519),

Gene: Spoonbill\_98 Start: 52139, Stop: 52552, Start Num: 56

Candidate Starts for Spoonbill\_98:

(Start: 56 @52139 has 119 MA's), (85, 52367), (98, 52475),

Gene: Squirty\_97 Start: 57108, Stop: 57521, Start Num: 56

Candidate Starts for Squirty\_97:

(38, 57015), (44, 57063), (Start: 56 @57108 has 119 MA's), (85, 57336), (96, 57441), (107, 57498),

Gene: StAnnes\_102 Start: 55035, Stop: 55448, Start Num: 56

Candidate Starts for StAnnes\_102:

(38, 54942), (44, 54990), (Start: 56 @55035 has 119 MA's), (85, 55263), (107, 55425),

Gene: Stap\_93 Start: 50763, Stop: 51164, Start Num: 60

Candidate Starts for Stap\_93:

(6, 50349), (20, 50496), (37, 50658), (41, 50697), (Start: 54 @50748 has 2 MA's), (Start: 56 @50751 has 119 MA's), (Start: 60 @50763 has 73 MA's), (85, 50979), (96, 51084), (107, 51141),

Gene: Starcevich\_100 Start: 54868, Stop: 55281, Start Num: 56

Candidate Starts for Starcevich\_100:

(Start: 56 @54868 has 119 MA's), (85, 55096), (107, 55258),

Gene: Strokeseat\_96 Start: 51901, Stop: 52314, Start Num: 56

Candidate Starts for Strokeseat\_96:

(38, 51808), (44, 51856), (Start: 56 @51901 has 119 MA's), (85, 52129), (96, 52234), (107, 52291),

Gene: SuperGrey\_98 Start: 55787, Stop: 56200, Start Num: 56  
Candidate Starts for SuperGrey\_98:  
(38, 55694), (44, 55742), (Start: 56 @55787 has 119 MA's), (85, 56015), (96, 56120), (107, 56177),

Gene: SwagPiggett\_100 Start: 55345, Stop: 55758, Start Num: 56  
Candidate Starts for SwagPiggett\_100:  
(Start: 56 @55345 has 119 MA's), (85, 55573), (96, 55678), (107, 55735),

Gene: TChen\_95 Start: 53782, Stop: 54219, Start Num: 53  
Candidate Starts for TChen\_95:  
(40, 53728), (52, 53779), (Start: 53 @53782 has 1 MA's), (Start: 58 @53794 has 22 MA's), (61, 53809), (63, 53827), (66, 53878), (72, 53902), (73, 53911), (76, 53938), (80, 53974), (81, 53980), (86, 54019), (87, 54028), (91, 54076), (97, 54112), (100, 54121), (103, 54151), (110, 54211),

Gene: TDanisky\_106 Start: 52704, Stop: 53117, Start Num: 56  
Candidate Starts for TDanisky\_106:  
(Start: 56 @52704 has 119 MA's), (85, 52932),

Gene: Taj\_104 Start: 54993, Stop: 55406, Start Num: 56  
Candidate Starts for Taj\_104:  
(Start: 56 @54993 has 119 MA's), (85, 55221), (96, 55326), (107, 55383),

Gene: Tapioca\_68 Start: 43101, Stop: 43499, Start Num: 58  
Candidate Starts for Tapioca\_68:  
(Start: 35 @42948 has 3 MA's), (Start: 48 @43044 has 16 MA's), (Start: 58 @43101 has 22 MA's), (69, 43194), (73, 43218), (101, 43455),

Gene: TelAviv\_22 Start: 11043, Stop: 11477, Start Num: 57  
Candidate Starts for TelAviv\_22:  
(Start: 57 @11043 has 34 MA's), (64, 11097), (67, 11133), (68, 11136), (70, 11145), (73, 11163), (74, 11175), (75, 11184), (76, 11187), (91, 11328), (99, 11370), (101, 11397), (102, 11400),

Gene: ThetaBob\_101 Start: 52977, Stop: 53405, Start Num: 58  
Candidate Starts for ThetaBob\_101:  
(5, 52563), (7, 52587), (15, 52659), (18, 52710), (40, 52911), (52, 52962), (Start: 53 @52965 has 1 MA's), (Start: 58 @52977 has 22 MA's), (62, 52998), (64, 53028), (65, 53046), (72, 53085), (73, 53094), (76, 53121), (78, 53139), (79, 53154), (80, 53157), (81, 53163), (83, 53166), (86, 53202), (90, 53253), (93, 53277), (97, 53295), (100, 53304), (102, 53331), (103, 53334), (106, 53349), (107, 53352), (108, 53361), (110, 53394),

Gene: TootsiePop\_88 Start: 54301, Stop: 54705, Start Num: 59  
Candidate Starts for TootsiePop\_88:  
(25, 54103), (27, 54118), (Start: 59 @54301 has 11 MA's),

Gene: Tootsieroll\_92 Start: 54137, Stop: 54550, Start Num: 56  
Candidate Starts for Tootsieroll\_92:  
(38, 54044), (44, 54092), (Start: 56 @54137 has 119 MA's), (85, 54365), (96, 54470), (107, 54527),

Gene: Totinger\_101 Start: 54268, Stop: 54681, Start Num: 56  
Candidate Starts for Totinger\_101:  
(Start: 56 @54268 has 119 MA's), (85, 54496), (107, 54658),

Gene: Tweety\_99 Start: 54399, Stop: 54800, Start Num: 60

Candidate Starts for Tweety\_99:

(41, 54333), (Start: 54 @54384 has 2 MA's), (Start: 56 @54387 has 119 MA's), (Start: 60 @54399 has 73 MA's), (85, 54615), (96, 54720), (107, 54777),

Gene: UncleRicky\_98 Start: 52505, Stop: 52906, Start Num: 60

Candidate Starts for UncleRicky\_98:

(6, 52091), (20, 52238), (37, 52400), (41, 52439), (Start: 54 @52490 has 2 MA's), (Start: 56 @52493 has 119 MA's), (Start: 60 @52505 has 73 MA's), (85, 52721), (98, 52829),

Gene: VRedHorse\_99 Start: 51255, Stop: 51656, Start Num: 60

Candidate Starts for VRedHorse\_99:

(6, 50907), (20, 51054), (41, 51189), (Start: 54 @51240 has 2 MA's), (Start: 56 @51243 has 119 MA's), (Start: 60 @51255 has 73 MA's), (85, 51471), (107, 51633),

Gene: Velveteen\_95 Start: 51144, Stop: 51557, Start Num: 56

Candidate Starts for Velveteen\_95:

(Start: 56 @51144 has 119 MA's), (85, 51372), (96, 51477), (107, 51534),

Gene: Veteran\_89 Start: 52603, Stop: 53004, Start Num: 60

Candidate Starts for Veteran\_89:

(41, 52537), (Start: 54 @52588 has 2 MA's), (Start: 56 @52591 has 119 MA's), (Start: 60 @52603 has 73 MA's), (85, 52819), (107, 52981),

Gene: Vorrps\_25 Start: 11277, Stop: 11711, Start Num: 57

Candidate Starts for Vorrps\_25:

(Start: 57 @11277 has 34 MA's), (64, 11331), (67, 11367), (68, 11370), (70, 11379), (73, 11397), (74, 11409), (75, 11418), (76, 11421), (91, 11562), (99, 11604), (101, 11631), (102, 11634),

Gene: Wachhund\_95 Start: 50439, Stop: 50852, Start Num: 56

Candidate Starts for Wachhund\_95:

(Start: 56 @50439 has 119 MA's), (85, 50667), (107, 50829),

Gene: Wee\_101 Start: 55069, Stop: 55482, Start Num: 56

Candidate Starts for Wee\_101:

(Start: 56 @55069 has 119 MA's), (85, 55297), (96, 55402), (107, 55459),

Gene: Whatsapiecost\_92 Start: 48794, Stop: 49207, Start Num: 56

Candidate Starts for Whatsapiecost\_92:

(38, 48701), (44, 48749), (Start: 56 @48794 has 119 MA's), (85, 49022), (96, 49127), (107, 49184),

Gene: Wildflower\_25 Start: 11300, Stop: 11734, Start Num: 57

Candidate Starts for Wildflower\_25:

(Start: 57 @11300 has 34 MA's), (64, 11354), (67, 11390), (68, 11393), (70, 11402), (73, 11420), (74, 11432), (75, 11441), (76, 11444), (91, 11585), (99, 11627), (101, 11654), (102, 11657),

Gene: WillSterrel\_96 Start: 53837, Stop: 54238, Start Num: 60

Candidate Starts for WillSterrel\_96:

(6, 53423), (20, 53570), (37, 53732), (41, 53771), (Start: 54 @53822 has 2 MA's), (Start: 56 @53825 has 119 MA's), (Start: 60 @53837 has 73 MA's), (85, 54053), (107, 54215),

Gene: Winget\_25 Start: 11319, Stop: 11753, Start Num: 57

Candidate Starts for Winget\_25:

(Start: 57 @11319 has 34 MA's), (64, 11373), (67, 11409), (68, 11412), (70, 11421), (73, 11439), (74, 11451), (75, 11460), (76, 11463), (91, 11604), (99, 11646), (101, 11673), (102, 11676),

Gene: XFactor\_89 Start: 51585, Stop: 51998, Start Num: 56

Candidate Starts for XFactor\_89:

(Start: 56 @51585 has 119 MA's), (85, 51813), (96, 51918), (107, 51975),

Gene: Xeno\_67 Start: 41282, Stop: 41680, Start Num: 58

Candidate Starts for Xeno\_67:

(Start: 35 @41129 has 3 MA's), (Start: 43 @41210 has 1 MA's), (Start: 48 @41225 has 16 MA's), (50, 41231), (Start: 58 @41282 has 22 MA's), (73, 41399), (80, 41462), (101, 41636),

Gene: Xerxes\_70 Start: 42536, Stop: 42991, Start Num: 48

Candidate Starts for Xerxes\_70:

(Start: 35 @42440 has 3 MA's), (Start: 48 @42536 has 16 MA's), (Start: 58 @42593 has 22 MA's), (69, 42686), (73, 42710), (101, 42947),

Gene: Xula\_69 Start: 44823, Stop: 45251, Start Num: 57

Candidate Starts for Xula\_69:

(Start: 57 @44823 has 34 MA's), (64, 44868), (74, 44943), (75, 44955), (91, 45120), (107, 45207),

Gene: Yorick\_94 Start: 54886, Stop: 55299, Start Num: 56

Candidate Starts for Yorick\_94:

(Start: 56 @54886 has 119 MA's), (85, 55114), (107, 55276),

Gene: YungJamal\_27 Start: 11595, Stop: 12029, Start Num: 57

Candidate Starts for YungJamal\_27:

(Start: 57 @11595 has 34 MA's), (64, 11649), (67, 11685), (68, 11688), (70, 11697), (73, 11715), (74, 11727), (75, 11736), (76, 11739), (91, 11880), (99, 11922), (101, 11949), (102, 11952),

Gene: Zakhe101\_25 Start: 11445, Stop: 11879, Start Num: 57

Candidate Starts for Zakhe101\_25:

(Start: 57 @11445 has 34 MA's), (64, 11499), (67, 11535), (68, 11538), (70, 11547), (73, 11565), (74, 11577), (75, 11586), (76, 11589), (91, 11730), (99, 11772), (102, 11802),

Gene: Zerg\_96 Start: 53460, Stop: 53873, Start Num: 56

Candidate Starts for Zerg\_96:

(38, 53367), (44, 53415), (Start: 56 @53460 has 119 MA's), (85, 53688), (96, 53793), (107, 53850),

Gene: Zizzle\_101 Start: 55536, Stop: 55949, Start Num: 56

Candidate Starts for Zizzle\_101:

(Start: 56 @55536 has 119 MA's), (85, 55764), (96, 55869), (107, 55926),