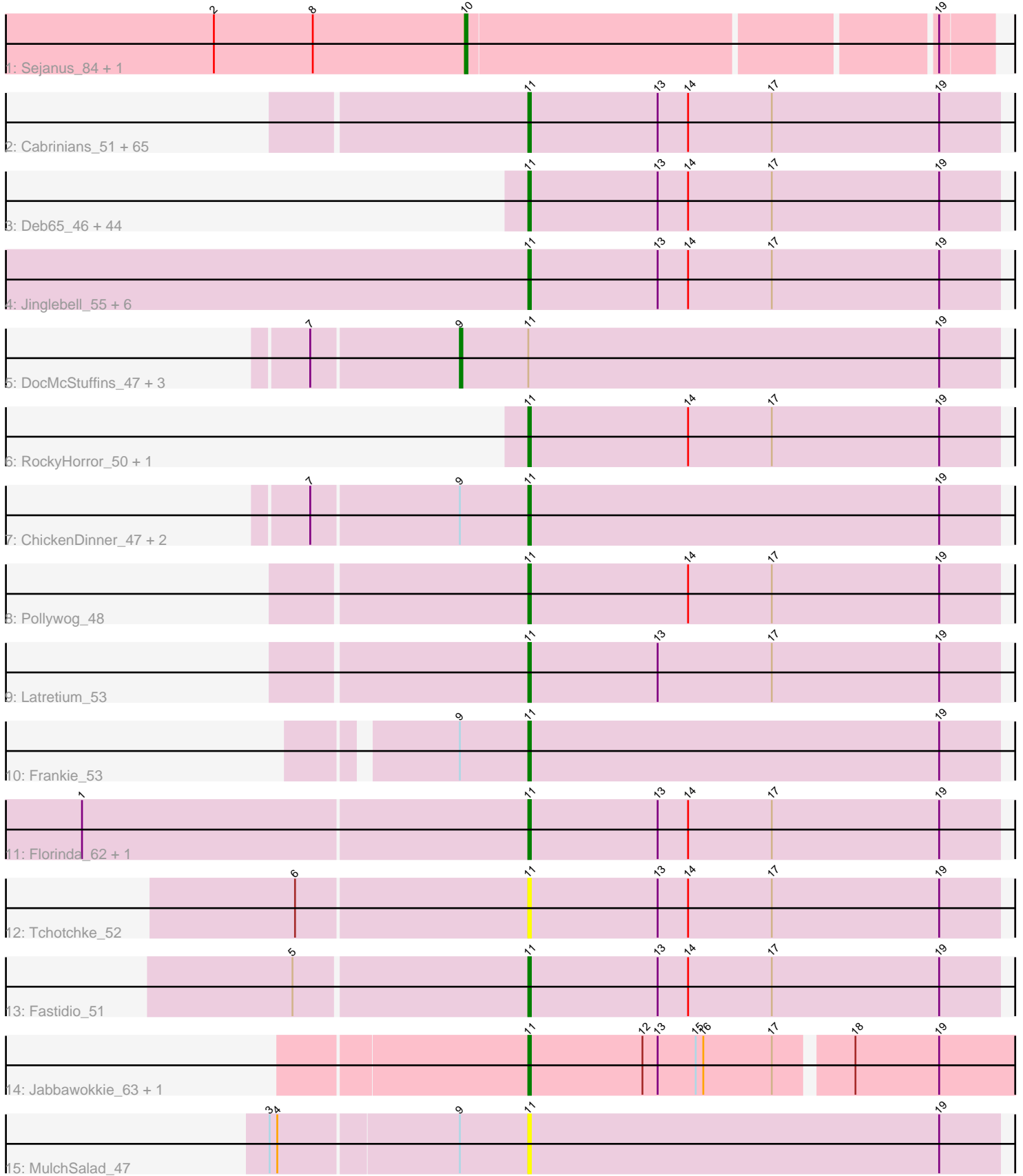


Pham 294520



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 294520 Report

This analysis was run 04/18/26 on database version 643.

Pham number 294520 has 139 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Sejanus\_84, Caterpie\_88
- Track 2 : Cabrinians\_51, TDanisky\_54, Yorick\_49, Madiba\_46, Jarcob\_50, Seagreen\_51, Eradicator\_43, Girr\_50, Dante\_49, MulchExplorer\_53, Llij\_47, LilMoolah\_49, Lizziana\_56, Leozinho\_51, Kimberlium\_53, Karhdo\_49, Drago\_49, QuickMath\_52, Martik\_50, Emmaloid\_51, Starceвич\_50, Koella\_44, PopTart\_45, Avani\_58, ShowerHandel\_52, Chevrolet\_56, Nitzel\_45, NormanBulbieJr\_50, Maravista\_52, Marker\_50, DotProduct\_46, Priscilla\_50, Ibhubesi\_49, MadMen\_44, Tweety\_49, Ruby\_48, Royals2015\_52, ArcusAngelus\_53, Sabbb\_56, Mahavrat\_48, Peridot\_53, Totinger\_50, Bubbles123\_47, ShiLan\_49, Nivrat\_47, JalFarm20\_59, GigiOuiOui\_47, MisterCuddles\_50, Aubs\_49, Slim\_51, FreddyB\_50, UncleRicky\_50, Doug\_52, Tootsieroll\_53, Eish\_50, Crumble\_45, Che8\_52, Sparkdehlily\_54, Grimmer\_61, DirtMcgirt\_50, Burwell21\_48, LittleShirley\_50, Phatniss\_49, Nichirin\_55, Plumbus\_52, SassyB\_45
- Track 3 : Deb65\_46, OlympiaSaint\_50, BlueCrab\_47, Dorothy\_47, Gandolph\_51, Empress\_49, Doomphist\_49, Job42\_50, Poenanya\_49, Harley\_52, Cornie\_43, Spoonbill\_48, Blexus\_48, Scottish\_49, Leperchaun\_43, OwlsT2W\_49, Kersh\_53, Veteran\_47, Daenerys\_45, Stap\_49, GUmbe\_47, PMC\_44, Rockne\_48, PHappiness\_46, Mantra\_47, Radiance\_50, Boomer\_52, JoeyJr\_46, Krakatau\_48, RitaG\_46, DaddyRickover\_50, PhlipPhlop\_49, Oksu\_54, IbOuu\_50, Spikelee\_56, Polka14\_47, Nimbo\_45, Hamulus\_51, Ramsey\_51, Pacc40\_45, SiSi\_49, BodEinwohner17\_50, RedBird\_47, KingMidas\_50, BuzzLyseyear\_55
- Track 4 : Jinglebell\_55, Ochi17\_53, Llama\_55, Modragons\_54, AlpineSix\_55, Seabastian\_55, OfUltron\_55
- Track 5 : DocMcStuffins\_47, Aloeri\_48, Misha28\_46, TootsiePop\_46
- Track 6 : RockyHorror\_50, Zerg\_49
- Track 7 : ChickenDinner\_47, Awesomesauce\_48, Piper2020\_48
- Track 8 : Pollywog\_48
- Track 9 : Latretium\_53
- Track 10 : Frankie\_53
- Track 11 : Florinda\_62, Quico\_59
- Track 12 : Tchotchke\_52
- Track 13 : Fastidio\_51
- Track 14 : Jabbawokkie\_63, Zapner\_62
- Track 15 : MulchSalad\_47

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

The start number called the most often in the published annotations is 11, it was called in 126 of the 131 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AlpineSix\_55, ArcusAngelus\_53, Aubs\_49, Avani\_58, Awesomesauce\_48, Blexus\_48, BlueCrab\_47, BodEinwohner17\_50, Boomer\_52, Bubbles123\_47, Burwell21\_48, BuzzLyseyear\_55, Cabrinians\_51, Che8\_52, Chevrolet\_56, ChickenDinner\_47, Cornie\_43, Crumble\_45, DaddyRickover\_50, Daenerys\_45, Dante\_49, Deb65\_46, DirtMcgirt\_50, Doomphist\_49, Dorothy\_47, DotProduct\_46, Doug\_52, Drago\_49, Eish\_50, Emmaloid\_51, Empress\_49, Eradicator\_43, Fastidio\_51, Florinda\_62, Frankie\_53, FreddyB\_50, GUmbe\_47, Gandolph\_51, GigiOuiOui\_47, Girr\_50, Grimmer\_61, Hamulus\_51, Harley\_52, IbOuu\_50, Ibhubesi\_49, Jabbawokkie\_63, JalFarm20\_59, Jarcob\_50, Jinglebell\_55, Job42\_50, JoeyJr\_46, Karhdo\_49, Kersh\_53, Kimberlium\_53, KingMidas\_50, Koella\_44, Krakatau\_48, Latretium\_53, Leozinho\_51, Leperchaun\_43, LilMoolah\_49, LittleShirley\_50, Lizziana\_56, Llama\_55, Llij\_47, MadMen\_44, Madiba\_46, Mahavrat\_48, Mantra\_47, Maravista\_52, Marker\_50, Martik\_50, MisterCuddles\_50, Modragons\_54, MulchExplorer\_53, MulchSalad\_47, Nichirin\_55, Nimbo\_45, Nitzel\_45, Nivrat\_47, NormanBulbieJr\_50, Ochi17\_53, OfUltron\_55, Oksu\_54, OlympiaSaint\_50, OwlsT2W\_49, PHappiness\_46, PMC\_44, Pacc40\_45, Peridot\_53, Phatniss\_49, PhilipPhlop\_49, Piper2020\_48, Plumbus\_52, Poenanya\_49, Polka14\_47, Pollywog\_48, PopTart\_45, Priscilla\_50, QuickMath\_52, Quico\_59, Radiance\_50, Ramsey\_51, RedBird\_47, RitaG\_46, Rockne\_48, RockyHorror\_50, Royals2015\_52, Ruby\_48, Sabb\_56, SassyB\_45, Scottish\_49, Seabastian\_55, Seagreen\_51, ShiLan\_49, ShowerHandel\_52, SiSi\_49, Slim\_51, Sparkdehlily\_54, Spikelee\_56, Spoonbill\_48, Stap\_49, Starceovich\_50, TDanisky\_54, Tchotchke\_52, Tootsieroll\_53, Totinger\_50, Tweety\_49, UncleRicky\_50, Veteran\_47, Yorick\_49, Zapner\_62, Zerg\_49,

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

- Aloeri\_48, DocMcStuffins\_47, Misha28\_46, TootsiePop\_46,

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

- Caterpie\_88, Sejanus\_84,

### **Summary by start number:**

Start 9:

- Found in 9 of 139 ( 6.5% ) of genes in pham
- Manual Annotations of this start: 4 of 131
- Called 44.4% of time when present
- Phage (with cluster) where this start called: Aloeri\_48 (F1), DocMcStuffins\_47 (F1), Misha28\_46 (F1), TootsiePop\_46 (F1),

Start 10:

- Found in 2 of 139 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 131
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Caterpie\_88 (AD), Sejanus\_84 (AD),

Start 11:

- Found in 137 of 139 ( 98.6% ) of genes in pham
- Manual Annotations of this start: 126 of 131
- Called 97.1% of time when present
- Phage (with cluster) where this start called: AlpineSix\_55 (F1), ArcusAngelus\_53 (F1), Aubs\_49 (F1), Avani\_58 (F2), Awesomesauce\_48 (F1), Blexus\_48 (F1), BlueCrab\_47 (F1), BodEinwohner17\_50 (F1), Boomer\_52 (F1), Bubbles123\_47 (F1), Burwell21\_48 (F1), BuzzLyseyear\_55 (F1), Cabrinians\_51 (F1), Che8\_52 (F1), Chevrolet\_56 (F1), ChickenDinner\_47 (F1), Cornie\_43 (F5), Crumble\_45 (F1), DaddyRickover\_50 (F1), Daenerys\_45 (F1), Dante\_49 (F1), Deb65\_46 (F1), DirtMcgirt\_50 (F1), Doomphist\_49 (F1), Dorothy\_47 (F1), DotProduct\_46 (F1), Doug\_52 (F1), Drago\_49 (F1), Eish\_50 (F1), Emmaloid\_51 (F1), Empress\_49 (F1), Eradicator\_43 (F1), Fastidio\_51 (F1), Florinda\_62 (F1), Frankie\_53 (F1), FreddyB\_50 (F1), GUmbie\_47 (F1), Gandolph\_51 (F1), GigiOuiOui\_47 (F1), Girr\_50 (F1), Grimmer\_61 (F1), Hamulus\_51 (F1), Harley\_52 (F1), IbOuu\_50 (F1), Ibhubesi\_49 (F1), Jabbawokkie\_63 (F2), JalFarm20\_59 (F1), Jarcob\_50 (F1), Jinglebell\_55 (F1), Job42\_50 (F1), JoeyJr\_46 (F1), Karhdo\_49 (F1), Kersh\_53 (F1), Kimberlium\_53 (F1), KingMidas\_50 (F1), Koella\_44 (F1), Krakatau\_48 (F1), Latretium\_53 (F1), Leozinho\_51 (F1), Leperchaun\_43 (F1), LilMoolah\_49 (F1), LittleShirley\_50 (F1), Lizziana\_56 (F1), Llama\_55 (F1), Llij\_47 (F1), MadMen\_44 (F1), Madiba\_46 (F1), Mahavrat\_48 (F1), Mantra\_47 (F1), Maravista\_52 (F1), Marker\_50 (F1), Martik\_50 (F1), MisterCuddles\_50 (F1), Modragons\_54 (F1), MulchExplorer\_53 (F1), MulchSalad\_47 (F7), Nichirin\_55 (F1), Nimbo\_45 (F1), Nitzel\_45 (F1), Nivrat\_47 (F1), NormanBulbieJr\_50 (F1), Ochi17\_53 (F1), OfUltron\_55 (F1), Oksu\_54 (F1), OlympiaSaint\_50 (F1), OwlsT2W\_49 (F1), PHappiness\_46 (F1), PMC\_44 (F1), Pacc40\_45 (F1), Peridot\_53 (F1), Phatniss\_49 (F1), PhilipPhlop\_49 (F1), Piper2020\_48 (F1), Plumbus\_52 (F1), Poenanya\_49 (F1), Polka14\_47 (F1), Pollywog\_48 (F1), PopTart\_45 (F1), Priscilla\_50 (F1), QuickMath\_52 (F1), Quico\_59 (F1), Radiance\_50 (F1), Ramsey\_51 (F1), RedBird\_47 (F1), RitaG\_46 (F1), Rockne\_48 (F1), RockyHorror\_50 (F1), Royals2015\_52 (F1), Ruby\_48 (F1), Sabbb\_56 (F1), SassyB\_45 (F1), Scottish\_49 (F1), Seabastian\_55 (F1), Seagreen\_51 (F1), ShiLan\_49 (F1), ShowerHandel\_52 (F1), SiSi\_49 (F1), Slim\_51 (F1), Sparkdehlily\_54 (F1), Spikelee\_56 (F1), Spoonbill\_48 (F1), Stap\_49 (F1), Starcevich\_50 (F1), TDanisky\_54 (F1), Tchochke\_52 (F1), Tootsieroll\_53 (F1), Totinger\_50 (F1), Tweety\_49 (F1), UncleRicky\_50 (F1), Veteran\_47 (F1), Yorick\_49 (F1), Zapner\_62 (F2), Zerg\_49 (F1),

### Summary by clusters:

There are 5 clusters represented in this pham: AD, F1, F2, F5, F7,

Info for manual annotations of cluster AD:

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

Info for manual annotations of cluster F1:

- Start number 9 was manually annotated 4 times for cluster F1.
- Start number 11 was manually annotated 122 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 11 was manually annotated 3 times for cluster F2.

Info for manual annotations of cluster F5:

- Start number 11 was manually annotated 1 time for cluster F5.

**Gene Information:**

Gene: Aloeri\_48 Start: 35702, Stop: 35926, Start Num: 9

Candidate Starts for Aloeri\_48:

(7, 35645), (Start: 9 @35702 has 4 MA's), (Start: 11 @35729 has 126 MA's), (19, 35891),

Gene: AlpineSix\_55 Start: 38663, Stop: 38860, Start Num: 11

Candidate Starts for AlpineSix\_55:

(Start: 11 @38663 has 126 MA's), (13, 38714), (14, 38726), (17, 38759), (19, 38825),

Gene: ArcusAngelus\_53 Start: 37779, Stop: 37976, Start Num: 11

Candidate Starts for ArcusAngelus\_53:

(Start: 11 @37779 has 126 MA's), (13, 37830), (14, 37842), (17, 37875), (19, 37941),

Gene: Aubs\_49 Start: 36346, Stop: 36543, Start Num: 11

Candidate Starts for Aubs\_49:

(Start: 11 @36346 has 126 MA's), (13, 36397), (14, 36409), (17, 36442), (19, 36508),

Gene: Avani\_58 Start: 36654, Stop: 36851, Start Num: 11

Candidate Starts for Avani\_58:

(Start: 11 @36654 has 126 MA's), (13, 36705), (14, 36717), (17, 36750), (19, 36816),

Gene: Awesomesauce\_48 Start: 34991, Stop: 35188, Start Num: 11

Candidate Starts for Awesomesauce\_48:

(7, 34907), (Start: 9 @34964 has 4 MA's), (Start: 11 @34991 has 126 MA's), (19, 35153),

Gene: Blexus\_48 Start: 36433, Stop: 36630, Start Num: 11

Candidate Starts for Blexus\_48:

(Start: 11 @36433 has 126 MA's), (13, 36484), (14, 36496), (17, 36529), (19, 36595),

Gene: BlueCrab\_47 Start: 36159, Stop: 36356, Start Num: 11

Candidate Starts for BlueCrab\_47:

(Start: 11 @36159 has 126 MA's), (13, 36210), (14, 36222), (17, 36255), (19, 36321),

Gene: BodEinwohner17\_50 Start: 36375, Stop: 36572, Start Num: 11

Candidate Starts for BodEinwohner17\_50:

(Start: 11 @36375 has 126 MA's), (13, 36426), (14, 36438), (17, 36471), (19, 36537),

Gene: Boomer\_52 Start: 37608, Stop: 37805, Start Num: 11

Candidate Starts for Boomer\_52:

(Start: 11 @37608 has 126 MA's), (13, 37659), (14, 37671), (17, 37704), (19, 37770),

Gene: Bubbles123\_47 Start: 37055, Stop: 37252, Start Num: 11

Candidate Starts for Bubbles123\_47:

(Start: 11 @37055 has 126 MA's), (13, 37106), (14, 37118), (17, 37151), (19, 37217),

Gene: Burwell21\_48 Start: 36717, Stop: 36914, Start Num: 11

Candidate Starts for Burwell21\_48:

(Start: 11 @36717 has 126 MA's), (13, 36768), (14, 36780), (17, 36813), (19, 36879),

Gene: BuzzLyseyear\_55 Start: 37985, Stop: 38182, Start Num: 11  
Candidate Starts for BuzzLyseyear\_55:  
(Start: 11 @37985 has 126 MA's), (13, 38036), (14, 38048), (17, 38081), (19, 38147),

Gene: Cabrinians\_51 Start: 36795, Stop: 36992, Start Num: 11  
Candidate Starts for Cabrinians\_51:  
(Start: 11 @36795 has 126 MA's), (13, 36846), (14, 36858), (17, 36891), (19, 36957),

Gene: Caterpie\_88 Start: 56710, Stop: 56919, Start Num: 10  
Candidate Starts for Caterpie\_88:  
(2, 56611), (8, 56650), (Start: 10 @56710 has 1 MA's), (19, 56887),

Gene: Che8\_52 Start: 37604, Stop: 37801, Start Num: 11  
Candidate Starts for Che8\_52:  
(Start: 11 @37604 has 126 MA's), (13, 37655), (14, 37667), (17, 37700), (19, 37766),

Gene: Chevrolet\_56 Start: 37780, Stop: 37977, Start Num: 11  
Candidate Starts for Chevrolet\_56:  
(Start: 11 @37780 has 126 MA's), (13, 37831), (14, 37843), (17, 37876), (19, 37942),

Gene: ChickenDinner\_47 Start: 35729, Stop: 35926, Start Num: 11  
Candidate Starts for ChickenDinner\_47:  
(7, 35645), (Start: 9 @35702 has 4 MA's), (Start: 11 @35729 has 126 MA's), (19, 35891),

Gene: Cornie\_43 Start: 34495, Stop: 34692, Start Num: 11  
Candidate Starts for Cornie\_43:  
(Start: 11 @34495 has 126 MA's), (13, 34546), (14, 34558), (17, 34591), (19, 34657),

Gene: Crumble\_45 Start: 32731, Stop: 32928, Start Num: 11  
Candidate Starts for Crumble\_45:  
(Start: 11 @32731 has 126 MA's), (13, 32782), (14, 32794), (17, 32827), (19, 32893),

Gene: DaddyRickover\_50 Start: 37291, Stop: 37488, Start Num: 11  
Candidate Starts for DaddyRickover\_50:  
(Start: 11 @37291 has 126 MA's), (13, 37342), (14, 37354), (17, 37387), (19, 37453),

Gene: Daenerys\_45 Start: 35102, Stop: 35299, Start Num: 11  
Candidate Starts for Daenerys\_45:  
(Start: 11 @35102 has 126 MA's), (13, 35153), (14, 35165), (17, 35198), (19, 35264),

Gene: Dante\_49 Start: 36138, Stop: 36335, Start Num: 11  
Candidate Starts for Dante\_49:  
(Start: 11 @36138 has 126 MA's), (13, 36189), (14, 36201), (17, 36234), (19, 36300),

Gene: Deb65\_46 Start: 35071, Stop: 35268, Start Num: 11  
Candidate Starts for Deb65\_46:  
(Start: 11 @35071 has 126 MA's), (13, 35122), (14, 35134), (17, 35167), (19, 35233),

Gene: DirtMcgirt\_50 Start: 35836, Stop: 36033, Start Num: 11  
Candidate Starts for DirtMcgirt\_50:  
(Start: 11 @35836 has 126 MA's), (13, 35887), (14, 35899), (17, 35932), (19, 35998),

Gene: DocMcStuffins\_47 Start: 35702, Stop: 35926, Start Num: 9  
Candidate Starts for DocMcStuffins\_47:  
(7, 35645), (Start: 9 @35702 has 4 MA's), (Start: 11 @35729 has 126 MA's), (19, 35891),

Gene: Doomphist\_49 Start: 37373, Stop: 37570, Start Num: 11  
Candidate Starts for Doomphist\_49:  
(Start: 11 @37373 has 126 MA's), (13, 37424), (14, 37436), (17, 37469), (19, 37535),

Gene: Dorothy\_47 Start: 36172, Stop: 36369, Start Num: 11  
Candidate Starts for Dorothy\_47:  
(Start: 11 @36172 has 126 MA's), (13, 36223), (14, 36235), (17, 36268), (19, 36334),

Gene: DotProduct\_46 Start: 35833, Stop: 36027, Start Num: 11  
Candidate Starts for DotProduct\_46:  
(Start: 11 @35833 has 126 MA's), (13, 35881), (14, 35893), (17, 35926), (19, 35992),

Gene: Doug\_52 Start: 37491, Stop: 37688, Start Num: 11  
Candidate Starts for Doug\_52:  
(Start: 11 @37491 has 126 MA's), (13, 37542), (14, 37554), (17, 37587), (19, 37653),

Gene: Drago\_49 Start: 35839, Stop: 36036, Start Num: 11  
Candidate Starts for Drago\_49:  
(Start: 11 @35839 has 126 MA's), (13, 35890), (14, 35902), (17, 35935), (19, 36001),

Gene: Eish\_50 Start: 36718, Stop: 36915, Start Num: 11  
Candidate Starts for Eish\_50:  
(Start: 11 @36718 has 126 MA's), (13, 36769), (14, 36781), (17, 36814), (19, 36880),

Gene: Emmaloid\_51 Start: 37563, Stop: 37760, Start Num: 11  
Candidate Starts for Emmaloid\_51:  
(Start: 11 @37563 has 126 MA's), (13, 37614), (14, 37626), (17, 37659), (19, 37725),

Gene: Empress\_49 Start: 36516, Stop: 36713, Start Num: 11  
Candidate Starts for Empress\_49:  
(Start: 11 @36516 has 126 MA's), (13, 36567), (14, 36579), (17, 36612), (19, 36678),

Gene: Eradicator\_43 Start: 35055, Stop: 35252, Start Num: 11  
Candidate Starts for Eradicator\_43:  
(Start: 11 @35055 has 126 MA's), (13, 35106), (14, 35118), (17, 35151), (19, 35217),

Gene: Fastidio\_51 Start: 35796, Stop: 35993, Start Num: 11  
Candidate Starts for Fastidio\_51:  
(5, 35706), (Start: 11 @35796 has 126 MA's), (13, 35847), (14, 35859), (17, 35892), (19, 35958),

Gene: Florinda\_62 Start: 38976, Stop: 39173, Start Num: 11  
Candidate Starts for Florinda\_62:  
(1, 38802), (Start: 11 @38976 has 126 MA's), (13, 39027), (14, 39039), (17, 39072), (19, 39138),

Gene: Frankie\_53 Start: 37777, Stop: 37974, Start Num: 11  
Candidate Starts for Frankie\_53:  
(Start: 9 @37750 has 4 MA's), (Start: 11 @37777 has 126 MA's), (19, 37939),

Gene: FreddyB\_50 Start: 35643, Stop: 35840, Start Num: 11

Candidate Starts for FreddyB\_50:  
(Start: 11 @35643 has 126 MA's), (13, 35694), (14, 35706), (17, 35739), (19, 35805),

Gene: GUmbie\_47 Start: 36062, Stop: 36259, Start Num: 11  
Candidate Starts for GUmbie\_47:  
(Start: 11 @36062 has 126 MA's), (13, 36113), (14, 36125), (17, 36158), (19, 36224),

Gene: Gandalph\_51 Start: 36305, Stop: 36502, Start Num: 11  
Candidate Starts for Gandalph\_51:  
(Start: 11 @36305 has 126 MA's), (13, 36356), (14, 36368), (17, 36401), (19, 36467),

Gene: GigiOuiOui\_47 Start: 35975, Stop: 36172, Start Num: 11  
Candidate Starts for GigiOuiOui\_47:  
(Start: 11 @35975 has 126 MA's), (13, 36026), (14, 36038), (17, 36071), (19, 36137),

Gene: Girr\_50 Start: 37034, Stop: 37231, Start Num: 11  
Candidate Starts for Girr\_50:  
(Start: 11 @37034 has 126 MA's), (13, 37085), (14, 37097), (17, 37130), (19, 37196),

Gene: Grimmer\_61 Start: 38549, Stop: 38746, Start Num: 11  
Candidate Starts for Grimmer\_61:  
(Start: 11 @38549 has 126 MA's), (13, 38600), (14, 38612), (17, 38645), (19, 38711),

Gene: Hamulus\_51 Start: 37417, Stop: 37614, Start Num: 11  
Candidate Starts for Hamulus\_51:  
(Start: 11 @37417 has 126 MA's), (13, 37468), (14, 37480), (17, 37513), (19, 37579),

Gene: Harley\_52 Start: 36770, Stop: 36967, Start Num: 11  
Candidate Starts for Harley\_52:  
(Start: 11 @36770 has 126 MA's), (13, 36821), (14, 36833), (17, 36866), (19, 36932),

Gene: lbOuu\_50 Start: 37352, Stop: 37549, Start Num: 11  
Candidate Starts for lbOuu\_50:  
(Start: 11 @37352 has 126 MA's), (13, 37403), (14, 37415), (17, 37448), (19, 37514),

Gene: lbhubesi\_49 Start: 35857, Stop: 36054, Start Num: 11  
Candidate Starts for lbhubesi\_49:  
(Start: 11 @35857 has 126 MA's), (13, 35908), (14, 35920), (17, 35953), (19, 36019),

Gene: Jabbawokkie\_63 Start: 37588, Stop: 37785, Start Num: 11  
Candidate Starts for Jabbawokkie\_63:  
(Start: 11 @37588 has 126 MA's), (12, 37633), (13, 37639), (15, 37654), (16, 37657), (17, 37684), (18, 37711), (19, 37744),

Gene: JalFarm20\_59 Start: 39334, Stop: 39531, Start Num: 11  
Candidate Starts for JalFarm20\_59:  
(Start: 11 @39334 has 126 MA's), (13, 39385), (14, 39397), (17, 39430), (19, 39496),

Gene: Jarcob\_50 Start: 36763, Stop: 36960, Start Num: 11  
Candidate Starts for Jarcob\_50:  
(Start: 11 @36763 has 126 MA's), (13, 36814), (14, 36826), (17, 36859), (19, 36925),

Gene: Jinglebell\_55 Start: 38662, Stop: 38859, Start Num: 11

Candidate Starts for Jinglebell\_55:

(Start: 11 @38662 has 126 MA's), (13, 38713), (14, 38725), (17, 38758), (19, 38824),

Gene: Job42\_50 Start: 38024, Stop: 38221, Start Num: 11

Candidate Starts for Job42\_50:

(Start: 11 @38024 has 126 MA's), (13, 38075), (14, 38087), (17, 38120), (19, 38186),

Gene: JoeyJr\_46 Start: 35270, Stop: 35467, Start Num: 11

Candidate Starts for JoeyJr\_46:

(Start: 11 @35270 has 126 MA's), (13, 35321), (14, 35333), (17, 35366), (19, 35432),

Gene: Karhdo\_49 Start: 36857, Stop: 37054, Start Num: 11

Candidate Starts for Karhdo\_49:

(Start: 11 @36857 has 126 MA's), (13, 36908), (14, 36920), (17, 36953), (19, 37019),

Gene: Kersh\_53 Start: 38807, Stop: 39004, Start Num: 11

Candidate Starts for Kersh\_53:

(Start: 11 @38807 has 126 MA's), (13, 38858), (14, 38870), (17, 38903), (19, 38969),

Gene: Kimberlium\_53 Start: 38669, Stop: 38866, Start Num: 11

Candidate Starts for Kimberlium\_53:

(Start: 11 @38669 has 126 MA's), (13, 38720), (14, 38732), (17, 38765), (19, 38831),

Gene: KingMidas\_50 Start: 36932, Stop: 37129, Start Num: 11

Candidate Starts for KingMidas\_50:

(Start: 11 @36932 has 126 MA's), (13, 36983), (14, 36995), (17, 37028), (19, 37094),

Gene: Koella\_44 Start: 32693, Stop: 32890, Start Num: 11

Candidate Starts for Koella\_44:

(Start: 11 @32693 has 126 MA's), (13, 32744), (14, 32756), (17, 32789), (19, 32855),

Gene: Krakatau\_48 Start: 36504, Stop: 36701, Start Num: 11

Candidate Starts for Krakatau\_48:

(Start: 11 @36504 has 126 MA's), (13, 36555), (14, 36567), (17, 36600), (19, 36666),

Gene: Latretium\_53 Start: 37646, Stop: 37843, Start Num: 11

Candidate Starts for Latretium\_53:

(Start: 11 @37646 has 126 MA's), (13, 37697), (17, 37742), (19, 37808),

Gene: Leozinho\_51 Start: 36607, Stop: 36804, Start Num: 11

Candidate Starts for Leozinho\_51:

(Start: 11 @36607 has 126 MA's), (13, 36658), (14, 36670), (17, 36703), (19, 36769),

Gene: Leperchaun\_43 Start: 34500, Stop: 34697, Start Num: 11

Candidate Starts for Leperchaun\_43:

(Start: 11 @34500 has 126 MA's), (13, 34551), (14, 34563), (17, 34596), (19, 34662),

Gene: LilMoolah\_49 Start: 36424, Stop: 36621, Start Num: 11

Candidate Starts for LilMoolah\_49:

(Start: 11 @36424 has 126 MA's), (13, 36475), (14, 36487), (17, 36520), (19, 36586),

Gene: LittleShirley\_50 Start: 37455, Stop: 37652, Start Num: 11

Candidate Starts for LittleShirley\_50:

(Start: 11 @37455 has 126 MA's), (13, 37506), (14, 37518), (17, 37551), (19, 37617),

Gene: Lizziana\_56 Start: 37766, Stop: 37963, Start Num: 11

Candidate Starts for Lizziana\_56:

(Start: 11 @37766 has 126 MA's), (13, 37817), (14, 37829), (17, 37862), (19, 37928),

Gene: Llama\_55 Start: 38660, Stop: 38857, Start Num: 11

Candidate Starts for Llama\_55:

(Start: 11 @38660 has 126 MA's), (13, 38711), (14, 38723), (17, 38756), (19, 38822),

Gene: Llij\_47 Start: 35993, Stop: 36190, Start Num: 11

Candidate Starts for Llij\_47:

(Start: 11 @35993 has 126 MA's), (13, 36044), (14, 36056), (17, 36089), (19, 36155),

Gene: MadMen\_44 Start: 35477, Stop: 35674, Start Num: 11

Candidate Starts for MadMen\_44:

(Start: 11 @35477 has 126 MA's), (13, 35528), (14, 35540), (17, 35573), (19, 35639),

Gene: Madiba\_46 Start: 34766, Stop: 34963, Start Num: 11

Candidate Starts for Madiba\_46:

(Start: 11 @34766 has 126 MA's), (13, 34817), (14, 34829), (17, 34862), (19, 34928),

Gene: Mahavrat\_48 Start: 35954, Stop: 36151, Start Num: 11

Candidate Starts for Mahavrat\_48:

(Start: 11 @35954 has 126 MA's), (13, 36005), (14, 36017), (17, 36050), (19, 36116),

Gene: Mantra\_47 Start: 35945, Stop: 36142, Start Num: 11

Candidate Starts for Mantra\_47:

(Start: 11 @35945 has 126 MA's), (13, 35996), (14, 36008), (17, 36041), (19, 36107),

Gene: Maravista\_52 Start: 38428, Stop: 38625, Start Num: 11

Candidate Starts for Maravista\_52:

(Start: 11 @38428 has 126 MA's), (13, 38479), (14, 38491), (17, 38524), (19, 38590),

Gene: Marker\_50 Start: 36326, Stop: 36523, Start Num: 11

Candidate Starts for Marker\_50:

(Start: 11 @36326 has 126 MA's), (13, 36377), (14, 36389), (17, 36422), (19, 36488),

Gene: Martik\_50 Start: 36719, Stop: 36916, Start Num: 11

Candidate Starts for Martik\_50:

(Start: 11 @36719 has 126 MA's), (13, 36770), (14, 36782), (17, 36815), (19, 36881),

Gene: Misha28\_46 Start: 34969, Stop: 35193, Start Num: 9

Candidate Starts for Misha28\_46:

(7, 34912), (Start: 9 @34969 has 4 MA's), (Start: 11 @34996 has 126 MA's), (19, 35158),

Gene: MisterCuddles\_50 Start: 37034, Stop: 37231, Start Num: 11

Candidate Starts for MisterCuddles\_50:

(Start: 11 @37034 has 126 MA's), (13, 37085), (14, 37097), (17, 37130), (19, 37196),

Gene: Modragons\_54 Start: 38506, Stop: 38703, Start Num: 11

Candidate Starts for Modragons\_54:

(Start: 11 @38506 has 126 MA's), (13, 38557), (14, 38569), (17, 38602), (19, 38668),

Gene: MulchExplorer\_53 Start: 38668, Stop: 38865, Start Num: 11

Candidate Starts for MulchExplorer\_53:

(Start: 11 @38668 has 126 MA's), (13, 38719), (14, 38731), (17, 38764), (19, 38830),

Gene: MulchSalad\_47 Start: 33570, Stop: 33767, Start Num: 11

Candidate Starts for MulchSalad\_47:

(3, 33471), (4, 33474), (Start: 9 @33543 has 4 MA's), (Start: 11 @33570 has 126 MA's), (19, 33732),

Gene: Nichirin\_55 Start: 38298, Stop: 38495, Start Num: 11

Candidate Starts for Nichirin\_55:

(Start: 11 @38298 has 126 MA's), (13, 38349), (14, 38361), (17, 38394), (19, 38460),

Gene: Nimbo\_45 Start: 35073, Stop: 35270, Start Num: 11

Candidate Starts for Nimbo\_45:

(Start: 11 @35073 has 126 MA's), (13, 35124), (14, 35136), (17, 35169), (19, 35235),

Gene: Nitzel\_45 Start: 35193, Stop: 35390, Start Num: 11

Candidate Starts for Nitzel\_45:

(Start: 11 @35193 has 126 MA's), (13, 35244), (14, 35256), (17, 35289), (19, 35355),

Gene: Nivrat\_47 Start: 36297, Stop: 36494, Start Num: 11

Candidate Starts for Nivrat\_47:

(Start: 11 @36297 has 126 MA's), (13, 36348), (14, 36360), (17, 36393), (19, 36459),

Gene: NormanBulbieJr\_50 Start: 36706, Stop: 36903, Start Num: 11

Candidate Starts for NormanBulbieJr\_50:

(Start: 11 @36706 has 126 MA's), (13, 36757), (14, 36769), (17, 36802), (19, 36868),

Gene: Ochi17\_53 Start: 38113, Stop: 38310, Start Num: 11

Candidate Starts for Ochi17\_53:

(Start: 11 @38113 has 126 MA's), (13, 38164), (14, 38176), (17, 38209), (19, 38275),

Gene: OfUltron\_55 Start: 38662, Stop: 38859, Start Num: 11

Candidate Starts for OfUltron\_55:

(Start: 11 @38662 has 126 MA's), (13, 38713), (14, 38725), (17, 38758), (19, 38824),

Gene: Oksu\_54 Start: 38558, Stop: 38755, Start Num: 11

Candidate Starts for Oksu\_54:

(Start: 11 @38558 has 126 MA's), (13, 38609), (14, 38621), (17, 38654), (19, 38720),

Gene: OlympiaSaint\_50 Start: 36632, Stop: 36829, Start Num: 11

Candidate Starts for OlympiaSaint\_50:

(Start: 11 @36632 has 126 MA's), (13, 36683), (14, 36695), (17, 36728), (19, 36794),

Gene: OwlsT2W\_49 Start: 36635, Stop: 36832, Start Num: 11

Candidate Starts for OwlsT2W\_49:

(Start: 11 @36635 has 126 MA's), (13, 36686), (14, 36698), (17, 36731), (19, 36797),

Gene: PHappiness\_46 Start: 35046, Stop: 35243, Start Num: 11

Candidate Starts for PHappiness\_46:

(Start: 11 @35046 has 126 MA's), (13, 35097), (14, 35109), (17, 35142), (19, 35208),

Gene: PMC\_44 Start: 35844, Stop: 36041, Start Num: 11  
Candidate Starts for PMC\_44:  
(Start: 11 @35844 has 126 MA's), (13, 35895), (14, 35907), (17, 35940), (19, 36006),

Gene: Pacc40\_45 Start: 35120, Stop: 35317, Start Num: 11  
Candidate Starts for Pacc40\_45:  
(Start: 11 @35120 has 126 MA's), (13, 35171), (14, 35183), (17, 35216), (19, 35282),

Gene: Peridot\_53 Start: 36751, Stop: 36945, Start Num: 11  
Candidate Starts for Peridot\_53:  
(Start: 11 @36751 has 126 MA's), (13, 36799), (14, 36811), (17, 36844), (19, 36910),

Gene: Phatniss\_49 Start: 37088, Stop: 37285, Start Num: 11  
Candidate Starts for Phatniss\_49:  
(Start: 11 @37088 has 126 MA's), (13, 37139), (14, 37151), (17, 37184), (19, 37250),

Gene: PhlipPhlop\_49 Start: 37650, Stop: 37847, Start Num: 11  
Candidate Starts for PhlipPhlop\_49:  
(Start: 11 @37650 has 126 MA's), (13, 37701), (14, 37713), (17, 37746), (19, 37812),

Gene: Piper2020\_48 Start: 35712, Stop: 35909, Start Num: 11  
Candidate Starts for Piper2020\_48:  
(7, 35628), (Start: 9 @35685 has 4 MA's), (Start: 11 @35712 has 126 MA's), (19, 35874),

Gene: Plumbus\_52 Start: 36835, Stop: 37032, Start Num: 11  
Candidate Starts for Plumbus\_52:  
(Start: 11 @36835 has 126 MA's), (13, 36886), (14, 36898), (17, 36931), (19, 36997),

Gene: Poenanya\_49 Start: 37373, Stop: 37570, Start Num: 11  
Candidate Starts for Poenanya\_49:  
(Start: 11 @37373 has 126 MA's), (13, 37424), (14, 37436), (17, 37469), (19, 37535),

Gene: Polka14\_47 Start: 35723, Stop: 35920, Start Num: 11  
Candidate Starts for Polka14\_47:  
(Start: 11 @35723 has 126 MA's), (13, 35774), (14, 35786), (17, 35819), (19, 35885),

Gene: Pollywog\_48 Start: 36551, Stop: 36748, Start Num: 11  
Candidate Starts for Pollywog\_48:  
(Start: 11 @36551 has 126 MA's), (14, 36614), (17, 36647), (19, 36713),

Gene: PopTart\_45 Start: 35859, Stop: 36056, Start Num: 11  
Candidate Starts for PopTart\_45:  
(Start: 11 @35859 has 126 MA's), (13, 35910), (14, 35922), (17, 35955), (19, 36021),

Gene: Priscilla\_50 Start: 36805, Stop: 37002, Start Num: 11  
Candidate Starts for Priscilla\_50:  
(Start: 11 @36805 has 126 MA's), (13, 36856), (14, 36868), (17, 36901), (19, 36967),

Gene: QuickMath\_52 Start: 38892, Stop: 39089, Start Num: 11  
Candidate Starts for QuickMath\_52:  
(Start: 11 @38892 has 126 MA's), (13, 38943), (14, 38955), (17, 38988), (19, 39054),

Gene: Quico\_59 Start: 38796, Stop: 38993, Start Num: 11

Candidate Starts for Quico\_59:  
(1, 38622), (Start: 11 @38796 has 126 MA's), (13, 38847), (14, 38859), (17, 38892), (19, 38958),

Gene: Radiance\_50 Start: 36960, Stop: 37157, Start Num: 11  
Candidate Starts for Radiance\_50:  
(Start: 11 @36960 has 126 MA's), (13, 37011), (14, 37023), (17, 37056), (19, 37122),

Gene: Ramsey\_51 Start: 37587, Stop: 37784, Start Num: 11  
Candidate Starts for Ramsey\_51:  
(Start: 11 @37587 has 126 MA's), (13, 37638), (14, 37650), (17, 37683), (19, 37749),

Gene: RedBird\_47 Start: 36184, Stop: 36381, Start Num: 11  
Candidate Starts for RedBird\_47:  
(Start: 11 @36184 has 126 MA's), (13, 36235), (14, 36247), (17, 36280), (19, 36346),

Gene: RitaG\_46 Start: 35391, Stop: 35588, Start Num: 11  
Candidate Starts for RitaG\_46:  
(Start: 11 @35391 has 126 MA's), (13, 35442), (14, 35454), (17, 35487), (19, 35553),

Gene: Rockne\_48 Start: 35844, Stop: 36041, Start Num: 11  
Candidate Starts for Rockne\_48:  
(Start: 11 @35844 has 126 MA's), (13, 35895), (14, 35907), (17, 35940), (19, 36006),

Gene: RockyHorror\_50 Start: 36248, Stop: 36445, Start Num: 11  
Candidate Starts for RockyHorror\_50:  
(Start: 11 @36248 has 126 MA's), (14, 36311), (17, 36344), (19, 36410),

Gene: Royals2015\_52 Start: 36653, Stop: 36850, Start Num: 11  
Candidate Starts for Royals2015\_52:  
(Start: 11 @36653 has 126 MA's), (13, 36704), (14, 36716), (17, 36749), (19, 36815),

Gene: Ruby\_48 Start: 37035, Stop: 37232, Start Num: 11  
Candidate Starts for Ruby\_48:  
(Start: 11 @37035 has 126 MA's), (13, 37086), (14, 37098), (17, 37131), (19, 37197),

Gene: Sabbb\_56 Start: 38083, Stop: 38280, Start Num: 11  
Candidate Starts for Sabbb\_56:  
(Start: 11 @38083 has 126 MA's), (13, 38134), (14, 38146), (17, 38179), (19, 38245),

Gene: SassyB\_45 Start: 35859, Stop: 36056, Start Num: 11  
Candidate Starts for SassyB\_45:  
(Start: 11 @35859 has 126 MA's), (13, 35910), (14, 35922), (17, 35955), (19, 36021),

Gene: Scottish\_49 Start: 36403, Stop: 36600, Start Num: 11  
Candidate Starts for Scottish\_49:  
(Start: 11 @36403 has 126 MA's), (13, 36454), (14, 36466), (17, 36499), (19, 36565),

Gene: Seabastian\_55 Start: 38663, Stop: 38860, Start Num: 11  
Candidate Starts for Seabastian\_55:  
(Start: 11 @38663 has 126 MA's), (13, 38714), (14, 38726), (17, 38759), (19, 38825),

Gene: Seagreen\_51 Start: 36587, Stop: 36784, Start Num: 11  
Candidate Starts for Seagreen\_51:

(Start: 11 @36587 has 126 MA's), (13, 36638), (14, 36650), (17, 36683), (19, 36749),

Gene: Sejanus\_84 Start: 57638, Stop: 57847, Start Num: 10

Candidate Starts for Sejanus\_84:

(2, 57539), (8, 57578), (Start: 10 @57638 has 1 MA's), (19, 57815),

Gene: ShiLan\_49 Start: 36752, Stop: 36949, Start Num: 11

Candidate Starts for ShiLan\_49:

(Start: 11 @36752 has 126 MA's), (13, 36803), (14, 36815), (17, 36848), (19, 36914),

Gene: ShowerHandel\_52 Start: 36719, Stop: 36916, Start Num: 11

Candidate Starts for ShowerHandel\_52:

(Start: 11 @36719 has 126 MA's), (13, 36770), (14, 36782), (17, 36815), (19, 36881),

Gene: SiSi\_49 Start: 36409, Stop: 36606, Start Num: 11

Candidate Starts for SiSi\_49:

(Start: 11 @36409 has 126 MA's), (13, 36460), (14, 36472), (17, 36505), (19, 36571),

Gene: Slim\_51 Start: 37554, Stop: 37751, Start Num: 11

Candidate Starts for Slim\_51:

(Start: 11 @37554 has 126 MA's), (13, 37605), (14, 37617), (17, 37650), (19, 37716),

Gene: Sparkdehlily\_54 Start: 37405, Stop: 37602, Start Num: 11

Candidate Starts for Sparkdehlily\_54:

(Start: 11 @37405 has 126 MA's), (13, 37456), (14, 37468), (17, 37501), (19, 37567),

Gene: Spikelee\_56 Start: 38143, Stop: 38340, Start Num: 11

Candidate Starts for Spikelee\_56:

(Start: 11 @38143 has 126 MA's), (13, 38194), (14, 38206), (17, 38239), (19, 38305),

Gene: Spoonbill\_48 Start: 35345, Stop: 35542, Start Num: 11

Candidate Starts for Spoonbill\_48:

(Start: 11 @35345 has 126 MA's), (13, 35396), (14, 35408), (17, 35441), (19, 35507),

Gene: Stap\_49 Start: 36146, Stop: 36343, Start Num: 11

Candidate Starts for Stap\_49:

(Start: 11 @36146 has 126 MA's), (13, 36197), (14, 36209), (17, 36242), (19, 36308),

Gene: Starcevich\_50 Start: 37039, Stop: 37236, Start Num: 11

Candidate Starts for Starcevich\_50:

(Start: 11 @37039 has 126 MA's), (13, 37090), (14, 37102), (17, 37135), (19, 37201),

Gene: TDanisky\_54 Start: 37405, Stop: 37602, Start Num: 11

Candidate Starts for TDanisky\_54:

(Start: 11 @37405 has 126 MA's), (13, 37456), (14, 37468), (17, 37501), (19, 37567),

Gene: Tchotchke\_52 Start: 36304, Stop: 36501, Start Num: 11

Candidate Starts for Tchotchke\_52:

(6, 36214), (Start: 11 @36304 has 126 MA's), (13, 36355), (14, 36367), (17, 36400), (19, 36466),

Gene: TootsiePop\_46 Start: 34969, Stop: 35193, Start Num: 9

Candidate Starts for TootsiePop\_46:

(7, 34912), (Start: 9 @34969 has 4 MA's), (Start: 11 @34996 has 126 MA's), (19, 35158),

Gene: Tootsieroll\_53 Start: 36596, Stop: 36793, Start Num: 11

Candidate Starts for Tootsieroll\_53:

(Start: 11 @36596 has 126 MA's), (13, 36647), (14, 36659), (17, 36692), (19, 36758),

Gene: Totinger\_50 Start: 36181, Stop: 36378, Start Num: 11

Candidate Starts for Totinger\_50:

(Start: 11 @36181 has 126 MA's), (13, 36232), (14, 36244), (17, 36277), (19, 36343),

Gene: Tweety\_49 Start: 36917, Stop: 37114, Start Num: 11

Candidate Starts for Tweety\_49:

(Start: 11 @36917 has 126 MA's), (13, 36968), (14, 36980), (17, 37013), (19, 37079),

Gene: UncleRicky\_50 Start: 37336, Stop: 37533, Start Num: 11

Candidate Starts for UncleRicky\_50:

(Start: 11 @37336 has 126 MA's), (13, 37387), (14, 37399), (17, 37432), (19, 37498),

Gene: Veteran\_47 Start: 36053, Stop: 36250, Start Num: 11

Candidate Starts for Veteran\_47:

(Start: 11 @36053 has 126 MA's), (13, 36104), (14, 36116), (17, 36149), (19, 36215),

Gene: Yorick\_49 Start: 37093, Stop: 37290, Start Num: 11

Candidate Starts for Yorick\_49:

(Start: 11 @37093 has 126 MA's), (13, 37144), (14, 37156), (17, 37189), (19, 37255),

Gene: Zapner\_62 Start: 37589, Stop: 37786, Start Num: 11

Candidate Starts for Zapner\_62:

(Start: 11 @37589 has 126 MA's), (12, 37634), (13, 37640), (15, 37655), (16, 37658), (17, 37685), (18, 37712), (19, 37745),

Gene: Zerg\_49 Start: 36357, Stop: 36554, Start Num: 11

Candidate Starts for Zerg\_49:

(Start: 11 @36357 has 126 MA's), (14, 36420), (17, 36453), (19, 36519),