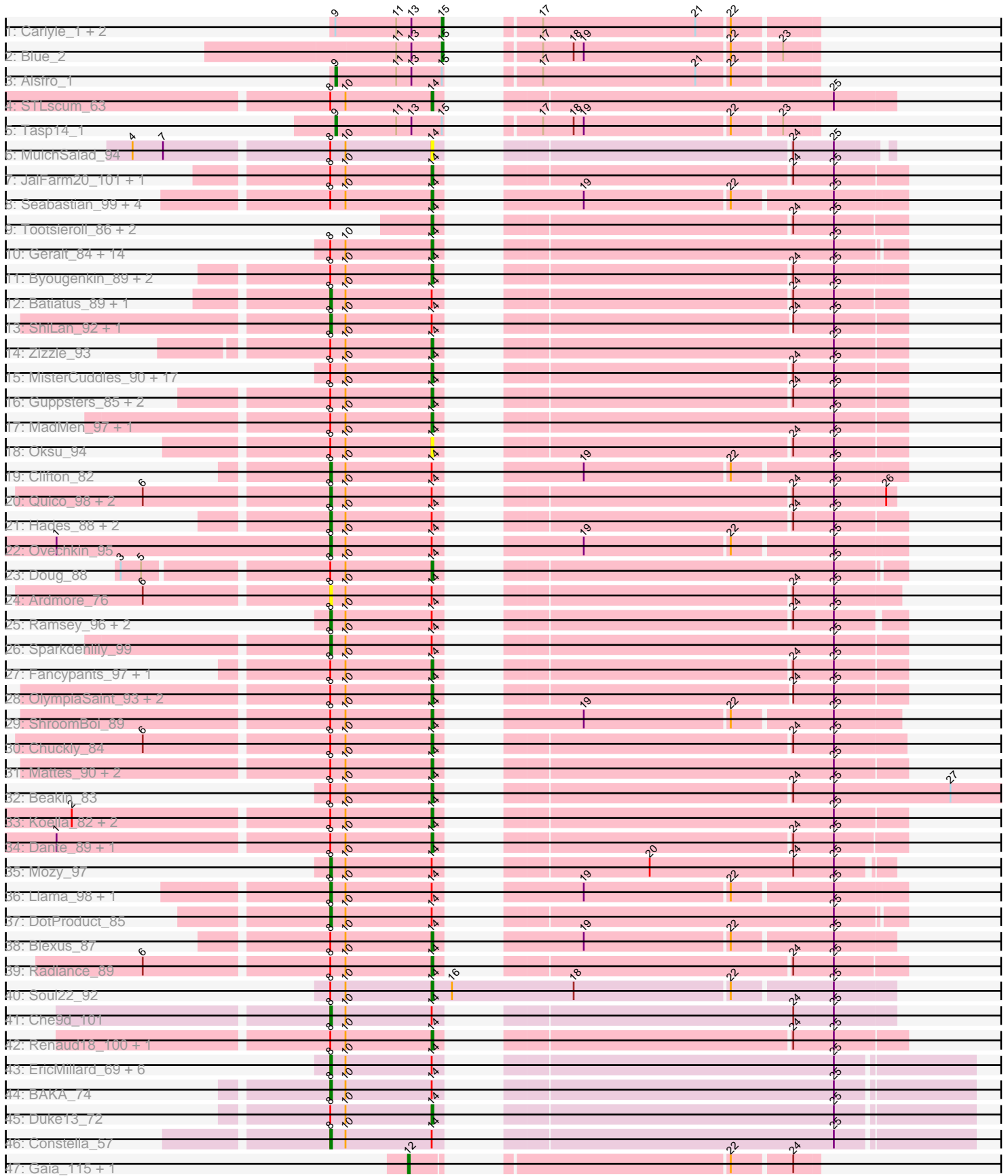


Pham 171313



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 171313 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171313 has 117 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Carlyle\_1, A6\_01, BK1\_01
- Track 2 : Blue\_2
- Track 3 : Alsfro\_1
- Track 4 : STLscum\_63
- Track 5 : Tasp14\_1
- Track 6 : MulchSalad\_94
- Track 7 : JalFarm20\_101, Eradicator\_84
- Track 8 : Seabastian\_99, AlpineSix\_90, Modragons\_96, OfUltron\_99, Jinglebell\_96
- Track 9 : Tootsieroll\_86, Phasih\_88, Avani\_97
- Track 10 : Geralt\_84, RitaG\_90, GigiOuiOui\_86, Bagrid\_68, Juice456\_90, Deb65\_83, Leozinho\_88, Nimbo\_83, OldBen\_88, PHappiness\_91, Rita\_92, Ogopogo\_97, Daenerys\_89, Ruby\_87, QuickMath\_92
- Track 11 : Byougenkin\_89, Firehouse51\_86, OwlsT2W\_90
- Track 12 : Batiatus\_89, Hegedechwinu\_91
- Track 13 : ShiLan\_92, James\_93
- Track 14 : Zizzle\_93
- Track 15 : MisterCuddles\_90, IbOuu\_86, Bubbles123\_85, Polka14\_95, Girr\_89, Sandalphon\_89, Empress\_91, Che8\_98, Fastidio\_91, KingMidas\_91, Cornie\_88, Scottish\_91, Gandalph\_91, Whatsapiecost\_84, Donkeykong\_98, Bipolar\_93, Wachhund\_88, SuperGrey\_92
- Track 16 : Guppsters\_85, MinionDave\_90, Melissauren88\_80
- Track 17 : MadMen\_97, TDanisky\_101
- Track 18 : Oksu\_94
- Track 19 : Clifton\_82
- Track 20 : Quico\_98, Florinda\_101, Girafales\_98
- Track 21 : Hades\_88, Llij\_87, Mutaforma13\_92
- Track 22 : Ovechkin\_95
- Track 23 : Doug\_88
- Track 24 : Ardmore\_76
- Track 25 : Ramsey\_96, Pollywog\_93, SG4\_92
- Track 26 : Sparkdehlily\_99
- Track 27 : Fancypants\_97, Latretium\_93
- Track 28 : OlympiaSaint\_93, Jarcob\_93, Spoonbill\_89
- Track 29 : ShroomBoi\_89
- Track 30 : Chuckly\_84
- Track 31 : Mattes\_90, RockyHorror\_95, GUmbie\_90
- Track 32 : Beakin\_83

- Track 33 : Koella\_82, NormanBulbieJr\_88, Priscilla\_90
- Track 34 : Dante\_89, Sabbb\_94
- Track 35 : Mozy\_97
- Track 36 : Llama\_98, Ochi17\_97
- Track 37 : DotProduct\_85
- Track 38 : Blexus\_87
- Track 39 : Radiance\_89
- Track 40 : Soul22\_92
- Track 41 : Che9d\_101
- Track 42 : Renaud18\_100, DosHalletts\_88
- Track 43 : EricMillard\_69, Pacc40\_87, Thibault\_62, Kimberlium\_93, Kersh\_95, Pound\_70, Optimus\_74
- Track 44 : BAKA\_74
- Track 45 : Duke13\_72
- Track 46 : Constella\_57
- Track 47 : Gaia\_115, Nebkiss\_116

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

The start number called the most often in the published annotations is 14, it was called in 71 of the 109 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AlpineSix\_90, Avani\_97, Bagrid\_68, Beakin\_83, Bipolar\_93, Blexus\_87, Bubbles123\_85, Byougenkin\_89, Che8\_98, Chuckly\_84, Cornie\_88, Daenerys\_89, Dante\_89, Deb65\_83, Donkeykong\_98, DosHalletts\_88, Doug\_88, Duke13\_72, Empress\_91, Eradicator\_84, Fancypants\_97, Fastidio\_91, Firehouse51\_86, GUmbe\_90, Gandalph\_91, Geralt\_84, GigiOuiOui\_86, Girr\_89, Guppsters\_85, IbOuu\_86, JalFarm20\_101, Jarcob\_93, Jinglebell\_96, Juice456\_90, KingMidas\_91, Koella\_82, Latretium\_93, Leozinho\_88, MadMen\_97, Mattes\_90, Melissauren88\_80, MinionDave\_90, MisterCuddles\_90, Modragons\_96, MulchSalad\_94, Nimbo\_83, NormanBulbieJr\_88, OfUltron\_99, Ogoopogo\_97, Oksu\_94, OldBen\_88, OlympiaSaint\_93, OwlsT2W\_90, PHappiness\_91, Phasih\_88, Polka14\_95, Priscilla\_90, QuickMath\_92, Radiance\_89, Renaud18\_100, RitaG\_90, Rita\_92, RockyHorror\_95, Ruby\_87, STLscum\_63, Sabbb\_94, Sandalphon\_89, Scottish\_91, Sebastian\_99, ShroomBoi\_89, Soul22\_92, Spoonbill\_89, SuperGrey\_92, TDanisky\_101, Tootsieroll\_86, Wachhund\_88, Whatsapiecost\_84, Zizzle\_93,

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

- Ardmore\_76, BAKA\_74, Batiatus\_89, Che9d\_101, Clifton\_82, Constella\_57, DotProduct\_85, EricMillard\_69, Florinda\_101, Girafales\_98, Hades\_88, Hegedechwinu\_91, James\_93, Kersh\_95, Kimberlium\_93, Llama\_98, Llij\_87, Mozy\_97, Mutaforma13\_92, Ochi17\_97, Optimus\_74, Ovechkin\_95, Pacc40\_87, Pollywog\_93, Pound\_70, Quico\_98, Ramsey\_96, SG4\_92, ShiLan\_92, Sparkdehlily\_99, Thibault\_62,

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

- A6\_01, Alsfro\_1, BK1\_01, Blue\_2, Carlyle\_1, Gaia\_115, Nebkiss\_116, Tasp14\_1,

**Summary by start number:**

Start 8:

- Found in 106 of 117 ( 90.6% ) of genes in pham
- Manual Annotations of this start: 30 of 109
- Called 29.2% of time when present
- Phage (with cluster) where this start called: Ardmore\_76 (F1), BAKA\_74 (J), Batiatus\_89 (F1), Che9d\_101 (F2), Clifton\_82 (F1), Constella\_57 (J), DotProduct\_85 (F1), EricMillard\_69 (J), Florinda\_101 (F1), Girafales\_98 (F1), Hades\_88 (F1), Hegedechwinu\_91 (F1), James\_93 (F1), Kersh\_95 (F1), Kimberlium\_93 (F1), Llama\_98 (F1), Llij\_87 (F1), Mozy\_97 (F1), Mutaforma13\_92 (F1), Ochi17\_97 (F1), Optimus\_74 (J), Ovechkin\_95 (F1), Pacc40\_87 (F1), Pollywog\_93 (F1), Pound\_70 (J), Quico\_98 (F1), Ramsey\_96 (F1), SG4\_92 (F1), ShiLan\_92 (F1), Sparkdehliiy\_99 (F1), Thibault\_62 (J),

Start 9:

- Found in 5 of 117 ( 4.3% ) of genes in pham
- Manual Annotations of this start: 2 of 109
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Alsfro\_1 (A1), Tasp14\_1 (A1),

Start 12:

- Found in 2 of 117 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 2 of 109
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gaia\_115 (X), Nebkiss\_116 (X),

Start 14:

- Found in 109 of 117 ( 93.2% ) of genes in pham
- Manual Annotations of this start: 71 of 109
- Called 71.6% of time when present
- Phage (with cluster) where this start called: AlpineSix\_90 (F1), Avani\_97 (F2), Bagrid\_68 (J), Beakin\_83 (F1), Bipolar\_93 (F1), Blexus\_87 (F1), Bubbles123\_85 (F1), Byougenkin\_89 (F1), Che8\_98 (F1), Chuckly\_84 (F1), Cornie\_88 (F5), Daenerys\_89 (F1), Dante\_89 (F1), Deb65\_83 (F1), Donkeykong\_98 (F1), DosHalletts\_88 (F1), Doug\_88 (F1), Duke13\_72 (J), Empress\_91 (F1), Eradicator\_84 (F1), Fancypants\_97 (F1), Fastidio\_91 (F1), Firehouse51\_86 (F1), GUmble\_90 (F1), Gandolph\_91 (F1), Geralt\_84 (F1), GigiOuiOui\_86 (F1), Girr\_89 (F1), Guppsters\_85 (F1), IbOuu\_86 (F1), JalFarm20\_101 (F1), Jarcob\_93 (F1), Jinglebell\_96 (F1), Juice456\_90 (F1), KingMidas\_91 (F1), Koella\_82 (F1), Latretium\_93 (F1), Leozinho\_88 (F1), MadMen\_97 (F1), Mattes\_90 (F1), Melissauren88\_80 (F1), MinionDave\_90 (F1), MisterCuddles\_90 (F1), Modragons\_96 (F1), MulchSalad\_94 (F), Nimbo\_83 (F1), NormanBulbieJr\_88 (F1), OfUltron\_99 (F1), Ogopogo\_97 (F1), Oksu\_94 (F1), OldBen\_88 (F1), OlympiaSaint\_93 (F1), OwlsT2W\_90 (F1), PHappiness\_91 (F1), Phasih\_88 (F1), Polka14\_95 (F1), Priscilla\_90 (F1), QuickMath\_92 (F1), Radiance\_89 (F1), Renaud18\_100 (F4), RitaG\_90 (F1), Rita\_92 (F1), RockyHorror\_95 (F1), Ruby\_87 (F1), STLscum\_63 (A1), Sabbb\_94 (F1), Sandalphon\_89 (F1), Scottish\_91 (F1), Seabastian\_99 (F1), ShroomBoi\_89 (F1), Soul22\_92 (F2), Spoonbill\_89 (F1), SuperGrey\_92 (F1), TDanisky\_101 (F1), Tootsieroll\_86 (F1), Wachhund\_88 (F1), Whatsapiecost\_84 (F1), Zizzle\_93 (F1),

Start 15:

- Found in 6 of 117 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 4 of 109

- Called 66.7% of time when present
- Phage (with cluster) where this start called: A6\_01 (A1), BK1\_01 (A1), Blue\_2 (A1), Carlyle\_1 (A1),

### **Summary by clusters:**

There are 8 clusters represented in this pham: F1, F2, F4, F5, F, J, A1, X,

Info for manual annotations of cluster A1:

- Start number 9 was manually annotated 2 times for cluster A1.
- Start number 14 was manually annotated 1 time for cluster A1.
- Start number 15 was manually annotated 4 times for cluster A1.

Info for manual annotations of cluster F1:

- Start number 8 was manually annotated 23 times for cluster F1.
- Start number 14 was manually annotated 65 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 8 was manually annotated 1 time for cluster F2.
- Start number 14 was manually annotated 2 times for cluster F2.

Info for manual annotations of cluster F4:

- Start number 14 was manually annotated 1 time for cluster F4.

Info for manual annotations of cluster F5:

- Start number 14 was manually annotated 1 time for cluster F5.

Info for manual annotations of cluster J:

- Start number 8 was manually annotated 6 times for cluster J.
- Start number 14 was manually annotated 1 time for cluster J.

Info for manual annotations of cluster X:

- Start number 12 was manually annotated 2 times for cluster X.

### **Gene Information:**

Gene: A6\_01 Start: 595, Stop: 771, Start Num: 15

Candidate Starts for A6\_01:

(Start: 9 @532 has 2 MA's), (11, 568), (13, 577), (Start: 15 @595 has 4 MA's), (17, 616), (21, 706), (22, 724),

Gene: AlpineSix\_90 Start: 50889, Stop: 51125, Start Num: 14

Candidate Starts for AlpineSix\_90:

(Start: 8 @50829 has 30 MA's), (10, 50838), (Start: 14 @50889 has 71 MA's), (19, 50943), (22, 51027), (25, 51084),

Gene: Alsfro\_1 Start: 542, Stop: 781, Start Num: 9

Candidate Starts for Alsfro\_1:

(Start: 9 @542 has 2 MA's), (11, 578), (13, 587), (Start: 15 @605 has 4 MA's), (17, 626), (21, 716), (22, 734),

Gene: Ardmore\_76 Start: 46009, Stop: 46302, Start Num: 8  
Candidate Starts for Ardmore\_76:  
(6, 45904), (Start: 8 @46009 has 30 MA's), (10, 46018), (Start: 14 @46069 has 71 MA's), (24, 46240),  
(25, 46264),

Gene: Avani\_97 Start: 48825, Stop: 49061, Start Num: 14  
Candidate Starts for Avani\_97:  
(Start: 14 @48825 has 71 MA's), (24, 48996), (25, 49020),

Gene: BAKA\_74 Start: 50332, Stop: 49997, Start Num: 8  
Candidate Starts for BAKA\_74:  
(Start: 8 @50332 has 30 MA's), (10, 50323), (Start: 14 @50272 has 71 MA's), (25, 50074),

Gene: BK1\_01 Start: 595, Stop: 771, Start Num: 15  
Candidate Starts for BK1\_01:  
(Start: 9 @532 has 2 MA's), (11, 568), (13, 577), (Start: 15 @595 has 4 MA's), (17, 616), (21, 706),  
(22, 724),

Gene: Bagrid\_68 Start: 49050, Stop: 48775, Start Num: 14  
Candidate Starts for Bagrid\_68:  
(Start: 8 @49110 has 30 MA's), (10, 49101), (Start: 14 @49050 has 71 MA's), (25, 48852),

Gene: Batiatus\_89 Start: 51111, Stop: 51407, Start Num: 8  
Candidate Starts for Batiatus\_89:  
(Start: 8 @51111 has 30 MA's), (10, 51120), (Start: 14 @51171 has 71 MA's), (24, 51342), (25,  
51366),

Gene: Beakin\_83 Start: 47922, Stop: 48218, Start Num: 14  
Candidate Starts for Beakin\_83:  
(Start: 8 @47862 has 30 MA's), (10, 47871), (Start: 14 @47922 has 71 MA's), (24, 48093), (25,  
48117), (27, 48186),

Gene: Bipolar\_93 Start: 53088, Stop: 53324, Start Num: 14  
Candidate Starts for Bipolar\_93:  
(Start: 8 @53028 has 30 MA's), (10, 53037), (Start: 14 @53088 has 71 MA's), (24, 53259), (25,  
53283),

Gene: Blexus\_87 Start: 51299, Stop: 51529, Start Num: 14  
Candidate Starts for Blexus\_87:  
(Start: 8 @51239 has 30 MA's), (10, 51248), (Start: 14 @51299 has 71 MA's), (19, 51353), (22,  
51437), (25, 51494),

Gene: Blue\_2 Start: 1059, Stop: 1235, Start Num: 15  
Candidate Starts for Blue\_2:  
(11, 1032), (13, 1041), (Start: 15 @1059 has 4 MA's), (17, 1080), (18, 1098), (19, 1104), (22, 1188),  
(23, 1215),

Gene: Bubbles123\_85 Start: 50944, Stop: 51180, Start Num: 14  
Candidate Starts for Bubbles123\_85:  
(Start: 8 @50884 has 30 MA's), (10, 50893), (Start: 14 @50944 has 71 MA's), (24, 51115), (25,  
51139),

Gene: Byougenkin\_89 Start: 48702, Stop: 48938, Start Num: 14  
Candidate Starts for Byougenkin\_89:  
(Start: 8 @48642 has 30 MA's), (10, 48651), (Start: 14 @48702 has 71 MA's), (24, 48873), (25, 48897),

Gene: Carlyle\_1 Start: 605, Stop: 781, Start Num: 15  
Candidate Starts for Carlyle\_1:  
(Start: 9 @542 has 2 MA's), (11, 578), (13, 587), (Start: 15 @605 has 4 MA's), (17, 626), (21, 716), (22, 734),

Gene: Che8\_98 Start: 52901, Stop: 53140, Start Num: 14  
Candidate Starts for Che8\_98:  
(Start: 8 @52841 has 30 MA's), (10, 52850), (Start: 14 @52901 has 71 MA's), (24, 53075), (25, 53099),

Gene: Che9d\_101 Start: 50979, Stop: 51272, Start Num: 8  
Candidate Starts for Che9d\_101:  
(Start: 8 @50979 has 30 MA's), (10, 50988), (Start: 14 @51039 has 71 MA's), (24, 51213), (25, 51237),

Gene: Chuckly\_84 Start: 47404, Stop: 47640, Start Num: 14  
Candidate Starts for Chuckly\_84:  
(6, 47239), (Start: 8 @47344 has 30 MA's), (10, 47353), (Start: 14 @47404 has 71 MA's), (24, 47575), (25, 47599),

Gene: Clifton\_82 Start: 49376, Stop: 49672, Start Num: 8  
Candidate Starts for Clifton\_82:  
(Start: 8 @49376 has 30 MA's), (10, 49385), (Start: 14 @49436 has 71 MA's), (19, 49490), (22, 49574), (25, 49631),

Gene: Constella\_57 Start: 44626, Stop: 44291, Start Num: 8  
Candidate Starts for Constella\_57:  
(Start: 8 @44626 has 30 MA's), (10, 44617), (Start: 14 @44566 has 71 MA's), (25, 44368),

Gene: Cornie\_88 Start: 50388, Stop: 50624, Start Num: 14  
Candidate Starts for Cornie\_88:  
(Start: 8 @50328 has 30 MA's), (10, 50337), (Start: 14 @50388 has 71 MA's), (24, 50559), (25, 50583),

Gene: Daenerys\_89 Start: 52494, Stop: 52730, Start Num: 14  
Candidate Starts for Daenerys\_89:  
(Start: 8 @52434 has 30 MA's), (10, 52443), (Start: 14 @52494 has 71 MA's), (25, 52692),

Gene: Dante\_89 Start: 52666, Stop: 52902, Start Num: 14  
Candidate Starts for Dante\_89:  
(1, 52450), (Start: 8 @52606 has 30 MA's), (10, 52615), (Start: 14 @52666 has 71 MA's), (24, 52837), (25, 52861),

Gene: Deb65\_83 Start: 50218, Stop: 50454, Start Num: 14  
Candidate Starts for Deb65\_83:  
(Start: 8 @50158 has 30 MA's), (10, 50167), (Start: 14 @50218 has 71 MA's), (25, 50416),

Gene: Donkeykong\_98 Start: 53578, Stop: 53814, Start Num: 14

Candidate Starts for Donkeykong\_98:

(Start: 8 @53518 has 30 MA's), (10, 53527), (Start: 14 @53578 has 71 MA's), (24, 53749), (25, 53773),

Gene: DosHalletts\_88 Start: 51582, Stop: 51818, Start Num: 14

Candidate Starts for DosHalletts\_88:

(Start: 8 @51522 has 30 MA's), (10, 51531), (Start: 14 @51582 has 71 MA's), (24, 51753), (25, 51777),

Gene: DotProduct\_85 Start: 49272, Stop: 49568, Start Num: 8

Candidate Starts for DotProduct\_85:

(Start: 8 @49272 has 30 MA's), (10, 49281), (Start: 14 @49332 has 71 MA's), (25, 49530),

Gene: Doug\_88 Start: 52337, Stop: 52573, Start Num: 14

Candidate Starts for Doug\_88:

(3, 52163), (5, 52175), (Start: 8 @52277 has 30 MA's), (10, 52286), (Start: 14 @52337 has 71 MA's), (25, 52535),

Gene: Duke13\_72 Start: 49484, Stop: 49209, Start Num: 14

Candidate Starts for Duke13\_72:

(Start: 8 @49544 has 30 MA's), (10, 49535), (Start: 14 @49484 has 71 MA's), (25, 49286),

Gene: Empress\_91 Start: 51396, Stop: 51632, Start Num: 14

Candidate Starts for Empress\_91:

(Start: 8 @51336 has 30 MA's), (10, 51345), (Start: 14 @51396 has 71 MA's), (24, 51567), (25, 51591),

Gene: Eradicator\_84 Start: 49799, Stop: 50035, Start Num: 14

Candidate Starts for Eradicator\_84:

(Start: 8 @49739 has 30 MA's), (10, 49748), (Start: 14 @49799 has 71 MA's), (24, 49970), (25, 49994),

Gene: EricMillard\_69 Start: 49963, Stop: 49628, Start Num: 8

Candidate Starts for EricMillard\_69:

(Start: 8 @49963 has 30 MA's), (10, 49954), (Start: 14 @49903 has 71 MA's), (25, 49705),

Gene: Fancypants\_97 Start: 53902, Stop: 54138, Start Num: 14

Candidate Starts for Fancypants\_97:

(Start: 8 @53842 has 30 MA's), (10, 53851), (Start: 14 @53902 has 71 MA's), (24, 54073), (25, 54097),

Gene: Fastidio\_91 Start: 49445, Stop: 49675, Start Num: 14

Candidate Starts for Fastidio\_91:

(Start: 8 @49385 has 30 MA's), (10, 49394), (Start: 14 @49445 has 71 MA's), (24, 49616), (25, 49640),

Gene: Firehouse51\_86 Start: 52035, Stop: 52259, Start Num: 14

Candidate Starts for Firehouse51\_86:

(Start: 8 @51975 has 30 MA's), (10, 51984), (Start: 14 @52035 has 71 MA's), (24, 52206), (25, 52230),

Gene: Florinda\_101 Start: 53017, Stop: 53307, Start Num: 8

Candidate Starts for Florinda\_101:



(6, 52912), (Start: 8 @53017 has 30 MA's), (10, 53026), (Start: 14 @53077 has 71 MA's), (24, 53248), (25, 53272), (26, 53302),

Gene: GUmbie\_90 Start: 51346, Stop: 51582, Start Num: 14

Candidate Starts for GUmbie\_90:

(Start: 8 @51286 has 30 MA's), (10, 51295), (Start: 14 @51346 has 71 MA's), (25, 51544),

Gene: Gaia\_115 Start: 65557, Stop: 65751, Start Num: 12

Candidate Starts for Gaia\_115:

(Start: 12 @65557 has 2 MA's), (22, 65704), (24, 65737),

Gene: Gandalph\_91 Start: 48872, Stop: 49105, Start Num: 14

Candidate Starts for Gandalph\_91:

(Start: 8 @48812 has 30 MA's), (10, 48821), (Start: 14 @48872 has 71 MA's), (24, 49043), (25, 49067),

Gene: Geralt\_84 Start: 50216, Stop: 50452, Start Num: 14

Candidate Starts for Geralt\_84:

(Start: 8 @50156 has 30 MA's), (10, 50165), (Start: 14 @50216 has 71 MA's), (25, 50414),

Gene: GigiOuiOui\_86 Start: 50349, Stop: 50585, Start Num: 14

Candidate Starts for GigiOuiOui\_86:

(Start: 8 @50289 has 30 MA's), (10, 50298), (Start: 14 @50349 has 71 MA's), (25, 50547),

Gene: Girafales\_98 Start: 52622, Stop: 52912, Start Num: 8

Candidate Starts for Girafales\_98:

(6, 52517), (Start: 8 @52622 has 30 MA's), (10, 52631), (Start: 14 @52682 has 71 MA's), (24, 52853), (25, 52877), (26, 52907),

Gene: Girr\_89 Start: 51613, Stop: 51849, Start Num: 14

Candidate Starts for Girr\_89:

(Start: 8 @51553 has 30 MA's), (10, 51562), (Start: 14 @51613 has 71 MA's), (24, 51784), (25, 51808),

Gene: Guppsters\_85 Start: 48781, Stop: 49017, Start Num: 14

Candidate Starts for Guppsters\_85:

(Start: 8 @48721 has 30 MA's), (10, 48730), (Start: 14 @48781 has 71 MA's), (24, 48952), (25, 48976),

Gene: Hades\_88 Start: 48876, Stop: 49172, Start Num: 8

Candidate Starts for Hades\_88:

(Start: 8 @48876 has 30 MA's), (10, 48885), (Start: 14 @48936 has 71 MA's), (24, 49107), (25, 49131),

Gene: Hegedechwinu\_91 Start: 50212, Stop: 50508, Start Num: 8

Candidate Starts for Hegedechwinu\_91:

(Start: 8 @50212 has 30 MA's), (10, 50221), (Start: 14 @50272 has 71 MA's), (24, 50443), (25, 50467),

Gene: lbOuu\_86 Start: 49253, Stop: 49489, Start Num: 14

Candidate Starts for lbOuu\_86:

(Start: 8 @49193 has 30 MA's), (10, 49202), (Start: 14 @49253 has 71 MA's), (24, 49424), (25, 49448),

Gene: JalFarm20\_101 Start: 53265, Stop: 53501, Start Num: 14  
Candidate Starts for JalFarm20\_101:  
(Start: 8 @53205 has 30 MA's), (10, 53214), (Start: 14 @53265 has 71 MA's), (24, 53436), (25, 53460),

Gene: James\_93 Start: 52977, Stop: 53273, Start Num: 8  
Candidate Starts for James\_93:  
(Start: 8 @52977 has 30 MA's), (10, 52986), (Start: 14 @53037 has 71 MA's), (24, 53208), (25, 53232),

Gene: Jarcob\_93 Start: 52636, Stop: 52872, Start Num: 14  
Candidate Starts for Jarcob\_93:  
(Start: 8 @52576 has 30 MA's), (10, 52585), (Start: 14 @52636 has 71 MA's), (24, 52807), (25, 52831),

Gene: Jinglebell\_96 Start: 52786, Stop: 53022, Start Num: 14  
Candidate Starts for Jinglebell\_96:  
(Start: 8 @52726 has 30 MA's), (10, 52735), (Start: 14 @52786 has 71 MA's), (19, 52840), (22, 52924), (25, 52981),

Gene: Juice456\_90 Start: 51122, Stop: 51358, Start Num: 14  
Candidate Starts for Juice456\_90:  
(Start: 8 @51062 has 30 MA's), (10, 51071), (Start: 14 @51122 has 71 MA's), (25, 51320),

Gene: Kersh\_95 Start: 54006, Stop: 54305, Start Num: 8  
Candidate Starts for Kersh\_95:  
(Start: 8 @54006 has 30 MA's), (10, 54015), (Start: 14 @54066 has 71 MA's), (25, 54264),

Gene: Kimberlium\_93 Start: 51162, Stop: 51458, Start Num: 8  
Candidate Starts for Kimberlium\_93:  
(Start: 8 @51162 has 30 MA's), (10, 51171), (Start: 14 @51222 has 71 MA's), (25, 51420),

Gene: KingMidas\_91 Start: 51627, Stop: 51863, Start Num: 14  
Candidate Starts for KingMidas\_91:  
(Start: 8 @51567 has 30 MA's), (10, 51576), (Start: 14 @51627 has 71 MA's), (24, 51798), (25, 51822),

Gene: Koella\_82 Start: 47796, Stop: 48035, Start Num: 14  
Candidate Starts for Koella\_82:  
(2, 47589), (Start: 8 @47736 has 30 MA's), (10, 47745), (Start: 14 @47796 has 71 MA's), (25, 47994),

Gene: Latretium\_93 Start: 51905, Stop: 52129, Start Num: 14  
Candidate Starts for Latretium\_93:  
(Start: 8 @51845 has 30 MA's), (10, 51854), (Start: 14 @51905 has 71 MA's), (24, 52076), (25, 52100),

Gene: Leozinho\_88 Start: 48663, Stop: 48899, Start Num: 14  
Candidate Starts for Leozinho\_88:  
(Start: 8 @48603 has 30 MA's), (10, 48612), (Start: 14 @48663 has 71 MA's), (25, 48861),

Gene: Llama\_98 Start: 52582, Stop: 52878, Start Num: 8  
Candidate Starts for Llama\_98:

(Start: 8 @52582 has 30 MA's), (10, 52591), (Start: 14 @52642 has 71 MA's), (19, 52696), (22, 52780), (25, 52837),

Gene: Llij\_87 Start: 50129, Stop: 50419, Start Num: 8

Candidate Starts for Llij\_87:

(Start: 8 @50129 has 30 MA's), (10, 50138), (Start: 14 @50189 has 71 MA's), (24, 50360), (25, 50384),

Gene: MadMen\_97 Start: 51947, Stop: 52186, Start Num: 14

Candidate Starts for MadMen\_97:

(Start: 8 @51887 has 30 MA's), (10, 51896), (Start: 14 @51947 has 71 MA's), (25, 52145),

Gene: Mattes\_90 Start: 51769, Stop: 52008, Start Num: 14

Candidate Starts for Mattes\_90:

(Start: 8 @51709 has 30 MA's), (10, 51718), (Start: 14 @51769 has 71 MA's), (25, 51967),

Gene: Melissauren88\_80 Start: 47616, Stop: 47852, Start Num: 14

Candidate Starts for Melissauren88\_80:

(Start: 8 @47556 has 30 MA's), (10, 47565), (Start: 14 @47616 has 71 MA's), (24, 47787), (25, 47811),

Gene: MinionDave\_90 Start: 51739, Stop: 51969, Start Num: 14

Candidate Starts for MinionDave\_90:

(Start: 8 @51679 has 30 MA's), (10, 51688), (Start: 14 @51739 has 71 MA's), (24, 51910), (25, 51934),

Gene: MisterCuddles\_90 Start: 51613, Stop: 51849, Start Num: 14

Candidate Starts for MisterCuddles\_90:

(Start: 8 @51553 has 30 MA's), (10, 51562), (Start: 14 @51613 has 71 MA's), (24, 51784), (25, 51808),

Gene: Modragons\_96 Start: 52630, Stop: 52866, Start Num: 14

Candidate Starts for Modragons\_96:

(Start: 8 @52570 has 30 MA's), (10, 52579), (Start: 14 @52630 has 71 MA's), (19, 52684), (22, 52768), (25, 52825),

Gene: Mozy\_97 Start: 51483, Stop: 51770, Start Num: 8

Candidate Starts for Mozy\_97:

(Start: 8 @51483 has 30 MA's), (10, 51492), (Start: 14 @51543 has 71 MA's), (20, 51633), (24, 51717), (25, 51741),

Gene: MulchSalad\_94 Start: 52605, Stop: 52829, Start Num: 14

Candidate Starts for MulchSalad\_94:

(4, 52434), (7, 52452), (Start: 8 @52545 has 30 MA's), (10, 52554), (Start: 14 @52605 has 71 MA's), (24, 52776), (25, 52800),

Gene: Mutaforma13\_92 Start: 50818, Stop: 51102, Start Num: 8

Candidate Starts for Mutaforma13\_92:

(Start: 8 @50818 has 30 MA's), (10, 50827), (Start: 14 @50878 has 71 MA's), (24, 51049), (25, 51073),

Gene: Nebkiss\_116 Start: 64483, Stop: 64677, Start Num: 12

Candidate Starts for Nebkiss\_116:

(Start: 12 @64483 has 2 MA's), (22, 64630), (24, 64663),

Gene: Nimbo\_83 Start: 50218, Stop: 50454, Start Num: 14

Candidate Starts for Nimbo\_83:

(Start: 8 @50158 has 30 MA's), (10, 50167), (Start: 14 @50218 has 71 MA's), (25, 50416),

Gene: NormanBulbieJr\_88 Start: 51810, Stop: 52049, Start Num: 14

Candidate Starts for NormanBulbieJr\_88:

(2, 51603), (Start: 8 @51750 has 30 MA's), (10, 51759), (Start: 14 @51810 has 71 MA's), (25, 52008),

Gene: Ochi17\_97 Start: 52177, Stop: 52473, Start Num: 8

Candidate Starts for Ochi17\_97:

(Start: 8 @52177 has 30 MA's), (10, 52186), (Start: 14 @52237 has 71 MA's), (19, 52291), (22, 52375), (25, 52432),

Gene: OfUltron\_99 Start: 52786, Stop: 53022, Start Num: 14

Candidate Starts for OfUltron\_99:

(Start: 8 @52726 has 30 MA's), (10, 52735), (Start: 14 @52786 has 71 MA's), (19, 52840), (22, 52924), (25, 52981),

Gene: Ogopogo\_97 Start: 51107, Stop: 51346, Start Num: 14

Candidate Starts for Ogopogo\_97:

(Start: 8 @51047 has 30 MA's), (10, 51056), (Start: 14 @51107 has 71 MA's), (25, 51305),

Gene: Oksu\_94 Start: 53367, Stop: 53603, Start Num: 14

Candidate Starts for Oksu\_94:

(Start: 8 @53307 has 30 MA's), (10, 53316), (Start: 14 @53367 has 71 MA's), (24, 53538), (25, 53562),

Gene: OldBen\_88 Start: 51610, Stop: 51846, Start Num: 14

Candidate Starts for OldBen\_88:

(Start: 8 @51550 has 30 MA's), (10, 51559), (Start: 14 @51610 has 71 MA's), (25, 51808),

Gene: OlympiaSaint\_93 Start: 51979, Stop: 52215, Start Num: 14

Candidate Starts for OlympiaSaint\_93:

(Start: 8 @51919 has 30 MA's), (10, 51928), (Start: 14 @51979 has 71 MA's), (24, 52150), (25, 52174),

Gene: Optimus\_74 Start: 50678, Stop: 50343, Start Num: 8

Candidate Starts for Optimus\_74:

(Start: 8 @50678 has 30 MA's), (10, 50669), (Start: 14 @50618 has 71 MA's), (25, 50420),

Gene: Ovechkin\_95 Start: 52388, Stop: 52684, Start Num: 8

Candidate Starts for Ovechkin\_95:

(1, 52226), (Start: 8 @52388 has 30 MA's), (10, 52397), (Start: 14 @52448 has 71 MA's), (19, 52502), (22, 52586), (25, 52643),

Gene: OwlsT2W\_90 Start: 50280, Stop: 50516, Start Num: 14

Candidate Starts for OwlsT2W\_90:

(Start: 8 @50220 has 30 MA's), (10, 50229), (Start: 14 @50280 has 71 MA's), (24, 50451), (25, 50475),

Gene: PHappiness\_91 Start: 52439, Stop: 52675, Start Num: 14

Candidate Starts for PHappiness\_91:

(Start: 8 @52379 has 30 MA's), (10, 52388), (Start: 14 @52439 has 71 MA's), (25, 52637),

Gene: Pacc40\_87 Start: 52144, Stop: 52443, Start Num: 8

Candidate Starts for Pacc40\_87:

(Start: 8 @52144 has 30 MA's), (10, 52153), (Start: 14 @52204 has 71 MA's), (25, 52402),

Gene: Phasih\_88 Start: 49971, Stop: 50204, Start Num: 14

Candidate Starts for Phasih\_88:

(Start: 14 @49971 has 71 MA's), (24, 50142), (25, 50166),

Gene: Polka14\_95 Start: 53191, Stop: 53427, Start Num: 14

Candidate Starts for Polka14\_95:

(Start: 8 @53131 has 30 MA's), (10, 53140), (Start: 14 @53191 has 71 MA's), (24, 53362), (25, 53386),

Gene: Pollywog\_93 Start: 52973, Stop: 53269, Start Num: 8

Candidate Starts for Pollywog\_93:

(Start: 8 @52973 has 30 MA's), (10, 52982), (Start: 14 @53033 has 71 MA's), (24, 53204), (25, 53228),

Gene: Pound\_70 Start: 51651, Stop: 51316, Start Num: 8

Candidate Starts for Pound\_70:

(Start: 8 @51651 has 30 MA's), (10, 51642), (Start: 14 @51591 has 71 MA's), (25, 51393),

Gene: Priscilla\_90 Start: 51908, Stop: 52147, Start Num: 14

Candidate Starts for Priscilla\_90:

(2, 51701), (Start: 8 @51848 has 30 MA's), (10, 51857), (Start: 14 @51908 has 71 MA's), (25, 52106),

Gene: QuickMath\_92 Start: 51474, Stop: 51710, Start Num: 14

Candidate Starts for QuickMath\_92:

(Start: 8 @51414 has 30 MA's), (10, 51423), (Start: 14 @51474 has 71 MA's), (25, 51672),

Gene: Quico\_98 Start: 52837, Stop: 53127, Start Num: 8

Candidate Starts for Quico\_98:

(6, 52732), (Start: 8 @52837 has 30 MA's), (10, 52846), (Start: 14 @52897 has 71 MA's), (24, 53068), (25, 53092), (26, 53122),

Gene: Radiance\_89 Start: 51319, Stop: 51555, Start Num: 14

Candidate Starts for Radiance\_89:

(6, 51154), (Start: 8 @51259 has 30 MA's), (10, 51268), (Start: 14 @51319 has 71 MA's), (24, 51490), (25, 51514),

Gene: Ramsey\_96 Start: 53396, Stop: 53689, Start Num: 8

Candidate Starts for Ramsey\_96:

(Start: 8 @53396 has 30 MA's), (10, 53405), (Start: 14 @53456 has 71 MA's), (24, 53627), (25, 53651),

Gene: Renaud18\_100 Start: 51917, Stop: 52153, Start Num: 14

Candidate Starts for Renaud18\_100:

(Start: 8 @51857 has 30 MA's), (10, 51866), (Start: 14 @51917 has 71 MA's), (24, 52088), (25, 52112),

Gene: Rita\_92 Start: 52822, Stop: 53061, Start Num: 14

Candidate Starts for Rita\_92:

(Start: 8 @52762 has 30 MA's), (10, 52771), (Start: 14 @52822 has 71 MA's), (25, 53020),

Gene: RitaG\_90 Start: 52241, Stop: 52477, Start Num: 14

Candidate Starts for RitaG\_90:

(Start: 8 @52181 has 30 MA's), (10, 52190), (Start: 14 @52241 has 71 MA's), (25, 52439),

Gene: RockyHorror\_95 Start: 51354, Stop: 51593, Start Num: 14

Candidate Starts for RockyHorror\_95:

(Start: 8 @51294 has 30 MA's), (10, 51303), (Start: 14 @51354 has 71 MA's), (25, 51552),

Gene: Ruby\_87 Start: 51614, Stop: 51850, Start Num: 14

Candidate Starts for Ruby\_87:

(Start: 8 @51554 has 30 MA's), (10, 51563), (Start: 14 @51614 has 71 MA's), (25, 51812),

Gene: SG4\_92 Start: 52390, Stop: 52686, Start Num: 8

Candidate Starts for SG4\_92:

(Start: 8 @52390 has 30 MA's), (10, 52399), (Start: 14 @52450 has 71 MA's), (24, 52621), (25, 52645),

Gene: STLscum\_63 Start: 41682, Stop: 41449, Start Num: 14

Candidate Starts for STLscum\_63:

(Start: 8 @41742 has 30 MA's), (10, 41733), (Start: 14 @41682 has 71 MA's), (25, 41484),

Gene: Sabbb\_94 Start: 49914, Stop: 50150, Start Num: 14

Candidate Starts for Sabbb\_94:

(1, 49698), (Start: 8 @49854 has 30 MA's), (10, 49863), (Start: 14 @49914 has 71 MA's), (24, 50085), (25, 50109),

Gene: Sandalphon\_89 Start: 52466, Stop: 52702, Start Num: 14

Candidate Starts for Sandalphon\_89:

(Start: 8 @52406 has 30 MA's), (10, 52415), (Start: 14 @52466 has 71 MA's), (24, 52637), (25, 52661),

Gene: Scottish\_91 Start: 51066, Stop: 51302, Start Num: 14

Candidate Starts for Scottish\_91:

(Start: 8 @51006 has 30 MA's), (10, 51015), (Start: 14 @51066 has 71 MA's), (24, 51237), (25, 51261),

Gene: Seabastian\_99 Start: 52787, Stop: 53023, Start Num: 14

Candidate Starts for Seabastian\_99:

(Start: 8 @52727 has 30 MA's), (10, 52736), (Start: 14 @52787 has 71 MA's), (19, 52841), (22, 52925), (25, 52982),

Gene: ShiLan\_92 Start: 53432, Stop: 53728, Start Num: 8

Candidate Starts for ShiLan\_92:

(Start: 8 @53432 has 30 MA's), (10, 53441), (Start: 14 @53492 has 71 MA's), (24, 53663), (25, 53687),

Gene: ShroomBoi\_89 Start: 51000, Stop: 51233, Start Num: 14

Candidate Starts for ShroomBoi\_89:

(Start: 8 @50940 has 30 MA's), (10, 50949), (Start: 14 @51000 has 71 MA's), (19, 51054), (22, 51138), (25, 51195),

Gene: Soul22\_92 Start: 49297, Stop: 49563, Start Num: 14

Candidate Starts for Soul22\_92:

(Start: 8 @49237 has 30 MA's), (10, 49246), (Start: 14 @49297 has 71 MA's), (16, 49309), (18, 49381), (22, 49471), (25, 49528),

Gene: Sparkdehlily\_99 Start: 50589, Stop: 50888, Start Num: 8

Candidate Starts for Sparkdehlily\_99:

(Start: 8 @50589 has 30 MA's), (10, 50598), (Start: 14 @50649 has 71 MA's), (25, 50847),

Gene: Spoonbill\_89 Start: 49405, Stop: 49641, Start Num: 14

Candidate Starts for Spoonbill\_89:

(Start: 8 @49345 has 30 MA's), (10, 49354), (Start: 14 @49405 has 71 MA's), (24, 49576), (25, 49600),

Gene: SuperGrey\_92 Start: 53452, Stop: 53688, Start Num: 14

Candidate Starts for SuperGrey\_92:

(Start: 8 @53392 has 30 MA's), (10, 53401), (Start: 14 @53452 has 71 MA's), (24, 53623), (25, 53647),

Gene: TDanisky\_101 Start: 50649, Stop: 50888, Start Num: 14

Candidate Starts for TDanisky\_101:

(Start: 8 @50589 has 30 MA's), (10, 50598), (Start: 14 @50649 has 71 MA's), (25, 50847),

Gene: Tasp14\_1 Start: 534, Stop: 773, Start Num: 9

Candidate Starts for Tasp14\_1:

(Start: 9 @534 has 2 MA's), (11, 570), (13, 579), (Start: 15 @597 has 4 MA's), (17, 618), (18, 636), (19, 642), (22, 726), (23, 753),

Gene: Thibault\_62 Start: 46268, Stop: 45933, Start Num: 8

Candidate Starts for Thibault\_62:

(Start: 8 @46268 has 30 MA's), (10, 46259), (Start: 14 @46208 has 71 MA's), (25, 46010),

Gene: Tootsieroll\_86 Start: 51876, Stop: 52112, Start Num: 14

Candidate Starts for Tootsieroll\_86:

(Start: 14 @51876 has 71 MA's), (24, 52047), (25, 52071),

Gene: Wachhund\_88 Start: 48256, Stop: 48486, Start Num: 14

Candidate Starts for Wachhund\_88:

(Start: 8 @48196 has 30 MA's), (10, 48205), (Start: 14 @48256 has 71 MA's), (24, 48427), (25, 48451),

Gene: Whatsapiecost\_84 Start: 46263, Stop: 46499, Start Num: 14

Candidate Starts for Whatsapiecost\_84:

(Start: 8 @46203 has 30 MA's), (10, 46212), (Start: 14 @46263 has 71 MA's), (24, 46434), (25, 46458),

Gene: Zizzle\_93 Start: 52799, Stop: 53038, Start Num: 14

Candidate Starts for Zizzle\_93:

(Start: 8 @52739 has 30 MA's), (10, 52748), (Start: 14 @52799 has 71 MA's), (25, 52997),