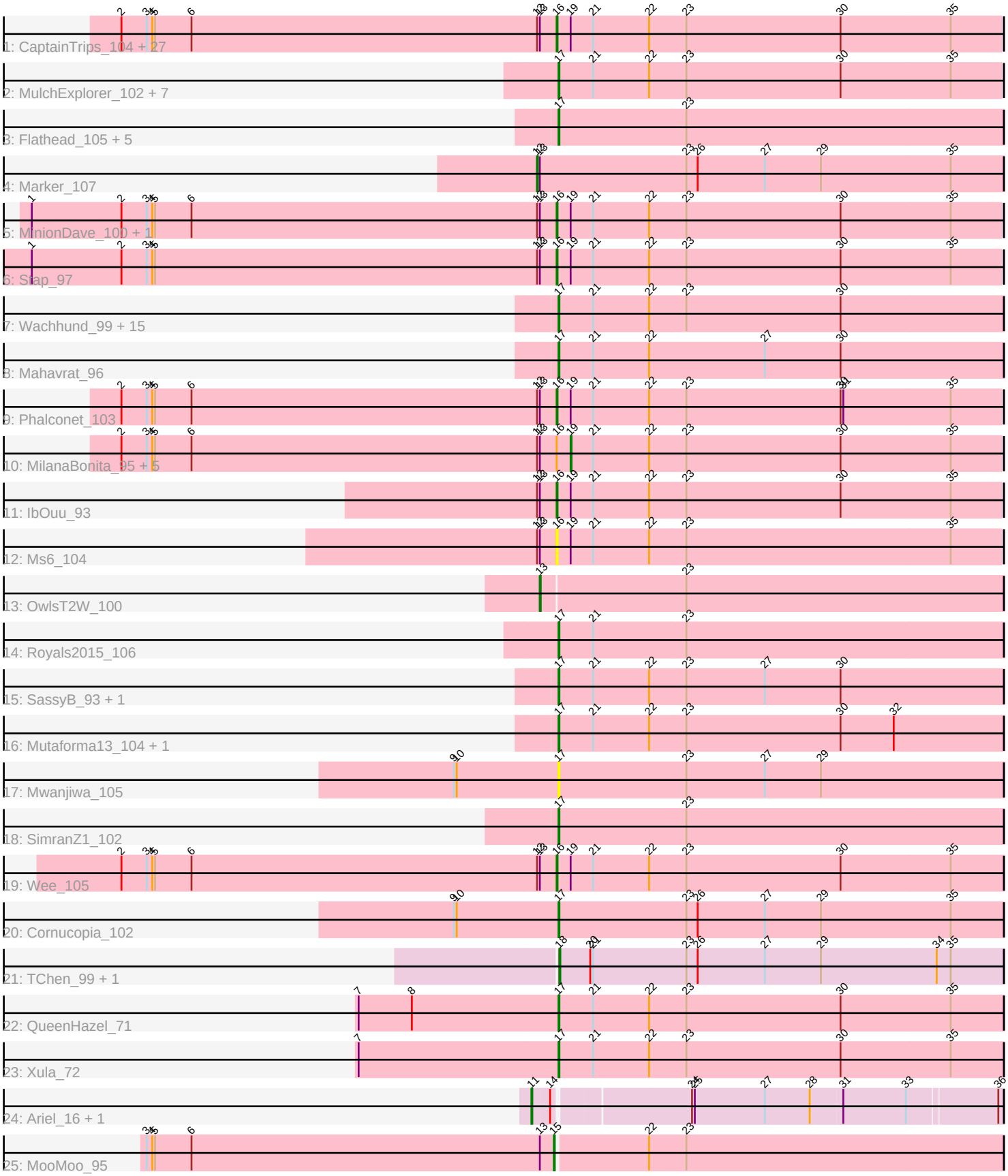
Pham 347492


1: CaptainTrips_104 + 27
2: MulchExplorer_102 + 7
3: Flathead_105 + 5
4: Marker_107
5: MinionDave_100 + 1
6: Siap_97
7: Wachhund_99 + 15
8: Mahavrat_96
9: Phalconet_103
10: MilanaBonita_95 + 5
11: IbOuu_93
12: Ms6_104
13: OwlsT2W_100
14: Royals2015_106
15: SassyB_93 + 1
16: Mutaforma13_104 + 1
17: Mwanjiwa_105
18: SimranZ1_102
19: Wee_105
20: Cornucopia_102
21: TChen_99 + 1
22: QueenHazel_71
23: Xula_72
24: Ariel_16 + 1
25: MooMoo_95

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 347492 Report

This analysis was run 11/14/26 on database version 672.

Pham number 347492 has 89 members, 12 are drafts.

Phages represented in each track:
• Track 1 : CaptainTrips_104, PhesterPhotato_106, Hamulus_102, DosHalletts_99, Medindi_107, DLane_102, ShroomBoi_100, QuickMath_103, Filuzino_102, LittleShirley_110, ArcusAngelus_102, Seagreen_103, Chuckly_99, Okabe_94, StAnnes_107, SG4_103, Chevrolet_106, Whatsapiecost_96, Mova_104, Fastidio_105, Slim_106, XFactor_93, Batiatus_102, Emmaloid_106, KingJulian_110, Beanstalk_102, Beakin_95, Akhila_96
• Track 2 : MulchExplorer_102, DotProduct_96, Kimberlium_103, GUmbie_101, PatoPoderoso_103, Hades_99, Boomer_103, Juice456_101
• Track 3 : Flathead_105, Rockne_106, PMC_102, Brushbloom_103, Ogopogo_107, Hegedechwinu_111
• Track 4 : Marker_107
• Track 5 : MinionDave_100, DillTech15_108
• Track 6 : Stap_97
• Track 7 : Wachhund_99, Galactic_107, LunaBlu_109, Enzomatic_115, Nitzel_97, Ovechkin_105, GigiOuiOui_97, Mozy_107, Polo2Bam_114, NewHope4_110, Ibhubesi_99, Kersh_105, SeaLumen_111, Harley_104, Byougenkin_99, Juniper1_94
• Track 8 : Mahavrat_96
• Track 9 : Phalconet_103
• Track 10 : MilanaBonita_95, Ardmore_86, Corium_101, Fruitloop_100, Melissauren88_92, IMpilo_100
• Track 11 : IbOuu_93
• Track 12 : Ms6_104
• Track 13 : OwlsT2W_100
• Track 14 : Royals2015_106
• Track 15 : SassyB_93, PopTart_93
• Track 16 : Mutaforma13_104, Firehouse51_97
• Track 17 : Mwanjiwa_105
• Track 18 : SimranZ1_102
• Track 19 : Wee_105
• Track 20 : Cornucopia_102
• Track 21 : TChen_99, LunaStella_99
• Track 22 : QueenHazel_71
• Track 23 : Xula_72
• Track 24 : Ariel_16, Rearden_14
• Track 25 : MooMoo_95

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

The start number called the most often in the published annotations is 17, it was called in 36 of the 77 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Boomer_103, Brushbloom_103, Byougenkin_99, Cornucopia_102, DotProduct_96, Enzomatic_115, Firehouse51_97, Flathead_105, GUmbie_101, Galactic_107, GigiOuiOui_97, Hades_99, Harley_104, Hegedechwinu_111, Ibhubesi_99, Juice456_101, Juniper1_94, Kersh_105, Kimberlium_103, LunaBlu_109, Mahavrat_96, Mozy_107, MulchExplorer_102, Mutaforma13_104, Mwanjiwa_105, NewHope4_110, Nitzel_97, Ogopogo_107, Ovechkin_105, PMC_102, PatoPoderoso_103, Polo2Bam_114, PopTart_93, QueenHazel_71, Rockne_106, Royals2015_106, SassyB_93, SeaLumen_111, SimranZ1_102, Wachhund_99, Xula_72,

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

Genes that do not have the "Most Annotated" start:
• Akhila_96, ArcusAngelus_102, Ardmore_86, Ariel_16, Batiatus_102, Beakin_95, Beanstalk_102, CaptainTrips_104, Chevrolet_106, Chuckly_99, Corium_101, DLane_102, DillTech15_108, DosHalletts_99, Emmaloid_106, Fastidio_105, Filuzino_102, Fruitloop_100, Hamulus_102, IMpilo_100, IbOuu_93, KingJulian_110, LittleShirley_110, LunaStella_99, Marker_107, Medindi_107, Melissauren88_92, MilanaBonita_95, MinionDave_100, MooMoo_95, Mova_104, Ms6_104, Okabe_94, OwlsT2W_100, Phalconet_103, PhesterPhotato_106, QuickMath_103, Rearden_14, SG4_103, Seagreen_103, ShroomBoi_100, Slim_106, StAnnes_107, Stap_97, TChen_99, Wee_105, Whatsapiecost_96, XFactor_93,

Summary by start number:

Start 11:
• Found in 2 of 89 (2.2%) of genes in pham
• Manual Annotations of this start: 1 of 77
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Ariel_16 (J), Rearden_14 (J),

Start 12:
• Found in 42 of 89 (47.2%) of genes in pham
• Manual Annotations of this start: 1 of 77
• Called 2.4% of time when present
• Phage (with cluster) where this start called: Marker_107 (F1),

Start 13:
• Found in 44 of 89 (49.4%) of genes in pham
• Manual Annotations of this start: 1 of 77
• Called 2.3% of time when present
• Phage (with cluster) where this start called: OwlsT2W_100 (F1),

Start 15:
• Found in 1 of 89 (1.1%) of genes in pham

• Manual Annotations of this start: 1 of 77
• Called 100.0% of time when present
• Phage (with cluster) where this start called: MooMoo_95 (singleton),

Start 16:
• Found in 41 of 89 (46.1%) of genes in pham
• Manual Annotations of this start: 32 of 77
• Called 85.4% of time when present
• Phage (with cluster) where this start called: Akhila_96 (F1), ArcusAngelus_102 (F1), Batiatus_102 (F1), Beakin_95 (F1), Beanstalk_102 (F1), CaptainTrips_104 (F1), Chevrolet_106 (F1), Chuckly_99 (F1), DLane_102 (F1), DillTech15_108 (F1), DosHalletts_99 (F1), Emmaloid_106 (F1), Fastidio_105 (F1), Filuzino_102 (F1), Hamulus_102 (F1), IbOuu_93 (F1), KingJulian_110 (F1), LittleShirley_110 (F1), Medindi_107 (F1), MinionDave_100 (F1), Mova_104 (F1), Ms6_104 (F1), Okabe_94 (F8), Phalconet_103 (F1), PhesterPhotato_106 (F1), QuickMath_103 (F1), SG4_103 (F1), Seagreen_103 (F1), ShroomBoi_100 (F1), Slim_106 (F1), StAnnes_107 (F1), Stap_97 (F1), Wee_105 (F1), Whatsapiecost_96 (F1), XFactor_93 (F1),

Start 17:
• Found in 41 of 89 (46.1%) of genes in pham
• Manual Annotations of this start: 36 of 77
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Boomer_103 (F1), Brushbloom_103 (F1), Byougenkin_99 (F1), Cornucopia_102 (F1), DotProduct_96 (F1), Enzomatic_115 (F1), Firehouse51_97 (F1), Flathead_105 (F1), GUmbie_101 (F1), Galactic_107 (F1), GigiOuiOui_97 (F1), Hades_99 (F1), Harley_104 (F1), Hegedechwinu_111 (F1), Ibhubesi_99 (F1), Juice456_101 (F1), Juniper1_94 (F1), Kersh_105 (F1), Kimberlium_103 (F1), LunaBlu_109 (F1), Mahavrat_96 (F1), Mozy_107 (F1), MulchExplorer_102 (F1), Mutaforma13_104 (F1), Mwanjiwa_105 (F1), NewHope4_110 (F1), Nitzel_97 (F1), Ogopogo_107 (F1), Ovechkin_105 (F1), PMC_102 (F1), PatoPoderoso_103 (F1), Polo2Bam_114 (F1), PopTart_93 (F1), QueenHazel_71 (I1), Rockne_106 (F1), Royals2015_106 (F1), SassyB_93 (F1), SeaLumen_111 (F1), SimranZ1_102 (F1), Wachhund_99 (F1), Xula_72 (I1),

Start 18:
• Found in 2 of 89 (2.2%) of genes in pham
• Manual Annotations of this start: 2 of 77
• Called 100.0% of time when present
• Phage (with cluster) where this start called: LunaStella_99 (F4), TChen_99 (F4),

Start 19:
• Found in 41 of 89 (46.1%) of genes in pham
• Manual Annotations of this start: 3 of 77
• Called 14.6% of time when present
• Phage (with cluster) where this start called: Ardmore_86 (F1), Corium_101 (F1), Fruitloop_100 (F1), IMpilo_100 (F1), Melissauren88_92 (F1), MilanaBonita_95 (F1),

Summary by clusters:

There are 6 clusters represented in this pham: F1, singleton, F4, I1, J, F8,

Info for manual annotations of cluster F1:
•Start number 12 was manually annotated 1 time for cluster F1.

•Start number 13 was manually annotated 1 time for cluster F1.
•Start number 16 was manually annotated 32 times for cluster F1.
•Start number 17 was manually annotated 34 times for cluster F1.
•Start number 19 was manually annotated 3 times for cluster F1.

Info for manual annotations of cluster F4:
•Start number 18 was manually annotated 2 times for cluster F4.

Info for manual annotations of cluster I1:
•Start number 17 was manually annotated 2 times for cluster I1.

Info for manual annotations of cluster J:
•Start number 11 was manually annotated 1 time for cluster J.

Gene Information:

Gene: Akhila_96 Start: 54481, Stop: 54954, Start Num: 16
Candidate Starts for Akhila_96:
(2, 54016), (3, 54043), (4, 54049), (5, 54052), (6, 54091), (Start: 12 @54460 has 1 MA's), (Start: 13 @54463 has 1 MA's), (Start: 16 @54481 has 32 MA's), (Start: 19 @54496 has 3 MA's), (21, 54520), (22, 54580), (23, 54619), (30, 54784), (35, 54901),

Gene: ArcusAngelus_102 Start: 56799, Stop: 57272, Start Num: 16
Candidate Starts for ArcusAngelus_102:
(2, 56334), (3, 56361), (4, 56367), (5, 56370), (6, 56409), (Start: 12 @56778 has 1 MA's), (Start: 13 @56781 has 1 MA's), (Start: 16 @56799 has 32 MA's), (Start: 19 @56814 has 3 MA's), (21, 56838), (22, 56898), (23, 56937), (30, 57102), (35, 57219),

Gene: Ardmore_86 Start: 50385, Stop: 50843, Start Num: 19
Candidate Starts for Ardmore_86:
(2, 49905), (3, 49932), (4, 49938), (5, 49941), (6, 49980), (Start: 12 @50349 has 1 MA's), (Start: 13 @50352 has 1 MA's), (Start: 16 @50370 has 32 MA's), (Start: 19 @50385 has 3 MA's), (21, 50409), (22, 50469), (23, 50508), (30, 50673), (35, 50790),

Gene: Ariel_16 Start: 10208, Stop: 10687, Start Num: 11
Candidate Starts for Ariel_16:
(Start: 11 @10208 has 1 MA's), (14, 10226), (24, 10364), (25, 10367), (27, 10442), (28, 10490), (31, 10523), (33, 10589), (36, 10682),

Gene: Batiatus_102 Start: 55920, Stop: 56396, Start Num: 16
Candidate Starts for Batiatus_102:
(2, 55455), (3, 55482), (4, 55488), (5, 55491), (6, 55530), (Start: 12 @55899 has 1 MA's), (Start: 13 @55902 has 1 MA's), (Start: 16 @55920 has 32 MA's), (Start: 19 @55935 has 3 MA's), (21, 55959), (22, 56019), (23, 56058), (30, 56223), (35, 56340),

Gene: Beakin_95 Start: 53183, Stop: 53656, Start Num: 16
Candidate Starts for Beakin_95:
(2, 52718), (3, 52745), (4, 52751), (5, 52754), (6, 52793), (Start: 12 @53162 has 1 MA's), (Start: 13 @53165 has 1 MA's), (Start: 16 @53183 has 32 MA's), (Start: 19 @53198 has 3 MA's), (21, 53222), (22, 53282), (23, 53321), (30, 53486), (35, 53603),

Gene: Beanstalk_102 Start: 55070, Stop: 55543, Start Num: 16
Candidate Starts for Beanstalk_102:
(2, 54605), (3, 54632), (4, 54638), (5, 54641), (6, 54680), (Start: 12 @55049 has 1 MA's), (Start: 13 @55052 has 1 MA's), (Start: 16 @55070 has 32 MA's), (Start: 19 @55085 has 3 MA's), (21, 55109), (22, 55169), (23, 55208), (30, 55373), (35, 55490),

Gene: Boomer_103 Start: 56660, Stop: 57130, Start Num: 17
Candidate Starts for Boomer_103:
(Start: 17 @56660 has 36 MA's), (21, 56696), (22, 56756), (23, 56795), (30, 56960), (35, 57077),

Gene: Brushbloom_103 Start: 57216, Stop: 57689, Start Num: 17
Candidate Starts for Brushbloom_103:
(Start: 17 @57216 has 36 MA's), (23, 57351),

Gene: Byougenkin_99 Start: 53124, Stop: 53597, Start Num: 17
Candidate Starts for Byougenkin_99:
(Start: 17 @53124 has 36 MA's), (21, 53160), (22, 53220), (23, 53259), (30, 53424),

Gene: CaptainTrips_104 Start: 55558, Stop: 56031, Start Num: 16
Candidate Starts for CaptainTrips_104:
(2, 55093), (3, 55120), (4, 55126), (5, 55129), (6, 55168), (Start: 12 @55537 has 1 MA's), (Start: 13 @55540 has 1 MA's), (Start: 16 @55558 has 32 MA's), (Start: 19 @55573 has 3 MA's), (21, 55597), (22, 55657), (23, 55696), (30, 55861), (35, 55978),

Gene: Chevrolet_106 Start: 56800, Stop: 57273, Start Num: 16
Candidate Starts for Chevrolet_106:
(2, 56335), (3, 56362), (4, 56368), (5, 56371), (6, 56410), (Start: 12 @56779 has 1 MA's), (Start: 13 @56782 has 1 MA's), (Start: 16 @56800 has 32 MA's), (Start: 19 @56815 has 3 MA's), (21, 56839), (22, 56899), (23, 56938), (30, 57103), (35, 57220),

Gene: Chuckly_99 Start: 52600, Stop: 53076, Start Num: 16
Candidate Starts for Chuckly_99:
(2, 52135), (3, 52162), (4, 52168), (5, 52171), (6, 52210), (Start: 12 @52579 has 1 MA's), (Start: 13 @52582 has 1 MA's), (Start: 16 @52600 has 32 MA's), (Start: 19 @52615 has 3 MA's), (21, 52639), (22, 52699), (23, 52738), (30, 52903), (35, 53020),

Gene: Corium_101 Start: 57602, Stop: 58060, Start Num: 19
Candidate Starts for Corium_101:
(2, 57122), (3, 57149), (4, 57155), (5, 57158), (6, 57197), (Start: 12 @57566 has 1 MA's), (Start: 13 @57569 has 1 MA's), (Start: 16 @57587 has 32 MA's), (Start: 19 @57602 has 3 MA's), (21, 57626), (22, 57686), (23, 57725), (30, 57890), (35, 58007),

Gene: Cornucopia_102 Start: 53860, Stop: 54333, Start Num: 17
Candidate Starts for Cornucopia_102:
(9, 53749), (10, 53752), (Start: 17 @53860 has 36 MA's), (23, 53995), (26, 54007), (27, 54079), (29, 54139), (35, 54277),

Gene: DLane_102 Start: 57129, Stop: 57602, Start Num: 16
Candidate Starts for DLane_102:
(2, 56664), (3, 56691), (4, 56697), (5, 56700), (6, 56739), (Start: 12 @57108 has 1 MA's), (Start: 13 @57111 has 1 MA's), (Start: 16 @57129 has 32 MA's), (Start: 19 @57144 has 3 MA's), (21, 57168), (22, 57228), (23, 57267), (30, 57432), (35, 57549),

Gene: DillTech15_108 Start: 56028, Stop: 56501, Start Num: 16
Candidate Starts for DillTech15_108:
(1, 55467), (2, 55563), (3, 55590), (4, 55596), (5, 55599), (6, 55638), (Start: 12 @56007 has 1 MA's), (Start: 13 @56010 has 1 MA's), (Start: 16 @56028 has 32 MA's), (Start: 19 @56043 has 3 MA's), (21, 56067), (22, 56127), (23, 56166), (30, 56331), (35, 56448),

Gene: DosHalletts_99 Start: 56180, Stop: 56653, Start Num: 16
Candidate Starts for DosHalletts_99:
(2, 55715), (3, 55742), (4, 55748), (5, 55751), (6, 55790), (Start: 12 @56159 has 1 MA's), (Start: 13 @56162 has 1 MA's), (Start: 16 @56180 has 32 MA's), (Start: 19 @56195 has 3 MA's), (21, 56219), (22, 56279), (23, 56318), (30, 56483), (35, 56600),

Gene: DotProduct_96 Start: 53549, Stop: 54022, Start Num: 17
Candidate Starts for DotProduct_96:
(Start: 17 @53549 has 36 MA's), (21, 53585), (22, 53645), (23, 53684), (30, 53849), (35, 53966),

Gene: Emmaloid_106 Start: 56333, Stop: 56806, Start Num: 16
Candidate Starts for Emmaloid_106:
(2, 55868), (3, 55895), (4, 55901), (5, 55904), (6, 55943), (Start: 12 @56312 has 1 MA's), (Start: 13 @56315 has 1 MA's), (Start: 16 @56333 has 32 MA's), (Start: 19 @56348 has 3 MA's), (21, 56372), (22, 56432), (23, 56471), (30, 56636), (35, 56753),

Gene: Enzomatic_115 Start: 55702, Stop: 56175, Start Num: 17
Candidate Starts for Enzomatic_115:
(Start: 17 @55702 has 36 MA's), (21, 55738), (22, 55798), (23, 55837), (30, 56002),

Gene: Fastidio_105 Start: 54069, Stop: 54542, Start Num: 16
Candidate Starts for Fastidio_105:
(2, 53604), (3, 53631), (4, 53637), (5, 53640), (6, 53679), (Start: 12 @54048 has 1 MA's), (Start: 13 @54051 has 1 MA's), (Start: 16 @54069 has 32 MA's), (Start: 19 @54084 has 3 MA's), (21, 54108), (22, 54168), (23, 54207), (30, 54372), (35, 54489),

Gene: Filuzino_102 Start: 57535, Stop: 58008, Start Num: 16
Candidate Starts for Filuzino_102:
(2, 57070), (3, 57097), (4, 57103), (5, 57106), (6, 57145), (Start: 12 @57514 has 1 MA's), (Start: 13 @57517 has 1 MA's), (Start: 16 @57535 has 32 MA's), (Start: 19 @57550 has 3 MA's), (21, 57574), (22, 57634), (23, 57673), (30, 57838), (35, 57955),

Gene: Firehouse51_97 Start: 56605, Stop: 57078, Start Num: 17
Candidate Starts for Firehouse51_97:
(Start: 17 @56605 has 36 MA's), (21, 56641), (22, 56701), (23, 56740), (30, 56905), (32, 56962),

Gene: Flathead_105 Start: 56108, Stop: 56581, Start Num: 17
Candidate Starts for Flathead_105:
(Start: 17 @56108 has 36 MA's), (23, 56243),

Gene: Fruitloop_100 Start: 56715, Stop: 57173, Start Num: 19
Candidate Starts for Fruitloop_100:
(2, 56235), (3, 56262), (4, 56268), (5, 56271), (6, 56310), (Start: 12 @56679 has 1 MA's), (Start: 13 @56682 has 1 MA's), (Start: 16 @56700 has 32 MA's), (Start: 19 @56715 has 3 MA's), (21, 56739), (22, 56799), (23, 56838), (30, 57003), (35, 57120),

Gene: GUmbie_101 Start: 55573, Stop: 56046, Start Num: 17
Candidate Starts for GUmbie_101:
(Start: 17 @55573 has 36 MA's), (21, 55609), (22, 55669), (23, 55708), (30, 55873), (35, 55990),

Gene: Galactic_107 Start: 56300, Stop: 56773, Start Num: 17
Candidate Starts for Galactic_107:
(Start: 17 @56300 has 36 MA's), (21, 56336), (22, 56396), (23, 56435), (30, 56600),

Gene: GigiOuiOui_97 Start: 54828, Stop: 55301, Start Num: 17
Candidate Starts for GigiOuiOui_97:
(Start: 17 @54828 has 36 MA's), (21, 54864), (22, 54924), (23, 54963), (30, 55128),

Gene: Hades_99 Start: 53219, Stop: 53689, Start Num: 17
Candidate Starts for Hades_99:
(Start: 17 @53219 has 36 MA's), (21, 53255), (22, 53315), (23, 53354), (30, 53519), (35, 53636),

Gene: Hamulus_102 Start: 55385, Stop: 55858, Start Num: 16
Candidate Starts for Hamulus_102:
(2, 54920), (3, 54947), (4, 54953), (5, 54956), (6, 54995), (Start: 12 @55364 has 1 MA's), (Start: 13 @55367 has 1 MA's), (Start: 16 @55385 has 32 MA's), (Start: 19 @55400 has 3 MA's), (21, 55424), (22, 55484), (23, 55523), (30, 55688), (35, 55805),

Gene: Harley_104 Start: 56809, Stop: 57282, Start Num: 17
Candidate Starts for Harley_104:
(Start: 17 @56809 has 36 MA's), (21, 56845), (22, 56905), (23, 56944), (30, 57109),

Gene: Hegedechwinu_111 Start: 56173, Stop: 56646, Start Num: 17
Candidate Starts for Hegedechwinu_111:
(Start: 17 @56173 has 36 MA's), (23, 56308),

Gene: IMpilo_100 Start: 54178, Stop: 54636, Start Num: 19
Candidate Starts for IMpilo_100:
(2, 53698), (3, 53725), (4, 53731), (5, 53734), (6, 53773), (Start: 12 @54142 has 1 MA's), (Start: 13 @54145 has 1 MA's), (Start: 16 @54163 has 32 MA's), (Start: 19 @54178 has 3 MA's), (21, 54202), (22, 54262), (23, 54301), (30, 54466), (35, 54583),

Gene: IbOuu_93 Start: 53527, Stop: 54000, Start Num: 16
Candidate Starts for IbOuu_93:
(Start: 12 @53506 has 1 MA's), (Start: 13 @53509 has 1 MA's), (Start: 16 @53527 has 32 MA's), (Start: 19 @53542 has 3 MA's), (21, 53566), (22, 53626), (23, 53665), (30, 53830), (35, 53947),

Gene: Ibhubesi_99 Start: 53678, Stop: 54151, Start Num: 17
Candidate Starts for Ibhubesi_99:
(Start: 17 @53678 has 36 MA's), (21, 53714), (22, 53774), (23, 53813), (30, 53978),

Gene: Juice456_101 Start: 55348, Stop: 55818, Start Num: 17
Candidate Starts for Juice456_101:
(Start: 17 @55348 has 36 MA's), (21, 55384), (22, 55444), (23, 55483), (30, 55648), (35, 55765),

Gene: Juniper1_94 Start: 54576, Stop: 55049, Start Num: 17
Candidate Starts for Juniper1_94:
(Start: 17 @54576 has 36 MA's), (21, 54612), (22, 54672), (23, 54711), (30, 54876),

Gene: Kersh_105 Start: 58630, Stop: 59103, Start Num: 17
Candidate Starts for Kersh_105:
(Start: 17 @58630 has 36 MA's), (21, 58666), (22, 58726), (23, 58765), (30, 58930),

Gene: Kimberlium_103 Start: 55448, Stop: 55918, Start Num: 17
Candidate Starts for Kimberlium_103:
(Start: 17 @55448 has 36 MA's), (21, 55484), (22, 55544), (23, 55583), (30, 55748), (35, 55865),

Gene: KingJulian_110 Start: 58451, Stop: 58924, Start Num: 16
Candidate Starts for KingJulian_110:
(2, 57986), (3, 58013), (4, 58019), (5, 58022), (6, 58061), (Start: 12 @58430 has 1 MA's), (Start: 13 @58433 has 1 MA's), (Start: 16 @58451 has 32 MA's), (Start: 19 @58466 has 3 MA's), (21, 58490), (22, 58550), (23, 58589), (30, 58754), (35, 58871),

Gene: LittleShirley_110 Start: 57229, Stop: 57702, Start Num: 16
Candidate Starts for LittleShirley_110:
(2, 56764), (3, 56791), (4, 56797), (5, 56800), (6, 56839), (Start: 12 @57208 has 1 MA's), (Start: 13 @57211 has 1 MA's), (Start: 16 @57229 has 32 MA's), (Start: 19 @57244 has 3 MA's), (21, 57268), (22, 57328), (23, 57367), (30, 57532), (35, 57649),

Gene: LunaBlu_109 Start: 57722, Stop: 58195, Start Num: 17
Candidate Starts for LunaBlu_109:
(Start: 17 @57722 has 36 MA's), (21, 57758), (22, 57818), (23, 57857), (30, 58022),

Gene: LunaStella_99 Start: 54190, Stop: 54663, Start Num: 18
Candidate Starts for LunaStella_99:
(Start: 18 @54190 has 2 MA's), (20, 54223), (21, 54226), (23, 54325), (26, 54337), (27, 54409), (29, 54469), (34, 54592), (35, 54607),

Gene: Mahavrat_96 Start: 53605, Stop: 54078, Start Num: 17
Candidate Starts for Mahavrat_96:
(Start: 17 @53605 has 36 MA's), (21, 53641), (22, 53701), (27, 53824), (30, 53905),

Gene: Marker_107 Start: 57234, Stop: 57731, Start Num: 12
Candidate Starts for Marker_107:
(Start: 12 @57234 has 1 MA's), (Start: 13 @57237 has 1 MA's), (23, 57393), (26, 57405), (27, 57477), (29, 57537), (35, 57675),

Gene: Medindi_107 Start: 56911, Stop: 57384, Start Num: 16
Candidate Starts for Medindi_107:
(2, 56446), (3, 56473), (4, 56479), (5, 56482), (6, 56521), (Start: 12 @56890 has 1 MA's), (Start: 13 @56893 has 1 MA's), (Start: 16 @56911 has 32 MA's), (Start: 19 @56926 has 3 MA's), (21, 56950), (22, 57010), (23, 57049), (30, 57214), (35, 57331),

Gene: Melissauren88_92 Start: 52600, Stop: 53058, Start Num: 19
Candidate Starts for Melissauren88_92:
(2, 52120), (3, 52147), (4, 52153), (5, 52156), (6, 52195), (Start: 12 @52564 has 1 MA's), (Start: 13 @52567 has 1 MA's), (Start: 16 @52585 has 32 MA's), (Start: 19 @52600 has 3 MA's), (21, 52624), (22, 52684), (23, 52723), (30, 52888), (35, 53005),

Gene: MilanaBonita_95 Start: 54496, Stop: 54954, Start Num: 19
Candidate Starts for MilanaBonita_95:

(2, 54016), (3, 54043), (4, 54049), (5, 54052), (6, 54091), (Start: 12 @54460 has 1 MA's), (Start: 13 @54463 has 1 MA's), (Start: 16 @54481 has 32 MA's), (Start: 19 @54496 has 3 MA's), (21, 54520), (22, 54580), (23, 54619), (30, 54784), (35, 54901),

Gene: MinionDave_100 Start: 56257, Stop: 56730, Start Num: 16
Candidate Starts for MinionDave_100:
(1, 55696), (2, 55792), (3, 55819), (4, 55825), (5, 55828), (6, 55867), (Start: 12 @56236 has 1 MA's), (Start: 13 @56239 has 1 MA's), (Start: 16 @56257 has 32 MA's), (Start: 19 @56272 has 3 MA's), (21, 56296), (22, 56356), (23, 56395), (30, 56560), (35, 56677),

Gene: MooMoo_95 Start: 53643, Stop: 54116, Start Num: 15
Candidate Starts for MooMoo_95:
(3, 53208), (4, 53214), (5, 53217), (6, 53256), (Start: 13 @53628 has 1 MA's), (Start: 15 @53643 has 1 MA's), (22, 53739), (23, 53778),

Gene: Mova_104 Start: 56218, Stop: 56691, Start Num: 16
Candidate Starts for Mova_104:
(2, 55753), (3, 55780), (4, 55786), (5, 55789), (6, 55828), (Start: 12 @56197 has 1 MA's), (Start: 13 @56200 has 1 MA's), (Start: 16 @56218 has 32 MA's), (Start: 19 @56233 has 3 MA's), (21, 56257), (22, 56317), (23, 56356), (30, 56521), (35, 56638),

Gene: Mozy_107 Start: 56105, Stop: 56578, Start Num: 17
Candidate Starts for Mozy_107:
(Start: 17 @56105 has 36 MA's), (21, 56141), (22, 56201), (23, 56240), (30, 56405),

Gene: Ms6_104 Start: 52476, Stop: 52949, Start Num: 16
Candidate Starts for Ms6_104:
(Start: 12 @52455 has 1 MA's), (Start: 13 @52458 has 1 MA's), (Start: 16 @52476 has 32 MA's), (Start: 19 @52491 has 3 MA's), (21, 52515), (22, 52575), (23, 52614), (35, 52896),

Gene: MulchExplorer_102 Start: 55119, Stop: 55589, Start Num: 17
Candidate Starts for MulchExplorer_102:
(Start: 17 @55119 has 36 MA's), (21, 55155), (22, 55215), (23, 55254), (30, 55419), (35, 55536),

Gene: Mutaforma13_104 Start: 56140, Stop: 56613, Start Num: 17
Candidate Starts for Mutaforma13_104:
(Start: 17 @56140 has 36 MA's), (21, 56176), (22, 56236), (23, 56275), (30, 56440), (32, 56497),

Gene: Mwanjiwa_105 Start: 57292, Stop: 57765, Start Num: 17
Candidate Starts for Mwanjiwa_105:
(9, 57181), (10, 57184), (Start: 17 @57292 has 36 MA's), (23, 57427), (27, 57511), (29, 57571),

Gene: NewHope4_110 Start: 55848, Stop: 56321, Start Num: 17
Candidate Starts for NewHope4_110:
(Start: 17 @55848 has 36 MA's), (21, 55884), (22, 55944), (23, 55983), (30, 56148),

Gene: Nitzel_97 Start: 53296, Stop: 53769, Start Num: 17
Candidate Starts for Nitzel_97:
(Start: 17 @53296 has 36 MA's), (21, 53332), (22, 53392), (23, 53431), (30, 53596),

Gene: Ogopogo_107 Start: 55303, Stop: 55776, Start Num: 17
Candidate Starts for Ogopogo_107:
(Start: 17 @55303 has 36 MA's), (23, 55438),

Gene: Okabe_94 Start: 52263, Stop: 52736, Start Num: 16
Candidate Starts for Okabe_94:
(2, 51798), (3, 51825), (4, 51831), (5, 51834), (6, 51873), (Start: 12 @52242 has 1 MA's), (Start: 13 @52245 has 1 MA's), (Start: 16 @52263 has 32 MA's), (Start: 19 @52278 has 3 MA's), (21, 52302), (22, 52362), (23, 52401), (30, 52566), (35, 52683),

Gene: Ovechkin_105 Start: 56777, Stop: 57250, Start Num: 17
Candidate Starts for Ovechkin_105:
(Start: 17 @56777 has 36 MA's), (21, 56813), (22, 56873), (23, 56912), (30, 57077),

Gene: OwlsT2W_100 Start: 54967, Stop: 55455, Start Num: 13
Candidate Starts for OwlsT2W_100:
(Start: 13 @54967 has 1 MA's), (23, 55117),

Gene: PMC_102 Start: 55131, Stop: 55604, Start Num: 17
Candidate Starts for PMC_102:
(Start: 17 @55131 has 36 MA's), (23, 55266),

Gene: PatoPoderoso_103 Start: 58453, Stop: 58926, Start Num: 17
Candidate Starts for PatoPoderoso_103:
(Start: 17 @58453 has 36 MA's), (21, 58489), (22, 58549), (23, 58588), (30, 58753), (35, 58870),

Gene: Phalconet_103 Start: 55878, Stop: 56351, Start Num: 16
Candidate Starts for Phalconet_103:
(2, 55413), (3, 55440), (4, 55446), (5, 55449), (6, 55488), (Start: 12 @55857 has 1 MA's), (Start: 13 @55860 has 1 MA's), (Start: 16 @55878 has 32 MA's), (Start: 19 @55893 has 3 MA's), (21, 55917), (22, 55977), (23, 56016), (30, 56181), (31, 56184), (35, 56298),

Gene: PhesterPhotato_106 Start: 55852, Stop: 56325, Start Num: 16
Candidate Starts for PhesterPhotato_106:
(2, 55387), (3, 55414), (4, 55420), (5, 55423), (6, 55462), (Start: 12 @55831 has 1 MA's), (Start: 13 @55834 has 1 MA's), (Start: 16 @55852 has 32 MA's), (Start: 19 @55867 has 3 MA's), (21, 55891), (22, 55951), (23, 55990), (30, 56155), (35, 56272),

Gene: Polo2Bam_114 Start: 55702, Stop: 56175, Start Num: 17
Candidate Starts for Polo2Bam_114:
(Start: 17 @55702 has 36 MA's), (21, 55738), (22, 55798), (23, 55837), (30, 56002),

Gene: PopTart_93 Start: 53534, Stop: 54007, Start Num: 17
Candidate Starts for PopTart_93:
(Start: 17 @53534 has 36 MA's), (21, 53570), (22, 53630), (23, 53669), (27, 53753), (30, 53834),

Gene: QueenHazel_71 Start: 46520, Stop: 46993, Start Num: 17
Candidate Starts for QueenHazel_71:
(7, 46307), (8, 46364), (Start: 17 @46520 has 36 MA's), (21, 46556), (22, 46616), (23, 46655), (30, 46820), (35, 46937),

Gene: QuickMath_103 Start: 55756, Stop: 56229, Start Num: 16
Candidate Starts for QuickMath_103:
(2, 55291), (3, 55318), (4, 55324), (5, 55327), (6, 55366), (Start: 12 @55735 has 1 MA's), (Start: 13 @55738 has 1 MA's), (Start: 16 @55756 has 32 MA's), (Start: 19 @55771 has 3 MA's), (21, 55795), (22, 55855), (23, 55894), (30, 56059), (35, 56176),

Gene: Rearden_14 Start: 9413, Stop: 9892, Start Num: 11
Candidate Starts for Rearden_14:
(Start: 11 @9413 has 1 MA's), (14, 9431), (24, 9569), (25, 9572), (27, 9647), (28, 9695), (31, 9728), (33, 9794), (36, 9887),

Gene: Rockne_106 Start: 55143, Stop: 55616, Start Num: 17
Candidate Starts for Rockne_106:
(Start: 17 @55143 has 36 MA's), (23, 55278),

Gene: Royals2015_106 Start: 55014, Stop: 55487, Start Num: 17
Candidate Starts for Royals2015_106:
(Start: 17 @55014 has 36 MA's), (21, 55050), (23, 55149),

Gene: SG4_103 Start: 57246, Stop: 57719, Start Num: 16
Candidate Starts for SG4_103:
(2, 56781), (3, 56808), (4, 56814), (5, 56817), (6, 56856), (Start: 12 @57225 has 1 MA's), (Start: 13 @57228 has 1 MA's), (Start: 16 @57246 has 32 MA's), (Start: 19 @57261 has 3 MA's), (21, 57285), (22, 57345), (23, 57384), (30, 57549), (35, 57666),

Gene: SassyB_93 Start: 53534, Stop: 54007, Start Num: 17
Candidate Starts for SassyB_93:
(Start: 17 @53534 has 36 MA's), (21, 53570), (22, 53630), (23, 53669), (27, 53753), (30, 53834),

Gene: SeaLumen_111 Start: 55702, Stop: 56175, Start Num: 17
Candidate Starts for SeaLumen_111:
(Start: 17 @55702 has 36 MA's), (21, 55738), (22, 55798), (23, 55837), (30, 56002),

Gene: Seagreen_103 Start: 56384, Stop: 56857, Start Num: 16
Candidate Starts for Seagreen_103:
(2, 55919), (3, 55946), (4, 55952), (5, 55955), (6, 55994), (Start: 12 @56363 has 1 MA's), (Start: 13 @56366 has 1 MA's), (Start: 16 @56384 has 32 MA's), (Start: 19 @56399 has 3 MA's), (21, 56423), (22, 56483), (23, 56522), (30, 56687), (35, 56804),

Gene: ShroomBoi_100 Start: 56090, Stop: 56563, Start Num: 16
Candidate Starts for ShroomBoi_100:
(2, 55625), (3, 55652), (4, 55658), (5, 55661), (6, 55700), (Start: 12 @56069 has 1 MA's), (Start: 13 @56072 has 1 MA's), (Start: 16 @56090 has 32 MA's), (Start: 19 @56105 has 3 MA's), (21, 56129), (22, 56189), (23, 56228), (30, 56393), (35, 56510),

Gene: SimranZ1_102 Start: 55162, Stop: 55635, Start Num: 17
Candidate Starts for SimranZ1_102:
(Start: 17 @55162 has 36 MA's), (23, 55297),

Gene: Slim_106 Start: 56324, Stop: 56797, Start Num: 16
Candidate Starts for Slim_106:
(2, 55859), (3, 55886), (4, 55892), (5, 55895), (6, 55934), (Start: 12 @56303 has 1 MA's), (Start: 13 @56306 has 1 MA's), (Start: 16 @56324 has 32 MA's), (Start: 19 @56339 has 3 MA's), (21, 56363), (22, 56423), (23, 56462), (30, 56627), (35, 56744),

Gene: StAnnes_107 Start: 57587, Stop: 58060, Start Num: 16
Candidate Starts for StAnnes_107:

(2, 57122), (3, 57149), (4, 57155), (5, 57158), (6, 57197), (Start: 12 @57566 has 1 MA's), (Start: 13 @57569 has 1 MA's), (Start: 16 @57587 has 32 MA's), (Start: 19 @57602 has 3 MA's), (21, 57626), (22, 57686), (23, 57725), (30, 57890), (35, 58007),

Gene: Stap_97 Start: 53013, Stop: 53486, Start Num: 16
Candidate Starts for Stap_97:
(1, 52452), (2, 52548), (3, 52575), (4, 52581), (5, 52584), (Start: 12 @52992 has 1 MA's), (Start: 13 @52995 has 1 MA's), (Start: 16 @53013 has 32 MA's), (Start: 19 @53028 has 3 MA's), (21, 53052), (22, 53112), (23, 53151), (30, 53316), (35, 53433),

Gene: TChen_99 Start: 56141, Stop: 56614, Start Num: 18
Candidate Starts for TChen_99:
(Start: 18 @56141 has 2 MA's), (20, 56174), (21, 56177), (23, 56276), (26, 56288), (27, 56360), (29, 56420), (34, 56543), (35, 56558),

Gene: Wachhund_99 Start: 52953, Stop: 53426, Start Num: 17
Candidate Starts for Wachhund_99:
(Start: 17 @52953 has 36 MA's), (21, 52989), (22, 53049), (23, 53088), (30, 53253),

Gene: Wee_105 Start: 57330, Stop: 57806, Start Num: 16
Candidate Starts for Wee_105:
(2, 56865), (3, 56892), (4, 56898), (5, 56901), (6, 56940), (Start: 12 @57309 has 1 MA's), (Start: 13 @57312 has 1 MA's), (Start: 16 @57330 has 32 MA's), (Start: 19 @57345 has 3 MA's), (21, 57369), (22, 57429), (23, 57468), (30, 57633), (35, 57750),

Gene: Whatsapiecost_96 Start: 51056, Stop: 51529, Start Num: 16
Candidate Starts for Whatsapiecost_96:
(2, 50591), (3, 50618), (4, 50624), (5, 50627), (6, 50666), (Start: 12 @51035 has 1 MA's), (Start: 13 @51038 has 1 MA's), (Start: 16 @51056 has 32 MA's), (Start: 19 @51071 has 3 MA's), (21, 51095), (22, 51155), (23, 51194), (30, 51359), (35, 51476),

Gene: XFactor_93 Start: 53847, Stop: 54320, Start Num: 16
Candidate Starts for XFactor_93:
(2, 53382), (3, 53409), (4, 53415), (5, 53418), (6, 53457), (Start: 12 @53826 has 1 MA's), (Start: 13 @53829 has 1 MA's), (Start: 16 @53847 has 32 MA's), (Start: 19 @53862 has 3 MA's), (21, 53886), (22, 53946), (23, 53985), (30, 54150), (35, 54267),

Gene: Xula_72 Start: 47007, Stop: 47480, Start Num: 17
Candidate Starts for Xula_72:
(7, 46794), (Start: 17 @47007 has 36 MA's), (21, 47043), (22, 47103), (23, 47142), (30, 47307), (35, 47424),