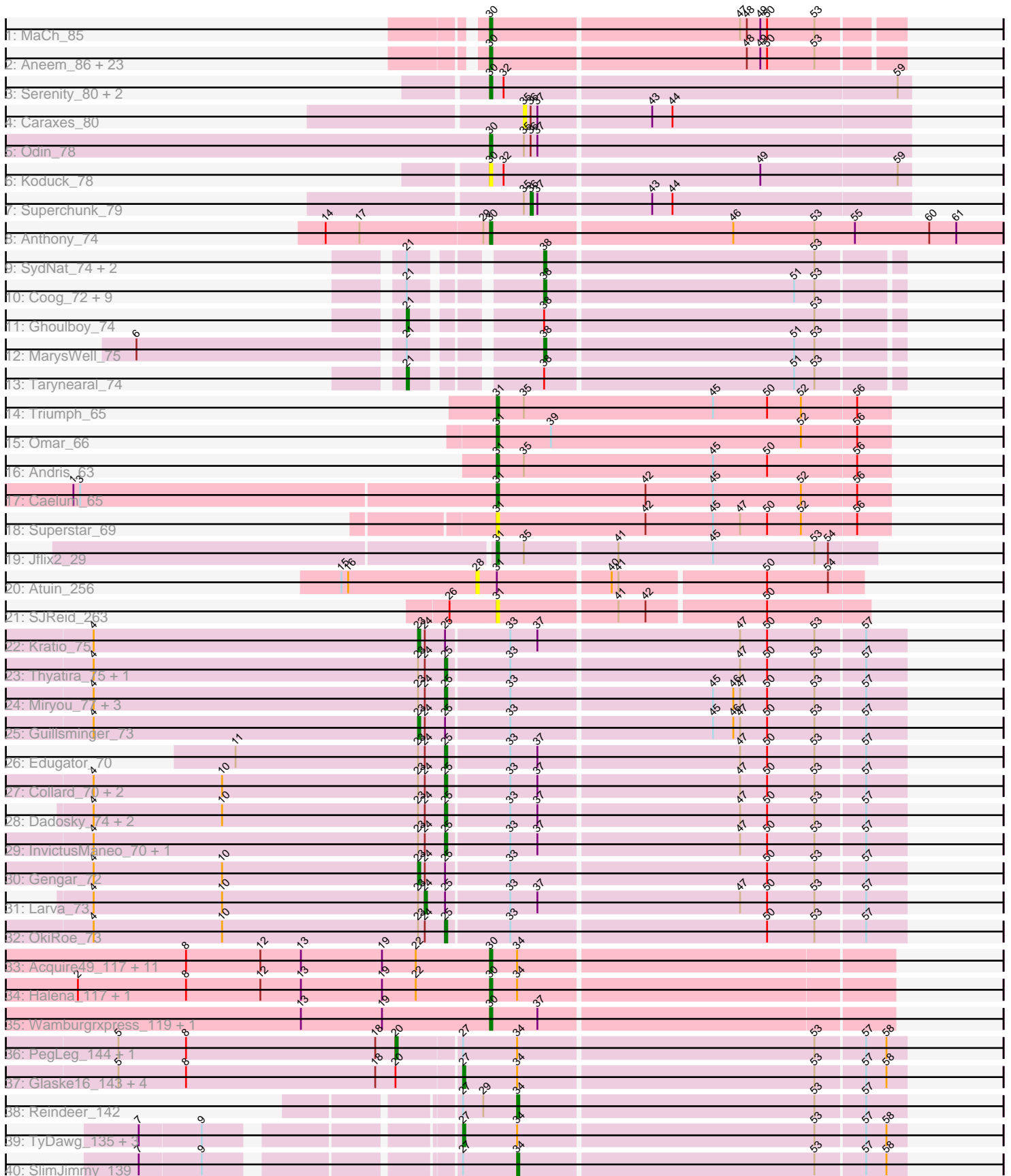


Pham 169791



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 169791 Report

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

Pham number 169791 has 106 members, 10 are drafts.

Phages represented in each track:

- Track 1 : MaCh_85
- Track 2 : Aneem_86, Jabith_84, TinyTimmy_83, Bud_80, Munch_85, Joselito_84, Sham4_81, Et2Brutus_84, Mabel_85, Lucivia_86, Bachome_83, Salz_80, Insomnia_84, Ebony_85, Mulciber_83, Orange_85, Gilberta_82, Bowtie_82, Hutc2_81, Flaverint_86, Fibonacci_84, Petersenfast_79, Snape_85, Timothy_85
- Track 3 : Serenity_80, Jsquared_80, TipsytheTRex_76
- Track 4 : Caraxes_80
- Track 5 : Odin_78
- Track 6 : Koduck_78
- Track 7 : Superchunk_79
- Track 8 : Anthony_74
- Track 9 : SydNat_74, Zolita_73, Bluefalcon_70
- Track 10 : Coog_72, Bonamassa_75, Theia_74, Midas2_72, Swirley_75, Dublin_75, HuhtaEnerson15_73, Cuco_74, LittleCherry_74, Micasa_73
- Track 11 : Ghouboy_74
- Track 12 : MarysWell_75
- Track 13 : Tarynearal_74
- Track 14 : Triumph_65
- Track 15 : Omar_66
- Track 16 : Andris_63
- Track 17 : Caelum_65
- Track 18 : Superstar_69
- Track 19 : Jflix2_29
- Track 20 : Atuin_256
- Track 21 : SJReid_263
- Track 22 : Kratio_75
- Track 23 : Thyatira_75, Waterfoul_74
- Track 24 : Miryou_77, Leston_72, Feyre_75, Paola_72
- Track 25 : Guillsminger_73
- Track 26 : Edugator_70
- Track 27 : Collard_70, SoSeph_73, Heftyboy_73
- Track 28 : Dadosky_74, Psycho_72, AlleyCat_74
- Track 29 : InvictusManeo_70, Agent47_72
- Track 30 : Gengar_72
- Track 31 : Larva_73
- Track 32 : OkiRoe_73

- Track 33 : Acquire49_117, Calm_124, OhShagHennessy_109, Appletree2_116, Rose5_118, Zaria_121, UPIE_116, LeBron_116, Wyatt2_117, AvadaKedavra_117, Tyson_118, CicholasNage_111
- Track 34 : Halena_117, MAckerman_115
- Track 35 : Wamburgrxpress_119, JoeDirt_120
- Track 36 : PegLeg_144, Bongo_139
- Track 37 : Glaske16_143, Dulcita_141, Diminimus_141, Skinny_147, LilhomieP_141
- Track 38 : Reindeer_142
- Track 39 : TyDawg_135, Bricole_143, Auspice_142, IPhane7_139
- Track 40 : SlimJimmy_139

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

The start number called the most often in the published annotations is 30, it was called in 43 of the 96 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acquire49_117, Aneem_86, Anthony_74, Appletree2_116, AvadaKedavra_117, Bachome_83, Bowtie_82, Bud_80, Calm_124, CicholasNage_111, Ebony_85, Et2Brutus_84, Fibonacci_84, Flaverint_86, Gilberta_82, Halena_117, Hutc2_81, Insomnia_84, Jabith_84, JoeDirt_120, Joselito_84, Jsquared_80, Koduck_78, LeBron_116, Lucivia_86, MAckerman_115, MaCh_85, Mabel_85, Mulciber_83, Munch_85, Odin_78, OhShagHennessy_109, Orange_85, Petersenfast_79, Rose5_118, Salz_80, Serenity_80, Sham4_81, Snape_85, Timothy_85, TinyTimmy_83, TipsytheTRex_76, Tyson_118, UPIE_116, Wamburgrxpress_119, Wyatt2_117, Zaria_121,

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

-

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

- Agent47_72, AlleyCat_74, Andris_63, Atuin_256, Auspice_142, Bluefalcon_70, Bonamassa_75, Bongo_139, Bricole_143, Caelum_65, Caraxes_80, Collard_70, Coog_72, Cuco_74, Dadosky_74, Diminimus_141, Dublin_75, Dulcita_141, Edugator_70, Feyre_75, Gengar_72, Ghoulboy_74, Glaske16_143, Guillsminger_73, Heftyboy_73, HuhtaEnerson15_73, IPhane7_139, InvictusManeo_70, Jflix2_29, Kratio_75, Larva_73, Leston_72, LilhomieP_141, LittleCherry_74, MarysWell_75, Micasa_73, Midas2_72, Miryou_77, OkiRoe_73, Omar_66, Paola_72, PegLeg_144, Psycho_72, Reindeer_142, SJReid_263, Skinny_147, SlimJimmy_139, SoSeph_73, Superchunk_79, Superstar_69, Swirley_75, SydNat_74, Tarynearal_74, Theia_74, Thyatira_75, Triumph_65, TyDawg_135, Waterfoul_74, Zolita_73,

Summary by start number:

Start 20:

- Found in 7 of 106 (6.6%) of genes in pham
- Manual Annotations of this start: 2 of 96
- Called 28.6% of time when present
- Phage (with cluster) where this start called: Bongo_139 (M1), PegLeg_144 (M1),

Start 21:

- Found in 16 of 106 (15.1%) of genes in pham
- Manual Annotations of this start: 2 of 96
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Ghoulboy_74 (A5), Tarynearal_74 (A5),

Start 23:

- Found in 20 of 106 (18.9%) of genes in pham
- Manual Annotations of this start: 3 of 96
- Called 15.0% of time when present
- Phage (with cluster) where this start called: Gengar_72 (K5), Guillsminger_73 (K5), Kratio_75 (K5),

Start 24:

- Found in 20 of 106 (18.9%) of genes in pham
- Manual Annotations of this start: 1 of 96
- Called 5.0% of time when present
- Phage (with cluster) where this start called: Larva_73 (K5),

Start 25:

- Found in 20 of 106 (18.9%) of genes in pham
- Manual Annotations of this start: 15 of 96
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Agent47_72 (K5), AlleyCat_74 (K5), Collard_70 (K5), Dadosky_74 (K5), Edugator_70 (K5), Feyre_75 (K5), Heftyboy_73 (K5), InvictusManeo_70 (K5), Leston_72 (K5), Miryou_77 (K5), OkiRoe_73 (K5), Paola_72 (K5), Psycho_72 (K5), SoSeph_73 (K5), Thyatira_75 (K5), Waterfoul_74 (K5),

Start 27:

- Found in 13 of 106 (12.3%) of genes in pham
- Manual Annotations of this start: 9 of 96
- Called 69.2% of time when present
- Phage (with cluster) where this start called: Auspice_142 (M1), Bricole_143 (M1), Diminimus_141 (M1), Dulcita_141 (M1), Glaske16_143 (M1), IPhane7_139 (M1), LilhomieP_141 (M1), Skinny_147 (M1), TyDawg_135 (M1),

Start 28:

- Found in 1 of 106 (0.9%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Atuin_256 (FC),

Start 30:

- Found in 47 of 106 (44.3%) of genes in pham
- Manual Annotations of this start: 43 of 96
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acquire49_117 (L1), Aneem_86 (A11), Anthony_74 (A20), Appletree2_116 (L1), AvadaKedavra_117 (L1), Bachome_83 (A11), Bowtie_82 (A11), Bud_80 (A11), Calm_124 (L1), CicholasNage_111 (L1), Ebony_85 (A11), Et2Brutus_84 (A11), Fibonacci_84 (A11), Flaverint_86 (A11), Gilberta_82 (A11), Halena_117 (L1), Hutc2_81 (A11), Insomnia_84 (A11), Jabith_84

(A11), JoeDirt_120 (L1), Joselito_84 (A11), Jsquared_80 (A2), Koduck_78 (A2), LeBron_116 (L1), Lucivia_86 (A11), MAckerman_115 (L1), MaCh_85 (A11), Mabel_85 (A11), Mulciber_83 (A11), Munch_85 (A11), Odin_78 (A2), OhShagHennessy_109 (L1), Orange_85 (A11), Petersenfast_79 (A11), Rose5_118 (L1), Salz_80 (A11), Serenity_80 (A2), Sham4_81 (A11), Snape_85 (A11), Timothy_85 (A11), TinyTimmy_83 (A11), TipsytheTRex_76 (A2), Tyson_118 (L1), UPIE_116 (L1), Wamburgxpress_119 (L1), Wyatt2_117 (L1), Zaria_121 (L1),

Start 31:

- Found in 8 of 106 (7.5%) of genes in pham
- Manual Annotations of this start: 5 of 96
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Andris_63 (BD2), Caelum_65 (BD2), Jfllx2_29 (CF), Omar_66 (BD2), SJReid_263 (FC), Superstar_69 (BD2), Triumph_65 (BD2),

Start 34:

- Found in 27 of 106 (25.5%) of genes in pham
- Manual Annotations of this start: 2 of 96
- Called 7.4% of time when present
- Phage (with cluster) where this start called: Reindeer_142 (M1), SlimJimmy_139 (M1),

Start 35:

- Found in 6 of 106 (5.7%) of genes in pham
- No Manual Annotations of this start.
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Caraxes_80 (A2),

Start 36:

- Found in 3 of 106 (2.8%) of genes in pham
- Manual Annotations of this start: 1 of 96
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Superchunk_79 (A2),

Start 38:

- Found in 16 of 106 (15.1%) of genes in pham
- Manual Annotations of this start: 13 of 96
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Bluefalcon_70 (A5), Bonamassa_75 (A5), Coog_72 (A5), Cuco_74 (A5), Dublin_75 (A5), HuhtaEnerson15_73 (A5), LittleCherry_74 (A5), MarysWell_75 (A5), Micasa_73 (A5), Midas2_72 (A5), Swirley_75 (A5), SydNat_74 (A5), Theia_74 (A5), Zolita_73 (A5),

Summary by clusters:

There are 10 clusters represented in this pham: A20, A11, L1, CF, FC, A5, K5, BD2, M1, A2,

Info for manual annotations of cluster A11:

- Start number 30 was manually annotated 23 times for cluster A11.

Info for manual annotations of cluster A2:

- Start number 30 was manually annotated 4 times for cluster A2.
- Start number 36 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster A20:

- Start number 30 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A5:

- Start number 21 was manually annotated 2 times for cluster A5.
- Start number 38 was manually annotated 13 times for cluster A5.

Info for manual annotations of cluster BD2:

- Start number 31 was manually annotated 4 times for cluster BD2.

Info for manual annotations of cluster CF:

- Start number 31 was manually annotated 1 time for cluster CF.

Info for manual annotations of cluster K5:

- Start number 23 was manually annotated 3 times for cluster K5.
- Start number 24 was manually annotated 1 time for cluster K5.
- Start number 25 was manually annotated 15 times for cluster K5.

Info for manual annotations of cluster L1:

- Start number 30 was manually annotated 15 times for cluster L1.

Info for manual annotations of cluster M1:

- Start number 20 was manually annotated 2 times for cluster M1.
- Start number 27 was manually annotated 9 times for cluster M1.
- Start number 34 was manually annotated 2 times for cluster M1.

Gene Information:

Gene: Acquire49_117 Start: 64194, Stop: 64021, Start Num: 30

Candidate Starts for Acquire49_117:

(8, 64329), (12, 64296), (13, 64278), (19, 64242), (22, 64227), (Start: 30 @64194 has 43 MA's), (Start: 34 @64182 has 2 MA's),

Gene: Agent47_72 Start: 48966, Stop: 49163, Start Num: 25

Candidate Starts for Agent47_72:

(4, 48810), (Start: 23 @48954 has 3 MA's), (Start: 24 @48957 has 1 MA's), (Start: 25 @48966 has 15 MA's), (33, 48993), (37, 49005), (47, 49092), (50, 49104), (53, 49125), (57, 49146),

Gene: AlleyCat_74 Start: 49309, Stop: 49506, Start Num: 25

Candidate Starts for AlleyCat_74:

(4, 49153), (10, 49210), (Start: 23 @49297 has 3 MA's), (Start: 24 @49300 has 1 MA's), (Start: 25 @49309 has 15 MA's), (33, 49336), (37, 49348), (47, 49435), (50, 49447), (53, 49468), (57, 49489),

Gene: Andris_63 Start: 42730, Stop: 42557, Start Num: 31

Candidate Starts for Andris_63:

(Start: 31 @42730 has 5 MA's), (35, 42718), (45, 42634), (50, 42610), (56, 42571),

Gene: Aneem_86 Start: 47024, Stop: 46848, Start Num: 30
Candidate Starts for Aneem_86:
(Start: 30 @47024 has 43 MA's), (48, 46913), (49, 46907), (50, 46904), (53, 46883),

Gene: Anthony_74 Start: 45287, Stop: 45063, Start Num: 30
Candidate Starts for Anthony_74:
(14, 45359), (17, 45344), (29, 45290), (Start: 30 @45287 has 43 MA's), (46, 45182), (53, 45146), (55, 45128), (60, 45095), (61, 45083),

Gene: Appletree2_116 Start: 64235, Stop: 64062, Start Num: 30
Candidate Starts for Appletree2_116:
(8, 64370), (12, 64337), (13, 64319), (19, 64283), (22, 64268), (Start: 30 @64235 has 43 MA's), (Start: 34 @64223 has 2 MA's),

Gene: Atuin_256 Start: 159446, Stop: 159610, Start Num: 28
Candidate Starts for Atuin_256:
(15, 159386), (16, 159389), (28, 159446), (Start: 31 @159455 has 5 MA's), (40, 159503), (41, 159506), (50, 159569), (54, 159596),

Gene: Auspice_142 Start: 72970, Stop: 72779, Start Num: 27
Candidate Starts for Auspice_142:
(7, 73093), (9, 73066), (Start: 27 @72970 has 9 MA's), (Start: 34 @72946 has 2 MA's), (53, 72817), (57, 72796), (58, 72787),

Gene: AvadaKedavra_117 Start: 64308, Stop: 64135, Start Num: 30
Candidate Starts for AvadaKedavra_117:
(8, 64443), (12, 64410), (13, 64392), (19, 64356), (22, 64341), (Start: 30 @64308 has 43 MA's), (Start: 34 @64296 has 2 MA's),

Gene: Bachome_83 Start: 45904, Stop: 45728, Start Num: 30
Candidate Starts for Bachome_83:
(Start: 30 @45904 has 43 MA's), (48, 45793), (49, 45787), (50, 45784), (53, 45763),

Gene: Bluefalcon_70 Start: 44916, Stop: 44764, Start Num: 38
Candidate Starts for Bluefalcon_70:
(Start: 21 @44964 has 2 MA's), (Start: 38 @44916 has 13 MA's), (53, 44799),

Gene: Bonamassa_75 Start: 45303, Stop: 45151, Start Num: 38
Candidate Starts for Bonamassa_75:
(Start: 21 @45351 has 2 MA's), (Start: 38 @45303 has 13 MA's), (51, 45195), (53, 45186),

Gene: Bongo_139 Start: 72617, Stop: 72399, Start Num: 20
Candidate Starts for Bongo_139:
(5, 72740), (8, 72710), (18, 72626), (Start: 20 @72617 has 2 MA's), (Start: 27 @72590 has 9 MA's), (Start: 34 @72566 has 2 MA's), (53, 72437), (57, 72416), (58, 72407),

Gene: Bowtie_82 Start: 45631, Stop: 45455, Start Num: 30
Candidate Starts for Bowtie_82:
(Start: 30 @45631 has 43 MA's), (48, 45520), (49, 45514), (50, 45511), (53, 45490),

Gene: Bricole_143 Start: 72735, Stop: 72544, Start Num: 27
Candidate Starts for Bricole_143:

(7, 72858), (9, 72831), (Start: 27 @72735 has 9 MA's), (Start: 34 @72711 has 2 MA's), (53, 72582), (57, 72561), (58, 72552),

Gene: Bud_80 Start: 45461, Stop: 45285, Start Num: 30

Candidate Starts for Bud_80:

(Start: 30 @45461 has 43 MA's), (48, 45350), (49, 45344), (50, 45341), (53, 45320),

Gene: Caelum_65 Start: 42370, Stop: 42197, Start Num: 31

Candidate Starts for Caelum_65:

(1, 42556), (3, 42553), (Start: 31 @42370 has 5 MA's), (42, 42304), (45, 42274), (52, 42235), (56, 42211),

Gene: Calm_124 Start: 65409, Stop: 65236, Start Num: 30

Candidate Starts for Calm_124:

(8, 65544), (12, 65511), (13, 65493), (19, 65457), (22, 65442), (Start: 30 @65409 has 43 MA's), (Start: 34 @65397 has 2 MA's),

Gene: Caraxes_80 Start: 45566, Stop: 45399, Start Num: 35

Candidate Starts for Caraxes_80:

(35, 45566), (Start: 36 @45563 has 1 MA's), (37, 45560), (43, 45512), (44, 45503),

Gene: CicholasNage_111 Start: 64539, Stop: 64366, Start Num: 30

Candidate Starts for CicholasNage_111:

(8, 64674), (12, 64641), (13, 64623), (19, 64587), (22, 64572), (Start: 30 @64539 has 43 MA's), (Start: 34 @64527 has 2 MA's),

Gene: Collard_70 Start: 48927, Stop: 49124, Start Num: 25

Candidate Starts for Collard_70:

(4, 48771), (10, 48828), (Start: 23 @48915 has 3 MA's), (Start: 24 @48918 has 1 MA's), (Start: 25 @48927 has 15 MA's), (33, 48954), (37, 48966), (47, 49053), (50, 49065), (53, 49086), (57, 49107),

Gene: Coog_72 Start: 45118, Stop: 44966, Start Num: 38

Candidate Starts for Coog_72:

(Start: 21 @45166 has 2 MA's), (Start: 38 @45118 has 13 MA's), (51, 45010), (53, 45001),

Gene: Cuco_74 Start: 44978, Stop: 44826, Start Num: 38

Candidate Starts for Cuco_74:

(Start: 21 @45026 has 2 MA's), (Start: 38 @44978 has 13 MA's), (51, 44870), (53, 44861),

Gene: Dadosky_74 Start: 49311, Stop: 49508, Start Num: 25

Candidate Starts for Dadosky_74:

(4, 49155), (10, 49212), (Start: 23 @49299 has 3 MA's), (Start: 24 @49302 has 1 MA's), (Start: 25 @49311 has 15 MA's), (33, 49338), (37, 49350), (47, 49437), (50, 49449), (53, 49470), (57, 49491),

Gene: Diminimus_141 Start: 72406, Stop: 72215, Start Num: 27

Candidate Starts for Diminimus_141:

(5, 72556), (8, 72526), (18, 72442), (Start: 20 @72433 has 2 MA's), (Start: 27 @72406 has 9 MA's), (Start: 34 @72382 has 2 MA's), (53, 72253), (57, 72232), (58, 72223),

Gene: Dublin_75 Start: 45250, Stop: 45098, Start Num: 38

Candidate Starts for Dublin_75:

(Start: 21 @45298 has 2 MA's), (Start: 38 @45250 has 13 MA's), (51, 45142), (53, 45133),

Gene: Dulcita_141 Start: 72407, Stop: 72216, Start Num: 27

Candidate Starts for Dulcita_141:

(5, 72557), (8, 72527), (18, 72443), (Start: 20 @72434 has 2 MA's), (Start: 27 @72407 has 9 MA's), (Start: 34 @72383 has 2 MA's), (53, 72254), (57, 72233), (58, 72224),

Gene: Ebony_85 Start: 46595, Stop: 46419, Start Num: 30

Candidate Starts for Ebony_85:

(Start: 30 @46595 has 43 MA's), (48, 46484), (49, 46478), (50, 46475), (53, 46454),

Gene: Edugator_70 Start: 50481, Stop: 50678, Start Num: 25

Candidate Starts for Edugator_70:

(11, 50388), (Start: 23 @50469 has 3 MA's), (Start: 24 @50472 has 1 MA's), (Start: 25 @50481 has 15 MA's), (33, 50508), (37, 50520), (47, 50607), (50, 50619), (53, 50640), (57, 50661),

Gene: Et2Brutus_84 Start: 46558, Stop: 46382, Start Num: 30

Candidate Starts for Et2Brutus_84:

(Start: 30 @46558 has 43 MA's), (48, 46447), (49, 46441), (50, 46438), (53, 46417),

Gene: Feyre_75 Start: 52727, Stop: 52924, Start Num: 25

Candidate Starts for Feyre_75:

(4, 52571), (Start: 23 @52715 has 3 MA's), (Start: 24 @52718 has 1 MA's), (Start: 25 @52727 has 15 MA's), (33, 52754), (45, 52841), (46, 52850), (47, 52853), (50, 52865), (53, 52886), (57, 52907),

Gene: Fibonacci_84 Start: 46564, Stop: 46388, Start Num: 30

Candidate Starts for Fibonacci_84:

(Start: 30 @46564 has 43 MA's), (48, 46453), (49, 46447), (50, 46444), (53, 46423),

Gene: Flaverint_86 Start: 47022, Stop: 46846, Start Num: 30

Candidate Starts for Flaverint_86:

(Start: 30 @47022 has 43 MA's), (48, 46911), (49, 46905), (50, 46902), (53, 46881),

Gene: Gengar_72 Start: 50725, Stop: 50934, Start Num: 23

Candidate Starts for Gengar_72:

(4, 50581), (10, 50638), (Start: 23 @50725 has 3 MA's), (Start: 24 @50728 has 1 MA's), (Start: 25 @50737 has 15 MA's), (33, 50764), (50, 50875), (53, 50896), (57, 50917),

Gene: Ghouboy_74 Start: 45239, Stop: 45039, Start Num: 21

Candidate Starts for Ghouboy_74:

(Start: 21 @45239 has 2 MA's), (Start: 38 @45191 has 13 MA's), (53, 45074),

Gene: Gilberta_82 Start: 45898, Stop: 45722, Start Num: 30

Candidate Starts for Gilberta_82:

(Start: 30 @45898 has 43 MA's), (48, 45787), (49, 45781), (50, 45778), (53, 45757),

Gene: Glaske16_143 Start: 73525, Stop: 73334, Start Num: 27

Candidate Starts for Glaske16_143:

(5, 73675), (8, 73645), (18, 73561), (Start: 20 @73552 has 2 MA's), (Start: 27 @73525 has 9 MA's), (Start: 34 @73501 has 2 MA's), (53, 73372), (57, 73351), (58, 73342),

Gene: Guillsminger_73 Start: 50646, Stop: 50855, Start Num: 23

Candidate Starts for Guillsminger_73:

(4, 50502), (Start: 23 @50646 has 3 MA's), (Start: 24 @50649 has 1 MA's), (Start: 25 @50658 has 15 MA's), (33, 50685), (45, 50772), (46, 50781), (47, 50784), (50, 50796), (53, 50817), (57, 50838),

Gene: Halena_117 Start: 64182, Stop: 64009, Start Num: 30
Candidate Starts for Halena_117:
(2, 64365), (8, 64317), (12, 64284), (13, 64266), (19, 64230), (22, 64215), (Start: 30 @64182 has 43 MA's), (Start: 34 @64170 has 2 MA's),

Gene: Heftyboy_73 Start: 51006, Stop: 51203, Start Num: 25
Candidate Starts for Heftyboy_73:
(4, 50850), (10, 50907), (Start: 23 @50994 has 3 MA's), (Start: 24 @50997 has 1 MA's), (Start: 25 @51006 has 15 MA's), (33, 51033), (37, 51045), (47, 51132), (50, 51144), (53, 51165), (57, 51186),

Gene: HuhtaEnerson15_73 Start: 44956, Stop: 44804, Start Num: 38
Candidate Starts for HuhtaEnerson15_73:
(Start: 21 @45004 has 2 MA's), (Start: 38 @44956 has 13 MA's), (51, 44848), (53, 44839),

Gene: Hutc2_81 Start: 45448, Stop: 45272, Start Num: 30
Candidate Starts for Hutc2_81:
(Start: 30 @45448 has 43 MA's), (48, 45337), (49, 45331), (50, 45328), (53, 45307),

Gene: IPhone7_139 Start: 72586, Stop: 72395, Start Num: 27
Candidate Starts for IPhone7_139:
(7, 72709), (9, 72682), (Start: 27 @72586 has 9 MA's), (Start: 34 @72562 has 2 MA's), (53, 72433), (57, 72412), (58, 72403),

Gene: Insomnia_84 Start: 46742, Stop: 46566, Start Num: 30
Candidate Starts for Insomnia_84:
(Start: 30 @46742 has 43 MA's), (48, 46631), (49, 46625), (50, 46622), (53, 46601),

Gene: InvictusManeo_70 Start: 48970, Stop: 49167, Start Num: 25
Candidate Starts for InvictusManeo_70:
(4, 48814), (Start: 23 @48958 has 3 MA's), (Start: 24 @48961 has 1 MA's), (Start: 25 @48970 has 15 MA's), (33, 48997), (37, 49009), (47, 49096), (50, 49108), (53, 49129), (57, 49150),

Gene: Jabith_84 Start: 46756, Stop: 46580, Start Num: 30
Candidate Starts for Jabith_84:
(Start: 30 @46756 has 43 MA's), (48, 46645), (49, 46639), (50, 46636), (53, 46615),

Gene: Jflix2_29 Start: 27850, Stop: 27686, Start Num: 31
Candidate Starts for Jflix2_29:
(Start: 31 @27850 has 5 MA's), (35, 27838), (41, 27799), (45, 27757), (53, 27712), (54, 27706),

Gene: JoeDirt_120 Start: 65537, Stop: 65364, Start Num: 30
Candidate Starts for JoeDirt_120:
(13, 65621), (19, 65585), (Start: 30 @65537 has 43 MA's), (37, 65516),

Gene: Joselito_84 Start: 46776, Stop: 46600, Start Num: 30
Candidate Starts for Joselito_84:
(Start: 30 @46776 has 43 MA's), (48, 46665), (49, 46659), (50, 46656), (53, 46635),

Gene: Jsquared_80 Start: 45434, Stop: 45252, Start Num: 30
Candidate Starts for Jsquared_80:
(Start: 30 @45434 has 43 MA's), (32, 45428), (59, 45257),

Gene: Koduck_78 Start: 45209, Stop: 45027, Start Num: 30
Candidate Starts for Koduck_78:
(Start: 30 @45209 has 43 MA's), (32, 45203), (49, 45092), (59, 45032),

Gene: Kratio_75 Start: 50516, Stop: 50725, Start Num: 23
Candidate Starts for Kratio_75:
(4, 50372), (Start: 23 @50516 has 3 MA's), (Start: 24 @50519 has 1 MA's), (Start: 25 @50528 has 15 MA's), (33, 50555), (37, 50567), (47, 50654), (50, 50666), (53, 50687), (57, 50708),

Gene: Larva_73 Start: 50174, Stop: 50380, Start Num: 24
Candidate Starts for Larva_73:
(4, 50027), (10, 50084), (Start: 23 @50171 has 3 MA's), (Start: 24 @50174 has 1 MA's), (Start: 25 @50183 has 15 MA's), (33, 50210), (37, 50222), (47, 50309), (50, 50321), (53, 50342), (57, 50363),

Gene: LeBron_116 Start: 63798, Stop: 63625, Start Num: 30
Candidate Starts for LeBron_116:
(8, 63933), (12, 63900), (13, 63882), (19, 63846), (22, 63831), (Start: 30 @63798 has 43 MA's), (Start: 34 @63786 has 2 MA's),

Gene: Leston_72 Start: 50775, Stop: 50972, Start Num: 25
Candidate Starts for Leston_72:
(4, 50619), (Start: 23 @50763 has 3 MA's), (Start: 24 @50766 has 1 MA's), (Start: 25 @50775 has 15 MA's), (33, 50802), (45, 50889), (46, 50898), (47, 50901), (50, 50913), (53, 50934), (57, 50955),

Gene: LilhomieP_141 Start: 73436, Stop: 73245, Start Num: 27
Candidate Starts for LilhomieP_141:
(5, 73586), (8, 73556), (18, 73472), (Start: 20 @73463 has 2 MA's), (Start: 27 @73436 has 9 MA's), (Start: 34 @73412 has 2 MA's), (53, 73283), (57, 73262), (58, 73253),

Gene: LittleCherry_74 Start: 44826, Stop: 44674, Start Num: 38
Candidate Starts for LittleCherry_74:
(Start: 21 @44874 has 2 MA's), (Start: 38 @44826 has 13 MA's), (51, 44718), (53, 44709),

Gene: Lucivia_86 Start: 47055, Stop: 46879, Start Num: 30
Candidate Starts for Lucivia_86:
(Start: 30 @47055 has 43 MA's), (48, 46944), (49, 46938), (50, 46935), (53, 46914),

Gene: MAckerman_115 Start: 64175, Stop: 64002, Start Num: 30
Candidate Starts for MAckerman_115:
(2, 64358), (8, 64310), (12, 64277), (13, 64259), (19, 64223), (22, 64208), (Start: 30 @64175 has 43 MA's), (Start: 34 @64163 has 2 MA's),

Gene: MaCh_85 Start: 47019, Stop: 46843, Start Num: 30
Candidate Starts for MaCh_85:
(Start: 30 @47019 has 43 MA's), (47, 46911), (48, 46908), (49, 46902), (50, 46899), (53, 46878),

Gene: Mabel_85 Start: 47020, Stop: 46844, Start Num: 30
Candidate Starts for Mabel_85:
(Start: 30 @47020 has 43 MA's), (48, 46909), (49, 46903), (50, 46900), (53, 46879),

Gene: MarysWell_75 Start: 45493, Stop: 45341, Start Num: 38
Candidate Starts for MarysWell_75:
(6, 45655), (Start: 21 @45541 has 2 MA's), (Start: 38 @45493 has 13 MA's), (51, 45385), (53, 45376),

Gene: Micasa_73 Start: 45215, Stop: 45063, Start Num: 38

Candidate Starts for Micasa_73:

(Start: 21 @45263 has 2 MA's), (Start: 38 @45215 has 13 MA's), (51, 45107), (53, 45098),

Gene: Midas2_72 Start: 45118, Stop: 44966, Start Num: 38

Candidate Starts for Midas2_72:

(Start: 21 @45166 has 2 MA's), (Start: 38 @45118 has 13 MA's), (51, 45010), (53, 45001),

Gene: Miryou_77 Start: 53394, Stop: 53591, Start Num: 25

Candidate Starts for Miryou_77:

(4, 53238), (Start: 23 @53382 has 3 MA's), (Start: 24 @53385 has 1 MA's), (Start: 25 @53394 has 15 MA's), (33, 53421), (45, 53508), (46, 53517), (47, 53520), (50, 53532), (53, 53553), (57, 53574),

Gene: Mulciber_83 Start: 46561, Stop: 46385, Start Num: 30

Candidate Starts for Mulciber_83:

(Start: 30 @46561 has 43 MA's), (48, 46450), (49, 46444), (50, 46441), (53, 46420),

Gene: Munch_85 Start: 47024, Stop: 46848, Start Num: 30

Candidate Starts for Munch_85:

(Start: 30 @47024 has 43 MA's), (48, 46913), (49, 46907), (50, 46904), (53, 46883),

Gene: Odin_78 Start: 45907, Stop: 45725, Start Num: 30

Candidate Starts for Odin_78:

(Start: 30 @45907 has 43 MA's), (35, 45892), (Start: 36 @45889 has 1 MA's), (37, 45886),

Gene: OhShagHennessy_109 Start: 62960, Stop: 62787, Start Num: 30

Candidate Starts for OhShagHennessy_109:

(8, 63095), (12, 63062), (13, 63044), (19, 63008), (22, 62993), (Start: 30 @62960 has 43 MA's), (Start: 34 @62948 has 2 MA's),

Gene: OkiRoe_73 Start: 51079, Stop: 51276, Start Num: 25

Candidate Starts for OkiRoe_73:

(4, 50923), (10, 50980), (Start: 23 @51067 has 3 MA's), (Start: 24 @51070 has 1 MA's), (Start: 25 @51079 has 15 MA's), (33, 51106), (50, 51217), (53, 51238), (57, 51259),

Gene: Omar_66 Start: 41357, Stop: 41184, Start Num: 31

Candidate Starts for Omar_66:

(Start: 31 @41357 has 5 MA's), (39, 41333), (52, 41222), (56, 41198),

Gene: Orange_85 Start: 46574, Stop: 46398, Start Num: 30

Candidate Starts for Orange_85:

(Start: 30 @46574 has 43 MA's), (48, 46463), (49, 46457), (50, 46454), (53, 46433),

Gene: Paola_72 Start: 50658, Stop: 50855, Start Num: 25

Candidate Starts for Paola_72:

(4, 50502), (Start: 23 @50646 has 3 MA's), (Start: 24 @50649 has 1 MA's), (Start: 25 @50658 has 15 MA's), (33, 50685), (45, 50772), (46, 50781), (47, 50784), (50, 50796), (53, 50817), (57, 50838),

Gene: PegLeg_144 Start: 73347, Stop: 73129, Start Num: 20

Candidate Starts for PegLeg_144:

(5, 73470), (8, 73440), (18, 73356), (Start: 20 @73347 has 2 MA's), (Start: 27 @73320 has 9 MA's), (Start: 34 @73296 has 2 MA's), (53, 73167), (57, 73146), (58, 73137),

Gene: Petersenfast_79 Start: 45455, Stop: 45279, Start Num: 30

Candidate Starts for Petersenfast_79:

(Start: 30 @45455 has 43 MA's), (48, 45344), (49, 45338), (50, 45335), (53, 45314),

Gene: Psycho_72 Start: 49308, Stop: 49505, Start Num: 25

Candidate Starts for Psycho_72:

(4, 49152), (10, 49209), (Start: 23 @49296 has 3 MA's), (Start: 24 @49299 has 1 MA's), (Start: 25 @49308 has 15 MA's), (33, 49335), (37, 49347), (47, 49434), (50, 49446), (53, 49467), (57, 49488),

Gene: Reindeer_142 Start: 74200, Stop: 74033, Start Num: 34

Candidate Starts for Reindeer_142:

(Start: 27 @74224 has 9 MA's), (29, 74215), (Start: 34 @74200 has 2 MA's), (53, 74071), (57, 74050),

Gene: Rose5_118 Start: 64472, Stop: 64299, Start Num: 30

Candidate Starts for Rose5_118:

(8, 64607), (12, 64574), (13, 64556), (19, 64520), (22, 64505), (Start: 30 @64472 has 43 MA's), (Start: 34 @64460 has 2 MA's),

Gene: SJReid_263 Start: 154498, Stop: 154656, Start Num: 31

Candidate Starts for SJReid_263:

(26, 154483), (Start: 31 @154498 has 5 MA's), (41, 154549), (42, 154561), (50, 154612),

Gene: Salz_80 Start: 45370, Stop: 45194, Start Num: 30

Candidate Starts for Salz_80:

(Start: 30 @45370 has 43 MA's), (48, 45259), (49, 45253), (50, 45250), (53, 45229),

Gene: Serenity_80 Start: 45494, Stop: 45312, Start Num: 30

Candidate Starts for Serenity_80:

(Start: 30 @45494 has 43 MA's), (32, 45488), (59, 45317),

Gene: Sham4_81 Start: 45456, Stop: 45280, Start Num: 30

Candidate Starts for Sham4_81:

(Start: 30 @45456 has 43 MA's), (48, 45345), (49, 45339), (50, 45336), (53, 45315),

Gene: Skinny_147 Start: 74437, Stop: 74246, Start Num: 27

Candidate Starts for Skinny_147:

(5, 74587), (8, 74557), (18, 74473), (Start: 20 @74464 has 2 MA's), (Start: 27 @74437 has 9 MA's), (Start: 34 @74413 has 2 MA's), (53, 74284), (57, 74263), (58, 74254),

Gene: SlimJimmy_139 Start: 73122, Stop: 72955, Start Num: 34

Candidate Starts for SlimJimmy_139:

(7, 73269), (9, 73242), (Start: 27 @73146 has 9 MA's), (Start: 34 @73122 has 2 MA's), (53, 72993), (57, 72972), (58, 72963),

Gene: Snape_85 Start: 46563, Stop: 46387, Start Num: 30

Candidate Starts for Snape_85:

(Start: 30 @46563 has 43 MA's), (48, 46452), (49, 46446), (50, 46443), (53, 46422),

Gene: SoSeph_73 Start: 51006, Stop: 51203, Start Num: 25

Candidate Starts for SoSeph_73:

(4, 50850), (10, 50907), (Start: 23 @50994 has 3 MA's), (Start: 24 @50997 has 1 MA's), (Start: 25 @51006 has 15 MA's), (33, 51033), (37, 51045), (47, 51132), (50, 51144), (53, 51165), (57, 51186),

Gene: Superchunk_79 Start: 45563, Stop: 45399, Start Num: 36

Candidate Starts for Superchunk_79:

(35, 45566), (Start: 36 @45563 has 1 MA's), (37, 45560), (43, 45512), (44, 45503),

Gene: Superstar_69 Start: 43188, Stop: 43015, Start Num: 31

Candidate Starts for Superstar_69:

(Start: 31 @43188 has 5 MA's), (42, 43122), (45, 43092), (47, 43080), (50, 43068), (52, 43053), (56, 43029),

Gene: Swirley_75 Start: 45159, Stop: 45007, Start Num: 38

Candidate Starts for Swirley_75:

(Start: 21 @45207 has 2 MA's), (Start: 38 @45159 has 13 MA's), (51, 45051), (53, 45042),

Gene: SydNat_74 Start: 45200, Stop: 45048, Start Num: 38

Candidate Starts for SydNat_74:

(Start: 21 @45248 has 2 MA's), (Start: 38 @45200 has 13 MA's), (53, 45083),

Gene: Tarynearal_74 Start: 45043, Stop: 44843, Start Num: 21

Candidate Starts for Tarynearal_74:

(Start: 21 @45043 has 2 MA's), (Start: 38 @44995 has 13 MA's), (51, 44887), (53, 44878),

Gene: Theia_74 Start: 45480, Stop: 45328, Start Num: 38

Candidate Starts for Theia_74:

(Start: 21 @45528 has 2 MA's), (Start: 38 @45480 has 13 MA's), (51, 45372), (53, 45363),

Gene: Thyatira_75 Start: 53010, Stop: 53207, Start Num: 25

Candidate Starts for Thyatira_75:

(4, 52854), (Start: 23 @52998 has 3 MA's), (Start: 24 @53001 has 1 MA's), (Start: 25 @53010 has 15 MA's), (33, 53037), (47, 53136), (50, 53148), (53, 53169), (57, 53190),

Gene: Timothy_85 Start: 46540, Stop: 46364, Start Num: 30

Candidate Starts for Timothy_85:

(Start: 30 @46540 has 43 MA's), (48, 46429), (49, 46423), (50, 46420), (53, 46399),

Gene: TinyTimmy_83 Start: 46269, Stop: 46093, Start Num: 30

Candidate Starts for TinyTimmy_83:

(Start: 30 @46269 has 43 MA's), (48, 46158), (49, 46152), (50, 46149), (53, 46128),

Gene: TipsytheTRex_76 Start: 45496, Stop: 45314, Start Num: 30

Candidate Starts for TipsytheTRex_76:

(Start: 30 @45496 has 43 MA's), (32, 45490), (59, 45319),

Gene: Triumph_65 Start: 43164, Stop: 42991, Start Num: 31

Candidate Starts for Triumph_65:

(Start: 31 @43164 has 5 MA's), (35, 43152), (45, 43068), (50, 43044), (52, 43029), (56, 43005),

Gene: TyDawg_135 Start: 72589, Stop: 72398, Start Num: 27

Candidate Starts for TyDawg_135:

(7, 72712), (9, 72685), (Start: 27 @72589 has 9 MA's), (Start: 34 @72565 has 2 MA's), (53, 72436), (57, 72415), (58, 72406),

Gene: Tyson_118 Start: 64902, Stop: 64729, Start Num: 30

Candidate Starts for Tyson_118:

(8, 65037), (12, 65004), (13, 64986), (19, 64950), (22, 64935), (Start: 30 @64902 has 43 MA's), (Start: 34 @64890 has 2 MA's),

Gene: UPIE_116 Start: 64139, Stop: 63966, Start Num: 30

Candidate Starts for UPIE_116:

(8, 64274), (12, 64241), (13, 64223), (19, 64187), (22, 64172), (Start: 30 @64139 has 43 MA's), (Start: 34 @64127 has 2 MA's),

Gene: Wamburgexpress_119 Start: 64929, Stop: 64756, Start Num: 30

Candidate Starts for Wamburgexpress_119:

(13, 65013), (19, 64977), (Start: 30 @64929 has 43 MA's), (37, 64908),

Gene: Waterfoul_74 Start: 51080, Stop: 51277, Start Num: 25

Candidate Starts for Waterfoul_74:

(4, 50924), (Start: 23 @51068 has 3 MA's), (Start: 24 @51071 has 1 MA's), (Start: 25 @51080 has 15 MA's), (33, 51107), (47, 51206), (50, 51218), (53, 51239), (57, 51260),

Gene: Wyatt2_117 Start: 64565, Stop: 64392, Start Num: 30

Candidate Starts for Wyatt2_117:

(8, 64700), (12, 64667), (13, 64649), (19, 64613), (22, 64598), (Start: 30 @64565 has 43 MA's), (Start: 34 @64553 has 2 MA's),

Gene: Zaria_121 Start: 64874, Stop: 64701, Start Num: 30

Candidate Starts for Zaria_121:

(8, 65009), (12, 64976), (13, 64958), (19, 64922), (22, 64907), (Start: 30 @64874 has 43 MA's), (Start: 34 @64862 has 2 MA's),

Gene: Zolita_73 Start: 45183, Stop: 45031, Start Num: 38

Candidate Starts for Zolita_73:

(Start: 21 @45231 has 2 MA's), (Start: 38 @45183 has 13 MA's), (53, 45066),