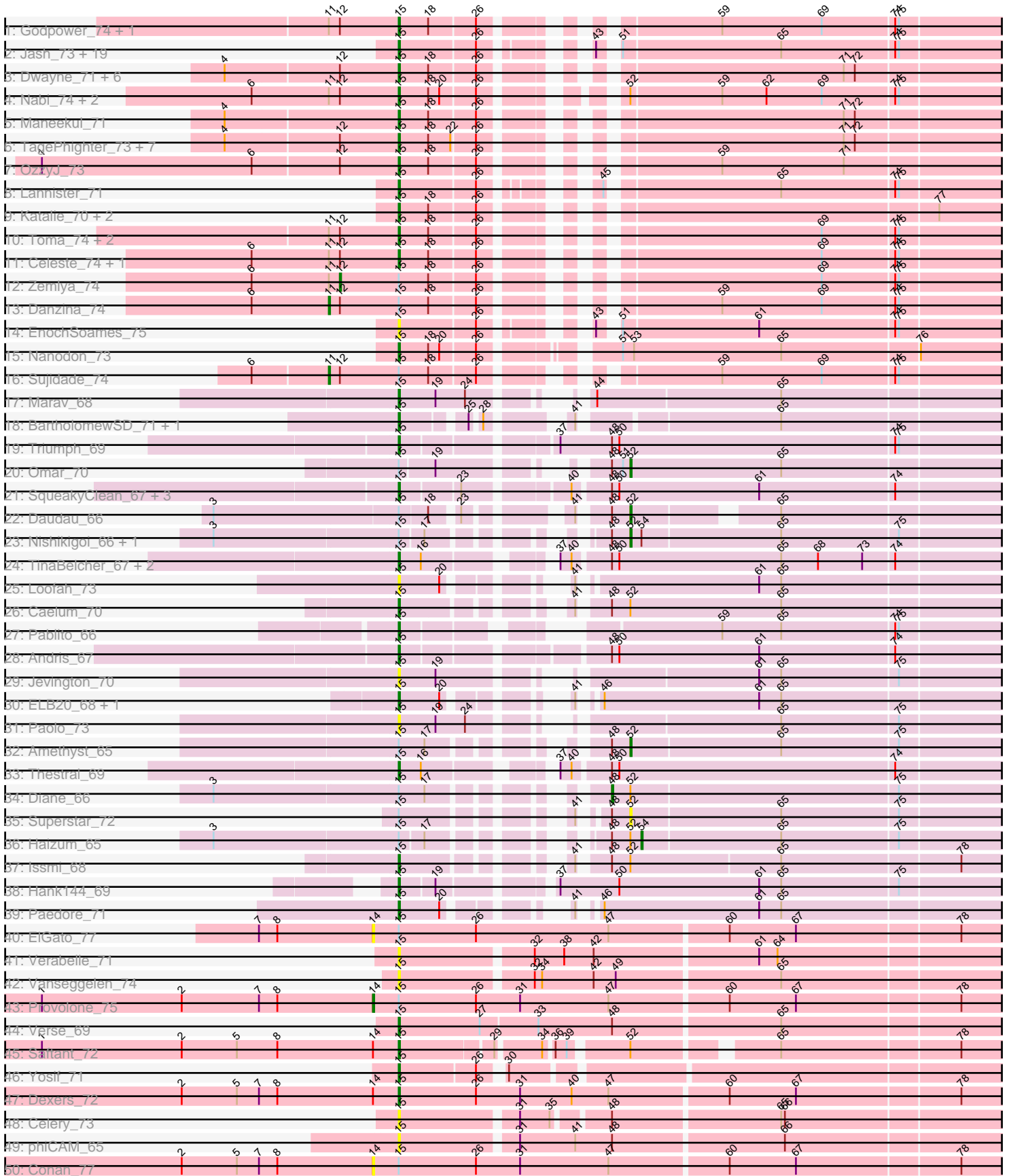


Pham 166603



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 166603 Report

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

Pham number 166603 has 104 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Godpower_74, Lika_73
- Track 2 : Jash_73, Unstoppable_71, Leviticus_72, Ozzie_71, Hydra_74, Phettuccine_71, Aaronocolus_71, Bovely_71, BryanRecycles_73, Izzy_73, Eddasa_74, Indigo_70, Oliynyk_73, Legacy_71, Rusticus_73, Nerdos_70, Caliburn_70, BeardedLady_72, Esperer_72, SunsetPointe_71
- Track 3 : Dwayne_71, BarryBee_74, Asten_71, Yasdnil_71, TuanPN_69, Ejemplo_69, Hippo_71
- Track 4 : Nabi_74, Rana_74, Lorelei_73
- Track 5 : Maneekul_71
- Track 6 : TagePighiter_73, SarahRose_71, Triste_72, Whatever_71, Emaanora_74, Snorlax_71, Werner_71, Chucky_71
- Track 7 : OzzyJ_73
- Track 8 : Lannister_71
- Track 9 : Katalie_70, South40_70, RedBear_71
- Track 10 : Toma_74, Goby_74, Dattran_75
- Track 11 : Celeste_74, Brataylor_75
- Track 12 : Zemlya_74
- Track 13 : Danzina_74
- Track 14 : EnochSoames_75
- Track 15 : Nanodon_73
- Track 16 : Sujidade_74
- Track 17 : Marav_68
- Track 18 : BartholomewSD_71, Alvy_71
- Track 19 : Triumph_69
- Track 20 : Omar_70
- Track 21 : SqueakyClean_67, GirlDinner_68, Janus_67, Animus_66
- Track 22 : Daudau_66
- Track 23 : Nishikigoi_66, Tefunt_65
- Track 24 : TinaBelcher_67, Bowden_67, TrvxScott_66
- Track 25 : Loofah_73
- Track 26 : Caelum_70
- Track 27 : Pablito_66
- Track 28 : Andris_67
- Track 29 : Jevington_70
- Track 30 : ELB20_68, R4_69
- Track 31 : Paolo_73
- Track 32 : Amethyst_65

- Track 33 : Thestral_69
- Track 34 : Diane_66
- Track 35 : Superstar_72
- Track 36 : Haizum_65
- Track 37 : Issmi_68
- Track 38 : Hank144_69
- Track 39 : Paedore_71
- Track 40 : ElGato_77
- Track 41 : Verabelle_71
- Track 42 : Vanseggelen_74
- Track 43 : Provolone_75
- Track 44 : Verse_69
- Track 45 : Saftant_72
- Track 46 : Yosif_71
- Track 47 : Dexers_72
- Track 48 : Celery_73
- Track 49 : phiCAM_65
- Track 50 : Conan_77
- Track 51 : Amela_68
- Track 52 : Alsaber_74
- Track 53 : Celia_71
- Track 54 : Urza_73
- Track 55 : VieEnRose_72
- Track 56 : Itza_74

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

The start number called the most often in the published annotations is 15, it was called in 77 of the 92 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Aaronocolus_71, Alvy_71, Amela_68, Andris_67, Animus_66, Asten_71, BarryBee_74, BartholomewSD_71, BeardedLady_72, Bovely_71, Bowden_67, Brataylor_75, BryanRecycles_73, Caelum_70, Caliburn_70, Celery_73, Celeste_74, Chucky_71, Dattran_75, Dexers_72, Dwayne_71, ELB20_68, Eddasa_74, Ejemplo_69, Emaanora_74, EnochSoames_75, Esperer_72, GirlDinner_68, Goby_74, Godpower_74, Hank144_69, Hippo_71, Hydra_74, Indigo_70, Issmi_68, Itza_74, Izzy_73, Janus_67, Jash_73, Jevington_70, Katalie_70, Lannister_71, Legacy_71, Leviticus_72, Lika_73, Loofah_73, Lorelei_73, Maneekul_71, Marav_68, Nabi_74, Nanodon_73, Nerdos_70, Oliynyk_73, Ozzie_71, OzzyJ_73, Pablito_66, Paedore_71, Paolo_73, Phettuccine_71, R4_69, Rana_74, RedBear_71, Rusticus_73, Saftant_72, SarahRose_71, Snorlax_71, South40_70, SqueakyClean_67, SunsetPointe_71, TaguePhighter_73, Thestral_69, TinaBelcher_67, Toma_74, Triste_72, Triumph_69, TrvxScott_66, TuanPN_69, Unstoppable_71, Vanseggelen_74, Verabelle_71, Verse_69, Werner_71, Whatever_71, Yasdnil_71, Yosif_71, phiCAM_65,

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

• Alsaber_74, Amethyst_65, Celia_71, Conan_77, Danzina_74, Daudau_66, Diane_66, ElGato_77, Haizum_65, Nishikigoi_66, Omar_70, Provolone_75,

Sujidade_74, Superstar_72, Tefunt_65, Urza_73, VieEnRose_72, Zemlya_74,

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

•

Summary by start number:

Start 9:

- Found in 4 of 104 (3.8%) of genes in pham
- Manual Annotations of this start: 2 of 92
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Urza_73 (BD6), VieEnRose_72 (BD6),

Start 11:

- Found in 13 of 104 (12.5%) of genes in pham
- Manual Annotations of this start: 2 of 92
- Called 15.4% of time when present
- Phage (with cluster) where this start called: Danzina_74 (BD1), Sujidade_74 (BD1),

Start 12:

- Found in 33 of 104 (31.7%) of genes in pham
- Manual Annotations of this start: 2 of 92
- Called 6.1% of time when present
- Phage (with cluster) where this start called: Celia_71 (BD6), Zemlya_74 (BD1),

Start 14:

- Found in 6 of 104 (5.8%) of genes in pham
- Manual Annotations of this start: 2 of 92
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Alsaber_74 (BD3), Conan_77 (BD3), ElGato_77 (BD3), Provolone_75 (BD3),

Start 15:

- Found in 104 of 104 (100.0%) of genes in pham
- Manual Annotations of this start: 77 of 92
- Called 82.7% of time when present
- Phage (with cluster) where this start called: Aaronocolus_71 (BD1), Alvy_71 (BD2), Amela_68 (BD3), Andris_67 (BD2), Animus_66 (BD2), Asten_71 (BD1), BarryBee_74 (BD1), BartholomewSD_71 (BD2), BeardedLady_72 (BD1), Bovely_71 (BD1), Bowden_67 (BD2), Brataylor_75 (BD1), BryanRecycles_73 (BD1), Caelum_70 (BD2), Caliburn_70 (BD1), Celery_73 (BD3), Celeste_74 (BD1), Chucky_71 (BD1), Dattran_75 (BD1), Dexters_72 (BD3), Dwayne_71 (BD1), ELB20_68 (BD2), Eddasa_74 (BD1), Ejemplo_69 (BD1), Emaanora_74 (BD1), EnochSoames_75 (BD1), Esperer_72 (BD1), GirlDinner_68 (BD2), Goby_74 (BD1), Godpower_74 (BD1), Hank144_69 (BD2), Hippo_71 (BD1), Hydra_74 (BD1), Indigo_70 (BD1), Issmi_68 (BD2), Itza_74 (BD6), Izzy_73 (BD1), Janus_67 (BD2), Jash_73 (BD1), Jevington_70 (BD2), Katalie_70 (BD1), Lannister_71 (BD1), Legacy_71 (BD1), Leviticus_72 (BD1), Lika_73 (BD1), Loofah_73 (BD2), Lorelei_73 (BD1), Maneekul_71 (BD1), Marav_68 (BD2), Nabi_74 (BD1), Nanodon_73 (BD1), Nerdos_70 (BD1), Oliynyk_73 (BD1), Ozzie_71 (BD1), OzzyJ_73 (BD1), Pablito_66 (BD2), Paedore_71 (BD2), Paolo_73 (BD2), Phettuccine_71 (BD1), R4_69 (BD2), Rana_74 (BD1), RedBear_71 (BD1), Rusticus_73 (BD1), Saftant_72 (BD3), SarahRose_71 (BD1), Snorlax_71 (BD1), South40_70 (BD1), SqueakyClean_67

(BD2), SunsetPointe_71 (BD1), TagePhighter_73 (BD1), Thestral_69 (BD2), TinaBelcher_67 (BD2), Toma_74 (BD1), Triste_72 (BD1), Triumph_69 (BD2), TrvxScott_66 (BD2), TuanPN_69 (BD1), Unstoppable_71 (BD1), Vanseggelen_74 (BD3), Verabelle_71 (BD3), Verse_69 (BD3), Werner_71 (BD1), Whatever_71 (BD1), Yasdnil_71 (BD1), Yosif_71 (BD3), phiCAM_65 (BD3),

Start 48:

- Found in 24 of 104 (23.1%) of genes in pham
- Manual Annotations of this start: 1 of 92
- Called 4.2% of time when present
- Phage (with cluster) where this start called: Diane_66 (BD2),

Start 52:

- Found in 14 of 104 (13.5%) of genes in pham
- Manual Annotations of this start: 5 of 92
- Called 42.9% of time when present
- Phage (with cluster) where this start called: Amethyst_65 (BD2), Daudau_66 (BD2), Nishikigoi_66 (BD2), Omar_70 (BD2), Superstar_72 (BD2), Tefunt_65 (BD2),

Start 54:

- Found in 3 of 104 (2.9%) of genes in pham
- Manual Annotations of this start: 1 of 92
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Haizum_65 (BD2),

Summary by clusters:

There are 4 clusters represented in this pham: BD6, BD1, BD3, BD2,

Info for manual annotations of cluster BD1:

- Start number 11 was manually annotated 2 times for cluster BD1.
- Start number 12 was manually annotated 1 time for cluster BD1.
- Start number 15 was manually annotated 52 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 15 was manually annotated 19 times for cluster BD2.
- Start number 48 was manually annotated 1 time for cluster BD2.
- Start number 52 was manually annotated 5 times for cluster BD2.
- Start number 54 was manually annotated 1 time for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 14 was manually annotated 2 times for cluster BD3.
- Start number 15 was manually annotated 5 times for cluster BD3.

Info for manual annotations of cluster BD6:

- Start number 9 was manually annotated 2 times for cluster BD6.
- Start number 12 was manually annotated 1 time for cluster BD6.
- Start number 15 was manually annotated 1 time for cluster BD6.

Gene Information:

Gene: Aaronocolus_71 Start: 47892, Stop: 47467, Start Num: 15
Candidate Starts for Aaronocolus_71:
(Start: 15 @47892 has 77 MA's), (26, 47832), (43, 47778), (51, 47769), (65, 47643), (74, 47553), (75, 47550),

Gene: Alsaber_74 Start: 47086, Stop: 46583, Start Num: 14
Candidate Starts for Alsaber_74:
(2, 47242), (7, 47179), (8, 47164), (Start: 14 @47086 has 2 MA's), (Start: 15 @47065 has 77 MA's), (26, 47002), (31, 46966), (47, 46894), (60, 46801), (67, 46747), (78, 46618),

Gene: Alvy_71 Start: 46255, Stop: 45833, Start Num: 15
Candidate Starts for Alvy_71:
(Start: 15 @46255 has 77 MA's), (25, 46210), (28, 46204), (41, 46156), (65, 46009),

Gene: Amela_68 Start: 45690, Stop: 45211, Start Num: 15
Candidate Starts for Amela_68:
(Start: 15 @45690 has 77 MA's), (27, 45624), (33, 45579), (Start: 48 @45519 has 1 MA's), (66, 45384),

Gene: Amethyst_65 Start: 43154, Stop: 42858, Start Num: 52
Candidate Starts for Amethyst_65:
(Start: 15 @43286 has 77 MA's), (17, 43265), (Start: 48 @43169 has 1 MA's), (Start: 52 @43154 has 5 MA's), (65, 43034), (75, 42941),

Gene: Andris_67 Start: 44165, Stop: 43704, Start Num: 15
Candidate Starts for Andris_67:
(Start: 15 @44165 has 77 MA's), (Start: 48 @44018 has 1 MA's), (50, 44012), (61, 43898), (74, 43790),

Gene: Animus_66 Start: 45219, Stop: 44758, Start Num: 15
Candidate Starts for Animus_66:
(Start: 15 @45219 has 77 MA's), (23, 45174), (40, 45099), (Start: 48 @45072 has 1 MA's), (50, 45066), (61, 44952), (74, 44844),

Gene: Asten_71 Start: 50036, Stop: 49608, Start Num: 15
Candidate Starts for Asten_71:
(4, 50174), (Start: 12 @50084 has 2 MA's), (Start: 15 @50036 has 77 MA's), (18, 50012), (26, 49976), (71, 49733), (72, 49724),

Gene: BarryBee_74 Start: 50009, Stop: 49581, Start Num: 15
Candidate Starts for BarryBee_74:
(4, 50147), (Start: 12 @50057 has 2 MA's), (Start: 15 @50009 has 77 MA's), (18, 49985), (26, 49949), (71, 49706), (72, 49697),

Gene: BartholomewSD_71 Start: 45374, Stop: 44952, Start Num: 15
Candidate Starts for BartholomewSD_71:
(Start: 15 @45374 has 77 MA's), (25, 45329), (28, 45323), (41, 45275), (65, 45128),

Gene: BeardedLady_72 Start: 48272, Stop: 47847, Start Num: 15
Candidate Starts for BeardedLady_72:
(Start: 15 @48272 has 77 MA's), (26, 48212), (43, 48158), (51, 48149), (65, 48023), (74, 47933), (75, 47930),

Gene: Bovely_71 Start: 47895, Stop: 47470, Start Num: 15
Candidate Starts for Bovely_71:
(Start: 15 @47895 has 77 MA's), (26, 47835), (43, 47781), (51, 47772), (65, 47646), (74, 47556), (75, 47553),

Gene: Bowden_67 Start: 45935, Stop: 45486, Start Num: 15
Candidate Starts for Bowden_67:
(Start: 15 @45935 has 77 MA's), (16, 45917), (37, 45836), (40, 45827), (Start: 48 @45800 has 1 MA's), (50, 45794), (65, 45662), (68, 45632), (73, 45596), (74, 45572),

Gene: Brataylor_75 Start: 49554, Stop: 49126, Start Num: 15
Candidate Starts for Brataylor_75:
(6, 49674), (Start: 11 @49611 has 2 MA's), (Start: 12 @49602 has 2 MA's), (Start: 15 @49554 has 77 MA's), (18, 49530), (26, 49494), (69, 49269), (74, 49212), (75, 49209),

Gene: BryanRecycles_73 Start: 48398, Stop: 47973, Start Num: 15
Candidate Starts for BryanRecycles_73:
(Start: 15 @48398 has 77 MA's), (26, 48338), (43, 48284), (51, 48275), (65, 48149), (74, 48059), (75, 48056),

Gene: Caelum_70 Start: 44242, Stop: 43811, Start Num: 15
Candidate Starts for Caelum_70:
(Start: 15 @44242 has 77 MA's), (41, 44143), (Start: 48 @44125 has 1 MA's), (Start: 52 @44110 has 5 MA's), (65, 43987),

Gene: Caliburn_70 Start: 48280, Stop: 47855, Start Num: 15
Candidate Starts for Caliburn_70:
(Start: 15 @48280 has 77 MA's), (26, 48220), (43, 48166), (51, 48157), (65, 48031), (74, 47941), (75, 47938),

Gene: Celery_73 Start: 44746, Stop: 44285, Start Num: 15
Candidate Starts for Celery_73:
(Start: 15 @44746 has 77 MA's), (31, 44656), (35, 44632), (Start: 48 @44593 has 1 MA's), (65, 44461), (66, 44458),

Gene: Celeste_74 Start: 49022, Stop: 48594, Start Num: 15
Candidate Starts for Celeste_74:
(6, 49142), (Start: 11 @49079 has 2 MA's), (Start: 12 @49070 has 2 MA's), (Start: 15 @49022 has 77 MA's), (18, 48998), (26, 48962), (69, 48737), (74, 48680), (75, 48677),

Gene: Celia_71 Start: 46426, Stop: 45908, Start Num: 12
Candidate Starts for Celia_71:
(Start: 9 @46462 has 2 MA's), (Start: 12 @46426 has 2 MA's), (13, 46408), (Start: 15 @46378 has 77 MA's), (16, 46360), (18, 46354), (19, 46348), (21, 46339), (23, 46327), (55, 46177), (56, 46156), (57, 46153), (58, 46150), (63, 46093), (70, 46045), (79, 45940),

Gene: Chucky_71 Start: 50071, Stop: 49643, Start Num: 15
Candidate Starts for Chucky_71:
(4, 50209), (Start: 12 @50119 has 2 MA's), (Start: 15 @50071 has 77 MA's), (18, 50047), (22, 50029), (26, 50011), (71, 49768), (72, 49759),

Gene: Conan_77 Start: 47338, Stop: 46835, Start Num: 14
Candidate Starts for Conan_77:

(2, 47494), (5, 47449), (7, 47431), (8, 47416), (Start: 14 @47338 has 2 MA's), (Start: 15 @47317 has 77 MA's), (26, 47254), (31, 47218), (47, 47146), (60, 47053), (67, 46999), (78, 46870),

Gene: Danzina_74 Start: 49317, Stop: 48832, Start Num: 11

Candidate Starts for Danzina_74:

(6, 49380), (Start: 11 @49317 has 2 MA's), (Start: 12 @49308 has 2 MA's), (Start: 15 @49260 has 77 MA's), (18, 49236), (26, 49200), (59, 49056), (69, 48975), (74, 48918), (75, 48915),

Gene: Dattran_75 Start: 49475, Stop: 49047, Start Num: 15

Candidate Starts for Dattran_75:

(Start: 11 @49532 has 2 MA's), (Start: 12 @49523 has 2 MA's), (Start: 15 @49475 has 77 MA's), (18, 49451), (26, 49415), (69, 49190), (74, 49133), (75, 49130),

Gene: Daudau_66 Start: 43674, Stop: 43396, Start Num: 52

Candidate Starts for Daudau_66:

(3, 43956), (Start: 15 @43809 has 77 MA's), (18, 43788), (23, 43770), (41, 43707), (Start: 48 @43689 has 1 MA's), (Start: 52 @43674 has 5 MA's), (65, 43572),

Gene: Dexers_72 Start: 47283, Stop: 46801, Start Num: 15

Candidate Starts for Dexers_72:

(2, 47460), (5, 47415), (7, 47397), (8, 47382), (Start: 14 @47304 has 2 MA's), (Start: 15 @47283 has 77 MA's), (26, 47220), (31, 47184), (40, 47142), (47, 47112), (60, 47019), (67, 46965), (78, 46836),

Gene: Diane_66 Start: 44254, Stop: 43943, Start Num: 48

Candidate Starts for Diane_66:

(3, 44518), (Start: 15 @44371 has 77 MA's), (17, 44350), (Start: 48 @44254 has 1 MA's), (Start: 52 @44239 has 5 MA's), (75, 44026),

Gene: Dwayne_71 Start: 50059, Stop: 49631, Start Num: 15

Candidate Starts for Dwayne_71:

(4, 50197), (Start: 12 @50107 has 2 MA's), (Start: 15 @50059 has 77 MA's), (18, 50035), (26, 49999), (71, 49756), (72, 49747),

Gene: ELB20_68 Start: 44653, Stop: 44234, Start Num: 15

Candidate Starts for ELB20_68:

(Start: 15 @44653 has 77 MA's), (20, 44620), (41, 44560), (46, 44554), (61, 44428), (65, 44410),

Gene: Eddasa_74 Start: 48937, Stop: 48512, Start Num: 15

Candidate Starts for Eddasa_74:

(Start: 15 @48937 has 77 MA's), (26, 48877), (43, 48823), (51, 48814), (65, 48688), (74, 48598), (75, 48595),

Gene: Ejemplo_69 Start: 49997, Stop: 49569, Start Num: 15

Candidate Starts for Ejemplo_69:

(4, 50135), (Start: 12 @50045 has 2 MA's), (Start: 15 @49997 has 77 MA's), (18, 49973), (26, 49937), (71, 49694), (72, 49685),

Gene: ElGato_77 Start: 47198, Stop: 46695, Start Num: 14

Candidate Starts for ElGato_77:

(7, 47291), (8, 47276), (Start: 14 @47198 has 2 MA's), (Start: 15 @47177 has 77 MA's), (26, 47114), (47, 47006), (60, 46913), (67, 46859), (78, 46730),

Gene: Emaanora_74 Start: 49983, Stop: 49555, Start Num: 15

Candidate Starts for Emaanora_74:

(4, 50121), (Start: 12 @50031 has 2 MA's), (Start: 15 @49983 has 77 MA's), (18, 49959), (22, 49941), (26, 49923), (71, 49680), (72, 49671),

Gene: EnochSoames_75 Start: 48104, Stop: 47679, Start Num: 15

Candidate Starts for EnochSoames_75:

(Start: 15 @48104 has 77 MA's), (26, 48044), (43, 47990), (51, 47981), (61, 47873), (74, 47765), (75, 47762),

Gene: Esperer_72 Start: 48238, Stop: 47813, Start Num: 15

Candidate Starts for Esperer_72:

(Start: 15 @48238 has 77 MA's), (26, 48178), (43, 48124), (51, 48115), (65, 47989), (74, 47899), (75, 47896),

Gene: GirlDinner_68 Start: 44711, Stop: 44250, Start Num: 15

Candidate Starts for GirlDinner_68:

(Start: 15 @44711 has 77 MA's), (23, 44666), (40, 44591), (Start: 48 @44564 has 1 MA's), (50, 44558), (61, 44444), (74, 44336),

Gene: Goby_74 Start: 49892, Stop: 49464, Start Num: 15

Candidate Starts for Goby_74:

(Start: 11 @49949 has 2 MA's), (Start: 12 @49940 has 2 MA's), (Start: 15 @49892 has 77 MA's), (18, 49868), (26, 49832), (69, 49607), (74, 49550), (75, 49547),

Gene: Godpower_74 Start: 49186, Stop: 48758, Start Num: 15

Candidate Starts for Godpower_74:

(Start: 11 @49243 has 2 MA's), (Start: 12 @49234 has 2 MA's), (Start: 15 @49186 has 77 MA's), (18, 49162), (26, 49126), (59, 48982), (69, 48901), (74, 48844), (75, 48841),

Gene: Haizum_65 Start: 43959, Stop: 43672, Start Num: 54

Candidate Starts for Haizum_65:

(3, 44241), (Start: 15 @44094 has 77 MA's), (17, 44076), (Start: 48 @43983 has 1 MA's), (Start: 52 @43968 has 5 MA's), (Start: 54 @43959 has 1 MA's), (65, 43848), (75, 43755),

Gene: Hank144_69 Start: 44919, Stop: 44458, Start Num: 15

Candidate Starts for Hank144_69:

(Start: 15 @44919 has 77 MA's), (19, 44892), (37, 44814), (50, 44766), (61, 44652), (65, 44634), (75, 44541),

Gene: Hippo_71 Start: 50045, Stop: 49617, Start Num: 15

Candidate Starts for Hippo_71:

(4, 50183), (Start: 12 @50093 has 2 MA's), (Start: 15 @50045 has 77 MA's), (18, 50021), (26, 49985), (71, 49742), (72, 49733),

Gene: Hydra_74 Start: 49052, Stop: 48627, Start Num: 15

Candidate Starts for Hydra_74:

(Start: 15 @49052 has 77 MA's), (26, 48992), (43, 48938), (51, 48929), (65, 48803), (74, 48713), (75, 48710),

Gene: Indigo_70 Start: 47888, Stop: 47463, Start Num: 15

Candidate Starts for Indigo_70:

(Start: 15 @47888 has 77 MA's), (26, 47828), (43, 47774), (51, 47765), (65, 47639), (74, 47549), (75, 47546),

Gene: Issmi_68 Start: 44876, Stop: 44448, Start Num: 15

Candidate Starts for Issmi_68:

(Start: 15 @44876 has 77 MA's), (41, 44777), (Start: 48 @44759 has 1 MA's), (Start: 52 @44744 has 5 MA's), (65, 44624), (78, 44483),

Gene: Itza_74 Start: 46311, Stop: 45841, Start Num: 15

Candidate Starts for Itza_74:

(Start: 9 @46395 has 2 MA's), (Start: 12 @46359 has 2 MA's), (13, 46341), (Start: 15 @46311 has 77 MA's), (16, 46293), (18, 46287), (19, 46281), (21, 46272), (23, 46260), (55, 46110), (56, 46089), (57, 46086), (58, 46083), (63, 46026), (70, 45978), (79, 45873),

Gene: Izzy_73 Start: 48445, Stop: 48020, Start Num: 15

Candidate Starts for Izzy_73:

(Start: 15 @48445 has 77 MA's), (26, 48385), (43, 48331), (51, 48322), (65, 48196), (74, 48106), (75, 48103),

Gene: Janus_67 Start: 45051, Stop: 44590, Start Num: 15

Candidate Starts for Janus_67:

(Start: 15 @45051 has 77 MA's), (23, 45006), (40, 44931), (Start: 48 @44904 has 1 MA's), (50, 44898), (61, 44784), (74, 44676),

Gene: Jash_73 Start: 48398, Stop: 47973, Start Num: 15

Candidate Starts for Jash_73:

(Start: 15 @48398 has 77 MA's), (26, 48338), (43, 48284), (51, 48275), (65, 48149), (74, 48059), (75, 48056),

Gene: Jevington_70 Start: 43253, Stop: 42822, Start Num: 15

Candidate Starts for Jevington_70:

(Start: 15 @43253 has 77 MA's), (19, 43223), (61, 43016), (65, 42998), (75, 42905),

Gene: Katalie_70 Start: 49765, Stop: 49337, Start Num: 15

Candidate Starts for Katalie_70:

(Start: 15 @49765 has 77 MA's), (18, 49741), (26, 49705), (77, 49390),

Gene: Lannister_71 Start: 48622, Stop: 48200, Start Num: 15

Candidate Starts for Lannister_71:

(Start: 15 @48622 has 77 MA's), (26, 48562), (45, 48505), (65, 48376), (74, 48286), (75, 48283),

Gene: Legacy_71 Start: 48271, Stop: 47846, Start Num: 15

Candidate Starts for Legacy_71:

(Start: 15 @48271 has 77 MA's), (26, 48211), (43, 48157), (51, 48148), (65, 48022), (74, 47932), (75, 47929),

Gene: Leviticus_72 Start: 48425, Stop: 48000, Start Num: 15

Candidate Starts for Leviticus_72:

(Start: 15 @48425 has 77 MA's), (26, 48365), (43, 48311), (51, 48302), (65, 48176), (74, 48086), (75, 48083),

Gene: Lika_73 Start: 49739, Stop: 49311, Start Num: 15

Candidate Starts for Lika_73:

(Start: 11 @49796 has 2 MA's), (Start: 12 @49787 has 2 MA's), (Start: 15 @49739 has 77 MA's), (18, 49715), (26, 49679), (59, 49535), (69, 49454), (74, 49397), (75, 49394),

Gene: Loofah_73 Start: 45637, Stop: 45218, Start Num: 15

Candidate Starts for Loofah_73:

(Start: 15 @45637 has 77 MA's), (20, 45604), (41, 45544), (61, 45412), (65, 45394),

Gene: Lorelei_73 Start: 49033, Stop: 48599, Start Num: 15

Candidate Starts for Lorelei_73:

(6, 49153), (Start: 11 @49090 has 2 MA's), (Start: 12 @49081 has 2 MA's), (Start: 15 @49033 has 77 MA's), (18, 49009), (20, 49000), (26, 48973), (Start: 52 @48895 has 5 MA's), (59, 48823), (62, 48787), (69, 48742), (74, 48685), (75, 48682),

Gene: Maneekul_71 Start: 50076, Stop: 49648, Start Num: 15

Candidate Starts for Maneekul_71:

(4, 50214), (Start: 15 @50076 has 77 MA's), (18, 50052), (26, 50016), (71, 49773), (72, 49764),

Gene: Marav_68 Start: 43240, Stop: 42809, Start Num: 15

Candidate Starts for Marav_68:

(Start: 15 @43240 has 77 MA's), (19, 43210), (24, 43186), (44, 43132), (65, 42985),

Gene: Nabi_74 Start: 49602, Stop: 49168, Start Num: 15

Candidate Starts for Nabi_74:

(6, 49722), (Start: 11 @49659 has 2 MA's), (Start: 12 @49650 has 2 MA's), (Start: 15 @49602 has 77 MA's), (18, 49578), (20, 49569), (26, 49542), (Start: 52 @49464 has 5 MA's), (59, 49392), (62, 49356), (69, 49311), (74, 49254), (75, 49251),

Gene: Nanodon_73 Start: 48586, Stop: 48134, Start Num: 15

Candidate Starts for Nanodon_73:

(Start: 15 @48586 has 77 MA's), (18, 48562), (20, 48553), (26, 48526), (51, 48439), (53, 48430), (65, 48310), (76, 48202),

Gene: Nerdos_70 Start: 47887, Stop: 47462, Start Num: 15

Candidate Starts for Nerdos_70:

(Start: 15 @47887 has 77 MA's), (26, 47827), (43, 47773), (51, 47764), (65, 47638), (74, 47548), (75, 47545),

Gene: Nishikigoi_66 Start: 43968, Stop: 43672, Start Num: 52

Candidate Starts for Nishikigoi_66:

(3, 44241), (Start: 15 @44094 has 77 MA's), (17, 44076), (Start: 48 @43983 has 1 MA's), (Start: 52 @43968 has 5 MA's), (Start: 54 @43959 has 1 MA's), (65, 43848), (75, 43755),

Gene: Oliynyk_73 Start: 48307, Stop: 47882, Start Num: 15

Candidate Starts for Oliynyk_73:

(Start: 15 @48307 has 77 MA's), (26, 48247), (43, 48193), (51, 48184), (65, 48058), (74, 47968), (75, 47965),

Gene: Omar_70 Start: 42892, Stop: 42593, Start Num: 52

Candidate Starts for Omar_70:

(Start: 15 @43027 has 77 MA's), (19, 43000), (Start: 48 @42907 has 1 MA's), (51, 42898), (Start: 52 @42892 has 5 MA's), (65, 42769),

Gene: Ozzie_71 Start: 48280, Stop: 47855, Start Num: 15

Candidate Starts for Ozzie_71:

(Start: 15 @48280 has 77 MA's), (26, 48220), (43, 48166), (51, 48157), (65, 48031), (74, 47941), (75, 47938),

Gene: OzzyJ_73 Start: 49963, Stop: 49535, Start Num: 15

Candidate Starts for OzzyJ_73:

(1, 50251), (6, 50080), (Start: 12 @50011 has 2 MA's), (Start: 15 @49963 has 77 MA's), (18, 49939), (26, 49903), (59, 49759), (71, 49660),

Gene: Pablito_66 Start: 43502, Stop: 43080, Start Num: 15

Candidate Starts for Pablito_66:

(Start: 15 @43502 has 77 MA's), (59, 43304), (65, 43256), (74, 43166), (75, 43163),

Gene: Paedore_71 Start: 46003, Stop: 45584, Start Num: 15

Candidate Starts for Paedore_71:

(Start: 15 @46003 has 77 MA's), (20, 45970), (41, 45910), (46, 45904), (61, 45778), (65, 45760),

Gene: Paolo_73 Start: 44940, Stop: 44509, Start Num: 15

Candidate Starts for Paolo_73:

(Start: 15 @44940 has 77 MA's), (19, 44910), (24, 44886), (65, 44685), (75, 44592),

Gene: Phettuccine_71 Start: 47858, Stop: 47433, Start Num: 15

Candidate Starts for Phettuccine_71:

(Start: 15 @47858 has 77 MA's), (26, 47798), (43, 47744), (51, 47735), (65, 47609), (74, 47519), (75, 47516),

Gene: Provolone_75 Start: 47427, Stop: 46924, Start Num: 14

Candidate Starts for Provolone_75:

(1, 47697), (2, 47583), (7, 47520), (8, 47505), (Start: 14 @47427 has 2 MA's), (Start: 15 @47406 has 77 MA's), (26, 47343), (31, 47307), (47, 47235), (60, 47142), (67, 47088), (78, 46959),

Gene: R4_69 Start: 44813, Stop: 44394, Start Num: 15

Candidate Starts for R4_69:

(Start: 15 @44813 has 77 MA's), (20, 44780), (41, 44720), (46, 44714), (61, 44588), (65, 44570),

Gene: Rana_74 Start: 49455, Stop: 49021, Start Num: 15

Candidate Starts for Rana_74:

(6, 49575), (Start: 11 @49512 has 2 MA's), (Start: 12 @49503 has 2 MA's), (Start: 15 @49455 has 77 MA's), (18, 49431), (20, 49422), (26, 49395), (Start: 52 @49317 has 5 MA's), (59, 49245), (62, 49209), (69, 49164), (74, 49107), (75, 49104),

Gene: RedBear_71 Start: 49765, Stop: 49337, Start Num: 15

Candidate Starts for RedBear_71:

(Start: 15 @49765 has 77 MA's), (18, 49741), (26, 49705), (77, 49390),

Gene: Rusticus_73 Start: 48398, Stop: 47973, Start Num: 15

Candidate Starts for Rusticus_73:

(Start: 15 @48398 has 77 MA's), (26, 48338), (43, 48284), (51, 48275), (65, 48149), (74, 48059), (75, 48056),

Gene: Saftant_72 Start: 47099, Stop: 46659, Start Num: 15

Candidate Starts for Saftant_72:

(1, 47390), (2, 47276), (5, 47231), (8, 47198), (Start: 14 @47120 has 2 MA's), (Start: 15 @47099 has 77 MA's), (29, 47027), (34, 46994), (36, 46988), (39, 46979), (Start: 52 @46937 has 5 MA's), (65,

46835), (78, 46694),

Gene: SarahRose_71 Start: 50046, Stop: 49618, Start Num: 15

Candidate Starts for SarahRose_71:

(4, 50184), (Start: 12 @50094 has 2 MA's), (Start: 15 @50046 has 77 MA's), (18, 50022), (22, 50004), (26, 49986), (71, 49743), (72, 49734),

Gene: Snorlax_71 Start: 50071, Stop: 49643, Start Num: 15

Candidate Starts for Snorlax_71:

(4, 50209), (Start: 12 @50119 has 2 MA's), (Start: 15 @50071 has 77 MA's), (18, 50047), (22, 50029), (26, 50011), (71, 49768), (72, 49759),

Gene: South40_70 Start: 49765, Stop: 49337, Start Num: 15

Candidate Starts for South40_70:

(Start: 15 @49765 has 77 MA's), (18, 49741), (26, 49705), (77, 49390),

Gene: SqueakyClean_67 Start: 45229, Stop: 44768, Start Num: 15

Candidate Starts for SqueakyClean_67:

(Start: 15 @45229 has 77 MA's), (23, 45184), (40, 45109), (Start: 48 @45082 has 1 MA's), (50, 45076), (61, 44962), (74, 44854),

Gene: Sujidade_74 Start: 50093, Stop: 49608, Start Num: 11

Candidate Starts for Sujidade_74:

(6, 50153), (Start: 11 @50093 has 2 MA's), (Start: 12 @50084 has 2 MA's), (Start: 15 @50036 has 77 MA's), (18, 50012), (26, 49976), (59, 49832), (69, 49751), (74, 49694), (75, 49691),

Gene: SunsetPointe_71 Start: 48287, Stop: 47862, Start Num: 15

Candidate Starts for SunsetPointe_71:

(Start: 15 @48287 has 77 MA's), (26, 48227), (43, 48173), (51, 48164), (65, 48038), (74, 47948), (75, 47945),

Gene: Superstar_72 Start: 44145, Stop: 43849, Start Num: 52

Candidate Starts for Superstar_72:

(Start: 15 @44271 has 77 MA's), (41, 44172), (Start: 48 @44160 has 1 MA's), (Start: 52 @44145 has 5 MA's), (65, 44025), (75, 43932),

Gene: TagePhighter_73 Start: 50046, Stop: 49618, Start Num: 15

Candidate Starts for TagePhighter_73:

(4, 50184), (Start: 12 @50094 has 2 MA's), (Start: 15 @50046 has 77 MA's), (18, 50022), (22, 50004), (26, 49986), (71, 49743), (72, 49734),

Gene: Tefunt_65 Start: 43882, Stop: 43586, Start Num: 52

Candidate Starts for Tefunt_65:

(3, 44155), (Start: 15 @44008 has 77 MA's), (17, 43990), (Start: 48 @43897 has 1 MA's), (Start: 52 @43882 has 5 MA's), (Start: 54 @43873 has 1 MA's), (65, 43762), (75, 43669),

Gene: Thestral_69 Start: 45962, Stop: 45513, Start Num: 15

Candidate Starts for Thestral_69:

(Start: 15 @45962 has 77 MA's), (16, 45944), (37, 45863), (40, 45854), (Start: 48 @45827 has 1 MA's), (50, 45821), (74, 45599),

Gene: TinaBelcher_67 Start: 45824, Stop: 45375, Start Num: 15

Candidate Starts for TinaBelcher_67:

(Start: 15 @45824 has 77 MA's), (16, 45806), (37, 45725), (40, 45716), (Start: 48 @45689 has 1 MA's), (50, 45683), (65, 45551), (68, 45521), (73, 45485), (74, 45461),

Gene: Toma_74 Start: 49895, Stop: 49467, Start Num: 15

Candidate Starts for Toma_74:

(Start: 11 @49952 has 2 MA's), (Start: 12 @49943 has 2 MA's), (Start: 15 @49895 has 77 MA's), (18, 49871), (26, 49835), (69, 49610), (74, 49553), (75, 49550),

Gene: Triste_72 Start: 50045, Stop: 49617, Start Num: 15

Candidate Starts for Triste_72:

(4, 50183), (Start: 12 @50093 has 2 MA's), (Start: 15 @50045 has 77 MA's), (18, 50021), (22, 50003), (26, 49985), (71, 49742), (72, 49733),

Gene: Triumph_69 Start: 44652, Stop: 44185, Start Num: 15

Candidate Starts for Triumph_69:

(Start: 15 @44652 has 77 MA's), (37, 44541), (Start: 48 @44499 has 1 MA's), (50, 44493), (74, 44271), (75, 44268),

Gene: TrvxScott_66 Start: 45929, Stop: 45480, Start Num: 15

Candidate Starts for TrvxScott_66:

(Start: 15 @45929 has 77 MA's), (16, 45911), (37, 45830), (40, 45821), (Start: 48 @45794 has 1 MA's), (50, 45788), (65, 45656), (68, 45626), (73, 45590), (74, 45566),

Gene: TuanPN_69 Start: 49997, Stop: 49569, Start Num: 15

Candidate Starts for TuanPN_69:

(4, 50135), (Start: 12 @50045 has 2 MA's), (Start: 15 @49997 has 77 MA's), (18, 49973), (26, 49937), (71, 49694), (72, 49685),

Gene: Unstoppable_71 Start: 47886, Stop: 47461, Start Num: 15

Candidate Starts for Unstoppable_71:

(Start: 15 @47886 has 77 MA's), (26, 47826), (43, 47772), (51, 47763), (65, 47637), (74, 47547), (75, 47544),

Gene: Urza_73 Start: 46416, Stop: 45862, Start Num: 9

Candidate Starts for Urza_73:

(Start: 9 @46416 has 2 MA's), (Start: 12 @46380 has 2 MA's), (13, 46362), (Start: 15 @46332 has 77 MA's), (16, 46314), (18, 46308), (19, 46302), (21, 46293), (23, 46281), (55, 46131), (56, 46110), (57, 46107), (58, 46104), (63, 46047), (70, 45999), (79, 45894),

Gene: Vanseggelen_74 Start: 44923, Stop: 44450, Start Num: 15

Candidate Starts for Vanseggelen_74:

(Start: 15 @44923 has 77 MA's), (32, 44821), (34, 44815), (42, 44773), (49, 44755), (65, 44626),

Gene: Verabelle_71 Start: 44363, Stop: 43890, Start Num: 15

Candidate Starts for Verabelle_71:

(Start: 15 @44363 has 77 MA's), (32, 44261), (38, 44237), (42, 44213), (61, 44084), (64, 44069),

Gene: Verse_69 Start: 45681, Stop: 45202, Start Num: 15

Candidate Starts for Verse_69:

(Start: 15 @45681 has 77 MA's), (27, 45615), (33, 45570), (Start: 48 @45510 has 1 MA's), (65, 45378),

Gene: VieEnRose_72 Start: 46184, Stop: 45630, Start Num: 9

Candidate Starts for VieEnRose_72:

(Start: 9 @46184 has 2 MA's), (10, 46169), (Start: 12 @46148 has 2 MA's), (13, 46130), (Start: 15 @46100 has 77 MA's), (16, 46082), (18, 46076), (19, 46070), (21, 46061), (23, 46049), (56, 45878), (57, 45875), (58, 45872), (63, 45815), (70, 45767), (79, 45662),

Gene: Werner_71 Start: 50043, Stop: 49615, Start Num: 15

Candidate Starts for Werner_71:

(4, 50181), (Start: 12 @50091 has 2 MA's), (Start: 15 @50043 has 77 MA's), (18, 50019), (22, 50001), (26, 49983), (71, 49740), (72, 49731),

Gene: Whatever_71 Start: 50068, Stop: 49640, Start Num: 15

Candidate Starts for Whatever_71:

(4, 50206), (Start: 12 @50116 has 2 MA's), (Start: 15 @50068 has 77 MA's), (18, 50044), (22, 50026), (26, 50008), (71, 49765), (72, 49756),

Gene: Yasdni1_71 Start: 50095, Stop: 49667, Start Num: 15

Candidate Starts for Yasdni1_71:

(4, 50233), (Start: 12 @50143 has 2 MA's), (Start: 15 @50095 has 77 MA's), (18, 50071), (26, 50035), (71, 49792), (72, 49783),

Gene: Yosif_71 Start: 45888, Stop: 45436, Start Num: 15

Candidate Starts for Yosif_71:

(Start: 15 @45888 has 77 MA's), (26, 45828), (30, 45813),

Gene: Zemlya_74 Start: 49611, Stop: 49135, Start Num: 12

Candidate Starts for Zemlya_74:

(6, 49683), (Start: 11 @49620 has 2 MA's), (Start: 12 @49611 has 2 MA's), (Start: 15 @49563 has 77 MA's), (18, 49539), (26, 49503), (69, 49278), (74, 49221), (75, 49218),

Gene: phiCAM_65 Start: 46443, Stop: 45970, Start Num: 15

Candidate Starts for phiCAM_65:

(Start: 15 @46443 has 77 MA's), (31, 46353), (41, 46308), (Start: 48 @46278 has 1 MA's), (66, 46143),