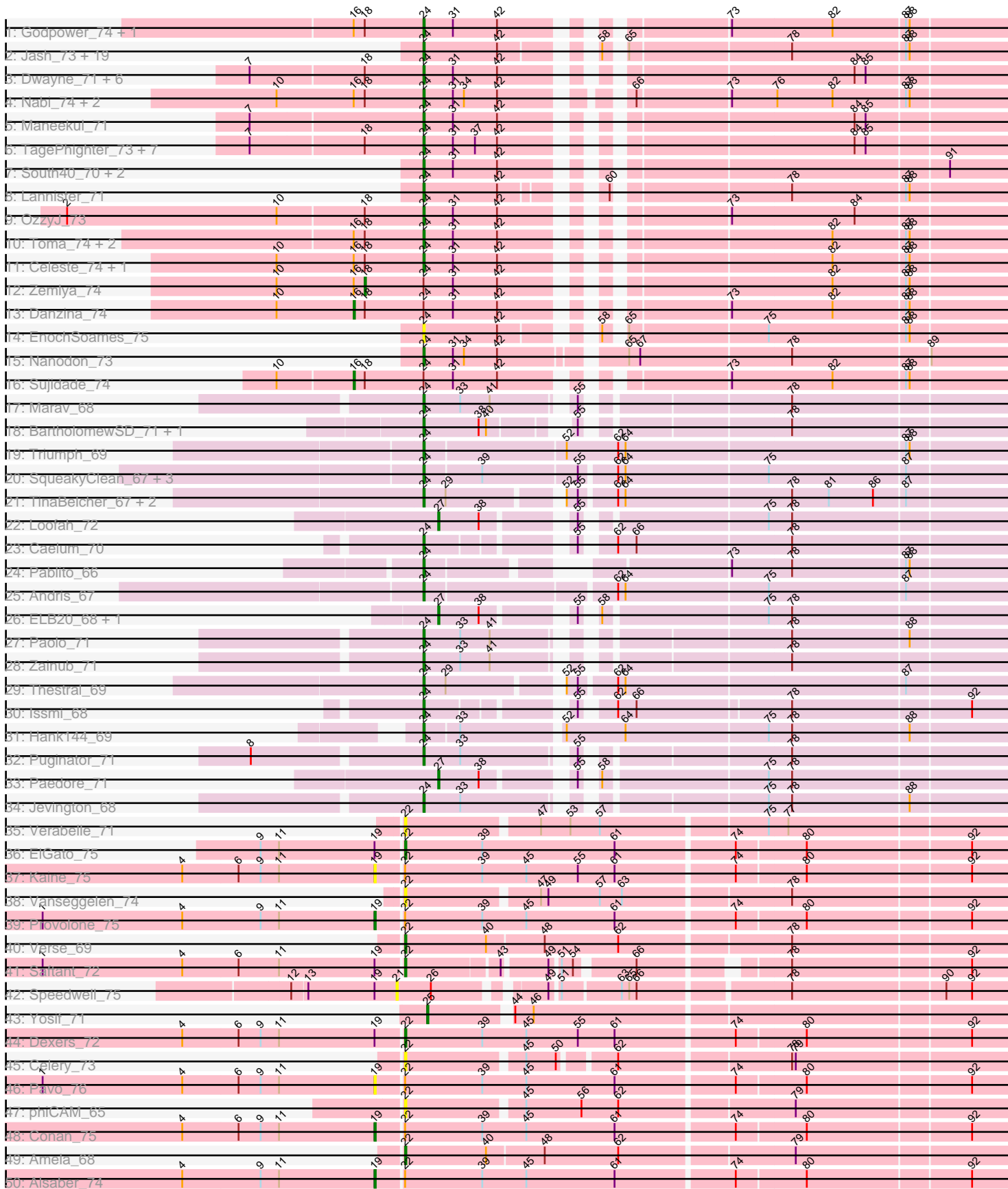


Pham 193882



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 193882 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193882 has 104 members, 8 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, Bovely_71, BryanRecycles_73, Izzy_73, Eddasa_74, Aaronocolus_71, Indigo_70, Oliynyk_73, Legacy_71, Rusticus_73, Nerdos_70, Caliburn_70, BeardedLady_72, Esperer_72, SunsetPointe_71
- Track 3 : Dwayne_71, BarryBee_74, Ejemplo_69, Asten_71, Yasdnih_71, TuanPN_69, Hippo_71
- Track 4 : Nabi_74, Rana_74, Lorelei_73
- Track 5 : Maneekul_71
- Track 6 : TagerPighther_73, SarahRose_71, Triste_72, Whatever_71, Emaanora_74, Snorlax_71, Werner_71, Chucky_71
- Track 7 : South40_70, Katalie_70, RedBear_71
- Track 8 : Lannister_71
- Track 9 : OzzyJ_73
- 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 : SqueakyClean_67, GirlDinner_66, Janus_67, Animus_66
- Track 21 : TinaBelcher_67, Bowden_67, TrvxScott_66
- Track 22 : Loofah_72
- Track 23 : Caelum_70
- Track 24 : Pablito_66
- Track 25 : Andris_67
- Track 26 : ELB20_68, R4_69
- Track 27 : Paolo_71
- Track 28 : Zainub_71
- Track 29 : Thestral_69
- Track 30 : Issmi_68
- Track 31 : Hank144_69
- Track 32 : Puginator_71

- Track 33 : Paedore_71
- Track 34 : Jevington_68
- Track 35 : Verabelle_71
- Track 36 : ElGato_75
- Track 37 : Kaine_75
- Track 38 : Vanseggelen_74
- Track 39 : Provolone_75
- Track 40 : Verse_69
- Track 41 : Saftant_72
- Track 42 : Speedwell_75
- Track 43 : Yosif_71
- Track 44 : Dexers_72
- Track 45 : Celery_73
- Track 46 : Pavo_76
- Track 47 : phiCAM_65
- Track 48 : Conan_75
- Track 49 : Amela_68
- Track 50 : Alsaber_74
- Track 51 : BroPlease_65
- Track 52 : GreenWeasel_67
- Track 53 : phiHau3_67
- Track 54 : Celia_71
- Track 55 : Urza_73
- Track 56 : VieEnRose_72
- Track 57 : 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 24, it was called in 73 of the 96 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aaronocolus_71, Alvy_71, Andris_67, Animus_66, Asten_71, BarryBee_74, BartholomewSD_71, BeardedLady_72, Bovely_71, Bowden_67, Brataylor_75, BryanRecycles_73, Caelum_70, Caliburn_70, Celeste_74, Chucky_71, Dattran_75, Dwayne_71, Eddasa_74, Ejemplo_69, Emaanora_74, EnochSoames_75, Esperer_72, GirlDinner_66, Goby_74, Godpower_74, Hank144_69, Hippo_71, Hydra_74, Indigo_70, Issmi_68, Izzy_73, Janus_67, Jash_73, Jevington_68, Katalie_70, Lannister_71, Legacy_71, Leviticus_72, Lika_73, Lorelei_73, Maneekul_71, Marav_68, Nabi_74, Nanodon_73, Nerdos_70, Oliynyk_73, Ozzie_71, OzzyJ_73, Pablito_66, Paolo_71, Phettuccine_71, Puginator_71, Rana_74, RedBear_71, Rusticus_73, SarahRose_71, Snorlax_71, South40_70, SqueakyClean_67, SunsetPointe_71, TagePhighter_73, Thestral_69, TinaBelcher_67, Toma_74, Triste_72, Triumph_69, TrvxScott_66, TuanPN_69, Unstoppable_71, Werner_71, Whatever_71, Yasdnil_71, Zainub_71,

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

- Danzina_74, Sujidada_74, Zemlya_74,

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

• Alsaber_74, Amela_68, BroPlease_65, Celery_73, Celia_71, Conan_75, Dexters_72, ELB20_68, ElGato_75, GreenWeasel_67, Itza_74, Kaine_75, Loofah_72, Paedore_71, Pavo_76, Provolone_75, R4_69, Saftant_72, Speedwell_75, Urza_73, Vanseggelen_74, Verabelle_71, Verse_69, VieEnRose_72, Yosif_71, phiCAM_65, phiHau3_67,

Summary by start number:

Start 14:

- Found in 4 of 104 (3.8%) of genes in pham
- Manual Annotations of this start: 2 of 96
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Urza_73 (BD6), VieEnRose_72 (BD6),

Start 16:

- Found in 13 of 104 (12.5%) of genes in pham
- Manual Annotations of this start: 2 of 96
- Called 15.4% of time when present
- Phage (with cluster) where this start called: Danzina_74 (BD1), Sujidade_74 (BD1),

Start 17:

- Found in 7 of 104 (6.7%) of genes in pham
- Manual Annotations of this start: 4 of 96
- Called 57.1% of time when present
- Phage (with cluster) where this start called: BroPlease_65 (BD4), Celia_71 (BD6), GreenWeasel_67 (BD4), phiHau3_67 (BD4),

Start 18:

- Found in 29 of 104 (27.9%) of genes in pham
- Manual Annotations of this start: 1 of 96
- Called 3.4% of time when present
- Phage (with cluster) where this start called: Zemlya_74 (BD1),

Start 19:

- Found in 9 of 104 (8.7%) of genes in pham
- Manual Annotations of this start: 3 of 96
- Called 55.6% of time when present
- Phage (with cluster) where this start called: Alsaber_74 (BD3), Conan_75 (BD3), Kaine_75 (BD3), Pavo_76 (BD3), Provolone_75 (BD3),

Start 21:

- Found in 1 of 104 (1.0%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Speedwell_75 (BD3),

Start 22:

- Found in 14 of 104 (13.5%) of genes in pham
- Manual Annotations of this start: 5 of 96
- Called 64.3% of time when present
- Phage (with cluster) where this start called: Amela_68 (BD3), Celery_73 (BD3), Dexters_72 (BD3), ElGato_75 (BD3), Saftant_72 (BD3), Vanseggelen_74 (BD3), Verabelle_71 (BD3), Verse_69 (BD3), phiCAM_65 (BD3),

Start 23:

- Found in 4 of 104 (3.8%) of genes in pham
- Manual Annotations of this start: 1 of 96
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Itza_74 (BD6),

Start 24:

- Found in 77 of 104 (74.0%) of genes in pham
- Manual Annotations of this start: 73 of 96
- Called 96.1% of time when present
- Phage (with cluster) where this start called: Aaronocolus_71 (BD1), Alvy_71 (BD2), 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), Celeste_74 (BD1), Chucky_71 (BD1), Dattran_75 (BD1), Dwayne_71 (BD1), Eddasa_74 (BD1), Ejemplo_69 (BD1), Emaanora_74 (BD1), EnochSoames_75 (BD1), Esperer_72 (BD1), GirlDinner_66 (BD2), Goby_74 (BD1), Godpower_74 (BD1), Hank144_69 (BD2), Hippo_71 (BD1), Hydra_74 (BD1), Indigo_70 (BD1), Issmi_68 (BD2), Izzy_73 (BD1), Janus_67 (BD2), Jash_73 (BD1), Jevington_68 (BD2), Katalie_70 (BD1), Lannister_71 (BD1), Legacy_71 (BD1), Leviticus_72 (BD1), Lika_73 (BD1), 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), Paolo_71 (BD2), Phettuccine_71 (BD1), Puginator_71 (BD2), Rana_74 (BD1), RedBear_71 (BD1), Rusticus_73 (BD1), 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), Werner_71 (BD1), Whatever_71 (BD1), Yasdnil_71 (BD1), Zainub_71 (BD2),

Start 25:

- Found in 1 of 104 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 96
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yosif_71 (BD3),

Start 27:

- Found in 4 of 104 (3.8%) of genes in pham
- Manual Annotations of this start: 4 of 96
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ELB20_68 (BD2), Loofah_72 (BD2), Paedore_71 (BD2), R4_69 (BD2),

Summary by clusters:

There are 5 clusters represented in this pham: BD4, BD6, BD1, BD3, BD2,

Info for manual annotations of cluster BD1:

- Start number 16 was manually annotated 2 times for cluster BD1.
- Start number 18 was manually annotated 1 time for cluster BD1.
- Start number 24 was manually annotated 52 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 24 was manually annotated 21 times for cluster BD2.
- Start number 27 was manually annotated 4 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 19 was manually annotated 3 times for cluster BD3.
- Start number 22 was manually annotated 5 times for cluster BD3.
- Start number 25 was manually annotated 1 time for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 17 was manually annotated 3 times for cluster BD4.

Info for manual annotations of cluster BD6:

- Start number 14 was manually annotated 2 times for cluster BD6.
- Start number 17 was manually annotated 1 time for cluster BD6.
- Start number 23 was manually annotated 1 time for cluster BD6.

Gene Information:

Gene: Aaronocolus_71 Start: 47892, Stop: 47467, Start Num: 24

Candidate Starts for Aaronocolus_71:

(Start: 24 @47892 has 73 MA's), (42, 47832), (58, 47778), (65, 47769), (78, 47643), (87, 47553), (88, 47550),

Gene: Alsaber_74 Start: 47086, Stop: 46583, Start Num: 19

Candidate Starts for Alsaber_74:

(4, 47242), (9, 47179), (11, 47164), (Start: 19 @47086 has 3 MA's), (Start: 22 @47065 has 5 MA's), (39, 47002), (45, 46966), (61, 46894), (74, 46801), (80, 46747), (92, 46618),

Gene: Alvy_71 Start: 46255, Stop: 45833, Start Num: 24

Candidate Starts for Alvy_71:

(Start: 24 @46255 has 73 MA's), (38, 46210), (40, 46204), (55, 46156), (78, 46009),

Gene: Amela_68 Start: 45690, Stop: 45211, Start Num: 22

Candidate Starts for Amela_68:

(Start: 22 @45690 has 5 MA's), (40, 45624), (48, 45579), (62, 45519), (79, 45384),

Gene: Andris_67 Start: 44165, Stop: 43704, Start Num: 24

Candidate Starts for Andris_67:

(Start: 24 @44165 has 73 MA's), (62, 44018), (64, 44012), (75, 43898), (87, 43790),

Gene: Animus_66 Start: 45219, Stop: 44758, Start Num: 24

Candidate Starts for Animus_66:

(Start: 24 @45219 has 73 MA's), (39, 45174), (55, 45099), (62, 45072), (64, 45066), (75, 44952), (87, 44844),

Gene: Asten_71 Start: 50036, Stop: 49608, Start Num: 24

Candidate Starts for Asten_71:

(7, 50174), (Start: 18 @50084 has 1 MA's), (Start: 24 @50036 has 73 MA's), (31, 50012), (42, 49976), (84, 49733), (85, 49724),

Gene: BarryBee_74 Start: 50009, Stop: 49581, Start Num: 24
Candidate Starts for BarryBee_74:
(7, 50147), (Start: 18 @50057 has 1 MA's), (Start: 24 @50009 has 73 MA's), (31, 49985), (42, 49949),
(84, 49706), (85, 49697),

Gene: BartholomewSD_71 Start: 45374, Stop: 44952, Start Num: 24
Candidate Starts for BartholomewSD_71:
(Start: 24 @45374 has 73 MA's), (38, 45329), (40, 45323), (55, 45275), (78, 45128),

Gene: BeardedLady_72 Start: 48272, Stop: 47847, Start Num: 24
Candidate Starts for BeardedLady_72:
(Start: 24 @48272 has 73 MA's), (42, 48212), (58, 48158), (65, 48149), (78, 48023), (87, 47933), (88,
47930),

Gene: Bovely_71 Start: 47895, Stop: 47470, Start Num: 24
Candidate Starts for Bovely_71:
(Start: 24 @47895 has 73 MA's), (42, 47835), (58, 47781), (65, 47772), (78, 47646), (87, 47556), (88,
47553),

Gene: Bowden_67 Start: 45935, Stop: 45486, Start Num: 24
Candidate Starts for Bowden_67:
(Start: 24 @45935 has 73 MA's), (29, 45917), (52, 45836), (55, 45827), (62, 45800), (64, 45794), (78,
45662), (81, 45632), (86, 45596), (87, 45572),

Gene: Brataylor_75 Start: 49554, Stop: 49126, Start Num: 24
Candidate Starts for Brataylor_75:
(10, 49674), (Start: 16 @49611 has 2 MA's), (Start: 18 @49602 has 1 MA's), (Start: 24 @49554 has
73 MA's), (31, 49530), (42, 49494), (82, 49269), (87, 49212), (88, 49209),

Gene: BroPlease_65 Start: 43699, Stop: 43223, Start Num: 17
Candidate Starts for BroPlease_65:
(3, 43876), (5, 43837), (Start: 17 @43699 has 4 MA's), (28, 43633), (36, 43609), (59, 43528), (69,
43465), (78, 43399),

Gene: BryanRecycles_73 Start: 48398, Stop: 47973, Start Num: 24
Candidate Starts for BryanRecycles_73:
(Start: 24 @48398 has 73 MA's), (42, 48338), (58, 48284), (65, 48275), (78, 48149), (87, 48059), (88,
48056),

Gene: Caelum_70 Start: 44242, Stop: 43811, Start Num: 24
Candidate Starts for Caelum_70:
(Start: 24 @44242 has 73 MA's), (55, 44143), (62, 44125), (66, 44110), (78, 43987),

Gene: Caliburn_70 Start: 48280, Stop: 47855, Start Num: 24
Candidate Starts for Caliburn_70:
(Start: 24 @48280 has 73 MA's), (42, 48220), (58, 48166), (65, 48157), (78, 48031), (87, 47941), (88,
47938),

Gene: Celery_73 Start: 44746, Stop: 44285, Start Num: 22
Candidate Starts for Celery_73:
(Start: 22 @44746 has 5 MA's), (45, 44656), (50, 44632), (62, 44593), (78, 44461), (79, 44458),

Gene: Celeste_74 Start: 49022, Stop: 48594, Start Num: 24

Candidate Starts for Celeste_74:

(10, 49142), (Start: 16 @49079 has 2 MA's), (Start: 18 @49070 has 1 MA's), (Start: 24 @49022 has 73 MA's), (31, 48998), (42, 48962), (82, 48737), (87, 48680), (88, 48677),

Gene: Celia_71 Start: 46426, Stop: 45908, Start Num: 17

Candidate Starts for Celia_71:

(Start: 14 @46462 has 2 MA's), (Start: 17 @46426 has 4 MA's), (20, 46408), (Start: 23 @46378 has 1 MA's), (28, 46360), (30, 46354), (32, 46348), (35, 46339), (39, 46327), (68, 46177), (70, 46156), (71, 46153), (72, 46150), (77, 46093), (83, 46045), (93, 45940),

Gene: Chucky_71 Start: 50071, Stop: 49643, Start Num: 24

Candidate Starts for Chucky_71:

(7, 50209), (Start: 18 @50119 has 1 MA's), (Start: 24 @50071 has 73 MA's), (31, 50047), (37, 50029), (42, 50011), (84, 49768), (85, 49759),

Gene: Conan_75 Start: 47338, Stop: 46835, Start Num: 19

Candidate Starts for Conan_75:

(4, 47494), (6, 47449), (9, 47431), (11, 47416), (Start: 19 @47338 has 3 MA's), (Start: 22 @47317 has 5 MA's), (39, 47254), (45, 47218), (61, 47146), (74, 47053), (80, 46999), (92, 46870),

Gene: Danzina_74 Start: 49317, Stop: 48832, Start Num: 16

Candidate Starts for Danzina_74:

(10, 49380), (Start: 16 @49317 has 2 MA's), (Start: 18 @49308 has 1 MA's), (Start: 24 @49260 has 73 MA's), (31, 49236), (42, 49200), (73, 49056), (82, 48975), (87, 48918), (88, 48915),

Gene: Dattran_75 Start: 49475, Stop: 49047, Start Num: 24

Candidate Starts for Dattran_75:

(Start: 16 @49532 has 2 MA's), (Start: 18 @49523 has 1 MA's), (Start: 24 @49475 has 73 MA's), (31, 49451), (42, 49415), (82, 49190), (87, 49133), (88, 49130),

Gene: Dexers_72 Start: 47283, Stop: 46801, Start Num: 22

Candidate Starts for Dexers_72:

(4, 47460), (6, 47415), (9, 47397), (11, 47382), (Start: 19 @47304 has 3 MA's), (Start: 22 @47283 has 5 MA's), (39, 47220), (45, 47184), (55, 47142), (61, 47112), (74, 47019), (80, 46965), (92, 46836),

Gene: Dwayne_71 Start: 50059, Stop: 49631, Start Num: 24

Candidate Starts for Dwayne_71:

(7, 50197), (Start: 18 @50107 has 1 MA's), (Start: 24 @50059 has 73 MA's), (31, 50035), (42, 49999), (84, 49756), (85, 49747),

Gene: ELB20_68 Start: 44653, Stop: 44234, Start Num: 27

Candidate Starts for ELB20_68:

(Start: 27 @44653 has 4 MA's), (38, 44620), (55, 44560), (58, 44554), (75, 44428), (78, 44410),

Gene: Eddasa_74 Start: 48937, Stop: 48512, Start Num: 24

Candidate Starts for Eddasa_74:

(Start: 24 @48937 has 73 MA's), (42, 48877), (58, 48823), (65, 48814), (78, 48688), (87, 48598), (88, 48595),

Gene: Ejemplo_69 Start: 49997, Stop: 49569, Start Num: 24

Candidate Starts for Ejemplo_69:

(7, 50135), (Start: 18 @50045 has 1 MA's), (Start: 24 @49997 has 73 MA's), (31, 49973), (42, 49937), (84, 49694), (85, 49685),

Gene: ElGato_75 Start: 47177, Stop: 46695, Start Num: 22

Candidate Starts for ElGato_75:

(9, 47291), (11, 47276), (Start: 19 @47198 has 3 MA's), (Start: 22 @47177 has 5 MA's), (39, 47114), (61, 47006), (74, 46913), (80, 46859), (92, 46730),

Gene: Emaanora_74 Start: 49983, Stop: 49555, Start Num: 24

Candidate Starts for Emaanora_74:

(7, 50121), (Start: 18 @50031 has 1 MA's), (Start: 24 @49983 has 73 MA's), (31, 49959), (37, 49941), (42, 49923), (84, 49680), (85, 49671),

Gene: EnochSoames_75 Start: 48104, Stop: 47679, Start Num: 24

Candidate Starts for EnochSoames_75:

(Start: 24 @48104 has 73 MA's), (42, 48044), (58, 47990), (65, 47981), (75, 47873), (87, 47765), (88, 47762),

Gene: Esperer_72 Start: 48238, Stop: 47813, Start Num: 24

Candidate Starts for Esperer_72:

(Start: 24 @48238 has 73 MA's), (42, 48178), (58, 48124), (65, 48115), (78, 47989), (87, 47899), (88, 47896),

Gene: GirlDinner_66 Start: 44711, Stop: 44250, Start Num: 24

Candidate Starts for GirlDinner_66:

(Start: 24 @44711 has 73 MA's), (39, 44666), (55, 44591), (62, 44564), (64, 44558), (75, 44444), (87, 44336),

Gene: Goby_74 Start: 49892, Stop: 49464, Start Num: 24

Candidate Starts for Goby_74:

(Start: 16 @49949 has 2 MA's), (Start: 18 @49940 has 1 MA's), (Start: 24 @49892 has 73 MA's), (31, 49868), (42, 49832), (82, 49607), (87, 49550), (88, 49547),

Gene: Godpower_74 Start: 49186, Stop: 48758, Start Num: 24

Candidate Starts for Godpower_74:

(Start: 16 @49243 has 2 MA's), (Start: 18 @49234 has 1 MA's), (Start: 24 @49186 has 73 MA's), (31, 49162), (42, 49126), (73, 48982), (82, 48901), (87, 48844), (88, 48841),

Gene: GreenWeasel_67 Start: 43704, Stop: 43228, Start Num: 17

Candidate Starts for GreenWeasel_67:

(5, 43842), (Start: 17 @43704 has 4 MA's), (28, 43638), (36, 43614), (59, 43533), (69, 43470), (78, 43404),

Gene: Hank144_69 Start: 44919, Stop: 44458, Start Num: 24

Candidate Starts for Hank144_69:

(Start: 24 @44919 has 73 MA's), (33, 44892), (52, 44814), (64, 44766), (75, 44652), (78, 44634), (88, 44541),

Gene: Hippo_71 Start: 50045, Stop: 49617, Start Num: 24

Candidate Starts for Hippo_71:

(7, 50183), (Start: 18 @50093 has 1 MA's), (Start: 24 @50045 has 73 MA's), (31, 50021), (42, 49985), (84, 49742), (85, 49733),

Gene: Hydra_74 Start: 49052, Stop: 48627, Start Num: 24

Candidate Starts for Hydra_74:

(Start: 24 @49052 has 73 MA's), (42, 48992), (58, 48938), (65, 48929), (78, 48803), (87, 48713), (88, 48710),

Gene: Indigo_70 Start: 47888, Stop: 47463, Start Num: 24

Candidate Starts for Indigo_70:

(Start: 24 @47888 has 73 MA's), (42, 47828), (58, 47774), (65, 47765), (78, 47639), (87, 47549), (88, 47546),

Gene: Issmi_68 Start: 44876, Stop: 44448, Start Num: 24

Candidate Starts for Issmi_68:

(Start: 24 @44876 has 73 MA's), (55, 44777), (62, 44759), (66, 44744), (78, 44624), (92, 44483),

Gene: Itza_74 Start: 46311, Stop: 45841, Start Num: 23

Candidate Starts for Itza_74:

(Start: 14 @46395 has 2 MA's), (Start: 17 @46359 has 4 MA's), (20, 46341), (Start: 23 @46311 has 1 MA's), (28, 46293), (30, 46287), (32, 46281), (35, 46272), (39, 46260), (68, 46110), (70, 46089), (71, 46086), (72, 46083), (77, 46026), (83, 45978), (93, 45873),

Gene: Izzy_73 Start: 48445, Stop: 48020, Start Num: 24

Candidate Starts for Izzy_73:

(Start: 24 @48445 has 73 MA's), (42, 48385), (58, 48331), (65, 48322), (78, 48196), (87, 48106), (88, 48103),

Gene: Janus_67 Start: 45051, Stop: 44590, Start Num: 24

Candidate Starts for Janus_67:

(Start: 24 @45051 has 73 MA's), (39, 45006), (55, 44931), (62, 44904), (64, 44898), (75, 44784), (87, 44676),

Gene: Jash_73 Start: 48398, Stop: 47973, Start Num: 24

Candidate Starts for Jash_73:

(Start: 24 @48398 has 73 MA's), (42, 48338), (58, 48284), (65, 48275), (78, 48149), (87, 48059), (88, 48056),

Gene: Jevington_68 Start: 43253, Stop: 42822, Start Num: 24

Candidate Starts for Jevington_68:

(Start: 24 @43253 has 73 MA's), (33, 43223), (75, 43016), (78, 42998), (88, 42905),

Gene: Kaine_75 Start: 47110, Stop: 46607, Start Num: 19

Candidate Starts for Kaine_75:

(4, 47266), (6, 47221), (9, 47203), (11, 47188), (Start: 19 @47110 has 3 MA's), (Start: 22 @47089 has 5 MA's), (39, 47026), (45, 46990), (55, 46948), (61, 46918), (74, 46825), (80, 46771), (92, 46642),

Gene: Katalie_70 Start: 49765, Stop: 49337, Start Num: 24

Candidate Starts for Katalie_70:

(Start: 24 @49765 has 73 MA's), (31, 49741), (42, 49705), (91, 49390),

Gene: Lannister_71 Start: 48622, Stop: 48200, Start Num: 24

Candidate Starts for Lannister_71:

(Start: 24 @48622 has 73 MA's), (42, 48562), (60, 48505), (78, 48376), (87, 48286), (88, 48283),

Gene: Legacy_71 Start: 48271, Stop: 47846, Start Num: 24

Candidate Starts for Legacy_71:

(Start: 24 @48271 has 73 MA's), (42, 48211), (58, 48157), (65, 48148), (78, 48022), (87, 47932), (88, 47929),

Gene: Leviticus_72 Start: 48425, Stop: 48000, Start Num: 24

Candidate Starts for Leviticus_72:

(Start: 24 @48425 has 73 MA's), (42, 48365), (58, 48311), (65, 48302), (78, 48176), (87, 48086), (88, 48083),

Gene: Lika_73 Start: 49739, Stop: 49311, Start Num: 24

Candidate Starts for Lika_73:

(Start: 16 @49796 has 2 MA's), (Start: 18 @49787 has 1 MA's), (Start: 24 @49739 has 73 MA's), (31, 49715), (42, 49679), (73, 49535), (82, 49454), (87, 49397), (88, 49394),

Gene: Loofah_72 Start: 45637, Stop: 45218, Start Num: 27

Candidate Starts for Loofah_72:

(Start: 27 @45637 has 4 MA's), (38, 45604), (55, 45544), (75, 45412), (78, 45394),

Gene: Lorelei_73 Start: 49033, Stop: 48599, Start Num: 24

Candidate Starts for Lorelei_73:

(10, 49153), (Start: 16 @49090 has 2 MA's), (Start: 18 @49081 has 1 MA's), (Start: 24 @49033 has 73 MA's), (31, 49009), (34, 49000), (42, 48973), (66, 48895), (73, 48823), (76, 48787), (82, 48742), (87, 48685), (88, 48682),

Gene: Maneekul_71 Start: 50076, Stop: 49648, Start Num: 24

Candidate Starts for Maneekul_71:

(7, 50214), (Start: 24 @50076 has 73 MA's), (31, 50052), (42, 50016), (84, 49773), (85, 49764),

Gene: Marav_68 Start: 43240, Stop: 42809, Start Num: 24

Candidate Starts for Marav_68:

(Start: 24 @43240 has 73 MA's), (33, 43210), (41, 43186), (55, 43132), (78, 42985),

Gene: Nabi_74 Start: 49602, Stop: 49168, Start Num: 24

Candidate Starts for Nabi_74:

(10, 49722), (Start: 16 @49659 has 2 MA's), (Start: 18 @49650 has 1 MA's), (Start: 24 @49602 has 73 MA's), (31, 49578), (34, 49569), (42, 49542), (66, 49464), (73, 49392), (76, 49356), (82, 49311), (87, 49254), (88, 49251),

Gene: Nanodon_73 Start: 48586, Stop: 48134, Start Num: 24

Candidate Starts for Nanodon_73:

(Start: 24 @48586 has 73 MA's), (31, 48562), (34, 48553), (42, 48526), (65, 48439), (67, 48430), (78, 48310), (89, 48202),

Gene: Nerdos_70 Start: 47887, Stop: 47462, Start Num: 24

Candidate Starts for Nerdos_70:

(Start: 24 @47887 has 73 MA's), (42, 47827), (58, 47773), (65, 47764), (78, 47638), (87, 47548), (88, 47545),

Gene: Oliynyk_73 Start: 48307, Stop: 47882, Start Num: 24

Candidate Starts for Oliynyk_73:

(Start: 24 @48307 has 73 MA's), (42, 48247), (58, 48193), (65, 48184), (78, 48058), (87, 47968), (88, 47965),

Gene: Ozzie_71 Start: 48280, Stop: 47855, Start Num: 24

Candidate Starts for Ozzie_71:

(Start: 24 @48280 has 73 MA's), (42, 48220), (58, 48166), (65, 48157), (78, 48031), (87, 47941), (88, 47938),

Gene: OzzyJ_73 Start: 49963, Stop: 49535, Start Num: 24

Candidate Starts for OzzyJ_73:

(2, 50251), (10, 50080), (Start: 18 @50011 has 1 MA's), (Start: 24 @49963 has 73 MA's), (31, 49939), (42, 49903), (73, 49759), (84, 49660),

Gene: Pablito_66 Start: 43502, Stop: 43080, Start Num: 24

Candidate Starts for Pablito_66:

(Start: 24 @43502 has 73 MA's), (73, 43304), (78, 43256), (87, 43166), (88, 43163),

Gene: Paedore_71 Start: 46003, Stop: 45584, Start Num: 27

Candidate Starts for Paedore_71:

(Start: 27 @46003 has 4 MA's), (38, 45970), (55, 45910), (58, 45904), (75, 45778), (78, 45760),

Gene: Paolo_71 Start: 44940, Stop: 44509, Start Num: 24

Candidate Starts for Paolo_71:

(Start: 24 @44940 has 73 MA's), (33, 44910), (41, 44886), (78, 44685), (88, 44592),

Gene: Pavo_76 Start: 47286, Stop: 46783, Start Num: 19

Candidate Starts for Pavo_76:

(1, 47556), (4, 47442), (6, 47397), (9, 47379), (11, 47364), (Start: 19 @47286 has 3 MA's), (Start: 22 @47265 has 5 MA's), (39, 47202), (45, 47166), (61, 47094), (74, 47001), (80, 46947), (92, 46818),

Gene: Phettuccine_71 Start: 47858, Stop: 47433, Start Num: 24

Candidate Starts for Phettuccine_71:

(Start: 24 @47858 has 73 MA's), (42, 47798), (58, 47744), (65, 47735), (78, 47609), (87, 47519), (88, 47516),

Gene: Provolone_75 Start: 47427, Stop: 46924, Start Num: 19

Candidate Starts for Provolone_75:

(1, 47697), (4, 47583), (9, 47520), (11, 47505), (Start: 19 @47427 has 3 MA's), (Start: 22 @47406 has 5 MA's), (39, 47343), (45, 47307), (61, 47235), (74, 47142), (80, 47088), (92, 46959),

Gene: Puginator_71 Start: 44987, Stop: 44556, Start Num: 24

Candidate Starts for Puginator_71:

(8, 45119), (Start: 24 @44987 has 73 MA's), (33, 44957), (55, 44879), (78, 44732),

Gene: R4_69 Start: 44813, Stop: 44394, Start Num: 27

Candidate Starts for R4_69:

(Start: 27 @44813 has 4 MA's), (38, 44780), (55, 44720), (58, 44714), (75, 44588), (78, 44570),

Gene: Rana_74 Start: 49455, Stop: 49021, Start Num: 24

Candidate Starts for Rana_74:

(10, 49575), (Start: 16 @49512 has 2 MA's), (Start: 18 @49503 has 1 MA's), (Start: 24 @49455 has 73 MA's), (31, 49431), (34, 49422), (42, 49395), (66, 49317), (73, 49245), (76, 49209), (82, 49164), (87, 49107), (88, 49104),

Gene: RedBear_71 Start: 49765, Stop: 49337, Start Num: 24

Candidate Starts for RedBear_71:

(Start: 24 @49765 has 73 MA's), (31, 49741), (42, 49705), (91, 49390),

Gene: Rusticus_73 Start: 48398, Stop: 47973, Start Num: 24

Candidate Starts for Rusticus_73:

(Start: 24 @48398 has 73 MA's), (42, 48338), (58, 48284), (65, 48275), (78, 48149), (87, 48059), (88, 48056),

Gene: Saftant_72 Start: 47099, Stop: 46659, Start Num: 22

Candidate Starts for Saftant_72:

(1, 47390), (4, 47276), (6, 47231), (11, 47198), (Start: 19 @47120 has 3 MA's), (Start: 22 @47099 has 5 MA's), (43, 47027), (49, 46994), (51, 46988), (54, 46979), (66, 46937), (78, 46835), (92, 46694),

Gene: SarahRose_71 Start: 50046, Stop: 49618, Start Num: 24

Candidate Starts for SarahRose_71:

(7, 50184), (Start: 18 @50094 has 1 MA's), (Start: 24 @50046 has 73 MA's), (31, 50022), (37, 50004), (42, 49986), (84, 49743), (85, 49734),

Gene: Snorlax_71 Start: 50071, Stop: 49643, Start Num: 24

Candidate Starts for Snorlax_71:

(7, 50209), (Start: 18 @50119 has 1 MA's), (Start: 24 @50071 has 73 MA's), (31, 50047), (37, 50029), (42, 50011), (84, 49768), (85, 49759),

Gene: South40_70 Start: 49765, Stop: 49337, Start Num: 24

Candidate Starts for South40_70:

(Start: 24 @49765 has 73 MA's), (31, 49741), (42, 49705), (91, 49390),

Gene: Speedwell_75 Start: 45822, Stop: 45367, Start Num: 21

Candidate Starts for Speedwell_75:

(12, 45906), (13, 45894), (Start: 19 @45840 has 3 MA's), (21, 45822), (26, 45795), (49, 45720), (51, 45714), (63, 45669), (65, 45663), (66, 45657), (78, 45543), (90, 45423), (92, 45402),

Gene: SqueakyClean_67 Start: 45229, Stop: 44768, Start Num: 24

Candidate Starts for SqueakyClean_67:

(Start: 24 @45229 has 73 MA's), (39, 45184), (55, 45109), (62, 45082), (64, 45076), (75, 44962), (87, 44854),

Gene: Sujidade_74 Start: 50093, Stop: 49608, Start Num: 16

Candidate Starts for Sujidade_74:

(10, 50153), (Start: 16 @50093 has 2 MA's), (Start: 18 @50084 has 1 MA's), (Start: 24 @50036 has 73 MA's), (31, 50012), (42, 49976), (73, 49832), (82, 49751), (87, 49694), (88, 49691),

Gene: SunsetPointe_71 Start: 48287, Stop: 47862, Start Num: 24

Candidate Starts for SunsetPointe_71:

(Start: 24 @48287 has 73 MA's), (42, 48227), (58, 48173), (65, 48164), (78, 48038), (87, 47948), (88, 47945),

Gene: TagePighther_73 Start: 50046, Stop: 49618, Start Num: 24

Candidate Starts for TagePighther_73:

(7, 50184), (Start: 18 @50094 has 1 MA's), (Start: 24 @50046 has 73 MA's), (31, 50022), (37, 50004), (42, 49986), (84, 49743), (85, 49734),

Gene: Thestral_69 Start: 45962, Stop: 45513, Start Num: 24

Candidate Starts for Thestral_69:

(Start: 24 @45962 has 73 MA's), (29, 45944), (52, 45863), (55, 45854), (62, 45827), (64, 45821), (87, 45599),

Gene: TinaBelcher_67 Start: 45824, Stop: 45375, Start Num: 24

Candidate Starts for TinaBelcher_67:

(Start: 24 @45824 has 73 MA's), (29, 45806), (52, 45725), (55, 45716), (62, 45689), (64, 45683), (78, 45551), (81, 45521), (86, 45485), (87, 45461),

Gene: Toma_74 Start: 49895, Stop: 49467, Start Num: 24

Candidate Starts for Toma_74:

(Start: 16 @49952 has 2 MA's), (Start: 18 @49943 has 1 MA's), (Start: 24 @49895 has 73 MA's), (31, 49871), (42, 49835), (82, 49610), (87, 49553), (88, 49550),

Gene: Triste_72 Start: 50045, Stop: 49617, Start Num: 24

Candidate Starts for Triste_72:

(7, 50183), (Start: 18 @50093 has 1 MA's), (Start: 24 @50045 has 73 MA's), (31, 50021), (37, 50003), (42, 49985), (84, 49742), (85, 49733),

Gene: Triumph_69 Start: 44652, Stop: 44185, Start Num: 24

Candidate Starts for Triumph_69:

(Start: 24 @44652 has 73 MA's), (52, 44541), (62, 44499), (64, 44493), (87, 44271), (88, 44268),

Gene: TrvxScott_66 Start: 45929, Stop: 45480, Start Num: 24

Candidate Starts for TrvxScott_66:

(Start: 24 @45929 has 73 MA's), (29, 45911), (52, 45830), (55, 45821), (62, 45794), (64, 45788), (78, 45656), (81, 45626), (86, 45590), (87, 45566),

Gene: TuanPN_69 Start: 49997, Stop: 49569, Start Num: 24

Candidate Starts for TuanPN_69:

(7, 50135), (Start: 18 @50045 has 1 MA's), (Start: 24 @49997 has 73 MA's), (31, 49973), (42, 49937), (84, 49694), (85, 49685),

Gene: Unstoppable_71 Start: 47886, Stop: 47461, Start Num: 24

Candidate Starts for Unstoppable_71:

(Start: 24 @47886 has 73 MA's), (42, 47826), (58, 47772), (65, 47763), (78, 47637), (87, 47547), (88, 47544),

Gene: Urza_73 Start: 46416, Stop: 45862, Start Num: 14

Candidate Starts for Urza_73:

(Start: 14 @46416 has 2 MA's), (Start: 17 @46380 has 4 MA's), (20, 46362), (Start: 23 @46332 has 1 MA's), (28, 46314), (30, 46308), (32, 46302), (35, 46293), (39, 46281), (68, 46131), (70, 46110), (71, 46107), (72, 46104), (77, 46047), (83, 45999), (93, 45894),

Gene: Vanseggelen_74 Start: 44923, Stop: 44450, Start Num: 22

Candidate Starts for Vanseggelen_74:

(Start: 22 @44923 has 5 MA's), (47, 44821), (49, 44815), (57, 44773), (63, 44755), (78, 44626),

Gene: Verabelle_71 Start: 44363, Stop: 43890, Start Num: 22

Candidate Starts for Verabelle_71:

(Start: 22 @44363 has 5 MA's), (47, 44261), (53, 44237), (57, 44213), (75, 44084), (77, 44069),

Gene: Verse_69 Start: 45681, Stop: 45202, Start Num: 22

Candidate Starts for Verse_69:

(Start: 22 @45681 has 5 MA's), (40, 45615), (48, 45570), (62, 45510), (78, 45378),

Gene: VieEnRose_72 Start: 46184, Stop: 45630, Start Num: 14

Candidate Starts for VieEnRose_72:

(Start: 14 @46184 has 2 MA's), (15, 46169), (Start: 17 @46148 has 4 MA's), (20, 46130), (Start: 23 @46100 has 1 MA's), (28, 46082), (30, 46076), (32, 46070), (35, 46061), (39, 46049), (70, 45878), (71, 45875), (72, 45872), (77, 45815), (83, 45767), (93, 45662),

Gene: Werner_71 Start: 50043, Stop: 49615, Start Num: 24

Candidate Starts for Werner_71:

(7, 50181), (Start: 18 @50091 has 1 MA's), (Start: 24 @50043 has 73 MA's), (31, 50019), (37, 50001), (42, 49983), (84, 49740), (85, 49731),

Gene: Whatever_71 Start: 50068, Stop: 49640, Start Num: 24

Candidate Starts for Whatever_71:

(7, 50206), (Start: 18 @50116 has 1 MA's), (Start: 24 @50068 has 73 MA's), (31, 50044), (37, 50026), (42, 50008), (84, 49765), (85, 49756),

Gene: Yasdni1_71 Start: 50095, Stop: 49667, Start Num: 24

Candidate Starts for Yasdni1_71:

(7, 50233), (Start: 18 @50143 has 1 MA's), (Start: 24 @50095 has 73 MA's), (31, 50071), (42, 50035), (84, 49792), (85, 49783),

Gene: Yosif_71 Start: 45888, Stop: 45436, Start Num: 25

Candidate Starts for Yosif_71:

(Start: 25 @45888 has 1 MA's), (44, 45828), (46, 45813),

Gene: Zainub_71 Start: 44914, Stop: 44483, Start Num: 24

Candidate Starts for Zainub_71:

(Start: 24 @44914 has 73 MA's), (33, 44884), (41, 44860), (78, 44659),

Gene: Zemlya_74 Start: 49611, Stop: 49135, Start Num: 18

Candidate Starts for Zemlya_74:

(10, 49683), (Start: 16 @49620 has 2 MA's), (Start: 18 @49611 has 1 MA's), (Start: 24 @49563 has 73 MA's), (31, 49539), (42, 49503), (82, 49278), (87, 49221), (88, 49218),

Gene: phiCAM_65 Start: 46443, Stop: 45970, Start Num: 22

Candidate Starts for phiCAM_65:

(Start: 22 @46443 has 5 MA's), (45, 46353), (56, 46308), (62, 46278), (79, 46143),

Gene: phiHau3_67 Start: 44132, Stop: 43644, Start Num: 17

Candidate Starts for phiHau3_67:

(3, 44309), (5, 44270), (Start: 17 @44132 has 4 MA's), (28, 44066), (36, 44042), (59, 43961), (78, 43820),