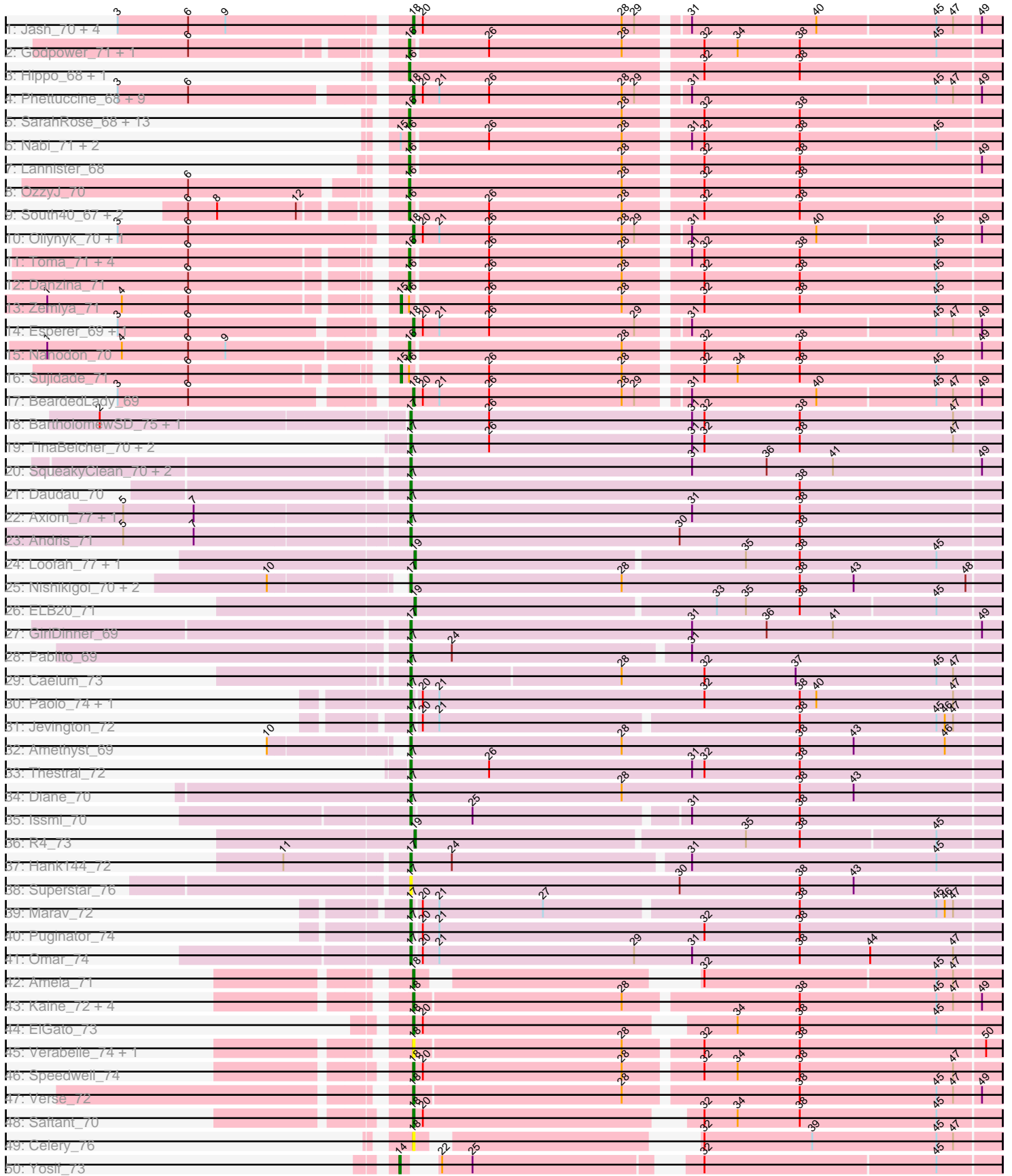


Pham 197949



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 197949 Report

This analysis was run 01/18/25 on database version 583.

Pham number 197949 has 111 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Jash_70, Rusticus_70, Izzy_70, BryanRecycles_70, Eddasa_71
- Track 2 : Godpower_71, Lika_70
- Track 3 : Hippo_68, BarryBee_71
- Track 4 : Phettuccine_68, Aaronocolus_68, Hydra_71, Ozzie_68, Indigo_67, Bovely_68, Legacy_68, Leviticus_69, Unstoppable_68, SunsetPointe_68
- Track 5 : SarahRose_68, TagePhighter_70, Whatever_68, Ejemplo_66, Triste_69, Emaanora_71, Asten_68, TuanPN_66, Yasdnil_68, Werner_68, Dwayne_68, Chucky_68, Maneekul_68, Snorlax_68
- Track 6 : Nabi_71, Rana_71, Lorelei_70
- Track 7 : Lannister_68
- Track 8 : OzzyJ_70
- Track 9 : South40_67, Katalie_67, RedBear_68
- Track 10 : Oliynyk_70, EnochSoames_72
- Track 11 : Toma_71, Celeste_71, Goby_71, Brataylor_72, Dattran_72
- Track 12 : Danzina_71
- Track 13 : Zemlya_71
- Track 14 : Esperer_69, Nerdos_67
- Track 15 : Nanodon_70
- Track 16 : Sujidade_71
- Track 17 : BeardedLady_69
- Track 18 : BartholomewSD_75, Alvy_75
- Track 19 : TinaBelcher_70, Bowden_70, TrvxScott_69
- Track 20 : SqueakyClean_70, Janus_70, Animus_69
- Track 21 : Daudau_70
- Track 22 : Axiom_77, Triumph_72
- Track 23 : Andris_71
- Track 24 : Loofah_77, Paedore_74
- Track 25 : Nishikigoi_70, Tefunt_69, Haizum_69
- Track 26 : ELB20_71
- Track 27 : GirlDinner_69
- Track 28 : Pablito_69
- Track 29 : Caelum_73
- Track 30 : Paolo_74, Zainub_74
- Track 31 : Jevington_72
- Track 32 : Amethyst_69
- Track 33 : Thestral_72
- Track 34 : Diane_70

- Track 35 : Issmi_70
- Track 36 : R4_73
- Track 37 : Hank144_72
- Track 38 : Superstar_76
- Track 39 : Marav_72
- Track 40 : Puginator_74
- Track 41 : Omar_74
- Track 42 : Amela_71
- Track 43 : Kaine_72, Provolone_73, Pavo_73, Conan_73, Alsaber_72
- Track 44 : ElGato_73
- Track 45 : Verabelle_74, Vanseggelen_77
- Track 46 : Speedwell_74
- Track 47 : Verse_72
- Track 48 : Saftant_70
- Track 49 : Celery_76
- Track 50 : Yosif_73
- Track 51 : Dexers_70
- Track 52 : phiCAM_68
- Track 53 : BroPlease_69, GreenWeasel_71
- Track 54 : Celia_74, Urza_76, Itza_77
- Track 55 : VieEnRose_75

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

The start number called the most often in the published annotations is 16, it was called in 33 of the 104 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Asten_68, BarryBee_71, Brataylor_72, Celeste_71, Chucky_68, Danzina_71, Dattran_72, Dwayne_68, Ejemplo_66, Emaanora_71, Goby_71, Godpower_71, Hippo_68, Katalie_67, Lannister_68, Lika_70, Lorelei_70, Maneekul_68, Nabi_71, Nanodon_70, OzzyJ_70, Rana_71, RedBear_68, SarahRose_68, Snorlax_68, South40_67, TagePhighter_70, Toma_71, Triste_69, TuanPN_66, Werner_68, Whatever_68, Yasdnil_68,

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

- Sujidade_71, Zemlya_71,

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

- Aaronocolus_68, Alsaber_72, Alvy_75, Amela_71, Amethyst_69, Andris_71, Animus_69, Axiom_77, BartholomewSD_75, BeardedLady_69, Bovely_68, Bowden_70, BroPlease_69, BryanRecycles_70, Caelum_73, Celery_76, Celia_74, Conan_73, Daudau_70, Dexers_70, Diane_70, ELB20_71, Eddasa_71, ElGato_73, EnochSoames_72, Esperer_69, GirlDinner_69, GreenWeasel_71, Haizum_69, Hank144_72, Hydra_71, Indigo_67, Issmi_70, Itza_77, Izzy_70, Janus_70, Jash_70, Jevington_72, Kaine_72, Legacy_68, Leviticus_69, Loofah_77, Marav_72, Nerdos_67, Nishikigoi_70, Oliynyk_70, Omar_74, Ozzie_68, Pablito_69, Paedore_74, Paolo_74, Pavo_73, Phettuccine_68, Provolone_73, Puginator_74, R4_73, Rusticus_70, Saftant_70, Speedwell_74, SqueakyClean_70, SunsetPointe_68, Superstar_76, Tefunt_69, Thestral_72, TinaBelcher_70, Triumph_72, TrvxScott_69,

Unstoppable_68, Urza_76, Vanseggelen_77, Verabelle_74, Verse_72, VieEnRose_75, Yosif_73, Zainub_74, phiCAM_68,

Summary by start number:

Start 13:

- Found in 4 of 111 (3.6%) of genes in pham
- Manual Annotations of this start: 4 of 104
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Celia_74 (BD6), Itza_77 (BD6), Urza_76 (BD6), VieEnRose_75 (BD6),

Start 14:

- Found in 1 of 111 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 104
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yosif_73 (BD3),

Start 15:

- Found in 5 of 111 (4.5%) of genes in pham
- Manual Annotations of this start: 2 of 104
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Sujidade_71 (BD1), Zemlya_71 (BD1),

Start 16:

- Found in 35 of 111 (31.5%) of genes in pham
- Manual Annotations of this start: 33 of 104
- Called 94.3% of time when present
- Phage (with cluster) where this start called: Asten_68 (BD1), BarryBee_71 (BD1), Brataylor_72 (BD1), Celeste_71 (BD1), Chucky_68 (BD1), Danzina_71 (BD1), Dattran_72 (BD1), Dwayne_68 (BD1), Ejemplo_66 (BD1), Emaanora_71 (BD1), Goby_71 (BD1), Godpower_71 (BD1), Hippo_68 (BD1), Katalie_67 (BD1), Lannister_68 (BD1), Lika_70 (BD1), Lorelei_70 (BD1), Maneekul_68 (BD1), Nabi_71 (BD1), Nanodon_70 (BD1), OzzyJ_70 (BD1), Rana_71 (BD1), RedBear_68 (BD1), SarahRose_68 (BD1), Snorlax_68 (BD1), South40_67 (BD1), TagePghter_70 (BD1), Toma_71 (BD1), Triste_69 (BD1), TuanPN_66 (BD1), Werner_68 (BD1), Whatever_68 (BD1), Yasdnil_68 (BD1),

Start 17:

- Found in 30 of 111 (27.0%) of genes in pham
- Manual Annotations of this start: 28 of 104
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alvy_75 (BD2), Amethyst_69 (BD2), Andris_71 (BD2), Animus_69 (BD2), Axiom_77 (BD2), BartholomewSD_75 (BD2), Bowden_70 (BD2), Caelum_73 (BD2), Daudau_70 (BD2), Diane_70 (BD2), GirlDinner_69 (BD2), Haizum_69 (BD2), Hank144_72 (BD2), Issmi_70 (BD2), Janus_70 (BD2), Jevington_72 (BD2), Marav_72 (BD2), Nishikigoi_70 (BD2), Omar_74 (BD2), Pablito_69 (BD2), Paolo_74 (BD2), Puginator_74 (BD2), SqueakyClean_70 (BD2), Superstar_76 (BD2), Tefunt_69 (BD2), Thestral_72 (BD2), TinaBelcher_70 (BD2), Triumph_72 (BD2), TrvxScott_69 (BD2), Zainub_74 (BD2),

Start 18:

- Found in 37 of 111 (33.3%) of genes in pham

- Manual Annotations of this start: 32 of 104
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aaronocolus_68 (BD1), Alsaber_72 (BD3), Amela_71 (BD3), BeardedLady_69 (BD1), Bovely_68 (BD1), BroPlease_69 (BD4), BryanRecycles_70 (BD1), Celery_76 (BD3), Conan_73 (BD3), Dexers_70 (BD3), Eddasa_71 (BD1), ElGato_73 (BD3), EnochSoames_72 (BD1), Esperer_69 (BD1), GreenWeasel_71 (BD4), Hydra_71 (BD1), Indigo_67 (BD1), Izzy_70 (BD1), Jash_70 (BD1), Kaine_72 (BD3), Legacy_68 (BD1), Leviticus_69 (BD1), Nerdos_67 (BD1), Oliynyk_70 (BD1), Ozzie_68 (BD1), Pavo_73 (BD3), Phettuccine_68 (BD1), Provolone_73 (BD3), Rusticus_70 (BD1), Saftant_70 (BD3), Speedwell_74 (BD3), SunsetPointe_68 (BD1), Unstoppable_68 (BD1), Vanseggelen_77 (BD3), Verabelle_74 (BD3), Verse_72 (BD3), phiCAM_68 (BD3),

Start 19:

- Found in 4 of 111 (3.6%) of genes in pham
- Manual Annotations of this start: 4 of 104
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ELB20_71 (BD2), Loofah_77 (BD2), Paedore_74 (BD2), R4_73 (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 15 was manually annotated 2 times for cluster BD1.
- Start number 16 was manually annotated 33 times for cluster BD1.
- Start number 18 was manually annotated 19 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 17 was manually annotated 28 times for cluster BD2.
- Start number 19 was manually annotated 4 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 14 was manually annotated 1 time for cluster BD3.
- Start number 18 was manually annotated 11 times for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 18 was manually annotated 2 times for cluster BD4.

Info for manual annotations of cluster BD6:

- Start number 13 was manually annotated 4 times for cluster BD6.

Gene Information:

Gene: Aaronocolus_68 Start: 46268, Stop: 45861, Start Num: 18

Candidate Starts for Aaronocolus_68:

(3, 46460), (6, 46409), (Start: 18 @46268 has 32 MA's), (20, 46262), (21, 46250), (26, 46214), (28, 46118), (29, 46109), (31, 46079), (45, 45905), (47, 45893), (49, 45875),

Gene: Alsaber_72 Start: 46335, Stop: 45925, Start Num: 18

Candidate Starts for Alsaber_72:

(Start: 18 @46335 has 32 MA's), (28, 46188), (38, 46068), (45, 45969), (47, 45957), (49, 45939),

Gene: Alvy_75 Start: 47707, Stop: 47282, Start Num: 17

Candidate Starts for Alvy_75:

(2, 47917), (Start: 17 @47707 has 28 MA's), (26, 47650), (31, 47503), (32, 47494), (38, 47425), (47, 47314),

Gene: Amela_71 Start: 46935, Stop: 46573, Start Num: 18

Candidate Starts for Amela_71:

(Start: 18 @46935 has 32 MA's), (32, 46782), (45, 46617), (47, 46605),

Gene: Amethyst_69 Start: 44727, Stop: 44302, Start Num: 17

Candidate Starts for Amethyst_69:

(10, 44811), (Start: 17 @44727 has 28 MA's), (28, 44574), (38, 44445), (43, 44406), (46, 44340),

Gene: Andris_71 Start: 45608, Stop: 45183, Start Num: 17

Candidate Starts for Andris_71:

(5, 45806), (7, 45755), (Start: 17 @45608 has 28 MA's), (30, 45413), (38, 45326),

Gene: Animus_69 Start: 46259, Stop: 45834, Start Num: 17

Candidate Starts for Animus_69:

(Start: 17 @46259 has 28 MA's), (31, 46055), (36, 46001), (41, 45953), (49, 45848),

Gene: Asten_68 Start: 48266, Stop: 47850, Start Num: 16

Candidate Starts for Asten_68:

(Start: 16 @48266 has 33 MA's), (28, 48113), (32, 48062), (38, 47993),

Gene: Axiom_77 Start: 46358, Stop: 45933, Start Num: 17

Candidate Starts for Axiom_77:

(5, 46556), (7, 46505), (Start: 17 @46358 has 28 MA's), (31, 46154), (38, 46076),

Gene: BarryBee_71 Start: 48239, Stop: 47823, Start Num: 16

Candidate Starts for BarryBee_71:

(Start: 16 @48239 has 33 MA's), (32, 48035), (38, 47966),

Gene: BartholomewSD_75 Start: 46826, Stop: 46401, Start Num: 17

Candidate Starts for BartholomewSD_75:

(2, 47036), (Start: 17 @46826 has 28 MA's), (26, 46769), (31, 46622), (32, 46613), (38, 46544), (47, 46433),

Gene: BeardedLady_69 Start: 46648, Stop: 46241, Start Num: 18

Candidate Starts for BeardedLady_69:

(3, 46840), (6, 46789), (Start: 18 @46648 has 32 MA's), (20, 46642), (21, 46630), (26, 46594), (28, 46498), (29, 46489), (31, 46459), (40, 46369), (45, 46285), (47, 46273), (49, 46255),

Gene: Bovely_68 Start: 46271, Stop: 45864, Start Num: 18

Candidate Starts for Bovely_68:

(3, 46463), (6, 46412), (Start: 18 @46271 has 32 MA's), (20, 46265), (21, 46253), (26, 46217), (28, 46121), (29, 46112), (31, 46082), (45, 45908), (47, 45896), (49, 45878),

Gene: Bowden_70 Start: 47396, Stop: 46971, Start Num: 17

Candidate Starts for Bowden_70:

(Start: 17 @47396 has 28 MA's), (26, 47339), (31, 47192), (32, 47183), (38, 47114), (47, 47003),

Gene: Brataylor_72 Start: 47786, Stop: 47373, Start Num: 16

Candidate Starts for Brataylor_72:

(6, 47918), (Start: 16 @47786 has 33 MA's), (26, 47732), (28, 47636), (31, 47594), (32, 47585), (38, 47516), (45, 47417),

Gene: BroPlease_69 Start: 45409, Stop: 44993, Start Num: 18

Candidate Starts for BroPlease_69:

(Start: 18 @45409 has 32 MA's), (20, 45403), (25, 45367), (28, 45259), (31, 45214), (33, 45196), (38, 45136), (45, 45037), (46, 45031), (47, 45025), (49, 45007),

Gene: BryanRecycles_70 Start: 46765, Stop: 46358, Start Num: 18

Candidate Starts for BryanRecycles_70:

(3, 46966), (6, 46915), (9, 46888), (Start: 18 @46765 has 32 MA's), (20, 46759), (28, 46615), (29, 46606), (31, 46576), (40, 46486), (45, 46402), (47, 46390), (49, 46372),

Gene: Caelum_73 Start: 45662, Stop: 45240, Start Num: 17

Candidate Starts for Caelum_73:

(Start: 17 @45662 has 28 MA's), (28, 45512), (32, 45452), (37, 45386), (45, 45284), (47, 45272),

Gene: Celery_76 Start: 45989, Stop: 45624, Start Num: 18

Candidate Starts for Celery_76:

(Start: 18 @45989 has 32 MA's), (32, 45836), (39, 45758), (45, 45668), (47, 45656),

Gene: Celeste_71 Start: 47254, Stop: 46841, Start Num: 16

Candidate Starts for Celeste_71:

(6, 47386), (Start: 16 @47254 has 33 MA's), (26, 47200), (28, 47104), (31, 47062), (32, 47053), (38, 46984), (45, 46885),

Gene: Celia_74 Start: 48305, Stop: 47907, Start Num: 13

Candidate Starts for Celia_74:

(Start: 13 @48305 has 4 MA's), (23, 48290), (24, 48287), (32, 48116), (47, 47939),

Gene: Chucky_68 Start: 48301, Stop: 47885, Start Num: 16

Candidate Starts for Chucky_68:

(Start: 16 @48301 has 33 MA's), (28, 48148), (32, 48097), (38, 48028),

Gene: Conan_73 Start: 46587, Stop: 46177, Start Num: 18

Candidate Starts for Conan_73:

(Start: 18 @46587 has 32 MA's), (28, 46440), (38, 46320), (45, 46221), (47, 46209), (49, 46191),

Gene: Danzina_71 Start: 47492, Stop: 47079, Start Num: 16

Candidate Starts for Danzina_71:

(6, 47624), (Start: 16 @47492 has 33 MA's), (26, 47438), (28, 47342), (32, 47291), (38, 47222), (45, 47123),

Gene: Dattran_72 Start: 47707, Stop: 47294, Start Num: 16

Candidate Starts for Dattran_72:

(6, 47839), (Start: 16 @47707 has 33 MA's), (26, 47653), (28, 47557), (31, 47515), (32, 47506), (38, 47437), (45, 47338),

Gene: Daudau_70 Start: 45237, Stop: 44812, Start Num: 17

Candidate Starts for Daudau_70:
(Start: 17 @45237 has 28 MA's), (38, 44955),

Gene: Dexers_70 Start: 46547, Stop: 46152, Start Num: 18
Candidate Starts for Dexers_70:
(Start: 18 @46547 has 32 MA's), (20, 46541), (34, 46340), (38, 46295), (45, 46196),

Gene: Diane_70 Start: 45814, Stop: 45389, Start Num: 17
Candidate Starts for Diane_70:
(Start: 17 @45814 has 28 MA's), (28, 45661), (38, 45532), (43, 45493),

Gene: Dwayne_68 Start: 48289, Stop: 47873, Start Num: 16
Candidate Starts for Dwayne_68:
(Start: 16 @48289 has 33 MA's), (28, 48136), (32, 48085), (38, 48016),

Gene: ELB20_71 Start: 46105, Stop: 45692, Start Num: 19
Candidate Starts for ELB20_71:
(Start: 19 @46105 has 4 MA's), (33, 45892), (35, 45871), (38, 45832), (45, 45736),

Gene: Eddasa_71 Start: 47304, Stop: 46897, Start Num: 18
Candidate Starts for Eddasa_71:
(3, 47505), (6, 47454), (9, 47427), (Start: 18 @47304 has 32 MA's), (20, 47298), (28, 47154), (29, 47145), (31, 47115), (40, 47025), (45, 46941), (47, 46929), (49, 46911),

Gene: Ejemplo_66 Start: 48227, Stop: 47811, Start Num: 16
Candidate Starts for Ejemplo_66:
(Start: 16 @48227 has 33 MA's), (28, 48074), (32, 48023), (38, 47954),

Gene: ElGato_73 Start: 46450, Stop: 46055, Start Num: 18
Candidate Starts for ElGato_73:
(Start: 18 @46450 has 32 MA's), (20, 46444), (34, 46243), (38, 46198), (45, 46099),

Gene: Emaanora_71 Start: 48213, Stop: 47797, Start Num: 16
Candidate Starts for Emaanora_71:
(Start: 16 @48213 has 33 MA's), (28, 48060), (32, 48009), (38, 47940),

Gene: EnochSoames_72 Start: 46471, Stop: 46064, Start Num: 18
Candidate Starts for EnochSoames_72:
(3, 46672), (6, 46621), (Start: 18 @46471 has 32 MA's), (20, 46465), (21, 46453), (26, 46417), (28, 46321), (29, 46312), (31, 46282), (40, 46192), (45, 46108), (49, 46078),

Gene: Esperer_69 Start: 46614, Stop: 46207, Start Num: 18
Candidate Starts for Esperer_69:
(3, 46806), (6, 46755), (Start: 18 @46614 has 32 MA's), (20, 46608), (21, 46596), (26, 46560), (29, 46455), (31, 46425), (45, 46251), (47, 46239), (49, 46221),

Gene: GirlDinner_69 Start: 45753, Stop: 45328, Start Num: 17
Candidate Starts for GirlDinner_69:
(Start: 17 @45753 has 28 MA's), (31, 45549), (36, 45495), (41, 45447), (49, 45342),

Gene: Goby_71 Start: 48124, Stop: 47711, Start Num: 16
Candidate Starts for Goby_71:

(6, 48256), (Start: 16 @48124 has 33 MA's), (26, 48070), (28, 47974), (31, 47932), (32, 47923), (38, 47854), (45, 47755),

Gene: Godpower_71 Start: 47416, Stop: 47003, Start Num: 16

Candidate Starts for Godpower_71:

(6, 47548), (Start: 16 @47416 has 33 MA's), (26, 47362), (28, 47266), (32, 47215), (34, 47191), (38, 47146), (45, 47047),

Gene: GreenWeasel_71 Start: 45410, Stop: 44994, Start Num: 18

Candidate Starts for GreenWeasel_71:

(Start: 18 @45410 has 32 MA's), (20, 45404), (25, 45368), (28, 45260), (31, 45215), (33, 45197), (38, 45137), (45, 45038), (46, 45032), (47, 45026), (49, 45008),

Gene: Haizum_69 Start: 45535, Stop: 45110, Start Num: 17

Candidate Starts for Haizum_69:

(10, 45619), (Start: 17 @45535 has 28 MA's), (28, 45382), (38, 45253), (43, 45214), (48, 45133),

Gene: Hank144_72 Start: 46341, Stop: 45922, Start Num: 17

Candidate Starts for Hank144_72:

(11, 46422), (Start: 17 @46341 has 28 MA's), (24, 46311), (31, 46146), (45, 45969),

Gene: Hippo_68 Start: 48275, Stop: 47859, Start Num: 16

Candidate Starts for Hippo_68:

(Start: 16 @48275 has 33 MA's), (32, 48071), (38, 48002),

Gene: Hydra_71 Start: 47458, Stop: 47051, Start Num: 18

Candidate Starts for Hydra_71:

(3, 47650), (6, 47599), (Start: 18 @47458 has 32 MA's), (20, 47452), (21, 47440), (26, 47404), (28, 47308), (29, 47299), (31, 47269), (45, 47095), (47, 47083), (49, 47065),

Gene: Indigo_67 Start: 46264, Stop: 45857, Start Num: 18

Candidate Starts for Indigo_67:

(3, 46456), (6, 46405), (Start: 18 @46264 has 32 MA's), (20, 46258), (21, 46246), (26, 46210), (28, 46114), (29, 46105), (31, 46075), (45, 45901), (47, 45889), (49, 45871),

Gene: Issmi_70 Start: 45905, Stop: 45495, Start Num: 17

Candidate Starts for Issmi_70:

(Start: 17 @45905 has 28 MA's), (25, 45863), (31, 45716), (38, 45638),

Gene: Itza_77 Start: 48238, Stop: 47840, Start Num: 13

Candidate Starts for Itza_77:

(Start: 13 @48238 has 4 MA's), (23, 48223), (24, 48220), (32, 48049), (47, 47872),

Gene: Izzy_70 Start: 46812, Stop: 46405, Start Num: 18

Candidate Starts for Izzy_70:

(3, 47013), (6, 46962), (9, 46935), (Start: 18 @46812 has 32 MA's), (20, 46806), (28, 46662), (29, 46653), (31, 46623), (40, 46533), (45, 46449), (47, 46437), (49, 46419),

Gene: Janus_70 Start: 46093, Stop: 45668, Start Num: 17

Candidate Starts for Janus_70:

(Start: 17 @46093 has 28 MA's), (31, 45889), (36, 45835), (41, 45787), (49, 45682),

Gene: Jash_70 Start: 46765, Stop: 46358, Start Num: 18

Candidate Starts for Jash_70:

(3, 46966), (6, 46915), (9, 46888), (Start: 18 @46765 has 32 MA's), (20, 46759), (28, 46615), (29, 46606), (31, 46576), (40, 46486), (45, 46402), (47, 46390), (49, 46372),

Gene: Jevington_72 Start: 45336, Stop: 44923, Start Num: 17

Candidate Starts for Jevington_72:

(Start: 17 @45336 has 28 MA's), (20, 45330), (21, 45318), (38, 45066), (45, 44967), (46, 44961), (47, 44955),

Gene: Kaine_72 Start: 46359, Stop: 45949, Start Num: 18

Candidate Starts for Kaine_72:

(Start: 18 @46359 has 32 MA's), (28, 46212), (38, 46092), (45, 45993), (47, 45981), (49, 45963),

Gene: Katalie_67 Start: 48006, Stop: 47593, Start Num: 16

Candidate Starts for Katalie_67:

(6, 48138), (8, 48117), (12, 48060), (Start: 16 @48006 has 33 MA's), (26, 47952), (28, 47856), (32, 47805), (38, 47736),

Gene: Lannister_68 Start: 47002, Stop: 46589, Start Num: 16

Candidate Starts for Lannister_68:

(Start: 16 @47002 has 33 MA's), (28, 46852), (32, 46801), (38, 46732), (49, 46603),

Gene: Legacy_68 Start: 46647, Stop: 46240, Start Num: 18

Candidate Starts for Legacy_68:

(3, 46839), (6, 46788), (Start: 18 @46647 has 32 MA's), (20, 46641), (21, 46629), (26, 46593), (28, 46497), (29, 46488), (31, 46458), (45, 46284), (47, 46272), (49, 46254),

Gene: Leviticus_69 Start: 46801, Stop: 46394, Start Num: 18

Candidate Starts for Leviticus_69:

(3, 46993), (6, 46942), (Start: 18 @46801 has 32 MA's), (20, 46795), (21, 46783), (26, 46747), (28, 46651), (29, 46642), (31, 46612), (45, 46438), (47, 46426), (49, 46408),

Gene: Lika_70 Start: 47969, Stop: 47556, Start Num: 16

Candidate Starts for Lika_70:

(6, 48101), (Start: 16 @47969 has 33 MA's), (26, 47915), (28, 47819), (32, 47768), (34, 47744), (38, 47699), (45, 47600),

Gene: Loofah_77 Start: 47253, Stop: 46837, Start Num: 19

Candidate Starts for Loofah_77:

(Start: 19 @47253 has 4 MA's), (35, 47019), (38, 46980), (45, 46881),

Gene: Lorelei_70 Start: 47260, Stop: 46847, Start Num: 16

Candidate Starts for Lorelei_70:

(Start: 15 @47266 has 2 MA's), (Start: 16 @47260 has 33 MA's), (26, 47206), (28, 47110), (31, 47068), (32, 47059), (38, 46990), (45, 46891),

Gene: Maneekul_68 Start: 48306, Stop: 47890, Start Num: 16

Candidate Starts for Maneekul_68:

(Start: 16 @48306 has 33 MA's), (28, 48153), (32, 48102), (38, 48033),

Gene: Marav_72 Start: 45322, Stop: 44909, Start Num: 17

Candidate Starts for Marav_72:

(Start: 17 @45322 has 28 MA's), (20, 45316), (21, 45304), (27, 45229), (38, 45052), (45, 44953), (46, 44947), (47, 44941),

Gene: Nabi_71 Start: 47829, Stop: 47416, Start Num: 16

Candidate Starts for Nabi_71:

(Start: 15 @47835 has 2 MA's), (Start: 16 @47829 has 33 MA's), (26, 47775), (28, 47679), (31, 47637), (32, 47628), (38, 47559), (45, 47460),

Gene: Nanodon_70 Start: 46931, Stop: 46518, Start Num: 16

Candidate Starts for Nanodon_70:

(1, 47174), (4, 47120), (6, 47072), (9, 47045), (Start: 16 @46931 has 33 MA's), (28, 46781), (32, 46730), (38, 46661), (49, 46532),

Gene: Nerdos_67 Start: 46263, Stop: 45856, Start Num: 18

Candidate Starts for Nerdos_67:

(3, 46455), (6, 46404), (Start: 18 @46263 has 32 MA's), (20, 46257), (21, 46245), (26, 46209), (29, 46104), (31, 46074), (45, 45900), (47, 45888), (49, 45870),

Gene: Nishikigoi_70 Start: 45535, Stop: 45110, Start Num: 17

Candidate Starts for Nishikigoi_70:

(10, 45619), (Start: 17 @45535 has 28 MA's), (28, 45382), (38, 45253), (43, 45214), (48, 45133),

Gene: Oliynyk_70 Start: 46674, Stop: 46267, Start Num: 18

Candidate Starts for Oliynyk_70:

(3, 46875), (6, 46824), (Start: 18 @46674 has 32 MA's), (20, 46668), (21, 46656), (26, 46620), (28, 46524), (29, 46515), (31, 46485), (40, 46395), (45, 46311), (49, 46281),

Gene: Omar_74 Start: 44684, Stop: 44262, Start Num: 17

Candidate Starts for Omar_74:

(Start: 17 @44684 has 28 MA's), (20, 44678), (21, 44666), (29, 44525), (31, 44483), (38, 44405), (44, 44354), (47, 44294),

Gene: Ozzie_68 Start: 46656, Stop: 46249, Start Num: 18

Candidate Starts for Ozzie_68:

(3, 46848), (6, 46797), (Start: 18 @46656 has 32 MA's), (20, 46650), (21, 46638), (26, 46602), (28, 46506), (29, 46497), (31, 46467), (45, 46293), (47, 46281), (49, 46263),

Gene: OzzyJ_70 Start: 48209, Stop: 47793, Start Num: 16

Candidate Starts for OzzyJ_70:

(6, 48341), (Start: 16 @48209 has 33 MA's), (28, 48056), (32, 48005), (38, 47936),

Gene: Pablito_69 Start: 44922, Stop: 44506, Start Num: 17

Candidate Starts for Pablito_69:

(Start: 17 @44922 has 28 MA's), (24, 44892), (31, 44727),

Gene: Paedore_74 Start: 47422, Stop: 47006, Start Num: 19

Candidate Starts for Paedore_74:

(Start: 19 @47422 has 4 MA's), (35, 47188), (38, 47149), (45, 47050),

Gene: Paolo_74 Start: 46593, Stop: 46171, Start Num: 17

Candidate Starts for Paolo_74:

(Start: 17 @46593 has 28 MA's), (20, 46587), (21, 46575), (32, 46383), (38, 46314), (40, 46302), (47, 46203),

Gene: Pavo_73 Start: 46535, Stop: 46125, Start Num: 18

Candidate Starts for Pavo_73:

(Start: 18 @46535 has 32 MA's), (28, 46388), (38, 46268), (45, 46169), (47, 46157), (49, 46139),

Gene: Phettuccine_68 Start: 46264, Stop: 45857, Start Num: 18

Candidate Starts for Phettuccine_68:

(3, 46456), (6, 46405), (Start: 18 @46264 has 32 MA's), (20, 46258), (21, 46246), (26, 46210), (28, 46114), (29, 46105), (31, 46075), (45, 45901), (47, 45889), (49, 45871),

Gene: Provolone_73 Start: 46676, Stop: 46266, Start Num: 18

Candidate Starts for Provolone_73:

(Start: 18 @46676 has 32 MA's), (28, 46529), (38, 46409), (45, 46310), (47, 46298), (49, 46280),

Gene: Puginator_74 Start: 46641, Stop: 46219, Start Num: 17

Candidate Starts for Puginator_74:

(Start: 17 @46641 has 28 MA's), (20, 46635), (21, 46623), (32, 46431), (38, 46362),

Gene: R4_73 Start: 46265, Stop: 45852, Start Num: 19

Candidate Starts for R4_73:

(Start: 19 @46265 has 4 MA's), (35, 46031), (38, 45992), (45, 45896),

Gene: Rana_71 Start: 47682, Stop: 47269, Start Num: 16

Candidate Starts for Rana_71:

(Start: 15 @47688 has 2 MA's), (Start: 16 @47682 has 33 MA's), (26, 47628), (28, 47532), (31, 47490), (32, 47481), (38, 47412), (45, 47313),

Gene: RedBear_68 Start: 48006, Stop: 47593, Start Num: 16

Candidate Starts for RedBear_68:

(6, 48138), (8, 48117), (12, 48060), (Start: 16 @48006 has 33 MA's), (26, 47952), (28, 47856), (32, 47805), (38, 47736),

Gene: Rusticus_70 Start: 46765, Stop: 46358, Start Num: 18

Candidate Starts for Rusticus_70:

(3, 46966), (6, 46915), (9, 46888), (Start: 18 @46765 has 32 MA's), (20, 46759), (28, 46615), (29, 46606), (31, 46576), (40, 46486), (45, 46402), (47, 46390), (49, 46372),

Gene: Saftant_70 Start: 46404, Stop: 46009, Start Num: 18

Candidate Starts for Saftant_70:

(Start: 18 @46404 has 32 MA's), (20, 46398), (32, 46221), (34, 46197), (38, 46152), (45, 46053),

Gene: SarahRose_68 Start: 48276, Stop: 47860, Start Num: 16

Candidate Starts for SarahRose_68:

(Start: 16 @48276 has 33 MA's), (28, 48123), (32, 48072), (38, 48003),

Gene: Snorlax_68 Start: 48301, Stop: 47885, Start Num: 16

Candidate Starts for Snorlax_68:

(Start: 16 @48301 has 33 MA's), (28, 48148), (32, 48097), (38, 48028),

Gene: South40_67 Start: 48006, Stop: 47593, Start Num: 16

Candidate Starts for South40_67:

(6, 48138), (8, 48117), (12, 48060), (Start: 16 @48006 has 33 MA's), (26, 47952), (28, 47856), (32, 47805), (38, 47736),

Gene: Speedwell_74 Start: 47114, Stop: 46701, Start Num: 18

Candidate Starts for Speedwell_74:

(Start: 18 @47114 has 32 MA's), (20, 47108), (28, 46964), (32, 46913), (34, 46889), (38, 46844), (47, 46733),

Gene: SqueakyClean_70 Start: 46271, Stop: 45846, Start Num: 17

Candidate Starts for SqueakyClean_70:

(Start: 17 @46271 has 28 MA's), (31, 46067), (36, 46013), (41, 45965), (49, 45860),

Gene: Sujidade_71 Start: 48272, Stop: 47853, Start Num: 15

Candidate Starts for Sujidade_71:

(6, 48398), (Start: 15 @48272 has 2 MA's), (Start: 16 @48266 has 33 MA's), (26, 48212), (28, 48116), (32, 48065), (34, 48041), (38, 47996), (45, 47897),

Gene: SunsetPointe_68 Start: 46663, Stop: 46256, Start Num: 18

Candidate Starts for SunsetPointe_68:

(3, 46855), (6, 46804), (Start: 18 @46663 has 32 MA's), (20, 46657), (21, 46645), (26, 46609), (28, 46513), (29, 46504), (31, 46474), (45, 46300), (47, 46288), (49, 46270),

Gene: Superstar_76 Start: 45702, Stop: 45277, Start Num: 17

Candidate Starts for Superstar_76:

(Start: 17 @45702 has 28 MA's), (30, 45507), (38, 45420), (43, 45381),

Gene: TagePhighter_70 Start: 48276, Stop: 47860, Start Num: 16

Candidate Starts for TagePhighter_70:

(Start: 16 @48276 has 33 MA's), (28, 48123), (32, 48072), (38, 48003),

Gene: Tefunt_69 Start: 45449, Stop: 45024, Start Num: 17

Candidate Starts for Tefunt_69:

(10, 45533), (Start: 17 @45449 has 28 MA's), (28, 45296), (38, 45167), (43, 45128), (48, 45047),

Gene: Thestral_72 Start: 47423, Stop: 46998, Start Num: 17

Candidate Starts for Thestral_72:

(Start: 17 @47423 has 28 MA's), (26, 47366), (31, 47219), (32, 47210), (38, 47141),

Gene: TinaBelcher_70 Start: 47285, Stop: 46860, Start Num: 17

Candidate Starts for TinaBelcher_70:

(Start: 17 @47285 has 28 MA's), (26, 47228), (31, 47081), (32, 47072), (38, 47003), (47, 46892),

Gene: Toma_71 Start: 48127, Stop: 47714, Start Num: 16

Candidate Starts for Toma_71:

(6, 48259), (Start: 16 @48127 has 33 MA's), (26, 48073), (28, 47977), (31, 47935), (32, 47926), (38, 47857), (45, 47758),

Gene: Triste_69 Start: 48275, Stop: 47859, Start Num: 16

Candidate Starts for Triste_69:

(Start: 16 @48275 has 33 MA's), (28, 48122), (32, 48071), (38, 48002),

Gene: Triumph_72 Start: 46096, Stop: 45671, Start Num: 17

Candidate Starts for Triumph_72:

(5, 46294), (7, 46243), (Start: 17 @46096 has 28 MA's), (31, 45892), (38, 45814),

Gene: TrvxScott_69 Start: 47390, Stop: 46965, Start Num: 17
Candidate Starts for TrvxScott_69:
(Start: 17 @47390 has 28 MA's), (26, 47333), (31, 47186), (32, 47177), (38, 47108), (47, 46997),

Gene: TuanPN_66 Start: 48227, Stop: 47811, Start Num: 16
Candidate Starts for TuanPN_66:
(Start: 16 @48227 has 33 MA's), (28, 48074), (32, 48023), (38, 47954),

Gene: Unstoppable_68 Start: 46262, Stop: 45855, Start Num: 18
Candidate Starts for Unstoppable_68:
(3, 46454), (6, 46403), (Start: 18 @46262 has 32 MA's), (20, 46256), (21, 46244), (26, 46208), (28, 46112), (29, 46103), (31, 46073), (45, 45899), (47, 45887), (49, 45869),

Gene: Urza_76 Start: 48260, Stop: 47862, Start Num: 13
Candidate Starts for Urza_76:
(Start: 13 @48260 has 4 MA's), (23, 48245), (24, 48242), (32, 48071), (47, 47894),

Gene: Vanseggelen_77 Start: 46192, Stop: 45782, Start Num: 18
Candidate Starts for Vanseggelen_77:
(Start: 18 @46192 has 32 MA's), (28, 46045), (32, 45994), (38, 45925), (50, 45793),

Gene: Verabelle_74 Start: 45631, Stop: 45221, Start Num: 18
Candidate Starts for Verabelle_74:
(Start: 18 @45631 has 32 MA's), (28, 45484), (32, 45433), (38, 45364), (50, 45232),

Gene: Verse_72 Start: 46973, Stop: 46563, Start Num: 18
Candidate Starts for Verse_72:
(Start: 18 @46973 has 32 MA's), (28, 46826), (38, 46706), (45, 46607), (47, 46595), (49, 46577),

Gene: VieEnRose_75 Start: 47997, Stop: 47602, Start Num: 13
Candidate Starts for VieEnRose_75:
(Start: 13 @47997 has 4 MA's), (24, 47982), (32, 47811), (47, 47634),

Gene: Werner_68 Start: 48273, Stop: 47857, Start Num: 16
Candidate Starts for Werner_68:
(Start: 16 @48273 has 33 MA's), (28, 48120), (32, 48069), (38, 48000),

Gene: Whatever_68 Start: 48298, Stop: 47882, Start Num: 16
Candidate Starts for Whatever_68:
(Start: 16 @48298 has 33 MA's), (28, 48145), (32, 48094), (38, 48025),

Gene: Yasdniil_68 Start: 48325, Stop: 47909, Start Num: 16
Candidate Starts for Yasdniil_68:
(Start: 16 @48325 has 33 MA's), (28, 48172), (32, 48121), (38, 48052),

Gene: Yosif_73 Start: 46919, Stop: 46539, Start Num: 14
Candidate Starts for Yosif_73:
(Start: 14 @46919 has 1 MA's), (22, 46910), (25, 46889), (32, 46748), (45, 46583),

Gene: Zainub_74 Start: 46567, Stop: 46145, Start Num: 17
Candidate Starts for Zainub_74:
(Start: 17 @46567 has 28 MA's), (20, 46561), (21, 46549), (32, 46357), (38, 46288), (40, 46276), (47, 46177),

Gene: Zemlya_71 Start: 47803, Stop: 47384, Start Num: 15

Candidate Starts for Zemlya_71:

(1, 48028), (4, 47974), (6, 47929), (Start: 15 @47803 has 2 MA's), (Start: 16 @47797 has 33 MA's),
(26, 47743), (28, 47647), (32, 47596), (38, 47527), (45, 47428),

Gene: phiCAM_68 Start: 47795, Stop: 47385, Start Num: 18

Candidate Starts for phiCAM_68:

(Start: 18 @47795 has 32 MA's), (28, 47648), (38, 47528), (42, 47501), (43, 47489), (45, 47429), (47,
47417),