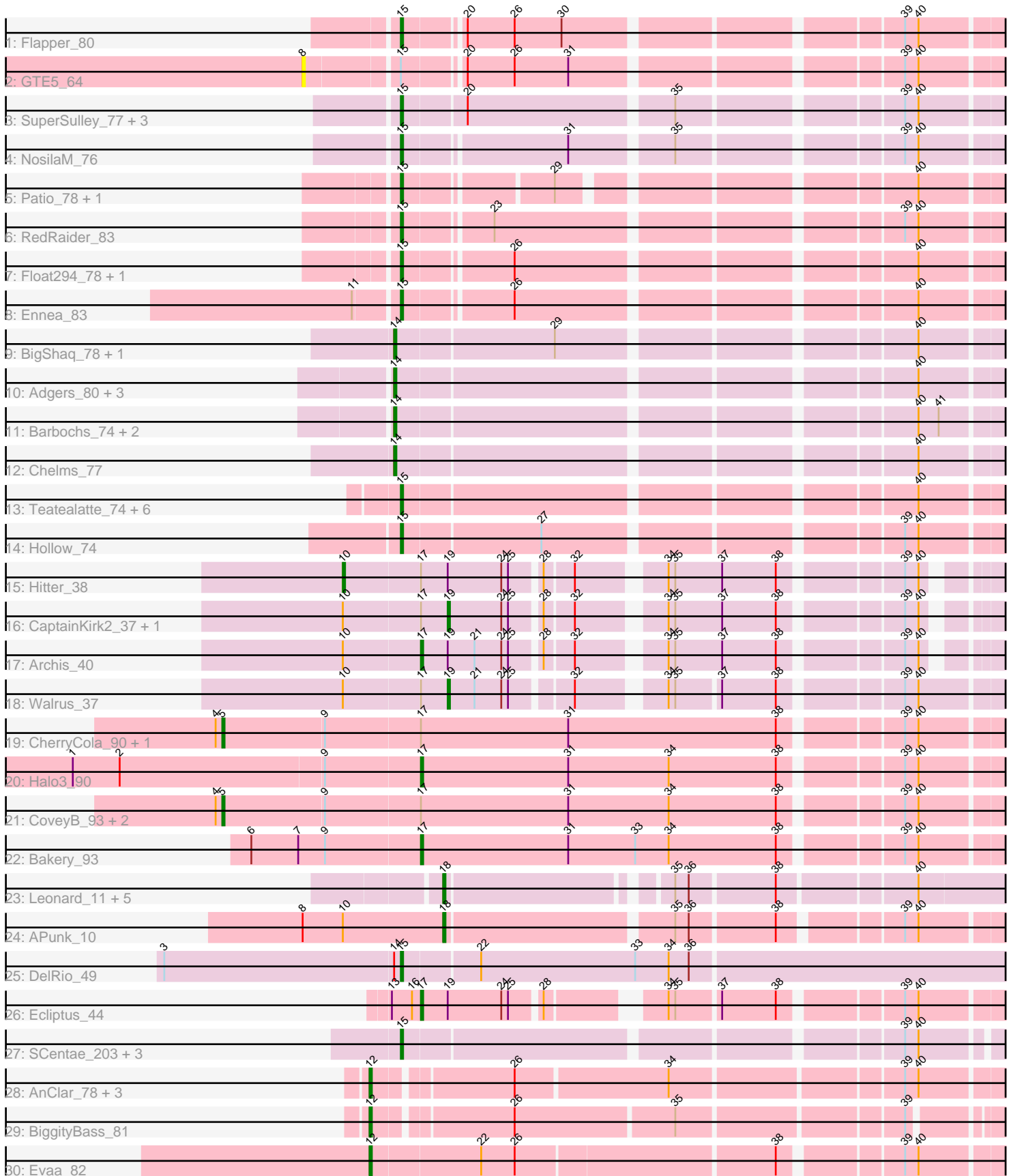


Pham 294741



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 294741 Report

This analysis was run 04/18/26 on database version 643.

Pham number 294741 has 62 members, 3 are drafts.

Phages represented in each track:

- Track 1 : Flapper_80
- Track 2 : GTE5_64
- Track 3 : SuperSulley_77, Buggaboo_77, Bonum_79, Kabluna_78
- Track 4 : NosilaM_76
- Track 5 : Patio_78, Skysand_80
- Track 6 : RedRaider_83
- Track 7 : Float294_78, Lollipop1437_79
- Track 8 : Ennea_83
- Track 9 : BigShaq_78, Crete_77
- Track 10 : Adgers_80, Squibbles_76, Beaver_80, Gorko_76
- Track 11 : Barbochs_74, Kelzog_78, Hotorobo_77
- Track 12 : Chelms_77
- Track 13 : Teatealatte_74, Benczkowski14_73, Tredge_73, Katyusha_72, Teech_74, Niagara_73, Kvothe_72
- Track 14 : Hollow_74
- Track 15 : Hitter_38
- Track 16 : CaptainKirk2_37, UmaThurman_32
- Track 17 : Archis_40
- Track 18 : Walrus_37
- Track 19 : CherryCola_90, Egi03_89
- Track 20 : Halo3_90
- Track 21 : CoveyB_93, PinkCoffee_93, ClamChowder_94
- Track 22 : Bakery_93
- Track 23 : Leonard_11, Phauci_4, Ali17_9, Inspectinfecti_12, Phinally_11, Hans_13
- Track 24 : APunk_10
- Track 25 : DelRio_49
- Track 26 : Ecliptus_44
- Track 27 : SCentae_203, Skog_33, CherryTomatoes_206, Pupper_204
- Track 28 : AnClar_78, Sisko_81, LittleMunchkin_81, Yago84_80
- Track 29 : BiggityBass_81
- Track 30 : Evaa_82

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 25 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Benczkowski14_73, Bonum_79, Buggaboo_77, CherryTomatoes_206, DelRio_49, Ennea_83, Flapper_80, Float294_78, Hollow_74, Kabluna_78, Katyusha_72, Kvothe_72, Lollipop1437_79, Niagara_73, NosilaM_76, Patio_78, Pupper_204, RedRaider_83, SCentae_203, Skog_33, Skysand_80, SuperSulley_77, Teatealatte_74, Teech_74, Tredge_73,

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

- GTE5_64,

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

- APunk_10, Adgers_80, Ali17_9, AnClar_78, Archis_40, Bakery_93, Barbochs_74, Beaver_80, BigShaq_78, BiggityBass_81, CaptainKirk2_37, Chelms_77, CherryCola_90, ClamChowder_94, CoveyB_93, Crete_77, Ecliptus_44, Egi03_89, Evaa_82, Gorko_76, Halo3_90, Hans_13, Hitter_38, Hotorobo_77, Inspectinfecti_12, Kelzog_78, Leonard_11, LittleMunchkin_81, Phauci_4, Phinally_11, PinkCoffee_93, Sisko_81, Squibbles_76, UmaThurman_32, Walrus_37, Yago84_80,

Summary by start number:

Start 5:

- Found in 5 of 62 (8.1%) of genes in pham
- Manual Annotations of this start: 5 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CherryCola_90 (DC1), ClamChowder_94 (DC1), CoveyB_93 (DC1), Egi03_89 (DC1), PinkCoffee_93 (DC1),

Start 8:

- Found in 2 of 62 (3.2%) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: GTE5_64 (CR1),

Start 10:

- Found in 6 of 62 (9.7%) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Hitter_38 (CV),

Start 12:

- Found in 6 of 62 (9.7%) of genes in pham
- Manual Annotations of this start: 6 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AnClar_78 (DR), BiggityBass_81 (DR), Evaa_82 (DR), LittleMunchkin_81 (DR), Sisko_81 (DR), Yago84_80 (DR),

Start 14:

- Found in 11 of 62 (17.7%) of genes in pham
- Manual Annotations of this start: 8 of 59
- Called 90.9% of time when present

- Phage (with cluster) where this start called: Adgers_80 (CS2), Barbochs_74 (CS2), Beaver_80 (CS2), BigShaq_78 (CS2), Chelms_77 (CS2), Crete_77 (CS2), Gorko_76 (CS2), Hotorobo_77 (CS2), Kelzog_78 (CS2), Squibbles_76 (CS2),

Start 15:

- Found in 26 of 62 (41.9%) of genes in pham
- Manual Annotations of this start: 25 of 59
- Called 96.2% of time when present
- Phage (with cluster) where this start called: Benczkowski14_73 (CS4), Bonum_79 (CR2), Buggaboo_77 (CR2), CherryTomatoes_206 (DO), DelRio_49 (DI), Ennea_83 (CR3), Flapper_80 (CR1), Float294_78 (CR3), Hollow_74 (CS4), Kabluna_78 (CR2), Katyusha_72 (CS4), Kvothe_72 (CS4), Lollipop1437_79 (CR3), Niagara_73 (CS4), NosilaM_76 (CR2), Patio_78 (CR3), Pupper_204 (DO), RedRaider_83 (CR3), SCentae_203 (DO), Skog_33 (DO), Skysand_80 (CR3), SuperSulley_77 (CR2), Teatealatte_74 (CS4), Teech_74 (CS4), Tredge_73 (CS4),

Start 17:

- Found in 13 of 62 (21.0%) of genes in pham
- Manual Annotations of this start: 4 of 59
- Called 30.8% of time when present
- Phage (with cluster) where this start called: Archis_40 (CV), Bakery_93 (DC1), Ecliptus_44 (DN), Halo3_90 (DC1),

Start 18:

- Found in 7 of 62 (11.3%) of genes in pham
- Manual Annotations of this start: 7 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: APunk_10 (DE4), Ali17_9 (DE2), Hans_13 (DE2), Inspectinfecti_12 (DE2), Leonard_11 (DE2), Phauci_4 (DE2), Phinally_11 (DE2),

Start 19:

- Found in 6 of 62 (9.7%) of genes in pham
- Manual Annotations of this start: 3 of 59
- Called 50.0% of time when present
- Phage (with cluster) where this start called: CaptainKirk2_37 (CV), UmaThurman_32 (CV), Walrus_37 (CV),

Summary by clusters:

There are 13 clusters represented in this pham: DO, CR3, DN, CR1, DI, DE2, DE4, CR2, CS4, CS2, DR, CV, DC1,

Info for manual annotations of cluster CR1:

- Start number 15 was manually annotated 1 time for cluster CR1.

Info for manual annotations of cluster CR2:

- Start number 15 was manually annotated 5 times for cluster CR2.

Info for manual annotations of cluster CR3:

- Start number 15 was manually annotated 6 times for cluster CR3.

Info for manual annotations of cluster CS2:

- Start number 14 was manually annotated 8 times for cluster CS2.

Info for manual annotations of cluster CS4:

- Start number 15 was manually annotated 8 times for cluster CS4.

Info for manual annotations of cluster CV:

- Start number 10 was manually annotated 1 time for cluster CV.
- Start number 17 was manually annotated 1 time for cluster CV.
- Start number 19 was manually annotated 3 times for cluster CV.

Info for manual annotations of cluster DC1:

- Start number 5 was manually annotated 5 times for cluster DC1.
- Start number 17 was manually annotated 2 times for cluster DC1.

Info for manual annotations of cluster DE2:

- Start number 18 was manually annotated 6 times for cluster DE2.

Info for manual annotations of cluster DE4:

- Start number 18 was manually annotated 1 time for cluster DE4.

Info for manual annotations of cluster DI:

- Start number 15 was manually annotated 1 time for cluster DI.

Info for manual annotations of cluster DN:

- Start number 17 was manually annotated 1 time for cluster DN.

Info for manual annotations of cluster DO:

- Start number 15 was manually annotated 4 times for cluster DO.

Info for manual annotations of cluster DR:

- Start number 12 was manually annotated 6 times for cluster DR.

Gene Information:

Gene: APunk_10 Start: 5832, Stop: 6140, Start Num: 18

Candidate Starts for APunk_10:

(8, 5769), (Start: 10 @5787 has 1 MA's), (Start: 18 @5832 has 7 MA's), (35, 5928), (36, 5934), (38, 5970), (39, 6018), (40, 6024),

Gene: Adgers_80 Start: 60593, Stop: 60273, Start Num: 14

Candidate Starts for Adgers_80:

(Start: 14 @60593 has 8 MA's), (40, 60380),

Gene: Ali17_9 Start: 5663, Stop: 5983, Start Num: 18

Candidate Starts for Ali17_9:

(Start: 18 @5663 has 7 MA's), (35, 5753), (36, 5759), (38, 5795), (40, 5852),

Gene: AnClar_78 Start: 60612, Stop: 60265, Start Num: 12

Candidate Starts for AnClar_78:

(Start: 12 @60612 has 6 MA's), (26, 60555), (34, 60489), (39, 60393), (40, 60387),

Gene: Archis_40 Start: 30536, Stop: 30222, Start Num: 17

Candidate Starts for Archis_40:

(Start: 10 @30569 has 1 MA's), (Start: 17 @30536 has 4 MA's), (Start: 19 @30524 has 3 MA's), (21, 30512), (24, 30500), (25, 30497), (28, 30485), (32, 30473), (34, 30440), (35, 30437), (37, 30416), (38, 30392), (39, 30344), (40, 30338),

Gene: Bakery_93 Start: 59467, Stop: 59129, Start Num: 17

Candidate Starts for Bakery_93:

(6, 59542), (7, 59521), (9, 59509), (Start: 17 @59467 has 4 MA's), (31, 59401), (33, 59371), (34, 59356), (38, 59308), (39, 59260), (40, 59254),

Gene: Barbochs_74 Start: 59970, Stop: 59629, Start Num: 14

Candidate Starts for Barbochs_74:

(Start: 14 @59970 has 8 MA's), (40, 59757), (41, 59748),

Gene: Beaver_80 Start: 61914, Stop: 61585, Start Num: 14

Candidate Starts for Beaver_80:

(Start: 14 @61914 has 8 MA's), (40, 61701),

Gene: Benczkowski14_73 Start: 60661, Stop: 60341, Start Num: 15

Candidate Starts for Benczkowski14_73:

(Start: 15 @60661 has 25 MA's), (40, 60451),

Gene: BigShaq_78 Start: 60737, Stop: 60411, Start Num: 14

Candidate Starts for BigShaq_78:

(Start: 14 @60737 has 8 MA's), (29, 60668), (40, 60524),

Gene: BiggityBass_81 Start: 62080, Stop: 61751, Start Num: 12

Candidate Starts for BiggityBass_81:

(Start: 12 @62080 has 6 MA's), (26, 62023), (35, 61954), (39, 61861),

Gene: Bonum_79 Start: 57724, Stop: 57392, Start Num: 15

Candidate Starts for Bonum_79:

(Start: 15 @57724 has 25 MA's), (20, 57697), (35, 57610), (39, 57520), (40, 57514),

Gene: Buggaboo_77 Start: 58290, Stop: 57958, Start Num: 15

Candidate Starts for Buggaboo_77:

(Start: 15 @58290 has 25 MA's), (20, 58263), (35, 58176), (39, 58086), (40, 58080),

Gene: CaptainKirk2_37 Start: 29823, Stop: 29527, Start Num: 19

Candidate Starts for CaptainKirk2_37:

(Start: 10 @29868 has 1 MA's), (Start: 17 @29835 has 4 MA's), (Start: 19 @29823 has 3 MA's), (24, 29799), (25, 29796), (28, 29784), (32, 29772), (34, 29739), (35, 29736), (37, 29715), (38, 29691), (39, 29643), (40, 29637),

Gene: Chelms_77 Start: 60667, Stop: 60350, Start Num: 14

Candidate Starts for Chelms_77:

(Start: 14 @60667 has 8 MA's), (40, 60454),

Gene: CherryCola_90 Start: 58146, Stop: 57721, Start Num: 5

Candidate Starts for CherryCola_90:

(4, 58149), (Start: 5 @58146 has 5 MA's), (9, 58101), (Start: 17 @58059 has 4 MA's), (31, 57993), (38, 57900), (39, 57852), (40, 57846),

Gene: CherryTomatoes_206 Start: 140218, Stop: 140541, Start Num: 15

Candidate Starts for CherryTomatoes_206:

(Start: 15 @140218 has 25 MA's), (39, 140422), (40, 140428),

Gene: ClamChowder_94 Start: 58597, Stop: 58172, Start Num: 5

Candidate Starts for ClamChowder_94:

(4, 58600), (Start: 5 @58597 has 5 MA's), (9, 58552), (Start: 17 @58510 has 4 MA's), (31, 58444), (34, 58399), (38, 58351), (39, 58303), (40, 58297),

Gene: CoveyB_93 Start: 58084, Stop: 57659, Start Num: 5

Candidate Starts for CoveyB_93:

(4, 58087), (Start: 5 @58084 has 5 MA's), (9, 58039), (Start: 17 @57997 has 4 MA's), (31, 57931), (34, 57886), (38, 57838), (39, 57790), (40, 57784),

Gene: Crete_77 Start: 60795, Stop: 60469, Start Num: 14

Candidate Starts for Crete_77:

(Start: 14 @60795 has 8 MA's), (29, 60726), (40, 60582),

Gene: DelRio_49 Start: 36105, Stop: 36449, Start Num: 15

Candidate Starts for DelRio_49:

(3, 36000), (Start: 14 @36102 has 8 MA's), (Start: 15 @36105 has 25 MA's), (22, 36138), (33, 36207), (34, 36222), (36, 36231),

Gene: Ecliptus_44 Start: 32044, Stop: 31706, Start Num: 17

Candidate Starts for Ecliptus_44:

(13, 32056), (16, 32047), (Start: 17 @32044 has 4 MA's), (Start: 19 @32032 has 3 MA's), (24, 32008), (25, 32005), (28, 31993), (34, 31951), (35, 31948), (37, 31930), (38, 31906), (39, 31858), (40, 31852),

Gene: Egi03_89 Start: 57168, Stop: 56743, Start Num: 5

Candidate Starts for Egi03_89:

(4, 57171), (Start: 5 @57168 has 5 MA's), (9, 57123), (Start: 17 @57081 has 4 MA's), (31, 57015), (38, 56922), (39, 56874), (40, 56868),

Gene: Ennea_83 Start: 59022, Stop: 58708, Start Num: 15

Candidate Starts for Ennea_83:

(11, 59040), (Start: 15 @59022 has 25 MA's), (26, 58977), (40, 58815),

Gene: Evaa_82 Start: 60219, Stop: 59869, Start Num: 12

Candidate Starts for Evaa_82:

(Start: 12 @60219 has 6 MA's), (22, 60171), (26, 60156), (38, 60045), (39, 59997), (40, 59991),

Gene: Flapper_80 Start: 58306, Stop: 57980, Start Num: 15

Candidate Starts for Flapper_80:

(Start: 15 @58306 has 25 MA's), (20, 58282), (26, 58261), (30, 58240), (39, 58105), (40, 58099),

Gene: Float294_78 Start: 58928, Stop: 58614, Start Num: 15

Candidate Starts for Float294_78:

(Start: 15 @58928 has 25 MA's), (26, 58883), (40, 58721),

Gene: GTE5_64 Start: 50838, Stop: 50473, Start Num: 8

Candidate Starts for GTE5_64:

(8, 50838), (Start: 15 @50799 has 25 MA's), (20, 50775), (26, 50754), (31, 50730), (39, 50598), (40, 50592),

Gene: Gorko_76 Start: 59788, Stop: 59468, Start Num: 14

Candidate Starts for Gorko_76:

(Start: 14 @59788 has 8 MA's), (40, 59575),

Gene: Halo3_90 Start: 58179, Stop: 57841, Start Num: 17

Candidate Starts for Halo3_90:

(1, 58332), (2, 58311), (9, 58221), (Start: 17 @58179 has 4 MA's), (31, 58113), (34, 58068), (38, 58020), (39, 57972), (40, 57966),

Gene: Hans_13 Start: 6198, Stop: 6524, Start Num: 18

Candidate Starts for Hans_13:

(Start: 18 @6198 has 7 MA's), (35, 6291), (36, 6297), (38, 6333), (40, 6390),

Gene: Hitter_38 Start: 30165, Stop: 29812, Start Num: 10

Candidate Starts for Hitter_38:

(Start: 10 @30165 has 1 MA's), (Start: 17 @30132 has 4 MA's), (Start: 19 @30120 has 3 MA's), (24, 30096), (25, 30093), (28, 30081), (32, 30069), (34, 30036), (35, 30033), (37, 30012), (38, 29988), (39, 29940), (40, 29934),

Gene: Hollow_74 Start: 60832, Stop: 60512, Start Num: 15

Candidate Starts for Hollow_74:

(Start: 15 @60832 has 25 MA's), (27, 60772), (39, 60628), (40, 60622),

Gene: Hotorobo_77 Start: 60751, Stop: 60410, Start Num: 14

Candidate Starts for Hotorobo_77:

(Start: 14 @60751 has 8 MA's), (40, 60538), (41, 60529),

Gene: Inspectinfecti_12 Start: 6720, Stop: 7040, Start Num: 18

Candidate Starts for Inspectinfecti_12:

(Start: 18 @6720 has 7 MA's), (35, 6810), (36, 6816), (38, 6852), (40, 6909),

Gene: Kabluna_78 Start: 57062, Stop: 56721, Start Num: 15

Candidate Starts for Kabluna_78:

(Start: 15 @57062 has 25 MA's), (20, 57035), (35, 56948), (39, 56858), (40, 56852),

Gene: Katyusha_72 Start: 60661, Stop: 60341, Start Num: 15

Candidate Starts for Katyusha_72:

(Start: 15 @60661 has 25 MA's), (40, 60451),

Gene: Kelzog_78 Start: 60628, Stop: 60299, Start Num: 14

Candidate Starts for Kelzog_78:

(Start: 14 @60628 has 8 MA's), (40, 60415), (41, 60406),

Gene: Kvothe_72 Start: 60503, Stop: 60183, Start Num: 15

Candidate Starts for Kvothe_72:

(Start: 15 @60503 has 25 MA's), (40, 60293),

Gene: Leonard_11 Start: 6315, Stop: 6635, Start Num: 18

Candidate Starts for Leonard_11:

(Start: 18 @6315 has 7 MA's), (35, 6405), (36, 6411), (38, 6447), (40, 6504),

Gene: LittleMunchkin_81 Start: 61979, Stop: 61644, Start Num: 12
Candidate Starts for LittleMunchkin_81:
(Start: 12 @61979 has 6 MA's), (26, 61922), (34, 61856), (39, 61760), (40, 61754),

Gene: Lollipop1437_79 Start: 58702, Stop: 58388, Start Num: 15
Candidate Starts for Lollipop1437_79:
(Start: 15 @58702 has 25 MA's), (26, 58657), (40, 58495),

Gene: Niagara_73 Start: 60594, Stop: 60274, Start Num: 15
Candidate Starts for Niagara_73:
(Start: 15 @60594 has 25 MA's), (40, 60384),

Gene: NosilaM_76 Start: 57364, Stop: 57035, Start Num: 15
Candidate Starts for NosilaM_76:
(Start: 15 @57364 has 25 MA's), (31, 57295), (35, 57253), (39, 57163), (40, 57157),

Gene: Patio_78 Start: 57925, Stop: 57620, Start Num: 15
Candidate Starts for Patio_78:
(Start: 15 @57925 has 25 MA's), (29, 57865), (40, 57727),

Gene: Phauci_4 Start: 2839, Stop: 3165, Start Num: 18
Candidate Starts for Phauci_4:
(Start: 18 @2839 has 7 MA's), (35, 2932), (36, 2938), (38, 2974), (40, 3031),

Gene: Phinally_11 Start: 6312, Stop: 6632, Start Num: 18
Candidate Starts for Phinally_11:
(Start: 18 @6312 has 7 MA's), (35, 6402), (36, 6408), (38, 6444), (40, 6501),

Gene: PinkCoffee_93 Start: 57642, Stop: 57217, Start Num: 5
Candidate Starts for PinkCoffee_93:
(4, 57645), (Start: 5 @57642 has 5 MA's), (9, 57597), (Start: 17 @57555 has 4 MA's), (31, 57489), (34, 57444), (38, 57396), (39, 57348), (40, 57342),

Gene: Pupper_204 Start: 140080, Stop: 140403, Start Num: 15
Candidate Starts for Pupper_204:
(Start: 15 @140080 has 25 MA's), (39, 140284), (40, 140290),

Gene: RedRaider_83 Start: 60073, Stop: 59747, Start Num: 15
Candidate Starts for RedRaider_83:
(Start: 15 @60073 has 25 MA's), (23, 60037), (39, 59872), (40, 59866),

Gene: SCentae_203 Start: 140271, Stop: 140594, Start Num: 15
Candidate Starts for SCentae_203:
(Start: 15 @140271 has 25 MA's), (39, 140475), (40, 140481),

Gene: Sisko_81 Start: 60938, Stop: 60591, Start Num: 12
Candidate Starts for Sisko_81:
(Start: 12 @60938 has 6 MA's), (26, 60881), (34, 60815), (39, 60719), (40, 60713),

Gene: Skog_33 Start: 15580, Stop: 15906, Start Num: 15
Candidate Starts for Skog_33:
(Start: 15 @15580 has 25 MA's), (39, 15784), (40, 15790),

Gene: Skysand_80 Start: 58588, Stop: 58283, Start Num: 15

Candidate Starts for Skysand_80:

(Start: 15 @58588 has 25 MA's), (29, 58528), (40, 58390),

Gene: Squibbles_76 Start: 60731, Stop: 60402, Start Num: 14

Candidate Starts for Squibbles_76:

(Start: 14 @60731 has 8 MA's), (40, 60518),

Gene: SuperSulley_77 Start: 58290, Stop: 57958, Start Num: 15

Candidate Starts for SuperSulley_77:

(Start: 15 @58290 has 25 MA's), (20, 58263), (35, 58176), (39, 58086), (40, 58080),

Gene: Teatealatte_74 Start: 60491, Stop: 60171, Start Num: 15

Candidate Starts for Teatealatte_74:

(Start: 15 @60491 has 25 MA's), (40, 60281),

Gene: Teech_74 Start: 60307, Stop: 59987, Start Num: 15

Candidate Starts for Teech_74:

(Start: 15 @60307 has 25 MA's), (40, 60097),

Gene: Tredge_73 Start: 60491, Stop: 60171, Start Num: 15

Candidate Starts for Tredge_73:

(Start: 15 @60491 has 25 MA's), (40, 60281),

Gene: UmaThurman_32 Start: 29419, Stop: 29123, Start Num: 19

Candidate Starts for UmaThurman_32:

(Start: 10 @29464 has 1 MA's), (Start: 17 @29431 has 4 MA's), (Start: 19 @29419 has 3 MA's), (24, 29395), (25, 29392), (28, 29380), (32, 29368), (34, 29335), (35, 29332), (37, 29311), (38, 29287), (39, 29239), (40, 29233),

Gene: Walrus_37 Start: 30012, Stop: 29710, Start Num: 19

Candidate Starts for Walrus_37:

(Start: 10 @30057 has 1 MA's), (Start: 17 @30024 has 4 MA's), (Start: 19 @30012 has 3 MA's), (21, 30000), (24, 29988), (25, 29985), (32, 29961), (34, 29928), (35, 29925), (37, 29907), (38, 29883), (39, 29835), (40, 29829),

Gene: Yago84_80 Start: 60646, Stop: 60299, Start Num: 12

Candidate Starts for Yago84_80:

(Start: 12 @60646 has 6 MA's), (26, 60589), (34, 60523), (39, 60427), (40, 60421),