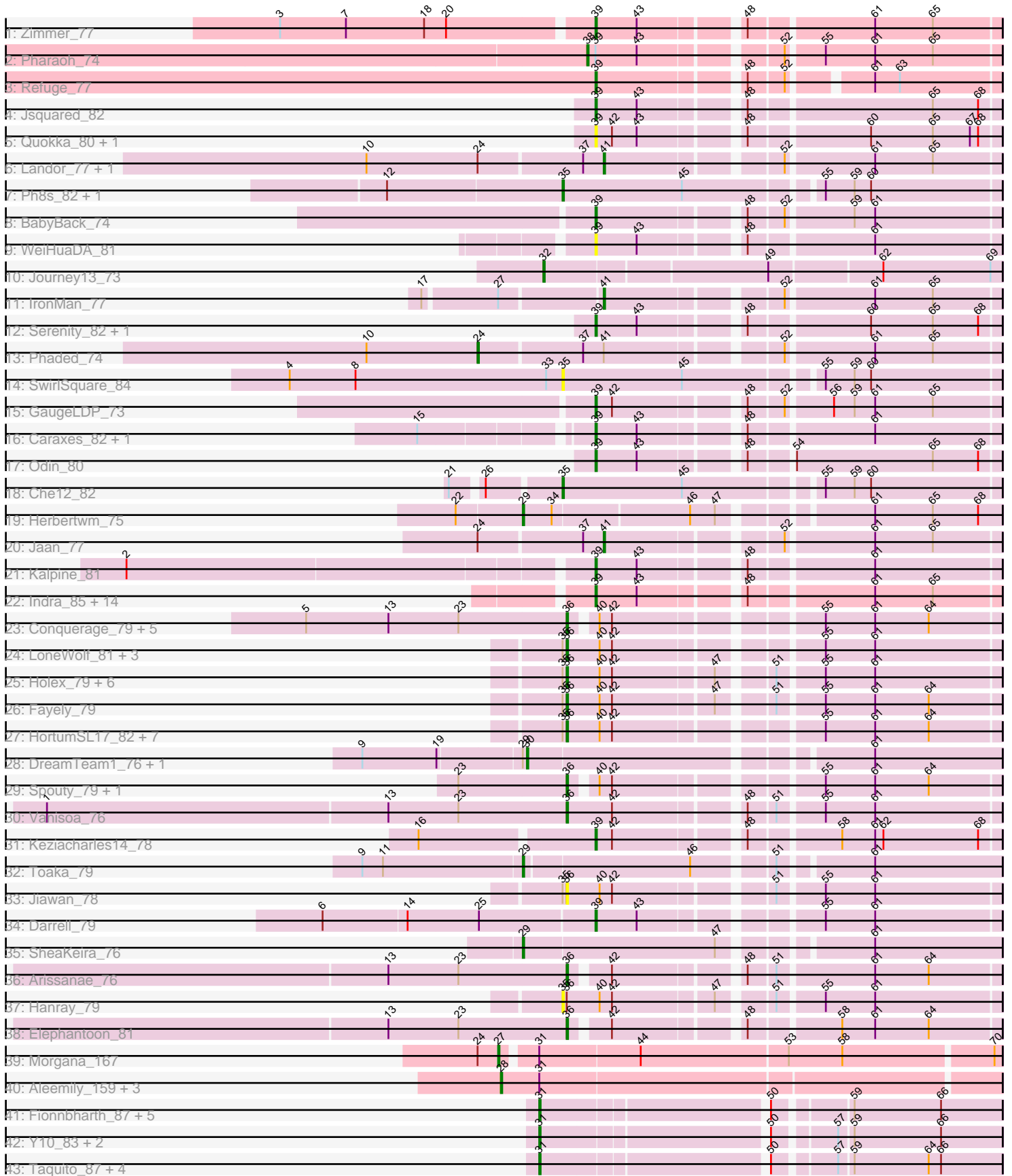


Pham 193896



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 193896 Report

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

Pham number 193896 has 99 members, 16 are drafts.

Phages represented in each track:

- Track 1 : Zimmer_77
- Track 2 : Pharaoh_74
- Track 3 : Refuge_77
- Track 4 : Jsquared_82
- Track 5 : Quokka_80, Bradman_81
- Track 6 : Landor_77, Bactobuster_71
- Track 7 : Ph8s_82, Adzzy_82
- Track 8 : BabyBack_74
- Track 9 : WeiHuaDA_81
- Track 10 : Journey13_73
- Track 11 : IronMan_77
- Track 12 : Serenity_82, TipsytheTRex_78
- Track 13 : Phaded_74
- Track 14 : SwirlSquare_84
- Track 15 : GaugeLDP_73
- Track 16 : Caraxes_82, Superchunk_81
- Track 17 : Odin_80
- Track 18 : Che12_82
- Track 19 : Herbertwm_75
- Track 20 : Jaan_77
- Track 21 : Kalpine_81
- Track 22 : Indra_85, Lilbunny_81, Zaka_82, Tucker_82, Zulu_83, ToneTone_79, Artemis2UCLA_81, WunderPhul_82, Yokurt_81, Koko_83, Blue7_83, Garak_83, Helmet_83, Roksolana_82, Wiks_81
- Track 23 : Conquerage_79, Alma_79, Priya_79, ExplosioNervosa_79, Eidsmoe_79, EmyBug_78
- Track 24 : LoneWolf_81, Sachima_77, EdogawaKiddo_79, Lilleskat_78
- Track 25 : Holecx_79, Phonnegut_81, Pioneer_81, Onglai_79, Scherzo_79, Beemo_81, RyeScarlet_82
- Track 26 : Fayely_79
- Track 27 : HortumSL17_82, Tubs_81, Catalina_83, PackMan_80, BogosyJay_80, Myxus_81, Phaeder_81, Maminaiaina_80
- Track 28 : DreamTeam1_76, Charm_76
- Track 29 : Spouty_79, Qobbit_79
- Track 30 : Vanisoa_76
- Track 31 : Keziacharles14_78
- Track 32 : Toaka_79

- Track 33 : Jiawan_78
- Track 34 : Darrell_79
- Track 35 : SheaKeira_76
- Track 36 : Arissanae_76
- Track 37 : Hanray_79
- Track 38 : Elephantoon_81
- Track 39 : Morgana_167
- Track 40 : Aleemily_159, ObLaDi_161, ModicumRichard_160, Cafasso_161
- Track 41 : Fionnbharth_87, Malthus_88, Ruthiejr_89, Eponine_89, Wintermute_87, Juliette_89
- Track 42 : Y10_83, JF1_87, Y2_83
- Track 43 : Taquito_87, Mitti_87, Chancellor_87, SamScheppers_86, OmniCritical_87

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

The start number called the most often in the published annotations is 36, it was called in 25 of the 83 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alma_79, Arissanae_76, Beemo_81, BogosyJay_80, Catalina_83, Conquerage_79, EdogawaKiddo_79, Eidsmoe_79, Elephantoon_81, EmyBug_78, ExplosioNervosa_79, Fayely_79, Horex_79, HortumSL17_82, Jiawan_78, Lilleskat_78, LoneWolf_81, Maminiaina_80, Myxus_81, Onglai_79, PackMan_80, Phaeder_81, Phonnegut_81, Pioneer_81, Priya_79, Qobbit_79, RyeScarlet_82, Sachima_77, Scherzo_79, Spouty_79, Tubs_81, Vanisoa_76,

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

- Hanray_79,

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

- Adzzy_82, Aleemily_159, Artemis2UCLA_81, BabyBack_74, Bactobuster_71, Blue7_83, Bradman_81, Cafasso_161, Caraxes_82, Chancellor_87, Charm_76, Che12_82, Darrell_79, DreamTeam1_76, Eponine_89, Fionnbharth_87, Garak_83, GaugeLDP_73, Helmet_83, Herbertwm_75, Indra_85, IronMan_77, JF1_87, Jaan_77, Journey13_73, Jsquared_82, Juliette_89, Kalpine_81, Keziacharles14_78, Koko_83, Landor_77, Lilbunny_81, Malthus_88, Mitti_87, ModicumRichard_160, Morgana_167, ObLaDi_161, Odin_80, OmniCritical_87, Ph8s_82, Phaded_74, Pharaoh_74, Quokka_80, Refuge_77, Roksolana_82, Ruthiejr_89, SamScheppers_86, Serenity_82, SheaKeira_76, Superchunk_81, SwirlSquare_84, Taquito_87, TopsytheTRex_78, Toaka_79, ToneTone_79, Tucker_82, WeiHuaDA_81, Wiks_81, Wintermute_87, WunderPhul_82, Y10_83, Y2_83, Yokurt_81, Zaka_82, Zimmer_77, Zulu_83,

Summary by start number:

Start 24:

- Found in 5 of 99 (5.1%) of genes in pham
- Manual Annotations of this start: 1 of 83
- Called 20.0% of time when present

- Phage (with cluster) where this start called: Phaded_74 (A2),

Start 27:

- Found in 2 of 99 (2.0%) of genes in pham
- Manual Annotations of this start: 1 of 83
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Morgana_167 (DZ),

Start 28:

- Found in 4 of 99 (4.0%) of genes in pham
- Manual Annotations of this start: 3 of 83
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aleemily_159 (DZ), Cafasso_161 (DZ), ModicumRichard_160 (DZ), ObLaDi_161 (DZ),

Start 29:

- Found in 5 of 99 (5.1%) of genes in pham
- Manual Annotations of this start: 3 of 83
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Herbertwm_75 (A2), SheaKeira_76 (A9), Toaka_79 (A9),

Start 30:

- Found in 2 of 99 (2.0%) of genes in pham
- Manual Annotations of this start: 2 of 83
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Charm_76 (A9), DreamTeam1_76 (A9),

Start 31:

- Found in 19 of 99 (19.2%) of genes in pham
- Manual Annotations of this start: 14 of 83
- Called 73.7% of time when present
- Phage (with cluster) where this start called: Chancellor_87 (K4), Eponine_89 (K4), Fionnbharth_87 (K4), JF1_87 (K4), Juliette_89 (K4), Malthus_88 (K4), Mitti_87 (K4), OmniCritical_87 (K4), Ruthiejr_89 (K4), SamScheppers_86 (K4), Taquito_87 (K4), Wintermute_87 (K4), Y10_83 (K4), Y2_83 (K4),

Start 32:

- Found in 1 of 99 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 83
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Journey13_73 (A2),

Start 35:

- Found in 26 of 99 (26.3%) of genes in pham
- Manual Annotations of this start: 3 of 83
- Called 19.2% of time when present
- Phage (with cluster) where this start called: Adzzy_82 (A2), Che12_82 (A2), Hanray_79 (A9), Ph8s_82 (A2), SwirlSquare_84 (A2),

Start 36:

- Found in 33 of 99 (33.3%) of genes in pham
- Manual Annotations of this start: 25 of 83

- Called 97.0% of time when present
- Phage (with cluster) where this start called: Alma_79 (A9), Arissanae_76 (A9), Beemo_81 (A9), BogosyJay_80 (A9), Catalina_83 (A9), Conquerage_79 (A9), EdogawaKiddo_79 (A9), Eidsmoe_79 (A9), Elephantoon_81 (A9), EmyBug_78 (A9), ExplosioNervosa_79 (A9), Fayely_79 (A9), Horex_79 (A9), HortumSL17_82 (A9), Jiawan_78 (A9), Lilleskat_78 (A9), LoneWolf_81 (A9), Maminiaina_80 (A9), Myxus_81 (A9), Onglai_79 (A9), PackMan_80 (A9), Phaeder_81 (A9), Phonnegut_81 (A9), Pioneer_81 (A9), Priya_79 (A9), Qobbit_79 (A9), RyeScarlet_82 (A9), Sachima_77 (A9), Scherzo_79 (A9), Spouty_79 (A9), Tubs_81 (A9), Vanisoa_76 (A9),

Start 38:

- Found in 1 of 99 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 83
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pharaoh_74 (A12),

Start 39:

- Found in 32 of 99 (32.3%) of genes in pham
- Manual Annotations of this start: 25 of 83
- Called 96.9% of time when present
- Phage (with cluster) where this start called: Artemis2UCLA_81 (A6), BabyBack_74 (A2), Blue7_83 (A6), Bradman_81 (A2), Caraxes_82 (A2), Darrell_79 (A9), Garak_83 (A6), GaugeLDP_73 (A2), Helmet_83 (A6), Indra_85 (A6), Jsquared_82 (A2), Kalpine_81 (A2), Keziacharles14_78 (A9), Koko_83 (A6), Lilbunny_81 (A6), Odin_80 (A2), Quokka_80 (A2), Refuge_77 (A12), Roksolana_82 (A6), Serenity_82 (A2), Superchunk_81 (A2), TipsytheTRex_78 (A2), ToneTone_79 (A6), Tucker_82 (A6), WeiHuaDA_81 (A2), Wiks_81 (A6), WunderPhul_82 (A6), Yokurt_81 (A6), Zaka_82 (A6), Zimmer_77 (A12), Zulu_83 (A6),

Start 41:

- Found in 5 of 99 (5.1%) of genes in pham
- Manual Annotations of this start: 4 of 83
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Bactobuster_71 (A2), IronMan_77 (A2), Jaan_77 (A2), Landor_77 (A2),

Summary by clusters:

There are 6 clusters represented in this pham: A12, A6, A2, DZ, K4, A9,

Info for manual annotations of cluster A12:

- Start number 38 was manually annotated 1 time for cluster A12.
- Start number 39 was manually annotated 2 times for cluster A12.

Info for manual annotations of cluster A2:

- Start number 24 was manually annotated 1 time for cluster A2.
- Start number 29 was manually annotated 1 time for cluster A2.
- Start number 32 was manually annotated 1 time for cluster A2.
- Start number 35 was manually annotated 3 times for cluster A2.
- Start number 39 was manually annotated 8 times for cluster A2.
- Start number 41 was manually annotated 4 times for cluster A2.

Info for manual annotations of cluster A6:

- Start number 39 was manually annotated 13 times for cluster A6.

Info for manual annotations of cluster A9:

- Start number 29 was manually annotated 2 times for cluster A9.
- Start number 30 was manually annotated 2 times for cluster A9.
- Start number 36 was manually annotated 25 times for cluster A9.
- Start number 39 was manually annotated 2 times for cluster A9.

Info for manual annotations of cluster DZ:

- Start number 27 was manually annotated 1 time for cluster DZ.
- Start number 28 was manually annotated 3 times for cluster DZ.

Info for manual annotations of cluster K4:

- Start number 31 was manually annotated 14 times for cluster K4.

Gene Information:

Gene: Adzzy_82 Start: 46155, Stop: 45853, Start Num: 35

Candidate Starts for Adzzy_82:

(12, 46278), (Start: 35 @46155 has 3 MA's), (45, 46068), (55, 45978), (59, 45957), (60, 45945),

Gene: Aleemily_159 Start: 83168, Stop: 83518, Start Num: 28

Candidate Starts for Aleemily_159:

(Start: 28 @83168 has 3 MA's), (Start: 31 @83195 has 14 MA's),

Gene: Alma_79 Start: 45799, Stop: 45518, Start Num: 36

Candidate Starts for Alma_79:

(5, 45988), (13, 45928), (23, 45877), (Start: 36 @45799 has 25 MA's), (40, 45784), (42, 45775), (55, 45643), (61, 45607), (64, 45568),

Gene: Arissanae_76 Start: 45697, Stop: 45416, Start Num: 36

Candidate Starts for Arissanae_76:

(13, 45826), (23, 45775), (Start: 36 @45697 has 25 MA's), (42, 45673), (48, 45589), (51, 45571), (61, 45505), (64, 45466),

Gene: Artemis2UCLA_81 Start: 45088, Stop: 44819, Start Num: 39

Candidate Starts for Artemis2UCLA_81:

(Start: 39 @45088 has 25 MA's), (43, 45058), (48, 44992), (61, 44908), (65, 44866),

Gene: BabyBack_74 Start: 46100, Stop: 45831, Start Num: 39

Candidate Starts for BabyBack_74:

(Start: 39 @46100 has 25 MA's), (48, 46004), (52, 45980), (59, 45935), (61, 45920),

Gene: Bactobuster_71 Start: 45904, Stop: 45641, Start Num: 41

Candidate Starts for Bactobuster_71:

(10, 46072), (Start: 24 @45991 has 1 MA's), (37, 45919), (Start: 41 @45904 has 4 MA's), (52, 45790), (61, 45730), (65, 45688),

Gene: Beemo_81 Start: 45795, Stop: 45505, Start Num: 36

Candidate Starts for Beemo_81:

(Start: 35 @45798 has 3 MA's), (Start: 36 @45795 has 25 MA's), (40, 45771), (42, 45762), (47, 45693), (51, 45660), (55, 45630), (61, 45594),

Gene: Blue7_83 Start: 45307, Stop: 45038, Start Num: 39

Candidate Starts for Blue7_83:

(Start: 39 @45307 has 25 MA's), (43, 45277), (48, 45211), (61, 45127), (65, 45085),

Gene: BogosyJay_80 Start: 45850, Stop: 45560, Start Num: 36

Candidate Starts for BogosyJay_80:

(Start: 35 @45853 has 3 MA's), (Start: 36 @45850 has 25 MA's), (40, 45826), (42, 45817), (55, 45685), (61, 45649), (64, 45610),

Gene: Bradman_81 Start: 45826, Stop: 45557, Start Num: 39

Candidate Starts for Bradman_81:

(Start: 39 @45826 has 25 MA's), (42, 45814), (43, 45796), (48, 45730), (60, 45649), (65, 45604), (67, 45577), (68, 45571),

Gene: Cafasso_161 Start: 83594, Stop: 83944, Start Num: 28

Candidate Starts for Cafasso_161:

(Start: 28 @83594 has 3 MA's), (Start: 31 @83621 has 14 MA's),

Gene: Caraxes_82 Start: 46112, Stop: 45843, Start Num: 39

Candidate Starts for Caraxes_82:

(15, 46223), (Start: 39 @46112 has 25 MA's), (43, 46082), (48, 46016), (61, 45932),

Gene: Catalina_83 Start: 45905, Stop: 45615, Start Num: 36

Candidate Starts for Catalina_83:

(Start: 35 @45908 has 3 MA's), (Start: 36 @45905 has 25 MA's), (40, 45881), (42, 45872), (55, 45740), (61, 45704), (64, 45665),

Gene: Chancellor_87 Start: 53125, Stop: 53433, Start Num: 31

Candidate Starts for Chancellor_87:

(Start: 31 @53125 has 14 MA's), (50, 53278), (57, 53317), (59, 53326), (64, 53380), (66, 53389),

Gene: Charm_76 Start: 45350, Stop: 45030, Start Num: 30

Candidate Starts for Charm_76:

(9, 45464), (19, 45410), (Start: 29 @45353 has 3 MA's), (Start: 30 @45350 has 2 MA's), (61, 45122),

Gene: Che12_82 Start: 46057, Stop: 45755, Start Num: 35

Candidate Starts for Che12_82:

(21, 46123), (26, 46105), (Start: 35 @46057 has 3 MA's), (45, 45970), (55, 45880), (59, 45859), (60, 45847),

Gene: Conquerage_79 Start: 45568, Stop: 45287, Start Num: 36

Candidate Starts for Conquerage_79:

(5, 45757), (13, 45697), (23, 45646), (Start: 36 @45568 has 25 MA's), (40, 45553), (42, 45544), (55, 45412), (61, 45376), (64, 45337),

Gene: Darrell_79 Start: 45002, Stop: 44733, Start Num: 39

Candidate Starts for Darrell_79:

(6, 45194), (14, 45134), (25, 45083), (Start: 39 @45002 has 25 MA's), (43, 44972), (55, 44858), (61, 44822),

Gene: DreamTeam1_76 Start: 45198, Stop: 44878, Start Num: 30
Candidate Starts for DreamTeam1_76:
(9, 45312), (19, 45258), (Start: 29 @45201 has 3 MA's), (Start: 30 @45198 has 2 MA's), (61, 44970),

Gene: EdogawaKiddo_79 Start: 45873, Stop: 45583, Start Num: 36
Candidate Starts for EdogawaKiddo_79:
(Start: 35 @45876 has 3 MA's), (Start: 36 @45873 has 25 MA's), (40, 45849), (42, 45840), (55, 45708), (61, 45672),

Gene: Eidsmoe_79 Start: 45560, Stop: 45279, Start Num: 36
Candidate Starts for Eidsmoe_79:
(5, 45749), (13, 45689), (23, 45638), (Start: 36 @45560 has 25 MA's), (40, 45545), (42, 45536), (55, 45404), (61, 45368), (64, 45329),

Gene: Elephantoon_81 Start: 45725, Stop: 45444, Start Num: 36
Candidate Starts for Elephantoon_81:
(13, 45854), (23, 45803), (Start: 36 @45725 has 25 MA's), (42, 45701), (48, 45617), (58, 45557), (61, 45533), (64, 45494),

Gene: EmyBug_78 Start: 45562, Stop: 45281, Start Num: 36
Candidate Starts for EmyBug_78:
(5, 45751), (13, 45691), (23, 45640), (Start: 36 @45562 has 25 MA's), (40, 45547), (42, 45538), (55, 45406), (61, 45370), (64, 45331),

Gene: Eponine_89 Start: 54105, Stop: 54413, Start Num: 31
Candidate Starts for Eponine_89:
(Start: 31 @54105 has 14 MA's), (50, 54258), (59, 54306), (66, 54369),

Gene: ExplosioNervosa_79 Start: 45628, Stop: 45347, Start Num: 36
Candidate Starts for ExplosioNervosa_79:
(5, 45817), (13, 45757), (23, 45706), (Start: 36 @45628 has 25 MA's), (40, 45613), (42, 45604), (55, 45472), (61, 45436), (64, 45397),

Gene: Fayely_79 Start: 45538, Stop: 45248, Start Num: 36
Candidate Starts for Fayely_79:
(Start: 35 @45541 has 3 MA's), (Start: 36 @45538 has 25 MA's), (40, 45514), (42, 45505), (47, 45436), (51, 45403), (55, 45373), (61, 45337), (64, 45298),

Gene: Fionnbharth_87 Start: 53503, Stop: 53811, Start Num: 31
Candidate Starts for Fionnbharth_87:
(Start: 31 @53503 has 14 MA's), (50, 53656), (59, 53704), (66, 53767),

Gene: Garak_83 Start: 45550, Stop: 45281, Start Num: 39
Candidate Starts for Garak_83:
(Start: 39 @45550 has 25 MA's), (43, 45520), (48, 45454), (61, 45370), (65, 45328),

Gene: GaugeLDP_73 Start: 45685, Stop: 45416, Start Num: 39
Candidate Starts for GaugeLDP_73:
(Start: 39 @45685 has 25 MA's), (42, 45673), (48, 45589), (52, 45565), (56, 45535), (59, 45520), (61, 45505), (65, 45463),

Gene: Hanray_79 Start: 45852, Stop: 45559, Start Num: 35
Candidate Starts for Hanray_79:

(Start: 35 @45852 has 3 MA's), (Start: 36 @45849 has 25 MA's), (40, 45825), (42, 45816), (47, 45747), (51, 45714), (55, 45684), (61, 45648),

Gene: Helmet_83 Start: 45550, Stop: 45281, Start Num: 39

Candidate Starts for Helmet_83:

(Start: 39 @45550 has 25 MA's), (43, 45520), (48, 45454), (61, 45370), (65, 45328),

Gene: Herbertwm_75 Start: 45969, Stop: 45649, Start Num: 29

Candidate Starts for Herbertwm_75:

(22, 46014), (Start: 29 @45969 has 3 MA's), (34, 45948), (46, 45852), (47, 45834), (61, 45741), (65, 45699), (68, 45666),

Gene: Horex_79 Start: 45865, Stop: 45575, Start Num: 36

Candidate Starts for Horex_79:

(Start: 35 @45868 has 3 MA's), (Start: 36 @45865 has 25 MA's), (40, 45841), (42, 45832), (47, 45763), (51, 45730), (55, 45700), (61, 45664),

Gene: HortumSL17_82 Start: 45903, Stop: 45613, Start Num: 36

Candidate Starts for HortumSL17_82:

(Start: 35 @45906 has 3 MA's), (Start: 36 @45903 has 25 MA's), (40, 45879), (42, 45870), (55, 45738), (61, 45702), (64, 45663),

Gene: Indra_85 Start: 45551, Stop: 45282, Start Num: 39

Candidate Starts for Indra_85:

(Start: 39 @45551 has 25 MA's), (43, 45521), (48, 45455), (61, 45371), (65, 45329),

Gene: IronMan_77 Start: 47577, Stop: 47314, Start Num: 41

Candidate Starts for IronMan_77:

(17, 47697), (Start: 27 @47646 has 1 MA's), (Start: 41 @47577 has 4 MA's), (52, 47463), (61, 47403), (65, 47361),

Gene: JF1_87 Start: 53421, Stop: 53729, Start Num: 31

Candidate Starts for JF1_87:

(Start: 31 @53421 has 14 MA's), (50, 53574), (57, 53613), (59, 53622), (66, 53685),

Gene: Jaan_77 Start: 47534, Stop: 47271, Start Num: 41

Candidate Starts for Jaan_77:

(Start: 24 @47621 has 1 MA's), (37, 47549), (Start: 41 @47534 has 4 MA's), (52, 47420), (61, 47360), (65, 47318),

Gene: Jiawan_78 Start: 45881, Stop: 45591, Start Num: 36

Candidate Starts for Jiawan_78:

(Start: 35 @45884 has 3 MA's), (Start: 36 @45881 has 25 MA's), (40, 45857), (42, 45848), (51, 45746), (55, 45716), (61, 45680),

Gene: Journey13_73 Start: 44569, Stop: 44249, Start Num: 32

Candidate Starts for Journey13_73:

(Start: 32 @44569 has 1 MA's), (49, 44413), (62, 44335), (69, 44257),

Gene: Jsquared_82 Start: 45959, Stop: 45690, Start Num: 39

Candidate Starts for Jsquared_82:

(Start: 39 @45959 has 25 MA's), (43, 45929), (48, 45863), (65, 45737), (68, 45704),

Gene: Juliette_89 Start: 53534, Stop: 53842, Start Num: 31
Candidate Starts for Juliette_89:
(Start: 31 @53534 has 14 MA's), (50, 53687), (59, 53735), (66, 53798),

Gene: Kalpine_81 Start: 47285, Stop: 47016, Start Num: 39
Candidate Starts for Kalpine_81:
(2, 47609), (Start: 39 @47285 has 25 MA's), (43, 47255), (48, 47189), (61, 47105),

Gene: Keziacharles14_78 Start: 46501, Stop: 46232, Start Num: 39
Candidate Starts for Keziacharles14_78:
(16, 46621), (Start: 39 @46501 has 25 MA's), (42, 46489), (48, 46405), (58, 46345), (61, 46321), (62, 46315), (68, 46246),

Gene: Koko_83 Start: 45940, Stop: 45671, Start Num: 39
Candidate Starts for Koko_83:
(Start: 39 @45940 has 25 MA's), (43, 45910), (48, 45844), (61, 45760), (65, 45718),

Gene: Landor_77 Start: 47461, Stop: 47198, Start Num: 41
Candidate Starts for Landor_77:
(10, 47629), (Start: 24 @47548 has 1 MA's), (37, 47476), (Start: 41 @47461 has 4 MA's), (52, 47347), (61, 47287), (65, 47245),

Gene: Lilbunny_81 Start: 45182, Stop: 44913, Start Num: 39
Candidate Starts for Lilbunny_81:
(Start: 39 @45182 has 25 MA's), (43, 45152), (48, 45086), (61, 45002), (65, 44960),

Gene: Lilleskat_78 Start: 45862, Stop: 45572, Start Num: 36
Candidate Starts for Lilleskat_78:
(Start: 35 @45865 has 3 MA's), (Start: 36 @45862 has 25 MA's), (40, 45838), (42, 45829), (55, 45697), (61, 45661),

Gene: LoneWolf_81 Start: 45915, Stop: 45625, Start Num: 36
Candidate Starts for LoneWolf_81:
(Start: 35 @45918 has 3 MA's), (Start: 36 @45915 has 25 MA's), (40, 45891), (42, 45882), (55, 45750), (61, 45714),

Gene: Malthus_88 Start: 53243, Stop: 53551, Start Num: 31
Candidate Starts for Malthus_88:
(Start: 31 @53243 has 14 MA's), (50, 53396), (59, 53444), (66, 53507),

Gene: Maminiaina_80 Start: 45832, Stop: 45542, Start Num: 36
Candidate Starts for Maminiaina_80:
(Start: 35 @45835 has 3 MA's), (Start: 36 @45832 has 25 MA's), (40, 45808), (42, 45799), (55, 45667), (61, 45631), (64, 45592),

Gene: Mitti_87 Start: 53399, Stop: 53707, Start Num: 31
Candidate Starts for Mitti_87:
(Start: 31 @53399 has 14 MA's), (50, 53552), (57, 53591), (59, 53600), (64, 53654), (66, 53663),

Gene: ModicumRichard_160 Start: 83726, Stop: 84076, Start Num: 28
Candidate Starts for ModicumRichard_160:
(Start: 28 @83726 has 3 MA's), (Start: 31 @83753 has 14 MA's),

Gene: Morgana_167 Start: 84185, Stop: 84532, Start Num: 27

Candidate Starts for Morgana_167:

(Start: 24 @84170 has 1 MA's), (Start: 27 @84185 has 1 MA's), (Start: 31 @84206 has 14 MA's), (44, 84278), (53, 84383), (58, 84422), (70, 84527),

Gene: Myxus_81 Start: 45903, Stop: 45613, Start Num: 36

Candidate Starts for Myxus_81:

(Start: 35 @45906 has 3 MA's), (Start: 36 @45903 has 25 MA's), (40, 45879), (42, 45870), (55, 45738), (61, 45702), (64, 45663),

Gene: ObLaDi_161 Start: 83725, Stop: 84075, Start Num: 28

Candidate Starts for ObLaDi_161:

(Start: 28 @83725 has 3 MA's), (Start: 31 @83752 has 14 MA's),

Gene: Odin_80 Start: 46431, Stop: 46162, Start Num: 39

Candidate Starts for Odin_80:

(Start: 39 @46431 has 25 MA's), (43, 46401), (48, 46335), (54, 46308), (65, 46209), (68, 46176),

Gene: OmniCritical_87 Start: 53401, Stop: 53709, Start Num: 31

Candidate Starts for OmniCritical_87:

(Start: 31 @53401 has 14 MA's), (50, 53554), (57, 53593), (59, 53602), (64, 53656), (66, 53665),

Gene: Onglai_79 Start: 44053, Stop: 43763, Start Num: 36

Candidate Starts for Onglai_79:

(Start: 35 @44056 has 3 MA's), (Start: 36 @44053 has 25 MA's), (40, 44029), (42, 44020), (47, 43951), (51, 43918), (55, 43888), (61, 43852),

Gene: PackMan_80 Start: 45778, Stop: 45488, Start Num: 36

Candidate Starts for PackMan_80:

(Start: 35 @45781 has 3 MA's), (Start: 36 @45778 has 25 MA's), (40, 45754), (42, 45745), (55, 45613), (61, 45577), (64, 45538),

Gene: Ph8s_82 Start: 46368, Stop: 46066, Start Num: 35

Candidate Starts for Ph8s_82:

(12, 46491), (Start: 35 @46368 has 3 MA's), (45, 46281), (55, 46191), (59, 46170), (60, 46158),

Gene: Phaded_74 Start: 47507, Stop: 47157, Start Num: 24

Candidate Starts for Phaded_74:

(10, 47588), (Start: 24 @47507 has 1 MA's), (37, 47435), (Start: 41 @47420 has 4 MA's), (52, 47306), (61, 47246), (65, 47204),

Gene: Phaeder_81 Start: 45778, Stop: 45488, Start Num: 36

Candidate Starts for Phaeder_81:

(Start: 35 @45781 has 3 MA's), (Start: 36 @45778 has 25 MA's), (40, 45754), (42, 45745), (55, 45613), (61, 45577), (64, 45538),

Gene: Pharaoh_74 Start: 45796, Stop: 45521, Start Num: 38

Candidate Starts for Pharaoh_74:

(Start: 38 @45796 has 1 MA's), (Start: 39 @45790 has 25 MA's), (43, 45760), (52, 45670), (55, 45646), (61, 45610), (65, 45568),

Gene: Phonnegut_81 Start: 45794, Stop: 45504, Start Num: 36

Candidate Starts for Phonnegut_81:

(Start: 35 @45797 has 3 MA's), (Start: 36 @45794 has 25 MA's), (40, 45770), (42, 45761), (47, 45692), (51, 45659), (55, 45629), (61, 45593),

Gene: Pioneer_81 Start: 45794, Stop: 45504, Start Num: 36

Candidate Starts for Pioneer_81:

(Start: 35 @45797 has 3 MA's), (Start: 36 @45794 has 25 MA's), (40, 45770), (42, 45761), (47, 45692), (51, 45659), (55, 45629), (61, 45593),

Gene: Priya_79 Start: 45563, Stop: 45282, Start Num: 36

Candidate Starts for Priya_79:

(5, 45752), (13, 45692), (23, 45641), (Start: 36 @45563 has 25 MA's), (40, 45548), (42, 45539), (55, 45407), (61, 45371), (64, 45332),

Gene: Qobbit_79 Start: 45525, Stop: 45244, Start Num: 36

Candidate Starts for Qobbit_79:

(23, 45603), (Start: 36 @45525 has 25 MA's), (40, 45510), (42, 45501), (55, 45369), (61, 45333), (64, 45294),

Gene: Quokka_80 Start: 45827, Stop: 45558, Start Num: 39

Candidate Starts for Quokka_80:

(Start: 39 @45827 has 25 MA's), (42, 45815), (43, 45797), (48, 45731), (60, 45650), (65, 45605), (67, 45578), (68, 45572),

Gene: Refuge_77 Start: 47109, Stop: 46849, Start Num: 39

Candidate Starts for Refuge_77:

(Start: 39 @47109 has 25 MA's), (48, 47013), (52, 46989), (61, 46938), (63, 46920),

Gene: Roksolana_82 Start: 45446, Stop: 45177, Start Num: 39

Candidate Starts for Roksolana_82:

(Start: 39 @45446 has 25 MA's), (43, 45416), (48, 45350), (61, 45266), (65, 45224),

Gene: Ruthiejr_89 Start: 53294, Stop: 53602, Start Num: 31

Candidate Starts for Ruthiejr_89:

(Start: 31 @53294 has 14 MA's), (50, 53447), (59, 53495), (66, 53558),

Gene: RyeScarlet_82 Start: 45769, Stop: 45479, Start Num: 36

Candidate Starts for RyeScarlet_82:

(Start: 35 @45772 has 3 MA's), (Start: 36 @45769 has 25 MA's), (40, 45745), (42, 45736), (47, 45667), (51, 45634), (55, 45604), (61, 45568),

Gene: Sachima_77 Start: 45806, Stop: 45516, Start Num: 36

Candidate Starts for Sachima_77:

(Start: 35 @45809 has 3 MA's), (Start: 36 @45806 has 25 MA's), (40, 45782), (42, 45773), (55, 45641), (61, 45605),

Gene: SamScheppers_86 Start: 53779, Stop: 54087, Start Num: 31

Candidate Starts for SamScheppers_86:

(Start: 31 @53779 has 14 MA's), (50, 53932), (57, 53971), (59, 53980), (64, 54034), (66, 54043),

Gene: Scherzo_79 Start: 45826, Stop: 45536, Start Num: 36

Candidate Starts for Scherzo_79:

(Start: 35 @45829 has 3 MA's), (Start: 36 @45826 has 25 MA's), (40, 45802), (42, 45793), (47, 45724), (51, 45691), (55, 45661), (61, 45625),

Gene: Serenity_82 Start: 46019, Stop: 45750, Start Num: 39

Candidate Starts for Serenity_82:

(Start: 39 @46019 has 25 MA's), (43, 45989), (48, 45923), (60, 45842), (65, 45797), (68, 45764),

Gene: SheaKeira_76 Start: 45229, Stop: 44906, Start Num: 29

Candidate Starts for SheaKeira_76:

(Start: 29 @45229 has 3 MA's), (47, 45091), (61, 44998),

Gene: Spouty_79 Start: 45562, Stop: 45281, Start Num: 36

Candidate Starts for Spouty_79:

(23, 45640), (Start: 36 @45562 has 25 MA's), (40, 45547), (42, 45538), (55, 45406), (61, 45370), (64, 45331),

Gene: Superchunk_81 Start: 46112, Stop: 45843, Start Num: 39

Candidate Starts for Superchunk_81:

(15, 46223), (Start: 39 @46112 has 25 MA's), (43, 46082), (48, 46016), (61, 45932),

Gene: SwirlSquare_84 Start: 45806, Stop: 45504, Start Num: 35

Candidate Starts for SwirlSquare_84:

(4, 46004), (8, 45956), (33, 45818), (Start: 35 @45806 has 3 MA's), (45, 45719), (55, 45629), (59, 45608), (60, 45596),

Gene: Taquito_87 Start: 53748, Stop: 54056, Start Num: 31

Candidate Starts for Taquito_87:

(Start: 31 @53748 has 14 MA's), (50, 53901), (57, 53940), (59, 53949), (64, 54003), (66, 54012),

Gene: TipsytheTRex_78 Start: 46021, Stop: 45752, Start Num: 39

Candidate Starts for TipsytheTRex_78:

(Start: 39 @46021 has 25 MA's), (43, 45991), (48, 45925), (60, 45844), (65, 45799), (68, 45766),

Gene: Toaka_79 Start: 45790, Stop: 45470, Start Num: 29

Candidate Starts for Toaka_79:

(9, 45904), (11, 45889), (Start: 29 @45790 has 3 MA's), (46, 45673), (51, 45622), (61, 45562),

Gene: ToneTone_79 Start: 45110, Stop: 44841, Start Num: 39

Candidate Starts for ToneTone_79:

(Start: 39 @45110 has 25 MA's), (43, 45080), (48, 45014), (61, 44930), (65, 44888),

Gene: Tubs_81 Start: 45778, Stop: 45488, Start Num: 36

Candidate Starts for Tubs_81:

(Start: 35 @45781 has 3 MA's), (Start: 36 @45778 has 25 MA's), (40, 45754), (42, 45745), (55, 45613), (61, 45577), (64, 45538),

Gene: Tucker_82 Start: 45313, Stop: 45044, Start Num: 39

Candidate Starts for Tucker_82:

(Start: 39 @45313 has 25 MA's), (43, 45283), (48, 45217), (61, 45133), (65, 45091),

Gene: Vanisoa_76 Start: 46019, Stop: 45729, Start Num: 36

Candidate Starts for Vanisoa_76:

(1, 46394), (13, 46148), (23, 46097), (Start: 36 @46019 has 25 MA's), (42, 45986), (48, 45902), (51, 45884), (55, 45854), (61, 45818),

Gene: WeiHuaDA_81 Start: 47572, Stop: 47303, Start Num: 39
Candidate Starts for WeiHuaDA_81:
(Start: 39 @47572 has 25 MA's), (43, 47542), (48, 47476), (61, 47392),

Gene: Wiks_81 Start: 45181, Stop: 44912, Start Num: 39
Candidate Starts for Wiks_81:
(Start: 39 @45181 has 25 MA's), (43, 45151), (48, 45085), (61, 45001), (65, 44959),

Gene: Wintermute_87 Start: 53471, Stop: 53779, Start Num: 31
Candidate Starts for Wintermute_87:
(Start: 31 @53471 has 14 MA's), (50, 53624), (59, 53672), (66, 53735),

Gene: WunderPhul_82 Start: 45179, Stop: 44910, Start Num: 39
Candidate Starts for WunderPhul_82:
(Start: 39 @45179 has 25 MA's), (43, 45149), (48, 45083), (61, 44999), (65, 44957),

Gene: Y10_83 Start: 53421, Stop: 53729, Start Num: 31
Candidate Starts for Y10_83:
(Start: 31 @53421 has 14 MA's), (50, 53574), (57, 53613), (59, 53622), (66, 53685),

Gene: Y2_83 Start: 53421, Stop: 53729, Start Num: 31
Candidate Starts for Y2_83:
(Start: 31 @53421 has 14 MA's), (50, 53574), (57, 53613), (59, 53622), (66, 53685),

Gene: Yokurt_81 Start: 45181, Stop: 44912, Start Num: 39
Candidate Starts for Yokurt_81:
(Start: 39 @45181 has 25 MA's), (43, 45151), (48, 45085), (61, 45001), (65, 44959),

Gene: Zaka_82 Start: 45181, Stop: 44912, Start Num: 39
Candidate Starts for Zaka_82:
(Start: 39 @45181 has 25 MA's), (43, 45151), (48, 45085), (61, 45001), (65, 44959),

Gene: Zimmer_77 Start: 46661, Stop: 46392, Start Num: 39
Candidate Starts for Zimmer_77:
(3, 46880), (7, 46832), (18, 46775), (20, 46760), (Start: 39 @46661 has 25 MA's), (43, 46631), (48, 46565), (61, 46481), (65, 46439),

Gene: Zulu_83 Start: 45559, Stop: 45290, Start Num: 39
Candidate Starts for Zulu_83:
(Start: 39 @45559 has 25 MA's), (43, 45529), (48, 45463), (61, 45379), (65, 45337),