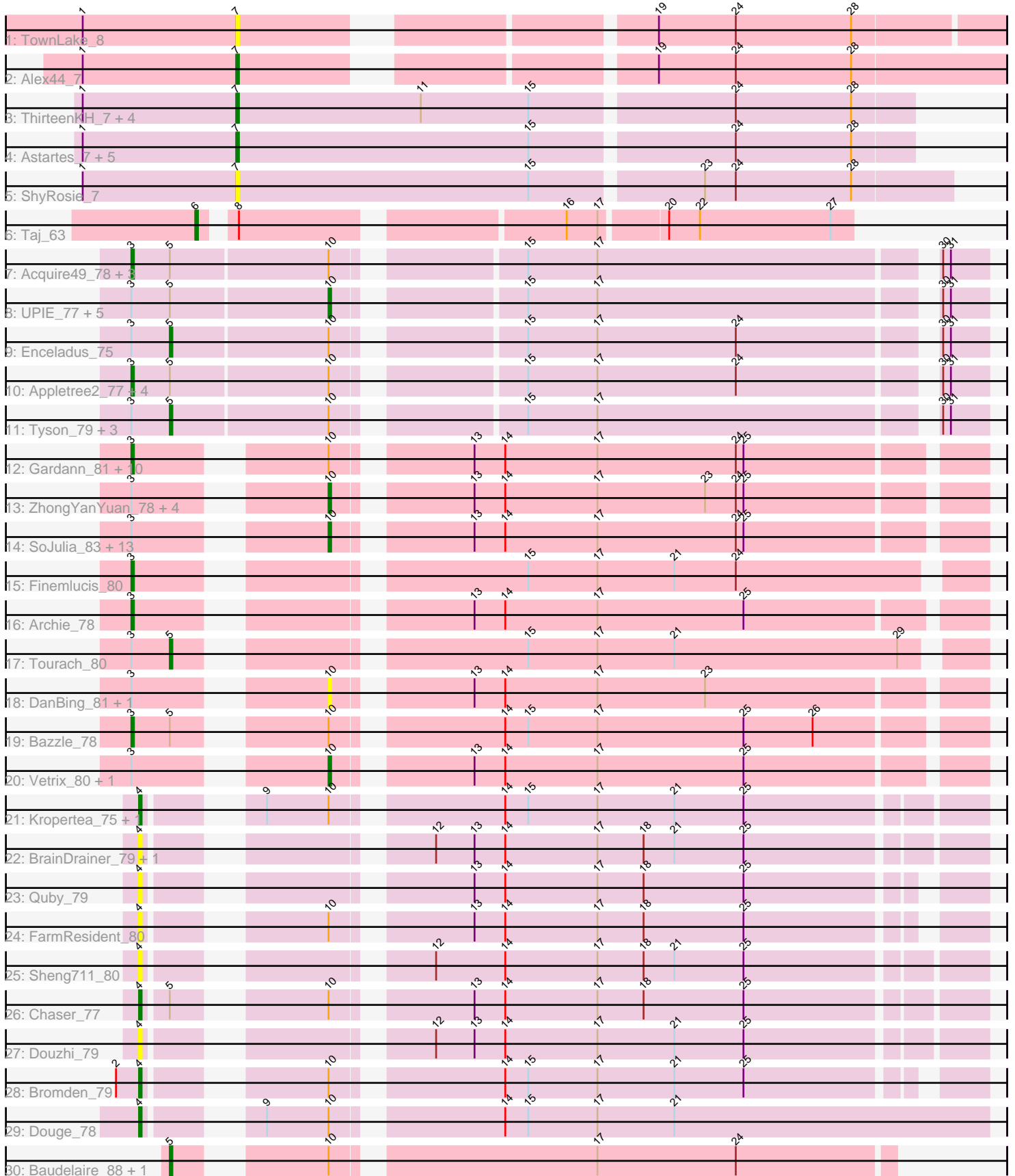


Pham 216075



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 216075 Report

This analysis was run 02/22/25 on database version 588.

Pham number 216075 has 86 members, 22 are drafts.

Phages represented in each track:

- Track 1 : TownLake_8
- Track 2 : Alex44_7
- Track 3 : ThirteenKH_7, TrippleS_7, Atraxi_7, Morrill_7, Yafa_7
- Track 4 : Astartes_7, RicoCaldo_7, PhriedRice_7, Fullmetal_7, Moleficent_7, StagePhright_7
- Track 5 : ShyRosie_7
- Track 6 : Taj_63
- Track 7 : Acquire49_78, MAckerman_76, Zaria_79, Wyatt2_79
- Track 8 : UPIE_77, Wamburggrxpress_78, AvadaKedavra_78, Rose5_78, LeBron_77, CicholasNage_75
- Track 9 : Enceladus_75
- Track 10 : Appletree2_77, OhShagHennessy_75, JoeDirt_78, DirkDirk_75, Poochiewood_76
- Track 11 : Tyson_79, Halena_76, Silverleaf_78, Calm_80
- Track 12 : Gardann_81, Kahlid_81, Faith1_81, Zakai_82, Winky_81, Miley16_81, Rumpelstiltskin_78, Itos_80, Wilder_82, MkaliMitinis3_82, Breezona_81
- Track 13 : ZhongYanYuan_78, DHan_84, Wigglewiggle_80, Hafay_82, Claus_81
- Track 14 : SoJulia_83, Loadrie_80, BobsGarage_81, Soap141_81, GuuelaD_79, DrSeegs_81, BigCheese_81, Nicholasp3_81, Lewan_82, Crossroads_81, Sarshaun_82, Netyap_82, Gabriela_80, Underpass_72
- Track 15 : Finemlucis_80
- Track 16 : Archie_78
- Track 17 : Tourach_80
- Track 18 : DanBing_81, Baoshan_78
- Track 19 : Bazzle_78
- Track 20 : Vatrix_80, LilDestine_80
- Track 21 : Kropertea_75, DyoEdafos_83
- Track 22 : BrainDrainer_79, PYPDinur_78
- Track 23 : Quby_79
- Track 24 : FarmResident_80
- Track 25 : Sheng711_80
- Track 26 : Chaser_77
- Track 27 : Douzhi_79
- Track 28 : Bromden_79
- Track 29 : Douge_78
- Track 30 : Baudelaire_88, Aegeus_88

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

The start number called the most often in the published annotations is 3, it was called in 22 of the 64 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acquire49_78, Appletree2_77, Archie_78, Bazzle_78, Breezona_81, DirkDirk_75, Faith1_81, Finemlucis_80, Gardann_81, Itos_80, JoeDirt_78, Kahlid_81, MAckerman_76, Miley16_81, MkaliMitinis3_82, OhShagHennessy_75, Poochiewood_76, Rumpelstiltskin_78, Wilder_82, Winky_81, Wyatt2_79, Zakai_82, Zaria_79,

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

- AvadaKedavra_78, Baoshan_78, BigCheese_81, BobsGarage_81, Calm_80, CicholasNage_75, Claus_81, Crossroads_81, DHan_84, DanBing_81, DrSeegs_81, Enceladus_75, Gabriela_80, GuuelaD_79, Hafay_82, Halena_76, LeBron_77, Lewan_82, LilDestine_80, Loadrie_80, Netyap_82, Nicholasp3_81, Rose5_78, Sarshaun_82, Silverleaf_78, SoJulia_83, Soap141_81, Tourach_80, Tyson_79, UPIE_77, Underpass_72, Vetrix_80, Wamburggrxpress_78, Wigglewiggle_80, ZhongYanYuan_78,

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

- Aegeus_88, Alex44_7, Astartes_7, Atraxi_7, Baudelaire_88, BrainDrainer_79, Bromden_79, Chaser_77, Douge_78, Douzhi_79, DyoEdafos_83, FarmResident_80, Fullmetal_7, Kropertea_75, Moleficent_7, Morrill_7, PYPDinur_78, PhriedRice_7, Quby_79, RicoCaldo_7, Sheng711_80, ShyRosie_7, StagePhright_7, Taj_63, ThirteenKH_7, TownLake_8, TrippleS_7, Yafa_7,

Summary by start number:

Start 3:

- Found in 58 of 86 (67.4%) of genes in pham
- Manual Annotations of this start: 22 of 64
- Called 39.7% of time when present
- Phage (with cluster) where this start called: Acquire49_78 (L1), Appletree2_77 (L1), Archie_78 (L2), Bazzle_78 (L2), Breezona_81 (L2), DirkDirk_75 (L1), Faith1_81 (L2), Finemlucis_80 (L2), Gardann_81 (L2), Itos_80 (L2), JoeDirt_78 (L1), Kahlid_81 (L2), MAckerman_76 (L1), Miley16_81 (L2), MkaliMitinis3_82 (L2), OhShagHennessy_75 (L1), Poochiewood_76 (L1), Rumpelstiltskin_78 (L2), Wilder_82 (L2), Winky_81 (L2), Wyatt2_79 (L1), Zakai_82 (L2), Zaria_79 (L1),

Start 4:

- Found in 11 of 86 (12.8%) of genes in pham
- Manual Annotations of this start: 4 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BrainDrainer_79 (L4), Bromden_79 (L4), Chaser_77 (L4), Douge_78 (L4), Douzhi_79 (L4), DyoEdafos_83 (L4), FarmResident_80 (L4), Kropertea_75 (L4), PYPDinur_78 (L4), Quby_79 (L4), Sheng711_80 (L4),

Start 5:

- Found in 25 of 86 (29.1%) of genes in pham
- Manual Annotations of this start: 8 of 64
- Called 32.0% of time when present
- Phage (with cluster) where this start called: Aegeus_88 (L5), Baudelaire_88 (L5), Calm_80 (L1), Enceladus_75 (L1), Halena_76 (L1), Silverleaf_78 (L1), Tourach_80 (L2), Tyson_79 (L1),

Start 6:

- Found in 1 of 86 (1.2%) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Taj_63 (F1),

Start 7:

- Found in 14 of 86 (16.3%) of genes in pham
- Manual Annotations of this start: 10 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alex44_7 (EK1), Astartes_7 (EK2), Atraxi_7 (EK2), Fullmetal_7 (EK2), Moleficent_7 (EK2), Morrill_7 (EK2), PhriedRice_7 (EK2), RicoCaldo_7 (EK2), ShyRosie_7 (EK2), StagePhright_7 (EK2), ThirteenKH_7 (EK2), TownLake_8 (EK1), TrippleS_7 (EK2), Yafa_7 (EK2),

Start 10:

- Found in 63 of 86 (73.3%) of genes in pham
- Manual Annotations of this start: 19 of 64
- Called 46.0% of time when present
- Phage (with cluster) where this start called: AvadaKedavra_78 (L1), Baoshan_78 (L2), BigCheese_81 (L2), BobsGarage_81 (L2), CicholasNage_75 (L1), Claus_81 (L2), Crossroads_81 (L2), DHan_84 (L2), DanBing_81 (L2), DrSeegs_81 (L2), Gabriela_80 (L2), GuuelaD_79 (L2), Hafay_82 (L2), LeBron_77 (L1), Lewan_82 (L2), LilDestine_80 (L2), Loadrie_80 (L2), Netyap_82 (L2), Nicholasp3_81 (L2), Rose5_78 (L1), Sarshaun_82 (L2), SoJulia_83 (L2), Soap141_81 (L2), UPIE_77 (L1), Underpass_72 (L2), Vetrix_80 (L2), Wamburgrxpress_78 (L1), Wigglewiggles_80 (L2), ZhongYanYuan_78 (L2),

Summary by clusters:

There are 7 clusters represented in this pham: F1, L4, L5, L2, L1, EK2, EK1,

Info for manual annotations of cluster EK1:

- Start number 7 was manually annotated 1 time for cluster EK1.

Info for manual annotations of cluster EK2:

- Start number 7 was manually annotated 9 times for cluster EK2.

Info for manual annotations of cluster F1:

- Start number 6 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster L1:

- Start number 3 was manually annotated 8 times for cluster L1.
- Start number 5 was manually annotated 5 times for cluster L1.
- Start number 10 was manually annotated 6 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 3 was manually annotated 14 times for cluster L2.
- Start number 5 was manually annotated 1 time for cluster L2.
- Start number 10 was manually annotated 13 times for cluster L2.

Info for manual annotations of cluster L4:

- Start number 4 was manually annotated 4 times for cluster L4.

Info for manual annotations of cluster L5:

- Start number 5 was manually annotated 2 times for cluster L5.

Gene Information:

Gene: Acquire49_78 Start: 52009, Stop: 52314, Start Num: 3

Candidate Starts for Acquire49_78:

(Start: 3 @52009 has 22 MA's), (Start: 5 @52024 has 8 MA's), (Start: 10 @52084 has 19 MA's), (15, 52147), (17, 52174), (30, 52297), (31, 52300),

Gene: Aegeus_88 Start: 54840, Stop: 55091, Start Num: 5

Candidate Starts for Aegeus_88:

(Start: 5 @54840 has 8 MA's), (Start: 10 @54885 has 19 MA's), (17, 54978), (24, 55032),

Gene: Alex44_7 Start: 5465, Stop: 5193, Start Num: 7

Candidate Starts for Alex44_7:

(1, 5525), (Start: 7 @5465 has 10 MA's), (19, 5327), (24, 5297), (28, 5252),

Gene: Appletree2_77 Start: 51620, Stop: 51925, Start Num: 3

Candidate Starts for Appletree2_77:

(Start: 3 @51620 has 22 MA's), (Start: 5 @51635 has 8 MA's), (Start: 10 @51695 has 19 MA's), (15, 51758), (17, 51785), (24, 51839), (30, 51908), (31, 51911),

Gene: Archie_78 Start: 53502, Stop: 53798, Start Num: 3

Candidate Starts for Archie_78:

(Start: 3 @53502 has 22 MA's), (13, 53607), (14, 53619), (17, 53655), (25, 53712),

Gene: Astartes_7 Start: 5219, Stop: 4962, Start Num: 7

Candidate Starts for Astartes_7:

(1, 5279), (Start: 7 @5219 has 10 MA's), (15, 5105), (24, 5030), (28, 4985),

Gene: Atraxi_7 Start: 5184, Stop: 4927, Start Num: 7

Candidate Starts for Atraxi_7:

(1, 5244), (Start: 7 @5184 has 10 MA's), (11, 5112), (15, 5070), (24, 4995), (28, 4950),

Gene: AvadaKedavra_78 Start: 52163, Stop: 52393, Start Num: 10

Candidate Starts for AvadaKedavra_78:

(Start: 3 @52088 has 22 MA's), (Start: 5 @52103 has 8 MA's), (Start: 10 @52163 has 19 MA's), (15, 52226), (17, 52253), (30, 52376), (31, 52379),

Gene: Baoshan_78 Start: 53848, Stop: 54084, Start Num: 10

Candidate Starts for Baoshan_78:

(Start: 3 @53788 has 22 MA's), (Start: 10 @53848 has 19 MA's), (13, 53893), (14, 53905), (17, 53941), (23, 53983),

Gene: Baudelaire_88 Start: 54840, Stop: 55091, Start Num: 5

Candidate Starts for Baudelaire_88:

(Start: 5 @54840 has 8 MA's), (Start: 10 @54885 has 19 MA's), (17, 54978), (24, 55032),

Gene: Bazzle_78 Start: 53691, Stop: 53987, Start Num: 3

Candidate Starts for Bazzle_78:

(Start: 3 @53691 has 22 MA's), (Start: 5 @53706 has 8 MA's), (Start: 10 @53751 has 19 MA's), (14, 53808), (15, 53817), (17, 53844), (25, 53901), (26, 53928),

Gene: BigCheese_81 Start: 53978, Stop: 54214, Start Num: 10

Candidate Starts for BigCheese_81:

(Start: 3 @53918 has 22 MA's), (Start: 10 @53978 has 19 MA's), (13, 54023), (14, 54035), (17, 54071), (24, 54125), (25, 54128),

Gene: BobsGarage_81 Start: 53978, Stop: 54214, Start Num: 10

Candidate Starts for BobsGarage_81:

(Start: 3 @53918 has 22 MA's), (Start: 10 @53978 has 19 MA's), (13, 54023), (14, 54035), (17, 54071), (24, 54125), (25, 54128),

Gene: BrainDrainer_79 Start: 52733, Stop: 53023, Start Num: 4

Candidate Starts for BrainDrainer_79:

(Start: 4 @52733 has 4 MA's), (12, 52817), (13, 52832), (14, 52844), (17, 52880), (18, 52898), (21, 52910), (25, 52937),

Gene: Breezona_81 Start: 53918, Stop: 54214, Start Num: 3

Candidate Starts for Breezona_81:

(Start: 3 @53918 has 22 MA's), (Start: 10 @53978 has 19 MA's), (13, 54023), (14, 54035), (17, 54071), (24, 54125), (25, 54128),

Gene: Bromden_79 Start: 53366, Stop: 53650, Start Num: 4

Candidate Starts for Bromden_79:

(2, 53357), (Start: 4 @53366 has 4 MA's), (Start: 10 @53420 has 19 MA's), (14, 53477), (15, 53486), (17, 53513), (21, 53543), (25, 53570),

Gene: Calm_80 Start: 52346, Stop: 52636, Start Num: 5

Candidate Starts for Calm_80:

(Start: 3 @52331 has 22 MA's), (Start: 5 @52346 has 8 MA's), (Start: 10 @52406 has 19 MA's), (15, 52469), (17, 52496), (30, 52619), (31, 52622),

Gene: Chaser_77 Start: 52365, Stop: 52655, Start Num: 4

Candidate Starts for Chaser_77:

(Start: 4 @52365 has 4 MA's), (Start: 5 @52374 has 8 MA's), (Start: 10 @52419 has 19 MA's), (13, 52464), (14, 52476), (17, 52512), (18, 52530), (25, 52569),

Gene: CicholasNage_75 Start: 51748, Stop: 51978, Start Num: 10

Candidate Starts for CicholasNage_75:

(Start: 3 @51673 has 22 MA's), (Start: 5 @51688 has 8 MA's), (Start: 10 @51748 has 19 MA's), (15, 51811), (17, 51838), (30, 51961), (31, 51964),

Gene: Claus_81 Start: 53913, Stop: 54149, Start Num: 10

Candidate Starts for Claus_81:

(Start: 3 @53853 has 22 MA's), (Start: 10 @53913 has 19 MA's), (13, 53958), (14, 53970), (17, 54006), (23, 54048), (24, 54060), (25, 54063),

Gene: Crossroads_81 Start: 54053, Stop: 54289, Start Num: 10

Candidate Starts for Crossroads_81:

(Start: 3 @53993 has 22 MA's), (Start: 10 @54053 has 19 MA's), (13, 54098), (14, 54110), (17, 54146), (24, 54200), (25, 54203),

Gene: DHan_84 Start: 54131, Stop: 54367, Start Num: 10

Candidate Starts for DHan_84:

(Start: 3 @54071 has 22 MA's), (Start: 10 @54131 has 19 MA's), (13, 54176), (14, 54188), (17, 54224), (23, 54266), (24, 54278), (25, 54281),

Gene: DanBing_81 Start: 53783, Stop: 54019, Start Num: 10

Candidate Starts for DanBing_81:

(Start: 3 @53723 has 22 MA's), (Start: 10 @53783 has 19 MA's), (13, 53828), (14, 53840), (17, 53876), (23, 53918),

Gene: DirkDirk_75 Start: 51200, Stop: 51505, Start Num: 3

Candidate Starts for DirkDirk_75:

(Start: 3 @51200 has 22 MA's), (Start: 5 @51215 has 8 MA's), (Start: 10 @51275 has 19 MA's), (15, 51338), (17, 51365), (24, 51419), (30, 51488), (31, 51491),

Gene: Douge_78 Start: 52288, Stop: 52587, Start Num: 4

Candidate Starts for Douge_78:

(Start: 4 @52288 has 4 MA's), (9, 52318), (Start: 10 @52342 has 19 MA's), (14, 52399), (15, 52408), (17, 52435), (21, 52465),

Gene: Douzhi_79 Start: 52550, Stop: 52840, Start Num: 4

Candidate Starts for Douzhi_79:

(Start: 4 @52550 has 4 MA's), (12, 52634), (13, 52649), (14, 52661), (17, 52697), (21, 52727), (25, 52754),

Gene: DrSeegs_81 Start: 53978, Stop: 54214, Start Num: 10

Candidate Starts for DrSeegs_81:

(Start: 3 @53918 has 22 MA's), (Start: 10 @53978 has 19 MA's), (13, 54023), (14, 54035), (17, 54071), (24, 54125), (25, 54128),

Gene: DyoEdafos_83 Start: 53198, Stop: 53488, Start Num: 4

Candidate Starts for DyoEdafos_83:

(Start: 4 @53198 has 4 MA's), (9, 53228), (Start: 10 @53252 has 19 MA's), (14, 53309), (15, 53318), (17, 53345), (21, 53375), (25, 53402),

Gene: Enceladus_75 Start: 51992, Stop: 52282, Start Num: 5

Candidate Starts for Enceladus_75:

(Start: 3 @51977 has 22 MA's), (Start: 5 @51992 has 8 MA's), (Start: 10 @52052 has 19 MA's), (15, 52115), (17, 52142), (24, 52196), (30, 52265), (31, 52268),

Gene: Faith1_81 Start: 53918, Stop: 54214, Start Num: 3

Candidate Starts for Faith1_81:

(Start: 3 @53918 has 22 MA's), (Start: 10 @53978 has 19 MA's), (13, 54023), (14, 54035), (17, 54071), (24, 54125), (25, 54128),

Gene: FarmResident_80 Start: 52292, Stop: 52576, Start Num: 4
Candidate Starts for FarmResident_80:
(Start: 4 @52292 has 4 MA's), (Start: 10 @52346 has 19 MA's), (13, 52391), (14, 52403), (17, 52439),
(18, 52457), (25, 52496),

Gene: Finemlucis_80 Start: 54386, Stop: 54682, Start Num: 3
Candidate Starts for Finemlucis_80:
(Start: 3 @54386 has 22 MA's), (15, 54512), (17, 54539), (21, 54569), (24, 54593),

Gene: Fullmetal_7 Start: 5216, Stop: 4959, Start Num: 7
Candidate Starts for Fullmetal_7:
(1, 5276), (Start: 7 @5216 has 10 MA's), (15, 5102), (24, 5027), (28, 4982),

Gene: Gabriela_80 Start: 53324, Stop: 53560, Start Num: 10
Candidate Starts for Gabriela_80:
(Start: 3 @53264 has 22 MA's), (Start: 10 @53324 has 19 MA's), (13, 53369), (14, 53381), (17, 53417),
(24, 53471), (25, 53474),

Gene: Gardann_81 Start: 53753, Stop: 54049, Start Num: 3
Candidate Starts for Gardann_81:
(Start: 3 @53753 has 22 MA's), (Start: 10 @53813 has 19 MA's), (13, 53858), (14, 53870), (17, 53906),
(24, 53960), (25, 53963),

Gene: GuuelaD_79 Start: 54093, Stop: 54329, Start Num: 10
Candidate Starts for GuuelaD_79:
(Start: 3 @54033 has 22 MA's), (Start: 10 @54093 has 19 MA's), (13, 54138), (14, 54150), (17, 54186),
(24, 54240), (25, 54243),

Gene: Hafay_82 Start: 53908, Stop: 54144, Start Num: 10
Candidate Starts for Hafay_82:
(Start: 3 @53848 has 22 MA's), (Start: 10 @53908 has 19 MA's), (13, 53953), (14, 53965), (17, 54001),
(23, 54043), (24, 54055), (25, 54058),

Gene: Halena_76 Start: 51262, Stop: 51552, Start Num: 5
Candidate Starts for Halena_76:
(Start: 3 @51247 has 22 MA's), (Start: 5 @51262 has 8 MA's), (Start: 10 @51322 has 19 MA's), (15,
51385), (17, 51412), (30, 51535), (31, 51538),

Gene: Itos_80 Start: 52824, Stop: 53120, Start Num: 3
Candidate Starts for Itos_80:
(Start: 3 @52824 has 22 MA's), (Start: 10 @52884 has 19 MA's), (13, 52929), (14, 52941), (17, 52977),
(24, 53031), (25, 53034),

Gene: JoeDirt_78 Start: 52575, Stop: 52880, Start Num: 3
Candidate Starts for JoeDirt_78:
(Start: 3 @52575 has 22 MA's), (Start: 5 @52590 has 8 MA's), (Start: 10 @52650 has 19 MA's), (15,
52713), (17, 52740), (24, 52794), (30, 52863), (31, 52866),

Gene: Kahlid_81 Start: 53924, Stop: 54220, Start Num: 3
Candidate Starts for Kahlid_81:
(Start: 3 @53924 has 22 MA's), (Start: 10 @53984 has 19 MA's), (13, 54029), (14, 54041), (17, 54077),
(24, 54131), (25, 54134),

Gene: Kropertea_75 Start: 52480, Stop: 52770, Start Num: 4

Candidate Starts for Kropertea_75:

(Start: 4 @52480 has 4 MA's), (9, 52510), (Start: 10 @52534 has 19 MA's), (14, 52591), (15, 52600), (17, 52627), (21, 52657), (25, 52684),

Gene: LeBron_77 Start: 51321, Stop: 51551, Start Num: 10

Candidate Starts for LeBron_77:

(Start: 3 @51246 has 22 MA's), (Start: 5 @51261 has 8 MA's), (Start: 10 @51321 has 19 MA's), (15, 51384), (17, 51411), (30, 51534), (31, 51537),

Gene: Lewan_82 Start: 54036, Stop: 54272, Start Num: 10

Candidate Starts for Lewan_82:

(Start: 3 @53976 has 22 MA's), (Start: 10 @54036 has 19 MA's), (13, 54081), (14, 54093), (17, 54129), (24, 54183), (25, 54186),

Gene: LilDestine_80 Start: 53888, Stop: 54124, Start Num: 10

Candidate Starts for LilDestine_80:

(Start: 3 @53828 has 22 MA's), (Start: 10 @53888 has 19 MA's), (13, 53933), (14, 53945), (17, 53981), (25, 54038),

Gene: Loadrie_80 Start: 54063, Stop: 54299, Start Num: 10

Candidate Starts for Loadrie_80:

(Start: 3 @54003 has 22 MA's), (Start: 10 @54063 has 19 MA's), (13, 54108), (14, 54120), (17, 54156), (24, 54210), (25, 54213),

Gene: MAckerman_76 Start: 51240, Stop: 51545, Start Num: 3

Candidate Starts for MAckerman_76:

(Start: 3 @51240 has 22 MA's), (Start: 5 @51255 has 8 MA's), (Start: 10 @51315 has 19 MA's), (15, 51378), (17, 51405), (30, 51528), (31, 51531),

Gene: Miley16_81 Start: 53918, Stop: 54214, Start Num: 3

Candidate Starts for Miley16_81:

(Start: 3 @53918 has 22 MA's), (Start: 10 @53978 has 19 MA's), (13, 54023), (14, 54035), (17, 54071), (24, 54125), (25, 54128),

Gene: MkaliMitinis3_82 Start: 53987, Stop: 54283, Start Num: 3

Candidate Starts for MkaliMitinis3_82:

(Start: 3 @53987 has 22 MA's), (Start: 10 @54047 has 19 MA's), (13, 54092), (14, 54104), (17, 54140), (24, 54194), (25, 54197),

Gene: Moleficient_7 Start: 5213, Stop: 4956, Start Num: 7

Candidate Starts for Moleficient_7:

(1, 5273), (Start: 7 @5213 has 10 MA's), (15, 5099), (24, 5024), (28, 4979),

Gene: Morrill_7 Start: 5168, Stop: 4911, Start Num: 7

Candidate Starts for Morrill_7:

(1, 5228), (Start: 7 @5168 has 10 MA's), (11, 5096), (15, 5054), (24, 4979), (28, 4934),

Gene: Netyap_82 Start: 53979, Stop: 54215, Start Num: 10

Candidate Starts for Netyap_82:

(Start: 3 @53919 has 22 MA's), (Start: 10 @53979 has 19 MA's), (13, 54024), (14, 54036), (17, 54072), (24, 54126), (25, 54129),

Gene: Nicholasp3_81 Start: 53813, Stop: 54049, Start Num: 10

Candidate Starts for Nicholasp3_81:

(Start: 3 @53753 has 22 MA's), (Start: 10 @53813 has 19 MA's), (13, 53858), (14, 53870), (17, 53906), (24, 53960), (25, 53963),

Gene: OhShagHennessy_75 Start: 51278, Stop: 51583, Start Num: 3

Candidate Starts for OhShagHennessy_75:

(Start: 3 @51278 has 22 MA's), (Start: 5 @51293 has 8 MA's), (Start: 10 @51353 has 19 MA's), (15, 51416), (17, 51443), (24, 51497), (30, 51566), (31, 51569),

Gene: PYPDinur_78 Start: 52985, Stop: 53275, Start Num: 4

Candidate Starts for PYPDinur_78:

(Start: 4 @52985 has 4 MA's), (12, 53069), (13, 53084), (14, 53096), (17, 53132), (18, 53150), (21, 53162), (25, 53189),

Gene: PhriedRice_7 Start: 5180, Stop: 4923, Start Num: 7

Candidate Starts for PhriedRice_7:

(1, 5240), (Start: 7 @5180 has 10 MA's), (15, 5066), (24, 4991), (28, 4946),

Gene: Poochiewood_76 Start: 52583, Stop: 52888, Start Num: 3

Candidate Starts for Poochiewood_76:

(Start: 3 @52583 has 22 MA's), (Start: 5 @52598 has 8 MA's), (Start: 10 @52658 has 19 MA's), (15, 52721), (17, 52748), (24, 52802), (30, 52871), (31, 52874),

Gene: Quby_79 Start: 52316, Stop: 52600, Start Num: 4

Candidate Starts for Quby_79:

(Start: 4 @52316 has 4 MA's), (13, 52415), (14, 52427), (17, 52463), (18, 52481), (25, 52520),

Gene: RicoCaldo_7 Start: 5210, Stop: 4953, Start Num: 7

Candidate Starts for RicoCaldo_7:

(1, 5270), (Start: 7 @5210 has 10 MA's), (15, 5096), (24, 5021), (28, 4976),

Gene: Rose5_78 Start: 52495, Stop: 52725, Start Num: 10

Candidate Starts for Rose5_78:

(Start: 3 @52420 has 22 MA's), (Start: 5 @52435 has 8 MA's), (Start: 10 @52495 has 19 MA's), (15, 52558), (17, 52585), (30, 52708), (31, 52711),

Gene: Rumpelstiltskin_78 Start: 53546, Stop: 53842, Start Num: 3

Candidate Starts for Rumpelstiltskin_78:

(Start: 3 @53546 has 22 MA's), (Start: 10 @53606 has 19 MA's), (13, 53651), (14, 53663), (17, 53699), (24, 53753), (25, 53756),

Gene: Sarshaun_82 Start: 54071, Stop: 54307, Start Num: 10

Candidate Starts for Sarshaun_82:

(Start: 3 @54011 has 22 MA's), (Start: 10 @54071 has 19 MA's), (13, 54116), (14, 54128), (17, 54164), (24, 54218), (25, 54221),

Gene: Sheng711_80 Start: 52619, Stop: 52909, Start Num: 4

Candidate Starts for Sheng711_80:

(Start: 4 @52619 has 4 MA's), (12, 52703), (14, 52730), (17, 52766), (18, 52784), (21, 52796), (25, 52823),

Gene: ShyRosie_7 Start: 5195, Stop: 4923, Start Num: 7
Candidate Starts for ShyRosie_7:
(1, 5255), (Start: 7 @5195 has 10 MA's), (15, 5081), (23, 5018), (24, 5006), (28, 4961),

Gene: Silverleaf_78 Start: 51891, Stop: 52181, Start Num: 5
Candidate Starts for Silverleaf_78:
(Start: 3 @51876 has 22 MA's), (Start: 5 @51891 has 8 MA's), (Start: 10 @51951 has 19 MA's), (15, 52014), (17, 52041), (30, 52164), (31, 52167),

Gene: SoJulia_83 Start: 55139, Stop: 55375, Start Num: 10
Candidate Starts for SoJulia_83:
(Start: 3 @55079 has 22 MA's), (Start: 10 @55139 has 19 MA's), (13, 55184), (14, 55196), (17, 55232), (24, 55286), (25, 55289),

Gene: Soap141_81 Start: 54071, Stop: 54307, Start Num: 10
Candidate Starts for Soap141_81:
(Start: 3 @54011 has 22 MA's), (Start: 10 @54071 has 19 MA's), (13, 54116), (14, 54128), (17, 54164), (24, 54218), (25, 54221),

Gene: StagePhright_7 Start: 5180, Stop: 4923, Start Num: 7
Candidate Starts for StagePhright_7:
(1, 5240), (Start: 7 @5180 has 10 MA's), (15, 5066), (24, 4991), (28, 4946),

Gene: Taj_63 Start: 41748, Stop: 41978, Start Num: 6
Candidate Starts for Taj_63:
(Start: 6 @41748 has 1 MA's), (8, 41757), (16, 41871), (17, 41883), (20, 41907), (22, 41919), (27, 41970),

Gene: ThirteenKH_7 Start: 5168, Stop: 4911, Start Num: 7
Candidate Starts for ThirteenKH_7:
(1, 5228), (Start: 7 @5168 has 10 MA's), (11, 5096), (15, 5054), (24, 4979), (28, 4934),

Gene: Tourach_80 Start: 54051, Stop: 54332, Start Num: 5
Candidate Starts for Tourach_80:
(Start: 3 @54036 has 22 MA's), (Start: 5 @54051 has 8 MA's), (15, 54162), (17, 54189), (21, 54219), (29, 54306),

Gene: TownLake_8 Start: 5549, Stop: 5280, Start Num: 7
Candidate Starts for TownLake_8:
(1, 5609), (Start: 7 @5549 has 10 MA's), (19, 5411), (24, 5381), (28, 5336),

Gene: TrippleS_7 Start: 5168, Stop: 4911, Start Num: 7
Candidate Starts for TrippleS_7:
(1, 5228), (Start: 7 @5168 has 10 MA's), (11, 5096), (15, 5054), (24, 4979), (28, 4934),

Gene: Tyson_79 Start: 52361, Stop: 52651, Start Num: 5
Candidate Starts for Tyson_79:
(Start: 3 @52346 has 22 MA's), (Start: 5 @52361 has 8 MA's), (Start: 10 @52421 has 19 MA's), (15, 52484), (17, 52511), (30, 52634), (31, 52637),

Gene: UPIE_77 Start: 52017, Stop: 52247, Start Num: 10
Candidate Starts for UPIE_77:

(Start: 3 @51942 has 22 MA's), (Start: 5 @51957 has 8 MA's), (Start: 10 @52017 has 19 MA's), (15, 52080), (17, 52107), (30, 52230), (31, 52233),

Gene: Underpass_72 Start: 48849, Stop: 49085, Start Num: 10

Candidate Starts for Underpass_72:

(Start: 3 @48789 has 22 MA's), (Start: 10 @48849 has 19 MA's), (13, 48894), (14, 48906), (17, 48942), (24, 48996), (25, 48999),

Gene: Vetrix_80 Start: 53895, Stop: 54131, Start Num: 10

Candidate Starts for Vetrix_80:

(Start: 3 @53835 has 22 MA's), (Start: 10 @53895 has 19 MA's), (13, 53940), (14, 53952), (17, 53988), (25, 54045),

Gene: Wamburgexpress_78 Start: 52456, Stop: 52686, Start Num: 10

Candidate Starts for Wamburgexpress_78:

(Start: 3 @52381 has 22 MA's), (Start: 5 @52396 has 8 MA's), (Start: 10 @52456 has 19 MA's), (15, 52519), (17, 52546), (30, 52669), (31, 52672),

Gene: Wigglewobble_80 Start: 53840, Stop: 54076, Start Num: 10

Candidate Starts for Wigglewobble_80:

(Start: 3 @53780 has 22 MA's), (Start: 10 @53840 has 19 MA's), (13, 53885), (14, 53897), (17, 53933), (23, 53975), (24, 53987), (25, 53990),

Gene: Wilder_82 Start: 53924, Stop: 54220, Start Num: 3

Candidate Starts for Wilder_82:

(Start: 3 @53924 has 22 MA's), (Start: 10 @53984 has 19 MA's), (13, 54029), (14, 54041), (17, 54077), (24, 54131), (25, 54134),

Gene: Winky_81 Start: 53918, Stop: 54214, Start Num: 3

Candidate Starts for Winky_81:

(Start: 3 @53918 has 22 MA's), (Start: 10 @53978 has 19 MA's), (13, 54023), (14, 54035), (17, 54071), (24, 54125), (25, 54128),

Gene: Wyatt2_79 Start: 52344, Stop: 52649, Start Num: 3

Candidate Starts for Wyatt2_79:

(Start: 3 @52344 has 22 MA's), (Start: 5 @52359 has 8 MA's), (Start: 10 @52419 has 19 MA's), (15, 52482), (17, 52509), (30, 52632), (31, 52635),

Gene: Yafa_7 Start: 5183, Stop: 4926, Start Num: 7

Candidate Starts for Yafa_7:

(1, 5243), (Start: 7 @5183 has 10 MA's), (11, 5111), (15, 5069), (24, 4994), (28, 4949),

Gene: Zakai_82 Start: 54244, Stop: 54540, Start Num: 3

Candidate Starts for Zakai_82:

(Start: 3 @54244 has 22 MA's), (Start: 10 @54304 has 19 MA's), (13, 54349), (14, 54361), (17, 54397), (24, 54451), (25, 54454),

Gene: Zaria_79 Start: 51796, Stop: 52101, Start Num: 3

Candidate Starts for Zaria_79:

(Start: 3 @51796 has 22 MA's), (Start: 5 @51811 has 8 MA's), (Start: 10 @51871 has 19 MA's), (15, 51934), (17, 51961), (30, 52084), (31, 52087),

Gene: ZhongYanYuan_78 Start: 53431, Stop: 53667, Start Num: 10

Candidate Starts for ZhongYanYuan_78:

(Start: 3 @53371 has 22 MA's), (Start: 10 @53431 has 19 MA's), (13, 53476), (14, 53488), (17, 53524),
(23, 53566), (24, 53578), (25, 53581),