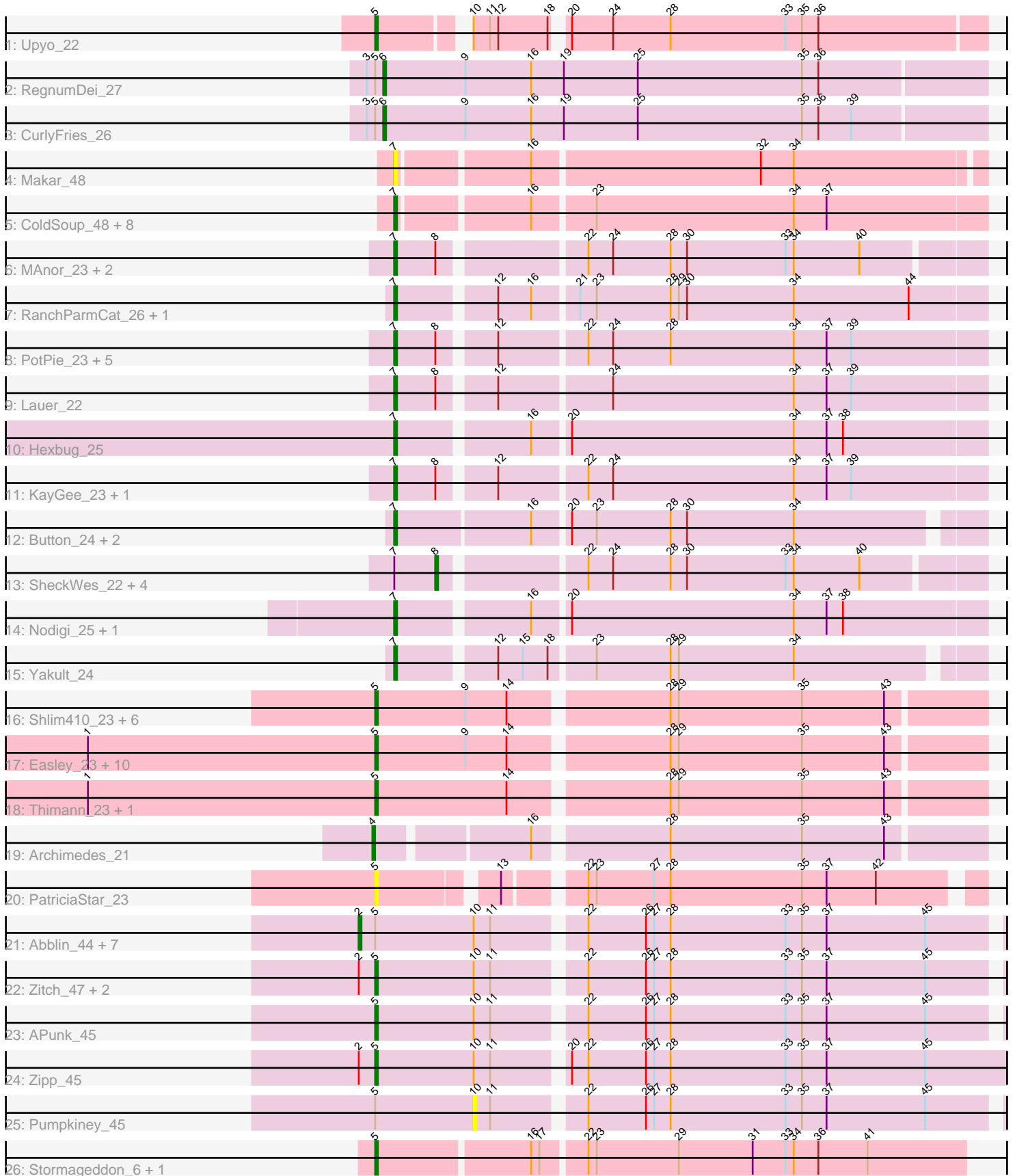


Pham 296508



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 296508 Report

This analysis was run 04/25/26 on database version 644.

Pham number 296508 has 77 members, 15 are drafts.

Phages represented in each track:

- Track 1 : Upyo_22
- Track 2 : RegnumDei_27
- Track 3 : CurlyFries_26
- Track 4 : Makar_48
- Track 5 : ColdSoup_48, Stillion_47, Amo99_48, KingstonB_48, Soos_43, Grumio_47, DonTron_47, Jollymon_47, Sting_46
- Track 6 : MAnor_23, Pons_23, Mayweather_24
- Track 7 : RanchParmCat_26, Margaret_26
- Track 8 : PotPie_23, Vine_24, Yucky_23, BigChungus_22, SummitAcademy_22, Feastonyeet_22
- Track 9 : Lauer_22
- Track 10 : Hexbug_25
- Track 11 : KayGee_23, Elinal_24
- Track 12 : Button_24, Jamzy_26, GiKK_26
- Track 13 : SheckWes_22, ElJefes_22, Tarnish_23, McDazzle_22, CherryonLim_24
- Track 14 : Nodigi_25, Orla_25
- Track 15 : Yakult_24
- Track 16 : Shlim410_23, Howe_23, Beenie_23, Twinkle_23, Mcklovin_23, Hortense_23, Adora_23
- Track 17 : Easley_23, MichaelScott_23, Dolores_23, Samman98_23, Rizz_26, Sekhmet_23, WinkNick_23, Clark_23, Annalisa_23, Oregano_23, DobbysSock_22
- Track 18 : Thimann_23, Suerte_21
- Track 19 : Archimedes_21
- Track 20 : PatriciaStar_23
- Track 21 : Abblin_44, Scioto_45, Delrey21_44, Natkenzie_44, Tardus_45, BigHunkinEater_46, DoctorFroggo_44, Verity_44
- Track 22 : Zitch_47, Sampson_44, ViaConlectus_44
- Track 23 : APunk_45
- Track 24 : Zipp_45
- Track 25 : Pumpkiney_45
- Track 26 : Stormageddon_6, RedWattleHog_6

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

The start number called the most often in the published annotations is 5, it was called in 27 of the 62 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- APunk_45, Adora_23, Annalisa_23, Beenie_23, Clark_23, DobbysSock_22, Dolores_23, Easley_23, Hortense_23, Howe_23, Mcklovin_23, MichaelScott_23, Oregano_23, PatriciaStar_23, RedWattleHog_6, Rizz_26, Samman98_23, Sampson_44, Sekhmet_23, Shlim410_23, Stormageddon_6, Suerte_21, Thimann_23, Twinkle_23, Upyo_22, ViaConlectus_44, WinkNick_23, Zipp_45, Zitch_47,

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

- Abblin_44, BigHunkinEater_46, CurlyFries_26, Delrey21_44, DoctorFroggo_44, Natkenzie_44, Pumpkiney_45, RegnumDei_27, Scioto_45, Tardus_45, Verity_44,

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

- Amo99_48, Archimedes_21, BigChungus_22, Button_24, CherryonLim_24, ColdSoup_48, DonTron_47, ElJefes_22, Elinal_24, Feastonyeet_22, GiKK_26, Grumio_47, Hexbug_25, Jamzy_26, Jollymon_47, KayGee_23, KingstonB_48, Lauer_22, MAnor_23, Makar_48, Margaret_26, Mayweather_24, McDazzle_22, Nodigi_25, Orla_25, Pons_23, PotPie_23, RanchParmCat_26, SheckWes_22, Soos_43, Stillion_47, Sting_46, SummitAcademy_22, Tarnish_23, Vine_24, Yakult_24, Yucky_23,

Summary by start number:

Start 2:

- Found in 12 of 77 (15.6%) of genes in pham
- Manual Annotations of this start: 4 of 62
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Abblin_44 (DE4), BigHunkinEater_46 (DE4), Delrey21_44 (DE4), DoctorFroggo_44 (DE4), Natkenzie_44 (DE4), Scioto_45 (DE4), Tardus_45 (DE4), Verity_44 (DE4),

Start 4:

- Found in 1 of 77 (1.3%) of genes in pham
- Manual Annotations of this start: 1 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Archimedes_21 (DA),

Start 5:

- Found in 40 of 77 (51.9%) of genes in pham
- Manual Annotations of this start: 27 of 62
- Called 72.5% of time when present
- Phage (with cluster) where this start called: APunk_45 (DE4), Adora_23 (CZ4), Annalisa_23 (CZ4), Beenie_23 (CZ4), Clark_23 (CZ4), DobbysSock_22 (CZ4), Dolores_23 (CZ4), Easley_23 (CZ4), Hortense_23 (CZ4), Howe_23 (CZ4), Mcklovin_23 (CZ4), MichaelScott_23 (CZ4), Oregano_23 (CZ4), PatriciaStar_23 (DB), RedWattleHog_6 (DX), Rizz_26 (CZ4), Samman98_23 (CZ4), Sampson_44 (DE4), Sekhmet_23 (CZ4), Shlim410_23 (CZ4), Stormageddon_6 (DX), Suerte_21 (CZ4), Thimann_23 (CZ4), Twinkle_23 (CZ4), Upyo_22 (CD), ViaConlectus_44 (DE4), WinkNick_23 (CZ4), Zipp_45 (DE4), Zitch_47 (DE4),

Start 6:

- Found in 2 of 77 (2.6%) of genes in pham
- Manual Annotations of this start: 2 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CurlyFries_26 (CF), RegnumDei_27 (CF),

Start 7:

- Found in 36 of 77 (46.8%) of genes in pham
- Manual Annotations of this start: 25 of 62
- Called 86.1% of time when present
- Phage (with cluster) where this start called: Amo99_48 (CP), BigChungus_22 (CT), Button_24 (CT), ColdSoup_48 (CP), DonTron_47 (CP), Elinal_24 (CT), Feastonyeet_22 (CT), GiKK_26 (CT), Grumio_47 (CP), Hexbug_25 (CT), Jamzy_26 (CT), Jollymon_47 (CP), KayGee_23 (CT), KingstonB_48 (CP), Lauer_22 (CT), MAnor_23 (CT), Makar_48 (CP), Margaret_26 (CT), Mayweather_24 (CT), Nodigi_25 (CT), Orla_25 (CT), Pons_23 (CT), PotPie_23 (CT), RanchParmCat_26 (CT), Soos_43 (CP), Stillion_47 (CP), Sting_46 (CP), SummitAcademy_22 (CT), Vine_24 (CT), Yakult_24 (CT), Yucky_23 (CT),

Start 8:

- Found in 17 of 77 (22.1%) of genes in pham
- Manual Annotations of this start: 3 of 62
- Called 29.4% of time when present
- Phage (with cluster) where this start called: CherryonLim_24 (CT), ElJefes_22 (CT), McDazzle_22 (CT), SheckWes_22 (CT), Tarnish_23 (CT),

Start 10:

- Found in 15 of 77 (19.5%) of genes in pham
- No Manual Annotations of this start.
- Called 6.7% of time when present
- Phage (with cluster) where this start called: Pumpkiney_45 (DE4),

Summary by clusters:

There are 9 clusters represented in this pham: DB, DE4, CF, CZ4, DA, CD, DX, CP, CT,

Info for manual annotations of cluster CD:

- Start number 5 was manually annotated 1 time for cluster CD.

Info for manual annotations of cluster CF:

- Start number 6 was manually annotated 2 times for cluster CF.

Info for manual annotations of cluster CP:

- Start number 7 was manually annotated 4 times for cluster CP.

Info for manual annotations of cluster CT:

- Start number 7 was manually annotated 21 times for cluster CT.
- Start number 8 was manually annotated 3 times for cluster CT.

Info for manual annotations of cluster CZ4:

- Start number 5 was manually annotated 19 times for cluster CZ4.

Info for manual annotations of cluster DA:

- Start number 4 was manually annotated 1 time for cluster DA.

Info for manual annotations of cluster DE4:

- Start number 2 was manually annotated 4 times for cluster DE4.
- Start number 5 was manually annotated 5 times for cluster DE4.

Info for manual annotations of cluster DX:

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

Gene Information:

Gene: APunk_45 Start: 39354, Stop: 39626, Start Num: 5

Candidate Starts for APunk_45:

(Start: 5 @39354 has 27 MA's), (10, 39390), (11, 39396), (22, 39426), (26, 39447), (27, 39450), (28, 39456), (33, 39498), (35, 39504), (37, 39513), (45, 39549),

Gene: Abblin_44 Start: 39885, Stop: 40163, Start Num: 2

Candidate Starts for Abblin_44:

(Start: 2 @39885 has 4 MA's), (Start: 5 @39891 has 27 MA's), (10, 39927), (11, 39933), (22, 39963), (26, 39984), (27, 39987), (28, 39993), (33, 40035), (35, 40041), (37, 40050), (45, 40086),

Gene: Adora_23 Start: 21051, Stop: 21284, Start Num: 5

Candidate Starts for Adora_23:

(Start: 5 @21051 has 27 MA's), (9, 21084), (14, 21099), (28, 21153), (29, 21156), (35, 21201), (43, 21231),

Gene: Amo99_48 Start: 26255, Stop: 26506, Start Num: 7

Candidate Starts for Amo99_48:

(Start: 7 @26255 has 25 MA's), (16, 26300), (23, 26321), (34, 26393), (37, 26405),

Gene: Annalisa_23 Start: 20513, Stop: 20746, Start Num: 5

Candidate Starts for Annalisa_23:

(1, 20408), (Start: 5 @20513 has 27 MA's), (9, 20546), (14, 20561), (28, 20615), (29, 20618), (35, 20663), (43, 20693),

Gene: Archimedes_21 Start: 19115, Stop: 19348, Start Num: 4

Candidate Starts for Archimedes_21:

(Start: 4 @19115 has 1 MA's), (16, 19166), (28, 19211), (35, 19259), (43, 19289),

Gene: Beenie_23 Start: 20870, Stop: 21103, Start Num: 5

Candidate Starts for Beenie_23:

(Start: 5 @20870 has 27 MA's), (9, 20903), (14, 20918), (28, 20972), (29, 20975), (35, 21020), (43, 21050),

Gene: BigChungus_22 Start: 19520, Stop: 19759, Start Num: 7

Candidate Starts for BigChungus_22:

(Start: 7 @19520 has 25 MA's), (Start: 8 @19535 has 3 MA's), (12, 19553), (22, 19583), (24, 19592), (28, 19613), (34, 19658), (37, 19670), (39, 19679),

Gene: BigHunkinEater_46 Start: 39126, Stop: 39404, Start Num: 2

Candidate Starts for BigHunkinEater_46:

(Start: 2 @39126 has 4 MA's), (Start: 5 @39132 has 27 MA's), (10, 39168), (11, 39174), (22, 39204), (26, 39225), (27, 39228), (28, 39234), (33, 39276), (35, 39282), (37, 39291), (45, 39327),

Gene: Button_24 Start: 18830, Stop: 19045, Start Num: 7

Candidate Starts for Button_24:

(Start: 7 @18830 has 25 MA's), (16, 18878), (20, 18890), (23, 18899), (28, 18926), (30, 18932), (34, 18971),

Gene: CherryonLim_24 Start: 20248, Stop: 20469, Start Num: 8

Candidate Starts for CherryonLim_24:

(Start: 7 @20233 has 25 MA's), (Start: 8 @20248 has 3 MA's), (22, 20296), (24, 20305), (28, 20326), (30, 20332), (33, 20368), (34, 20371), (40, 20395),

Gene: Clark_23 Start: 20513, Stop: 20746, Start Num: 5

Candidate Starts for Clark_23:

(1, 20408), (Start: 5 @20513 has 27 MA's), (9, 20546), (14, 20561), (28, 20615), (29, 20618), (35, 20663), (43, 20693),

Gene: ColdSoup_48 Start: 26255, Stop: 26506, Start Num: 7

Candidate Starts for ColdSoup_48:

(Start: 7 @26255 has 25 MA's), (16, 26300), (23, 26321), (34, 26393), (37, 26405),

Gene: CurlyFries_26 Start: 25359, Stop: 25610, Start Num: 6

Candidate Starts for CurlyFries_26:

(3, 25353), (Start: 5 @25356 has 27 MA's), (Start: 6 @25359 has 2 MA's), (9, 25389), (16, 25413), (19, 25425), (25, 25452), (35, 25512), (36, 25518), (39, 25530),

Gene: Delrey21_44 Start: 40650, Stop: 40928, Start Num: 2

Candidate Starts for Delrey21_44:

(Start: 2 @40650 has 4 MA's), (Start: 5 @40656 has 27 MA's), (10, 40692), (11, 40698), (22, 40728), (26, 40749), (27, 40752), (28, 40758), (33, 40800), (35, 40806), (37, 40815), (45, 40851),

Gene: DobbysSock_22 Start: 19987, Stop: 20220, Start Num: 5

Candidate Starts for DobbysSock_22:

(1, 19882), (Start: 5 @19987 has 27 MA's), (9, 20020), (14, 20035), (28, 20089), (29, 20092), (35, 20137), (43, 20167),

Gene: DoctorFroggo_44 Start: 40650, Stop: 40928, Start Num: 2

Candidate Starts for DoctorFroggo_44:

(Start: 2 @40650 has 4 MA's), (Start: 5 @40656 has 27 MA's), (10, 40692), (11, 40698), (22, 40728), (26, 40749), (27, 40752), (28, 40758), (33, 40800), (35, 40806), (37, 40815), (45, 40851),

Gene: Dolores_23 Start: 20489, Stop: 20722, Start Num: 5

Candidate Starts for Dolores_23:

(1, 20384), (Start: 5 @20489 has 27 MA's), (9, 20522), (14, 20537), (28, 20591), (29, 20594), (35, 20639), (43, 20669),

Gene: DonTron_47 Start: 26295, Stop: 26546, Start Num: 7

Candidate Starts for DonTron_47:

(Start: 7 @26295 has 25 MA's), (16, 26340), (23, 26361), (34, 26433), (37, 26445),

Gene: Easley_23 Start: 20499, Stop: 20732, Start Num: 5

Candidate Starts for Easley_23:

(1, 20394), (Start: 5 @20499 has 27 MA's), (9, 20532), (14, 20547), (28, 20601), (29, 20604), (35, 20649), (43, 20679),

Gene: ElJefes_22 Start: 19971, Stop: 20192, Start Num: 8

Candidate Starts for ElJefes_22:

(Start: 7 @19956 has 25 MA's), (Start: 8 @19971 has 3 MA's), (22, 20019), (24, 20028), (28, 20049), (30, 20055), (33, 20091), (34, 20094), (40, 20118),

Gene: Elinal_24 Start: 19473, Stop: 19712, Start Num: 7

Candidate Starts for Elinal_24:

(Start: 7 @19473 has 25 MA's), (Start: 8 @19488 has 3 MA's), (12, 19506), (22, 19536), (24, 19545), (34, 19611), (37, 19623), (39, 19632),

Gene: Feastonyeet_22 Start: 19520, Stop: 19759, Start Num: 7

Candidate Starts for Feastonyeet_22:

(Start: 7 @19520 has 25 MA's), (Start: 8 @19535 has 3 MA's), (12, 19553), (22, 19583), (24, 19592), (28, 19613), (34, 19658), (37, 19670), (39, 19679),

Gene: GiKK_26 Start: 19129, Stop: 19344, Start Num: 7

Candidate Starts for GiKK_26:

(Start: 7 @19129 has 25 MA's), (16, 19177), (20, 19189), (23, 19198), (28, 19225), (30, 19231), (34, 19270),

Gene: Grumio_47 Start: 25733, Stop: 25984, Start Num: 7

Candidate Starts for Grumio_47:

(Start: 7 @25733 has 25 MA's), (16, 25778), (23, 25799), (34, 25871), (37, 25883),

Gene: Hexbug_25 Start: 19814, Stop: 20032, Start Num: 7

Candidate Starts for Hexbug_25:

(Start: 7 @19814 has 25 MA's), (16, 19859), (20, 19871), (34, 19952), (37, 19964), (38, 19970),

Gene: Hortense_23 Start: 21098, Stop: 21331, Start Num: 5

Candidate Starts for Hortense_23:

(Start: 5 @21098 has 27 MA's), (9, 21131), (14, 21146), (28, 21200), (29, 21203), (35, 21248), (43, 21278),

Gene: Howe_23 Start: 21098, Stop: 21331, Start Num: 5

Candidate Starts for Howe_23:

(Start: 5 @21098 has 27 MA's), (9, 21131), (14, 21146), (28, 21200), (29, 21203), (35, 21248), (43, 21278),

Gene: Jamzy_26 Start: 19143, Stop: 19358, Start Num: 7

Candidate Starts for Jamzy_26:

(Start: 7 @19143 has 25 MA's), (16, 19191), (20, 19203), (23, 19212), (28, 19239), (30, 19245), (34, 19284),

Gene: Jollymon_47 Start: 26255, Stop: 26506, Start Num: 7

Candidate Starts for Jollymon_47:

(Start: 7 @26255 has 25 MA's), (16, 26300), (23, 26321), (34, 26393), (37, 26405),

Gene: KayGee_23 Start: 19473, Stop: 19712, Start Num: 7
Candidate Starts for KayGee_23:
(Start: 7 @19473 has 25 MA's), (Start: 8 @19488 has 3 MA's), (12, 19506), (22, 19536), (24, 19545),
(34, 19611), (37, 19623), (39, 19632),

Gene: KingstonB_48 Start: 25733, Stop: 25984, Start Num: 7
Candidate Starts for KingstonB_48:
(Start: 7 @25733 has 25 MA's), (16, 25778), (23, 25799), (34, 25871), (37, 25883),

Gene: Lauer_22 Start: 19523, Stop: 19762, Start Num: 7
Candidate Starts for Lauer_22:
(Start: 7 @19523 has 25 MA's), (Start: 8 @19538 has 3 MA's), (12, 19556), (24, 19595), (34, 19661),
(37, 19673), (39, 19682),

Gene: MAnor_23 Start: 19493, Stop: 19729, Start Num: 7
Candidate Starts for MAnor_23:
(Start: 7 @19493 has 25 MA's), (Start: 8 @19508 has 3 MA's), (22, 19556), (24, 19565), (28, 19586),
(30, 19592), (33, 19628), (34, 19631), (40, 19655),

Gene: Makar_48 Start: 26194, Stop: 26439, Start Num: 7
Candidate Starts for Makar_48:
(Start: 7 @26194 has 25 MA's), (16, 26239), (32, 26320), (34, 26332),

Gene: Margaret_26 Start: 19510, Stop: 19728, Start Num: 7
Candidate Starts for Margaret_26:
(Start: 7 @19510 has 25 MA's), (12, 19543), (16, 19555), (21, 19570), (23, 19576), (28, 19603), (29,
19606), (30, 19609), (34, 19648), (44, 19690),

Gene: Mayweather_24 Start: 20109, Stop: 20345, Start Num: 7
Candidate Starts for Mayweather_24:
(Start: 7 @20109 has 25 MA's), (Start: 8 @20124 has 3 MA's), (22, 20172), (24, 20181), (28, 20202),
(30, 20208), (33, 20244), (34, 20247), (40, 20271),

Gene: McDazzle_22 Start: 19965, Stop: 20186, Start Num: 8
Candidate Starts for McDazzle_22:
(Start: 7 @19950 has 25 MA's), (Start: 8 @19965 has 3 MA's), (22, 20013), (24, 20022), (28, 20043),
(30, 20049), (33, 20085), (34, 20088), (40, 20112),

Gene: Mcklovin_23 Start: 23267, Stop: 23500, Start Num: 5
Candidate Starts for Mcklovin_23:
(Start: 5 @23267 has 27 MA's), (9, 23300), (14, 23315), (28, 23369), (29, 23372), (35, 23417), (43,
23447),

Gene: MichaelScott_23 Start: 20870, Stop: 21103, Start Num: 5
Candidate Starts for MichaelScott_23:
(1, 20765), (Start: 5 @20870 has 27 MA's), (9, 20903), (14, 20918), (28, 20972), (29, 20975), (35,
21020), (43, 21050),

Gene: Natkenzie_44 Start: 39885, Stop: 40163, Start Num: 2
Candidate Starts for Natkenzie_44:
(Start: 2 @39885 has 4 MA's), (Start: 5 @39891 has 27 MA's), (10, 39927), (11, 39933), (22, 39963),
(26, 39984), (27, 39987), (28, 39993), (33, 40035), (35, 40041), (37, 40050), (45, 40086),

Gene: Nodigi_25 Start: 19783, Stop: 20001, Start Num: 7
Candidate Starts for Nodigi_25:
(Start: 7 @19783 has 25 MA's), (16, 19828), (20, 19840), (34, 19921), (37, 19933), (38, 19939),

Gene: Oregano_23 Start: 20535, Stop: 20768, Start Num: 5
Candidate Starts for Oregano_23:
(1, 20430), (Start: 5 @20535 has 27 MA's), (9, 20568), (14, 20583), (28, 20637), (29, 20640), (35, 20685), (43, 20715),

Gene: Orla_25 Start: 19787, Stop: 20005, Start Num: 7
Candidate Starts for Orla_25:
(Start: 7 @19787 has 25 MA's), (16, 19832), (20, 19844), (34, 19925), (37, 19937), (38, 19943),

Gene: PatriciaStar_23 Start: 21135, Stop: 21377, Start Num: 5
Candidate Starts for PatriciaStar_23:
(Start: 5 @21135 has 27 MA's), (13, 21174), (22, 21198), (23, 21201), (27, 21222), (28, 21228), (35, 21276), (37, 21285), (42, 21303),

Gene: Pons_23 Start: 19481, Stop: 19717, Start Num: 7
Candidate Starts for Pons_23:
(Start: 7 @19481 has 25 MA's), (Start: 8 @19496 has 3 MA's), (22, 19544), (24, 19553), (28, 19574), (30, 19580), (33, 19616), (34, 19619), (40, 19643),

Gene: PotPie_23 Start: 20339, Stop: 20578, Start Num: 7
Candidate Starts for PotPie_23:
(Start: 7 @20339 has 25 MA's), (Start: 8 @20354 has 3 MA's), (12, 20372), (22, 20402), (24, 20411), (28, 20432), (34, 20477), (37, 20489), (39, 20498),

Gene: Pumpkiney_45 Start: 37248, Stop: 37484, Start Num: 10
Candidate Starts for Pumpkiney_45:
(Start: 5 @37212 has 27 MA's), (10, 37248), (11, 37254), (22, 37284), (26, 37305), (27, 37308), (28, 37314), (33, 37356), (35, 37362), (37, 37371), (45, 37407),

Gene: RanchParmCat_26 Start: 19510, Stop: 19728, Start Num: 7
Candidate Starts for RanchParmCat_26:
(Start: 7 @19510 has 25 MA's), (12, 19543), (16, 19555), (21, 19570), (23, 19576), (28, 19603), (29, 19606), (30, 19609), (34, 19648), (44, 19690),

Gene: RedWattleHog_6 Start: 3833, Stop: 4042, Start Num: 5
Candidate Starts for RedWattleHog_6:
(Start: 5 @3833 has 27 MA's), (16, 3887), (17, 3890), (22, 3905), (23, 3908), (29, 3938), (31, 3965), (33, 3977), (34, 3980), (36, 3989), (41, 4007),

Gene: RegnumDei_27 Start: 26108, Stop: 26362, Start Num: 6
Candidate Starts for RegnumDei_27:
(3, 26102), (Start: 5 @26105 has 27 MA's), (Start: 6 @26108 has 2 MA's), (9, 26138), (16, 26162), (19, 26174), (25, 26201), (35, 26261), (36, 26267),

Gene: Rizz_26 Start: 20870, Stop: 21103, Start Num: 5
Candidate Starts for Rizz_26:
(1, 20765), (Start: 5 @20870 has 27 MA's), (9, 20903), (14, 20918), (28, 20972), (29, 20975), (35, 21020), (43, 21050),

Gene: Samman98_23 Start: 20504, Stop: 20737, Start Num: 5

Candidate Starts for Samman98_23:

(1, 20399), (Start: 5 @20504 has 27 MA's), (9, 20537), (14, 20552), (28, 20606), (29, 20609), (35, 20654), (43, 20684),

Gene: Sampson_44 Start: 39836, Stop: 40108, Start Num: 5

Candidate Starts for Sampson_44:

(Start: 2 @39830 has 4 MA's), (Start: 5 @39836 has 27 MA's), (10, 39872), (11, 39878), (22, 39908), (26, 39929), (27, 39932), (28, 39938), (33, 39980), (35, 39986), (37, 39995), (45, 40031),

Gene: Scioto_45 Start: 39886, Stop: 40164, Start Num: 2

Candidate Starts for Scioto_45:

(Start: 2 @39886 has 4 MA's), (Start: 5 @39892 has 27 MA's), (10, 39928), (11, 39934), (22, 39964), (26, 39985), (27, 39988), (28, 39994), (33, 40036), (35, 40042), (37, 40051), (45, 40087),

Gene: Sekhmet_23 Start: 20864, Stop: 21097, Start Num: 5

Candidate Starts for Sekhmet_23:

(1, 20759), (Start: 5 @20864 has 27 MA's), (9, 20897), (14, 20912), (28, 20966), (29, 20969), (35, 21014), (43, 21044),

Gene: SheckWes_22 Start: 19493, Stop: 19714, Start Num: 8

Candidate Starts for SheckWes_22:

(Start: 7 @19478 has 25 MA's), (Start: 8 @19493 has 3 MA's), (22, 19541), (24, 19550), (28, 19571), (30, 19577), (33, 19613), (34, 19616), (40, 19640),

Gene: Shlim410_23 Start: 21098, Stop: 21331, Start Num: 5

Candidate Starts for Shlim410_23:

(Start: 5 @21098 has 27 MA's), (9, 21131), (14, 21146), (28, 21200), (29, 21203), (35, 21248), (43, 21278),

Gene: Soos_43 Start: 25462, Stop: 25713, Start Num: 7

Candidate Starts for Soos_43:

(Start: 7 @25462 has 25 MA's), (16, 25507), (23, 25528), (34, 25600), (37, 25612),

Gene: Stillion_47 Start: 26047, Stop: 26298, Start Num: 7

Candidate Starts for Stillion_47:

(Start: 7 @26047 has 25 MA's), (16, 26092), (23, 26113), (34, 26185), (37, 26197),

Gene: Sting_46 Start: 25901, Stop: 26152, Start Num: 7

Candidate Starts for Sting_46:

(Start: 7 @25901 has 25 MA's), (16, 25946), (23, 25967), (34, 26039), (37, 26051),

Gene: Stormageddon_6 Start: 3833, Stop: 4042, Start Num: 5

Candidate Starts for Stormageddon_6:

(Start: 5 @3833 has 27 MA's), (16, 3887), (17, 3890), (22, 3905), (23, 3908), (29, 3938), (31, 3965), (33, 3977), (34, 3980), (36, 3989), (41, 4007),

Gene: Suerte_21 Start: 19988, Stop: 20221, Start Num: 5

Candidate Starts for Suerte_21:

(1, 19883), (Start: 5 @19988 has 27 MA's), (14, 20036), (28, 20090), (29, 20093), (35, 20138), (43, 20168),

Gene: SummitAcademy_22 Start: 19551, Stop: 19790, Start Num: 7

Candidate Starts for SummitAcademy_22:

(Start: 7 @19551 has 25 MA's), (Start: 8 @19566 has 3 MA's), (12, 19584), (22, 19614), (24, 19623), (28, 19644), (34, 19689), (37, 19701), (39, 19710),

Gene: Tardus_45 Start: 39240, Stop: 39518, Start Num: 2

Candidate Starts for Tardus_45:

(Start: 2 @39240 has 4 MA's), (Start: 5 @39246 has 27 MA's), (10, 39282), (11, 39288), (22, 39318), (26, 39339), (27, 39342), (28, 39348), (33, 39390), (35, 39396), (37, 39405), (45, 39441),

Gene: Tarnish_23 Start: 19864, Stop: 20085, Start Num: 8

Candidate Starts for Tarnish_23:

(Start: 7 @19849 has 25 MA's), (Start: 8 @19864 has 3 MA's), (22, 19912), (24, 19921), (28, 19942), (30, 19948), (33, 19984), (34, 19987), (40, 20011),

Gene: Thimann_23 Start: 20456, Stop: 20689, Start Num: 5

Candidate Starts for Thimann_23:

(1, 20351), (Start: 5 @20456 has 27 MA's), (14, 20504), (28, 20558), (29, 20561), (35, 20606), (43, 20636),

Gene: Twinkle_23 Start: 22157, Stop: 22390, Start Num: 5

Candidate Starts for Twinkle_23:

(Start: 5 @22157 has 27 MA's), (9, 22190), (14, 22205), (28, 22259), (29, 22262), (35, 22307), (43, 22337),

Gene: Upyo_22 Start: 18567, Stop: 18791, Start Num: 5

Candidate Starts for Upyo_22:

(Start: 5 @18567 has 27 MA's), (10, 18594), (11, 18600), (12, 18603), (18, 18621), (20, 18624), (24, 18639), (28, 18660), (33, 18702), (35, 18708), (36, 18714),

Gene: Verity_44 Start: 40650, Stop: 40928, Start Num: 2

Candidate Starts for Verity_44:

(Start: 2 @40650 has 4 MA's), (Start: 5 @40656 has 27 MA's), (10, 40692), (11, 40698), (22, 40728), (26, 40749), (27, 40752), (28, 40758), (33, 40800), (35, 40806), (37, 40815), (45, 40851),

Gene: ViaConlectus_44 Start: 38526, Stop: 38798, Start Num: 5

Candidate Starts for ViaConlectus_44:

(Start: 2 @38520 has 4 MA's), (Start: 5 @38526 has 27 MA's), (10, 38562), (11, 38568), (22, 38598), (26, 38619), (27, 38622), (28, 38628), (33, 38670), (35, 38676), (37, 38685), (45, 38721),

Gene: Vine_24 Start: 20486, Stop: 20725, Start Num: 7

Candidate Starts for Vine_24:

(Start: 7 @20486 has 25 MA's), (Start: 8 @20501 has 3 MA's), (12, 20519), (22, 20549), (24, 20558), (28, 20579), (34, 20624), (37, 20636), (39, 20645),

Gene: WinkNick_23 Start: 20489, Stop: 20722, Start Num: 5

Candidate Starts for WinkNick_23:

(1, 20384), (Start: 5 @20489 has 27 MA's), (9, 20522), (14, 20537), (28, 20591), (29, 20594), (35, 20639), (43, 20669),

Gene: Yakult_24 Start: 19364, Stop: 19576, Start Num: 7

Candidate Starts for Yakult_24:

(Start: 7 @19364 has 25 MA's), (12, 19397), (15, 19406), (18, 19415), (23, 19430), (28, 19457), (29, 19460), (34, 19502),

Gene: Yucky_23 Start: 20345, Stop: 20584, Start Num: 7

Candidate Starts for Yucky_23:

(Start: 7 @20345 has 25 MA's), (Start: 8 @20360 has 3 MA's), (12, 20378), (22, 20408), (24, 20417), (28, 20438), (34, 20483), (37, 20495), (39, 20504),

Gene: Zipp_45 Start: 40565, Stop: 40843, Start Num: 5

Candidate Starts for Zipp_45:

(Start: 2 @40559 has 4 MA's), (Start: 5 @40565 has 27 MA's), (10, 40601), (11, 40607), (20, 40631), (22, 40637), (26, 40658), (27, 40661), (28, 40667), (33, 40709), (35, 40715), (37, 40724), (45, 40760),

Gene: Zitch_47 Start: 38681, Stop: 38953, Start Num: 5

Candidate Starts for Zitch_47:

(Start: 2 @38675 has 4 MA's), (Start: 5 @38681 has 27 MA's), (10, 38717), (11, 38723), (22, 38753), (26, 38774), (27, 38777), (28, 38783), (33, 38825), (35, 38831), (37, 38840), (45, 38876),