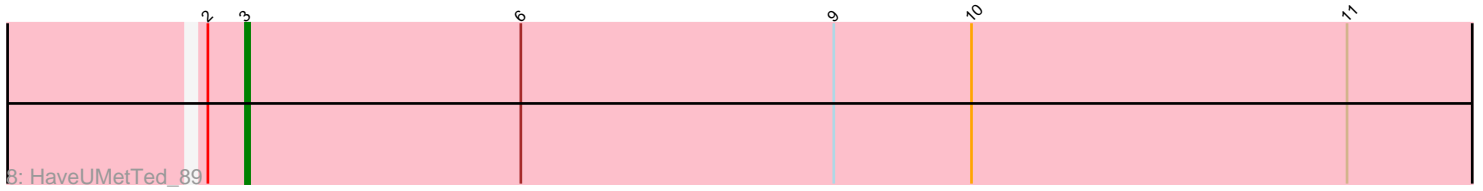
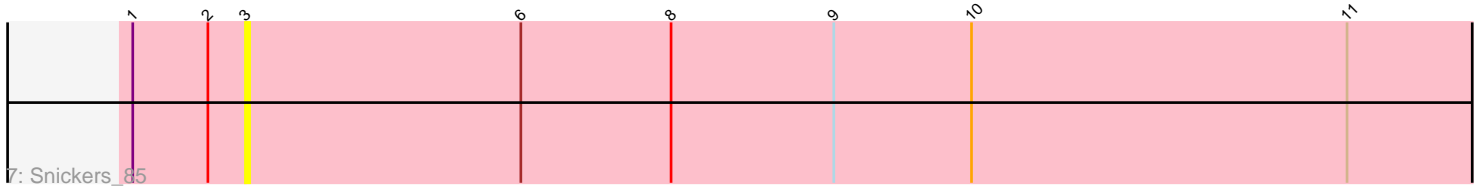
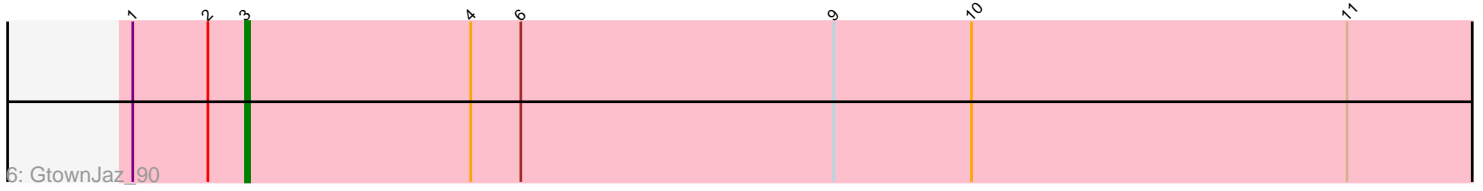
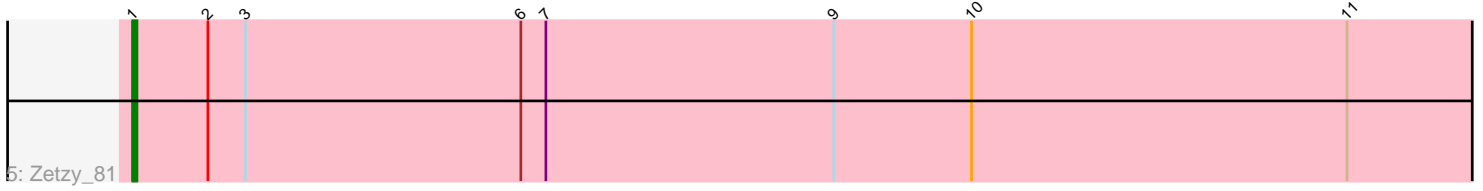
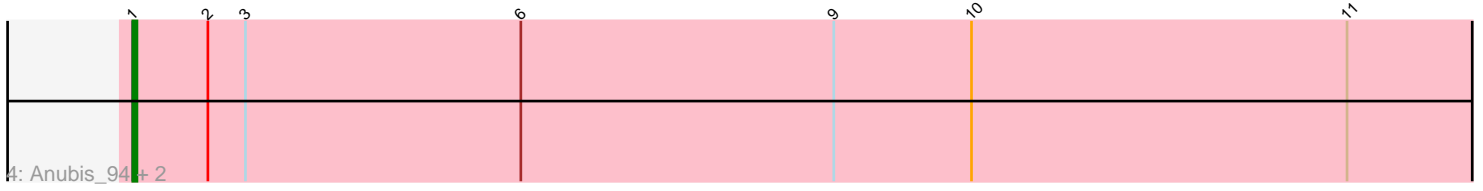
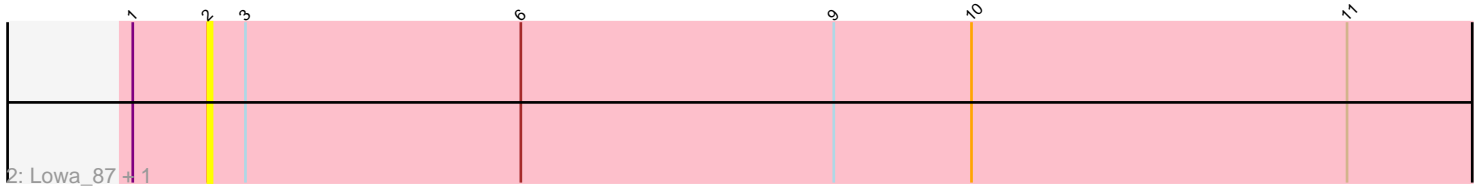
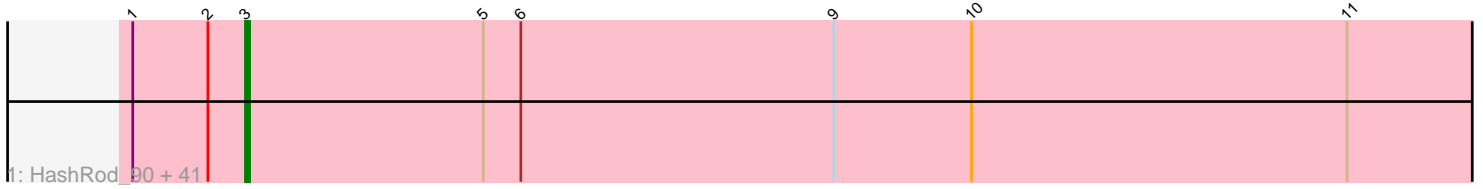


Pham 224514



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 224514 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224514 has 81 members, 5 are drafts.

Phages represented in each track:

- Track 1 : HashRod_90, Sabinator_87, GingkoMaracino_89, Methuselah_82, PotatoSplit_90, Marie_87, Spike509_90, LugYA_92, Rummer_88, Misomonster_85, P28Green_89, Hercules11_89, Grum1_89, Grif_87, Beauxregard13_88, TinyPebbles_85, EpicPhail_90, Daishi_88, Cullens_90, BuzzBuzz_83, JHC117_84, Vix_85, Tiffany_88, MoneyMay_89, Penny1_89, LarryKay_89, JenCasNa_90, Taurus_90, Colbster_85, Bxz2_84, Wooldri_91, SoYo_86, Dieselweasel_90, KADY_86, Louie6_88, Fernando_90, Aglet_90, PGHhamlin_92, Phoebe_90, MarQuardt_89, Soshari_91, AgronaGT15_81
- Track 2 : Lowa_87, Bigflo_86
- Track 3 : Phranny_81, Malinsilva_93, Microwolf_85, Kalb97_89, BreSam8_90, DaHudson_89, Groupthink_89, Kalnoky_89, Ollie_90, Jobu08_85, PhishRPhriends_85, Pembroke_90, Lilith_87, StepMih_90, MadMarie_87, Pawn_87, Mainiac_89, Grub_87, Heliosoles_86, Calvinny_86, Watson_89, Marius_89, PurpleHaze_83, Reba_84, Manu_88, Gemma_86, JeppNRM_89, LBerry_91, Stagni_86, OlanP_87
- Track 4 : Anubis_94, Sabia_87, SoilDragon_90
- Track 5 : Zetzy_81
- Track 6 : GtownJaz_90
- Track 7 : Snickers_85
- Track 8 : HaveUMetTed_89

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 72 of the 76 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aglet_90, AgronaGT15_81, Beauxregard13_88, BreSam8_90, BuzzBuzz_83, Bxz2_84, Calvinny_86, Colbster_85, Cullens_90, DaHudson_89, Daishi_88, Dieselweasel_90, EpicPhail_90, Fernando_90, Gemma_86, GingkoMaracino_89, Grif_87, Groupthink_89, Grub_87, Grum1_89, GtownJaz_90, HashRod_90, HaveUMetTed_89, Heliosoles_86, Hercules11_89, JHC117_84, JenCasNa_90, JeppNRM_89, Jobu08_85, KADY_86, Kalb97_89, Kalnoky_89, LBerry_91, LarryKay_89, Lilith_87, Louie6_88, LugYA_92, MadMarie_87, Mainiac_89,

Malinsilva_93, Manu_88, MarQuardt_89, Marie_87, Marius_89, Methuselah_82, Microwolf_85, Misomonster_85, MoneyMay_89, OlanP_87, Ollie_90, P28Green_89, PGHhamlin_92, Pawn_87, Pembroke_90, Penny1_89, PhishRPhriends_85, Phoebe_90, Phranny_81, PotatoSplit_90, PurpleHaze_83, Reba_84, Rummer_88, Sabinator_87, Snickers_85, SoYo_86, Soshari_91, Spike509_90, Stagni_86, StepMih_90, Taurus_90, Tiffany_88, TinyPebbles_85, Vix_85, Watson_89, Wooldri_91,

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

- Anubis_94, Bigflo_86, Lowa_87, Sabia_87, SoilDragon_90, Zetzy_81,

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

-

Summary by start number:

Start 1:

- Found in 80 of 81 (98.8%) of genes in pham
- Manual Annotations of this start: 4 of 76
- Called 5.0% of time when present
- Phage (with cluster) where this start called: Anubis_94 (A3), Sabia_87 (A3), SoilDragon_90 (A3), Zetzy_81 (A3),

Start 2:

- Found in 81 of 81 (100.0%) of genes in pham
- No Manual Annotations of this start.
- Called 2.5% of time when present
- Phage (with cluster) where this start called: Bigflo_86 (A3), Lowa_87 (A3),

Start 3:

- Found in 81 of 81 (100.0%) of genes in pham
- Manual Annotations of this start: 72 of 76
- Called 92.6% of time when present
- Phage (with cluster) where this start called: Aglet_90 (A3), AgronaGT15_81 (A3), Beauxregard13_88 (A3), BreSam8_90 (A3), BuzzBuzz_83 (A3), Bxz2_84 (A3), Calvinny_86 (A3), Colbster_85 (A3), Cullens_90 (A3), DaHudson_89 (A3), Daishi_88 (A3), Dieselweasel_90 (A3), EpicPhail_90 (A3), Fernando_90 (A3), Gemma_86 (A3), GingkoMaracino_89 (A3), Grif_87 (A3), Groupthink_89 (A3), Grub_87 (A3), Grum1_89 (A3), GtownJaz_90 (A3), HashRod_90 (A3), HaveUMetTed_89 (A3), Heliosoles_86 (A3), Hercules11_89 (A3), JHC117_84 (A3), JenCasNa_90 (A3), JeppNRM_89 (A3), Jobu08_85 (A3), KADY_86 (A3), Kalb97_89 (A3), Kalnoky_89 (A3), LBerry_91 (A3), LarryKay_89 (A3), Lilith_87 (A3), Louie6_88 (A3), LugYA_92 (A3), MadMarie_87 (A3), Mainiac_89 (A3), Malinsilva_93 (A3), Manu_88 (A3), MarQuardt_89 (A3), Marie_87 (A3), Marius_89 (A3), Methuselah_82 (A3), Microwolf_85 (A3), Misomonster_85 (A3), MoneyMay_89 (A3), OlanP_87 (A3), Ollie_90 (A3), P28Green_89 (A3), PGHhamlin_92 (A3), Pawn_87 (A3), Pembroke_90 (A3), Penny1_89 (A3), PhishRPhriends_85 (A3), Phoebe_90 (A3), Phranny_81 (A3), PotatoSplit_90 (A3), PurpleHaze_83 (A3), Reba_84 (A3), Rummer_88 (A3), Sabinator_87 (A3), Snickers_85 (A3), SoYo_86 (A3), Soshari_91 (A3), Spike509_90 (A3), Stagni_86 (A3), StepMih_90 (A3), Taurus_90 (A3), Tiffany_88 (A3), TinyPebbles_85 (A3), Vix_85 (A3), Watson_89 (A3), Wooldri_91 (A3),

Summary by clusters:

There is one cluster represented in this pham: A3

Info for manual annotations of cluster A3:

- Start number 1 was manually annotated 4 times for cluster A3.
- Start number 3 was manually annotated 72 times for cluster A3.

Gene Information:

Gene: Aglet_90 Start: 48472, Stop: 48164, Start Num: 3

Candidate Starts for Aglet_90:

(Start: 1 @48499 has 4 MA's), (2, 48481), (Start: 3 @48472 has 72 MA's), (5, 48415), (6, 48406), (9, 48331), (10, 48298), (11, 48208),

Gene: AgronaGT15_81 Start: 46449, Stop: 46141, Start Num: 3

Candidate Starts for AgronaGT15_81:

(Start: 1 @46476 has 4 MA's), (2, 46458), (Start: 3 @46449 has 72 MA's), (5, 46392), (6, 46383), (9, 46308), (10, 46275), (11, 46185),

Gene: Anubis_94 Start: 48476, Stop: 48141, Start Num: 1

Candidate Starts for Anubis_94:

(Start: 1 @48476 has 4 MA's), (2, 48458), (Start: 3 @48449 has 72 MA's), (6, 48383), (9, 48308), (10, 48275), (11, 48185),

Gene: Beauxregard13_88 Start: 48480, Stop: 48172, Start Num: 3

Candidate Starts for Beauxregard13_88:

(Start: 1 @48507 has 4 MA's), (2, 48489), (Start: 3 @48480 has 72 MA's), (5, 48423), (6, 48414), (9, 48339), (10, 48306), (11, 48216),

Gene: Bigflo_86 Start: 48566, Stop: 48249, Start Num: 2

Candidate Starts for Bigflo_86:

(Start: 1 @48584 has 4 MA's), (2, 48566), (Start: 3 @48557 has 72 MA's), (6, 48491), (9, 48416), (10, 48383), (11, 48293),

Gene: BreSam8_90 Start: 48551, Stop: 48243, Start Num: 3

Candidate Starts for BreSam8_90:

(Start: 1 @48578 has 4 MA's), (2, 48560), (Start: 3 @48551 has 72 MA's), (6, 48485), (9, 48410), (10, 48377), (11, 48287),

Gene: BuzzBuzz_83 Start: 48505, Stop: 48197, Start Num: 3

Candidate Starts for BuzzBuzz_83:

(Start: 1 @48532 has 4 MA's), (2, 48514), (Start: 3 @48505 has 72 MA's), (5, 48448), (6, 48439), (9, 48364), (10, 48331), (11, 48241),

Gene: Bxz2_84 Start: 48512, Stop: 48204, Start Num: 3

Candidate Starts for Bxz2_84:

(Start: 1 @48539 has 4 MA's), (2, 48521), (Start: 3 @48512 has 72 MA's), (5, 48455), (6, 48446), (9, 48371), (10, 48338), (11, 48248),

Gene: Calvinny_86 Start: 48309, Stop: 48001, Start Num: 3

Candidate Starts for Calvinny_86:

(Start: 1 @48336 has 4 MA's), (2, 48318), (Start: 3 @48309 has 72 MA's), (6, 48243), (9, 48168), (10, 48135), (11, 48045),

Gene: Colbster_85 Start: 48480, Stop: 48172, Start Num: 3

Candidate Starts for Colbster_85:

(Start: 1 @48507 has 4 MA's), (2, 48489), (Start: 3 @48480 has 72 MA's), (5, 48423), (6, 48414), (9, 48339), (10, 48306), (11, 48216),

Gene: Cullens_90 Start: 48474, Stop: 48166, Start Num: 3

Candidate Starts for Cullens_90:

(Start: 1 @48501 has 4 MA's), (2, 48483), (Start: 3 @48474 has 72 MA's), (5, 48417), (6, 48408), (9, 48333), (10, 48300), (11, 48210),

Gene: DaHudson_89 Start: 48550, Stop: 48242, Start Num: 3

Candidate Starts for DaHudson_89:

(Start: 1 @48577 has 4 MA's), (2, 48559), (Start: 3 @48550 has 72 MA's), (6, 48484), (9, 48409), (10, 48376), (11, 48286),

Gene: Daishi_88 Start: 47346, Stop: 47038, Start Num: 3

Candidate Starts for Daishi_88:

(Start: 1 @47373 has 4 MA's), (2, 47355), (Start: 3 @47346 has 72 MA's), (5, 47289), (6, 47280), (9, 47205), (10, 47172), (11, 47082),

Gene: Dieselweasel_90 Start: 48478, Stop: 48170, Start Num: 3

Candidate Starts for Dieselweasel_90:

(Start: 1 @48505 has 4 MA's), (2, 48487), (Start: 3 @48478 has 72 MA's), (5, 48421), (6, 48412), (9, 48337), (10, 48304), (11, 48214),

Gene: EpicPhail_90 Start: 48480, Stop: 48172, Start Num: 3

Candidate Starts for EpicPhail_90:

(Start: 1 @48507 has 4 MA's), (2, 48489), (Start: 3 @48480 has 72 MA's), (5, 48423), (6, 48414), (9, 48339), (10, 48306), (11, 48216),

Gene: Fernando_90 Start: 48474, Stop: 48166, Start Num: 3

Candidate Starts for Fernando_90:

(Start: 1 @48501 has 4 MA's), (2, 48483), (Start: 3 @48474 has 72 MA's), (5, 48417), (6, 48408), (9, 48333), (10, 48300), (11, 48210),

Gene: Gemma_86 Start: 48306, Stop: 47998, Start Num: 3

Candidate Starts for Gemma_86:

(Start: 1 @48333 has 4 MA's), (2, 48315), (Start: 3 @48306 has 72 MA's), (6, 48240), (9, 48165), (10, 48132), (11, 48042),

Gene: GingkoMaracino_89 Start: 48357, Stop: 48049, Start Num: 3

Candidate Starts for GingkoMaracino_89:

(Start: 1 @48384 has 4 MA's), (2, 48366), (Start: 3 @48357 has 72 MA's), (5, 48300), (6, 48291), (9, 48216), (10, 48183), (11, 48093),

Gene: Grif_87 Start: 48553, Stop: 48245, Start Num: 3

Candidate Starts for Grif_87:

(Start: 1 @48580 has 4 MA's), (2, 48562), (Start: 3 @48553 has 72 MA's), (5, 48496), (6, 48487), (9, 48412), (10, 48379), (11, 48289),

Gene: Groupthink_89 Start: 48308, Stop: 48000, Start Num: 3

Candidate Starts for Groupthink_89:

(Start: 1 @48335 has 4 MA's), (2, 48317), (Start: 3 @48308 has 72 MA's), (6, 48242), (9, 48167), (10, 48134), (11, 48044),

Gene: Grub_87 Start: 48550, Stop: 48242, Start Num: 3

Candidate Starts for Grub_87:

(Start: 1 @48577 has 4 MA's), (2, 48559), (Start: 3 @48550 has 72 MA's), (6, 48484), (9, 48409), (10, 48376), (11, 48286),

Gene: Grum1_89 Start: 48479, Stop: 48171, Start Num: 3

Candidate Starts for Grum1_89:

(Start: 1 @48506 has 4 MA's), (2, 48488), (Start: 3 @48479 has 72 MA's), (5, 48422), (6, 48413), (9, 48338), (10, 48305), (11, 48215),

Gene: GtownJaz_90 Start: 48558, Stop: 48250, Start Num: 3

Candidate Starts for GtownJaz_90:

(Start: 1 @48585 has 4 MA's), (2, 48567), (Start: 3 @48558 has 72 MA's), (4, 48504), (6, 48492), (9, 48417), (10, 48384), (11, 48294),

Gene: HashRod_90 Start: 48501, Stop: 48193, Start Num: 3

Candidate Starts for HashRod_90:

(Start: 1 @48528 has 4 MA's), (2, 48510), (Start: 3 @48501 has 72 MA's), (5, 48444), (6, 48435), (9, 48360), (10, 48327), (11, 48237),

Gene: HaveUMetTed_89 Start: 48296, Stop: 47988, Start Num: 3

Candidate Starts for HaveUMetTed_89:

(2, 48305), (Start: 3 @48296 has 72 MA's), (6, 48230), (9, 48155), (10, 48122), (11, 48032),

Gene: Heliosoles_86 Start: 48312, Stop: 48004, Start Num: 3

Candidate Starts for Heliosoles_86:

(Start: 1 @48339 has 4 MA's), (2, 48321), (Start: 3 @48312 has 72 MA's), (6, 48246), (9, 48171), (10, 48138), (11, 48048),

Gene: Hercules11_89 Start: 48488, Stop: 48180, Start Num: 3

Candidate Starts for Hercules11_89:

(Start: 1 @48515 has 4 MA's), (2, 48497), (Start: 3 @48488 has 72 MA's), (5, 48431), (6, 48422), (9, 48347), (10, 48314), (11, 48224),

Gene: JHC117_84 Start: 48474, Stop: 48166, Start Num: 3

Candidate Starts for JHC117_84:

(Start: 1 @48501 has 4 MA's), (2, 48483), (Start: 3 @48474 has 72 MA's), (5, 48417), (6, 48408), (9, 48333), (10, 48300), (11, 48210),

Gene: JenCasNa_90 Start: 48474, Stop: 48166, Start Num: 3

Candidate Starts for JenCasNa_90:

(Start: 1 @48501 has 4 MA's), (2, 48483), (Start: 3 @48474 has 72 MA's), (5, 48417), (6, 48408), (9, 48333), (10, 48300), (11, 48210),

Gene: JeppNRM_89 Start: 48310, Stop: 48002, Start Num: 3

Candidate Starts for JeppNRM_89:

(Start: 1 @48337 has 4 MA's), (2, 48319), (Start: 3 @48310 has 72 MA's), (6, 48244), (9, 48169), (10, 48136), (11, 48046),

Gene: Jobu08_85 Start: 48384, Stop: 48076, Start Num: 3

Candidate Starts for Jobu08_85:

(Start: 1 @48411 has 4 MA's), (2, 48393), (Start: 3 @48384 has 72 MA's), (6, 48318), (9, 48243), (10, 48210), (11, 48120),

Gene: KADY_86 Start: 48506, Stop: 48198, Start Num: 3

Candidate Starts for KADY_86:

(Start: 1 @48533 has 4 MA's), (2, 48515), (Start: 3 @48506 has 72 MA's), (5, 48449), (6, 48440), (9, 48365), (10, 48332), (11, 48242),

Gene: Kalb97_89 Start: 47678, Stop: 47370, Start Num: 3

Candidate Starts for Kalb97_89:

(Start: 1 @47705 has 4 MA's), (2, 47687), (Start: 3 @47678 has 72 MA's), (6, 47612), (9, 47537), (10, 47504), (11, 47414),

Gene: Kalnoky_89 Start: 48305, Stop: 47997, Start Num: 3

Candidate Starts for Kalnoky_89:

(Start: 1 @48332 has 4 MA's), (2, 48314), (Start: 3 @48305 has 72 MA's), (6, 48239), (9, 48164), (10, 48131), (11, 48041),

Gene: LBerry_91 Start: 48561, Stop: 48253, Start Num: 3

Candidate Starts for LBerry_91:

(Start: 1 @48588 has 4 MA's), (2, 48570), (Start: 3 @48561 has 72 MA's), (6, 48495), (9, 48420), (10, 48387), (11, 48297),

Gene: LarryKay_89 Start: 48510, Stop: 48202, Start Num: 3

Candidate Starts for LarryKay_89:

(Start: 1 @48537 has 4 MA's), (2, 48519), (Start: 3 @48510 has 72 MA's), (5, 48453), (6, 48444), (9, 48369), (10, 48336), (11, 48246),

Gene: Lilith_87 Start: 48550, Stop: 48242, Start Num: 3

Candidate Starts for Lilith_87:

(Start: 1 @48577 has 4 MA's), (2, 48559), (Start: 3 @48550 has 72 MA's), (6, 48484), (9, 48409), (10, 48376), (11, 48286),

Gene: Louie6_88 Start: 48507, Stop: 48199, Start Num: 3

Candidate Starts for Louie6_88:

(Start: 1 @48534 has 4 MA's), (2, 48516), (Start: 3 @48507 has 72 MA's), (5, 48450), (6, 48441), (9, 48366), (10, 48333), (11, 48243),

Gene: Lowa_87 Start: 48558, Stop: 48241, Start Num: 2

Candidate Starts for Lowa_87:

(Start: 1 @48576 has 4 MA's), (2, 48558), (Start: 3 @48549 has 72 MA's), (6, 48483), (9, 48408), (10, 48375), (11, 48285),

Gene: LugYA_92 Start: 48475, Stop: 48167, Start Num: 3

Candidate Starts for LugYA_92:

(Start: 1 @48502 has 4 MA's), (2, 48484), (Start: 3 @48475 has 72 MA's), (5, 48418), (6, 48409), (9, 48334), (10, 48301), (11, 48211),

Gene: MadMarie_87 Start: 48558, Stop: 48250, Start Num: 3

Candidate Starts for MadMarie_87:

(Start: 1 @48585 has 4 MA's), (2, 48567), (Start: 3 @48558 has 72 MA's), (6, 48492), (9, 48417), (10, 48384), (11, 48294),

Gene: Mainiac_89 Start: 48550, Stop: 48242, Start Num: 3

Candidate Starts for Mainiac_89:

(Start: 1 @48577 has 4 MA's), (2, 48559), (Start: 3 @48550 has 72 MA's), (6, 48484), (9, 48409), (10, 48376), (11, 48286),

Gene: Malinsilva_93 Start: 48549, Stop: 48241, Start Num: 3

Candidate Starts for Malinsilva_93:

(Start: 1 @48576 has 4 MA's), (2, 48558), (Start: 3 @48549 has 72 MA's), (6, 48483), (9, 48408), (10, 48375), (11, 48285),

Gene: Manu_88 Start: 48312, Stop: 48004, Start Num: 3

Candidate Starts for Manu_88:

(Start: 1 @48339 has 4 MA's), (2, 48321), (Start: 3 @48312 has 72 MA's), (6, 48246), (9, 48171), (10, 48138), (11, 48048),

Gene: MarQuardt_89 Start: 48478, Stop: 48170, Start Num: 3

Candidate Starts for MarQuardt_89:

(Start: 1 @48505 has 4 MA's), (2, 48487), (Start: 3 @48478 has 72 MA's), (5, 48421), (6, 48412), (9, 48337), (10, 48304), (11, 48214),

Gene: Marie_87 Start: 48474, Stop: 48166, Start Num: 3

Candidate Starts for Marie_87:

(Start: 1 @48501 has 4 MA's), (2, 48483), (Start: 3 @48474 has 72 MA's), (5, 48417), (6, 48408), (9, 48333), (10, 48300), (11, 48210),

Gene: Marius_89 Start: 48305, Stop: 47997, Start Num: 3

Candidate Starts for Marius_89:

(Start: 1 @48332 has 4 MA's), (2, 48314), (Start: 3 @48305 has 72 MA's), (6, 48239), (9, 48164), (10, 48131), (11, 48041),

Gene: Methuselah_82 Start: 48500, Stop: 48192, Start Num: 3

Candidate Starts for Methuselah_82:

(Start: 1 @48527 has 4 MA's), (2, 48509), (Start: 3 @48500 has 72 MA's), (5, 48443), (6, 48434), (9, 48359), (10, 48326), (11, 48236),

Gene: Microwolf_85 Start: 48573, Stop: 48265, Start Num: 3

Candidate Starts for Microwolf_85:

(Start: 1 @48600 has 4 MA's), (2, 48582), (Start: 3 @48573 has 72 MA's), (6, 48507), (9, 48432), (10, 48399), (11, 48309),

Gene: Misomonster_85 Start: 46112, Stop: 45804, Start Num: 3

Candidate Starts for Misomonster_85:

(Start: 1 @46139 has 4 MA's), (2, 46121), (Start: 3 @46112 has 72 MA's), (5, 46055), (6, 46046), (9, 45971), (10, 45938), (11, 45848),

Gene: MoneyMay_89 Start: 48474, Stop: 48166, Start Num: 3

Candidate Starts for MoneyMay_89:

(Start: 1 @48501 has 4 MA's), (2, 48483), (Start: 3 @48474 has 72 MA's), (5, 48417), (6, 48408), (9, 48333), (10, 48300), (11, 48210),

Gene: OlanP_87 Start: 48483, Stop: 48175, Start Num: 3

Candidate Starts for OlanP_87:

(Start: 1 @48510 has 4 MA's), (2, 48492), (Start: 3 @48483 has 72 MA's), (6, 48417), (9, 48342), (10, 48309), (11, 48219),

Gene: Ollie_90 Start: 48428, Stop: 48120, Start Num: 3

Candidate Starts for Ollie_90:

(Start: 1 @48455 has 4 MA's), (2, 48437), (Start: 3 @48428 has 72 MA's), (6, 48362), (9, 48287), (10, 48254), (11, 48164),

Gene: P28Green_89 Start: 48482, Stop: 48174, Start Num: 3

Candidate Starts for P28Green_89:

(Start: 1 @48509 has 4 MA's), (2, 48491), (Start: 3 @48482 has 72 MA's), (5, 48425), (6, 48416), (9, 48341), (10, 48308), (11, 48218),

Gene: PGHhamlin_92 Start: 48549, Stop: 48241, Start Num: 3

Candidate Starts for PGHhamlin_92:

(Start: 1 @48576 has 4 MA's), (2, 48558), (Start: 3 @48549 has 72 MA's), (5, 48492), (6, 48483), (9, 48408), (10, 48375), (11, 48285),

Gene: Pawn_87 Start: 48312, Stop: 48004, Start Num: 3

Candidate Starts for Pawn_87:

(Start: 1 @48339 has 4 MA's), (2, 48321), (Start: 3 @48312 has 72 MA's), (6, 48246), (9, 48171), (10, 48138), (11, 48048),

Gene: Pembroke_90 Start: 48558, Stop: 48250, Start Num: 3

Candidate Starts for Pembroke_90:

(Start: 1 @48585 has 4 MA's), (2, 48567), (Start: 3 @48558 has 72 MA's), (6, 48492), (9, 48417), (10, 48384), (11, 48294),

Gene: Penny1_89 Start: 48480, Stop: 48172, Start Num: 3

Candidate Starts for Penny1_89:

(Start: 1 @48507 has 4 MA's), (2, 48489), (Start: 3 @48480 has 72 MA's), (5, 48423), (6, 48414), (9, 48339), (10, 48306), (11, 48216),

Gene: PhishRPhriends_85 Start: 47492, Stop: 47184, Start Num: 3

Candidate Starts for PhishRPhriends_85:

(Start: 1 @47519 has 4 MA's), (2, 47501), (Start: 3 @47492 has 72 MA's), (6, 47426), (9, 47351), (10, 47318), (11, 47228),

Gene: Phoebe_90 Start: 48472, Stop: 48164, Start Num: 3

Candidate Starts for Phoebe_90:

(Start: 1 @48499 has 4 MA's), (2, 48481), (Start: 3 @48472 has 72 MA's), (5, 48415), (6, 48406), (9, 48331), (10, 48298), (11, 48208),

Gene: Phranny_81 Start: 45760, Stop: 45452, Start Num: 3

Candidate Starts for Phranny_81:

(Start: 1 @45787 has 4 MA's), (2, 45769), (Start: 3 @45760 has 72 MA's), (6, 45694), (9, 45619), (10, 45586), (11, 45496),

Gene: PotatoSplit_90 Start: 48480, Stop: 48172, Start Num: 3

Candidate Starts for PotatoSplit_90:

(Start: 1 @48507 has 4 MA's), (2, 48489), (Start: 3 @48480 has 72 MA's), (5, 48423), (6, 48414), (9, 48339), (10, 48306), (11, 48216),

Gene: PurpleHaze_83 Start: 46331, Stop: 46023, Start Num: 3

Candidate Starts for PurpleHaze_83:

(Start: 1 @46358 has 4 MA's), (2, 46340), (Start: 3 @46331 has 72 MA's), (6, 46265), (9, 46190), (10, 46157), (11, 46067),

Gene: Reba_84 Start: 47148, Stop: 46840, Start Num: 3

Candidate Starts for Reba_84:

(Start: 1 @47175 has 4 MA's), (2, 47157), (Start: 3 @47148 has 72 MA's), (6, 47082), (9, 47007), (10, 46974), (11, 46884),

Gene: Rummer_88 Start: 48504, Stop: 48196, Start Num: 3

Candidate Starts for Rummer_88:

(Start: 1 @48531 has 4 MA's), (2, 48513), (Start: 3 @48504 has 72 MA's), (5, 48447), (6, 48438), (9, 48363), (10, 48330), (11, 48240),

Gene: Sabia_87 Start: 48592, Stop: 48257, Start Num: 1

Candidate Starts for Sabia_87:

(Start: 1 @48592 has 4 MA's), (2, 48574), (Start: 3 @48565 has 72 MA's), (6, 48499), (9, 48424), (10, 48391), (11, 48301),

Gene: Sabinator_87 Start: 48478, Stop: 48170, Start Num: 3

Candidate Starts for Sabinator_87:

(Start: 1 @48505 has 4 MA's), (2, 48487), (Start: 3 @48478 has 72 MA's), (5, 48421), (6, 48412), (9, 48337), (10, 48304), (11, 48214),

Gene: Snickers_85 Start: 48530, Stop: 48222, Start Num: 3

Candidate Starts for Snickers_85:

(Start: 1 @48557 has 4 MA's), (2, 48539), (Start: 3 @48530 has 72 MA's), (6, 48464), (8, 48428), (9, 48389), (10, 48356), (11, 48266),

Gene: SoYo_86 Start: 48392, Stop: 48084, Start Num: 3

Candidate Starts for SoYo_86:

(Start: 1 @48419 has 4 MA's), (2, 48401), (Start: 3 @48392 has 72 MA's), (5, 48335), (6, 48326), (9, 48251), (10, 48218), (11, 48128),

Gene: SoilDragon_90 Start: 48027, Stop: 47692, Start Num: 1

Candidate Starts for SoilDragon_90:

(Start: 1 @48027 has 4 MA's), (2, 48009), (Start: 3 @48000 has 72 MA's), (6, 47934), (9, 47859), (10, 47826), (11, 47736),

Gene: Soshari_91 Start: 48500, Stop: 48192, Start Num: 3

Candidate Starts for Soshari_91:

(Start: 1 @48527 has 4 MA's), (2, 48509), (Start: 3 @48500 has 72 MA's), (5, 48443), (6, 48434), (9, 48359), (10, 48326), (11, 48236),

Gene: Spike509_90 Start: 48582, Stop: 48274, Start Num: 3

Candidate Starts for Spike509_90:

(Start: 1 @48609 has 4 MA's), (2, 48591), (Start: 3 @48582 has 72 MA's), (5, 48525), (6, 48516), (9, 48441), (10, 48408), (11, 48318),

Gene: Stagni_86 Start: 48560, Stop: 48252, Start Num: 3

Candidate Starts for Stagni_86:

(Start: 1 @48587 has 4 MA's), (2, 48569), (Start: 3 @48560 has 72 MA's), (6, 48494), (9, 48419), (10, 48386), (11, 48296),

Gene: StepMih_90 Start: 48551, Stop: 48243, Start Num: 3

Candidate Starts for StepMih_90:

(Start: 1 @48578 has 4 MA's), (2, 48560), (Start: 3 @48551 has 72 MA's), (6, 48485), (9, 48410), (10, 48377), (11, 48287),

Gene: Taurus_90 Start: 48474, Stop: 48166, Start Num: 3

Candidate Starts for Taurus_90:

(Start: 1 @48501 has 4 MA's), (2, 48483), (Start: 3 @48474 has 72 MA's), (5, 48417), (6, 48408), (9, 48333), (10, 48300), (11, 48210),

Gene: Tiffany_88 Start: 48364, Stop: 48056, Start Num: 3

Candidate Starts for Tiffany_88:

(Start: 1 @48391 has 4 MA's), (2, 48373), (Start: 3 @48364 has 72 MA's), (5, 48307), (6, 48298), (9, 48223), (10, 48190), (11, 48100),

Gene: TinyPebbles_85 Start: 48508, Stop: 48200, Start Num: 3

Candidate Starts for TinyPebbles_85:

(Start: 1 @48535 has 4 MA's), (2, 48517), (Start: 3 @48508 has 72 MA's), (5, 48451), (6, 48442), (9, 48367), (10, 48334), (11, 48244),

Gene: Vix_85 Start: 48559, Stop: 48251, Start Num: 3

Candidate Starts for Vix_85:

(Start: 1 @48586 has 4 MA's), (2, 48568), (Start: 3 @48559 has 72 MA's), (5, 48502), (6, 48493), (9, 48418), (10, 48385), (11, 48295),

Gene: Watson_89 Start: 48549, Stop: 48241, Start Num: 3

Candidate Starts for Watson_89:

(Start: 1 @48576 has 4 MA's), (2, 48558), (Start: 3 @48549 has 72 MA's), (6, 48483), (9, 48408), (10, 48375), (11, 48285),

Gene: Wooldri_91 Start: 48385, Stop: 48077, Start Num: 3

Candidate Starts for Wooldri_91:

(Start: 1 @48412 has 4 MA's), (2, 48394), (Start: 3 @48385 has 72 MA's), (5, 48328), (6, 48319), (9, 48244), (10, 48211), (11, 48121),

Gene: Zetzy_81 Start: 45966, Stop: 45631, Start Num: 1

Candidate Starts for Zetzy_81:

(Start: 1 @45966 has 4 MA's), (2, 45948), (Start: 3 @45939 has 72 MA's), (6, 45873), (7, 45867), (9, 45798), (10, 45765), (11, 45675),