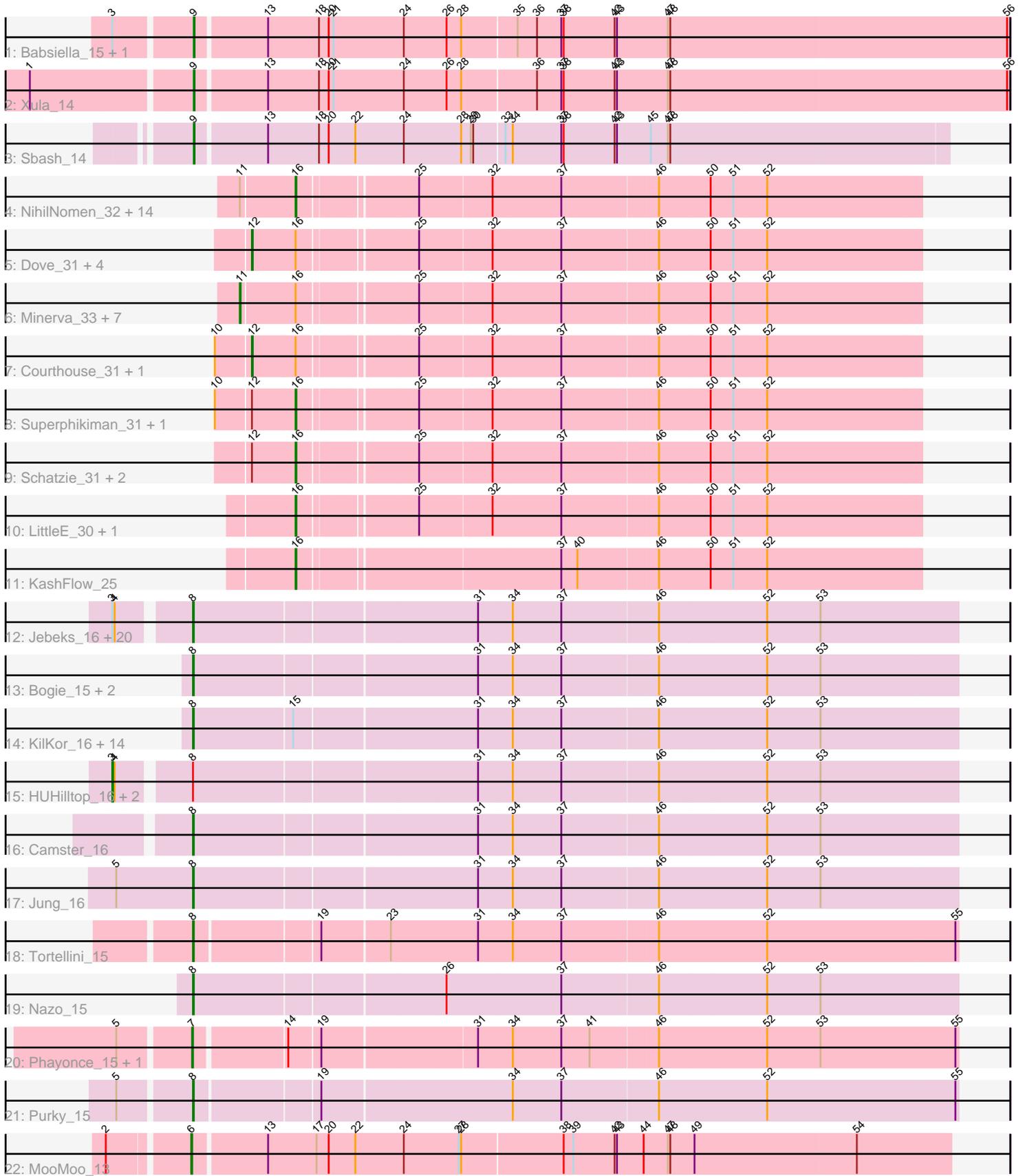# Pham 291037

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 291037 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291037 has 92 members, 0 are drafts.

Phages represented in each track:
• Track 1 : Babsiella_15, QueenHazel_15
• Track 2 : Xula_14
• Track 3 : Sbash_14
• Track 4 : NihilNomen_32, Phoebus_33, Optimus_31, Dallas_33, HokkenD_28, ThreeRngTarjay_32, Yeet_31, EricMillard_33, Klein_33, Zelink_34, Constella_28, DmpstrDiver_32, Ejimix_34, Beem_33, Thibault_29
• Track 5 : Dove_31, Ariel_31, Hughesyang_32, Bobby_34, Lucky2013_31
• Track 6 : Minerva_33, Duke13_30, Wanda_34, Halley_33, Kalah2_34, Redno2_32, BAKA_29, JuicyJay_34
• Track 7 : Courthouse_31, MiaZeal_30
• Track 8 : Superphikiman_31, Porcelain_30
• Track 9 : Schatzie_31, Squint_30, Bombitas_30
• Track 10 : LittleE_30, Hannaconda_28
• Track 11 : KashFlow_25
• Track 12 : Jebeks_16, Etoile_16, Langerak_16, Xavia_16, Venti_16, Fishburne_16, Zilizebeth_16, Ksquared_15, Necropolis_16, Bunnies_16, Bartholomew_16, Bhagsy_16, Willsammy_16, Thespis_16, Brusacoram_16, GreaseLightnin_16, Phineas_16, StevieRay_16, Kari_16, Atcoo_16, Juniormint_16
• Track 13 : Bogie_15, Shipwreck_15, Pygmy_15
• Track 14 : KilKor_16, Phalm_16, Mangethe_16, Sonah_16, Majeke_16, StressBall_16, Megiddo_16, Donovan_16, Techage_16, Arib1_16, Gavriela_16, CactusJack_16, Malithi_16, Phegasus_16, Glaske_16
• Track 15 : HUHilltop_16, Dynamo_16, FirstPlacePfu_16
• Track 16 : Camster_16
• Track 17 : Jung_16
• Track 18 : Tortellini_15
• Track 19 : Nazo_15
• Track 20 : Phayonce_15, ThulaThula_15
• Track 21 : Purky_15
• Track 22 : MooMoo_13

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

The start number called the most often in the published annotations is 8, it was called in 44 of the 92 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Arib1_16, Atcoo_16, Bartholomew_16, Bhagsy_16, Bogie_15, Brusacoram_16, Bunnies_16, CactusJack_16, Camster_16, Donovan_16, Etoile_16, Fishburne_16, Gavriela_16, Glaske_16, GreaseLightnin_16, Jebeks_16, Jung_16, Juniormint_16, Kari_16, KilKor_16, Ksquared_15, Langerak_16, Majeke_16, Malithi_16, Mangethe_16, Megiddo_16, Nazo_15, Necropolis_16, Phalm_16, Phegasus_16, Phineas_16, Purky_15, Pygmy_15, Shipwreck_15, Sonah_16, StevieRay_16, StressBall_16, Techage_16, Thespis_16, Tortellini_15, Venti_16, Willsammy_16, Xavia_16, Zilizebeth_16,

Genes that have the "Most Annotated" start but do not call it:
• Dynamo_16, FirstPlacePfu_16, HUHilltop_16,

Genes that do not have the "Most Annotated" start:
• Ariel_31, BAKA_29, Babsiella_15, Beem_33, Bobby_34, Bombitas_30, Constella_28, Courthouse_31, Dallas_33, DmpstrDiver_32, Dove_31, Duke13_30, Ejimix_34, EricMillard_33, Halley_33, Hannaconda_28, HokkenD_28, Hughesyang_32, JuicyJay_34, Kalah2_34, KashFlow_25, Klein_33, LittleE_30, Lucky2013_31, MiaZeal_30, Minerva_33, MooMoo_13, NihilNomen_32, Optimus_31, Phayonce_15, Phoebus_33, Porcelain_30, QueenHazel_15, Redno2_32, Sbash_14, Schatzie_31, Squint_30, Superphikiman_31, Thibault_29, ThreeRngTarjay_32, ThulaThula_15, Wanda_34, Xula_14, Yeet_31, Zelink_34,

Summary by start number:

Start 3:
• Found in 26 of 92 (28.3%) of genes in pham
• Manual Annotations of this start: 3 of 92
• Called 11.5% of time when present
• Phage (with cluster) where this start called: Dynamo_16 (P1), FirstPlacePfu_16 (P1), HUHilltop_16 (P1),

Start 6:
• Found in 1 of 92 (1.1%) of genes in pham
• Manual Annotations of this start: 1 of 92
• Called 100.0% of time when present
• Phage (with cluster) where this start called: MooMoo_13 (singleton),

Start 7:
• Found in 2 of 92 (2.2%) of genes in pham
• Manual Annotations of this start: 2 of 92
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Phayonce_15 (P5), ThulaThula_15 (P5),

Start 8:
• Found in 47 of 92 (51.1%) of genes in pham
• Manual Annotations of this start: 44 of 92
• Called 93.6% of time when present
• Phage (with cluster) where this start called: Arib1_16 (P1), Atcoo_16 (P1), Bartholomew_16 (P1), Bhagsy_16 (P1), Bogie_15 (P1), Brusacoram_16 (P1),

Bunnies_16 (P1), CactusJack_16 (P1), Camster_16 (P1), Donovan_16 (P1), Etoile_16 (P1), Fishburne_16 (P1), Gavriela_16 (P1), Glaske_16 (P1), GreaseLightnin_16 (P1), Jebeks_16 (P1), Jung_16 (P1), Juniormint_16 (P1), Kari_16 (P1), KilKor_16 (P1), Ksquared_15 (P1), Langerak_16 (P1), Majeke_16 (P1), Malithi_16 (P1), Mangethe_16 (P1), Megiddo_16 (P1), Nazo_15 (P4), Necropolis_16 (P1), Phalm_16 (P1), Phegasus_16 (P1), Phineas_16 (P1), Purky_15 (P6), Pygmy_15 (P1), Shipwreck_15 (P1), Sonah_16 (P1), StevieRay_16 (P1), StressBall_16 (P1), Techage_16 (P1), Thespis_16 (P1), Tortellini_15 (P2), Venti_16 (P1), Willsammy_16 (P1), Xavia_16 (P3), Zilizebeth_16 (P1),

Start 9:
• Found in 4 of 92 (4.3%) of genes in pham
• Manual Annotations of this start: 4 of 92
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Babsiella_15 (I1), QueenHazel_15 (I1), Sbash_14 (I2), Xula_14 (I1),

Start 11:
• Found in 23 of 92 (25.0%) of genes in pham
• Manual Annotations of this start: 8 of 92
• Called 34.8% of time when present
• Phage (with cluster) where this start called: BAKA_29 (J), Duke13_30 (J), Halley_33 (J), JuicyJay_34 (J), Kalah2_34 (J), Minerva_33 (J), Redno2_32 (J), Wanda_34 (J),

Start 12:
• Found in 12 of 92 (13.0%) of genes in pham
• Manual Annotations of this start: 7 of 92
• Called 58.3% of time when present
• Phage (with cluster) where this start called: Ariel_31 (J), Bobby_34 (J), Courthouse_31 (J), Dove_31 (J), Hughesyang_32 (J), Lucky2013_31 (J), MiaZeal_30 (J),

Start 16:
• Found in 38 of 92 (41.3%) of genes in pham
• Manual Annotations of this start: 23 of 92
• Called 60.5% of time when present
• Phage (with cluster) where this start called: Beem_33 (J), Bombitas_30 (J), Constella_28 (J), Dallas_33 (J), DmpstrDiver_32 (J), Ejimix_34 (J), EricMillard_33 (J), Hannaconda_28 (J), HokkenD_28 (J), KashFlow_25 (J), Klein_33 (J), LittleE_30 (J), NihilNomen_32 (J), Optimus_31 (J), Phoebus_33 (J), Porcelain_30 (J), Schatzie_31 (J), Squint_30 (J), Superphikiman_31 (J), Thibault_29 (J), ThreeRngTarjay_32 (J), Yeet_31 (J), Zelink_34 (J),

Summary by clusters:

There are 10 clusters represented in this pham: P2, P3, singleton, P1, P6, P4, P5, I1, J, I2,

Info for manual annotations of cluster I1:
•Start number 9 was manually annotated 3 times for cluster I1.

Info for manual annotations of cluster I2:
•Start number 9 was manually annotated 1 time for cluster I2.

Info for manual annotations of cluster J:
•Start number 11 was manually annotated 8 times for cluster J.
•Start number 12 was manually annotated 7 times for cluster J.
•Start number 16 was manually annotated 23 times for cluster J.

Info for manual annotations of cluster P1:
•Start number 3 was manually annotated 3 times for cluster P1.
•Start number 8 was manually annotated 40 times for cluster P1.

Info for manual annotations of cluster P2:
•Start number 8 was manually annotated 1 time for cluster P2.

Info for manual annotations of cluster P3:
•Start number 8 was manually annotated 1 time for cluster P3.

Info for manual annotations of cluster P4:
•Start number 8 was manually annotated 1 time for cluster P4.

Info for manual annotations of cluster P5:
•Start number 7 was manually annotated 2 times for cluster P5.

Info for manual annotations of cluster P6:
•Start number 8 was manually annotated 1 time for cluster P6.

Gene Information:

Gene: Arib1_16 Start: 9932, Stop: 10850, Start Num: 8
Candidate Starts for Arib1_16:
(Start: 8 @9932 has 44 MA's), (15, 10052), (31, 10268), (34, 10310), (37, 10370), (46, 10484), (52, 10616), (53, 10682),

Gene: Ariel_31 Start: 16959, Stop: 17742, Start Num: 12
Candidate Starts for Ariel_31:
(Start: 12 @16959 has 7 MA's), (Start: 16 @17010 has 23 MA's), (25, 17142), (32, 17229), (37, 17313), (46, 17427), (50, 17490), (51, 17517), (52, 17556),

Gene: Atcoo_16 Start: 9945, Stop: 10863, Start Num: 8
Candidate Starts for Atcoo_16:
(Start: 3 @9864 has 3 MA's), (4, 9867), (Start: 8 @9945 has 44 MA's), (31, 10281), (34, 10323), (37, 10383), (46, 10497), (52, 10629), (53, 10695),

Gene: BAKA_29 Start: 19034, Stop: 19829, Start Num: 11
Candidate Starts for BAKA_29:
(Start: 11 @19034 has 8 MA's), (Start: 16 @19097 has 23 MA's), (25, 19229), (32, 19316), (37, 19400), (46, 19514), (50, 19577), (51, 19604), (52, 19643),

Gene: Babsiella_15 Start: 9775, Stop: 10768, Start Num: 9
Candidate Starts for Babsiella_15:
(Start: 3 @9688 has 3 MA's), (Start: 9 @9775 has 4 MA's), (13, 9859), (18, 9922), (20, 9934), (21, 9940), (24, 10027), (26, 10078), (28, 10096), (35, 10162), (36, 10186), (37, 10216), (38, 10219), (42,

10282), (43, 10285), (47, 10348), (48, 10351), (56, 10765),

Gene: Bartholomew_16 Start: 9941, Stop: 10859, Start Num: 8
Candidate Starts for Bartholomew_16:
(Start: 3 @9860 has 3 MA's), (4, 9863), (Start: 8 @9941 has 44 MA's), (31, 10277), (34, 10319), (37, 10379), (46, 10493), (52, 10625), (53, 10691),

Gene: Beem_33 Start: 19452, Stop: 20184, Start Num: 16
Candidate Starts for Beem_33:
(Start: 11 @19389 has 8 MA's), (Start: 16 @19452 has 23 MA's), (25, 19584), (32, 19671), (37, 19755), (46, 19869), (50, 19932), (51, 19959), (52, 19998),

Gene: Bhagsy_16 Start: 9948, Stop: 10866, Start Num: 8
Candidate Starts for Bhagsy_16:
(Start: 3 @9867 has 3 MA's), (4, 9870), (Start: 8 @9948 has 44 MA's), (31, 10284), (34, 10326), (37, 10386), (46, 10500), (52, 10632), (53, 10698),

Gene: Bobby_34 Start: 19353, Stop: 20136, Start Num: 12
Candidate Starts for Bobby_34:
(Start: 12 @19353 has 7 MA's), (Start: 16 @19404 has 23 MA's), (25, 19536), (32, 19623), (37, 19707), (46, 19821), (50, 19884), (51, 19911), (52, 19950),

Gene: Bogie_15 Start: 9664, Stop: 10582, Start Num: 8
Candidate Starts for Bogie_15:
(Start: 8 @9664 has 44 MA's), (31, 10000), (34, 10042), (37, 10102), (46, 10216), (52, 10348), (53, 10414),

Gene: Bombitas_30 Start: 18761, Stop: 19493, Start Num: 16
Candidate Starts for Bombitas_30:
(Start: 12 @18710 has 7 MA's), (Start: 16 @18761 has 23 MA's), (25, 18893), (32, 18980), (37, 19064), (46, 19178), (50, 19241), (51, 19268), (52, 19307),

Gene: Brusacoram_16 Start: 9944, Stop: 10862, Start Num: 8
Candidate Starts for Brusacoram_16:
(Start: 3 @9863 has 3 MA's), (4, 9866), (Start: 8 @9944 has 44 MA's), (31, 10280), (34, 10322), (37, 10382), (46, 10496), (52, 10628), (53, 10694),

Gene: Bunnies_16 Start: 9957, Stop: 10875, Start Num: 8
Candidate Starts for Bunnies_16:
(Start: 3 @9876 has 3 MA's), (4, 9879), (Start: 8 @9957 has 44 MA's), (31, 10293), (34, 10335), (37, 10395), (46, 10509), (52, 10641), (53, 10707),

Gene: CactusJack_16 Start: 9949, Stop: 10867, Start Num: 8
Candidate Starts for CactusJack_16:
(Start: 8 @9949 has 44 MA's), (15, 10069), (31, 10285), (34, 10327), (37, 10387), (46, 10501), (52, 10633), (53, 10699),

Gene: Camster_16 Start: 9942, Stop: 10860, Start Num: 8
Candidate Starts for Camster_16:
(Start: 8 @9942 has 44 MA's), (31, 10278), (34, 10320), (37, 10380), (46, 10494), (52, 10626), (53, 10692),

Gene: Constella_28 Start: 18275, Stop: 19007, Start Num: 16

Candidate Starts for Constella_28:
(Start: 11 @18212 has 8 MA's), (Start: 16 @18275 has 23 MA's), (25, 18407), (32, 18494), (37, 18578), (46, 18692), (50, 18755), (51, 18782), (52, 18821),

Gene: Courthouse_31 Start: 17362, Stop: 18145, Start Num: 12
Candidate Starts for Courthouse_31:
(10, 17320), (Start: 12 @17362 has 7 MA's), (Start: 16 @17413 has 23 MA's), (25, 17545), (32, 17632), (37, 17716), (46, 17830), (50, 17893), (51, 17920), (52, 17959),

Gene: Dallas_33 Start: 18992, Stop: 19724, Start Num: 16
Candidate Starts for Dallas_33:
(Start: 11 @18929 has 8 MA's), (Start: 16 @18992 has 23 MA's), (25, 19124), (32, 19211), (37, 19295), (46, 19409), (50, 19472), (51, 19499), (52, 19538),

Gene: DmpstrDiver_32 Start: 19628, Stop: 20360, Start Num: 16
Candidate Starts for DmpstrDiver_32:
(Start: 11 @19565 has 8 MA's), (Start: 16 @19628 has 23 MA's), (25, 19760), (32, 19847), (37, 19931), (46, 20045), (50, 20108), (51, 20135), (52, 20174),

Gene: Donovan_16 Start: 9933, Stop: 10851, Start Num: 8
Candidate Starts for Donovan_16:
(Start: 8 @9933 has 44 MA's), (15, 10053), (31, 10269), (34, 10311), (37, 10371), (46, 10485), (52, 10617), (53, 10683),

Gene: Dove_31 Start: 18709, Stop: 19492, Start Num: 12
Candidate Starts for Dove_31:
(Start: 12 @18709 has 7 MA's), (Start: 16 @18760 has 23 MA's), (25, 18892), (32, 18979), (37, 19063), (46, 19177), (50, 19240), (51, 19267), (52, 19306),

Gene: Duke13_30 Start: 18963, Stop: 19758, Start Num: 11
Candidate Starts for Duke13_30:
(Start: 11 @18963 has 8 MA's), (Start: 16 @19026 has 23 MA's), (25, 19158), (32, 19245), (37, 19329), (46, 19443), (50, 19506), (51, 19533), (52, 19572),

Gene: Dynamo_16 Start: 9860, Stop: 10859, Start Num: 3
Candidate Starts for Dynamo_16:
(Start: 3 @9860 has 3 MA's), (4, 9863), (Start: 8 @9941 has 44 MA's), (31, 10277), (34, 10319), (37, 10379), (46, 10493), (52, 10625), (53, 10691),

Gene: Ejimix_34 Start: 20202, Stop: 20934, Start Num: 16
Candidate Starts for Ejimix_34:
(Start: 11 @20139 has 8 MA's), (Start: 16 @20202 has 23 MA's), (25, 20334), (32, 20421), (37, 20505), (46, 20619), (50, 20682), (51, 20709), (52, 20748),

Gene: EricMillard_33 Start: 19738, Stop: 20470, Start Num: 16
Candidate Starts for EricMillard_33:
(Start: 11 @19675 has 8 MA's), (Start: 16 @19738 has 23 MA's), (25, 19870), (32, 19957), (37, 20041), (46, 20155), (50, 20218), (51, 20245), (52, 20284),

Gene: Etoile_16 Start: 9941, Stop: 10859, Start Num: 8
Candidate Starts for Etoile_16:
(Start: 3 @9860 has 3 MA's), (4, 9863), (Start: 8 @9941 has 44 MA's), (31, 10277), (34, 10319), (37, 10379), (46, 10493), (52, 10625), (53, 10691),

Gene: FirstPlacePfu_16 Start: 9860, Stop: 10859, Start Num: 3
Candidate Starts for FirstPlacePfu_16:
(Start: 3 @9860 has 3 MA's), (4, 9863), (Start: 8 @9941 has 44 MA's), (31, 10277), (34, 10319), (37, 10379), (46, 10493), (52, 10625), (53, 10691),

Gene: Fishburne_16 Start: 9941, Stop: 10859, Start Num: 8
Candidate Starts for Fishburne_16:
(Start: 3 @9860 has 3 MA's), (4, 9863), (Start: 8 @9941 has 44 MA's), (31, 10277), (34, 10319), (37, 10379), (46, 10493), (52, 10625), (53, 10691),

Gene: Gavriela_16 Start: 9949, Stop: 10867, Start Num: 8
Candidate Starts for Gavriela_16:
(Start: 8 @9949 has 44 MA's), (15, 10069), (31, 10285), (34, 10327), (37, 10387), (46, 10501), (52, 10633), (53, 10699),

Gene: Glaske_16 Start: 9949, Stop: 10867, Start Num: 8
Candidate Starts for Glaske_16:
(Start: 8 @9949 has 44 MA's), (15, 10069), (31, 10285), (34, 10327), (37, 10387), (46, 10501), (52, 10633), (53, 10699),

Gene: GreaseLightnin_16 Start: 9941, Stop: 10859, Start Num: 8
Candidate Starts for GreaseLightnin_16:
(Start: 3 @9860 has 3 MA's), (4, 9863), (Start: 8 @9941 has 44 MA's), (31, 10277), (34, 10319), (37, 10379), (46, 10493), (52, 10625), (53, 10691),

Gene: HUHilltop_16 Start: 9860, Stop: 10859, Start Num: 3
Candidate Starts for HUHilltop_16:
(Start: 3 @9860 has 3 MA's), (4, 9863), (Start: 8 @9941 has 44 MA's), (31, 10277), (34, 10319), (37, 10379), (46, 10493), (52, 10625), (53, 10691),

Gene: Halley_33 Start: 19388, Stop: 20183, Start Num: 11
Candidate Starts for Halley_33:
(Start: 11 @19388 has 8 MA's), (Start: 16 @19451 has 23 MA's), (25, 19583), (32, 19670), (37, 19754), (46, 19868), (50, 19931), (51, 19958), (52, 19997),

Gene: Hannaconda_28 Start: 16092, Stop: 16824, Start Num: 16
Candidate Starts for Hannaconda_28:
(Start: 16 @16092 has 23 MA's), (25, 16224), (32, 16311), (37, 16395), (46, 16509), (50, 16572), (51, 16599), (52, 16638),

Gene: HokkenD_28 Start: 19021, Stop: 19753, Start Num: 16
Candidate Starts for HokkenD_28:
(Start: 11 @18958 has 8 MA's), (Start: 16 @19021 has 23 MA's), (25, 19153), (32, 19240), (37, 19324), (46, 19438), (50, 19501), (51, 19528), (52, 19567),

Gene: Hughesyang_32 Start: 19582, Stop: 20365, Start Num: 12
Candidate Starts for Hughesyang_32:
(Start: 12 @19582 has 7 MA's), (Start: 16 @19633 has 23 MA's), (25, 19765), (32, 19852), (37, 19936), (46, 20050), (50, 20113), (51, 20140), (52, 20179),

Gene: Jebeks_16 Start: 9926, Stop: 10844, Start Num: 8
Candidate Starts for Jebeks_16:

(Start: 3 @9845 has 3 MA's), (4, 9848), (Start: 8 @9926 has 44 MA's), (31, 10262), (34, 10304), (37, 10364), (46, 10478), (52, 10610), (53, 10676),

Gene: JuicyJay_34 Start: 20222, Stop: 21017, Start Num: 11
Candidate Starts for JuicyJay_34:
(Start: 11 @20222 has 8 MA's), (Start: 16 @20285 has 23 MA's), (25, 20417), (32, 20504), (37, 20588), (46, 20702), (50, 20765), (51, 20792), (52, 20831),

Gene: Jung_16 Start: 9987, Stop: 10905, Start Num: 8
Candidate Starts for Jung_16:
(5, 9894), (Start: 8 @9987 has 44 MA's), (31, 10323), (34, 10365), (37, 10425), (46, 10539), (52, 10671), (53, 10737),

Gene: Juniormint_16 Start: 9961, Stop: 10879, Start Num: 8
Candidate Starts for Juniormint_16:
(Start: 3 @9880 has 3 MA's), (4, 9883), (Start: 8 @9961 has 44 MA's), (31, 10297), (34, 10339), (37, 10399), (46, 10513), (52, 10645), (53, 10711),

Gene: Kalah2_34 Start: 19990, Stop: 20785, Start Num: 11
Candidate Starts for Kalah2_34:
(Start: 11 @19990 has 8 MA's), (Start: 16 @20053 has 23 MA's), (25, 20185), (32, 20272), (37, 20356), (46, 20470), (50, 20533), (51, 20560), (52, 20599),

Gene: Kari_16 Start: 9941, Stop: 10859, Start Num: 8
Candidate Starts for Kari_16:
(Start: 3 @9860 has 3 MA's), (4, 9863), (Start: 8 @9941 has 44 MA's), (31, 10277), (34, 10319), (37, 10379), (46, 10493), (52, 10625), (53, 10691),

Gene: KashFlow_25 Start: 15658, Stop: 16390, Start Num: 16
Candidate Starts for KashFlow_25:
(Start: 16 @15658 has 23 MA's), (37, 15961), (40, 15979), (46, 16075), (50, 16138), (51, 16165), (52, 16204),

Gene: KilKor_16 Start: 9949, Stop: 10867, Start Num: 8
Candidate Starts for KilKor_16:
(Start: 8 @9949 has 44 MA's), (15, 10069), (31, 10285), (34, 10327), (37, 10387), (46, 10501), (52, 10633), (53, 10699),

Gene: Klein_33 Start: 19031, Stop: 19763, Start Num: 16
Candidate Starts for Klein_33:
(Start: 11 @18968 has 8 MA's), (Start: 16 @19031 has 23 MA's), (25, 19163), (32, 19250), (37, 19334), (46, 19448), (50, 19511), (51, 19538), (52, 19577),

Gene: Ksquared_15 Start: 9957, Stop: 10875, Start Num: 8
Candidate Starts for Ksquared_15:
(Start: 3 @9876 has 3 MA's), (4, 9879), (Start: 8 @9957 has 44 MA's), (31, 10293), (34, 10335), (37, 10395), (46, 10509), (52, 10641), (53, 10707),

Gene: Langerak_16 Start: 9925, Stop: 10843, Start Num: 8
Candidate Starts for Langerak_16:
(Start: 3 @9844 has 3 MA's), (4, 9847), (Start: 8 @9925 has 44 MA's), (31, 10261), (34, 10303), (37, 10363), (46, 10477), (52, 10609), (53, 10675),

Gene: LittleE_30 Start: 18797, Stop: 19529, Start Num: 16
Candidate Starts for LittleE_30:
(Start: 16 @18797 has 23 MA's), (25, 18929), (32, 19016), (37, 19100), (46, 19214), (50, 19277), (51, 19304), (52, 19343),

Gene: Lucky2013_31 Start: 17489, Stop: 18272, Start Num: 12
Candidate Starts for Lucky2013_31:
(Start: 12 @17489 has 7 MA's), (Start: 16 @17540 has 23 MA's), (25, 17672), (32, 17759), (37, 17843), (46, 17957), (50, 18020), (51, 18047), (52, 18086),

Gene: Majeke_16 Start: 9932, Stop: 10850, Start Num: 8
Candidate Starts for Majeke_16:
(Start: 8 @9932 has 44 MA's), (15, 10052), (31, 10268), (34, 10310), (37, 10370), (46, 10484), (52, 10616), (53, 10682),

Gene: Malithi_16 Start: 9986, Stop: 10904, Start Num: 8
Candidate Starts for Malithi_16:
(Start: 8 @9986 has 44 MA's), (15, 10106), (31, 10322), (34, 10364), (37, 10424), (46, 10538), (52, 10670), (53, 10736),

Gene: Mangethe_16 Start: 9932, Stop: 10850, Start Num: 8
Candidate Starts for Mangethe_16:
(Start: 8 @9932 has 44 MA's), (15, 10052), (31, 10268), (34, 10310), (37, 10370), (46, 10484), (52, 10616), (53, 10682),

Gene: Megiddo_16 Start: 9949, Stop: 10867, Start Num: 8
Candidate Starts for Megiddo_16:
(Start: 8 @9949 has 44 MA's), (15, 10069), (31, 10285), (34, 10327), (37, 10387), (46, 10501), (52, 10633), (53, 10699),

Gene: MiaZeal_30 Start: 17180, Stop: 17963, Start Num: 12
Candidate Starts for MiaZeal_30:
(10, 17138), (Start: 12 @17180 has 7 MA's), (Start: 16 @17231 has 23 MA's), (25, 17363), (32, 17450), (37, 17534), (46, 17648), (50, 17711), (51, 17738), (52, 17777),

Gene: Minerva_33 Start: 19453, Stop: 20248, Start Num: 11
Candidate Starts for Minerva_33:
(Start: 11 @19453 has 8 MA's), (Start: 16 @19516 has 23 MA's), (25, 19648), (32, 19735), (37, 19819), (46, 19933), (50, 19996), (51, 20023), (52, 20062),

Gene: MooMoo_13 Start: 8071, Stop: 8992, Start Num: 6
Candidate Starts for MooMoo_13:
(2, 7981), (Start: 6 @8071 has 1 MA's), (13, 8158), (17, 8218), (20, 8233), (22, 8266), (24, 8326), (27, 8392), (28, 8395), (38, 8518), (39, 8530), (42, 8581), (43, 8584), (44, 8617), (47, 8647), (48, 8650), (49, 8680), (54, 8878),

Gene: Nazo_15 Start: 9666, Stop: 10584, Start Num: 8
Candidate Starts for Nazo_15:
(Start: 8 @9666 has 44 MA's), (26, 9963), (37, 10104), (46, 10218), (52, 10350), (53, 10416),

Gene: Necropolis_16 Start: 9941, Stop: 10859, Start Num: 8
Candidate Starts for Necropolis_16:

(Start: 3 @9860 has 3 MA's), (4, 9863), (Start: 8 @9941 has 44 MA's), (31, 10277), (34, 10319), (37, 10379), (46, 10493), (52, 10625), (53, 10691),

Gene: NihilNomen_32 Start: 19513, Stop: 20245, Start Num: 16
Candidate Starts for NihilNomen_32:
(Start: 11 @19450 has 8 MA's), (Start: 16 @19513 has 23 MA's), (25, 19645), (32, 19732), (37, 19816), (46, 19930), (50, 19993), (51, 20020), (52, 20059),

Gene: Optimus_31 Start: 19091, Stop: 19823, Start Num: 16
Candidate Starts for Optimus_31:
(Start: 11 @19028 has 8 MA's), (Start: 16 @19091 has 23 MA's), (25, 19223), (32, 19310), (37, 19394), (46, 19508), (50, 19571), (51, 19598), (52, 19637),

Gene: Phalm_16 Start: 9949, Stop: 10867, Start Num: 8
Candidate Starts for Phalm_16:
(Start: 8 @9949 has 44 MA's), (15, 10069), (31, 10285), (34, 10327), (37, 10387), (46, 10501), (52, 10633), (53, 10699),

Gene: Phayonce_15 Start: 9613, Stop: 10519, Start Num: 7
Candidate Starts for Phayonce_15:
(5, 9529), (Start: 7 @9613 has 2 MA's), (14, 9718), (19, 9754), (31, 9937), (34, 9979), (37, 10039), (41, 10072), (46, 10153), (52, 10285), (53, 10351), (55, 10516),

Gene: Phegasus_16 Start: 9932, Stop: 10850, Start Num: 8
Candidate Starts for Phegasus_16:
(Start: 8 @9932 has 44 MA's), (15, 10052), (31, 10268), (34, 10310), (37, 10370), (46, 10484), (52, 10616), (53, 10682),

Gene: Phineas_16 Start: 9929, Stop: 10847, Start Num: 8
Candidate Starts for Phineas_16:
(Start: 3 @9848 has 3 MA's), (4, 9851), (Start: 8 @9929 has 44 MA's), (31, 10265), (34, 10307), (37, 10367), (46, 10481), (52, 10613), (53, 10679),

Gene: Phoebus_33 Start: 19738, Stop: 20470, Start Num: 16
Candidate Starts for Phoebus_33:
(Start: 11 @19675 has 8 MA's), (Start: 16 @19738 has 23 MA's), (25, 19870), (32, 19957), (37, 20041), (46, 20155), (50, 20218), (51, 20245), (52, 20284),

Gene: Porcelain_30 Start: 17231, Stop: 17963, Start Num: 16
Candidate Starts for Porcelain_30:
(10, 17138), (Start: 12 @17180 has 7 MA's), (Start: 16 @17231 has 23 MA's), (25, 17363), (32, 17450), (37, 17534), (46, 17648), (50, 17711), (51, 17738), (52, 17777),

Gene: Purky_15 Start: 9624, Stop: 10536, Start Num: 8
Candidate Starts for Purky_15:
(5, 9543), (Start: 8 @9624 has 44 MA's), (19, 9768), (34, 9996), (37, 10056), (46, 10170), (52, 10302), (55, 10533),

Gene: Pygmy_15 Start: 9664, Stop: 10582, Start Num: 8
Candidate Starts for Pygmy_15:
(Start: 8 @9664 has 44 MA's), (31, 10000), (34, 10042), (37, 10102), (46, 10216), (52, 10348), (53, 10414),

Gene: QueenHazel_15 Start: 9782, Stop: 10775, Start Num: 9
Candidate Starts for QueenHazel_15:
(Start: 3 @9695 has 3 MA's), (Start: 9 @9782 has 4 MA's), (13, 9866), (18, 9929), (20, 9941), (21, 9947), (24, 10034), (26, 10085), (28, 10103), (35, 10169), (36, 10193), (37, 10223), (38, 10226), (42, 10289), (43, 10292), (47, 10355), (48, 10358), (56, 10772),

Gene: Redno2_32 Start: 19159, Stop: 19954, Start Num: 11
Candidate Starts for Redno2_32:
(Start: 11 @19159 has 8 MA's), (Start: 16 @19222 has 23 MA's), (25, 19354), (32, 19441), (37, 19525), (46, 19639), (50, 19702), (51, 19729), (52, 19768),

Gene: Sbash_14 Start: 9346, Stop: 10261, Start Num: 9
Candidate Starts for Sbash_14:
(Start: 9 @9346 has 4 MA's), (13, 9430), (18, 9493), (20, 9505), (22, 9538), (24, 9598), (28, 9667), (29, 9679), (30, 9682), (33, 9718), (34, 9727), (37, 9787), (38, 9790), (42, 9853), (43, 9856), (45, 9898), (47, 9919), (48, 9922),

Gene: Schatzie_31 Start: 18762, Stop: 19494, Start Num: 16
Candidate Starts for Schatzie_31:
(Start: 12 @18711 has 7 MA's), (Start: 16 @18762 has 23 MA's), (25, 18894), (32, 18981), (37, 19065), (46, 19179), (50, 19242), (51, 19269), (52, 19308),

Gene: Shipwreck_15 Start: 9642, Stop: 10560, Start Num: 8
Candidate Starts for Shipwreck_15:
(Start: 8 @9642 has 44 MA's), (31, 9978), (34, 10020), (37, 10080), (46, 10194), (52, 10326), (53, 10392),

Gene: Sonah_16 Start: 9934, Stop: 10852, Start Num: 8
Candidate Starts for Sonah_16:
(Start: 8 @9934 has 44 MA's), (15, 10054), (31, 10270), (34, 10312), (37, 10372), (46, 10486), (52, 10618), (53, 10684),

Gene: Squint_30 Start: 17358, Stop: 18090, Start Num: 16
Candidate Starts for Squint_30:
(Start: 12 @17307 has 7 MA's), (Start: 16 @17358 has 23 MA's), (25, 17490), (32, 17577), (37, 17661), (46, 17775), (50, 17838), (51, 17865), (52, 17904),

Gene: StevieRay_16 Start: 9932, Stop: 10850, Start Num: 8
Candidate Starts for StevieRay_16:
(Start: 3 @9851 has 3 MA's), (4, 9854), (Start: 8 @9932 has 44 MA's), (31, 10268), (34, 10310), (37, 10370), (46, 10484), (52, 10616), (53, 10682),

Gene: StressBall_16 Start: 9949, Stop: 10867, Start Num: 8
Candidate Starts for StressBall_16:
(Start: 8 @9949 has 44 MA's), (15, 10069), (31, 10285), (34, 10327), (37, 10387), (46, 10501), (52, 10633), (53, 10699),

Gene: Superphikiman_31 Start: 17413, Stop: 18145, Start Num: 16
Candidate Starts for Superphikiman_31:
(10, 17320), (Start: 12 @17362 has 7 MA's), (Start: 16 @17413 has 23 MA's), (25, 17545), (32, 17632), (37, 17716), (46, 17830), (50, 17893), (51, 17920), (52, 17959),

Gene: Techage_16 Start: 9935, Stop: 10853, Start Num: 8

Candidate Starts for Techage_16:
(Start: 8 @9935 has 44 MA's), (15, 10055), (31, 10271), (34, 10313), (37, 10373), (46, 10487), (52, 10619), (53, 10685),

Gene: Thespis_16 Start: 9944, Stop: 10862, Start Num: 8
Candidate Starts for Thespis_16:
(Start: 3 @9863 has 3 MA's), (4, 9866), (Start: 8 @9944 has 44 MA's), (31, 10280), (34, 10322), (37, 10382), (46, 10496), (52, 10628), (53, 10694),

Gene: Thibault_29 Start: 19022, Stop: 19754, Start Num: 16
Candidate Starts for Thibault_29:
(Start: 11 @18959 has 8 MA's), (Start: 16 @19022 has 23 MA's), (25, 19154), (32, 19241), (37, 19325), (46, 19439), (50, 19502), (51, 19529), (52, 19568),

Gene: ThreeRngTarjay_32 Start: 19588, Stop: 20320, Start Num: 16
Candidate Starts for ThreeRngTarjay_32:
(Start: 11 @19525 has 8 MA's), (Start: 16 @19588 has 23 MA's), (25, 19720), (32, 19807), (37, 19891), (46, 20005), (50, 20068), (51, 20095), (52, 20134),

Gene: ThulaThula_15 Start: 9619, Stop: 10525, Start Num: 7
Candidate Starts for ThulaThula_15:
(5, 9535), (Start: 7 @9619 has 2 MA's), (14, 9724), (19, 9760), (31, 9943), (34, 9985), (37, 10045), (41, 10078), (46, 10159), (52, 10291), (53, 10357), (55, 10522),

Gene: Tortellini_15 Start: 9632, Stop: 10544, Start Num: 8
Candidate Starts for Tortellini_15:
(Start: 8 @9632 has 44 MA's), (19, 9776), (23, 9857), (31, 9962), (34, 10004), (37, 10064), (46, 10178), (52, 10310), (55, 10541),

Gene: Venti_16 Start: 9941, Stop: 10859, Start Num: 8
Candidate Starts for Venti_16:
(Start: 3 @9860 has 3 MA's), (4, 9863), (Start: 8 @9941 has 44 MA's), (31, 10277), (34, 10319), (37, 10379), (46, 10493), (52, 10625), (53, 10691),

Gene: Wanda_34 Start: 18968, Stop: 19763, Start Num: 11
Candidate Starts for Wanda_34:
(Start: 11 @18968 has 8 MA's), (Start: 16 @19031 has 23 MA's), (25, 19163), (32, 19250), (37, 19334), (46, 19448), (50, 19511), (51, 19538), (52, 19577),

Gene: Willsammy_16 Start: 9947, Stop: 10865, Start Num: 8
Candidate Starts for Willsammy_16:
(Start: 3 @9866 has 3 MA's), (4, 9869), (Start: 8 @9947 has 44 MA's), (31, 10283), (34, 10325), (37, 10385), (46, 10499), (52, 10631), (53, 10697),

Gene: Xavia_16 Start: 9945, Stop: 10863, Start Num: 8
Candidate Starts for Xavia_16:
(Start: 3 @9864 has 3 MA's), (4, 9867), (Start: 8 @9945 has 44 MA's), (31, 10281), (34, 10323), (37, 10383), (46, 10497), (52, 10629), (53, 10695),

Gene: Xula_14 Start: 9411, Stop: 10404, Start Num: 9
Candidate Starts for Xula_14:
(1, 9222), (Start: 9 @9411 has 4 MA's), (13, 9495), (18, 9558), (20, 9570), (21, 9576), (24, 9663), (26, 9714), (28, 9732), (36, 9822), (37, 9852), (38, 9855), (42, 9918), (43, 9921), (47, 9984), (48, 9987), (56,

10401),

Gene: Yeet_31 Start: 18764, Stop: 19496, Start Num: 16
Candidate Starts for Yeet_31:
(Start: 11 @18701 has 8 MA's), (Start: 16 @18764 has 23 MA's), (25, 18896), (32, 18983), (37, 19067), (46, 19181), (50, 19244), (51, 19271), (52, 19310),

Gene: Zelink_34 Start: 19616, Stop: 20348, Start Num: 16
Candidate Starts for Zelink_34:
(Start: 11 @19553 has 8 MA's), (Start: 16 @19616 has 23 MA's), (25, 19748), (32, 19835), (37, 19919), (46, 20033), (50, 20096), (51, 20123), (52, 20162),

Gene: Zilizebeth_16 Start: 9941, Stop: 10859, Start Num: 8
Candidate Starts for Zilizebeth_16:
(Start: 3 @9860 has 3 MA's), (4, 9863), (Start: 8 @9941 has 44 MA's), (31, 10277), (34, 10319), (37, 10379), (46, 10493), (52, 10625), (53, 10691),