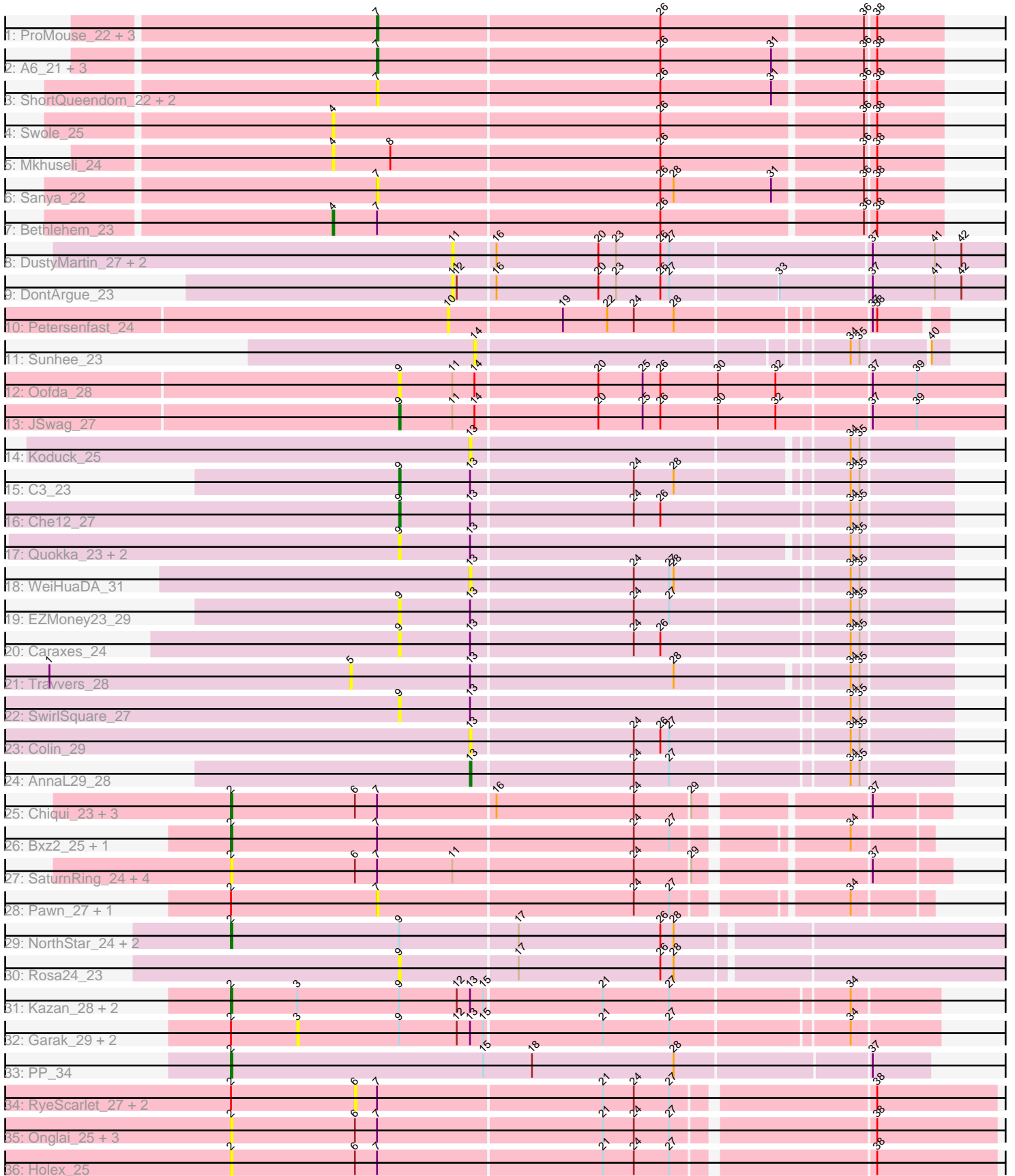


Pham 193993



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 193993 Report

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

Pham number 193993 has 68 members, 49 are drafts.

Phages represented in each track:

- Track 1 : ProMouse_22, Aeneas_25, U2_23, PhrostyMug_23
- Track 2 : A6_21, Inyanga_22, StewieG_22, BK1_21
- Track 3 : ShortQueendom_22, Teodoridan_21, Sandaddy_22
- Track 4 : Swole_25
- Track 5 : Mkhuseleli_24
- Track 6 : Sanya_22
- Track 7 : Bethlehem_23
- Track 8 : DustyMartin_27, Rowdy_27, Shapes_27
- Track 9 : DontArgue_23
- Track 10 : Petersenfast_24
- Track 11 : Sunhee_23
- Track 12 : Oofda_28
- Track 13 : JSwag_27
- Track 14 : Koduck_25
- Track 15 : C3_23
- Track 16 : Che12_27
- Track 17 : Quokka_23, Bradman_24, MajorMajor_24
- Track 18 : WeiHuaDA_31
- Track 19 : EZMoney23_29
- Track 20 : Caraxes_24
- Track 21 : Travvers_28
- Track 22 : SwirlSquare_27
- Track 23 : Colin_29
- Track 24 : AnnaL29_28
- Track 25 : Chiqui_23, Kachowdy_24, B1_22, BabyJohn_23
- Track 26 : Bxz2_25, Anubis_28
- Track 27 : SaturnRing_24, DropBear_24, Bugatti_24, Marchesa_24, Giroux_24
- Track 28 : Pawn_27, Snickers_26
- Track 29 : NorthStar_24, LeoAvram_24, Kingmustik0402_24
- Track 30 : Rosa24_23
- Track 31 : Kazan_28, Chartreuse_28, DaVinci_28
- Track 32 : Garak_29, Helmet_29, Candra_28
- Track 33 : PP_34
- Track 34 : RyeScarlet_27, EdogawaKiddo_24, Jiawan_25
- Track 35 : Onglai_25, Sachima_24, Lilleskat_24, Hanray_25
- Track 36 : Halex_25

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

The start number called the most often in the published annotations is 2, it was called in 9 of the 19 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Anubis_28, B1_22, BabyJohn_23, Bugatti_24, Bxz2_25, Chartreuse_28, Chiqui_23, DaVinci_28, DropBear_24, Giroux_24, Hanray_25, Holec_25, Kachowdy_24, Kazan_28, Kingmustik0402_24, LeoAvram_24, Lilleskat_24, Marchesa_24, NorthStar_24, Onglai_25, PP_34, Sachima_24, SaturnRing_24,

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

- Candra_28, EdogawaKiddo_24, Garak_29, Helmet_29, Jiawan_25, Pawn_27, RyeScarlet_27, Snickers_26,

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

- A6_21, Aeneas_25, AnnaL29_28, BK1_21, Bethlehem_23, Bradman_24, C3_23, Caraxes_24, Che12_27, Colin_29, DontArgue_23, DustyMartin_27, EZMoney23_29, Inyanga_22, JSwag_27, Koduck_25, MajorMajor_24, Mkhuseleli_24, Oofda_28, Petersenfast_24, PhrostyMug_23, ProMouse_22, Quokka_23, Rosa24_23, Rowdy_27, Sandaddy_22, Sanya_22, Shapes_27, ShortQueendom_22, StewieG_22, Sunhee_23, SwirlSquare_27, Swole_25, Teodoridan_21, Travvers_28, U2_23, WeiHuaDA_31,

Summary by start number:

Start 2:

- Found in 31 of 68 (45.6%) of genes in pham
- Manual Annotations of this start: 9 of 19
- Called 74.2% of time when present
- Phage (with cluster) where this start called: Anubis_28 (A3), B1_22 (A3), BabyJohn_23 (A3), Bugatti_24 (A3), Bxz2_25 (A3), Chartreuse_28 (A6), Chiqui_23 (A3), DaVinci_28 (A6), DropBear_24 (A3), Giroux_24 (A3), Hanray_25 (A9), Holec_25 (A9), Kachowdy_24 (A3), Kazan_28 (A6), Kingmustik0402_24 (A4), LeoAvram_24 (A4), Lilleskat_24 (A9), Marchesa_24 (A3), NorthStar_24 (A4), Onglai_25 (A9), PP_34 (A7), Sachima_24 (A9), SaturnRing_24 (A3),

Start 3:

- Found in 6 of 68 (8.8%) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Candra_28 (A6), Garak_29 (A6), Helmet_29 (A6),

Start 4:

- Found in 3 of 68 (4.4%) of genes in pham
- Manual Annotations of this start: 1 of 19
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bethlehem_23 (A1), Mkhuseleli_24 (A1), Swole_25 (A1),

Start 5:

- Found in 1 of 68 (1.5%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Travvers_28 (A2),

Start 6:

- Found in 17 of 68 (25.0%) of genes in pham
- No Manual Annotations of this start.
- Called 17.6% of time when present
- Phage (with cluster) where this start called: EdogawaKiddo_24 (A9), Jiawan_25 (A9), RyeScarlet_27 (A9),

Start 7:

- Found in 34 of 68 (50.0%) of genes in pham
- Manual Annotations of this start: 5 of 19
- Called 41.2% of time when present
- Phage (with cluster) where this start called: A6_21 (A1), Aeneas_25 (A1), BK1_21 (A1), Inyanga_22 (A1), Pawn_27 (A3), PhrostyMug_23 (A1), ProMouse_22 (A1), Sandaddy_22 (A1), Sanya_22 (A1), ShortQueendom_22 (A1), Snickers_26 (A3), StewieG_22 (A1), Teodoridan_21 (A1), U2_23 (A1),

Start 9:

- Found in 20 of 68 (29.4%) of genes in pham
- Manual Annotations of this start: 3 of 19
- Called 55.0% of time when present
- Phage (with cluster) where this start called: Bradman_24 (A2), C3_23 (A2), Caraxes_24 (A2), Che12_27 (A2), EZMoney23_29 (A2), JSwag_27 (A15), MajorMajor_24 (A2), Oofda_28 (A15), Quokka_23 (A2), Rosa24_23 (A4), SwirlSquare_27 (A2),

Start 10:

- Found in 1 of 68 (1.5%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Petersenfast_24 (A11),

Start 11:

- Found in 11 of 68 (16.2%) of genes in pham
- No Manual Annotations of this start.
- Called 36.4% of time when present
- Phage (with cluster) where this start called: DontArgue_23 (A10), DustyMartin_27 (A10), Rowdy_27 (A10), Shapes_27 (A10),

Start 13:

- Found in 19 of 68 (27.9%) of genes in pham
- Manual Annotations of this start: 1 of 19
- Called 21.1% of time when present
- Phage (with cluster) where this start called: AnnaL29_28 (A2), Colin_29 (A2), Koduck_25 (A2), WeiHuaDA_31 (A2),

Start 14:

- Found in 3 of 68 (4.4%) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Sunhee_23 (A14),

Summary by clusters:

There are 11 clusters represented in this pham: A15, A14, A11, A10, A1, A3, A2, A4, A7, A6, A9,

Info for manual annotations of cluster A1:

- Start number 4 was manually annotated 1 time for cluster A1.
- Start number 7 was manually annotated 5 times for cluster A1.

Info for manual annotations of cluster A15:

- Start number 9 was manually annotated 1 time for cluster A15.

Info for manual annotations of cluster A2:

- Start number 9 was manually annotated 2 times for cluster A2.
- Start number 13 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster A3:

- Start number 2 was manually annotated 3 times for cluster A3.

Info for manual annotations of cluster A4:

- Start number 2 was manually annotated 3 times for cluster A4.

Info for manual annotations of cluster A6:

- Start number 2 was manually annotated 2 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 2 was manually annotated 1 time for cluster A7.

Gene Information:

Gene: A6_21 Start: 15547, Stop: 15918, Start Num: 7

Candidate Starts for A6_21:

(Start: 7 @15547 has 5 MA's), (26, 15736), (31, 15811), (36, 15868), (38, 15874),

Gene: Aeneas_25 Start: 16311, Stop: 16682, Start Num: 7

Candidate Starts for Aeneas_25:

(Start: 7 @16311 has 5 MA's), (26, 16500), (36, 16632), (38, 16638),

Gene: AnnaL29_28 Start: 18178, Stop: 18489, Start Num: 13

Candidate Starts for AnnaL29_28:

(Start: 13 @18178 has 1 MA's), (24, 18286), (27, 18310), (34, 18424), (35, 18430),

Gene: Anubis_28 Start: 15419, Stop: 15865, Start Num: 2
Candidate Starts for Anubis_28:
(Start: 2 @15419 has 9 MA's), (Start: 7 @15518 has 5 MA's), (24, 15689), (27, 15713), (34, 15815),

Gene: B1_22 Start: 14712, Stop: 15173, Start Num: 2
Candidate Starts for B1_22:
(Start: 2 @14712 has 9 MA's), (6, 14796), (Start: 7 @14811 has 5 MA's), (16, 14889), (24, 14982),
(29, 15018), (37, 15123),

Gene: BK1_21 Start: 15547, Stop: 15918, Start Num: 7
Candidate Starts for BK1_21:
(Start: 7 @15547 has 5 MA's), (26, 15736), (31, 15811), (36, 15868), (38, 15874),

Gene: BabyJohn_23 Start: 15302, Stop: 15763, Start Num: 2
Candidate Starts for BabyJohn_23:
(Start: 2 @15302 has 9 MA's), (6, 15386), (Start: 7 @15401 has 5 MA's), (16, 15479), (24, 15572),
(29, 15608), (37, 15713),

Gene: Bethlehem_23 Start: 17213, Stop: 17614, Start Num: 4
Candidate Starts for Bethlehem_23:
(Start: 4 @17213 has 1 MA's), (Start: 7 @17243 has 5 MA's), (26, 17432), (36, 17564), (38, 17570),

Gene: Bradman_24 Start: 15185, Stop: 15538, Start Num: 9
Candidate Starts for Bradman_24:
(Start: 9 @15185 has 3 MA's), (Start: 13 @15233 has 1 MA's), (34, 15473), (35, 15479),

Gene: Bugatti_24 Start: 15033, Stop: 15494, Start Num: 2
Candidate Starts for Bugatti_24:
(Start: 2 @15033 has 9 MA's), (6, 15117), (Start: 7 @15132 has 5 MA's), (11, 15183), (24, 15303),
(29, 15339), (37, 15444),

Gene: Bxz2_25 Start: 15627, Stop: 16073, Start Num: 2
Candidate Starts for Bxz2_25:
(Start: 2 @15627 has 9 MA's), (Start: 7 @15726 has 5 MA's), (24, 15897), (27, 15921), (34, 16023),

Gene: C3_23 Start: 16308, Stop: 16661, Start Num: 9
Candidate Starts for C3_23:
(Start: 9 @16308 has 3 MA's), (Start: 13 @16356 has 1 MA's), (24, 16464), (28, 16491), (34, 16596),
(35, 16602),

Gene: Candra_28 Start: 16359, Stop: 16778, Start Num: 3
Candidate Starts for Candra_28:
(Start: 2 @16314 has 9 MA's), (3, 16359), (Start: 9 @16428 has 3 MA's), (12, 16467), (Start: 13
@16476 has 1 MA's), (15, 16485), (21, 16563), (27, 16608), (34, 16722),

Gene: Caraxes_24 Start: 14918, Stop: 15277, Start Num: 9
Candidate Starts for Caraxes_24:
(Start: 9 @14918 has 3 MA's), (Start: 13 @14966 has 1 MA's), (24, 15074), (26, 15092), (34, 15212),
(35, 15218),

Gene: Chartreuse_28 Start: 16225, Stop: 16689, Start Num: 2
Candidate Starts for Chartreuse_28:

(Start: 2 @16225 has 9 MA's), (3, 16270), (Start: 9 @16339 has 3 MA's), (12, 16378), (Start: 13 @16387 has 1 MA's), (15, 16396), (21, 16474), (27, 16519), (34, 16633),

Gene: Che12_27 Start: 15178, Stop: 15537, Start Num: 9

Candidate Starts for Che12_27:

(Start: 9 @15178 has 3 MA's), (Start: 13 @15226 has 1 MA's), (24, 15334), (26, 15352), (34, 15472), (35, 15478),

Gene: Chiqui_23 Start: 15302, Stop: 15763, Start Num: 2

Candidate Starts for Chiqui_23:

(Start: 2 @15302 has 9 MA's), (6, 15386), (Start: 7 @15401 has 5 MA's), (16, 15479), (24, 15572), (29, 15608), (37, 15713),

Gene: Colin_29 Start: 18010, Stop: 18321, Start Num: 13

Candidate Starts for Colin_29:

(Start: 13 @18010 has 1 MA's), (24, 18118), (26, 18136), (27, 18142), (34, 18256), (35, 18262),

Gene: DaVinci_28 Start: 16279, Stop: 16743, Start Num: 2

Candidate Starts for DaVinci_28:

(Start: 2 @16279 has 9 MA's), (3, 16324), (Start: 9 @16393 has 3 MA's), (12, 16432), (Start: 13 @16441 has 1 MA's), (15, 16450), (21, 16528), (27, 16573), (34, 16687),

Gene: DontArgue_23 Start: 13643, Stop: 14041, Start Num: 11

Candidate Starts for DontArgue_23:

(11, 13643), (12, 13646), (16, 13670), (20, 13739), (23, 13751), (26, 13781), (27, 13787), (33, 13856), (37, 13916), (41, 13958), (42, 13976),

Gene: DropBear_24 Start: 15093, Stop: 15554, Start Num: 2

Candidate Starts for DropBear_24:

(Start: 2 @15093 has 9 MA's), (6, 15177), (Start: 7 @15192 has 5 MA's), (11, 15243), (24, 15363), (29, 15399), (37, 15504),

Gene: DustyMartin_27 Start: 15449, Stop: 15850, Start Num: 11

Candidate Starts for DustyMartin_27:

(11, 15449), (16, 15476), (20, 15545), (23, 15557), (26, 15587), (27, 15593), (37, 15725), (41, 15767), (42, 15785),

Gene: EZMoney23_29 Start: 18248, Stop: 18607, Start Num: 9

Candidate Starts for EZMoney23_29:

(Start: 9 @18248 has 3 MA's), (Start: 13 @18296 has 1 MA's), (24, 18404), (27, 18428), (34, 18542), (35, 18548),

Gene: EdogawaKiddo_24 Start: 17045, Stop: 17461, Start Num: 6

Candidate Starts for EdogawaKiddo_24:

(Start: 2 @16961 has 9 MA's), (6, 17045), (Start: 7 @17060 has 5 MA's), (21, 17210), (24, 17231), (27, 17255), (38, 17381),

Gene: Garak_29 Start: 16321, Stop: 16740, Start Num: 3

Candidate Starts for Garak_29:

(Start: 2 @16276 has 9 MA's), (3, 16321), (Start: 9 @16390 has 3 MA's), (12, 16429), (Start: 13 @16438 has 1 MA's), (15, 16447), (21, 16525), (27, 16570), (34, 16684),

Gene: Giroux_24 Start: 15033, Stop: 15494, Start Num: 2

Candidate Starts for Giroux_24:

(Start: 2 @15033 has 9 MA's), (6, 15117), (Start: 7 @15132 has 5 MA's), (11, 15183), (24, 15303), (29, 15339), (37, 15444),

Gene: Hanray_25 Start: 16965, Stop: 17465, Start Num: 2

Candidate Starts for Hanray_25:

(Start: 2 @16965 has 9 MA's), (6, 17049), (Start: 7 @17064 has 5 MA's), (21, 17214), (24, 17235), (27, 17259), (38, 17385),

Gene: Helmet_29 Start: 16321, Stop: 16740, Start Num: 3

Candidate Starts for Helmet_29:

(Start: 2 @16276 has 9 MA's), (3, 16321), (Start: 9 @16390 has 3 MA's), (12, 16429), (Start: 13 @16438 has 1 MA's), (15, 16447), (21, 16525), (27, 16570), (34, 16684),

Gene: Holec_25 Start: 16965, Stop: 17465, Start Num: 2

Candidate Starts for Holec_25:

(Start: 2 @16965 has 9 MA's), (6, 17049), (Start: 7 @17064 has 5 MA's), (21, 17214), (24, 17235), (27, 17259), (38, 17385),

Gene: Inyanga_22 Start: 15755, Stop: 16126, Start Num: 7

Candidate Starts for Inyanga_22:

(Start: 7 @15755 has 5 MA's), (26, 15944), (31, 16019), (36, 16076), (38, 16082),

Gene: JSwag_27 Start: 15383, Stop: 15838, Start Num: 9

Candidate Starts for JSwag_27:

(Start: 9 @15383 has 3 MA's), (11, 15419), (14, 15434), (20, 15515), (25, 15545), (26, 15557), (30, 15596), (32, 15635), (37, 15695), (39, 15725),

Gene: Jiawan_25 Start: 17081, Stop: 17497, Start Num: 6

Candidate Starts for Jiawan_25:

(Start: 2 @16997 has 9 MA's), (6, 17081), (Start: 7 @17096 has 5 MA's), (21, 17246), (24, 17267), (27, 17291), (38, 17417),

Gene: Kachowdy_24 Start: 15086, Stop: 15547, Start Num: 2

Candidate Starts for Kachowdy_24:

(Start: 2 @15086 has 9 MA's), (6, 15170), (Start: 7 @15185 has 5 MA's), (16, 15263), (24, 15356), (29, 15392), (37, 15497),

Gene: Kazan_28 Start: 16284, Stop: 16748, Start Num: 2

Candidate Starts for Kazan_28:

(Start: 2 @16284 has 9 MA's), (3, 16329), (Start: 9 @16398 has 3 MA's), (12, 16437), (Start: 13 @16446 has 1 MA's), (15, 16455), (21, 16533), (27, 16578), (34, 16692),

Gene: Kingmustik0402_24 Start: 15413, Stop: 15958, Start Num: 2

Candidate Starts for Kingmustik0402_24:

(Start: 2 @15413 has 9 MA's), (Start: 9 @15527 has 3 MA's), (17, 15605), (26, 15701), (28, 15710),

Gene: Koduck_25 Start: 15488, Stop: 15793, Start Num: 13

Candidate Starts for Koduck_25:

(Start: 13 @15488 has 1 MA's), (34, 15728), (35, 15734),

Gene: LeoAvram_24 Start: 15418, Stop: 15963, Start Num: 2

Candidate Starts for LeoAvram_24:

(Start: 2 @15418 has 9 MA's), (Start: 9 @15532 has 3 MA's), (17, 15610), (26, 15706), (28, 15715),

Gene: Lilleskat_24 Start: 16961, Stop: 17461, Start Num: 2

Candidate Starts for Lilleskat_24:

(Start: 2 @16961 has 9 MA's), (6, 17045), (Start: 7 @17060 has 5 MA's), (21, 17210), (24, 17231), (27, 17255), (38, 17381),

Gene: MajorMajor_24 Start: 15185, Stop: 15538, Start Num: 9

Candidate Starts for MajorMajor_24:

(Start: 9 @15185 has 3 MA's), (Start: 13 @15233 has 1 MA's), (34, 15473), (35, 15479),

Gene: Marchesa_24 Start: 15084, Stop: 15545, Start Num: 2

Candidate Starts for Marchesa_24:

(Start: 2 @15084 has 9 MA's), (6, 15168), (Start: 7 @15183 has 5 MA's), (11, 15234), (24, 15354), (29, 15390), (37, 15495),

Gene: Mkhuseli_24 Start: 16008, Stop: 16409, Start Num: 4

Candidate Starts for Mkhuseli_24:

(Start: 4 @16008 has 1 MA's), (8, 16047), (26, 16227), (36, 16359), (38, 16365),

Gene: NorthStar_24 Start: 15421, Stop: 15966, Start Num: 2

Candidate Starts for NorthStar_24:

(Start: 2 @15421 has 9 MA's), (Start: 9 @15535 has 3 MA's), (17, 15613), (26, 15709), (28, 15718),

Gene: Onglai_25 Start: 15295, Stop: 15795, Start Num: 2

Candidate Starts for Onglai_25:

(Start: 2 @15295 has 9 MA's), (6, 15379), (Start: 7 @15394 has 5 MA's), (21, 15544), (24, 15565), (27, 15589), (38, 15715),

Gene: Oofda_28 Start: 15368, Stop: 15823, Start Num: 9

Candidate Starts for Oofda_28:

(Start: 9 @15368 has 3 MA's), (11, 15404), (14, 15419), (20, 15500), (25, 15530), (26, 15542), (30, 15581), (32, 15620), (37, 15680), (39, 15710),

Gene: PP_34 Start: 21309, Stop: 21773, Start Num: 2

Candidate Starts for PP_34:

(Start: 2 @21309 has 9 MA's), (15, 21480), (18, 21513), (28, 21609), (37, 21735),

Gene: Pawn_27 Start: 15710, Stop: 16057, Start Num: 7

Candidate Starts for Pawn_27:

(Start: 2 @15611 has 9 MA's), (Start: 7 @15710 has 5 MA's), (24, 15881), (27, 15905), (34, 16007),

Gene: Petersenfast_24 Start: 16853, Stop: 17167, Start Num: 10

Candidate Starts for Petersenfast_24:

(10, 16853), (19, 16928), (22, 16958), (24, 16976), (28, 17003), (37, 17123), (38, 17126),

Gene: PhrostyMug_23 Start: 16015, Stop: 16386, Start Num: 7

Candidate Starts for PhrostyMug_23:

(Start: 7 @16015 has 5 MA's), (26, 16204), (36, 16336), (38, 16342),

Gene: ProMouse_22 Start: 16469, Stop: 16840, Start Num: 7

Candidate Starts for ProMouse_22:

(Start: 7 @16469 has 5 MA's), (26, 16658), (36, 16790), (38, 16796),

Gene: Quokka_23 Start: 15185, Stop: 15538, Start Num: 9

Candidate Starts for Quokka_23:

(Start: 9 @15185 has 3 MA's), (Start: 13 @15233 has 1 MA's), (34, 15473), (35, 15479),

Gene: Rosa24_23 Start: 15507, Stop: 15938, Start Num: 9

Candidate Starts for Rosa24_23:

(Start: 9 @15507 has 3 MA's), (17, 15585), (26, 15681), (28, 15690),

Gene: Rowdy_27 Start: 15449, Stop: 15850, Start Num: 11

Candidate Starts for Rowdy_27:

(11, 15449), (16, 15476), (20, 15545), (23, 15557), (26, 15587), (27, 15593), (37, 15725), (41, 15767), (42, 15785),

Gene: RyeScarlet_27 Start: 17049, Stop: 17465, Start Num: 6

Candidate Starts for RyeScarlet_27:

(Start: 2 @16965 has 9 MA's), (6, 17049), (Start: 7 @17064 has 5 MA's), (21, 17214), (24, 17235), (27, 17259), (38, 17385),

Gene: Sachima_24 Start: 16961, Stop: 17461, Start Num: 2

Candidate Starts for Sachima_24:

(Start: 2 @16961 has 9 MA's), (6, 17045), (Start: 7 @17060 has 5 MA's), (21, 17210), (24, 17231), (27, 17255), (38, 17381),

Gene: Sandaddy_22 Start: 15945, Stop: 16316, Start Num: 7

Candidate Starts for Sandaddy_22:

(Start: 7 @15945 has 5 MA's), (26, 16134), (31, 16209), (36, 16266), (38, 16272),

Gene: Sanya_22 Start: 16607, Stop: 16978, Start Num: 7

Candidate Starts for Sanya_22:

(Start: 7 @16607 has 5 MA's), (26, 16796), (28, 16805), (31, 16871), (36, 16928), (38, 16934),

Gene: SaturnRing_24 Start: 15033, Stop: 15494, Start Num: 2

Candidate Starts for SaturnRing_24:

(Start: 2 @15033 has 9 MA's), (6, 15117), (Start: 7 @15132 has 5 MA's), (11, 15183), (24, 15303), (29, 15339), (37, 15444),

Gene: Shapes_27 Start: 15449, Stop: 15850, Start Num: 11

Candidate Starts for Shapes_27:

(11, 15449), (16, 15476), (20, 15545), (23, 15557), (26, 15587), (27, 15593), (37, 15725), (41, 15767), (42, 15785),

Gene: ShortQueendom_22 Start: 15905, Stop: 16276, Start Num: 7

Candidate Starts for ShortQueendom_22:

(Start: 7 @15905 has 5 MA's), (26, 16094), (31, 16169), (36, 16226), (38, 16232),

Gene: Snickers_26 Start: 15606, Stop: 15953, Start Num: 7

Candidate Starts for Snickers_26:

(Start: 2 @15507 has 9 MA's), (Start: 7 @15606 has 5 MA's), (24, 15777), (27, 15801), (34, 15903),

Gene: StewieG_22 Start: 15788, Stop: 16159, Start Num: 7

Candidate Starts for StewieG_22:

(Start: 7 @15788 has 5 MA's), (26, 15977), (31, 16052), (36, 16109), (38, 16115),

Gene: Sunhee_23 Start: 15505, Stop: 15801, Start Num: 14

Candidate Starts for Sunhee_23:

(14, 15505), (34, 15742), (35, 15748), (40, 15790),

Gene: SwirlSquare_27 Start: 15091, Stop: 15450, Start Num: 9

Candidate Starts for SwirlSquare_27:

(Start: 9 @15091 has 3 MA's), (Start: 13 @15139 has 1 MA's), (34, 15385), (35, 15391),

Gene: Swole_25 Start: 16419, Stop: 16820, Start Num: 4

Candidate Starts for Swole_25:

(Start: 4 @16419 has 1 MA's), (26, 16638), (36, 16770), (38, 16776),

Gene: Teodoridan_21 Start: 15353, Stop: 15724, Start Num: 7

Candidate Starts for Teodoridan_21:

(Start: 7 @15353 has 5 MA's), (26, 15542), (31, 15617), (36, 15674), (38, 15680),

Gene: Travvers_28 Start: 16132, Stop: 16518, Start Num: 5

Candidate Starts for Travvers_28:

(1, 15928), (5, 16132), (Start: 13 @16213 has 1 MA's), (28, 16348), (34, 16453), (35, 16459),

Gene: U2_23 Start: 16127, Stop: 16498, Start Num: 7

Candidate Starts for U2_23:

(Start: 7 @16127 has 5 MA's), (26, 16316), (36, 16448), (38, 16454),

Gene: WeiHuaDA_31 Start: 18580, Stop: 18891, Start Num: 13

Candidate Starts for WeiHuaDA_31:

(Start: 13 @18580 has 1 MA's), (24, 18688), (27, 18712), (28, 18715), (34, 18826), (35, 18832),