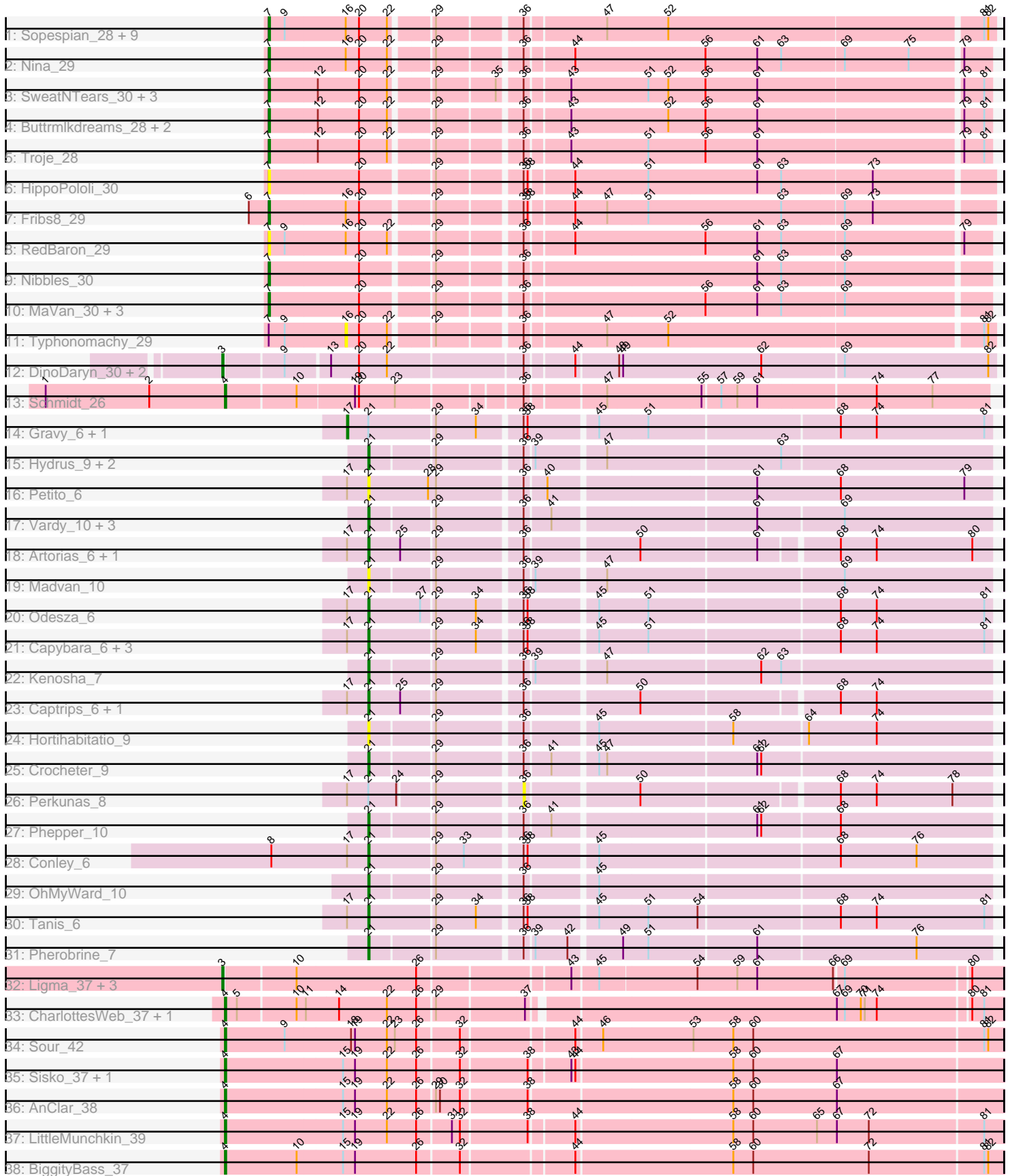


Pham 1779



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 1779 Report

This analysis was run 04/28/24 on database version 559.

Pham number 1779 has 73 members, 20 are drafts.

Phages represented in each track:

- Track 1 : Sopespian_28, Axym_28, Burnsey_28, Agatha_28, Elliott_28, GoldHunter_29, Cozz_28, Quasar_28, PsychoKiller_28, MunkgeeRoachy_29
- Track 2 : Nina_29
- Track 3 : SweatNTears_30, Horseradish_29, Yummy_29, MScarn_30
- Track 4 : Buttrmlkdreams_28, Biskit_29, SketchMex_27
- Track 5 : Troje_28
- Track 6 : HippoPololi_30
- Track 7 : Fribs8_29
- Track 8 : RedBaron_29
- Track 9 : Nibbles_30
- Track 10 : MaVan_30, Survivors_30, Zareef_32, Azira_30
- Track 11 : Typhonomachy_29
- Track 12 : DinoDaryn_30, TZGordon_30, Huffy_30
- Track 13 : Schmidt_26
- Track 14 : Gravy_6, Kerry_6
- Track 15 : Hydrus_9, Zeph_9, Untouchable_9
- Track 16 : Petito_6
- Track 17 : Vardy_10, Runhaar_10, Burley_10, Nadmeg_10
- Track 18 : Artorias_6, FortCran_6
- Track 19 : Madvan_10
- Track 20 : Odesza_6
- Track 21 : Cappybara_6, Roney_6, Magel_6, Gill_6
- Track 22 : Kenosha_7
- Track 23 : Captrips_6, Avazak_6
- Track 24 : Hortihabitatio_9
- Track 25 : Crocheter_9
- Track 26 : Perkunas_8
- Track 27 : Phepper_10
- Track 28 : Conley_6
- Track 29 : OhMyWard_10
- Track 30 : Tanis_6
- Track 31 : Pherobrine_7
- Track 32 : Ligma_37, Fresco_37, Axumite_37, Shatter_37
- Track 33 : CharlottesWeb_37, Mariokart_37
- Track 34 : Sour_42
- Track 35 : Sisko_37, Yago84_37
- Track 36 : AnClar_38

- Track 37 : LittleMunchkin_39
- Track 38 : BiggityBass_37

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

The start number called the most often in the published annotations is 21, it was called in 19 of the 53 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Artorias_6, Avazak_6, Burley_10, Captrips_6, Capybara_6, Conley_6, Crocheter_9, FortCran_6, Gill_6, Hortihabitatio_9, Hydrus_9, Kenosha_7, Madvan_10, Magel_6, Nadmeg_10, Odesza_6, OhMyWard_10, Petite_6, Phepper_10, Pherobrine_7, Roney_6, Runhaar_10, Tanis_6, Untouchable_9, Vardy_10, Zeph_9,

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

- Gravy_6, Kerry_6, Perkunas_8,

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

- Agatha_28, AnClar_38, Axumite_37, Axym_28, Azira_30, BiggityBass_37, Biskit_29, Burnsey_28, Buttrmilkdreams_28, CharlottesWeb_37, Cozz_28, DinoDaryn_30, Elliott_28, Fresco_37, Fribs8_29, GoldHunter_29, HippoPololi_30, Horseradish_29, Huffy_30, Ligma_37, LittleMunchkin_39, MScarn_30, MaVan_30, Mariokart_37, MunkgeeRoachy_29, Nibbles_30, Nina_29, PsychoKiller_28, Quasar_28, RedBaron_29, Schmidt_26, Shatter_37, Sisko_37, SketchMex_27, Sopespian_28, Sour_42, Survivors_30, SweatNTears_30, TZGordon_30, Troje_28, Typhonomachy_29, Yago84_37, Yummy_29, Zareef_32,

Summary by start number:

Start 3:

- Found in 7 of 73 (9.6%) of genes in pham
- Manual Annotations of this start: 5 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Axumite_37 (DR), DinoDaryn_30 (CU1), Fresco_37 (DR), Huffy_30 (CU1), Ligma_37 (DR), Shatter_37 (DR), TZGordon_30 (CU1),

Start 4:

- Found in 9 of 73 (12.3%) of genes in pham
- Manual Annotations of this start: 8 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AnClar_38 (DR), BiggityBass_37 (DR), CharlottesWeb_37 (DR), LittleMunchkin_39 (DR), Mariokart_37 (DR), Schmidt_26 (CU4), Sisko_37 (DR), Sour_42 (DR), Yago84_37 (DR),

Start 7:

- Found in 28 of 73 (38.4%) of genes in pham
- Manual Annotations of this start: 19 of 53
- Called 96.4% of time when present

- Phage (with cluster) where this start called: Agatha_28 (CT), Axym_28 (CT), Azira_30 (CT), Biskit_29 (CT), Burnsey_28 (CT), Buttrmlkdreams_28 (CT), Cozz_28 (CT), Elliott_28 (CT), Fribs8_29 (CT), GoldHunter_29 (CT), HippoPololi_30 (CT), Horseradish_29 (CT), MScarn_30 (CT), MaVan_30 (CT), MunkgeeRoachy_29 (CT), Nibbles_30 (CT), Nina_29 (CT), PsychoKiller_28 (CT), Quasar_28 (CT), RedBaron_29 (CT), SketchMex_27 (CT), Sopespian_28 (CT), Survivors_30 (CT), SweatNTears_30 (CT), Troje_28 (CT), Yummy_29 (CT), Zareef_32 (CT),

Start 16:

- Found in 14 of 73 (19.2%) of genes in pham
- No Manual Annotations of this start.
- Called 7.1% of time when present
- Phage (with cluster) where this start called: Typhonomachy_29 (CT),

Start 17:

- Found in 15 of 73 (20.5%) of genes in pham
- Manual Annotations of this start: 2 of 53
- Called 13.3% of time when present
- Phage (with cluster) where this start called: Gravy_6 (DJ), Kerry_6 (DJ),

Start 21:

- Found in 29 of 73 (39.7%) of genes in pham
- Manual Annotations of this start: 19 of 53
- Called 89.7% of time when present
- Phage (with cluster) where this start called: Artorias_6 (DJ), Avazak_6 (DJ), Burley_10 (DJ), Captrips_6 (DJ), Cappybara_6 (DJ), Conley_6 (DJ), Crocheter_9 (DJ), FortCran_6 (DJ), Gill_6 (DJ), Hortihabitatio_9 (DJ), Hydrus_9 (DJ), Kenosha_7 (DJ), Madvan_10 (DJ), Magel_6 (DJ), Nadmeg_10 (DJ), Odesza_6 (DJ), OhMyWard_10 (DJ), Petite_6 (DJ), Phepper_10 (DJ), Pherobrine_7 (DJ), Roney_6 (DJ), Runhaar_10 (DJ), Tanis_6 (DJ), Untouchable_9 (DJ), Vardy_10 (DJ), Zeph_9 (DJ),

Start 36:

- Found in 61 of 73 (83.6%) of genes in pham
- No Manual Annotations of this start.
- Called 1.6% of time when present
- Phage (with cluster) where this start called: Perkunas_8 (DJ),

Summary by clusters:

There are 5 clusters represented in this pham: DR, CU4, DJ, CU1, CT,

Info for manual annotations of cluster CT:

- Start number 7 was manually annotated 19 times for cluster CT.

Info for manual annotations of cluster CU1:

- Start number 3 was manually annotated 3 times for cluster CU1.

Info for manual annotations of cluster CU4:

- Start number 4 was manually annotated 1 time for cluster CU4.

Info for manual annotations of cluster DJ:

- Start number 17 was manually annotated 2 times for cluster DJ.
- Start number 21 was manually annotated 19 times for cluster DJ.

Info for manual annotations of cluster DR:

- Start number 3 was manually annotated 2 times for cluster DR.
- Start number 4 was manually annotated 7 times for cluster DR.

Gene Information:

Gene: Agatha_28 Start: 22932, Stop: 23441, Start Num: 7

Candidate Starts for Agatha_28:

(Start: 7 @22932 has 19 MA's), (9, 22944), (16, 22989), (20, 22998), (22, 23019), (29, 23046), (36, 23103), (47, 23160), (52, 23205), (81, 23433), (82, 23436),

Gene: AnClar_38 Start: 34816, Stop: 35382, Start Num: 4

Candidate Starts for AnClar_38:

(Start: 4 @34816 has 8 MA's), (15, 34903), (19, 34912), (22, 34936), (26, 34957), (29, 34969), (30, 34972), (32, 34987), (38, 35035), (58, 35182), (60, 35197), (67, 35260),

Gene: Artorias_6 Start: 2576, Stop: 3013, Start Num: 21

Candidate Starts for Artorias_6:

(Start: 17 @2561 has 2 MA's), (Start: 21 @2576 has 19 MA's), (25, 2600), (29, 2624), (36, 2684), (50, 2762), (61, 2846), (68, 2900), (74, 2927), (80, 2999),

Gene: Avazak_6 Start: 2576, Stop: 3013, Start Num: 21

Candidate Starts for Avazak_6:

(Start: 17 @2561 has 2 MA's), (Start: 21 @2576 has 19 MA's), (25, 2600), (29, 2624), (36, 2684), (50, 2762), (68, 2900), (74, 2927),

Gene: Axumite_37 Start: 32053, Stop: 32604, Start Num: 3

Candidate Starts for Axumite_37:

(Start: 3 @32053 has 5 MA's), (10, 32104), (26, 32191), (43, 32296), (45, 32314), (54, 32383), (59, 32413), (61, 32428), (66, 32485), (69, 32491), (80, 32581),

Gene: Axym_28 Start: 22935, Stop: 23444, Start Num: 7

Candidate Starts for Axym_28:

(Start: 7 @22935 has 19 MA's), (9, 22947), (16, 22992), (20, 23001), (22, 23022), (29, 23049), (36, 23106), (47, 23163), (52, 23208), (81, 23436), (82, 23439),

Gene: Azira_30 Start: 23896, Stop: 24402, Start Num: 7

Candidate Starts for Azira_30:

(Start: 7 @23896 has 19 MA's), (20, 23962), (29, 24010), (36, 24067), (56, 24196), (61, 24235), (63, 24253), (69, 24298),

Gene: BiggityBass_37 Start: 34280, Stop: 34843, Start Num: 4

Candidate Starts for BiggityBass_37:

(Start: 4 @34280 has 8 MA's), (10, 34334), (15, 34367), (19, 34376), (26, 34421), (32, 34451), (44, 34529), (58, 34643), (60, 34658), (72, 34745), (81, 34829), (82, 34832),

Gene: Biskit_29 Start: 22574, Stop: 23080, Start Num: 7

Candidate Starts for Biskit_29:

(Start: 7 @22574 has 19 MA's), (12, 22610), (20, 22640), (22, 22661), (29, 22688), (36, 22745), (43, 22775), (52, 22847), (56, 22874), (61, 22913), (79, 23060), (81, 23075),

Gene: Burley_10 Start: 5218, Stop: 5658, Start Num: 21

Candidate Starts for Burley_10:

(Start: 21 @5218 has 19 MA's), (29, 5263), (36, 5323), (41, 5341), (61, 5485), (69, 5548),

Gene: Burnsey_28 Start: 22927, Stop: 23436, Start Num: 7

Candidate Starts for Burnsey_28:

(Start: 7 @22927 has 19 MA's), (9, 22939), (16, 22984), (20, 22993), (22, 23014), (29, 23041), (36, 23098), (47, 23155), (52, 23200), (81, 23428), (82, 23431),

Gene: Buttrmlkdreams_28 Start: 22556, Stop: 23062, Start Num: 7

Candidate Starts for Buttrmlkdreams_28:

(Start: 7 @22556 has 19 MA's), (12, 22592), (20, 22622), (22, 22643), (29, 22670), (36, 22727), (43, 22757), (52, 22829), (56, 22856), (61, 22895), (79, 23042), (81, 23057),

Gene: Captrips_6 Start: 2576, Stop: 3013, Start Num: 21

Candidate Starts for Captrips_6:

(Start: 17 @2561 has 2 MA's), (Start: 21 @2576 has 19 MA's), (25, 2600), (29, 2624), (36, 2684), (50, 2762), (68, 2900), (74, 2927),

Gene: Capybara_6 Start: 2280, Stop: 2726, Start Num: 21

Candidate Starts for Capybara_6:

(Start: 17 @2265 has 2 MA's), (Start: 21 @2280 has 19 MA's), (29, 2328), (34, 2358), (36, 2388), (38, 2391), (45, 2439), (51, 2475), (68, 2613), (74, 2640), (81, 2721),

Gene: CharlottesWeb_37 Start: 31979, Stop: 32530, Start Num: 4

Candidate Starts for CharlottesWeb_37:

(Start: 4 @31979 has 8 MA's), (5, 31988), (10, 32030), (11, 32036), (14, 32060), (22, 32096), (26, 32117), (29, 32129), (37, 32192), (67, 32411), (69, 32417), (70, 32429), (71, 32432), (74, 32441), (80, 32507), (81, 32516),

Gene: Conley_6 Start: 2592, Stop: 3038, Start Num: 21

Candidate Starts for Conley_6:

(8, 2520), (Start: 17 @2577 has 2 MA's), (Start: 21 @2592 has 19 MA's), (29, 2640), (33, 2661), (36, 2700), (38, 2703), (45, 2751), (68, 2925), (76, 2982),

Gene: Cozz_28 Start: 22936, Stop: 23445, Start Num: 7

Candidate Starts for Cozz_28:

(Start: 7 @22936 has 19 MA's), (9, 22948), (16, 22993), (20, 23002), (22, 23023), (29, 23050), (36, 23107), (47, 23164), (52, 23209), (81, 23437), (82, 23440),

Gene: Crocheter_9 Start: 4145, Stop: 4585, Start Num: 21

Candidate Starts for Crocheter_9:

(Start: 21 @4145 has 19 MA's), (29, 4190), (36, 4250), (41, 4268), (45, 4298), (47, 4304), (61, 4412), (62, 4415),

Gene: DinoDaryn_30 Start: 21998, Stop: 22549, Start Num: 3

Candidate Starts for DinoDaryn_30:

(Start: 3 @21998 has 5 MA's), (9, 22040), (13, 22070), (20, 22091), (22, 22112), (36, 22208), (44, 22241), (48, 22271), (49, 22274), (62, 22376), (69, 22436), (82, 22544),

Gene: Elliott_28 Start: 22935, Stop: 23444, Start Num: 7

Candidate Starts for Elliott_28:

(Start: 7 @22935 has 19 MA's), (9, 22947), (16, 22992), (20, 23001), (22, 23022), (29, 23049), (36, 23106), (47, 23163), (52, 23208), (81, 23436), (82, 23439),

Gene: FortCran_6 Start: 2576, Stop: 3013, Start Num: 21

Candidate Starts for FortCran_6:

(Start: 17 @2561 has 2 MA's), (Start: 21 @2576 has 19 MA's), (25, 2600), (29, 2624), (36, 2684), (50, 2762), (61, 2846), (68, 2900), (74, 2927), (80, 2999),

Gene: Fresco_37 Start: 32053, Stop: 32604, Start Num: 3

Candidate Starts for Fresco_37:

(Start: 3 @32053 has 5 MA's), (10, 32104), (26, 32191), (43, 32296), (45, 32314), (54, 32383), (59, 32413), (61, 32428), (66, 32485), (69, 32491), (80, 32581),

Gene: Fribs8_29 Start: 23767, Stop: 24276, Start Num: 7

Candidate Starts for Fribs8_29:

(6, 23752), (Start: 7 @23767 has 19 MA's), (16, 23824), (20, 23833), (29, 23881), (36, 23938), (38, 23941), (44, 23971), (47, 23995), (51, 24025), (63, 24124), (69, 24169), (73, 24190),

Gene: Gill_6 Start: 2280, Stop: 2726, Start Num: 21

Candidate Starts for Gill_6:

(Start: 17 @2265 has 2 MA's), (Start: 21 @2280 has 19 MA's), (29, 2328), (34, 2358), (36, 2388), (38, 2391), (45, 2439), (51, 2475), (68, 2613), (74, 2640), (81, 2721),

Gene: GoldHunter_29 Start: 22936, Stop: 23445, Start Num: 7

Candidate Starts for GoldHunter_29:

(Start: 7 @22936 has 19 MA's), (9, 22948), (16, 22993), (20, 23002), (22, 23023), (29, 23050), (36, 23107), (47, 23164), (52, 23209), (81, 23437), (82, 23440),

Gene: Gravy_6 Start: 2265, Stop: 2726, Start Num: 17

Candidate Starts for Gravy_6:

(Start: 17 @2265 has 2 MA's), (Start: 21 @2280 has 19 MA's), (29, 2328), (34, 2358), (36, 2388), (38, 2391), (45, 2439), (51, 2475), (68, 2613), (74, 2640), (81, 2721),

Gene: HippoPololi_30 Start: 23837, Stop: 24346, Start Num: 7

Candidate Starts for HippoPololi_30:

(Start: 7 @23837 has 19 MA's), (20, 23903), (29, 23951), (36, 24008), (38, 24011), (44, 24041), (51, 24095), (61, 24176), (63, 24194), (73, 24260),

Gene: Horseradish_29 Start: 22410, Stop: 22916, Start Num: 7

Candidate Starts for Horseradish_29:

(Start: 7 @22410 has 19 MA's), (12, 22446), (20, 22476), (22, 22497), (29, 22524), (35, 22566), (36, 22581), (43, 22611), (51, 22668), (52, 22683), (56, 22710), (61, 22749), (79, 22896), (81, 22911),

Gene: Hortihabitatio_9 Start: 4499, Stop: 4939, Start Num: 21

Candidate Starts for Hortihabitatio_9:

(Start: 21 @4499 has 19 MA's), (29, 4544), (36, 4604), (45, 4652), (58, 4748), (64, 4802), (74, 4853),

Gene: Huffy_30 Start: 21998, Stop: 22549, Start Num: 3

Candidate Starts for Huffy_30:

(Start: 3 @21998 has 5 MA's), (9, 22040), (13, 22070), (20, 22091), (22, 22112), (36, 22208), (44, 22241), (48, 22271), (49, 22274), (62, 22376), (69, 22436), (82, 22544),

Gene: Hydrus_9 Start: 4403, Stop: 4843, Start Num: 21

Candidate Starts for Hydrus_9:

(Start: 21 @4403 has 19 MA's), (29, 4448), (36, 4508), (39, 4514), (47, 4562), (63, 4688),

Gene: Kenosha_7 Start: 3004, Stop: 3444, Start Num: 21

Candidate Starts for Kenosha_7:

(Start: 21 @3004 has 19 MA's), (29, 3049), (36, 3109), (39, 3115), (47, 3163), (62, 3274), (63, 3289),

Gene: Kerry_6 Start: 2265, Stop: 2726, Start Num: 17

Candidate Starts for Kerry_6:

(Start: 17 @2265 has 2 MA's), (Start: 21 @2280 has 19 MA's), (29, 2328), (34, 2358), (36, 2388), (38, 2391), (45, 2439), (51, 2475), (68, 2613), (74, 2640), (81, 2721),

Gene: Ligma_37 Start: 32053, Stop: 32604, Start Num: 3

Candidate Starts for Ligma_37:

(Start: 3 @32053 has 5 MA's), (10, 32104), (26, 32191), (43, 32296), (45, 32314), (54, 32383), (59, 32413), (61, 32428), (66, 32485), (69, 32491), (80, 32581),

Gene: LittleMunchkin_39 Start: 35385, Stop: 35948, Start Num: 4

Candidate Starts for LittleMunchkin_39:

(Start: 4 @35385 has 8 MA's), (15, 35472), (19, 35481), (22, 35505), (26, 35526), (31, 35550), (32, 35556), (38, 35604), (44, 35634), (58, 35748), (60, 35763), (65, 35811), (67, 35826), (72, 35850), (81, 35934),

Gene: MScarn_30 Start: 22559, Stop: 23065, Start Num: 7

Candidate Starts for MScarn_30:

(Start: 7 @22559 has 19 MA's), (12, 22595), (20, 22625), (22, 22646), (29, 22673), (35, 22715), (36, 22730), (43, 22760), (51, 22817), (52, 22832), (56, 22859), (61, 22898), (79, 23045), (81, 23060),

Gene: MaVan_30 Start: 23929, Stop: 24435, Start Num: 7

Candidate Starts for MaVan_30:

(Start: 7 @23929 has 19 MA's), (20, 23995), (29, 24043), (36, 24100), (56, 24229), (61, 24268), (63, 24286), (69, 24331),

Gene: Madvan_10 Start: 5218, Stop: 5658, Start Num: 21

Candidate Starts for Madvan_10:

(Start: 21 @5218 has 19 MA's), (29, 5263), (36, 5323), (39, 5329), (47, 5377), (69, 5548),

Gene: Magel_6 Start: 2280, Stop: 2726, Start Num: 21

Candidate Starts for Magel_6:

(Start: 17 @2265 has 2 MA's), (Start: 21 @2280 has 19 MA's), (29, 2328), (34, 2358), (36, 2388), (38, 2391), (45, 2439), (51, 2475), (68, 2613), (74, 2640), (81, 2721),

Gene: Mariokart_37 Start: 31978, Stop: 32529, Start Num: 4

Candidate Starts for Mariokart_37:

(Start: 4 @31978 has 8 MA's), (5, 31987), (10, 32029), (11, 32035), (14, 32059), (22, 32095), (26, 32116), (29, 32128), (37, 32191), (67, 32410), (69, 32416), (70, 32428), (71, 32431), (74, 32440), (80, 32506), (81, 32515),

Gene: MunkgeeRoachy_29 Start: 23013, Stop: 23522, Start Num: 7

Candidate Starts for MunkgeeRoachy_29:

(Start: 7 @23013 has 19 MA's), (9, 23025), (16, 23070), (20, 23079), (22, 23100), (29, 23127), (36, 23184), (47, 23241), (52, 23286), (81, 23514), (82, 23517),

Gene: Nadmeg_10 Start: 5219, Stop: 5659, Start Num: 21

Candidate Starts for Nadmeg_10:

(Start: 21 @5219 has 19 MA's), (29, 5264), (36, 5324), (41, 5342), (61, 5486), (69, 5549),

Gene: Nibbles_30 Start: 23928, Stop: 24434, Start Num: 7

Candidate Starts for Nibbles_30:

(Start: 7 @23928 has 19 MA's), (20, 23994), (29, 24042), (36, 24099), (61, 24267), (63, 24285), (69, 24330),

Gene: Nina_29 Start: 23975, Stop: 24481, Start Num: 7

Candidate Starts for Nina_29:

(Start: 7 @23975 has 19 MA's), (16, 24032), (20, 24041), (22, 24062), (29, 24089), (36, 24146), (44, 24179), (56, 24275), (61, 24314), (63, 24332), (69, 24377), (75, 24425), (79, 24461),

Gene: Odesza_6 Start: 2280, Stop: 2726, Start Num: 21

Candidate Starts for Odesza_6:

(Start: 17 @2265 has 2 MA's), (Start: 21 @2280 has 19 MA's), (27, 2319), (29, 2328), (34, 2358), (36, 2388), (38, 2391), (45, 2439), (51, 2475), (68, 2613), (74, 2640), (81, 2721),

Gene: OhMyWard_10 Start: 5216, Stop: 5656, Start Num: 21

Candidate Starts for OhMyWard_10:

(Start: 21 @5216 has 19 MA's), (29, 5261), (36, 5321), (45, 5369),

Gene: Perkunas_8 Start: 3200, Stop: 3529, Start Num: 36

Candidate Starts for Perkunas_8:

(Start: 17 @3080 has 2 MA's), (Start: 21 @3095 has 19 MA's), (24, 3116), (29, 3140), (36, 3200), (50, 3278), (68, 3416), (74, 3443), (78, 3500),

Gene: Petito_6 Start: 2786, Stop: 3235, Start Num: 21

Candidate Starts for Petito_6:

(Start: 17 @2771 has 2 MA's), (Start: 21 @2786 has 19 MA's), (28, 2831), (29, 2837), (36, 2897), (40, 2912), (61, 3059), (68, 3122), (79, 3215),

Gene: Phepper_10 Start: 5218, Stop: 5658, Start Num: 21

Candidate Starts for Phepper_10:

(Start: 21 @5218 has 19 MA's), (29, 5263), (36, 5323), (41, 5341), (61, 5485), (62, 5488), (68, 5545),

Gene: Pherobrine_7 Start: 2975, Stop: 3415, Start Num: 21

Candidate Starts for Pherobrine_7:

(Start: 21 @2975 has 19 MA's), (29, 3020), (36, 3080), (39, 3086), (42, 3110), (49, 3146), (51, 3164), (61, 3242), (76, 3359),

Gene: PsychoKiller_28 Start: 22935, Stop: 23444, Start Num: 7

Candidate Starts for PsychoKiller_28:

(Start: 7 @22935 has 19 MA's), (9, 22947), (16, 22992), (20, 23001), (22, 23022), (29, 23049), (36, 23106), (47, 23163), (52, 23208), (81, 23436), (82, 23439),

Gene: Quasar_28 Start: 23544, Stop: 24053, Start Num: 7

Candidate Starts for Quasar_28:

(Start: 7 @23544 has 19 MA's), (9, 23556), (16, 23601), (20, 23610), (22, 23631), (29, 23658), (36, 23715), (47, 23772), (52, 23817), (81, 24045), (82, 24048),

Gene: RedBaron_29 Start: 22979, Stop: 23485, Start Num: 7

Candidate Starts for RedBaron_29:

(Start: 7 @22979 has 19 MA's), (9, 22991), (16, 23036), (20, 23045), (22, 23066), (29, 23093), (36, 23150), (44, 23183), (56, 23279), (61, 23318), (63, 23336), (69, 23381), (79, 23465),

Gene: Roney_6 Start: 2280, Stop: 2726, Start Num: 21

Candidate Starts for Roney_6:

(Start: 17 @2265 has 2 MA's), (Start: 21 @2280 has 19 MA's), (29, 2328), (34, 2358), (36, 2388), (38, 2391), (45, 2439), (51, 2475), (68, 2613), (74, 2640), (81, 2721),

Gene: Runhaar_10 Start: 5219, Stop: 5659, Start Num: 21

Candidate Starts for Runhaar_10:

(Start: 21 @5219 has 19 MA's), (29, 5264), (36, 5324), (41, 5342), (61, 5486), (69, 5549),

Gene: Schmidt_26 Start: 19601, Stop: 20137, Start Num: 4

Candidate Starts for Schmidt_26:

(1, 19466), (2, 19544), (Start: 4 @19601 has 8 MA's), (10, 19652), (19, 19694), (20, 19697), (23, 19724), (36, 19808), (47, 19862), (55, 19931), (57, 19943), (59, 19955), (61, 19970), (74, 20054), (77, 20096),

Gene: Shatter_37 Start: 32053, Stop: 32604, Start Num: 3

Candidate Starts for Shatter_37:

(Start: 3 @32053 has 5 MA's), (10, 32104), (26, 32191), (43, 32296), (45, 32314), (54, 32383), (59, 32413), (61, 32428), (66, 32485), (69, 32491), (80, 32581),

Gene: Sisko_37 Start: 32823, Stop: 33386, Start Num: 4

Candidate Starts for Sisko_37:

(Start: 4 @32823 has 8 MA's), (15, 32910), (19, 32919), (22, 32943), (26, 32964), (32, 32994), (38, 33042), (43, 33069), (44, 33072), (58, 33186), (60, 33201), (67, 33264),

Gene: SketchMex_27 Start: 22574, Stop: 23080, Start Num: 7

Candidate Starts for SketchMex_27:

(Start: 7 @22574 has 19 MA's), (12, 22610), (20, 22640), (22, 22661), (29, 22688), (36, 22745), (43, 22775), (52, 22847), (56, 22874), (61, 22913), (79, 23060), (81, 23075),

Gene: Sopespian_28 Start: 22936, Stop: 23445, Start Num: 7

Candidate Starts for Sopespian_28:

(Start: 7 @22936 has 19 MA's), (9, 22948), (16, 22993), (20, 23002), (22, 23023), (29, 23050), (36, 23107), (47, 23164), (52, 23209), (81, 23437), (82, 23440),

Gene: Sour_42 Start: 36765, Stop: 37328, Start Num: 4

Candidate Starts for Sour_42:

(Start: 4 @36765 has 8 MA's), (9, 36810), (18, 36858), (19, 36861), (22, 36885), (23, 36891), (26, 36906), (32, 36936), (44, 37014), (46, 37032), (53, 37098), (58, 37128), (60, 37143), (81, 37314), (82, 37317),

Gene: Survivors_30 Start: 23745, Stop: 24251, Start Num: 7

Candidate Starts for Survivors_30:

(Start: 7 @23745 has 19 MA's), (20, 23811), (29, 23859), (36, 23916), (56, 24045), (61, 24084), (63, 24102), (69, 24147),

Gene: SweatNTears_30 Start: 22842, Stop: 23348, Start Num: 7

Candidate Starts for SweatNTears_30:

(Start: 7 @22842 has 19 MA's), (12, 22878), (20, 22908), (22, 22929), (29, 22956), (35, 22998), (36, 23013), (43, 23043), (51, 23100), (52, 23115), (56, 23142), (61, 23181), (79, 23328), (81, 23343),

Gene: TZGordon_30 Start: 21921, Stop: 22472, Start Num: 3

Candidate Starts for TZGordon_30:

(Start: 3 @21921 has 5 MA's), (9, 21963), (13, 21993), (20, 22014), (22, 22035), (36, 22131), (44, 22164), (48, 22194), (49, 22197), (62, 22299), (69, 22359), (82, 22467),

Gene: Tanis_6 Start: 2130, Stop: 2576, Start Num: 21

Candidate Starts for Tanis_6:

(Start: 17 @2115 has 2 MA's), (Start: 21 @2130 has 19 MA's), (29, 2178), (34, 2208), (36, 2238), (38, 2241), (45, 2289), (51, 2325), (54, 2361), (68, 2463), (74, 2490), (81, 2571),

Gene: Troje_28 Start: 22571, Stop: 23077, Start Num: 7

Candidate Starts for Troje_28:

(Start: 7 @22571 has 19 MA's), (12, 22607), (20, 22637), (22, 22658), (29, 22685), (36, 22742), (43, 22772), (51, 22829), (56, 22871), (61, 22910), (79, 23057), (81, 23072),

Gene: Typhonomachy_29 Start: 23025, Stop: 23477, Start Num: 16

Candidate Starts for Typhonomachy_29:

(Start: 7 @22968 has 19 MA's), (9, 22980), (16, 23025), (20, 23034), (22, 23055), (29, 23082), (36, 23139), (47, 23196), (52, 23241), (81, 23469), (82, 23472),

Gene: Untouchable_9 Start: 4144, Stop: 4584, Start Num: 21

Candidate Starts for Untouchable_9:

(Start: 21 @4144 has 19 MA's), (29, 4189), (36, 4249), (39, 4255), (47, 4303), (63, 4429),

Gene: Vardy_10 Start: 5217, Stop: 5657, Start Num: 21

Candidate Starts for Vardy_10:

(Start: 21 @5217 has 19 MA's), (29, 5262), (36, 5322), (41, 5340), (61, 5484), (69, 5547),

Gene: Yago84_37 Start: 32897, Stop: 33460, Start Num: 4

Candidate Starts for Yago84_37:

(Start: 4 @32897 has 8 MA's), (15, 32984), (19, 32993), (22, 33017), (26, 33038), (32, 33068), (38, 33116), (43, 33143), (44, 33146), (58, 33260), (60, 33275), (67, 33338),

Gene: Yummy_29 Start: 22524, Stop: 23030, Start Num: 7

Candidate Starts for Yummy_29:

(Start: 7 @22524 has 19 MA's), (12, 22560), (20, 22590), (22, 22611), (29, 22638), (35, 22680), (36, 22695), (43, 22725), (51, 22782), (52, 22797), (56, 22824), (61, 22863), (79, 23010), (81, 23025),

Gene: Zareef_32 Start: 23897, Stop: 24403, Start Num: 7

Candidate Starts for Zareef_32:

(Start: 7 @23897 has 19 MA's), (20, 23963), (29, 24011), (36, 24068), (56, 24197), (61, 24236), (63, 24254), (69, 24299),

Gene: Zeph_9 Start: 4403, Stop: 4843, Start Num: 21

Candidate Starts for Zeph_9:

(Start: 21 @4403 has 19 MA's), (29, 4448), (36, 4508), (39, 4514), (47, 4562), (63, 4688),