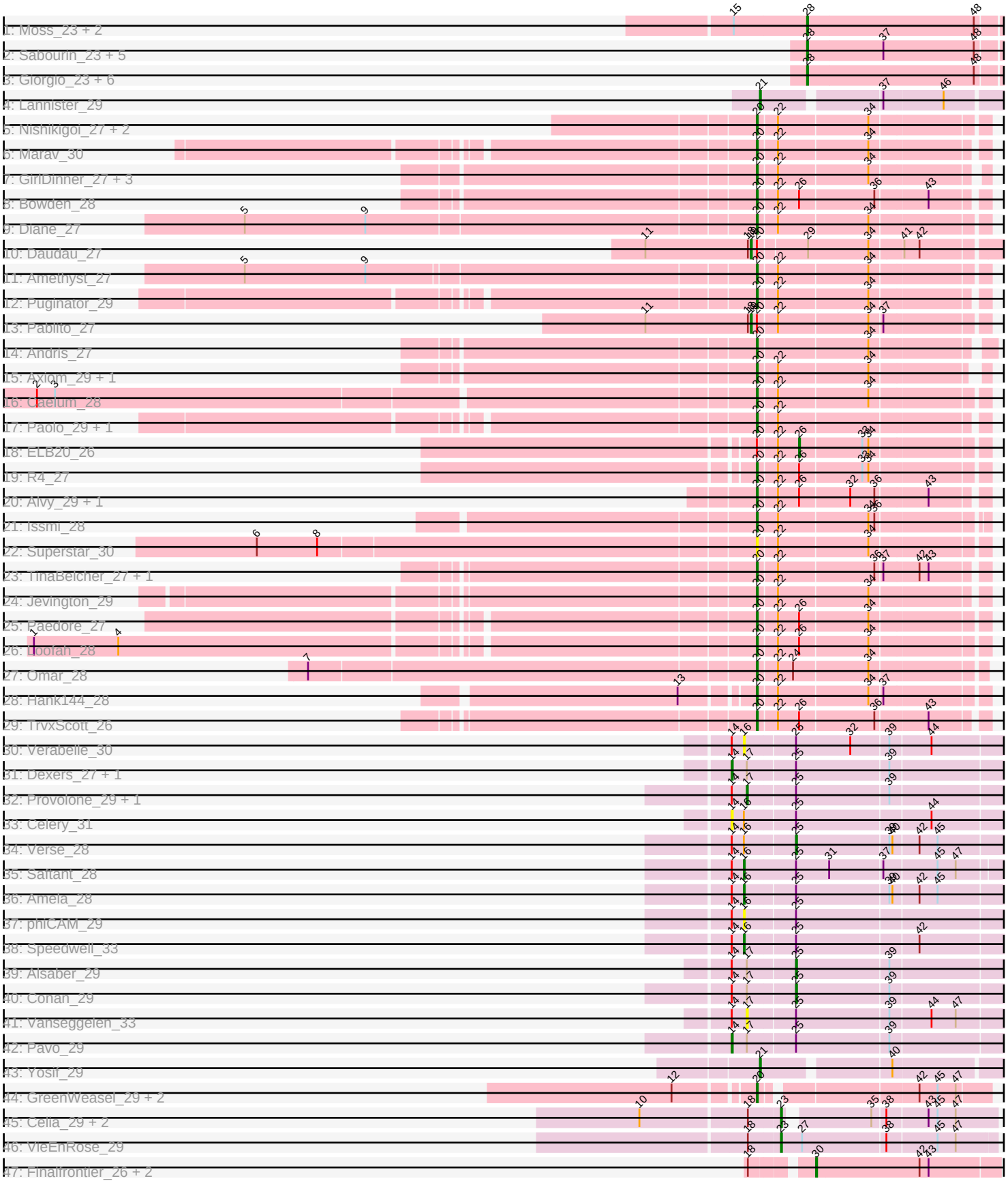
Pham 224528


1: Moss_23 + 2
2: Sabourin_23 + 5
3: Giorgio_23 + 6
4: Lannister_29
5: Nishikigoi_27 + 2
6: Marav_30
7: GirlDinner_27 + 3
8: Bowden_28
9: Diane_27
10: Daudau_27
11: Amethyst_27
12: Puginator_29
13: Pablito_27
14: Andris_27
15: Axiom_29 + 1
16: Gaelum_28
17: Paolo_29 + 1
18: ELB20_26
19: R4_27
20: Alvy_29 + 1
21: Issmi_28
22: Superstar_30
23: TinaBelcher_27 + 1
24: Jevington_29
25: Raedore_27
26: Doolah_28
27: Omar_28
28: Hank144_28
29: TrvxScott_26
30: Verabelle_30
31: Dexers_27 + 1
32: Provolone_29 + 1
33: Celery_31
34: Verse_28
35: Saltant_28
36: Amela_28
37: phiCAM_29
38: Speedwell_33
39: Alsaber_29
40: Conan_29
41: Vanseggelen_33
42: Pavo_29
43: Yosif_29
44: GreenWeasel_29 + 2
45: Celia_29 + 2
46: VieEnRose_29
47: Finalfrontier_26 + 2

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 224528 Report

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

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 224528 has 77 members, 13 are drafts.

Phages represented in each track:
• Track 1 : Moss_23, SpecialK_23, Halsey_23
• Track 2 : Sabourin_23, Cappuccino_23, Sooty_23, Kalimba_23, Gambol_23, Donkey_23
• Track 3 : Giorgio_23, Beaupre_23, Stuu_24, Gumpizza_23, Ashes_23, RockScotty_23, Mysterium_23
• Track 4 : Lannister_29
• Track 5 : Nishikigoi_27, Haizum_27, Tefunt_27
• Track 6 : Marav_30
• Track 7 : GirlDinner_27, Animus_28, SqueakyClean_28, Janus_28
• Track 8 : Bowden_28
• Track 9 : Diane_27
• Track 10 : Daudau_27
• Track 11 : Amethyst_27
• Track 12 : Puginator_29
• Track 13 : Pablito_27
• Track 14 : Andris_27
• Track 15 : Axiom_29, Triumph_29
• Track 16 : Caelum_28
• Track 17 : Paolo_29, Zainub_29
• Track 18 : ELB20_26
• Track 19 : R4_27
• Track 20 : Alvy_29, BartholomewSD_29
• Track 21 : Issmi_28
• Track 22 : Superstar_30
• Track 23 : TinaBelcher_27, Thestral_28
• Track 24 : Jevington_29
• Track 25 : Paedore_27
• Track 26 : Loofah_28
• Track 27 : Omar_28
• Track 28 : Hank144_28
• Track 29 : TrvxScott_26
• Track 30 : Verabelle_30
• Track 31 : Dexers_27, Kaine_28

• Track 32 : Provolone_29, ElGato_29
• Track 33 : Celery_31
• Track 34 : Verse_28
• Track 35 : Saftant_28
• Track 36 : Amela_28
• Track 37 : phiCAM_29
• Track 38 : Speedwell_33
• Track 39 : Alsaber_29
• Track 40 : Conan_29
• Track 41 : Vanseggelen_33
• Track 42 : Pavo_29
• Track 43 : Yosif_29
• Track 44 : GreenWeasel_29, BroPlease_28, phiHau3_29
• Track 45 : Celia_29, Urza_29, Itza_29
• Track 46 : VieEnRose_29
• Track 47 : Finalfrontier_26, BabyDaisy_26, Kate33_25

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

The start number called the most often in the published annotations is 20, it was called in 32 of the 64 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Alvy_29, Amethyst_27, Andris_27, Animus_28, Axiom_29, BartholomewSD_29, Bowden_28, BroPlease_28, Caelum_28, Diane_27, GirlDinner_27, GreenWeasel_29, Haizum_27, Hank144_28, Issmi_28, Janus_28, Jevington_29, Loofah_28, Marav_30, Nishikigoi_27, Omar_28, Paedore_27, Paolo_29, Puginator_29, R4_27, SqueakyClean_28, Superstar_30, Tefunt_27, Thestral_28, TinaBelcher_27, Triumph_29, TrvxScott_26, Zainub_29, phiHau3_29,

Genes that have the "Most Annotated" start but do not call it:
• Daudau_27, ELB20_26, Pablito_27,

Genes that do not have the "Most Annotated" start:
• Alsaber_29, Amela_28, Ashes_23, BabyDaisy_26, Beaupre_23, Cappuccino_23, Celery_31, Celia_29, Conan_29, Dexers_27, Donkey_23, ElGato_29, Finalfrontier_26, Gambol_23, Giorgio_23, Gumpizza_23, Halsey_23, Itza_29, Kaine_28, Kalimba_23, Kate33_25, Lannister_29, Moss_23, Mysterium_23, Pavo_29, Provolone_29, RockScotty_23, Sabourin_23, Saftant_28, Sooty_23, SpecialK_23, Speedwell_33, Stuu_24, Urza_29, Vanseggelen_33, Verabelle_30, Verse_28, VieEnRose_29, Yosif_29, phiCAM_29,

Summary by start number:

Start 14:
• Found in 15 of 77 (19.5%) of genes in pham
• Manual Annotations of this start: 3 of 64
• Called 26.7% of time when present
• Phage (with cluster) where this start called: Celery_31 (BD3), Dexers_27 (BD3), Kaine_28 (BD3), Pavo_29 (BD3),

Start 16:
• Found in 7 of 77 (9.1%) of genes in pham
• Manual Annotations of this start: 3 of 64
• Called 71.4% of time when present
• Phage (with cluster) where this start called: Amela_28 (BD3), Saftant_28 (BD3), Speedwell_33 (BD3), Verabelle_30 (BD3), phiCAM_29 (BD3),

Start 17:
• Found in 8 of 77 (10.4%) of genes in pham
• Manual Annotations of this start: 2 of 64
• Called 37.5% of time when present
• Phage (with cluster) where this start called: ElGato_29 (BD3), Provolone_29 (BD3), Vanseggelen_33 (BD3),

Start 19:
• Found in 2 of 77 (2.6%) of genes in pham
• Manual Annotations of this start: 2 of 64
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Daudau_27 (BD2), Pablito_27 (BD2),

Start 20:
• Found in 37 of 77 (48.1%) of genes in pham
• Manual Annotations of this start: 32 of 64
• Called 91.9% of time when present
• Phage (with cluster) where this start called: Alvy_29 (BD2), Amethyst_27 (BD2), Andris_27 (BD2), Animus_28 (BD2), Axiom_29 (BD2), BartholomewSD_29 (BD2), Bowden_28 (BD2), BroPlease_28 (BD4), Caelum_28 (BD2), Diane_27 (BD2), GirlDinner_27 (BD2), GreenWeasel_29 (BD4), Haizum_27 (BD2), Hank144_28 (BD2), Issmi_28 (BD2), Janus_28 (BD2), Jevington_29 (BD2), Loofah_28 (BD2), Marav_30 (BD2), Nishikigoi_27 (BD2), Omar_28 (BD2), Paedore_27 (BD2), Paolo_29 (BD2), Puginator_29 (BD2), R4_27 (BD2), SqueakyClean_28 (BD2), Superstar_30 (BD2), Tefunt_27 (BD2), Thestral_28 (BD2), TinaBelcher_27 (BD2), Triumph_29 (BD2), TrvxScott_26 (BD2), Zainub_29 (BD2), phiHau3_29 (BD4),

Start 21:
• Found in 2 of 77 (2.6%) of genes in pham
• Manual Annotations of this start: 2 of 64
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Lannister_29 (BD1), Yosif_29 (BD3),

Start 23:
• Found in 4 of 77 (5.2%) of genes in pham
• Manual Annotations of this start: 4 of 64
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Celia_29 (BD6), Itza_29 (BD6), Urza_29 (BD6), VieEnRose_29 (BD6),

Start 25:
• Found in 15 of 77 (19.5%) of genes in pham
• Manual Annotations of this start: 3 of 64
• Called 20.0% of time when present

• Phage (with cluster) where this start called: Alsaber_29 (BD3), Conan_29 (BD3), Verse_28 (BD3),

Start 26:
• Found in 8 of 77 (10.4%) of genes in pham
• Manual Annotations of this start: 1 of 64
• Called 12.5% of time when present
• Phage (with cluster) where this start called: ELB20_26 (BD2),

Start 28:
• Found in 16 of 77 (20.8%) of genes in pham
• Manual Annotations of this start: 10 of 64
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Ashes_23 (AZ5), Beaupre_23 (AZ5), Cappuccino_23 (AZ5), Donkey_23 (AZ5), Gambol_23 (AZ5), Giorgio_23 (AZ5), Gumpizza_23 (AZ5), Halsey_23 (AZ5), Kalimba_23 (AZ5), Moss_23 (AZ5), Mysterium_23 (AZ5), RockScotty_23 (AZ5), Sabourin_23 (AZ5), Sooty_23 (AZ5), SpecialK_23 (AZ5), Stuu_24 (AZ5),

Start 30:
• Found in 3 of 77 (3.9%) of genes in pham
• Manual Annotations of this start: 2 of 64
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BabyDaisy_26 (EB), Finalfrontier_26 (EB), Kate33_25 (EB),

Summary by clusters:

There are 7 clusters represented in this pham: EB, BD4, BD6, BD1, BD3, BD2, AZ5,

Info for manual annotations of cluster AZ5:
•Start number 28 was manually annotated 10 times for cluster AZ5.

Info for manual annotations of cluster BD1:
•Start number 21 was manually annotated 1 time for cluster BD1.

Info for manual annotations of cluster BD2:
•Start number 19 was manually annotated 2 times for cluster BD2.
•Start number 20 was manually annotated 29 times for cluster BD2.
•Start number 26 was manually annotated 1 time for cluster BD2.

Info for manual annotations of cluster BD3:
•Start number 14 was manually annotated 3 times for cluster BD3.
•Start number 16 was manually annotated 3 times for cluster BD3.
•Start number 17 was manually annotated 2 times for cluster BD3.
•Start number 21 was manually annotated 1 time for cluster BD3.
•Start number 25 was manually annotated 3 times for cluster BD3.

Info for manual annotations of cluster BD4:
•Start number 20 was manually annotated 3 times for cluster BD4.

Info for manual annotations of cluster BD6:
•Start number 23 was manually annotated 4 times for cluster BD6.

Info for manual annotations of cluster EB:
•Start number 30 was manually annotated 2 times for cluster EB.

Gene Information:

Gene: Alsaber_29 Start: 23589, Stop: 23822, Start Num: 25
Candidate Starts for Alsaber_29:
(Start: 14 @23529 has 3 MA's), (Start: 17 @23544 has 2 MA's), (Start: 25 @23589 has 3 MA's), (39, 23679),

Gene: Alvy_29 Start: 22860, Stop: 23069, Start Num: 20
Candidate Starts for Alvy_29:
(Start: 20 @22860 has 32 MA's), (22, 22878), (Start: 26 @22899 has 1 MA's), (32, 22947), (36, 22971), (43, 23019),

Gene: Amela_28 Start: 24358, Stop: 24642, Start Num: 16
Candidate Starts for Amela_28:
(Start: 14 @24346 has 3 MA's), (Start: 16 @24358 has 3 MA's), (Start: 25 @24406 has 3 MA's), (39, 24496), (40, 24499), (42, 24523), (45, 24541),

Gene: Amethyst_27 Start: 22528, Stop: 22740, Start Num: 20
Candidate Starts for Amethyst_27:
(5, 22036), (9, 22156), (Start: 20 @22528 has 32 MA's), (22, 22546), (34, 22633),

Gene: Andris_27 Start: 22516, Stop: 22728, Start Num: 20
Candidate Starts for Andris_27:
(Start: 20 @22516 has 32 MA's), (34, 22621),

Gene: Animus_28 Start: 22858, Stop: 23064, Start Num: 20
Candidate Starts for Animus_28:
(Start: 20 @22858 has 32 MA's), (22, 22876), (34, 22963),

Gene: Ashes_23 Start: 18268, Stop: 18474, Start Num: 28
Candidate Starts for Ashes_23:
(Start: 28 @18268 has 10 MA's), (48, 18433),

Gene: Axiom_29 Start: 22683, Stop: 22886, Start Num: 20
Candidate Starts for Axiom_29:
(Start: 20 @22683 has 32 MA's), (22, 22701), (34, 22788),

Gene: BabyDaisy_26 Start: 19813, Stop: 19992, Start Num: 30
Candidate Starts for BabyDaisy_26:
(18, 19762), (Start: 30 @19813 has 2 MA's), (42, 19915), (43, 19924),

Gene: BartholomewSD_29 Start: 22860, Stop: 23069, Start Num: 20
Candidate Starts for BartholomewSD_29:
(Start: 20 @22860 has 32 MA's), (22, 22878), (Start: 26 @22899 has 1 MA's), (32, 22947), (36, 22971), (43, 23019),

Gene: Beaupre_23 Start: 18269, Stop: 18475, Start Num: 28

Candidate Starts for Beaupre_23:
(Start: 28 @18269 has 10 MA's), (48, 18434),

Gene: Bowden_28 Start: 22785, Stop: 22994, Start Num: 20
Candidate Starts for Bowden_28:
(Start: 20 @22785 has 32 MA's), (22, 22803), (Start: 26 @22824 has 1 MA's), (36, 22896), (43, 22944),

Gene: BroPlease_28 Start: 22457, Stop: 22663, Start Num: 20
Candidate Starts for BroPlease_28:
(12, 22388), (Start: 20 @22457 has 32 MA's), (42, 22595), (45, 22613), (47, 22631),

Gene: Caelum_28 Start: 22499, Stop: 22711, Start Num: 20
Candidate Starts for Caelum_28:
(2, 21806), (3, 21824), (Start: 20 @22499 has 32 MA's), (22, 22517), (34, 22604),

Gene: Cappuccino_23 Start: 18179, Stop: 18385, Start Num: 28
Candidate Starts for Cappuccino_23:
(Start: 28 @18179 has 10 MA's), (37, 18254), (48, 18344),

Gene: Celery_31 Start: 23463, Stop: 23756, Start Num: 14
Candidate Starts for Celery_31:
(Start: 14 @23463 has 3 MA's), (Start: 16 @23475 has 3 MA's), (Start: 25 @23523 has 3 MA's), (44, 23652),

Gene: Celia_29 Start: 23000, Stop: 23194, Start Num: 23
Candidate Starts for Celia_29:
(10, 22868), (18, 22970), (Start: 23 @23000 has 4 MA's), (35, 23075), (38, 23087), (43, 23126), (45, 23135), (47, 23153),

Gene: Conan_29 Start: 23488, Stop: 23721, Start Num: 25
Candidate Starts for Conan_29:
(Start: 14 @23428 has 3 MA's), (Start: 17 @23443 has 2 MA's), (Start: 25 @23488 has 3 MA's), (39, 23578),

Gene: Daudau_27 Start: 22524, Stop: 22754, Start Num: 19
Candidate Starts for Daudau_27:
(11, 22419), (18, 22521), (Start: 19 @22524 has 2 MA's), (Start: 20 @22530 has 32 MA's), (29, 22575), (34, 22635), (41, 22665), (42, 22680),

Gene: Dexers_27 Start: 23450, Stop: 23743, Start Num: 14
Candidate Starts for Dexers_27:
(Start: 14 @23450 has 3 MA's), (Start: 17 @23465 has 2 MA's), (Start: 25 @23510 has 3 MA's), (39, 23600),

Gene: Diane_27 Start: 22864, Stop: 23076, Start Num: 20
Candidate Starts for Diane_27:
(5, 22369), (9, 22489), (Start: 20 @22864 has 32 MA's), (22, 22882), (34, 22969),

Gene: Donkey_23 Start: 18179, Stop: 18385, Start Num: 28
Candidate Starts for Donkey_23:
(Start: 28 @18179 has 10 MA's), (37, 18254), (48, 18344),

Gene: ELB20_26 Start: 22980, Stop: 23153, Start Num: 26

Candidate Starts for ELB20_26:
(Start: 20 @22941 has 32 MA's), (22, 22959), (Start: 26 @22980 has 1 MA's), (33, 23040), (34, 23046),

Gene: ElGato_29 Start: 23103, Stop: 23381, Start Num: 17
Candidate Starts for ElGato_29:
(Start: 14 @23088 has 3 MA's), (Start: 17 @23103 has 2 MA's), (Start: 25 @23148 has 3 MA's), (39, 23238),

Gene: Finalfrontier_26 Start: 20179, Stop: 20358, Start Num: 30
Candidate Starts for Finalfrontier_26:
(18, 20128), (Start: 30 @20179 has 2 MA's), (42, 20281), (43, 20290),

Gene: Gambol_23 Start: 18179, Stop: 18385, Start Num: 28
Candidate Starts for Gambol_23:
(Start: 28 @18179 has 10 MA's), (37, 18254), (48, 18344),

Gene: Giorgio_23 Start: 18276, Stop: 18482, Start Num: 28
Candidate Starts for Giorgio_23:
(Start: 28 @18276 has 10 MA's), (48, 18441),

Gene: GirlDinner_27 Start: 22520, Stop: 22726, Start Num: 20
Candidate Starts for GirlDinner_27:
(Start: 20 @22520 has 32 MA's), (22, 22538), (34, 22625),

Gene: GreenWeasel_29 Start: 22466, Stop: 22672, Start Num: 20
Candidate Starts for GreenWeasel_29:
(12, 22397), (Start: 20 @22466 has 32 MA's), (42, 22604), (45, 22622), (47, 22640),

Gene: Gumpizza_23 Start: 18269, Stop: 18475, Start Num: 28
Candidate Starts for Gumpizza_23:
(Start: 28 @18269 has 10 MA's), (48, 18434),

Gene: Haizum_27 Start: 22538, Stop: 22750, Start Num: 20
Candidate Starts for Haizum_27:
(Start: 20 @22538 has 32 MA's), (22, 22556), (34, 22643),

Gene: Halsey_23 Start: 18274, Stop: 18480, Start Num: 28
Candidate Starts for Halsey_23:
(15, 18202), (Start: 28 @18274 has 10 MA's), (48, 18439),

Gene: Hank144_28 Start: 22954, Stop: 23166, Start Num: 20
Candidate Starts for Hank144_28:
(13, 22891), (Start: 20 @22954 has 32 MA's), (22, 22972), (34, 23059), (37, 23071),

Gene: Issmi_28 Start: 23141, Stop: 23353, Start Num: 20
Candidate Starts for Issmi_28:
(Start: 20 @23141 has 32 MA's), (22, 23162), (34, 23249), (36, 23255),

Gene: Itza_29 Start: 22914, Stop: 23108, Start Num: 23
Candidate Starts for Itza_29:
(10, 22782), (18, 22884), (Start: 23 @22914 has 4 MA's), (35, 22989), (38, 23001), (43, 23040), (45, 23049), (47, 23067),

Gene: Janus_28 Start: 22858, Stop: 23064, Start Num: 20
Candidate Starts for Janus_28:
(Start: 20 @22858 has 32 MA's), (22, 22876), (34, 22963),

Gene: Jevington_29 Start: 23193, Stop: 23402, Start Num: 20
Candidate Starts for Jevington_29:
(Start: 20 @23193 has 32 MA's), (22, 23211), (34, 23298),

Gene: Kaine_28 Start: 23238, Stop: 23531, Start Num: 14
Candidate Starts for Kaine_28:
(Start: 14 @23238 has 3 MA's), (Start: 17 @23253 has 2 MA's), (Start: 25 @23298 has 3 MA's), (39, 23388),

Gene: Kalimba_23 Start: 18180, Stop: 18386, Start Num: 28
Candidate Starts for Kalimba_23:
(Start: 28 @18180 has 10 MA's), (37, 18255), (48, 18345),

Gene: Kate33_25 Start: 19636, Stop: 19815, Start Num: 30
Candidate Starts for Kate33_25:
(18, 19585), (Start: 30 @19636 has 2 MA's), (42, 19738), (43, 19747),

Gene: Lannister_29 Start: 22999, Stop: 23220, Start Num: 21
Candidate Starts for Lannister_29:
(Start: 21 @22999 has 2 MA's), (37, 23107), (46, 23164),

Gene: Loofah_28 Start: 22838, Stop: 23050, Start Num: 20
Candidate Starts for Loofah_28:
(1, 22157), (4, 22241), (Start: 20 @22838 has 32 MA's), (22, 22856), (Start: 26 @22877 has 1 MA's), (34, 22943),

Gene: Marav_30 Start: 23529, Stop: 23738, Start Num: 20
Candidate Starts for Marav_30:
(Start: 20 @23529 has 32 MA's), (22, 23547), (34, 23634),

Gene: Moss_23 Start: 18269, Stop: 18475, Start Num: 28
Candidate Starts for Moss_23:
(15, 18197), (Start: 28 @18269 has 10 MA's), (48, 18434),

Gene: Mysterium_23 Start: 18269, Stop: 18475, Start Num: 28
Candidate Starts for Mysterium_23:
(Start: 28 @18269 has 10 MA's), (48, 18434),

Gene: Nishikigoi_27 Start: 22538, Stop: 22750, Start Num: 20
Candidate Starts for Nishikigoi_27:
(Start: 20 @22538 has 32 MA's), (22, 22556), (34, 22643),

Gene: Omar_28 Start: 22805, Stop: 23014, Start Num: 20
Candidate Starts for Omar_28:
(7, 22373), (Start: 20 @22805 has 32 MA's), (22, 22823), (24, 22838), (34, 22910),

Gene: Pablito_27 Start: 22406, Stop: 22624, Start Num: 19
Candidate Starts for Pablito_27:

(11, 22301), (18, 22403), (Start: 19 @22406 has 2 MA's), (Start: 20 @22412 has 32 MA's), (22, 22430), (34, 22517), (37, 22529),

Gene: Paedore_27 Start: 22838, Stop: 23050, Start Num: 20
Candidate Starts for Paedore_27:
(Start: 20 @22838 has 32 MA's), (22, 22856), (Start: 26 @22877 has 1 MA's), (34, 22943),

Gene: Paolo_29 Start: 23192, Stop: 23401, Start Num: 20
Candidate Starts for Paolo_29:
(Start: 20 @23192 has 32 MA's), (22, 23210),

Gene: Pavo_29 Start: 23701, Stop: 23994, Start Num: 14
Candidate Starts for Pavo_29:
(Start: 14 @23701 has 3 MA's), (Start: 17 @23716 has 2 MA's), (Start: 25 @23761 has 3 MA's), (39, 23851),

Gene: Provolone_29 Start: 23095, Stop: 23373, Start Num: 17
Candidate Starts for Provolone_29:
(Start: 14 @23080 has 3 MA's), (Start: 17 @23095 has 2 MA's), (Start: 25 @23140 has 3 MA's), (39, 23230),

Gene: Puginator_29 Start: 23207, Stop: 23416, Start Num: 20
Candidate Starts for Puginator_29:
(Start: 20 @23207 has 32 MA's), (22, 23225), (34, 23312),

Gene: R4_27 Start: 22952, Stop: 23164, Start Num: 20
Candidate Starts for R4_27:
(Start: 20 @22952 has 32 MA's), (22, 22970), (Start: 26 @22991 has 1 MA's), (33, 23051), (34, 23057),

Gene: RockScotty_23 Start: 18245, Stop: 18451, Start Num: 28
Candidate Starts for RockScotty_23:
(Start: 28 @18245 has 10 MA's), (48, 18410),

Gene: Sabourin_23 Start: 18178, Stop: 18384, Start Num: 28
Candidate Starts for Sabourin_23:
(Start: 28 @18178 has 10 MA's), (37, 18253), (48, 18343),

Gene: Saftant_28 Start: 23714, Stop: 24013, Start Num: 16
Candidate Starts for Saftant_28:
(Start: 14 @23702 has 3 MA's), (Start: 16 @23714 has 3 MA's), (Start: 25 @23765 has 3 MA's), (31, 23798), (37, 23849), (45, 23900), (47, 23918),

Gene: Sooty_23 Start: 18181, Stop: 18387, Start Num: 28
Candidate Starts for Sooty_23:
(Start: 28 @18181 has 10 MA's), (37, 18256), (48, 18346),

Gene: SpecialK_23 Start: 18176, Stop: 18382, Start Num: 28
Candidate Starts for SpecialK_23:
(15, 18104), (Start: 28 @18176 has 10 MA's), (48, 18341),

Gene: Speedwell_33 Start: 24981, Stop: 25262, Start Num: 16
Candidate Starts for Speedwell_33:

(Start: 14 @24969 has 3 MA's), (Start: 16 @24981 has 3 MA's), (Start: 25 @25029 has 3 MA's), (42, 25146),

Gene: SqueakyClean_28 Start: 22784, Stop: 22990, Start Num: 20
Candidate Starts for SqueakyClean_28:
(Start: 20 @22784 has 32 MA's), (22, 22802), (34, 22889),

Gene: Stuu_24 Start: 18268, Stop: 18474, Start Num: 28
Candidate Starts for Stuu_24:
(Start: 28 @18268 has 10 MA's), (48, 18433),

Gene: Superstar_30 Start: 23733, Stop: 23945, Start Num: 20
Candidate Starts for Superstar_30:
(6, 23250), (8, 23310), (Start: 20 @23733 has 32 MA's), (22, 23751), (34, 23838),

Gene: Tefunt_27 Start: 22541, Stop: 22753, Start Num: 20
Candidate Starts for Tefunt_27:
(Start: 20 @22541 has 32 MA's), (22, 22559), (34, 22646),

Gene: Thestral_28 Start: 22774, Stop: 22983, Start Num: 20
Candidate Starts for Thestral_28:
(Start: 20 @22774 has 32 MA's), (22, 22792), (36, 22885), (37, 22891), (42, 22924), (43, 22933),

Gene: TinaBelcher_27 Start: 22721, Stop: 22930, Start Num: 20
Candidate Starts for TinaBelcher_27:
(Start: 20 @22721 has 32 MA's), (22, 22739), (36, 22832), (37, 22838), (42, 22871), (43, 22880),

Gene: Triumph_29 Start: 22699, Stop: 22902, Start Num: 20
Candidate Starts for Triumph_29:
(Start: 20 @22699 has 32 MA's), (22, 22717), (34, 22804),

Gene: TrvxScott_26 Start: 22767, Stop: 22976, Start Num: 20
Candidate Starts for TrvxScott_26:
(Start: 20 @22767 has 32 MA's), (22, 22785), (Start: 26 @22806 has 1 MA's), (36, 22878), (43, 22926),

Gene: Urza_29 Start: 22935, Stop: 23129, Start Num: 23
Candidate Starts for Urza_29:
(10, 22803), (18, 22905), (Start: 23 @22935 has 4 MA's), (35, 23010), (38, 23022), (43, 23061), (45, 23070), (47, 23088),

Gene: Vanseggelen_33 Start: 23285, Stop: 23563, Start Num: 17
Candidate Starts for Vanseggelen_33:
(Start: 14 @23270 has 3 MA's), (Start: 17 @23285 has 2 MA's), (Start: 25 @23330 has 3 MA's), (39, 23420), (44, 23459), (47, 23483),

Gene: Verabelle_30 Start: 23699, Stop: 23980, Start Num: 16
Candidate Starts for Verabelle_30:
(Start: 14 @23687 has 3 MA's), (Start: 16 @23699 has 3 MA's), (Start: 25 @23747 has 3 MA's), (32, 23801), (39, 23837), (44, 23876),

Gene: Verse_28 Start: 24400, Stop: 24636, Start Num: 25
Candidate Starts for Verse_28:

(Start: 14 @24340 has 3 MA's), (Start: 16 @24352 has 3 MA's), (Start: 25 @24400 has 3 MA's), (39, 24490), (40, 24493), (42, 24517), (45, 24535),

Gene: VieEnRose_29 Start: 23003, Stop: 23209, Start Num: 23
Candidate Starts for VieEnRose_29:
(18, 22973), (Start: 23 @23003 has 4 MA's), (27, 23024), (38, 23105), (45, 23153), (47, 23171),

Gene: Yosif_29 Start: 23870, Stop: 24091, Start Num: 21
Candidate Starts for Yosif_29:
(Start: 21 @23870 has 2 MA's), (40, 23987),

Gene: Zainub_29 Start: 23156, Stop: 23365, Start Num: 20
Candidate Starts for Zainub_29:
(Start: 20 @23156 has 32 MA's), (22, 23174),

Gene: phiCAM_29 Start: 25497, Stop: 25778, Start Num: 16
Candidate Starts for phiCAM_29:
(Start: 14 @25485 has 3 MA's), (Start: 16 @25497 has 3 MA's), (Start: 25 @25545 has 3 MA's),

Gene: phiHau3_29 Start: 22430, Stop: 22636, Start Num: 20
Candidate Starts for phiHau3_29:
(12, 22361), (Start: 20 @22430 has 32 MA's), (42, 22568), (45, 22586), (47, 22604),