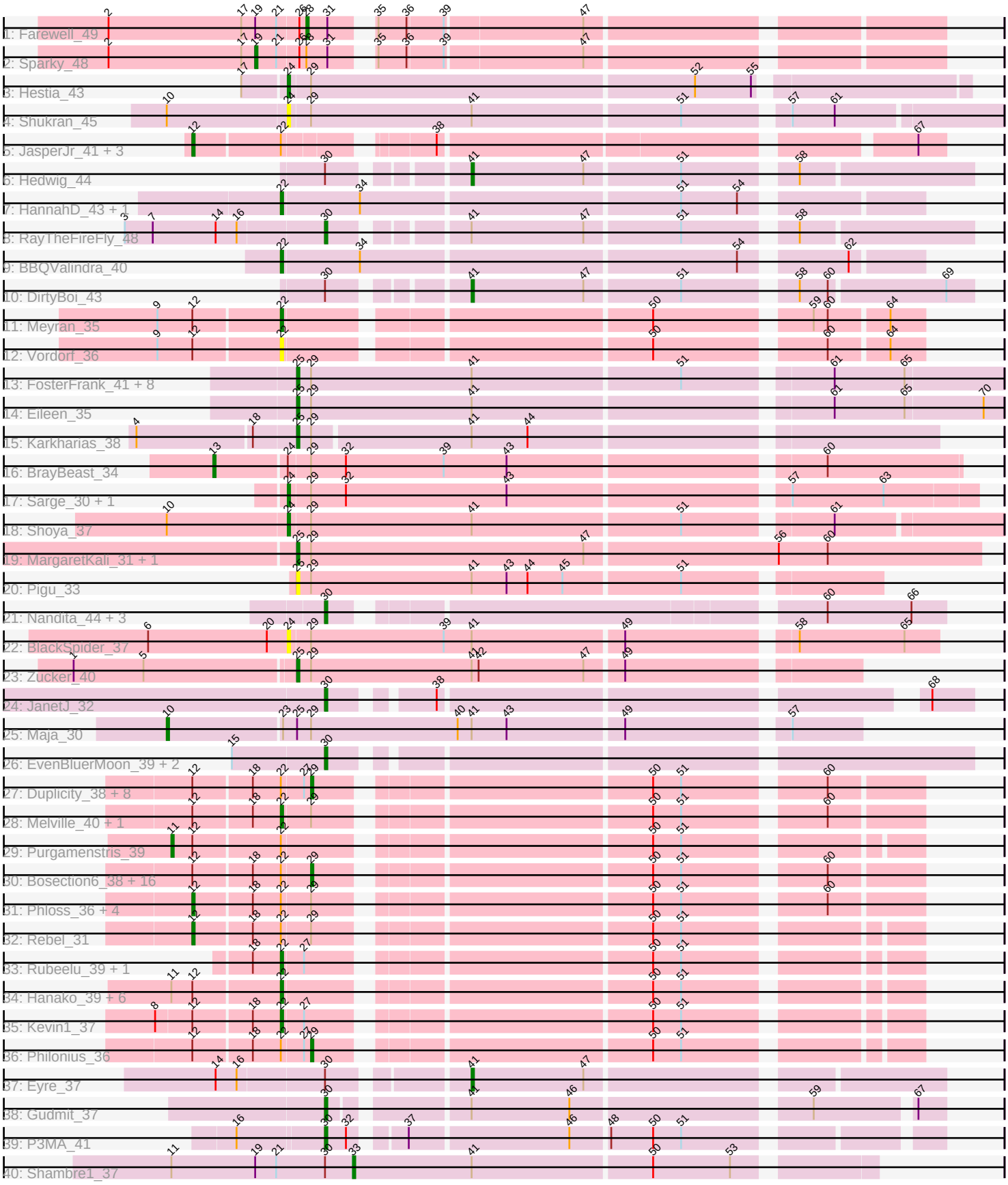
Pham 216045


1: Farewell_49
2: Sparky_48
3: Hestia_43
4: Shukran_45
5: JasperJr_41 + 3
6: Hedwig_44
7: HannahD_43 + 1
8: RayTheFireFly_48
9: BBQValindra_40
10: DirtyBoi_43
11: Meyran_35
12: Vordorf_36
13: FosterFrank_41 + 8
14: Eileen_35
15: Karkharias_38
16: BrayBeast_34
17: Sarge_30 + 1
18: Shoya_37
19: MargaretKali_31 + 1
20: Pigu_33
21: Nandita_44 + 3
22: BlackSpider_37
23: Zucker1_40
24: JanetJ_32
25: Maja_30
26: EvenBluerMoon_39 + 2
27: Duplicity_38 + 8
28: Melville_40 + 1
29: Purgamenstris_39
30: Bosection6_38 + 16
31: Phloss_36 + 4
32: Rebel_31
33: Rubeelu_39 + 1
34: Hanako_39 + 6
35: Kevin1_37
36: Philonius_36
37: Eyre_37
38: Gudmit_37
39: P3MA_41
40: Shambre1_37

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 216045 Report

This analysis was run 02/22/25 on database version 588.

Pham number 216045 has 95 members, 14 are drafts.

Phages represented in each track:
- Track 1 : Farewell_49
- Track 2 : Sparky_48
- Track 3 : Hestia_43
- Track 4 : Shukran_45
- Track 5 : JasperJr_41, Walrus_42, Hitter_44, Guacamole_41
- Track 6 : Hedwig_44
- Track 7 : HannahD_43, GEazy_45
- Track 8 : RayTheFireFly_48
- Track 9 : BBQValindra_40
- Track 10 : DirtyBoi_43
- Track 11 : Meyran_35
- Track 12 : Vordorf_36
- Track 13 : FosterFrank_41, ChuckDuck_40, KayMoney_39, Judy_40, Constance_39, Peas_36, GlobiWarming_39, RootBeer_30, Bridgette_39
- Track 14 : Eileen_35
- Track 15 : Karkharias_38
- Track 16 : BrayBeast_34
- Track 17 : Sarge_30, Bauer_41
- Track 18 : Shoya_37
- Track 19 : MargaretKali_31, Kumotta_31
- Track 20 : Pigu_33
- Track 21 : Nandita_44, Donatella_42, Ryan_44, Lenoxika_44
- Track 22 : BlackSpider_37
- Track 23 : Zucker_40
- Track 24 : JanetJ_32
- Track 25 : Maja_30
- Track 26 : EvenBluerMoon_39, Aoka_33, PrairieDogTown_48
- Track 27 : Duplicity_38, Tapioca_39, Silvy_36, Charlie_36, Gex_38, Journey_36, Aggie_36, Scitech_35, Xeno_35
- Track 28 : Melville_40, Shweta_35
- Track 29 : Purgamenstris_39
- Track 30 : Bosection6_38, Jamie19_35, Phrann_39, Parmesanjohn_38, Panchino_34, Smurph_38, Silvafighter_39, Magsby_38, Tortoise12_38, SpongeBob_35, MichelleMyBell_36, Pipsqueaks_38, SkinnyPete_33, Fulbright_37, Xerxes_38, EGUnicorn_39, Snekmaggedon_35
- Track 31 : Phloss_36, Andies_35, Chewbacca_39, Schnauzer_38, Carcharodon_38
- Track 32 : Rebel_31

• Track 33 : Rubeelu_39, Butters_39
• Track 34 : Hanako_39, PhancyPhin_39, BabeRuth_40, Redi_39, Nenae_39, Raymond7_33, ShrimpFriedEgg_39
• Track 35 : Kevin1_37
• Track 36 : Philonius_36
• Track 37 : Eyre_37
• Track 38 : Gudmit_37
• Track 39 : P3MA_41
• Track 40 : Shambre1_37

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

The start number called the most often in the published annotations is 29, it was called in 23 of the 81 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Aggie_36, Bosection6_38, Charlie_36, Duplicity_38, EGUnicorn_39, Fulbright_37, Gex_38, Jamie19_35, Journey_36, Magsby_38, MichelleMyBell_36, Panchino_34, Parmesanjohn_38, Philonius_36, Phrann_39, Pipsqueaks_38, Scitech_35, Silvafighter_39, Silvy_36, SkinnyPete_33, Smurph_38, Snekmaggedon_35, SpongeBob_35, Tapioca_39, Tortoise12_38, Xeno_35, Xerxes_38,

Genes that have the "Most Annotated" start but do not call it:
• Andies_35, Bauer_41, BlackSpider_37, BrayBeast_34, Bridgette_39, Carcharodon_38, Chewbacca_39, ChuckDuck_40, Constance_39, Eileen_35, FosterFrank_41, GlobiWarming_39, Hestia_43, Judy_40, Karkharias_38, KayMoney_39, Kumotta_31, Maja_30, MargaretKali_31, Melville_40, Peas_36, Phloss_36, Pigu_33, Rebel_31, RootBeer_30, Sarge_30, Schnauzer_38, Shoya_37, Shukran_45, Shweta_35, Zucker_40,

Genes that do not have the "Most Annotated" start:
• Aoka_33, BBQValindra_40, BabeRuth_40, Butters_39, DirtyBoi_43, Donatella_42, EvenBluerMoon_39, Eyre_37, Farewell_49, GEazy_45, Guacamole_41, Gudmit_37, Hanako_39, HannahD_43, Hedwig_44, Hitter_44, JanetJ_32, JasperJr_41, Kevin1_37, Lenoxika_44, Meyran_35, Nandita_44, Nenae_39, P3MA_41, PhancyPhin_39, PrairieDogTown_48, Purgamenstris_39, RayTheFireFly_48, Raymond7_33, Redi_39, Rubeelu_39, Ryan_44, Shambre1_37, ShrimpFriedEgg_39, Sparky_48, Vordorf_36, Walrus_42,

Summary by start number:

Start 10:
• Found in 3 of 95 (3.2%) of genes in pham
• Manual Annotations of this start: 1 of 81
• Called 33.3% of time when present
• Phage (with cluster) where this start called: Maja_30 (FO),

Start 11:
• Found in 9 of 95 (9.5%) of genes in pham
• Manual Annotations of this start: 1 of 81

• Called 11.1% of time when present
• Phage (with cluster) where this start called: Purgamenstris_39 (N),

Start 12:
• Found in 50 of 95 (52.6%) of genes in pham
• Manual Annotations of this start: 10 of 81
• Called 20.0% of time when present
• Phage (with cluster) where this start called: Andies_35 (N), Carcharodon_38 (N), Chewbacca_39 (N), Guacamole_41 (CV), Hitter_44 (CV), JasperJr_41 (CV), Phloss_36 (N), Rebel_31 (N), Schnauzer_38 (N), Walrus_42 (CV),

Start 13:
• Found in 1 of 95 (1.1%) of genes in pham
• Manual Annotations of this start: 1 of 81
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BrayBeast_34 (FB),

Start 19:
• Found in 3 of 95 (3.2%) of genes in pham
• Manual Annotations of this start: 1 of 81
• Called 33.3% of time when present
• Phage (with cluster) where this start called: Sparky_48 (AF),

Start 22:
• Found in 55 of 95 (57.9%) of genes in pham
• Manual Annotations of this start: 16 of 81
• Called 30.9% of time when present
• Phage (with cluster) where this start called: BBQValindra_40 (DB), BabeRuth_40 (N), Butters_39 (N), GEazy_45 (DB), Hanako_39 (N), HannahD_43 (DB), Kevin1_37 (N), Melville_40 (N), Meyran_35 (DT), Nenae_39 (N), PhancyPhin_39 (N), Raymond7_33 (N), Redi_39 (N), Rubeelu_39 (N), ShrimpFriedEgg_39 (N), Shweta_35 (N), Vordorf_36 (DT),

Start 24:
• Found in 7 of 95 (7.4%) of genes in pham
• Manual Annotations of this start: 4 of 81
• Called 85.7% of time when present
• Phage (with cluster) where this start called: Bauer_41 (FN), BlackSpider_37 (FN), Hestia_43 (AY), Sarge_30 (FB), Shoya_37 (FB), Shukran_45 (AY),

Start 25:
• Found in 16 of 95 (16.8%) of genes in pham
• Manual Annotations of this start: 12 of 81
• Called 93.8% of time when present
• Phage (with cluster) where this start called: Bridgette_39 (FA), ChuckDuck_40 (FA), Constance_39 (FA), Eileen_35 (FA), FosterFrank_41 (FA), GlobiWarming_39 (FA), Judy_40 (FA), Karkharias_38 (FA), KayMoney_39 (FA), Kumotta_31 (FB), MargaretKali_31 (FB), Peas_36 (FA), Pigu_33 (FB), RootBeer_30 (FA), Zucker_40 (FN),

Start 28:
• Found in 2 of 95 (2.1%) of genes in pham
• Manual Annotations of this start: 1 of 81

• Called 50.0% of time when present
• Phage (with cluster) where this start called: Farewell_49 (AF),

Start 29:
• Found in 58 of 95 (61.1%) of genes in pham
• Manual Annotations of this start: 23 of 81
• Called 46.6% of time when present
• Phage (with cluster) where this start called: Aggie_36 (N), Bosection6_38 (N), Charlie_36 (N), Duplicity_38 (N), EGUnicorn_39 (N), Fulbright_37 (N), Gex_38 (N), Jamie19_35 (N), Journey_36 (N), Magsby_38 (N), MichelleMyBell_36 (N), Panchino_34 (N), Parmesanjohn_38 (N), Philonius_36 (N), Phrann_39 (N), Pipsqueaks_38 (N), Scitech_35 (N), Silvafighter_39 (N), Silvy_36 (N), SkinnyPete_33 (N), Smurph_38 (N), Snekmaggedon_35 (N), SpongeBob_35 (N), Tapioca_39 (N), Tortoise12_38 (N), Xeno_35 (N), Xerxes_38 (N),

Start 30:
• Found in 15 of 95 (15.8%) of genes in pham
• Manual Annotations of this start: 7 of 81
• Called 73.3% of time when present
• Phage (with cluster) where this start called: Aoka_33 (FO), Donatella_42 (FF), EvenBluerMoon_39 (FO), Gudmit_37 (singleton), JanetJ_32 (FO), Lenoxika_44 (FF), Nandita_44 (FF), P3MA_41 (singleton), PrairieDogTown_48 (FO), RayTheFireFly_48 (DB), Ryan_44 (FF),

Start 33:
• Found in 1 of 95 (1.1%) of genes in pham
• Manual Annotations of this start: 1 of 81
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Shambre1_37 (singleton),

Start 41:
• Found in 23 of 95 (24.2%) of genes in pham
• Manual Annotations of this start: 3 of 81
• Called 13.0% of time when present
• Phage (with cluster) where this start called: DirtyBoi_43 (DB), Eyre_37 (singleton), Hedwig_44 (DB),

Summary by clusters:

There are 12 clusters represented in this pham: singleton, AF, DB, N, FA, FB, FF, AY, DT, CV, FN, FO,

Info for manual annotations of cluster AF:
•Start number 19 was manually annotated 1 time for cluster AF.
•Start number 28 was manually annotated 1 time for cluster AF.

Info for manual annotations of cluster AY:
•Start number 24 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster CV:
•Start number 12 was manually annotated 4 times for cluster CV.

Info for manual annotations of cluster DB:

•Start number 22 was manually annotated 3 times for cluster DB.
•Start number 30 was manually annotated 1 time for cluster DB.
•Start number 41 was manually annotated 2 times for cluster DB.

Info for manual annotations of cluster DT:
•Start number 22 was manually annotated 1 time for cluster DT.

Info for manual annotations of cluster FA:
•Start number 25 was manually annotated 9 times for cluster FA.

Info for manual annotations of cluster FB:
•Start number 13 was manually annotated 1 time for cluster FB.
•Start number 24 was manually annotated 2 times for cluster FB.
•Start number 25 was manually annotated 2 times for cluster FB.

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

Info for manual annotations of cluster FN:
•Start number 24 was manually annotated 1 time for cluster FN.
•Start number 25 was manually annotated 1 time for cluster FN.

Info for manual annotations of cluster FO:
•Start number 10 was manually annotated 1 time for cluster FO.
•Start number 30 was manually annotated 2 times for cluster FO.

Info for manual annotations of cluster N:
•Start number 11 was manually annotated 1 time for cluster N.
•Start number 12 was manually annotated 6 times for cluster N.
•Start number 22 was manually annotated 12 times for cluster N.
•Start number 29 was manually annotated 23 times for cluster N.

Gene Information:

Gene: Aggie_36 Start: 27900, Stop: 28133, Start Num: 29
Candidate Starts for Aggie_36:
(Start: 12 @27852 has 10 MA's), (18, 27876), (Start: 22 @27888 has 16 MA's), (27, 27897), (Start: 29 @27900 has 23 MA's), (50, 28029), (51, 28041), (60, 28095),

Gene: Andies_35 Start: 28370, Stop: 28651, Start Num: 12
Candidate Starts for Andies_35:
(Start: 12 @28370 has 10 MA's), (18, 28394), (Start: 22 @28406 has 16 MA's), (Start: 29 @28418 has 23 MA's), (50, 28547), (51, 28559), (60, 28613),

Gene: Aoka_33 Start: 26261, Stop: 26512, Start Num: 30
Candidate Starts for Aoka_33:
(15, 26222), (Start: 30 @26261 has 7 MA's),

Gene: BBQValindra_40 Start: 33028, Stop: 33285, Start Num: 22
Candidate Starts for BBQValindra_40:
(Start: 22 @33028 has 16 MA's), (34, 33061), (54, 33217), (62, 33256),

Gene: BabeRuth_40 Start: 29534, Stop: 29776, Start Num: 22
Candidate Starts for BabeRuth_40:
(Start: 11 @29489 has 1 MA's), (Start: 12 @29498 has 10 MA's), (Start: 22 @29534 has 16 MA's), (50, 29675), (51, 29687),

Gene: Bauer_41 Start: 28925, Stop: 28644, Start Num: 24
Candidate Starts for Bauer_41:
(Start: 24 @28925 has 4 MA's), (Start: 29 @28916 has 23 MA's), (32, 28901), (43, 28832), (57, 28721), (63, 28682),

Gene: BlackSpider_37 Start: 28105, Stop: 27839, Start Num: 24
Candidate Starts for BlackSpider_37:
(6, 28165), (20, 28114), (Start: 24 @28105 has 4 MA's), (Start: 29 @28096 has 23 MA's), (39, 28039), (Start: 41 @28027 has 3 MA's), (49, 27964), (58, 27898), (65, 27853),

Gene: Bosection6_38 Start: 27921, Stop: 28154, Start Num: 29
Candidate Starts for Bosection6_38:
(Start: 12 @27873 has 10 MA's), (18, 27897), (Start: 22 @27909 has 16 MA's), (Start: 29 @27921 has 23 MA's), (50, 28050), (51, 28062), (60, 28116),

Gene: BrayBeast_34 Start: 25453, Stop: 25148, Start Num: 13
Candidate Starts for BrayBeast_34:
(Start: 13 @25453 has 1 MA's), (Start: 24 @25423 has 4 MA's), (Start: 29 @25414 has 23 MA's), (32, 25399), (39, 25357), (43, 25330), (60, 25204),

Gene: Bridgette_39 Start: 28174, Stop: 27884, Start Num: 25
Candidate Starts for Bridgette_39:
(Start: 25 @28174 has 12 MA's), (Start: 29 @28168 has 23 MA's), (Start: 41 @28099 has 3 MA's), (51, 28012), (61, 27955), (65, 27925),

Gene: Butters_39 Start: 29960, Stop: 30202, Start Num: 22
Candidate Starts for Butters_39:
(18, 29948), (Start: 22 @29960 has 16 MA's), (27, 29969), (50, 30101), (51, 30113),

Gene: Carcharodon_38 Start: 29181, Stop: 29462, Start Num: 12
Candidate Starts for Carcharodon_38:
(Start: 12 @29181 has 10 MA's), (18, 29205), (Start: 22 @29217 has 16 MA's), (Start: 29 @29229 has 23 MA's), (50, 29358), (51, 29370), (60, 29424),

Gene: Charlie_36 Start: 27920, Stop: 28153, Start Num: 29
Candidate Starts for Charlie_36:
(Start: 12 @27872 has 10 MA's), (18, 27896), (Start: 22 @27908 has 16 MA's), (27, 27917), (Start: 29 @27920 has 23 MA's), (50, 28049), (51, 28061), (60, 28115),

Gene: Chewbacca_39 Start: 29181, Stop: 29462, Start Num: 12
Candidate Starts for Chewbacca_39:
(Start: 12 @29181 has 10 MA's), (18, 29205), (Start: 22 @29217 has 16 MA's), (Start: 29 @29229 has 23 MA's), (50, 29358), (51, 29370), (60, 29424),

Gene: ChuckDuck_40 Start: 27998, Stop: 27708, Start Num: 25
Candidate Starts for ChuckDuck_40:

(Start: 25 @27998 has 12 MA's), (Start: 29 @27992 has 23 MA's), (Start: 41 @27923 has 3 MA's), (51, 27836), (61, 27779), (65, 27749),

Gene: Constance_39 Start: 28327, Stop: 28037, Start Num: 25
Candidate Starts for Constance_39:
(Start: 25 @28327 has 12 MA's), (Start: 29 @28321 has 23 MA's), (Start: 41 @28252 has 3 MA's), (51, 28165), (61, 28108), (65, 28078),

Gene: DirtyBoi_43 Start: 31965, Stop: 32165, Start Num: 41
Candidate Starts for DirtyBoi_43:
(Start: 30 @31917 has 7 MA's), (Start: 41 @31965 has 3 MA's), (47, 32013), (51, 32052), (58, 32094), (60, 32106), (69, 32154),

Gene: Donatella_42 Start: 30460, Stop: 30699, Start Num: 30
Candidate Starts for Donatella_42:
(Start: 30 @30460 has 7 MA's), (60, 30649), (66, 30685),

Gene: Duplicity_38 Start: 29238, Stop: 29471, Start Num: 29
Candidate Starts for Duplicity_38:
(Start: 12 @29190 has 10 MA's), (18, 29214), (Start: 22 @29226 has 16 MA's), (27, 29235), (Start: 29 @29238 has 23 MA's), (50, 29367), (51, 29379), (60, 29433),

Gene: EGUnicorn_39 Start: 27921, Stop: 28154, Start Num: 29
Candidate Starts for EGUnicorn_39:
(Start: 12 @27873 has 10 MA's), (18, 27897), (Start: 22 @27909 has 16 MA's), (Start: 29 @27921 has 23 MA's), (50, 28050), (51, 28062), (60, 28116),

Gene: Eileen_35 Start: 26405, Stop: 26115, Start Num: 25
Candidate Starts for Eileen_35:
(Start: 25 @26405 has 12 MA's), (Start: 29 @26399 has 23 MA's), (Start: 41 @26330 has 3 MA's), (61, 26186), (65, 26156), (70, 26123),

Gene: EvenBluerMoon_39 Start: 26499, Stop: 26750, Start Num: 30
Candidate Starts for EvenBluerMoon_39:
(15, 26460), (Start: 30 @26499 has 7 MA's),

Gene: Eyre_37 Start: 28147, Stop: 28335, Start Num: 41
Candidate Starts for Eyre_37:
(14, 28051), (16, 28060), (Start: 30 @28096 has 7 MA's), (Start: 41 @28147 has 3 MA's), (47, 28195),

Gene: Farewell_49 Start: 36104, Stop: 36349, Start Num: 28
Candidate Starts for Farewell_49:
(2, 36020), (17, 36077), (Start: 19 @36083 has 1 MA's), (21, 36092), (26, 36101), (Start: 28 @36104 has 1 MA's), (31, 36113), (35, 36125), (36, 36137), (39, 36152), (47, 36209),

Gene: FosterFrank_41 Start: 28057, Stop: 27767, Start Num: 25
Candidate Starts for FosterFrank_41:
(Start: 25 @28057 has 12 MA's), (Start: 29 @28051 has 23 MA's), (Start: 41 @27982 has 3 MA's), (51, 27895), (61, 27838), (65, 27808),

Gene: Fulbright_37 Start: 28318, Stop: 28551, Start Num: 29
Candidate Starts for Fulbright_37:

(Start: 12 @28270 has 10 MA's), (18, 28294), (Start: 22 @28306 has 16 MA's), (Start: 29 @28318 has 23 MA's), (50, 28447), (51, 28459), (60, 28513),

Gene: GEazy_45 Start: 32607, Stop: 32864, Start Num: 22
Candidate Starts for GEazy_45:
(Start: 22 @32607 has 16 MA's), (34, 32640), (51, 32772), (54, 32796),

Gene: Gex_38 Start: 29245, Stop: 29478, Start Num: 29
Candidate Starts for Gex_38:
(Start: 12 @29197 has 10 MA's), (18, 29221), (Start: 22 @29233 has 16 MA's), (27, 29242), (Start: 29 @29245 has 23 MA's), (50, 29374), (51, 29386), (60, 29440),

Gene: GlobiWarming_39 Start: 27581, Stop: 27291, Start Num: 25
Candidate Starts for GlobiWarming_39:
(Start: 25 @27581 has 12 MA's), (Start: 29 @27575 has 23 MA's), (Start: 41 @27506 has 3 MA's), (51, 27419), (61, 27362), (65, 27332),

Gene: Guacamole_41 Start: 33011, Stop: 33295, Start Num: 12
Candidate Starts for Guacamole_41:
(Start: 12 @33011 has 10 MA's), (Start: 22 @33047 has 16 MA's), (38, 33098), (67, 33284),

Gene: Gudmit_37 Start: 27130, Stop: 27366, Start Num: 30
Candidate Starts for Gudmit_37:
(Start: 30 @27130 has 7 MA's), (Start: 41 @27181 has 3 MA's), (46, 27223), (59, 27316), (67, 27355),

Gene: Hanako_39 Start: 29533, Stop: 29775, Start Num: 22
Candidate Starts for Hanako_39:
(Start: 11 @29488 has 1 MA's), (Start: 12 @29497 has 10 MA's), (Start: 22 @29533 has 16 MA's), (50, 29674), (51, 29686),

Gene: HannahD_43 Start: 31974, Stop: 32231, Start Num: 22
Candidate Starts for HannahD_43:
(Start: 22 @31974 has 16 MA's), (34, 32007), (51, 32139), (54, 32163),

Gene: Hedwig_44 Start: 32388, Stop: 32588, Start Num: 41
Candidate Starts for Hedwig_44:
(Start: 30 @32340 has 7 MA's), (Start: 41 @32388 has 3 MA's), (47, 32436), (51, 32475), (58, 32517),

Gene: Hestia_43 Start: 28715, Stop: 28437, Start Num: 24
Candidate Starts for Hestia_43:
(17, 28733), (Start: 24 @28715 has 4 MA's), (Start: 29 @28706 has 23 MA's), (52, 28544), (55, 28520),

Gene: Hitter_44 Start: 32655, Stop: 32939, Start Num: 12
Candidate Starts for Hitter_44:
(Start: 12 @32655 has 10 MA's), (Start: 22 @32691 has 16 MA's), (38, 32742), (67, 32928),

Gene: Jamie19_35 Start: 28299, Stop: 28532, Start Num: 29
Candidate Starts for Jamie19_35:
(Start: 12 @28251 has 10 MA's), (18, 28275), (Start: 22 @28287 has 16 MA's), (Start: 29 @28299 has 23 MA's), (50, 28428), (51, 28440), (60, 28494),

Gene: JanetJ_32 Start: 26887, Stop: 27126, Start Num: 30
Candidate Starts for JanetJ_32:

(Start: 30 @26887 has 7 MA's), (38, 26923), (68, 27109),

Gene: JasperJr_41 Start: 33011, Stop: 33295, Start Num: 12
Candidate Starts for JasperJr_41:
(Start: 12 @33011 has 10 MA's), (Start: 22 @33047 has 16 MA's), (38, 33098), (67, 33284),

Gene: Journey_36 Start: 27920, Stop: 28153, Start Num: 29
Candidate Starts for Journey_36:
(Start: 12 @27872 has 10 MA's), (18, 27896), (Start: 22 @27908 has 16 MA's), (27, 27917), (Start: 29 @27920 has 23 MA's), (50, 28049), (51, 28061), (60, 28115),

Gene: Judy_40 Start: 28493, Stop: 28203, Start Num: 25
Candidate Starts for Judy_40:
(Start: 25 @28493 has 12 MA's), (Start: 29 @28487 has 23 MA's), (Start: 41 @28418 has 3 MA's), (51, 28331), (61, 28274), (65, 28244),

Gene: Karkharias_38 Start: 28017, Stop: 27757, Start Num: 25
Candidate Starts for Karkharias_38:
(4, 28083), (18, 28035), (Start: 25 @28017 has 12 MA's), (Start: 29 @28011 has 23 MA's), (Start: 41 @27945 has 3 MA's), (44, 27921),

Gene: KayMoney_39 Start: 27670, Stop: 27380, Start Num: 25
Candidate Starts for KayMoney_39:
(Start: 25 @27670 has 12 MA's), (Start: 29 @27664 has 23 MA's), (Start: 41 @27595 has 3 MA's), (51, 27508), (61, 27451), (65, 27421),

Gene: Kevin1_37 Start: 29139, Stop: 29381, Start Num: 22
Candidate Starts for Kevin1_37:
(8, 29088), (Start: 12 @29103 has 10 MA's), (18, 29127), (Start: 22 @29139 has 16 MA's), (27, 29148), (50, 29280), (51, 29292),

Gene: Kumotta_31 Start: 25315, Stop: 25025, Start Num: 25
Candidate Starts for Kumotta_31:
(Start: 25 @25315 has 12 MA's), (Start: 29 @25309 has 23 MA's), (47, 25192), (56, 25111), (60, 25090),

Gene: Lenoxika_44 Start: 30350, Stop: 30589, Start Num: 30
Candidate Starts for Lenoxika_44:
(Start: 30 @30350 has 7 MA's), (60, 30539), (66, 30575),

Gene: Magsby_38 Start: 29246, Stop: 29479, Start Num: 29
Candidate Starts for Magsby_38:
(Start: 12 @29198 has 10 MA's), (18, 29222), (Start: 22 @29234 has 16 MA's), (Start: 29 @29246 has 23 MA's), (50, 29375), (51, 29387), (60, 29441),

Gene: Maja_30 Start: 25873, Stop: 25589, Start Num: 10
Candidate Starts for Maja_30:
(Start: 10 @25873 has 1 MA's), (23, 25825), (Start: 25 @25819 has 12 MA's), (Start: 29 @25813 has 23 MA's), (40, 25750), (Start: 41 @25744 has 3 MA's), (43, 25729), (49, 25681), (57, 25618),

Gene: MargaretKali_31 Start: 24950, Stop: 24660, Start Num: 25
Candidate Starts for MargaretKali_31:

(Start: 25 @24950 has 12 MA's), (Start: 29 @24944 has 23 MA's), (47, 24827), (56, 24746), (60, 24725),

Gene: Melville_40 Start: 29218, Stop: 29463, Start Num: 22
Candidate Starts for Melville_40:
(Start: 12 @29182 has 10 MA's), (18, 29206), (Start: 22 @29218 has 16 MA's), (Start: 29 @29230 has 23 MA's), (50, 29359), (51, 29371), (60, 29425),

Gene: Meyran_35 Start: 31028, Stop: 31276, Start Num: 22
Candidate Starts for Meyran_35:
(9, 30977), (Start: 12 @30992 has 10 MA's), (Start: 22 @31028 has 16 MA's), (50, 31172), (59, 31232), (60, 31238), (64, 31262),

Gene: MichelleMyBell_36 Start: 28237, Stop: 28470, Start Num: 29
Candidate Starts for MichelleMyBell_36:
(Start: 12 @28189 has 10 MA's), (18, 28213), (Start: 22 @28225 has 16 MA's), (Start: 29 @28237 has 23 MA's), (50, 28366), (51, 28378), (60, 28432),

Gene: Nandita_44 Start: 30213, Stop: 30452, Start Num: 30
Candidate Starts for Nandita_44:
(Start: 30 @30213 has 7 MA's), (60, 30402), (66, 30438),

Gene: Nenae_39 Start: 29536, Stop: 29778, Start Num: 22
Candidate Starts for Nenae_39:
(Start: 11 @29491 has 1 MA's), (Start: 12 @29500 has 10 MA's), (Start: 22 @29536 has 16 MA's), (50, 29677), (51, 29689),

Gene: P3MA_41 Start: 31039, Stop: 31272, Start Num: 30
Candidate Starts for P3MA_41:
(16, 31003), (Start: 30 @31039 has 7 MA's), (32, 31048), (37, 31066), (46, 31132), (48, 31147), (50, 31165), (51, 31177),

Gene: Panchino_34 Start: 29645, Stop: 29878, Start Num: 29
Candidate Starts for Panchino_34:
(Start: 12 @29597 has 10 MA's), (18, 29621), (Start: 22 @29633 has 16 MA's), (Start: 29 @29645 has 23 MA's), (50, 29774), (51, 29786), (60, 29840),

Gene: Parmesanjohn_38 Start: 29249, Stop: 29482, Start Num: 29
Candidate Starts for Parmesanjohn_38:
(Start: 12 @29201 has 10 MA's), (18, 29225), (Start: 22 @29237 has 16 MA's), (Start: 29 @29249 has 23 MA's), (50, 29378), (51, 29390), (60, 29444),

Gene: Peas_36 Start: 28552, Stop: 28262, Start Num: 25
Candidate Starts for Peas_36:
(Start: 25 @28552 has 12 MA's), (Start: 29 @28546 has 23 MA's), (Start: 41 @28477 has 3 MA's), (51, 28390), (61, 28333), (65, 28303),

Gene: PhancyPhin_39 Start: 29530, Stop: 29772, Start Num: 22
Candidate Starts for PhancyPhin_39:
(Start: 11 @29485 has 1 MA's), (Start: 12 @29494 has 10 MA's), (Start: 22 @29530 has 16 MA's), (50, 29671), (51, 29683),

Gene: Philonius_36 Start: 27911, Stop: 28141, Start Num: 29

Candidate Starts for Philonius_36:
(Start: 12 @27863 has 10 MA's), (18, 27887), (Start: 22 @27899 has 16 MA's), (27, 27908), (Start: 29 @27911 has 23 MA's), (50, 28040), (51, 28052),

Gene: Phloss_36 Start: 28608, Stop: 28889, Start Num: 12
Candidate Starts for Phloss_36:
(Start: 12 @28608 has 10 MA's), (18, 28632), (Start: 22 @28644 has 16 MA's), (Start: 29 @28656 has 23 MA's), (50, 28785), (51, 28797), (60, 28851),

Gene: Phrann_39 Start: 30325, Stop: 30558, Start Num: 29
Candidate Starts for Phrann_39:
(Start: 12 @30277 has 10 MA's), (18, 30301), (Start: 22 @30313 has 16 MA's), (Start: 29 @30325 has 23 MA's), (50, 30454), (51, 30466), (60, 30520),

Gene: Pigu_33 Start: 24557, Stop: 24318, Start Num: 25
Candidate Starts for Pigu_33:
(Start: 25 @24557 has 12 MA's), (Start: 29 @24551 has 23 MA's), (Start: 41 @24482 has 3 MA's), (43, 24467), (44, 24458), (45, 24443), (51, 24395),

Gene: Pipsqueaks_38 Start: 29226, Stop: 29459, Start Num: 29
Candidate Starts for Pipsqueaks_38:
(Start: 12 @29178 has 10 MA's), (18, 29202), (Start: 22 @29214 has 16 MA's), (Start: 29 @29226 has 23 MA's), (50, 29355), (51, 29367), (60, 29421),

Gene: PrairieDogTown_48 Start: 26501, Stop: 26752, Start Num: 30
Candidate Starts for PrairieDogTown_48:
(15, 26462), (Start: 30 @26501 has 7 MA's),

Gene: Purgamenstris_39 Start: 29489, Stop: 29776, Start Num: 11
Candidate Starts for Purgamenstris_39:
(Start: 11 @29489 has 1 MA's), (Start: 12 @29498 has 10 MA's), (Start: 22 @29534 has 16 MA's), (50, 29675), (51, 29687),

Gene: RayTheFireFly_48 Start: 33514, Stop: 33762, Start Num: 30
Candidate Starts for RayTheFireFly_48:
(3, 33430), (7, 33442), (14, 33469), (16, 33478), (Start: 30 @33514 has 7 MA's), (Start: 41 @33562 has 3 MA's), (47, 33610), (51, 33649), (58, 33691),

Gene: Raymond7_33 Start: 29346, Stop: 29588, Start Num: 22
Candidate Starts for Raymond7_33:
(Start: 11 @29301 has 1 MA's), (Start: 12 @29310 has 10 MA's), (Start: 22 @29346 has 16 MA's), (50, 29487), (51, 29499),

Gene: Rebel_31 Start: 25628, Stop: 25906, Start Num: 12
Candidate Starts for Rebel_31:
(Start: 12 @25628 has 10 MA's), (18, 25652), (Start: 22 @25664 has 16 MA's), (Start: 29 @25676 has 23 MA's), (50, 25805), (51, 25817),

Gene: Redi_39 Start: 29533, Stop: 29775, Start Num: 22
Candidate Starts for Redi_39:
(Start: 11 @29488 has 1 MA's), (Start: 12 @29497 has 10 MA's), (Start: 22 @29533 has 16 MA's), (50, 29674), (51, 29686),

Gene: RootBeer_30 Start: 24454, Stop: 24164, Start Num: 25
Candidate Starts for RootBeer_30:
(Start: 25 @24454 has 12 MA's), (Start: 29 @24448 has 23 MA's), (Start: 41 @24379 has 3 MA's), (51, 24292), (61, 24235), (65, 24205),

Gene: Rubeelu_39 Start: 29960, Stop: 30202, Start Num: 22
Candidate Starts for Rubeelu_39:
(18, 29948), (Start: 22 @29960 has 16 MA's), (27, 29969), (50, 30101), (51, 30113),

Gene: Ryan_44 Start: 30762, Stop: 31001, Start Num: 30
Candidate Starts for Ryan_44:
(Start: 30 @30762 has 7 MA's), (60, 30951), (66, 30987),

Gene: Sarge_30 Start: 23262, Stop: 22981, Start Num: 24
Candidate Starts for Sarge_30:
(Start: 24 @23262 has 4 MA's), (Start: 29 @23253 has 23 MA's), (32, 23238), (43, 23169), (57, 23058), (63, 23019),

Gene: Schnauzer_38 Start: 29201, Stop: 29482, Start Num: 12
Candidate Starts for Schnauzer_38:
(Start: 12 @29201 has 10 MA's), (18, 29225), (Start: 22 @29237 has 16 MA's), (Start: 29 @29249 has 23 MA's), (50, 29378), (51, 29390), (60, 29444),

Gene: Scitech_35 Start: 27097, Stop: 27330, Start Num: 29
Candidate Starts for Scitech_35:
(Start: 12 @27049 has 10 MA's), (18, 27073), (Start: 22 @27085 has 16 MA's), (27, 27094), (Start: 29 @27097 has 23 MA's), (50, 27226), (51, 27238), (60, 27292),

Gene: Shambre1_37 Start: 25536, Stop: 25748, Start Num: 33
Candidate Starts for Shambre1_37:
(Start: 11 @25458 has 1 MA's), (Start: 19 @25494 has 1 MA's), (21, 25503), (Start: 30 @25524 has 7 MA's), (Start: 33 @25536 has 1 MA's), (Start: 41 @25587 has 3 MA's), (50, 25662), (53, 25695),

Gene: Shoya_37 Start: 25648, Stop: 25358, Start Num: 24
Candidate Starts for Shoya_37:
(Start: 10 @25699 has 1 MA's), (Start: 24 @25648 has 4 MA's), (Start: 29 @25639 has 23 MA's), (Start: 41 @25570 has 3 MA's), (51, 25483), (61, 25426),

Gene: ShrimpFriedEgg_39 Start: 29533, Stop: 29775, Start Num: 22
Candidate Starts for ShrimpFriedEgg_39:
(Start: 11 @29488 has 1 MA's), (Start: 12 @29497 has 10 MA's), (Start: 22 @29533 has 16 MA's), (50, 29674), (51, 29686),

Gene: Shukran_45 Start: 29468, Stop: 29178, Start Num: 24
Candidate Starts for Shukran_45:
(Start: 10 @29519 has 1 MA's), (Start: 24 @29468 has 4 MA's), (Start: 29 @29459 has 23 MA's), (Start: 41 @29390 has 3 MA's), (51, 29303), (57, 29264), (61, 29246),

Gene: Shweta_35 Start: 28417, Stop: 28662, Start Num: 22
Candidate Starts for Shweta_35:
(Start: 12 @28381 has 10 MA's), (18, 28405), (Start: 22 @28417 has 16 MA's), (Start: 29 @28429 has 23 MA's), (50, 28558), (51, 28570), (60, 28624),

Gene: Silvafighter_39 Start: 29222, Stop: 29455, Start Num: 29
Candidate Starts for Silvafighter_39:
(Start: 12 @29174 has 10 MA's), (18, 29198), (Start: 22 @29210 has 16 MA's), (Start: 29 @29222 has 23 MA's), (50, 29351), (51, 29363), (60, 29417),

Gene: Silvy_36 Start: 27900, Stop: 28133, Start Num: 29
Candidate Starts for Silvy_36:
(Start: 12 @27852 has 10 MA's), (18, 27876), (Start: 22 @27888 has 16 MA's), (27, 27897), (Start: 29 @27900 has 23 MA's), (50, 28029), (51, 28041), (60, 28095),

Gene: SkinnyPete_33 Start: 26960, Stop: 27193, Start Num: 29
Candidate Starts for SkinnyPete_33:
(Start: 12 @26912 has 10 MA's), (18, 26936), (Start: 22 @26948 has 16 MA's), (Start: 29 @26960 has 23 MA's), (50, 27089), (51, 27101), (60, 27155),

Gene: Smurph_38 Start: 29249, Stop: 29482, Start Num: 29
Candidate Starts for Smurph_38:
(Start: 12 @29201 has 10 MA's), (18, 29225), (Start: 22 @29237 has 16 MA's), (Start: 29 @29249 has 23 MA's), (50, 29378), (51, 29390), (60, 29444),

Gene: Snekmaggedon_35 Start: 28299, Stop: 28532, Start Num: 29
Candidate Starts for Snekmaggedon_35:
(Start: 12 @28251 has 10 MA's), (18, 28275), (Start: 22 @28287 has 16 MA's), (Start: 29 @28299 has 23 MA's), (50, 28428), (51, 28440), (60, 28494),

Gene: Sparky_48 Start: 36514, Stop: 36780, Start Num: 19
Candidate Starts for Sparky_48:
(2, 36451), (17, 36508), (Start: 19 @36514 has 1 MA's), (21, 36523), (26, 36532), (Start: 28 @36535 has 1 MA's), (31, 36544), (35, 36556), (36, 36568), (39, 36583), (47, 36640),

Gene: SpongeBob_35 Start: 28299, Stop: 28532, Start Num: 29
Candidate Starts for SpongeBob_35:
(Start: 12 @28251 has 10 MA's), (18, 28275), (Start: 22 @28287 has 16 MA's), (Start: 29 @28299 has 23 MA's), (50, 28428), (51, 28440), (60, 28494),

Gene: Tapioca_39 Start: 29215, Stop: 29448, Start Num: 29
Candidate Starts for Tapioca_39:
(Start: 12 @29167 has 10 MA's), (18, 29191), (Start: 22 @29203 has 16 MA's), (27, 29212), (Start: 29 @29215 has 23 MA's), (50, 29344), (51, 29356), (60, 29410),

Gene: Tortoise12_38 Start: 27932, Stop: 28165, Start Num: 29
Candidate Starts for Tortoise12_38:
(Start: 12 @27884 has 10 MA's), (18, 27908), (Start: 22 @27920 has 16 MA's), (Start: 29 @27932 has 23 MA's), (50, 28061), (51, 28073), (60, 28127),

Gene: Vordorf_36 Start: 30303, Stop: 30551, Start Num: 22
Candidate Starts for Vordorf_36:
(9, 30252), (Start: 12 @30267 has 10 MA's), (Start: 22 @30303 has 16 MA's), (50, 30447), (60, 30513), (64, 30537),

Gene: Walrus_42 Start: 32790, Stop: 33074, Start Num: 12
Candidate Starts for Walrus_42:
(Start: 12 @32790 has 10 MA's), (Start: 22 @32826 has 16 MA's), (38, 32877), (67, 33063),

Gene: Xeno_35 Start: 27686, Stop: 27919, Start Num: 29
Candidate Starts for Xeno_35:
(Start: 12 @27638 has 10 MA's), (18, 27662), (Start: 22 @27674 has 16 MA's), (27, 27683), (Start: 29 @27686 has 23 MA's), (50, 27815), (51, 27827), (60, 27881),

Gene: Xerxes_38 Start: 29246, Stop: 29479, Start Num: 29
Candidate Starts for Xerxes_38:
(Start: 12 @29198 has 10 MA's), (18, 29222), (Start: 22 @29234 has 16 MA's), (Start: 29 @29246 has 23 MA's), (50, 29375), (51, 29387), (60, 29441),

Gene: Zucker_40 Start: 29401, Stop: 29171, Start Num: 25
Candidate Starts for Zucker_40:
(1, 29494), (5, 29464), (Start: 25 @29401 has 12 MA's), (Start: 29 @29395 has 23 MA's), (Start: 41 @29326 has 3 MA's), (42, 29323), (47, 29278), (49, 29263),