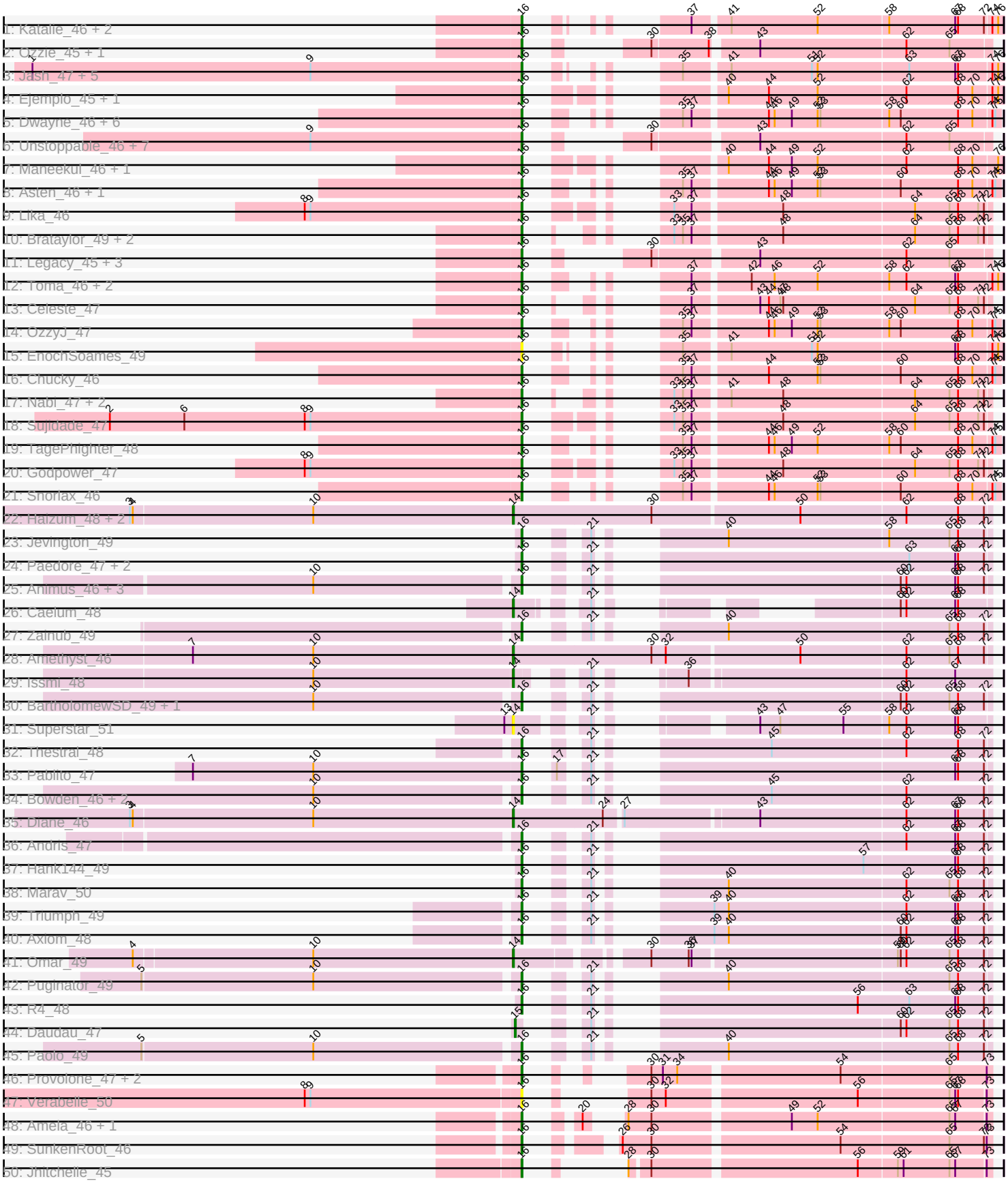
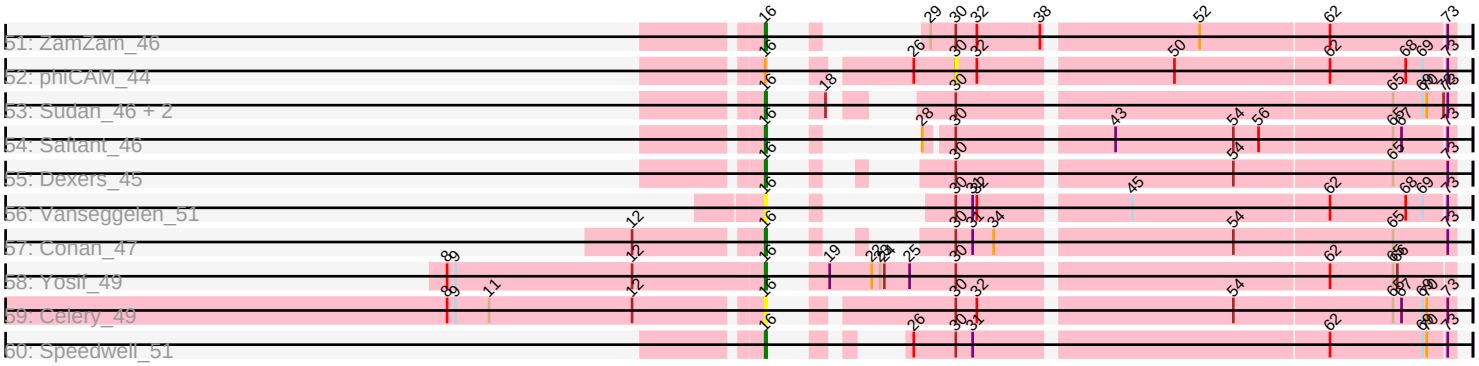
Pham 345565


1: Katalie_46 + 2
2: Ozzie_45 + 1
3: Jash_47 + 5
4: Ejemplo_45 + 1
5: Dwayne_46 + 6
6: Unstoppable_46 + 7
7: Maneekul_46 + 1
8: Asten_46 + 1
9: Lika_46
10: Brataylor_49 + 2
11: Legacy_45 + 3
12: Toma_46 + 2
13: Celeste_47
14: OzzyJ_47
15: EnochSoames_49
16: Chucky_46
17: Nabi_47 + 2
18: Sujidade_47
19: TagerPhighter_48
20: Godpower_47
21: Shonax_46
22: Haizum_48 + 2
23: Jevington_49
24: Paedore_47 + 2
25: Animus_46 + 3
26: Caelum_48
27: Zainub_49
28: Amethyst_46
29: Issmi_48
30: BartholomewSD_49 + 1
31: Superstar_51
32: Thestral_48
33: Pablito_47
34: Bowden_46 + 2
35: Diane_46
36: Andris_47
37: Hank144_49
38: Marav_50
39: Triumph_49
40: Axiom_48
41: Omar_49
42: Pughnator_49
43: R4_48
44: Daudau_47
45: Paolo_49
46: Provolone_47 + 2
47: Verabelle_50
48: Amela_46 + 1
49: SunkenRoot_46
50: Jmitchelle_45

Pham 345565


51: ZamZam_46
52: phiCAM_44
53: Sudan_46 + 2
54: Saltant_46
55: Dexers_45
56: Vanseggelen_51
57: Conan_47
58: Yosh_49
59: Celery_49
60: Speedwell_51

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 345565 Report

This analysis was run 11/14/26 on database version 672.

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 345565 has 108 members, 6 are drafts.

Phages represented in each track:
• Track 1 : Katalie_46, RedBear_47, South40_46
• Track 2 : Ozzie_45, BeardedLady_46
• Track 3 : Jash_47, Eddasa_47, Izzy_47, BryanRecycles_47, Rusticus_47, Oliynyk_47
• Track 4 : Ejemplo_45, TuanPN_45
• Track 5 : Dwayne_46, Whatever_46, Emaanora_49, Triste_46, Hippo_46, BarryBee_49, SarahRose_46
• Track 6 : Unstoppable_46, Esperer_46, Indigo_45, Phettuccine_46, Aaronocolus_46, Bovely_46, Nerdos_45, Leviticus_46
• Track 7 : Maneekul_46, Yasdnil_46
• Track 8 : Asten_46, Werner_46
• Track 9 : Lika_46
• Track 10 : Brataylor_49, Danzina_48, Zemlya_48
• Track 11 : Legacy_45, SunsetPointe_45, Caliburn_45, Hydra_47
• Track 12 : Toma_46, Dattran_48, Goby_46
• Track 13 : Celeste_47
• Track 14 : OzzyJ_47
• Track 15 : EnochSoames_49
• Track 16 : Chucky_46
• Track 17 : Nabi_47, Rana_47, Lorelei_47
• Track 18 : Sujidade_47
• Track 19 : TagePhighter_48
• Track 20 : Godpower_47
• Track 21 : Snorlax_46
• Track 22 : Haizum_48, Tefunt_48, Nishikigoi_48
• Track 23 : Jevington_49
• Track 24 : Paedore_47, ELB20_46, Loofah_48
• Track 25 : Animus_46, SqueakyClean_46, GirlDinner_46, Janus_47
• Track 26 : Caelum_48
• Track 27 : Zainub_49
• Track 28 : Amethyst_46
• Track 29 : Issmi_48
• Track 30 : BartholomewSD_49, Alvy_49

• Track 31 : Superstar_51
• Track 32 : Thestral_48
• Track 33 : Pablito_47
• Track 34 : Bowden_46, TinaBelcher_46, TrvxScott_45
• Track 35 : Diane_46
• Track 36 : Andris_47
• Track 37 : Hank144_49
• Track 38 : Marav_50
• Track 39 : Triumph_49
• Track 40 : Axiom_48
• Track 41 : Omar_49
• Track 42 : Puginator_49
• Track 43 : R4_48
• Track 44 : Daudau_47
• Track 45 : Paolo_49
• Track 46 : Provolone_47, Pavo_47, ElGato_47
• Track 47 : Verabelle_50
• Track 48 : Amela_46, Verse_46
• Track 49 : SunkenRoot_46
• Track 50 : Jhitchelle_45
• Track 51 : ZamZam_46
• Track 52 : phiCAM_44
• Track 53 : Sudan_46, Kaine_46, Alsaber_47
• Track 54 : Saftant_46
• Track 55 : Dexers_45
• Track 56 : Vanseggelen_51
• Track 57 : Conan_47
• Track 58 : Yosif_49
• Track 59 : Celery_49
• Track 60 : Speedwell_51

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

The start number called the most often in the published annotations is 16, it was called in 93 of the 102 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Aaronocolus_46, Alsaber_47, Alvy_49, Amela_46, Andris_47, Animus_46, Asten_46, Axiom_48, BarryBee_49, BartholomewSD_49, BeardedLady_46, Bovely_46, Bowden_46, Brataylor_49, BryanRecycles_47, Caliburn_45, Celery_49, Celeste_47, Chucky_46, Conan_47, Danzina_48, Dattran_48, Dexers_45, Dwayne_46, ELB20_46, Eddasa_47, Ejemplo_45, ElGato_47, Emaanora_49, EnochSoames_49, Esperer_46, GirlDinner_46, Goby_46, Godpower_47, Hank144_49, Hippo_46, Hydra_47, Indigo_45, Izzy_47, Janus_47, Jash_47, Jevington_49, Jhitchelle_45, Kaine_46, Katalie_46, Legacy_45, Leviticus_46, Lika_46, Loofah_48, Lorelei_47, Maneekul_46, Marav_50, Nabi_47, Nerdos_45, Oliynyk_47, Ozzie_45, OzzyJ_47, Pablito_47, Paedore_47, Paolo_49, Pavo_47, Phettuccine_46, Provolone_47, Puginator_49, R4_48, Rana_47, RedBear_47, Rusticus_47, Saftant_46, SarahRose_46, Snorlax_46, South40_46, Speedwell_51, SqueakyClean_46, Sudan_46, Sujidade_47, SunkenRoot_46, SunsetPointe_45,

TagePhighter_48, Thestral_48, TinaBelcher_46, Toma_46, Triste_46, Triumph_49, TrvxScott_45, TuanPN_45, Unstoppable_46, Vanseggelen_51, Verabelle_50, Verse_46, Werner_46, Whatever_46, Yasdnil_46, Yosif_49, Zainub_49, ZamZam_46, Zemlya_48,

Genes that have the "Most Annotated" start but do not call it:
• phiCAM_44,

Genes that do not have the "Most Annotated" start:
• Amethyst_46, Caelum_48, Daudau_47, Diane_46, Haizum_48, Issmi_48, Nishikigoi_48, Omar_49, Superstar_51, Tefunt_48,

Summary by start number:

Start 14:
• Found in 9 of 108 (8.3%) of genes in pham
• Manual Annotations of this start: 8 of 102
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Amethyst_46 (BD2), Caelum_48 (BD2), Diane_46 (BD2), Haizum_48 (BD2), Issmi_48 (BD2), Nishikigoi_48 (BD2), Omar_49 (BD2), Superstar_51 (BD2), Tefunt_48 (BD2),

Start 15:
• Found in 1 of 108 (0.9%) of genes in pham
• Manual Annotations of this start: 1 of 102
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Daudau_47 (BD2),

Start 16:
• Found in 98 of 108 (90.7%) of genes in pham
• Manual Annotations of this start: 93 of 102
• Called 99.0% of time when present
• Phage (with cluster) where this start called: Aaronocolus_46 (BD1), Alsaber_47 (BD3), Alvy_49 (BD2), Amela_46 (BD3), Andris_47 (BD2), Animus_46 (BD2), Asten_46 (BD1), Axiom_48 (BD2), BarryBee_49 (BD1), BartholomewSD_49 (BD2), BeardedLady_46 (BD1), Bovely_46 (BD1), Bowden_46 (BD2), Brataylor_49 (BD1), BryanRecycles_47 (BD1), Caliburn_45 (BD1), Celery_49 (BD3), Celeste_47 (BD1), Chucky_46 (BD1), Conan_47 (BD3), Danzina_48 (BD1), Dattran_48 (BD1), Dexers_45 (BD3), Dwayne_46 (BD1), ELB20_46 (BD2), Eddasa_47 (BD1), Ejemplo_45 (BD1), ElGato_47 (BD3), Emaanora_49 (BD1), EnochSoames_49 (BD1), Esperer_46 (BD1), GirlDinner_46 (BD2), Goby_46 (BD1), Godpower_47 (BD1), Hank144_49 (BD2), Hippo_46 (BD1), Hydra_47 (BD1), Indigo_45 (BD1), Izzy_47 (BD1), Janus_47 (BD2), Jash_47 (BD1), Jevington_49 (BD2), Jhitchelle_45 (BD3), Kaine_46 (BD3), Katalie_46 (BD1), Legacy_45 (BD1), Leviticus_46 (BD1), Lika_46 (BD1), Loofah_48 (BD2), Lorelei_47 (BD1), Maneekul_46 (BD1), Marav_50 (BD2), Nabi_47 (BD1), Nerdos_45 (BD1), Oliynyk_47 (BD1), Ozzie_45 (BD1), OzzyJ_47 (BD1), Pablito_47 (BD2), Paedore_47 (BD2), Paolo_49 (BD2), Pavo_47 (BD3), Phettuccine_46 (BD1), Provolone_47 (BD3), Puginator_49 (BD2), R4_48 (BD2), Rana_47 (BD1), RedBear_47 (BD1), Rusticus_47 (BD1), Saftant_46 (BD3), SarahRose_46 (BD1), Snorlax_46 (BD1), South40_46 (BD1), Speedwell_51 (BD3), SqueakyClean_46 (BD2), Sudan_46 (BD3), Sujidade_47 (BD1), SunkenRoot_46 (BD3), SunsetPointe_45 (BD1), TagePhighter_48 (BD1), Thestral_48 (BD2), TinaBelcher_46 (BD2), Toma_46 (BD1), Triste_46 (BD1), Triumph_49 (BD2),

TrvxScott_45 (BD2), TuanPN_45 (BD1), Unstoppable_46 (BD1), Vanseggelen_51 (BD3), Verabelle_50 (BD3), Verse_46 (BD3), Werner_46 (BD1), Whatever_46 (BD1), Yasdnil_46 (BD1), Yosif_49 (BD3), Zainub_49 (BD2), ZamZam_46 (BD3), Zemlya_48 (BD1),

Start 30:
• Found in 39 of 108 (36.1%) of genes in pham
• No Manual Annotations of this start.
• Called 2.6% of time when present
• Phage (with cluster) where this start called: phiCAM_44 (BD3),

Summary by clusters:

There are 3 clusters represented in this pham: BD1, BD3, BD2,

Info for manual annotations of cluster BD1:
•Start number 16 was manually annotated 53 times for cluster BD1.

Info for manual annotations of cluster BD2:
•Start number 14 was manually annotated 8 times for cluster BD2.
•Start number 15 was manually annotated 1 time for cluster BD2.
•Start number 16 was manually annotated 24 times for cluster BD2.

Info for manual annotations of cluster BD3:
•Start number 16 was manually annotated 16 times for cluster BD3.

Gene Information:

Gene: Aaronocolus_46 Start: 31184, Stop: 31561, Start Num: 16
Candidate Starts for Aaronocolus_46:
(9, 30965), (Start: 16 @31184 has 93 MA's), (30, 31226), (43, 31325), (62, 31475), (65, 31520),

Gene: Alsaber_47 Start: 32842, Stop: 33240, Start Num: 16
Candidate Starts for Alsaber_47:
(Start: 16 @32842 has 93 MA's), (18, 32854), (30, 32899), (65, 33196), (69, 33217), (70, 33220), (72, 33232), (73, 33235),

Gene: Alvy_49 Start: 32707, Stop: 33081, Start Num: 16
Candidate Starts for Alvy_49:
(10, 32500), (Start: 16 @32707 has 93 MA's), (21, 32731), (60, 32989), (62, 32995), (65, 33040), (68, 33049), (72, 33076),

Gene: Amela_46 Start: 33640, Stop: 34035, Start Num: 16
Candidate Starts for Amela_46:
(Start: 16 @33640 has 93 MA's), (20, 33661), (28, 33673), (30, 33697), (49, 33832), (52, 33859), (65, 33994), (67, 34000), (73, 34030),

Gene: Amethyst_46 Start: 32076, Stop: 32564, Start Num: 14
Candidate Starts for Amethyst_46:
(7, 31743), (10, 31869), (Start: 14 @32076 has 8 MA's), (30, 32220), (32, 32235), (50, 32370), (62, 32478), (65, 32523), (68, 32532), (72, 32559),

Gene: Andris_47 Start: 32341, Stop: 32715, Start Num: 16
Candidate Starts for Andris_47:
(Start: 16 @32341 has 93 MA's), (21, 32365), (62, 32629), (67, 32680), (68, 32683), (72, 32710),

Gene: Animus_46 Start: 32580, Stop: 32954, Start Num: 16
Candidate Starts for Animus_46:
(10, 32373), (Start: 16 @32580 has 93 MA's), (21, 32604), (60, 32862), (62, 32868), (67, 32919), (68, 32922), (72, 32949),

Gene: Asten_46 Start: 31522, Stop: 31890, Start Num: 16
Candidate Starts for Asten_46:
(Start: 16 @31522 has 93 MA's), (35, 31573), (37, 31582), (44, 31654), (46, 31660), (49, 31678), (52, 31705), (53, 31708), (60, 31789), (68, 31849), (70, 31864), (74, 31882), (75, 31885),

Gene: Axiom_48 Start: 32527, Stop: 32901, Start Num: 16
Candidate Starts for Axiom_48:
(Start: 16 @32527 has 93 MA's), (21, 32551), (39, 32617), (40, 32632), (60, 32809), (62, 32815), (67, 32866), (68, 32869), (72, 32896),

Gene: BarryBee_49 Start: 31532, Stop: 31900, Start Num: 16
Candidate Starts for BarryBee_49:
(Start: 16 @31532 has 93 MA's), (35, 31583), (37, 31592), (44, 31664), (46, 31670), (49, 31688), (52, 31715), (53, 31718), (58, 31787), (60, 31799), (68, 31859), (70, 31874), (74, 31892), (75, 31895),

Gene: BartholomewSD_49 Start: 32706, Stop: 33080, Start Num: 16
Candidate Starts for BartholomewSD_49:
(10, 32499), (Start: 16 @32706 has 93 MA's), (21, 32730), (60, 32988), (62, 32994), (65, 33039), (68, 33048), (72, 33075),

Gene: BeardedLady_46 Start: 31561, Stop: 31938, Start Num: 16
Candidate Starts for BeardedLady_46:
(Start: 16 @31561 has 93 MA's), (30, 31603), (38, 31660), (43, 31702), (62, 31852), (65, 31897),

Gene: Bovely_46 Start: 31190, Stop: 31567, Start Num: 16
Candidate Starts for Bovely_46:
(9, 30971), (Start: 16 @31190 has 93 MA's), (30, 31232), (43, 31331), (62, 31481), (65, 31526),

Gene: Bowden_46 Start: 32621, Stop: 32995, Start Num: 16
Candidate Starts for Bowden_46:
(10, 32414), (Start: 16 @32621 has 93 MA's), (21, 32645), (45, 32771), (62, 32909), (72, 32990),

Gene: Brataylor_49 Start: 32499, Stop: 32852, Start Num: 16
Candidate Starts for Brataylor_49:
(Start: 16 @32499 has 93 MA's), (33, 32535), (35, 32544), (37, 32553), (48, 32640), (64, 32775), (65, 32811), (68, 32820), (71, 32841), (72, 32847),

Gene: BryanRecycles_47 Start: 31500, Stop: 31865, Start Num: 16
Candidate Starts for BryanRecycles_47:
(1, 30990), (9, 31281), (Start: 16 @31500 has 93 MA's), (35, 31545), (41, 31587), (51, 31671), (52, 31677), (63, 31770), (67, 31818), (68, 31821), (74, 31854), (76, 31860),

Gene: Caelum_48 Start: 32310, Stop: 32633, Start Num: 14

Candidate Starts for Caelum_48:
(Start: 14 @32310 has 8 MA's), (21, 32361), (60, 32541), (62, 32547), (67, 32598), (68, 32601),

Gene: Caliburn_45 Start: 31291, Stop: 31668, Start Num: 16
Candidate Starts for Caliburn_45:
(Start: 16 @31291 has 93 MA's), (30, 31333), (43, 31432), (62, 31582), (65, 31627),

Gene: Celery_49 Start: 32772, Stop: 33206, Start Num: 16
Candidate Starts for Celery_49:
(8, 32556), (9, 32562), (11, 32586), (12, 32688), (Start: 16 @32772 has 93 MA's), (30, 32865), (32, 32880), (54, 33051), (65, 33162), (67, 33168), (69, 33183), (70, 33186), (73, 33201),

Gene: Celeste_47 Start: 31965, Stop: 32318, Start Num: 16
Candidate Starts for Celeste_47:
(Start: 16 @31965 has 93 MA's), (37, 32019), (43, 32082), (44, 32091), (47, 32103), (48, 32106), (64, 32241), (65, 32277), (68, 32286), (71, 32307), (72, 32313),

Gene: Chucky_46 Start: 31536, Stop: 31904, Start Num: 16
Candidate Starts for Chucky_46:
(Start: 16 @31536 has 93 MA's), (35, 31587), (37, 31596), (44, 31668), (52, 31719), (53, 31722), (60, 31803), (68, 31863), (70, 31878), (74, 31896), (75, 31899),

Gene: Conan_47 Start: 32736, Stop: 33119, Start Num: 16
Candidate Starts for Conan_47:
(12, 32652), (Start: 16 @32736 has 93 MA's), (30, 32778), (31, 32790), (34, 32805), (54, 32964), (65, 33075), (73, 33114),

Gene: Danzina_48 Start: 32263, Stop: 32616, Start Num: 16
Candidate Starts for Danzina_48:
(Start: 16 @32263 has 93 MA's), (33, 32299), (35, 32308), (37, 32317), (48, 32404), (64, 32539), (65, 32575), (68, 32584), (71, 32605), (72, 32611),

Gene: Dattran_48 Start: 32114, Stop: 32485, Start Num: 16
Candidate Starts for Dattran_48:
(Start: 16 @32114 has 93 MA's), (37, 32174), (42, 32228), (46, 32252), (52, 32297), (58, 32369), (62, 32387), (67, 32438), (68, 32441), (74, 32474), (76, 32480),

Gene: Daudau_47 Start: 32428, Stop: 32808, Start Num: 15
Candidate Starts for Daudau_47:
(Start: 15 @32428 has 1 MA's), (21, 32458), (60, 32716), (62, 32722), (65, 32767), (68, 32776), (72, 32803),

Gene: Dexers_45 Start: 32760, Stop: 33143, Start Num: 16
Candidate Starts for Dexers_45:
(Start: 16 @32760 has 93 MA's), (30, 32802), (54, 32988), (65, 33099), (73, 33138),

Gene: Diane_46 Start: 32305, Stop: 32781, Start Num: 14
Candidate Starts for Diane_46:
(3, 31909), (4, 31912), (10, 32098), (Start: 14 @32305 has 8 MA's), (24, 32398), (27, 32413), (43, 32545), (62, 32695), (67, 32746), (68, 32749), (72, 32776),

Gene: Dwayne_46 Start: 31523, Stop: 31891, Start Num: 16
Candidate Starts for Dwayne_46:

(Start: 16 @31523 has 93 MA's), (35, 31574), (37, 31583), (44, 31655), (46, 31661), (49, 31679), (52, 31706), (53, 31709), (58, 31778), (60, 31790), (68, 31850), (70, 31865), (74, 31883), (75, 31886),

Gene: ELB20_46 Start: 32925, Stop: 33302, Start Num: 16
Candidate Starts for ELB20_46:
(Start: 16 @32925 has 93 MA's), (21, 32949), (63, 33219), (67, 33267), (68, 33270), (72, 33297),

Gene: Eddasa_47 Start: 31500, Stop: 31865, Start Num: 16
Candidate Starts for Eddasa_47:
(1, 30990), (9, 31281), (Start: 16 @31500 has 93 MA's), (35, 31545), (41, 31587), (51, 31671), (52, 31677), (63, 31770), (67, 31818), (68, 31821), (74, 31854), (76, 31860),

Gene: Ejemplo_45 Start: 31458, Stop: 31847, Start Num: 16
Candidate Starts for Ejemplo_45:
(Start: 16 @31458 has 93 MA's), (40, 31566), (44, 31608), (52, 31659), (62, 31749), (68, 31803), (70, 31818), (74, 31836), (76, 31842),

Gene: ElGato_47 Start: 32400, Stop: 32783, Start Num: 16
Candidate Starts for ElGato_47:
(Start: 16 @32400 has 93 MA's), (30, 32442), (31, 32454), (34, 32469), (54, 32628), (65, 32739), (73, 32778),

Gene: Emaanora_49 Start: 31481, Stop: 31849, Start Num: 16
Candidate Starts for Emaanora_49:
(Start: 16 @31481 has 93 MA's), (35, 31532), (37, 31541), (44, 31613), (46, 31619), (49, 31637), (52, 31664), (53, 31667), (58, 31736), (60, 31748), (68, 31808), (70, 31823), (74, 31841), (75, 31844),

Gene: EnochSoames_49 Start: 31495, Stop: 31860, Start Num: 16
Candidate Starts for EnochSoames_49:
(Start: 16 @31495 has 93 MA's), (35, 31540), (41, 31582), (51, 31666), (52, 31672), (67, 31813), (68, 31816), (74, 31849), (76, 31855),

Gene: Esperer_46 Start: 31003, Stop: 31380, Start Num: 16
Candidate Starts for Esperer_46:
(9, 30784), (Start: 16 @31003 has 93 MA's), (30, 31045), (43, 31144), (62, 31294), (65, 31339),

Gene: GirlDinner_46 Start: 32081, Stop: 32455, Start Num: 16
Candidate Starts for GirlDinner_46:
(10, 31874), (Start: 16 @32081 has 93 MA's), (21, 32105), (60, 32363), (62, 32369), (67, 32420), (68, 32423), (72, 32450),

Gene: Goby_46 Start: 32013, Stop: 32384, Start Num: 16
Candidate Starts for Goby_46:
(Start: 16 @32013 has 93 MA's), (37, 32073), (42, 32127), (46, 32151), (52, 32196), (58, 32268), (62, 32286), (67, 32337), (68, 32340), (74, 32373), (76, 32379),

Gene: Godpower_47 Start: 31987, Stop: 32364, Start Num: 16
Candidate Starts for Godpower_47:
(8, 31762), (9, 31768), (Start: 16 @31987 has 93 MA's), (33, 32047), (35, 32056), (37, 32065), (48, 32152), (64, 32287), (65, 32323), (68, 32332), (71, 32353), (72, 32359),

Gene: Haizum_48 Start: 32420, Stop: 32908, Start Num: 14
Candidate Starts for Haizum_48:

(3, 32024), (4, 32027), (10, 32213), (Start: 14 @32420 has 8 MA's), (30, 32564), (50, 32714), (62, 32822), (68, 32876), (72, 32903),

Gene: Hank144_49 Start: 32633, Stop: 33007, Start Num: 16
Candidate Starts for Hank144_49:
(Start: 16 @32633 has 93 MA's), (21, 32657), (57, 32879), (67, 32972), (68, 32975), (72, 33002),

Gene: Hippo_46 Start: 31535, Stop: 31903, Start Num: 16
Candidate Starts for Hippo_46:
(Start: 16 @31535 has 93 MA's), (35, 31586), (37, 31595), (44, 31667), (46, 31673), (49, 31691), (52, 31718), (53, 31721), (58, 31790), (60, 31802), (68, 31862), (70, 31877), (74, 31895), (75, 31898),

Gene: Hydra_47 Start: 31839, Stop: 32216, Start Num: 16
Candidate Starts for Hydra_47:
(Start: 16 @31839 has 93 MA's), (30, 31881), (43, 31980), (62, 32130), (65, 32175),

Gene: Indigo_45 Start: 31183, Stop: 31560, Start Num: 16
Candidate Starts for Indigo_45:
(9, 30964), (Start: 16 @31183 has 93 MA's), (30, 31225), (43, 31324), (62, 31474), (65, 31519),

Gene: Issmi_48 Start: 33004, Stop: 33390, Start Num: 14
Candidate Starts for Issmi_48:
(10, 32797), (Start: 14 @33004 has 8 MA's), (21, 33046), (36, 33085), (62, 33301), (67, 33352),

Gene: Izzy_47 Start: 31547, Stop: 31912, Start Num: 16
Candidate Starts for Izzy_47:
(1, 31037), (9, 31328), (Start: 16 @31547 has 93 MA's), (35, 31592), (41, 31634), (51, 31718), (52, 31724), (63, 31817), (67, 31865), (68, 31868), (74, 31901), (76, 31907),

Gene: Janus_47 Start: 32421, Stop: 32795, Start Num: 16
Candidate Starts for Janus_47:
(10, 32214), (Start: 16 @32421 has 93 MA's), (21, 32445), (60, 32703), (62, 32709), (67, 32760), (68, 32763), (72, 32790),

Gene: Jash_47 Start: 31500, Stop: 31865, Start Num: 16
Candidate Starts for Jash_47:
(1, 30990), (9, 31281), (Start: 16 @31500 has 93 MA's), (35, 31545), (41, 31587), (51, 31671), (52, 31677), (63, 31770), (67, 31818), (68, 31821), (74, 31854), (76, 31860),

Gene: Jevington_49 Start: 32807, Stop: 33181, Start Num: 16
Candidate Starts for Jevington_49:
(Start: 16 @32807 has 93 MA's), (21, 32831), (40, 32912), (58, 33077), (65, 33140), (68, 33149), (72, 33176),

Gene: Jhitchelle_45 Start: 32283, Stop: 32648, Start Num: 16
Candidate Starts for Jhitchelle_45:
(Start: 16 @32283 has 93 MA's), (28, 32292), (30, 32310), (56, 32514), (59, 32553), (61, 32559), (65, 32607), (67, 32613), (73, 32643),

Gene: Kaine_46 Start: 32551, Stop: 32949, Start Num: 16
Candidate Starts for Kaine_46:
(Start: 16 @32551 has 93 MA's), (18, 32563), (30, 32608), (65, 32905), (69, 32926), (70, 32929), (72, 32941), (73, 32944),

Gene: Katalie_46 Start: 31733, Stop: 32098, Start Num: 16
Candidate Starts for Katalie_46:
(Start: 16 @31733 has 93 MA's), (37, 31787), (41, 31820), (52, 31910), (58, 31982), (67, 32051), (68, 32054), (72, 32081), (74, 32087), (76, 32093),

Gene: Legacy_45 Start: 31282, Stop: 31659, Start Num: 16
Candidate Starts for Legacy_45:
(Start: 16 @31282 has 93 MA's), (30, 31324), (43, 31423), (62, 31573), (65, 31618),

Gene: Leviticus_46 Start: 31187, Stop: 31564, Start Num: 16
Candidate Starts for Leviticus_46:
(9, 30968), (Start: 16 @31187 has 93 MA's), (30, 31229), (43, 31328), (62, 31478), (65, 31523),

Gene: Lika_46 Start: 31990, Stop: 32367, Start Num: 16
Candidate Starts for Lika_46:
(8, 31765), (9, 31771), (Start: 16 @31990 has 93 MA's), (33, 32050), (37, 32068), (48, 32155), (64, 32290), (65, 32326), (68, 32335), (71, 32356), (72, 32362),

Gene: Loofah_48 Start: 32810, Stop: 33187, Start Num: 16
Candidate Starts for Loofah_48:
(Start: 16 @32810 has 93 MA's), (21, 32834), (63, 33104), (67, 33152), (68, 33155), (72, 33182),

Gene: Lorelei_47 Start: 32044, Stop: 32397, Start Num: 16
Candidate Starts for Lorelei_47:
(Start: 16 @32044 has 93 MA's), (33, 32080), (35, 32089), (37, 32098), (41, 32131), (48, 32185), (64, 32320), (65, 32356), (68, 32365), (71, 32386), (72, 32392),

Gene: Maneekul_46 Start: 31548, Stop: 31937, Start Num: 16
Candidate Starts for Maneekul_46:
(Start: 16 @31548 has 93 MA's), (40, 31656), (44, 31698), (49, 31722), (52, 31749), (62, 31839), (68, 31893), (70, 31908), (76, 31932),

Gene: Marav_50 Start: 33123, Stop: 33497, Start Num: 16
Candidate Starts for Marav_50:
(Start: 16 @33123 has 93 MA's), (21, 33147), (40, 33228), (62, 33411), (65, 33456), (68, 33465), (72, 33492),

Gene: Nabi_47 Start: 32044, Stop: 32397, Start Num: 16
Candidate Starts for Nabi_47:
(Start: 16 @32044 has 93 MA's), (33, 32080), (35, 32089), (37, 32098), (41, 32131), (48, 32185), (64, 32320), (65, 32356), (68, 32365), (71, 32386), (72, 32392),

Gene: Nerdos_45 Start: 31182, Stop: 31559, Start Num: 16
Candidate Starts for Nerdos_45:
(9, 30963), (Start: 16 @31182 has 93 MA's), (30, 31224), (43, 31323), (62, 31473), (65, 31518),

Gene: Nishikigoi_48 Start: 32420, Stop: 32908, Start Num: 14
Candidate Starts for Nishikigoi_48:
(3, 32024), (4, 32027), (10, 32213), (Start: 14 @32420 has 8 MA's), (30, 32564), (50, 32714), (62, 32822), (68, 32876), (72, 32903),

Gene: Oliynyk_47 Start: 31500, Stop: 31865, Start Num: 16

Candidate Starts for Oliynyk_47:
(1, 30990), (9, 31281), (Start: 16 @31500 has 93 MA's), (35, 31545), (41, 31587), (51, 31671), (52, 31677), (63, 31770), (67, 31818), (68, 31821), (74, 31854), (76, 31860),

Gene: Omar_49 Start: 32599, Stop: 33057, Start Num: 14
Candidate Starts for Omar_49:
(4, 32209), (10, 32392), (Start: 14 @32599 has 8 MA's), (30, 32713), (36, 32752), (37, 32755), (59, 32962), (60, 32965), (62, 32971), (65, 33016), (68, 33025), (72, 33052),

Gene: Ozzie_45 Start: 31291, Stop: 31668, Start Num: 16
Candidate Starts for Ozzie_45:
(Start: 16 @31291 has 93 MA's), (30, 31333), (38, 31390), (43, 31432), (62, 31582), (65, 31627),

Gene: OzzyJ_47 Start: 31523, Stop: 31891, Start Num: 16
Candidate Starts for OzzyJ_47:
(Start: 16 @31523 has 93 MA's), (35, 31574), (37, 31583), (44, 31655), (46, 31661), (49, 31679), (52, 31706), (53, 31709), (58, 31778), (60, 31790), (68, 31850), (70, 31865), (74, 31883), (75, 31886),

Gene: Pablito_47 Start: 32215, Stop: 32589, Start Num: 16
Candidate Starts for Pablito_47:
(7, 31873), (10, 31999), (Start: 16 @32215 has 93 MA's), (17, 32221), (21, 32239), (67, 32554), (68, 32557), (72, 32584),

Gene: Paedore_47 Start: 32795, Stop: 33172, Start Num: 16
Candidate Starts for Paedore_47:
(Start: 16 @32795 has 93 MA's), (21, 32819), (63, 33089), (67, 33137), (68, 33140), (72, 33167),

Gene: Paolo_49 Start: 32982, Stop: 33356, Start Num: 16
Candidate Starts for Paolo_49:
(5, 32598), (10, 32775), (Start: 16 @32982 has 93 MA's), (21, 33006), (40, 33087), (65, 33315), (68, 33324), (72, 33351),

Gene: Pavo_47 Start: 33000, Stop: 33383, Start Num: 16
Candidate Starts for Pavo_47:
(Start: 16 @33000 has 93 MA's), (30, 33042), (31, 33054), (34, 33069), (54, 33228), (65, 33339), (73, 33378),

Gene: Phettuccine_46 Start: 31183, Stop: 31560, Start Num: 16
Candidate Starts for Phettuccine_46:
(9, 30964), (Start: 16 @31183 has 93 MA's), (30, 31225), (43, 31324), (62, 31474), (65, 31519),

Gene: Provolone_47 Start: 32382, Stop: 32765, Start Num: 16
Candidate Starts for Provolone_47:
(Start: 16 @32382 has 93 MA's), (30, 32424), (31, 32436), (34, 32451), (54, 32610), (65, 32721), (73, 32760),

Gene: Puginator_49 Start: 33000, Stop: 33374, Start Num: 16
Candidate Starts for Puginator_49:
(5, 32616), (10, 32793), (Start: 16 @33000 has 93 MA's), (21, 33024), (40, 33105), (65, 33333), (68, 33342), (72, 33369),

Gene: R4_48 Start: 32941, Stop: 33318, Start Num: 16
Candidate Starts for R4_48:

(Start: 16 @32941 has 93 MA's), (21, 32965), (56, 33181), (63, 33235), (67, 33283), (68, 33286), (72, 33313),

Gene: Rana_47 Start: 32044, Stop: 32397, Start Num: 16
Candidate Starts for Rana_47:
(Start: 16 @32044 has 93 MA's), (33, 32080), (35, 32089), (37, 32098), (41, 32131), (48, 32185), (64, 32320), (65, 32356), (68, 32365), (71, 32386), (72, 32392),

Gene: RedBear_47 Start: 31733, Stop: 32098, Start Num: 16
Candidate Starts for RedBear_47:
(Start: 16 @31733 has 93 MA's), (37, 31787), (41, 31820), (52, 31910), (58, 31982), (67, 32051), (68, 32054), (72, 32081), (74, 32087), (76, 32093),

Gene: Rusticus_47 Start: 31500, Stop: 31865, Start Num: 16
Candidate Starts for Rusticus_47:
(1, 30990), (9, 31281), (Start: 16 @31500 has 93 MA's), (35, 31545), (41, 31587), (51, 31671), (52, 31677), (63, 31770), (67, 31818), (68, 31821), (74, 31854), (76, 31860),

Gene: Saftant_46 Start: 32957, Stop: 33322, Start Num: 16
Candidate Starts for Saftant_46:
(Start: 16 @32957 has 93 MA's), (28, 32966), (30, 32984), (43, 33086), (54, 33170), (56, 33188), (65, 33281), (67, 33287), (73, 33317),

Gene: SarahRose_46 Start: 31531, Stop: 31899, Start Num: 16
Candidate Starts for SarahRose_46:
(Start: 16 @31531 has 93 MA's), (35, 31582), (37, 31591), (44, 31663), (46, 31669), (49, 31687), (52, 31714), (53, 31717), (58, 31786), (60, 31798), (68, 31858), (70, 31873), (74, 31891), (75, 31894),

Gene: Snorlax_46 Start: 31535, Stop: 31903, Start Num: 16
Candidate Starts for Snorlax_46:
(Start: 16 @31535 has 93 MA's), (35, 31586), (37, 31595), (44, 31667), (46, 31673), (52, 31718), (53, 31721), (60, 31802), (68, 31862), (70, 31877), (74, 31895), (75, 31898),

Gene: South40_46 Start: 31733, Stop: 32098, Start Num: 16
Candidate Starts for South40_46:
(Start: 16 @31733 has 93 MA's), (37, 31787), (41, 31820), (52, 31910), (58, 31982), (67, 32051), (68, 32054), (72, 32081), (74, 32087), (76, 32093),

Gene: Speedwell_51 Start: 34247, Stop: 34642, Start Num: 16
Candidate Starts for Speedwell_51:
(Start: 16 @34247 has 93 MA's), (26, 34274), (30, 34304), (31, 34316), (62, 34556), (69, 34622), (70, 34625), (73, 34637),

Gene: SqueakyClean_46 Start: 32512, Stop: 32886, Start Num: 16
Candidate Starts for SqueakyClean_46:
(10, 32305), (Start: 16 @32512 has 93 MA's), (21, 32536), (60, 32794), (62, 32800), (67, 32851), (68, 32854), (72, 32881),

Gene: Sudan_46 Start: 32838, Stop: 33236, Start Num: 16
Candidate Starts for Sudan_46:
(Start: 16 @32838 has 93 MA's), (18, 32850), (30, 32895), (65, 33192), (69, 33213), (70, 33216), (72, 33228), (73, 33231),

Gene: Sujidade_47 Start: 32278, Stop: 32655, Start Num: 16
Candidate Starts for Sujidade_47:
(2, 31849), (6, 31927), (8, 32053), (9, 32059), (Start: 16 @32278 has 93 MA's), (33, 32338), (35, 32347), (37, 32356), (48, 32443), (64, 32578), (65, 32614), (68, 32623), (71, 32644), (72, 32650),

Gene: SunkenRoot_46 Start: 33440, Stop: 33856, Start Num: 16
Candidate Starts for SunkenRoot_46:
(Start: 16 @33440 has 93 MA's), (26, 33485), (30, 33515), (54, 33701), (65, 33812), (72, 33848), (73, 33851),

Gene: SunsetPointe_45 Start: 31298, Stop: 31675, Start Num: 16
Candidate Starts for SunsetPointe_45:
(Start: 16 @31298 has 93 MA's), (30, 31340), (43, 31439), (62, 31589), (65, 31634),

Gene: Superstar_51 Start: 33684, Stop: 34070, Start Num: 14
Candidate Starts for Superstar_51:
(13, 33675), (Start: 14 @33684 has 8 MA's), (21, 33738), (43, 33834), (47, 33855), (55, 33921), (58, 33966), (62, 33984), (67, 34035), (68, 34038),

Gene: TagePhighter_48 Start: 31535, Stop: 31903, Start Num: 16
Candidate Starts for TagePhighter_48:
(Start: 16 @31535 has 93 MA's), (35, 31586), (37, 31595), (44, 31667), (46, 31673), (49, 31691), (52, 31718), (58, 31790), (60, 31802), (68, 31862), (70, 31877), (74, 31895), (75, 31898),

Gene: Tefunt_48 Start: 32422, Stop: 32910, Start Num: 14
Candidate Starts for Tefunt_48:
(3, 32026), (4, 32029), (10, 32215), (Start: 14 @32422 has 8 MA's), (30, 32566), (50, 32716), (62, 32824), (68, 32878), (72, 32905),

Gene: Thestral_48 Start: 32613, Stop: 32987, Start Num: 16
Candidate Starts for Thestral_48:
(Start: 16 @32613 has 93 MA's), (21, 32637), (45, 32763), (62, 32901), (68, 32955), (72, 32982),

Gene: TinaBelcher_46 Start: 32560, Stop: 32934, Start Num: 16
Candidate Starts for TinaBelcher_46:
(10, 32353), (Start: 16 @32560 has 93 MA's), (21, 32584), (45, 32710), (62, 32848), (72, 32929),

Gene: Toma_46 Start: 32013, Stop: 32384, Start Num: 16
Candidate Starts for Toma_46:
(Start: 16 @32013 has 93 MA's), (37, 32073), (42, 32127), (46, 32151), (52, 32196), (58, 32268), (62, 32286), (67, 32337), (68, 32340), (74, 32373), (76, 32379),

Gene: Triste_46 Start: 31523, Stop: 31891, Start Num: 16
Candidate Starts for Triste_46:
(Start: 16 @31523 has 93 MA's), (35, 31574), (37, 31583), (44, 31655), (46, 31661), (49, 31679), (52, 31706), (53, 31709), (58, 31778), (60, 31790), (68, 31850), (70, 31865), (74, 31883), (75, 31886),

Gene: Triumph_49 Start: 32544, Stop: 32918, Start Num: 16
Candidate Starts for Triumph_49:
(Start: 16 @32544 has 93 MA's), (21, 32568), (39, 32634), (40, 32649), (62, 32832), (67, 32883), (68, 32886), (72, 32913),

Gene: TrvxScott_45 Start: 32606, Stop: 32980, Start Num: 16

Candidate Starts for TrvxScott_45:
(10, 32399), (Start: 16 @32606 has 93 MA's), (21, 32630), (45, 32756), (62, 32894), (72, 32975),

Gene: TuanPN_45 Start: 31458, Stop: 31847, Start Num: 16
Candidate Starts for TuanPN_45:
(Start: 16 @31458 has 93 MA's), (40, 31566), (44, 31608), (52, 31659), (62, 31749), (68, 31803), (70, 31818), (74, 31836), (76, 31842),

Gene: Unstoppable_46 Start: 31178, Stop: 31555, Start Num: 16
Candidate Starts for Unstoppable_46:
(9, 30959), (Start: 16 @31178 has 93 MA's), (30, 31220), (43, 31319), (62, 31469), (65, 31514),

Gene: Vanseggelen_51 Start: 32486, Stop: 32854, Start Num: 16
Candidate Starts for Vanseggelen_51:
(Start: 16 @32486 has 93 MA's), (30, 32516), (31, 32528), (32, 32531), (45, 32630), (62, 32768), (68, 32822), (69, 32834), (73, 32849),

Gene: Verabelle_50 Start: 33047, Stop: 33418, Start Num: 16
Candidate Starts for Verabelle_50:
(8, 32825), (9, 32831), (Start: 16 @33047 has 93 MA's), (30, 33080), (32, 33095), (56, 33284), (65, 33377), (67, 33383), (68, 33386), (73, 33413),

Gene: Verse_46 Start: 33634, Stop: 34029, Start Num: 16
Candidate Starts for Verse_46:
(Start: 16 @33634 has 93 MA's), (20, 33655), (28, 33667), (30, 33691), (49, 33826), (52, 33853), (65, 33988), (67, 33994), (73, 34024),

Gene: Werner_46 Start: 31533, Stop: 31901, Start Num: 16
Candidate Starts for Werner_46:
(Start: 16 @31533 has 93 MA's), (35, 31584), (37, 31593), (44, 31665), (46, 31671), (49, 31689), (52, 31716), (53, 31719), (60, 31800), (68, 31860), (70, 31875), (74, 31893), (75, 31896),

Gene: Whatever_46 Start: 31533, Stop: 31901, Start Num: 16
Candidate Starts for Whatever_46:
(Start: 16 @31533 has 93 MA's), (35, 31584), (37, 31593), (44, 31665), (46, 31671), (49, 31689), (52, 31716), (53, 31719), (58, 31788), (60, 31800), (68, 31860), (70, 31875), (74, 31893), (75, 31896),

Gene: Yasdnil_46 Start: 31576, Stop: 31965, Start Num: 16
Candidate Starts for Yasdnil_46:
(Start: 16 @31576 has 93 MA's), (40, 31684), (44, 31726), (49, 31750), (52, 31777), (62, 31867), (68, 31921), (70, 31936), (76, 31960),

Gene: Yosif_49 Start: 33615, Stop: 34058, Start Num: 16
Candidate Starts for Yosif_49:
(8, 33390), (9, 33396), (12, 33522), (Start: 16 @33615 has 93 MA's), (19, 33630), (22, 33660), (23, 33666), (24, 33669), (25, 33687), (30, 33720), (62, 33972), (65, 34017), (66, 34020),

Gene: Zainub_49 Start: 32960, Stop: 33334, Start Num: 16
Candidate Starts for Zainub_49:
(Start: 16 @32960 has 93 MA's), (21, 32984), (40, 33065), (65, 33293), (68, 33302), (72, 33329),

Gene: ZamZam_46 Start: 32933, Stop: 33304, Start Num: 16
Candidate Starts for ZamZam_46:

(Start: 16 @32933 has 93 MA's), (29, 32948), (30, 32966), (32, 32981), (38, 33026), (52, 33128), (62, 33218), (73, 33299),

Gene: Zemlya_48 Start: 32063, Stop: 32416, Start Num: 16
Candidate Starts for Zemlya_48:
(Start: 16 @32063 has 93 MA's), (33, 32099), (35, 32108), (37, 32117), (48, 32204), (64, 32339), (65, 32375), (68, 32384), (71, 32405), (72, 32411),

Gene: phiCAM_44 Start: 34878, Stop: 35216, Start Num: 30
Candidate Starts for phiCAM_44:
(Start: 16 @34785 has 93 MA's), (26, 34848), (30, 34878), (32, 34893), (50, 35022), (62, 35130), (68, 35184), (69, 35196), (73, 35211),