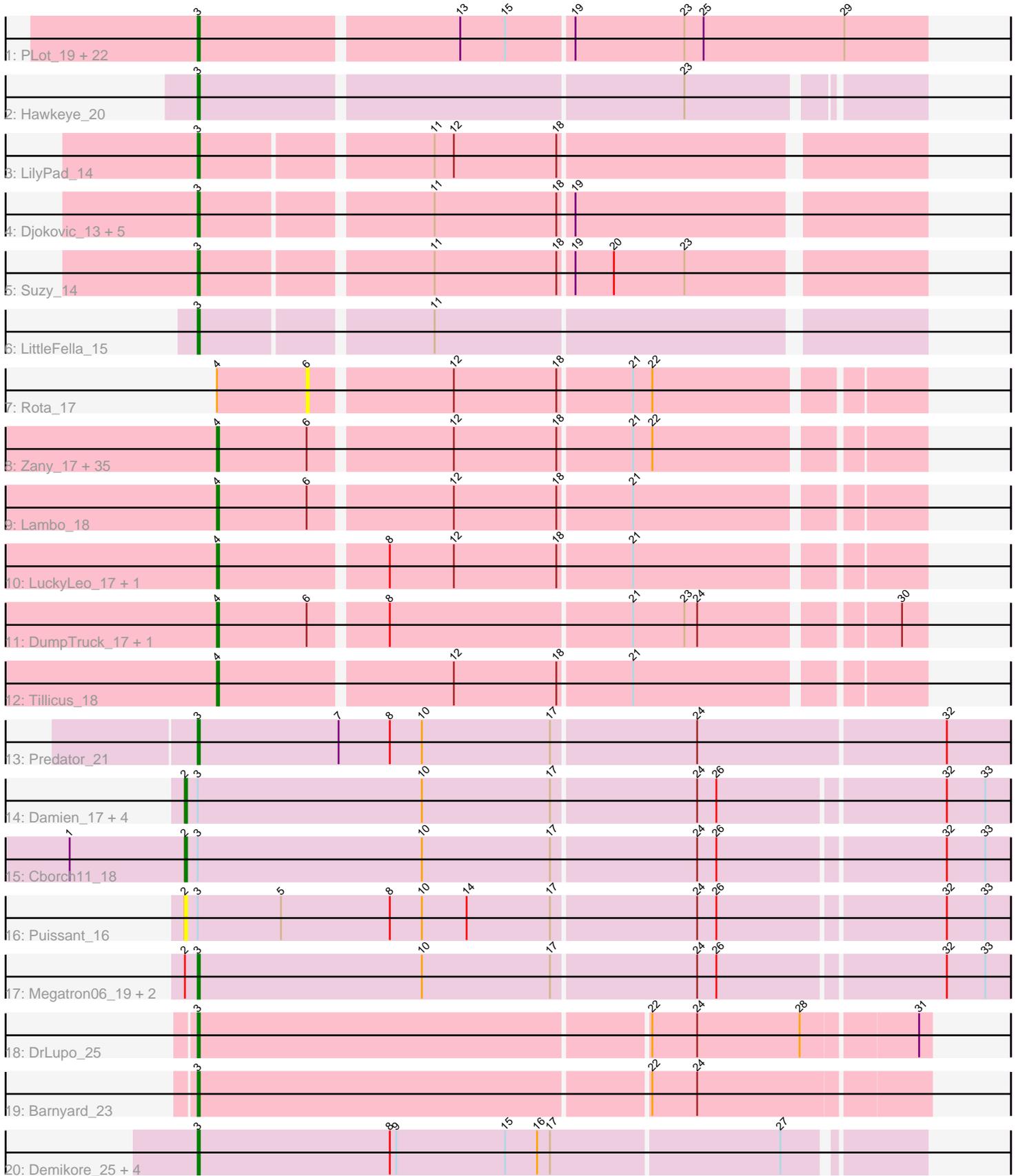# Pham 289277

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 289277 Report

This analysis was run 03/28/26 on database version 641.

Pham number 289277 has 94 members, 12 are drafts.

Phages represented in each track:
• Track 1 : PLot_19, Mopey_18, Visconti_18, Gumball_17, KandZ_18, WaldoWhy_19, Helpful_19, Delton_18, SirHarley_17, Thoth_18, Nova_18, BigMama_16, Chill_19, Prager_18, Penelope2018_18, SuperheroCarly_19, Troll4_18, Adjutor_19, Erk16_18, Giuseppe_18, PBI1_19, Phalaborwa_18, Butterscotch_18
• Track 2 : Hawkeye_20
• Track 3 : LilyPad_14
• Track 4 : Djokovic_13, Terapin_13, BiteSize_13, Madi_13, Sienna_13, Beyoncage_13
• Track 5 : Suzy_14
• Track 6 : LittleFella_15
• Track 7 : Rota_17
• Track 8 : Zany_17, Rumi_17, Astralis_16, OtterstedtS21_18, Fulcrum_19, Charminar_16, Ranch_18, Alyssamiracle_17, Stormer_16, Gibbin_19, Lila22_18, Genamy16_17, Mima20_17, Sampudon_18, ParvusTarda_18, Patos_19, DaviePasture_18, DoobyDoo_17, GretelLyn_18, MoiGyank_20, Riduram_16, Avian_16, Sadboi_18, LavAbarElk_16, Jalebi_18, Alephilan_16, Wojtek_17, BirthdayBoy_19, NovaSharks_17, Jamemuya19_16, Yikes_19, NorManre_19, RazorC_16, GOATification_19, Rukungu_18, Erutan_18
• Track 9 : Lambo_18
• Track 10 : LuckyLeo_17, Apeppi_16
• Track 11 : DumpTruck_17, Xenia2_18
• Track 12 : Tillicus_18
• Track 13 : Predator_21
• Track 14 : Damien_17, Phreeze_17, Beckerton_17, Konstantine_22, BobtimousPrime_16
• Track 15 : Cborch11_18
• Track 16 : Puissant_16
• Track 17 : Megatron06_19, Thumb_17, Oaker_17
• Track 18 : DrLupo_25
• Track 19 : Barnyard_23
• Track 20 : Demikore_25, SuperSonics_24, Labelle_24, Madruga_23, Patience_25

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

The start number called the most often in the published annotations is 3, it was called in 40 of the 82 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Adjutor_19, Barnyard_23, Beyoncage_13, BigMama_16, BiteSize_13, Butterscotch_18, Chill_19, Delton_18, Demikore_25, Djokovic_13, DrLupo_25, Erk16_18, Giuseppe_18, Gumball_17, Hawkeye_20, Helpful_19, KandZ_18, Labelle_24, LilyPad_14, LittleFella_15, Madi_13, Madruga_23, Megatron06_19, Mopey_18, Nova_18, Oaker_17, PBI1_19, PLot_19, Patience_25, Penelope2018_18, Phalaborwa_18, Prager_18, Predator_21, Sienna_13, SirHarley_17, SuperSonics_24, SuperheroCarly_19, Suzy_14, Terapin_13, Thoth_18, Thumb_17, Troll4_18, Visconti_18, WaldoWhy_19,

Genes that have the "Most Annotated" start but do not call it:
• Beckerton_17, BobtimousPrime_16, Cborch11_18, Damien_17, Konstantine_22, Phreeze_17, Puissant_16,

Genes that do not have the "Most Annotated" start:
• Alephilan_16, Alyssamiracle_17, Apeppi_16, Astralis_16, Avian_16, BirthdayBoy_19, Charminar_16, DaviePasture_18, DoobyDoo_17, DumpTruck_17, Erutan_18, Fulcrum_19, GOATification_19, Genamy16_17, Gibbin_19, GretelLyn_18, Jalebi_18, Jamemuya19_16, Lambo_18, LavAbarElk_16, Lila22_18, LuckyLeo_17, Mima20_17, MoiGyank_20, NorManre_19, NovaSharks_17, OtterstedtS21_18, ParvusTarda_18, Patos_19, Ranch_18, RazorC_16, Riduram_16, Rota_17, Rukungu_18, Rumi_17, Sadboi_18, Sampudon_18, Stormer_16, Tillicus_18, Wojtek_17, Xenia2_18, Yikes_19, Zany_17,

Summary by start number:

Start 2:
• Found in 10 of 94 (10.6%) of genes in pham
• Manual Annotations of this start: 5 of 82
• Called 70.0% of time when present
• Phage (with cluster) where this start called: Beckerton_17 (H1), BobtimousPrime_16 (H1), Cborch11_18 (H1), Damien_17 (H1), Konstantine_22 (H1), Phreeze_17 (H1), Puissant_16 (H1),

Start 3:
• Found in 51 of 94 (54.3%) of genes in pham
• Manual Annotations of this start: 40 of 82
• Called 86.3% of time when present
• Phage (with cluster) where this start called: Adjutor_19 (D1), Barnyard_23 (H2), Beyoncage_13 (DG1), BigMama_16 (D1), BiteSize_13 (DG1), Butterscotch_18 (D1), Chill_19 (D1), Delton_18 (D1), Demikore_25 (U), Djokovic_13 (DG1), DrLupo_25 (H2), Erk16_18 (D1), Giuseppe_18 (D1), Gumball_17 (D1), Hawkeye_20 (D2), Helpful_19 (D1), KandZ_18 (D1), Labelle_24 (U), LilyPad_14 (DG1), LittleFella_15 (DG2), Madi_13 (DG1), Madruga_23 (U), Megatron06_19 (H1), Mopey_18 (D1), Nova_18 (D1), Oaker_17 (H1), PBI1_19 (D1), PLot_19 (D1), Patience_25 (U), Penelope2018_18 (D1), Phalaborwa_18 (D1), Prager_18 (D1), Predator_21 (H1), Sienna_13 (DG1), SirHarley_17 (D1), SuperSonics_24 (U), SuperheroCarly_19 (D1), Suzy_14 (DG1), Terapin_13 (DG1), Thoth_18 (D1), Thumb_17 (H1), Troll4_18 (D1), Visconti_18 (D1), WaldoWhy_19 (D1),

Start 4:
• Found in 43 of 94 (45.7%) of genes in pham
• Manual Annotations of this start: 37 of 82
• Called 97.7% of time when present
• Phage (with cluster) where this start called: Alephilan_16 (DV), Alyssamiracle_17 (DV), Apeppi_16 (DV), Astralis_16 (DV), Avian_16 (DV), BirthdayBoy_19 (DV), Charminar_16 (DV), DaviePasture_18 (DV), DoobyDoo_17 (DV), DumpTruck_17 (DV), Erutan_18 (DV), Fulcrum_19 (DV), GOATification_19 (DV), Genamy16_17 (DV), Gibbin_19 (DV), GretelLyn_18 (DV), Jalebi_18 (DV), Jamemuya19_16 (DV), Lambo_18 (DV), LavAbarElk_16 (DV), Lila22_18 (DV), LuckyLeo_17 (DV), Mima20_17 (DV), MoiGyank_20 (DV), NorManre_19 (DV), NovaSharks_17 (DV), OtterstedtS21_18 (DV), ParvusTarda_18 (DV), Patos_19 (DV), Ranch_18 (DV), RazorC_16 (DV), Riduram_16 (DV), Rukungu_18 (DV), Rumi_17 (DV), Sadboi_18 (DV), Sampudon_18 (DV), Stormer_16 (DV), Tillicus_18 (DV), Wojtek_17 (DV), Xenia2_18 (DV), Yikes_19 (DV), Zany_17 (DV),

Start 6:
• Found in 40 of 94 (42.6%) of genes in pham
• No Manual Annotations of this start.
• Called 2.5% of time when present
• Phage (with cluster) where this start called: Rota_17 (DV),

Summary by clusters:

There are 8 clusters represented in this pham: H2, H1, DG2, DG1, U, DV, D2, D1,

Info for manual annotations of cluster D1:
•Start number 3 was manually annotated 21 times for cluster D1.

Info for manual annotations of cluster D2:
•Start number 3 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DG1:
•Start number 3 was manually annotated 8 times for cluster DG1.

Info for manual annotations of cluster DG2:
•Start number 3 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:
•Start number 4 was manually annotated 37 times for cluster DV.

Info for manual annotations of cluster H1:
•Start number 2 was manually annotated 5 times for cluster H1.
•Start number 3 was manually annotated 4 times for cluster H1.

Info for manual annotations of cluster H2:
•Start number 3 was manually annotated 2 times for cluster H2.

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

Gene Information:

Gene: Adjutor_19 Start: 12400, Stop: 12732, Start Num: 3
Candidate Starts for Adjutor_19:
(Start: 3 @12400 has 40 MA's), (13, 12517), (15, 12538), (19, 12568), (23, 12619), (25, 12628), (29, 12694),

Gene: Alephilan_16 Start: 12943, Stop: 13254, Start Num: 4
Candidate Starts for Alephilan_16:
(Start: 4 @12943 has 37 MA's), (6, 12985), (12, 13048), (18, 13096), (21, 13129), (22, 13138),

Gene: Alyssamiracle_17 Start: 11350, Stop: 11661, Start Num: 4
Candidate Starts for Alyssamiracle_17:
(Start: 4 @11350 has 37 MA's), (6, 11392), (12, 11455), (18, 11503), (21, 11536), (22, 11545),

Gene: Apeppi_16 Start: 13065, Stop: 13376, Start Num: 4
Candidate Starts for Apeppi_16:
(Start: 4 @13065 has 37 MA's), (8, 13140), (12, 13170), (18, 13218), (21, 13251),

Gene: Astralis_16 Start: 11350, Stop: 11661, Start Num: 4
Candidate Starts for Astralis_16:
(Start: 4 @11350 has 37 MA's), (6, 11392), (12, 11455), (18, 11503), (21, 11536), (22, 11545),

Gene: Avian_16 Start: 11350, Stop: 11661, Start Num: 4
Candidate Starts for Avian_16:
(Start: 4 @11350 has 37 MA's), (6, 11392), (12, 11455), (18, 11503), (21, 11536), (22, 11545),

Gene: Barnyard_23 Start: 13941, Stop: 14273, Start Num: 3
Candidate Starts for Barnyard_23:
(Start: 3 @13941 has 40 MA's), (22, 14148), (24, 14169),

Gene: Beckerton_17 Start: 12784, Stop: 13161, Start Num: 2
Candidate Starts for Beckerton_17:
(Start: 2 @12784 has 5 MA's), (Start: 3 @12790 has 40 MA's), (10, 12895), (17, 12955), (24, 13021), (26, 13030), (32, 13132), (33, 13150),

Gene: Beyoncage_13 Start: 8817, Stop: 9137, Start Num: 3
Candidate Starts for Beyoncage_13:
(Start: 3 @8817 has 40 MA's), (11, 8919), (18, 8976), (19, 8982),

Gene: BigMama_16 Start: 12476, Stop: 12808, Start Num: 3
Candidate Starts for BigMama_16:
(Start: 3 @12476 has 40 MA's), (13, 12593), (15, 12614), (19, 12644), (23, 12695), (25, 12704), (29, 12770),

Gene: BirthdayBoy_19 Start: 13796, Stop: 14107, Start Num: 4
Candidate Starts for BirthdayBoy_19:
(Start: 4 @13796 has 37 MA's), (6, 13838), (12, 13901), (18, 13949), (21, 13982), (22, 13991),

Gene: BiteSize_13 Start: 8817, Stop: 9137, Start Num: 3
Candidate Starts for BiteSize_13:
(Start: 3 @8817 has 40 MA's), (11, 8919), (18, 8976), (19, 8982),

Gene: BobtimousPrime_16 Start: 12704, Stop: 13081, Start Num: 2
Candidate Starts for BobtimousPrime_16:
(Start: 2 @12704 has 5 MA's), (Start: 3 @12710 has 40 MA's), (10, 12815), (17, 12875), (24, 12941), (26, 12950), (32, 13052), (33, 13070),

Gene: Butterscotch_18 Start: 12460, Stop: 12792, Start Num: 3
Candidate Starts for Butterscotch_18:
(Start: 3 @12460 has 40 MA's), (13, 12577), (15, 12598), (19, 12628), (23, 12679), (25, 12688), (29, 12754),

Gene: Cborch11_18 Start: 12247, Stop: 12624, Start Num: 2
Candidate Starts for Cborch11_18:
(1, 12193), (Start: 2 @12247 has 5 MA's), (Start: 3 @12253 has 40 MA's), (10, 12358), (17, 12418), (24, 12484), (26, 12493), (32, 12595), (33, 12613),

Gene: Charminar_16 Start: 11350, Stop: 11661, Start Num: 4
Candidate Starts for Charminar_16:
(Start: 4 @11350 has 37 MA's), (6, 11392), (12, 11455), (18, 11503), (21, 11536), (22, 11545),

Gene: Chill_19 Start: 12466, Stop: 12798, Start Num: 3
Candidate Starts for Chill_19:
(Start: 3 @12466 has 40 MA's), (13, 12583), (15, 12604), (19, 12634), (23, 12685), (25, 12694), (29, 12760),

Gene: Damien_17 Start: 12246, Stop: 12623, Start Num: 2
Candidate Starts for Damien_17:
(Start: 2 @12246 has 5 MA's), (Start: 3 @12252 has 40 MA's), (10, 12357), (17, 12417), (24, 12483), (26, 12492), (32, 12594), (33, 12612),

Gene: DaviePasture_18 Start: 13553, Stop: 13864, Start Num: 4
Candidate Starts for DaviePasture_18:
(Start: 4 @13553 has 37 MA's), (6, 13595), (12, 13658), (18, 13706), (21, 13739), (22, 13748),

Gene: Delton_18 Start: 12472, Stop: 12804, Start Num: 3
Candidate Starts for Delton_18:
(Start: 3 @12472 has 40 MA's), (13, 12589), (15, 12610), (19, 12640), (23, 12691), (25, 12700), (29, 12766),

Gene: Demikore_25 Start: 15499, Stop: 15828, Start Num: 3
Candidate Starts for Demikore_25:
(Start: 3 @15499 has 40 MA's), (8, 15589), (9, 15592), (15, 15643), (16, 15658), (17, 15664), (27, 15769),

Gene: Djokovic_13 Start: 8817, Stop: 9137, Start Num: 3
Candidate Starts for Djokovic_13:
(Start: 3 @8817 has 40 MA's), (11, 8919), (18, 8976), (19, 8982),

Gene: DoobyDoo_17 Start: 12730, Stop: 13041, Start Num: 4
Candidate Starts for DoobyDoo_17:
(Start: 4 @12730 has 37 MA's), (6, 12772), (12, 12835), (18, 12883), (21, 12916), (22, 12925),

Gene: DrLupo_25 Start: 14352, Stop: 14684, Start Num: 3
Candidate Starts for DrLupo_25:

(Start: 3 @14352 has 40 MA's), (22, 14559), (24, 14580), (28, 14628), (31, 14679),

Gene: DumpTruck_17 Start: 12984, Stop: 13295, Start Num: 4
Candidate Starts for DumpTruck_17:
(Start: 4 @12984 has 37 MA's), (6, 13026), (8, 13059), (21, 13170), (23, 13194), (24, 13200), (30, 13284),

Gene: Erk16_18 Start: 12463, Stop: 12795, Start Num: 3
Candidate Starts for Erk16_18:
(Start: 3 @12463 has 40 MA's), (13, 12580), (15, 12601), (19, 12631), (23, 12682), (25, 12691), (29, 12757),

Gene: Erutan_18 Start: 13243, Stop: 13554, Start Num: 4
Candidate Starts for Erutan_18:
(Start: 4 @13243 has 37 MA's), (6, 13285), (12, 13348), (18, 13396), (21, 13429), (22, 13438),

Gene: Fulcrum_19 Start: 13776, Stop: 14087, Start Num: 4
Candidate Starts for Fulcrum_19:
(Start: 4 @13776 has 37 MA's), (6, 13818), (12, 13881), (18, 13929), (21, 13962), (22, 13971),

Gene: GOATification_19 Start: 13776, Stop: 14087, Start Num: 4
Candidate Starts for GOATification_19:
(Start: 4 @13776 has 37 MA's), (6, 13818), (12, 13881), (18, 13929), (21, 13962), (22, 13971),

Gene: Genamy16_17 Start: 11350, Stop: 11661, Start Num: 4
Candidate Starts for Genamy16_17:
(Start: 4 @11350 has 37 MA's), (6, 11392), (12, 11455), (18, 11503), (21, 11536), (22, 11545),

Gene: Gibbin_19 Start: 13836, Stop: 14147, Start Num: 4
Candidate Starts for Gibbin_19:
(Start: 4 @13836 has 37 MA's), (6, 13878), (12, 13941), (18, 13989), (21, 14022), (22, 14031),

Gene: Giuseppe_18 Start: 12452, Stop: 12784, Start Num: 3
Candidate Starts for Giuseppe_18:
(Start: 3 @12452 has 40 MA's), (13, 12569), (15, 12590), (19, 12620), (23, 12671), (25, 12680), (29, 12746),

Gene: GretelLyn_18 Start: 14110, Stop: 14421, Start Num: 4
Candidate Starts for GretelLyn_18:
(Start: 4 @14110 has 37 MA's), (6, 14152), (12, 14215), (18, 14263), (21, 14296), (22, 14305),

Gene: Gumball_17 Start: 12410, Stop: 12742, Start Num: 3
Candidate Starts for Gumball_17:
(Start: 3 @12410 has 40 MA's), (13, 12527), (15, 12548), (19, 12578), (23, 12629), (25, 12638), (29, 12704),

Gene: Hawkeye_20 Start: 12347, Stop: 12667, Start Num: 3
Candidate Starts for Hawkeye_20:
(Start: 3 @12347 has 40 MA's), (23, 12566),

Gene: Helpful_19 Start: 12460, Stop: 12792, Start Num: 3
Candidate Starts for Helpful_19:

(Start: 3 @12460 has 40 MA's), (13, 12577), (15, 12598), (19, 12628), (23, 12679), (25, 12688), (29, 12754),

Gene: Jalebi_18 Start: 14286, Stop: 14597, Start Num: 4
Candidate Starts for Jalebi_18:
(Start: 4 @14286 has 37 MA's), (6, 14328), (12, 14391), (18, 14439), (21, 14472), (22, 14481),

Gene: Jamemuya19_16 Start: 11350, Stop: 11661, Start Num: 4
Candidate Starts for Jamemuya19_16:
(Start: 4 @11350 has 37 MA's), (6, 11392), (12, 11455), (18, 11503), (21, 11536), (22, 11545),

Gene: KandZ_18 Start: 12560, Stop: 12892, Start Num: 3
Candidate Starts for KandZ_18:
(Start: 3 @12560 has 40 MA's), (13, 12677), (15, 12698), (19, 12728), (23, 12779), (25, 12788), (29, 12854),

Gene: Konstantine_22 Start: 13448, Stop: 13825, Start Num: 2
Candidate Starts for Konstantine_22:
(Start: 2 @13448 has 5 MA's), (Start: 3 @13454 has 40 MA's), (10, 13559), (17, 13619), (24, 13685), (26, 13694), (32, 13796), (33, 13814),

Gene: Labelle_24 Start: 15501, Stop: 15830, Start Num: 3
Candidate Starts for Labelle_24:
(Start: 3 @15501 has 40 MA's), (8, 15591), (9, 15594), (15, 15645), (16, 15660), (17, 15666), (27, 15771),

Gene: Lambo_18 Start: 13780, Stop: 14091, Start Num: 4
Candidate Starts for Lambo_18:
(Start: 4 @13780 has 37 MA's), (6, 13822), (12, 13885), (18, 13933), (21, 13966),

Gene: LavAbarElk_16 Start: 12213, Stop: 12524, Start Num: 4
Candidate Starts for LavAbarElk_16:
(Start: 4 @12213 has 37 MA's), (6, 12255), (12, 12318), (18, 12366), (21, 12399), (22, 12408),

Gene: Lila22_18 Start: 13734, Stop: 14045, Start Num: 4
Candidate Starts for Lila22_18:
(Start: 4 @13734 has 37 MA's), (6, 13776), (12, 13839), (18, 13887), (21, 13920), (22, 13929),

Gene: LilyPad_14 Start: 9536, Stop: 9856, Start Num: 3
Candidate Starts for LilyPad_14:
(Start: 3 @9536 has 40 MA's), (11, 9638), (12, 9647), (18, 9695),

Gene: LittleFella_15 Start: 11437, Stop: 11757, Start Num: 3
Candidate Starts for LittleFella_15:
(Start: 3 @11437 has 40 MA's), (11, 11539),

Gene: LuckyLeo_17 Start: 13065, Stop: 13376, Start Num: 4
Candidate Starts for LuckyLeo_17:
(Start: 4 @13065 has 37 MA's), (8, 13140), (12, 13170), (18, 13218), (21, 13251),

Gene: Madi_13 Start: 8817, Stop: 9137, Start Num: 3
Candidate Starts for Madi_13:
(Start: 3 @8817 has 40 MA's), (11, 8919), (18, 8976), (19, 8982),

Gene: Madruga_23 Start: 15170, Stop: 15499, Start Num: 3
Candidate Starts for Madruga_23:
(Start: 3 @15170 has 40 MA's), (8, 15260), (9, 15263), (15, 15314), (16, 15329), (17, 15335), (27, 15440),

Gene: Megatron06_19 Start: 12787, Stop: 13158, Start Num: 3
Candidate Starts for Megatron06_19:
(Start: 2 @12781 has 5 MA's), (Start: 3 @12787 has 40 MA's), (10, 12892), (17, 12952), (24, 13018), (26, 13027), (32, 13129), (33, 13147),

Gene: Mima20_17 Start: 13463, Stop: 13774, Start Num: 4
Candidate Starts for Mima20_17:
(Start: 4 @13463 has 37 MA's), (6, 13505), (12, 13568), (18, 13616), (21, 13649), (22, 13658),

Gene: MoiGyank_20 Start: 14147, Stop: 14458, Start Num: 4
Candidate Starts for MoiGyank_20:
(Start: 4 @14147 has 37 MA's), (6, 14189), (12, 14252), (18, 14300), (21, 14333), (22, 14342),

Gene: Mopey_18 Start: 12460, Stop: 12792, Start Num: 3
Candidate Starts for Mopey_18:
(Start: 3 @12460 has 40 MA's), (13, 12577), (15, 12598), (19, 12628), (23, 12679), (25, 12688), (29, 12754),

Gene: NorManre_19 Start: 13342, Stop: 13653, Start Num: 4
Candidate Starts for NorManre_19:
(Start: 4 @13342 has 37 MA's), (6, 13384), (12, 13447), (18, 13495), (21, 13528), (22, 13537),

Gene: Nova_18 Start: 12887, Stop: 13219, Start Num: 3
Candidate Starts for Nova_18:
(Start: 3 @12887 has 40 MA's), (13, 13004), (15, 13025), (19, 13055), (23, 13106), (25, 13115), (29, 13181),

Gene: NovaSharks_17 Start: 11350, Stop: 11661, Start Num: 4
Candidate Starts for NovaSharks_17:
(Start: 4 @11350 has 37 MA's), (6, 11392), (12, 11455), (18, 11503), (21, 11536), (22, 11545),

Gene: Oaker_17 Start: 12511, Stop: 12882, Start Num: 3
Candidate Starts for Oaker_17:
(Start: 2 @12505 has 5 MA's), (Start: 3 @12511 has 40 MA's), (10, 12616), (17, 12676), (24, 12742), (26, 12751), (32, 12853), (33, 12871),

Gene: OtterstedtS21_18 Start: 13432, Stop: 13743, Start Num: 4
Candidate Starts for OtterstedtS21_18:
(Start: 4 @13432 has 37 MA's), (6, 13474), (12, 13537), (18, 13585), (21, 13618), (22, 13627),

Gene: PBI1_19 Start: 12391, Stop: 12723, Start Num: 3
Candidate Starts for PBI1_19:
(Start: 3 @12391 has 40 MA's), (13, 12508), (15, 12529), (19, 12559), (23, 12610), (25, 12619), (29, 12685),

Gene: PLot_19 Start: 12463, Stop: 12795, Start Num: 3
Candidate Starts for PLot_19:

(Start: 3 @12463 has 40 MA's), (13, 12580), (15, 12601), (19, 12631), (23, 12682), (25, 12691), (29, 12757),

Gene: ParvusTarda_18 Start: 12914, Stop: 13225, Start Num: 4
Candidate Starts for ParvusTarda_18:
(Start: 4 @12914 has 37 MA's), (6, 12956), (12, 13019), (18, 13067), (21, 13100), (22, 13109),

Gene: Patience_25 Start: 16060, Stop: 16389, Start Num: 3
Candidate Starts for Patience_25:
(Start: 3 @16060 has 40 MA's), (8, 16150), (9, 16153), (15, 16204), (16, 16219), (17, 16225), (27, 16330),

Gene: Patos_19 Start: 13342, Stop: 13653, Start Num: 4
Candidate Starts for Patos_19:
(Start: 4 @13342 has 37 MA's), (6, 13384), (12, 13447), (18, 13495), (21, 13528), (22, 13537),

Gene: Penelope2018_18 Start: 12460, Stop: 12792, Start Num: 3
Candidate Starts for Penelope2018_18:
(Start: 3 @12460 has 40 MA's), (13, 12577), (15, 12598), (19, 12628), (23, 12679), (25, 12688), (29, 12754),

Gene: Phalaborwa_18 Start: 12493, Stop: 12825, Start Num: 3
Candidate Starts for Phalaborwa_18:
(Start: 3 @12493 has 40 MA's), (13, 12610), (15, 12631), (19, 12661), (23, 12712), (25, 12721), (29, 12787),

Gene: Phreeze_17 Start: 12246, Stop: 12623, Start Num: 2
Candidate Starts for Phreeze_17:
(Start: 2 @12246 has 5 MA's), (Start: 3 @12252 has 40 MA's), (10, 12357), (17, 12417), (24, 12483), (26, 12492), (32, 12594), (33, 12612),

Gene: Prager_18 Start: 12472, Stop: 12804, Start Num: 3
Candidate Starts for Prager_18:
(Start: 3 @12472 has 40 MA's), (13, 12589), (15, 12610), (19, 12640), (23, 12691), (25, 12700), (29, 12766),

Gene: Predator_21 Start: 13774, Stop: 14148, Start Num: 3
Candidate Starts for Predator_21:
(Start: 3 @13774 has 40 MA's), (7, 13840), (8, 13864), (10, 13879), (17, 13939), (24, 14005), (32, 14119),

Gene: Puissant_16 Start: 12702, Stop: 13079, Start Num: 2
Candidate Starts for Puissant_16:
(Start: 2 @12702 has 5 MA's), (Start: 3 @12708 has 40 MA's), (5, 12747), (8, 12798), (10, 12813), (14, 12834), (17, 12873), (24, 12939), (26, 12948), (32, 13050), (33, 13068),

Gene: Ranch_18 Start: 12280, Stop: 12591, Start Num: 4
Candidate Starts for Ranch_18:
(Start: 4 @12280 has 37 MA's), (6, 12322), (12, 12385), (18, 12433), (21, 12466), (22, 12475),

Gene: RazorC_16 Start: 11350, Stop: 11661, Start Num: 4
Candidate Starts for RazorC_16:
(Start: 4 @11350 has 37 MA's), (6, 11392), (12, 11455), (18, 11503), (21, 11536), (22, 11545),

Gene: Riduram_16 Start: 11320, Stop: 11631, Start Num: 4
Candidate Starts for Riduram_16:
(Start: 4 @11320 has 37 MA's), (6, 11362), (12, 11425), (18, 11473), (21, 11506), (22, 11515),

Gene: Rota_17 Start: 13280, Stop: 13549, Start Num: 6
Candidate Starts for Rota_17:
(Start: 4 @13238 has 37 MA's), (6, 13280), (12, 13343), (18, 13391), (21, 13424), (22, 13433),

Gene: Rukungu_18 Start: 13979, Stop: 14290, Start Num: 4
Candidate Starts for Rukungu_18:
(Start: 4 @13979 has 37 MA's), (6, 14021), (12, 14084), (18, 14132), (21, 14165), (22, 14174),

Gene: Rumi_17 Start: 11350, Stop: 11661, Start Num: 4
Candidate Starts for Rumi_17:
(Start: 4 @11350 has 37 MA's), (6, 11392), (12, 11455), (18, 11503), (21, 11536), (22, 11545),

Gene: Sadboi_18 Start: 14110, Stop: 14421, Start Num: 4
Candidate Starts for Sadboi_18:
(Start: 4 @14110 has 37 MA's), (6, 14152), (12, 14215), (18, 14263), (21, 14296), (22, 14305),

Gene: Sampudon_18 Start: 14286, Stop: 14597, Start Num: 4
Candidate Starts for Sampudon_18:
(Start: 4 @14286 has 37 MA's), (6, 14328), (12, 14391), (18, 14439), (21, 14472), (22, 14481),

Gene: Sienna_13 Start: 8817, Stop: 9137, Start Num: 3
Candidate Starts for Sienna_13:
(Start: 3 @8817 has 40 MA's), (11, 8919), (18, 8976), (19, 8982),

Gene: SirHarley_17 Start: 12392, Stop: 12724, Start Num: 3
Candidate Starts for SirHarley_17:
(Start: 3 @12392 has 40 MA's), (13, 12509), (15, 12530), (19, 12560), (23, 12611), (25, 12620), (29, 12686),

Gene: Stormer_16 Start: 11350, Stop: 11661, Start Num: 4
Candidate Starts for Stormer_16:
(Start: 4 @11350 has 37 MA's), (6, 11392), (12, 11455), (18, 11503), (21, 11536), (22, 11545),

Gene: SuperSonics_24 Start: 15227, Stop: 15556, Start Num: 3
Candidate Starts for SuperSonics_24:
(Start: 3 @15227 has 40 MA's), (8, 15317), (9, 15320), (15, 15371), (16, 15386), (17, 15392), (27, 15497),

Gene: SuperheroCarly_19 Start: 12322, Stop: 12654, Start Num: 3
Candidate Starts for SuperheroCarly_19:
(Start: 3 @12322 has 40 MA's), (13, 12439), (15, 12460), (19, 12490), (23, 12541), (25, 12550), (29, 12616),

Gene: Suzy_14 Start: 10045, Stop: 10365, Start Num: 3
Candidate Starts for Suzy_14:
(Start: 3 @10045 has 40 MA's), (11, 10147), (18, 10204), (19, 10210), (20, 10228), (23, 10261),

Gene: Terapin_13 Start: 8817, Stop: 9137, Start Num: 3

Candidate Starts for Terapin_13:
(Start: 3 @8817 has 40 MA's), (11, 8919), (18, 8976), (19, 8982),

Gene: Thoth_18 Start: 12457, Stop: 12789, Start Num: 3
Candidate Starts for Thoth_18:
(Start: 3 @12457 has 40 MA's), (13, 12574), (15, 12595), (19, 12625), (23, 12676), (25, 12685), (29, 12751),

Gene: Thumb_17 Start: 12253, Stop: 12624, Start Num: 3
Candidate Starts for Thumb_17:
(Start: 2 @12247 has 5 MA's), (Start: 3 @12253 has 40 MA's), (10, 12358), (17, 12418), (24, 12484), (26, 12493), (32, 12595), (33, 12613),

Gene: Tillicus_18 Start: 12659, Stop: 12970, Start Num: 4
Candidate Starts for Tillicus_18:
(Start: 4 @12659 has 37 MA's), (12, 12764), (18, 12812), (21, 12845),

Gene: Troll4_18 Start: 12461, Stop: 12793, Start Num: 3
Candidate Starts for Troll4_18:
(Start: 3 @12461 has 40 MA's), (13, 12578), (15, 12599), (19, 12629), (23, 12680), (25, 12689), (29, 12755),

Gene: Visconti_18 Start: 12470, Stop: 12802, Start Num: 3
Candidate Starts for Visconti_18:
(Start: 3 @12470 has 40 MA's), (13, 12587), (15, 12608), (19, 12638), (23, 12689), (25, 12698), (29, 12764),

Gene: WaldoWhy_19 Start: 12466, Stop: 12798, Start Num: 3
Candidate Starts for WaldoWhy_19:
(Start: 3 @12466 has 40 MA's), (13, 12583), (15, 12604), (19, 12634), (23, 12685), (25, 12694), (29, 12760),

Gene: Wojtek_17 Start: 12987, Stop: 13298, Start Num: 4
Candidate Starts for Wojtek_17:
(Start: 4 @12987 has 37 MA's), (6, 13029), (12, 13092), (18, 13140), (21, 13173), (22, 13182),

Gene: Xenia2_18 Start: 13026, Stop: 13337, Start Num: 4
Candidate Starts for Xenia2_18:
(Start: 4 @13026 has 37 MA's), (6, 13068), (8, 13101), (21, 13212), (23, 13236), (24, 13242), (30, 13326),

Gene: Yikes_19 Start: 14371, Stop: 14682, Start Num: 4
Candidate Starts for Yikes_19:
(Start: 4 @14371 has 37 MA's), (6, 14413), (12, 14476), (18, 14524), (21, 14557), (22, 14566),

Gene: Zany_17 Start: 13500, Stop: 13811, Start Num: 4
Candidate Starts for Zany_17:
(Start: 4 @13500 has 37 MA's), (6, 13542), (12, 13605), (18, 13653), (21, 13686), (22, 13695),