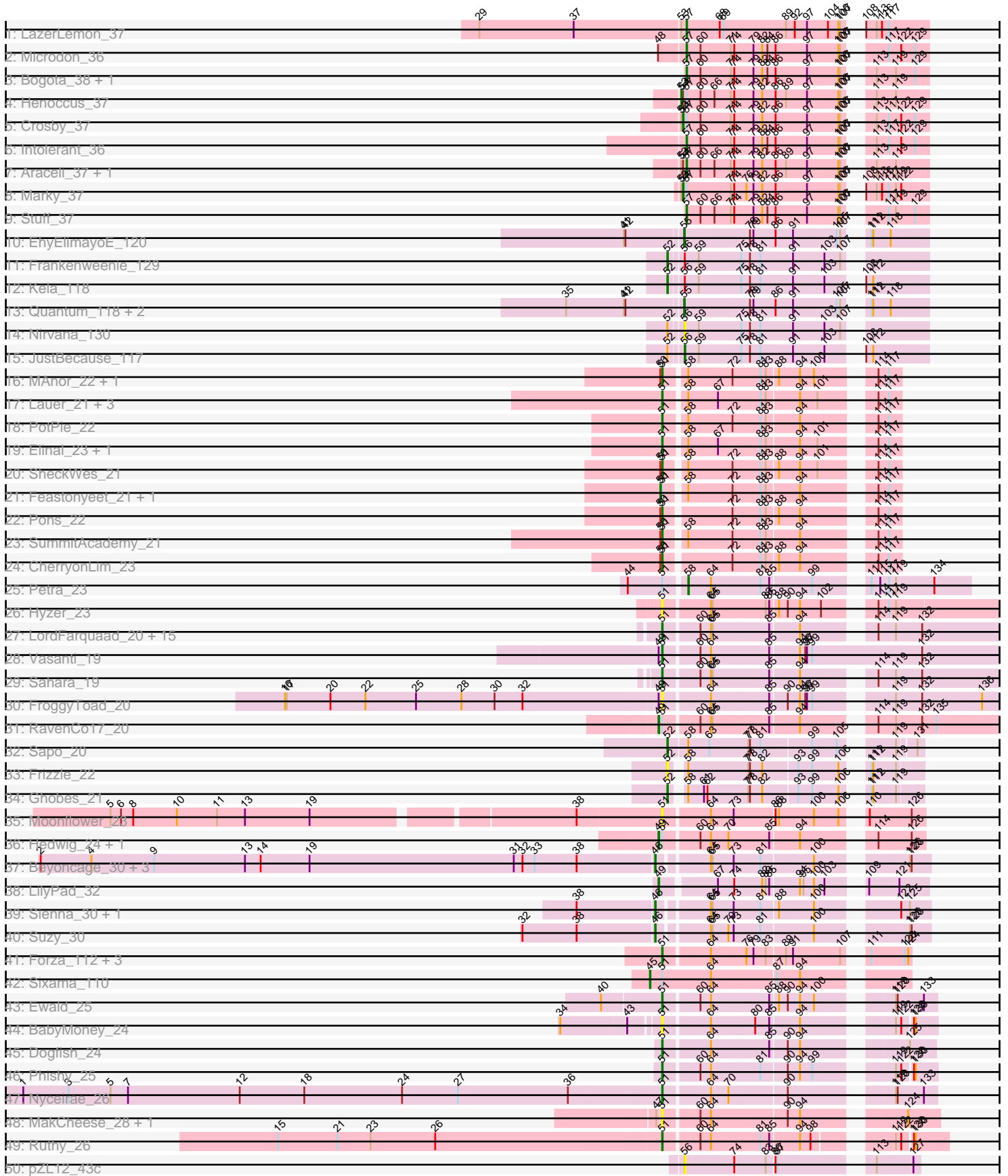
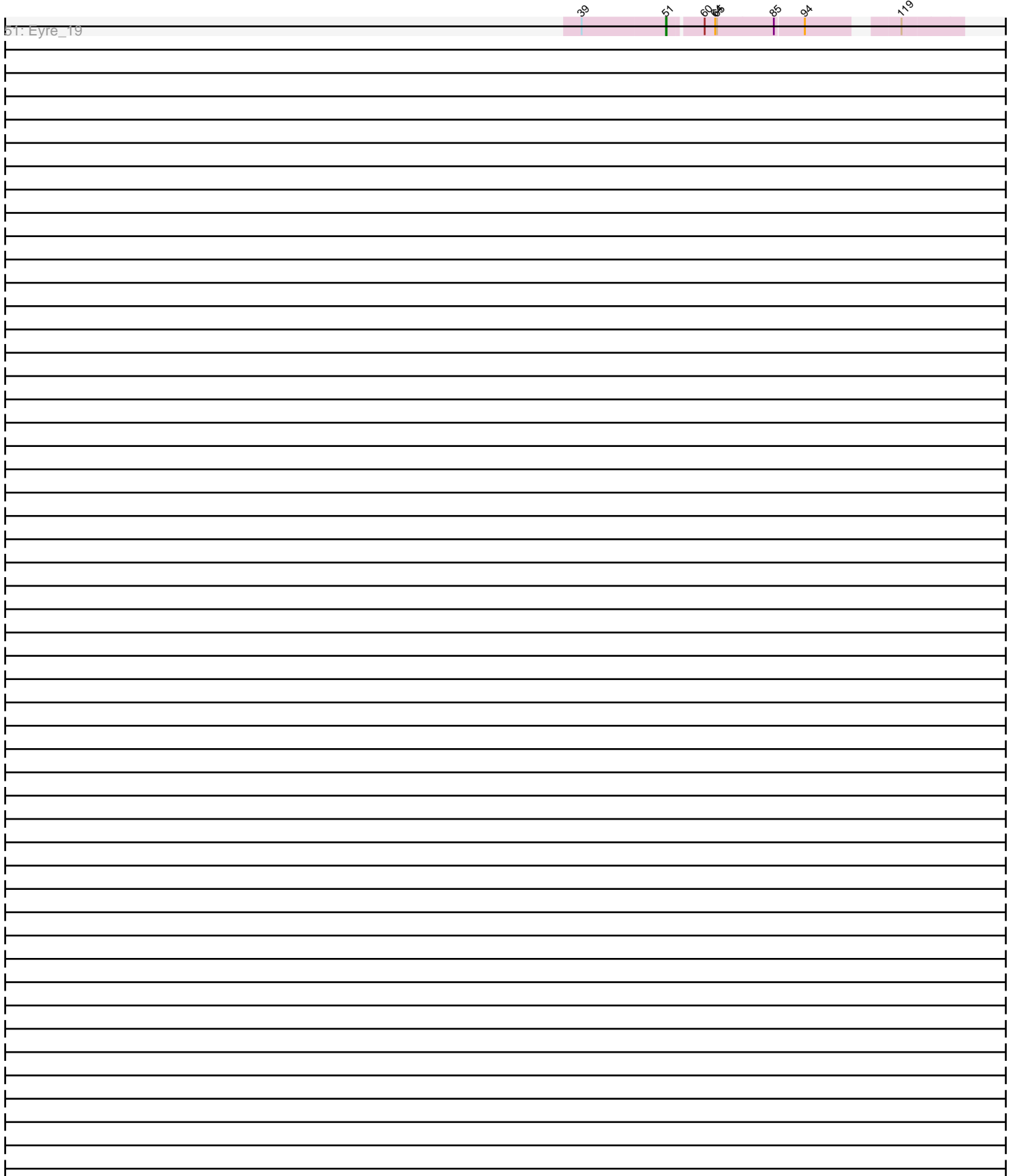


Pham 216079





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 216079 Report

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

Pham number 216079 has 85 members, 11 are drafts.

Phages represented in each track:

- Track 1 : LazerLemon_37
- Track 2 : Microdon_36
- Track 3 : Bogota_38, UNTPL_38
- Track 4 : Henoccus_37
- Track 5 : Crosby_37
- Track 6 : Intolerant_36
- Track 7 : Araceli_37, JackieB_36
- Track 8 : Marky_37
- Track 9 : Stuff_37
- Track 10 : EhyElimayoE_120
- Track 11 : Frankenweenie_129
- Track 12 : Kela_118
- Track 13 : Quantum_118, Kradal_119, Satis_119
- Track 14 : Nirvana_130
- Track 15 : JustBecause_117
- Track 16 : MAnor_22, Mayweather_23
- Track 17 : Lauer_21, Bavailard_22, Yucky_24, Vine_23
- Track 18 : PotPie_22
- Track 19 : Elinal_23, KayGee_22
- Track 20 : SheckWes_21
- Track 21 : Feastonyeet_21, BigChungus_21
- Track 22 : Pons_22
- Track 23 : SummitAcademy_21
- Track 24 : CherryonLim_23
- Track 25 : Petra_23
- Track 26 : Hyzer_23
- Track 27 : LordFarquaad_20, GemG_20, Ebert_20, Mocha12_20, Haley23_20, Gizermo_20, Yeet412_20, Sproutie_20, Attis_20, Bjanes7_20, Clap_20, Savage_20, SoilAssassin_20, TuertoX_20, Whiteclaw_20, Cynthia_20
- Track 28 : Vasanti_19
- Track 29 : Sahara_19
- Track 30 : FroggyToad_20
- Track 31 : RavenCo17_20
- Track 32 : Sapo_20
- Track 33 : Frizzle_22
- Track 34 : Ghobes_21
- Track 35 : Moonflower_23

- Track 36 : Hedwig_24, DirtyBoi_24
- Track 37 : Beyoncage_30, Terapin_31, BiteSize_30, Djokovic_30
- Track 38 : LilyPad_32
- Track 39 : Sienna_30, Madi_30
- Track 40 : Suzy_30
- Track 41 : Forza_112, BlueNGold_111, Boopy_112, Mareelih_110
- Track 42 : Sixama_110
- Track 43 : Ewald_25
- Track 44 : BabyMoney_24
- Track 45 : Dogfish_24
- Track 46 : Phishy_25
- Track 47 : Nyceirae_26
- Track 48 : MakCheese_28, Zodiariah_26
- Track 49 : Ruthy_26
- Track 50 : pZL12_43c
- Track 51 : Eyre_19

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

The start number called the most often in the published annotations is 51, it was called in 39 of the 74 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Attis_20, BabyMoney_24, Bavidard_22, Bjanese7_20, BlueNGold_111, Boopy_112, CherryonLim_23, Clap_20, Cynthia_20, Dogfish_24, Ebert_20, Elinal_23, Ewald_25, Eyre_19, Forza_112, FroggyToad_20, GemG_20, Gizermo_20, Haley23_20, Hyzer_23, KayGee_22, Lauer_21, LordFarquaad_20, MAnor_22, MakCheese_28, Mareelih_110, Mayweather_23, Mocha12_20, Moonflower_23, Nyceirae_26, Phishy_25, Pons_22, PotPie_22, Ruthy_26, Sahara_19, Savage_20, SheckWes_21, SoilAssassin_20, Sproutie_20, SummitAcademy_21, TuertoX_20, Vasanti_19, Vine_23, Whiteclaw_20, Yeet412_20, Yucky_24, Zodiariah_26,

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

- BigChungus_21, DirtyBoi_24, Feastonyeet_21, Hedwig_24, Petra_23, RavenCo17_20, Sixama_110,

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

- Araceli_37, Beyoncage_30, BiteSize_30, Bogota_38, Crosby_37, Djokovic_30, EhyElimayoE_120, Frankenweenie_129, Frizzle_22, Ghobes_21, Henoccus_37, Intolerant_36, JackieB_36, JustBecause_117, Kela_118, Kradal_119, LazerLemon_37, LilyPad_32, Madi_30, Marky_37, Microdon_36, Nirvana_130, Quantum_118, Sapo_20, Satis_119, Sienna_30, Stuff_37, Suzy_30, Terapin_31, UNTPL_38, pZL12_43c,

Summary by start number:

Start 45:

- Found in 1 of 85 (1.2%) of genes in pham
- Manual Annotations of this start: 1 of 74
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Sixama_110 (DS),

Start 46:

- Found in 7 of 85 (8.2%) of genes in pham
- Manual Annotations of this start: 7 of 74
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beyoncage_30 (DG1), BiteSize_30 (DG1), Djokovic_30 (DG1), Madi_30 (DG1), Sienna_30 (DG1), Suzy_30 (DG1), Terapin_31 (DG1),

Start 49:

- Found in 6 of 85 (7.1%) of genes in pham
- Manual Annotations of this start: 4 of 74
- Called 66.7% of time when present
- Phage (with cluster) where this start called: DirtyBoi_24 (DB), Hedwig_24 (DB), LilyPad_32 (DG1), RavenCo17_20 (CZ8),

Start 50:

- Found in 8 of 85 (9.4%) of genes in pham
- Manual Annotations of this start: 2 of 74
- Called 25.0% of time when present
- Phage (with cluster) where this start called: BigChungus_21 (CT), Feastonyeet_21 (CT),

Start 51:

- Found in 54 of 85 (63.5%) of genes in pham
- Manual Annotations of this start: 39 of 74
- Called 87.0% of time when present
- Phage (with cluster) where this start called: Attis_20 (CZ2), BabyMoney_24 (DT), Bavidard_22 (CT), Bjanes7_20 (CZ2), BlueNGold_111 (DS), Boopy_112 (DS), CherryonLim_23 (CT), Clap_20 (CZ2), Cynthia_20 (CZ2), Dogfish_24 (DT), Ebert_20 (CZ2), Elinal_23 (CT), Ewald_25 (DT), Eyre_19 (singleton), Forza_112 (DS), FroggyToad_20 (CZ2), GemG_20 (CZ2), Gizermo_20 (CZ2), Haley23_20 (CZ2), Hyzer_23 (CZ1), KayGee_22 (CT), Lauer_21 (CT), LordFarquaad_20 (CZ2), MAnor_22 (CT), MakCheese_28 (DW), Mareelih_110 (DS), Mayweather_23 (CT), Mocha12_20 (CZ2), Moonflower_23 (DB), Nyceirae_26 (DT), Phishy_25 (DT), Pons_22 (CT), PotPie_22 (CT), Ruthy_26 (DW), Sahara_19 (CZ2), Savage_20 (CZ2), SheckWes_21 (CT), SoilAssassin_20 (CZ2), Sproutie_20 (CZ2), SummitAcademy_21 (CT), TueritoX_20 (CZ2), Vasanti_19 (CZ2), Vine_23 (CT), Whiteclaw_20 (CZ2), Yeet412_20 (CZ2), Yucky_24 (CT), Zodiariah_26 (DW),

Start 52:

- Found in 7 of 85 (8.2%) of genes in pham
- Manual Annotations of this start: 4 of 74
- Called 71.4% of time when present
- Phage (with cluster) where this start called: Frankenweenie_129 (BM), Frizzle_22 (DA), Ghobes_21 (DA), Kela_118 (BM), Sapo_20 (DA),

Start 53:

- Found in 6 of 85 (7.1%) of genes in pham
- Manual Annotations of this start: 1 of 74
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Henoccus_37 (BH),

Start 54:

- Found in 5 of 85 (5.9%) of genes in pham
- Manual Annotations of this start: 2 of 74
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Crosby_37 (BH), Marky_37 (BH),

Start 55:

- Found in 4 of 85 (4.7%) of genes in pham
- Manual Annotations of this start: 4 of 74
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EhyElimayoE_120 (BM), Kradal_119 (BM), Quantum_118 (BM), Satis_119 (BM),

Start 56:

- Found in 5 of 85 (5.9%) of genes in pham
- Manual Annotations of this start: 1 of 74
- Called 60.0% of time when present
- Phage (with cluster) where this start called: JustBecause_117 (BM), Nirvana_130 (BM), pZL12_43c (singleton),

Start 57:

- Found in 11 of 85 (12.9%) of genes in pham
- Manual Annotations of this start: 8 of 74
- Called 72.7% of time when present
- Phage (with cluster) where this start called: Araceli_37 (BH), Bogota_38 (BH), Intolerant_36 (BH), JackieB_36 (BH), LazerLemon_37 (BH), Microdon_36 (BH), Stuff_37 (BH), UNTPL_38 (BH),

Start 58:

- Found in 17 of 85 (20.0%) of genes in pham
- Manual Annotations of this start: 1 of 74
- Called 5.9% of time when present
- Phage (with cluster) where this start called: Petra_23 (CV),

Summary by clusters:

There are 14 clusters represented in this pham: singleton, CZ2, BM, DB, CZ1, BH, CZ8, CV, DG1, DW, DT, DA, DS, CT,

Info for manual annotations of cluster BH:

- Start number 53 was manually annotated 1 time for cluster BH.
- Start number 54 was manually annotated 2 times for cluster BH.
- Start number 57 was manually annotated 8 times for cluster BH.

Info for manual annotations of cluster BM:

- Start number 52 was manually annotated 2 times for cluster BM.
- Start number 55 was manually annotated 4 times for cluster BM.
- Start number 56 was manually annotated 1 time for cluster BM.

Info for manual annotations of cluster CT:

- Start number 50 was manually annotated 2 times for cluster CT.
- Start number 51 was manually annotated 11 times for cluster CT.

Info for manual annotations of cluster CV:

- Start number 58 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster CZ2:

- Start number 51 was manually annotated 18 times for cluster CZ2.

Info for manual annotations of cluster CZ8:

- Start number 49 was manually annotated 1 time for cluster CZ8.

Info for manual annotations of cluster DA:

- Start number 52 was manually annotated 2 times for cluster DA.

Info for manual annotations of cluster DB:

- Start number 49 was manually annotated 2 times for cluster DB.

Info for manual annotations of cluster DG1:

- Start number 46 was manually annotated 7 times for cluster DG1.
- Start number 49 was manually annotated 1 time for cluster DG1.

Info for manual annotations of cluster DS:

- Start number 45 was manually annotated 1 time for cluster DS.
- Start number 51 was manually annotated 4 times for cluster DS.

Info for manual annotations of cluster DT:

- Start number 51 was manually annotated 4 times for cluster DT.

Info for manual annotations of cluster DW:

- Start number 51 was manually annotated 1 time for cluster DW.

Gene Information:

Gene: Araceli_37 Start: 28758, Stop: 29129, Start Num: 57

Candidate Starts for Araceli_37:

(Start: 53 @28749 has 1 MA's), (Start: 54 @28752 has 2 MA's), (Start: 57 @28758 has 8 MA's), (60, 28782), (66, 28806), (71, 28833), (74, 28839), (79, 28872), (82, 28887), (86, 28908), (89, 28926), (97, 28962), (106, 29016), (107, 29019), (113, 29046), (119, 29079),

Gene: Attis_20 Start: 18033, Stop: 18548, Start Num: 51

Candidate Starts for Attis_20:

(Start: 51 @18033 has 39 MA's), (60, 18087), (64, 18105), (65, 18108), (85, 18204), (94, 18252), (114, 18351), (119, 18378), (132, 18420),

Gene: BabyMoney_24 Start: 21065, Stop: 21469, Start Num: 51

Candidate Starts for BabyMoney_24:

(34, 20915), (43, 21020), (Start: 51 @21065 has 39 MA's), (64, 21137), (80, 21212), (85, 21236), (94, 21284), (119, 21410), (122, 21416), (128, 21431), (130, 21434),

Gene: Bavidard_22 Start: 19839, Stop: 20192, Start Num: 51

Candidate Starts for Bavidard_22:

(Start: 51 @19839 has 39 MA's), (Start: 58 @19869 has 1 MA's), (67, 19920), (81, 19992), (83, 20001), (94, 20055), (101, 20085), (114, 20154), (117, 20172),

Gene: Beyoncage_30 Start: 27124, Stop: 27528, Start Num: 46

Candidate Starts for Beyoncage_30:

(2, 26074), (4, 26161), (9, 26269), (13, 26425), (14, 26452), (19, 26536), (31, 26887), (32, 26902), (33, 26923), (38, 26995), (Start: 46 @27124 has 7 MA's), (64, 27196), (65, 27199), (73, 27235), (81, 27280), (100, 27367), (125, 27493), (126, 27496),

Gene: BigChungus_21 Start: 19097, Stop: 19450, Start Num: 50

Candidate Starts for BigChungus_21:

(Start: 50 @19097 has 2 MA's), (Start: 51 @19100 has 39 MA's), (Start: 58 @19127 has 1 MA's), (72, 19202), (81, 19250), (83, 19259), (94, 19313), (114, 19412), (117, 19430),

Gene: BiteSize_30 Start: 27124, Stop: 27528, Start Num: 46

Candidate Starts for BiteSize_30:

(2, 26074), (4, 26161), (9, 26269), (13, 26425), (14, 26452), (19, 26536), (31, 26887), (32, 26902), (33, 26923), (38, 26995), (Start: 46 @27124 has 7 MA's), (64, 27196), (65, 27199), (73, 27235), (81, 27280), (100, 27367), (125, 27493), (126, 27496),

Gene: Bjaner7_20 Start: 18033, Stop: 18548, Start Num: 51

Candidate Starts for Bjaner7_20:

(Start: 51 @18033 has 39 MA's), (60, 18087), (64, 18105), (65, 18108), (85, 18204), (94, 18252), (114, 18351), (119, 18378), (132, 18420),

Gene: BlueNGold_111 Start: 69226, Stop: 69600, Start Num: 51

Candidate Starts for BlueNGold_111:

(Start: 51 @69226 has 39 MA's), (64, 69301), (76, 69361), (79, 69373), (83, 69394), (89, 69424), (91, 69436), (107, 69517), (111, 69535), (123, 69589), (124, 69595),

Gene: Bogota_38 Start: 29151, Stop: 29522, Start Num: 57

Candidate Starts for Bogota_38:

(Start: 57 @29151 has 8 MA's), (60, 29175), (71, 29226), (74, 29232), (79, 29265), (82, 29280), (84, 29289), (86, 29301), (97, 29355), (106, 29409), (107, 29412), (113, 29439), (119, 29472), (129, 29505),

Gene: Boopy_112 Start: 69238, Stop: 69612, Start Num: 51

Candidate Starts for Boopy_112:

(Start: 51 @69238 has 39 MA's), (64, 69313), (76, 69373), (79, 69385), (83, 69406), (89, 69436), (91, 69448), (107, 69529), (111, 69547), (123, 69601), (124, 69607),

Gene: CherryonLim_23 Start: 19809, Stop: 20159, Start Num: 51

Candidate Starts for CherryonLim_23:

(Start: 50 @19806 has 2 MA's), (Start: 51 @19809 has 39 MA's), (72, 19911), (81, 19959), (83, 19968), (88, 19986), (94, 20022), (114, 20121), (117, 20139),

Gene: Clap_20 Start: 18040, Stop: 18555, Start Num: 51

Candidate Starts for Clap_20:

(Start: 51 @18040 has 39 MA's), (60, 18094), (64, 18112), (65, 18115), (85, 18211), (94, 18259), (114, 18358), (119, 18385), (132, 18427),

Gene: Crosby_37 Start: 28891, Stop: 29268, Start Num: 54

Candidate Starts for Crosby_37:

(Start: 53 @28888 has 1 MA's), (Start: 54 @28891 has 2 MA's), (Start: 57 @28897 has 8 MA's), (60, 28921), (71, 28972), (74, 28978), (79, 29011), (82, 29026), (86, 29047), (97, 29101), (106, 29155), (107, 29158), (113, 29185), (117, 29206), (122, 29227), (129, 29251),

Gene: Cynthia_20 Start: 18040, Stop: 18555, Start Num: 51

Candidate Starts for Cynthia_20:

(Start: 51 @18040 has 39 MA's), (60, 18094), (64, 18112), (65, 18115), (85, 18211), (94, 18259), (114, 18358), (119, 18385), (132, 18427),

Gene: DirtyBoi_24 Start: 20800, Stop: 21198, Start Num: 49

Candidate Starts for DirtyBoi_24:

(Start: 49 @20800 has 4 MA's), (Start: 51 @20806 has 39 MA's), (60, 20860), (64, 20878), (70, 20908), (85, 20977), (94, 21025), (114, 21124), (126, 21175),

Gene: Djokovic_30 Start: 27123, Stop: 27527, Start Num: 46

Candidate Starts for Djokovic_30:

(2, 26073), (4, 26160), (9, 26268), (13, 26424), (14, 26451), (19, 26535), (31, 26886), (32, 26901), (33, 26922), (38, 26994), (Start: 46 @27123 has 7 MA's), (64, 27195), (65, 27198), (73, 27234), (81, 27279), (100, 27366), (125, 27492), (126, 27495),

Gene: Dogfish_24 Start: 21281, Stop: 21691, Start Num: 51

Candidate Starts for Dogfish_24:

(Start: 51 @21281 has 39 MA's), (64, 21353), (85, 21452), (90, 21479), (94, 21500), (125, 21647),

Gene: Ebert_20 Start: 18040, Stop: 18555, Start Num: 51

Candidate Starts for Ebert_20:

(Start: 51 @18040 has 39 MA's), (60, 18094), (64, 18112), (65, 18115), (85, 18211), (94, 18259), (114, 18358), (119, 18385), (132, 18427),

Gene: EhyElimayoE_120 Start: 78634, Stop: 79011, Start Num: 55

Candidate Starts for EhyElimayoE_120:

(41, 78541), (42, 78544), (Start: 55 @78634 has 4 MA's), (78, 78745), (79, 78751), (86, 78787), (91, 78817), (105, 78892), (107, 78898), (111, 78916), (112, 78919), (118, 78946),

Gene: Elinal_23 Start: 19050, Stop: 19403, Start Num: 51

Candidate Starts for Elinal_23:

(Start: 51 @19050 has 39 MA's), (Start: 58 @19080 has 1 MA's), (67, 19131), (81, 19203), (83, 19212), (94, 19266), (101, 19296), (114, 19365), (117, 19383),

Gene: Ewald_25 Start: 21640, Stop: 22050, Start Num: 51

Candidate Starts for Ewald_25:

(40, 21550), (Start: 51 @21640 has 39 MA's), (60, 21694), (64, 21712), (85, 21811), (88, 21823), (90, 21838), (94, 21859), (100, 21883), (119, 21985), (120, 21988), (133, 22030),

Gene: Eyre_19 Start: 18287, Stop: 18730, Start Num: 51

Candidate Starts for Eyre_19:

(39, 18146), (Start: 51 @18287 has 39 MA's), (60, 18341), (64, 18359), (65, 18362), (85, 18458), (94, 18506), (119, 18632),

Gene: Feastonyeet_21 Start: 19097, Stop: 19450, Start Num: 50

Candidate Starts for Feastonyeet_21:

(Start: 50 @19097 has 2 MA's), (Start: 51 @19100 has 39 MA's), (Start: 58 @19127 has 1 MA's), (72, 19202), (81, 19250), (83, 19259), (94, 19313), (114, 19412), (117, 19430),

Gene: Forza_112 Start: 69154, Stop: 69528, Start Num: 51

Candidate Starts for Forza_112:

(Start: 51 @69154 has 39 MA's), (64, 69229), (76, 69289), (79, 69301), (83, 69322), (89, 69352), (91, 69364), (107, 69445), (111, 69463), (123, 69517), (124, 69523),

Gene: Frankenweenie_129 Start: 83529, Stop: 83927, Start Num: 52

Candidate Starts for Frankenweenie_129:

(Start: 52 @83529 has 4 MA's), (Start: 56 @83550 has 1 MA's), (59, 83574), (75, 83646), (78, 83661), (81, 83679), (91, 83733), (103, 83787), (107, 83814),

Gene: Frizzle_22 Start: 18551, Stop: 18925, Start Num: 52

Candidate Starts for Frizzle_22:

(Start: 52 @18551 has 4 MA's), (Start: 58 @18566 has 1 MA's), (77, 18668), (78, 18671), (82, 18692), (93, 18749), (99, 18773), (106, 18818), (111, 18839), (112, 18842), (119, 18881),

Gene: FroggyToad_20 Start: 18087, Stop: 18620, Start Num: 51

Candidate Starts for FroggyToad_20:

(16, 17448), (17, 17451), (20, 17526), (22, 17586), (25, 17673), (28, 17751), (30, 17808), (32, 17856), (Start: 49 @18081 has 4 MA's), (Start: 51 @18087 has 39 MA's), (64, 18159), (85, 18258), (90, 18285), (94, 18306), (96, 18315), (97, 18318), (99, 18327), (119, 18432), (132, 18474), (136, 18576),

Gene: GemG_20 Start: 18040, Stop: 18555, Start Num: 51

Candidate Starts for GemG_20:

(Start: 51 @18040 has 39 MA's), (60, 18094), (64, 18112), (65, 18115), (85, 18211), (94, 18259), (114, 18358), (119, 18385), (132, 18427),

Gene: Ghobes_21 Start: 18551, Stop: 18925, Start Num: 52

Candidate Starts for Ghobes_21:

(Start: 52 @18551 has 4 MA's), (Start: 58 @18566 has 1 MA's), (61, 18593), (62, 18599), (77, 18668), (78, 18671), (82, 18692), (93, 18749), (99, 18773), (106, 18818), (111, 18839), (112, 18842), (119, 18881),

Gene: Gizermo_20 Start: 18040, Stop: 18555, Start Num: 51

Candidate Starts for Gizermo_20:

(Start: 51 @18040 has 39 MA's), (60, 18094), (64, 18112), (65, 18115), (85, 18211), (94, 18259), (114, 18358), (119, 18385), (132, 18427),

Gene: Haley23_20 Start: 18040, Stop: 18555, Start Num: 51

Candidate Starts for Haley23_20:

(Start: 51 @18040 has 39 MA's), (60, 18094), (64, 18112), (65, 18115), (85, 18211), (94, 18259), (114, 18358), (119, 18385), (132, 18427),

Gene: Hedwig_24 Start: 20796, Stop: 21194, Start Num: 49

Candidate Starts for Hedwig_24:

(Start: 49 @20796 has 4 MA's), (Start: 51 @20802 has 39 MA's), (60, 20856), (64, 20874), (70, 20904), (85, 20973), (94, 21021), (114, 21120), (126, 21171),

Gene: Henoccus_37 Start: 28765, Stop: 29145, Start Num: 53

Candidate Starts for Henoccus_37:

(Start: 53 @28765 has 1 MA's), (Start: 54 @28768 has 2 MA's), (Start: 57 @28774 has 8 MA's), (60, 28798), (66, 28822), (71, 28849), (74, 28855), (79, 28888), (82, 28903), (86, 28924), (89, 28942), (97, 28978), (106, 29032), (107, 29035), (113, 29062), (119, 29095),

Gene: Hyzer_23 Start: 21496, Stop: 22044, Start Num: 51

Candidate Starts for Hyzer_23:

(Start: 51 @21496 has 39 MA's), (64, 21568), (65, 21571), (83, 21661), (85, 21667), (88, 21679), (90, 21694), (94, 21715), (102, 21751), (114, 21814), (117, 21829), (119, 21841),

Gene: Intolerant_36 Start: 28786, Stop: 29157, Start Num: 57

Candidate Starts for Intolerant_36:

(Start: 57 @28786 has 8 MA's), (60, 28810), (71, 28861), (74, 28867), (79, 28900), (82, 28915), (84, 28924), (86, 28936), (97, 28990), (106, 29044), (107, 29047), (113, 29074), (117, 29095), (122, 29116), (129, 29140),

Gene: JackieB_36 Start: 28612, Stop: 28983, Start Num: 57

Candidate Starts for JackieB_36:

(Start: 53 @28603 has 1 MA's), (Start: 54 @28606 has 2 MA's), (Start: 57 @28612 has 8 MA's), (60, 28636), (66, 28660), (71, 28687), (74, 28693), (79, 28726), (82, 28741), (86, 28762), (89, 28780), (97, 28816), (106, 28870), (107, 28873), (113, 28900), (119, 28933),

Gene: JustBecause_117 Start: 77702, Stop: 78079, Start Num: 56

Candidate Starts for JustBecause_117:

(Start: 52 @77681 has 4 MA's), (Start: 56 @77702 has 1 MA's), (59, 77726), (75, 77798), (78, 77813), (81, 77831), (91, 77885), (103, 77939), (108, 77975), (112, 77987),

Gene: KayGee_22 Start: 19050, Stop: 19403, Start Num: 51

Candidate Starts for KayGee_22:

(Start: 51 @19050 has 39 MA's), (Start: 58 @19080 has 1 MA's), (67, 19131), (81, 19203), (83, 19212), (94, 19266), (101, 19296), (114, 19365), (117, 19383),

Gene: Kela_118 Start: 77561, Stop: 77959, Start Num: 52

Candidate Starts for Kela_118:

(Start: 52 @77561 has 4 MA's), (Start: 56 @77582 has 1 MA's), (59, 77606), (75, 77678), (78, 77693), (81, 77711), (91, 77765), (103, 77819), (108, 77855), (112, 77867),

Gene: Kradal_119 Start: 78631, Stop: 79008, Start Num: 55

Candidate Starts for Kradal_119:

(35, 78439), (41, 78538), (42, 78541), (Start: 55 @78631 has 4 MA's), (78, 78742), (79, 78748), (86, 78784), (91, 78814), (105, 78889), (107, 78895), (111, 78913), (112, 78916), (118, 78943),

Gene: Lauer_21 Start: 19099, Stop: 19452, Start Num: 51

Candidate Starts for Lauer_21:

(Start: 51 @19099 has 39 MA's), (Start: 58 @19129 has 1 MA's), (67, 19180), (81, 19252), (83, 19261), (94, 19315), (101, 19345), (114, 19414), (117, 19432),

Gene: LazerLemon_37 Start: 29273, Stop: 29647, Start Num: 57

Candidate Starts for LazerLemon_37:

(29, 28925), (37, 29087), (Start: 53 @29264 has 1 MA's), (Start: 57 @29273 has 8 MA's), (68, 29330), (69, 29336), (89, 29441), (92, 29456), (97, 29477), (104, 29513), (106, 29531), (107, 29534), (108, 29543), (113, 29561), (116, 29570), (117, 29582),

Gene: LilyPad_32 Start: 27930, Stop: 28334, Start Num: 49

Candidate Starts for LilyPad_32:

(Start: 49 @27930 has 4 MA's), (67, 28014), (74, 28041), (82, 28089), (83, 28095), (85, 28101), (94, 28149), (95, 28155), (100, 28173), (103, 28191), (109, 28233), (121, 28284),

Gene: LordFarquaad_20 Start: 18033, Stop: 18548, Start Num: 51

Candidate Starts for LordFarquaad_20:

(Start: 51 @18033 has 39 MA's), (60, 18087), (64, 18105), (65, 18108), (85, 18204), (94, 18252), (114, 18351), (119, 18378), (132, 18420),

Gene: MAnor_22 Start: 19067, Stop: 19420, Start Num: 51

Candidate Starts for MAnor_22:

(Start: 50 @19064 has 2 MA's), (Start: 51 @19067 has 39 MA's), (Start: 58 @19097 has 1 MA's), (72, 19172), (81, 19220), (83, 19229), (88, 19247), (94, 19283), (100, 19307), (114, 19382), (117, 19400),

Gene: Madi_30 Start: 27124, Stop: 27528, Start Num: 46

Candidate Starts for Madi_30:

(38, 26995), (Start: 46 @27124 has 7 MA's), (64, 27196), (65, 27199), (73, 27235), (81, 27280), (88, 27307), (100, 27367), (122, 27478), (125, 27493),

Gene: MakCheese_28 Start: 24630, Stop: 25049, Start Num: 51

Candidate Starts for MakCheese_28:

(47, 24624), (Start: 51 @24630 has 39 MA's), (60, 24684), (64, 24702), (90, 24828), (94, 24849), (124, 24996),

Gene: Mareelih_110 Start: 68656, Stop: 69030, Start Num: 51

Candidate Starts for Mareelih_110:

(Start: 51 @68656 has 39 MA's), (64, 68731), (76, 68791), (79, 68803), (83, 68824), (89, 68854), (91, 68866), (107, 68947), (111, 68965), (123, 69019), (124, 69025),

Gene: Marky_37 Start: 28616, Stop: 28993, Start Num: 54

Candidate Starts for Marky_37:

(Start: 53 @28613 has 1 MA's), (Start: 54 @28616 has 2 MA's), (Start: 57 @28622 has 8 MA's), (71, 28697), (74, 28703), (76, 28724), (79, 28736), (82, 28751), (86, 28772), (97, 28826), (106, 28880), (107, 28883), (108, 28892), (113, 28910), (116, 28919), (117, 28931), (119, 28943), (122, 28952),

Gene: Mayweather_23 Start: 19682, Stop: 20035, Start Num: 51

Candidate Starts for Mayweather_23:

(Start: 50 @19679 has 2 MA's), (Start: 51 @19682 has 39 MA's), (Start: 58 @19712 has 1 MA's), (72, 19787), (81, 19835), (83, 19844), (88, 19862), (94, 19898), (100, 19922), (114, 19997), (117, 20015),

Gene: Microdon_36 Start: 28594, Stop: 28965, Start Num: 57

Candidate Starts for Microdon_36:

(48, 28552), (Start: 57 @28594 has 8 MA's), (60, 28618), (71, 28669), (74, 28675), (79, 28708), (82, 28723), (84, 28732), (86, 28744), (97, 28798), (106, 28852), (107, 28855), (117, 28903), (122, 28924), (129, 28948),

Gene: Mocha12_20 Start: 18040, Stop: 18555, Start Num: 51

Candidate Starts for Mocha12_20:

(Start: 51 @18040 has 39 MA's), (60, 18094), (64, 18112), (65, 18115), (85, 18211), (94, 18259), (114, 18358), (119, 18385), (132, 18427),

Gene: Moonflower_23 Start: 20897, Stop: 21292, Start Num: 51

Candidate Starts for Moonflower_23:

(5, 19994), (6, 20012), (8, 20033), (10, 20108), (11, 20177), (13, 20225), (19, 20336), (38, 20756), (Start: 51 @20897 has 39 MA's), (64, 20969), (73, 21008), (86, 21074), (88, 21080), (100, 21140), (106, 21182), (110, 21200), (126, 21269),

Gene: Nirvana_130 Start: 81947, Stop: 82324, Start Num: 56

Candidate Starts for Nirvana_130:

(Start: 52 @81926 has 4 MA's), (Start: 56 @81947 has 1 MA's), (59, 81971), (75, 82043), (78, 82058), (81, 82076), (91, 82130), (103, 82184), (107, 82211),

Gene: Nyceirae_26 Start: 21873, Stop: 22283, Start Num: 51

Candidate Starts for Nyceirae_26:

(1, 20781), (3, 20859), (5, 20931), (7, 20961), (12, 21153), (18, 21264), (24, 21432), (27, 21528), (36, 21717), (Start: 51 @21873 has 39 MA's), (64, 21945), (70, 21975), (90, 22071), (119, 22218), (120, 22221), (133, 22263),

Gene: Petra_23 Start: 19911, Stop: 20354, Start Num: 58

Candidate Starts for Petra_23:

(44, 19824), (Start: 51 @19881 has 39 MA's), (Start: 58 @19911 has 1 MA's), (64, 19950), (81, 20034), (85, 20049), (99, 20118), (111, 20184), (115, 20199), (117, 20214), (119, 20226), (134, 20292),

Gene: Phishy_25 Start: 21878, Stop: 22282, Start Num: 51

Candidate Starts for Phishy_25:

(Start: 51 @21878 has 39 MA's), (60, 21932), (64, 21950), (81, 22034), (90, 22076), (94, 22097), (99, 22118), (119, 22223), (122, 22229), (128, 22244), (130, 22247),

Gene: Pons_22 Start: 19057, Stop: 19407, Start Num: 51

Candidate Starts for Pons_22:

(Start: 50 @19054 has 2 MA's), (Start: 51 @19057 has 39 MA's), (72, 19159), (81, 19207), (83, 19216), (88, 19234), (94, 19270), (114, 19369), (117, 19387),

Gene: PotPie_22 Start: 19916, Stop: 20269, Start Num: 51

Candidate Starts for PotPie_22:

(Start: 51 @19916 has 39 MA's), (Start: 58 @19946 has 1 MA's), (72, 20021), (81, 20069), (83, 20078), (94, 20132), (114, 20231), (117, 20249),

Gene: Quantum_118 Start: 78631, Stop: 79008, Start Num: 55

Candidate Starts for Quantum_118:

(35, 78439), (41, 78538), (42, 78541), (Start: 55 @78631 has 4 MA's), (78, 78742), (79, 78748), (86, 78784), (91, 78814), (105, 78889), (107, 78895), (111, 78913), (112, 78916), (118, 78943),

Gene: RavenCo17_20 Start: 18926, Stop: 19447, Start Num: 49

Candidate Starts for RavenCo17_20:

(Start: 49 @18926 has 4 MA's), (Start: 51 @18932 has 39 MA's), (60, 18986), (64, 19004), (65, 19007), (85, 19103), (94, 19151), (114, 19250), (119, 19277), (132, 19319), (135, 19343),

Gene: Ruthy_26 Start: 23308, Stop: 23727, Start Num: 51

Candidate Starts for Ruthy_26:

(15, 22657), (21, 22759), (23, 22816), (26, 22927), (Start: 51 @23308 has 39 MA's), (60, 23362), (64, 23380), (81, 23464), (85, 23479), (94, 23527), (98, 23545), (119, 23647), (122, 23653), (128, 23668), (130, 23671),

Gene: Sahara_19 Start: 17712, Stop: 18227, Start Num: 51

Candidate Starts for Sahara_19:

(Start: 51 @17712 has 39 MA's), (60, 17766), (64, 17784), (65, 17787), (85, 17883), (94, 17931), (114, 18030), (119, 18057), (132, 18099),

Gene: Sapo_20 Start: 18495, Stop: 18878, Start Num: 52

Candidate Starts for Sapo_20:

(Start: 52 @18495 has 4 MA's), (Start: 58 @18525 has 1 MA's), (63, 18561), (77, 18627), (78, 18630), (81, 18648), (99, 18732), (105, 18774), (119, 18840), (131, 18867),

Gene: Satis_119 Start: 78627, Stop: 79004, Start Num: 55

Candidate Starts for Satis_119:

(35, 78435), (41, 78534), (42, 78537), (Start: 55 @78627 has 4 MA's), (78, 78738), (79, 78744), (86, 78780), (91, 78810), (105, 78885), (107, 78891), (111, 78909), (112, 78912), (118, 78939),

Gene: Savage_20 Start: 18040, Stop: 18555, Start Num: 51

Candidate Starts for Savage_20:

(Start: 51 @18040 has 39 MA's), (60, 18094), (64, 18112), (65, 18115), (85, 18211), (94, 18259), (114, 18358), (119, 18385), (132, 18427),

Gene: SheckWes_21 Start: 19054, Stop: 19404, Start Num: 51

Candidate Starts for SheckWes_21:

(Start: 50 @19051 has 2 MA's), (Start: 51 @19054 has 39 MA's), (Start: 58 @19081 has 1 MA's), (72, 19156), (81, 19204), (83, 19213), (88, 19231), (94, 19267), (101, 19297), (114, 19366), (117, 19384),

Gene: Sienna_30 Start: 27124, Stop: 27528, Start Num: 46

Candidate Starts for Sienna_30:

(38, 26995), (Start: 46 @27124 has 7 MA's), (64, 27196), (65, 27199), (73, 27235), (81, 27280), (88, 27307), (100, 27367), (122, 27478), (125, 27493),

Gene: Sixama_110 Start: 68663, Stop: 69067, Start Num: 45

Candidate Starts for Sixama_110:

(Start: 45 @68663 has 1 MA's), (Start: 51 @68681 has 39 MA's), (64, 68765), (87, 68873), (94, 68912),

Gene: SoilAssassin_20 Start: 18033, Stop: 18548, Start Num: 51

Candidate Starts for SoilAssassin_20:

(Start: 51 @18033 has 39 MA's), (60, 18087), (64, 18105), (65, 18108), (85, 18204), (94, 18252), (114, 18351), (119, 18378), (132, 18420),

Gene: Sproutie_20 Start: 18040, Stop: 18555, Start Num: 51

Candidate Starts for Sproutie_20:

(Start: 51 @18040 has 39 MA's), (60, 18094), (64, 18112), (65, 18115), (85, 18211), (94, 18259), (114, 18358), (119, 18385), (132, 18427),

Gene: Stuff_37 Start: 29069, Stop: 29440, Start Num: 57

Candidate Starts for Stuff_37:

(Start: 57 @29069 has 8 MA's), (60, 29093), (66, 29117), (71, 29144), (74, 29150), (79, 29183), (82, 29198), (84, 29207), (86, 29219), (97, 29273), (106, 29327), (107, 29330), (117, 29378), (119, 29390), (129, 29423),

Gene: SummitAcademy_21 Start: 19131, Stop: 19481, Start Num: 51

Candidate Starts for SummitAcademy_21:

(Start: 50 @19128 has 2 MA's), (Start: 51 @19131 has 39 MA's), (Start: 58 @19158 has 1 MA's), (72, 19233), (81, 19281), (83, 19290), (94, 19344), (114, 19443), (117, 19461),

Gene: Suzy_30 Start: 28265, Stop: 28669, Start Num: 46

Candidate Starts for Suzy_30:

(32, 28043), (38, 28136), (Start: 46 @28265 has 7 MA's), (64, 28337), (65, 28340), (70, 28367), (73, 28376), (81, 28421), (100, 28508), (125, 28634), (126, 28637),

Gene: Terapin_31 Start: 27125, Stop: 27529, Start Num: 46

Candidate Starts for Terapin_31:

(2, 26075), (4, 26162), (9, 26270), (13, 26426), (14, 26453), (19, 26537), (31, 26888), (32, 26903), (33, 26924), (38, 26996), (Start: 46 @27125 has 7 MA's), (64, 27197), (65, 27200), (73, 27236), (81, 27281), (100, 27368), (125, 27494), (126, 27497),

Gene: TuertoX_20 Start: 18040, Stop: 18555, Start Num: 51

Candidate Starts for TuertoX_20:

(Start: 51 @18040 has 39 MA's), (60, 18094), (64, 18112), (65, 18115), (85, 18211), (94, 18259), (114, 18358), (119, 18385), (132, 18427),

Gene: UNTPL_38 Start: 29132, Stop: 29503, Start Num: 57

Candidate Starts for UNTPL_38:

(Start: 57 @29132 has 8 MA's), (60, 29156), (71, 29207), (74, 29213), (79, 29246), (82, 29261), (84, 29270), (86, 29282), (97, 29336), (106, 29390), (107, 29393), (113, 29420), (119, 29453), (129, 29486),

Gene: Vasanti_19 Start: 17555, Stop: 18109, Start Num: 51

Candidate Starts for Vasanti_19:

(Start: 49 @17549 has 4 MA's), (Start: 51 @17555 has 39 MA's), (60, 17612), (64, 17630), (85, 17729), (94, 17777), (96, 17786), (97, 17789), (99, 17798), (132, 17981),

Gene: Vine_23 Start: 20063, Stop: 20416, Start Num: 51

Candidate Starts for Vine_23:

(Start: 51 @20063 has 39 MA's), (Start: 58 @20093 has 1 MA's), (67, 20144), (81, 20216), (83, 20225), (94, 20279), (101, 20309), (114, 20378), (117, 20396),

Gene: Whiteclaw_20 Start: 18040, Stop: 18555, Start Num: 51

Candidate Starts for Whiteclaw_20:

(Start: 51 @18040 has 39 MA's), (60, 18094), (64, 18112), (65, 18115), (85, 18211), (94, 18259), (114, 18358), (119, 18385), (132, 18427),

Gene: Yeet412_20 Start: 18033, Stop: 18548, Start Num: 51

Candidate Starts for Yeet412_20:

(Start: 51 @18033 has 39 MA's), (60, 18087), (64, 18105), (65, 18108), (85, 18204), (94, 18252), (114, 18351), (119, 18378), (132, 18420),

Gene: Yucky_24 Start: 19922, Stop: 20275, Start Num: 51

Candidate Starts for Yucky_24:

(Start: 51 @19922 has 39 MA's), (Start: 58 @19952 has 1 MA's), (67, 20003), (81, 20075), (83, 20084), (94, 20138), (101, 20168), (114, 20237), (117, 20255),

Gene: Zodiariah_26 Start: 24926, Stop: 25345, Start Num: 51

Candidate Starts for Zodiariah_26:

(47, 24920), (Start: 51 @24926 has 39 MA's), (60, 24980), (64, 24998), (90, 25124), (94, 25145), (124, 25292),

Gene: pZL12_43c Start: 31467, Stop: 31108, Start Num: 56

Candidate Starts for pZL12_43c:

(Start: 56 @31467 has 1 MA's), (74, 31383), (83, 31329), (86, 31317), (87, 31314), (113, 31179), (127, 31119),