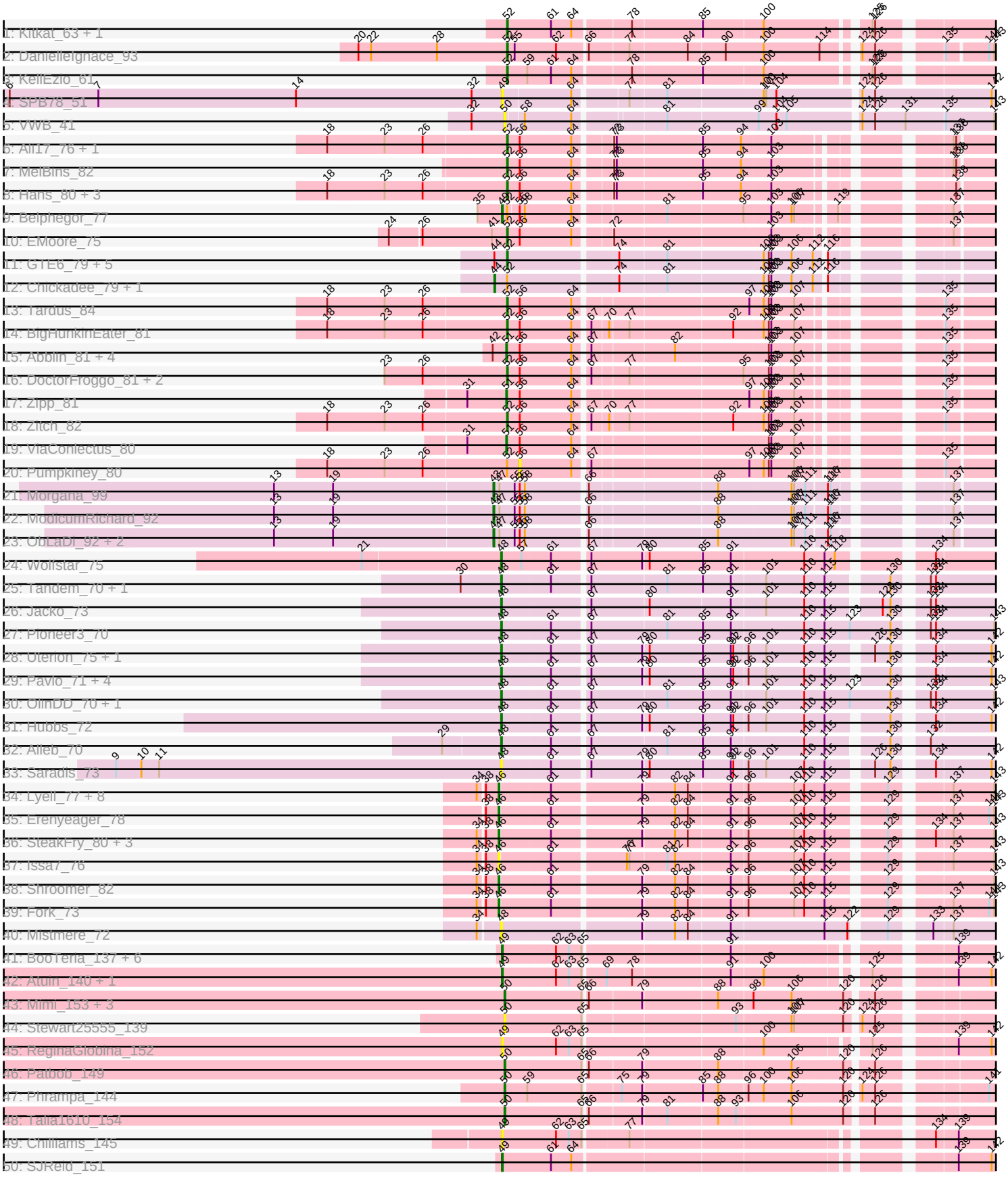
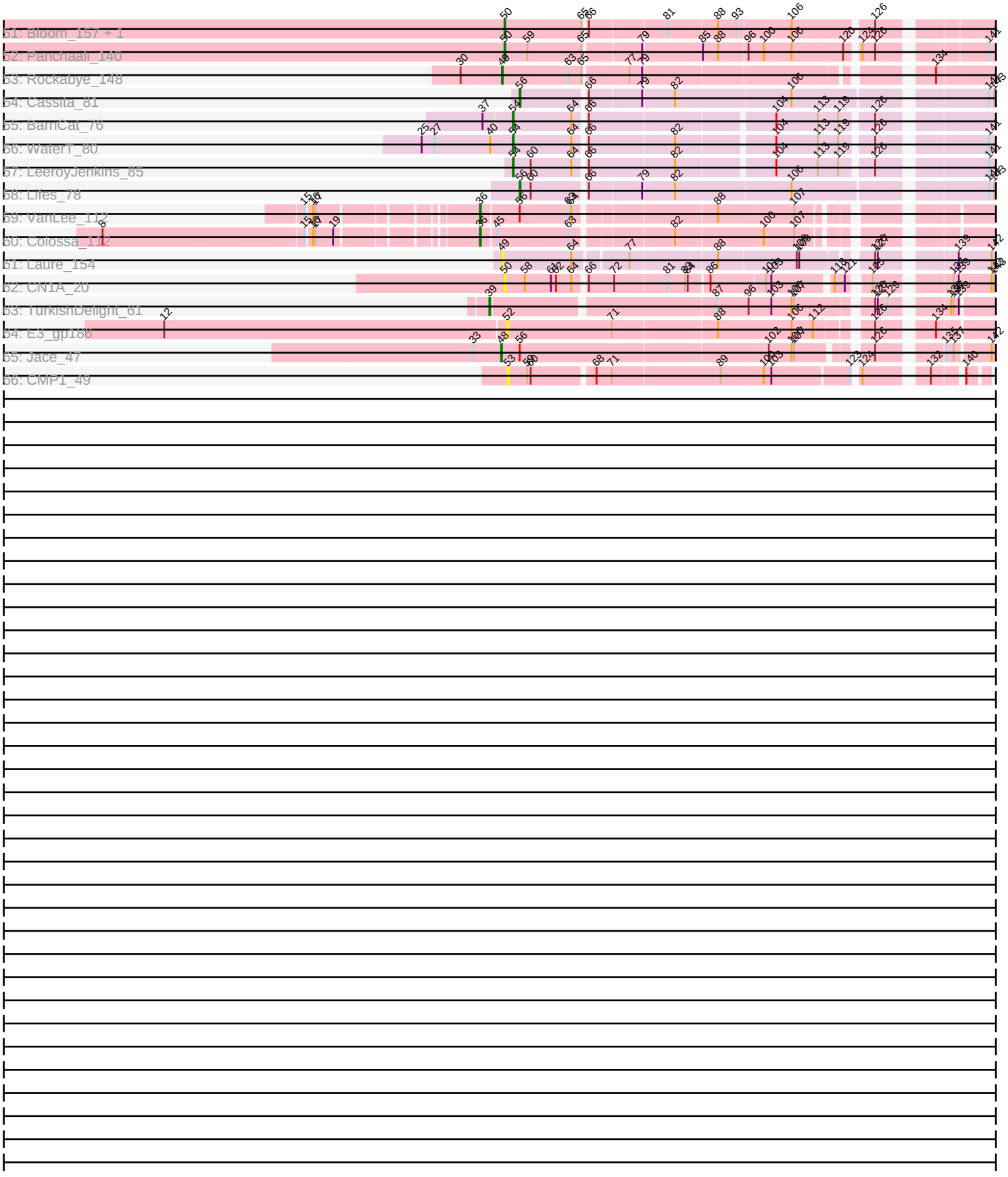
Zoomed Pham 341947



Zoomed Pham 341947



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 341947 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 341947 has 114 members, 20 are drafts.

Phages represented in each track:
- Track 1 : Kitkat_63, BeatusComedenti_62
- Track 2 : DanielleIgnace_93
- Track 3 : KellEzio_61
- Track 4 : SPB78_51
- Track 5 : VWB_41
- Track 6 : Ali17_76, Inspectinfecti_80
- Track 7 : MelBins_82
- Track 8 : Hans_80, Leonard_79, Phauci_71, Phinally_79
- Track 9 : Belphegor_77
- Track 10 : EMoore_75
- Track 11 : GTE6_79, EdmundFerry_77, Dexdert_74, Twonlo_76, Kwekel_79, RoadKill_76
- Track 12 : Chickadee_79, Tiamoceli_72
- Track 13 : Tardus_84
- Track 14 : BigHunkinEater_81
- Track 15 : Abblin_81, Sampson_83, APunk_81, Scioto_82, Natkenzie_81
- Track 16 : DoctorFroggo_81, Verity_80, Delrey21_81
- Track 17 : Zipp_81
- Track 18 : Zitch_82
- Track 19 : ViaConlectus_80
- Track 20 : Pumpkiney_80
- Track 21 : Morgana_99
- Track 22 : ModicumRichard_92
- Track 23 : ObLaDi_92, Cafasso_92, Aleemily_91
- Track 24 : Wolfstar_75
- Track 25 : Tandem_70, Platte_70
- Track 26 : Jacko_73
- Track 27 : Pioneer3_70
- Track 28 : Uterion_75, DejaVu_73
- Track 29 : Pavlo_71, Roman_74, Solimine_72, Lupine_70, PhillyPhilly_71
- Track 30 : OlinDD_70, Hortus1_70
- Track 31 : Hubbs_72
- Track 32 : Alleb_70

• Track 33 : Saradis_73
• Track 34 : Lyell_77, Necrophoxinus_79, Casablancas_78, Deschain_78, RunningBrook_79, ASegato_76, DustyDino_81, StevieWelch_78, Yuma_76
• Track 35 : Erenyeager_78
• Track 36 : SteakFry_80, Welcome_79, Musetta_77, HollowPurple_78
• Track 37 : Issa7_76
• Track 38 : Shroomer_82
• Track 39 : Fork_73
• Track 40 : Mistmere_72
• Track 41 : BooTeria_137, Ellewin_138, KSunshine22_143, Artu_137, DunneganBoMo_137, WaddleDee_134, Emmetator_140
• Track 42 : Atuin_140, LeoJr_150
• Track 43 : Mimi_153, FrostedClock_153, GoldenEssence_139, FloraSnap32_149
• Track 44 : Stewart25555_139
• Track 45 : ReginaGlobina_152
• Track 46 : Patbob_149
• Track 47 : Phrampa_144
• Track 48 : Talia1610_154
• Track 49 : Chilliams_145
• Track 50 : SJReid_151
• Track 51 : Bloom_157, Racecar_154
• Track 52 : Panchaali_140
• Track 53 : Rockabye_148
• Track 54 : Cassita_81
• Track 55 : BarnCat_76
• Track 56 : WaterT_80
• Track 57 : LeeroyJenkins_85
• Track 58 : Lifes_78
• Track 59 : VanLee_112
• Track 60 : Colossa_112
• Track 61 : Laure_154
• Track 62 : CN1A_20
• Track 63 : TurkishDelight_61
• Track 64 : E3_gp186
• Track 65 : Jace_47
• Track 66 : CMP1_49

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

The start number called the most often in the published annotations is 52, it was called in 23 of the 94 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Ali17_76, BeatusComedenti_62, BigHunkinEater_81, DanielleIgnace_93, Delrey21_81, Dexdert_74, DoctorFroggo_81, E3_gp186, EMoore_75, EdmundFerry_77, GTE6_79, Hans_80, Inspectinfecti_80, KellEzio_61, Kitkat_63, Kwekel_79, Leonard_79, MelBins_82, Phauci_71, Phinally_79, RoadKill_76, Tardus_84, Twonlo_76, Verity_80, Zitch_82,

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

• Belphegor_77, Chickadee_79, Pumpkiney_80, Tiamoceli_72,

Genes that do not have the "Most Annotated" start:
• APunk_81, ASegato_76, Abblin_81, Aleemily_91, Alleb_70, Artu_137, Atuin_140, BarnCat_76, Bloom_157, BooTeria_137, CMP1_49, CN1A_20, Cafasso_92, Casablancas_78, Cassita_81, Chilliams_145, Colossa_112, DejaVu_73, Deschain_78, DunneganBoMo_137, DustyDino_81, Ellewin_138, Emmetator_140, Erenyeager_78, FloraSnap32_149, Fork_73, FrostedClock_153, GoldenEssence_139, HollowPurple_78, Hortus1_70, Hubbs_72, Issa7_76, Jace_47, Jacko_73, KSunshine22_143, Laure_154, LeeroyJenkins_85, LeoJr_150, Lifes_78, Lupine_70, Lyell_77, Mimi_153, Mistmere_72, ModicumRichard_92, Morgana_99, Musetta_77, Natkenzie_81, Necrophoxinus_79, ObLaDi_92, OlinDD_70, Panchaali_140, Patbob_149, Pavlo_71, PhillyPhilly_71, Phrampa_144, Pioneer3_70, Platte_70, Racecar_154, ReginaGlobina_152, Rockabye_148, Roman_74, RunningBrook_79, SJReid_151, SPB78_51, Sampson_83, Saradis_73, Scioto_82, Shroomer_82, Solimine_72, SteakFry_80, StevieWelch_78, Stewart25555_139, Talia1610_154, Tandem_70, TurkishDelight_61, Uterion_75, VWB_41, VanLee_112, ViaConlectus_80, WaddleDee_134, WaterT_80, Welcome_79, Wolfstar_75, Yuma_76, Zipp_81,

Summary by start number:

Start 36:
• Found in 2 of 114 (1.8%) of genes in pham
• Manual Annotations of this start: 2 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Colossa_112 (KA), VanLee_112 (KA),

Start 39:
• Found in 1 of 114 (0.9%) of genes in pham
• Manual Annotations of this start: 1 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: TurkishDelight_61 (singleton),

Start 43:
• Found in 5 of 114 (4.4%) of genes in pham
• Manual Annotations of this start: 5 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Aleemily_91 (DZ), Cafasso_92 (DZ), ModicumRichard_92 (DZ), Morgana_99 (DZ), ObLaDi_92 (DZ),

Start 44:
• Found in 8 of 114 (7.0%) of genes in pham
• Manual Annotations of this start: 2 of 94
• Called 25.0% of time when present
• Phage (with cluster) where this start called: Chickadee_79 (DE3), Tiamoceli_72 (DE3),

Start 46:
• Found in 17 of 114 (14.9%) of genes in pham
• Manual Annotations of this start: 15 of 94
• Called 100.0% of time when present

• Phage (with cluster) where this start called: ASegato_76 (ED2), Casablancas_78 (ED2), Deschain_78 (ED2), DustyDino_81 (ED2), Erenyeager_78 (ED2), Fork_73 (ED2), HollowPurple_78 (ED2), Issa7_76 (ED2), Lyell_77 (ED2), Musetta_77 (ED2), Necrophoxinus_79 (ED2), RunningBrook_79 (ED2), Shroomer_82 (ED2), SteakFry_80 (ED2), StevieWelch_78 (ED2), Welcome_79 (ED2), Yuma_76 (ED2),

Start 48:
• Found in 19 of 114 (16.7%) of genes in pham
• Manual Annotations of this start: 16 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Alleb_70 (ED1), DejaVu_73 (ED1), Hortus1_70 (ED1), Hubbs_72 (ED1), Jace_47 (singleton), Jacko_73 (ED1), Lupine_70 (ED1), Mistmere_72 (ED3), OlinDD_70 (ED1), Pavlo_71 (ED1), PhillyPhilly_71 (ED1), Pioneer3_70 (ED1), Platte_70 (ED1), Roman_74 (ED1), Saradis_73 (ED1), Solimine_72 (ED1), Tandem_70 (ED1), Uterion_75 (ED1), Wolfstar_75 (ED),

Start 49:
• Found in 16 of 114 (14.0%) of genes in pham
• Manual Annotations of this start: 9 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Artu_137 (FC), Atuin_140 (FC), Belphegor_77 (DE2), BooTeria_137 (FC), Chilliams_145 (FC), DunneganBoMo_137 (FC), Ellewin_138 (FC), Emmetator_140 (FC), KSunshine22_143 (FC), Laure_154 (UNK), LeoJr_150 (FC), ReginaGlobina_152 (FC), Rockabye_148 (FC), SJReid_151 (FC), SPB78_51 (BA), WaddleDee_134 (FC),

Start 50:
• Found in 13 of 114 (11.4%) of genes in pham
• Manual Annotations of this start: 9 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Bloom_157 (FC), CN1A_20 (singleton), FloraSnap32_149 (FC), FrostedClock_153 (FC), GoldenEssence_139 (FC), Mimi_153 (FC), Panchaali_140 (FC), Patbob_149 (FC), Phrampa_144 (FC), Racecar_154 (FC), Stewart25555_139 (FC), Talia1610_154 (FC), VWB_41 (BA),

Start 51:
• Found in 7 of 114 (6.1%) of genes in pham
• Manual Annotations of this start: 7 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: APunk_81 (DE4), Abblin_81 (DE4), Natkenzie_81 (DE4), Sampson_83 (DE4), Scioto_82 (DE4), ViaConlectus_80 (DE4), Zipp_81 (DE4),

Start 52:
• Found in 29 of 114 (25.4%) of genes in pham
• Manual Annotations of this start: 23 of 94
• Called 86.2% of time when present
• Phage (with cluster) where this start called: Ali17_76 (DE2), BeatusComedenti_62 (AT), BigHunkinEater_81 (DE4), DanielleIgnace_93 (AT), Delrey21_81 (DE4), Dexdert_74 (DE3), DoctorFroggo_81 (DE4), E3_gp186 (singleton), EMoore_75 (DE2), EdmundFerry_77 (DE3), GTE6_79 (DE3), Hans_80 (DE2), Inspectinfecti_80 (DE2), KellEzio_61 (AT), Kitkat_63 (AT), Kwekel_79 (DE3), Leonard_79 (DE2),

MelBins_82 (DE2), Phauci_71 (DE2), Phinally_79 (DE2), RoadKill_76 (DE3), Tardus_84 (DE4), Twonlo_76 (DE3), Verity_80 (DE4), Zitch_82 (DE4),

Start 53:
• Found in 1 of 114 (0.9%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: CMP1_49 (singleton),

Start 54:
• Found in 3 of 114 (2.6%) of genes in pham
• Manual Annotations of this start: 3 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BarnCat_76 (GB), LeeroyJenkins_85 (GB), WaterT_80 (GB),

Start 56:
• Found in 32 of 114 (28.1%) of genes in pham
• Manual Annotations of this start: 2 of 94
• Called 9.4% of time when present
• Phage (with cluster) where this start called: Cassita_81 (GB), Lifes_78 (GB), Pumpkiney_80 (DE4),

Summary by clusters:

There are 15 clusters represented in this pham: singleton, BA, ED1, ED, DE2, DE3, DE4, KA, ED2, ED3, FC, DZ, GB, UNK, AT,

Info for manual annotations of cluster AT:
•Start number 52 was manually annotated 4 times for cluster AT.

Info for manual annotations of cluster DE2:
•Start number 49 was manually annotated 1 time for cluster DE2.
•Start number 52 was manually annotated 8 times for cluster DE2.

Info for manual annotations of cluster DE3:
•Start number 44 was manually annotated 2 times for cluster DE3.
•Start number 52 was manually annotated 5 times for cluster DE3.

Info for manual annotations of cluster DE4:
•Start number 51 was manually annotated 7 times for cluster DE4.
•Start number 52 was manually annotated 6 times for cluster DE4.

Info for manual annotations of cluster DZ:
•Start number 43 was manually annotated 5 times for cluster DZ.

Info for manual annotations of cluster ED:
•Start number 48 was manually annotated 1 time for cluster ED.

Info for manual annotations of cluster ED1:
•Start number 48 was manually annotated 14 times for cluster ED1.

Info for manual annotations of cluster ED2:
•Start number 46 was manually annotated 15 times for cluster ED2.

Info for manual annotations of cluster FC:
•Start number 49 was manually annotated 8 times for cluster FC.
•Start number 50 was manually annotated 9 times for cluster FC.

Info for manual annotations of cluster GB:
•Start number 54 was manually annotated 3 times for cluster GB.
•Start number 56 was manually annotated 2 times for cluster GB.

Info for manual annotations of cluster KA:
•Start number 36 was manually annotated 2 times for cluster KA.

Gene Information:

Gene: APunk_81 Start: 55842, Stop: 56555, Start Num: 51
Candidate Starts for APunk_81:
(42, 55827), (Start: 51 @55842 has 7 MA's), (Start: 56 @55857 has 2 MA's), (64, 55917), (67, 55932), (82, 56022), (102, 56127), (103, 56130), (107, 56157), (135, 56286), (161, 56409), (164, 56415), (172, 56496), (176, 56514),

Gene: ASegato_76 Start: 44504, Stop: 43773, Start Num: 46
Candidate Starts for ASegato_76:
(34, 44525), (38, 44519), (Start: 46 @44504 has 15 MA's), (61, 44447), (79, 44348), (82, 44312), (84, 44297), (91, 44249), (96, 44231), (107, 44177), (110, 44165), (115, 44141), (129, 44081), (137, 44024), (143, 43976), (160, 43919),

Gene: Abblin_81 Start: 56000, Stop: 56713, Start Num: 51
Candidate Starts for Abblin_81:
(42, 55985), (Start: 51 @56000 has 7 MA's), (Start: 56 @56015 has 2 MA's), (64, 56075), (67, 56090), (82, 56180), (102, 56285), (103, 56288), (107, 56315), (135, 56444), (161, 56567), (164, 56573), (172, 56654), (176, 56672),

Gene: Aleemily_91 Start: 54322, Stop: 55047, Start Num: 43
Candidate Starts for Aleemily_91:
(13, 54067), (19, 54136), (Start: 43 @54322 has 5 MA's), (47, 54328), (55, 54346), (Start: 56 @54352 has 2 MA's), (58, 54358), (66, 54424), (88, 54565), (106, 54649), (107, 54652), (111, 54664), (116, 54685), (117, 54688), (137, 54796), (172, 54994),

Gene: Ali17_76 Start: 54644, Stop: 55342, Start Num: 52
Candidate Starts for Ali17_76:
(18, 54437), (23, 54503), (26, 54548), (Start: 52 @54644 has 23 MA's), (Start: 56 @54659 has 2 MA's), (64, 54719), (72, 54755), (73, 54758), (85, 54854), (94, 54899), (103, 54932), (137, 55097), (138, 55100), (150, 55163), (161, 55211), (176, 55316),

Gene: Alleb_70 Start: 44377, Stop: 43646, Start Num: 48
Candidate Starts for Alleb_70:

(29, 44443), (Start: 48 @44377 has 16 MA's), (61, 44320), (67, 44281), (81, 44194), (85, 44155), (91, 44122), (110, 44038), (115, 44014), (130, 43954), (132, 43924), (150, 43825), (160, 43792),

Gene: Artu_137 Start: 99130, Stop: 99843, Start Num: 49
Candidate Starts for Artu_137:
(Start: 49 @99130 has 9 MA's), (62, 99193), (63, 99208), (65, 99223), (91, 99388), (139, 99607),

Gene: Atuin_140 Start: 101760, Stop: 102473, Start Num: 49
Candidate Starts for Atuin_140:
(Start: 49 @101760 has 9 MA's), (62, 101823), (63, 101838), (65, 101853), (69, 101877), (78, 101907), (91, 102018), (100, 102054), (125, 102156), (139, 102237), (142, 102276), (166, 102372),

Gene: BarnCat_76 Start: 45594, Stop: 44911, Start Num: 54
Candidate Starts for BarnCat_76:
(37, 45627), (Start: 54 @45594 has 3 MA's), (64, 45525), (66, 45513), (104, 45306), (113, 45258), (119, 45234), (126, 45201), (149, 45063), (150, 45057), (167, 44988), (168, 44976), (171, 44949), (177, 44925),

Gene: BeatusComedenti_62 Start: 39615, Stop: 40319, Start Num: 52
Candidate Starts for BeatusComedenti_62:
(Start: 52 @39615 has 23 MA's), (61, 39666), (64, 39690), (78, 39750), (85, 39825), (100, 39894), (125, 39999), (126, 40002), (145, 40128), (159, 40188), (179, 40308),

Gene: Belphegor_77 Start: 56736, Stop: 57455, Start Num: 49
Candidate Starts for Belphegor_77:
(35, 56709), (Start: 49 @56736 has 9 MA's), (Start: 52 @56742 has 23 MA's), (Start: 56 @56754 has 2 MA's), (58, 56760), (64, 56814), (81, 56910), (95, 56997), (103, 57027), (106, 57051), (107, 57054), (119, 57093), (137, 57192), (161, 57306), (172, 57393), (176, 57411),

Gene: BigHunkinEater_81 Start: 55249, Stop: 55962, Start Num: 52
Candidate Starts for BigHunkinEater_81:
(18, 55042), (23, 55108), (26, 55153), (Start: 52 @55249 has 23 MA's), (Start: 56 @55264 has 2 MA's), (64, 55324), (67, 55339), (70, 55357), (77, 55378), (92, 55495), (100, 55528), (102, 55534), (103, 55537), (107, 55564), (135, 55693), (161, 55816), (164, 55822), (176, 55921), (182, 55951),

Gene: Bloom_157 Start: 104122, Stop: 104856, Start Num: 50
Candidate Starts for Bloom_157:
(Start: 50 @104122 has 9 MA's), (65, 104212), (66, 104215), (81, 104302), (88, 104359), (93, 104380), (106, 104443), (126, 104527), (155, 104689), (158, 104701), (160, 104704),

Gene: BooTeria_137 Start: 99271, Stop: 99984, Start Num: 49
Candidate Starts for BooTeria_137:
(Start: 49 @99271 has 9 MA's), (62, 99334), (63, 99349), (65, 99364), (91, 99529), (139, 99748),

Gene: CMP1_49 Start: 46830, Stop: 46120, Start Num: 53
Candidate Starts for CMP1_49:
(53, 46830), (59, 46809), (60, 46806), (68, 46737), (71, 46719), (89, 46593), (100, 46545), (103, 46536), (123, 46455), (124, 46452), (132, 46389), (140, 46359), (150, 46320), (181, 46170), (184, 46152),

Gene: CN1A_20 Start: 11396, Stop: 12094, Start Num: 50
Candidate Starts for CN1A_20:

(Start: 50 @11396 has 9 MA's), (58, 11420), (61, 11450), (62, 11456), (64, 11474), (66, 11486), (72, 11516), (81, 11576), (83, 11597), (84, 11600), (86, 11621), (101, 11684), (103, 11690), (118, 11753), (121, 11765), (125, 11783), (137, 11858), (139, 11864), (142, 11900), (143, 11903), (147, 11915), (150, 11927), (162, 11969),

Gene: Cafasso_92 Start: 54474, Stop: 55199, Start Num: 43
Candidate Starts for Cafasso_92:
(13, 54219), (19, 54288), (Start: 43 @54474 has 5 MA's), (47, 54480), (55, 54498), (Start: 56 @54504 has 2 MA's), (58, 54510), (66, 54576), (88, 54717), (106, 54801), (107, 54804), (111, 54816), (116, 54837), (117, 54840), (137, 54948), (172, 55146),

Gene: Casablancas_78 Start: 44244, Stop: 43513, Start Num: 46
Candidate Starts for Casablancas_78:
(34, 44265), (38, 44259), (Start: 46 @44244 has 15 MA's), (61, 44187), (79, 44088), (82, 44052), (84, 44037), (91, 43989), (96, 43971), (107, 43917), (110, 43905), (115, 43881), (129, 43821), (137, 43764), (143, 43716), (160, 43659),

Gene: Cassita_81 Start: 46744, Stop: 46004, Start Num: 56
Candidate Starts for Cassita_81:
(Start: 56 @46744 has 2 MA's), (66, 46672), (79, 46612), (82, 46576), (106, 46441), (141, 46234), (143, 46228),

Gene: Chickadee_79 Start: 53034, Stop: 53738, Start Num: 44
Candidate Starts for Chickadee_79:
(Start: 44 @53034 has 2 MA's), (Start: 52 @53049 has 23 MA's), (74, 53169), (81, 53223), (100, 53331), (102, 53337), (103, 53340), (106, 53364), (112, 53388), (116, 53397), (144, 53553), (151, 53577), (172, 53709), (176, 53727),

Gene: Chilliams_145 Start: 92289, Stop: 92999, Start Num: 49
Candidate Starts for Chilliams_145:
(Start: 49 @92289 has 9 MA's), (62, 92352), (63, 92367), (65, 92382), (77, 92430), (134, 92739), (139, 92763),

Gene: Colossa_112 Start: 58797, Stop: 59507, Start Num: 36
Candidate Starts for Colossa_112:
(8, 58395), (15, 58626), (16, 58632), (17, 58635), (19, 58656), (Start: 36 @58797 has 2 MA's), (45, 58812), (63, 58896), (82, 59004), (100, 59103), (107, 59139), (152, 59352), (165, 59403), (176, 59493),

Gene: DanielleIgnace_93 Start: 55878, Stop: 56615, Start Num: 52
Candidate Starts for DanielleIgnace_93:
(20, 55704), (22, 55719), (28, 55797), (Start: 52 @55878 has 23 MA's), (55, 55887), (62, 55935), (66, 55968), (77, 56013), (84, 56079), (90, 56121), (100, 56166), (114, 56232), (124, 56262), (126, 56277), (135, 56340), (141, 56385), (143, 56391), (145, 56397), (178, 56580), (183, 56604),

Gene: DejaVu_73 Start: 44362, Stop: 43631, Start Num: 48
Candidate Starts for DejaVu_73:
(Start: 48 @44362 has 16 MA's), (61, 44305), (67, 44266), (79, 44206), (80, 44200), (85, 44140), (91, 44107), (92, 44104), (96, 44089), (101, 44068), (110, 44023), (115, 43999), (126, 43954), (130, 43936), (134, 43900), (142, 43837), (150, 43810), (151, 43807), (160, 43777), (173, 43678),

Gene: Delrey21_81 Start: 57390, Stop: 58103, Start Num: 52
Candidate Starts for Delrey21_81:

(23, 57249), (26, 57294), (Start: 52 @57390 has 23 MA's), (Start: 56 @57405 has 2 MA's), (64, 57465), (67, 57480), (77, 57519), (95, 57648), (102, 57675), (103, 57678), (107, 57705), (135, 57834), (161, 57957), (164, 57963), (176, 58062), (182, 58092),

Gene: Deschain_78 Start: 44908, Stop: 44177, Start Num: 46
Candidate Starts for Deschain_78:
(34, 44929), (38, 44923), (Start: 46 @44908 has 15 MA's), (61, 44851), (79, 44752), (82, 44716), (84, 44701), (91, 44653), (96, 44635), (107, 44581), (110, 44569), (115, 44545), (129, 44485), (137, 44428), (143, 44380), (160, 44323),

Gene: Dexdert_74 Start: 51558, Stop: 52247, Start Num: 52
Candidate Starts for Dexdert_74:
(Start: 44 @51543 has 2 MA's), (Start: 52 @51558 has 23 MA's), (74, 51678), (81, 51732), (100, 51840), (102, 51846), (103, 51849), (106, 51873), (112, 51897), (116, 51906), (144, 52062), (151, 52086), (172, 52218), (176, 52236),

Gene: DoctorFroggo_81 Start: 57390, Stop: 58103, Start Num: 52
Candidate Starts for DoctorFroggo_81:
(23, 57249), (26, 57294), (Start: 52 @57390 has 23 MA's), (Start: 56 @57405 has 2 MA's), (64, 57465), (67, 57480), (77, 57519), (95, 57648), (102, 57675), (103, 57678), (107, 57705), (135, 57834), (161, 57957), (164, 57963), (176, 58062), (182, 58092),

Gene: DunneganBoMo_137 Start: 98540, Stop: 99253, Start Num: 49
Candidate Starts for DunneganBoMo_137:
(Start: 49 @98540 has 9 MA's), (62, 98603), (63, 98618), (65, 98633), (91, 98798), (139, 99017),

Gene: DustyDino_81 Start: 45467, Stop: 44736, Start Num: 46
Candidate Starts for DustyDino_81:
(34, 45488), (38, 45482), (Start: 46 @45467 has 15 MA's), (61, 45410), (79, 45311), (82, 45275), (84, 45260), (91, 45212), (96, 45194), (107, 45140), (110, 45128), (115, 45104), (129, 45044), (137, 44987), (143, 44939), (160, 44882),

Gene: E3_gp186 Start: 123407, Stop: 124150, Start Num: 52
Candidate Starts for E3_gp186:
(12, 123005), (Start: 52 @123407 has 23 MA's), (71, 123530), (88, 123650), (106, 123734), (112, 123758), (126, 123809), (134, 123863), (161, 123992), (170, 124067), (185, 124145),

Gene: EMoore_75 Start: 55460, Stop: 56158, Start Num: 52
Candidate Starts for EMoore_75:
(24, 55328), (26, 55364), (41, 55445), (Start: 52 @55460 has 23 MA's), (Start: 56 @55475 has 2 MA's), (64, 55535), (72, 55571), (103, 55748), (137, 55913), (150, 55979), (161, 56027), (176, 56132),

Gene: EdmundFerry_77 Start: 52592, Stop: 53281, Start Num: 52
Candidate Starts for EdmundFerry_77:
(Start: 44 @52577 has 2 MA's), (Start: 52 @52592 has 23 MA's), (74, 52712), (81, 52766), (100, 52874), (102, 52880), (103, 52883), (106, 52907), (112, 52931), (116, 52940), (144, 53096), (151, 53120), (172, 53252), (176, 53270),

Gene: Ellewin_138 Start: 98604, Stop: 99317, Start Num: 49
Candidate Starts for Ellewin_138:
(Start: 49 @98604 has 9 MA's), (62, 98667), (63, 98682), (65, 98697), (91, 98862), (139, 99081),

Gene: Emmetator_140 Start: 98457, Stop: 99170, Start Num: 49

Candidate Starts for Emmetator_140:
(Start: 49 @98457 has 9 MA's), (62, 98520), (63, 98535), (65, 98550), (91, 98715), (139, 98934),

Gene: Erenyeager_78 Start: 44559, Stop: 43828, Start Num: 46
Candidate Starts for Erenyeager_78:
(38, 44574), (Start: 46 @44559 has 15 MA's), (61, 44502), (79, 44403), (82, 44367), (84, 44352), (91, 44304), (96, 44286), (107, 44232), (110, 44220), (115, 44196), (129, 44136), (137, 44079), (141, 44037), (143, 44031), (160, 43974),

Gene: FloraSnap32_149 Start: 102631, Stop: 103365, Start Num: 50
Candidate Starts for FloraSnap32_149:
(Start: 50 @102631 has 9 MA's), (65, 102721), (66, 102724), (79, 102784), (88, 102868), (98, 102907), (106, 102952), (120, 103009), (126, 103036), (155, 103198), (158, 103210), (160, 103213),

Gene: Fork_73 Start: 44214, Stop: 43483, Start Num: 46
Candidate Starts for Fork_73:
(34, 44235), (38, 44229), (Start: 46 @44214 has 15 MA's), (61, 44157), (79, 44058), (82, 44022), (84, 44007), (91, 43959), (96, 43941), (107, 43887), (110, 43875), (115, 43851), (129, 43791), (137, 43734), (141, 43692), (143, 43686), (160, 43629),

Gene: FrostedClock_153 Start: 104070, Stop: 104804, Start Num: 50
Candidate Starts for FrostedClock_153:
(Start: 50 @104070 has 9 MA's), (65, 104160), (66, 104163), (79, 104223), (88, 104307), (98, 104346), (106, 104391), (120, 104448), (126, 104475), (155, 104637), (158, 104649), (160, 104652),

Gene: GTE6_79 Start: 53903, Stop: 54592, Start Num: 52
Candidate Starts for GTE6_79:
(Start: 44 @53888 has 2 MA's), (Start: 52 @53903 has 23 MA's), (74, 54023), (81, 54077), (100, 54185), (102, 54191), (103, 54194), (106, 54218), (112, 54242), (116, 54251), (144, 54407), (151, 54431), (172, 54563), (176, 54581),

Gene: GoldenEssence_139 Start: 97514, Stop: 98248, Start Num: 50
Candidate Starts for GoldenEssence_139:
(Start: 50 @97514 has 9 MA's), (65, 97604), (66, 97607), (79, 97667), (88, 97751), (98, 97790), (106, 97835), (120, 97892), (126, 97919), (155, 98081), (158, 98093), (160, 98096),

Gene: Hans_80 Start: 55571, Stop: 56269, Start Num: 52
Candidate Starts for Hans_80:
(18, 55364), (23, 55430), (26, 55475), (Start: 52 @55571 has 23 MA's), (Start: 56 @55586 has 2 MA's), (64, 55646), (72, 55682), (73, 55685), (85, 55781), (94, 55826), (103, 55859), (138, 56027), (150, 56090), (161, 56138), (176, 56243),

Gene: HollowPurple_78 Start: 44770, Stop: 44039, Start Num: 46
Candidate Starts for HollowPurple_78:
(34, 44791), (38, 44785), (Start: 46 @44770 has 15 MA's), (61, 44713), (79, 44614), (82, 44578), (84, 44563), (91, 44515), (96, 44497), (107, 44443), (110, 44431), (115, 44407), (129, 44347), (134, 44308), (137, 44290), (143, 44242), (160, 44185),

Gene: Hortus1_70 Start: 44583, Stop: 43834, Start Num: 48
Candidate Starts for Hortus1_70:
(Start: 48 @44583 has 16 MA's), (61, 44526), (67, 44487), (81, 44400), (85, 44361), (91, 44328), (101, 44289), (110, 44244), (115, 44220), (123, 44190), (130, 44142), (132, 44112), (134, 44106), (143, 44037), (150, 44013), (160, 43980), (175, 43878),

Gene: Hubbs_72 Start: 44590, Stop: 43859, Start Num: 48
Candidate Starts for Hubbs_72:
(Start: 48 @44590 has 16 MA's), (61, 44533), (67, 44494), (79, 44434), (80, 44428), (85, 44368), (91, 44335), (92, 44332), (96, 44317), (101, 44296), (110, 44251), (115, 44227), (130, 44164), (134, 44128), (142, 44065), (150, 44038), (151, 44035), (160, 44005), (173, 43906),

Gene: Inspectinfecti_80 Start: 55548, Stop: 56246, Start Num: 52
Candidate Starts for Inspectinfecti_80:
(18, 55341), (23, 55407), (26, 55452), (Start: 52 @55548 has 23 MA's), (Start: 56 @55563 has 2 MA's), (64, 55623), (72, 55659), (73, 55662), (85, 55758), (94, 55803), (103, 55836), (137, 56001), (138, 56004), (150, 56067), (161, 56115), (176, 56220),

Gene: Issa7_76 Start: 44221, Stop: 43490, Start Num: 46
Candidate Starts for Issa7_76:
(34, 44242), (38, 44236), (Start: 46 @44221 has 15 MA's), (61, 44164), (76, 44083), (77, 44080), (81, 44038), (82, 44029), (91, 43966), (96, 43948), (107, 43894), (110, 43882), (115, 43858), (129, 43798), (137, 43741), (143, 43693), (160, 43636),

Gene: Jace_47 Start: 31968, Stop: 32750, Start Num: 48
Candidate Starts for Jace_47:
(33, 31935), (Start: 48 @31968 has 16 MA's), (Start: 56 @31989 has 2 MA's), (102, 32274), (106, 32301), (107, 32304), (126, 32370), (135, 32433), (137, 32442), (142, 32481), (150, 32508),

Gene: Jacko_73 Start: 43623, Stop: 42889, Start Num: 48
Candidate Starts for Jacko_73:
(Start: 48 @43623 has 16 MA's), (67, 43527), (80, 43461), (91, 43368), (101, 43329), (110, 43284), (115, 43260), (128, 43206), (130, 43197), (132, 43167), (134, 43161), (150, 43068), (160, 43035), (175, 42933),

Gene: KSunshine22_143 Start: 99949, Stop: 100662, Start Num: 49
Candidate Starts for KSunshine22_143:
(Start: 49 @99949 has 9 MA's), (62, 100012), (63, 100027), (65, 100042), (91, 100207), (139, 100426),

Gene: KellEzio_61 Start: 39391, Stop: 40095, Start Num: 52
Candidate Starts for KellEzio_61:
(Start: 52 @39391 has 23 MA's), (59, 39415), (61, 39442), (64, 39466), (78, 39526), (85, 39601), (100, 39670), (125, 39775), (126, 39778), (145, 39904), (159, 39964), (179, 40084),

Gene: Kitkat_63 Start: 39710, Stop: 40414, Start Num: 52
Candidate Starts for Kitkat_63:
(Start: 52 @39710 has 23 MA's), (61, 39761), (64, 39785), (78, 39845), (85, 39920), (100, 39989), (125, 40094), (126, 40097), (145, 40223), (159, 40283), (179, 40403),

Gene: Kwekel_79 Start: 52962, Stop: 53651, Start Num: 52
Candidate Starts for Kwekel_79:
(Start: 44 @52947 has 2 MA's), (Start: 52 @52962 has 23 MA's), (74, 53082), (81, 53136), (100, 53244), (102, 53250), (103, 53253), (106, 53277), (112, 53301), (116, 53310), (144, 53466), (151, 53490), (172, 53622), (176, 53640),

Gene: Laure_154 Start: 95407, Stop: 96123, Start Num: 49
Candidate Starts for Laure_154:

(Start: 49 @95407 has 9 MA's), (64, 95488), (77, 95545), (88, 95644), (108, 95734), (109, 95737), (126, 95800), (127, 95803), (139, 95878), (142, 95917), (146, 95929), (153, 95959), (160, 95983), (164, 95992), (175, 96070),

Gene: LeeroyJenkins_85 Start: 47745, Stop: 47062, Start Num: 54
Candidate Starts for LeeroyJenkins_85:
(Start: 54 @47745 has 3 MA's), (60, 47724), (64, 47676), (66, 47664), (82, 47565), (104, 47457), (113, 47409), (119, 47385), (126, 47352), (141, 47238), (149, 47214), (150, 47208), (167, 47139), (168, 47127), (171, 47100), (176, 47082),

Gene: LeoJr_150 Start: 102346, Stop: 103059, Start Num: 49
Candidate Starts for LeoJr_150:
(Start: 49 @102346 has 9 MA's), (62, 102409), (63, 102424), (65, 102439), (69, 102463), (78, 102493), (91, 102604), (100, 102640), (125, 102742), (139, 102823), (142, 102862), (166, 102958),

Gene: Leonard_79 Start: 55611, Stop: 56309, Start Num: 52
Candidate Starts for Leonard_79:
(18, 55404), (23, 55470), (26, 55515), (Start: 52 @55611 has 23 MA's), (Start: 56 @55626 has 2 MA's), (64, 55686), (72, 55722), (73, 55725), (85, 55821), (94, 55866), (103, 55899), (138, 56067), (150, 56130), (161, 56178), (176, 56283),

Gene: Lifes_78 Start: 44664, Stop: 43924, Start Num: 56
Candidate Starts for Lifes_78:
(Start: 56 @44664 has 2 MA's), (60, 44652), (66, 44592), (79, 44532), (82, 44496), (106, 44361), (141, 44154), (143, 44148),

Gene: Lupine_70 Start: 43776, Stop: 43045, Start Num: 48
Candidate Starts for Lupine_70:
(Start: 48 @43776 has 16 MA's), (61, 43719), (67, 43680), (79, 43620), (80, 43614), (85, 43554), (91, 43521), (92, 43518), (96, 43503), (101, 43482), (110, 43437), (115, 43413), (130, 43350), (134, 43314), (142, 43251), (150, 43224), (151, 43221), (160, 43191), (173, 43092),

Gene: Lyell_77 Start: 44413, Stop: 43682, Start Num: 46
Candidate Starts for Lyell_77:
(34, 44434), (38, 44428), (Start: 46 @44413 has 15 MA's), (61, 44356), (79, 44257), (82, 44221), (84, 44206), (91, 44158), (96, 44140), (107, 44086), (110, 44074), (115, 44050), (129, 43990), (137, 43933), (143, 43885), (160, 43828),

Gene: MelBins_82 Start: 56269, Stop: 56967, Start Num: 52
Candidate Starts for MelBins_82:
(Start: 52 @56269 has 23 MA's), (Start: 56 @56284 has 2 MA's), (64, 56344), (72, 56380), (73, 56383), (85, 56479), (94, 56524), (103, 56557), (137, 56722), (138, 56725), (150, 56788), (161, 56836), (164, 56842), (176, 56941),

Gene: Mimi_153 Start: 103138, Stop: 103872, Start Num: 50
Candidate Starts for Mimi_153:
(Start: 50 @103138 has 9 MA's), (65, 103228), (66, 103231), (79, 103291), (88, 103375), (98, 103414), (106, 103459), (120, 103516), (126, 103543), (155, 103705), (158, 103717), (160, 103720),

Gene: Mistmere_72 Start: 43405, Stop: 42674, Start Num: 48
Candidate Starts for Mistmere_72:
(34, 43429), (Start: 48 @43405 has 16 MA's), (79, 43249), (82, 43213), (84, 43198), (91, 43150), (115, 43042), (122, 43015), (129, 42982), (133, 42946), (137, 42925),

Gene: ModicumRichard_92 Start: 54542, Stop: 55267, Start Num: 43
Candidate Starts for ModicumRichard_92:
(13, 54287), (19, 54356), (Start: 43 @54542 has 5 MA's), (47, 54548), (55, 54566), (Start: 56 @54572 has 2 MA's), (58, 54578), (66, 54644), (88, 54785), (106, 54869), (107, 54872), (111, 54884), (116, 54905), (117, 54908), (137, 55016), (147, 55070), (172, 55214),

Gene: Morgana_99 Start: 56724, Stop: 57449, Start Num: 43
Candidate Starts for Morgana_99:
(13, 56469), (19, 56538), (Start: 43 @56724 has 5 MA's), (47, 56730), (55, 56748), (Start: 56 @56754 has 2 MA's), (58, 56760), (66, 56826), (88, 56967), (106, 57051), (107, 57054), (111, 57066), (116, 57087), (117, 57090), (137, 57198), (172, 57396),

Gene: Musetta_77 Start: 44934, Stop: 44203, Start Num: 46
Candidate Starts for Musetta_77:
(34, 44955), (38, 44949), (Start: 46 @44934 has 15 MA's), (61, 44877), (79, 44778), (82, 44742), (84, 44727), (91, 44679), (96, 44661), (107, 44607), (110, 44595), (115, 44571), (129, 44511), (134, 44472), (137, 44454), (143, 44406), (160, 44349),

Gene: Natkenzie_81 Start: 56000, Stop: 56713, Start Num: 51
Candidate Starts for Natkenzie_81:
(42, 55985), (Start: 51 @56000 has 7 MA's), (Start: 56 @56015 has 2 MA's), (64, 56075), (67, 56090), (82, 56180), (102, 56285), (103, 56288), (107, 56315), (135, 56444), (161, 56567), (164, 56573), (172, 56654), (176, 56672),

Gene: Necrophoxinus_79 Start: 45108, Stop: 44377, Start Num: 46
Candidate Starts for Necrophoxinus_79:
(34, 45129), (38, 45123), (Start: 46 @45108 has 15 MA's), (61, 45051), (79, 44952), (82, 44916), (84, 44901), (91, 44853), (96, 44835), (107, 44781), (110, 44769), (115, 44745), (129, 44685), (137, 44628), (143, 44580), (160, 44523),

Gene: ObLaDi_92 Start: 54568, Stop: 55293, Start Num: 43
Candidate Starts for ObLaDi_92:
(13, 54313), (19, 54382), (Start: 43 @54568 has 5 MA's), (47, 54574), (55, 54592), (Start: 56 @54598 has 2 MA's), (58, 54604), (66, 54670), (88, 54811), (106, 54895), (107, 54898), (111, 54910), (116, 54931), (117, 54934), (137, 55042), (172, 55240),

Gene: OlinDD_70 Start: 44582, Stop: 43833, Start Num: 48
Candidate Starts for OlinDD_70:
(Start: 48 @44582 has 16 MA's), (61, 44525), (67, 44486), (81, 44399), (85, 44360), (91, 44327), (101, 44288), (110, 44243), (115, 44219), (123, 44189), (130, 44141), (132, 44111), (134, 44105), (143, 44036), (150, 44012), (160, 43979), (175, 43877),

Gene: Panchaali_140 Start: 99051, Stop: 99782, Start Num: 50
Candidate Starts for Panchaali_140:
(Start: 50 @99051 has 9 MA's), (59, 99078), (65, 99141), (79, 99204), (85, 99270), (88, 99288), (96, 99321), (100, 99339), (106, 99372), (120, 99429), (124, 99441), (126, 99456), (141, 99564), (155, 99618), (158, 99630), (160, 99633),

Gene: Patbob_149 Start: 103643, Stop: 104377, Start Num: 50
Candidate Starts for Patbob_149:
(Start: 50 @103643 has 9 MA's), (65, 103733), (66, 103736), (79, 103796), (88, 103880), (106, 103964), (120, 104021), (126, 104048), (155, 104210), (158, 104222), (160, 104225),

Gene: Pavlo_71 Start: 44421, Stop: 43690, Start Num: 48
Candidate Starts for Pavlo_71:
(Start: 48 @44421 has 16 MA's), (61, 44364), (67, 44325), (79, 44265), (80, 44259), (85, 44199), (91, 44166), (92, 44163), (96, 44148), (101, 44127), (110, 44082), (115, 44058), (130, 43995), (134, 43959), (142, 43896), (150, 43869), (151, 43866), (160, 43836), (173, 43737),

Gene: Phauci_71 Start: 52648, Stop: 53346, Start Num: 52
Candidate Starts for Phauci_71:
(18, 52441), (23, 52507), (26, 52552), (Start: 52 @52648 has 23 MA's), (Start: 56 @52663 has 2 MA's), (64, 52723), (72, 52759), (73, 52762), (85, 52858), (94, 52903), (103, 52936), (138, 53104), (150, 53167), (161, 53215), (176, 53320),

Gene: PhillyPhilly_71 Start: 43955, Stop: 43224, Start Num: 48
Candidate Starts for PhillyPhilly_71:
(Start: 48 @43955 has 16 MA's), (61, 43898), (67, 43859), (79, 43799), (80, 43793), (85, 43733), (91, 43700), (92, 43697), (96, 43682), (101, 43661), (110, 43616), (115, 43592), (130, 43529), (134, 43493), (142, 43430), (150, 43403), (151, 43400), (160, 43370), (173, 43271),

Gene: Phinally_79 Start: 55608, Stop: 56306, Start Num: 52
Candidate Starts for Phinally_79:
(18, 55401), (23, 55467), (26, 55512), (Start: 52 @55608 has 23 MA's), (Start: 56 @55623 has 2 MA's), (64, 55683), (72, 55719), (73, 55722), (85, 55818), (94, 55863), (103, 55896), (138, 56064), (150, 56127), (161, 56175), (176, 56280),

Gene: Phrampa_144 Start: 105004, Stop: 105738, Start Num: 50
Candidate Starts for Phrampa_144:
(Start: 50 @105004 has 9 MA's), (59, 105031), (65, 105094), (75, 105133), (79, 105157), (85, 105223), (88, 105241), (96, 105274), (100, 105292), (106, 105325), (120, 105382), (124, 105394), (126, 105409), (141, 105517), (155, 105571), (158, 105583), (160, 105586), (175, 105691),

Gene: Pioneer3_70 Start: 44404, Stop: 43655, Start Num: 48
Candidate Starts for Pioneer3_70:
(Start: 48 @44404 has 16 MA's), (61, 44347), (67, 44308), (81, 44221), (85, 44182), (91, 44149), (110, 44065), (115, 44041), (123, 44011), (130, 43963), (132, 43933), (134, 43927), (143, 43858), (150, 43834), (160, 43801), (175, 43699),

Gene: Platte_70 Start: 44357, Stop: 43626, Start Num: 48
Candidate Starts for Platte_70:
(30, 44405), (Start: 48 @44357 has 16 MA's), (61, 44300), (67, 44261), (81, 44174), (85, 44135), (91, 44102), (101, 44063), (110, 44018), (115, 43994), (130, 43934), (132, 43904), (134, 43898), (150, 43805), (160, 43772), (175, 43670),

Gene: Pumpkiney_80 Start: 54227, Stop: 54925, Start Num: 56
Candidate Starts for Pumpkiney_80:
(18, 54005), (23, 54071), (26, 54116), (Start: 52 @54212 has 23 MA's), (Start: 56 @54227 has 2 MA's), (64, 54287), (67, 54302), (97, 54476), (100, 54491), (102, 54497), (103, 54500), (107, 54527), (135, 54656), (161, 54779), (164, 54785), (176, 54884), (182, 54914),

Gene: Racecar_154 Start: 104175, Stop: 104909, Start Num: 50
Candidate Starts for Racecar_154:
(Start: 50 @104175 has 9 MA's), (65, 104265), (66, 104268), (81, 104355), (88, 104412), (93, 104433), (106, 104496), (126, 104580), (155, 104742), (158, 104754), (160, 104757),

Gene: ReginaGlobina_152 Start: 103554, Stop: 104267, Start Num: 49
Candidate Starts for ReginaGlobina_152:
(Start: 49 @103554 has 9 MA's), (62, 103617), (63, 103632), (65, 103647), (100, 103848), (125, 103950), (139, 104031), (142, 104070), (166, 104166),

Gene: RoadKill_76 Start: 52491, Stop: 53180, Start Num: 52
Candidate Starts for RoadKill_76:
(Start: 44 @52476 has 2 MA's), (Start: 52 @52491 has 23 MA's), (74, 52611), (81, 52665), (100, 52773), (102, 52779), (103, 52782), (106, 52806), (112, 52830), (116, 52839), (144, 52995), (151, 53019), (172, 53151), (176, 53169),

Gene: Rockabye_148 Start: 93919, Stop: 94629, Start Num: 49
Candidate Starts for Rockabye_148:
(30, 93871), (Start: 49 @93919 has 9 MA's), (63, 93997), (65, 94012), (77, 94060), (79, 94075), (134, 94369), (169, 94561),

Gene: Roman_74 Start: 45076, Stop: 44345, Start Num: 48
Candidate Starts for Roman_74:
(Start: 48 @45076 has 16 MA's), (61, 45019), (67, 44980), (79, 44920), (80, 44914), (85, 44854), (91, 44821), (92, 44818), (96, 44803), (101, 44782), (110, 44737), (115, 44713), (130, 44650), (134, 44614), (142, 44551), (150, 44524), (151, 44521), (160, 44491), (173, 44392),

Gene: RunningBrook_79 Start: 45467, Stop: 44736, Start Num: 46
Candidate Starts for RunningBrook_79:
(34, 45488), (38, 45482), (Start: 46 @45467 has 15 MA's), (61, 45410), (79, 45311), (82, 45275), (84, 45260), (91, 45212), (96, 45194), (107, 45140), (110, 45128), (115, 45104), (129, 45044), (137, 44987), (143, 44939), (160, 44882),

Gene: SJReid_151 Start: 92697, Stop: 93410, Start Num: 49
Candidate Starts for SJReid_151:
(Start: 49 @92697 has 9 MA's), (61, 92754), (64, 92778), (139, 93174), (142, 93213), (145, 93222),

Gene: SPB78_51 Start: 35835, Stop: 36647, Start Num: 49
Candidate Starts for SPB78_51:
(1, 34968), (2, 35076), (3, 35139), (4, 35145), (5, 35196), (6, 35253), (7, 35358), (14, 35592), (32, 35799), (Start: 49 @35835 has 9 MA's), (64, 35913), (77, 35970), (81, 36012), (100, 36120), (101, 36123), (104, 36135), (124, 36225), (126, 36240), (142, 36375), (154, 36420), (164, 36456), (186, 36615),

Gene: Sampson_83 Start: 56151, Stop: 56864, Start Num: 51
Candidate Starts for Sampson_83:
(42, 56136), (Start: 51 @56151 has 7 MA's), (Start: 56 @56166 has 2 MA's), (64, 56226), (67, 56241), (82, 56331), (102, 56436), (103, 56439), (107, 56466), (135, 56595), (161, 56718), (164, 56724), (172, 56805), (176, 56823),

Gene: Saradis_73 Start: 44037, Stop: 43306, Start Num: 48
Candidate Starts for Saradis_73:
(9, 44493), (10, 44463), (11, 44442), (Start: 48 @44037 has 16 MA's), (61, 43980), (67, 43941), (79, 43881), (80, 43875), (85, 43815), (91, 43782), (92, 43779), (96, 43764), (101, 43743), (110, 43698), (115, 43674), (126, 43629), (130, 43611), (134, 43575), (142, 43512), (150, 43485), (151, 43482), (160, 43452), (173, 43353),

Gene: Scioto_82 Start: 56001, Stop: 56714, Start Num: 51
Candidate Starts for Scioto_82:
(42, 55986), (Start: 51 @56001 has 7 MA's), (Start: 56 @56016 has 2 MA's), (64, 56076), (67, 56091), (82, 56181), (102, 56286), (103, 56289), (107, 56316), (135, 56445), (161, 56568), (164, 56574), (172, 56655), (176, 56673),

Gene: Shroomer_82 Start: 44704, Stop: 43973, Start Num: 46
Candidate Starts for Shroomer_82:
(34, 44725), (38, 44719), (Start: 46 @44704 has 15 MA's), (61, 44647), (79, 44548), (82, 44512), (84, 44497), (91, 44449), (96, 44431), (107, 44377), (110, 44365), (115, 44341), (129, 44281), (143, 44176), (160, 44119),

Gene: Solimine_72 Start: 44390, Stop: 43659, Start Num: 48
Candidate Starts for Solimine_72:
(Start: 48 @44390 has 16 MA's), (61, 44333), (67, 44294), (79, 44234), (80, 44228), (85, 44168), (91, 44135), (92, 44132), (96, 44117), (101, 44096), (110, 44051), (115, 44027), (130, 43964), (134, 43928), (142, 43865), (150, 43838), (151, 43835), (160, 43805), (173, 43706),

Gene: SteakFry_80 Start: 44770, Stop: 44039, Start Num: 46
Candidate Starts for SteakFry_80:
(34, 44791), (38, 44785), (Start: 46 @44770 has 15 MA's), (61, 44713), (79, 44614), (82, 44578), (84, 44563), (91, 44515), (96, 44497), (107, 44443), (110, 44431), (115, 44407), (129, 44347), (134, 44308), (137, 44290), (143, 44242), (160, 44185),

Gene: StevieWelch_78 Start: 44559, Stop: 43828, Start Num: 46
Candidate Starts for StevieWelch_78:
(34, 44580), (38, 44574), (Start: 46 @44559 has 15 MA's), (61, 44502), (79, 44403), (82, 44367), (84, 44352), (91, 44304), (96, 44286), (107, 44232), (110, 44220), (115, 44196), (129, 44136), (137, 44079), (143, 44031), (160, 43974),

Gene: Stewart25555_139 Start: 99717, Stop: 100430, Start Num: 50
Candidate Starts for Stewart25555_139:
(Start: 50 @99717 has 9 MA's), (65, 99807), (93, 99975), (106, 100038), (107, 100041), (120, 100095), (124, 100107), (126, 100122), (155, 100284), (160, 100299), (168, 100356),

Gene: Talia1610_154 Start: 104103, Stop: 104837, Start Num: 50
Candidate Starts for Talia1610_154:
(Start: 50 @104103 has 9 MA's), (65, 104193), (66, 104196), (79, 104256), (81, 104283), (88, 104340), (93, 104361), (106, 104424), (120, 104481), (126, 104508), (155, 104670), (158, 104682), (160, 104685),

Gene: Tandem_70 Start: 44484, Stop: 43753, Start Num: 48
Candidate Starts for Tandem_70:
(30, 44532), (Start: 48 @44484 has 16 MA's), (61, 44427), (67, 44388), (81, 44301), (85, 44262), (91, 44229), (101, 44190), (110, 44145), (115, 44121), (130, 44061), (132, 44031), (134, 44025), (150, 43932), (160, 43899), (175, 43797),

Gene: Tardus_84 Start: 56702, Stop: 57412, Start Num: 52
Candidate Starts for Tardus_84:
(18, 56495), (23, 56561), (26, 56606), (Start: 52 @56702 has 23 MA's), (Start: 56 @56717 has 2 MA's), (64, 56777), (97, 56966), (100, 56981), (102, 56987), (103, 56990), (107, 57017), (135, 57146), (161, 57269), (163, 57272), (164, 57275), (176, 57374),

Gene: Tiamoceli_72 Start: 52366, Stop: 53070, Start Num: 44
Candidate Starts for Tiamoceli_72:
(Start: 44 @52366 has 2 MA's), (Start: 52 @52381 has 23 MA's), (74, 52501), (81, 52555), (100, 52663), (102, 52669), (103, 52672), (106, 52696), (112, 52720), (116, 52729), (144, 52885), (151, 52909), (172, 53041), (176, 53059),

Gene: TurkishDelight_61 Start: 51763, Stop: 52506, Start Num: 39
Candidate Starts for TurkishDelight_61:
(Start: 39 @51763 has 1 MA's), (87, 52012), (96, 52048), (103, 52075), (106, 52099), (107, 52102), (126, 52177), (127, 52180), (129, 52192), (136, 52246), (137, 52249), (139, 52255), (148, 52306), (150, 52315), (157, 52351), (165, 52375), (174, 52456), (180, 52492),

Gene: Twonlo_76 Start: 53082, Stop: 53771, Start Num: 52
Candidate Starts for Twonlo_76:
(Start: 44 @53067 has 2 MA's), (Start: 52 @53082 has 23 MA's), (74, 53202), (81, 53256), (100, 53364), (102, 53370), (103, 53373), (106, 53397), (112, 53421), (116, 53430), (144, 53586), (151, 53610), (172, 53742), (176, 53760),

Gene: Uterion_75 Start: 44523, Stop: 43792, Start Num: 48
Candidate Starts for Uterion_75:
(Start: 48 @44523 has 16 MA's), (61, 44466), (67, 44427), (79, 44367), (80, 44361), (85, 44301), (91, 44268), (92, 44265), (96, 44250), (101, 44229), (110, 44184), (115, 44160), (126, 44115), (130, 44097), (134, 44061), (142, 43998), (150, 43971), (151, 43968), (160, 43938), (173, 43839),

Gene: VWB_41 Start: 33316, Stop: 34107, Start Num: 50
Candidate Starts for VWB_41:
(32, 33277), (Start: 50 @33316 has 9 MA's), (58, 33334), (64, 33388), (81, 33484), (99, 33586), (104, 33607), (105, 33619), (124, 33697), (126, 33712), (131, 33748), (135, 33793), (143, 33850), (154, 33892), (156, 33901),

Gene: VanLee_112 Start: 58872, Stop: 59582, Start Num: 36
Candidate Starts for VanLee_112:
(15, 58701), (16, 58707), (17, 58710), (Start: 36 @58872 has 2 MA's), (Start: 56 @58914 has 2 MA's), (63, 58971), (64, 58974), (88, 59127), (107, 59214), (152, 59427), (165, 59478),

Gene: Verity_80 Start: 57252, Stop: 57965, Start Num: 52
Candidate Starts for Verity_80:
(23, 57111), (26, 57156), (Start: 52 @57252 has 23 MA's), (Start: 56 @57267 has 2 MA's), (64, 57327), (67, 57342), (77, 57381), (95, 57510), (102, 57537), (103, 57540), (107, 57567), (135, 57696), (161, 57819), (164, 57825), (176, 57924), (182, 57954),

Gene: ViaConlectus_80 Start: 54710, Stop: 55423, Start Num: 51
Candidate Starts for ViaConlectus_80:
(31, 54665), (Start: 51 @54710 has 7 MA's), (Start: 56 @54725 has 2 MA's), (64, 54785), (102, 54995), (103, 54998), (107, 55025), (161, 55277), (164, 55283), (172, 55364), (176, 55382), (182, 55412),

Gene: WaddleDee_134 Start: 97726, Stop: 98439, Start Num: 49
Candidate Starts for WaddleDee_134:
(Start: 49 @97726 has 9 MA's), (62, 97789), (63, 97804), (65, 97819), (91, 97984), (139, 98203),

Gene: WaterT_80 Start: 46173, Stop: 45490, Start Num: 54
Candidate Starts for WaterT_80:

(25, 46281), (27, 46266), (40, 46200), (Start: 54 @46173 has 3 MA's), (64, 46104), (66, 46092), (82, 45993), (104, 45885), (113, 45837), (119, 45813), (126, 45780), (141, 45666), (149, 45642), (150, 45636), (167, 45567), (168, 45555), (171, 45528), (176, 45510),

Gene: Welcome_79 Start: 44919, Stop: 44188, Start Num: 46
Candidate Starts for Welcome_79:
(34, 44940), (38, 44934), (Start: 46 @44919 has 15 MA's), (61, 44862), (79, 44763), (82, 44727), (84, 44712), (91, 44664), (96, 44646), (107, 44592), (110, 44580), (115, 44556), (129, 44496), (134, 44457), (137, 44439), (143, 44391), (160, 44334),

Gene: Wolfstar_75 Start: 45884, Stop: 45153, Start Num: 48
Candidate Starts for Wolfstar_75:
(21, 46046), (Start: 48 @45884 has 16 MA's), (57, 45860), (61, 45827), (67, 45788), (79, 45728), (80, 45722), (85, 45662), (91, 45629), (110, 45545), (115, 45521), (118, 45509), (134, 45422), (150, 45332), (160, 45299), (173, 45200),

Gene: Yuma_76 Start: 44428, Stop: 43697, Start Num: 46
Candidate Starts for Yuma_76:
(34, 44449), (38, 44443), (Start: 46 @44428 has 15 MA's), (61, 44371), (79, 44272), (82, 44236), (84, 44221), (91, 44173), (96, 44155), (107, 44101), (110, 44089), (115, 44065), (129, 44005), (137, 43948), (143, 43900), (160, 43843),

Gene: Zipp_81 Start: 57133, Stop: 57846, Start Num: 51
Candidate Starts for Zipp_81:
(31, 57088), (Start: 51 @57133 has 7 MA's), (Start: 56 @57148 has 2 MA's), (64, 57208), (97, 57397), (100, 57412), (102, 57418), (103, 57421), (107, 57448), (135, 57577), (161, 57700), (164, 57706), (176, 57805), (182, 57835),

Gene: Zitch_82 Start: 55431, Stop: 56144, Start Num: 52
Candidate Starts for Zitch_82:
(18, 55224), (23, 55290), (26, 55335), (Start: 52 @55431 has 23 MA's), (Start: 56 @55446 has 2 MA's), (64, 55506), (67, 55521), (70, 55539), (77, 55560), (92, 55677), (100, 55710), (102, 55716), (103, 55719), (107, 55746), (135, 55875), (161, 55998), (164, 56004), (172, 56085), (176, 56103), (182, 56133),