

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 200222 Report

This analysis was run 01/18/25 on database version 583.

Pham number 200222 has 65 members, 23 are drafts.

Phages represented in each track:

- Track 1 : Garnacho_61
- Track 2 : LuckySocke_65, Alone3_66
- Track 3 : GiJojo_56
- Track 4 : Talos_64
- Track 5 : BRock_57
- Track 6 : Beleetus_63
- Track 7 : ModicumRichard_91, Aleemily_90, Cafasso_91, ObLaDi_91
- Track 8 : Morgana_98
- Track 9 : Carostasia_42, Quartz_43
- Track 10 : Juanyo_42
- Track 11 : Nucci_42, Mandalorian_42
- Track 12 : YuuY_43
- Track 13 : ChikPic_43
- Track 14 : Eleri_43, Saratos_43, Finny_44, Phanita_42, ColaCorta_43, Andromedas_43, Glamour_43, Shamu_44
- Track 15 : Zenitsu_43, Sansa_42, MCubed_43
- Track 16 : Morigan_44
- Track 17 : Luna18_44, KatChan_44
- Track 18 : WilliamStrong_43
- Track 19 : Juicer_44, Jemerald_44
- Track 20 : Chepli_44
- Track 21 : Chivey_55, Hiddenleaf_55, SilentWarrior_55
- Track 22 : DannyDe_55, FreddieHg_55, JingleBells_55
- Track 23 : Rie18_55
- Track 24 : Annapurna_56
- Track 25 : Snakehole_55
- Track 26 : Crestdrop_55
- Track 27 : Honk_28
- Track 28 : Chilliams_105
- Track 29 : SJReid_113
- Track 30 : Phrampa_101
- Track 31 : ReginaGlobina_105, LeoJr_105, Atuin_103
- Track 32 : Racecar_107
- Track 33 : Rockabye_111
- Track 34 : GoldenEssence_95, Patbob_107
- Track 35 : KSunshine22_100
- Track 36 : Talia1610_106

- Track 37 : Bloom_110
- Track 38 : DunneganBoMo_99, WaddleDee_99
- Track 39 : Ellewin_97
- Track 40 : Mimi_112

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

The start number called the most often in the published annotations is 19, it was called in 31 of the 42 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Andromedas_43, Annapurna_56, Carostasia_42, Chepli_44, ChikPic_43, Chivey_55, ColaCorta_43, Crestdrop_55, DannyDe_55, Eleri_43, Finny_44, FreddieHg_55, Glamour_43, Hiddenleaf_55, Jemerald_44, JingleBells_55, Juanyo_42, Juicer_44, KatChan_44, Luna18_44, MCubed_43, Mandalorian_42, Morigan_44, Nucci_42, Phanita_42, Quartz_43, Rie18_55, Sansa_42, Saratos_43, Shamu_44, SilentWarrior_55, Snakehole_55, WilliamStrong_43, YuuY_43, Zenitsu_43,

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

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

- Aleemily_90, Alone3_66, Atuin_103, BRock_57, Beleetus_63, Bloom_110, Cafasso_91, Chilliams_105, DunneganBoMo_99, Ellewin_97, Garnacho_61, GiJojo_56, GoldenEssence_95, Honk_28, KSunshine22_100, LeoJr_105, LuckySocke_65, Mimi_112, ModicumRichard_91, Morgana_98, ObLaDi_91, Patbob_107, Phrampa_101, Racecar_107, ReginaGlobina_105, Rockabye_111, SJReid_113, Talia1610_106, Talos_64, WaddleDee_99,

Summary by start number:

Start 4:

- Found in 5 of 65 (7.7%) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Racecar_107 (FC),

Start 6:

- Found in 17 of 65 (26.2%) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 94.1% of time when present
- Phage (with cluster) where this start called: Atuin_103 (FC), Bloom_110 (FC), Chilliams_105 (FC), DunneganBoMo_99 (FC), Ellewin_97 (FC), GoldenEssence_95 (FC), KSunshine22_100 (FC), LeoJr_105 (FC), Mimi_112 (FC), Patbob_107 (FC), Phrampa_101 (FC), ReginaGlobina_105 (FC), Rockabye_111 (FC), SJReid_113 (FC), Talia1610_106 (FC), WaddleDee_99 (FC),

Start 8:

- Found in 5 of 65 (7.7%) of genes in pham

- Manual Annotations of this start: 4 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aleemily_90 (DZ), Cafasso_91 (DZ), ModicumRichard_91 (DZ), Morgana_98 (DZ), ObLaDi_91 (DZ),

Start 13:

- Found in 1 of 65 (1.5%) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GiJojo_56 (BS),

Start 15:

- Found in 1 of 65 (1.5%) of genes in pham
- Manual Annotations of this start: 1 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Honk_28 (EH),

Start 16:

- Found in 5 of 65 (7.7%) of genes in pham
- Manual Annotations of this start: 3 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alone3_66 (BS), BRock_57 (BS), Beleetus_63 (BS), Garnacho_61 (BS), LuckySocke_65 (BS),

Start 19:

- Found in 35 of 65 (53.8%) of genes in pham
- Manual Annotations of this start: 31 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Andromedas_43 (EA2), Annapurna_56 (EF), Carostasia_42 (EA10), Chepli_44 (EA6), ChikPic_43 (EA2), Chivey_55 (EF), ColaCorta_43 (EA2), Crestdrop_55 (EF), DannyDe_55 (EF), Eleri_43 (EA2), Finny_44 (EA2), FreddieHg_55 (EF), Glamour_43 (EA2), Hiddenleaf_55 (EF), Jemerald_44 (EA6), JingleBells_55 (EF), Juanyo_42 (EA10), Juicer_44 (EA6), KatChan_44 (EA6), Luna18_44 (EA6), MCubed_43 (EA2), Mandalorian_42 (EA10), Morrigan_44 (EA6), Nucci_42 (EA10), Phanita_42 (EA2), Quartz_43 (EA10), Rie18_55 (EF), Sansa_42 (EA2), Saratos_43 (EA2), Shamu_44 (EA2), SilentWarrior_55 (EF), Snakehole_55 (EF), WilliamStrong_43 (EA6), YuuY_43 (EA10), Zenitsu_43 (EA2),

Start 21:

- Found in 1 of 65 (1.5%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Talos_64 (BS),

Summary by clusters:

There are 8 clusters represented in this pham: EA10, EF, EH, FC, DZ, BS, EA2, EA6,

Info for manual annotations of cluster BS:

- Start number 13 was manually annotated 1 time for cluster BS.
- Start number 16 was manually annotated 3 times for cluster BS.

Info for manual annotations of cluster DZ:

- Start number 8 was manually annotated 4 times for cluster DZ.

Info for manual annotations of cluster EA10:

- Start number 19 was manually annotated 6 times for cluster EA10.

Info for manual annotations of cluster EA2:

- Start number 19 was manually annotated 11 times for cluster EA2.

Info for manual annotations of cluster EA6:

- Start number 19 was manually annotated 7 times for cluster EA6.

Info for manual annotations of cluster EF:

- Start number 19 was manually annotated 7 times for cluster EF.

Info for manual annotations of cluster EH:

- Start number 15 was manually annotated 1 time for cluster EH.

Info for manual annotations of cluster FC:

- Start number 4 was manually annotated 1 time for cluster FC.
- Start number 6 was manually annotated 1 time for cluster FC.

Gene Information:

Gene: Aleemily_90 Start: 53699, Stop: 54325, Start Num: 8

Candidate Starts for Aleemily_90:

(Start: 8 @53699 has 4 MA's), (10, 53726), (25, 53900), (38, 53984), (56, 54104), (65, 54149), (70, 54185), (77, 54257),

Gene: Alone3_66 Start: 23782, Stop: 24288, Start Num: 16

Candidate Starts for Alone3_66:

(Start: 16 @23782 has 3 MA's), (20, 23812), (23, 23830), (36, 23911), (40, 23941), (41, 23944), (49, 24010), (50, 24013), (54, 24031), (59, 24049), (60, 24052), (70, 24121), (71, 24130), (74, 24172), (83, 24214), (91, 24277),

Gene: Andromedas_43 Start: 31962, Stop: 31519, Start Num: 19

Candidate Starts for Andromedas_43:

(Start: 19 @31962 has 31 MA's), (22, 31953), (23, 31941), (24, 31938), (26, 31920), (28, 31908), (32, 31887), (49, 31803), (59, 31764), (62, 31746), (63, 31740), (66, 31722), (68, 31707), (70, 31692), (84, 31560),

Gene: Annapurna_56 Start: 39067, Stop: 39576, Start Num: 19

Candidate Starts for Annapurna_56:

(Start: 19 @39067 has 31 MA's), (22, 39076), (27, 39115), (58, 39265), (60, 39271), (61, 39283), (69, 39328), (74, 39418), (81, 39460), (93, 39550),

Gene: Atuin_103 Start: 85986, Stop: 86594, Start Num: 6

Candidate Starts for Atuin_103:

(5, 85941), (Start: 6 @85986 has 1 MA's), (56, 86382), (70, 86463),

Gene: BRock_57 Start: 20332, Stop: 20787, Start Num: 16

Candidate Starts for BRock_57:

(Start: 16 @20332 has 3 MA's), (18, 20353), (20, 20362), (37, 20470), (49, 20560), (50, 20563), (51, 20569), (60, 20602), (70, 20671), (75, 20725),

Gene: Beleetus_63 Start: 22462, Stop: 22968, Start Num: 16

Candidate Starts for Beleetus_63:

(Start: 16 @22462 has 3 MA's), (18, 22483), (20, 22492), (23, 22510), (33, 22567), (41, 22624), (49, 22690), (50, 22693), (57, 22723), (59, 22729), (70, 22801), (74, 22852), (83, 22894), (91, 22957),

Gene: Bloom_110 Start: 86089, Stop: 86679, Start Num: 6

Candidate Starts for Bloom_110:

(Start: 4 @86026 has 1 MA's), (Start: 6 @86089 has 1 MA's), (51, 86443), (53, 86452), (55, 86461), (65, 86509), (70, 86545),

Gene: Cafasso_91 Start: 53851, Stop: 54477, Start Num: 8

Candidate Starts for Cafasso_91:

(Start: 8 @53851 has 4 MA's), (10, 53878), (25, 54052), (38, 54136), (56, 54256), (65, 54301), (70, 54337), (77, 54409),

Gene: Carostasia_42 Start: 31495, Stop: 31064, Start Num: 19

Candidate Starts for Carostasia_42:

(Start: 19 @31495 has 31 MA's), (22, 31486), (26, 31453), (28, 31441), (42, 31357), (49, 31336), (50, 31333), (59, 31297), (62, 31279), (63, 31273), (66, 31255), (70, 31225), (84, 31093),

Gene: Chepli_44 Start: 31401, Stop: 30856, Start Num: 19

Candidate Starts for Chepli_44:

(Start: 19 @31401 has 31 MA's), (22, 31392), (36, 31299), (50, 31236), (52, 31227), (64, 31170), (65, 31164), (68, 31143), (70, 31128), (79, 31029), (87, 30975), (88, 30966),

Gene: ChikPic_43 Start: 31816, Stop: 31373, Start Num: 19

Candidate Starts for ChikPic_43:

(Start: 19 @31816 has 31 MA's), (22, 31807), (23, 31795), (24, 31792), (28, 31762), (32, 31741), (49, 31657), (59, 31618), (62, 31600), (63, 31594), (66, 31576), (68, 31561), (70, 31546), (84, 31414),

Gene: Chilliams_105 Start: 78852, Stop: 79442, Start Num: 6

Candidate Starts for Chilliams_105:

(5, 78807), (Start: 6 @78852 has 1 MA's), (47, 79158), (51, 79203), (52, 79206), (57, 79227), (67, 79281), (70, 79305), (72, 79332), (78, 79380),

Gene: Chivey_55 Start: 39021, Stop: 39530, Start Num: 19

Candidate Starts for Chivey_55:

(7, 38862), (Start: 19 @39021 has 31 MA's), (22, 39030), (58, 39219), (60, 39225), (61, 39237), (69, 39282), (74, 39372), (81, 39414), (93, 39504),

Gene: ColaCorta_43 Start: 31962, Stop: 31519, Start Num: 19

Candidate Starts for ColaCorta_43:

(Start: 19 @31962 has 31 MA's), (22, 31953), (23, 31941), (24, 31938), (26, 31920), (28, 31908), (32, 31887), (49, 31803), (59, 31764), (62, 31746), (63, 31740), (66, 31722), (68, 31707), (70, 31692), (84, 31560),

Gene: Crestdrop_55 Start: 39188, Stop: 39706, Start Num: 19

Candidate Starts for Crestdrop_55:

(Start: 19 @39188 has 31 MA's), (22, 39197), (23, 39209), (63, 39413), (70, 39461), (73, 39506), (74, 39536),

Gene: DannyDe_55 Start: 39022, Stop: 39531, Start Num: 19

Candidate Starts for DannyDe_55:

(12, 38941), (Start: 19 @39022 has 31 MA's), (22, 39031), (58, 39220), (60, 39226), (69, 39283), (74, 39373), (81, 39415), (92, 39481), (93, 39505),

Gene: DunneganBoMo_99 Start: 81871, Stop: 82482, Start Num: 6

Candidate Starts for DunneganBoMo_99:

(5, 81823), (Start: 6 @81871 has 1 MA's), (51, 82246),

Gene: Eleri_43 Start: 31806, Stop: 31363, Start Num: 19

Candidate Starts for Eleri_43:

(Start: 19 @31806 has 31 MA's), (22, 31797), (23, 31785), (24, 31782), (26, 31764), (28, 31752), (32, 31731), (49, 31647), (59, 31608), (62, 31590), (63, 31584), (66, 31566), (68, 31551), (70, 31536), (84, 31404),

Gene: Ellewin_97 Start: 81282, Stop: 81893, Start Num: 6

Candidate Starts for Ellewin_97:

(5, 81234), (Start: 6 @81282 has 1 MA's), (50, 81651), (51, 81657), (66, 81729), (70, 81759),

Gene: Finny_44 Start: 31800, Stop: 31357, Start Num: 19

Candidate Starts for Finny_44:

(Start: 19 @31800 has 31 MA's), (22, 31791), (23, 31779), (24, 31776), (26, 31758), (28, 31746), (32, 31725), (49, 31641), (59, 31602), (62, 31584), (63, 31578), (66, 31560), (68, 31545), (70, 31530), (84, 31398),

Gene: FreddieHg_55 Start: 39038, Stop: 39547, Start Num: 19

Candidate Starts for FreddieHg_55:

(12, 38957), (Start: 19 @39038 has 31 MA's), (22, 39047), (58, 39236), (60, 39242), (69, 39299), (74, 39389), (81, 39431), (92, 39497), (93, 39521),

Gene: Garnacho_61 Start: 22022, Stop: 22483, Start Num: 16

Candidate Starts for Garnacho_61:

(Start: 16 @22022 has 3 MA's), (18, 22043), (20, 22052), (23, 22070), (49, 22250), (50, 22253), (59, 22289), (70, 22361), (78, 22433), (83, 22454),

Gene: GiJojo_56 Start: 22495, Stop: 22989, Start Num: 13

Candidate Starts for GiJojo_56:

(Start: 13 @22495 has 1 MA's), (14, 22513), (23, 22567), (30, 22612), (36, 22648), (41, 22681), (44, 22699), (49, 22747), (50, 22750), (60, 22789), (70, 22858), (71, 22867), (78, 22930), (83, 22951),

Gene: Glamour_43 Start: 31954, Stop: 31511, Start Num: 19

Candidate Starts for Glamour_43:

(Start: 19 @31954 has 31 MA's), (22, 31945), (23, 31933), (24, 31930), (26, 31912), (28, 31900), (32, 31879), (49, 31795), (59, 31756), (62, 31738), (63, 31732), (66, 31714), (68, 31699), (70, 31684), (84, 31552),

Gene: GoldenEssence_95 Start: 79881, Stop: 80471, Start Num: 6

Candidate Starts for GoldenEssence_95:

(Start: 4 @79818 has 1 MA's), (Start: 6 @79881 has 1 MA's), (53, 80244), (55, 80253), (65, 80301), (70, 80337),

Gene: Hiddenleaf_55 Start: 39021, Stop: 39530, Start Num: 19

Candidate Starts for Hiddenleaf_55:

(7, 38862), (Start: 19 @39021 has 31 MA's), (22, 39030), (58, 39219), (60, 39225), (61, 39237), (69, 39282), (74, 39372), (81, 39414), (93, 39504),

Gene: Honk_28 Start: 20768, Stop: 21193, Start Num: 15

Candidate Starts for Honk_28:

(Start: 15 @20768 has 1 MA's), (51, 20966), (59, 20996), (68, 21053), (70, 21068), (74, 21119), (82, 21164), (84, 21179),

Gene: Jemerald_44 Start: 32468, Stop: 31968, Start Num: 19

Candidate Starts for Jemerald_44:

(Start: 19 @32468 has 31 MA's), (26, 32426), (35, 32372), (49, 32306), (62, 32249), (63, 32243), (70, 32195), (84, 32063), (90, 32015), (92, 32006),

Gene: JingleBells_55 Start: 39130, Stop: 39639, Start Num: 19

Candidate Starts for JingleBells_55:

(12, 39049), (Start: 19 @39130 has 31 MA's), (22, 39139), (58, 39328), (60, 39334), (69, 39391), (74, 39481), (81, 39523), (92, 39589), (93, 39613),

Gene: Juanyo_42 Start: 31426, Stop: 30995, Start Num: 19

Candidate Starts for Juanyo_42:

(Start: 19 @31426 has 31 MA's), (22, 31417), (26, 31384), (28, 31372), (32, 31351), (42, 31288), (49, 31267), (50, 31264), (59, 31228), (62, 31210), (63, 31204), (66, 31186), (70, 31156), (74, 31081), (84, 31024), (88, 31000),

Gene: Juicer_44 Start: 32468, Stop: 31968, Start Num: 19

Candidate Starts for Juicer_44:

(Start: 19 @32468 has 31 MA's), (26, 32426), (35, 32372), (49, 32306), (62, 32249), (63, 32243), (70, 32195), (84, 32063), (90, 32015), (92, 32006),

Gene: KSunshine22_100 Start: 82883, Stop: 83494, Start Num: 6

Candidate Starts for KSunshine22_100:

(5, 82835), (Start: 6 @82883 has 1 MA's), (50, 83252), (51, 83258), (70, 83360),

Gene: KatChan_44 Start: 31413, Stop: 30868, Start Num: 19

Candidate Starts for KatChan_44:

(Start: 19 @31413 has 31 MA's), (22, 31404), (36, 31311), (50, 31248), (52, 31239), (64, 31182), (65, 31176), (70, 31140), (79, 31041), (87, 30987), (88, 30978),

Gene: LeoJr_105 Start: 86221, Stop: 86829, Start Num: 6

Candidate Starts for LeoJr_105:

(5, 86176), (Start: 6 @86221 has 1 MA's), (56, 86617), (70, 86698),

Gene: LuckySocke_65 Start: 23092, Stop: 23598, Start Num: 16

Candidate Starts for LuckySocke_65:

(Start: 16 @23092 has 3 MA's), (20, 23122), (23, 23140), (36, 23221), (40, 23251), (41, 23254), (49, 23320), (50, 23323), (54, 23341), (59, 23359), (60, 23362), (70, 23431), (71, 23440), (74, 23482), (83, 23524), (91, 23587),

Gene: Luna18_44 Start: 31413, Stop: 30868, Start Num: 19

Candidate Starts for Luna18_44:

(Start: 19 @31413 has 31 MA's), (22, 31404), (36, 31311), (50, 31248), (52, 31239), (64, 31182), (65, 31176), (70, 31140), (79, 31041), (87, 30987), (88, 30978),

Gene: MCubed_43 Start: 31831, Stop: 31388, Start Num: 19

Candidate Starts for MCubed_43:

(Start: 19 @31831 has 31 MA's), (22, 31822), (23, 31810), (24, 31807), (26, 31789), (28, 31777), (32, 31756), (49, 31672), (59, 31633), (62, 31615), (63, 31609), (68, 31576), (70, 31561), (84, 31429),

Gene: Mandalorian_42 Start: 31505, Stop: 31074, Start Num: 19

Candidate Starts for Mandalorian_42:

(Start: 19 @31505 has 31 MA's), (22, 31496), (26, 31463), (28, 31451), (42, 31367), (49, 31346), (50, 31343), (59, 31307), (62, 31289), (63, 31283), (66, 31265), (70, 31235), (84, 31103), (88, 31079),

Gene: Mimi_112 Start: 85436, Stop: 86026, Start Num: 6

Candidate Starts for Mimi_112:

(Start: 4 @85373 has 1 MA's), (Start: 6 @85436 has 1 MA's), (51, 85790), (53, 85799), (55, 85808), (70, 85892),

Gene: ModicumRichard_91 Start: 53919, Stop: 54545, Start Num: 8

Candidate Starts for ModicumRichard_91:

(Start: 8 @53919 has 4 MA's), (10, 53946), (25, 54120), (38, 54204), (56, 54324), (65, 54369), (70, 54405), (77, 54477),

Gene: Morgana_98 Start: 56101, Stop: 56727, Start Num: 8

Candidate Starts for Morgana_98:

(1, 55819), (2, 55831), (Start: 8 @56101 has 4 MA's), (9, 56113), (10, 56128), (25, 56302), (38, 56386), (56, 56506), (60, 56518), (65, 56551), (70, 56587), (76, 56656),

Gene: Morrigan_44 Start: 31356, Stop: 30871, Start Num: 19

Candidate Starts for Morrigan_44:

(Start: 19 @31356 has 31 MA's), (26, 31314), (28, 31302), (39, 31230), (45, 31197), (49, 31146), (51, 31137), (60, 31104), (62, 31089), (70, 31035), (84, 30903), (86, 30894), (88, 30879), (89, 30876),

Gene: Nucci_42 Start: 31488, Stop: 31057, Start Num: 19

Candidate Starts for Nucci_42:

(Start: 19 @31488 has 31 MA's), (22, 31479), (26, 31446), (28, 31434), (42, 31350), (49, 31329), (50, 31326), (59, 31290), (62, 31272), (63, 31266), (66, 31248), (70, 31218), (84, 31086), (88, 31062),

Gene: ObLaDi_91 Start: 53945, Stop: 54571, Start Num: 8

Candidate Starts for ObLaDi_91:

(Start: 8 @53945 has 4 MA's), (10, 53972), (25, 54146), (38, 54230), (56, 54350), (65, 54395), (70, 54431), (77, 54503),

Gene: Patbob_107 Start: 86171, Stop: 86761, Start Num: 6

Candidate Starts for Patbob_107:

(Start: 4 @86108 has 1 MA's), (Start: 6 @86171 has 1 MA's), (53, 86534), (55, 86543), (65, 86591), (70, 86627),

Gene: Phanita_42 Start: 31743, Stop: 31300, Start Num: 19

Candidate Starts for Phanita_42:

(Start: 19 @31743 has 31 MA's), (22, 31734), (23, 31722), (24, 31719), (26, 31701), (28, 31689), (32, 31668), (49, 31584), (59, 31545), (62, 31527), (63, 31521), (66, 31503), (68, 31488), (70, 31473), (84, 31341),

Gene: Phrampa_101 Start: 87574, Stop: 88167, Start Num: 6

Candidate Starts for Phrampa_101:

(Start: 6 @87574 has 1 MA's), (11, 87619), (17, 87703), (43, 87865), (47, 87883), (48, 87898), (70, 88030), (82, 88126),

Gene: Quartz_43 Start: 31618, Stop: 31187, Start Num: 19

Candidate Starts for Quartz_43:

(Start: 19 @31618 has 31 MA's), (22, 31609), (26, 31576), (28, 31564), (42, 31480), (49, 31459), (50, 31456), (59, 31420), (62, 31402), (63, 31396), (66, 31378), (70, 31348), (84, 31216),

Gene: Racecar_107 Start: 86026, Stop: 86679, Start Num: 4

Candidate Starts for Racecar_107:

(Start: 4 @86026 has 1 MA's), (Start: 6 @86089 has 1 MA's), (51, 86443), (53, 86452), (55, 86461), (65, 86509), (70, 86545),

Gene: ReginaGlobina_105 Start: 85786, Stop: 86394, Start Num: 6

Candidate Starts for ReginaGlobina_105:

(5, 85741), (Start: 6 @85786 has 1 MA's), (56, 86182), (70, 86263),

Gene: Rie18_55 Start: 39472, Stop: 39981, Start Num: 19

Candidate Starts for Rie18_55:

(3, 39205), (7, 39313), (Start: 19 @39472 has 31 MA's), (22, 39481), (69, 39733), (81, 39865), (93, 39955),

Gene: Rockabye_111 Start: 79290, Stop: 79880, Start Num: 6

Candidate Starts for Rockabye_111:

(5, 79245), (Start: 6 @79290 has 1 MA's), (67, 79719), (70, 79743), (72, 79770),

Gene: SJReid_113 Start: 78336, Stop: 78929, Start Num: 6

Candidate Starts for SJReid_113:

(Start: 6 @78336 has 1 MA's), (11, 78381), (17, 78465), (26, 78522), (31, 78549), (49, 78681), (67, 78768), (70, 78792), (78, 78867),

Gene: Sansa_42 Start: 32036, Stop: 31593, Start Num: 19

Candidate Starts for Sansa_42:

(Start: 19 @32036 has 31 MA's), (22, 32027), (23, 32015), (24, 32012), (26, 31994), (28, 31982), (32, 31961), (49, 31877), (59, 31838), (62, 31820), (63, 31814), (68, 31781), (70, 31766), (84, 31634),

Gene: Saratos_43 Start: 31791, Stop: 31348, Start Num: 19

Candidate Starts for Saratos_43:

(Start: 19 @31791 has 31 MA's), (22, 31782), (23, 31770), (24, 31767), (26, 31749), (28, 31737), (32, 31716), (49, 31632), (59, 31593), (62, 31575), (63, 31569), (66, 31551), (68, 31536), (70, 31521), (84, 31389),

Gene: Shamu_44 Start: 31970, Stop: 31527, Start Num: 19

Candidate Starts for Shamu_44:

(Start: 19 @31970 has 31 MA's), (22, 31961), (23, 31949), (24, 31946), (26, 31928), (28, 31916), (32, 31895), (49, 31811), (59, 31772), (62, 31754), (63, 31748), (66, 31730), (68, 31715), (70, 31700), (84, 31568),

Gene: SilentWarrior_55 Start: 38991, Stop: 39500, Start Num: 19

Candidate Starts for SilentWarrior_55:

(7, 38832), (Start: 19 @38991 has 31 MA's), (22, 39000), (58, 39189), (60, 39195), (61, 39207), (69, 39252), (74, 39342), (81, 39384), (93, 39474),

Gene: Snakehole_55 Start: 38999, Stop: 39508, Start Num: 19

Candidate Starts for Snakehole_55:

(7, 38840), (Start: 19 @38999 has 31 MA's), (22, 39008), (58, 39197), (60, 39203), (61, 39215), (69, 39260), (74, 39350), (81, 39392), (92, 39458), (93, 39482),

Gene: Talia1610_106 Start: 85455, Stop: 86045, Start Num: 6

Candidate Starts for Talia1610_106:

(Start: 6 @85455 has 1 MA's), (51, 85809), (53, 85818), (55, 85827), (65, 85875), (70, 85911),

Gene: Talos_64 Start: 22927, Stop: 23367, Start Num: 21

Candidate Starts for Talos_64:

(21, 22927), (23, 22942), (33, 22999), (46, 23086), (59, 23164), (70, 23236), (74, 23287), (83, 23329), (85, 23344),

Gene: WaddleDee_99 Start: 81057, Stop: 81668, Start Num: 6

Candidate Starts for WaddleDee_99:

(5, 81009), (Start: 6 @81057 has 1 MA's), (51, 81432),

Gene: WilliamStrong_43 Start: 31938, Stop: 31432, Start Num: 19

Candidate Starts for WilliamStrong_43:

(Start: 19 @31938 has 31 MA's), (26, 31896), (28, 31884), (29, 31881), (32, 31863), (34, 31857), (39, 31812), (49, 31728), (51, 31719), (68, 31632), (70, 31617), (74, 31542), (80, 31509),

Gene: YuuY_43 Start: 32085, Stop: 31654, Start Num: 19

Candidate Starts for YuuY_43:

(Start: 19 @32085 has 31 MA's), (22, 32076), (26, 32043), (32, 32010), (49, 31926), (50, 31923), (59, 31887), (62, 31869), (63, 31863), (66, 31845), (70, 31815), (84, 31683), (88, 31659),

Gene: Zenitsu_43 Start: 31836, Stop: 31393, Start Num: 19

Candidate Starts for Zenitsu_43:

(Start: 19 @31836 has 31 MA's), (22, 31827), (23, 31815), (24, 31812), (26, 31794), (28, 31782), (32, 31761), (49, 31677), (59, 31638), (62, 31620), (63, 31614), (68, 31581), (70, 31566), (84, 31434),