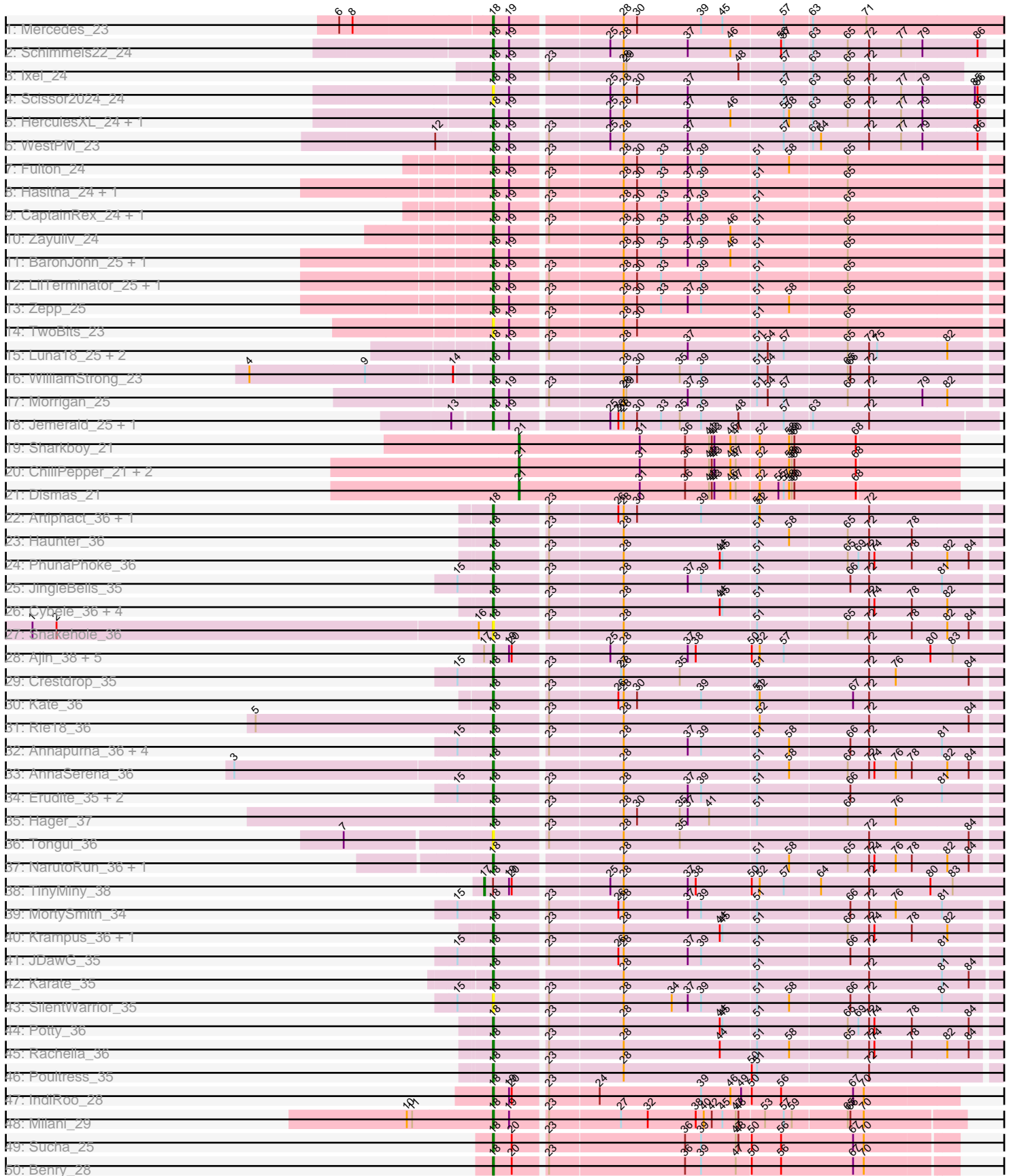
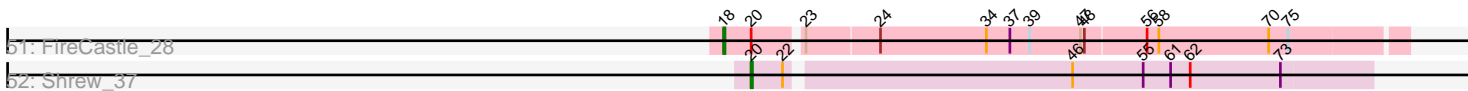


Pham 224517



Pham 224517



51: FireCastle_28

52: Shrew_37

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 224517 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224517 has 80 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Mercedes_23
- Track 2 : Schimmels22_24
- Track 3 : Ixel_24
- Track 4 : Scissor2024_24
- Track 5 : HerculesXL_24, Tinyman4_24
- Track 6 : WestPM_23
- Track 7 : Fulton_24
- Track 8 : Hasitha_24, Wardwill_26
- Track 9 : CaptainRex_24, Librie_24
- Track 10 : Zayuliv_24
- Track 11 : BaronJohn_25, Greenlvy_24
- Track 12 : LilTerminator_25, QuadZero_24
- Track 13 : Zepp_25
- Track 14 : TwoBits_23
- Track 15 : Luna18_25, KatChan_25, Chepli_25
- Track 16 : WilliamStrong_23
- Track 17 : Morigan_25
- Track 18 : Jemerald_25, Juicer_25
- Track 19 : Sharkboy_21
- Track 20 : ChiliPepper_21, Rona_21, Kieran_21
- Track 21 : Dismas_21
- Track 22 : Artiphact_36, Pharpay_36
- Track 23 : Haunter_36
- Track 24 : PhunaPhoke_36
- Track 25 : JingleBells_35
- Track 26 : Cybele_36, CoolCookie_36, Gilda_36, Neptune_36, Tedro_36
- Track 27 : Snakehole_36
- Track 28 : Ajin_38, Sparcetus_38, Kors_39, LordBart_38, Bramble_39, RikSengupta_38
- Track 29 : Crestdrop_35
- Track 30 : Kate_36
- Track 31 : Rie18_36
- Track 32 : Annapurna_36, Hiddenleaf_35, FreddieHg_35, DannyDe_35, Chivey_35
- Track 33 : AnnaSerena_36
- Track 34 : Erudite_35, Aesir_35, Dauntless_35
- Track 35 : Hager_37
- Track 36 : Tongui_36

- Track 37 : NarutoRun_36, Anakin_36
- Track 38 : TinyMiny_38
- Track 39 : MortySmith_34
- Track 40 : Krampus_36, OverHedge_36
- Track 41 : JDawG_35
- Track 42 : Karate_35
- Track 43 : SilentWarrior_35
- Track 44 : Potty_36
- Track 45 : Rachella_36
- Track 46 : Poultruss_35
- Track 47 : IndiRoo_28
- Track 48 : Milani_29
- Track 49 : Sucha_25
- Track 50 : Benry_28
- Track 51 : FireCastle_28
- Track 52 : Shrew_37

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

The start number called the most often in the published annotations is 18, it was called in 60 of the 67 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aesir_35, Ajin_38, Anakin_36, AnnaSerena_36, Annapurna_36, Artiphact_36, BaronJohn_25, Benry_28, Bramble_39, CaptainRex_24, Chepli_25, Chivey_35, CoolCookie_36, Crestdrop_35, Cybele_36, DannyDe_35, Dauntless_35, Erudite_35, FireCastle_28, FreddieHg_35, Fulton_24, Gilda_36, Greenlvy_24, Hager_37, Hasitha_24, Haunter_36, HerculesXL_24, Hiddenleaf_35, IndiRoo_28, Ixel_24, JDawG_35, Jemerald_25, JingleBells_35, Juicer_25, Karate_35, KatChan_25, Kate_36, Kors_39, Krampus_36, Librie_24, LilTerminator_25, LordBart_38, Luna18_25, Mercedes_23, Milani_29, Morrigan_25, MortySmith_34, NarutoRun_36, Neptune_36, OverHedge_36, Pharpay_36, PhunaPhoke_36, Potty_36, Poultruss_35, QuadZero_24, Rachella_36, Rie18_36, RikSengupta_38, Schimmels22_24, Scissor2024_24, SilentWarrior_35, Snakehole_36, Sparcetus_38, Sucha_25, Tedro_36, Tinyman4_24, Tongui_36, TwoBits_23, Wardwill_26, WestPM_23, WilliamStrong_23, Zayuliv_24, Zepp_25,

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

- TinyMiny_38,

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

- ChiliPepper_21, Dismas_21, Kieran_21, Rona_21, Sharkboy_21, Shrew_37,

Summary by start number:

Start 17:

- Found in 7 of 80 (8.8%) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 14.3% of time when present
- Phage (with cluster) where this start called: TinyMiny_38 (EF),

Start 18:

- Found in 74 of 80 (92.5%) of genes in pham
- Manual Annotations of this start: 60 of 67
- Called 98.6% of time when present
- Phage (with cluster) where this start called: Aesir_35 (EF), Ajin_38 (EF), Anakin_36 (EF), AnnaSerena_36 (EF), Annapurna_36 (EF), Artiphact_36 (EF), BaronJohn_25 (EA5), Benry_28 (EJ), Bramble_39 (EF), CaptainRex_24 (EA5), Chepli_25 (EA6), Chivey_35 (EF), CoolCookie_36 (EF), Crestdrop_35 (EF), Cybele_36 (EF), DannyDe_35 (EF), Dauntless_35 (EF), Erudite_35 (EF), FireCastle_28 (EJ), FreddieHg_35 (EF), Fulton_24 (EA5), Gilda_36 (EF), Greenlvy_24 (EA5), Hager_37 (EF), Hasitha_24 (EA5), Haunter_36 (EF), HerculesXL_24 (EA11), Hiddenleaf_35 (EF), IndiRoo_28 (EJ), Ixel_24 (EA11), JDawG_35 (EF), Jemerald_25 (EA6), JingleBells_35 (EF), Juicer_25 (EA6), Karate_35 (EF), KatChan_25 (EA6), Kate_36 (EF), Kors_39 (EF), Krampus_36 (EF), Librie_24 (EA5), LiTerminator_25 (EA5), LordBart_38 (EF), Luna18_25 (EA6), Mercedes_23 (EA), Milani_29 (EJ), Morrigan_25 (EA6), MortySmith_34 (EF), NarutoRun_36 (EF), Neptune_36 (EF), OverHedge_36 (EF), Pharpay_36 (EF), PhunaPhoke_36 (EF), Potty_36 (EF), Poultruss_35 (EF), QuadZero_24 (EA5), Rachella_36 (EF), Rie18_36 (EF), RikSengupta_38 (EF), Schimmels22_24 (EA11), Scissor2024_24 (EA11), SilentWarrior_35 (EF), Snakehole_36 (EF), Sparcetus_38 (EF), Sucha_25 (EJ), Tedro_36 (EF), Tinyman4_24 (EA11), Tongui_36 (EF), TwoBits_23 (EA5), Wardwill_26 (EA5), WestPM_23 (EA11), WilliamStrong_23 (EA6), Zayuliv_24 (EA5), Zepp_25 (EA5),

Start 20:

- Found in 12 of 80 (15.0%) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Shrew_37 (singleton),

Start 21:

- Found in 5 of 80 (6.2%) of genes in pham
- Manual Annotations of this start: 5 of 67
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ChiliPepper_21 (EB), Dismas_21 (EB), Kieran_21 (EB), Rona_21 (EB), Sharkboy_21 (EB),

Summary by clusters:

There are 8 clusters represented in this pham: singleton, EA11, EJ, EF, EA, EB, EA5, EA6,

Info for manual annotations of cluster EA:

- Start number 18 was manually annotated 1 time for cluster EA.

Info for manual annotations of cluster EA11:

- Start number 18 was manually annotated 5 times for cluster EA11.

Info for manual annotations of cluster EA5:

- Start number 18 was manually annotated 8 times for cluster EA5.

Info for manual annotations of cluster EA6:

- Start number 18 was manually annotated 7 times for cluster EA6.

Info for manual annotations of cluster EB:

- Start number 21 was manually annotated 5 times for cluster EB.

Info for manual annotations of cluster EF:

- Start number 17 was manually annotated 1 time for cluster EF.
- Start number 18 was manually annotated 34 times for cluster EF.

Info for manual annotations of cluster EJ:

- Start number 18 was manually annotated 5 times for cluster EJ.

Gene Information:

Gene: Aesir_35 Start: 23563, Stop: 24108, Start Num: 18

Candidate Starts for Aesir_35:

(15, 23527), (Start: 18 @23563 has 60 MA's), (23, 23617), (28, 23698), (37, 23770), (39, 23785), (51, 23845), (66, 23947), (81, 24049),

Gene: Ajin_38 Start: 24167, Stop: 24742, Start Num: 18

Candidate Starts for Ajin_38:

(Start: 17 @24158 has 1 MA's), (Start: 18 @24167 has 60 MA's), (19, 24185), (Start: 20 @24188 has 1 MA's), (25, 24287), (28, 24302), (37, 24374), (38, 24383), (50, 24443), (52, 24452), (57, 24479), (72, 24572), (80, 24641), (83, 24665),

Gene: Anakin_36 Start: 23886, Stop: 24431, Start Num: 18

Candidate Starts for Anakin_36:

(Start: 18 @23886 has 60 MA's), (28, 24021), (51, 24168), (58, 24204), (65, 24267), (72, 24291), (74, 24297), (76, 24321), (78, 24339), (82, 24378), (84, 24402),

Gene: AnnaSerena_36 Start: 23921, Stop: 24466, Start Num: 18

Candidate Starts for AnnaSerena_36:

(3, 23639), (Start: 18 @23921 has 60 MA's), (28, 24056), (51, 24203), (58, 24239), (65, 24302), (72, 24326), (74, 24332), (76, 24356), (78, 24374), (82, 24413), (84, 24437),

Gene: Annapurna_36 Start: 23025, Stop: 23570, Start Num: 18

Candidate Starts for Annapurna_36:

(15, 22989), (Start: 18 @23025 has 60 MA's), (23, 23079), (28, 23160), (37, 23232), (39, 23247), (51, 23307), (58, 23343), (66, 23409), (72, 23430), (81, 23511),

Gene: Artiphact_36 Start: 23910, Stop: 24455, Start Num: 18

Candidate Starts for Artiphact_36:

(Start: 18 @23910 has 60 MA's), (23, 23964), (26, 24039), (28, 24045), (30, 24060), (39, 24132), (51, 24192), (52, 24195), (72, 24315),

Gene: BaronJohn_25 Start: 18263, Stop: 18811, Start Num: 18

Candidate Starts for BaronJohn_25:

(Start: 18 @18263 has 60 MA's), (19, 18281), (28, 18398), (30, 18413), (33, 18440), (37, 18470), (39, 18485), (46, 18518), (51, 18545), (65, 18644),

Gene: Benry_28 Start: 20065, Stop: 20565, Start Num: 18

Candidate Starts for Benry_28:

(Start: 18 @20065 has 60 MA's), (Start: 20 @20086 has 1 MA's), (23, 20119), (36, 20269), (39, 20287), (47, 20326), (50, 20341), (56, 20374), (67, 20455), (70, 20467),

Gene: Bramble_39 Start: 24127, Stop: 24702, Start Num: 18

Candidate Starts for Bramble_39:

(Start: 17 @24118 has 1 MA's), (Start: 18 @24127 has 60 MA's), (19, 24145), (Start: 20 @24148 has 1 MA's), (25, 24247), (28, 24262), (37, 24334), (38, 24343), (50, 24403), (52, 24412), (57, 24439), (72, 24532), (80, 24601), (83, 24625),

Gene: CaptainRex_24 Start: 17697, Stop: 18245, Start Num: 18

Candidate Starts for CaptainRex_24:

(Start: 18 @17697 has 60 MA's), (19, 17715), (23, 17751), (28, 17832), (30, 17847), (33, 17874), (37, 17904), (39, 17919), (51, 17979), (65, 18078),

Gene: Chepli_25 Start: 18361, Stop: 18906, Start Num: 18

Candidate Starts for Chepli_25:

(Start: 18 @18361 has 60 MA's), (19, 18379), (23, 18415), (28, 18496), (37, 18568), (51, 18643), (54, 18655), (57, 18673), (65, 18742), (72, 18766), (75, 18775), (82, 18853),

Gene: ChiliPepper_21 Start: 19073, Stop: 19561, Start Num: 21

Candidate Starts for ChiliPepper_21:

(Start: 21 @19073 has 5 MA's), (31, 19208), (36, 19259), (41, 19286), (42, 19289), (43, 19292), (46, 19310), (47, 19316), (52, 19340), (58, 19373), (59, 19376), (60, 19379), (68, 19448),

Gene: Chivey_35 Start: 22974, Stop: 23519, Start Num: 18

Candidate Starts for Chivey_35:

(15, 22938), (Start: 18 @22974 has 60 MA's), (23, 23028), (28, 23109), (37, 23181), (39, 23196), (51, 23256), (58, 23292), (66, 23358), (72, 23379), (81, 23460),

Gene: CoolCookie_36 Start: 23916, Stop: 24461, Start Num: 18

Candidate Starts for CoolCookie_36:

(Start: 18 @23916 has 60 MA's), (23, 23970), (28, 24051), (44, 24159), (45, 24162), (51, 24198), (72, 24321), (74, 24327), (78, 24369), (82, 24408),

Gene: Crestdrop_35 Start: 22888, Stop: 23433, Start Num: 18

Candidate Starts for Crestdrop_35:

(15, 22852), (Start: 18 @22888 has 60 MA's), (23, 22942), (27, 23020), (28, 23023), (35, 23086), (51, 23170), (72, 23293), (76, 23323), (84, 23404),

Gene: Cybele_36 Start: 23886, Stop: 24431, Start Num: 18

Candidate Starts for Cybele_36:

(Start: 18 @23886 has 60 MA's), (23, 23940), (28, 24021), (44, 24129), (45, 24132), (51, 24168), (72, 24291), (74, 24297), (78, 24339), (82, 24378),

Gene: DannyDe_35 Start: 22980, Stop: 23525, Start Num: 18

Candidate Starts for DannyDe_35:

(15, 22944), (Start: 18 @22980 has 60 MA's), (23, 23034), (28, 23115), (37, 23187), (39, 23202), (51, 23262), (58, 23298), (66, 23364), (72, 23385), (81, 23466),

Gene: Dauntless_35 Start: 23531, Stop: 24076, Start Num: 18

Candidate Starts for Dauntless_35:

(15, 23495), (Start: 18 @23531 has 60 MA's), (23, 23585), (28, 23666), (37, 23738), (39, 23753), (51, 23813), (66, 23915), (81, 24017),

Gene: Dismas_21 Start: 19073, Stop: 19561, Start Num: 21

Candidate Starts for Dismas_21:

(Start: 21 @19073 has 5 MA's), (31, 19208), (36, 19259), (41, 19286), (42, 19289), (43, 19292), (46, 19310), (47, 19316), (52, 19340), (55, 19361), (57, 19367), (58, 19373), (59, 19376), (60, 19379), (68, 19448),

Gene: Erudite_35 Start: 23531, Stop: 24076, Start Num: 18

Candidate Starts for Erudite_35:

(15, 23495), (Start: 18 @23531 has 60 MA's), (23, 23585), (28, 23666), (37, 23738), (39, 23753), (51, 23813), (66, 23915), (81, 24017),

Gene: FireCastle_28 Start: 21644, Stop: 22144, Start Num: 18

Candidate Starts for FireCastle_28:

(Start: 18 @21644 has 60 MA's), (Start: 20 @21665 has 1 MA's), (23, 21698), (24, 21752), (34, 21833), (37, 21851), (39, 21866), (47, 21905), (48, 21908), (56, 21953), (58, 21962), (70, 22046), (75, 22061),

Gene: FreddieHg_35 Start: 22990, Stop: 23535, Start Num: 18

Candidate Starts for FreddieHg_35:

(15, 22954), (Start: 18 @22990 has 60 MA's), (23, 23044), (28, 23125), (37, 23197), (39, 23212), (51, 23272), (58, 23308), (66, 23374), (72, 23395), (81, 23476),

Gene: Fulton_24 Start: 17679, Stop: 18227, Start Num: 18

Candidate Starts for Fulton_24:

(Start: 18 @17679 has 60 MA's), (19, 17697), (23, 17733), (28, 17814), (30, 17829), (33, 17856), (37, 17886), (39, 17901), (51, 17961), (58, 17997), (65, 18060),

Gene: Gilda_36 Start: 23910, Stop: 24455, Start Num: 18

Candidate Starts for Gilda_36:

(Start: 18 @23910 has 60 MA's), (23, 23964), (28, 24045), (44, 24153), (45, 24156), (51, 24192), (72, 24315), (74, 24321), (78, 24363), (82, 24402),

Gene: Greenlvy_24 Start: 18265, Stop: 18813, Start Num: 18

Candidate Starts for Greenlvy_24:

(Start: 18 @18265 has 60 MA's), (19, 18283), (28, 18400), (30, 18415), (33, 18442), (37, 18472), (39, 18487), (46, 18520), (51, 18547), (65, 18646),

Gene: Hager_37 Start: 23453, Stop: 24001, Start Num: 18

Candidate Starts for Hager_37:

(Start: 18 @23453 has 60 MA's), (23, 23507), (28, 23588), (30, 23603), (35, 23651), (37, 23660), (41, 23684), (51, 23735), (65, 23834), (76, 23888),

Gene: Hasitha_24 Start: 17691, Stop: 18239, Start Num: 18

Candidate Starts for Hasitha_24:

(Start: 18 @17691 has 60 MA's), (19, 17709), (23, 17745), (28, 17826), (30, 17841), (33, 17868), (37, 17898), (39, 17913), (51, 17973), (65, 18072),

Gene: Haunter_36 Start: 23302, Stop: 23847, Start Num: 18

Candidate Starts for Haunter_36:

(Start: 18 @23302 has 60 MA's), (23, 23356), (28, 23437), (51, 23584), (58, 23620), (65, 23683), (72, 23707), (78, 23755),

Gene: HerculesXL_24 Start: 17785, Stop: 18318, Start Num: 18

Candidate Starts for HerculesXL_24:

(Start: 18 @17785 has 60 MA's), (19, 17803), (25, 17905), (28, 17920), (37, 17992), (46, 18040), (57, 18097), (58, 18103), (63, 18127), (65, 18166), (72, 18190), (77, 18226), (79, 18250), (86, 18310),

Gene: Hiddenleaf_35 Start: 22974, Stop: 23519, Start Num: 18

Candidate Starts for Hiddenleaf_35:

(15, 22938), (Start: 18 @22974 has 60 MA's), (23, 23028), (28, 23109), (37, 23181), (39, 23196), (51, 23256), (58, 23292), (66, 23358), (72, 23379), (81, 23460),

Gene: IndiRoo_28 Start: 20092, Stop: 20598, Start Num: 18

Candidate Starts for IndiRoo_28:

(Start: 18 @20092 has 60 MA's), (19, 20110), (Start: 20 @20113 has 1 MA's), (23, 20146), (24, 20200), (39, 20314), (46, 20347), (49, 20359), (50, 20368), (56, 20401), (67, 20482), (70, 20494),

Gene: Ixel_24 Start: 17641, Stop: 18147, Start Num: 18

Candidate Starts for Ixel_24:

(Start: 18 @17641 has 60 MA's), (19, 17659), (23, 17695), (28, 17776), (29, 17779), (48, 17905), (57, 17953), (63, 17983), (65, 18022), (72, 18046),

Gene: JDawG_35 Start: 23558, Stop: 24103, Start Num: 18

Candidate Starts for JDawG_35:

(15, 23522), (Start: 18 @23558 has 60 MA's), (23, 23612), (26, 23687), (28, 23693), (37, 23765), (39, 23780), (51, 23840), (66, 23942), (72, 23963), (81, 24044),

Gene: Jemerald_25 Start: 19299, Stop: 19844, Start Num: 18

Candidate Starts for Jemerald_25:

(13, 19260), (Start: 18 @19299 has 60 MA's), (19, 19317), (25, 19419), (26, 19428), (27, 19431), (28, 19434), (30, 19449), (33, 19476), (35, 19497), (39, 19521), (48, 19563), (57, 19611), (63, 19641), (72, 19704),

Gene: JingleBells_35 Start: 23095, Stop: 23640, Start Num: 18

Candidate Starts for JingleBells_35:

(15, 23059), (Start: 18 @23095 has 60 MA's), (23, 23149), (28, 23230), (37, 23302), (39, 23317), (51, 23377), (66, 23479), (72, 23500), (81, 23581),

Gene: Juicer_25 Start: 19299, Stop: 19844, Start Num: 18

Candidate Starts for Juicer_25:

(13, 19260), (Start: 18 @19299 has 60 MA's), (19, 19317), (25, 19419), (26, 19428), (27, 19431), (28, 19434), (30, 19449), (33, 19476), (35, 19497), (39, 19521), (48, 19563), (57, 19611), (63, 19641), (72, 19704),

Gene: Karate_35 Start: 23905, Stop: 24456, Start Num: 18

Candidate Starts for Karate_35:

(Start: 18 @23905 has 60 MA's), (28, 24040), (51, 24187), (72, 24310), (81, 24391), (84, 24421),

Gene: KatChan_25 Start: 18367, Stop: 18912, Start Num: 18

Candidate Starts for KatChan_25:

(Start: 18 @18367 has 60 MA's), (19, 18385), (23, 18421), (28, 18502), (37, 18574), (51, 18649), (54, 18661), (57, 18679), (65, 18748), (72, 18772), (75, 18781), (82, 18859),

Gene: Kate_36 Start: 23918, Stop: 24463, Start Num: 18

Candidate Starts for Kate_36:

(Start: 18 @23918 has 60 MA's), (23, 23972), (26, 24047), (28, 24053), (30, 24068), (39, 24140), (51, 24200), (52, 24203), (67, 24305), (72, 24323),

Gene: Kieran_21 Start: 19076, Stop: 19564, Start Num: 21

Candidate Starts for Kieran_21:

(Start: 21 @19076 has 5 MA's), (31, 19211), (36, 19262), (41, 19289), (42, 19292), (43, 19295), (46, 19313), (47, 19319), (52, 19343), (58, 19376), (59, 19379), (60, 19382), (68, 19451),

Gene: Kors_39 Start: 24207, Stop: 24782, Start Num: 18

Candidate Starts for Kors_39:

(Start: 17 @24198 has 1 MA's), (Start: 18 @24207 has 60 MA's), (19, 24225), (Start: 20 @24228 has 1 MA's), (25, 24327), (28, 24342), (37, 24414), (38, 24423), (50, 24483), (52, 24492), (57, 24519), (72, 24612), (80, 24681), (83, 24705),

Gene: Krampus_36 Start: 23918, Stop: 24463, Start Num: 18

Candidate Starts for Krampus_36:

(Start: 18 @23918 has 60 MA's), (23, 23972), (28, 24053), (44, 24161), (45, 24164), (51, 24200), (65, 24299), (72, 24323), (74, 24329), (78, 24371), (82, 24410),

Gene: Librie_24 Start: 17697, Stop: 18245, Start Num: 18

Candidate Starts for Librie_24:

(Start: 18 @17697 has 60 MA's), (19, 17715), (23, 17751), (28, 17832), (30, 17847), (33, 17874), (37, 17904), (39, 17919), (51, 17979), (65, 18078),

Gene: LilTerminator_25 Start: 17697, Stop: 18245, Start Num: 18

Candidate Starts for LilTerminator_25:

(Start: 18 @17697 has 60 MA's), (19, 17715), (23, 17751), (28, 17832), (30, 17847), (33, 17874), (39, 17919), (51, 17979), (65, 18078),

Gene: LordBart_38 Start: 24123, Stop: 24698, Start Num: 18

Candidate Starts for LordBart_38:

(Start: 17 @24114 has 1 MA's), (Start: 18 @24123 has 60 MA's), (19, 24141), (Start: 20 @24144 has 1 MA's), (25, 24243), (28, 24258), (37, 24330), (38, 24339), (50, 24399), (52, 24408), (57, 24435), (72, 24528), (80, 24597), (83, 24621),

Gene: Luna18_25 Start: 18367, Stop: 18912, Start Num: 18

Candidate Starts for Luna18_25:

(Start: 18 @18367 has 60 MA's), (19, 18385), (23, 18421), (28, 18502), (37, 18574), (51, 18649), (54, 18661), (57, 18679), (65, 18748), (72, 18772), (75, 18781), (82, 18859),

Gene: Mercedes_23 Start: 17482, Stop: 18048, Start Num: 18

Candidate Starts for Mercedes_23:

(6, 17320), (8, 17335), (Start: 18 @17482 has 60 MA's), (19, 17500), (28, 17617), (30, 17632), (39, 17704), (45, 17728), (57, 17794), (63, 17824), (71, 17884),

Gene: Milani_29 Start: 20700, Stop: 21209, Start Num: 18

Candidate Starts for Milani_29:

(10, 20607), (11, 20613), (Start: 18 @20700 has 60 MA's), (19, 20718), (23, 20754), (27, 20832), (32, 20862), (38, 20916), (40, 20925), (42, 20934), (45, 20946), (47, 20961), (48, 20964), (53, 20991), (57, 21012), (59, 21021), (65, 21081), (66, 21084), (70, 21099),

Gene: Morrigan_25 Start: 19253, Stop: 19798, Start Num: 18

Candidate Starts for Morrigan_25:

(Start: 18 @19253 has 60 MA's), (19, 19271), (23, 19307), (28, 19388), (29, 19391), (37, 19460), (39, 19475), (51, 19535), (54, 19547), (57, 19565), (65, 19634), (72, 19658), (79, 19718), (82, 19745),

Gene: MortySmith_34 Start: 22946, Stop: 23491, Start Num: 18

Candidate Starts for MortySmith_34:

(15, 22910), (Start: 18 @22946 has 60 MA's), (23, 23000), (26, 23075), (28, 23081), (37, 23153), (39, 23168), (51, 23228), (66, 23330), (72, 23351), (76, 23381), (81, 23432),

Gene: NarutoRun_36 Start: 23886, Stop: 24431, Start Num: 18

Candidate Starts for NarutoRun_36:

(Start: 18 @23886 has 60 MA's), (28, 24021), (51, 24168), (58, 24204), (65, 24267), (72, 24291), (74, 24297), (76, 24321), (78, 24339), (82, 24378), (84, 24402),

Gene: Neptune_36 Start: 23886, Stop: 24431, Start Num: 18

Candidate Starts for Neptune_36:

(Start: 18 @23886 has 60 MA's), (23, 23940), (28, 24021), (44, 24129), (45, 24132), (51, 24168), (72, 24291), (74, 24297), (78, 24339), (82, 24378),

Gene: OverHedge_36 Start: 23876, Stop: 24421, Start Num: 18

Candidate Starts for OverHedge_36:

(Start: 18 @23876 has 60 MA's), (23, 23930), (28, 24011), (44, 24119), (45, 24122), (51, 24158), (65, 24257), (72, 24281), (74, 24287), (78, 24329), (82, 24368),

Gene: Pharpay_36 Start: 23931, Stop: 24476, Start Num: 18

Candidate Starts for Pharpay_36:

(Start: 18 @23931 has 60 MA's), (23, 23985), (26, 24060), (28, 24066), (30, 24081), (39, 24153), (51, 24213), (52, 24216), (72, 24336),

Gene: PhunaPhoke_36 Start: 23904, Stop: 24449, Start Num: 18

Candidate Starts for PhunaPhoke_36:

(Start: 18 @23904 has 60 MA's), (23, 23958), (28, 24039), (44, 24147), (45, 24150), (51, 24186), (65, 24285), (69, 24297), (72, 24309), (74, 24315), (78, 24357), (82, 24396), (84, 24420),

Gene: Potty_36 Start: 23909, Stop: 24454, Start Num: 18

Candidate Starts for Potty_36:

(Start: 18 @23909 has 60 MA's), (23, 23963), (28, 24044), (44, 24152), (45, 24155), (51, 24191), (65, 24290), (69, 24302), (72, 24314), (74, 24320), (78, 24362), (84, 24425),

Gene: Poultruss_35 Start: 24255, Stop: 24800, Start Num: 18

Candidate Starts for Poultruss_35:

(Start: 18 @24255 has 60 MA's), (23, 24309), (28, 24390), (50, 24531), (51, 24537), (72, 24660),

Gene: QuadZero_24 Start: 17701, Stop: 18249, Start Num: 18

Candidate Starts for QuadZero_24:

(Start: 18 @17701 has 60 MA's), (19, 17719), (23, 17755), (28, 17836), (30, 17851), (33, 17878), (39, 17923), (51, 17983), (65, 18082),

Gene: Rachella_36 Start: 23912, Stop: 24457, Start Num: 18

Candidate Starts for Rachella_36:

(Start: 18 @23912 has 60 MA's), (23, 23966), (28, 24047), (44, 24155), (51, 24194), (58, 24230), (65, 24293), (72, 24317), (74, 24323), (78, 24365), (82, 24404), (84, 24428),

Gene: Rie18_36 Start: 23400, Stop: 23948, Start Num: 18

Candidate Starts for Rie18_36:

(5, 23139), (Start: 18 @23400 has 60 MA's), (23, 23454), (28, 23535), (52, 23685), (72, 23805), (84, 23916),

Gene: RikSengupta_38 Start: 24244, Stop: 24819, Start Num: 18

Candidate Starts for RikSengupta_38:

(Start: 17 @24235 has 1 MA's), (Start: 18 @24244 has 60 MA's), (19, 24262), (Start: 20 @24265 has 1 MA's), (25, 24364), (28, 24379), (37, 24451), (38, 24460), (50, 24520), (52, 24529), (57, 24556), (72, 24649), (80, 24718), (83, 24742),

Gene: Rona_21 Start: 19073, Stop: 19561, Start Num: 21

Candidate Starts for Rona_21:

(Start: 21 @19073 has 5 MA's), (31, 19208), (36, 19259), (41, 19286), (42, 19289), (43, 19292), (46, 19310), (47, 19316), (52, 19340), (58, 19373), (59, 19376), (60, 19379), (68, 19448),

Gene: Schimmels22_24 Start: 18148, Stop: 18681, Start Num: 18

Candidate Starts for Schimmels22_24:

(Start: 18 @18148 has 60 MA's), (19, 18166), (25, 18268), (28, 18283), (37, 18355), (46, 18403), (56, 18457), (57, 18460), (63, 18490), (65, 18529), (72, 18553), (77, 18589), (79, 18613), (86, 18673),

Gene: Scissor2024_24 Start: 17784, Stop: 18317, Start Num: 18

Candidate Starts for Scissor2024_24:

(Start: 18 @17784 has 60 MA's), (19, 17802), (25, 17904), (28, 17919), (30, 17934), (37, 17991), (57, 18096), (63, 18126), (65, 18165), (72, 18189), (77, 18225), (79, 18249), (85, 18306), (86, 18309),

Gene: Sharkboy_21 Start: 19060, Stop: 19548, Start Num: 21

Candidate Starts for Sharkboy_21:

(Start: 21 @19060 has 5 MA's), (31, 19195), (36, 19246), (41, 19273), (42, 19276), (43, 19279), (46, 19297), (47, 19303), (52, 19327), (58, 19360), (59, 19363), (60, 19366), (68, 19435),

Gene: Shrew_37 Start: 13878, Stop: 14339, Start Num: 20

Candidate Starts for Shrew_37:

(Start: 20 @13878 has 1 MA's), (22, 13902), (46, 14112), (55, 14166), (61, 14187), (62, 14202), (73, 14271),

Gene: SilentWarrior_35 Start: 22987, Stop: 23532, Start Num: 18

Candidate Starts for SilentWarrior_35:

(15, 22951), (Start: 18 @22987 has 60 MA's), (23, 23041), (28, 23122), (34, 23176), (37, 23194), (39, 23209), (51, 23269), (58, 23305), (66, 23371), (72, 23392), (81, 23473),

Gene: Snakehole_36 Start: 23089, Stop: 23634, Start Num: 18

Candidate Starts for Snakehole_36:

(1, 22579), (2, 22606), (16, 23074), (Start: 18 @23089 has 60 MA's), (23, 23143), (28, 23224), (51, 23371), (65, 23470), (72, 23494), (78, 23542), (82, 23581), (84, 23605),

Gene: Sparcetus_38 Start: 24123, Stop: 24698, Start Num: 18

Candidate Starts for Sparcetus_38:

(Start: 17 @24114 has 1 MA's), (Start: 18 @24123 has 60 MA's), (19, 24141), (Start: 20 @24144 has 1 MA's), (25, 24243), (28, 24258), (37, 24330), (38, 24339), (50, 24399), (52, 24408), (57, 24435), (72, 24528), (80, 24597), (83, 24621),

Gene: Sucha_25 Start: 19062, Stop: 19562, Start Num: 18

Candidate Starts for Sucha_25:

(Start: 18 @19062 has 60 MA's), (Start: 20 @19083 has 1 MA's), (23, 19116), (36, 19266), (39, 19284), (47, 19323), (48, 19326), (50, 19338), (56, 19371), (67, 19452), (70, 19464),

Gene: Tedro_36 Start: 23382, Stop: 23927, Start Num: 18

Candidate Starts for Tedro_36:

(Start: 18 @23382 has 60 MA's), (23, 23436), (28, 23517), (44, 23625), (45, 23628), (51, 23664), (72, 23787), (74, 23793), (78, 23835), (82, 23874),

Gene: TinyMiny_38 Start: 24133, Stop: 24717, Start Num: 17

Candidate Starts for TinyMiny_38:

(Start: 17 @24133 has 1 MA's), (Start: 18 @24142 has 60 MA's), (19, 24160), (Start: 20 @24163 has 1 MA's), (25, 24262), (28, 24277), (37, 24349), (38, 24358), (50, 24418), (52, 24427), (57, 24454), (64, 24493), (72, 24547), (80, 24616), (83, 24640),

Gene: Tinyman4_24 Start: 17785, Stop: 18318, Start Num: 18

Candidate Starts for Tinyman4_24:

(Start: 18 @17785 has 60 MA's), (19, 17803), (25, 17905), (28, 17920), (37, 17992), (46, 18040), (57, 18097), (58, 18103), (63, 18127), (65, 18166), (72, 18190), (77, 18226), (79, 18250), (86, 18310),

Gene: Tongui_36 Start: 23339, Stop: 23887, Start Num: 18

Candidate Starts for Tongui_36:

(7, 23183), (Start: 18 @23339 has 60 MA's), (23, 23393), (28, 23474), (35, 23537), (72, 23744), (84, 23855),

Gene: TwoBits_23 Start: 18079, Stop: 18627, Start Num: 18

Candidate Starts for TwoBits_23:

(Start: 18 @18079 has 60 MA's), (19, 18097), (23, 18133), (28, 18214), (30, 18229), (51, 18361), (65, 18460),

Gene: Wardwill_26 Start: 17859, Stop: 18407, Start Num: 18

Candidate Starts for Wardwill_26:

(Start: 18 @17859 has 60 MA's), (19, 17877), (23, 17913), (28, 17994), (30, 18009), (33, 18036), (37, 18066), (39, 18081), (51, 18141), (65, 18240),

Gene: WestPM_23 Start: 17628, Stop: 18161, Start Num: 18

Candidate Starts for WestPM_23:

(12, 17568), (Start: 18 @17628 has 60 MA's), (19, 17646), (23, 17682), (25, 17748), (28, 17763), (37, 17835), (57, 17940), (63, 17970), (64, 17979), (72, 18033), (77, 18069), (79, 18093), (86, 18153),

Gene: WilliamStrong_23 Start: 19363, Stop: 19908, Start Num: 18

Candidate Starts for WilliamStrong_23:

(4, 19108), (9, 19237), (14, 19327), (Start: 18 @19363 has 60 MA's), (28, 19498), (30, 19513), (35, 19561), (39, 19585), (51, 19645), (54, 19657), (65, 19744), (66, 19747), (72, 19768),

Gene: Zayuliv_24 Start: 18287, Stop: 18835, Start Num: 18

Candidate Starts for Zayuliv_24:

(Start: 18 @18287 has 60 MA's), (19, 18305), (23, 18341), (28, 18422), (30, 18437), (33, 18464), (37, 18494), (39, 18509), (46, 18542), (51, 18569), (65, 18668),

Gene: Zepp_25 Start: 17685, Stop: 18233, Start Num: 18

Candidate Starts for Zepp_25:

(Start: 18 @17685 has 60 MA's), (19, 17703), (23, 17739), (28, 17820), (30, 17835), (33, 17862), (37, 17892), (39, 17907), (51, 17967), (58, 18003), (65, 18066),