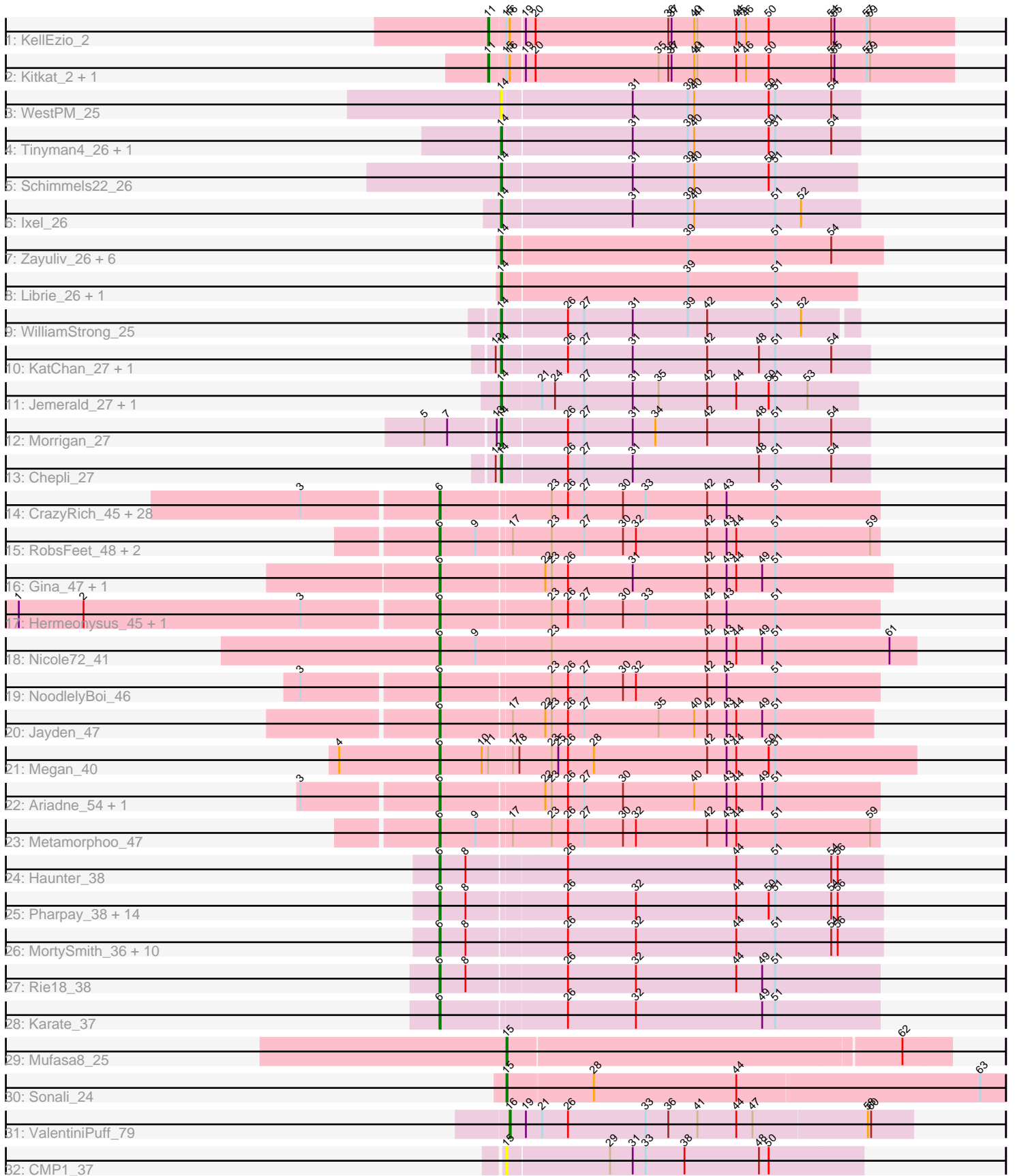


Pham 159105



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 159105 Report

This analysis was run 04/28/24 on database version 559.

Pham number 159105 has 100 members, 16 are drafts.

Phages represented in each track:

- Track 1 : KelleEzio_2
- Track 2 : Kitkat_2, BeatusComedenti_2
- Track 3 : WestPM_25
- Track 4 : Tinyman4_26, HerculesXL_26
- Track 5 : Schimmels22_26
- Track 6 : Ixel_26
- Track 7 : Zayuliv_26, LilTerminator_27, Zepp_27, QuadZero_26, Fulton_27, Greenlvy_27, Hasitha_26
- Track 8 : Librie_26, CaptainRex_26
- Track 9 : WilliamStrong_25
- Track 10 : KatChan_27, Luna18_27
- Track 11 : Jemerald_27, Juicer_27
- Track 12 : Morrigan_27
- Track 13 : Chepli_27
- Track 14 : CrazyRich_45, EarickHC_46, Selwyn23_47, Ramiel05_45, Honeyfin_47, Kowalski_45, Busephillis_45, PierreOrion_46, Jefe_46, Ganandorf_45, Piperis_46, Cranjis_47, Antares_46, KaiHaiDragon_46, Crisis_47, Phorgeous_45, Quhwah_49, Onika_45, Jollipop_46, Phrancesco_46, Shotgun_45, BrazzalePHS_45, Paschalis_45, Savannah_45, Scumberland_47, ClearAsMud_48, Yeti_46, LittleFortune_47, PiperSansNom_46
- Track 15 : RobsFeet_48, Tyumbra_45, Fireman_47
- Track 16 : Gina_47, Teamocil_47
- Track 17 : Hermeonysus_45, Pulchra_47
- Track 18 : Nicole72_41
- Track 19 : NoodlelyBoi_46
- Track 20 : Jayden_47
- Track 21 : Megan_40
- Track 22 : Ariadne_54, Smarties_54
- Track 23 : Metamorphoo_47
- Track 24 : Haunter_38
- Track 25 : Pharpay_38, Krampus_38, Neptune_38, Snakehole_38, Anakin_38, OverHedge_39, Rachella_38, AnnaSerena_38, PhunaPhoke_38, CoolCookie_43, Potty_38, Tedro_38, Cybele_38, NarutoRun_38, Gilda_38
- Track 26 : MortySmith_36, DannyDe_37, Poultruss_38, Kate_38, Hiddenleaf_37, JingleBells_37, Crestdrop_38, FreddieHg_37, Aesir_37, JDawG_37, Chivey_37
- Track 27 : Rie18_38
- Track 28 : Karate_37

- Track 29 : Mufasa8_25
- Track 30 : Sonali_24
- Track 31 : ValentiniPuff_79
- Track 32 : CMP1_37

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

The start number called the most often in the published annotations is 6, it was called in 61 of the 84 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aesir_37, Anakin_38, AnnaSerena_38, Antares_46, Ariadne_54, BrazzalePHS_45, Busephilis_45, Chivey_37, ClearAsMud_48, CoolCookie_43, Cranjis_47, CrazyRich_45, Crestdrop_38, Crisis_47, Cybele_38, DannyDe_37, EarickHC_46, Fireman_47, FreddieHg_37, Ganandorf_45, Gilda_38, Gina_47, Haunter_38, Hermeonysus_45, Hiddenleaf_37, Honeyfin_47, JDawG_37, Jayden_47, Jefe_46, JingleBells_37, Jollipop_46, KaiHaiDragon_46, Karate_37, Kate_38, Kowalski_45, Krampus_38, LittleFortune_47, Megan_40, Metamorphoo_47, MortySmith_36, NarutoRun_38, Neptune_38, Nicole72_41, NoodlelyBoi_46, Onika_45, OverHedge_39, Paschalis_45, Pharpay_38, Phorgeous_45, Phrancesco_46, PhunaPhoke_38, PierreOrion_46, PiperSansNom_46, Piperis_46, Potty_38, Poultruss_38, Pulchra_47, Quhwah_49, Rachella_38, Ramiel05_45, Rie18_38, RobsFeet_48, Savannah_45, Scumberland_47, Selwyn23_47, Shotgun_45, Smarties_54, Snakehole_38, Teamocil_47, Tedro_38, Tyumbra_45, Yeti_46,

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

-

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

- BeatusComedenti_2, CMP1_37, CaptainRex_26, Chepli_27, Fulton_27, Greenlvy_27, Hasitha_26, HerculesXL_26, Ixel_26, Jemerald_27, Juicer_27, KatChan_27, KellEzio_2, Kitkat_2, Librie_26, LilTerminator_27, Luna18_27, Morigan_27, Mufasa8_25, QuadZero_26, Schimmels22_26, Sonali_24, Tinyman4_26, ValentiniPuff_79, WestPM_25, WilliamStrong_25, Zayuliv_26, Zepp_27,

Summary by start number:

Start 6:

- Found in 72 of 100 (72.0%) of genes in pham
- Manual Annotations of this start: 61 of 84
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aesir_37 (EF), Anakin_38 (EF), AnnaSerena_38 (EF), Antares_46 (EC), Ariadne_54 (EC), BrazzalePHS_45 (EC), Busephilis_45 (EC), Chivey_37 (EF), ClearAsMud_48 (EC), CoolCookie_43 (EF), Cranjis_47 (EC), CrazyRich_45 (EC), Crestdrop_38 (EF), Crisis_47 (EC), Cybele_38 (EF), DannyDe_37 (EF), EarickHC_46 (EC), Fireman_47 (EC), FreddieHg_37 (EF), Ganandorf_45 (EC), Gilda_38 (EF), Gina_47 (EC), Haunter_38 (EF), Hermeonysus_45 (EC), Hiddenleaf_37 (EF), Honeyfin_47 (EC), JDawG_37 (EF), Jayden_47 (EC), Jefe_46 (EC), JingleBells_37 (EF), Jollipop_46 (EC),

KaiHaiDragon_46 (EC), Karate_37 (EF), Kate_38 (EF), Kowalski_45 (EC), Krampus_38 (EF), LittleFortune_47 (EC), Megan_40 (EC), Metamorphoo_47 (EC), MortySmith_36 (EF), NarutoRun_38 (EF), Neptune_38 (EF), Nicole72_41 (EC), NoodlelyBoi_46 (EC), Onika_45 (EC), OverHedge_39 (EF), Paschalis_45 (EC), Pharpay_38 (EF), Phorgeous_45 (EC), Phrancesco_46 (EC), PhunaPhoke_38 (EF), PierreOrion_46 (EC), PiperSansNom_46 (EC), Piperis_46 (EC), Potty_38 (EF), Poultruss_38 (EF), Pulchra_47 (EC), Quhwah_49 (EC), Rachella_38 (EF), Ramiel05_45 (EC), Rie18_38 (EF), RobsFeet_48 (EC), Savannah_45 (EC), Scumberland_47 (EC), Selwyn23_47 (EC), Shotgun_45 (EC), Smarties_54 (EC), Snakehole_38 (EF), Teamocil_47 (EC), Tedro_38 (EF), Tyumbra_45 (EC), Yeti_46 (EC),

Start 11:

- Found in 4 of 100 (4.0%) of genes in pham
- Manual Annotations of this start: 3 of 84
- Called 75.0% of time when present
- Phage (with cluster) where this start called: BeatusComedenti_2 (AT), Kellezio_2 (AT), Kitkat_2 (AT),

Start 14:

- Found in 21 of 100 (21.0%) of genes in pham
- Manual Annotations of this start: 17 of 84
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CaptainRex_26 (EA5), Chepli_27 (EA6), Fulton_27 (EA5), Greenlvy_27 (EA5), Hasitha_26 (EA5), HerculesXL_26 (EA11), Ixel_26 (EA11), Jemerald_27 (EA6), Juicer_27 (EA6), KatChan_27 (EA6), Librie_26 (EA5), LilTerminator_27 (EA5), Luna18_27 (EA6), Morrigan_27 (EA6), QuadZero_26 (EA5), Schimmels22_26 (EA11), Tinyman4_26 (EA11), WestPM_25 (EA11), WilliamStrong_25 (EA6), Zayuliv_26 (EA5), Zepp_27 (EA5),

Start 15:

- Found in 6 of 100 (6.0%) of genes in pham
- Manual Annotations of this start: 2 of 84
- Called 50.0% of time when present
- Phage (with cluster) where this start called: CMP1_37 (singleton), Mufasa8_25 (FG), Sonali_24 (FG),

Start 16:

- Found in 4 of 100 (4.0%) of genes in pham
- Manual Annotations of this start: 1 of 84
- Called 25.0% of time when present
- Phage (with cluster) where this start called: ValentiniPuff_79 (singleton),

Summary by clusters:

There are 8 clusters represented in this pham: singleton, EA11, EF, EC, AT, FG, EA5, EA6,

Info for manual annotations of cluster AT:

- Start number 11 was manually annotated 3 times for cluster AT.

Info for manual annotations of cluster EA11:

- Start number 14 was manually annotated 4 times for cluster EA11.

Info for manual annotations of cluster EA5:

- Start number 14 was manually annotated 6 times for cluster EA5.

Info for manual annotations of cluster EA6:

- Start number 14 was manually annotated 7 times for cluster EA6.

Info for manual annotations of cluster EC:

- Start number 6 was manually annotated 39 times for cluster EC.

Info for manual annotations of cluster EF:

- Start number 6 was manually annotated 22 times for cluster EF.

Info for manual annotations of cluster FG:

- Start number 15 was manually annotated 2 times for cluster FG.

Gene Information:

Gene: Aesir_37 Start: 24476, Stop: 24877, Start Num: 6

Candidate Starts for Aesir_37:

(Start: 6 @24476 has 61 MA's), (8, 24500), (26, 24587), (32, 24650), (44, 24743), (51, 24779), (54, 24830), (56, 24836),

Gene: Anakin_38 Start: 24796, Stop: 25197, Start Num: 6

Candidate Starts for Anakin_38:

(Start: 6 @24796 has 61 MA's), (8, 24820), (26, 24907), (32, 24970), (44, 25063), (50, 25093), (51, 25099), (54, 25150), (56, 25156),

Gene: AnnaSerena_38 Start: 24831, Stop: 25232, Start Num: 6

Candidate Starts for AnnaSerena_38:

(Start: 6 @24831 has 61 MA's), (8, 24855), (26, 24942), (32, 25005), (44, 25098), (50, 25128), (51, 25134), (54, 25185), (56, 25191),

Gene: Antares_46 Start: 32014, Stop: 32415, Start Num: 6

Candidate Starts for Antares_46:

(3, 31891), (Start: 6 @32014 has 61 MA's), (23, 32113), (26, 32128), (27, 32143), (30, 32179), (33, 32200), (42, 32257), (43, 32275), (51, 32320),

Gene: Ariadne_54 Start: 33634, Stop: 34035, Start Num: 6

Candidate Starts for Ariadne_54:

(3, 33511), (Start: 6 @33634 has 61 MA's), (22, 33727), (23, 33733), (26, 33748), (27, 33763), (30, 33799), (40, 33865), (43, 33895), (44, 33904), (49, 33928), (51, 33940),

Gene: BeatusComedenti_2 Start: 788, Stop: 1213, Start Num: 11

Candidate Starts for BeatusComedenti_2:

(Start: 11 @788 has 3 MA's), (Start: 15 @803 has 2 MA's), (Start: 16 @806 has 1 MA's), (19, 818), (20, 827), (35, 941), (36, 950), (37, 953), (40, 974), (41, 977), (44, 1013), (46, 1022), (50, 1043), (54, 1100), (55, 1103), (57, 1133), (59, 1136),

Gene: BrazzalePHS_45 Start: 31809, Stop: 32210, Start Num: 6

Candidate Starts for BrazzalePHS_45:

(3, 31686), (Start: 6 @31809 has 61 MA's), (23, 31908), (26, 31923), (27, 31938), (30, 31974), (33, 31995), (42, 32052), (43, 32070), (51, 32115),

Gene: Busephilis_45 Start: 31750, Stop: 32151, Start Num: 6

Candidate Starts for Busephilis_45:

(3, 31627), (Start: 6 @31750 has 61 MA's), (23, 31849), (26, 31864), (27, 31879), (30, 31915), (33, 31936), (42, 31993), (43, 32011), (51, 32056),

Gene: CMP1_37 Start: 36378, Stop: 36704, Start Num: 15

Candidate Starts for CMP1_37:

(Start: 15 @36378 has 2 MA's), (29, 36471), (31, 36492), (33, 36504), (38, 36540), (48, 36609), (50, 36618),

Gene: CaptainRex_26 Start: 18608, Stop: 18931, Start Num: 14

Candidate Starts for CaptainRex_26:

(Start: 14 @18608 has 17 MA's), (39, 18776), (51, 18857),

Gene: Chepli_27 Start: 19263, Stop: 19598, Start Num: 14

Candidate Starts for Chepli_27:

(12, 19260), (Start: 14 @19263 has 17 MA's), (26, 19320), (27, 19335), (31, 19380), (48, 19497), (51, 19512), (54, 19563),

Gene: Chivey_37 Start: 23887, Stop: 24288, Start Num: 6

Candidate Starts for Chivey_37:

(Start: 6 @23887 has 61 MA's), (8, 23911), (26, 23998), (32, 24061), (44, 24154), (51, 24190), (54, 24241), (56, 24247),

Gene: ClearAsMud_48 Start: 31890, Stop: 32291, Start Num: 6

Candidate Starts for ClearAsMud_48:

(3, 31767), (Start: 6 @31890 has 61 MA's), (23, 31989), (26, 32004), (27, 32019), (30, 32055), (33, 32076), (42, 32133), (43, 32151), (51, 32196),

Gene: CoolCookie_43 Start: 24826, Stop: 25227, Start Num: 6

Candidate Starts for CoolCookie_43:

(Start: 6 @24826 has 61 MA's), (8, 24850), (26, 24937), (32, 25000), (44, 25093), (50, 25123), (51, 25129), (54, 25180), (56, 25186),

Gene: Cranjis_47 Start: 31969, Stop: 32370, Start Num: 6

Candidate Starts for Cranjis_47:

(3, 31846), (Start: 6 @31969 has 61 MA's), (23, 32068), (26, 32083), (27, 32098), (30, 32134), (33, 32155), (42, 32212), (43, 32230), (51, 32275),

Gene: CrazyRich_45 Start: 31778, Stop: 32179, Start Num: 6

Candidate Starts for CrazyRich_45:

(3, 31655), (Start: 6 @31778 has 61 MA's), (23, 31877), (26, 31892), (27, 31907), (30, 31943), (33, 31964), (42, 32021), (43, 32039), (51, 32084),

Gene: Crestdrop_38 Start: 23798, Stop: 24199, Start Num: 6

Candidate Starts for Crestdrop_38:

(Start: 6 @23798 has 61 MA's), (8, 23822), (26, 23909), (32, 23972), (44, 24065), (51, 24101), (54, 24152), (56, 24158),

Gene: Crisis_47 Start: 31769, Stop: 32170, Start Num: 6

Candidate Starts for Crisis_47:

(3, 31646), (Start: 6 @31769 has 61 MA's), (23, 31868), (26, 31883), (27, 31898), (30, 31934), (33, 31955), (42, 32012), (43, 32030), (51, 32075),

Gene: Cybele_38 Start: 24796, Stop: 25197, Start Num: 6

Candidate Starts for Cybele_38:

(Start: 6 @24796 has 61 MA's), (8, 24820), (26, 24907), (32, 24970), (44, 25063), (50, 25093), (51, 25099), (54, 25150), (56, 25156),

Gene: DannyDe_37 Start: 23893, Stop: 24294, Start Num: 6

Candidate Starts for DannyDe_37:

(Start: 6 @23893 has 61 MA's), (8, 23917), (26, 24004), (32, 24067), (44, 24160), (51, 24196), (54, 24247), (56, 24253),

Gene: EarickHC_46 Start: 31692, Stop: 32093, Start Num: 6

Candidate Starts for EarickHC_46:

(3, 31569), (Start: 6 @31692 has 61 MA's), (23, 31791), (26, 31806), (27, 31821), (30, 31857), (33, 31878), (42, 31935), (43, 31953), (51, 31998),

Gene: Fireman_47 Start: 33300, Stop: 33701, Start Num: 6

Candidate Starts for Fireman_47:

(Start: 6 @33300 has 61 MA's), (9, 33333), (17, 33363), (23, 33399), (27, 33429), (30, 33465), (32, 33477), (42, 33543), (43, 33561), (44, 33570), (51, 33606), (59, 33693),

Gene: FreddieHg_37 Start: 23903, Stop: 24304, Start Num: 6

Candidate Starts for FreddieHg_37:

(Start: 6 @23903 has 61 MA's), (8, 23927), (26, 24014), (32, 24077), (44, 24170), (51, 24206), (54, 24257), (56, 24263),

Gene: Fulton_27 Start: 18590, Stop: 18937, Start Num: 14

Candidate Starts for Fulton_27:

(Start: 14 @18590 has 17 MA's), (39, 18758), (51, 18839), (54, 18890),

Gene: Ganandorf_45 Start: 31831, Stop: 32232, Start Num: 6

Candidate Starts for Ganandorf_45:

(3, 31708), (Start: 6 @31831 has 61 MA's), (23, 31930), (26, 31945), (27, 31960), (30, 31996), (33, 32017), (42, 32074), (43, 32092), (51, 32137),

Gene: Gilda_38 Start: 24820, Stop: 25221, Start Num: 6

Candidate Starts for Gilda_38:

(Start: 6 @24820 has 61 MA's), (8, 24844), (26, 24931), (32, 24994), (44, 25087), (50, 25117), (51, 25123), (54, 25174), (56, 25180),

Gene: Gina_47 Start: 31433, Stop: 31846, Start Num: 6

Candidate Starts for Gina_47:

(Start: 6 @31433 has 61 MA's), (22, 31526), (23, 31532), (26, 31547), (31, 31607), (42, 31676), (43, 31694), (44, 31703), (49, 31727), (51, 31739),

Gene: Greenlvy_27 Start: 19176, Stop: 19523, Start Num: 14

Candidate Starts for Greenlvy_27:

(Start: 14 @19176 has 17 MA's), (39, 19344), (51, 19425), (54, 19476),

Gene: Hasitha_26 Start: 18602, Stop: 18949, Start Num: 14

Candidate Starts for Hasitha_26:

(Start: 14 @18602 has 17 MA's), (39, 18770), (51, 18851), (54, 18902),

Gene: Haunter_38 Start: 24212, Stop: 24613, Start Num: 6

Candidate Starts for Haunter_38:

(Start: 6 @24212 has 61 MA's), (8, 24236), (26, 24323), (44, 24479), (51, 24515), (54, 24566), (56, 24572),

Gene: HerculesXL_26 Start: 18674, Stop: 19000, Start Num: 14

Candidate Starts for HerculesXL_26:

(Start: 14 @18674 has 17 MA's), (31, 18791), (39, 18842), (40, 18848), (50, 18917), (51, 18923), (54, 18974),

Gene: Hermeonysus_45 Start: 31698, Stop: 32099, Start Num: 6

Candidate Starts for Hermeonysus_45:

(1, 31314), (2, 31374), (3, 31575), (Start: 6 @31698 has 61 MA's), (23, 31797), (26, 31812), (27, 31827), (30, 31863), (33, 31884), (42, 31941), (43, 31959), (51, 32004),

Gene: Hiddenleaf_37 Start: 23887, Stop: 24288, Start Num: 6

Candidate Starts for Hiddenleaf_37:

(Start: 6 @23887 has 61 MA's), (8, 23911), (26, 23998), (32, 24061), (44, 24154), (51, 24190), (54, 24241), (56, 24247),

Gene: Honeyfin_47 Start: 32019, Stop: 32420, Start Num: 6

Candidate Starts for Honeyfin_47:

(3, 31896), (Start: 6 @32019 has 61 MA's), (23, 32118), (26, 32133), (27, 32148), (30, 32184), (33, 32205), (42, 32262), (43, 32280), (51, 32325),

Gene: Ixel_26 Start: 18510, Stop: 18836, Start Num: 14

Candidate Starts for Ixel_26:

(Start: 14 @18510 has 17 MA's), (31, 18627), (39, 18678), (40, 18684), (51, 18759), (52, 18783),

Gene: JDawG_37 Start: 24471, Stop: 24872, Start Num: 6

Candidate Starts for JDawG_37:

(Start: 6 @24471 has 61 MA's), (8, 24495), (26, 24582), (32, 24645), (44, 24738), (51, 24774), (54, 24825), (56, 24831),

Gene: Jayden_47 Start: 32140, Stop: 32535, Start Num: 6

Candidate Starts for Jayden_47:

(Start: 6 @32140 has 61 MA's), (17, 32203), (22, 32233), (23, 32239), (26, 32254), (27, 32269), (35, 32338), (40, 32371), (42, 32383), (43, 32401), (44, 32410), (49, 32434), (51, 32446),

Gene: Jefe_46 Start: 31756, Stop: 32157, Start Num: 6

Candidate Starts for Jefe_46:

(3, 31633), (Start: 6 @31756 has 61 MA's), (23, 31855), (26, 31870), (27, 31885), (30, 31921), (33, 31942), (42, 31999), (43, 32017), (51, 32062),

Gene: Jemerald_27 Start: 20196, Stop: 20519, Start Num: 14

Candidate Starts for Jemerald_27:

(Start: 14 @20196 has 17 MA's), (21, 20229), (24, 20241), (27, 20268), (31, 20313), (35, 20337), (42, 20382), (44, 20409), (50, 20439), (51, 20445), (53, 20475),

Gene: JingleBells_37 Start: 24008, Stop: 24409, Start Num: 6

Candidate Starts for JingleBells_37:

(Start: 6 @24008 has 61 MA's), (8, 24032), (26, 24119), (32, 24182), (44, 24275), (51, 24311), (54, 24362), (56, 24368),

Gene: Jollipop_46 Start: 32095, Stop: 32496, Start Num: 6

Candidate Starts for Jollipop_46:

(3, 31972), (Start: 6 @32095 has 61 MA's), (23, 32194), (26, 32209), (27, 32224), (30, 32260), (33, 32281), (42, 32338), (43, 32356), (51, 32401),

Gene: Juicer_27 Start: 20196, Stop: 20519, Start Num: 14

Candidate Starts for Juicer_27:

(Start: 14 @20196 has 17 MA's), (21, 20229), (24, 20241), (27, 20268), (31, 20313), (35, 20337), (42, 20382), (44, 20409), (50, 20439), (51, 20445), (53, 20475),

Gene: KaiHaiDragon_46 Start: 31692, Stop: 32093, Start Num: 6

Candidate Starts for KaiHaiDragon_46:

(3, 31569), (Start: 6 @31692 has 61 MA's), (23, 31791), (26, 31806), (27, 31821), (30, 31857), (33, 31878), (42, 31935), (43, 31953), (51, 31998),

Gene: Karate_37 Start: 24819, Stop: 25217, Start Num: 6

Candidate Starts for Karate_37:

(Start: 6 @24819 has 61 MA's), (26, 24930), (32, 24993), (49, 25110), (51, 25122),

Gene: KatChan_27 Start: 19269, Stop: 19604, Start Num: 14

Candidate Starts for KatChan_27:

(12, 19266), (Start: 14 @19269 has 17 MA's), (26, 19326), (27, 19341), (31, 19386), (42, 19455), (48, 19503), (51, 19518), (54, 19569),

Gene: Kate_38 Start: 24828, Stop: 25229, Start Num: 6

Candidate Starts for Kate_38:

(Start: 6 @24828 has 61 MA's), (8, 24852), (26, 24939), (32, 25002), (44, 25095), (51, 25131), (54, 25182), (56, 25188),

Gene: KellEzio_2 Start: 788, Stop: 1213, Start Num: 11

Candidate Starts for KellEzio_2:

(Start: 11 @788 has 3 MA's), (Start: 15 @803 has 2 MA's), (Start: 16 @806 has 1 MA's), (19, 818), (20, 827), (36, 950), (37, 953), (40, 974), (41, 977), (44, 1013), (45, 1016), (46, 1022), (50, 1043), (54, 1100), (55, 1103), (57, 1133), (59, 1136),

Gene: Kitkat_2 Start: 788, Stop: 1213, Start Num: 11

Candidate Starts for Kitkat_2:

(Start: 11 @788 has 3 MA's), (Start: 15 @803 has 2 MA's), (Start: 16 @806 has 1 MA's), (19, 818), (20, 827), (35, 941), (36, 950), (37, 953), (40, 974), (41, 977), (44, 1013), (46, 1022), (50, 1043), (54, 1100), (55, 1103), (57, 1133), (59, 1136),

Gene: Kowalski_45 Start: 31805, Stop: 32206, Start Num: 6

Candidate Starts for Kowalski_45:

(3, 31682), (Start: 6 @31805 has 61 MA's), (23, 31904), (26, 31919), (27, 31934), (30, 31970), (33, 31991), (42, 32048), (43, 32066), (51, 32111),

Gene: Krampus_38 Start: 24828, Stop: 25229, Start Num: 6

Candidate Starts for Krampus_38:

(Start: 6 @24828 has 61 MA's), (8, 24852), (26, 24939), (32, 25002), (44, 25095), (50, 25125), (51, 25131), (54, 25182), (56, 25188),

Gene: Librie_26 Start: 18608, Stop: 18931, Start Num: 14

Candidate Starts for Librie_26:

(Start: 14 @18608 has 17 MA's), (39, 18776), (51, 18857),

Gene: LilTerminator_27 Start: 18608, Stop: 18955, Start Num: 14

Candidate Starts for LilTerminator_27:

(Start: 14 @18608 has 17 MA's), (39, 18776), (51, 18857), (54, 18908),

Gene: LittleFortune_47 Start: 32061, Stop: 32462, Start Num: 6

Candidate Starts for LittleFortune_47:

(3, 31938), (Start: 6 @32061 has 61 MA's), (23, 32160), (26, 32175), (27, 32190), (30, 32226), (33, 32247), (42, 32304), (43, 32322), (51, 32367),

Gene: Luna18_27 Start: 19269, Stop: 19604, Start Num: 14

Candidate Starts for Luna18_27:

(12, 19266), (Start: 14 @19269 has 17 MA's), (26, 19326), (27, 19341), (31, 19386), (42, 19455), (48, 19503), (51, 19518), (54, 19569),

Gene: Megan_40 Start: 32577, Stop: 33014, Start Num: 6

Candidate Starts for Megan_40:

(4, 32484), (Start: 6 @32577 has 61 MA's), (10, 32616), (Start: 11 @32622 has 3 MA's), (17, 32643), (18, 32649), (23, 32679), (25, 32685), (26, 32694), (28, 32718), (42, 32823), (43, 32841), (44, 32850), (50, 32880), (51, 32886),

Gene: Metamorphoo_47 Start: 32562, Stop: 32963, Start Num: 6

Candidate Starts for Metamorphoo_47:

(Start: 6 @32562 has 61 MA's), (9, 32595), (17, 32625), (23, 32661), (26, 32676), (27, 32691), (30, 32727), (32, 32739), (42, 32805), (43, 32823), (44, 32832), (51, 32868), (59, 32955),

Gene: Morrigan_27 Start: 20156, Stop: 20491, Start Num: 14

Candidate Starts for Morrigan_27:

(5, 20090), (7, 20111), (13, 20153), (Start: 14 @20156 has 17 MA's), (26, 20213), (27, 20228), (31, 20273), (34, 20294), (42, 20342), (48, 20390), (51, 20405), (54, 20456),

Gene: MortySmith_36 Start: 23859, Stop: 24260, Start Num: 6

Candidate Starts for MortySmith_36:

(Start: 6 @23859 has 61 MA's), (8, 23883), (26, 23970), (32, 24033), (44, 24126), (51, 24162), (54, 24213), (56, 24219),

Gene: Mufasa8_25 Start: 23961, Stop: 24362, Start Num: 15

Candidate Starts for Mufasa8_25:

(Start: 15 @23961 has 2 MA's), (62, 24318),

Gene: NarutoRun_38 Start: 24796, Stop: 25197, Start Num: 6

Candidate Starts for NarutoRun_38:

(Start: 6 @24796 has 61 MA's), (8, 24820), (26, 24907), (32, 24970), (44, 25063), (50, 25093), (51, 25099), (54, 25150), (56, 25156),

Gene: Neptune_38 Start: 24796, Stop: 25197, Start Num: 6

Candidate Starts for Neptune_38:

(Start: 6 @24796 has 61 MA's), (8, 24820), (26, 24907), (32, 24970), (44, 25063), (50, 25093), (51, 25099), (54, 25150), (56, 25156),

Gene: Nicole72_41 Start: 33423, Stop: 33860, Start Num: 6

Candidate Starts for Nicole72_41:

(Start: 6 @33423 has 61 MA's), (9, 33456), (23, 33525), (42, 33669), (43, 33687), (44, 33696), (49, 33720), (51, 33732), (61, 33837),

Gene: NoodlelyBoi_46 Start: 32103, Stop: 32504, Start Num: 6

Candidate Starts for NoodlelyBoi_46:

(3, 31980), (Start: 6 @32103 has 61 MA's), (23, 32202), (26, 32217), (27, 32232), (30, 32268), (32, 32280), (42, 32346), (43, 32364), (51, 32409),

Gene: Onika_45 Start: 31780, Stop: 32181, Start Num: 6

Candidate Starts for Onika_45:

(3, 31657), (Start: 6 @31780 has 61 MA's), (23, 31879), (26, 31894), (27, 31909), (30, 31945), (33, 31966), (42, 32023), (43, 32041), (51, 32086),

Gene: OverHedge_39 Start: 24786, Stop: 25187, Start Num: 6

Candidate Starts for OverHedge_39:

(Start: 6 @24786 has 61 MA's), (8, 24810), (26, 24897), (32, 24960), (44, 25053), (50, 25083), (51, 25089), (54, 25140), (56, 25146),

Gene: Paschalis_45 Start: 31787, Stop: 32188, Start Num: 6

Candidate Starts for Paschalis_45:

(3, 31664), (Start: 6 @31787 has 61 MA's), (23, 31886), (26, 31901), (27, 31916), (30, 31952), (33, 31973), (42, 32030), (43, 32048), (51, 32093),

Gene: Pharpay_38 Start: 24841, Stop: 25242, Start Num: 6

Candidate Starts for Pharpay_38:

(Start: 6 @24841 has 61 MA's), (8, 24865), (26, 24952), (32, 25015), (44, 25108), (50, 25138), (51, 25144), (54, 25195), (56, 25201),

Gene: Phorgeous_45 Start: 31650, Stop: 32051, Start Num: 6

Candidate Starts for Phorgeous_45:

(3, 31527), (Start: 6 @31650 has 61 MA's), (23, 31749), (26, 31764), (27, 31779), (30, 31815), (33, 31836), (42, 31893), (43, 31911), (51, 31956),

Gene: Phrancesco_46 Start: 31940, Stop: 32341, Start Num: 6

Candidate Starts for Phrancesco_46:

(3, 31817), (Start: 6 @31940 has 61 MA's), (23, 32039), (26, 32054), (27, 32069), (30, 32105), (33, 32126), (42, 32183), (43, 32201), (51, 32246),

Gene: PhunaPhoke_38 Start: 24814, Stop: 25215, Start Num: 6

Candidate Starts for PhunaPhoke_38:

(Start: 6 @24814 has 61 MA's), (8, 24838), (26, 24925), (32, 24988), (44, 25081), (50, 25111), (51, 25117), (54, 25168), (56, 25174),

Gene: PierreOrion_46 Start: 31954, Stop: 32355, Start Num: 6

Candidate Starts for PierreOrion_46:

(3, 31831), (Start: 6 @31954 has 61 MA's), (23, 32053), (26, 32068), (27, 32083), (30, 32119), (33, 32140), (42, 32197), (43, 32215), (51, 32260),

Gene: PiperSansNom_46 Start: 32094, Stop: 32495, Start Num: 6

Candidate Starts for PiperSansNom_46:

(3, 31971), (Start: 6 @32094 has 61 MA's), (23, 32193), (26, 32208), (27, 32223), (30, 32259), (33, 32280), (42, 32337), (43, 32355), (51, 32400),

Gene: Piperis_46 Start: 31773, Stop: 32174, Start Num: 6

Candidate Starts for Piperis_46:

(3, 31650), (Start: 6 @31773 has 61 MA's), (23, 31872), (26, 31887), (27, 31902), (30, 31938), (33, 31959), (42, 32016), (43, 32034), (51, 32079),

Gene: Potty_38 Start: 24819, Stop: 25220, Start Num: 6

Candidate Starts for Potty_38:

(Start: 6 @24819 has 61 MA's), (8, 24843), (26, 24930), (32, 24993), (44, 25086), (50, 25116), (51, 25122), (54, 25173), (56, 25179),

Gene: Poultruss_38 Start: 25165, Stop: 25566, Start Num: 6

Candidate Starts for Poultruss_38:

(Start: 6 @25165 has 61 MA's), (8, 25189), (26, 25276), (32, 25339), (44, 25432), (51, 25468), (54, 25519), (56, 25525),

Gene: Pulchra_47 Start: 32170, Stop: 32571, Start Num: 6

Candidate Starts for Pulchra_47:

(1, 31786), (2, 31846), (3, 32047), (Start: 6 @32170 has 61 MA's), (23, 32269), (26, 32284), (27, 32299), (30, 32335), (33, 32356), (42, 32413), (43, 32431), (51, 32476),

Gene: QuadZero_26 Start: 18612, Stop: 18959, Start Num: 14

Candidate Starts for QuadZero_26:

(Start: 14 @18612 has 17 MA's), (39, 18780), (51, 18861), (54, 18912),

Gene: Quhwah_49 Start: 32402, Stop: 32803, Start Num: 6

Candidate Starts for Quhwah_49:

(3, 32279), (Start: 6 @32402 has 61 MA's), (23, 32501), (26, 32516), (27, 32531), (30, 32567), (33, 32588), (42, 32645), (43, 32663), (51, 32708),

Gene: Rachella_38 Start: 24822, Stop: 25223, Start Num: 6

Candidate Starts for Rachella_38:

(Start: 6 @24822 has 61 MA's), (8, 24846), (26, 24933), (32, 24996), (44, 25089), (50, 25119), (51, 25125), (54, 25176), (56, 25182),

Gene: Ramiel05_45 Start: 31805, Stop: 32206, Start Num: 6

Candidate Starts for Ramiel05_45:

(3, 31682), (Start: 6 @31805 has 61 MA's), (23, 31904), (26, 31919), (27, 31934), (30, 31970), (33, 31991), (42, 32048), (43, 32066), (51, 32111),

Gene: Rie18_38 Start: 24311, Stop: 24709, Start Num: 6

Candidate Starts for Rie18_38:

(Start: 6 @24311 has 61 MA's), (8, 24335), (26, 24422), (32, 24485), (44, 24578), (49, 24602), (51, 24614),

Gene: RobsFeet_48 Start: 32843, Stop: 33244, Start Num: 6

Candidate Starts for RobsFeet_48:

(Start: 6 @32843 has 61 MA's), (9, 32876), (17, 32906), (23, 32942), (27, 32972), (30, 33008), (32, 33020), (42, 33086), (43, 33104), (44, 33113), (51, 33149), (59, 33236),

Gene: Savannah_45 Start: 31832, Stop: 32233, Start Num: 6

Candidate Starts for Savannah_45:

(3, 31709), (Start: 6 @31832 has 61 MA's), (23, 31931), (26, 31946), (27, 31961), (30, 31997), (33, 32018), (42, 32075), (43, 32093), (51, 32138),

Gene: Schimmels22_26 Start: 19037, Stop: 19360, Start Num: 14

Candidate Starts for Schimmels22_26:

(Start: 14 @19037 has 17 MA's), (31, 19154), (39, 19205), (40, 19211), (50, 19280), (51, 19286),

Gene: Scumberland_47 Start: 32027, Stop: 32428, Start Num: 6

Candidate Starts for Scumberland_47:

(3, 31904), (Start: 6 @32027 has 61 MA's), (23, 32126), (26, 32141), (27, 32156), (30, 32192), (33, 32213), (42, 32270), (43, 32288), (51, 32333),

Gene: Selwyn23_47 Start: 32004, Stop: 32405, Start Num: 6

Candidate Starts for Selwyn23_47:

(3, 31881), (Start: 6 @32004 has 61 MA's), (23, 32103), (26, 32118), (27, 32133), (30, 32169), (33, 32190), (42, 32247), (43, 32265), (51, 32310),

Gene: Shotgun_45 Start: 31631, Stop: 32032, Start Num: 6

Candidate Starts for Shotgun_45:

(3, 31508), (Start: 6 @31631 has 61 MA's), (23, 31730), (26, 31745), (27, 31760), (30, 31796), (33, 31817), (42, 31874), (43, 31892), (51, 31937),

Gene: Smarties_54 Start: 33634, Stop: 34035, Start Num: 6

Candidate Starts for Smarties_54:

(3, 33511), (Start: 6 @33634 has 61 MA's), (22, 33727), (23, 33733), (26, 33748), (27, 33763), (30, 33799), (40, 33865), (43, 33895), (44, 33904), (49, 33928), (51, 33940),

Gene: Snakehole_38 Start: 23999, Stop: 24400, Start Num: 6

Candidate Starts for Snakehole_38:

(Start: 6 @23999 has 61 MA's), (8, 24023), (26, 24110), (32, 24173), (44, 24266), (50, 24296), (51, 24302), (54, 24353), (56, 24359),

Gene: Sonali_24 Start: 24016, Stop: 24471, Start Num: 15

Candidate Starts for Sonali_24:

(Start: 15 @24016 has 2 MA's), (28, 24094), (44, 24226), (63, 24448),

Gene: Teamocil_47 Start: 31532, Stop: 31945, Start Num: 6

Candidate Starts for Teamocil_47:

(Start: 6 @31532 has 61 MA's), (22, 31625), (23, 31631), (26, 31646), (31, 31706), (42, 31775), (43, 31793), (44, 31802), (49, 31826), (51, 31838),

Gene: Tedro_38 Start: 24292, Stop: 24693, Start Num: 6

Candidate Starts for Tedro_38:

(Start: 6 @24292 has 61 MA's), (8, 24316), (26, 24403), (32, 24466), (44, 24559), (50, 24589), (51, 24595), (54, 24646), (56, 24652),

Gene: Tinyman4_26 Start: 18674, Stop: 19000, Start Num: 14

Candidate Starts for Tinyman4_26:

(Start: 14 @18674 has 17 MA's), (31, 18791), (39, 18842), (40, 18848), (50, 18917), (51, 18923), (54, 18974),

Gene: Tyrumbra_45 Start: 32643, Stop: 33044, Start Num: 6

Candidate Starts for Tyrumbra_45:

(Start: 6 @32643 has 61 MA's), (9, 32676), (17, 32706), (23, 32742), (27, 32772), (30, 32808), (32, 32820), (42, 32886), (43, 32904), (44, 32913), (51, 32949), (59, 33036),

Gene: ValentiniPuff_79 Start: 47112, Stop: 47483, Start Num: 16

Candidate Starts for ValentiniPuff_79:

(Start: 16 @47112 has 1 MA's), (19, 47127), (21, 47142), (26, 47166), (33, 47238), (36, 47259), (41, 47286), (44, 47322), (47, 47337), (58, 47442), (60, 47445),

Gene: WestPM_25 Start: 18517, Stop: 18843, Start Num: 14

Candidate Starts for WestPM_25:

(Start: 14 @18517 has 17 MA's), (31, 18634), (39, 18685), (40, 18691), (50, 18760), (51, 18766), (54, 18817),

Gene: WilliamStrong_25 Start: 20264, Stop: 20584, Start Num: 14

Candidate Starts for WilliamStrong_25:

(Start: 14 @20264 has 17 MA's), (26, 20321), (27, 20336), (31, 20381), (39, 20432), (42, 20450), (51, 20513), (52, 20537),

Gene: Yeti_46 Start: 31806, Stop: 32207, Start Num: 6

Candidate Starts for Yeti_46:

(3, 31683), (Start: 6 @31806 has 61 MA's), (23, 31905), (26, 31920), (27, 31935), (30, 31971), (33, 31992), (42, 32049), (43, 32067), (51, 32112),

Gene: Zayuliv_26 Start: 19198, Stop: 19545, Start Num: 14

Candidate Starts for Zayuliv_26:

(Start: 14 @19198 has 17 MA's), (39, 19366), (51, 19447), (54, 19498),

Gene: Zepp_27 Start: 18596, Stop: 18943, Start Num: 14

Candidate Starts for Zepp_27:

(Start: 14 @18596 has 17 MA's), (39, 18764), (51, 18845), (54, 18896),