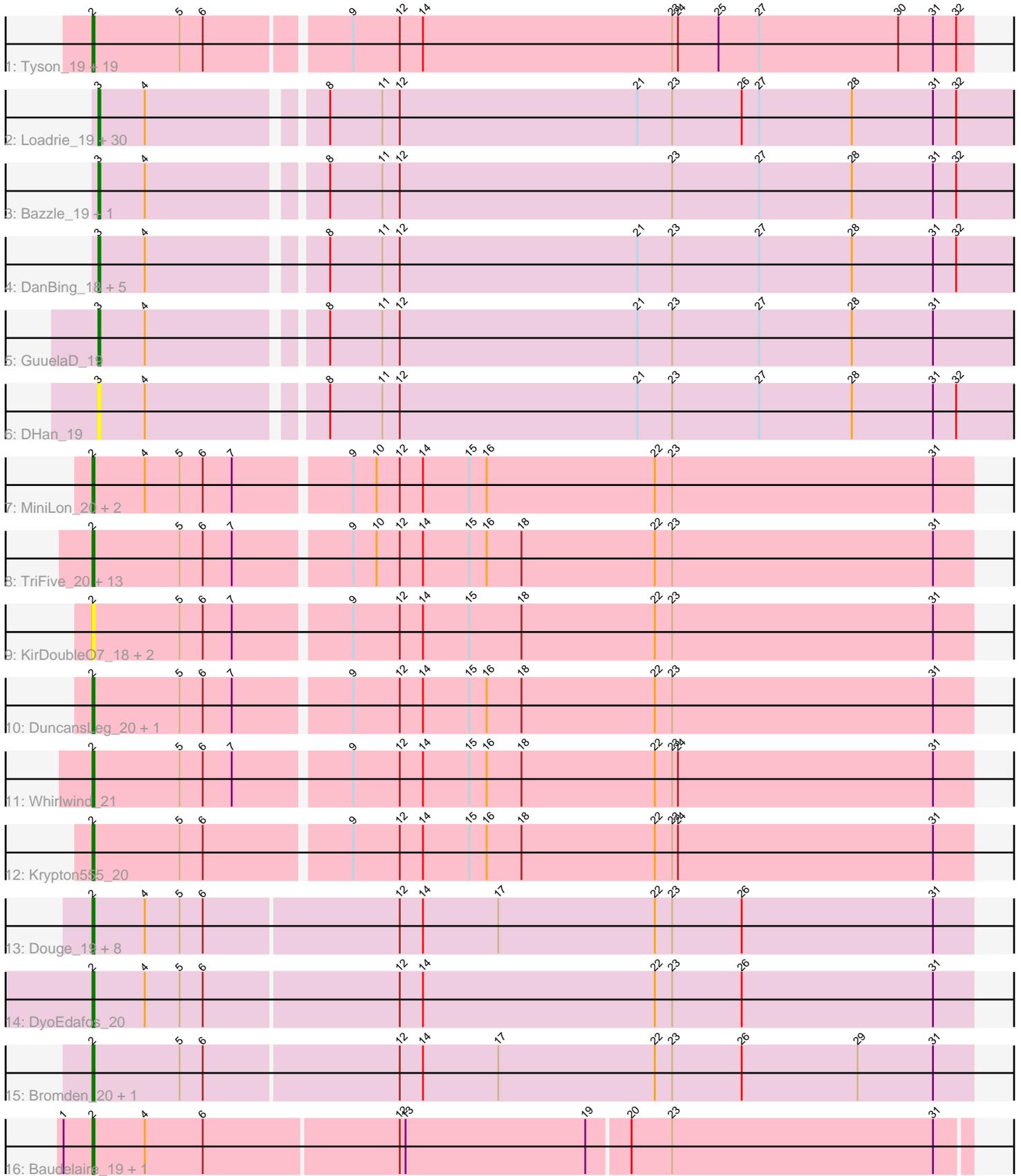Pham 283670

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 283670 Report

This analysis was run 02/23/26 on database version 636.

Pham number 283670 has 99 members, 25 are drafts.

Phages represented in each track:
• Track 1 : Tyson_19, Silverleaf_19, Appletree2_19, AvadaKedavra_19, Acquire49_19, Rose5_19, LeBron_19, UPIE_19, CicholasNage_19, Halena_19, Enceladus_19, MAckerman_19, JoeDirt_19, Poochiewood_19, DirkDirk_19, OhShagHennessy_19, Calm_19, Wamburgrxpress_19, Wyatt2_19, Zaria_19
• Track 2 : Loadrie_19, Underpass_19, OverPar_19, BigCheese_19, LilDestine_19, Nicholasp3_19, Faith1_19, MkaliMitinis3_19, Miley16_19, BobsGarage_19, DrSeegs_19, Lewan_19, Sarshaun_19, Zakai_19, Kahlid_19, Hafay_19, Vetrix_19, Gabriela_19, Soap141_19, Crossroads_19, Wigglewiggle_19, SoJulia_19, Winky_19, Itos_19, Breezona_19, Finemlucis_19, Rumpelstiltskin_19, Gardann_19, Lynnae_19, Wilder_19, Netyap_19
• Track 3 : Bazzle_19, Archie_19
• Track 4 : DanBing_18, Baoshan_18, Tourach_19, Rossetti_19, ZhongYanYuan_18, Claus_19
• Track 5 : GuuelaD_19
• Track 6 : DHan_19
• Track 7 : MiniLon_20, MiniMac_20, Lolly9_20
• Track 8 : TriFive_20, Samty_20, Lumos_20, Nicholas_20, Red305_20, Bellis_20, Snenia_20, Jubie_20, Finnry_20, Moostard_20, Kingsolomon_20, Clautastrophe_20, MsGreen_20, Jobypre_20
• Track 9 : KirDoubleO7_18, BourbonZero_19, LiyuLake_20
• Track 10 : DuncansLeg_20, Ellson_20
• Track 11 : Whirlwind_21
• Track 12 : Krypton555_20
• Track 13 : Douge_19, FarmResident_19, ChutneyChips_18, Douzhi_19, Sheng711_19, Quby_19, Chaser_19, PYPDinur_19, BrainDrainer_20
• Track 14 : DyoEdafos_20
• Track 15 : Bromden_20, Kropertea_19
• Track 16 : Baudelaire_19, Aegeus_19

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

The start number called the most often in the published annotations is 2, it was called in 44 of the 74 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Acquire49_19, Aegeus_19, Appletree2_19, AvadaKedavra_19, Baudelaire_19, Bellis_20, BourbonZero_19, BrainDrainer_20, Bromden_20, Calm_19, Chaser_19, ChutneyChips_18, CicholasNage_19, Clautastrophe_20, DirkDirk_19, Douge_19, Douzhi_19, DuncansLeg_20, DyoEdafos_20, Ellson_20, Enceladus_19, FarmResident_19, Finnry_20, Halena_19, Jobypre_20, JoeDirt_19, Jubie_20, Kingsolomon_20, KirDoubleO7_18, Kropertea_19, Krypton555_20, LeBron_19, LiyuLake_20, Lolly9_20, Lumos_20, MAckerman_19, MiniLon_20, MiniMac_20, Moostard_20, MsGreen_20, Nicholas_20, OhShagHennessy_19, PYPDinur_19, Poochiewood_19, Quby_19, Red305_20, Rose5_19, Samty_20, Sheng711_19, Silverleaf_19, Snenia_20, TriFive_20, Tyson_19, UPIE_19, Wamburgrxpress_19, Whirlwind_21, Wyatt2_19, Zaria_19,

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

Genes that do not have the "Most Annotated" start:
• Archie_19, Baoshan_18, Bazzle_19, BigCheese_19, BobsGarage_19, Breezona_19, Claus_19, Crossroads_19, DHan_19, DanBing_18, DrSeegs_19, Faith1_19, Finemlucis_19, Gabriela_19, Gardann_19, GuuelaD_19, Hafay_19, Itos_19, Kahlid_19, Lewan_19, LilDestine_19, Loadrie_19, Lynnae_19, Miley16_19, MkaliMitinis3_19, Netyap_19, Nicholasp3_19, OverPar_19, Rossetti_19, Rumpelstiltskin_19, Sarshaun_19, SoJulia_19, Soap141_19, Tourach_19, Underpass_19, Vetrix_19, Wigglewiggle_19, Wilder_19, Winky_19, Zakai_19, ZhongYanYuan_18,

Summary by start number:

Start 2:
• Found in 58 of 99 (58.6%) of genes in pham
• Manual Annotations of this start: 44 of 74
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Acquire49_19 (L1), Aegeus_19 (L5), Appletree2_19 (L1), AvadaKedavra_19 (L1), Baudelaire_19 (L5), Bellis_20 (L3), BourbonZero_19 (L3), BrainDrainer_20 (L4), Bromden_20 (L4), Calm_19 (L1), Chaser_19 (L4), ChutneyChips_18 (L4), CicholasNage_19 (L1), Clautastrophe_20 (L3), DirkDirk_19 (L1), Douge_19 (L4), Douzhi_19 (L4), DuncansLeg_20 (L3), DyoEdafos_20 (L4), Ellson_20 (L3), Enceladus_19 (L1), FarmResident_19 (L4), Finnry_20 (L3), Halena_19 (L1), Jobypre_20 (L3), JoeDirt_19 (L1), Jubie_20 (L3), Kingsolomon_20 (L3), KirDoubleO7_18 (L3), Kropertea_19 (L4), Krypton555_20 (L3), LeBron_19 (L1), LiyuLake_20 (L3), Lolly9_20 (L3), Lumos_20 (L3), MAckerman_19 (L1), MiniLon_20 (L3), MiniMac_20 (L3), Moostard_20 (L3), MsGreen_20 (L3), Nicholas_20 (L3), OhShagHennessy_19 (L1), PYPDinur_19 (L4), Poochiewood_19 (L1), Quby_19 (L4), Red305_20 (L3), Rose5_19 (L1), Samty_20 (L3), Sheng711_19 (L4), Silverleaf_19 (L1), Snenia_20 (L3), TriFive_20 (L3), Tyson_19 (L1), UPIE_19 (L1), Wamburgrxpress_19 (L1), Whirlwind_21 (L3), Wyatt2_19 (L1), Zaria_19 (L1),

Start 3:
• Found in 41 of 99 (41.4%) of genes in pham
• Manual Annotations of this start: 30 of 74
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Archie_19 (L2), Baoshan_18 (L2), Bazzle_19 (L2), BigCheese_19 (L2), BobsGarage_19 (L2), Breezona_19 (L2),

Claus_19 (L2), Crossroads_19 (L2), DHan_19 (L2), DanBing_18 (L2), DrSeegs_19 (L2), Faith1_19 (L2), Finemlucis_19 (L2), Gabriela_19 (L2), Gardann_19 (L2), GuuelaD_19 (L2), Hafay_19 (L2), Itos_19 (L2), Kahlid_19 (L2), Lewan_19 (L2), LilDestine_19 (L2), Loadrie_19 (L2), Lynnae_19 (L2), Miley16_19 (L2), MkaliMitinis3_19 (L2), Netyap_19 (L2), Nicholasp3_19 (L2), OverPar_19 (L2), Rossetti_19 (L2), Rumpelstiltskin_19 (L2), Sarshaun_19 (L2), SoJulia_19 (L2), Soap141_19 (L2), Tourach_19 (L2), Underpass_19 (L2), Vetrix_19 (L2), Wigglewiggle_19 (L2), Wilder_19 (L2), Winky_19 (L2), Zakai_19 (L2), ZhongYanYuan_18 (L2),

Summary by clusters:

There are 5 clusters represented in this pham: L4, L5, L2, L3, L1,

Info for manual annotations of cluster L1:
•Start number 2 was manually annotated 19 times for cluster L1.

Info for manual annotations of cluster L2:
•Start number 3 was manually annotated 30 times for cluster L2.

Info for manual annotations of cluster L3:
•Start number 2 was manually annotated 19 times for cluster L3.

Info for manual annotations of cluster L4:
•Start number 2 was manually annotated 4 times for cluster L4.

Info for manual annotations of cluster L5:
•Start number 2 was manually annotated 2 times for cluster L5.

Gene Information:
Gene: Acquire49_19 Start: 18550, Stop: 18996, Start Num: 2
Candidate Starts for Acquire49_19:
(Start: 2 @18550 has 44 MA's), (5, 18595), (6, 18607), (9, 18676), (12, 18700), (14, 18712), (23, 18841), (24, 18844), (25, 18865), (27, 18886), (30, 18958), (31, 18976), (32, 18988),

Gene: Aegeus_19 Start: 18088, Stop: 18534, Start Num: 2
Candidate Starts for Aegeus_19:
(1, 18073), (Start: 2 @18088 has 44 MA's), (4, 18115), (6, 18145), (12, 18244), (13, 18247), (19, 18340), (20, 18361), (23, 18382), (31, 18517),

Gene: Appletree2_19 Start: 18493, Stop: 18939, Start Num: 2
Candidate Starts for Appletree2_19:
(Start: 2 @18493 has 44 MA's), (5, 18538), (6, 18550), (9, 18619), (12, 18643), (14, 18655), (23, 18784), (24, 18787), (25, 18808), (27, 18829), (30, 18901), (31, 18919), (32, 18931),

Gene: Archie_19 Start: 18963, Stop: 19460, Start Num: 3
Candidate Starts for Archie_19:
(Start: 3 @18963 has 30 MA's), (4, 18987), (8, 19071), (11, 19098), (12, 19107), (23, 19248), (27, 19293), (28, 19341), (31, 19383), (32, 19395),

Gene: AvadaKedavra_19 Start: 18560, Stop: 19006, Start Num: 2
Candidate Starts for AvadaKedavra_19:
(Start: 2 @18560 has 44 MA's), (5, 18605), (6, 18617), (9, 18686), (12, 18710), (14, 18722), (23, 18851), (24, 18854), (25, 18875), (27, 18896), (30, 18968), (31, 18986), (32, 18998),

Gene: Baoshan_18 Start: 18572, Stop: 19069, Start Num: 3
Candidate Starts for Baoshan_18:
(Start: 3 @18572 has 30 MA's), (4, 18596), (8, 18680), (11, 18707), (12, 18716), (21, 18839), (23, 18857), (27, 18902), (28, 18950), (31, 18992), (32, 19004),

Gene: Baudelaire_19 Start: 18088, Stop: 18534, Start Num: 2
Candidate Starts for Baudelaire_19:
(1, 18073), (Start: 2 @18088 has 44 MA's), (4, 18115), (6, 18145), (12, 18244), (13, 18247), (19, 18340), (20, 18361), (23, 18382), (31, 18517),

Gene: Bazzle_19 Start: 18712, Stop: 19209, Start Num: 3
Candidate Starts for Bazzle_19:
(Start: 3 @18712 has 30 MA's), (4, 18736), (8, 18820), (11, 18847), (12, 18856), (23, 18997), (27, 19042), (28, 19090), (31, 19132), (32, 19144),

Gene: Bellis_20 Start: 19277, Stop: 19726, Start Num: 2
Candidate Starts for Bellis_20:
(Start: 2 @19277 has 44 MA's), (5, 19322), (6, 19334), (7, 19349), (9, 19406), (10, 19418), (12, 19430), (14, 19442), (15, 19466), (16, 19475), (18, 19493), (22, 19562), (23, 19571), (31, 19706),

Gene: BigCheese_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for BigCheese_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: BobsGarage_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for BobsGarage_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: BourbonZero_19 Start: 19258, Stop: 19707, Start Num: 2
Candidate Starts for BourbonZero_19:
(Start: 2 @19258 has 44 MA's), (5, 19303), (6, 19315), (7, 19330), (9, 19387), (12, 19411), (14, 19423), (15, 19447), (18, 19474), (22, 19543), (23, 19552), (31, 19687),

Gene: BrainDrainer_20 Start: 18499, Stop: 18951, Start Num: 2
Candidate Starts for BrainDrainer_20:
(Start: 2 @18499 has 44 MA's), (4, 18526), (5, 18544), (6, 18556), (12, 18655), (14, 18667), (17, 18706), (22, 18787), (23, 18796), (26, 18832), (31, 18931),

Gene: Breezona_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for Breezona_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: Bromden_20 Start: 18828, Stop: 19280, Start Num: 2
Candidate Starts for Bromden_20:

(Start: 2 @18828 has 44 MA's), (5, 18873), (6, 18885), (12, 18984), (14, 18996), (17, 19035), (22, 19116), (23, 19125), (26, 19161), (29, 19221), (31, 19260),

Gene: Calm_19 Start: 18564, Stop: 19010, Start Num: 2
Candidate Starts for Calm_19:
(Start: 2 @18564 has 44 MA's), (5, 18609), (6, 18621), (9, 18690), (12, 18714), (14, 18726), (23, 18855), (24, 18858), (25, 18879), (27, 18900), (30, 18972), (31, 18990), (32, 19002),

Gene: Chaser_19 Start: 18428, Stop: 18880, Start Num: 2
Candidate Starts for Chaser_19:
(Start: 2 @18428 has 44 MA's), (4, 18455), (5, 18473), (6, 18485), (12, 18584), (14, 18596), (17, 18635), (22, 18716), (23, 18725), (26, 18761), (31, 18860),

Gene: ChutneyChips_18 Start: 18421, Stop: 18873, Start Num: 2
Candidate Starts for ChutneyChips_18:
(Start: 2 @18421 has 44 MA's), (4, 18448), (5, 18466), (6, 18478), (12, 18577), (14, 18589), (17, 18628), (22, 18709), (23, 18718), (26, 18754), (31, 18853),

Gene: CicholasNage_19 Start: 18552, Stop: 18998, Start Num: 2
Candidate Starts for CicholasNage_19:
(Start: 2 @18552 has 44 MA's), (5, 18597), (6, 18609), (9, 18678), (12, 18702), (14, 18714), (23, 18843), (24, 18846), (25, 18867), (27, 18888), (30, 18960), (31, 18978), (32, 18990),

Gene: Claus_19 Start: 18728, Stop: 19225, Start Num: 3
Candidate Starts for Claus_19:
(Start: 3 @18728 has 30 MA's), (4, 18752), (8, 18836), (11, 18863), (12, 18872), (21, 18995), (23, 19013), (27, 19058), (28, 19106), (31, 19148), (32, 19160),

Gene: Clautastrophe_20 Start: 19275, Stop: 19724, Start Num: 2
Candidate Starts for Clautastrophe_20:
(Start: 2 @19275 has 44 MA's), (5, 19320), (6, 19332), (7, 19347), (9, 19404), (10, 19416), (12, 19428), (14, 19440), (15, 19464), (16, 19473), (18, 19491), (22, 19560), (23, 19569), (31, 19704),

Gene: Crossroads_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for Crossroads_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: DHan_19 Start: 18664, Stop: 19161, Start Num: 3
Candidate Starts for DHan_19:
(Start: 3 @18664 has 30 MA's), (4, 18688), (8, 18772), (11, 18799), (12, 18808), (21, 18931), (23, 18949), (27, 18994), (28, 19042), (31, 19084), (32, 19096),

Gene: DanBing_18 Start: 18568, Stop: 19065, Start Num: 3
Candidate Starts for DanBing_18:
(Start: 3 @18568 has 30 MA's), (4, 18592), (8, 18676), (11, 18703), (12, 18712), (21, 18835), (23, 18853), (27, 18898), (28, 18946), (31, 18988), (32, 19000),

Gene: DirkDirk_19 Start: 18533, Stop: 18979, Start Num: 2
Candidate Starts for DirkDirk_19:
(Start: 2 @18533 has 44 MA's), (5, 18578), (6, 18590), (9, 18659), (12, 18683), (14, 18695), (23, 18824), (24, 18827), (25, 18848), (27, 18869), (30, 18941), (31, 18959), (32, 18971),

Gene: Douge_19 Start: 18369, Stop: 18821, Start Num: 2
Candidate Starts for Douge_19:
(Start: 2 @18369 has 44 MA's), (4, 18396), (5, 18414), (6, 18426), (12, 18525), (14, 18537), (17, 18576), (22, 18657), (23, 18666), (26, 18702), (31, 18801),

Gene: Douzhi_19 Start: 18360, Stop: 18812, Start Num: 2
Candidate Starts for Douzhi_19:
(Start: 2 @18360 has 44 MA's), (4, 18387), (5, 18405), (6, 18417), (12, 18516), (14, 18528), (17, 18567), (22, 18648), (23, 18657), (26, 18693), (31, 18792),

Gene: DrSeegs_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for DrSeegs_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: DuncansLeg_20 Start: 19260, Stop: 19709, Start Num: 2
Candidate Starts for DuncansLeg_20:
(Start: 2 @19260 has 44 MA's), (5, 19305), (6, 19317), (7, 19332), (9, 19389), (12, 19413), (14, 19425), (15, 19449), (16, 19458), (18, 19476), (22, 19545), (23, 19554), (31, 19689),

Gene: DyoEdafos_20 Start: 18576, Stop: 19028, Start Num: 2
Candidate Starts for DyoEdafos_20:
(Start: 2 @18576 has 44 MA's), (4, 18603), (5, 18621), (6, 18633), (12, 18732), (14, 18744), (22, 18864), (23, 18873), (26, 18909), (31, 19008),

Gene: Ellson_20 Start: 19268, Stop: 19717, Start Num: 2
Candidate Starts for Ellson_20:
(Start: 2 @19268 has 44 MA's), (5, 19313), (6, 19325), (7, 19340), (9, 19397), (12, 19421), (14, 19433), (15, 19457), (16, 19466), (18, 19484), (22, 19553), (23, 19562), (31, 19697),

Gene: Enceladus_19 Start: 18534, Stop: 18980, Start Num: 2
Candidate Starts for Enceladus_19:
(Start: 2 @18534 has 44 MA's), (5, 18579), (6, 18591), (9, 18660), (12, 18684), (14, 18696), (23, 18825), (24, 18828), (25, 18849), (27, 18870), (30, 18942), (31, 18960), (32, 18972),

Gene: Faith1_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for Faith1_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: FarmResident_19 Start: 18413, Stop: 18865, Start Num: 2
Candidate Starts for FarmResident_19:
(Start: 2 @18413 has 44 MA's), (4, 18440), (5, 18458), (6, 18470), (12, 18569), (14, 18581), (17, 18620), (22, 18701), (23, 18710), (26, 18746), (31, 18845),

Gene: Finemlucis_19 Start: 18755, Stop: 19252, Start Num: 3
Candidate Starts for Finemlucis_19:
(Start: 3 @18755 has 30 MA's), (4, 18779), (8, 18863), (11, 18890), (12, 18899), (21, 19022), (23, 19040), (26, 19076), (27, 19085), (28, 19133), (31, 19175), (32, 19187),

Gene: Finnry_20 Start: 19279, Stop: 19728, Start Num: 2
Candidate Starts for Finnry_20:

(Start: 2 @19279 has 44 MA's), (5, 19324), (6, 19336), (7, 19351), (9, 19408), (10, 19420), (12, 19432), (14, 19444), (15, 19468), (16, 19477), (18, 19495), (22, 19564), (23, 19573), (31, 19708),

Gene: Gabriela_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for Gabriela_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: Gardann_19 Start: 18752, Stop: 19249, Start Num: 3
Candidate Starts for Gardann_19:
(Start: 3 @18752 has 30 MA's), (4, 18776), (8, 18860), (11, 18887), (12, 18896), (21, 19019), (23, 19037), (26, 19073), (27, 19082), (28, 19130), (31, 19172), (32, 19184),

Gene: GuuelaD_19 Start: 18781, Stop: 19278, Start Num: 3
Candidate Starts for GuuelaD_19:
(Start: 3 @18781 has 30 MA's), (4, 18805), (8, 18889), (11, 18916), (12, 18925), (21, 19048), (23, 19066), (27, 19111), (28, 19159), (31, 19201),

Gene: Hafay_19 Start: 18780, Stop: 19277, Start Num: 3
Candidate Starts for Hafay_19:
(Start: 3 @18780 has 30 MA's), (4, 18804), (8, 18888), (11, 18915), (12, 18924), (21, 19047), (23, 19065), (26, 19101), (27, 19110), (28, 19158), (31, 19200), (32, 19212),

Gene: Halena_19 Start: 18561, Stop: 19007, Start Num: 2
Candidate Starts for Halena_19:
(Start: 2 @18561 has 44 MA's), (5, 18606), (6, 18618), (9, 18687), (12, 18711), (14, 18723), (23, 18852), (24, 18855), (25, 18876), (27, 18897), (30, 18969), (31, 18987), (32, 18999),

Gene: Itos_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for Itos_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: Jobypre_20 Start: 19275, Stop: 19724, Start Num: 2
Candidate Starts for Jobypre_20:
(Start: 2 @19275 has 44 MA's), (5, 19320), (6, 19332), (7, 19347), (9, 19404), (10, 19416), (12, 19428), (14, 19440), (15, 19464), (16, 19473), (18, 19491), (22, 19560), (23, 19569), (31, 19704),

Gene: JoeDirt_19 Start: 18532, Stop: 18978, Start Num: 2
Candidate Starts for JoeDirt_19:
(Start: 2 @18532 has 44 MA's), (5, 18577), (6, 18589), (9, 18658), (12, 18682), (14, 18694), (23, 18823), (24, 18826), (25, 18847), (27, 18868), (30, 18940), (31, 18958), (32, 18970),

Gene: Jubie_20 Start: 19276, Stop: 19725, Start Num: 2
Candidate Starts for Jubie_20:
(Start: 2 @19276 has 44 MA's), (5, 19321), (6, 19333), (7, 19348), (9, 19405), (10, 19417), (12, 19429), (14, 19441), (15, 19465), (16, 19474), (18, 19492), (22, 19561), (23, 19570), (31, 19705),

Gene: Kahlid_19 Start: 18752, Stop: 19249, Start Num: 3
Candidate Starts for Kahlid_19:
(Start: 3 @18752 has 30 MA's), (4, 18776), (8, 18860), (11, 18887), (12, 18896), (21, 19019), (23, 19037), (26, 19073), (27, 19082), (28, 19130), (31, 19172), (32, 19184),

Gene: Kingsolomon_20 Start: 19275, Stop: 19724, Start Num: 2
Candidate Starts for Kingsolomon_20:
(Start: 2 @19275 has 44 MA's), (5, 19320), (6, 19332), (7, 19347), (9, 19404), (10, 19416), (12, 19428), (14, 19440), (15, 19464), (16, 19473), (18, 19491), (22, 19560), (23, 19569), (31, 19704),

Gene: KirDoubleO7_18 Start: 19269, Stop: 19718, Start Num: 2
Candidate Starts for KirDoubleO7_18:
(Start: 2 @19269 has 44 MA's), (5, 19314), (6, 19326), (7, 19341), (9, 19398), (12, 19422), (14, 19434), (15, 19458), (18, 19485), (22, 19554), (23, 19563), (31, 19698),

Gene: Kropertea_19 Start: 18383, Stop: 18835, Start Num: 2
Candidate Starts for Kropertea_19:
(Start: 2 @18383 has 44 MA's), (5, 18428), (6, 18440), (12, 18539), (14, 18551), (17, 18590), (22, 18671), (23, 18680), (26, 18716), (29, 18776), (31, 18815),

Gene: Krypton555_20 Start: 19198, Stop: 19647, Start Num: 2
Candidate Starts for Krypton555_20:
(Start: 2 @19198 has 44 MA's), (5, 19243), (6, 19255), (9, 19327), (12, 19351), (14, 19363), (15, 19387), (16, 19396), (18, 19414), (22, 19483), (23, 19492), (24, 19495), (31, 19627),

Gene: LeBron_19 Start: 18576, Stop: 19022, Start Num: 2
Candidate Starts for LeBron_19:
(Start: 2 @18576 has 44 MA's), (5, 18621), (6, 18633), (9, 18702), (12, 18726), (14, 18738), (23, 18867), (24, 18870), (25, 18891), (27, 18912), (30, 18984), (31, 19002), (32, 19014),

Gene: Lewan_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for Lewan_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: LilDestine_19 Start: 18746, Stop: 19243, Start Num: 3
Candidate Starts for LilDestine_19:
(Start: 3 @18746 has 30 MA's), (4, 18770), (8, 18854), (11, 18881), (12, 18890), (21, 19013), (23, 19031), (26, 19067), (27, 19076), (28, 19124), (31, 19166), (32, 19178),

Gene: LiyuLake_20 Start: 19260, Stop: 19709, Start Num: 2
Candidate Starts for LiyuLake_20:
(Start: 2 @19260 has 44 MA's), (5, 19305), (6, 19317), (7, 19332), (9, 19389), (12, 19413), (14, 19425), (15, 19449), (18, 19476), (22, 19545), (23, 19554), (31, 19689),

Gene: Loadrie_19 Start: 18779, Stop: 19276, Start Num: 3
Candidate Starts for Loadrie_19:
(Start: 3 @18779 has 30 MA's), (4, 18803), (8, 18887), (11, 18914), (12, 18923), (21, 19046), (23, 19064), (26, 19100), (27, 19109), (28, 19157), (31, 19199), (32, 19211),

Gene: Lolly9_20 Start: 19079, Stop: 19528, Start Num: 2
Candidate Starts for Lolly9_20:
(Start: 2 @19079 has 44 MA's), (4, 19106), (5, 19124), (6, 19136), (7, 19151), (9, 19208), (10, 19220), (12, 19232), (14, 19244), (15, 19268), (16, 19277), (22, 19364), (23, 19373), (31, 19508),

Gene: Lumos_20 Start: 19272, Stop: 19721, Start Num: 2
Candidate Starts for Lumos_20:

(Start: 2 @19272 has 44 MA's), (5, 19317), (6, 19329), (7, 19344), (9, 19401), (10, 19413), (12, 19425), (14, 19437), (15, 19461), (16, 19470), (18, 19488), (22, 19557), (23, 19566), (31, 19701),

Gene: Lynnae_19 Start: 18735, Stop: 19232, Start Num: 3
Candidate Starts for Lynnae_19:
(Start: 3 @18735 has 30 MA's), (4, 18759), (8, 18843), (11, 18870), (12, 18879), (21, 19002), (23, 19020), (26, 19056), (27, 19065), (28, 19113), (31, 19155), (32, 19167),

Gene: MAckerman_19 Start: 18550, Stop: 18996, Start Num: 2
Candidate Starts for MAckerman_19:
(Start: 2 @18550 has 44 MA's), (5, 18595), (6, 18607), (9, 18676), (12, 18700), (14, 18712), (23, 18841), (24, 18844), (25, 18865), (27, 18886), (30, 18958), (31, 18976), (32, 18988),

Gene: Miley16_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for Miley16_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: MiniLon_20 Start: 19079, Stop: 19528, Start Num: 2
Candidate Starts for MiniLon_20:
(Start: 2 @19079 has 44 MA's), (4, 19106), (5, 19124), (6, 19136), (7, 19151), (9, 19208), (10, 19220), (12, 19232), (14, 19244), (15, 19268), (16, 19277), (22, 19364), (23, 19373), (31, 19508),

Gene: MiniMac_20 Start: 19080, Stop: 19529, Start Num: 2
Candidate Starts for MiniMac_20:
(Start: 2 @19080 has 44 MA's), (4, 19107), (5, 19125), (6, 19137), (7, 19152), (9, 19209), (10, 19221), (12, 19233), (14, 19245), (15, 19269), (16, 19278), (22, 19365), (23, 19374), (31, 19509),

Gene: MkaliMitinis3_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for MkaliMitinis3_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: Moostard_20 Start: 19278, Stop: 19727, Start Num: 2
Candidate Starts for Moostard_20:
(Start: 2 @19278 has 44 MA's), (5, 19323), (6, 19335), (7, 19350), (9, 19407), (10, 19419), (12, 19431), (14, 19443), (15, 19467), (16, 19476), (18, 19494), (22, 19563), (23, 19572), (31, 19707),

Gene: MsGreen_20 Start: 19275, Stop: 19724, Start Num: 2
Candidate Starts for MsGreen_20:
(Start: 2 @19275 has 44 MA's), (5, 19320), (6, 19332), (7, 19347), (9, 19404), (10, 19416), (12, 19428), (14, 19440), (15, 19464), (16, 19473), (18, 19491), (22, 19560), (23, 19569), (31, 19704),

Gene: Netyap_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for Netyap_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: Nicholas_20 Start: 19275, Stop: 19724, Start Num: 2
Candidate Starts for Nicholas_20:
(Start: 2 @19275 has 44 MA's), (5, 19320), (6, 19332), (7, 19347), (9, 19404), (10, 19416), (12, 19428), (14, 19440), (15, 19464), (16, 19473), (18, 19491), (22, 19560), (23, 19569), (31, 19704),

Gene: Nicholasp3_19 Start: 18752, Stop: 19249, Start Num: 3
Candidate Starts for Nicholasp3_19:
(Start: 3 @18752 has 30 MA's), (4, 18776), (8, 18860), (11, 18887), (12, 18896), (21, 19019), (23, 19037), (26, 19073), (27, 19082), (28, 19130), (31, 19172), (32, 19184),

Gene: OhShagHennessy_19 Start: 18515, Stop: 18961, Start Num: 2
Candidate Starts for OhShagHennessy_19:
(Start: 2 @18515 has 44 MA's), (5, 18560), (6, 18572), (9, 18641), (12, 18665), (14, 18677), (23, 18806), (24, 18809), (25, 18830), (27, 18851), (30, 18923), (31, 18941), (32, 18953),

Gene: OverPar_19 Start: 18779, Stop: 19276, Start Num: 3
Candidate Starts for OverPar_19:
(Start: 3 @18779 has 30 MA's), (4, 18803), (8, 18887), (11, 18914), (12, 18923), (21, 19046), (23, 19064), (26, 19100), (27, 19109), (28, 19157), (31, 19199), (32, 19211),

Gene: PYPDinur_19 Start: 18360, Stop: 18812, Start Num: 2
Candidate Starts for PYPDinur_19:
(Start: 2 @18360 has 44 MA's), (4, 18387), (5, 18405), (6, 18417), (12, 18516), (14, 18528), (17, 18567), (22, 18648), (23, 18657), (26, 18693), (31, 18792),

Gene: Poochiewood_19 Start: 18550, Stop: 18996, Start Num: 2
Candidate Starts for Poochiewood_19:
(Start: 2 @18550 has 44 MA's), (5, 18595), (6, 18607), (9, 18676), (12, 18700), (14, 18712), (23, 18841), (24, 18844), (25, 18865), (27, 18886), (30, 18958), (31, 18976), (32, 18988),

Gene: Quby_19 Start: 18368, Stop: 18820, Start Num: 2
Candidate Starts for Quby_19:
(Start: 2 @18368 has 44 MA's), (4, 18395), (5, 18413), (6, 18425), (12, 18524), (14, 18536), (17, 18575), (22, 18656), (23, 18665), (26, 18701), (31, 18800),

Gene: Red305_20 Start: 19275, Stop: 19724, Start Num: 2
Candidate Starts for Red305_20:
(Start: 2 @19275 has 44 MA's), (5, 19320), (6, 19332), (7, 19347), (9, 19404), (10, 19416), (12, 19428), (14, 19440), (15, 19464), (16, 19473), (18, 19491), (22, 19560), (23, 19569), (31, 19704),

Gene: Rose5_19 Start: 18550, Stop: 18996, Start Num: 2
Candidate Starts for Rose5_19:
(Start: 2 @18550 has 44 MA's), (5, 18595), (6, 18607), (9, 18676), (12, 18700), (14, 18712), (23, 18841), (24, 18844), (25, 18865), (27, 18886), (30, 18958), (31, 18976), (32, 18988),

Gene: Rossetti_19 Start: 18766, Stop: 19263, Start Num: 3
Candidate Starts for Rossetti_19:
(Start: 3 @18766 has 30 MA's), (4, 18790), (8, 18874), (11, 18901), (12, 18910), (21, 19033), (23, 19051), (27, 19096), (28, 19144), (31, 19186), (32, 19198),

Gene: Rumpelstiltskin_19 Start: 18753, Stop: 19250, Start Num: 3
Candidate Starts for Rumpelstiltskin_19:
(Start: 3 @18753 has 30 MA's), (4, 18777), (8, 18861), (11, 18888), (12, 18897), (21, 19020), (23, 19038), (26, 19074), (27, 19083), (28, 19131), (31, 19173), (32, 19185),

Gene: Samty_20 Start: 19278, Stop: 19727, Start Num: 2
Candidate Starts for Samty_20:

(Start: 2 @19278 has 44 MA's), (5, 19323), (6, 19335), (7, 19350), (9, 19407), (10, 19419), (12, 19431), (14, 19443), (15, 19467), (16, 19476), (18, 19494), (22, 19563), (23, 19572), (31, 19707),

Gene: Sarshaun_19 Start: 18780, Stop: 19277, Start Num: 3
Candidate Starts for Sarshaun_19:
(Start: 3 @18780 has 30 MA's), (4, 18804), (8, 18888), (11, 18915), (12, 18924), (21, 19047), (23, 19065), (26, 19101), (27, 19110), (28, 19158), (31, 19200), (32, 19212),

Gene: Sheng711_19 Start: 18360, Stop: 18812, Start Num: 2
Candidate Starts for Sheng711_19:
(Start: 2 @18360 has 44 MA's), (4, 18387), (5, 18405), (6, 18417), (12, 18516), (14, 18528), (17, 18567), (22, 18648), (23, 18657), (26, 18693), (31, 18792),

Gene: Silverleaf_19 Start: 18550, Stop: 18996, Start Num: 2
Candidate Starts for Silverleaf_19:
(Start: 2 @18550 has 44 MA's), (5, 18595), (6, 18607), (9, 18676), (12, 18700), (14, 18712), (23, 18841), (24, 18844), (25, 18865), (27, 18886), (30, 18958), (31, 18976), (32, 18988),

Gene: Snenia_20 Start: 19276, Stop: 19725, Start Num: 2
Candidate Starts for Snenia_20:
(Start: 2 @19276 has 44 MA's), (5, 19321), (6, 19333), (7, 19348), (9, 19405), (10, 19417), (12, 19429), (14, 19441), (15, 19465), (16, 19474), (18, 19492), (22, 19561), (23, 19570), (31, 19705),

Gene: SoJulia_19 Start: 18746, Stop: 19243, Start Num: 3
Candidate Starts for SoJulia_19:
(Start: 3 @18746 has 30 MA's), (4, 18770), (8, 18854), (11, 18881), (12, 18890), (21, 19013), (23, 19031), (26, 19067), (27, 19076), (28, 19124), (31, 19166), (32, 19178),

Gene: Soap141_19 Start: 18780, Stop: 19277, Start Num: 3
Candidate Starts for Soap141_19:
(Start: 3 @18780 has 30 MA's), (4, 18804), (8, 18888), (11, 18915), (12, 18924), (21, 19047), (23, 19065), (26, 19101), (27, 19110), (28, 19158), (31, 19200), (32, 19212),

Gene: Tourach_19 Start: 18745, Stop: 19242, Start Num: 3
Candidate Starts for Tourach_19:
(Start: 3 @18745 has 30 MA's), (4, 18769), (8, 18853), (11, 18880), (12, 18889), (21, 19012), (23, 19030), (27, 19075), (28, 19123), (31, 19165), (32, 19177),

Gene: TriFive_20 Start: 19275, Stop: 19724, Start Num: 2
Candidate Starts for TriFive_20:
(Start: 2 @19275 has 44 MA's), (5, 19320), (6, 19332), (7, 19347), (9, 19404), (10, 19416), (12, 19428), (14, 19440), (15, 19464), (16, 19473), (18, 19491), (22, 19560), (23, 19569), (31, 19704),

Gene: Tyson_19 Start: 18550, Stop: 18996, Start Num: 2
Candidate Starts for Tyson_19:
(Start: 2 @18550 has 44 MA's), (5, 18595), (6, 18607), (9, 18676), (12, 18700), (14, 18712), (23, 18841), (24, 18844), (25, 18865), (27, 18886), (30, 18958), (31, 18976), (32, 18988),

Gene: UPIE_19 Start: 18548, Stop: 18994, Start Num: 2
Candidate Starts for UPIE_19:
(Start: 2 @18548 has 44 MA's), (5, 18593), (6, 18605), (9, 18674), (12, 18698), (14, 18710), (23, 18839), (24, 18842), (25, 18863), (27, 18884), (30, 18956), (31, 18974), (32, 18986),

Gene: Underpass_19 Start: 18752, Stop: 19249, Start Num: 3
Candidate Starts for Underpass_19:
(Start: 3 @18752 has 30 MA's), (4, 18776), (8, 18860), (11, 18887), (12, 18896), (21, 19019), (23, 19037), (26, 19073), (27, 19082), (28, 19130), (31, 19172), (32, 19184),

Gene: Vetrix_19 Start: 18753, Stop: 19250, Start Num: 3
Candidate Starts for Vetrix_19:
(Start: 3 @18753 has 30 MA's), (4, 18777), (8, 18861), (11, 18888), (12, 18897), (21, 19020), (23, 19038), (26, 19074), (27, 19083), (28, 19131), (31, 19173), (32, 19185),

Gene: Wamburgrxpress_19 Start: 18563, Stop: 19009, Start Num: 2
Candidate Starts for Wamburgrxpress_19:
(Start: 2 @18563 has 44 MA's), (5, 18608), (6, 18620), (9, 18689), (12, 18713), (14, 18725), (23, 18854), (24, 18857), (25, 18878), (27, 18899), (30, 18971), (31, 18989), (32, 19001),

Gene: Whirlwind_21 Start: 19032, Stop: 19481, Start Num: 2
Candidate Starts for Whirlwind_21:
(Start: 2 @19032 has 44 MA's), (5, 19077), (6, 19089), (7, 19104), (9, 19161), (12, 19185), (14, 19197), (15, 19221), (16, 19230), (18, 19248), (22, 19317), (23, 19326), (24, 19329), (31, 19461),

Gene: Wigglewiggle_19 Start: 18779, Stop: 19276, Start Num: 3
Candidate Starts for Wigglewiggle_19:
(Start: 3 @18779 has 30 MA's), (4, 18803), (8, 18887), (11, 18914), (12, 18923), (21, 19046), (23, 19064), (26, 19100), (27, 19109), (28, 19157), (31, 19199), (32, 19211),

Gene: Wilder_19 Start: 18752, Stop: 19249, Start Num: 3
Candidate Starts for Wilder_19:
(Start: 3 @18752 has 30 MA's), (4, 18776), (8, 18860), (11, 18887), (12, 18896), (21, 19019), (23, 19037), (26, 19073), (27, 19082), (28, 19130), (31, 19172), (32, 19184),

Gene: Winky_19 Start: 18747, Stop: 19244, Start Num: 3
Candidate Starts for Winky_19:
(Start: 3 @18747 has 30 MA's), (4, 18771), (8, 18855), (11, 18882), (12, 18891), (21, 19014), (23, 19032), (26, 19068), (27, 19077), (28, 19125), (31, 19167), (32, 19179),

Gene: Wyatt2_19 Start: 18550, Stop: 18996, Start Num: 2
Candidate Starts for Wyatt2_19:
(Start: 2 @18550 has 44 MA's), (5, 18595), (6, 18607), (9, 18676), (12, 18700), (14, 18712), (23, 18841), (24, 18844), (25, 18865), (27, 18886), (30, 18958), (31, 18976), (32, 18988),

Gene: Zakai_19 Start: 18741, Stop: 19238, Start Num: 3
Candidate Starts for Zakai_19:
(Start: 3 @18741 has 30 MA's), (4, 18765), (8, 18849), (11, 18876), (12, 18885), (21, 19008), (23, 19026), (26, 19062), (27, 19071), (28, 19119), (31, 19161), (32, 19173),

Gene: Zaria_19 Start: 18564, Stop: 19010, Start Num: 2
Candidate Starts for Zaria_19:
(Start: 2 @18564 has 44 MA's), (5, 18609), (6, 18621), (9, 18690), (12, 18714), (14, 18726), (23, 18855), (24, 18858), (25, 18879), (27, 18900), (30, 18972), (31, 18990), (32, 19002),

Gene: ZhongYanYuan_18 Start: 18572, Stop: 19069, Start Num: 3
Candidate Starts for ZhongYanYuan_18:

(Start: 3 @18572 has 30 MA's), (4, 18596), (8, 18680), (11, 18707), (12, 18716), (21, 18839), (23, 18857), (27, 18902), (28, 18950), (31, 18992), (32, 19004),