

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 183677 Report

This analysis was run 11/02/24 on database version 579.

Pham number 183677 has 75 members, 1 are drafts.

Phages represented in each track:

- Track 1 : Minnie_38, Cerasum_32, BigPhil_32, VRedHorse_36, Modragons_36, Quico_37, Velveteen_31, Sarma624_32, Girafales_37
- Track 2 : SiSi_36, LittleShirley_39, Veteran_36, Sabbb_37, Kersh_35, Krakatau_37, Starcevich_40, Plumbus_38
- Track 3 : Boomer_38
- Track 4 : OwlsT2W_37, Dante_36, Daenerys_36, Inventum_36, JoeyJr_36, OlympiaSaint_36, Deb65_36, Ruby_38, Spoonbill_36, Leozinho_38, Nimbo_36, Girr_38, Stap_37, BlueCrab_36, Empress_37, PHappiness_36, Job42_40
- Track 5 : Ovechkin_37
- Track 6 : QuickMath_37, BuzzLyseyear_39, Firehouse51_37, Kimberlium_38
- Track 7 : Royals2015_36
- Track 8 : Brocalys_31, Clifton_30, ShroomBoi_33, Guppsters_38, Dorothy_36, Leperchaun_36
- Track 9 : Pacc40_36
- Track 10 : Llij_36, RitaG_37, PMC_36
- Track 11 : DotProduct_36, GigiOuiOui_36, GUmbe_36, Mutaforma13_36
- Track 12 : OldBen_36, Scottish_37, Geralt_36, Karhdo_36, MisterCuddles_38, Polka14_37, KingMidas_38
- Track 13 : RockyHorror_37, Zerg_36
- Track 14 : DaddyRickover_36, SimranZ1_39
- Track 15 : Nitzel_37, Che8_38, lbhubesi_36
- Track 16 : Cornucopia_37
- Track 17 : ArcusAngelus_36
- Track 18 : Wee_37
- Track 19 : Mozy_38
- Track 20 : Totinger_37
- Track 21 : Taj_36

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 47 of the 74 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ArcusAngelus_36, BigPhil_32, BlueCrab_36, Boomer_38, BuzzLyseyear_39, Cerasum_32, Che8_38, Cornucopia_37, Daenerys_36, Dante_36, Deb65_36, DotProduct_36, Empress_37, Firehouse51_37, GUmbie_36, GigiOuiOui_36, Girafales_37, Girr_38, Ibhubesi_36, Inventum_36, Job42_40, JoeyJr_36, Kimberlium_38, Leozinho_38, Llij_36, Minnie_38, Modragons_36, Mozy_38, Mutaforma13_36, Nimbo_36, Nitzel_37, OlympiaSaint_36, Ovechkin_37, OwlsT2W_37, PHappiness_36, PMC_36, Pacc40_36, QuickMath_37, Quico_37, RitaG_37, Ruby_38, Sarma624_32, Spoonbill_36, Stap_37, VRedHorse_36, Velveteen_31, Wee_37,

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

- Brocalys_31, Clifton_30, DaddyRickover_36, Dorothy_36, Geralt_36, Guppsters_38, Karhdo_36, Kersh_35, KingMidas_38, Krakatau_37, Leperchaun_36, LittleShirley_39, MisterCuddles_38, OldBen_36, Plumbus_38, Polka14_37, RockyHorror_37, Royals2015_36, Sabbb_37, Scottish_37, ShroomBoi_33, SiSi_36, SimranZ1_39, Starcevich_40, Taj_36, Totinger_37, Veteran_36, Zerg_36,

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

-

Summary by start number:

Start 1:

- Found in 25 of 75 (33.3%) of genes in pham
- Manual Annotations of this start: 19 of 74
- Called 76.0% of time when present
- Phage (with cluster) where this start called: Brocalys_31 (F1), Clifton_30 (F1), Dorothy_36 (F1), Guppsters_38 (F1), Kersh_35 (F1), Krakatau_37 (F1), Leperchaun_36 (F1), LittleShirley_39 (F1), Plumbus_38 (F1), RockyHorror_37 (F1), Royals2015_36 (F1), Sabbb_37 (F1), ShroomBoi_33 (F1), SiSi_36 (F1), Starcevich_40 (F1), Taj_36 (F1), Totinger_37 (F1), Veteran_36 (F1), Zerg_36 (F1),

Start 2:

- Found in 75 of 75 (100.0%) of genes in pham
- Manual Annotations of this start: 47 of 74
- Called 62.7% of time when present
- Phage (with cluster) where this start called: ArcusAngelus_36 (F1), BigPhil_32 (F1), BlueCrab_36 (F1), Boomer_38 (F1), BuzzLyseyear_39 (F1), Cerasum_32 (F1), Che8_38 (F1), Cornucopia_37 (F1), Daenerys_36 (F1), Dante_36 (F1), Deb65_36 (F1), DotProduct_36 (F1), Empress_37 (F1), Firehouse51_37 (F1), GUmbie_36 (F1), GigiOuiOui_36 (F1), Girafales_37 (F1), Girr_38 (F1), Ibhubesi_36 (F1), Inventum_36 (F1), Job42_40 (F1), JoeyJr_36 (F1), Kimberlium_38 (F1), Leozinho_38 (F1), Llij_36 (F1), Minnie_38 (F1), Modragons_36 (F1), Mozy_38 (F1), Mutaforma13_36 (F1), Nimbo_36 (F1), Nitzel_37 (F1), OlympiaSaint_36 (F1), Ovechkin_37 (F1), OwlsT2W_37 (F1), PHappiness_36 (F1), PMC_36 (F1), Pacc40_36 (F1), QuickMath_37 (F1), Quico_37 (F1), RitaG_37 (F1), Ruby_38 (F1), Sarma624_32 (F1), Spoonbill_36 (F1), Stap_37 (F1), VRedHorse_36 (F1), Velveteen_31 (F1), Wee_37 (F1),

Start 3:

- Found in 75 of 75 (100.0%) of genes in pham
- Manual Annotations of this start: 8 of 74
- Called 12.0% of time when present

- Phage (with cluster) where this start called: DaddyRickover_36 (F1), Geralt_36 (F1), Karhdo_36 (F1), KingMidas_38 (F1), MisterCuddles_38 (F1), OldBen_36 (F1), Polka14_37 (F1), Scottish_37 (F1), SimranZ1_39 (F1),

Summary by clusters:

There is one cluster represented in this pham: F1

Info for manual annotations of cluster F1:

- Start number 1 was manually annotated 19 times for cluster F1.
- Start number 2 was manually annotated 47 times for cluster F1.
- Start number 3 was manually annotated 8 times for cluster F1.

Gene Information:

Gene: ArcusAngelus_36 Start: 30765, Stop: 31055, Start Num: 2

Candidate Starts for ArcusAngelus_36:

(Start: 2 @30765 has 47 MA's), (Start: 3 @30804 has 8 MA's), (4, 30822), (5, 30834), (6, 30876), (7, 30915), (10, 30954), (14, 31020),

Gene: BigPhil_32 Start: 26427, Stop: 26717, Start Num: 2

Candidate Starts for BigPhil_32:

(Start: 2 @26427 has 47 MA's), (Start: 3 @26466 has 8 MA's), (4, 26484), (5, 26496), (6, 26538), (8, 26580), (9, 26592), (10, 26616), (14, 26682),

Gene: BlueCrab_36 Start: 30388, Stop: 30678, Start Num: 2

Candidate Starts for BlueCrab_36:

(Start: 2 @30388 has 47 MA's), (Start: 3 @30427 has 8 MA's), (4, 30445), (5, 30457), (6, 30499), (7, 30538), (10, 30577), (11, 30583), (14, 30643),

Gene: Boomer_38 Start: 30281, Stop: 30571, Start Num: 2

Candidate Starts for Boomer_38:

(Start: 2 @30281 has 47 MA's), (Start: 3 @30320 has 8 MA's), (4, 30338), (5, 30350), (6, 30392), (8, 30434), (9, 30446), (10, 30470), (12, 30491), (13, 30533), (14, 30536),

Gene: Brocalys_31 Start: 25986, Stop: 26297, Start Num: 1

Candidate Starts for Brocalys_31:

(Start: 1 @25986 has 19 MA's), (Start: 2 @26007 has 47 MA's), (Start: 3 @26046 has 8 MA's), (4, 26064), (5, 26076), (6, 26118), (7, 26157), (10, 26196), (11, 26202), (12, 26217), (13, 26259), (14, 26262),

Gene: BuzzLyseyear_39 Start: 31008, Stop: 31298, Start Num: 2

Candidate Starts for BuzzLyseyear_39:

(Start: 2 @31008 has 47 MA's), (Start: 3 @31047 has 8 MA's), (4, 31065), (5, 31077), (6, 31119), (7, 31158), (10, 31197), (11, 31203), (12, 31218), (13, 31260), (14, 31263),

Gene: Cerasum_32 Start: 26427, Stop: 26717, Start Num: 2

Candidate Starts for Cerasum_32:

(Start: 2 @26427 has 47 MA's), (Start: 3 @26466 has 8 MA's), (4, 26484), (5, 26496), (6, 26538), (8, 26580), (9, 26592), (10, 26616), (14, 26682),

Gene: Che8_38 Start: 30659, Stop: 30949, Start Num: 2

Candidate Starts for Che8_38:

(Start: 2 @30659 has 47 MA's), (Start: 3 @30698 has 8 MA's), (4, 30716), (5, 30728), (6, 30770), (8, 30812), (9, 30824), (10, 30848), (11, 30854), (14, 30914),

Gene: Clifton_30 Start: 26337, Stop: 26648, Start Num: 1

Candidate Starts for Clifton_30:

(Start: 1 @26337 has 19 MA's), (Start: 2 @26358 has 47 MA's), (Start: 3 @26397 has 8 MA's), (4, 26415), (5, 26427), (6, 26469), (7, 26508), (10, 26547), (11, 26553), (12, 26568), (13, 26610), (14, 26613),

Gene: Cornucopia_37 Start: 30234, Stop: 30524, Start Num: 2

Candidate Starts for Cornucopia_37:

(Start: 2 @30234 has 47 MA's), (Start: 3 @30273 has 8 MA's), (4, 30291), (5, 30303), (6, 30345), (8, 30387), (9, 30399), (10, 30423), (12, 30444), (13, 30486), (14, 30489),

Gene: DaddyRickover_36 Start: 30439, Stop: 30690, Start Num: 3

Candidate Starts for DaddyRickover_36:

(Start: 2 @30400 has 47 MA's), (Start: 3 @30439 has 8 MA's), (4, 30457), (5, 30469), (6, 30511), (8, 30553), (9, 30565), (10, 30589), (14, 30655),

Gene: Daenerys_36 Start: 30222, Stop: 30512, Start Num: 2

Candidate Starts for Daenerys_36:

(Start: 2 @30222 has 47 MA's), (Start: 3 @30261 has 8 MA's), (4, 30279), (5, 30291), (6, 30333), (7, 30372), (10, 30411), (11, 30417), (14, 30477),

Gene: Dante_36 Start: 30339, Stop: 30629, Start Num: 2

Candidate Starts for Dante_36:

(Start: 2 @30339 has 47 MA's), (Start: 3 @30378 has 8 MA's), (4, 30396), (5, 30408), (6, 30450), (7, 30489), (10, 30528), (11, 30534), (14, 30594),

Gene: Deb65_36 Start: 30222, Stop: 30512, Start Num: 2

Candidate Starts for Deb65_36:

(Start: 2 @30222 has 47 MA's), (Start: 3 @30261 has 8 MA's), (4, 30279), (5, 30291), (6, 30333), (7, 30372), (10, 30411), (11, 30417), (14, 30477),

Gene: Dorothy_36 Start: 30166, Stop: 30477, Start Num: 1

Candidate Starts for Dorothy_36:

(Start: 1 @30166 has 19 MA's), (Start: 2 @30187 has 47 MA's), (Start: 3 @30226 has 8 MA's), (4, 30244), (5, 30256), (6, 30298), (7, 30337), (10, 30376), (11, 30382), (12, 30397), (13, 30439), (14, 30442),

Gene: DotProduct_36 Start: 30211, Stop: 30501, Start Num: 2

Candidate Starts for DotProduct_36:

(Start: 1 @30190 has 19 MA's), (Start: 2 @30211 has 47 MA's), (Start: 3 @30250 has 8 MA's), (4, 30268), (5, 30280), (8, 30364), (9, 30376), (10, 30400), (11, 30406), (14, 30466),

Gene: Empress_37 Start: 31635, Stop: 31925, Start Num: 2

Candidate Starts for Empress_37:

(Start: 2 @31635 has 47 MA's), (Start: 3 @31674 has 8 MA's), (4, 31692), (5, 31704), (6, 31746), (7, 31785), (10, 31824), (11, 31830), (14, 31890),

Gene: Firehouse51_37 Start: 31010, Stop: 31300, Start Num: 2

Candidate Starts for Firehouse51_37:

(Start: 2 @31010 has 47 MA's), (Start: 3 @31049 has 8 MA's), (4, 31067), (5, 31079), (6, 31121), (7, 31160), (10, 31199), (11, 31205), (12, 31220), (13, 31262), (14, 31265),

Gene: GUmbie_36 Start: 30241, Stop: 30531, Start Num: 2

Candidate Starts for GUmbie_36:

(Start: 1 @30220 has 19 MA's), (Start: 2 @30241 has 47 MA's), (Start: 3 @30280 has 8 MA's), (4, 30298), (5, 30310), (8, 30394), (9, 30406), (10, 30430), (11, 30436), (14, 30496),

Gene: Geralt_36 Start: 30260, Stop: 30511, Start Num: 3

Candidate Starts for Geralt_36:

(Start: 2 @30221 has 47 MA's), (Start: 3 @30260 has 8 MA's), (4, 30278), (5, 30290), (6, 30332), (7, 30371), (10, 30410), (11, 30416), (14, 30476),

Gene: GigiOuiOui_36 Start: 30353, Stop: 30643, Start Num: 2

Candidate Starts for GigiOuiOui_36:

(Start: 1 @30332 has 19 MA's), (Start: 2 @30353 has 47 MA's), (Start: 3 @30392 has 8 MA's), (4, 30410), (5, 30422), (8, 30506), (9, 30518), (10, 30542), (11, 30548), (14, 30608),

Gene: Girafales_37 Start: 30028, Stop: 30318, Start Num: 2

Candidate Starts for Girafales_37:

(Start: 2 @30028 has 47 MA's), (Start: 3 @30067 has 8 MA's), (4, 30085), (5, 30097), (6, 30139), (8, 30181), (9, 30193), (10, 30217), (14, 30283),

Gene: Girr_38 Start: 31257, Stop: 31547, Start Num: 2

Candidate Starts for Girr_38:

(Start: 2 @31257 has 47 MA's), (Start: 3 @31296 has 8 MA's), (4, 31314), (5, 31326), (6, 31368), (7, 31407), (10, 31446), (11, 31452), (14, 31512),

Gene: Guppsters_38 Start: 30718, Stop: 31029, Start Num: 1

Candidate Starts for Guppsters_38:

(Start: 1 @30718 has 19 MA's), (Start: 2 @30739 has 47 MA's), (Start: 3 @30778 has 8 MA's), (4, 30796), (5, 30808), (6, 30850), (7, 30889), (10, 30928), (11, 30934), (12, 30949), (13, 30991), (14, 30994),

Gene: lbhubesi_36 Start: 30164, Stop: 30454, Start Num: 2

Candidate Starts for lbhubesi_36:

(Start: 2 @30164 has 47 MA's), (Start: 3 @30203 has 8 MA's), (4, 30221), (5, 30233), (6, 30275), (8, 30317), (9, 30329), (10, 30353), (11, 30359), (14, 30419),

Gene: Inventum_36 Start: 30902, Stop: 31192, Start Num: 2

Candidate Starts for Inventum_36:

(Start: 2 @30902 has 47 MA's), (Start: 3 @30941 has 8 MA's), (4, 30959), (5, 30971), (6, 31013), (7, 31052), (10, 31091), (11, 31097), (14, 31157),

Gene: Job42_40 Start: 32218, Stop: 32508, Start Num: 2

Candidate Starts for Job42_40:

(Start: 2 @32218 has 47 MA's), (Start: 3 @32257 has 8 MA's), (4, 32275), (5, 32287), (6, 32329), (7, 32368), (10, 32407), (11, 32413), (14, 32473),

Gene: JoeyJr_36 Start: 30390, Stop: 30680, Start Num: 2

Candidate Starts for JoeyJr_36:

(Start: 2 @30390 has 47 MA's), (Start: 3 @30429 has 8 MA's), (4, 30447), (5, 30459), (6, 30501), (7, 30540), (10, 30579), (11, 30585), (14, 30645),

Gene: Karhdo_36 Start: 30393, Stop: 30644, Start Num: 3

Candidate Starts for Karhdo_36:

(Start: 2 @30354 has 47 MA's), (Start: 3 @30393 has 8 MA's), (4, 30411), (5, 30423), (6, 30465), (7, 30504), (10, 30543), (11, 30549), (14, 30609),

Gene: Kersh_35 Start: 31408, Stop: 31719, Start Num: 1

Candidate Starts for Kersh_35:

(Start: 1 @31408 has 19 MA's), (Start: 2 @31429 has 47 MA's), (Start: 3 @31468 has 8 MA's), (4, 31486), (5, 31498), (8, 31582), (9, 31594), (10, 31618), (11, 31624), (14, 31684),

Gene: Kimberlium_38 Start: 31345, Stop: 31635, Start Num: 2

Candidate Starts for Kimberlium_38:

(Start: 2 @31345 has 47 MA's), (Start: 3 @31384 has 8 MA's), (4, 31402), (5, 31414), (6, 31456), (7, 31495), (10, 31534), (11, 31540), (12, 31555), (13, 31597), (14, 31600),

Gene: KingMidas_38 Start: 32123, Stop: 32374, Start Num: 3

Candidate Starts for KingMidas_38:

(Start: 2 @32084 has 47 MA's), (Start: 3 @32123 has 8 MA's), (4, 32141), (5, 32153), (6, 32195), (7, 32234), (10, 32273), (11, 32279), (14, 32339),

Gene: Krakatau_37 Start: 30895, Stop: 31206, Start Num: 1

Candidate Starts for Krakatau_37:

(Start: 1 @30895 has 19 MA's), (Start: 2 @30916 has 47 MA's), (Start: 3 @30955 has 8 MA's), (4, 30973), (5, 30985), (8, 31069), (9, 31081), (10, 31105), (11, 31111), (14, 31171),

Gene: Leozinho_38 Start: 30643, Stop: 30933, Start Num: 2

Candidate Starts for Leozinho_38:

(Start: 2 @30643 has 47 MA's), (Start: 3 @30682 has 8 MA's), (4, 30700), (5, 30712), (6, 30754), (7, 30793), (10, 30832), (11, 30838), (14, 30898),

Gene: Leperchaun_36 Start: 30275, Stop: 30586, Start Num: 1

Candidate Starts for Leperchaun_36:

(Start: 1 @30275 has 19 MA's), (Start: 2 @30296 has 47 MA's), (Start: 3 @30335 has 8 MA's), (4, 30353), (5, 30365), (6, 30407), (7, 30446), (10, 30485), (11, 30491), (12, 30506), (13, 30548), (14, 30551),

Gene: LittleShirley_39 Start: 31841, Stop: 32152, Start Num: 1

Candidate Starts for LittleShirley_39:

(Start: 1 @31841 has 19 MA's), (Start: 2 @31862 has 47 MA's), (Start: 3 @31901 has 8 MA's), (4, 31919), (5, 31931), (8, 32015), (9, 32027), (10, 32051), (11, 32057), (14, 32117),

Gene: Llij_36 Start: 30202, Stop: 30492, Start Num: 2

Candidate Starts for Llij_36:

(Start: 2 @30202 has 47 MA's), (Start: 3 @30241 has 8 MA's), (4, 30259), (5, 30271), (6, 30313), (7, 30352), (10, 30391), (11, 30397), (12, 30412), (13, 30454), (14, 30457),

Gene: Minnie_38 Start: 31204, Stop: 31494, Start Num: 2

Candidate Starts for Minnie_38:

(Start: 2 @31204 has 47 MA's), (Start: 3 @31243 has 8 MA's), (4, 31261), (5, 31273), (6, 31315), (8, 31357), (9, 31369), (10, 31393), (14, 31459),

Gene: MisterCuddles_38 Start: 31296, Stop: 31547, Start Num: 3

Candidate Starts for MisterCuddles_38:

(Start: 2 @31257 has 47 MA's), (Start: 3 @31296 has 8 MA's), (4, 31314), (5, 31326), (6, 31368), (7, 31407), (10, 31446), (11, 31452), (14, 31512),

Gene: Modragons_36 Start: 30273, Stop: 30563, Start Num: 2

Candidate Starts for Modragons_36:

(Start: 2 @30273 has 47 MA's), (Start: 3 @30312 has 8 MA's), (4, 30330), (5, 30342), (6, 30384), (8, 30426), (9, 30438), (10, 30462), (14, 30528),

Gene: Mozy_38 Start: 31099, Stop: 31389, Start Num: 2

Candidate Starts for Mozy_38:

(Start: 2 @31099 has 47 MA's), (Start: 3 @31138 has 8 MA's), (4, 31156), (5, 31168), (6, 31210), (8, 31252), (9, 31264), (10, 31288), (11, 31294), (12, 31309), (13, 31351), (14, 31354),

Gene: Mutaforma13_36 Start: 30479, Stop: 30769, Start Num: 2

Candidate Starts for Mutaforma13_36:

(Start: 1 @30458 has 19 MA's), (Start: 2 @30479 has 47 MA's), (Start: 3 @30518 has 8 MA's), (4, 30536), (5, 30548), (8, 30632), (9, 30644), (10, 30668), (11, 30674), (14, 30734),

Gene: Nimbo_36 Start: 30225, Stop: 30515, Start Num: 2

Candidate Starts for Nimbo_36:

(Start: 2 @30225 has 47 MA's), (Start: 3 @30264 has 8 MA's), (4, 30282), (5, 30294), (6, 30336), (7, 30375), (10, 30414), (11, 30420), (14, 30480),

Gene: Nitzel_37 Start: 30941, Stop: 31231, Start Num: 2

Candidate Starts for Nitzel_37:

(Start: 2 @30941 has 47 MA's), (Start: 3 @30980 has 8 MA's), (4, 30998), (5, 31010), (6, 31052), (8, 31094), (9, 31106), (10, 31130), (11, 31136), (14, 31196),

Gene: OldBen_36 Start: 30295, Stop: 30546, Start Num: 3

Candidate Starts for OldBen_36:

(Start: 2 @30256 has 47 MA's), (Start: 3 @30295 has 8 MA's), (4, 30313), (5, 30325), (6, 30367), (7, 30406), (10, 30445), (11, 30451), (14, 30511),

Gene: OlympiaSaint_36 Start: 30671, Stop: 30961, Start Num: 2

Candidate Starts for OlympiaSaint_36:

(Start: 2 @30671 has 47 MA's), (Start: 3 @30710 has 8 MA's), (4, 30728), (5, 30740), (6, 30782), (7, 30821), (10, 30860), (11, 30866), (14, 30926),

Gene: Ovechkin_37 Start: 31231, Stop: 31521, Start Num: 2

Candidate Starts for Ovechkin_37:

(Start: 2 @31231 has 47 MA's), (Start: 3 @31270 has 8 MA's), (4, 31288), (5, 31300), (6, 31342), (7, 31381), (10, 31420), (14, 31486),

Gene: OwlsT2W_37 Start: 30646, Stop: 30936, Start Num: 2

Candidate Starts for OwlsT2W_37:

(Start: 2 @30646 has 47 MA's), (Start: 3 @30685 has 8 MA's), (4, 30703), (5, 30715), (6, 30757), (7, 30796), (10, 30835), (11, 30841), (14, 30901),

Gene: PHappiness_36 Start: 30198, Stop: 30488, Start Num: 2

Candidate Starts for PHappiness_36:

(Start: 2 @30198 has 47 MA's), (Start: 3 @30237 has 8 MA's), (4, 30255), (5, 30267), (6, 30309), (7, 30348), (10, 30387), (11, 30393), (14, 30453),

Gene: PMC_36 Start: 30202, Stop: 30492, Start Num: 2

Candidate Starts for PMC_36:

(Start: 2 @30202 has 47 MA's), (Start: 3 @30241 has 8 MA's), (4, 30259), (5, 30271), (6, 30313), (7, 30352), (10, 30391), (11, 30397), (12, 30412), (13, 30454), (14, 30457),

Gene: Pacc40_36 Start: 30392, Stop: 30682, Start Num: 2

Candidate Starts for Pacc40_36:

(Start: 1 @30371 has 19 MA's), (Start: 2 @30392 has 47 MA's), (Start: 3 @30431 has 8 MA's), (4, 30449), (5, 30461), (6, 30503), (7, 30542), (10, 30581), (11, 30587), (12, 30602), (13, 30644), (14, 30647),

Gene: Plumbus_38 Start: 30277, Stop: 30588, Start Num: 1

Candidate Starts for Plumbus_38:

(Start: 1 @30277 has 19 MA's), (Start: 2 @30298 has 47 MA's), (Start: 3 @30337 has 8 MA's), (4, 30355), (5, 30367), (8, 30451), (9, 30463), (10, 30487), (11, 30493), (14, 30553),

Gene: Polka14_37 Start: 30882, Stop: 31133, Start Num: 3

Candidate Starts for Polka14_37:

(Start: 2 @30843 has 47 MA's), (Start: 3 @30882 has 8 MA's), (4, 30900), (5, 30912), (6, 30954), (7, 30993), (10, 31032), (11, 31038), (14, 31098),

Gene: QuickMath_37 Start: 31568, Stop: 31858, Start Num: 2

Candidate Starts for QuickMath_37:

(Start: 2 @31568 has 47 MA's), (Start: 3 @31607 has 8 MA's), (4, 31625), (5, 31637), (6, 31679), (7, 31718), (10, 31757), (11, 31763), (12, 31778), (13, 31820), (14, 31823),

Gene: Quico_37 Start: 30028, Stop: 30318, Start Num: 2

Candidate Starts for Quico_37:

(Start: 2 @30028 has 47 MA's), (Start: 3 @30067 has 8 MA's), (4, 30085), (5, 30097), (6, 30139), (8, 30181), (9, 30193), (10, 30217), (14, 30283),

Gene: RitaG_37 Start: 30665, Stop: 30955, Start Num: 2

Candidate Starts for RitaG_37:

(Start: 2 @30665 has 47 MA's), (Start: 3 @30704 has 8 MA's), (4, 30722), (5, 30734), (6, 30776), (7, 30815), (10, 30854), (11, 30860), (12, 30875), (13, 30917), (14, 30920),

Gene: RockyHorror_37 Start: 30124, Stop: 30435, Start Num: 1

Candidate Starts for RockyHorror_37:

(Start: 1 @30124 has 19 MA's), (Start: 2 @30145 has 47 MA's), (Start: 3 @30184 has 8 MA's), (4, 30202), (5, 30214), (6, 30256), (7, 30295), (10, 30334), (11, 30340), (14, 30400),

Gene: Royals2015_36 Start: 30297, Stop: 30608, Start Num: 1

Candidate Starts for Royals2015_36:

(Start: 1 @30297 has 19 MA's), (Start: 2 @30318 has 47 MA's), (Start: 3 @30357 has 8 MA's), (4, 30375), (5, 30387), (6, 30429), (8, 30471), (9, 30483), (10, 30507), (11, 30513), (14, 30573),

Gene: Ruby_38 Start: 31257, Stop: 31547, Start Num: 2

Candidate Starts for Ruby_38:

(Start: 2 @31257 has 47 MA's), (Start: 3 @31296 has 8 MA's), (4, 31314), (5, 31326), (6, 31368), (7, 31407), (10, 31446), (11, 31452), (14, 31512),

Gene: Sabbb_37 Start: 30597, Stop: 30908, Start Num: 1

Candidate Starts for Sabbb_37:

(Start: 1 @30597 has 19 MA's), (Start: 2 @30618 has 47 MA's), (Start: 3 @30657 has 8 MA's), (4, 30675), (5, 30687), (8, 30771), (9, 30783), (10, 30807), (11, 30813), (14, 30873),

Gene: Sarma624_32 Start: 26427, Stop: 26717, Start Num: 2

Candidate Starts for Sarma624_32:

(Start: 2 @26427 has 47 MA's), (Start: 3 @26466 has 8 MA's), (4, 26484), (5, 26496), (6, 26538), (8, 26580), (9, 26592), (10, 26616), (14, 26682),

Gene: Scottish_37 Start: 31562, Stop: 31813, Start Num: 3

Candidate Starts for Scottish_37:

(Start: 2 @31523 has 47 MA's), (Start: 3 @31562 has 8 MA's), (4, 31580), (5, 31592), (6, 31634), (7, 31673), (10, 31712), (11, 31718), (14, 31778),

Gene: ShroomBoi_33 Start: 29273, Stop: 29584, Start Num: 1

Candidate Starts for ShroomBoi_33:

(Start: 1 @29273 has 19 MA's), (Start: 2 @29294 has 47 MA's), (Start: 3 @29333 has 8 MA's), (4, 29351), (5, 29363), (6, 29405), (7, 29444), (10, 29483), (11, 29489), (12, 29504), (13, 29546), (14, 29549),

Gene: SiSi_36 Start: 30181, Stop: 30492, Start Num: 1

Candidate Starts for SiSi_36:

(Start: 1 @30181 has 19 MA's), (Start: 2 @30202 has 47 MA's), (Start: 3 @30241 has 8 MA's), (4, 30259), (5, 30271), (8, 30355), (9, 30367), (10, 30391), (11, 30397), (14, 30457),

Gene: SimranZ1_39 Start: 30558, Stop: 30809, Start Num: 3

Candidate Starts for SimranZ1_39:

(Start: 2 @30519 has 47 MA's), (Start: 3 @30558 has 8 MA's), (4, 30576), (5, 30588), (6, 30630), (8, 30672), (9, 30684), (10, 30708), (14, 30774),

Gene: Spoonbill_36 Start: 30482, Stop: 30772, Start Num: 2

Candidate Starts for Spoonbill_36:

(Start: 2 @30482 has 47 MA's), (Start: 3 @30521 has 8 MA's), (4, 30539), (5, 30551), (6, 30593), (7, 30632), (10, 30671), (11, 30677), (14, 30737),

Gene: Stap_37 Start: 30373, Stop: 30663, Start Num: 2

Candidate Starts for Stap_37:

(Start: 2 @30373 has 47 MA's), (Start: 3 @30412 has 8 MA's), (4, 30430), (5, 30442), (6, 30484), (7, 30523), (10, 30562), (11, 30568), (14, 30628),

Gene: Starcevich_40 Start: 31076, Stop: 31387, Start Num: 1

Candidate Starts for Starcevich_40:

(Start: 1 @31076 has 19 MA's), (Start: 2 @31097 has 47 MA's), (Start: 3 @31136 has 8 MA's), (4, 31154), (5, 31166), (8, 31250), (9, 31262), (10, 31286), (11, 31292), (14, 31352),

Gene: Taj_36 Start: 30359, Stop: 30670, Start Num: 1

Candidate Starts for Taj_36:

(Start: 1 @30359 has 19 MA's), (Start: 2 @30380 has 47 MA's), (Start: 3 @30419 has 8 MA's), (4, 30437), (5, 30449), (6, 30491), (7, 30530), (8, 30533), (10, 30569), (12, 30590), (13, 30632), (14, 30635),

Gene: Totinger_37 Start: 30183, Stop: 30494, Start Num: 1

Candidate Starts for Totinger_37:

(Start: 1 @30183 has 19 MA's), (Start: 2 @30204 has 47 MA's), (Start: 3 @30243 has 8 MA's), (4, 30261), (5, 30273), (6, 30315), (8, 30357), (9, 30369), (10, 30393), (14, 30459),

Gene: VRedHorse_36 Start: 30390, Stop: 30680, Start Num: 2

Candidate Starts for VRedHorse_36:

(Start: 2 @30390 has 47 MA's), (Start: 3 @30429 has 8 MA's), (4, 30447), (5, 30459), (6, 30501), (8, 30543), (9, 30555), (10, 30579), (14, 30645),

Gene: Velveteen_31 Start: 26427, Stop: 26717, Start Num: 2

Candidate Starts for Velveteen_31:

(Start: 2 @26427 has 47 MA's), (Start: 3 @26466 has 8 MA's), (4, 26484), (5, 26496), (6, 26538), (8, 26580), (9, 26592), (10, 26616), (14, 26682),

Gene: Veteran_36 Start: 30220, Stop: 30531, Start Num: 1

Candidate Starts for Veteran_36:

(Start: 1 @30220 has 19 MA's), (Start: 2 @30241 has 47 MA's), (Start: 3 @30280 has 8 MA's), (4, 30298), (5, 30310), (8, 30394), (9, 30406), (10, 30430), (11, 30436), (14, 30496),

Gene: Wee_37 Start: 30918, Stop: 31208, Start Num: 2

Candidate Starts for Wee_37:

(Start: 1 @30897 has 19 MA's), (Start: 2 @30918 has 47 MA's), (Start: 3 @30957 has 8 MA's), (4, 30975), (5, 30987), (6, 31029), (7, 31068), (8, 31071), (10, 31107), (12, 31128), (13, 31170), (14, 31173),

Gene: Zerg_36 Start: 30233, Stop: 30544, Start Num: 1

Candidate Starts for Zerg_36:

(Start: 1 @30233 has 19 MA's), (Start: 2 @30254 has 47 MA's), (Start: 3 @30293 has 8 MA's), (4, 30311), (5, 30323), (6, 30365), (7, 30404), (10, 30443), (11, 30449), (14, 30509),