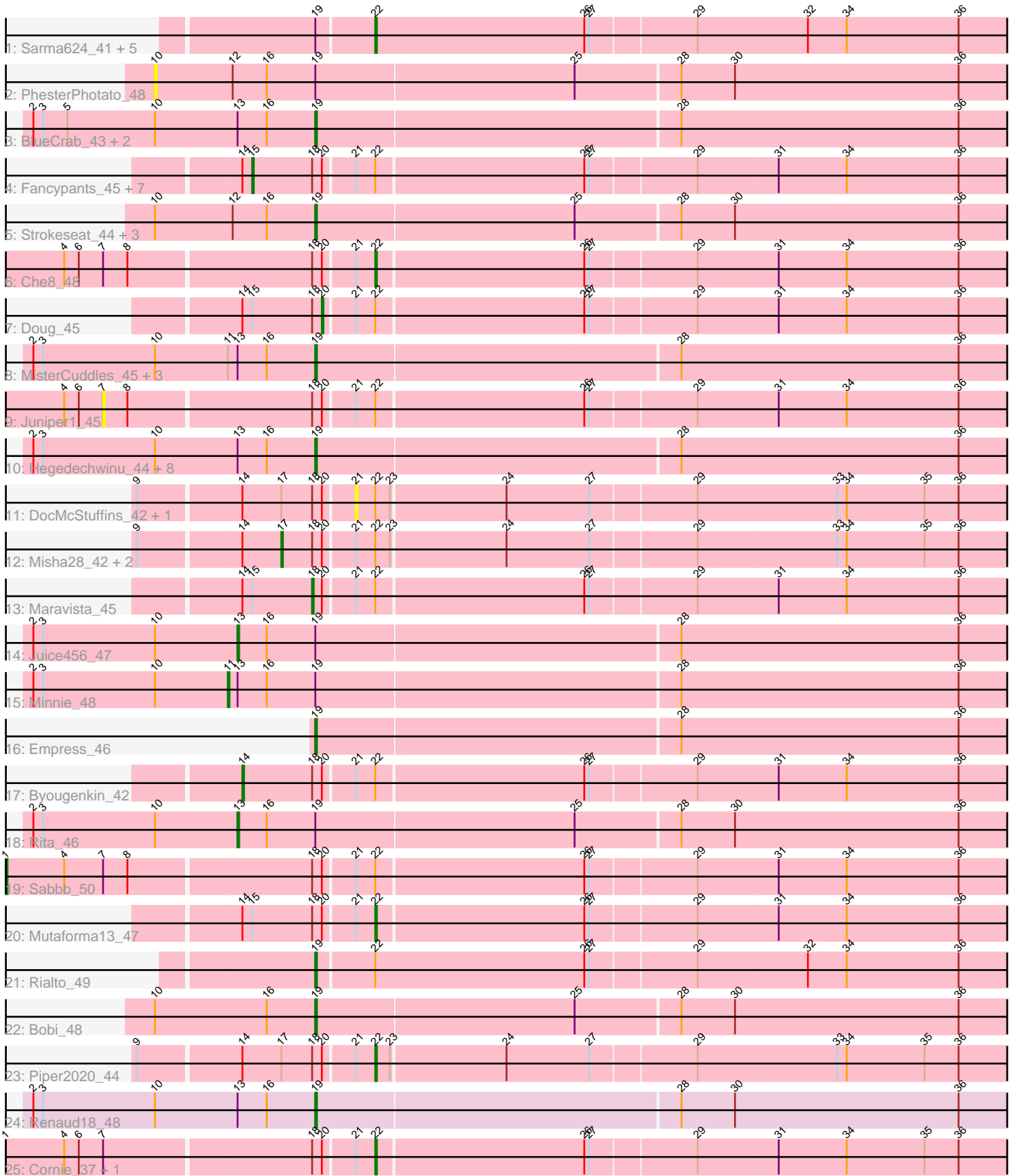


Pham 157890



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 157890 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157890 has 57 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Sarma624_41, Cerasum_40, Coco12_42, Velveteen_39, Kingsley_40, BigPhil_40
- Track 2 : PhesterPhotato_48
- Track 3 : BlueCrab_43, Poenanya_45, RedBird_42
- Track 4 : Fancypants_45, MilleniumForce_44, Whatsapiecost_43, Kimberlium_46, Bubbles123_42, Soul22_49, Wachhund_47, QuickMath_45
- Track 5 : Strokeseat_44, Mandlovu_43, Hlubikazi_43, DaWorst_47
- Track 6 : Che8_48
- Track 7 : Doug_45
- Track 8 : MisterCuddles_45, Sassafras_45, Girr_46, Daenerys_42
- Track 9 : Juniper1_45
- Track 10 : Hegedechwinu_44, AlpineSix_47, Madiba_41, Ochi17_45, Jinglebell_47, UncleRicky_45, Whouxphf_44, Kersh_46, Pollywog_44
- Track 11 : DocMcStuffins_42, ChickenDinner_44
- Track 12 : Misha28_42, Awesomesauce_44, TootsiePop_42
- Track 13 : Maravista_45
- Track 14 : Juice456_47
- Track 15 : Minnie_48
- Track 16 : Empress_46
- Track 17 : Byougenkin_42
- Track 18 : Rita_46
- Track 19 : Sabbb_50
- Track 20 : Mutaforma13_47
- Track 21 : Rialto_49
- Track 22 : Bobi_48
- Track 23 : Piper2020_44
- Track 24 : Renaud18_48
- Track 25 : Cornie_37, Mahavrat_42

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

The start number called the most often in the published annotations is 19, it was called in 23 of the 52 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AlpineSix_47, BlueCrab_43, Bobi_48, DaWorst_47, Daenerys_42, Empress_46, Girr_46, Hegedechwinu_44, Hlubikazi_43, Jinglebell_47, Kersh_46, Madiba_41, Mandlovu_43, MisterCuddles_45, Ochi17_45, Poenanya_45, Pollywog_44, RedBird_42, Renaud18_48, Rialto_49, Sassafras_45, Strokeseat_44, UncleRicky_45, Whouxphf_44,

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

- BigPhil_40, Cerasum_40, Coco12_42, Juice456_47, Kingsley_40, Minnie_48, PhesterPhotato_48, Rita_46, Sarma624_41, Velveteen_39,

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

- Awesomesauce_44, Bubbles123_42, Byougenkin_42, Che8_48, ChickenDinner_44, Cornie_37, DocMcStuffins_42, Doug_45, Fancypants_45, Juniper1_45, Kimberlium_46, Mahavrat_42, Maravista_45, MilleniumForce_44, Misha28_42, Mutaforma13_47, Piper2020_44, QuickMath_45, Sabbb_50, Soul22_49, TootsiePop_42, Wachhund_47, Whatsapiecost_43,

Summary by start number:

Start 1:

- Found in 3 of 57 (5.3%) of genes in pham
- Manual Annotations of this start: 1 of 52
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Sabbb_50 (F1),

Start 7:

- Found in 5 of 57 (8.8%) of genes in pham
- No Manual Annotations of this start.
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Juniper1_45 (F1),

Start 10:

- Found in 26 of 57 (45.6%) of genes in pham
- No Manual Annotations of this start.
- Called 3.8% of time when present
- Phage (with cluster) where this start called: PhesterPhotato_48 (F1),

Start 11:

- Found in 5 of 57 (8.8%) of genes in pham
- Manual Annotations of this start: 1 of 52
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Minnie_48 (F1),

Start 13:

- Found in 20 of 57 (35.1%) of genes in pham
- Manual Annotations of this start: 2 of 52
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Juice456_47 (F1), Rita_46 (F1),

Start 14:

- Found in 18 of 57 (31.6%) of genes in pham
- Manual Annotations of this start: 1 of 52

- Called 5.6% of time when present
- Phage (with cluster) where this start called: Byougenkin_42 (F1),

Start 15:

- Found in 11 of 57 (19.3%) of genes in pham
- Manual Annotations of this start: 8 of 52
- Called 72.7% of time when present
- Phage (with cluster) where this start called: Bubbles123_42 (F1), Fancypants_45 (F1), Kimberlium_46 (F1), MilleniumForce_44 (F1), QuickMath_45 (F1), Soul22_49 (F2), Wachhund_47 (F1), Whatsapiecost_43 (F1),

Start 17:

- Found in 6 of 57 (10.5%) of genes in pham
- Manual Annotations of this start: 3 of 52
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Awesomesauce_44 (F1), Misha28_42 (F1), TootsiePop_42 (F1),

Start 18:

- Found in 23 of 57 (40.4%) of genes in pham
- Manual Annotations of this start: 1 of 52
- Called 4.3% of time when present
- Phage (with cluster) where this start called: Maravista_45 (F1),

Start 19:

- Found in 34 of 57 (59.6%) of genes in pham
- Manual Annotations of this start: 23 of 52
- Called 70.6% of time when present
- Phage (with cluster) where this start called: AlpineSix_47 (F1), BlueCrab_43 (F1), Bobi_48 (F1), DaWorst_47 (F1), Daenerys_42 (F1), Empress_46 (F1), Girr_46 (F1), Hegedechwinu_44 (F1), Hlubikazi_43 (F1), Jinglebell_47 (F1), Kersh_46 (F1), Madiba_41 (F1), Mandlovu_43 (F1), MisterCuddles_45 (F1), Ochi17_45 (F1), Poenanya_45 (F1), Pollywog_44 (F1), RedBird_42 (F1), Renaud18_48 (F4), Rialto_49 (F1), Sassafras_45 (F1), Strokeseat_44 (F1), UncleRicky_45 (F1), Whouxphf_44 (F1),

Start 20:

- Found in 23 of 57 (40.4%) of genes in pham
- Manual Annotations of this start: 1 of 52
- Called 4.3% of time when present
- Phage (with cluster) where this start called: Doug_45 (F1),

Start 21:

- Found in 23 of 57 (40.4%) of genes in pham
- No Manual Annotations of this start.
- Called 8.7% of time when present
- Phage (with cluster) where this start called: ChickenDinner_44 (F1), DocMcStuffins_42 (F1),

Start 22:

- Found in 30 of 57 (52.6%) of genes in pham
- Manual Annotations of this start: 11 of 52
- Called 36.7% of time when present

- Phage (with cluster) where this start called: BigPhil_40 (F1), Cerasum_40 (F1), Che8_48 (F1), Coco12_42 (F1), Cornie_37 (F5), Kingsley_40 (F1), Mahavrat_42 (F1), Mutaforma13_47 (F1), Piper2020_44 (F1), Sarma624_41 (F1), Velveteen_39 (F1),

Summary by clusters:

There are 4 clusters represented in this pham: F1, F2, F4, F5,

Info for manual annotations of cluster F1:

- Start number 1 was manually annotated 1 time for cluster F1.
- Start number 11 was manually annotated 1 time for cluster F1.
- Start number 13 was manually annotated 2 times for cluster F1.
- Start number 14 was manually annotated 1 time for cluster F1.
- Start number 15 was manually annotated 7 times for cluster F1.
- Start number 17 was manually annotated 3 times for cluster F1.
- Start number 18 was manually annotated 1 time for cluster F1.
- Start number 19 was manually annotated 22 times for cluster F1.
- Start number 20 was manually annotated 1 time for cluster F1.
- Start number 22 was manually annotated 10 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 15 was manually annotated 1 time for cluster F2.

Info for manual annotations of cluster F4:

- Start number 19 was manually annotated 1 time for cluster F4.

Info for manual annotations of cluster F5:

- Start number 22 was manually annotated 1 time for cluster F5.

Gene Information:

Gene: AlpineSix_47 Start: 35804, Stop: 35232, Start Num: 19

Candidate Starts for AlpineSix_47:

(2, 35978), (3, 35972), (10, 35903), (Start: 13 @35852 has 2 MA's), (16, 35834), (Start: 19 @35804 has 23 MA's), (28, 35585), (36, 35414),

Gene: Awesomesauce_44 Start: 33389, Stop: 32802, Start Num: 17

Candidate Starts for Awesomesauce_44:

(9, 33473), (Start: 14 @33413 has 1 MA's), (Start: 17 @33389 has 3 MA's), (Start: 18 @33371 has 1 MA's), (Start: 20 @33365 has 1 MA's), (21, 33347), (Start: 22 @33335 has 11 MA's), (23, 33326), (24, 33257), (27, 33206), (29, 33143), (33, 33059), (34, 33053), (35, 33005), (36, 32984),

Gene: BigPhil_40 Start: 30335, Stop: 29802, Start Num: 22

Candidate Starts for BigPhil_40:

(Start: 19 @30368 has 23 MA's), (Start: 22 @30335 has 11 MA's), (26, 30206), (27, 30203), (29, 30140), (32, 30074), (34, 30050), (36, 29981),

Gene: BlueCrab_43 Start: 34399, Stop: 33827, Start Num: 19

Candidate Starts for BlueCrab_43:

(2, 34573), (3, 34567), (5, 34552), (10, 34498), (Start: 13 @34447 has 2 MA's), (16, 34429), (Start: 19 @34399 has 23 MA's), (28, 34180), (36, 34009),

Gene: Bobi_48 Start: 36367, Stop: 35798, Start Num: 19

Candidate Starts for Bobi_48:

(10, 36466), (16, 36397), (Start: 19 @36367 has 23 MA's), (25, 36211), (28, 36148), (30, 36115), (36, 35977),

Gene: Bubbles123_42 Start: 35115, Stop: 34513, Start Num: 15

Candidate Starts for Bubbles123_42:

(Start: 14 @35121 has 1 MA's), (Start: 15 @35115 has 8 MA's), (Start: 18 @35079 has 1 MA's), (Start: 20 @35073 has 1 MA's), (21, 35055), (Start: 22 @35043 has 11 MA's), (26, 34917), (27, 34914), (29, 34851), (31, 34803), (34, 34761), (36, 34692),

Gene: Byougenkin_42 Start: 34510, Stop: 33902, Start Num: 14

Candidate Starts for Byougenkin_42:

(Start: 14 @34510 has 1 MA's), (Start: 18 @34468 has 1 MA's), (Start: 20 @34462 has 1 MA's), (21, 34444), (Start: 22 @34432 has 11 MA's), (26, 34306), (27, 34303), (29, 34240), (31, 34192), (34, 34150), (36, 34081),

Gene: Cerasum_40 Start: 30353, Stop: 29820, Start Num: 22

Candidate Starts for Cerasum_40:

(Start: 19 @30386 has 23 MA's), (Start: 22 @30353 has 11 MA's), (26, 30224), (27, 30221), (29, 30158), (32, 30092), (34, 30068), (36, 29999),

Gene: Che8_48 Start: 35596, Stop: 35063, Start Num: 22

Candidate Starts for Che8_48:

(4, 35779), (6, 35770), (7, 35755), (8, 35740), (Start: 18 @35632 has 1 MA's), (Start: 20 @35626 has 1 MA's), (21, 35608), (Start: 22 @35596 has 11 MA's), (26, 35470), (27, 35467), (29, 35404), (31, 35356), (34, 35314), (36, 35245),

Gene: ChickenDinner_44 Start: 34085, Stop: 33540, Start Num: 21

Candidate Starts for ChickenDinner_44:

(9, 34211), (Start: 14 @34151 has 1 MA's), (Start: 17 @34127 has 3 MA's), (Start: 18 @34109 has 1 MA's), (Start: 20 @34103 has 1 MA's), (21, 34085), (Start: 22 @34073 has 11 MA's), (23, 34064), (24, 33995), (27, 33944), (29, 33881), (33, 33797), (34, 33791), (35, 33743), (36, 33722),

Gene: Coco12_42 Start: 34410, Stop: 33877, Start Num: 22

Candidate Starts for Coco12_42:

(Start: 19 @34443 has 23 MA's), (Start: 22 @34410 has 11 MA's), (26, 34281), (27, 34278), (29, 34215), (32, 34149), (34, 34125), (36, 34056),

Gene: Cornie_37 Start: 32469, Stop: 31936, Start Num: 22

Candidate Starts for Cornie_37:

(Start: 1 @32688 has 1 MA's), (4, 32652), (6, 32643), (7, 32628), (Start: 18 @32505 has 1 MA's), (Start: 20 @32499 has 1 MA's), (21, 32481), (Start: 22 @32469 has 11 MA's), (26, 32343), (27, 32340), (29, 32277), (31, 32229), (34, 32187), (35, 32139), (36, 32118),

Gene: DaWorst_47 Start: 35474, Stop: 34905, Start Num: 19

Candidate Starts for DaWorst_47:

(10, 35573), (12, 35525), (16, 35504), (Start: 19 @35474 has 23 MA's), (25, 35318), (28, 35255), (30, 35222), (36, 35084),

Gene: Daenerys_42 Start: 34265, Stop: 33693, Start Num: 19

Candidate Starts for Daenerys_42:

(2, 34439), (3, 34433), (10, 34364), (Start: 11 @34319 has 1 MA's), (Start: 13 @34313 has 2 MA's), (16, 34295), (Start: 19 @34265 has 23 MA's), (28, 34046), (36, 33875),

Gene: DocMcStuffins_42 Start: 34085, Stop: 33540, Start Num: 21

Candidate Starts for DocMcStuffins_42:

(9, 34211), (Start: 14 @34151 has 1 MA's), (Start: 17 @34127 has 3 MA's), (Start: 18 @34109 has 1 MA's), (Start: 20 @34103 has 1 MA's), (21, 34085), (Start: 22 @34073 has 11 MA's), (23, 34064), (24, 33995), (27, 33944), (29, 33881), (33, 33797), (34, 33791), (35, 33743), (36, 33722),

Gene: Doug_45 Start: 34931, Stop: 34371, Start Num: 20

Candidate Starts for Doug_45:

(Start: 14 @34979 has 1 MA's), (Start: 15 @34973 has 8 MA's), (Start: 18 @34937 has 1 MA's), (Start: 20 @34931 has 1 MA's), (21, 34913), (Start: 22 @34901 has 11 MA's), (26, 34775), (27, 34772), (29, 34709), (31, 34661), (34, 34619), (36, 34550),

Gene: Empress_46 Start: 35678, Stop: 35106, Start Num: 19

Candidate Starts for Empress_46:

(Start: 19 @35678 has 23 MA's), (28, 35459), (36, 35288),

Gene: Fancypants_45 Start: 35388, Stop: 34783, Start Num: 15

Candidate Starts for Fancypants_45:

(Start: 14 @35394 has 1 MA's), (Start: 15 @35388 has 8 MA's), (Start: 18 @35352 has 1 MA's), (Start: 20 @35346 has 1 MA's), (21, 35328), (Start: 22 @35316 has 11 MA's), (26, 35190), (27, 35187), (29, 35124), (31, 35076), (34, 35034), (36, 34965),

Gene: Girr_46 Start: 35274, Stop: 34702, Start Num: 19

Candidate Starts for Girr_46:

(2, 35448), (3, 35442), (10, 35373), (Start: 11 @35328 has 1 MA's), (Start: 13 @35322 has 2 MA's), (16, 35304), (Start: 19 @35274 has 23 MA's), (28, 35055), (36, 34884),

Gene: Hegedechwinu_44 Start: 33406, Stop: 32837, Start Num: 19

Candidate Starts for Hegedechwinu_44:

(2, 33580), (3, 33574), (10, 33505), (Start: 13 @33454 has 2 MA's), (16, 33436), (Start: 19 @33406 has 23 MA's), (28, 33187), (36, 33016),

Gene: Hlubikazi_43 Start: 34252, Stop: 33683, Start Num: 19

Candidate Starts for Hlubikazi_43:

(10, 34351), (12, 34303), (16, 34282), (Start: 19 @34252 has 23 MA's), (25, 34096), (28, 34033), (30, 34000), (36, 33862),

Gene: Jinglebell_47 Start: 35803, Stop: 35231, Start Num: 19

Candidate Starts for Jinglebell_47:

(2, 35977), (3, 35971), (10, 35902), (Start: 13 @35851 has 2 MA's), (16, 35833), (Start: 19 @35803 has 23 MA's), (28, 35584), (36, 35413),

Gene: Juice456_47 Start: 36056, Stop: 35439, Start Num: 13

Candidate Starts for Juice456_47:

(2, 36182), (3, 36176), (10, 36107), (Start: 13 @36056 has 2 MA's), (16, 36038), (Start: 19 @36008 has 23 MA's), (28, 35789), (36, 35618),

Gene: Juniper1_45 Start: 34291, Stop: 33599, Start Num: 7

Candidate Starts for Juniper1_45:

(4, 34315), (6, 34306), (7, 34291), (8, 34276), (Start: 18 @34168 has 1 MA's), (Start: 20 @34162 has 1 MA's), (21, 34144), (Start: 22 @34132 has 11 MA's), (26, 34006), (27, 34003), (29, 33940), (31, 33892), (34, 33850), (36, 33781),

Gene: Kersh_46 Start: 36309, Stop: 35737, Start Num: 19

Candidate Starts for Kersh_46:

(2, 36483), (3, 36477), (10, 36408), (Start: 13 @36357 has 2 MA's), (16, 36339), (Start: 19 @36309 has 23 MA's), (28, 36090), (36, 35919),

Gene: Kimberlium_46 Start: 35638, Stop: 35036, Start Num: 15

Candidate Starts for Kimberlium_46:

(Start: 14 @35644 has 1 MA's), (Start: 15 @35638 has 8 MA's), (Start: 18 @35602 has 1 MA's), (Start: 20 @35596 has 1 MA's), (21, 35578), (Start: 22 @35566 has 11 MA's), (26, 35440), (27, 35437), (29, 35374), (31, 35326), (34, 35284), (36, 35215),

Gene: Kingsley_40 Start: 33143, Stop: 32610, Start Num: 22

Candidate Starts for Kingsley_40:

(Start: 19 @33176 has 23 MA's), (Start: 22 @33143 has 11 MA's), (26, 33014), (27, 33011), (29, 32948), (32, 32882), (34, 32858), (36, 32789),

Gene: Madiba_41 Start: 33006, Stop: 32434, Start Num: 19

Candidate Starts for Madiba_41:

(2, 33180), (3, 33174), (10, 33105), (Start: 13 @33054 has 2 MA's), (16, 33036), (Start: 19 @33006 has 23 MA's), (28, 32787), (36, 32616),

Gene: Mahavrat_42 Start: 33928, Stop: 33395, Start Num: 22

Candidate Starts for Mahavrat_42:

(Start: 1 @34147 has 1 MA's), (4, 34111), (6, 34102), (7, 34087), (Start: 18 @33964 has 1 MA's), (Start: 20 @33958 has 1 MA's), (21, 33940), (Start: 22 @33928 has 11 MA's), (26, 33802), (27, 33799), (29, 33736), (31, 33688), (34, 33646), (35, 33598), (36, 33577),

Gene: Mandlovu_43 Start: 34194, Stop: 33625, Start Num: 19

Candidate Starts for Mandlovu_43:

(10, 34293), (12, 34245), (16, 34224), (Start: 19 @34194 has 23 MA's), (25, 34038), (28, 33975), (30, 33942), (36, 33804),

Gene: Maravista_45 Start: 35361, Stop: 34792, Start Num: 18

Candidate Starts for Maravista_45:

(Start: 14 @35403 has 1 MA's), (Start: 15 @35397 has 8 MA's), (Start: 18 @35361 has 1 MA's), (Start: 20 @35355 has 1 MA's), (21, 35337), (Start: 22 @35325 has 11 MA's), (26, 35199), (27, 35196), (29, 35133), (31, 35085), (34, 35043), (36, 34974),

Gene: MilleniumForce_44 Start: 35371, Stop: 34769, Start Num: 15

Candidate Starts for MilleniumForce_44:

(Start: 14 @35377 has 1 MA's), (Start: 15 @35371 has 8 MA's), (Start: 18 @35335 has 1 MA's), (Start: 20 @35329 has 1 MA's), (21, 35311), (Start: 22 @35299 has 11 MA's), (26, 35173), (27, 35170), (29, 35107), (31, 35059), (34, 35017), (36, 34948),

Gene: Minnie_48 Start: 35798, Stop: 35175, Start Num: 11

Candidate Starts for Minnie_48:

(2, 35918), (3, 35912), (10, 35843), (Start: 11 @35798 has 1 MA's), (Start: 13 @35792 has 2 MA's), (16, 35774), (Start: 19 @35744 has 23 MA's), (28, 35525), (36, 35354),

Gene: Misha28_42 Start: 33394, Stop: 32807, Start Num: 17

Candidate Starts for Misha28_42:

(9, 33478), (Start: 14 @33418 has 1 MA's), (Start: 17 @33394 has 3 MA's), (Start: 18 @33376 has 1 MA's), (Start: 20 @33370 has 1 MA's), (21, 33352), (Start: 22 @33340 has 11 MA's), (23, 33331), (24, 33262), (27, 33211), (29, 33148), (33, 33064), (34, 33058), (35, 33010), (36, 32989),

Gene: MisterCuddles_45 Start: 35274, Stop: 34702, Start Num: 19

Candidate Starts for MisterCuddles_45:

(2, 35448), (3, 35442), (10, 35373), (Start: 11 @35328 has 1 MA's), (Start: 13 @35322 has 2 MA's), (16, 35304), (Start: 19 @35274 has 23 MA's), (28, 35055), (36, 34884),

Gene: Mutaforma13_47 Start: 35601, Stop: 35071, Start Num: 22

Candidate Starts for Mutaforma13_47:

(Start: 14 @35679 has 1 MA's), (Start: 15 @35673 has 8 MA's), (Start: 18 @35637 has 1 MA's), (Start: 20 @35631 has 1 MA's), (21, 35613), (Start: 22 @35601 has 11 MA's), (26, 35475), (27, 35472), (29, 35409), (31, 35361), (34, 35319), (36, 35250),

Gene: Ochi17_45 Start: 35254, Stop: 34682, Start Num: 19

Candidate Starts for Ochi17_45:

(2, 35428), (3, 35422), (10, 35353), (Start: 13 @35302 has 2 MA's), (16, 35284), (Start: 19 @35254 has 23 MA's), (28, 35035), (36, 34864),

Gene: PhesterPhotato_48 Start: 35470, Stop: 34802, Start Num: 10

Candidate Starts for PhesterPhotato_48:

(10, 35470), (12, 35422), (16, 35401), (Start: 19 @35371 has 23 MA's), (25, 35215), (28, 35152), (30, 35119), (36, 34981),

Gene: Piper2020_44 Start: 34056, Stop: 33523, Start Num: 22

Candidate Starts for Piper2020_44:

(9, 34194), (Start: 14 @34134 has 1 MA's), (Start: 17 @34110 has 3 MA's), (Start: 18 @34092 has 1 MA's), (Start: 20 @34086 has 1 MA's), (21, 34068), (Start: 22 @34056 has 11 MA's), (23, 34047), (24, 33978), (27, 33927), (29, 33864), (33, 33780), (34, 33774), (35, 33726), (36, 33705),

Gene: Poenanya_45 Start: 35613, Stop: 35041, Start Num: 19

Candidate Starts for Poenanya_45:

(2, 35787), (3, 35781), (5, 35766), (10, 35712), (Start: 13 @35661 has 2 MA's), (16, 35643), (Start: 19 @35613 has 23 MA's), (28, 35394), (36, 35223),

Gene: Pollywog_44 Start: 34791, Stop: 34219, Start Num: 19

Candidate Starts for Pollywog_44:

(2, 34965), (3, 34959), (10, 34890), (Start: 13 @34839 has 2 MA's), (16, 34821), (Start: 19 @34791 has 23 MA's), (28, 34572), (36, 34401),

Gene: QuickMath_45 Start: 35861, Stop: 35259, Start Num: 15

Candidate Starts for QuickMath_45:

(Start: 14 @35867 has 1 MA's), (Start: 15 @35861 has 8 MA's), (Start: 18 @35825 has 1 MA's), (Start: 20 @35819 has 1 MA's), (21, 35801), (Start: 22 @35789 has 11 MA's), (26, 35663), (27, 35660), (29, 35597), (31, 35549), (34, 35507), (36, 35438),

Gene: RedBird_42 Start: 34424, Stop: 33852, Start Num: 19

Candidate Starts for RedBird_42:

(2, 34598), (3, 34592), (5, 34577), (10, 34523), (Start: 13 @34472 has 2 MA's), (16, 34454), (Start: 19 @34424 has 23 MA's), (28, 34205), (36, 34034),

Gene: Renaud18_48 Start: 35135, Stop: 34566, Start Num: 19

Candidate Starts for Renaud18_48:

(2, 35309), (3, 35303), (10, 35234), (Start: 13 @35183 has 2 MA's), (16, 35165), (Start: 19 @35135 has 23 MA's), (28, 34916), (30, 34883), (36, 34745),

Gene: Rialto_49 Start: 36855, Stop: 36289, Start Num: 19

Candidate Starts for Rialto_49:

(Start: 19 @36855 has 23 MA's), (Start: 22 @36822 has 11 MA's), (26, 36693), (27, 36690), (29, 36627), (32, 36561), (34, 36537), (36, 36468),

Gene: Rita_46 Start: 34488, Stop: 33871, Start Num: 13

Candidate Starts for Rita_46:

(2, 34614), (3, 34608), (10, 34539), (Start: 13 @34488 has 2 MA's), (16, 34470), (Start: 19 @34440 has 23 MA's), (25, 34284), (28, 34221), (30, 34188), (36, 34050),

Gene: Sabbb_50 Start: 36282, Stop: 35530, Start Num: 1

Candidate Starts for Sabbb_50:

(Start: 1 @36282 has 1 MA's), (4, 36246), (7, 36222), (8, 36207), (Start: 18 @36099 has 1 MA's), (Start: 20 @36093 has 1 MA's), (21, 36075), (Start: 22 @36063 has 11 MA's), (26, 35937), (27, 35934), (29, 35871), (31, 35823), (34, 35781), (36, 35712),

Gene: Sarma624_41 Start: 30335, Stop: 29802, Start Num: 22

Candidate Starts for Sarma624_41:

(Start: 19 @30368 has 23 MA's), (Start: 22 @30335 has 11 MA's), (26, 30206), (27, 30203), (29, 30140), (32, 30074), (34, 30050), (36, 29981),

Gene: Sassafra_45 Start: 34945, Stop: 34373, Start Num: 19

Candidate Starts for Sassafra_45:

(2, 35119), (3, 35113), (10, 35044), (Start: 11 @34999 has 1 MA's), (Start: 13 @34993 has 2 MA's), (16, 34975), (Start: 19 @34945 has 23 MA's), (28, 34726), (36, 34555),

Gene: Soul22_49 Start: 34817, Stop: 34215, Start Num: 15

Candidate Starts for Soul22_49:

(Start: 14 @34823 has 1 MA's), (Start: 15 @34817 has 8 MA's), (Start: 18 @34781 has 1 MA's), (Start: 20 @34775 has 1 MA's), (21, 34757), (Start: 22 @34745 has 11 MA's), (26, 34619), (27, 34616), (29, 34553), (31, 34505), (34, 34463), (36, 34394),

Gene: Strokeseat_44 Start: 34251, Stop: 33682, Start Num: 19

Candidate Starts for Strokeseat_44:

(10, 34350), (12, 34302), (16, 34281), (Start: 19 @34251 has 23 MA's), (25, 34095), (28, 34032), (30, 33999), (36, 33861),

Gene: TootsiePop_42 Start: 33394, Stop: 32807, Start Num: 17

Candidate Starts for TootsiePop_42:

(9, 33478), (Start: 14 @33418 has 1 MA's), (Start: 17 @33394 has 3 MA's), (Start: 18 @33376 has 1 MA's), (Start: 20 @33370 has 1 MA's), (21, 33352), (Start: 22 @33340 has 11 MA's), (23, 33331), (24, 33262), (27, 33211), (29, 33148), (33, 33064), (34, 33058), (35, 33010), (36, 32989),

Gene: UncleRicky_45 Start: 35416, Stop: 34844, Start Num: 19

Candidate Starts for UncleRicky_45:

(2, 35590), (3, 35584), (10, 35515), (Start: 13 @35464 has 2 MA's), (16, 35446), (Start: 19 @35416 has 23 MA's), (28, 35197), (36, 35026),

Gene: Velveteen_39 Start: 30335, Stop: 29802, Start Num: 22

Candidate Starts for Velveteen_39:

(Start: 19 @30368 has 23 MA's), (Start: 22 @30335 has 11 MA's), (26, 30206), (27, 30203), (29, 30140), (32, 30074), (34, 30050), (36, 29981),

Gene: Wachhund_47 Start: 34586, Stop: 33981, Start Num: 15

Candidate Starts for Wachhund_47:

(Start: 14 @34592 has 1 MA's), (Start: 15 @34586 has 8 MA's), (Start: 18 @34550 has 1 MA's), (Start: 20 @34544 has 1 MA's), (21, 34526), (Start: 22 @34514 has 11 MA's), (26, 34388), (27, 34385), (29, 34322), (31, 34274), (34, 34232), (36, 34163),

Gene: Whatsapiecost_43 Start: 33848, Stop: 33246, Start Num: 15

Candidate Starts for Whatsapiecost_43:

(Start: 14 @33854 has 1 MA's), (Start: 15 @33848 has 8 MA's), (Start: 18 @33812 has 1 MA's), (Start: 20 @33806 has 1 MA's), (21, 33788), (Start: 22 @33776 has 11 MA's), (26, 33650), (27, 33647), (29, 33584), (31, 33536), (34, 33494), (36, 33425),

Gene: Whouxphf_44 Start: 34589, Stop: 34017, Start Num: 19

Candidate Starts for Whouxphf_44:

(2, 34763), (3, 34757), (10, 34688), (Start: 13 @34637 has 2 MA's), (16, 34619), (Start: 19 @34589 has 23 MA's), (28, 34370), (36, 34199),