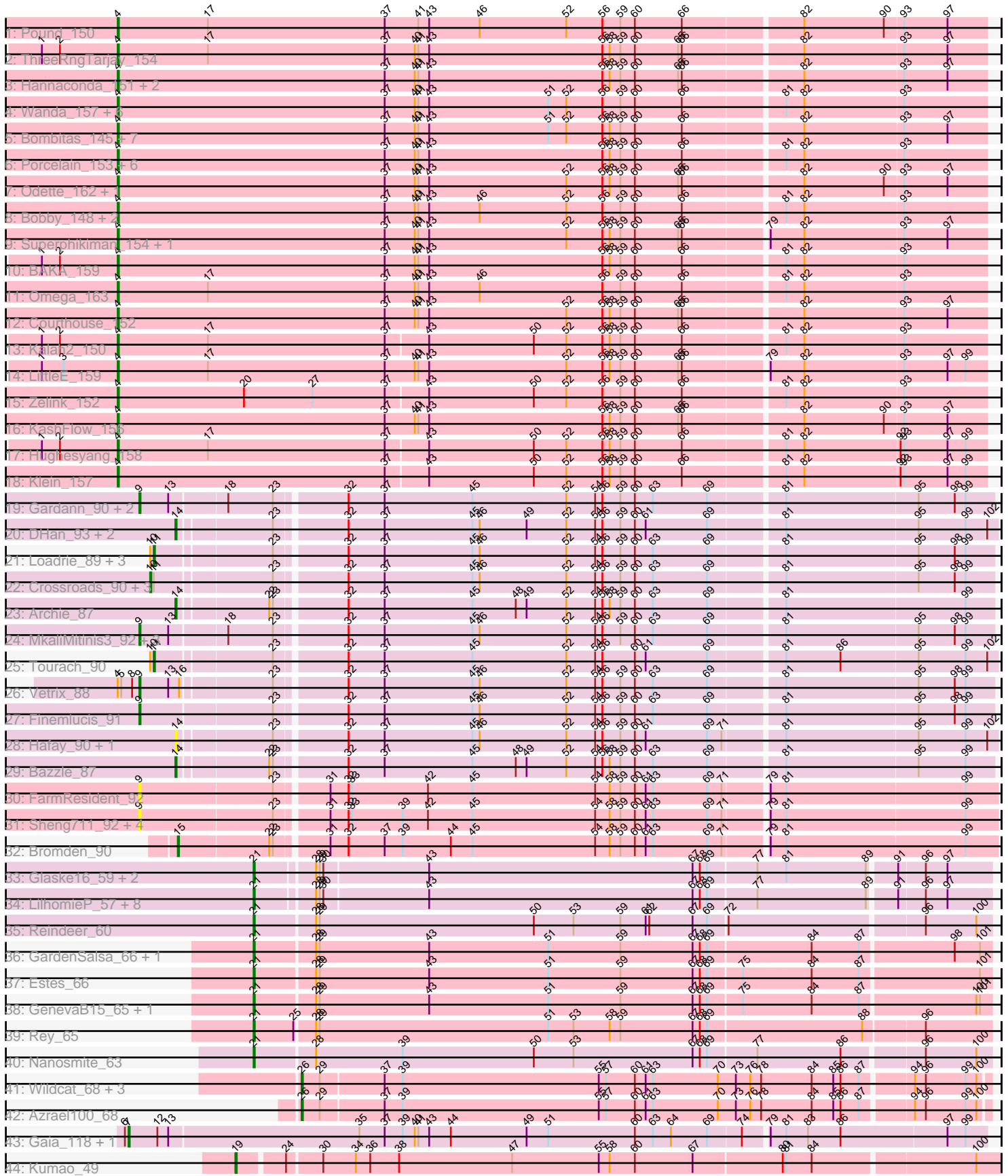


Pham 196421



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 196421 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196421 has 103 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Pound\_150
- Track 2 : ThreeRngTarjay\_154
- Track 3 : Hannaconda\_151, Squint\_149, Gonephishing\_151
- Track 4 : Wanda\_157, Ejimix\_150, DmpstrDiver\_158, Minerva\_157, Halley\_159, Dallas\_158, Beem\_159
- Track 5 : Bombitas\_145, Dove\_145, HokkenD\_153, Redno2\_152, Yeet\_151, NihilNomen\_160, JuicyJay\_153, Phoebus\_159
- Track 6 : Porcelain\_153, Optimus\_150, Duke13\_156, MiaZeal\_156, Lucky2013\_149, EricMillard\_152, Bagrid\_162
- Track 7 : Odette\_162, Schatzie\_153
- Track 8 : Bobby\_148, Thibault\_140, Constella\_150
- Track 9 : Superphikiman\_154, Ariel\_156
- Track 10 : BAKA\_159
- Track 11 : Omega\_163
- Track 12 : Courthouse\_152
- Track 13 : Kalah2\_150
- Track 14 : LittleE\_159
- Track 15 : Zelink\_152
- Track 16 : KashFlow\_156
- Track 17 : Hughesyang\_158
- Track 18 : Klein\_157
- Track 19 : Gardann\_90, Nicholasp3\_90, Rumpelstiltskin\_86
- Track 20 : DHan\_93, LilDestine\_88, ZhongYanYuan\_87
- Track 21 : Loadrie\_89, GuuelaD\_87, Itos\_90, Gabriela\_90
- Track 22 : Crossroads\_90, Faith1\_90, Zakai\_91, Netyap\_89
- Track 23 : Archie\_87
- Track 24 : MkaliMitinis3\_92, Wigglewiggles\_90, Kahlid\_89, Wilder\_91
- Track 25 : Tourach\_90
- Track 26 : Vetrix\_88
- Track 27 : Finemlucis\_91
- Track 28 : Hafay\_90, Claus\_88
- Track 29 : Bazzle\_87
- Track 30 : FarmResident\_92
- Track 31 : Sheng711\_92, Douzhi\_91, Quby\_91, PYPDinur\_91, BrainDrainer\_92
- Track 32 : Bromden\_90
- Track 33 : Glaske16\_59, PegLeg\_58, Bricole\_58

- Track 34 : LilhomieP\_57, Skinny\_60, Diminimus\_59, TyDawg\_58, Bongo\_58, SlimJimmy\_57, Auspice\_58, Dulcita\_59, IPhane7\_58
- Track 35 : Reindeer\_60
- Track 36 : GardenSalsa\_66, MrMagoo\_67
- Track 37 : Estes\_66
- Track 38 : GenevaB15\_65, Aziz\_64
- Track 39 : Rey\_65
- Track 40 : Nanosmite\_63
- Track 41 : Wildcat\_68, EniyanLRS\_65, MaryV\_68, Cosmo\_69
- Track 42 : Azrael100\_68
- Track 43 : Gaia\_118, Nebkiss\_119
- Track 44 : Kumao\_49

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

The start number called the most often in the published annotations is 4, it was called in 40 of the 90 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ariel\_156, BAKA\_159, Bagrid\_162, Beem\_159, Bobby\_148, Bombitas\_145, Constella\_150, Courthouse\_152, Dallas\_158, DmpstrDiver\_158, Dove\_145, Duke13\_156, Ejimix\_150, EricMillard\_152, Gonephishing\_151, Halley\_159, Hannaconda\_151, HokkenD\_153, Hughesyang\_158, JuicyJay\_153, Kalah2\_150, KashFlow\_156, Klein\_157, LittleE\_159, Lucky2013\_149, MiaZeal\_156, Minerva\_157, NihilNomen\_160, Odette\_162, Omega\_163, Optimus\_150, Phoebus\_159, Porcelain\_153, Pound\_150, Redno2\_152, Schatzie\_153, Squint\_149, Superphikiman\_154, Thibault\_140, ThreeRngTarjay\_154, Wanda\_157, Yeet\_151, Zelink\_152,

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

- Vetric\_88,

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

- Archie\_87, Auspice\_58, Aziz\_64, Azrael100\_68, Bazzle\_87, Bongo\_58, BrainDrainer\_92, Bricole\_58, Bromden\_90, Claus\_88, Cosmo\_69, Crossroads\_90, DHan\_93, Diminimus\_59, Douzhi\_91, Dulcita\_59, EniyanLRS\_65, Estes\_66, Faith1\_90, FarmResident\_92, Finemlucis\_91, Gabriela\_90, Gaia\_118, Gardann\_90, GardenSalsa\_66, GenevaB15\_65, Glaske16\_59, GuuelaD\_87, Hafay\_90, IPhane7\_58, Itos\_90, Kahlid\_89, Kumao\_49, LilDestine\_88, LilhomieP\_57, Loadrie\_89, MaryV\_68, MkaliMitinis3\_92, MrMagoo\_67, Nanosmite\_63, Nebkiss\_119, Netyap\_89, Nicholasp3\_90, PYPDinur\_91, PegLeg\_58, Quby\_91, Reindeer\_60, Rey\_65, Rumpelstiltskin\_86, Sheng711\_92, Skinny\_60, SlimJimmy\_57, Tourach\_90, TyDawg\_58, Wigglewiggle\_90, Wildcat\_68, Wilder\_91, Zakai\_91, ZhongYanYuan\_87,

**Summary by start number:**

Start 4:

- Found in 44 of 103 ( 42.7% ) of genes in pham
- Manual Annotations of this start: 40 of 90

- Called 97.7% of time when present
- Phage (with cluster) where this start called: Ariel\_156 (J), BAKA\_159 (J), Bagrid\_162 (J), Beem\_159 (J), Bobby\_148 (J), Bombitas\_145 (J), Constella\_150 (J), Courthouse\_152 (J), Dallas\_158 (J), DmpstrDiver\_158 (J), Dove\_145 (J), Duke13\_156 (J), Ejimix\_150 (J), EricMillard\_152 (J), Gonephishing\_151 (J), Halley\_159 (J), Hannaconda\_151 (J), HokkenD\_153 (J), Hughesyang\_158 (J), JuicyJay\_153 (J), Kalah2\_150 (J), KashFlow\_156 (J), Klein\_157 (J), LittleE\_159 (J), Lucky2013\_149 (J), MiaZeal\_156 (J), Minerva\_157 (J), NihilNomen\_160 (J), Odette\_162 (J), Omega\_163 (J), Optimus\_150 (J), Phoebus\_159 (J), Porcelain\_153 (J), Pound\_150 (J), Redno2\_152 (J), Schatzie\_153 (J), Squint\_149 (J), Superphikiman\_154 (J), Thibault\_140 (J), ThreeRngTarjay\_154 (J), Wanda\_157 (J), Yeet\_151 (J), Zelink\_152 (J),

#### Start 7:

- Found in 2 of 103 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 2 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gaia\_118 (X), Nebkiss\_119 (X),

#### Start 9:

- Found in 15 of 103 ( 14.6% ) of genes in pham
- Manual Annotations of this start: 9 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BrainDrainer\_92 (L4), Douzhi\_91 (L4), FarmResident\_92 (L4), Finemlucis\_91 (L2), Gardann\_90 (L2), Kahlid\_89 (L2), MkaliMitinis3\_92 (L2), Nicholasp3\_90 (L2), PYPDinur\_91 (L4), Quby\_91 (L4), Rumpelstiltskin\_86 (L2), Sheng711\_92 (L4), Vetrix\_88 (L2), Wigglewiggle\_90 (L2), Wilder\_91 (L2),

#### Start 10:

- Found in 9 of 103 ( 8.7% ) of genes in pham
- Manual Annotations of this start: 4 of 90
- Called 44.4% of time when present
- Phage (with cluster) where this start called: Crossroads\_90 (L2), Faith1\_90 (L2), Netyap\_89 (L2), Zakai\_91 (L2),

#### Start 11:

- Found in 9 of 103 ( 8.7% ) of genes in pham
- Manual Annotations of this start: 5 of 90
- Called 55.6% of time when present
- Phage (with cluster) where this start called: Gabriela\_90 (L2), GuuelaD\_87 (L2), Itos\_90 (L2), Loadrie\_89 (L2), Tourach\_90 (L2),

#### Start 14:

- Found in 7 of 103 ( 6.8% ) of genes in pham
- Manual Annotations of this start: 3 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Archie\_87 (L2), Bazzle\_87 (L2), Claus\_88 (L2), DHan\_93 (L2), Hafay\_90 (L2), LilDestine\_88 (L2), ZhongYanYuan\_87 (L2),

#### Start 15:

- Found in 1 of 103 ( 1.0% ) of genes in pham

- Manual Annotations of this start: 1 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bromden\_90 (L4),

Start 19:

- Found in 1 of 103 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kumao\_49 (singleton),

Start 21:

- Found in 20 of 103 ( 19.4% ) of genes in pham
- Manual Annotations of this start: 20 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Auspice\_58 (M1), Aziz\_64 (M2), Bongo\_58 (M1), Bricole\_58 (M1), Diminimus\_59 (M1), Dulcita\_59 (M1), Estes\_66 (M2), GardenSalsa\_66 (M2), GenevaB15\_65 (M2), Glaske16\_59 (M1), IPhone7\_58 (M1), LilhomieP\_57 (M1), MrMagoo\_67 (M2), Nanosmite\_63 (M3), PegLeg\_58 (M1), Reindeer\_60 (M1), Rey\_65 (M2), Skinny\_60 (M1), SlimJimmy\_57 (M1), TyDawg\_58 (M1),

Start 26:

- Found in 5 of 103 ( 4.9% ) of genes in pham
- Manual Annotations of this start: 5 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Azrael100\_68 (V), Cosmo\_69 (V), EniyanLRS\_65 (V), MaryV\_68 (V), Wildcat\_68 (V),

### **Summary by clusters:**

There are 9 clusters represented in this pham: singleton, J, X, L4, M1, M3, M2, L2, V,

Info for manual annotations of cluster J:

- Start number 4 was manually annotated 40 times for cluster J.

Info for manual annotations of cluster L2:

- Start number 9 was manually annotated 9 times for cluster L2.
- Start number 10 was manually annotated 4 times for cluster L2.
- Start number 11 was manually annotated 5 times for cluster L2.
- Start number 14 was manually annotated 3 times for cluster L2.

Info for manual annotations of cluster L4:

- Start number 15 was manually annotated 1 time for cluster L4.

Info for manual annotations of cluster M1:

- Start number 21 was manually annotated 13 times for cluster M1.

Info for manual annotations of cluster M2:

- Start number 21 was manually annotated 6 times for cluster M2.

Info for manual annotations of cluster M3:

- Start number 21 was manually annotated 1 time for cluster M3.

Info for manual annotations of cluster V:

- Start number 26 was manually annotated 5 times for cluster V.

Info for manual annotations of cluster X:

- Start number 7 was manually annotated 2 times for cluster X.

### **Gene Information:**

Gene: Archie\_87 Start: 57239, Stop: 57889, Start Num: 14

Candidate Starts for Archie\_87:

(Start: 14 @57239 has 3 MA's), (22, 57308), (23, 57311), (32, 57365), (37, 57395), (45, 57467), (48, 57503), (49, 57512), (52, 57545), (54, 57569), (56, 57575), (58, 57581), (59, 57590), (60, 57602), (63, 57617), (69, 57662), (81, 57719), (99, 57866),

Gene: Ariel\_156 Start: 80329, Stop: 81039, Start Num: 4

Candidate Starts for Ariel\_156:

(Start: 4 @80329 has 40 MA's), (37, 80551), (40, 80575), (41, 80578), (43, 80587), (52, 80701), (56, 80731), (58, 80737), (59, 80746), (60, 80758), (65, 80794), (66, 80797), (79, 80863), (82, 80890), (93, 80971), (97, 81007),

Gene: Auspice\_58 Start: 40662, Stop: 41249, Start Num: 21

Candidate Starts for Auspice\_58:

(Start: 21 @40662 has 20 MA's), (28, 40707), (29, 40710), (30, 40713), (43, 40797), (67, 41016), (68, 41022), (69, 41028), (77, 41067), (89, 41154), (91, 41175), (96, 41196), (97, 41214),

Gene: Aziz\_64 Start: 42683, Stop: 43279, Start Num: 21

Candidate Starts for Aziz\_64:

(Start: 21 @42683 has 20 MA's), (28, 42731), (29, 42734), (43, 42824), (51, 42923), (59, 42983), (67, 43043), (68, 43049), (69, 43055), (75, 43082), (84, 43136), (87, 43175), (100, 43268), (101, 43271),

Gene: Azrael100\_68 Start: 45596, Stop: 46153, Start Num: 26

Candidate Starts for Azrael100\_68:

(Start: 26 @45596 has 5 MA's), (29, 45611), (37, 45662), (39, 45677), (55, 45839), (57, 45845), (60, 45869), (61, 45878), (63, 45884), (70, 45938), (73, 45953), (76, 45965), (78, 45974), (84, 46016), (85, 46034), (86, 46040), (87, 46055), (94, 46094), (96, 46103), (99, 46136), (100, 46145),

Gene: BAKA\_159 Start: 84277, Stop: 84987, Start Num: 4

Candidate Starts for BAKA\_159:

(1, 84214), (2, 84229), (Start: 4 @84277 has 40 MA's), (37, 84499), (40, 84523), (41, 84526), (43, 84535), (56, 84679), (58, 84685), (59, 84694), (60, 84706), (66, 84745), (81, 84823), (82, 84838), (93, 84919),

Gene: Bagrid\_162 Start: 85506, Stop: 86216, Start Num: 4

Candidate Starts for Bagrid\_162:

(Start: 4 @85506 has 40 MA's), (37, 85728), (40, 85752), (41, 85755), (43, 85764), (56, 85908), (58, 85914), (59, 85923), (60, 85935), (66, 85974), (81, 86052), (82, 86067), (93, 86148),

Gene: Bazzle\_87 Start: 57795, Stop: 58445, Start Num: 14

Candidate Starts for Bazzle\_87:

(Start: 14 @57795 has 3 MA's), (22, 57864), (23, 57867), (32, 57921), (37, 57951), (45, 58023), (48, 58059), (49, 58068), (52, 58101), (54, 58125), (56, 58131), (58, 58137), (59, 58146), (60, 58158), (63,

58173), (69, 58218), (81, 58275), (95, 58383), (99, 58422),

Gene: Beem\_159 Start: 85469, Stop: 86179, Start Num: 4

Candidate Starts for Beem\_159:

(Start: 4 @85469 has 40 MA's), (37, 85691), (40, 85715), (41, 85718), (43, 85727), (51, 85826), (52, 85841), (56, 85871), (59, 85886), (60, 85898), (66, 85937), (81, 86015), (82, 86030), (93, 86111),

Gene: Bobby\_148 Start: 85819, Stop: 86529, Start Num: 4

Candidate Starts for Bobby\_148:

(Start: 4 @85819 has 40 MA's), (37, 86041), (40, 86065), (41, 86068), (43, 86077), (46, 86119), (52, 86191), (56, 86221), (59, 86236), (60, 86248), (66, 86287), (81, 86365), (82, 86380), (93, 86461),

Gene: Bombitas\_145 Start: 81475, Stop: 82185, Start Num: 4

Candidate Starts for Bombitas\_145:

(Start: 4 @81475 has 40 MA's), (37, 81697), (40, 81721), (41, 81724), (43, 81733), (51, 81832), (52, 81847), (56, 81877), (58, 81883), (59, 81892), (60, 81904), (66, 81943), (82, 82036), (93, 82117), (97, 82153),

Gene: Bongo\_58 Start: 40666, Stop: 41253, Start Num: 21

Candidate Starts for Bongo\_58:

(Start: 21 @40666 has 20 MA's), (28, 40711), (29, 40714), (30, 40717), (43, 40801), (67, 41020), (68, 41026), (69, 41032), (77, 41071), (89, 41158), (91, 41179), (96, 41200), (97, 41218),

Gene: BrainDrainer\_92 Start: 57521, Stop: 58210, Start Num: 9

Candidate Starts for BrainDrainer\_92:

(Start: 9 @57521 has 9 MA's), (23, 57629), (31, 57668), (32, 57683), (33, 57686), (39, 57728), (42, 57749), (45, 57785), (54, 57887), (58, 57899), (59, 57908), (60, 57920), (61, 57929), (63, 57935), (69, 57980), (71, 57992), (79, 58025), (81, 58037), (99, 58184),

Gene: Bricole\_58 Start: 40648, Stop: 41235, Start Num: 21

Candidate Starts for Bricole\_58:

(Start: 21 @40648 has 20 MA's), (28, 40693), (29, 40696), (30, 40699), (43, 40783), (67, 41002), (68, 41008), (69, 41014), (77, 41053), (81, 41074), (89, 41140), (91, 41161), (96, 41182), (97, 41200),

Gene: Bromden\_90 Start: 58275, Stop: 58931, Start Num: 15

Candidate Starts for Bromden\_90:

(Start: 15 @58275 has 1 MA's), (22, 58347), (23, 58350), (31, 58389), (32, 58404), (37, 58434), (39, 58449), (44, 58488), (45, 58506), (54, 58608), (58, 58620), (59, 58629), (60, 58641), (61, 58650), (63, 58656), (69, 58701), (71, 58713), (79, 58746), (81, 58758), (99, 58905),

Gene: Claus\_88 Start: 57577, Stop: 58230, Start Num: 14

Candidate Starts for Claus\_88:

(Start: 14 @57577 has 3 MA's), (23, 57649), (32, 57703), (37, 57733), (45, 57805), (46, 57811), (52, 57883), (54, 57907), (56, 57913), (59, 57928), (60, 57940), (61, 57949), (69, 58000), (71, 58012), (81, 58057), (95, 58165), (99, 58204), (102, 58222),

Gene: Constella\_150 Start: 82508, Stop: 83218, Start Num: 4

Candidate Starts for Constella\_150:

(Start: 4 @82508 has 40 MA's), (37, 82730), (40, 82754), (41, 82757), (43, 82766), (46, 82808), (52, 82880), (56, 82910), (59, 82925), (60, 82937), (66, 82976), (81, 83054), (82, 83069), (93, 83150),

Gene: Cosmo\_69 Start: 45597, Stop: 46154, Start Num: 26

Candidate Starts for Cosmo\_69:

(Start: 26 @45597 has 5 MA's), (29, 45612), (37, 45663), (39, 45678), (55, 45840), (57, 45846), (60, 45870), (61, 45879), (63, 45885), (70, 45939), (73, 45954), (76, 45966), (78, 45975), (84, 46017), (85, 46035), (86, 46041), (87, 46056), (94, 46095), (96, 46104), (99, 46137), (100, 46146),

Gene: Courthouse\_152 Start: 80187, Stop: 80897, Start Num: 4

Candidate Starts for Courthouse\_152:

(Start: 4 @80187 has 40 MA's), (37, 80409), (40, 80433), (41, 80436), (43, 80445), (52, 80559), (56, 80589), (58, 80595), (59, 80604), (60, 80616), (65, 80652), (66, 80655), (82, 80748), (93, 80829), (97, 80865),

Gene: Crossroads\_90 Start: 57736, Stop: 58407, Start Num: 10

Candidate Starts for Crossroads\_90:

(Start: 10 @57736 has 4 MA's), (Start: 11 @57739 has 5 MA's), (23, 57829), (32, 57883), (37, 57913), (45, 57985), (46, 57991), (52, 58063), (54, 58087), (56, 58093), (59, 58108), (60, 58120), (63, 58135), (69, 58180), (81, 58237), (95, 58345), (98, 58375), (99, 58384),

Gene: DHan\_93 Start: 57956, Stop: 58609, Start Num: 14

Candidate Starts for DHan\_93:

(Start: 14 @57956 has 3 MA's), (23, 58028), (32, 58082), (37, 58112), (45, 58184), (46, 58190), (49, 58229), (52, 58262), (54, 58286), (56, 58292), (59, 58307), (60, 58319), (61, 58328), (69, 58379), (81, 58436), (95, 58544), (99, 58583), (102, 58601),

Gene: Dallas\_158 Start: 84692, Stop: 85402, Start Num: 4

Candidate Starts for Dallas\_158:

(Start: 4 @84692 has 40 MA's), (37, 84914), (40, 84938), (41, 84941), (43, 84950), (51, 85049), (52, 85064), (56, 85094), (59, 85109), (60, 85121), (66, 85160), (81, 85238), (82, 85253), (93, 85334),

Gene: Diminimus\_59 Start: 40661, Stop: 41248, Start Num: 21

Candidate Starts for Diminimus\_59:

(Start: 21 @40661 has 20 MA's), (28, 40706), (29, 40709), (30, 40712), (43, 40796), (67, 41015), (68, 41021), (69, 41027), (77, 41066), (89, 41153), (91, 41174), (96, 41195), (97, 41213),

Gene: DmpstrDiver\_158 Start: 83419, Stop: 84129, Start Num: 4

Candidate Starts for DmpstrDiver\_158:

(Start: 4 @83419 has 40 MA's), (37, 83641), (40, 83665), (41, 83668), (43, 83677), (51, 83776), (52, 83791), (56, 83821), (59, 83836), (60, 83848), (66, 83887), (81, 83965), (82, 83980), (93, 84061),

Gene: Douzhi\_91 Start: 57210, Stop: 57899, Start Num: 9

Candidate Starts for Douzhi\_91:

(Start: 9 @57210 has 9 MA's), (23, 57318), (31, 57357), (32, 57372), (33, 57375), (39, 57417), (42, 57438), (45, 57474), (54, 57576), (58, 57588), (59, 57597), (60, 57609), (61, 57618), (63, 57624), (69, 57669), (71, 57681), (79, 57714), (81, 57726), (99, 57873),

Gene: Dove\_145 Start: 79831, Stop: 80541, Start Num: 4

Candidate Starts for Dove\_145:

(Start: 4 @79831 has 40 MA's), (37, 80053), (40, 80077), (41, 80080), (43, 80089), (51, 80188), (52, 80203), (56, 80233), (58, 80239), (59, 80248), (60, 80260), (66, 80299), (82, 80392), (93, 80473), (97, 80509),

Gene: Duke13\_156 Start: 82773, Stop: 83483, Start Num: 4

Candidate Starts for Duke13\_156:

(Start: 4 @82773 has 40 MA's), (37, 82995), (40, 83019), (41, 83022), (43, 83031), (56, 83175), (58, 83181), (59, 83190), (60, 83202), (66, 83241), (81, 83319), (82, 83334), (93, 83415),



Gene: Dulcita\_59 Start: 40662, Stop: 41249, Start Num: 21

Candidate Starts for Dulcita\_59:

(Start: 21 @40662 has 20 MA's), (28, 40707), (29, 40710), (30, 40713), (43, 40797), (67, 41016), (68, 41022), (69, 41028), (77, 41067), (89, 41154), (91, 41175), (96, 41196), (97, 41214),

Gene: Ejimix\_150 Start: 83680, Stop: 84390, Start Num: 4

Candidate Starts for Ejimix\_150:

(Start: 4 @83680 has 40 MA's), (37, 83902), (40, 83926), (41, 83929), (43, 83938), (51, 84037), (52, 84052), (56, 84082), (59, 84097), (60, 84109), (66, 84148), (81, 84226), (82, 84241), (93, 84322),

Gene: EniyanLRS\_65 Start: 45336, Stop: 45893, Start Num: 26

Candidate Starts for EniyanLRS\_65:

(Start: 26 @45336 has 5 MA's), (29, 45351), (37, 45402), (39, 45417), (55, 45579), (57, 45585), (60, 45609), (61, 45618), (63, 45624), (70, 45678), (73, 45693), (76, 45705), (78, 45714), (84, 45756), (85, 45774), (86, 45780), (87, 45795), (94, 45834), (96, 45843), (99, 45876), (100, 45885),

Gene: EricMillard\_152 Start: 84116, Stop: 84826, Start Num: 4

Candidate Starts for EricMillard\_152:

(Start: 4 @84116 has 40 MA's), (37, 84338), (40, 84362), (41, 84365), (43, 84374), (56, 84518), (58, 84524), (59, 84533), (60, 84545), (66, 84584), (81, 84662), (82, 84677), (93, 84758),

Gene: Estes\_66 Start: 42955, Stop: 43551, Start Num: 21

Candidate Starts for Estes\_66:

(Start: 21 @42955 has 20 MA's), (28, 43003), (29, 43006), (43, 43096), (51, 43195), (59, 43255), (67, 43315), (68, 43321), (69, 43327), (75, 43354), (84, 43408), (87, 43447), (101, 43543),

Gene: Faith1\_90 Start: 57661, Stop: 58332, Start Num: 10

Candidate Starts for Faith1\_90:

(Start: 10 @57661 has 4 MA's), (Start: 11 @57664 has 5 MA's), (23, 57754), (32, 57808), (37, 57838), (45, 57910), (46, 57916), (52, 57988), (54, 58012), (56, 58018), (59, 58033), (60, 58045), (63, 58060), (69, 58105), (81, 58162), (95, 58270), (98, 58300), (99, 58309),

Gene: FarmResident\_92 Start: 56922, Stop: 57611, Start Num: 9

Candidate Starts for FarmResident\_92:

(Start: 9 @56922 has 9 MA's), (23, 57030), (31, 57069), (32, 57084), (33, 57087), (42, 57150), (45, 57186), (54, 57288), (58, 57300), (59, 57309), (60, 57321), (61, 57330), (63, 57336), (69, 57381), (71, 57393), (79, 57426), (81, 57438), (99, 57585),

Gene: Finemlucis\_91 Start: 58780, Stop: 59463, Start Num: 9

Candidate Starts for Finemlucis\_91:

(Start: 9 @58780 has 9 MA's), (23, 58885), (32, 58939), (37, 58969), (45, 59041), (46, 59047), (52, 59119), (54, 59143), (56, 59149), (59, 59164), (60, 59176), (63, 59191), (69, 59236), (81, 59293), (95, 59401), (98, 59431), (99, 59440),

Gene: Gabriela\_90 Start: 57010, Stop: 57678, Start Num: 11

Candidate Starts for Gabriela\_90:

(Start: 10 @57007 has 4 MA's), (Start: 11 @57010 has 5 MA's), (23, 57100), (32, 57154), (37, 57184), (45, 57256), (46, 57262), (52, 57334), (54, 57358), (56, 57364), (59, 57379), (60, 57391), (63, 57406), (69, 57451), (81, 57508), (95, 57616), (98, 57646), (99, 57655),

Gene: Gaia\_118 Start: 66289, Stop: 66987, Start Num: 7

Candidate Starts for Gaia\_118:

(6, 66286), (Start: 7 @66289 has 2 MA's), (12, 66313), (13, 66322), (35, 66478), (37, 66499), (39, 66514), (40, 66523), (41, 66526), (43, 66535), (44, 66553), (49, 66616), (51, 66634), (60, 66706), (63, 66721), (64, 66736), (69, 66766), (74, 66793), (79, 66811), (81, 66823), (83, 66841), (86, 66868), (97, 66955), (99, 66970),

Gene: Gardann\_90 Start: 57496, Stop: 58179, Start Num: 9

Candidate Starts for Gardann\_90:

(Start: 9 @57496 has 9 MA's), (13, 57520), (18, 57565), (23, 57601), (32, 57655), (37, 57685), (45, 57757), (52, 57835), (54, 57859), (56, 57865), (59, 57880), (60, 57892), (63, 57907), (69, 57952), (81, 58009), (95, 58117), (98, 58147), (99, 58156),

Gene: GardenSalsa\_66 Start: 43117, Stop: 43713, Start Num: 21

Candidate Starts for GardenSalsa\_66:

(Start: 21 @43117 has 20 MA's), (28, 43165), (29, 43168), (43, 43258), (51, 43357), (59, 43417), (67, 43477), (68, 43483), (69, 43489), (84, 43570), (87, 43609), (98, 43684), (101, 43705),

Gene: GenevaB15\_65 Start: 42683, Stop: 43279, Start Num: 21

Candidate Starts for GenevaB15\_65:

(Start: 21 @42683 has 20 MA's), (28, 42731), (29, 42734), (43, 42824), (51, 42923), (59, 42983), (67, 43043), (68, 43049), (69, 43055), (75, 43082), (84, 43136), (87, 43175), (100, 43268), (101, 43271),

Gene: Glaske16\_59 Start: 40661, Stop: 41248, Start Num: 21

Candidate Starts for Glaske16\_59:

(Start: 21 @40661 has 20 MA's), (28, 40706), (29, 40709), (30, 40712), (43, 40796), (67, 41015), (68, 41021), (69, 41027), (77, 41066), (81, 41087), (89, 41153), (91, 41174), (96, 41195), (97, 41213),

Gene: Gonephishing\_151 Start: 82284, Stop: 82994, Start Num: 4

Candidate Starts for Gonephishing\_151:

(Start: 4 @82284 has 40 MA's), (37, 82506), (40, 82530), (41, 82533), (43, 82542), (56, 82686), (58, 82692), (59, 82701), (60, 82713), (65, 82749), (66, 82752), (82, 82845), (93, 82926), (97, 82962),

Gene: GuuelaD\_87 Start: 57623, Stop: 58291, Start Num: 11

Candidate Starts for GuuelaD\_87:

(Start: 10 @57620 has 4 MA's), (Start: 11 @57623 has 5 MA's), (23, 57713), (32, 57767), (37, 57797), (45, 57869), (46, 57875), (52, 57947), (54, 57971), (56, 57977), (59, 57992), (60, 58004), (63, 58019), (69, 58064), (81, 58121), (95, 58229), (98, 58259), (99, 58268),

Gene: Hafay\_90 Start: 57572, Stop: 58225, Start Num: 14

Candidate Starts for Hafay\_90:

(Start: 14 @57572 has 3 MA's), (23, 57644), (32, 57698), (37, 57728), (45, 57800), (46, 57806), (52, 57878), (54, 57902), (56, 57908), (59, 57923), (60, 57935), (61, 57944), (69, 57995), (71, 58007), (81, 58052), (95, 58160), (99, 58199), (102, 58217),

Gene: Halley\_159 Start: 83996, Stop: 84706, Start Num: 4

Candidate Starts for Halley\_159:

(Start: 4 @83996 has 40 MA's), (37, 84218), (40, 84242), (41, 84245), (43, 84254), (51, 84353), (52, 84368), (56, 84398), (59, 84413), (60, 84425), (66, 84464), (81, 84542), (82, 84557), (93, 84638),

Gene: Hannaconda\_151 Start: 84288, Stop: 84998, Start Num: 4

Candidate Starts for Hannaconda\_151:

(Start: 4 @84288 has 40 MA's), (37, 84510), (40, 84534), (41, 84537), (43, 84546), (56, 84690), (58, 84696), (59, 84705), (60, 84717), (65, 84753), (66, 84756), (82, 84849), (93, 84930), (97, 84966),

Gene: HokkenD\_153 Start: 85553, Stop: 86263, Start Num: 4

Candidate Starts for HokkenD\_153:

(Start: 4 @85553 has 40 MA's), (37, 85775), (40, 85799), (41, 85802), (43, 85811), (51, 85910), (52, 85925), (56, 85955), (58, 85961), (59, 85970), (60, 85982), (66, 86021), (82, 86114), (93, 86195), (97, 86231),

Gene: Hughesyang\_158 Start: 84577, Stop: 85284, Start Num: 4

Candidate Starts for Hughesyang\_158:

(1, 84514), (2, 84529), (Start: 4 @84577 has 40 MA's), (17, 84652), (37, 84799), (43, 84832), (50, 84919), (52, 84946), (56, 84976), (58, 84982), (59, 84991), (60, 85003), (66, 85042), (81, 85120), (82, 85135), (92, 85213), (93, 85216), (97, 85252), (99, 85267),

Gene: IPhone7\_58 Start: 40666, Stop: 41253, Start Num: 21

Candidate Starts for IPhone7\_58:

(Start: 21 @40666 has 20 MA's), (28, 40711), (29, 40714), (30, 40717), (43, 40801), (67, 41020), (68, 41026), (69, 41032), (77, 41071), (89, 41158), (91, 41179), (96, 41200), (97, 41218),

Gene: Itos\_90 Start: 56570, Stop: 57238, Start Num: 11

Candidate Starts for Itos\_90:

(Start: 10 @56567 has 4 MA's), (Start: 11 @56570 has 5 MA's), (23, 56660), (32, 56714), (37, 56744), (45, 56816), (46, 56822), (52, 56894), (54, 56918), (56, 56924), (59, 56939), (60, 56951), (63, 56966), (69, 57011), (81, 57068), (95, 57176), (98, 57206), (99, 57215),

Gene: JuicyJay\_153 Start: 85200, Stop: 85910, Start Num: 4

Candidate Starts for JuicyJay\_153:

(Start: 4 @85200 has 40 MA's), (37, 85422), (40, 85446), (41, 85449), (43, 85458), (51, 85557), (52, 85572), (56, 85602), (58, 85608), (59, 85617), (60, 85629), (66, 85668), (82, 85761), (93, 85842), (97, 85878),

Gene: Kahlid\_89 Start: 57414, Stop: 58097, Start Num: 9

Candidate Starts for Kahlid\_89:

(Start: 9 @57414 has 9 MA's), (13, 57438), (18, 57483), (23, 57519), (32, 57573), (37, 57603), (45, 57675), (46, 57681), (52, 57753), (54, 57777), (56, 57783), (59, 57798), (60, 57810), (63, 57825), (69, 57870), (81, 57927), (95, 58035), (98, 58065), (99, 58074),

Gene: Kalah2\_150 Start: 83707, Stop: 84414, Start Num: 4

Candidate Starts for Kalah2\_150:

(1, 83644), (2, 83659), (Start: 4 @83707 has 40 MA's), (17, 83782), (37, 83929), (43, 83962), (50, 84049), (52, 84076), (56, 84106), (58, 84112), (59, 84121), (60, 84133), (66, 84172), (81, 84250), (82, 84265), (93, 84346),

Gene: KashFlow\_156 Start: 84101, Stop: 84811, Start Num: 4

Candidate Starts for KashFlow\_156:

(Start: 4 @84101 has 40 MA's), (37, 84323), (40, 84347), (41, 84350), (43, 84359), (56, 84503), (58, 84509), (59, 84518), (60, 84530), (65, 84566), (66, 84569), (82, 84662), (90, 84728), (93, 84743), (97, 84779),

Gene: Klein\_157 Start: 82067, Stop: 82774, Start Num: 4

Candidate Starts for Klein\_157:

(Start: 4 @82067 has 40 MA's), (37, 82289), (43, 82322), (50, 82409), (52, 82436), (56, 82466), (58, 82472), (59, 82481), (60, 82493), (66, 82532), (81, 82610), (82, 82625), (92, 82703), (93, 82706), (97, 82742), (99, 82757),

Gene: Kumao\_49 Start: 39571, Stop: 40182, Start Num: 19

Candidate Starts for Kumao\_49:

(Start: 19 @39571 has 1 MA's), (24, 39607), (30, 39634), (34, 39661), (36, 39673), (38, 39697), (47, 39790), (55, 39862), (58, 39871), (60, 39892), (67, 39940), (80, 40009), (81, 40012), (84, 40033), (100, 40162),

Gene: LilDestine\_88 Start: 57333, Stop: 57986, Start Num: 14

Candidate Starts for LilDestine\_88:

(Start: 14 @57333 has 3 MA's), (23, 57405), (32, 57459), (37, 57489), (45, 57561), (46, 57567), (49, 57606), (52, 57639), (54, 57663), (56, 57669), (59, 57684), (60, 57696), (61, 57705), (69, 57756), (81, 57813), (95, 57921), (99, 57960), (102, 57978),

Gene: LilhomieP\_57 Start: 40666, Stop: 41253, Start Num: 21

Candidate Starts for LilhomieP\_57:

(Start: 21 @40666 has 20 MA's), (28, 40711), (29, 40714), (30, 40717), (43, 40801), (67, 41020), (68, 41026), (69, 41032), (77, 41071), (89, 41158), (91, 41179), (96, 41200), (97, 41218),

Gene: LittleE\_159 Start: 83924, Stop: 84634, Start Num: 4

Candidate Starts for LittleE\_159:

(1, 83861), (3, 83879), (Start: 4 @83924 has 40 MA's), (17, 83999), (37, 84146), (40, 84170), (41, 84173), (43, 84182), (52, 84296), (56, 84326), (58, 84332), (59, 84341), (60, 84353), (65, 84389), (66, 84392), (79, 84458), (82, 84485), (93, 84566), (97, 84602), (99, 84617),

Gene: Loadrie\_89 Start: 57831, Stop: 58499, Start Num: 11

Candidate Starts for Loadrie\_89:

(Start: 10 @57828 has 4 MA's), (Start: 11 @57831 has 5 MA's), (23, 57921), (32, 57975), (37, 58005), (45, 58077), (46, 58083), (52, 58155), (54, 58179), (56, 58185), (59, 58200), (60, 58212), (63, 58227), (69, 58272), (81, 58329), (95, 58437), (98, 58467), (99, 58476),

Gene: Lucky2013\_149 Start: 79061, Stop: 79771, Start Num: 4

Candidate Starts for Lucky2013\_149:

(Start: 4 @79061 has 40 MA's), (37, 79283), (40, 79307), (41, 79310), (43, 79319), (56, 79463), (58, 79469), (59, 79478), (60, 79490), (66, 79529), (81, 79607), (82, 79622), (93, 79703),

Gene: MaryV\_68 Start: 45418, Stop: 45975, Start Num: 26

Candidate Starts for MaryV\_68:

(Start: 26 @45418 has 5 MA's), (29, 45433), (37, 45484), (39, 45499), (55, 45661), (57, 45667), (60, 45691), (61, 45700), (63, 45706), (70, 45760), (73, 45775), (76, 45787), (78, 45796), (84, 45838), (85, 45856), (86, 45862), (87, 45877), (94, 45916), (96, 45925), (99, 45958), (100, 45967),

Gene: MiaZeal\_156 Start: 80208, Stop: 80918, Start Num: 4

Candidate Starts for MiaZeal\_156:

(Start: 4 @80208 has 40 MA's), (37, 80430), (40, 80454), (41, 80457), (43, 80466), (56, 80610), (58, 80616), (59, 80625), (60, 80637), (66, 80676), (81, 80754), (82, 80769), (93, 80850),

Gene: Minerva\_157 Start: 83303, Stop: 84013, Start Num: 4

Candidate Starts for Minerva\_157:

(Start: 4 @83303 has 40 MA's), (37, 83525), (40, 83549), (41, 83552), (43, 83561), (51, 83660), (52, 83675), (56, 83705), (59, 83720), (60, 83732), (66, 83771), (81, 83849), (82, 83864), (93, 83945),

Gene: MkaliMitinis3\_92 Start: 57779, Stop: 58462, Start Num: 9

Candidate Starts for MkaliMitinis3\_92:

(Start: 9 @57779 has 9 MA's), (13, 57803), (18, 57848), (23, 57884), (32, 57938), (37, 57968), (45, 58040), (46, 58046), (52, 58118), (54, 58142), (56, 58148), (59, 58163), (60, 58175), (63, 58190), (69, 58235), (81, 58292), (95, 58400), (98, 58430), (99, 58439),

Gene: MrMagoo\_67 Start: 43117, Stop: 43713, Start Num: 21

Candidate Starts for MrMagoo\_67:

(Start: 21 @43117 has 20 MA's), (28, 43165), (29, 43168), (43, 43258), (51, 43357), (59, 43417), (67, 43477), (68, 43483), (69, 43489), (84, 43570), (87, 43609), (98, 43684), (101, 43705),

Gene: Nanosmite\_63 Start: 42310, Stop: 42903, Start Num: 21

Candidate Starts for Nanosmite\_63:

(Start: 21 @42310 has 20 MA's), (28, 42358), (39, 42430), (50, 42538), (53, 42571), (67, 42670), (68, 42676), (69, 42682), (77, 42721), (86, 42787), (96, 42850), (100, 42892),

Gene: Nebkiss\_119 Start: 65215, Stop: 65913, Start Num: 7

Candidate Starts for Nebkiss\_119:

(6, 65212), (Start: 7 @65215 has 2 MA's), (12, 65239), (13, 65248), (35, 65404), (37, 65425), (39, 65440), (40, 65449), (41, 65452), (43, 65461), (44, 65479), (49, 65542), (51, 65560), (60, 65632), (63, 65647), (64, 65662), (69, 65692), (74, 65719), (79, 65737), (81, 65749), (83, 65767), (86, 65794), (97, 65881), (99, 65896),

Gene: Netyap\_89 Start: 57662, Stop: 58333, Start Num: 10

Candidate Starts for Netyap\_89:

(Start: 10 @57662 has 4 MA's), (Start: 11 @57665 has 5 MA's), (23, 57755), (32, 57809), (37, 57839), (45, 57911), (46, 57917), (52, 57989), (54, 58013), (56, 58019), (59, 58034), (60, 58046), (63, 58061), (69, 58106), (81, 58163), (95, 58271), (98, 58301), (99, 58310),

Gene: Nicholasp3\_90 Start: 57496, Stop: 58179, Start Num: 9

Candidate Starts for Nicholasp3\_90:

(Start: 9 @57496 has 9 MA's), (13, 57520), (18, 57565), (23, 57601), (32, 57655), (37, 57685), (45, 57757), (52, 57835), (54, 57859), (56, 57865), (59, 57880), (60, 57892), (63, 57907), (69, 57952), (81, 58009), (95, 58117), (98, 58147), (99, 58156),

Gene: NihilNomen\_160 Start: 83326, Stop: 84036, Start Num: 4

Candidate Starts for NihilNomen\_160:

(Start: 4 @83326 has 40 MA's), (37, 83548), (40, 83572), (41, 83575), (43, 83584), (51, 83683), (52, 83698), (56, 83728), (58, 83734), (59, 83743), (60, 83755), (66, 83794), (82, 83887), (93, 83968), (97, 84004),

Gene: Odette\_162 Start: 85622, Stop: 86332, Start Num: 4

Candidate Starts for Odette\_162:

(Start: 4 @85622 has 40 MA's), (37, 85844), (40, 85868), (41, 85871), (43, 85880), (52, 85994), (56, 86024), (58, 86030), (59, 86039), (60, 86051), (65, 86087), (66, 86090), (82, 86183), (90, 86249), (93, 86264), (97, 86300),

Gene: Omega\_163 Start: 85097, Stop: 85807, Start Num: 4

Candidate Starts for Omega\_163:

(Start: 4 @85097 has 40 MA's), (17, 85172), (37, 85319), (40, 85343), (41, 85346), (43, 85355), (46, 85397), (56, 85499), (59, 85514), (60, 85526), (66, 85565), (81, 85643), (82, 85658), (93, 85739),

Gene: Optimus\_150 Start: 82593, Stop: 83303, Start Num: 4

Candidate Starts for Optimus\_150:

(Start: 4 @82593 has 40 MA's), (37, 82815), (40, 82839), (41, 82842), (43, 82851), (56, 82995), (58, 83001), (59, 83010), (60, 83022), (66, 83061), (81, 83139), (82, 83154), (93, 83235),

Gene: PYPDinur\_91 Start: 57773, Stop: 58462, Start Num: 9

Candidate Starts for PYPDinur\_91:

(Start: 9 @57773 has 9 MA's), (23, 57881), (31, 57920), (32, 57935), (33, 57938), (39, 57980), (42, 58001), (45, 58037), (54, 58139), (58, 58151), (59, 58160), (60, 58172), (61, 58181), (63, 58187), (69, 58232), (71, 58244), (79, 58277), (81, 58289), (99, 58436),

Gene: PegLeg\_58 Start: 40665, Stop: 41252, Start Num: 21

Candidate Starts for PegLeg\_58:

(Start: 21 @40665 has 20 MA's), (28, 40710), (29, 40713), (30, 40716), (43, 40800), (67, 41019), (68, 41025), (69, 41031), (77, 41070), (81, 41091), (89, 41157), (91, 41178), (96, 41199), (97, 41217),

Gene: Phoebus\_159 Start: 87013, Stop: 87723, Start Num: 4

Candidate Starts for Phoebus\_159:

(Start: 4 @87013 has 40 MA's), (37, 87235), (40, 87259), (41, 87262), (43, 87271), (51, 87370), (52, 87385), (56, 87415), (58, 87421), (59, 87430), (60, 87442), (66, 87481), (82, 87574), (93, 87655), (97, 87691),

Gene: Porcelain\_153 Start: 80007, Stop: 80717, Start Num: 4

Candidate Starts for Porcelain\_153:

(Start: 4 @80007 has 40 MA's), (37, 80229), (40, 80253), (41, 80256), (43, 80265), (56, 80409), (58, 80415), (59, 80424), (60, 80436), (66, 80475), (81, 80553), (82, 80568), (93, 80649),

Gene: Pound\_150 Start: 82016, Stop: 82726, Start Num: 4

Candidate Starts for Pound\_150:

(Start: 4 @82016 has 40 MA's), (17, 82091), (37, 82238), (41, 82265), (43, 82274), (46, 82316), (52, 82388), (56, 82418), (59, 82433), (60, 82445), (66, 82484), (82, 82577), (90, 82643), (93, 82658), (97, 82694),

Gene: Quby\_91 Start: 57008, Stop: 57697, Start Num: 9

Candidate Starts for Quby\_91:

(Start: 9 @57008 has 9 MA's), (23, 57116), (31, 57155), (32, 57170), (33, 57173), (39, 57215), (42, 57236), (45, 57272), (54, 57374), (58, 57386), (59, 57395), (60, 57407), (61, 57416), (63, 57422), (69, 57467), (71, 57479), (79, 57512), (81, 57524), (99, 57671),

Gene: Redno2\_152 Start: 81126, Stop: 81836, Start Num: 4

Candidate Starts for Redno2\_152:

(Start: 4 @81126 has 40 MA's), (37, 81348), (40, 81372), (41, 81375), (43, 81384), (51, 81483), (52, 81498), (56, 81528), (58, 81534), (59, 81543), (60, 81555), (66, 81594), (82, 81687), (93, 81768), (97, 81804),

Gene: Reindeer\_60 Start: 41854, Stop: 42447, Start Num: 21

Candidate Starts for Reindeer\_60:

(Start: 21 @41854 has 20 MA's), (28, 41902), (29, 41905), (50, 42082), (53, 42115), (59, 42154), (61, 42175), (62, 42178), (67, 42214), (69, 42226), (72, 42241), (96, 42394), (100, 42436),

Gene: Rey\_65 Start: 42924, Stop: 43520, Start Num: 21

Candidate Starts for Rey\_65:

(Start: 21 @42924 has 20 MA's), (25, 42957), (28, 42972), (29, 42975), (51, 43164), (53, 43185), (58, 43215), (59, 43224), (67, 43284), (68, 43290), (69, 43296), (88, 43419), (96, 43467),

Gene: Rumpelstiltskin\_86 Start: 57289, Stop: 57972, Start Num: 9

Candidate Starts for Rumpelstiltskin\_86:

(Start: 9 @57289 has 9 MA's), (13, 57313), (18, 57358), (23, 57394), (32, 57448), (37, 57478), (45, 57550), (52, 57628), (54, 57652), (56, 57658), (59, 57673), (60, 57685), (63, 57700), (69, 57745), (81, 57802), (95, 57910), (98, 57940), (99, 57949),

Gene: Schatzie\_153 Start: 83676, Stop: 84386, Start Num: 4

Candidate Starts for Schatzie\_153:

(Start: 4 @83676 has 40 MA's), (37, 83898), (40, 83922), (41, 83925), (43, 83934), (52, 84048), (56, 84078), (58, 84084), (59, 84093), (60, 84105), (65, 84141), (66, 84144), (82, 84237), (90, 84303), (93, 84318), (97, 84354),

Gene: Sheng711\_92 Start: 57249, Stop: 57938, Start Num: 9

Candidate Starts for Sheng711\_92:

(Start: 9 @57249 has 9 MA's), (23, 57357), (31, 57396), (32, 57411), (33, 57414), (39, 57456), (42, 57477), (45, 57513), (54, 57615), (58, 57627), (59, 57636), (60, 57648), (61, 57657), (63, 57663), (69, 57708), (71, 57720), (79, 57753), (81, 57765), (99, 57912),

Gene: Skinny\_60 Start: 41095, Stop: 41682, Start Num: 21

Candidate Starts for Skinny\_60:

(Start: 21 @41095 has 20 MA's), (28, 41140), (29, 41143), (30, 41146), (43, 41230), (67, 41449), (68, 41455), (69, 41461), (77, 41500), (89, 41587), (91, 41608), (96, 41629), (97, 41647),

Gene: SlimJimmy\_57 Start: 40650, Stop: 41237, Start Num: 21

Candidate Starts for SlimJimmy\_57:

(Start: 21 @40650 has 20 MA's), (28, 40695), (29, 40698), (30, 40701), (43, 40785), (67, 41004), (68, 41010), (69, 41016), (77, 41055), (89, 41142), (91, 41163), (96, 41184), (97, 41202),

Gene: Squint\_149 Start: 79996, Stop: 80706, Start Num: 4

Candidate Starts for Squint\_149:

(Start: 4 @79996 has 40 MA's), (37, 80218), (40, 80242), (41, 80245), (43, 80254), (56, 80398), (58, 80404), (59, 80413), (60, 80425), (65, 80461), (66, 80464), (82, 80557), (93, 80638), (97, 80674),

Gene: Superphikiman\_154 Start: 80469, Stop: 81179, Start Num: 4

Candidate Starts for Superphikiman\_154:

(Start: 4 @80469 has 40 MA's), (37, 80691), (40, 80715), (41, 80718), (43, 80727), (52, 80841), (56, 80871), (58, 80877), (59, 80886), (60, 80898), (65, 80934), (66, 80937), (79, 81003), (82, 81030), (93, 81111), (97, 81147),

Gene: Thibault\_140 Start: 80399, Stop: 81109, Start Num: 4

Candidate Starts for Thibault\_140:

(Start: 4 @80399 has 40 MA's), (37, 80621), (40, 80645), (41, 80648), (43, 80657), (46, 80699), (52, 80771), (56, 80801), (59, 80816), (60, 80828), (66, 80867), (81, 80945), (82, 80960), (93, 81041),

Gene: ThreeRngTarjay\_154 Start: 84534, Stop: 85244, Start Num: 4

Candidate Starts for ThreeRngTarjay\_154:

(1, 84471), (2, 84486), (Start: 4 @84534 has 40 MA's), (17, 84609), (37, 84756), (40, 84780), (41, 84783), (43, 84792), (56, 84936), (58, 84942), (59, 84951), (60, 84963), (65, 84999), (66, 85002), (82, 85095), (93, 85176), (97, 85212),

Gene: Tourach\_90 Start: 58204, Stop: 58875, Start Num: 11

Candidate Starts for Tourach\_90:

(Start: 10 @58201 has 4 MA's), (Start: 11 @58204 has 5 MA's), (23, 58294), (32, 58348), (37, 58378), (45, 58450), (52, 58528), (54, 58552), (56, 58558), (60, 58585), (61, 58594), (69, 58645), (81, 58702), (86, 58747), (95, 58810), (99, 58849), (102, 58867),

Gene: TyDawg\_58 Start: 40666, Stop: 41253, Start Num: 21

Candidate Starts for TyDawg\_58:

(Start: 21 @40666 has 20 MA's), (28, 40711), (29, 40714), (30, 40717), (43, 40801), (67, 41020), (68, 41026), (69, 41032), (77, 41071), (89, 41158), (91, 41179), (96, 41200), (97, 41218),

Gene: Vetric\_88 Start: 57273, Stop: 57953, Start Num: 9

Candidate Starts for Vetric\_88:

(Start: 4 @57255 has 40 MA's), (5, 57258), (8, 57267), (Start: 9 @57273 has 9 MA's), (13, 57297), (16, 57306), (23, 57375), (32, 57429), (37, 57459), (45, 57531), (46, 57537), (52, 57609), (54, 57633), (56, 57639), (59, 57654), (60, 57666), (63, 57681), (69, 57726), (81, 57783), (95, 57891), (98, 57921), (99, 57930),

Gene: Wanda\_157 Start: 81775, Stop: 82485, Start Num: 4

Candidate Starts for Wanda\_157:

(Start: 4 @81775 has 40 MA's), (37, 81997), (40, 82021), (41, 82024), (43, 82033), (51, 82132), (52, 82147), (56, 82177), (59, 82192), (60, 82204), (66, 82243), (81, 82321), (82, 82336), (93, 82417),

Gene: Wigglewigg\_90 Start: 57572, Stop: 58255, Start Num: 9

Candidate Starts for Wigglewigg\_90:

(Start: 9 @57572 has 9 MA's), (13, 57596), (18, 57641), (23, 57677), (32, 57731), (37, 57761), (45, 57833), (46, 57839), (52, 57911), (54, 57935), (56, 57941), (59, 57956), (60, 57968), (63, 57983), (69, 58028), (81, 58085), (95, 58193), (98, 58223), (99, 58232),

Gene: Wildcat\_68 Start: 45428, Stop: 45985, Start Num: 26

Candidate Starts for Wildcat\_68:

(Start: 26 @45428 has 5 MA's), (29, 45443), (37, 45494), (39, 45509), (55, 45671), (57, 45677), (60, 45701), (61, 45710), (63, 45716), (70, 45770), (73, 45785), (76, 45797), (78, 45806), (84, 45848), (85, 45866), (86, 45872), (87, 45887), (94, 45926), (96, 45935), (99, 45968), (100, 45977),

Gene: Wilder\_91 Start: 57414, Stop: 58097, Start Num: 9

Candidate Starts for Wilder\_91:

(Start: 9 @57414 has 9 MA's), (13, 57438), (18, 57483), (23, 57519), (32, 57573), (37, 57603), (45, 57675), (46, 57681), (52, 57753), (54, 57777), (56, 57783), (59, 57798), (60, 57810), (63, 57825), (69, 57870), (81, 57927), (95, 58035), (98, 58065), (99, 58074),

Gene: Yeet\_151 Start: 83070, Stop: 83780, Start Num: 4

Candidate Starts for Yeet\_151:

(Start: 4 @83070 has 40 MA's), (37, 83292), (40, 83316), (41, 83319), (43, 83328), (51, 83427), (52, 83442), (56, 83472), (58, 83478), (59, 83487), (60, 83499), (66, 83538), (82, 83631), (93, 83712), (97, 83748),

Gene: Zakai\_91 Start: 58069, Stop: 58740, Start Num: 10

Candidate Starts for Zakai\_91:

(Start: 10 @58069 has 4 MA's), (Start: 11 @58072 has 5 MA's), (23, 58162), (32, 58216), (37, 58246), (45, 58318), (46, 58324), (52, 58396), (54, 58420), (56, 58426), (59, 58441), (60, 58453), (63, 58468), (69, 58513), (81, 58570), (95, 58678), (98, 58708), (99, 58717),

Gene: Zelink\_152 Start: 83501, Stop: 84208, Start Num: 4

Candidate Starts for Zelink\_152:



(Start: 4 @83501 has 40 MA's), (20, 83606), (27, 83663), (37, 83723), (43, 83756), (50, 83843), (52, 83870), (56, 83900), (59, 83915), (60, 83927), (66, 83966), (81, 84044), (82, 84059), (93, 84140),

Gene: ZhongYanYuan\_87 Start: 57476, Stop: 58129, Start Num: 14

Candidate Starts for ZhongYanYuan\_87:

(Start: 14 @57476 has 3 MA's), (23, 57548), (32, 57602), (37, 57632), (45, 57704), (46, 57710), (49, 57749), (52, 57782), (54, 57806), (56, 57812), (59, 57827), (60, 57839), (61, 57848), (69, 57899), (81, 57956), (95, 58064), (99, 58103), (102, 58121),