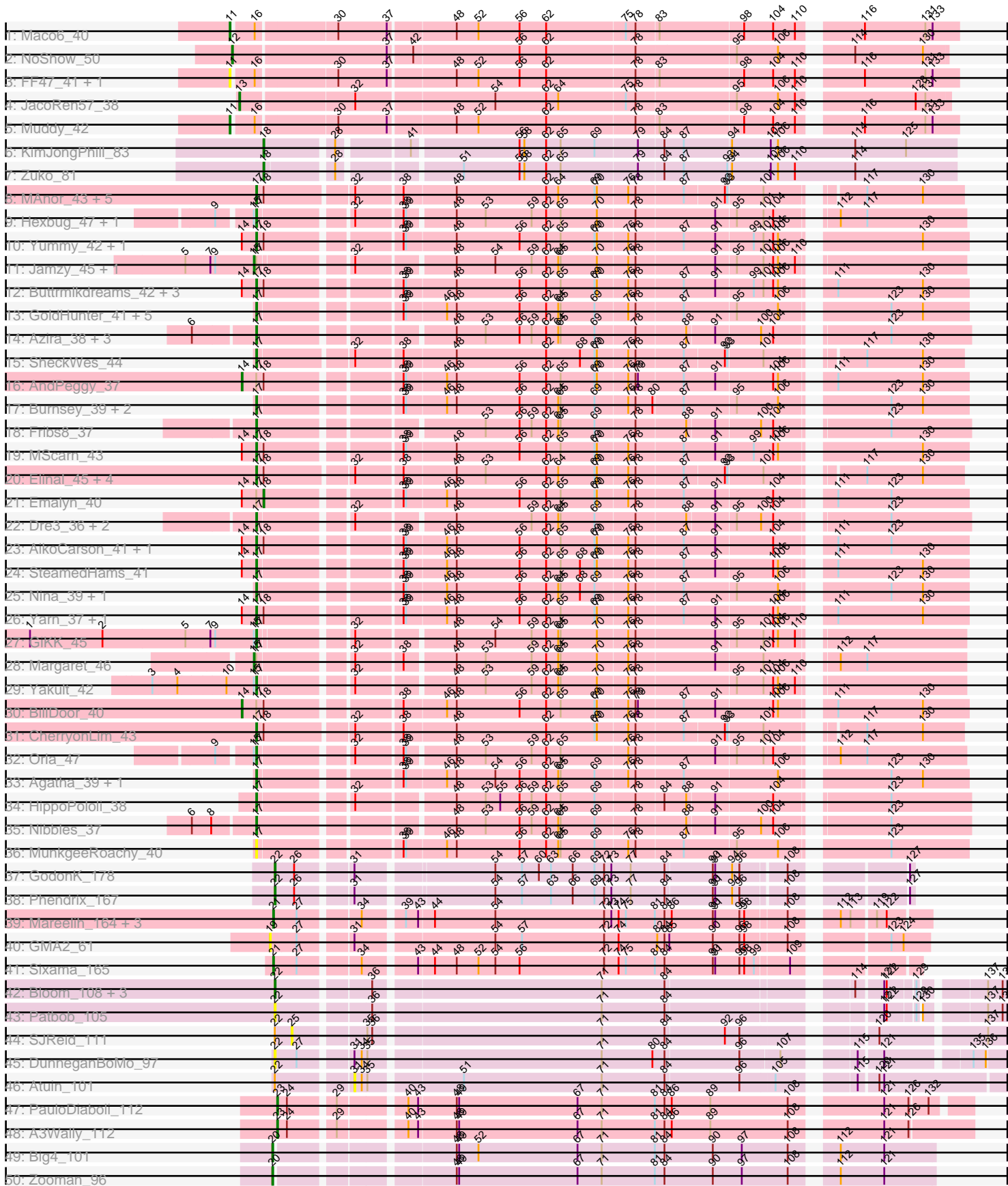


Pham 171370





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 171370 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171370 has 92 members, 20 are drafts.

Phages represented in each track:

- Track 1 : Maco6\_40
- Track 2 : NoShow\_50
- Track 3 : FF47\_41, 8UZL\_42
- Track 4 : JacoRen57\_38
- Track 5 : Muddy\_42
- Track 6 : KimJongPhill\_83
- Track 7 : Zuko\_81
- Track 8 : MAnor\_43, PotPie\_42, SummitAcademy\_41, BigChungus\_41, Mayweather\_45, Feastonyeet\_41
- Track 9 : Hexbug\_47, Nodigi\_47
- Track 10 : Yummy\_42, Horseradish\_42
- Track 11 : Jamzy\_45, Button\_43
- Track 12 : Buttrmilkdreams\_42, Troje\_42, SketchMex\_40, Biskit\_42
- Track 13 : GoldHunter\_41, Axym\_39, Sopespian\_39, PsychoKiller\_39, Quasar\_40, Elliott\_40
- Track 14 : Azira\_38, Zareef\_40, MaVan\_38, Survivors\_38
- Track 15 : SheckWes\_44
- Track 16 : AndPeggy\_37
- Track 17 : Burnsey\_39, RedBaron\_42, Typhonmarchy\_39
- Track 18 : Fribs8\_37
- Track 19 : MScarn\_43
- Track 20 : Elinal\_45, Vine\_44, Lauer\_38, KayGee\_42, Pons\_43
- Track 21 : Emalyn\_40
- Track 22 : Dre3\_36, Gibbous\_36, Cleo\_36
- Track 23 : AikoCarson\_41, Amok\_41
- Track 24 : SteamedHams\_41
- Track 25 : Nina\_39, SweatNTears\_41
- Track 26 : Yarn\_37, Tolls\_41
- Track 27 : GiKK\_45
- Track 28 : Margaret\_46
- Track 29 : Yakult\_42
- Track 30 : BillDoor\_40
- Track 31 : CherryonLim\_43
- Track 32 : Orla\_47
- Track 33 : Agatha\_39, Cozz\_38
- Track 34 : HippoPololi\_38
- Track 35 : Nibbles\_37

- Track 36 : MunkgeeRoachy\_40
- Track 37 : GodonK\_178
- Track 38 : Phendrix\_167
- Track 39 : Mareelih\_164, Forza\_167, Boopy\_166, BlueNGold\_163
- Track 40 : GMA2\_61
- Track 41 : Sixama\_165
- Track 42 : Bloom\_108, Mimi\_110, Racecar\_105, Talia1610\_106
- Track 43 : Patbob\_105
- Track 44 : SJReid\_111
- Track 45 : DunneganBoMo\_97
- Track 46 : Atuin\_101
- Track 47 : PauloDiaboli\_112
- Track 48 : A3Wally\_112
- Track 49 : Big4\_101
- Track 50 : Zooman\_96
- Track 51 : Cece\_95
- Track 52 : Pumpernickel\_109
- Track 53 : Huwbert\_81
- Track 54 : Triscuit\_80

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

The start number called the most often in the published annotations is 17, it was called in 44 of the 72 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agatha\_39, AikoCarson\_41, Amok\_41, Axym\_39, Azira\_38, BigChungus\_41, Biskit\_42, Burnsey\_39, Buttrmikedreams\_42, CherryonLim\_43, Cleo\_36, Cozz\_38, Dre3\_36, Elinal\_45, Elliott\_40, Feastonyeet\_41, Fribs8\_37, GiKK\_45, Gibbous\_36, GoldHunter\_41, Hexbug\_47, HippoPololi\_38, Horseradish\_42, KayGee\_42, Lauer\_38, MAnor\_43, MScarn\_43, MaVan\_38, Mayweather\_45, MunkgeeRoachy\_40, Nibbles\_37, Nina\_39, Nodigi\_47, Orla\_47, Pons\_43, PotPie\_42, PsychoKiller\_39, Quasar\_40, RedBaron\_42, SheckWes\_44, SketchMex\_40, Sopespian\_39, SteamedHams\_41, SummitAcademy\_41, Survivors\_38, SweatNTears\_41, Tolls\_41, Troje\_42, Typhonomachy\_39, Vine\_44, Yakult\_42, Yarn\_37, Yummy\_42, Zareef\_40,

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

- AndPeggy\_37, BillDoor\_40, Button\_43, Emalyn\_40, Jamzy\_45, Margaret\_46,

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

- 8UZL\_42, A3Wally\_112, Atuin\_101, Big4\_101, Bloom\_108, BlueNGold\_163, Boopy\_166, Cece\_95, DunneganBoMo\_97, FF47\_41, Forza\_167, GMA2\_61, GodonK\_178, Huwbert\_81, JacoRen57\_38, KimJongPhill\_83, Maco6\_40, Mareelih\_164, Mimi\_110, Muddy\_42, NoShow\_50, Patbob\_105, PauloDiaboli\_112, Phendrix\_167, Pumpernickel\_109, Racecar\_105, SJReid\_111, Sixama\_165, Talia1610\_106, Triscuit\_80, Zooman\_96, Zuko\_81,

**Summary by start number:**

Start 11:

- Found in 4 of 92 ( 4.3% ) of genes in pham
- Manual Annotations of this start: 2 of 72
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 8UZL\_42 (AB), FF47\_41 (AB), Maco6\_40 (AB), Muddy\_42 (AB),

Start 12:

- Found in 1 of 92 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 72
- Called 100.0% of time when present
- Phage (with cluster) where this start called: NoShow\_50 (AB),

Start 13:

- Found in 1 of 92 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 72
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JacoRen57\_38 (AB),

Start 14:

- Found in 15 of 92 ( 16.3% ) of genes in pham
- Manual Annotations of this start: 2 of 72
- Called 13.3% of time when present
- Phage (with cluster) where this start called: AndPeggy\_37 (CT), BillDoor\_40 (CT),

Start 15:

- Found in 8 of 92 ( 8.7% ) of genes in pham
- Manual Annotations of this start: 3 of 72
- Called 37.5% of time when present
- Phage (with cluster) where this start called: Button\_43 (CT), Jamzy\_45 (CT), Margaret\_46 (CT),

Start 17:

- Found in 60 of 92 ( 65.2% ) of genes in pham
- Manual Annotations of this start: 44 of 72
- Called 90.0% of time when present
- Phage (with cluster) where this start called: Agatha\_39 (CT), AikoCarson\_41 (CT), Amok\_41 (CT), Axym\_39 (CT), Azira\_38 (CT), BigChungus\_41 (CT), Biskit\_42 (CT), Burnsey\_39 (CT), Buttrmlkdreams\_42 (CT), CherryonLim\_43 (CT), Cleo\_36 (CT), Cozz\_38 (CT), Dre3\_36 (CT), Elinal\_45 (CT), Elliott\_40 (CT), Feastonyeet\_41 (CT), Fribs8\_37 (CT), GiKK\_45 (CT), Gibbous\_36 (CT), GoldHunter\_41 (CT), Hexbug\_47 (CT), HippoPololi\_38 (CT), Horseradish\_42 (CT), KayGee\_42 (CT), Lauer\_38 (CT), MAnor\_43 (CT), MScarn\_43 (CT), MaVan\_38 (CT), Mayweather\_45 (CT), MunkgeeRoachy\_40 (CT), Nibbles\_37 (CT), Nina\_39 (CT), Nodigi\_47 (CT), Orla\_47 (CT), Pons\_43 (CT), PotPie\_42 (CT), PsychoKiller\_39 (CT), Quasar\_40 (CT), RedBaron\_42 (CT), SheckWes\_44 (CT), SketchMex\_40 (CT), Sopespian\_39 (CT), SteamedHams\_41 (CT), SummitAcademy\_41 (CT), Survivors\_38 (CT), SweatNTears\_41 (CT), Tolls\_41 (CT), Troje\_42 (CT), Typhonmarchy\_39 (CT), Vine\_44 (CT), Yakult\_42 (CT), Yarn\_37 (CT), Yummy\_42 (CT), Zareef\_40 (CT),

Start 18:

- Found in 28 of 92 ( 30.4% ) of genes in pham
- Manual Annotations of this start: 3 of 72

- Called 10.7% of time when present
- Phage (with cluster) where this start called: Emalyn\_40 (CT), KimJongPhill\_83 (BR), Zuko\_81 (BR),

#### Start 19:

- Found in 2 of 92 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 1 of 72
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA2\_61 (DS), Pumpernickel\_109 (GD4),

#### Start 20:

- Found in 3 of 92 ( 3.3% ) of genes in pham
- Manual Annotations of this start: 3 of 72
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Big4\_101 (GD2), Cece\_95 (GD3), Zooman\_96 (GD2),

#### Start 21:

- Found in 7 of 92 ( 7.6% ) of genes in pham
- Manual Annotations of this start: 7 of 72
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlueNGold\_163 (DS), Boopy\_166 (DS), Forza\_167 (DS), Huwbert\_81 (GG), Mareelih\_164 (DS), Sixama\_165 (DS), Triscuit\_80 (GG),

#### Start 22:

- Found in 10 of 92 ( 10.9% ) of genes in pham
- Manual Annotations of this start: 3 of 72
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Bloom\_108 (FC), DunneganBoMo\_97 (FC), GodonK\_178 (DK), Mimi\_110 (FC), Patbob\_105 (FC), Phendrix\_167 (DK), Racecar\_105 (FC), Talia1610\_106 (FC),

#### Start 23:

- Found in 3 of 92 ( 3.3% ) of genes in pham
- Manual Annotations of this start: 2 of 72
- Called 66.7% of time when present
- Phage (with cluster) where this start called: A3Wally\_112 (GD1), PauloDiaboli\_112 (GD1),

#### Start 25:

- Found in 1 of 92 ( 1.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SJReid\_111 (FC),

#### Start 31:

- Found in 5 of 92 ( 5.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Atuin\_101 (FC),

## Summary by clusters:

There are 11 clusters represented in this pham: GD1, GD2, AB, GD4, DK, GG, FC, BR, GD3, DS, CT,

Info for manual annotations of cluster AB:

- Start number 11 was manually annotated 2 times for cluster AB.
- Start number 12 was manually annotated 1 time for cluster AB.
- Start number 13 was manually annotated 1 time for cluster AB.

Info for manual annotations of cluster BR:

- Start number 18 was manually annotated 2 times for cluster BR.

Info for manual annotations of cluster CT:

- Start number 14 was manually annotated 2 times for cluster CT.
- Start number 15 was manually annotated 3 times for cluster CT.
- Start number 17 was manually annotated 44 times for cluster CT.
- Start number 18 was manually annotated 1 time for cluster CT.

Info for manual annotations of cluster DK:

- Start number 22 was manually annotated 2 times for cluster DK.

Info for manual annotations of cluster DS:

- Start number 21 was manually annotated 5 times for cluster DS.

Info for manual annotations of cluster FC:

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

Info for manual annotations of cluster GD1:

- Start number 23 was manually annotated 2 times for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 20 was manually annotated 2 times for cluster GD2.

Info for manual annotations of cluster GD3:

- Start number 20 was manually annotated 1 time for cluster GD3.

Info for manual annotations of cluster GD4:

- Start number 19 was manually annotated 1 time for cluster GD4.

Info for manual annotations of cluster GG:

- Start number 21 was manually annotated 2 times for cluster GG.

## Gene Information:

Gene: 8UZL\_42 Start: 30925, Stop: 30080, Start Num: 11

Candidate Starts for 8UZL\_42:

(Start: 11 @30925 has 2 MA's), (16, 30901), (30, 30808), (37, 30748), (48, 30670), (52, 30643), (56, 30592), (62, 30559), (78, 30451), (83, 30424), (98, 30322), (104, 30286), (110, 30259), (116, 30196), (131, 30121), (133, 30112),

Gene: A3Wally\_112 Start: 76409, Stop: 75603, Start Num: 23

Candidate Starts for A3Wally\_112:

(Start: 23 @76409 has 2 MA's), (24, 76397), (29, 76346), (40, 76274), (43, 76262), (48, 76217), (49, 76214), (67, 76067), (71, 76037), (81, 75971), (84, 75959), (86, 75950), (89, 75902), (108, 75806), (121, 75710), (126, 75680),

Gene: Agatha\_39 Start: 28608, Stop: 27790, Start Num: 17

Candidate Starts for Agatha\_39:

(Start: 17 @28608 has 44 MA's), (38, 28452), (39, 28449), (46, 28401), (48, 28389), (54, 28341), (56, 28311), (62, 28278), (64, 28263), (65, 28260), (69, 28218), (76, 28179), (78, 28170), (87, 28113), (106, 27999), (123, 27885), (130, 27846),

Gene: AikoCarson\_41 Start: 28965, Stop: 28147, Start Num: 17

Candidate Starts for AikoCarson\_41:

(Start: 14 @28983 has 2 MA's), (Start: 17 @28965 has 44 MA's), (Start: 18 @28959 has 3 MA's), (38, 28809), (39, 28806), (46, 28758), (48, 28746), (56, 28668), (62, 28635), (65, 28617), (69, 28575), (70, 28572), (76, 28536), (78, 28527), (87, 28470), (91, 28431), (104, 28362), (111, 28308), (123, 28242),

Gene: Amok\_41 Start: 28989, Stop: 28171, Start Num: 17

Candidate Starts for Amok\_41:

(Start: 14 @29007 has 2 MA's), (Start: 17 @28989 has 44 MA's), (Start: 18 @28983 has 3 MA's), (38, 28833), (39, 28830), (46, 28782), (48, 28770), (56, 28692), (62, 28659), (65, 28641), (69, 28599), (70, 28596), (76, 28560), (78, 28551), (87, 28494), (91, 28455), (104, 28386), (111, 28332), (123, 28266),

Gene: AndPeggy\_37 Start: 28407, Stop: 27571, Start Num: 14

Candidate Starts for AndPeggy\_37:

(Start: 14 @28407 has 2 MA's), (Start: 17 @28389 has 44 MA's), (Start: 18 @28383 has 3 MA's), (38, 28233), (39, 28230), (46, 28182), (48, 28170), (56, 28092), (62, 28059), (65, 28041), (69, 27999), (70, 27996), (76, 27960), (78, 27951), (79, 27948), (87, 27894), (91, 27855), (104, 27786), (106, 27780), (111, 27732), (130, 27627),

Gene: Atuin\_101 Start: 84392, Stop: 85141, Start Num: 31

Candidate Starts for Atuin\_101:

(Start: 22 @84308 has 3 MA's), (31, 84392), (34, 84401), (35, 84407), (51, 84512), (71, 84683), (84, 84761), (96, 84851), (105, 84893), (115, 84968), (120, 84989), (121, 84995),

Gene: Axym\_39 Start: 28586, Stop: 27768, Start Num: 17

Candidate Starts for Axym\_39:

(Start: 17 @28586 has 44 MA's), (38, 28430), (39, 28427), (46, 28379), (48, 28367), (56, 28289), (62, 28256), (64, 28241), (65, 28238), (69, 28196), (76, 28157), (78, 28148), (87, 28091), (95, 28028), (106, 27977), (123, 27863), (130, 27824),

Gene: Azira\_38 Start: 28635, Stop: 27823, Start Num: 17

Candidate Starts for Azira\_38:

(6, 28707), (Start: 17 @28635 has 44 MA's), (48, 28419), (53, 28383), (56, 28341), (59, 28326), (62, 28308), (64, 28293), (65, 28290), (69, 28248), (78, 28200), (88, 28140), (91, 28107), (100, 28053), (104, 28038), (123, 27921),

Gene: Big4\_101 Start: 75498, Stop: 74737, Start Num: 20

Candidate Starts for Big4\_101:

(Start: 20 @75498 has 3 MA's), (48, 75306), (49, 75303), (52, 75279), (67, 75156), (71, 75126), (81, 75060), (84, 75048), (90, 74988), (97, 74952), (108, 74895), (112, 74853), (121, 74799),



Gene: BigChungus\_41 Start: 30191, Stop: 29385, Start Num: 17

Candidate Starts for BigChungus\_41:

(Start: 17 @30191 has 44 MA's), (Start: 18 @30185 has 3 MA's), (32, 30083), (38, 30029), (48, 29966), (62, 29855), (64, 29840), (69, 29795), (70, 29792), (76, 29756), (78, 29747), (87, 29690), (92, 29642), (93, 29639), (101, 29597), (117, 29504), (130, 29435),

Gene: BillDoor\_40 Start: 28078, Stop: 27242, Start Num: 14

Candidate Starts for BillDoor\_40:

(Start: 14 @28078 has 2 MA's), (Start: 17 @28060 has 44 MA's), (Start: 18 @28054 has 3 MA's), (38, 27904), (46, 27853), (48, 27841), (56, 27763), (62, 27730), (65, 27712), (69, 27670), (70, 27667), (76, 27631), (78, 27622), (79, 27619), (87, 27565), (91, 27526), (104, 27457), (106, 27451), (111, 27403), (130, 27298),

Gene: Biskit\_42 Start: 28753, Stop: 27935, Start Num: 17

Candidate Starts for Biskit\_42:

(Start: 14 @28771 has 2 MA's), (Start: 17 @28753 has 44 MA's), (Start: 18 @28747 has 3 MA's), (38, 28597), (39, 28594), (48, 28534), (56, 28456), (62, 28423), (65, 28405), (69, 28363), (70, 28360), (76, 28324), (78, 28315), (87, 28258), (91, 28219), (99, 28174), (101, 28162), (104, 28150), (106, 28144), (111, 28096), (130, 27991),

Gene: Bloom\_108 Start: 84483, Stop: 85292, Start Num: 22

Candidate Starts for Bloom\_108:

(Start: 22 @84483 has 3 MA's), (36, 84588), (71, 84858), (84, 84936), (114, 85137), (121, 85167), (122, 85170), (129, 85200), (137, 85269), (138, 85287),

Gene: BlueNGold\_163 Start: 93500, Stop: 92757, Start Num: 21

Candidate Starts for BlueNGold\_163:

(Start: 21 @93500 has 7 MA's), (27, 93473), (34, 93407), (39, 93365), (43, 93350), (44, 93332), (54, 93257), (72, 93122), (73, 93113), (74, 93104), (75, 93095), (81, 93059), (84, 93047), (86, 93038), (90, 92987), (91, 92984), (96, 92954), (98, 92948), (108, 92900), (112, 92858), (113, 92846), (119, 92819), (122, 92807),

Gene: Boopy\_166 Start: 93511, Stop: 92768, Start Num: 21

Candidate Starts for Boopy\_166:

(Start: 21 @93511 has 7 MA's), (27, 93484), (34, 93418), (39, 93376), (43, 93361), (44, 93343), (54, 93268), (72, 93133), (73, 93124), (74, 93115), (75, 93106), (81, 93070), (84, 93058), (86, 93049), (90, 92998), (91, 92995), (96, 92965), (98, 92959), (108, 92911), (112, 92869), (113, 92857), (119, 92830), (122, 92818),

Gene: Burnsey\_39 Start: 28599, Stop: 27781, Start Num: 17

Candidate Starts for Burnsey\_39:

(Start: 17 @28599 has 44 MA's), (38, 28443), (39, 28440), (46, 28392), (48, 28380), (56, 28302), (62, 28269), (64, 28254), (65, 28251), (69, 28209), (76, 28170), (78, 28161), (80, 28140), (87, 28104), (95, 28041), (106, 27990), (123, 27876), (130, 27837),

Gene: Button\_43 Start: 29230, Stop: 28424, Start Num: 15

Candidate Starts for Button\_43:

(5, 29314), (7, 29284), (9, 29278), (Start: 15 @29230 has 3 MA's), (Start: 17 @29227 has 44 MA's), (32, 29128), (48, 29017), (54, 28969), (59, 28924), (62, 28906), (64, 28891), (65, 28888), (70, 28843), (76, 28807), (78, 28798), (91, 28702), (95, 28678), (101, 28645), (104, 28633), (106, 28627), (110, 28606),

Gene: Buttrmilkdreams\_42 Start: 29086, Stop: 28268, Start Num: 17

Candidate Starts for Buttrmlkdreams\_42:

(Start: 14 @29104 has 2 MA's), (Start: 17 @29086 has 44 MA's), (Start: 18 @29080 has 3 MA's), (38, 28930), (39, 28927), (48, 28867), (56, 28789), (62, 28756), (65, 28738), (69, 28696), (70, 28693), (76, 28657), (78, 28648), (87, 28591), (91, 28552), (99, 28507), (101, 28495), (104, 28483), (106, 28477), (111, 28429), (130, 28324),

Gene: Cece\_95 Start: 78538, Stop: 77750, Start Num: 20

Candidate Starts for Cece\_95:

(Start: 20 @78538 has 3 MA's), (Start: 23 @78532 has 2 MA's), (27, 78508), (43, 78385), (48, 78337), (50, 78331), (52, 78310), (53, 78301), (61, 78229), (66, 78193), (67, 78187), (71, 78157), (76, 78124), (84, 78079), (88, 78052), (90, 78019), (108, 77926), (118, 77845), (121, 77830),

Gene: CherryonLim\_43 Start: 31329, Stop: 30523, Start Num: 17

Candidate Starts for CherryonLim\_43:

(Start: 17 @31329 has 44 MA's), (Start: 18 @31323 has 3 MA's), (32, 31221), (38, 31167), (48, 31104), (62, 30993), (69, 30933), (70, 30930), (76, 30894), (78, 30885), (87, 30828), (92, 30780), (93, 30777), (101, 30735), (117, 30642), (130, 30573),

Gene: Cleo\_36 Start: 28180, Stop: 27371, Start Num: 17

Candidate Starts for Cleo\_36:

(Start: 17 @28180 has 44 MA's), (32, 28078), (48, 27967), (59, 27874), (62, 27856), (64, 27841), (65, 27838), (69, 27796), (78, 27748), (88, 27688), (91, 27655), (95, 27631), (100, 27601), (104, 27586), (123, 27469),

Gene: Cozz\_38 Start: 28196, Stop: 27378, Start Num: 17

Candidate Starts for Cozz\_38:

(Start: 17 @28196 has 44 MA's), (38, 28040), (39, 28037), (46, 27989), (48, 27977), (54, 27929), (56, 27899), (62, 27866), (64, 27851), (65, 27848), (69, 27806), (76, 27767), (78, 27758), (87, 27701), (106, 27587), (123, 27473), (130, 27434),

Gene: Dre3\_36 Start: 27923, Stop: 27114, Start Num: 17

Candidate Starts for Dre3\_36:

(Start: 17 @27923 has 44 MA's), (32, 27821), (48, 27710), (59, 27617), (62, 27599), (64, 27584), (65, 27581), (69, 27539), (78, 27491), (88, 27431), (91, 27398), (95, 27374), (100, 27344), (104, 27329), (123, 27212),

Gene: DunneganBoMo\_97 Start: 80225, Stop: 81043, Start Num: 22

Candidate Starts for DunneganBoMo\_97:

(Start: 22 @80225 has 3 MA's), (27, 80252), (31, 80309), (34, 80318), (35, 80324), (71, 80600), (80, 80663), (84, 80678), (96, 80768), (107, 80813), (115, 80882), (121, 80909), (135, 81005), (136, 81020),

Gene: Elinal\_45 Start: 30579, Stop: 29773, Start Num: 17

Candidate Starts for Elinal\_45:

(Start: 17 @30579 has 44 MA's), (Start: 18 @30573 has 3 MA's), (32, 30471), (38, 30417), (48, 30354), (53, 30318), (62, 30243), (64, 30228), (69, 30183), (70, 30180), (76, 30144), (78, 30135), (87, 30078), (92, 30030), (93, 30027), (101, 29985), (117, 29892), (130, 29823),

Gene: Elliott\_40 Start: 28607, Stop: 27789, Start Num: 17

Candidate Starts for Elliott\_40:

(Start: 17 @28607 has 44 MA's), (38, 28451), (39, 28448), (46, 28400), (48, 28388), (56, 28310), (62, 28277), (64, 28262), (65, 28259), (69, 28217), (76, 28178), (78, 28169), (87, 28112), (95, 28049), (106, 27998), (123, 27884), (130, 27845),

Gene: Emalyn\_40 Start: 28151, Stop: 27339, Start Num: 18

Candidate Starts for Emalyn\_40:

(Start: 14 @28175 has 2 MA's), (Start: 17 @28157 has 44 MA's), (Start: 18 @28151 has 3 MA's), (38, 28001), (39, 27998), (46, 27950), (48, 27938), (56, 27860), (62, 27827), (65, 27809), (69, 27767), (70, 27764), (76, 27728), (78, 27719), (87, 27662), (91, 27623), (104, 27554), (111, 27500), (123, 27434),

Gene: FF47\_41 Start: 30836, Stop: 29991, Start Num: 11

Candidate Starts for FF47\_41:

(Start: 11 @30836 has 2 MA's), (16, 30812), (30, 30719), (37, 30659), (48, 30581), (52, 30554), (56, 30503), (62, 30470), (78, 30362), (83, 30335), (98, 30233), (104, 30197), (110, 30170), (116, 30107), (131, 30032), (133, 30023),

Gene: Feastonyeet\_41 Start: 30191, Stop: 29385, Start Num: 17

Candidate Starts for Feastonyeet\_41:

(Start: 17 @30191 has 44 MA's), (Start: 18 @30185 has 3 MA's), (32, 30083), (38, 30029), (48, 29966), (62, 29855), (64, 29840), (69, 29795), (70, 29792), (76, 29756), (78, 29747), (87, 29690), (92, 29642), (93, 29639), (101, 29597), (117, 29504), (130, 29435),

Gene: Forza\_167 Start: 93428, Stop: 92685, Start Num: 21

Candidate Starts for Forza\_167:

(Start: 21 @93428 has 7 MA's), (27, 93401), (34, 93335), (39, 93293), (43, 93278), (44, 93260), (54, 93185), (72, 93050), (73, 93041), (74, 93032), (75, 93023), (81, 92987), (84, 92975), (86, 92966), (90, 92915), (91, 92912), (96, 92882), (98, 92876), (108, 92828), (112, 92786), (113, 92774), (119, 92747), (122, 92735),

Gene: Fribs8\_37 Start: 28362, Stop: 27550, Start Num: 17

Candidate Starts for Fribs8\_37:

(Start: 17 @28362 has 44 MA's), (53, 28110), (56, 28068), (59, 28053), (62, 28035), (64, 28020), (65, 28017), (69, 27975), (78, 27927), (88, 27867), (91, 27834), (100, 27780), (104, 27765), (123, 27648),

Gene: GMA2\_61 Start: 64314, Stop: 63565, Start Num: 19

Candidate Starts for GMA2\_61:

(Start: 19 @64314 has 1 MA's), (27, 64284), (31, 64227), (54, 64068), (57, 64035), (72, 63933), (74, 63915), (82, 63867), (84, 63858), (85, 63852), (90, 63798), (96, 63765), (98, 63759), (108, 63711), (123, 63612), (124, 63597),

Gene: GiKK\_45 Start: 29557, Stop: 28754, Start Num: 17

Candidate Starts for GiKK\_45:

(1, 29836), (2, 29746), (5, 29644), (7, 29614), (9, 29608), (Start: 15 @29560 has 3 MA's), (Start: 17 @29557 has 44 MA's), (32, 29458), (48, 29347), (54, 29299), (59, 29254), (62, 29236), (64, 29221), (65, 29218), (70, 29173), (76, 29137), (78, 29128), (91, 29032), (95, 29008), (101, 28975), (104, 28963), (106, 28957), (110, 28936),

Gene: Gibbous\_36 Start: 27923, Stop: 27114, Start Num: 17

Candidate Starts for Gibbous\_36:

(Start: 17 @27923 has 44 MA's), (32, 27821), (48, 27710), (59, 27617), (62, 27599), (64, 27584), (65, 27581), (69, 27539), (78, 27491), (88, 27431), (91, 27398), (95, 27374), (100, 27344), (104, 27329), (123, 27212),

Gene: GodonK\_178 Start: 89500, Stop: 88790, Start Num: 22

Candidate Starts for GodonK\_178:

(Start: 22 @89500 has 3 MA's), (26, 89479), (31, 89419), (54, 89263), (57, 89230), (60, 89209), (63, 89194), (66, 89167), (69, 89140), (72, 89128), (73, 89119), (77, 89095), (84, 89053), (90, 88996), (91, 88993), (94, 88972), (96, 88963), (108, 88912), (127, 88795),

Gene: GoldHunter\_41 Start: 28608, Stop: 27790, Start Num: 17

Candidate Starts for GoldHunter\_41:

(Start: 17 @28608 has 44 MA's), (38, 28452), (39, 28449), (46, 28401), (48, 28389), (56, 28311), (62, 28278), (64, 28263), (65, 28260), (69, 28218), (76, 28179), (78, 28170), (87, 28113), (95, 28050), (106, 27999), (123, 27885), (130, 27846),

Gene: Hexbug\_47 Start: 31341, Stop: 30535, Start Num: 17

Candidate Starts for Hexbug\_47:

(9, 31383), (Start: 15 @31344 has 3 MA's), (Start: 17 @31341 has 44 MA's), (32, 31239), (38, 31185), (39, 31182), (48, 31128), (53, 31092), (59, 31035), (62, 31017), (65, 30999), (70, 30954), (78, 30909), (91, 30813), (95, 30789), (101, 30756), (104, 30744), (112, 30690), (117, 30657),

Gene: HippoPololi\_38 Start: 28375, Stop: 27566, Start Num: 17

Candidate Starts for HippoPololi\_38:

(Start: 17 @28375 has 44 MA's), (32, 28273), (48, 28162), (53, 28126), (55, 28108), (56, 28084), (59, 28069), (62, 28051), (65, 28033), (69, 27991), (78, 27943), (84, 27910), (88, 27883), (91, 27850), (104, 27781), (123, 27664),

Gene: Horseradish\_42 Start: 28614, Stop: 27796, Start Num: 17

Candidate Starts for Horseradish\_42:

(Start: 14 @28632 has 2 MA's), (Start: 17 @28614 has 44 MA's), (Start: 18 @28608 has 3 MA's), (38, 28458), (39, 28455), (48, 28395), (56, 28317), (62, 28284), (65, 28266), (69, 28224), (70, 28221), (76, 28185), (78, 28176), (87, 28119), (91, 28080), (99, 28035), (101, 28023), (104, 28011), (106, 28005), (130, 27852),

Gene: Huwbert\_81 Start: 49790, Stop: 50599, Start Num: 21

Candidate Starts for Huwbert\_81:

(Start: 21 @49790 has 7 MA's), (42, 49937), (45, 49967), (48, 49988), (62, 50099), (65, 50117), (69, 50159), (70, 50162), (76, 50198), (83, 50234), (87, 50264), (88, 50267), (101, 50360), (106, 50378),

Gene: JacoRen57\_38 Start: 31703, Stop: 30873, Start Num: 13

Candidate Starts for JacoRen57\_38:

(Start: 13 @31703 has 1 MA's), (32, 31568), (54, 31403), (62, 31340), (64, 31325), (75, 31244), (78, 31232), (95, 31112), (106, 31061), (110, 31040), (128, 30914), (131, 30902),

Gene: Jamzy\_45 Start: 29543, Stop: 28737, Start Num: 15

Candidate Starts for Jamzy\_45:

(5, 29627), (7, 29597), (9, 29591), (Start: 15 @29543 has 3 MA's), (Start: 17 @29540 has 44 MA's), (32, 29441), (48, 29330), (54, 29282), (59, 29237), (62, 29219), (64, 29204), (65, 29201), (70, 29156), (76, 29120), (78, 29111), (91, 29015), (95, 28991), (101, 28958), (104, 28946), (106, 28940), (110, 28919),

Gene: KayGee\_42 Start: 30579, Stop: 29773, Start Num: 17

Candidate Starts for KayGee\_42:

(Start: 17 @30579 has 44 MA's), (Start: 18 @30573 has 3 MA's), (32, 30471), (38, 30417), (48, 30354), (53, 30318), (62, 30243), (64, 30228), (69, 30183), (70, 30180), (76, 30144), (78, 30135), (87, 30078), (92, 30030), (93, 30027), (101, 29985), (117, 29892), (130, 29823),

Gene: KimJongPhill\_83 Start: 61930, Stop: 62745, Start Num: 18

Candidate Starts for KimJongPhill\_83:

(Start: 18 @61930 has 3 MA's), (28, 62008), (41, 62086), (56, 62212), (58, 62218), (62, 62245), (65, 62263), (69, 62305), (79, 62356), (84, 62386), (87, 62410), (94, 62467), (103, 62515), (106, 62524), (114, 62620), (125, 62683),

Gene: Lauer\_38 Start: 31388, Stop: 30582, Start Num: 17

Candidate Starts for Lauer\_38:

(Start: 17 @31388 has 44 MA's), (Start: 18 @31382 has 3 MA's), (32, 31280), (38, 31226), (48, 31163), (53, 31127), (62, 31052), (64, 31037), (69, 30992), (70, 30989), (76, 30953), (78, 30944), (87, 30887), (92, 30839), (93, 30836), (101, 30794), (117, 30701), (130, 30632),

Gene: MAnor\_43 Start: 30921, Stop: 30115, Start Num: 17

Candidate Starts for MAnor\_43:

(Start: 17 @30921 has 44 MA's), (Start: 18 @30915 has 3 MA's), (32, 30813), (38, 30759), (48, 30696), (62, 30585), (64, 30570), (69, 30525), (70, 30522), (76, 30486), (78, 30477), (87, 30420), (92, 30372), (93, 30369), (101, 30327), (117, 30234), (130, 30165),

Gene: MScarn\_43 Start: 28754, Stop: 27936, Start Num: 17

Candidate Starts for MScarn\_43:

(Start: 14 @28772 has 2 MA's), (Start: 17 @28754 has 44 MA's), (Start: 18 @28748 has 3 MA's), (38, 28598), (39, 28595), (48, 28535), (56, 28457), (62, 28424), (65, 28406), (69, 28364), (70, 28361), (76, 28325), (78, 28316), (87, 28259), (91, 28220), (99, 28175), (104, 28151), (106, 28145), (130, 27992),

Gene: MaVan\_38 Start: 28664, Stop: 27852, Start Num: 17

Candidate Starts for MaVan\_38:

(6, 28736), (Start: 17 @28664 has 44 MA's), (48, 28448), (53, 28412), (56, 28370), (59, 28355), (62, 28337), (64, 28322), (65, 28319), (69, 28277), (78, 28229), (88, 28169), (91, 28136), (100, 28082), (104, 28067), (123, 27950),

Gene: Maco6\_40 Start: 30176, Stop: 29331, Start Num: 11

Candidate Starts for Maco6\_40:

(Start: 11 @30176 has 2 MA's), (16, 30152), (30, 30059), (37, 29999), (48, 29921), (52, 29894), (56, 29843), (62, 29810), (75, 29714), (78, 29702), (83, 29675), (98, 29573), (104, 29537), (110, 29510), (116, 29447), (131, 29372), (133, 29363),

Gene: Mareelih\_164 Start: 92946, Stop: 92203, Start Num: 21

Candidate Starts for Mareelih\_164:

(Start: 21 @92946 has 7 MA's), (27, 92919), (34, 92853), (39, 92811), (43, 92796), (44, 92778), (54, 92703), (72, 92568), (73, 92559), (74, 92550), (75, 92541), (81, 92505), (84, 92493), (86, 92484), (90, 92433), (91, 92430), (96, 92400), (98, 92394), (108, 92346), (112, 92304), (113, 92292), (119, 92265), (122, 92253),

Gene: Margaret\_46 Start: 30292, Stop: 29483, Start Num: 15

Candidate Starts for Margaret\_46:

(Start: 15 @30292 has 3 MA's), (Start: 17 @30289 has 44 MA's), (32, 30187), (38, 30133), (48, 30076), (53, 30040), (59, 29983), (62, 29965), (64, 29950), (65, 29947), (70, 29902), (76, 29866), (78, 29857), (91, 29761), (101, 29704), (112, 29638), (117, 29605),

Gene: Mayweather\_45 Start: 31200, Stop: 30394, Start Num: 17

Candidate Starts for Mayweather\_45:

(Start: 17 @31200 has 44 MA's), (Start: 18 @31194 has 3 MA's), (32, 31092), (38, 31038), (48, 30975), (62, 30864), (64, 30849), (69, 30804), (70, 30801), (76, 30765), (78, 30756), (87, 30699), (92, 30651), (93, 30648), (101, 30606), (117, 30513), (130, 30444),

Gene: Mimi\_110 Start: 83830, Stop: 84639, Start Num: 22

Candidate Starts for Mimi\_110:

(Start: 22 @83830 has 3 MA's), (36, 83935), (71, 84205), (84, 84283), (114, 84484), (121, 84514), (122, 84517), (129, 84547), (137, 84616), (138, 84634),

Gene: Muddy\_42 Start: 31408, Stop: 30563, Start Num: 11

Candidate Starts for Muddy\_42:

(Start: 11 @31408 has 2 MA's), (16, 31384), (30, 31291), (37, 31231), (48, 31153), (52, 31126), (62, 31042), (78, 30934), (83, 30907), (98, 30805), (104, 30769), (110, 30742), (116, 30679), (131, 30604), (133, 30595),

Gene: MunkgeeRoachy\_40 Start: 28070, Stop: 27252, Start Num: 17

Candidate Starts for MunkgeeRoachy\_40:

(Start: 17 @28070 has 44 MA's), (38, 27914), (39, 27911), (46, 27863), (48, 27851), (56, 27773), (62, 27740), (64, 27725), (65, 27722), (69, 27680), (76, 27641), (78, 27632), (87, 27575), (95, 27512), (106, 27461), (123, 27347),

Gene: Nibbles\_37 Start: 28351, Stop: 27539, Start Num: 17

Candidate Starts for Nibbles\_37:

(6, 28423), (8, 28399), (Start: 17 @28351 has 44 MA's), (48, 28135), (53, 28099), (56, 28057), (59, 28042), (62, 28024), (64, 28009), (65, 28006), (69, 27964), (78, 27916), (88, 27856), (91, 27823), (100, 27769), (104, 27754), (123, 27637),

Gene: Nina\_39 Start: 28732, Stop: 27914, Start Num: 17

Candidate Starts for Nina\_39:

(Start: 17 @28732 has 44 MA's), (38, 28576), (39, 28573), (46, 28525), (48, 28513), (56, 28435), (62, 28402), (64, 28387), (65, 28384), (68, 28360), (69, 28342), (76, 28303), (78, 28294), (87, 28237), (95, 28174), (106, 28123), (123, 28009), (130, 27970),

Gene: NoShow\_50 Start: 34311, Stop: 33472, Start Num: 12

Candidate Starts for NoShow\_50:

(Start: 12 @34311 has 1 MA's), (37, 34125), (42, 34098), (56, 33969), (62, 33936), (78, 33828), (95, 33708), (106, 33657), (114, 33585), (130, 33501),

Gene: Nodigi\_47 Start: 31327, Stop: 30521, Start Num: 17

Candidate Starts for Nodigi\_47:

(9, 31369), (Start: 15 @31330 has 3 MA's), (Start: 17 @31327 has 44 MA's), (32, 31225), (38, 31171), (39, 31168), (48, 31114), (53, 31078), (59, 31021), (62, 31003), (65, 30985), (70, 30940), (78, 30895), (91, 30799), (95, 30775), (101, 30742), (104, 30730), (112, 30676), (117, 30643),

Gene: Orla\_47 Start: 31300, Stop: 30494, Start Num: 17

Candidate Starts for Orla\_47:

(9, 31342), (Start: 15 @31303 has 3 MA's), (Start: 17 @31300 has 44 MA's), (32, 31198), (38, 31144), (39, 31141), (48, 31087), (53, 31051), (59, 30994), (62, 30976), (65, 30958), (76, 30877), (78, 30868), (91, 30772), (95, 30748), (101, 30715), (104, 30703), (112, 30649), (117, 30616),

Gene: Patbob\_105 Start: 84565, Stop: 85374, Start Num: 22

Candidate Starts for Patbob\_105:

(Start: 22 @84565 has 3 MA's), (36, 84670), (71, 84940), (84, 85018), (121, 85249), (122, 85252), (129, 85282), (130, 85285), (137, 85351), (138, 85369),

Gene: PauloDiaboli\_112 Start: 75754, Stop: 74960, Start Num: 23

Candidate Starts for PauloDiaboli\_112:

(Start: 23 @75754 has 2 MA's), (24, 75742), (29, 75691), (40, 75619), (43, 75607), (48, 75562), (49, 75559), (67, 75412), (71, 75382), (81, 75316), (84, 75304), (86, 75295), (89, 75247), (108, 75151), (121, 75055), (126, 75025), (132, 75004),

Gene: Phendrix\_167 Start: 88597, Stop: 87887, Start Num: 22

Candidate Starts for Phendrix\_167:

(Start: 22 @88597 has 3 MA's), (26, 88576), (31, 88516), (54, 88360), (57, 88327), (63, 88291), (66, 88264), (69, 88237), (72, 88225), (73, 88216), (77, 88192), (84, 88150), (90, 88093), (91, 88090), (94, 88069), (96, 88060), (108, 88009), (127, 87892),

Gene: Pons\_43 Start: 30551, Stop: 29745, Start Num: 17

Candidate Starts for Pons\_43:

(Start: 17 @30551 has 44 MA's), (Start: 18 @30545 has 3 MA's), (32, 30443), (38, 30389), (48, 30326), (53, 30290), (62, 30215), (64, 30200), (69, 30155), (70, 30152), (76, 30116), (78, 30107), (87, 30050), (92, 30002), (93, 29999), (101, 29957), (117, 29864), (130, 29795),

Gene: PotPie\_42 Start: 31482, Stop: 30676, Start Num: 17

Candidate Starts for PotPie\_42:

(Start: 17 @31482 has 44 MA's), (Start: 18 @31476 has 3 MA's), (32, 31374), (38, 31320), (48, 31257), (62, 31146), (64, 31131), (69, 31086), (70, 31083), (76, 31047), (78, 31038), (87, 30981), (92, 30933), (93, 30930), (101, 30888), (117, 30795), (130, 30726),

Gene: PsychoKiller\_39 Start: 28608, Stop: 27790, Start Num: 17

Candidate Starts for PsychoKiller\_39:

(Start: 17 @28608 has 44 MA's), (38, 28452), (39, 28449), (46, 28401), (48, 28389), (56, 28311), (62, 28278), (64, 28263), (65, 28260), (69, 28218), (76, 28179), (78, 28170), (87, 28113), (95, 28050), (106, 27999), (123, 27885), (130, 27846),

Gene: Pumpernickel\_109 Start: 77313, Stop: 76510, Start Num: 19

Candidate Starts for Pumpernickel\_109:

(Start: 19 @77313 has 1 MA's), (26, 77283), (27, 77280), (33, 77217), (44, 77127), (47, 77103), (51, 77091), (52, 77073), (63, 76983), (66, 76956), (67, 76950), (71, 76920), (82, 76851), (84, 76842), (102, 76716), (118, 76608), (121, 76593), (123, 76584),

Gene: Quasar\_40 Start: 29156, Stop: 28338, Start Num: 17

Candidate Starts for Quasar\_40:

(Start: 17 @29156 has 44 MA's), (38, 29000), (39, 28997), (46, 28949), (48, 28937), (56, 28859), (62, 28826), (64, 28811), (65, 28808), (69, 28766), (76, 28727), (78, 28718), (87, 28661), (95, 28598), (106, 28547), (123, 28433), (130, 28394),

Gene: Racecar\_105 Start: 84483, Stop: 85292, Start Num: 22

Candidate Starts for Racecar\_105:

(Start: 22 @84483 has 3 MA's), (36, 84588), (71, 84858), (84, 84936), (114, 85137), (121, 85167), (122, 85170), (129, 85200), (137, 85269), (138, 85287),

Gene: RedBaron\_42 Start: 28845, Stop: 28027, Start Num: 17

Candidate Starts for RedBaron\_42:

(Start: 17 @28845 has 44 MA's), (38, 28689), (39, 28686), (46, 28638), (48, 28626), (56, 28548), (62, 28515), (64, 28500), (65, 28497), (69, 28455), (76, 28416), (78, 28407), (80, 28386), (87, 28350), (95, 28287), (106, 28236), (123, 28122), (130, 28083),

Gene: SJReid\_111 Start: 76759, Stop: 77565, Start Num: 25

Candidate Starts for SJReid\_111:

(Start: 22 @76738 has 3 MA's), (25, 76759), (35, 76837), (36, 76843), (71, 77113), (84, 77191), (92, 77263), (96, 77281), (120, 77419), (137, 77542),

Gene: SheckWes\_44 Start: 30075, Stop: 29269, Start Num: 17

Candidate Starts for SheckWes\_44:

(Start: 17 @30075 has 44 MA's), (32, 29967), (38, 29913), (48, 29850), (62, 29739), (68, 29697), (69, 29679), (70, 29676), (76, 29640), (78, 29631), (87, 29574), (92, 29526), (93, 29523), (101, 29481), (117, 29388), (130, 29319),

Gene: Sixama\_165 Start: 92948, Stop: 92217, Start Num: 21

Candidate Starts for Sixama\_165:

(Start: 21 @92948 has 7 MA's), (27, 92921), (34, 92855), (43, 92798), (44, 92780), (48, 92753), (52, 92726), (54, 92705), (56, 92675), (72, 92570), (74, 92552), (75, 92543), (81, 92507), (84, 92495), (90, 92435), (91, 92432), (96, 92402), (98, 92396), (99, 92384), (109, 92345),

Gene: SketchMex\_40 Start: 28753, Stop: 27935, Start Num: 17

Candidate Starts for SketchMex\_40:

(Start: 14 @28771 has 2 MA's), (Start: 17 @28753 has 44 MA's), (Start: 18 @28747 has 3 MA's), (38, 28597), (39, 28594), (48, 28534), (56, 28456), (62, 28423), (65, 28405), (69, 28363), (70, 28360), (76, 28324), (78, 28315), (87, 28258), (91, 28219), (99, 28174), (101, 28162), (104, 28150), (106, 28144), (111, 28096), (130, 27991),

Gene: Sopespian\_39 Start: 28609, Stop: 27791, Start Num: 17

Candidate Starts for Sopespian\_39:

(Start: 17 @28609 has 44 MA's), (38, 28453), (39, 28450), (46, 28402), (48, 28390), (56, 28312), (62, 28279), (64, 28264), (65, 28261), (69, 28219), (76, 28180), (78, 28171), (87, 28114), (95, 28051), (106, 28000), (123, 27886), (130, 27847),

Gene: SteamedHams\_41 Start: 28529, Stop: 27711, Start Num: 17

Candidate Starts for SteamedHams\_41:

(Start: 14 @28547 has 2 MA's), (Start: 17 @28529 has 44 MA's), (38, 28373), (39, 28370), (46, 28322), (48, 28310), (56, 28232), (62, 28199), (65, 28181), (68, 28157), (69, 28139), (70, 28136), (76, 28100), (78, 28091), (87, 28034), (91, 27995), (104, 27926), (106, 27920), (111, 27872), (130, 27767),

Gene: SummitAcademy\_41 Start: 30111, Stop: 29305, Start Num: 17

Candidate Starts for SummitAcademy\_41:

(Start: 17 @30111 has 44 MA's), (Start: 18 @30105 has 3 MA's), (32, 30003), (38, 29949), (48, 29886), (62, 29775), (64, 29760), (69, 29715), (70, 29712), (76, 29676), (78, 29667), (87, 29610), (92, 29562), (93, 29559), (101, 29517), (117, 29424), (130, 29355),

Gene: Survivors\_38 Start: 28560, Stop: 27748, Start Num: 17

Candidate Starts for Survivors\_38:

(6, 28632), (Start: 17 @28560 has 44 MA's), (48, 28344), (53, 28308), (56, 28266), (59, 28251), (62, 28233), (64, 28218), (65, 28215), (69, 28173), (78, 28125), (88, 28065), (91, 28032), (100, 27978), (104, 27963), (123, 27846),

Gene: SweatNTears\_41 Start: 28505, Stop: 27687, Start Num: 17

Candidate Starts for SweatNTears\_41:

(Start: 17 @28505 has 44 MA's), (38, 28349), (39, 28346), (46, 28298), (48, 28286), (56, 28208), (62, 28175), (64, 28160), (65, 28157), (68, 28133), (69, 28115), (76, 28076), (78, 28067), (87, 28010), (95, 27947), (106, 27896), (123, 27782), (130, 27743),



Gene: Talia1610\_106 Start: 83848, Stop: 84657, Start Num: 22

Candidate Starts for Talia1610\_106:

(Start: 22 @83848 has 3 MA's), (36, 83953), (71, 84223), (84, 84301), (114, 84502), (121, 84532), (122, 84535), (129, 84565), (137, 84634), (138, 84652),

Gene: Tolls\_41 Start: 28634, Stop: 27816, Start Num: 17

Candidate Starts for Tolls\_41:

(Start: 14 @28652 has 2 MA's), (Start: 17 @28634 has 44 MA's), (Start: 18 @28628 has 3 MA's), (38, 28478), (39, 28475), (46, 28427), (48, 28415), (56, 28337), (62, 28304), (65, 28286), (69, 28244), (70, 28241), (76, 28205), (78, 28196), (87, 28139), (91, 28100), (104, 28031), (106, 28025), (111, 27977), (130, 27872),

Gene: Triscuit\_80 Start: 49756, Stop: 50565, Start Num: 21

Candidate Starts for Triscuit\_80:

(Start: 21 @49756 has 7 MA's), (42, 49903), (45, 49933), (48, 49954), (62, 50065), (65, 50083), (69, 50125), (70, 50128), (76, 50164), (87, 50230), (104, 50335), (106, 50341), (110, 50362), (134, 50521),

Gene: Troje\_42 Start: 29091, Stop: 28273, Start Num: 17

Candidate Starts for Troje\_42:

(Start: 14 @29109 has 2 MA's), (Start: 17 @29091 has 44 MA's), (Start: 18 @29085 has 3 MA's), (38, 28935), (39, 28932), (48, 28872), (56, 28794), (62, 28761), (65, 28743), (69, 28701), (70, 28698), (76, 28662), (78, 28653), (87, 28596), (91, 28557), (99, 28512), (101, 28500), (104, 28488), (106, 28482), (111, 28434), (130, 28329),

Gene: Typhonomachy\_39 Start: 28227, Stop: 27409, Start Num: 17

Candidate Starts for Typhonomachy\_39:

(Start: 17 @28227 has 44 MA's), (38, 28071), (39, 28068), (46, 28020), (48, 28008), (56, 27930), (62, 27897), (64, 27882), (65, 27879), (69, 27837), (76, 27798), (78, 27789), (80, 27768), (87, 27732), (95, 27669), (106, 27618), (123, 27504), (130, 27465),

Gene: Vine\_44 Start: 30838, Stop: 30032, Start Num: 17

Candidate Starts for Vine\_44:

(Start: 17 @30838 has 44 MA's), (Start: 18 @30832 has 3 MA's), (32, 30730), (38, 30676), (48, 30613), (53, 30577), (62, 30502), (64, 30487), (69, 30442), (70, 30439), (76, 30403), (78, 30394), (87, 30337), (92, 30289), (93, 30286), (101, 30244), (117, 30151), (130, 30082),

Gene: Yakult\_42 Start: 29373, Stop: 28570, Start Num: 17

Candidate Starts for Yakult\_42:

(3, 29496), (4, 29466), (10, 29409), (Start: 15 @29376 has 3 MA's), (Start: 17 @29373 has 44 MA's), (32, 29274), (48, 29163), (53, 29127), (59, 29070), (62, 29052), (64, 29037), (65, 29034), (70, 28989), (76, 28953), (78, 28944), (95, 28824), (101, 28791), (104, 28779), (106, 28773), (110, 28752),

Gene: Yarn\_37 Start: 28394, Stop: 27576, Start Num: 17

Candidate Starts for Yarn\_37:

(Start: 14 @28412 has 2 MA's), (Start: 17 @28394 has 44 MA's), (Start: 18 @28388 has 3 MA's), (38, 28238), (39, 28235), (46, 28187), (48, 28175), (56, 28097), (62, 28064), (65, 28046), (69, 28004), (70, 28001), (76, 27965), (78, 27956), (87, 27899), (91, 27860), (104, 27791), (106, 27785), (111, 27737), (130, 27632),

Gene: Yummy\_42 Start: 28728, Stop: 27910, Start Num: 17

Candidate Starts for Yummy\_42:

(Start: 14 @28746 has 2 MA's), (Start: 17 @28728 has 44 MA's), (Start: 18 @28722 has 3 MA's), (38, 28572), (39, 28569), (48, 28509), (56, 28431), (62, 28398), (65, 28380), (69, 28338), (70, 28335), (76,

28299), (78, 28290), (87, 28233), (91, 28194), (99, 28149), (101, 28137), (104, 28125), (106, 28119), (130, 27966),

Gene: Zareef\_40 Start: 28654, Stop: 27842, Start Num: 17

Candidate Starts for Zareef\_40:

(6, 28726), (Start: 17 @28654 has 44 MA's), (48, 28438), (53, 28402), (56, 28360), (59, 28345), (62, 28327), (64, 28312), (65, 28309), (69, 28267), (78, 28219), (88, 28159), (91, 28126), (100, 28072), (104, 28057), (123, 27940),

Gene: Zooman\_96 Start: 73343, Stop: 72582, Start Num: 20

Candidate Starts for Zooman\_96:

(Start: 20 @73343 has 3 MA's), (48, 73151), (49, 73148), (67, 73001), (71, 72971), (81, 72905), (84, 72893), (90, 72833), (97, 72797), (108, 72740), (112, 72698), (121, 72644),

Gene: Zuko\_81 Start: 61795, Stop: 62607, Start Num: 18

Candidate Starts for Zuko\_81:

(Start: 18 @61795 has 3 MA's), (28, 61870), (51, 62005), (56, 62074), (58, 62080), (62, 62107), (65, 62125), (79, 62218), (84, 62248), (87, 62272), (93, 62326), (94, 62329), (103, 62377), (106, 62386), (110, 62407), (114, 62482),