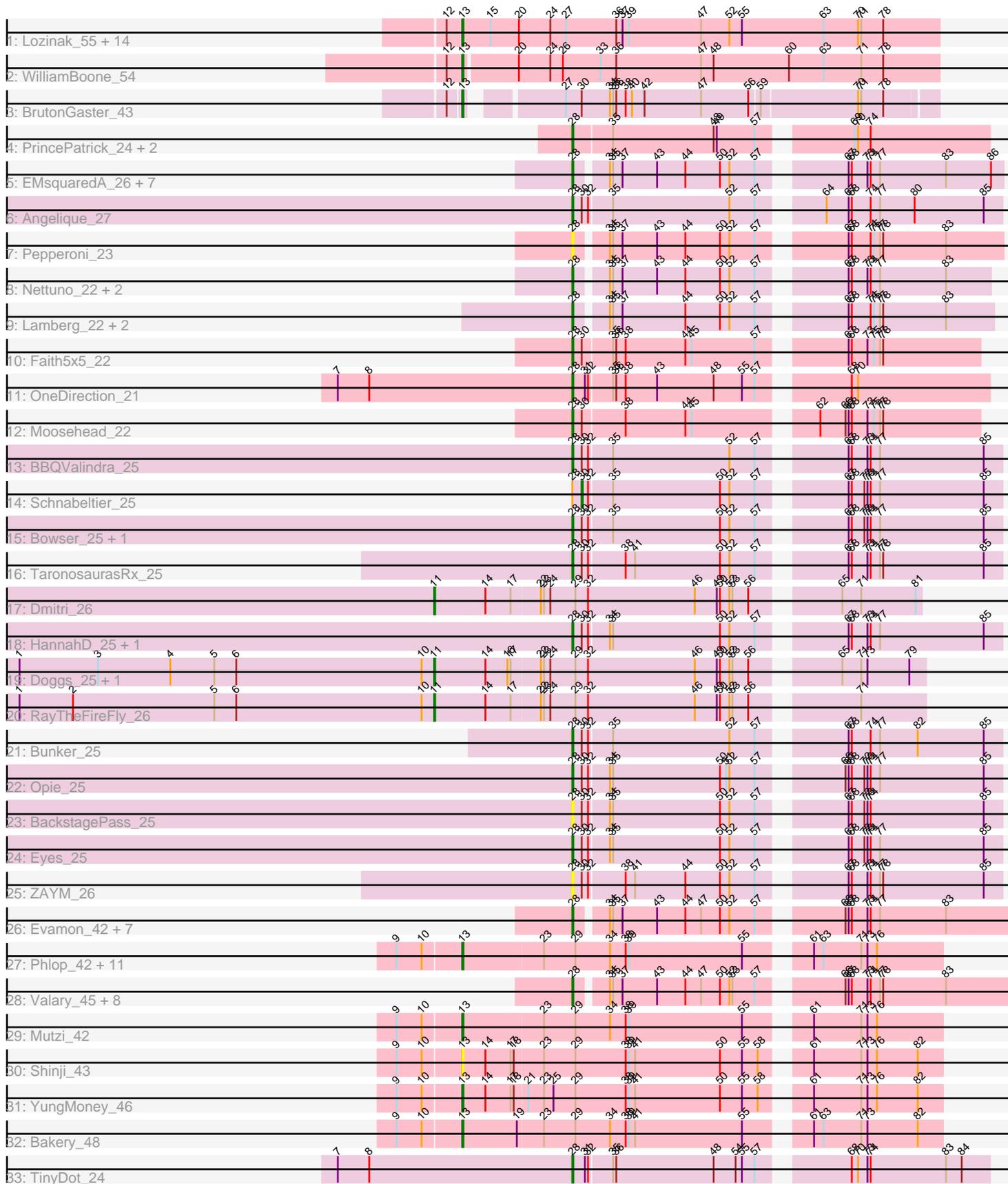


Pham 283696



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 283696 Report

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

Pham number 283696 has 89 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Lozinak\_55, ClubL\_54, Bachita\_56, Geeche\_53, Engineer\_56, Miskis\_52, Norvs\_55, Dusty\_53, PhinkBoden\_54, Abscondus\_53, Cucurbita\_56, Culver\_54, Smoothie\_56, Aphelion\_54, Toniann\_54
- Track 2 : WilliamBoone\_54
- Track 3 : BrutonGaster\_43
- Track 4 : PrincePatrick\_24, William\_25, Fairfaxidum\_24
- Track 5 : EMSquaredA\_26, Pollux\_26, Marteena\_26, BritBrat\_26, Lilas\_26, Bradissa\_26, EnalisNailo\_26, Floral\_26
- Track 6 : Angelique\_27
- Track 7 : Pepperoni\_23
- Track 8 : Nettuno\_22, Matteo\_22, Pickett\_22
- Track 9 : Lamberg\_22, Lton\_22, EdnaMode\_22
- Track 10 : Faith5x5\_22
- Track 11 : OneDirection\_21
- Track 12 : Moosehead\_22
- Track 13 : BBQValindra\_25
- Track 14 : Schnabeltier\_25
- Track 15 : Bowser\_25, MagicMan\_25
- Track 16 : TaronosaurusRx\_25
- Track 17 : Dmitri\_26
- Track 18 : HannahD\_25, GEazy\_25
- Track 19 : Doggs\_25, Coriander\_26
- Track 20 : RayTheFireFly\_26
- Track 21 : Bunker\_25
- Track 22 : Opie\_25
- Track 23 : BackstagePass\_25
- Track 24 : Eyes\_25
- Track 25 : ZAYM\_26
- Track 26 : Evamon\_42, Portcullis\_44, Jambalaya\_43, Halo3\_43, Twister6\_45, Salvador\_42, Danyall\_45, Savbucketdawg\_43
- Track 27 : Phlop\_42, Fugax\_46, Egi03\_43, Togo\_42, Fireball\_44, PullumCavea\_42, PinkCoffee\_45, ClamChowder\_45, Barb\_45, SmokingBunny\_43, Nubi\_43, TillyBobJoe\_43
- Track 28 : Valary\_45, KimmyK\_44, Wizard\_42, Arri\_46, VanDeWege\_46, RogerDodger\_46, Gezellig\_42, CoveyB\_46, CherryCola\_46
- Track 29 : Mutzi\_42
- Track 30 : Shinji\_43

- Track 31 : YungMoney\_46
- Track 32 : Bakery\_48
- Track 33 : TinyDot\_24

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

The start number called the most often in the published annotations is 28, it was called in 47 of the 83 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Angelique\_27, Arri\_46, BBQValindra\_25, BackstagePass\_25, Bowser\_25, Bradissa\_26, BritBrat\_26, Bunker\_25, CherryCola\_46, CoveyB\_46, Danyall\_45, EMSquaredA\_26, EdnaMode\_22, EnalisNailo\_26, Evamon\_42, Eyes\_25, Fairfaxidum\_24, Faith5x5\_22, Floral\_26, GEazy\_25, Gezellig\_42, Halo3\_43, HannahD\_25, Jambalaya\_43, KimmyK\_44, Lamberg\_22, Lilas\_26, Lton\_22, MagicMan\_25, Marteena\_26, Matteo\_22, Moosehead\_22, Nettuno\_22, OneDirection\_21, Opie\_25, Pepperoni\_23, Pickett\_22, Pollux\_26, Portcullis\_44, PrincePatrick\_24, RogerDodger\_46, Salvador\_42, Savbucketdawg\_43, TaronosaurusRx\_25, TinyDot\_24, Twister6\_45, Valary\_45, VanDeWege\_46, William\_25, Wizard\_42, ZAYM\_26,

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

- Schnabeltier\_25,

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

- Abscondus\_53, Aphelion\_54, Bachita\_56, Bakery\_48, Barb\_45, BrutonGaster\_43, ClamChowder\_45, ClubL\_54, Coriander\_26, Cucurbita\_56, Culver\_54, Dmitri\_26, Doggs\_25, Dusty\_53, Egi03\_43, Engineer\_56, Fireball\_44, Fugax\_46, Geeche\_53, Lozinak\_55, Miskis\_52, Mutzi\_42, Norvs\_55, Nubi\_43, PhinkBoden\_54, Phlop\_42, PinkCoffee\_45, PullumCavea\_42, RayTheFireFly\_26, Shinji\_43, SmokingBunny\_43, Smoothie\_56, TillyBobJoe\_43, Togo\_42, Toniann\_54, WilliamBoone\_54, YungMoney\_46,

**Summary by start number:**

Start 11:

- Found in 4 of 89 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 4 of 83
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Coriander\_26 (DB), Dmitri\_26 (DB), Doggs\_25 (DB), RayTheFireFly\_26 (DB),

Start 13:

- Found in 33 of 89 ( 37.1% ) of genes in pham
- Manual Annotations of this start: 31 of 83
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abscondus\_53 (CQ1), Aphelion\_54 (CQ1), Bachita\_56 (CQ1), Bakery\_48 (DC1), Barb\_45 (DC1), BrutonGaster\_43 (CQ2), ClamChowder\_45 (DC1), ClubL\_54 (CQ1), Cucurbita\_56 (CQ1), Culver\_54 (CQ1), Dusty\_53 (CQ1), Egi03\_43 (DC1), Engineer\_56 (CQ1), Fireball\_44 (DC1),

Fugax\_46 (DC1), Geeche\_53 (CQ1), Lozinak\_55 (CQ1), Miskis\_52 (CQ1), Mutzi\_42 (DC1), Norvs\_55 (CQ1), Nubi\_43 (DC1), PhinkBoden\_54 (CQ1), Phlop\_42 (DC1), PinkCoffee\_45 (DC1), PullumCavea\_42 (DC1), Shinji\_43 (DC1), SmokingBunny\_43 (DC1), Smoothie\_56 (CQ1), TillyBobJoe\_43 (DC1), Togo\_42 (DC1), Toniann\_54 (CQ1), WilliamBoone\_54 (CQ1), YungMoney\_46 (DC1),

Start 28:

- Found in 52 of 89 ( 58.4% ) of genes in pham
- Manual Annotations of this start: 47 of 83
- Called 98.1% of time when present
- Phage (with cluster) where this start called: Angelique\_27 (CY1), Arri\_46 (DC1), BBQValindra\_25 (DB), BackstagePass\_25 (DB), Bowser\_25 (DB), Bradissa\_26 (CY1), BritBrat\_26 (CY2), Bunker\_25 (DB), CherryCola\_46 (DC1), CoveyB\_46 (DC1), Danyall\_45 (DC1), EMSquaredA\_26 (CY1), EdnaMode\_22 (CZ2), EnalisNailo\_26 (CY1), Evamon\_42 (DC1), Eyes\_25 (DB), Fairfaxidum\_24 (CV), Faith5x5\_22 (CZ6), Floral\_26 (CY1), GEazy\_25 (DB), Gezellig\_42 (DC1), Halo3\_43 (DC1), HannahD\_25 (DB), Jambalaya\_43 (DC1), KimmyK\_44 (DC1), Lamberg\_22 (CZ2), Lilas\_26 (CY1), Lton\_22 (CZ), MagicMan\_25 (DB), Marteena\_26 (CY1), Matteo\_22 (CZ2), Moosehead\_22 (CZ6), Nettuno\_22 (CZ2), OneDirection\_21 (CZ6), Opie\_25 (DB), Pepperoni\_23 (CZ), Pickett\_22 (CZ2), Pollux\_26 (CY1), Portcullis\_44 (DC1), PrincePatrick\_24 (CV), RogerDodger\_46 (DC1), Salvador\_42 (DC1), Savbucketdawg\_43 (DC1), TaronosaurusRx\_25 (DB), TinyDot\_24 (singleton), Twister6\_45 (DC1), Valary\_45 (DC1), VanDeWege\_46 (DC1), William\_25 (CV), Wizard\_42 (DC1), ZAYM\_26 (DB),

Start 30:

- Found in 16 of 89 ( 18.0% ) of genes in pham
- Manual Annotations of this start: 1 of 83
- Called 6.2% of time when present
- Phage (with cluster) where this start called: Schnabeltier\_25 (DB),

### Summary by clusters:

There are 11 clusters represented in this pham: CY2, CY1, CZ2, CZ6, DB, singleton, CZ, CQ2, CQ1, CV, DC1,

Info for manual annotations of cluster CQ1:

- Start number 13 was manually annotated 15 times for cluster CQ1.

Info for manual annotations of cluster CQ2:

- Start number 13 was manually annotated 1 time for cluster CQ2.

Info for manual annotations of cluster CV:

- Start number 28 was manually annotated 3 times for cluster CV.

Info for manual annotations of cluster CY1:

- Start number 28 was manually annotated 8 times for cluster CY1.

Info for manual annotations of cluster CY2:

- Start number 28 was manually annotated 1 time for cluster CY2.

Info for manual annotations of cluster CZ:

- Start number 28 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ2:

- Start number 28 was manually annotated 5 times for cluster CZ2.

Info for manual annotations of cluster CZ6:

- Start number 28 was manually annotated 3 times for cluster CZ6.

Info for manual annotations of cluster DB:

- Start number 11 was manually annotated 4 times for cluster DB.
- Start number 28 was manually annotated 9 times for cluster DB.
- Start number 30 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DC1:

- Start number 13 was manually annotated 15 times for cluster DC1.
- Start number 28 was manually annotated 16 times for cluster DC1.

### ***Gene Information:***

Gene: Abscondus\_53 Start: 33557, Stop: 34012, Start Num: 13

Candidate Starts for Abscondus\_53:

(12, 33542), (Start: 13 @33557 has 31 MA's), (15, 33584), (20, 33611), (24, 33641), (27, 33656), (36, 33704), (37, 33710), (39, 33716), (47, 33785), (52, 33812), (55, 33824), (63, 33902), (70, 33935), (71, 33938), (78, 33959),

Gene: Angelique\_27 Start: 22414, Stop: 22800, Start Num: 28

Candidate Starts for Angelique\_27:

(Start: 28 @22414 has 47 MA's), (Start: 30 @22423 has 1 MA's), (32, 22429), (35, 22450), (52, 22561), (57, 22585), (64, 22633), (67, 22654), (68, 22657), (74, 22675), (77, 22684), (80, 22717), (85, 22783),

Gene: Aphelion\_54 Start: 33826, Stop: 34281, Start Num: 13

Candidate Starts for Aphelion\_54:

(12, 33811), (Start: 13 @33826 has 31 MA's), (15, 33853), (20, 33880), (24, 33910), (27, 33925), (36, 33973), (37, 33979), (39, 33985), (47, 34054), (52, 34081), (55, 34093), (63, 34171), (70, 34204), (71, 34207), (78, 34228),

Gene: Arri\_46 Start: 35970, Stop: 36359, Start Num: 28

Candidate Starts for Arri\_46:

(Start: 28 @35970 has 47 MA's), (34, 35997), (35, 36000), (37, 36009), (43, 36042), (44, 36069), (47, 36084), (50, 36102), (52, 36111), (53, 36114), (57, 36135), (66, 36201), (67, 36204), (68, 36207), (73, 36222), (74, 36225), (77, 36234), (78, 36237), (83, 36297),

Gene: BBQValindra\_25 Start: 21046, Stop: 21432, Start Num: 28

Candidate Starts for BBQValindra\_25:

(Start: 28 @21046 has 47 MA's), (Start: 30 @21055 has 1 MA's), (32, 21061), (35, 21082), (52, 21193), (57, 21217), (67, 21286), (68, 21289), (73, 21304), (74, 21307), (77, 21316), (85, 21415),

Gene: Bachita\_56 Start: 34259, Stop: 34714, Start Num: 13

Candidate Starts for Bachita\_56:

(12, 34244), (Start: 13 @34259 has 31 MA's), (15, 34286), (20, 34313), (24, 34343), (27, 34358), (36, 34406), (37, 34412), (39, 34418), (47, 34487), (52, 34514), (55, 34526), (63, 34604), (70, 34637), (71, 34640), (78, 34661),

Gene: BackstagePass\_25 Start: 21178, Stop: 21564, Start Num: 28

Candidate Starts for BackstagePass\_25:

(Start: 28 @21178 has 47 MA's), (Start: 30 @21187 has 1 MA's), (32, 21193), (34, 21211), (35, 21214), (50, 21316), (52, 21325), (57, 21349), (67, 21418), (68, 21421), (72, 21433), (73, 21436), (74, 21439), (85, 21547),

Gene: Bakery\_48 Start: 37078, Stop: 37512, Start Num: 13

Candidate Starts for Bakery\_48:

(9, 37018), (10, 37042), (Start: 13 @37078 has 31 MA's), (19, 37129), (23, 37153), (29, 37183), (34, 37216), (38, 37231), (39, 37234), (41, 37240), (55, 37342), (61, 37390), (63, 37399), (71, 37435), (73, 37441), (82, 37489),

Gene: Barb\_45 Start: 36050, Stop: 36484, Start Num: 13

Candidate Starts for Barb\_45:

(9, 35990), (10, 36014), (Start: 13 @36050 has 31 MA's), (23, 36125), (29, 36155), (34, 36188), (38, 36203), (39, 36206), (55, 36314), (61, 36362), (63, 36371), (71, 36407), (73, 36413), (76, 36422),

Gene: Browser\_25 Start: 20957, Stop: 21343, Start Num: 28

Candidate Starts for Browser\_25:

(Start: 28 @20957 has 47 MA's), (Start: 30 @20966 has 1 MA's), (32, 20972), (35, 20993), (50, 21095), (52, 21104), (57, 21128), (67, 21197), (68, 21200), (72, 21212), (73, 21215), (74, 21218), (77, 21227), (85, 21326),

Gene: Bradissa\_26 Start: 21680, Stop: 22060, Start Num: 28

Candidate Starts for Bradissa\_26:

(Start: 28 @21680 has 47 MA's), (34, 21707), (35, 21710), (37, 21719), (43, 21752), (44, 21779), (50, 21812), (52, 21821), (57, 21845), (67, 21914), (68, 21917), (73, 21932), (74, 21935), (77, 21944), (83, 22007), (86, 22049),

Gene: BritBrat\_26 Start: 21533, Stop: 21913, Start Num: 28

Candidate Starts for BritBrat\_26:

(Start: 28 @21533 has 47 MA's), (34, 21560), (35, 21563), (37, 21572), (43, 21605), (44, 21632), (50, 21665), (52, 21674), (57, 21698), (67, 21767), (68, 21770), (73, 21785), (74, 21788), (77, 21797), (83, 21860), (86, 21902),

Gene: BrutonGaster\_43 Start: 30940, Stop: 31359, Start Num: 13

Candidate Starts for BrutonGaster\_43:

(12, 30928), (Start: 13 @30940 has 31 MA's), (27, 31015), (Start: 30 @31030 has 1 MA's), (34, 31057), (35, 31060), (36, 31063), (38, 31072), (40, 31078), (42, 31090), (47, 31144), (56, 31189), (59, 31198), (70, 31288), (71, 31291), (78, 31312),

Gene: Bunker\_25 Start: 21159, Stop: 21545, Start Num: 28

Candidate Starts for Bunker\_25:

(Start: 28 @21159 has 47 MA's), (Start: 30 @21168 has 1 MA's), (32, 21174), (35, 21195), (52, 21306), (57, 21330), (67, 21399), (68, 21402), (74, 21420), (77, 21429), (82, 21465), (85, 21528),

Gene: CherryCola\_46 Start: 36743, Stop: 37132, Start Num: 28

Candidate Starts for CherryCola\_46:

(Start: 28 @36743 has 47 MA's), (34, 36770), (35, 36773), (37, 36782), (43, 36815), (44, 36842), (47, 36857), (50, 36875), (52, 36884), (53, 36887), (57, 36908), (66, 36974), (67, 36977), (68, 36980), (73, 36995), (74, 36998), (77, 37007), (78, 37010), (83, 37070),

Gene: ClamChowder\_45 Start: 36050, Stop: 36484, Start Num: 13

Candidate Starts for ClamChowder\_45:

(9, 35990), (10, 36014), (Start: 13 @36050 has 31 MA's), (23, 36125), (29, 36155), (34, 36188), (38, 36203), (39, 36206), (55, 36314), (61, 36362), (63, 36371), (71, 36407), (73, 36413), (76, 36422),

Gene: ClubL\_54 Start: 33748, Stop: 34203, Start Num: 13

Candidate Starts for ClubL\_54:

(12, 33733), (Start: 13 @33748 has 31 MA's), (15, 33775), (20, 33802), (24, 33832), (27, 33847), (36, 33895), (37, 33901), (39, 33907), (47, 33976), (52, 34003), (55, 34015), (63, 34093), (70, 34126), (71, 34129), (78, 34150),

Gene: Coriander\_26 Start: 22098, Stop: 22541, Start Num: 11

Candidate Starts for Coriander\_26:

(1, 21702), (3, 21777), (4, 21846), (5, 21888), (6, 21909), (10, 22086), (Start: 11 @22098 has 4 MA's), (14, 22146), (16, 22167), (17, 22170), (22, 22197), (23, 22200), (24, 22206), (29, 22230), (32, 22242), (46, 22344), (49, 22365), (50, 22368), (52, 22377), (53, 22380), (56, 22395), (65, 22464), (71, 22482), (73, 22488), (79, 22527),

Gene: CoveyB\_46 Start: 35788, Stop: 36177, Start Num: 28

Candidate Starts for CoveyB\_46:

(Start: 28 @35788 has 47 MA's), (34, 35815), (35, 35818), (37, 35827), (43, 35860), (44, 35887), (47, 35902), (50, 35920), (52, 35929), (53, 35932), (57, 35953), (66, 36019), (67, 36022), (68, 36025), (73, 36040), (74, 36043), (77, 36052), (78, 36055), (83, 36115),

Gene: Cucurbita\_56 Start: 35118, Stop: 35573, Start Num: 13

Candidate Starts for Cucurbita\_56:

(12, 35103), (Start: 13 @35118 has 31 MA's), (15, 35145), (20, 35172), (24, 35202), (27, 35217), (36, 35265), (37, 35271), (39, 35277), (47, 35346), (52, 35373), (55, 35385), (63, 35463), (70, 35496), (71, 35499), (78, 35520),

Gene: Culver\_54 Start: 33557, Stop: 34012, Start Num: 13

Candidate Starts for Culver\_54:

(12, 33542), (Start: 13 @33557 has 31 MA's), (15, 33584), (20, 33611), (24, 33641), (27, 33656), (36, 33704), (37, 33710), (39, 33716), (47, 33785), (52, 33812), (55, 33824), (63, 33902), (70, 33935), (71, 33938), (78, 33959),

Gene: Danyall\_45 Start: 35790, Stop: 36179, Start Num: 28

Candidate Starts for Danyall\_45:

(Start: 28 @35790 has 47 MA's), (34, 35817), (35, 35820), (37, 35829), (43, 35862), (44, 35889), (47, 35904), (50, 35922), (52, 35931), (57, 35955), (66, 36021), (67, 36024), (68, 36027), (73, 36042), (74, 36045), (77, 36054), (83, 36117),

Gene: Dmitri\_26 Start: 22153, Stop: 22593, Start Num: 11

Candidate Starts for Dmitri\_26:

(Start: 11 @22153 has 4 MA's), (14, 22201), (17, 22225), (22, 22252), (23, 22255), (24, 22261), (29, 22285), (32, 22297), (46, 22399), (49, 22420), (50, 22423), (52, 22432), (53, 22435), (56, 22450), (65, 22519), (71, 22537), (81, 22588),

Gene: Doggs\_25 Start: 21797, Stop: 22240, Start Num: 11

Candidate Starts for Doggs\_25:

(1, 21401), (3, 21476), (4, 21545), (5, 21587), (6, 21608), (10, 21785), (Start: 11 @21797 has 4 MA's), (14, 21845), (16, 21866), (17, 21869), (22, 21896), (23, 21899), (24, 21905), (29, 21929), (32, 21941), (46, 22043), (49, 22064), (50, 22067), (52, 22076), (53, 22079), (56, 22094), (65, 22163), (71, 22181),

(73, 22187), (79, 22226),

Gene: Dusty\_53 Start: 33557, Stop: 34012, Start Num: 13

Candidate Starts for Dusty\_53:

(12, 33542), (Start: 13 @33557 has 31 MA's), (15, 33584), (20, 33611), (24, 33641), (27, 33656), (36, 33704), (37, 33710), (39, 33716), (47, 33785), (52, 33812), (55, 33824), (63, 33902), (70, 33935), (71, 33938), (78, 33959),

Gene: EMSquaredA\_26 Start: 21533, Stop: 21913, Start Num: 28

Candidate Starts for EMSquaredA\_26:

(Start: 28 @21533 has 47 MA's), (34, 21560), (35, 21563), (37, 21572), (43, 21605), (44, 21632), (50, 21665), (52, 21674), (57, 21698), (67, 21767), (68, 21770), (73, 21785), (74, 21788), (77, 21797), (83, 21860), (86, 21902),

Gene: EdnaMode\_22 Start: 18339, Stop: 18710, Start Num: 28

Candidate Starts for EdnaMode\_22:

(Start: 28 @18339 has 47 MA's), (34, 18366), (35, 18369), (37, 18378), (44, 18438), (50, 18471), (52, 18480), (57, 18504), (67, 18573), (68, 18576), (74, 18594), (75, 18597), (77, 18603), (78, 18606), (83, 18666),

Gene: Egi03\_43 Start: 35531, Stop: 35965, Start Num: 13

Candidate Starts for Egi03\_43:

(9, 35471), (10, 35495), (Start: 13 @35531 has 31 MA's), (23, 35606), (29, 35636), (34, 35669), (38, 35684), (39, 35687), (55, 35795), (61, 35843), (63, 35852), (71, 35888), (73, 35894), (76, 35903),

Gene: EnalisNailo\_26 Start: 21682, Stop: 22062, Start Num: 28

Candidate Starts for EnalisNailo\_26:

(Start: 28 @21682 has 47 MA's), (34, 21709), (35, 21712), (37, 21721), (43, 21754), (44, 21781), (50, 21814), (52, 21823), (57, 21847), (67, 21916), (68, 21919), (73, 21934), (74, 21937), (77, 21946), (83, 22009), (86, 22051),

Gene: Engineer\_56 Start: 34232, Stop: 34687, Start Num: 13

Candidate Starts for Engineer\_56:

(12, 34217), (Start: 13 @34232 has 31 MA's), (15, 34259), (20, 34286), (24, 34316), (27, 34331), (36, 34379), (37, 34385), (39, 34391), (47, 34460), (52, 34487), (55, 34499), (63, 34577), (70, 34610), (71, 34613), (78, 34634),

Gene: Evamon\_42 Start: 35809, Stop: 36198, Start Num: 28

Candidate Starts for Evamon\_42:

(Start: 28 @35809 has 47 MA's), (34, 35836), (35, 35839), (37, 35848), (43, 35881), (44, 35908), (47, 35923), (50, 35941), (52, 35950), (57, 35974), (66, 36040), (67, 36043), (68, 36046), (73, 36061), (74, 36064), (77, 36073), (83, 36136),

Gene: Eyes\_25 Start: 21050, Stop: 21436, Start Num: 28

Candidate Starts for Eyes\_25:

(Start: 28 @21050 has 47 MA's), (Start: 30 @21059 has 1 MA's), (32, 21065), (34, 21083), (35, 21086), (50, 21188), (52, 21197), (57, 21221), (67, 21290), (68, 21293), (72, 21305), (73, 21308), (74, 21311), (77, 21320), (85, 21419),

Gene: Fairfaxidum\_24 Start: 21186, Stop: 21560, Start Num: 28

Candidate Starts for Fairfaxidum\_24:

(Start: 28 @21186 has 47 MA's), (35, 21222), (48, 21318), (49, 21321), (57, 21357), (69, 21432), (70, 21435), (74, 21447),

Gene: Faith5x5\_22 Start: 18281, Stop: 18646, Start Num: 28

Candidate Starts for Faith5x5\_22:

(Start: 28 @18281 has 47 MA's), (Start: 30 @18290 has 1 MA's), (35, 18317), (36, 18320), (38, 18329), (44, 18386), (45, 18392), (57, 18452), (67, 18521), (68, 18524), (73, 18539), (75, 18545), (77, 18551), (78, 18554),

Gene: Fireball\_44 Start: 35995, Stop: 36429, Start Num: 13

Candidate Starts for Fireball\_44:

(9, 35935), (10, 35959), (Start: 13 @35995 has 31 MA's), (23, 36070), (29, 36100), (34, 36133), (38, 36148), (39, 36151), (55, 36259), (61, 36307), (63, 36316), (71, 36352), (73, 36358), (76, 36367),

Gene: Floral\_26 Start: 21533, Stop: 21913, Start Num: 28

Candidate Starts for Floral\_26:

(Start: 28 @21533 has 47 MA's), (34, 21560), (35, 21563), (37, 21572), (43, 21605), (44, 21632), (50, 21665), (52, 21674), (57, 21698), (67, 21767), (68, 21770), (73, 21785), (74, 21788), (77, 21797), (83, 21860), (86, 21902),

Gene: Fugax\_46 Start: 36042, Stop: 36476, Start Num: 13

Candidate Starts for Fugax\_46:

(9, 35982), (10, 36006), (Start: 13 @36042 has 31 MA's), (23, 36117), (29, 36147), (34, 36180), (38, 36195), (39, 36198), (55, 36306), (61, 36354), (63, 36363), (71, 36399), (73, 36405), (76, 36414),

Gene: GEazy\_25 Start: 21065, Stop: 21451, Start Num: 28

Candidate Starts for GEazy\_25:

(Start: 28 @21065 has 47 MA's), (Start: 30 @21074 has 1 MA's), (32, 21080), (34, 21098), (35, 21101), (50, 21203), (52, 21212), (57, 21236), (67, 21305), (68, 21308), (73, 21323), (74, 21326), (77, 21335), (85, 21434),

Gene: Geeche\_53 Start: 33648, Stop: 34103, Start Num: 13

Candidate Starts for Geeche\_53:

(12, 33633), (Start: 13 @33648 has 31 MA's), (15, 33675), (20, 33702), (24, 33732), (27, 33747), (36, 33795), (37, 33801), (39, 33807), (47, 33876), (52, 33903), (55, 33915), (63, 33993), (70, 34026), (71, 34029), (78, 34050),

Gene: Gezellig\_42 Start: 35941, Stop: 36330, Start Num: 28

Candidate Starts for Gezellig\_42:

(Start: 28 @35941 has 47 MA's), (34, 35968), (35, 35971), (37, 35980), (43, 36013), (44, 36040), (47, 36055), (50, 36073), (52, 36082), (53, 36085), (57, 36106), (66, 36172), (67, 36175), (68, 36178), (73, 36193), (74, 36196), (77, 36205), (78, 36208), (83, 36268),

Gene: Halo3\_43 Start: 36234, Stop: 36623, Start Num: 28

Candidate Starts for Halo3\_43:

(Start: 28 @36234 has 47 MA's), (34, 36261), (35, 36264), (37, 36273), (43, 36306), (44, 36333), (47, 36348), (50, 36366), (52, 36375), (57, 36399), (66, 36465), (67, 36468), (68, 36471), (73, 36486), (74, 36489), (77, 36498), (83, 36561),

Gene: HannahD\_25 Start: 21065, Stop: 21451, Start Num: 28

Candidate Starts for HannahD\_25:

(Start: 28 @21065 has 47 MA's), (Start: 30 @21074 has 1 MA's), (32, 21080), (34, 21098), (35, 21101), (50, 21203), (52, 21212), (57, 21236), (67, 21305), (68, 21308), (73, 21323), (74, 21326), (77, 21335), (85, 21434),

Gene: Jambalaya\_43 Start: 35588, Stop: 35977, Start Num: 28

Candidate Starts for Jambalaya\_43:

(Start: 28 @35588 has 47 MA's), (34, 35615), (35, 35618), (37, 35627), (43, 35660), (44, 35687), (47, 35702), (50, 35720), (52, 35729), (57, 35753), (66, 35819), (67, 35822), (68, 35825), (73, 35840), (74, 35843), (77, 35852), (83, 35915),

Gene: KimmyK\_44 Start: 36523, Stop: 36912, Start Num: 28

Candidate Starts for KimmyK\_44:

(Start: 28 @36523 has 47 MA's), (34, 36550), (35, 36553), (37, 36562), (43, 36595), (44, 36622), (47, 36637), (50, 36655), (52, 36664), (53, 36667), (57, 36688), (66, 36754), (67, 36757), (68, 36760), (73, 36775), (74, 36778), (77, 36787), (78, 36790), (83, 36850),

Gene: Lamberg\_22 Start: 18339, Stop: 18710, Start Num: 28

Candidate Starts for Lamberg\_22:

(Start: 28 @18339 has 47 MA's), (34, 18366), (35, 18369), (37, 18378), (44, 18438), (50, 18471), (52, 18480), (57, 18504), (67, 18573), (68, 18576), (74, 18594), (75, 18597), (77, 18603), (78, 18606), (83, 18666),

Gene: Lilas\_26 Start: 21682, Stop: 22062, Start Num: 28

Candidate Starts for Lilas\_26:

(Start: 28 @21682 has 47 MA's), (34, 21709), (35, 21712), (37, 21721), (43, 21754), (44, 21781), (50, 21814), (52, 21823), (57, 21847), (67, 21916), (68, 21919), (73, 21934), (74, 21937), (77, 21946), (83, 22009), (86, 22051),

Gene: Lozinak\_55 Start: 34287, Stop: 34742, Start Num: 13

Candidate Starts for Lozinak\_55:

(12, 34272), (Start: 13 @34287 has 31 MA's), (15, 34314), (20, 34341), (24, 34371), (27, 34386), (36, 34434), (37, 34440), (39, 34446), (47, 34515), (52, 34542), (55, 34554), (63, 34632), (70, 34665), (71, 34668), (78, 34689),

Gene: Lton\_22 Start: 18368, Stop: 18739, Start Num: 28

Candidate Starts for Lton\_22:

(Start: 28 @18368 has 47 MA's), (34, 18395), (35, 18398), (37, 18407), (44, 18467), (50, 18500), (52, 18509), (57, 18533), (67, 18602), (68, 18605), (74, 18623), (75, 18626), (77, 18632), (78, 18635), (83, 18695),

Gene: MagicMan\_25 Start: 21371, Stop: 21757, Start Num: 28

Candidate Starts for MagicMan\_25:

(Start: 28 @21371 has 47 MA's), (Start: 30 @21380 has 1 MA's), (32, 21386), (35, 21407), (50, 21509), (52, 21518), (57, 21542), (67, 21611), (68, 21614), (72, 21626), (73, 21629), (74, 21632), (77, 21641), (85, 21740),

Gene: Marteena\_26 Start: 21533, Stop: 21913, Start Num: 28

Candidate Starts for Marteena\_26:

(Start: 28 @21533 has 47 MA's), (34, 21560), (35, 21563), (37, 21572), (43, 21605), (44, 21632), (50, 21665), (52, 21674), (57, 21698), (67, 21767), (68, 21770), (73, 21785), (74, 21788), (77, 21797), (83, 21860), (86, 21902),

Gene: Matteo\_22 Start: 18276, Stop: 18656, Start Num: 28

Candidate Starts for Matteo\_22:

(Start: 28 @18276 has 47 MA's), (34, 18303), (35, 18306), (37, 18315), (43, 18348), (44, 18375), (50, 18408), (52, 18417), (57, 18441), (67, 18510), (68, 18513), (73, 18528), (74, 18531), (77, 18540), (83, 18603),

Gene: Miskis\_52 Start: 33592, Stop: 34047, Start Num: 13

Candidate Starts for Miskis\_52:

(12, 33577), (Start: 13 @33592 has 31 MA's), (15, 33619), (20, 33646), (24, 33676), (27, 33691), (36, 33739), (37, 33745), (39, 33751), (47, 33820), (52, 33847), (55, 33859), (63, 33937), (70, 33970), (71, 33973), (78, 33994),

Gene: Moosehead\_22 Start: 18289, Stop: 18654, Start Num: 28

Candidate Starts for Moosehead\_22:

(Start: 28 @18289 has 47 MA's), (Start: 30 @18298 has 1 MA's), (38, 18337), (44, 18394), (45, 18400), (62, 18502), (66, 18526), (67, 18529), (68, 18532), (73, 18547), (75, 18553), (77, 18559), (78, 18562),

Gene: Mutzi\_42 Start: 36730, Stop: 37164, Start Num: 13

Candidate Starts for Mutzi\_42:

(9, 36670), (10, 36694), (Start: 13 @36730 has 31 MA's), (23, 36805), (29, 36835), (34, 36868), (38, 36883), (39, 36886), (55, 36994), (61, 37042), (71, 37087), (73, 37093), (76, 37102),

Gene: Nettuno\_22 Start: 18342, Stop: 18710, Start Num: 28

Candidate Starts for Nettuno\_22:

(Start: 28 @18342 has 47 MA's), (34, 18369), (35, 18372), (37, 18381), (43, 18414), (44, 18441), (50, 18474), (52, 18483), (57, 18507), (67, 18576), (68, 18579), (73, 18594), (74, 18597), (77, 18606), (83, 18669),

Gene: Norvs\_55 Start: 33831, Stop: 34286, Start Num: 13

Candidate Starts for Norvs\_55:

(12, 33816), (Start: 13 @33831 has 31 MA's), (15, 33858), (20, 33885), (24, 33915), (27, 33930), (36, 33978), (37, 33984), (39, 33990), (47, 34059), (52, 34086), (55, 34098), (63, 34176), (70, 34209), (71, 34212), (78, 34233),

Gene: Nubi\_43 Start: 35875, Stop: 36309, Start Num: 13

Candidate Starts for Nubi\_43:

(9, 35815), (10, 35839), (Start: 13 @35875 has 31 MA's), (23, 35950), (29, 35980), (34, 36013), (38, 36028), (39, 36031), (55, 36139), (61, 36187), (63, 36196), (71, 36232), (73, 36238), (76, 36247),

Gene: OneDirection\_21 Start: 18308, Stop: 18682, Start Num: 28

Candidate Starts for OneDirection\_21:

(7, 18086), (8, 18116), (Start: 28 @18308 has 47 MA's), (31, 18320), (32, 18323), (35, 18344), (36, 18347), (38, 18356), (43, 18386), (48, 18440), (55, 18467), (57, 18479), (68, 18551), (70, 18557),

Gene: Opie\_25 Start: 21395, Stop: 21781, Start Num: 28

Candidate Starts for Opie\_25:

(Start: 28 @21395 has 47 MA's), (Start: 30 @21404 has 1 MA's), (32, 21410), (34, 21428), (35, 21431), (50, 21533), (51, 21539), (52, 21542), (57, 21566), (66, 21632), (67, 21635), (68, 21638), (72, 21650), (73, 21653), (74, 21656), (77, 21665), (85, 21764),

Gene: Pepperoni\_23 Start: 19151, Stop: 19531, Start Num: 28

Candidate Starts for Pepperoni\_23:

(Start: 28 @19151 has 47 MA's), (34, 19178), (35, 19181), (37, 19190), (43, 19223), (44, 19250), (50, 19283), (52, 19292), (57, 19316), (67, 19385), (68, 19388), (74, 19406), (75, 19409), (77, 19415), (78, 19418), (83, 19478),

Gene: PhinkBoden\_54 Start: 34212, Stop: 34667, Start Num: 13

Candidate Starts for PhinkBoden\_54:

(12, 34197), (Start: 13 @34212 has 31 MA's), (15, 34239), (20, 34266), (24, 34296), (27, 34311), (36, 34359), (37, 34365), (39, 34371), (47, 34440), (52, 34467), (55, 34479), (63, 34557), (70, 34590), (71, 34593), (78, 34614),

Gene: Phlop\_42 Start: 35956, Stop: 36390, Start Num: 13

Candidate Starts for Phlop\_42:

(9, 35896), (10, 35920), (Start: 13 @35956 has 31 MA's), (23, 36031), (29, 36061), (34, 36094), (38, 36109), (39, 36112), (55, 36220), (61, 36268), (63, 36277), (71, 36313), (73, 36319), (76, 36328),

Gene: Pickett\_22 Start: 18266, Stop: 18634, Start Num: 28

Candidate Starts for Pickett\_22:

(Start: 28 @18266 has 47 MA's), (34, 18293), (35, 18296), (37, 18305), (43, 18338), (44, 18365), (50, 18398), (52, 18407), (57, 18431), (67, 18500), (68, 18503), (73, 18518), (74, 18521), (77, 18530), (83, 18593),

Gene: PinkCoffee\_45 Start: 36059, Stop: 36493, Start Num: 13

Candidate Starts for PinkCoffee\_45:

(9, 35999), (10, 36023), (Start: 13 @36059 has 31 MA's), (23, 36134), (29, 36164), (34, 36197), (38, 36212), (39, 36215), (55, 36323), (61, 36371), (63, 36380), (71, 36416), (73, 36422), (76, 36431),

Gene: Pollux\_26 Start: 21533, Stop: 21913, Start Num: 28

Candidate Starts for Pollux\_26:

(Start: 28 @21533 has 47 MA's), (34, 21560), (35, 21563), (37, 21572), (43, 21605), (44, 21632), (50, 21665), (52, 21674), (57, 21698), (67, 21767), (68, 21770), (73, 21785), (74, 21788), (77, 21797), (83, 21860), (86, 21902),

Gene: Portcullis\_44 Start: 35309, Stop: 35698, Start Num: 28

Candidate Starts for Portcullis\_44:

(Start: 28 @35309 has 47 MA's), (34, 35336), (35, 35339), (37, 35348), (43, 35381), (44, 35408), (47, 35423), (50, 35441), (52, 35450), (57, 35474), (66, 35540), (67, 35543), (68, 35546), (73, 35561), (74, 35564), (77, 35573), (83, 35636),

Gene: PrincePatrick\_24 Start: 21182, Stop: 21556, Start Num: 28

Candidate Starts for PrincePatrick\_24:

(Start: 28 @21182 has 47 MA's), (35, 21218), (48, 21314), (49, 21317), (57, 21353), (69, 21428), (70, 21431), (74, 21443),

Gene: PullumCavea\_42 Start: 35956, Stop: 36390, Start Num: 13

Candidate Starts for PullumCavea\_42:

(9, 35896), (10, 35920), (Start: 13 @35956 has 31 MA's), (23, 36031), (29, 36061), (34, 36094), (38, 36109), (39, 36112), (55, 36220), (61, 36268), (63, 36277), (71, 36313), (73, 36319), (76, 36328),

Gene: RayTheFireFly\_26 Start: 22130, Stop: 22573, Start Num: 11

Candidate Starts for RayTheFireFly\_26:

(1, 21734), (2, 21785), (5, 21920), (6, 21941), (10, 22118), (Start: 11 @22130 has 4 MA's), (14, 22178), (17, 22202), (22, 22229), (23, 22232), (24, 22238), (29, 22262), (32, 22274), (46, 22376), (49, 22397), (50, 22400), (52, 22409), (53, 22412), (56, 22427), (71, 22514),

Gene: RogerDodger\_46 Start: 36138, Stop: 36527, Start Num: 28

Candidate Starts for RogerDodger\_46:

(Start: 28 @36138 has 47 MA's), (34, 36165), (35, 36168), (37, 36177), (43, 36210), (44, 36237), (47, 36252), (50, 36270), (52, 36279), (53, 36282), (57, 36303), (66, 36369), (67, 36372), (68, 36375), (73, 36390), (74, 36393), (77, 36402), (78, 36405), (83, 36465),

Gene: Salvador\_42 Start: 35807, Stop: 36196, Start Num: 28

Candidate Starts for Salvador\_42:

(Start: 28 @35807 has 47 MA's), (34, 35834), (35, 35837), (37, 35846), (43, 35879), (44, 35906), (47, 35921), (50, 35939), (52, 35948), (57, 35972), (66, 36038), (67, 36041), (68, 36044), (73, 36059), (74, 36062), (77, 36071), (83, 36134),

Gene: Savbucketdawg\_43 Start: 35588, Stop: 35977, Start Num: 28

Candidate Starts for Savbucketdawg\_43:

(Start: 28 @35588 has 47 MA's), (34, 35615), (35, 35618), (37, 35627), (43, 35660), (44, 35687), (47, 35702), (50, 35720), (52, 35729), (57, 35753), (66, 35819), (67, 35822), (68, 35825), (73, 35840), (74, 35843), (77, 35852), (83, 35915),

Gene: Schnabeltier\_25 Start: 21381, Stop: 21758, Start Num: 30

Candidate Starts for Schnabeltier\_25:

(Start: 28 @21372 has 47 MA's), (Start: 30 @21381 has 1 MA's), (32, 21387), (35, 21408), (50, 21510), (52, 21519), (57, 21543), (67, 21612), (68, 21615), (72, 21627), (73, 21630), (74, 21633), (77, 21642), (85, 21741),

Gene: Shinji\_43 Start: 35312, Stop: 35746, Start Num: 13

Candidate Starts for Shinji\_43:

(9, 35252), (10, 35276), (Start: 13 @35312 has 31 MA's), (14, 35333), (17, 35357), (18, 35360), (23, 35387), (29, 35417), (38, 35465), (39, 35468), (41, 35474), (50, 35555), (55, 35576), (58, 35591), (61, 35624), (71, 35669), (73, 35675), (76, 35684), (82, 35723),

Gene: SmokingBunny\_43 Start: 35861, Stop: 36295, Start Num: 13

Candidate Starts for SmokingBunny\_43:

(9, 35801), (10, 35825), (Start: 13 @35861 has 31 MA's), (23, 35936), (29, 35966), (34, 35999), (38, 36014), (39, 36017), (55, 36125), (61, 36173), (63, 36182), (71, 36218), (73, 36224), (76, 36233),

Gene: Smoothie\_56 Start: 34287, Stop: 34742, Start Num: 13

Candidate Starts for Smoothie\_56:

(12, 34272), (Start: 13 @34287 has 31 MA's), (15, 34314), (20, 34341), (24, 34371), (27, 34386), (36, 34434), (37, 34440), (39, 34446), (47, 34515), (52, 34542), (55, 34554), (63, 34632), (70, 34665), (71, 34668), (78, 34689),

Gene: TaronosaurusRx\_25 Start: 21403, Stop: 21789, Start Num: 28

Candidate Starts for TaronosaurusRx\_25:

(Start: 28 @21403 has 47 MA's), (Start: 30 @21412 has 1 MA's), (32, 21418), (38, 21451), (41, 21460), (50, 21541), (52, 21550), (57, 21574), (67, 21643), (68, 21646), (73, 21661), (74, 21664), (77, 21673), (78, 21676), (85, 21772),

Gene: TillyBobJoe\_43 Start: 35665, Stop: 36099, Start Num: 13

Candidate Starts for TillyBobJoe\_43:

(9, 35605), (10, 35629), (Start: 13 @35665 has 31 MA's), (23, 35740), (29, 35770), (34, 35803), (38, 35818), (39, 35821), (55, 35929), (61, 35977), (63, 35986), (71, 36022), (73, 36028), (76, 36037),

Gene: TinyDot\_24 Start: 18787, Stop: 19161, Start Num: 28

Candidate Starts for TinyDot\_24:

(7, 18565), (8, 18595), (Start: 28 @18787 has 47 MA's), (31, 18799), (32, 18802), (35, 18823), (36, 18826), (48, 18919), (54, 18940), (55, 18946), (57, 18958), (68, 19030), (70, 19036), (73, 19045), (74, 19048), (83, 19120), (84, 19135),

Gene: Togo\_42 Start: 35861, Stop: 36295, Start Num: 13

Candidate Starts for Togo\_42:

(9, 35801), (10, 35825), (Start: 13 @35861 has 31 MA's), (23, 35936), (29, 35966), (34, 35999), (38, 36014), (39, 36017), (55, 36125), (61, 36173), (63, 36182), (71, 36218), (73, 36224), (76, 36233),

Gene: Toniann\_54 Start: 33774, Stop: 34229, Start Num: 13

Candidate Starts for Toniann\_54:

(12, 33759), (Start: 13 @33774 has 31 MA's), (15, 33801), (20, 33828), (24, 33858), (27, 33873), (36, 33921), (37, 33927), (39, 33933), (47, 34002), (52, 34029), (55, 34041), (63, 34119), (70, 34152), (71, 34155), (78, 34176),

Gene: Twister6\_45 Start: 35701, Stop: 36090, Start Num: 28

Candidate Starts for Twister6\_45:

(Start: 28 @35701 has 47 MA's), (34, 35728), (35, 35731), (37, 35740), (43, 35773), (44, 35800), (47, 35815), (50, 35833), (52, 35842), (57, 35866), (66, 35932), (67, 35935), (68, 35938), (73, 35953), (74, 35956), (77, 35965), (83, 36028),

Gene: Valary\_45 Start: 36743, Stop: 37132, Start Num: 28

Candidate Starts for Valary\_45:

(Start: 28 @36743 has 47 MA's), (34, 36770), (35, 36773), (37, 36782), (43, 36815), (44, 36842), (47, 36857), (50, 36875), (52, 36884), (53, 36887), (57, 36908), (66, 36974), (67, 36977), (68, 36980), (73, 36995), (74, 36998), (77, 37007), (78, 37010), (83, 37070),

Gene: VanDeWege\_46 Start: 36035, Stop: 36424, Start Num: 28

Candidate Starts for VanDeWege\_46:

(Start: 28 @36035 has 47 MA's), (34, 36062), (35, 36065), (37, 36074), (43, 36107), (44, 36134), (47, 36149), (50, 36167), (52, 36176), (53, 36179), (57, 36200), (66, 36266), (67, 36269), (68, 36272), (73, 36287), (74, 36290), (77, 36299), (78, 36302), (83, 36362),

Gene: William\_25 Start: 20929, Stop: 21303, Start Num: 28

Candidate Starts for William\_25:

(Start: 28 @20929 has 47 MA's), (35, 20965), (48, 21061), (49, 21064), (57, 21100), (69, 21175), (70, 21178), (74, 21190),

Gene: WilliamBoone\_54 Start: 33126, Stop: 33575, Start Num: 13

Candidate Starts for WilliamBoone\_54:

(12, 33111), (Start: 13 @33126 has 31 MA's), (20, 33174), (24, 33204), (26, 33216), (33, 33252), (36, 33267), (47, 33348), (48, 33360), (60, 33432), (63, 33465), (71, 33501), (78, 33522),

Gene: Wizard\_42 Start: 35941, Stop: 36330, Start Num: 28

Candidate Starts for Wizard\_42:

(Start: 28 @35941 has 47 MA's), (34, 35968), (35, 35971), (37, 35980), (43, 36013), (44, 36040), (47, 36055), (50, 36073), (52, 36082), (53, 36085), (57, 36106), (66, 36172), (67, 36175), (68, 36178), (73, 36193), (74, 36196), (77, 36205), (78, 36208), (83, 36268),

Gene: YungMoney\_46 Start: 38304, Stop: 38738, Start Num: 13

Candidate Starts for YungMoney\_46:

(9, 38244), (10, 38268), (Start: 13 @38304 has 31 MA's), (14, 38325), (17, 38349), (18, 38352), (21, 38364), (23, 38379), (25, 38388), (29, 38409), (38, 38457), (39, 38460), (41, 38466), (50, 38547), (55, 38568), (58, 38583), (61, 38616), (71, 38661), (73, 38667), (76, 38676), (82, 38715),

Gene: ZAYM\_26 Start: 21872, Stop: 22258, Start Num: 28

Candidate Starts for ZAYM\_26:

(Start: 28 @21872 has 47 MA's), (Start: 30 @21881 has 1 MA's), (32, 21887), (38, 21920), (41, 21929), (44, 21977), (50, 22010), (52, 22019), (57, 22043), (67, 22112), (68, 22115), (73, 22130), (74, 22133), (77, 22142), (78, 22145), (85, 22241),