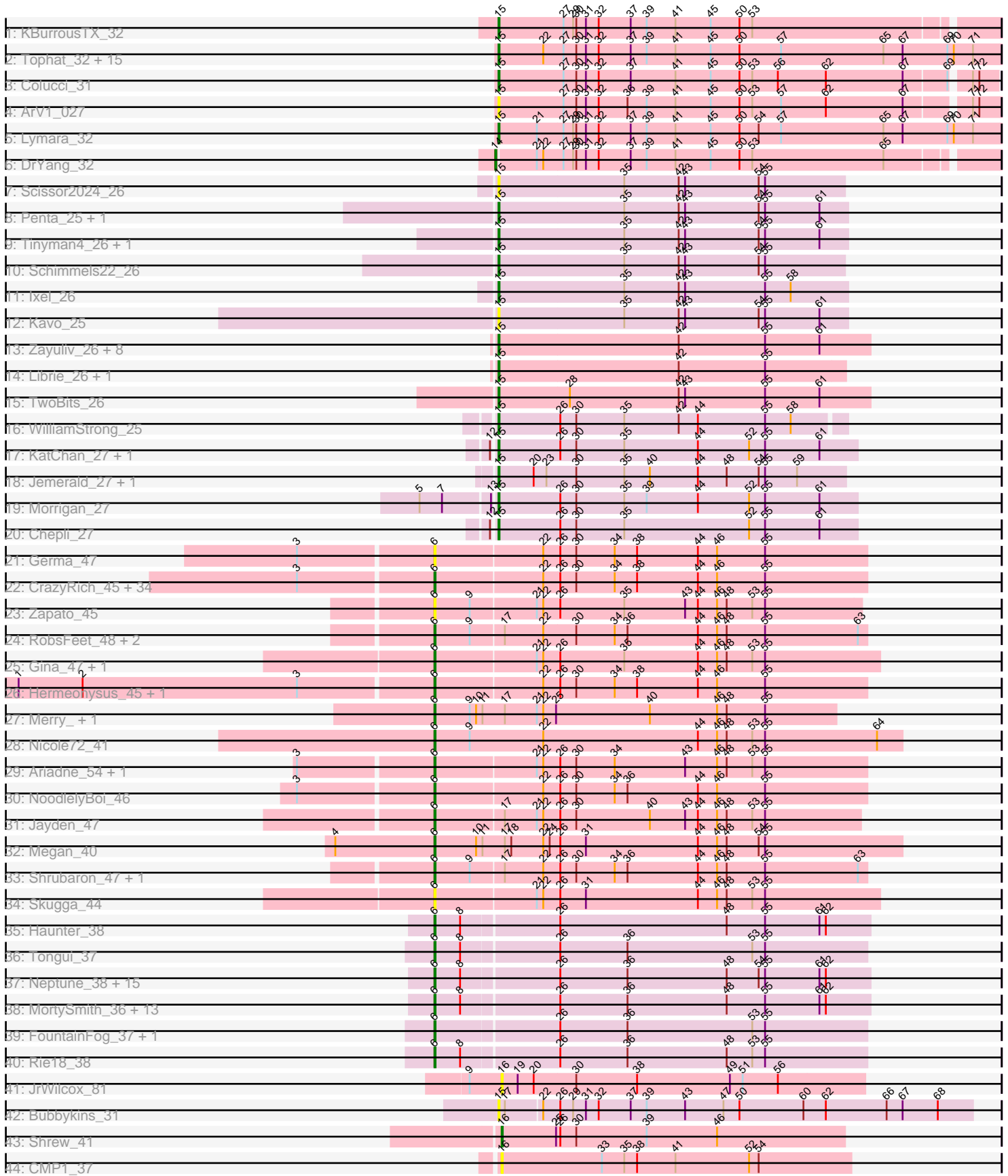


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Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. 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 296328 Report

This analysis was run 04/25/26 on database version 644.

Pham number 296328 has 142 members, 19 are drafts.

Phages represented in each track:

- Track 1 : KBurroustX\_32
- Track 2 : Tophat\_32, PrincessTrina\_32, Kabreeze\_32, Chipper1996\_320, Chubster\_32, EdgarPoe\_32, Mordred\_32, Conboy\_32, JaNo\_32, Linus\_32, RosiePosie\_32, HumptyDumpty\_32, Chocolat\_32, Scavito\_32, JayCookie\_32, MoyaNatalis\_32
- Track 3 : Colucci\_31
- Track 4 : ArV1\_027
- Track 5 : Lymara\_32
- Track 6 : DrYang\_32
- Track 7 : Scissor2024\_26
- Track 8 : Penta\_25, WestPM\_25
- Track 9 : Tinyman4\_26, HerculesXL\_26
- Track 10 : Schimmels22\_26
- Track 11 : Ixel\_26
- Track 12 : Kavo\_25
- Track 13 : Zayuliv\_26, LilTerminator\_26, Zepp\_27, QuadZero\_26, Fulton\_26, Greenlvy\_26, Wardwill\_28, BaronJohn\_27, Hasitha\_26
- Track 14 : Librie\_26, CaptainRex\_26
- Track 15 : TwoBits\_26
- Track 16 : WilliamStrong\_25
- Track 17 : KatChan\_27, Luna18\_27
- Track 18 : Jemerald\_27, Juicer\_27
- Track 19 : Morrigan\_27
- Track 20 : Chepli\_27
- Track 21 : Germa\_47
- Track 22 : CrazyRich\_45, EarickHC\_46, Selwyn23\_47, Lucretia\_46, Ramiel05\_45, SirFrank\_45, Glorp\_47, Ganandorf\_45, Honeyfin\_47, Kowalski\_45, Busephilis\_45, PierreOrion\_46, Jefe\_46, BeagleBug\_45, Piperis\_46, Cranjis\_47, Antares\_46, KaiHaiDragon\_46, Crisis\_47, Phorgeous\_45, Quhwah\_49, Onika\_45, Phrancesco\_46, Shotgun\_45, BrazzalePHS\_45, Rockwell\_45, PhedwardCullen\_45, Paschalis\_45, Savannah\_45, Scumberland\_47, ClearAsMud\_48, Yeti\_46, Jollipop\_46, LittleFortune\_47, PiperSansNom\_46
- Track 23 : Zapato\_45
- Track 24 : RobsFeet\_48, Tyumbra\_45, Fireman\_47
- Track 25 : Gina\_47, Teamocil\_47
- Track 26 : Hermeonysus\_45, Pulchra\_47
- Track 27 : Merry\_, Sunny\_

- Track 28 : Nicole72\_41
- Track 29 : Ariadne\_54, Smarties\_54
- Track 30 : NoodlelyBoi\_46
- Track 31 : Jayden\_47
- Track 32 : Megan\_40
- Track 33 : Shrubaron\_47, Metamorphoo\_47
- Track 34 : Skugga\_44
- Track 35 : Haunter\_38
- Track 36 : Tongui\_37
- Track 37 : Neptune\_38, Pharpay\_38, Snakehole\_38, CoolCookie\_38, Anakin\_38, OverHedge\_38, Rachella\_38, PhunaPhoke\_38, AnnaSerena\_38, Potty\_38, Tedro\_38, Artiphact\_38, Cybele\_38, NarutoRun\_38, Krampus\_38, Gilda\_38
- Track 38 : MortySmith\_36, DannyDe\_37, Poultruss\_37, Kate\_38, Hiddenleaf\_37, Crestdrop\_37, SilentWarrior\_37, OhDear\_38, JingleBells\_37, FreddieHg\_37, Aesir\_37, Annapurna\_37, JDawG\_37, Chivey\_37
- Track 39 : FountainFog\_37, Karate\_37
- Track 40 : Rie18\_38
- Track 41 : JrWilcox\_81
- Track 42 : Bubbykins\_31
- Track 43 : Shrew\_41
- Track 44 : CMP1\_37

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

The start number called the most often in the published annotations is 6, it was called in 80 of the 123 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aesir\_37, Anakin\_38, AnnaSerena\_38, Annapurna\_37, Antares\_46, Ariadne\_54, Artiphact\_38, BeagleBug\_45, BrazzalePHS\_45, Busephilis\_45, Chivey\_37, ClearAsMud\_48, CoolCookie\_38, Cranjis\_47, CrazyRich\_45, Crestdrop\_37, Crisis\_47, Cybele\_38, DannyDe\_37, EarickHC\_46, Fireman\_47, FountainFog\_37, FreddieHg\_37, Ganandorf\_45, Germa\_47, Gilda\_38, Gina\_47, Glorp\_47, Haunter\_38, Hermeonysus\_45, Hiddenleaf\_37, Honeyfin\_47, JDawG\_37, Jayden\_47, Jefe\_46, JingleBells\_37, Jollipop\_46, KaiHaiDragon\_46, Karate\_37, Kate\_38, Kowalski\_45, Krampus\_38, LittleFortune\_47, Lucretia\_46, Megan\_40, Merry\_, Metamorphoo\_47, MortySmith\_36, NarutoRun\_38, Neptune\_38, Nicole72\_41, NoodlelyBoi\_46, OhDear\_38, Onika\_45, OverHedge\_38, Paschalis\_45, Pharpay\_38, PhedwardCullen\_45, Phorgeous\_45, Phrancesco\_46, PhunaPhoke\_38, PierreOrion\_46, PiperSansNom\_46, Piperis\_46, Potty\_38, Poultruss\_37, Pulchra\_47, Quhwah\_49, Rachella\_38, Ramiel05\_45, Rie18\_38, RobsFeet\_48, Rockwell\_45, Savannah\_45, Scumberland\_47, Selwyn23\_47, Shotgun\_45, Shrubaron\_47, SilentWarrior\_37, SirFrank\_45, Skugga\_44, Smarties\_54, Snakehole\_38, Sunny\_, Teamocil\_47, Tedro\_38, Tongui\_37, Tyrumbra\_45, Yeti\_46, Zapato\_45,

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

- 

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

- ArV1\_027, BaronJohn\_27, Bubbykins\_31, CMP1\_37, CaptainRex\_26, Chepli\_27, Chipper1996\_320, Chocolat\_32, Chubster\_32, Colucci\_31, Conboy\_32, DrYang\_32, EdgarPoe\_32, Fulton\_26, GreenIvy\_26, Hasitha\_26, HerculesXL\_26, HumptyDumpty\_32, Ixel\_26, JaNo\_32, JayCookie\_32, Jemerald\_27, JrWilcox\_81, Juicer\_27, KBurrousTX\_32, Kabreeze\_32, KatChan\_27, Kavo\_25, Librie\_26, LilTerminator\_26, Linus\_32, Luna18\_27, Lymara\_32, Mordred\_32, Morrigan\_27, MoyaNatalis\_32, Penta\_25, PrincessTrina\_32, QuadZero\_26, RosiePosie\_32, Scavito\_32, Schimmels22\_26, Scissor2024\_26, Shrew\_41, Tinyman4\_26, Tophat\_32, TwoBits\_26, Wardwill\_28, WestPM\_25, WilliamStrong\_25, Zayuliv\_26, Zepp\_27,

### Summary by start number:

#### Start 6:

- Found in 90 of 142 ( 63.4% ) of genes in pham
- Manual Annotations of this start: 80 of 123
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aesir\_37 (EF), Anakin\_38 (EF), AnnaSerena\_38 (EF), Annapurna\_37 (EF), Antares\_46 (EC), Ariadne\_54 (EC), Artiphact\_38 (EF), BeagleBug\_45 (EC), BrazzalePHS\_45 (EC), Busephilis\_45 (EC), Chivey\_37 (EF), ClearAsMud\_48 (EC), CoolCookie\_38 (EF), Cranjjs\_47 (EC), CrazyRich\_45 (EC), Crestdrop\_37 (EF), Crisis\_47 (EC), Cybele\_38 (EF), DannyDe\_37 (EF), EarickHC\_46 (EC), Fireman\_47 (EC), FountainFog\_37 (EF), FreddieHg\_37 (EF), Ganandorf\_45 (EC), Germa\_47 (EC), Gilda\_38 (EF), Gina\_47 (EC), Glorp\_47 (EC), Haunter\_38 (EF), Hermeonysus\_45 (EC), Hiddenleaf\_37 (EF), Honeyfin\_47 (EC), JDawG\_37 (EF), Jayden\_47 (EC), Jefe\_46 (EC), JingleBells\_37 (EF), Jollipop\_46 (EC), KaiHaiDragon\_46 (EC), Karate\_37 (EF), Kate\_38 (EF), Kowalski\_45 (EC), Krampus\_38 (EF), LittleFortune\_47 (EC), Lucretia\_46 (EC), Megan\_40 (EC), Merry\_ (EC), Metamorphoo\_47 (EC), MortySmith\_36 (EF), NarutoRun\_38 (EF), Neptune\_38 (EF), Nicole72\_41 (EC), NoodlelyBoi\_46 (EC), OhDear\_38 (EF), Onika\_45 (EC), OverHedge\_38 (EF), Paschalis\_45 (EC), Pharpay\_38 (EF), PhedwardCullen\_45 (EC), Phorgeous\_45 (EC), Phrancesco\_46 (EC), PhunaPhoke\_38 (EF), PierreOrion\_46 (EC), PiperSansNom\_46 (EC), Piperis\_46 (EC), Potty\_38 (EF), Poultruss\_37 (EF), Pulchra\_47 (EC), Quhwah\_49 (EC), Rachella\_38 (EF), Ramiel05\_45 (EC), Rie18\_38 (EF), RobsFeet\_48 (EC), Rockwell\_45 (EC), Savannah\_45 (EC), Scumberland\_47 (EC), Selwyn23\_47 (EC), Shotgun\_45 (EC), Shrubaron\_47 (EC), SilentWarrior\_37 (EF), SirFrank\_45 (EC), Skugga\_44 (EC), Smarties\_54 (EC), Snakehole\_38 (EF), Sunny\_ (EC), Teamocil\_47 (EC), Tedro\_38 (EF), Tongui\_37 (EF), Tyumbra\_45 (EC), Yeti\_46 (EC), Zapato\_45 (EC),

#### Start 14:

- Found in 1 of 142 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DrYang\_32 (AR),

#### Start 15:

- Found in 48 of 142 ( 33.8% ) of genes in pham
- Manual Annotations of this start: 41 of 123
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ArV1\_027 (AR), BaronJohn\_27 (EA5), Bubbykins\_31 (UNK), CaptainRex\_26 (EA5), Chepli\_27 (EA6), Chipper1996\_320

(AR), Chocolat\_32 (AR), Chubster\_32 (AR), Colucci\_31 (AR), Conboy\_32 (AR), EdgarPoe\_32 (AR), Fulton\_26 (EA5), Greenlvy\_26 (EA5), Hasitha\_26 (EA5), HerculesXL\_26 (EA11), HumptyDumpty\_32 (AR), Ixel\_26 (EA11), JaNo\_32 (AR), JayCookie\_32 (AR), Jemerald\_27 (EA6), Juicer\_27 (EA6), KBurrousTX\_32 (AR), Kabreeze\_32 (AR), KatChan\_27 (EA6), Kavo\_25 (EA11), Librie\_26 (EA5), LilTerminator\_26 (EA5), Linus\_32 (AR), Luna18\_27 (EA6), Lymara\_32 (AR), Mordred\_32 (AR), Morrigan\_27 (EA6), MoyaNatalis\_32 (AR), Penta\_25 (EA11), PrincessTrina\_32 (AR), QuadZero\_26 (EA5), RosiePosie\_32 (AR), Scavito\_32 (AR), Schimmels22\_26 (EA11), Scissor2024\_26 (EA11), Tinyman4\_26 (EA11), Tophat\_32 (AR), TwoBits\_26 (EA5), Wardwill\_28 (EA5), WestPM\_25 (EA11), WilliamStrong\_25 (EA6), Zayuliv\_26 (EA5), Zepp\_27 (EA5),

Start 16:

- Found in 3 of 142 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CMP1\_37 (singleton), JrWilcox\_81 (GL), Shrew\_41 (singleton),

### **Summary by clusters:**

There are 9 clusters represented in this pham: singleton, UNK, EA11, EF, EC, AR, GL, EA5, EA6,

Info for manual annotations of cluster AR:

- Start number 14 was manually annotated 1 time for cluster AR.
- Start number 15 was manually annotated 18 times for cluster AR.

Info for manual annotations of cluster EA11:

- Start number 15 was manually annotated 5 times for cluster EA11.

Info for manual annotations of cluster EA5:

- Start number 15 was manually annotated 11 times for cluster EA5.

Info for manual annotations of cluster EA6:

- Start number 15 was manually annotated 7 times for cluster EA6.

Info for manual annotations of cluster EC:

- Start number 6 was manually annotated 48 times for cluster EC.

Info for manual annotations of cluster EF:

- Start number 6 was manually annotated 32 times for cluster EF.

### **Gene Information:**

Gene: Aesir\_37 Start: 24476, Stop: 24877, Start Num: 6

Candidate Starts for Aesir\_37:

(Start: 6 @24476 has 80 MA's), (8, 24500), (26, 24587), (36, 24650), (48, 24743), (55, 24779), (61, 24830), (62, 24836),

Gene: Anakin\_38 Start: 24796, Stop: 25197, Start Num: 6

Candidate Starts for Anakin\_38:

(Start: 6 @24796 has 80 MA's), (8, 24820), (26, 24907), (36, 24970), (48, 25063), (54, 25093), (55, 25099), (61, 25150), (62, 25156),

Gene: AnnaSerena\_38 Start: 24831, Stop: 25232, Start Num: 6

Candidate Starts for AnnaSerena\_38:

(Start: 6 @24831 has 80 MA's), (8, 24855), (26, 24942), (36, 25005), (48, 25098), (54, 25128), (55, 25134), (61, 25185), (62, 25191),

Gene: Annapurna\_37 Start: 23938, Stop: 24339, Start Num: 6

Candidate Starts for Annapurna\_37:

(Start: 6 @23938 has 80 MA's), (8, 23962), (26, 24049), (36, 24112), (48, 24205), (55, 24241), (61, 24292), (62, 24298),

Gene: Antares\_46 Start: 32014, Stop: 32415, Start Num: 6

Candidate Starts for Antares\_46:

(3, 31891), (Start: 6 @32014 has 80 MA's), (22, 32113), (26, 32128), (30, 32143), (34, 32179), (38, 32200), (44, 32257), (46, 32275), (55, 32320),

Gene: ArV1\_027 Start: 26868, Stop: 27326, Start Num: 15

Candidate Starts for ArV1\_027:

(Start: 15 @26868 has 41 MA's), (27, 26928), (30, 26940), (31, 26949), (32, 26961), (36, 26988), (39, 27006), (41, 27033), (45, 27066), (50, 27093), (53, 27105), (57, 27132), (62, 27174), (67, 27246), (71, 27300), (72, 27306),

Gene: Ariadne\_54 Start: 33634, Stop: 34035, Start Num: 6

Candidate Starts for Ariadne\_54:

(3, 33511), (Start: 6 @33634 has 80 MA's), (21, 33727), (22, 33733), (26, 33748), (30, 33763), (34, 33799), (43, 33865), (46, 33895), (48, 33904), (53, 33928), (55, 33940),

Gene: Artiphact\_38 Start: 24820, Stop: 25221, Start Num: 6

Candidate Starts for Artiphact\_38:

(Start: 6 @24820 has 80 MA's), (8, 24844), (26, 24931), (36, 24994), (48, 25087), (54, 25117), (55, 25123), (61, 25174), (62, 25180),

Gene: BaronJohn\_27 Start: 19174, Stop: 19521, Start Num: 15

Candidate Starts for BaronJohn\_27:

(Start: 15 @19174 has 41 MA's), (42, 19342), (55, 19423), (61, 19474),

Gene: BeagleBug\_45 Start: 31795, Stop: 32196, Start Num: 6

Candidate Starts for BeagleBug\_45:

(3, 31672), (Start: 6 @31795 has 80 MA's), (22, 31894), (26, 31909), (30, 31924), (34, 31960), (38, 31981), (44, 32038), (46, 32056), (55, 32101),

Gene: BrazzalePHS\_45 Start: 31809, Stop: 32210, Start Num: 6

Candidate Starts for BrazzalePHS\_45:

(3, 31686), (Start: 6 @31809 has 80 MA's), (22, 31908), (26, 31923), (30, 31938), (34, 31974), (38, 31995), (44, 32052), (46, 32070), (55, 32115),

Gene: Bubbykins\_31 Start: 25825, Stop: 26265, Start Num: 15

Candidate Starts for Bubbykins\_31:

(Start: 15 @25825 has 41 MA's), (17, 25831), (22, 25864), (26, 25879), (29, 25891), (31, 25903), (32, 25915), (37, 25945), (39, 25960), (43, 25996), (47, 26032), (50, 26047), (60, 26107), (62, 26128), (66, 26185), (67, 26200), (68, 26233),

Gene: Busephilis\_45 Start: 31750, Stop: 32151, Start Num: 6

Candidate Starts for Busephilis\_45:

(3, 31627), (Start: 6 @31750 has 80 MA's), (22, 31849), (26, 31864), (30, 31879), (34, 31915), (38, 31936), (44, 31993), (46, 32011), (55, 32056),

Gene: CMP1\_37 Start: 36378, Stop: 36704, Start Num: 16

Candidate Starts for CMP1\_37:

(Start: 16 @36378 has 1 MA's), (33, 36471), (35, 36492), (38, 36504), (41, 36540), (52, 36609), (54, 36618),

Gene: CaptainRex\_26 Start: 18608, Stop: 18931, Start Num: 15

Candidate Starts for CaptainRex\_26:

(Start: 15 @18608 has 41 MA's), (42, 18776), (55, 18857),

Gene: Chepli\_27 Start: 19263, Stop: 19598, Start Num: 15

Candidate Starts for Chepli\_27:

(12, 19260), (Start: 15 @19263 has 41 MA's), (26, 19320), (30, 19335), (35, 19380), (52, 19497), (55, 19512), (61, 19563),

Gene: Chipper1996\_320 Start: 28217, Stop: 28687, Start Num: 15

Candidate Starts for Chipper1996\_320:

(Start: 15 @28217 has 41 MA's), (22, 28259), (27, 28277), (30, 28289), (31, 28298), (32, 28310), (37, 28340), (39, 28355), (41, 28382), (45, 28415), (50, 28442), (57, 28481), (65, 28577), (67, 28595), (69, 28637), (70, 28643), (71, 28661),

Gene: Chivey\_37 Start: 23887, Stop: 24288, Start Num: 6

Candidate Starts for Chivey\_37:

(Start: 6 @23887 has 80 MA's), (8, 23911), (26, 23998), (36, 24061), (48, 24154), (55, 24190), (61, 24241), (62, 24247),

Gene: Chocolat\_32 Start: 28217, Stop: 28687, Start Num: 15

Candidate Starts for Chocolat\_32:

(Start: 15 @28217 has 41 MA's), (22, 28259), (27, 28277), (30, 28289), (31, 28298), (32, 28310), (37, 28340), (39, 28355), (41, 28382), (45, 28415), (50, 28442), (57, 28481), (65, 28577), (67, 28595), (69, 28637), (70, 28643), (71, 28661),

Gene: Chubster\_32 Start: 27988, Stop: 28458, Start Num: 15

Candidate Starts for Chubster\_32:

(Start: 15 @27988 has 41 MA's), (22, 28030), (27, 28048), (30, 28060), (31, 28069), (32, 28081), (37, 28111), (39, 28126), (41, 28153), (45, 28186), (50, 28213), (57, 28252), (65, 28348), (67, 28366), (69, 28408), (70, 28414), (71, 28432),

Gene: ClearAsMud\_48 Start: 31890, Stop: 32291, Start Num: 6

Candidate Starts for ClearAsMud\_48:

(3, 31767), (Start: 6 @31890 has 80 MA's), (22, 31989), (26, 32004), (30, 32019), (34, 32055), (38, 32076), (44, 32133), (46, 32151), (55, 32196),

Gene: Colucci\_31 Start: 27686, Stop: 28141, Start Num: 15

Candidate Starts for Colucci\_31:

(Start: 15 @27686 has 41 MA's), (27, 27746), (30, 27758), (31, 27767), (32, 27779), (37, 27809), (41, 27851), (45, 27884), (50, 27911), (53, 27923), (56, 27947), (62, 27992), (67, 28064), (69, 28103), (71, 28118), (72, 28124),

Gene: Conboy\_32 Start: 28216, Stop: 28686, Start Num: 15

Candidate Starts for Conboy\_32:

(Start: 15 @28216 has 41 MA's), (22, 28258), (27, 28276), (30, 28288), (31, 28297), (32, 28309), (37, 28339), (39, 28354), (41, 28381), (45, 28414), (50, 28441), (57, 28480), (65, 28576), (67, 28594), (69, 28636), (70, 28642), (71, 28660),

Gene: CoolCookie\_38 Start: 24826, Stop: 25227, Start Num: 6

Candidate Starts for CoolCookie\_38:

(Start: 6 @24826 has 80 MA's), (8, 24850), (26, 24937), (36, 25000), (48, 25093), (54, 25123), (55, 25129), (61, 25180), (62, 25186),

Gene: Cranjis\_47 Start: 31969, Stop: 32370, Start Num: 6

Candidate Starts for Cranjis\_47:

(3, 31846), (Start: 6 @31969 has 80 MA's), (22, 32068), (26, 32083), (30, 32098), (34, 32134), (38, 32155), (44, 32212), (46, 32230), (55, 32275),

Gene: CrazyRich\_45 Start: 31778, Stop: 32179, Start Num: 6

Candidate Starts for CrazyRich\_45:

(3, 31655), (Start: 6 @31778 has 80 MA's), (22, 31877), (26, 31892), (30, 31907), (34, 31943), (38, 31964), (44, 32021), (46, 32039), (55, 32084),

Gene: Crestdrop\_37 Start: 23798, Stop: 24199, Start Num: 6

Candidate Starts for Crestdrop\_37:

(Start: 6 @23798 has 80 MA's), (8, 23822), (26, 23909), (36, 23972), (48, 24065), (55, 24101), (61, 24152), (62, 24158),

Gene: Crisis\_47 Start: 31769, Stop: 32170, Start Num: 6

Candidate Starts for Crisis\_47:

(3, 31646), (Start: 6 @31769 has 80 MA's), (22, 31868), (26, 31883), (30, 31898), (34, 31934), (38, 31955), (44, 32012), (46, 32030), (55, 32075),

Gene: Cybele\_38 Start: 24796, Stop: 25197, Start Num: 6

Candidate Starts for Cybele\_38:

(Start: 6 @24796 has 80 MA's), (8, 24820), (26, 24907), (36, 24970), (48, 25063), (54, 25093), (55, 25099), (61, 25150), (62, 25156),

Gene: DannyDe\_37 Start: 23893, Stop: 24294, Start Num: 6

Candidate Starts for DannyDe\_37:

(Start: 6 @23893 has 80 MA's), (8, 23917), (26, 24004), (36, 24067), (48, 24160), (55, 24196), (61, 24247), (62, 24253),

Gene: DrYang\_32 Start: 29312, Stop: 29767, Start Num: 14

Candidate Starts for DrYang\_32:

(Start: 14 @29312 has 1 MA's), (21, 29348), (22, 29354), (27, 29372), (29, 29381), (30, 29384), (31, 29393), (32, 29405), (37, 29435), (39, 29450), (41, 29477), (45, 29510), (50, 29537), (53, 29549), (65, 29672),

Gene: EarickHC\_46 Start: 31692, Stop: 32093, Start Num: 6

Candidate Starts for EarickHC\_46:

(3, 31569), (Start: 6 @31692 has 80 MA's), (22, 31791), (26, 31806), (30, 31821), (34, 31857), (38, 31878), (44, 31935), (46, 31953), (55, 31998),

Gene: EdgarPoe\_32 Start: 28216, Stop: 28686, Start Num: 15

Candidate Starts for EdgarPoe\_32:

(Start: 15 @28216 has 41 MA's), (22, 28258), (27, 28276), (30, 28288), (31, 28297), (32, 28309), (37, 28339), (39, 28354), (41, 28381), (45, 28414), (50, 28441), (57, 28480), (65, 28576), (67, 28594), (69, 28636), (70, 28642), (71, 28660),

Gene: Fireman\_47 Start: 33300, Stop: 33701, Start Num: 6

Candidate Starts for Fireman\_47:

(Start: 6 @33300 has 80 MA's), (9, 33333), (17, 33363), (22, 33399), (30, 33429), (34, 33465), (36, 33477), (44, 33543), (46, 33561), (48, 33570), (55, 33606), (63, 33693),

Gene: FountainFog\_37 Start: 24100, Stop: 24498, Start Num: 6

Candidate Starts for FountainFog\_37:

(Start: 6 @24100 has 80 MA's), (26, 24211), (36, 24274), (53, 24391), (55, 24403),

Gene: FreddieHg\_37 Start: 23903, Stop: 24304, Start Num: 6

Candidate Starts for FreddieHg\_37:

(Start: 6 @23903 has 80 MA's), (8, 23927), (26, 24014), (36, 24077), (48, 24170), (55, 24206), (61, 24257), (62, 24263),

Gene: Fulton\_26 Start: 18590, Stop: 18937, Start Num: 15

Candidate Starts for Fulton\_26:

(Start: 15 @18590 has 41 MA's), (42, 18758), (55, 18839), (61, 18890),

Gene: Ganandorf\_45 Start: 31831, Stop: 32232, Start Num: 6

Candidate Starts for Ganandorf\_45:

(3, 31708), (Start: 6 @31831 has 80 MA's), (22, 31930), (26, 31945), (30, 31960), (34, 31996), (38, 32017), (44, 32074), (46, 32092), (55, 32137),

Gene: Germa\_47 Start: 31660, Stop: 32061, Start Num: 6

Candidate Starts for Germa\_47:

(3, 31537), (Start: 6 @31660 has 80 MA's), (22, 31759), (26, 31774), (30, 31789), (34, 31825), (38, 31846), (44, 31903), (46, 31921), (55, 31966),

Gene: Gilda\_38 Start: 24820, Stop: 25221, Start Num: 6

Candidate Starts for Gilda\_38:

(Start: 6 @24820 has 80 MA's), (8, 24844), (26, 24931), (36, 24994), (48, 25087), (54, 25117), (55, 25123), (61, 25174), (62, 25180),

Gene: Gina\_47 Start: 31433, Stop: 31846, Start Num: 6

Candidate Starts for Gina\_47:

(Start: 6 @31433 has 80 MA's), (21, 31526), (22, 31532), (26, 31547), (35, 31607), (44, 31676), (46, 31694), (48, 31703), (53, 31727), (55, 31739),

Gene: Glorp\_47 Start: 31832, Stop: 32233, Start Num: 6

Candidate Starts for Glorp\_47:

(3, 31709), (Start: 6 @31832 has 80 MA's), (22, 31931), (26, 31946), (30, 31961), (34, 31997), (38, 32018), (44, 32075), (46, 32093), (55, 32138),

Gene: Greenlvy\_26 Start: 19176, Stop: 19523, Start Num: 15

Candidate Starts for Greenlvy\_26:

(Start: 15 @19176 has 41 MA's), (42, 19344), (55, 19425), (61, 19476),

Gene: Hasitha\_26 Start: 18602, Stop: 18949, Start Num: 15

Candidate Starts for Hasitha\_26:

(Start: 15 @18602 has 41 MA's), (42, 18770), (55, 18851), (61, 18902),

Gene: Haunter\_38 Start: 24212, Stop: 24613, Start Num: 6

Candidate Starts for Haunter\_38:

(Start: 6 @24212 has 80 MA's), (8, 24236), (26, 24323), (48, 24479), (55, 24515), (61, 24566), (62, 24572),

Gene: HerculesXL\_26 Start: 18674, Stop: 19000, Start Num: 15

Candidate Starts for HerculesXL\_26:

(Start: 15 @18674 has 41 MA's), (35, 18791), (42, 18842), (43, 18848), (54, 18917), (55, 18923), (61, 18974),

Gene: Hermeonysus\_45 Start: 31698, Stop: 32099, Start Num: 6

Candidate Starts for Hermeonysus\_45:

(1, 31314), (2, 31374), (3, 31575), (Start: 6 @31698 has 80 MA's), (22, 31797), (26, 31812), (30, 31827), (34, 31863), (38, 31884), (44, 31941), (46, 31959), (55, 32004),

Gene: Hiddenleaf\_37 Start: 23887, Stop: 24288, Start Num: 6

Candidate Starts for Hiddenleaf\_37:

(Start: 6 @23887 has 80 MA's), (8, 23911), (26, 23998), (36, 24061), (48, 24154), (55, 24190), (61, 24241), (62, 24247),

Gene: Honeyfin\_47 Start: 32019, Stop: 32420, Start Num: 6

Candidate Starts for Honeyfin\_47:

(3, 31896), (Start: 6 @32019 has 80 MA's), (22, 32118), (26, 32133), (30, 32148), (34, 32184), (38, 32205), (44, 32262), (46, 32280), (55, 32325),

Gene: HumptyDumpty\_32 Start: 28215, Stop: 28685, Start Num: 15

Candidate Starts for HumptyDumpty\_32:

(Start: 15 @28215 has 41 MA's), (22, 28257), (27, 28275), (30, 28287), (31, 28296), (32, 28308), (37, 28338), (39, 28353), (41, 28380), (45, 28413), (50, 28440), (57, 28479), (65, 28575), (67, 28593), (69, 28635), (70, 28641), (71, 28659),

Gene: Ixel\_26 Start: 18510, Stop: 18836, Start Num: 15

Candidate Starts for Ixel\_26:

(Start: 15 @18510 has 41 MA's), (35, 18627), (42, 18678), (43, 18684), (55, 18759), (58, 18783),

Gene: JDawG\_37 Start: 24471, Stop: 24872, Start Num: 6

Candidate Starts for JDawG\_37:

(Start: 6 @24471 has 80 MA's), (8, 24495), (26, 24582), (36, 24645), (48, 24738), (55, 24774), (61, 24825), (62, 24831),

Gene: JaNo\_32 Start: 28215, Stop: 28685, Start Num: 15

Candidate Starts for JaNo\_32:

(Start: 15 @28215 has 41 MA's), (22, 28257), (27, 28275), (30, 28287), (31, 28296), (32, 28308), (37, 28338), (39, 28353), (41, 28380), (45, 28413), (50, 28440), (57, 28479), (65, 28575), (67, 28593), (69, 28635), (70, 28641), (71, 28659),

Gene: JayCookie\_32 Start: 28218, Stop: 28688, Start Num: 15

Candidate Starts for JayCookie\_32:

(Start: 15 @28218 has 41 MA's), (22, 28260), (27, 28278), (30, 28290), (31, 28299), (32, 28311), (37, 28341), (39, 28356), (41, 28383), (45, 28416), (50, 28443), (57, 28482), (65, 28578), (67, 28596), (69, 28638), (70, 28644), (71, 28662),

Gene: Jayden\_47 Start: 32140, Stop: 32535, Start Num: 6

Candidate Starts for Jayden\_47:

(Start: 6 @32140 has 80 MA's), (17, 32203), (21, 32233), (22, 32239), (26, 32254), (30, 32269), (40, 32338), (43, 32371), (44, 32383), (46, 32401), (48, 32410), (53, 32434), (55, 32446),

Gene: Jefe\_46 Start: 31756, Stop: 32157, Start Num: 6

Candidate Starts for Jefe\_46:

(3, 31633), (Start: 6 @31756 has 80 MA's), (22, 31855), (26, 31870), (30, 31885), (34, 31921), (38, 31942), (44, 31999), (46, 32017), (55, 32062),

Gene: Jemerald\_27 Start: 20196, Stop: 20519, Start Num: 15

Candidate Starts for Jemerald\_27:

(Start: 15 @20196 has 41 MA's), (20, 20229), (23, 20241), (30, 20268), (35, 20313), (40, 20337), (44, 20382), (48, 20409), (54, 20439), (55, 20445), (59, 20475),

Gene: JingleBells\_37 Start: 24008, Stop: 24409, Start Num: 6

Candidate Starts for JingleBells\_37:

(Start: 6 @24008 has 80 MA's), (8, 24032), (26, 24119), (36, 24182), (48, 24275), (55, 24311), (61, 24362), (62, 24368),

Gene: Jollipop\_46 Start: 32095, Stop: 32496, Start Num: 6

Candidate Starts for Jollipop\_46:

(3, 31972), (Start: 6 @32095 has 80 MA's), (22, 32194), (26, 32209), (30, 32224), (34, 32260), (38, 32281), (44, 32338), (46, 32356), (55, 32401),

Gene: JrWilcox\_81 Start: 46199, Stop: 46537, Start Num: 16

Candidate Starts for JrWilcox\_81:

(9, 46169), (Start: 16 @46199 has 1 MA's), (19, 46214), (20, 46229), (30, 46268), (38, 46325), (49, 46412), (51, 46424), (56, 46457),

Gene: Juicer\_27 Start: 20196, Stop: 20519, Start Num: 15

Candidate Starts for Juicer\_27:

(Start: 15 @20196 has 41 MA's), (20, 20229), (23, 20241), (30, 20268), (35, 20313), (40, 20337), (44, 20382), (48, 20409), (54, 20439), (55, 20445), (59, 20475),

Gene: KBurrousTX\_32 Start: 29142, Stop: 29597, Start Num: 15

Candidate Starts for KBurrousTX\_32:

(Start: 15 @29142 has 41 MA's), (27, 29202), (29, 29211), (30, 29214), (31, 29223), (32, 29235), (37, 29265), (39, 29280), (41, 29307), (45, 29340), (50, 29367), (53, 29379),

Gene: Kabreeze\_32 Start: 28215, Stop: 28685, Start Num: 15

Candidate Starts for Kabreeze\_32:

(Start: 15 @28215 has 41 MA's), (22, 28257), (27, 28275), (30, 28287), (31, 28296), (32, 28308), (37, 28338), (39, 28353), (41, 28380), (45, 28413), (50, 28440), (57, 28479), (65, 28575), (67, 28593), (69, 28635), (70, 28641), (71, 28659),

Gene: KaiHaiDragon\_46 Start: 31692, Stop: 32093, Start Num: 6

Candidate Starts for KaiHaiDragon\_46:

(3, 31569), (Start: 6 @31692 has 80 MA's), (22, 31791), (26, 31806), (30, 31821), (34, 31857), (38, 31878), (44, 31935), (46, 31953), (55, 31998),

Gene: Karate\_37 Start: 24819, Stop: 25217, Start Num: 6

Candidate Starts for Karate\_37:

(Start: 6 @24819 has 80 MA's), (26, 24930), (36, 24993), (53, 25110), (55, 25122),

Gene: KatChan\_27 Start: 19269, Stop: 19604, Start Num: 15

Candidate Starts for KatChan\_27:

(12, 19266), (Start: 15 @19269 has 41 MA's), (26, 19326), (30, 19341), (35, 19386), (44, 19455), (52, 19503), (55, 19518), (61, 19569),

Gene: Kate\_38 Start: 24828, Stop: 25229, Start Num: 6

Candidate Starts for Kate\_38:

(Start: 6 @24828 has 80 MA's), (8, 24852), (26, 24939), (36, 25002), (48, 25095), (55, 25131), (61, 25182), (62, 25188),

Gene: Kavo\_25 Start: 18510, Stop: 18836, Start Num: 15

Candidate Starts for Kavo\_25:

(Start: 15 @18510 has 41 MA's), (35, 18627), (42, 18678), (43, 18684), (54, 18753), (55, 18759), (61, 18810),

Gene: Kowalski\_45 Start: 31805, Stop: 32206, Start Num: 6

Candidate Starts for Kowalski\_45:

(3, 31682), (Start: 6 @31805 has 80 MA's), (22, 31904), (26, 31919), (30, 31934), (34, 31970), (38, 31991), (44, 32048), (46, 32066), (55, 32111),

Gene: Krampus\_38 Start: 24828, Stop: 25229, Start Num: 6

Candidate Starts for Krampus\_38:

(Start: 6 @24828 has 80 MA's), (8, 24852), (26, 24939), (36, 25002), (48, 25095), (54, 25125), (55, 25131), (61, 25182), (62, 25188),

Gene: Librie\_26 Start: 18608, Stop: 18931, Start Num: 15

Candidate Starts for Librie\_26:

(Start: 15 @18608 has 41 MA's), (42, 18776), (55, 18857),

Gene: LilTerminator\_26 Start: 18608, Stop: 18955, Start Num: 15

Candidate Starts for LilTerminator\_26:

(Start: 15 @18608 has 41 MA's), (42, 18776), (55, 18857), (61, 18908),

Gene: Linus\_32 Start: 28215, Stop: 28685, Start Num: 15

Candidate Starts for Linus\_32:

(Start: 15 @28215 has 41 MA's), (22, 28257), (27, 28275), (30, 28287), (31, 28296), (32, 28308), (37, 28338), (39, 28353), (41, 28380), (45, 28413), (50, 28440), (57, 28479), (65, 28575), (67, 28593), (69, 28635), (70, 28641), (71, 28659),

Gene: LittleFortune\_47 Start: 32061, Stop: 32462, Start Num: 6

Candidate Starts for LittleFortune\_47:

(3, 31938), (Start: 6 @32061 has 80 MA's), (22, 32160), (26, 32175), (30, 32190), (34, 32226), (38, 32247), (44, 32304), (46, 32322), (55, 32367),

Gene: Lucretia\_46 Start: 31748, Stop: 32149, Start Num: 6

Candidate Starts for Lucretia\_46:

(3, 31625), (Start: 6 @31748 has 80 MA's), (22, 31847), (26, 31862), (30, 31877), (34, 31913), (38, 31934), (44, 31991), (46, 32009), (55, 32054),

Gene: Luna18\_27 Start: 19269, Stop: 19604, Start Num: 15

Candidate Starts for Luna18\_27:

(12, 19266), (Start: 15 @19269 has 41 MA's), (26, 19326), (30, 19341), (35, 19386), (44, 19455), (52, 19503), (55, 19518), (61, 19569),

Gene: Lymara\_32 Start: 28213, Stop: 28683, Start Num: 15

Candidate Starts for Lymara\_32:

(Start: 15 @28213 has 41 MA's), (21, 28249), (27, 28273), (29, 28282), (30, 28285), (31, 28294), (32, 28306), (37, 28336), (39, 28351), (41, 28378), (45, 28411), (50, 28438), (54, 28456), (57, 28477), (65, 28573), (67, 28591), (69, 28633), (70, 28639), (71, 28657),

Gene: Megan\_40 Start: 32577, Stop: 33014, Start Num: 6

Candidate Starts for Megan\_40:

(4, 32484), (Start: 6 @32577 has 80 MA's), (10, 32616), (11, 32622), (17, 32643), (18, 32649), (22, 32679), (24, 32685), (26, 32694), (31, 32718), (44, 32823), (46, 32841), (48, 32850), (54, 32880), (55, 32886),

Gene: Merry\_ Start: 33347, Stop: 33721, Start Num: 6

Candidate Starts for Merry\_:

(Start: 6 @33347 has 80 MA's), (9, 33380), (10, 33386), (11, 33392), (17, 33413), (21, 33443), (22, 33449), (25, 33461), (40, 33548), (46, 33611), (48, 33620), (55, 33656),

Gene: Metamorphoo\_47 Start: 32562, Stop: 32963, Start Num: 6

Candidate Starts for Metamorphoo\_47:

(Start: 6 @32562 has 80 MA's), (9, 32595), (17, 32625), (22, 32661), (26, 32676), (30, 32691), (34, 32727), (36, 32739), (44, 32805), (46, 32823), (48, 32832), (55, 32868), (63, 32955),

Gene: Mordred\_32 Start: 28215, Stop: 28685, Start Num: 15

Candidate Starts for Mordred\_32:

(Start: 15 @28215 has 41 MA's), (22, 28257), (27, 28275), (30, 28287), (31, 28296), (32, 28308), (37, 28338), (39, 28353), (41, 28380), (45, 28413), (50, 28440), (57, 28479), (65, 28575), (67, 28593), (69, 28635), (70, 28641), (71, 28659),

Gene: Morrigan\_27 Start: 20156, Stop: 20491, Start Num: 15

Candidate Starts for Morrigan\_27:

(5, 20090), (7, 20111), (13, 20153), (Start: 15 @20156 has 41 MA's), (26, 20213), (30, 20228), (35, 20273), (39, 20294), (44, 20342), (52, 20390), (55, 20405), (61, 20456),

Gene: MortySmith\_36 Start: 23859, Stop: 24260, Start Num: 6

Candidate Starts for MortySmith\_36:

(Start: 6 @23859 has 80 MA's), (8, 23883), (26, 23970), (36, 24033), (48, 24126), (55, 24162), (61, 24213), (62, 24219),

Gene: MoyaNatalis\_32 Start: 28218, Stop: 28688, Start Num: 15

Candidate Starts for MoyaNatalis\_32:

(Start: 15 @28218 has 41 MA's), (22, 28260), (27, 28278), (30, 28290), (31, 28299), (32, 28311), (37, 28341), (39, 28356), (41, 28383), (45, 28416), (50, 28443), (57, 28482), (65, 28578), (67, 28596), (69, 28638), (70, 28644), (71, 28662),

Gene: NarutoRun\_38 Start: 24796, Stop: 25197, Start Num: 6

Candidate Starts for NarutoRun\_38:

(Start: 6 @24796 has 80 MA's), (8, 24820), (26, 24907), (36, 24970), (48, 25063), (54, 25093), (55, 25099), (61, 25150), (62, 25156),

Gene: Neptune\_38 Start: 24796, Stop: 25197, Start Num: 6

Candidate Starts for Neptune\_38:

(Start: 6 @24796 has 80 MA's), (8, 24820), (26, 24907), (36, 24970), (48, 25063), (54, 25093), (55, 25099), (61, 25150), (62, 25156),

Gene: Nicole72\_41 Start: 33423, Stop: 33860, Start Num: 6

Candidate Starts for Nicole72\_41:

(Start: 6 @33423 has 80 MA's), (9, 33456), (22, 33525), (44, 33669), (46, 33687), (48, 33696), (53, 33720), (55, 33732), (64, 33837),

Gene: NoodlelyBoi\_46 Start: 32103, Stop: 32504, Start Num: 6

Candidate Starts for NoodlelyBoi\_46:

(3, 31980), (Start: 6 @32103 has 80 MA's), (22, 32202), (26, 32217), (30, 32232), (34, 32268), (36, 32280), (44, 32346), (46, 32364), (55, 32409),

Gene: OhDear\_38 Start: 24794, Stop: 25195, Start Num: 6

Candidate Starts for OhDear\_38:

(Start: 6 @24794 has 80 MA's), (8, 24818), (26, 24905), (36, 24968), (48, 25061), (55, 25097), (61, 25148), (62, 25154),

Gene: Onika\_45 Start: 31780, Stop: 32181, Start Num: 6

Candidate Starts for Onika\_45:

(3, 31657), (Start: 6 @31780 has 80 MA's), (22, 31879), (26, 31894), (30, 31909), (34, 31945), (38, 31966), (44, 32023), (46, 32041), (55, 32086),

Gene: OverHedge\_38 Start: 24786, Stop: 25187, Start Num: 6

Candidate Starts for OverHedge\_38:

(Start: 6 @24786 has 80 MA's), (8, 24810), (26, 24897), (36, 24960), (48, 25053), (54, 25083), (55, 25089), (61, 25140), (62, 25146),

Gene: Paschalis\_45 Start: 31787, Stop: 32188, Start Num: 6

Candidate Starts for Paschalis\_45:

(3, 31664), (Start: 6 @31787 has 80 MA's), (22, 31886), (26, 31901), (30, 31916), (34, 31952), (38, 31973), (44, 32030), (46, 32048), (55, 32093),

Gene: Penta\_25 Start: 18508, Stop: 18834, Start Num: 15

Candidate Starts for Penta\_25:

(Start: 15 @18508 has 41 MA's), (35, 18625), (42, 18676), (43, 18682), (54, 18751), (55, 18757), (61, 18808),

Gene: Pharpay\_38 Start: 24841, Stop: 25242, Start Num: 6

Candidate Starts for Pharpay\_38:

(Start: 6 @24841 has 80 MA's), (8, 24865), (26, 24952), (36, 25015), (48, 25108), (54, 25138), (55, 25144), (61, 25195), (62, 25201),

Gene: PhedwardCullen\_45 Start: 31538, Stop: 31939, Start Num: 6

Candidate Starts for PhedwardCullen\_45:

(3, 31415), (Start: 6 @31538 has 80 MA's), (22, 31637), (26, 31652), (30, 31667), (34, 31703), (38, 31724), (44, 31781), (46, 31799), (55, 31844),

Gene: Phorgeous\_45 Start: 31650, Stop: 32051, Start Num: 6

Candidate Starts for Phorgeous\_45:

(3, 31527), (Start: 6 @31650 has 80 MA's), (22, 31749), (26, 31764), (30, 31779), (34, 31815), (38, 31836), (44, 31893), (46, 31911), (55, 31956),

Gene: Phrancesco\_46 Start: 31940, Stop: 32341, Start Num: 6

Candidate Starts for Phrancesco\_46:

(3, 31817), (Start: 6 @31940 has 80 MA's), (22, 32039), (26, 32054), (30, 32069), (34, 32105), (38, 32126), (44, 32183), (46, 32201), (55, 32246),

Gene: PhunaPhoke\_38 Start: 24814, Stop: 25215, Start Num: 6

Candidate Starts for PhunaPhoke\_38:

(Start: 6 @24814 has 80 MA's), (8, 24838), (26, 24925), (36, 24988), (48, 25081), (54, 25111), (55, 25117), (61, 25168), (62, 25174),

Gene: PierreOrion\_46 Start: 31954, Stop: 32355, Start Num: 6

Candidate Starts for PierreOrion\_46:

(3, 31831), (Start: 6 @31954 has 80 MA's), (22, 32053), (26, 32068), (30, 32083), (34, 32119), (38, 32140), (44, 32197), (46, 32215), (55, 32260),

Gene: PiperSansNom\_46 Start: 32094, Stop: 32495, Start Num: 6

Candidate Starts for PiperSansNom\_46:

(3, 31971), (Start: 6 @32094 has 80 MA's), (22, 32193), (26, 32208), (30, 32223), (34, 32259), (38, 32280), (44, 32337), (46, 32355), (55, 32400),

Gene: Piperis\_46 Start: 31773, Stop: 32174, Start Num: 6

Candidate Starts for Piperis\_46:

(3, 31650), (Start: 6 @31773 has 80 MA's), (22, 31872), (26, 31887), (30, 31902), (34, 31938), (38, 31959), (44, 32016), (46, 32034), (55, 32079),

Gene: Potty\_38 Start: 24819, Stop: 25220, Start Num: 6

Candidate Starts for Potty\_38:

(Start: 6 @24819 has 80 MA's), (8, 24843), (26, 24930), (36, 24993), (48, 25086), (54, 25116), (55, 25122), (61, 25173), (62, 25179),

Gene: Poultruss\_37 Start: 25165, Stop: 25566, Start Num: 6

Candidate Starts for Poultruss\_37:

(Start: 6 @25165 has 80 MA's), (8, 25189), (26, 25276), (36, 25339), (48, 25432), (55, 25468), (61, 25519), (62, 25525),

Gene: PrincessTrina\_32 Start: 28218, Stop: 28688, Start Num: 15

Candidate Starts for PrincessTrina\_32:

(Start: 15 @28218 has 41 MA's), (22, 28260), (27, 28278), (30, 28290), (31, 28299), (32, 28311), (37, 28341), (39, 28356), (41, 28383), (45, 28416), (50, 28443), (57, 28482), (65, 28578), (67, 28596), (69, 28638), (70, 28644), (71, 28662),

Gene: Pulchra\_47 Start: 32170, Stop: 32571, Start Num: 6

Candidate Starts for Pulchra\_47:

(1, 31786), (2, 31846), (3, 32047), (Start: 6 @32170 has 80 MA's), (22, 32269), (26, 32284), (30, 32299), (34, 32335), (38, 32356), (44, 32413), (46, 32431), (55, 32476),

Gene: QuadZero\_26 Start: 18612, Stop: 18959, Start Num: 15  
Candidate Starts for QuadZero\_26:  
(Start: 15 @18612 has 41 MA's), (42, 18780), (55, 18861), (61, 18912),

Gene: Quhwah\_49 Start: 32402, Stop: 32803, Start Num: 6  
Candidate Starts for Quhwah\_49:  
(3, 32279), (Start: 6 @32402 has 80 MA's), (22, 32501), (26, 32516), (30, 32531), (34, 32567), (38, 32588), (44, 32645), (46, 32663), (55, 32708),

Gene: Rachella\_38 Start: 24822, Stop: 25223, Start Num: 6  
Candidate Starts for Rachella\_38:  
(Start: 6 @24822 has 80 MA's), (8, 24846), (26, 24933), (36, 24996), (48, 25089), (54, 25119), (55, 25125), (61, 25176), (62, 25182),

Gene: Ramiel05\_45 Start: 31805, Stop: 32206, Start Num: 6  
Candidate Starts for Ramiel05\_45:  
(3, 31682), (Start: 6 @31805 has 80 MA's), (22, 31904), (26, 31919), (30, 31934), (34, 31970), (38, 31991), (44, 32048), (46, 32066), (55, 32111),

Gene: Rie18\_38 Start: 24311, Stop: 24709, Start Num: 6  
Candidate Starts for Rie18\_38:  
(Start: 6 @24311 has 80 MA's), (8, 24335), (26, 24422), (36, 24485), (48, 24578), (53, 24602), (55, 24614),

Gene: RobsFeet\_48 Start: 32843, Stop: 33244, Start Num: 6  
Candidate Starts for RobsFeet\_48:  
(Start: 6 @32843 has 80 MA's), (9, 32876), (17, 32906), (22, 32942), (30, 32972), (34, 33008), (36, 33020), (44, 33086), (46, 33104), (48, 33113), (55, 33149), (63, 33236),

Gene: Rockwell\_45 Start: 31805, Stop: 32206, Start Num: 6  
Candidate Starts for Rockwell\_45:  
(3, 31682), (Start: 6 @31805 has 80 MA's), (22, 31904), (26, 31919), (30, 31934), (34, 31970), (38, 31991), (44, 32048), (46, 32066), (55, 32111),

Gene: RosiePosie\_32 Start: 28218, Stop: 28688, Start Num: 15  
Candidate Starts for RosiePosie\_32:  
(Start: 15 @28218 has 41 MA's), (22, 28260), (27, 28278), (30, 28290), (31, 28299), (32, 28311), (37, 28341), (39, 28356), (41, 28383), (45, 28416), (50, 28443), (57, 28482), (65, 28578), (67, 28596), (69, 28638), (70, 28644), (71, 28662),

Gene: Savannah\_45 Start: 31832, Stop: 32233, Start Num: 6  
Candidate Starts for Savannah\_45:  
(3, 31709), (Start: 6 @31832 has 80 MA's), (22, 31931), (26, 31946), (30, 31961), (34, 31997), (38, 32018), (44, 32075), (46, 32093), (55, 32138),

Gene: Scavito\_32 Start: 28215, Stop: 28685, Start Num: 15  
Candidate Starts for Scavito\_32:  
(Start: 15 @28215 has 41 MA's), (22, 28257), (27, 28275), (30, 28287), (31, 28296), (32, 28308), (37, 28338), (39, 28353), (41, 28380), (45, 28413), (50, 28440), (57, 28479), (65, 28575), (67, 28593), (69, 28635), (70, 28641), (71, 28659),

Gene: Schimmels22\_26 Start: 19037, Stop: 19360, Start Num: 15

Candidate Starts for Schimmels22\_26:

(Start: 15 @19037 has 41 MA's), (35, 19154), (42, 19205), (43, 19211), (54, 19280), (55, 19286),

Gene: Scissor2024\_26 Start: 18673, Stop: 18996, Start Num: 15

Candidate Starts for Scissor2024\_26:

(Start: 15 @18673 has 41 MA's), (35, 18790), (42, 18841), (43, 18847), (54, 18916), (55, 18922),

Gene: Scumberland\_47 Start: 32027, Stop: 32428, Start Num: 6

Candidate Starts for Scumberland\_47:

(3, 31904), (Start: 6 @32027 has 80 MA's), (22, 32126), (26, 32141), (30, 32156), (34, 32192), (38, 32213), (44, 32270), (46, 32288), (55, 32333),

Gene: Selwyn23\_47 Start: 32004, Stop: 32405, Start Num: 6

Candidate Starts for Selwyn23\_47:

(3, 31881), (Start: 6 @32004 has 80 MA's), (22, 32103), (26, 32118), (30, 32133), (34, 32169), (38, 32190), (44, 32247), (46, 32265), (55, 32310),

Gene: Shotgun\_45 Start: 31631, Stop: 32032, Start Num: 6

Candidate Starts for Shotgun\_45:

(3, 31508), (Start: 6 @31631 has 80 MA's), (22, 31730), (26, 31745), (30, 31760), (34, 31796), (38, 31817), (44, 31874), (46, 31892), (55, 31937),

Gene: Shrew\_41 Start: 15755, Stop: 16075, Start Num: 16

Candidate Starts for Shrew\_41:

(Start: 16 @15755 has 1 MA's), (25, 15806), (26, 15809), (30, 15824), (39, 15890), (46, 15956),

Gene: Shrubaron\_47 Start: 32477, Stop: 32878, Start Num: 6

Candidate Starts for Shrubaron\_47:

(Start: 6 @32477 has 80 MA's), (9, 32510), (17, 32540), (22, 32576), (26, 32591), (30, 32606), (34, 32642), (36, 32654), (44, 32720), (46, 32738), (48, 32747), (55, 32783), (63, 32870),

Gene: SilentWarrior\_37 Start: 23900, Stop: 24301, Start Num: 6

Candidate Starts for SilentWarrior\_37:

(Start: 6 @23900 has 80 MA's), (8, 23924), (26, 24011), (36, 24074), (48, 24167), (55, 24203), (61, 24254), (62, 24260),

Gene: SirFrank\_45 Start: 31673, Stop: 32074, Start Num: 6

Candidate Starts for SirFrank\_45:

(3, 31550), (Start: 6 @31673 has 80 MA's), (22, 31772), (26, 31787), (30, 31802), (34, 31838), (38, 31859), (44, 31916), (46, 31934), (55, 31979),

Gene: Skugga\_44 Start: 31449, Stop: 31862, Start Num: 6

Candidate Starts for Skugga\_44:

(Start: 6 @31449 has 80 MA's), (21, 31542), (22, 31548), (26, 31563), (31, 31587), (44, 31692), (46, 31710), (48, 31719), (53, 31743), (55, 31755),

Gene: Smarties\_54 Start: 33634, Stop: 34035, Start Num: 6

Candidate Starts for Smarties\_54:

(3, 33511), (Start: 6 @33634 has 80 MA's), (21, 33727), (22, 33733), (26, 33748), (30, 33763), (34, 33799), (43, 33865), (46, 33895), (48, 33904), (53, 33928), (55, 33940),

Gene: Snakehole\_38 Start: 23999, Stop: 24400, Start Num: 6

Candidate Starts for Snakehole\_38:

(Start: 6 @23999 has 80 MA's), (8, 24023), (26, 24110), (36, 24173), (48, 24266), (54, 24296), (55, 24302), (61, 24353), (62, 24359),

Gene: Sunny\_ Start: 33349, Stop: 33723, Start Num: 6

Candidate Starts for Sunny\_:

(Start: 6 @33349 has 80 MA's), (9, 33382), (10, 33388), (11, 33394), (17, 33415), (21, 33445), (22, 33451), (25, 33463), (40, 33550), (46, 33613), (48, 33622), (55, 33658),

Gene: Teamocil\_47 Start: 31532, Stop: 31945, Start Num: 6

Candidate Starts for Teamocil\_47:

(Start: 6 @31532 has 80 MA's), (21, 31625), (22, 31631), (26, 31646), (35, 31706), (44, 31775), (46, 31793), (48, 31802), (53, 31826), (55, 31838),

Gene: Tedro\_38 Start: 24292, Stop: 24693, Start Num: 6

Candidate Starts for Tedro\_38:

(Start: 6 @24292 has 80 MA's), (8, 24316), (26, 24403), (36, 24466), (48, 24559), (54, 24589), (55, 24595), (61, 24646), (62, 24652),

Gene: Tinyman4\_26 Start: 18674, Stop: 19000, Start Num: 15

Candidate Starts for Tinyman4\_26:

(Start: 15 @18674 has 41 MA's), (35, 18791), (42, 18842), (43, 18848), (54, 18917), (55, 18923), (61, 18974),

Gene: Tongui\_37 Start: 24250, Stop: 24648, Start Num: 6

Candidate Starts for Tongui\_37:

(Start: 6 @24250 has 80 MA's), (8, 24274), (26, 24361), (36, 24424), (53, 24541), (55, 24553),

Gene: Tophat\_32 Start: 28217, Stop: 28687, Start Num: 15

Candidate Starts for Tophat\_32:

(Start: 15 @28217 has 41 MA's), (22, 28259), (27, 28277), (30, 28289), (31, 28298), (32, 28310), (37, 28340), (39, 28355), (41, 28382), (45, 28415), (50, 28442), (57, 28481), (65, 28577), (67, 28595), (69, 28637), (70, 28643), (71, 28661),

Gene: TwoBits\_26 Start: 18989, Stop: 19336, Start Num: 15

Candidate Starts for TwoBits\_26:

(Start: 15 @18989 has 41 MA's), (28, 19055), (42, 19157), (43, 19163), (55, 19238), (61, 19289),

Gene: Tyrumbra\_45 Start: 32643, Stop: 33044, Start Num: 6

Candidate Starts for Tyrumbra\_45:

(Start: 6 @32643 has 80 MA's), (9, 32676), (17, 32706), (22, 32742), (30, 32772), (34, 32808), (36, 32820), (44, 32886), (46, 32904), (48, 32913), (55, 32949), (63, 33036),

Gene: Wardwill\_28 Start: 18770, Stop: 19117, Start Num: 15

Candidate Starts for Wardwill\_28:

(Start: 15 @18770 has 41 MA's), (42, 18938), (55, 19019), (61, 19070),

Gene: WestPM\_25 Start: 18517, Stop: 18843, Start Num: 15

Candidate Starts for WestPM\_25:

(Start: 15 @18517 has 41 MA's), (35, 18634), (42, 18685), (43, 18691), (54, 18760), (55, 18766), (61, 18817),

Gene: WilliamStrong\_25 Start: 20264, Stop: 20584, Start Num: 15

Candidate Starts for WilliamStrong\_25:

(Start: 15 @20264 has 41 MA's), (26, 20321), (30, 20336), (35, 20381), (42, 20432), (44, 20450), (55, 20513), (58, 20537),

Gene: Yeti\_46 Start: 31806, Stop: 32207, Start Num: 6

Candidate Starts for Yeti\_46:

(3, 31683), (Start: 6 @31806 has 80 MA's), (22, 31905), (26, 31920), (30, 31935), (34, 31971), (38, 31992), (44, 32049), (46, 32067), (55, 32112),

Gene: Zapato\_45 Start: 31952, Stop: 32347, Start Num: 6

Candidate Starts for Zapato\_45:

(Start: 6 @31952 has 80 MA's), (9, 31985), (21, 32045), (22, 32051), (26, 32066), (35, 32126), (43, 32183), (44, 32195), (46, 32213), (48, 32222), (53, 32246), (55, 32258),

Gene: Zayuliv\_26 Start: 19198, Stop: 19545, Start Num: 15

Candidate Starts for Zayuliv\_26:

(Start: 15 @19198 has 41 MA's), (42, 19366), (55, 19447), (61, 19498),

Gene: Zepp\_27 Start: 18596, Stop: 18943, Start Num: 15

Candidate Starts for Zepp\_27:

(Start: 15 @18596 has 41 MA's), (42, 18764), (55, 18845), (61, 18896),