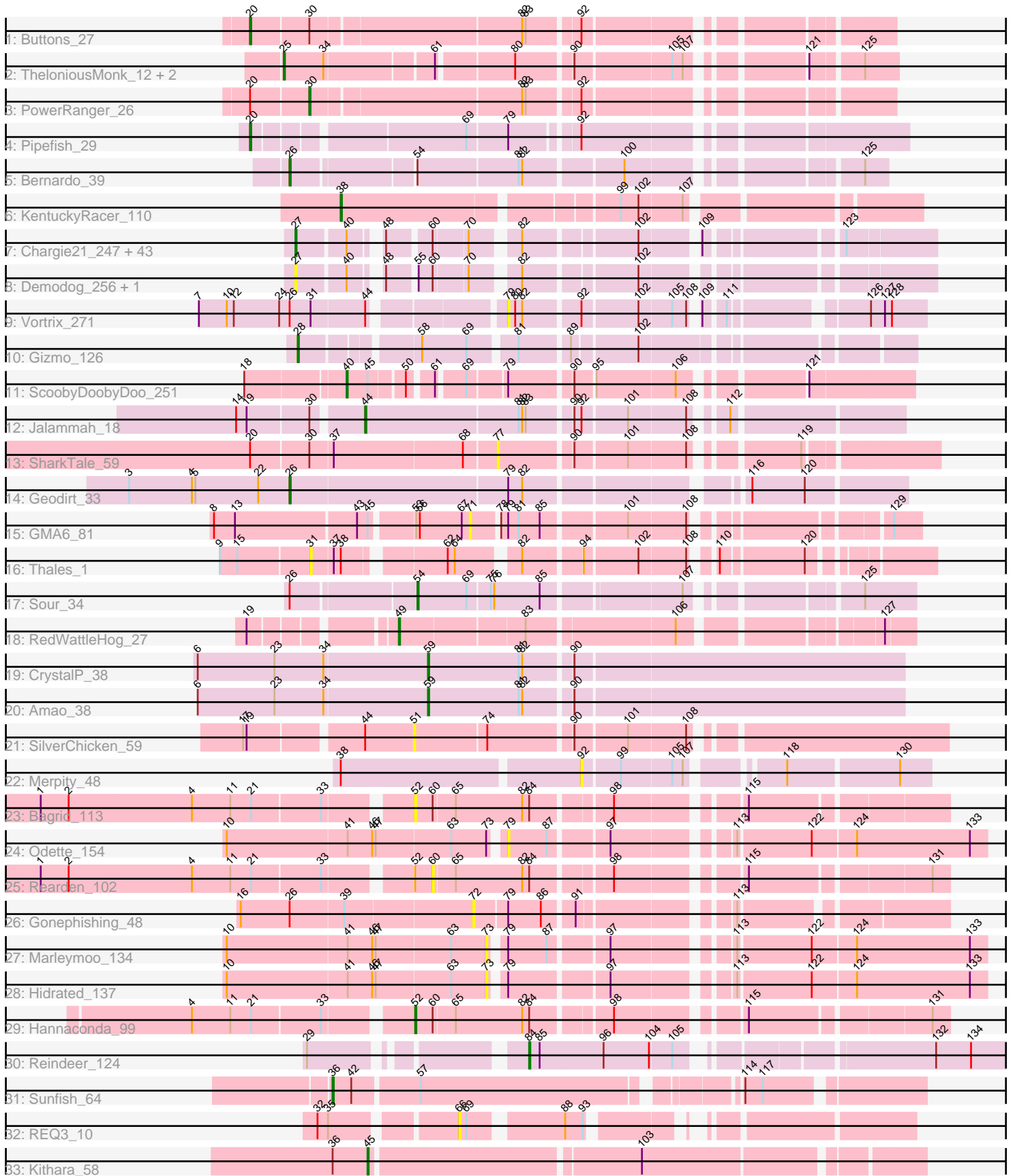


Pham 311512



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 311512 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311512 has 79 members, 24 are drafts.

Phages represented in each track:

- Track 1 : Buttons\_27
- Track 2 : TheloniousMonk\_12, Target\_12, Gwendoluna\_12
- Track 3 : PowerRanger\_26
- Track 4 : Pipefish\_29
- Track 5 : Bernardo\_39
- Track 6 : KentuckyRacer\_110
- Track 7 : Charge21\_247, Trinitium\_246, JPickles\_247, ZygoTaiga\_246, Basquiat\_247, Lee7\_249, Erdmann\_251, StubbySaigey\_256, Darko\_249, PurduePete\_250, Bread\_246, FudgeTart\_245, Bowman\_247, Ablatia\_249, Asterius\_250, Gizmo\_255, PharkleMinkus\_252, OrediggerDelux\_245, Primadonna\_244, Astraea\_245, Belieber\_242, McGee\_251, Janiyra\_253, Fixie\_249, Bonray\_252, Cleatunium\_242, Cactojaque\_244, Blackbrain\_248, Maby2021\_250, BobaPhatt\_241, SrishMeg2525\_247, ErnieJ\_243, Ading\_252, Shrimp\_252, Yucca\_250, EmToTheThree\_250, Teardrop\_248, Issimir\_243, TinyTim\_248, BananaFence\_247, Salacia\_251, Specks\_254, Morizzled23\_247, FoxtrotP1\_248
- Track 8 : Demodog\_256, Concombre\_255
- Track 9 : Vortrix\_271
- Track 10 : Gizmo\_126
- Track 11 : ScoobyDoobyDoo\_251
- Track 12 : Jalammah\_18
- Track 13 : SharkTale\_59
- Track 14 : Geodirt\_33
- Track 15 : GMA6\_81
- Track 16 : Thales\_1
- Track 17 : Sour\_34
- Track 18 : RedWattleHog\_27
- Track 19 : CrystalP\_38
- Track 20 : Amao\_38
- Track 21 : SilverChicken\_59
- Track 22 : Merpity\_48
- Track 23 : Bagrid\_113
- Track 24 : Odette\_154
- Track 25 : Rearden\_102
- Track 26 : Gonephishing\_48
- Track 27 : Marleymoo\_134
- Track 28 : Hidrated\_137
- Track 29 : Hannaconda\_99

- Track 30 : Reindeer\_124
- Track 31 : Sunfish\_64
- Track 32 : REQ3\_10
- Track 33 : Kithara\_58

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

The start number called the most often in the published annotations is 27, it was called in 35 of the 55 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ablatia\_249, Ading\_252, Asterius\_250, Astraea\_245, BananaFence\_247, Basquiat\_247, Belieber\_242, Blackbrain\_248, BobaPhatt\_241, Bonray\_252, Bowman\_247, Bread\_246, Cactojaque\_244, Chargie21\_247, Cleatunium\_242, Concombre\_255, Darko\_249, Demodog\_256, EmToTheThree\_250, Erdmann\_251, ErnieJ\_243, Fixie\_249, FoxtrotP1\_248, FudgeTart\_245, Gizmo\_255, Issimir\_243, JPickles\_247, Janiyra\_253, Lee7\_249, Maby2021\_250, McGee\_251, Morizzled23\_247, OrediggerDelux\_245, PharkleMinkus\_252, Primadonna\_244, PurduePete\_250, Salacia\_251, Shrimp\_252, Specks\_254, SrishMeg2525\_247, StubbySaigey\_256, Teardrop\_248, TinyTim\_248, Trinitium\_246, Yucca\_250, ZygoTaiga\_246,

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

- 

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

- Amao\_38, Bagrid\_113, Bernardo\_39, Buttons\_27, CrystalP\_38, GMA6\_81, Geodirt\_33, Gizmo\_126, Gonephishing\_48, Gwendoluna\_12, Hannaconda\_99, Hidrated\_137, Jalammah\_18, KentuckyRacer\_110, Kithara\_58, Marleymoo\_134, Merpity\_48, Odette\_154, Pipefish\_29, PowerRanger\_26, REQ3\_10, Rearden\_102, RedWattleHog\_27, Reindeer\_124, ScoobyDoobyDoo\_251, SharkTale\_59, SilverChicken\_59, Sour\_34, Sunfish\_64, Target\_12, Thales\_1, TheloniousMonk\_12, Vortrix\_271,

**Summary by start number:**

Start 20:

- Found in 4 of 79 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 2 of 55
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Buttons\_27 (A1), Pipefish\_29 (B3),

Start 25:

- Found in 3 of 79 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 3 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gwendoluna\_12 (A1), Target\_12 (A1), TheloniousMonk\_12 (A1),

Start 26:

- Found in 5 of 79 ( 6.3% ) of genes in pham
- Manual Annotations of this start: 2 of 55
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Bernardo\_39 (B3), Geodirt\_33 (DE1),

#### Start 27:

- Found in 46 of 79 ( 58.2% ) of genes in pham
- Manual Annotations of this start: 35 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ablatia\_249 (C1), Ading\_252 (C1), Asterius\_250 (C1), Astraea\_245 (C1), BananaFence\_247 (C1), Basquiat\_247 (C1), Belieber\_242 (C1), Blackbrain\_248 (C1), BobaPhatt\_241 (C1), Bonray\_252 (C1), Bowman\_247 (C1), Bread\_246 (C1), Cactojaque\_244 (C1), Chargie21\_247 (C1), Cleatunium\_242 (C1), Concombre\_255 (C1), Darko\_249 (C1), Demodog\_256 (C1), EmToTheThree\_250 (C1), Erdmann\_251 (C1), ErnieJ\_243 (C1), Fixie\_249 (C1), FoxtrotP1\_248 (C1), FudgeTart\_245 (C1), Gizmo\_255 (C1), Issimir\_243 (C1), JPickles\_247 (C1), Janiyra\_253 (C1), Lee7\_249 (C1), Maby2021\_250 (C1), McGee\_251 (C1), Morizzled23\_247 (C1), OrediggerDelux\_245 (C1), PharkleMinkus\_252 (C1), Primadonna\_244 (C1), PurduePete\_250 (C1), Salacia\_251 (C1), Shrimp\_252 (C1), Specks\_254 (C1), SrishMeg2525\_247 (C1), StubbySaigey\_256 (C1), Teardrop\_248 (C1), TinyTim\_248 (C1), Trinitium\_246 (C1), Yucca\_250 (C1), ZygoTaiga\_246 (C1),

#### Start 28:

- Found in 1 of 79 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gizmo\_126 (C1),

#### Start 30:

- Found in 4 of 79 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 25.0% of time when present
- Phage (with cluster) where this start called: PowerRanger\_26 (A1),

#### Start 31:

- Found in 2 of 79 ( 2.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Thales\_1 (DQ),

#### Start 36:

- Found in 2 of 79 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Sunfish\_64 (singleton),

#### Start 38:

- Found in 3 of 79 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 33.3% of time when present
- Phage (with cluster) where this start called: KentuckyRacer\_110 (BE2),

Start 40:

- Found in 47 of 79 ( 59.5% ) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 2.1% of time when present
- Phage (with cluster) where this start called: ScoobyDoobyDoo\_251 (C2),

Start 44:

- Found in 3 of 79 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Jalammah\_18 (CV),

Start 45:

- Found in 3 of 79 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Kithara\_58 (singleton),

Start 49:

- Found in 1 of 79 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: RedWattleHog\_27 (DX),

Start 51:

- Found in 1 of 79 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SilverChicken\_59 (F2),

Start 52:

- Found in 3 of 79 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Bagrid\_113 (J), Hannaconda\_99 (J),

Start 54:

- Found in 2 of 79 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Sour\_34 (DR),

Start 59:

- Found in 2 of 79 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 2 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amao\_38 (E), CrystalP\_38 (E),

Start 60:

- Found in 49 of 79 ( 62.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.0% of time when present
- Phage (with cluster) where this start called: Rearden\_102 (J),

Start 66:

- Found in 1 of 79 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: REQ3\_10 (singleton),

Start 71:

- Found in 1 of 79 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA6\_81 (DQ),

Start 72:

- Found in 1 of 79 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gonephishing\_48 (J),

Start 73:

- Found in 3 of 79 ( 3.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Hidrated\_137 (J), Marleymoo\_134 (J),

Start 77:

- Found in 1 of 79 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SharkTale\_59 (DC1),

Start 79:

- Found in 9 of 79 ( 11.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 22.2% of time when present
- Phage (with cluster) where this start called: Odette\_154 (J), Vortrix\_271 (C1),

Start 84:

- Found in 4 of 79 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Reindeer\_124 (M1),

Start 92:

- Found in 6 of 79 ( 7.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Merpity\_48 (FQ1),

**Summary by clusters:**

There are 17 clusters represented in this pham: singleton, FQ1, E, DE1, J, F2, A1, M1, DX, B3, BE2, C2, C1, DC1, DR, CV, DQ,

Info for manual annotations of cluster A1:

- Start number 20 was manually annotated 1 time for cluster A1.
- Start number 25 was manually annotated 3 times for cluster A1.
- Start number 30 was manually annotated 1 time for cluster A1.

Info for manual annotations of cluster B3:

- Start number 20 was manually annotated 1 time for cluster B3.
- Start number 26 was manually annotated 1 time for cluster B3.

Info for manual annotations of cluster BE2:

- Start number 38 was manually annotated 1 time for cluster BE2.

Info for manual annotations of cluster C1:

- Start number 27 was manually annotated 35 times for cluster C1.
- Start number 28 was manually annotated 1 time for cluster C1.

Info for manual annotations of cluster C2:

- Start number 40 was manually annotated 1 time for cluster C2.

Info for manual annotations of cluster CV:

- Start number 44 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster DE1:

- Start number 26 was manually annotated 1 time for cluster DE1.

Info for manual annotations of cluster DR:

- Start number 54 was manually annotated 1 time for cluster DR.

Info for manual annotations of cluster DX:

- Start number 49 was manually annotated 1 time for cluster DX.

Info for manual annotations of cluster E:

- Start number 59 was manually annotated 2 times for cluster E.

Info for manual annotations of cluster J:

- Start number 52 was manually annotated 1 time for cluster J.

Info for manual annotations of cluster M1:

- Start number 84 was manually annotated 1 time for cluster M1.

**Gene Information:**

Gene: Ablatia\_249 Start: 141923, Stop: 142372, Start Num: 27

Candidate Starts for Ablatia\_249:

(Start: 27 @141923 has 35 MA's), (Start: 40 @141962 has 1 MA's), (48, 141980), (60, 142013), (70, 142040), (82, 142073), (102, 142160), (109, 142202), (123, 142301),

Gene: Ading\_252 Start: 144356, Stop: 144805, Start Num: 27

Candidate Starts for Ading\_252:

(Start: 27 @144356 has 35 MA's), (Start: 40 @144395 has 1 MA's), (48, 144413), (60, 144446), (70, 144473), (82, 144506), (102, 144593), (109, 144635), (123, 144734),

Gene: Amao\_38 Start: 33138, Stop: 32746, Start Num: 59

Candidate Starts for Amao\_38:

(6, 33333), (23, 33267), (34, 33225), (Start: 59 @33138 has 2 MA's), (81, 33060), (82, 33057), (90, 33021),

Gene: Asterius\_250 Start: 142368, Stop: 142817, Start Num: 27

Candidate Starts for Asterius\_250:

(Start: 27 @142368 has 35 MA's), (Start: 40 @142407 has 1 MA's), (48, 142425), (60, 142458), (70, 142485), (82, 142518), (102, 142605), (109, 142647), (123, 142746),

Gene: Astraea\_245 Start: 141563, Stop: 142012, Start Num: 27

Candidate Starts for Astraea\_245:

(Start: 27 @141563 has 35 MA's), (Start: 40 @141602 has 1 MA's), (48, 141620), (60, 141653), (70, 141680), (82, 141713), (102, 141800), (109, 141842), (123, 141941),

Gene: Bagrid\_113 Start: 63671, Stop: 64075, Start Num: 52

Candidate Starts for Bagrid\_113:

(1, 63371), (2, 63395), (4, 63500), (11, 63533), (21, 63551), (33, 63608), (Start: 52 @63671 has 1 MA's), (60, 63686), (65, 63704), (82, 63761), (Start: 84 @63767 has 1 MA's), (98, 63827), (115, 63920),

Gene: BananaFence\_247 Start: 142192, Stop: 142641, Start Num: 27

Candidate Starts for BananaFence\_247:

(Start: 27 @142192 has 35 MA's), (Start: 40 @142231 has 1 MA's), (48, 142249), (60, 142282), (70, 142309), (82, 142342), (102, 142429), (109, 142471), (123, 142570),

Gene: Basquiat\_247 Start: 140478, Stop: 140927, Start Num: 27

Candidate Starts for Basquiat\_247:

(Start: 27 @140478 has 35 MA's), (Start: 40 @140517 has 1 MA's), (48, 140535), (60, 140568), (70, 140595), (82, 140628), (102, 140715), (109, 140757), (123, 140856),

Gene: Belieber\_242 Start: 140605, Stop: 141054, Start Num: 27

Candidate Starts for Belieber\_242:

(Start: 27 @140605 has 35 MA's), (Start: 40 @140644 has 1 MA's), (48, 140662), (60, 140695), (70, 140722), (82, 140755), (102, 140842), (109, 140884), (123, 140983),

Gene: Bernardo\_39 Start: 36994, Stop: 37440, Start Num: 26

Candidate Starts for Bernardo\_39:

(Start: 26 @36994 has 2 MA's), (Start: 54 @37090 has 1 MA's), (81, 37174), (82, 37177), (100, 37255), (125, 37423),

Gene: Blackbrain\_248 Start: 142255, Stop: 142704, Start Num: 27

Candidate Starts for Blackbrain\_248:

(Start: 27 @142255 has 35 MA's), (Start: 40 @142294 has 1 MA's), (48, 142312), (60, 142345), (70, 142372), (82, 142405), (102, 142492), (109, 142534), (123, 142633),

Gene: BobaPhatt\_241 Start: 141373, Stop: 141822, Start Num: 27

Candidate Starts for BobaPhatt\_241:

(Start: 27 @141373 has 35 MA's), (Start: 40 @141412 has 1 MA's), (48, 141430), (60, 141463), (70, 141490), (82, 141523), (102, 141610), (109, 141652), (123, 141751),

Gene: Bonray\_252 Start: 144055, Stop: 144504, Start Num: 27

Candidate Starts for Bonray\_252:

(Start: 27 @144055 has 35 MA's), (Start: 40 @144094 has 1 MA's), (48, 144112), (60, 144145), (70, 144172), (82, 144205), (102, 144292), (109, 144334), (123, 144433),

Gene: Bowman\_247 Start: 143170, Stop: 143619, Start Num: 27

Candidate Starts for Bowman\_247:

(Start: 27 @143170 has 35 MA's), (Start: 40 @143209 has 1 MA's), (48, 143227), (60, 143260), (70, 143287), (82, 143320), (102, 143407), (109, 143449), (123, 143548),

Gene: Bread\_246 Start: 142022, Stop: 142471, Start Num: 27

Candidate Starts for Bread\_246:

(Start: 27 @142022 has 35 MA's), (Start: 40 @142061 has 1 MA's), (48, 142079), (60, 142112), (70, 142139), (82, 142172), (102, 142259), (109, 142301), (123, 142400),

Gene: Buttons\_27 Start: 21411, Stop: 21896, Start Num: 20

Candidate Starts for Buttons\_27:

(Start: 20 @21411 has 2 MA's), (Start: 30 @21459 has 1 MA's), (82, 21630), (83, 21633), (92, 21672),

Gene: Cactojaque\_244 Start: 141201, Stop: 141650, Start Num: 27

Candidate Starts for Cactojaque\_244:

(Start: 27 @141201 has 35 MA's), (Start: 40 @141240 has 1 MA's), (48, 141258), (60, 141291), (70, 141318), (82, 141351), (102, 141438), (109, 141480), (123, 141579),

Gene: Chargie21\_247 Start: 140478, Stop: 140927, Start Num: 27

Candidate Starts for Chargie21\_247:

(Start: 27 @140478 has 35 MA's), (Start: 40 @140517 has 1 MA's), (48, 140535), (60, 140568), (70, 140595), (82, 140628), (102, 140715), (109, 140757), (123, 140856),

Gene: Cleatunium\_242 Start: 141882, Stop: 142331, Start Num: 27

Candidate Starts for Cleatunium\_242:

(Start: 27 @141882 has 35 MA's), (Start: 40 @141921 has 1 MA's), (48, 141939), (60, 141972), (70, 141999), (82, 142032), (102, 142119), (109, 142161), (123, 142260),

Gene: Concombres\_255 Start: 144217, Stop: 144666, Start Num: 27

Candidate Starts for Concombres\_255:

(Start: 27 @144217 has 35 MA's), (Start: 40 @144256 has 1 MA's), (48, 144274), (55, 144295), (60, 144307), (70, 144334), (82, 144367), (102, 144454),

Gene: CrystalP\_38 Start: 33934, Stop: 33542, Start Num: 59

Candidate Starts for CrystalP\_38:

(6, 34129), (23, 34063), (34, 34021), (Start: 59 @33934 has 2 MA's), (81, 33856), (82, 33853), (90, 33817),

Gene: Darko\_249 Start: 142196, Stop: 142645, Start Num: 27

Candidate Starts for Darko\_249:

(Start: 27 @142196 has 35 MA's), (Start: 40 @142235 has 1 MA's), (48, 142253), (60, 142286), (70, 142313), (82, 142346), (102, 142433), (109, 142475), (123, 142574),

Gene: Demodog\_256 Start: 144227, Stop: 144676, Start Num: 27

Candidate Starts for Demodog\_256:

(Start: 27 @144227 has 35 MA's), (Start: 40 @144266 has 1 MA's), (48, 144284), (55, 144305), (60, 144317), (70, 144344), (82, 144377), (102, 144464),

Gene: EmToTheThree\_250 Start: 143104, Stop: 143553, Start Num: 27

Candidate Starts for EmToTheThree\_250:

(Start: 27 @143104 has 35 MA's), (Start: 40 @143143 has 1 MA's), (48, 143161), (60, 143194), (70, 143221), (82, 143254), (102, 143341), (109, 143383), (123, 143482),

Gene: Erdmann\_251 Start: 143072, Stop: 143521, Start Num: 27

Candidate Starts for Erdmann\_251:

(Start: 27 @143072 has 35 MA's), (Start: 40 @143111 has 1 MA's), (48, 143129), (60, 143162), (70, 143189), (82, 143222), (102, 143309), (109, 143351), (123, 143450),

Gene: ErnieJ\_243 Start: 139900, Stop: 140349, Start Num: 27

Candidate Starts for ErnieJ\_243:

(Start: 27 @139900 has 35 MA's), (Start: 40 @139939 has 1 MA's), (48, 139957), (60, 139990), (70, 140017), (82, 140050), (102, 140137), (109, 140179), (123, 140278),

Gene: Fixie\_249 Start: 143337, Stop: 143786, Start Num: 27

Candidate Starts for Fixie\_249:

(Start: 27 @143337 has 35 MA's), (Start: 40 @143376 has 1 MA's), (48, 143394), (60, 143427), (70, 143454), (82, 143487), (102, 143574), (109, 143616), (123, 143715),

Gene: FoxtrotP1\_248 Start: 143658, Stop: 144107, Start Num: 27

Candidate Starts for FoxtrotP1\_248:

(Start: 27 @143658 has 35 MA's), (Start: 40 @143697 has 1 MA's), (48, 143715), (60, 143748), (70, 143775), (82, 143808), (102, 143895), (109, 143937), (123, 144036),

Gene: FudgeTart\_245 Start: 142162, Stop: 142611, Start Num: 27

Candidate Starts for FudgeTart\_245:

(Start: 27 @142162 has 35 MA's), (Start: 40 @142201 has 1 MA's), (48, 142219), (60, 142252), (70, 142279), (82, 142312), (102, 142399), (109, 142441), (123, 142540),

Gene: GMA6\_81 Start: 64168, Stop: 64497, Start Num: 71

Candidate Starts for GMA6\_81:

(8, 63964), (13, 63982), (43, 64081), (Start: 45 @64090 has 1 MA's), (53, 64123), (56, 64126), (67, 64162), (71, 64168), (78, 64189), (79, 64195), (81, 64204), (85, 64222), (101, 64288), (108, 64336), (129, 64474),

Gene: Geodirt\_33 Start: 32468, Stop: 31986, Start Num: 26

Candidate Starts for Geodirt\_33:

(3, 32606), (4, 32552), (5, 32549), (22, 32495), (Start: 26 @32468 has 2 MA's), (79, 32285), (82, 32273), (116, 32111), (120, 32066),

Gene: Gizmo\_255 Start: 144989, Stop: 145438, Start Num: 27

Candidate Starts for Gizmo\_255:

(Start: 27 @144989 has 35 MA's), (Start: 40 @145028 has 1 MA's), (48, 145046), (60, 145079), (70, 145106), (82, 145139), (102, 145226), (109, 145268), (123, 145367),

Gene: Gizmo\_126 Start: 66298, Stop: 65843, Start Num: 28

Candidate Starts for Gizmo\_126:

(Start: 28 @66298 has 1 MA's), (58, 66211), (69, 66175), (81, 66139), (89, 66100), (102, 66049),

Gene: Gonephishing\_48 Start: 38804, Stop: 38457, Start Num: 72

Candidate Starts for Gonephishing\_48:

(16, 38996), (Start: 26 @38954 has 2 MA's), (39, 38909), (72, 38804), (79, 38777), (86, 38750), (91, 38726), (113, 38615),

Gene: Gwendoluna\_12 Start: 7666, Stop: 8121, Start Num: 25

Candidate Starts for Gwendoluna\_12:

(Start: 25 @7666 has 3 MA's), (34, 7699), (61, 7786), (80, 7846), (90, 7888), (105, 7966), (107, 7975), (121, 8056), (125, 8095),

Gene: Hannaconda\_99 Start: 57411, Stop: 57815, Start Num: 52

Candidate Starts for Hannaconda\_99:

(4, 57240), (11, 57273), (21, 57291), (33, 57348), (Start: 52 @57411 has 1 MA's), (60, 57426), (65, 57444), (82, 57501), (Start: 84 @57507 has 1 MA's), (98, 57567), (115, 57660), (131, 57801),

Gene: Hidrated\_137 Start: 78910, Stop: 79290, Start Num: 73

Candidate Starts for Hidrated\_137:

(10, 78691), (41, 78793), (46, 78814), (47, 78817), (63, 78880), (73, 78910), (79, 78919), (97, 78997), (113, 79084), (122, 79144), (124, 79180), (133, 79276),

Gene: Issimir\_243 Start: 142261, Stop: 142710, Start Num: 27

Candidate Starts for Issimir\_243:

(Start: 27 @142261 has 35 MA's), (Start: 40 @142300 has 1 MA's), (48, 142318), (60, 142351), (70, 142378), (82, 142411), (102, 142498), (109, 142540), (123, 142639),

Gene: JPickles\_247 Start: 141311, Stop: 141760, Start Num: 27

Candidate Starts for JPickles\_247:

(Start: 27 @141311 has 35 MA's), (Start: 40 @141350 has 1 MA's), (48, 141368), (60, 141401), (70, 141428), (82, 141461), (102, 141548), (109, 141590), (123, 141689),

Gene: Jalammah\_18 Start: 10634, Stop: 11050, Start Num: 44

Candidate Starts for Jalammah\_18:

(14, 10535), (19, 10544), (Start: 30 @10595 has 1 MA's), (Start: 44 @10634 has 1 MA's), (81, 10763), (82, 10766), (83, 10769), (90, 10802), (92, 10808), (101, 10844), (108, 10892), (112, 10913),

Gene: Janiyra\_253 Start: 142848, Stop: 143297, Start Num: 27

Candidate Starts for Janiyra\_253:

(Start: 27 @142848 has 35 MA's), (Start: 40 @142887 has 1 MA's), (48, 142905), (60, 142938), (70, 142965), (82, 142998), (102, 143085), (109, 143127), (123, 143226),

Gene: KentuckyRacer\_110 Start: 73819, Stop: 74262, Start Num: 38

Candidate Starts for KentuckyRacer\_110:

(Start: 38 @73819 has 1 MA's), (99, 74038), (102, 74053), (107, 74089),

Gene: Kithara\_58 Start: 44459, Stop: 44022, Start Num: 45

Candidate Starts for Kithara\_58:

(Start: 36 @44489 has 1 MA's), (Start: 45 @44459 has 1 MA's), (103, 44243),

Gene: Lee7\_249 Start: 144611, Stop: 145060, Start Num: 27

Candidate Starts for Lee7\_249:

(Start: 27 @144611 has 35 MA's), (Start: 40 @144650 has 1 MA's), (48, 144668), (60, 144701), (70, 144728), (82, 144761), (102, 144848), (109, 144890), (123, 144989),

Gene: Maby2021\_250 Start: 143650, Stop: 144099, Start Num: 27

Candidate Starts for Maby2021\_250:

(Start: 27 @143650 has 35 MA's), (Start: 40 @143689 has 1 MA's), (48, 143707), (60, 143740), (70, 143767), (82, 143800), (102, 143887), (109, 143929), (123, 144028),

Gene: Marleymoo\_134 Start: 76219, Stop: 76599, Start Num: 73

Candidate Starts for Marleymoo\_134:

(10, 76000), (41, 76102), (46, 76123), (47, 76126), (63, 76189), (73, 76219), (79, 76228), (87, 76261), (97, 76306), (113, 76393), (122, 76453), (124, 76489), (133, 76585),

Gene: McGee\_251 Start: 142298, Stop: 142747, Start Num: 27

Candidate Starts for McGee\_251:

(Start: 27 @142298 has 35 MA's), (Start: 40 @142337 has 1 MA's), (48, 142355), (60, 142388), (70, 142415), (82, 142448), (102, 142535), (109, 142577), (123, 142676),

Gene: Merpity\_48 Start: 29099, Stop: 29362, Start Num: 92

Candidate Starts for Merpity\_48:

(Start: 38 @28901 has 1 MA's), (92, 29099), (99, 29129), (105, 29171), (107, 29180), (118, 29246), (130, 29336),

Gene: Morizzled23\_247 Start: 141326, Stop: 141775, Start Num: 27

Candidate Starts for Morizzled23\_247:

(Start: 27 @141326 has 35 MA's), (Start: 40 @141365 has 1 MA's), (48, 141383), (60, 141416), (70, 141443), (82, 141476), (102, 141563), (109, 141605), (123, 141704),

Gene: Odette\_154 Start: 81698, Stop: 82069, Start Num: 79

Candidate Starts for Odette\_154:

(10, 81470), (41, 81572), (46, 81593), (47, 81596), (63, 81659), (73, 81689), (79, 81698), (87, 81731), (97, 81776), (113, 81863), (122, 81923), (124, 81959), (133, 82055),

Gene: OrediggerDelux\_245 Start: 143615, Stop: 144064, Start Num: 27

Candidate Starts for OrediggerDelux\_245:

(Start: 27 @143615 has 35 MA's), (Start: 40 @143654 has 1 MA's), (48, 143672), (60, 143705), (70, 143732), (82, 143765), (102, 143852), (109, 143894), (123, 143993),

Gene: PharkleMinkus\_252 Start: 141563, Stop: 142012, Start Num: 27

Candidate Starts for PharkleMinkus\_252:

(Start: 27 @141563 has 35 MA's), (Start: 40 @141602 has 1 MA's), (48, 141620), (60, 141653), (70, 141680), (82, 141713), (102, 141800), (109, 141842), (123, 141941),

Gene: Pipefish\_29 Start: 27509, Stop: 27015, Start Num: 20

Candidate Starts for Pipefish\_29:

(Start: 20 @27509 has 2 MA's), (69, 27344), (79, 27311), (92, 27260),

Gene: PowerRanger\_26 Start: 22001, Stop: 22438, Start Num: 30

Candidate Starts for PowerRanger\_26:

(Start: 20 @21953 has 2 MA's), (Start: 30 @22001 has 1 MA's), (82, 22172), (83, 22175), (92, 22214),

Gene: Primadonna\_244 Start: 142325, Stop: 142774, Start Num: 27

Candidate Starts for Primadonna\_244:

(Start: 27 @142325 has 35 MA's), (Start: 40 @142364 has 1 MA's), (48, 142382), (60, 142415), (70, 142442), (82, 142475), (102, 142562), (109, 142604), (123, 142703),

Gene: PurduePete\_250 Start: 143690, Stop: 144139, Start Num: 27  
Candidate Starts for PurduePete\_250:

(Start: 27 @143690 has 35 MA's), (Start: 40 @143729 has 1 MA's), (48, 143747), (60, 143780), (70, 143807), (82, 143840), (102, 143927), (109, 143969), (123, 144068),

Gene: REQ3\_10 Start: 4829, Stop: 5143, Start Num: 66  
Candidate Starts for REQ3\_10:

(32, 4724), (35, 4733), (66, 4829), (69, 4835), (88, 4904), (93, 4919),

Gene: Rearden\_102 Start: 60176, Stop: 60565, Start Num: 60  
Candidate Starts for Rearden\_102:

(1, 59861), (2, 59885), (4, 59990), (11, 60023), (21, 60041), (33, 60098), (Start: 52 @60161 has 1 MA's), (60, 60176), (65, 60194), (82, 60251), (Start: 84 @60257 has 1 MA's), (98, 60317), (115, 60410), (131, 60551),

Gene: RedWattleHog\_27 Start: 28545, Stop: 28156, Start Num: 49  
Candidate Starts for RedWattleHog\_27:

(19, 28650), (Start: 49 @28545 has 1 MA's), (83, 28443), (106, 28326), (127, 28179),

Gene: Reindeer\_124 Start: 66316, Stop: 66687, Start Num: 84  
Candidate Starts for Reindeer\_124:

(29, 66166), (Start: 84 @66316 has 1 MA's), (85, 66325), (96, 66379), (104, 66418), (105, 66436), (132, 66622), (134, 66652),

Gene: Salacia\_251 Start: 144116, Stop: 144565, Start Num: 27  
Candidate Starts for Salacia\_251:

(Start: 27 @144116 has 35 MA's), (Start: 40 @144155 has 1 MA's), (48, 144173), (60, 144206), (70, 144233), (82, 144266), (102, 144353), (109, 144395), (123, 144494),

Gene: ScoobyDoobyDoo\_251 Start: 151338, Stop: 151754, Start Num: 40  
Candidate Starts for ScoobyDoobyDoo\_251:

(18, 151257), (Start: 40 @151338 has 1 MA's), (Start: 45 @151356 has 1 MA's), (50, 151383), (61, 151401), (69, 151422), (79, 151452), (90, 151500), (95, 151515), (106, 151581), (121, 151668),

Gene: SharkTale\_59 Start: 44261, Stop: 44587, Start Num: 77  
Candidate Starts for SharkTale\_59:

(Start: 20 @44060 has 2 MA's), (Start: 30 @44108 has 1 MA's), (37, 44126), (68, 44234), (77, 44261), (90, 44318), (101, 44360), (108, 44408), (119, 44483),

Gene: Shrimp\_252 Start: 143727, Stop: 144176, Start Num: 27  
Candidate Starts for Shrimp\_252:

(Start: 27 @143727 has 35 MA's), (Start: 40 @143766 has 1 MA's), (48, 143784), (60, 143817), (70, 143844), (82, 143877), (102, 143964), (109, 144006), (123, 144105),

Gene: SilverChicken\_59 Start: 36550, Stop: 36966, Start Num: 51  
Candidate Starts for SilverChicken\_59:

(17, 36415), (19, 36418), (Start: 44 @36508 has 1 MA's), (51, 36550), (74, 36610), (90, 36676), (101, 36718), (108, 36766),

Gene: Sour\_34 Start: 32659, Stop: 32288, Start Num: 54

Candidate Starts for Sour\_34:

(Start: 26 @32755 has 2 MA's), (Start: 54 @32659 has 1 MA's), (69, 32617), (75, 32599), (76, 32596), (85, 32557), (107, 32449), (125, 32329),

Gene: Specks\_254 Start: 143067, Stop: 143516, Start Num: 27

Candidate Starts for Specks\_254:

(Start: 27 @143067 has 35 MA's), (Start: 40 @143106 has 1 MA's), (48, 143124), (60, 143157), (70, 143184), (82, 143217), (102, 143304), (109, 143346), (123, 143445),

Gene: SrishMeg2525\_247 Start: 143222, Stop: 143671, Start Num: 27

Candidate Starts for SrishMeg2525\_247:

(Start: 27 @143222 has 35 MA's), (Start: 40 @143261 has 1 MA's), (48, 143279), (60, 143312), (70, 143339), (82, 143372), (102, 143459), (109, 143501), (123, 143600),

Gene: StubbySaigey\_256 Start: 142752, Stop: 143201, Start Num: 27

Candidate Starts for StubbySaigey\_256:

(Start: 27 @142752 has 35 MA's), (Start: 40 @142791 has 1 MA's), (48, 142809), (60, 142842), (70, 142869), (82, 142902), (102, 142989), (109, 143031), (123, 143130),

Gene: Sunfish\_64 Start: 42539, Stop: 42087, Start Num: 36

Candidate Starts for Sunfish\_64:

(Start: 36 @42539 has 1 MA's), (42, 42524), (57, 42470), (114, 42227), (117, 42212),

Gene: Target\_12 Start: 7244, Stop: 7699, Start Num: 25

Candidate Starts for Target\_12:

(Start: 25 @7244 has 3 MA's), (34, 7277), (61, 7364), (80, 7424), (90, 7466), (105, 7544), (107, 7553), (121, 7634), (125, 7673),

Gene: Teardrop\_248 Start: 142079, Stop: 142528, Start Num: 27

Candidate Starts for Teardrop\_248:

(Start: 27 @142079 has 35 MA's), (Start: 40 @142118 has 1 MA's), (48, 142136), (60, 142169), (70, 142196), (82, 142229), (102, 142316), (109, 142358), (123, 142457),

Gene: Thales\_1 Start: 76, Stop: 522, Start Num: 31

Candidate Starts for Thales\_1:

(9, 1), (15, 16), (31, 76), (37, 94), (Start: 38 @100 has 1 MA's), (62, 175), (64, 181), (82, 226), (94, 271), (102, 313), (108, 352), (110, 364), (120, 430),

Gene: TheloniousMonk\_12 Start: 7471, Stop: 7926, Start Num: 25

Candidate Starts for TheloniousMonk\_12:

(Start: 25 @7471 has 3 MA's), (34, 7504), (61, 7591), (80, 7651), (90, 7693), (105, 7771), (107, 7780), (121, 7861), (125, 7900),

Gene: TinyTim\_248 Start: 142046, Stop: 142495, Start Num: 27

Candidate Starts for TinyTim\_248:

(Start: 27 @142046 has 35 MA's), (Start: 40 @142085 has 1 MA's), (48, 142103), (60, 142136), (70, 142163), (82, 142196), (102, 142283), (109, 142325), (123, 142424),

Gene: Trinitium\_246 Start: 140800, Stop: 141249, Start Num: 27

Candidate Starts for Trinitium\_246:

(Start: 27 @140800 has 35 MA's), (Start: 40 @140839 has 1 MA's), (48, 140857), (60, 140890), (70, 140917), (82, 140950), (102, 141037), (109, 141079), (123, 141178),

Gene: Vortrix\_271 Start: 149684, Stop: 149989, Start Num: 79

Candidate Starts for Vortrix\_271:

(7, 149444), (10, 149468), (12, 149474), (24, 149513), (Start: 26 @149522 has 2 MA's), (31, 149540), (Start: 44 @149585 has 1 MA's), (79, 149684), (80, 149690), (82, 149696), (92, 149741), (102, 149786), (105, 149813), (108, 149825), (109, 149828), (111, 149843), (126, 149942), (127, 149954), (128, 149960),

Gene: Yucca\_250 Start: 143605, Stop: 144054, Start Num: 27

Candidate Starts for Yucca\_250:

(Start: 27 @143605 has 35 MA's), (Start: 40 @143644 has 1 MA's), (48, 143662), (60, 143695), (70, 143722), (82, 143755), (102, 143842), (109, 143884), (123, 143983),

Gene: ZygoTaiga\_246 Start: 143902, Stop: 144351, Start Num: 27

Candidate Starts for ZygoTaiga\_246:

(Start: 27 @143902 has 35 MA's), (Start: 40 @143941 has 1 MA's), (48, 143959), (60, 143992), (70, 144019), (82, 144052), (102, 144139), (109, 144181), (123, 144280),