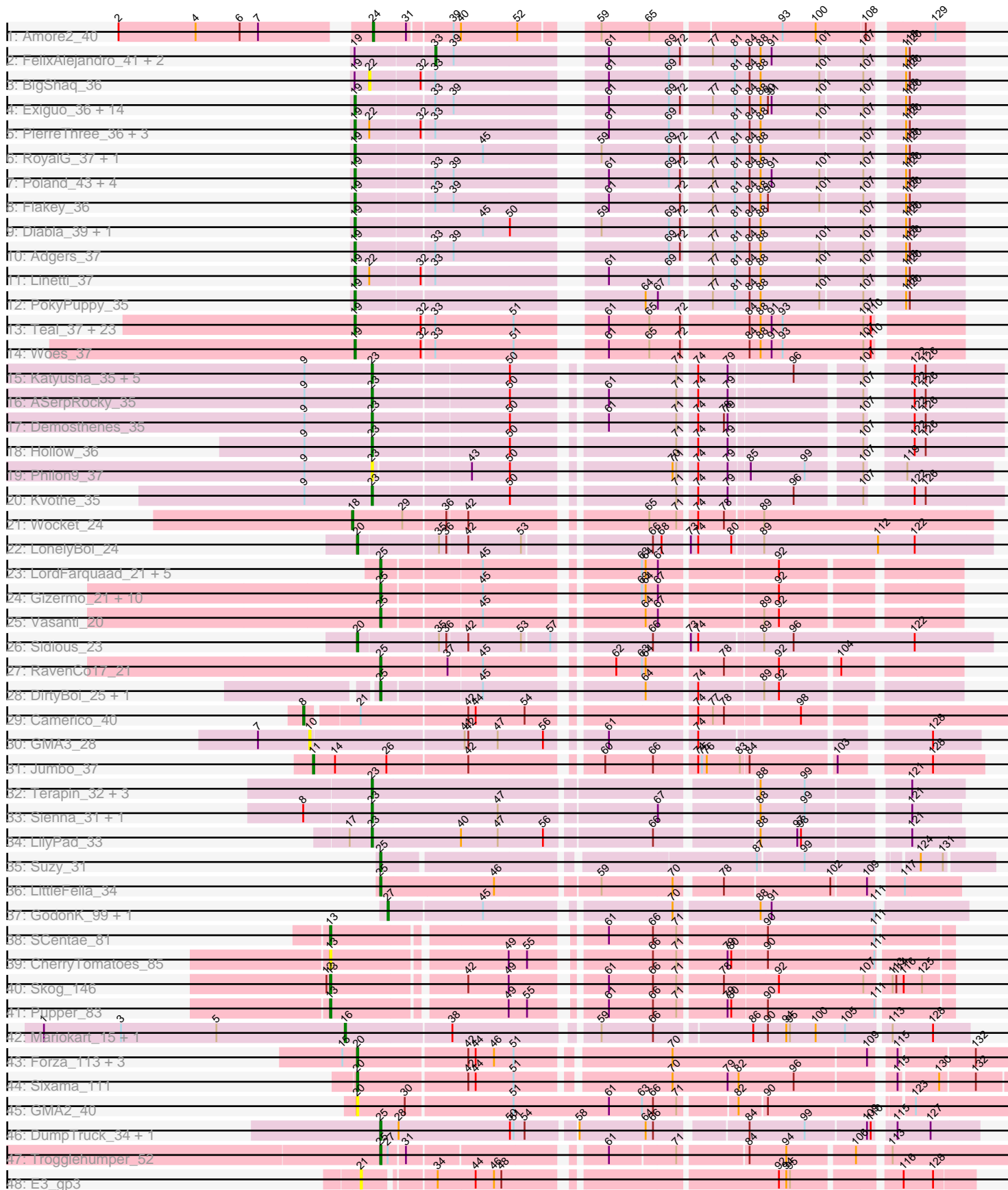


Pham 163445



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 163445 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163445 has 127 members, 18 are drafts.

Phages represented in each track:

- Track 1 : Amore2\_40
- Track 2 : FelixAlejandro\_41, Msay19\_41, Butterball\_40
- Track 3 : BigShaq\_36
- Track 4 : Exiguo\_36, Jellybones\_40, John316\_40, Beaver\_40, Squibbles\_35, Gorko\_36, Ekhein\_37, RemRem\_37, Lizzo\_36, Hotorobo\_36, Breezic\_36, CathyBurgh\_35, Sam12\_36, GourdThymes\_36, Monty\_35
- Track 5 : PierreThree\_36, Chelms\_36, BenoitCattle\_37, Dakiti\_36
- Track 6 : RoyalG\_37, SteveFrench\_36
- Track 7 : Poland\_43, Boneham\_40, Sombrero\_36, BirksAndSocks\_40, Barbochs\_36
- Track 8 : Flakey\_36
- Track 9 : Diabla\_39, Eggsie\_36
- Track 10 : Adgers\_37
- Track 11 : Linetti\_37
- Track 12 : PokyPuppy\_35
- Track 13 : Teal\_37, Jams\_37, Guillaume\_37, Luker\_38, Sticker17\_37, Nimi13\_37, Minos\_38, Shelley\_37, Hail2Pitt\_37, Harambe\_37, Lahirium\_37, Anamika\_37, Neevie\_37, GalacticEye\_37, Hello\_37, Berries\_38, Charianelly\_37, Bianmat\_37, Damp\_37, MrWormie\_37, Jormungandr\_37, Newt\_38, Kaseim\_38, Lidong\_37
- Track 14 : Woes\_37
- Track 15 : Katyusha\_35, Tredge\_35, Teatealatte\_35, Benczkowski14\_35, Niagara\_35, Teech\_35
- Track 16 : ASerpRocky\_35
- Track 17 : Demosthenes\_35
- Track 18 : Hollow\_36
- Track 19 : Philon9\_37
- Track 20 : Kvothe\_35
- Track 21 : Wocket\_24
- Track 22 : LonelyBoi\_24
- Track 23 : LordFarquaad\_21, Sahara\_20, Attis\_21, Bjanes7\_21, Yeet412\_21, SoilAssassin\_21
- Track 24 : Gizermo\_21, Savage\_21, Haley23\_21, GemG\_21, Cynthia\_21, Ebert\_21, Sproutie\_21, Whiteclaw\_21, Mocha12\_21, Clap\_21, TuertoX\_21
- Track 25 : Vasanti\_20
- Track 26 : Sidious\_23
- Track 27 : RavenCo17\_21
- Track 28 : DirtyBoi\_25, Hedwig\_25

- Track 29 : Camerico\_40
- Track 30 : GMA3\_28
- Track 31 : Jumbo\_37
- Track 32 : Terapin\_32, Beyoncage\_31, Djokovic\_31, BiteSize\_31
- Track 33 : Sienna\_31, Madi\_31
- Track 34 : LilyPad\_33
- Track 35 : Suzy\_31
- Track 36 : LittleFella\_34
- Track 37 : GodonK\_99, Phendrix\_95
- Track 38 : SCentae\_81
- Track 39 : CherryTomatoes\_85
- Track 40 : Skog\_146
- Track 41 : Pupper\_83
- Track 42 : Mariokart\_15, CharlottesWeb\_15
- Track 43 : Forza\_113, BlueNGold\_112, Boopy\_113, Mareelih\_111
- Track 44 : Sixama\_111
- Track 45 : GMA2\_40
- Track 46 : DumpTruck\_34, Xenia2\_35
- Track 47 : Trogglehumper\_52
- Track 48 : E3\_gp3

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

The start number called the most often in the published annotations is 19, it was called in 47 of the 109 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adgers\_37, Anamika\_37, Barbochs\_36, Beaver\_40, BenoitCattle\_37, Berries\_38, Bianmat\_37, BirksAndSocks\_40, Boneham\_40, Breezic\_36, CathyBurgh\_35, Charianelly\_37, Chelms\_36, Dakiti\_36, Damp\_37, Diabla\_39, Eggsie\_36, Ekhein\_37, Exiguo\_36, Flakey\_36, GalacticEye\_37, Gorko\_36, GourdThymes\_36, Guillaume\_37, Hail2Pitt\_37, Harambe\_37, Hello\_37, Hotorobo\_36, Jams\_37, Jellybones\_40, John316\_40, Jormungandr\_37, Kaseim\_38, Lahirium\_37, Lidong\_37, Linetti\_37, Lizzo\_36, Luker\_38, Minos\_38, Monty\_35, MrWormie\_37, Neoevie\_37, Newt\_38, Nimi13\_37, PierreThree\_36, PokyPuppy\_35, Poland\_43, RemRem\_37, RoyalG\_37, Sam12\_36, Shelley\_37, Sombrero\_36, Squibbles\_35, SteveFrench\_36, Sticker17\_37, Teal\_37, Woes\_37,

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

- BigShaq\_36, Butterball\_40, FelixAlejandro\_41, Msay19\_41,

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

- ASerpRocky\_35, Amore2\_40, Attis\_21, Benczkowski14\_35, Beyoncage\_31, BiteSize\_31, Bjanese7\_21, BlueNGold\_112, Boopy\_113, Camerico\_40, CharlottesWeb\_15, CherryTomatoes\_85, Clap\_21, Cynthia\_21, Demosthenes\_35, DirtyBoi\_25, Djokovic\_31, DumpTruck\_34, E3\_gp3, Ebert\_21, Forza\_113, GMA2\_40, GMA3\_28, GemG\_21, Gizermo\_21, GodonK\_99, Haley23\_21, Hedwig\_25, Hollow\_36, Jumbo\_37, Katyusha\_35, Kvothe\_35, LilyPad\_33, LittleFella\_34, LonelyBoi\_24, LordFarquaaad\_21, Madi\_31, Mareelih\_111, Mariokart\_15, Mocha12\_21, Niagara\_35, Phendrix\_95, Philon9\_37, Pupper\_83, RavenCo17\_21,

SCentae\_81, Sahara\_20, Savage\_21, Sidious\_23, Sienna\_31, Sixama\_111, Skog\_146, SoilAssassin\_21, Sproutie\_21, Suzy\_31, Teatealatte\_35, Teech\_35, Terapin\_32, Tredge\_35, Trogglehumper\_52, TuertoX\_21, Vasanti\_20, Whiteclaw\_21, Wocket\_24, Xenia2\_35, Yeet412\_21,

### Summary by start number:

#### Start 8:

- Found in 3 of 127 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 1 of 109
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Camerico\_40 (DF),

#### Start 10:

- Found in 1 of 127 ( 0.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA3\_28 (DF2),

#### Start 11:

- Found in 1 of 127 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 109
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jumbo\_37 (DF3),

#### Start 13:

- Found in 4 of 127 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 3 of 109
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CherryTomatoes\_85 (DO), Pupper\_83 (DO), SCentae\_81 (DO), Skog\_146 (DO),

#### Start 16:

- Found in 2 of 127 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 109
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CharlottesWeb\_15 (DR), Mariokart\_15 (DR),

#### Start 18:

- Found in 1 of 127 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 109
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Wocket\_24 (CV),

#### Start 19:

- Found in 61 of 127 ( 48.0% ) of genes in pham
- Manual Annotations of this start: 47 of 109
- Called 93.4% of time when present
- Phage (with cluster) where this start called: Adgers\_37 (CS2), Anamika\_37 (CS3), Barbochs\_36 (CS2), Beaver\_40 (CS2), BenoitCattle\_37 (CS2), Berries\_38 (CS3), Bianmat\_37 (CS3), BirksAndSocks\_40 (CS2), Boneham\_40 (CS2), Breezic\_36 (CS2), CathyBurgh\_35 (CS2), Charianelly\_37 (CS3), Chelms\_36 (CS2), Dakiti\_36

(CS2), Damp\_37 (CS3), Diabla\_39 (CS2), Eggsie\_36 (CS2), Ekhein\_37 (CS2), Exiguo\_36 (CS2), Flakey\_36 (CS2), GalacticEye\_37 (CS3), Gorko\_36 (CS2), GourdThymes\_36 (CS2), Guillaume\_37 (CS3), Hail2Pitt\_37 (CS3), Harambe\_37 (CS3), Hello\_37 (CS3), Hotorobo\_36 (CS2), Jams\_37 (CS3), Jellybones\_40 (CS2), John316\_40 (CS2), Jormungandr\_37 (CS3), Kaseim\_38 (CS3), Lahirium\_37 (CS3), Lidong\_37 (CS3), Linetti\_37 (CS2), Lizzo\_36 (CS2), Luker\_38 (CS3), Minos\_38 (CS3), Monty\_35 (CS2), MrWormie\_37 (CS3), Neoevie\_37 (CS3), Newt\_38 (CS3), Nimi13\_37 (CS3), PierreThree\_36 (CS2), PokyPuppy\_35 (CS2), Poland\_43 (CS2), RemRem\_37 (CS2), RoyalG\_37 (CS2), Sam12\_36 (CS2), Shelley\_37 (CS3), Sombrero\_36 (CS2), Squibbles\_35 (CS2), SteveFrench\_36 (CS2), Sticker17\_37 (CS3), Teal\_37 (CS3), Woes\_37 (CS3),

#### Start 20:

- Found in 8 of 127 ( 6.3% ) of genes in pham
- Manual Annotations of this start: 7 of 109
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlueNGold\_112 (DS), Boopy\_113 (DS), Forza\_113 (DS), GMA2\_40 (DS), LonelyBoi\_24 (CY), Mareelih\_111 (DS), Sidious\_23 (CZ7), Sixama\_111 (DS),

#### Start 21:

- Found in 2 of 127 ( 1.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: E3\_gp3 (singleton),

#### Start 22:

- Found in 6 of 127 ( 4.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 16.7% of time when present
- Phage (with cluster) where this start called: BigShaq\_36 (CS2),

#### Start 23:

- Found in 18 of 127 ( 14.2% ) of genes in pham
- Manual Annotations of this start: 16 of 109
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ASerpRocky\_35 (CS4), Benczkowski14\_35 (CS4), Beyoncage\_31 (DG1), BiteSize\_31 (DG1), Demosthenes\_35 (CS4), Djokovic\_31 (DG1), Hollow\_36 (CS4), Katyusha\_35 (CS4), Kvothe\_35 (CS4), LilyPad\_33 (DG1), Madi\_31 (DG1), Niagara\_35 (CS4), Philon9\_37 (CS4), Sienna\_31 (DG1), Teatealatte\_35 (CS4), Teech\_35 (CS4), Terapin\_32 (DG1), Tredge\_35 (CS4),

#### Start 24:

- Found in 1 of 127 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 109
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amore2\_40 (CS1),

#### Start 25:

- Found in 26 of 127 ( 20.5% ) of genes in pham
- Manual Annotations of this start: 26 of 109
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Attis\_21 (CZ2), Bjanes7\_21 (CZ2), Clap\_21 (CZ2), Cynthia\_21 (CZ2), DirtyBoi\_25 (DB), DumpTruck\_34 (DV), Ebert\_21 (CZ2), GemG\_21 (CZ2), Gizermo\_21 (CZ2), Haley23\_21 (CZ2), Hedwig\_25 (DB), LittleFella\_34 (DG2), LordFarquaad\_21 (CZ2), Mocha12\_21 (CZ2), RavenCo17\_21 (CZ8), Sahara\_20 (CZ2), Savage\_21 (CZ2), SoilAssassin\_21 (CZ2), Sproutie\_21 (CZ2), Suzy\_31 (DG1), Trogglehumper\_52 (singleton), TuertoX\_21 (CZ2), Vasanti\_20 (CZ2), Whiteclaw\_21 (CZ2), Xenia2\_35 (DV), Yeet412\_21 (CZ2),

Start 27:

- Found in 3 of 127 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 2 of 109
- Called 66.7% of time when present
- Phage (with cluster) where this start called: GodonK\_99 (DK), Phendrix\_95 (DK),

Start 33:

- Found in 56 of 127 ( 44.1% ) of genes in pham
- Manual Annotations of this start: 3 of 109
- Called 5.4% of time when present
- Phage (with cluster) where this start called: Butterball\_40 (CS2), FelixAlejandro\_41 (CS2), Msay19\_41 (CS2),

### **Summary by clusters:**

There are 21 clusters represented in this pham: DO, singleton, DK, CZ2, CS1, DB, CZ7, DF3, CV, DG2, DF, CY, DG1, CZ8, DV, CS4, DF2, DR, DS, CS3, CS2,

Info for manual annotations of cluster CS1:

- Start number 24 was manually annotated 1 time for cluster CS1.

Info for manual annotations of cluster CS2:

- Start number 19 was manually annotated 26 times for cluster CS2.
- Start number 33 was manually annotated 3 times for cluster CS2.

Info for manual annotations of cluster CS3:

- Start number 19 was manually annotated 21 times for cluster CS3.

Info for manual annotations of cluster CS4:

- Start number 23 was manually annotated 9 times for cluster CS4.

Info for manual annotations of cluster CV:

- Start number 18 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster CY:

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

Info for manual annotations of cluster CZ2:

- Start number 25 was manually annotated 18 times for cluster CZ2.

Info for manual annotations of cluster CZ7:

- Start number 20 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster CZ8:

- Start number 25 was manually annotated 1 time for cluster CZ8.

Info for manual annotations of cluster DB:

- Start number 25 was manually annotated 2 times for cluster DB.

Info for manual annotations of cluster DF:

- Start number 8 was manually annotated 1 time for cluster DF.

Info for manual annotations of cluster DF3:

- Start number 11 was manually annotated 1 time for cluster DF3.

Info for manual annotations of cluster DG1:

- Start number 23 was manually annotated 7 times for cluster DG1.
- Start number 25 was manually annotated 1 time for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 25 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DK:

- Start number 27 was manually annotated 2 times for cluster DK.

Info for manual annotations of cluster DO:

- Start number 13 was manually annotated 3 times for cluster DO.

Info for manual annotations of cluster DR:

- Start number 16 was manually annotated 1 time for cluster DR.

Info for manual annotations of cluster DS:

- Start number 20 was manually annotated 5 times for cluster DS.

Info for manual annotations of cluster DV:

- Start number 25 was manually annotated 2 times for cluster DV.

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

Gene: ASerpRocky\_35 Start: 41389, Stop: 41841, Start Num: 23

Candidate Starts for ASerpRocky\_35:

(9, 41335), (Start: 23 @41389 has 16 MA's), (50, 41494), (61, 41557), (71, 41611), (74, 41623), (79, 41647), (107, 41743), (122, 41770), (126, 41779),

Gene: Adgers\_37 Start: 39896, Stop: 40342, Start Num: 19

Candidate Starts for Adgers\_37:

(Start: 19 @39896 has 47 MA's), (Start: 33 @39956 has 3 MA's), (39, 39971), (69, 40121), (72, 40130), (77, 40151), (81, 40169), (84, 40181), (88, 40190), (101, 40238), (107, 40271), (118, 40295), (120, 40298),

Gene: Amore2\_40 Start: 40418, Stop: 40843, Start Num: 24

Candidate Starts for Amore2\_40:

(2, 40229), (4, 40292), (6, 40328), (7, 40343), (Start: 24 @40418 has 1 MA's), (31, 40445), (39, 40478), (40, 40484), (52, 40529), (59, 40571), (65, 40610), (93, 40709), (100, 40736), (108, 40775), (129, 40820),

Gene: Anamika\_37 Start: 42271, Stop: 42723, Start Num: 19

Candidate Starts for Anamika\_37:

(Start: 19 @42271 has 47 MA's), (32, 42325), (Start: 33 @42334 has 3 MA's), (51, 42397), (61, 42451), (65, 42484), (72, 42508), (84, 42559), (88, 42568), (91, 42577), (93, 42586), (107, 42652), (110, 42658),

Gene: Attis\_21 Start: 18545, Stop: 18967, Start Num: 25

Candidate Starts for Attis\_21:

(Start: 25 @18545 has 26 MA's), (45, 18620), (63, 18731), (64, 18734), (67, 18743), (92, 18833),

Gene: Barbochs\_36 Start: 39735, Stop: 40181, Start Num: 19

Candidate Starts for Barbochs\_36:

(Start: 19 @39735 has 47 MA's), (Start: 33 @39795 has 3 MA's), (39, 39810), (61, 39912), (69, 39960), (72, 39969), (77, 39990), (81, 40008), (84, 40020), (88, 40029), (91, 40038), (101, 40077), (107, 40110), (118, 40134), (120, 40137),

Gene: Beaver\_40 Start: 41782, Stop: 42228, Start Num: 19

Candidate Starts for Beaver\_40:

(Start: 19 @41782 has 47 MA's), (Start: 33 @41842 has 3 MA's), (39, 41857), (61, 41959), (69, 42007), (72, 42016), (77, 42037), (81, 42055), (84, 42067), (88, 42076), (90, 42082), (91, 42085), (101, 42124), (107, 42157), (118, 42181), (120, 42184),

Gene: Benczkowski14\_35 Start: 41422, Stop: 41874, Start Num: 23

Candidate Starts for Benczkowski14\_35:

(9, 41368), (Start: 23 @41422 has 16 MA's), (50, 41527), (71, 41644), (74, 41656), (79, 41680), (96, 41728), (107, 41776), (122, 41803), (126, 41812),

Gene: BenoitCattle\_37 Start: 39840, Stop: 40286, Start Num: 19

Candidate Starts for BenoitCattle\_37:

(Start: 19 @39840 has 47 MA's), (22, 39852), (32, 39891), (Start: 33 @39900 has 3 MA's), (61, 40017), (69, 40065), (81, 40113), (84, 40125), (88, 40134), (101, 40182), (107, 40215), (118, 40239), (120, 40242),

Gene: Berries\_38 Start: 42242, Stop: 42694, Start Num: 19

Candidate Starts for Berries\_38:

(Start: 19 @42242 has 47 MA's), (32, 42296), (Start: 33 @42305 has 3 MA's), (51, 42368), (61, 42422), (65, 42455), (72, 42479), (84, 42530), (88, 42539), (91, 42548), (93, 42557), (107, 42623), (110, 42629),

Gene: Beyoncage\_31 Start: 27530, Stop: 27976, Start Num: 23

Candidate Starts for Beyoncage\_31:

(Start: 23 @27530 has 16 MA's), (88, 27824), (99, 27860), (121, 27935),

Gene: Bianmat\_37 Start: 42282, Stop: 42734, Start Num: 19

Candidate Starts for Bianmat\_37:

(Start: 19 @42282 has 47 MA's), (32, 42336), (Start: 33 @42345 has 3 MA's), (51, 42408), (61, 42462), (65, 42495), (72, 42519), (84, 42570), (88, 42579), (91, 42588), (93, 42597), (107, 42663), (110, 42669),

Gene: BigShaq\_36 Start: 39857, Stop: 40291, Start Num: 22

Candidate Starts for BigShaq\_36:



(Start: 19 @39845 has 47 MA's), (22, 39857), (32, 39896), (Start: 33 @39905 has 3 MA's), (61, 40022), (69, 40070), (81, 40118), (84, 40130), (88, 40139), (101, 40187), (107, 40220), (118, 40244), (120, 40247),

Gene: BirksAndSocks\_40 Start: 41760, Stop: 42206, Start Num: 19

Candidate Starts for BirksAndSocks\_40:

(Start: 19 @41760 has 47 MA's), (Start: 33 @41820 has 3 MA's), (39, 41835), (61, 41937), (69, 41985), (72, 41994), (77, 42015), (81, 42033), (84, 42045), (88, 42054), (91, 42063), (101, 42102), (107, 42135), (118, 42159), (120, 42162),

Gene: BiteSize\_31 Start: 27530, Stop: 27976, Start Num: 23

Candidate Starts for BiteSize\_31:

(Start: 23 @27530 has 16 MA's), (88, 27824), (99, 27860), (121, 27935),

Gene: Bjaner7\_21 Start: 18545, Stop: 18967, Start Num: 25

Candidate Starts for Bjaner7\_21:

(Start: 25 @18545 has 26 MA's), (45, 18620), (63, 18731), (64, 18734), (67, 18743), (92, 18833),

Gene: BlueNGold\_112 Start: 69605, Stop: 70102, Start Num: 20

Candidate Starts for BlueNGold\_112:

(15, 69593), (Start: 20 @69605 has 7 MA's), (42, 69692), (44, 69698), (46, 69713), (51, 69728), (70, 69842), (109, 69998), (115, 70013), (132, 70070),

Gene: Boneham\_40 Start: 41759, Stop: 42205, Start Num: 19

Candidate Starts for Boneham\_40:

(Start: 19 @41759 has 47 MA's), (Start: 33 @41819 has 3 MA's), (39, 41834), (61, 41936), (69, 41984), (72, 41993), (77, 42014), (81, 42032), (84, 42044), (88, 42053), (91, 42062), (101, 42101), (107, 42134), (118, 42158), (120, 42161),

Gene: Boopy\_113 Start: 69617, Stop: 70114, Start Num: 20

Candidate Starts for Boopy\_113:

(15, 69605), (Start: 20 @69617 has 7 MA's), (42, 69704), (44, 69710), (46, 69725), (51, 69740), (70, 69854), (109, 70010), (115, 70025), (132, 70082),

Gene: Breezic\_36 Start: 39748, Stop: 40194, Start Num: 19

Candidate Starts for Breezic\_36:

(Start: 19 @39748 has 47 MA's), (Start: 33 @39808 has 3 MA's), (39, 39823), (61, 39925), (69, 39973), (72, 39982), (77, 40003), (81, 40021), (84, 40033), (88, 40042), (90, 40048), (91, 40051), (101, 40090), (107, 40123), (118, 40147), (120, 40150),

Gene: Butterball\_40 Start: 41819, Stop: 42205, Start Num: 33

Candidate Starts for Butterball\_40:

(Start: 19 @41759 has 47 MA's), (Start: 33 @41819 has 3 MA's), (39, 41834), (61, 41936), (69, 41984), (72, 41993), (77, 42014), (81, 42032), (84, 42044), (88, 42053), (91, 42062), (101, 42101), (107, 42134), (118, 42158), (120, 42161),

Gene: Camerico\_40 Start: 43256, Stop: 43774, Start Num: 8

Candidate Starts for Camerico\_40:

(Start: 8 @43256 has 1 MA's), (21, 43295), (42, 43376), (44, 43382), (54, 43421), (74, 43538), (77, 43550), (78, 43559), (98, 43616),

Gene: CathyBurgh\_35 Start: 40602, Stop: 41048, Start Num: 19

Candidate Starts for CathyBurgh\_35:

(Start: 19 @40602 has 47 MA's), (Start: 33 @40662 has 3 MA's), (39, 40677), (61, 40779), (69, 40827), (72, 40836), (77, 40857), (81, 40875), (84, 40887), (88, 40896), (90, 40902), (91, 40905), (101, 40944), (107, 40977), (118, 41001), (120, 41004),

Gene: Charianelly\_37 Start: 41992, Stop: 42444, Start Num: 19

Candidate Starts for Charianelly\_37:

(Start: 19 @41992 has 47 MA's), (32, 42046), (Start: 33 @42055 has 3 MA's), (51, 42118), (61, 42172), (65, 42205), (72, 42229), (84, 42280), (88, 42289), (91, 42298), (93, 42307), (107, 42373), (110, 42379),

Gene: CharlottesWeb\_15 Start: 13239, Stop: 13712, Start Num: 16

Candidate Starts for CharlottesWeb\_15:

(1, 12993), (3, 13056), (5, 13134), (Start: 16 @13239 has 1 MA's), (38, 13323), (59, 13428), (66, 13470), (86, 13542), (90, 13554), (94, 13569), (95, 13572), (100, 13593), (105, 13617), (113, 13650), (128, 13683),

Gene: Chelms\_36 Start: 39848, Stop: 40294, Start Num: 19

Candidate Starts for Chelms\_36:

(Start: 19 @39848 has 47 MA's), (22, 39860), (32, 39899), (Start: 33 @39908 has 3 MA's), (61, 40025), (69, 40073), (81, 40121), (84, 40133), (88, 40142), (101, 40190), (107, 40223), (118, 40247), (120, 40250),

Gene: CherryTomatoes\_85 Start: 31959, Stop: 32417, Start Num: 13

Candidate Starts for CherryTomatoes\_85:

(Start: 13 @31959 has 3 MA's), (49, 32091), (55, 32106), (66, 32190), (71, 32208), (79, 32244), (80, 32247), (90, 32274), (111, 32361),

Gene: Clap\_21 Start: 18552, Stop: 18974, Start Num: 25

Candidate Starts for Clap\_21:

(Start: 25 @18552 has 26 MA's), (45, 18627), (63, 18738), (64, 18741), (67, 18750), (92, 18840),

Gene: Cynthia\_21 Start: 18552, Stop: 18974, Start Num: 25

Candidate Starts for Cynthia\_21:

(Start: 25 @18552 has 26 MA's), (45, 18627), (63, 18738), (64, 18741), (67, 18750), (92, 18840),

Gene: Dakiti\_36 Start: 40716, Stop: 41162, Start Num: 19

Candidate Starts for Dakiti\_36:

(Start: 19 @40716 has 47 MA's), (22, 40728), (32, 40767), (Start: 33 @40776 has 3 MA's), (61, 40893), (69, 40941), (81, 40989), (84, 41001), (88, 41010), (101, 41058), (107, 41091), (118, 41115), (120, 41118),

Gene: Damp\_37 Start: 41156, Stop: 41608, Start Num: 19

Candidate Starts for Damp\_37:

(Start: 19 @41156 has 47 MA's), (32, 41210), (Start: 33 @41219 has 3 MA's), (51, 41282), (61, 41336), (65, 41369), (72, 41393), (84, 41444), (88, 41453), (91, 41462), (93, 41471), (107, 41537), (110, 41543),

Gene: Demosthenes\_35 Start: 41362, Stop: 41814, Start Num: 23

Candidate Starts for Demosthenes\_35:

(9, 41308), (Start: 23 @41362 has 16 MA's), (50, 41467), (61, 41530), (71, 41584), (74, 41596), (78, 41617), (79, 41620), (107, 41716), (122, 41743), (126, 41752),

Gene: Diabla\_39 Start: 41597, Stop: 42043, Start Num: 19

Candidate Starts for Diabla\_39:

(Start: 19 @41597 has 47 MA's), (45, 41696), (50, 41717), (59, 41768), (69, 41822), (72, 41831), (77, 41852), (81, 41870), (84, 41882), (88, 41891), (107, 41972), (118, 41996), (120, 41999),

Gene: DirtyBoi\_25 Start: 21195, Stop: 21617, Start Num: 25

Candidate Starts for DirtyBoi\_25:

(Start: 25 @21195 has 26 MA's), (45, 21270), (64, 21384), (74, 21420), (89, 21471), (92, 21483),

Gene: Djokovic\_31 Start: 27529, Stop: 27975, Start Num: 23

Candidate Starts for Djokovic\_31:

(Start: 23 @27529 has 16 MA's), (88, 27823), (99, 27859), (121, 27934),

Gene: DumpTruck\_34 Start: 29956, Stop: 30408, Start Num: 25

Candidate Starts for DumpTruck\_34:

(Start: 25 @29956 has 26 MA's), (28, 29971), (50, 30061), (51, 30064), (54, 30073), (58, 30109), (64, 30163), (66, 30169), (84, 30235), (99, 30280), (109, 30328), (110, 30331), (115, 30343), (127, 30370),

Gene: E3\_gp3 Start: 798, Stop: 1244, Start Num: 21

Candidate Starts for E3\_gp3:

(21, 798), (34, 849), (44, 879), (46, 894), (48, 900), (92, 1101), (94, 1107), (95, 1110), (116, 1188), (128, 1212),

Gene: Ebert\_21 Start: 18552, Stop: 18974, Start Num: 25

Candidate Starts for Ebert\_21:

(Start: 25 @18552 has 26 MA's), (45, 18627), (63, 18738), (64, 18741), (67, 18750), (92, 18840),

Gene: Eggsie\_36 Start: 39866, Stop: 40312, Start Num: 19

Candidate Starts for Eggsie\_36:

(Start: 19 @39866 has 47 MA's), (45, 39965), (50, 39986), (59, 40037), (69, 40091), (72, 40100), (77, 40121), (81, 40139), (84, 40151), (88, 40160), (107, 40241), (118, 40265), (120, 40268),

Gene: Ekhein\_37 Start: 39730, Stop: 40176, Start Num: 19

Candidate Starts for Ekhein\_37:

(Start: 19 @39730 has 47 MA's), (Start: 33 @39790 has 3 MA's), (39, 39805), (61, 39907), (69, 39955), (72, 39964), (77, 39985), (81, 40003), (84, 40015), (88, 40024), (90, 40030), (91, 40033), (101, 40072), (107, 40105), (118, 40129), (120, 40132),

Gene: Exiguo\_36 Start: 39742, Stop: 40188, Start Num: 19

Candidate Starts for Exiguo\_36:

(Start: 19 @39742 has 47 MA's), (Start: 33 @39802 has 3 MA's), (39, 39817), (61, 39919), (69, 39967), (72, 39976), (77, 39997), (81, 40015), (84, 40027), (88, 40036), (90, 40042), (91, 40045), (101, 40084), (107, 40117), (118, 40141), (120, 40144),

Gene: FelixAlejandro\_41 Start: 42017, Stop: 42403, Start Num: 33

Candidate Starts for FelixAlejandro\_41:

(Start: 19 @41957 has 47 MA's), (Start: 33 @42017 has 3 MA's), (39, 42032), (61, 42134), (69, 42182), (72, 42191), (77, 42212), (81, 42230), (84, 42242), (88, 42251), (91, 42260), (101, 42299), (107, 42332), (118, 42356), (120, 42359),

Gene: Flakey\_36 Start: 40606, Stop: 41052, Start Num: 19

Candidate Starts for Flakey\_36:

(Start: 19 @40606 has 47 MA's), (Start: 33 @40666 has 3 MA's), (39, 40681), (61, 40783), (72, 40840), (77, 40861), (81, 40879), (84, 40891), (88, 40900), (90, 40906), (101, 40948), (107, 40981),

(118, 41005), (120, 41008),

Gene: Forza\_113 Start: 69533, Stop: 70030, Start Num: 20

Candidate Starts for Forza\_113:

(15, 69521), (Start: 20 @69533 has 7 MA's), (42, 69620), (44, 69626), (46, 69641), (51, 69656), (70, 69770), (109, 69926), (115, 69941), (132, 69998),

Gene: GMA2\_40 Start: 42184, Stop: 42681, Start Num: 20

Candidate Starts for GMA2\_40:

(Start: 20 @42184 has 7 MA's), (30, 42223), (51, 42307), (61, 42385), (63, 42412), (66, 42421), (71, 42439), (82, 42481), (90, 42502), (123, 42607),

Gene: GMA3\_28 Start: 36944, Stop: 37429, Start Num: 10

Candidate Starts for GMA3\_28:

(7, 36902), (10, 36944), (41, 37061), (42, 37064), (47, 37088), (56, 37124), (61, 37160), (74, 37226), (128, 37391),

Gene: GalacticEye\_37 Start: 41954, Stop: 42406, Start Num: 19

Candidate Starts for GalacticEye\_37:

(Start: 19 @41954 has 47 MA's), (32, 42008), (Start: 33 @42017 has 3 MA's), (51, 42080), (61, 42134), (65, 42167), (72, 42191), (84, 42242), (88, 42251), (91, 42260), (93, 42269), (107, 42335), (110, 42341),

Gene: GemG\_21 Start: 18552, Stop: 18974, Start Num: 25

Candidate Starts for GemG\_21:

(Start: 25 @18552 has 26 MA's), (45, 18627), (63, 18738), (64, 18741), (67, 18750), (92, 18840),

Gene: Gizermo\_21 Start: 18552, Stop: 18974, Start Num: 25

Candidate Starts for Gizermo\_21:

(Start: 25 @18552 has 26 MA's), (45, 18627), (63, 18738), (64, 18741), (67, 18750), (92, 18840),

Gene: GodonK\_99 Start: 60239, Stop: 60676, Start Num: 27

Candidate Starts for GodonK\_99:

(Start: 27 @60239 has 2 MA's), (45, 60314), (70, 60449), (88, 60515), (91, 60524), (111, 60608),

Gene: Gorko\_36 Start: 39734, Stop: 40180, Start Num: 19

Candidate Starts for Gorko\_36:

(Start: 19 @39734 has 47 MA's), (Start: 33 @39794 has 3 MA's), (39, 39809), (61, 39911), (69, 39959), (72, 39968), (77, 39989), (81, 40007), (84, 40019), (88, 40028), (90, 40034), (91, 40037), (101, 40076), (107, 40109), (118, 40133), (120, 40136),

Gene: GourdThymes\_36 Start: 40608, Stop: 41054, Start Num: 19

Candidate Starts for GourdThymes\_36:

(Start: 19 @40608 has 47 MA's), (Start: 33 @40668 has 3 MA's), (39, 40683), (61, 40785), (69, 40833), (72, 40842), (77, 40863), (81, 40881), (84, 40893), (88, 40902), (90, 40908), (91, 40911), (101, 40950), (107, 40983), (118, 41007), (120, 41010),

Gene: Guillaume\_37 Start: 42004, Stop: 42456, Start Num: 19

Candidate Starts for Guillaume\_37:

(Start: 19 @42004 has 47 MA's), (32, 42058), (Start: 33 @42067 has 3 MA's), (51, 42130), (61, 42184), (65, 42217), (72, 42241), (84, 42292), (88, 42301), (91, 42310), (93, 42319), (107, 42385), (110, 42391),

Gene: Hail2Pitt\_37 Start: 42480, Stop: 42932, Start Num: 19

Candidate Starts for Hail2Pitt\_37:

(Start: 19 @42480 has 47 MA's), (32, 42534), (Start: 33 @42543 has 3 MA's), (51, 42606), (61, 42660), (65, 42693), (72, 42717), (84, 42768), (88, 42777), (91, 42786), (93, 42795), (107, 42861), (110, 42867),

Gene: Haley23\_21 Start: 18552, Stop: 18974, Start Num: 25

Candidate Starts for Haley23\_21:

(Start: 25 @18552 has 26 MA's), (45, 18627), (63, 18738), (64, 18741), (67, 18750), (92, 18840),

Gene: Harambe\_37 Start: 42271, Stop: 42723, Start Num: 19

Candidate Starts for Harambe\_37:

(Start: 19 @42271 has 47 MA's), (32, 42325), (Start: 33 @42334 has 3 MA's), (51, 42397), (61, 42451), (65, 42484), (72, 42508), (84, 42559), (88, 42568), (91, 42577), (93, 42586), (107, 42652), (110, 42658),

Gene: Hedwig\_25 Start: 21191, Stop: 21613, Start Num: 25

Candidate Starts for Hedwig\_25:

(Start: 25 @21191 has 26 MA's), (45, 21266), (64, 21380), (74, 21416), (89, 21467), (92, 21479),

Gene: Hello\_37 Start: 42233, Stop: 42685, Start Num: 19

Candidate Starts for Hello\_37:

(Start: 19 @42233 has 47 MA's), (32, 42287), (Start: 33 @42296 has 3 MA's), (51, 42359), (61, 42413), (65, 42446), (72, 42470), (84, 42521), (88, 42530), (91, 42539), (93, 42548), (107, 42614), (110, 42620),

Gene: Hollow\_36 Start: 41768, Stop: 42220, Start Num: 23

Candidate Starts for Hollow\_36:

(9, 41714), (Start: 23 @41768 has 16 MA's), (50, 41873), (71, 41990), (74, 42002), (79, 42026), (107, 42122), (122, 42149), (126, 42158),

Gene: Hotorobo\_36 Start: 40613, Stop: 41059, Start Num: 19

Candidate Starts for Hotorobo\_36:

(Start: 19 @40613 has 47 MA's), (Start: 33 @40673 has 3 MA's), (39, 40688), (61, 40790), (69, 40838), (72, 40847), (77, 40868), (81, 40886), (84, 40898), (88, 40907), (90, 40913), (91, 40916), (101, 40955), (107, 40988), (118, 41012), (120, 41015),

Gene: Jams\_37 Start: 41442, Stop: 41894, Start Num: 19

Candidate Starts for Jams\_37:

(Start: 19 @41442 has 47 MA's), (32, 41496), (Start: 33 @41505 has 3 MA's), (51, 41568), (61, 41622), (65, 41655), (72, 41679), (84, 41730), (88, 41739), (91, 41748), (93, 41757), (107, 41823), (110, 41829),

Gene: Jellybones\_40 Start: 41818, Stop: 42264, Start Num: 19

Candidate Starts for Jellybones\_40:

(Start: 19 @41818 has 47 MA's), (Start: 33 @41878 has 3 MA's), (39, 41893), (61, 41995), (69, 42043), (72, 42052), (77, 42073), (81, 42091), (84, 42103), (88, 42112), (90, 42118), (91, 42121), (101, 42160), (107, 42193), (118, 42217), (120, 42220),

Gene: John316\_40 Start: 41771, Stop: 42217, Start Num: 19

Candidate Starts for John316\_40:

(Start: 19 @41771 has 47 MA's), (Start: 33 @41831 has 3 MA's), (39, 41846), (61, 41948), (69, 41996), (72, 42005), (77, 42026), (81, 42044), (84, 42056), (88, 42065), (90, 42071), (91, 42074),

(101, 42113), (107, 42146), (118, 42170), (120, 42173),

Gene: Jormungandr\_37 Start: 41986, Stop: 42438, Start Num: 19

Candidate Starts for Jormungandr\_37:

(Start: 19 @41986 has 47 MA's), (32, 42040), (Start: 33 @42049 has 3 MA's), (51, 42112), (61, 42166), (65, 42199), (72, 42223), (84, 42274), (88, 42283), (91, 42292), (93, 42301), (107, 42367), (110, 42373),

Gene: Jumbo\_37 Start: 42278, Stop: 42769, Start Num: 11

Candidate Starts for Jumbo\_37:

(Start: 11 @42278 has 1 MA's), (14, 42296), (26, 42338), (42, 42398), (60, 42491), (66, 42530), (74, 42560), (75, 42563), (76, 42566), (83, 42593), (84, 42599), (103, 42665), (128, 42728),

Gene: Kaseim\_38 Start: 41427, Stop: 41879, Start Num: 19

Candidate Starts for Kaseim\_38:

(Start: 19 @41427 has 47 MA's), (32, 41481), (Start: 33 @41490 has 3 MA's), (51, 41553), (61, 41607), (65, 41640), (72, 41664), (84, 41715), (88, 41724), (91, 41733), (93, 41742), (107, 41808), (110, 41814),

Gene: Katyusha\_35 Start: 41422, Stop: 41874, Start Num: 23

Candidate Starts for Katyusha\_35:

(9, 41368), (Start: 23 @41422 has 16 MA's), (50, 41527), (71, 41644), (74, 41656), (79, 41680), (96, 41728), (107, 41776), (122, 41803), (126, 41812),

Gene: Kvothe\_35 Start: 41321, Stop: 41773, Start Num: 23

Candidate Starts for Kvothe\_35:

(9, 41267), (Start: 23 @41321 has 16 MA's), (50, 41426), (71, 41543), (74, 41555), (79, 41579), (96, 41627), (107, 41675), (122, 41702), (126, 41711),

Gene: Lahirium\_37 Start: 42508, Stop: 42960, Start Num: 19

Candidate Starts for Lahirium\_37:

(Start: 19 @42508 has 47 MA's), (32, 42562), (Start: 33 @42571 has 3 MA's), (51, 42634), (61, 42688), (65, 42721), (72, 42745), (84, 42796), (88, 42805), (91, 42814), (93, 42823), (107, 42889), (110, 42895),

Gene: Lidong\_37 Start: 42242, Stop: 42694, Start Num: 19

Candidate Starts for Lidong\_37:

(Start: 19 @42242 has 47 MA's), (32, 42296), (Start: 33 @42305 has 3 MA's), (51, 42368), (61, 42422), (65, 42455), (72, 42479), (84, 42530), (88, 42539), (91, 42548), (93, 42557), (107, 42623), (110, 42629),

Gene: LilyPad\_33 Start: 28336, Stop: 28782, Start Num: 23

Candidate Starts for LilyPad\_33:

(17, 28318), (Start: 23 @28336 has 16 MA's), (40, 28408), (47, 28438), (56, 28474), (66, 28555), (88, 28630), (97, 28660), (98, 28663), (121, 28741),

Gene: Linetti\_37 Start: 40842, Stop: 41288, Start Num: 19

Candidate Starts for Linetti\_37:

(Start: 19 @40842 has 47 MA's), (22, 40854), (32, 40893), (Start: 33 @40902 has 3 MA's), (61, 41019), (69, 41067), (77, 41097), (81, 41115), (84, 41127), (88, 41136), (101, 41184), (107, 41217), (118, 41241), (120, 41244),

Gene: LittleFella\_34 Start: 30149, Stop: 30583, Start Num: 25

Candidate Starts for LittleFella\_34:

(Start: 25 @30149 has 26 MA's), (46, 30239), (59, 30317), (70, 30374), (78, 30407), (102, 30491), (109, 30518), (117, 30539),

Gene: Lizzo\_36 Start: 40602, Stop: 41048, Start Num: 19

Candidate Starts for Lizzo\_36:

(Start: 19 @40602 has 47 MA's), (Start: 33 @40662 has 3 MA's), (39, 40677), (61, 40779), (69, 40827), (72, 40836), (77, 40857), (81, 40875), (84, 40887), (88, 40896), (90, 40902), (91, 40905), (101, 40944), (107, 40977), (118, 41001), (120, 41004),

Gene: LonelyBoi\_24 Start: 21255, Stop: 21728, Start Num: 20

Candidate Starts for LonelyBoi\_24:

(Start: 20 @21255 has 7 MA's), (35, 21315), (36, 21321), (42, 21336), (53, 21378), (66, 21465), (68, 21471), (73, 21489), (74, 21495), (80, 21522), (89, 21543), (112, 21636), (122, 21666),

Gene: LordFarquaad\_21 Start: 18545, Stop: 18967, Start Num: 25

Candidate Starts for LordFarquaad\_21:

(Start: 25 @18545 has 26 MA's), (45, 18620), (63, 18731), (64, 18734), (67, 18743), (92, 18833),

Gene: Luker\_38 Start: 42461, Stop: 42913, Start Num: 19

Candidate Starts for Luker\_38:

(Start: 19 @42461 has 47 MA's), (32, 42515), (Start: 33 @42524 has 3 MA's), (51, 42587), (61, 42641), (65, 42674), (72, 42698), (84, 42749), (88, 42758), (91, 42767), (93, 42776), (107, 42842), (110, 42848),

Gene: Madi\_31 Start: 27530, Stop: 27973, Start Num: 23

Candidate Starts for Madi\_31:

(Start: 8 @27476 has 1 MA's), (Start: 23 @27530 has 16 MA's), (47, 27632), (67, 27752), (88, 27824), (99, 27860), (121, 27935),

Gene: Mareelih\_111 Start: 69035, Stop: 69532, Start Num: 20

Candidate Starts for Mareelih\_111:

(15, 69023), (Start: 20 @69035 has 7 MA's), (42, 69122), (44, 69128), (46, 69143), (51, 69158), (70, 69272), (109, 69428), (115, 69443), (132, 69500),

Gene: Mariokart\_15 Start: 13238, Stop: 13711, Start Num: 16

Candidate Starts for Mariokart\_15:

(1, 12992), (3, 13055), (5, 13133), (Start: 16 @13238 has 1 MA's), (38, 13322), (59, 13427), (66, 13469), (86, 13541), (90, 13553), (94, 13568), (95, 13571), (100, 13592), (105, 13616), (113, 13649), (128, 13682),

Gene: Minos\_38 Start: 41984, Stop: 42436, Start Num: 19

Candidate Starts for Minos\_38:

(Start: 19 @41984 has 47 MA's), (32, 42038), (Start: 33 @42047 has 3 MA's), (51, 42110), (61, 42164), (65, 42197), (72, 42221), (84, 42272), (88, 42281), (91, 42290), (93, 42299), (107, 42365), (110, 42371),

Gene: Mocha12\_21 Start: 18552, Stop: 18974, Start Num: 25

Candidate Starts for Mocha12\_21:

(Start: 25 @18552 has 26 MA's), (45, 18627), (63, 18738), (64, 18741), (67, 18750), (92, 18840),

Gene: Monty\_35 Start: 39752, Stop: 40198, Start Num: 19

Candidate Starts for Monty\_35:

(Start: 19 @39752 has 47 MA's), (Start: 33 @39812 has 3 MA's), (39, 39827), (61, 39929), (69, 39977), (72, 39986), (77, 40007), (81, 40025), (84, 40037), (88, 40046), (90, 40052), (91, 40055), (101, 40094), (107, 40127), (118, 40151), (120, 40154),

Gene: MrWormie\_37 Start: 41145, Stop: 41597, Start Num: 19

Candidate Starts for MrWormie\_37:

(Start: 19 @41145 has 47 MA's), (32, 41199), (Start: 33 @41208 has 3 MA's), (51, 41271), (61, 41325), (65, 41358), (72, 41382), (84, 41433), (88, 41442), (91, 41451), (93, 41460), (107, 41526), (110, 41532),

Gene: Msay19\_41 Start: 42008, Stop: 42394, Start Num: 33

Candidate Starts for Msay19\_41:

(Start: 19 @41948 has 47 MA's), (Start: 33 @42008 has 3 MA's), (39, 42023), (61, 42125), (69, 42173), (72, 42182), (77, 42203), (81, 42221), (84, 42233), (88, 42242), (91, 42251), (101, 42290), (107, 42323), (118, 42347), (120, 42350),

Gene: Neoevie\_37 Start: 42247, Stop: 42699, Start Num: 19

Candidate Starts for Neoevie\_37:

(Start: 19 @42247 has 47 MA's), (32, 42301), (Start: 33 @42310 has 3 MA's), (51, 42373), (61, 42427), (65, 42460), (72, 42484), (84, 42535), (88, 42544), (91, 42553), (93, 42562), (107, 42628), (110, 42634),

Gene: Newt\_38 Start: 42475, Stop: 42927, Start Num: 19

Candidate Starts for Newt\_38:

(Start: 19 @42475 has 47 MA's), (32, 42529), (Start: 33 @42538 has 3 MA's), (51, 42601), (61, 42655), (65, 42688), (72, 42712), (84, 42763), (88, 42772), (91, 42781), (93, 42790), (107, 42856), (110, 42862),

Gene: Niagara\_35 Start: 41379, Stop: 41831, Start Num: 23

Candidate Starts for Niagara\_35:

(9, 41325), (Start: 23 @41379 has 16 MA's), (50, 41484), (71, 41601), (74, 41613), (79, 41637), (96, 41685), (107, 41733), (122, 41760), (126, 41769),

Gene: Nimi13\_37 Start: 41993, Stop: 42445, Start Num: 19

Candidate Starts for Nimi13\_37:

(Start: 19 @41993 has 47 MA's), (32, 42047), (Start: 33 @42056 has 3 MA's), (51, 42119), (61, 42173), (65, 42206), (72, 42230), (84, 42281), (88, 42290), (91, 42299), (93, 42308), (107, 42374), (110, 42380),

Gene: Phendrix\_95 Start: 60482, Stop: 60919, Start Num: 27

Candidate Starts for Phendrix\_95:

(Start: 27 @60482 has 2 MA's), (45, 60557), (70, 60692), (88, 60758), (91, 60767), (111, 60851),

Gene: Philon9\_37 Start: 42589, Stop: 43029, Start Num: 23

Candidate Starts for Philon9\_37:

(9, 42535), (Start: 23 @42589 has 16 MA's), (43, 42661), (50, 42691), (70, 42805), (71, 42808), (74, 42820), (79, 42844), (85, 42859), (99, 42901), (107, 42940), (119, 42961),

Gene: PierreThree\_36 Start: 40713, Stop: 41159, Start Num: 19

Candidate Starts for PierreThree\_36:

(Start: 19 @40713 has 47 MA's), (22, 40725), (32, 40764), (Start: 33 @40773 has 3 MA's), (61, 40890), (69, 40938), (81, 40986), (84, 40998), (88, 41007), (101, 41055), (107, 41088), (118, 41112), (120, 41115),



Gene: PokyPuppy\_35 Start: 40656, Stop: 41102, Start Num: 19

Candidate Starts for PokyPuppy\_35:

(Start: 19 @40656 has 47 MA's), (64, 40863), (67, 40872), (77, 40911), (81, 40929), (84, 40941), (88, 40950), (101, 40998), (107, 41031), (118, 41055), (120, 41058),

Gene: Poland\_43 Start: 41927, Stop: 42373, Start Num: 19

Candidate Starts for Poland\_43:

(Start: 19 @41927 has 47 MA's), (Start: 33 @41987 has 3 MA's), (39, 42002), (61, 42104), (69, 42152), (72, 42161), (77, 42182), (81, 42200), (84, 42212), (88, 42221), (91, 42230), (101, 42269), (107, 42302), (118, 42326), (120, 42329),

Gene: Pupper\_83 Start: 32143, Stop: 32601, Start Num: 13

Candidate Starts for Pupper\_83:

(Start: 13 @32143 has 3 MA's), (49, 32275), (55, 32290), (61, 32338), (66, 32374), (71, 32392), (79, 32428), (80, 32431), (90, 32458), (111, 32545),

Gene: RavenCo17\_21 Start: 19444, Stop: 19869, Start Num: 25

Candidate Starts for RavenCo17\_21:

(Start: 25 @19444 has 26 MA's), (37, 19495), (45, 19522), (62, 19612), (63, 19633), (64, 19636), (78, 19693), (92, 19735), (104, 19780),

Gene: RemRem\_37 Start: 39742, Stop: 40188, Start Num: 19

Candidate Starts for RemRem\_37:

(Start: 19 @39742 has 47 MA's), (Start: 33 @39802 has 3 MA's), (39, 39817), (61, 39919), (69, 39967), (72, 39976), (77, 39997), (81, 40015), (84, 40027), (88, 40036), (90, 40042), (91, 40045), (101, 40084), (107, 40117), (118, 40141), (120, 40144),

Gene: RoyalG\_37 Start: 40209, Stop: 40655, Start Num: 19

Candidate Starts for RoyalG\_37:

(Start: 19 @40209 has 47 MA's), (45, 40308), (59, 40380), (69, 40434), (72, 40443), (77, 40464), (81, 40482), (84, 40494), (88, 40503), (107, 40584), (118, 40608), (120, 40611),

Gene: SCentae\_81 Start: 31817, Stop: 32275, Start Num: 13

Candidate Starts for SCentae\_81:

(Start: 13 @31817 has 3 MA's), (61, 32012), (66, 32048), (71, 32066), (90, 32132), (111, 32219),

Gene: Sahara\_20 Start: 18224, Stop: 18646, Start Num: 25

Candidate Starts for Sahara\_20:

(Start: 25 @18224 has 26 MA's), (45, 18299), (63, 18410), (64, 18413), (67, 18422), (92, 18512),

Gene: Sam12\_36 Start: 39742, Stop: 40188, Start Num: 19

Candidate Starts for Sam12\_36:

(Start: 19 @39742 has 47 MA's), (Start: 33 @39802 has 3 MA's), (39, 39817), (61, 39919), (69, 39967), (72, 39976), (77, 39997), (81, 40015), (84, 40027), (88, 40036), (90, 40042), (91, 40045), (101, 40084), (107, 40117), (118, 40141), (120, 40144),

Gene: Savage\_21 Start: 18552, Stop: 18974, Start Num: 25

Candidate Starts for Savage\_21:

(Start: 25 @18552 has 26 MA's), (45, 18627), (63, 18738), (64, 18741), (67, 18750), (92, 18840),

Gene: Shelley\_37 Start: 41469, Stop: 41921, Start Num: 19

Candidate Starts for Shelley\_37:

(Start: 19 @41469 has 47 MA's), (32, 41523), (Start: 33 @41532 has 3 MA's), (51, 41595), (61, 41649), (65, 41682), (72, 41706), (84, 41757), (88, 41766), (91, 41775), (93, 41784), (107, 41850), (110, 41856),

Gene: Sidious\_23 Start: 20906, Stop: 21379, Start Num: 20

Candidate Starts for Sidious\_23:

(Start: 20 @20906 has 7 MA's), (35, 20966), (36, 20972), (42, 20987), (53, 21029), (57, 21050), (66, 21116), (73, 21140), (74, 21146), (89, 21194), (96, 21218), (122, 21317),

Gene: Sienna\_31 Start: 27530, Stop: 27973, Start Num: 23

Candidate Starts for Sienna\_31:

(Start: 8 @27476 has 1 MA's), (Start: 23 @27530 has 16 MA's), (47, 27632), (67, 27752), (88, 27824), (99, 27860), (121, 27935),

Gene: Sixama\_111 Start: 69070, Stop: 69564, Start Num: 20

Candidate Starts for Sixama\_111:

(Start: 20 @69070 has 7 MA's), (42, 69157), (44, 69163), (51, 69193), (70, 69307), (79, 69352), (82, 69361), (96, 69406), (115, 69478), (130, 69508), (132, 69535),

Gene: Skog\_146 Start: 61230, Stop: 61688, Start Num: 13

Candidate Starts for Skog\_146:

(12, 61227), (Start: 13 @61230 has 3 MA's), (42, 61329), (49, 61362), (61, 61425), (66, 61461), (71, 61479), (78, 61512), (92, 61554), (107, 61623), (113, 61641), (114, 61644), (116, 61650), (125, 61665),

Gene: SoilAssassin\_21 Start: 18545, Stop: 18967, Start Num: 25

Candidate Starts for SoilAssassin\_21:

(Start: 25 @18545 has 26 MA's), (45, 18620), (63, 18731), (64, 18734), (67, 18743), (92, 18833),

Gene: Sombrero\_36 Start: 39744, Stop: 40190, Start Num: 19

Candidate Starts for Sombrero\_36:

(Start: 19 @39744 has 47 MA's), (Start: 33 @39804 has 3 MA's), (39, 39819), (61, 39921), (69, 39969), (72, 39978), (77, 39999), (81, 40017), (84, 40029), (88, 40038), (91, 40047), (101, 40086), (107, 40119), (118, 40143), (120, 40146),

Gene: Sproutie\_21 Start: 18552, Stop: 18974, Start Num: 25

Candidate Starts for Sproutie\_21:

(Start: 25 @18552 has 26 MA's), (45, 18627), (63, 18738), (64, 18741), (67, 18750), (92, 18840),

Gene: Squibbles\_35 Start: 40605, Stop: 41051, Start Num: 19

Candidate Starts for Squibbles\_35:

(Start: 19 @40605 has 47 MA's), (Start: 33 @40665 has 3 MA's), (39, 40680), (61, 40782), (69, 40830), (72, 40839), (77, 40860), (81, 40878), (84, 40890), (88, 40899), (90, 40905), (91, 40908), (101, 40947), (107, 40980), (118, 41004), (120, 41007),

Gene: SteveFrench\_36 Start: 40449, Stop: 40895, Start Num: 19

Candidate Starts for SteveFrench\_36:

(Start: 19 @40449 has 47 MA's), (45, 40548), (59, 40620), (69, 40674), (72, 40683), (77, 40704), (81, 40722), (84, 40734), (88, 40743), (107, 40824), (118, 40848), (120, 40851),

Gene: Sticker17\_37 Start: 41984, Stop: 42436, Start Num: 19

Candidate Starts for Sticker17\_37:

(Start: 19 @41984 has 47 MA's), (32, 42038), (Start: 33 @42047 has 3 MA's), (51, 42110), (61, 42164), (65, 42197), (72, 42221), (84, 42272), (88, 42281), (91, 42290), (93, 42299), (107, 42365), (110, 42371),

Gene: Suzy\_31 Start: 28673, Stop: 29122, Start Num: 25

Candidate Starts for Suzy\_31:

(Start: 25 @28673 has 26 MA's), (87, 28955), (99, 28991), (124, 29066), (131, 29084),

Gene: Teal\_37 Start: 42452, Stop: 42904, Start Num: 19

Candidate Starts for Teal\_37:

(Start: 19 @42452 has 47 MA's), (32, 42506), (Start: 33 @42515 has 3 MA's), (51, 42578), (61, 42632), (65, 42665), (72, 42689), (84, 42740), (88, 42749), (91, 42758), (93, 42767), (107, 42833), (110, 42839),

Gene: Teatealatte\_35 Start: 41324, Stop: 41776, Start Num: 23

Candidate Starts for Teatealatte\_35:

(9, 41270), (Start: 23 @41324 has 16 MA's), (50, 41429), (71, 41546), (74, 41558), (79, 41582), (96, 41630), (107, 41678), (122, 41705), (126, 41714),

Gene: Teech\_35 Start: 41125, Stop: 41577, Start Num: 23

Candidate Starts for Teech\_35:

(9, 41071), (Start: 23 @41125 has 16 MA's), (50, 41230), (71, 41347), (74, 41359), (79, 41383), (96, 41431), (107, 41479), (122, 41506), (126, 41515),

Gene: Terapin\_32 Start: 27531, Stop: 27977, Start Num: 23

Candidate Starts for Terapin\_32:

(Start: 23 @27531 has 16 MA's), (88, 27825), (99, 27861), (121, 27936),

Gene: Tredge\_35 Start: 41324, Stop: 41776, Start Num: 23

Candidate Starts for Tredge\_35:

(9, 41270), (Start: 23 @41324 has 16 MA's), (50, 41429), (71, 41546), (74, 41558), (79, 41582), (96, 41630), (107, 41678), (122, 41705), (126, 41714),

Gene: Trogglehumper\_52 Start: 46526, Stop: 47011, Start Num: 25

Candidate Starts for Trogglehumper\_52:

(Start: 25 @46526 has 26 MA's), (Start: 27 @46532 has 2 MA's), (31, 46544), (61, 46685), (71, 46736), (84, 46787), (94, 46817), (106, 46868), (113, 46889),

Gene: TuertoX\_21 Start: 18552, Stop: 18974, Start Num: 25

Candidate Starts for TuertoX\_21:

(Start: 25 @18552 has 26 MA's), (45, 18627), (63, 18738), (64, 18741), (67, 18750), (92, 18840),

Gene: Vasanti\_20 Start: 18106, Stop: 18528, Start Num: 25

Candidate Starts for Vasanti\_20:

(Start: 25 @18106 has 26 MA's), (45, 18181), (64, 18295), (67, 18304), (89, 18382), (92, 18394),

Gene: Whiteclaw\_21 Start: 18552, Stop: 18974, Start Num: 25

Candidate Starts for Whiteclaw\_21:

(Start: 25 @18552 has 26 MA's), (45, 18627), (63, 18738), (64, 18741), (67, 18750), (92, 18840),

Gene: Wocket\_24 Start: 20570, Stop: 21052, Start Num: 18

Candidate Starts for Wocket\_24:

(Start: 18 @20570 has 1 MA's), (29, 20609), (36, 20642), (42, 20657), (65, 20786), (71, 20807), (74, 20819), (78, 20840), (89, 20867),

Gene: Woes\_37 Start: 42503, Stop: 42955, Start Num: 19

Candidate Starts for Woes\_37:

(Start: 19 @42503 has 47 MA's), (32, 42557), (Start: 33 @42566 has 3 MA's), (51, 42629), (61, 42683), (65, 42716), (72, 42740), (84, 42791), (88, 42800), (91, 42809), (93, 42818), (107, 42884), (110, 42890),

Gene: Xenia2\_35 Start: 30001, Stop: 30453, Start Num: 25

Candidate Starts for Xenia2\_35:

(Start: 25 @30001 has 26 MA's), (28, 30016), (50, 30106), (51, 30109), (54, 30118), (58, 30154), (64, 30208), (66, 30214), (84, 30280), (99, 30325), (109, 30373), (110, 30376), (115, 30388), (127, 30415),

Gene: Yeet412\_21 Start: 18545, Stop: 18967, Start Num: 25

Candidate Starts for Yeet412\_21:

(Start: 25 @18545 has 26 MA's), (45, 18620), (63, 18731), (64, 18734), (67, 18743), (92, 18833),