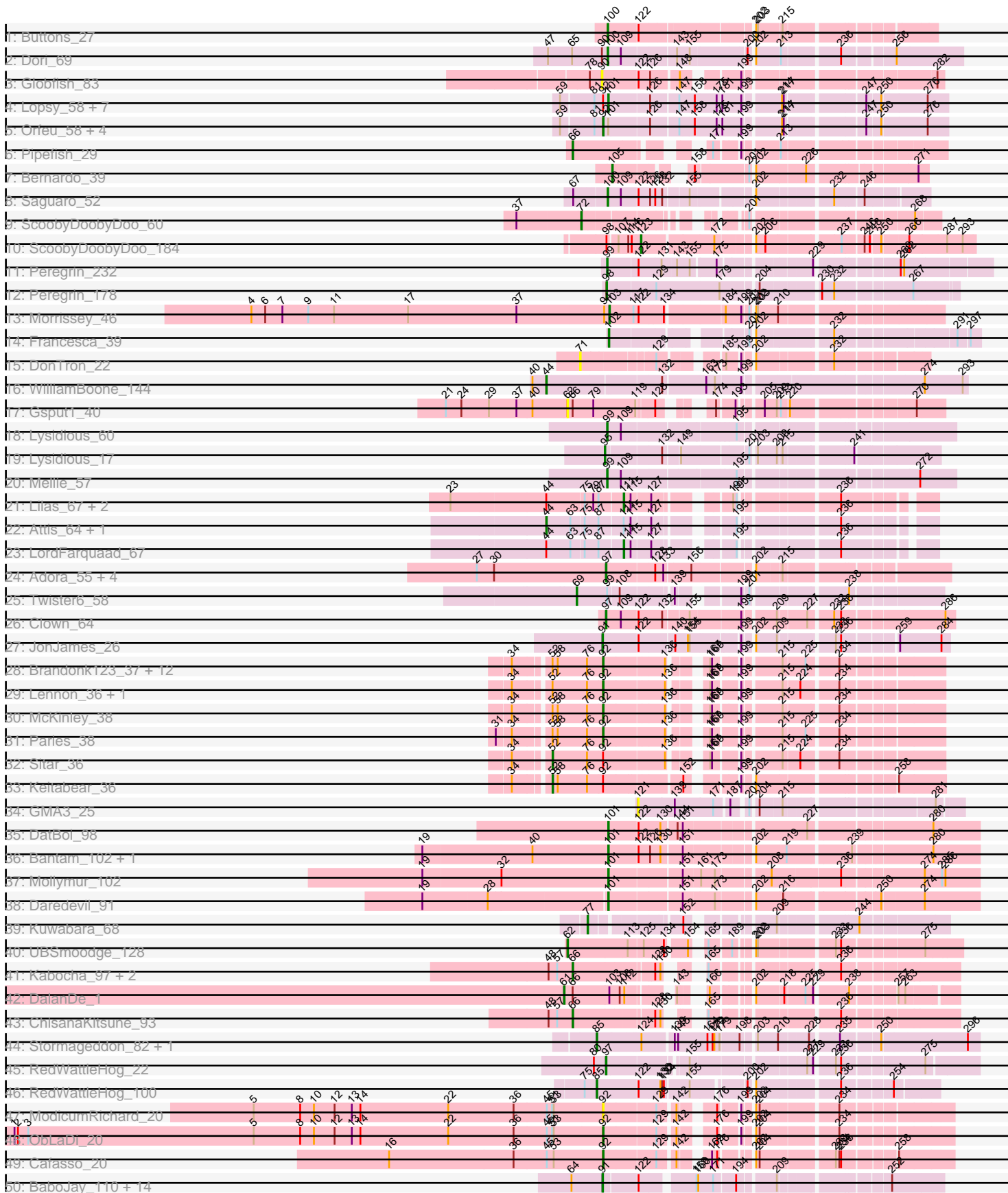
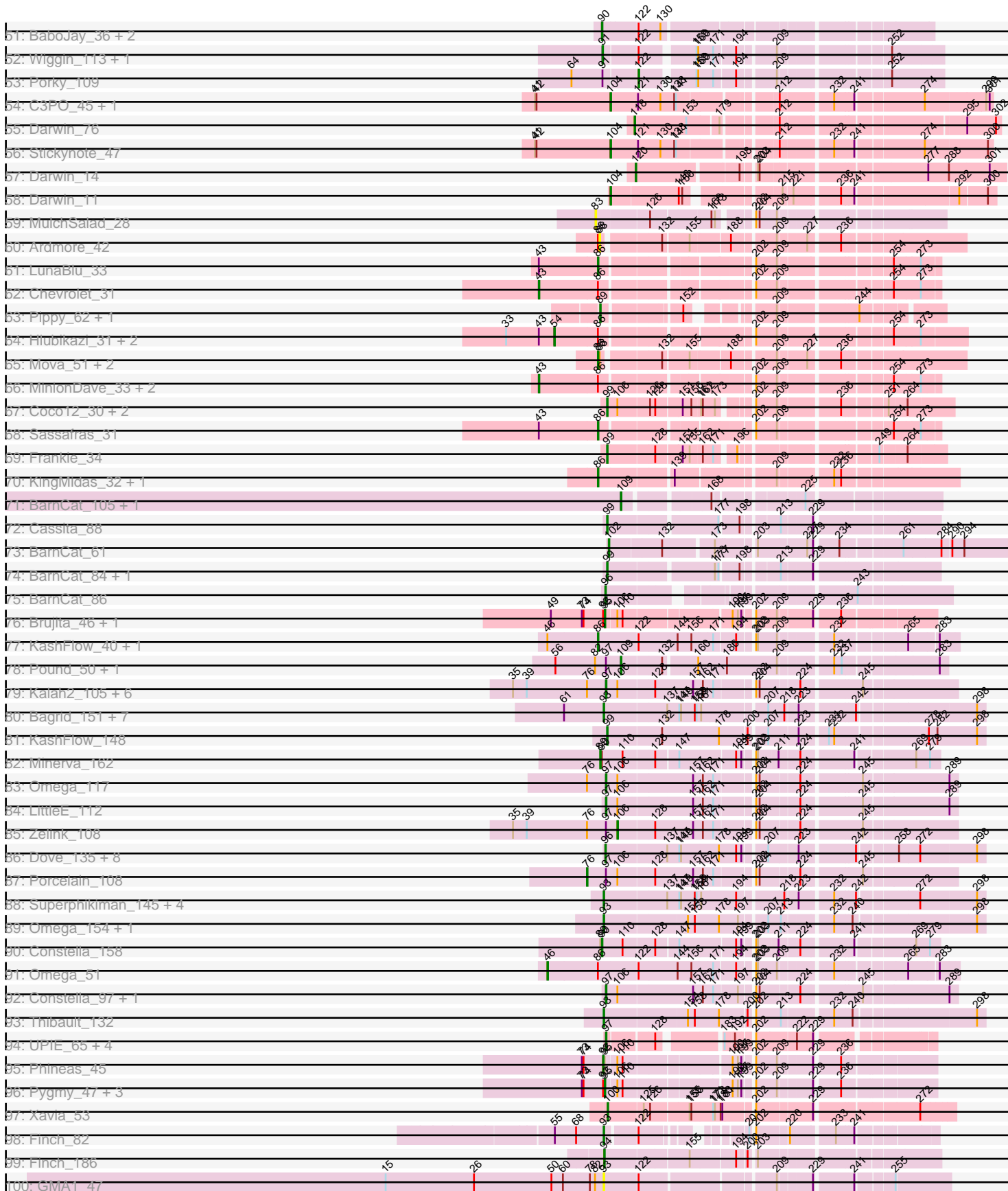


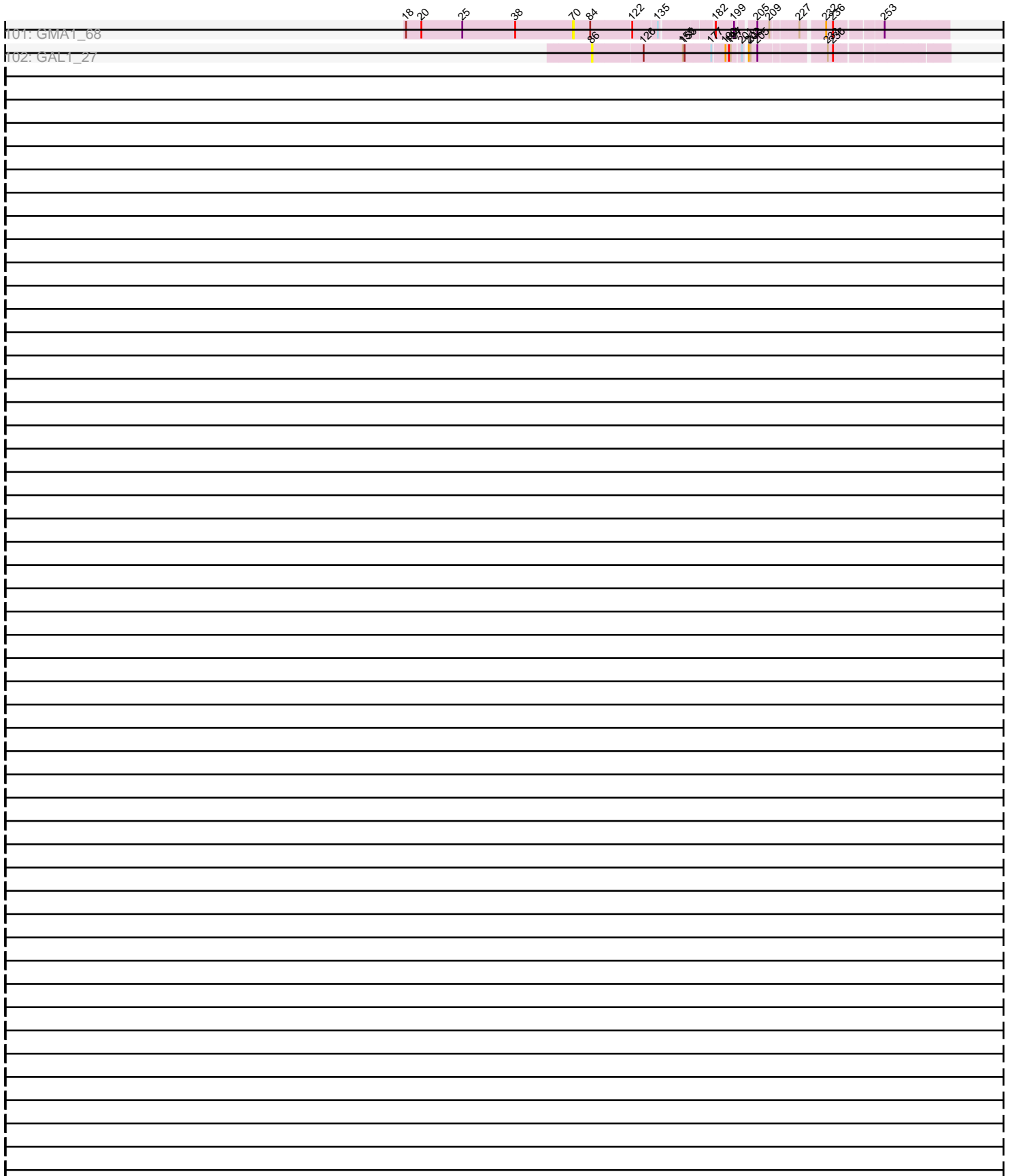
Pham 196291



Pham 196291



# Pham 196291



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 196291 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196291 has 204 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Buttons\_27
- Track 2 : Dori\_69
- Track 3 : Globfish\_83
- Track 4 : Lopsy\_58, Buckeye\_60, LeiMonet\_62, Coletti\_62, Podrick\_58, Adriana\_61, Matalotodo\_59, KingTut\_52
- Track 5 : Orfeu\_58, Placalicious\_60, FugateOSU\_60, LostAndPhound\_60, Toni\_59
- Track 6 : Pipefish\_29
- Track 7 : Bernardo\_39
- Track 8 : Saguaro\_52
- Track 9 : ScoobyDoobyDoo\_60
- Track 10 : ScoobyDoobyDoo\_184
- Track 11 : Peregrin\_232
- Track 12 : Peregrin\_178
- Track 13 : Morrissey\_46
- Track 14 : Francesca\_39
- Track 15 : DonTron\_22
- Track 16 : WilliamBoone\_144
- Track 17 : Gspu1\_40
- Track 18 : Lysidious\_60
- Track 19 : Lysidious\_17
- Track 20 : Mellie\_57
- Track 21 : Lilas\_67, EnalisNailo\_66, Bradissa\_67
- Track 22 : Attis\_64, SoilAssassin\_64
- Track 23 : LordFarquaad\_67
- Track 24 : Adora\_55, Shlim410\_56, Hortense\_58, Howe\_58, Twinkle\_57
- Track 25 : Twister6\_58
- Track 26 : Clown\_64
- Track 27 : JonJames\_26
- Track 28 : Brandonk123\_37, Love\_39, BobBob\_33, Fosterous\_34, Nordenberg\_30, Sedona\_36, Galadriel\_36, Vivi2\_38, Rofo\_36, Charming\_36, Angelicage\_34, Tangent\_36, Bibwit\_35
- Track 29 : Lennon\_36, Affeca\_34
- Track 30 : McKinley\_38
- Track 31 : Paries\_38
- Track 32 : Sitar\_36
- Track 33 : Keitabear\_36
- Track 34 : GMA3\_25

- Track 35 : DatBoi\_98
- Track 36 : Bantam\_102, SpeedDemon\_1040
- Track 37 : Mollymur\_102
- Track 38 : Daredevil\_91
- Track 39 : Kuwabara\_68
- Track 40 : UBSmoodge\_128
- Track 41 : Kabocha\_97, Chidiebere\_96, Schomber\_94
- Track 42 : DalanDe\_1
- Track 43 : ChisanaKitsune\_93
- Track 44 : Stormageddon\_82, RedWattleHog\_85
- Track 45 : RedWattleHog\_22
- Track 46 : RedWattleHog\_100
- Track 47 : ModicumRichard\_20
- Track 48 : ObLaDi\_20
- Track 49 : Cafasso\_20
- Track 50 : BaboJay\_110, JeTaime\_109, Nimrod\_111, Kimchi\_115, Teaspoon\_111, Goku\_110, 244\_112, Stank\_113, Icee\_112, BigBubba\_112, Filch\_113, TBrady12\_114, Xandras\_110, Goldilocks\_114, Holt\_116
- Track 51 : BaboJay\_36, Goku\_37, Eureka\_37
- Track 52 : Wiggin\_113, Marshmallow\_109
- Track 53 : Porky\_109
- Track 54 : C3PO\_45, Cruella\_45
- Track 55 : Darwin\_76
- Track 56 : Stickynote\_47
- Track 57 : Darwin\_14
- Track 58 : Darwin\_11
- Track 59 : MulchSalad\_28
- Track 60 : Ardmore\_42
- Track 61 : LunaBlu\_33
- Track 62 : Chevrolet\_31
- Track 63 : Pippy\_62, Maravista\_65
- Track 64 : Hlubikazi\_31, Mandlovu\_31, Strokeseat\_31
- Track 65 : Mova\_51, Bobi\_53, Mutaforma13\_54
- Track 66 : MinionDave\_33, Galactic\_32, Ramsey\_33
- Track 67 : Coco12\_30, Starcevich\_34, JalFarm20\_33
- Track 68 : Sassafras\_31
- Track 69 : Frankie\_34
- Track 70 : KingMidas\_32, Leozinho\_32
- Track 71 : BarnCat\_105, LeeroyJenkins\_114
- Track 72 : Cassita\_88
- Track 73 : BarnCat\_61
- Track 74 : BarnCat\_84, LeeroyJenkins\_94
- Track 75 : BarnCat\_86
- Track 76 : Brujita\_46, Island3\_46
- Track 77 : KashFlow\_40, Hannaconda\_43
- Track 78 : Pound\_50, Bombitas\_45
- Track 79 : Kalah2\_105, Phoebus\_113, Dallas\_113, EricMillard\_105, Hughesyang\_111, ThreeRngTarjay\_109, DmpstrDiver\_113
- Track 80 : Bagrid\_151, Optimus\_141, Duke13\_146, HokkenD\_142, BAKA\_150, Gonephishing\_141, Klein\_147, EricMillard\_142
- Track 81 : KashFlow\_148
- Track 82 : Minerva\_162
- Track 83 : Omega\_117

- Track 84 : LittleE\_112
- Track 85 : Zelink\_108
- Track 86 : Dove\_135, Wanda\_148, Zelink\_143, Kalah2\_140, Minerva\_148, Hughesyang\_148, ThreeRngTarjay\_144, Bobby\_139, Phoebus\_149
- Track 87 : Porcelain\_108
- Track 88 : Superphikiman\_145, Ariel\_147, Courthouse\_143, Hannaconda\_141, Beem\_151
- Track 89 : Omega\_154, LittleE\_150
- Track 90 : Constella\_158
- Track 91 : Omega\_51
- Track 92 : Constella\_97, Thibault\_95
- Track 93 : Thibault\_132
- Track 94 : UPIE\_65, JoeDirt\_64, Rose5\_65, Enceladus\_63, Wamburggrxpress\_65
- Track 95 : Phineas\_45
- Track 96 : Pygmy\_47, Bogie\_47, Shipwreck\_47, HUHilltop\_45
- Track 97 : Xavia\_53
- Track 98 : Finch\_82
- Track 99 : Finch\_186
- Track 100 : GMA1\_47
- Track 101 : GMA1\_68
- Track 102 : GAL1\_27

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

The start number called the most often in the published annotations is 92, it was called in 25 of the 190 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Affeca\_34, Angelicage\_34, Bibwit\_35, BobBob\_33, Brandonk123\_37, Cafasso\_20, Charming\_36, Fosterous\_34, FugateOSU\_60, Galadriel\_36, Lennon\_36, LostAndPhound\_60, Love\_39, McKinley\_38, ModicumRichard\_20, Nordenberg\_30, ObLaDi\_20, Orfeu\_58, Paries\_38, Phineas\_45, Placalicious\_60, Rofo\_36, Sedona\_36, Tangent\_36, Toni\_59, Vivi2\_38,

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

- Adriana\_61, Bogie\_47, Brujita\_46, Buckeye\_60, Coletti\_62, HUHilltop\_45, Island3\_46, Keitabear\_36, KingTut\_52, LeiMonet\_62, Lopsy\_58, Matalotodo\_59, Podrick\_58, Pygmy\_47, Shipwreck\_47, Sitar\_36,

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

- 244\_112, Adora\_55, Ardmore\_42, Ariel\_147, Attis\_64, BAKA\_150, BaboJay\_110, BaboJay\_36, Bagrid\_151, Bantam\_102, BarnCat\_105, BarnCat\_61, BarnCat\_84, BarnCat\_86, Beem\_151, Bernardo\_39, BigBubba\_112, Bobby\_139, Bobi\_53, Bombitas\_45, Bradissa\_67, Buttons\_27, C3PO\_45, Cassita\_88, Chevrolet\_31, Chidiebere\_96, ChisanaKitsune\_93, Clown\_64, Coco12\_30, Constella\_158, Constella\_97, Courthouse\_143, Cruella\_45, DalanDe\_1, Dallas\_113, Daredevil\_91, Darwin\_11, Darwin\_14, Darwin\_76, DatBoi\_98, DmpstrDiver\_113, DonTron\_22, Dori\_69, Dove\_135, Duke13\_146, EnalisNailo\_66, Enceladus\_63, EricMillard\_105, EricMillard\_142, Eureka\_37, Filch\_113, Finch\_186, Finch\_82, Francesca\_39, Frankie\_34, GAL1\_27, GMA1\_47, GMA1\_68, GMA3\_25, Galactic\_32, Globfish\_83,

Goku\_110, Goku\_37, Goldilocks\_114, Gonephishing\_141, Gspu1\_40, Hannaconda\_141, Hannaconda\_43, Hlubikazi\_31, HokkenD\_142, Holt\_116, Hortense\_58, Howe\_58, Hughesyang\_111, Hughesyang\_148, Icee\_112, JalFarm20\_33, JeTaimé\_109, JoeDirt\_64, JonJames\_26, Kabocha\_97, Kalah2\_105, Kalah2\_140, KashFlow\_148, KashFlow\_40, Kimchi\_115, KingMidas\_32, Klein\_147, Kuwabara\_68, LeeroyJenkins\_114, LeeroyJenkins\_94, Leozinho\_32, Lilas\_67, LittleE\_112, LittleE\_150, LordFarquaad\_67, LunaBlu\_33, Lysidious\_17, Lysidious\_60, Mandlovu\_31, Maravista\_65, Marshmallow\_109, Mellie\_57, Minerva\_148, Minerva\_162, MinionDave\_33, Mollymur\_102, Morrissey\_46, Mova\_51, MulchSalad\_28, Mutaforma13\_54, Nimrod\_111, Omega\_117, Omega\_154, Omega\_51, Optimus\_141, Peregrin\_178, Peregrin\_232, Phoebus\_113, Phoebus\_149, Pipefish\_29, Pippy\_62, Porcelain\_108, Porky\_109, Pound\_50, Ramsey\_33, RedWattleHog\_100, RedWattleHog\_22, RedWattleHog\_85, Rose5\_65, Saguaro\_52, Sassafras\_31, Schomber\_94, ScoobyDoobyDoo\_184, ScoobyDoobyDoo\_60, Shlim410\_56, SoilAssassin\_64, SpeedDemon\_1040, Stank\_113, Starcevich\_34, Stickynote\_47, Stormageddon\_82, Strokeseat\_31, Superphikiman\_145, TBrady12\_114, Teaspoon\_111, Thibault\_132, Thibault\_95, ThreeRngTarjay\_109, ThreeRngTarjay\_144, Twinkle\_57, Twister6\_58, UBSmoodge\_128, UPIE\_65, Wamburgxpress\_65, Wanda\_148, Wiggin\_113, WilliamBoone\_144, Xandras\_110, Xavia\_53, Zelink\_108, Zelink\_143,

### Summary by start number:

#### Start 43:

- Found in 9 of 204 ( 4.4% ) of genes in pham
- Manual Annotations of this start: 4 of 190
- Called 44.4% of time when present
- Phage (with cluster) where this start called: Chevrolet\_31 (F1), Galactic\_32 (F1), MinionDave\_33 (F1), Ramsey\_33 (F1),

#### Start 44:

- Found in 7 of 204 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 3 of 190
- Called 42.9% of time when present
- Phage (with cluster) where this start called: Attis\_64 (CZ2), SoilAssassin\_64 (CZ2), WilliamBoone\_144 (CQ1),

#### Start 46:

- Found in 3 of 204 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Omega\_51 (J),

#### Start 52:

- Found in 19 of 204 ( 9.3% ) of genes in pham
- Manual Annotations of this start: 2 of 190
- Called 10.5% of time when present
- Phage (with cluster) where this start called: Keitabear\_36 (DE1), Sitar\_36 (DE1),

#### Start 54:

- Found in 3 of 204 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 3 of 190
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Hlubikazi\_31 (F1), Mandlovu\_31 (F1), Strokeseat\_31 (F1),

Start 61:

- Found in 9 of 204 ( 4.4% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 11.1% of time when present
- Phage (with cluster) where this start called: DalanDe\_1 (DQ),

Start 62:

- Found in 2 of 204 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gspu1\_40 (CU2), UBSmoodge\_128 (DQ),

Start 66:

- Found in 7 of 204 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 5 of 190
- Called 71.4% of time when present
- Phage (with cluster) where this start called: Chidiebere\_96 (DQ), ChisanaKitsune\_93 (DQ), Kabocha\_97 (DQ), Pipefish\_29 (B3), Schomber\_94 (DQ),

Start 69:

- Found in 1 of 204 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Twister6\_58 (DC1),

Start 70:

- Found in 1 of 204 ( 0.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA1\_68 (singleton),

Start 71:

- Found in 1 of 204 ( 0.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DonTron\_22 (CP),

Start 72:

- Found in 1 of 204 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ScoobyDoobyDoo\_60 (C2),

Start 76:

- Found in 29 of 204 ( 14.2% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 3.4% of time when present
- Phage (with cluster) where this start called: Porcelain\_108 (J),



Start 77:

- Found in 1 of 204 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kuwabara\_68 (DN4),

Start 83:

- Found in 1 of 204 ( 0.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MulchSalad\_28 (F),

Start 85:

- Found in 3 of 204 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 3 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: RedWattleHog\_100 (DX), RedWattleHog\_85 (DX), Stormageddon\_82 (DX),

Start 86:

- Found in 19 of 204 ( 9.3% ) of genes in pham
- Manual Annotations of this start: 9 of 190
- Called 52.6% of time when present
- Phage (with cluster) where this start called: Bobi\_53 (F1), GAL1\_27 (singleton), Hannaconda\_43 (J), KashFlow\_40 (J), KingMidas\_32 (F1), Leozinho\_32 (F1), LunaBlu\_33 (F1), Mova\_51 (F1), Mutaforma13\_54 (F1), Sassafras\_31 (F1),

Start 88:

- Found in 4 of 204 ( 2.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Ardmore\_42 (F1),

Start 89:

- Found in 4 of 204 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 3 of 190
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Maravista\_65 (F1), Minerva\_162 (J), Pippy\_62 (F1),

Start 90:

- Found in 7 of 204 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 4 of 190
- Called 71.4% of time when present
- Phage (with cluster) where this start called: BaboJay\_36 (E), Constella\_158 (J), Eureka\_37 (E), Globfish\_83 (AY), Goku\_37 (E),

Start 91:

- Found in 19 of 204 ( 9.3% ) of genes in pham
- Manual Annotations of this start: 18 of 190
- Called 94.7% of time when present
- Phage (with cluster) where this start called: 244\_112 (E), BaboJay\_110 (E), BigBubba\_112 (E), Filch\_113 (E), Goku\_110 (E), Goldilocks\_114 (E), Holt\_116 (E),

Icee\_112 (E), JeTaime\_109 (E), JonJames\_26 (DD), Kimchi\_115 (E), Marshmallow\_109 (E), Nimrod\_111 (E), Stank\_113 (E), TBrady12\_114 (E), Teaspoon\_111 (E), Wiggin\_113 (E), Xandras\_110 (E),

#### Start 92:

- Found in 42 of 204 ( 20.6% ) of genes in pham
- Manual Annotations of this start: 25 of 190
- Called 61.9% of time when present
- Phage (with cluster) where this start called: Affeca\_34 (DE1), Angelicage\_34 (DE1), Bibwit\_35 (DE1), BobBob\_33 (DE1), Brandonk123\_37 (DE1), Cafasso\_20 (DZ), Charming\_36 (DE1), Fosterous\_34 (DE1), FugateOSU\_60 (B1), Galadriel\_36 (DE1), Lennon\_36 (DE1), LostAndPhound\_60 (B1), Love\_39 (DE1), McKinley\_38 (DE1), ModicumRichard\_20 (DZ), Nordenberg\_30 (DE1), ObLaDi\_20 (DZ), Orfeu\_58 (B1), Paries\_38 (DE1), Phineas\_45 (P1), Placalicious\_60 (B1), Rofo\_36 (DE1), Sedona\_36 (DE1), Tangent\_36 (DE1), Toni\_59 (B1), Vivi2\_38 (DE1),

#### Start 93:

- Found in 18 of 204 ( 8.8% ) of genes in pham
- Manual Annotations of this start: 15 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ariel\_147 (J), BAKA\_150 (J), Bagrid\_151 (J), Beem\_151 (J), Courthouse\_143 (J), Duke13\_146 (J), EricMillard\_142 (J), Finch\_82 (singleton), GMA1\_47 (singleton), Gonephishing\_141 (J), Hannaconda\_141 (J), HokkenD\_142 (J), Klein\_147 (J), LittleE\_150 (J), Omega\_154 (J), Optimus\_141 (J), Superphikiman\_145 (J), Thibault\_132 (J),

#### Start 94:

- Found in 2 of 204 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Finch\_186 (singleton),

#### Start 95:

- Found in 8 of 204 ( 3.9% ) of genes in pham
- Manual Annotations of this start: 7 of 190
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Bogie\_47 (P1), Brujita\_46 (I1), HUHilltop\_45 (P1), Island3\_46 (I1), Lysidious\_17 (CV), Pygmy\_47 (P1), Shipwreck\_47 (P1),

#### Start 96:

- Found in 10 of 204 ( 4.9% ) of genes in pham
- Manual Annotations of this start: 10 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BarnCat\_86 (GB), Bobby\_139 (J), Dove\_135 (J), Hughesyang\_148 (J), Kalah2\_140 (J), Minerva\_148 (J), Phoebus\_149 (J), ThreeRngTarjay\_144 (J), Wanda\_148 (J), Zelink\_143 (J),

#### Start 97:

- Found in 27 of 204 ( 13.2% ) of genes in pham
- Manual Annotations of this start: 23 of 190
- Called 85.2% of time when present

- Phage (with cluster) where this start called: Adora\_55 (CZ4), Clown\_64 (DC2), Constella\_97 (J), Dallas\_113 (J), DmpstrDiver\_113 (J), Enceladus\_63 (L1), EricMillard\_105 (J), Hortense\_58 (CZ4), Howe\_58 (CZ4), Hughesyang\_111 (J), JoeDirt\_64 (L1), Kalah2\_105 (J), LittleE\_112 (J), Omega\_117 (J), Phoebus\_113 (J), RedWattleHog\_22 (DX), Rose5\_65 (L1), Shlim410\_56 (CZ4), Thibault\_95 (J), ThreeRngTarjay\_109 (J), Twinkle\_57 (CZ4), UPIE\_65 (L1), Wamburgxpress\_65 (L1),

#### Start 98:

- Found in 2 of 204 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Peregrin\_178 (CB),

#### Start 99:

- Found in 12 of 204 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 11 of 190
- Called 91.7% of time when present
- Phage (with cluster) where this start called: BarnCat\_84 (GB), Cassita\_88 (GB), Coco12\_30 (F1), Frankie\_34 (F1), JalFarm20\_33 (F1), KashFlow\_148 (J), LeeroyJenkins\_94 (GB), Lysidious\_60 (CV), Mellie\_57 (CV), Peregrin\_232 (CB), Starcevich\_34 (F1),

#### Start 100:

- Found in 4 of 204 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 4 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Buttons\_27 (A1), Dori\_69 (AD), Saguaro\_52 (B7), Xavia\_53 (P3),

#### Start 101:

- Found in 18 of 204 ( 8.8% ) of genes in pham
- Manual Annotations of this start: 11 of 190
- Called 72.2% of time when present
- Phage (with cluster) where this start called: Adriana\_61 (B1), Bantam\_102 (DL), Buckeye\_60 (B1), Coletti\_62 (B1), Daredevil\_91 (DL), DatBoi\_98 (DL), KingTut\_52 (B1), LeiMonet\_62 (B1), Lopsy\_58 (B1), Matalotodo\_59 (B1), Mollymur\_102 (DL), Podrick\_58 (B1), SpeedDemon\_1040 (DL),

#### Start 102:

- Found in 2 of 204 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 2 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BarnCat\_61 (GB), Francesca\_39 (CG),

#### Start 103:

- Found in 2 of 204 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Morrissey\_46 (CD),

#### Start 104:

- Found in 4 of 204 ( 2.0% ) of genes in pham

- Manual Annotations of this start: 4 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: C3PO\_45 (EN), Cruella\_45 (EN), Darwin\_11 (EN), Stickynote\_47 (EN),

#### Start 105:

- Found in 1 of 204 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bernardo\_39 (B3),

#### Start 106:

- Found in 23 of 204 ( 11.3% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 4.3% of time when present
- Phage (with cluster) where this start called: Zelink\_108 (J),

#### Start 109:

- Found in 9 of 204 ( 4.4% ) of genes in pham
- Manual Annotations of this start: 4 of 190
- Called 44.4% of time when present
- Phage (with cluster) where this start called: BarnCat\_105 (GB), Bombitas\_45 (J), LeeroyJenkins\_114 (GB), Pound\_50 (J),

#### Start 111:

- Found in 6 of 204 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 4 of 190
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Bradissa\_67 (CY1), EnalisNailo\_66 (CY1), Lilas\_67 (CY1), LordFarquaad\_67 (CZ2),

#### Start 118:

- Found in 1 of 204 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Darwin\_76 (EN),

#### Start 120:

- Found in 1 of 204 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Darwin\_14 (EN),

#### Start 121:

- Found in 4 of 204 ( 2.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 25.0% of time when present
- Phage (with cluster) where this start called: GMA3\_25 (DF2),

#### Start 122:

- Found in 38 of 204 ( 18.6% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 2.6% of time when present

- Phage (with cluster) where this start called: Porky\_109 (E),

Start 123:

- Found in 1 of 204 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 190
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ScoobyDoobyDoo\_184 (C2),

### **Summary by clusters:**

There are 38 clusters represented in this pham: DL, CZ2, DD, singleton, CZ4, EN, DZ, DX, DQ, CU2, I1, DF2, A1, DN4, C2, CQ1, P3, CY1, P1, E, AD, F, CB, J, CG, CD, GB, L1, AY, CP, DC2, CV, DC1, F1, DE1, B7, B1, B3,

Info for manual annotations of cluster A1:

- Start number 100 was manually annotated 1 time for cluster A1.

Info for manual annotations of cluster AD:

- Start number 100 was manually annotated 1 time for cluster AD.

Info for manual annotations of cluster B1:

- Start number 92 was manually annotated 5 times for cluster B1.
- Start number 101 was manually annotated 6 times for cluster B1.

Info for manual annotations of cluster B3:

- Start number 66 was manually annotated 1 time for cluster B3.
- Start number 105 was manually annotated 1 time for cluster B3.

Info for manual annotations of cluster B7:

- Start number 100 was manually annotated 1 time for cluster B7.

Info for manual annotations of cluster C2:

- Start number 72 was manually annotated 1 time for cluster C2.
- Start number 123 was manually annotated 1 time for cluster C2.

Info for manual annotations of cluster CB:

- Start number 98 was manually annotated 1 time for cluster CB.
- Start number 99 was manually annotated 1 time for cluster CB.

Info for manual annotations of cluster CD:

- Start number 103 was manually annotated 1 time for cluster CD.

Info for manual annotations of cluster CG:

- Start number 102 was manually annotated 1 time for cluster CG.

Info for manual annotations of cluster CQ1:

- Start number 44 was manually annotated 1 time for cluster CQ1.

Info for manual annotations of cluster CV:

- Start number 95 was manually annotated 1 time for cluster CV.

- Start number 99 was manually annotated 2 times for cluster CV.

Info for manual annotations of cluster CY1:

- Start number 111 was manually annotated 3 times for cluster CY1.

Info for manual annotations of cluster CZ2:

- Start number 44 was manually annotated 2 times for cluster CZ2.
- Start number 111 was manually annotated 1 time for cluster CZ2.

Info for manual annotations of cluster CZ4:

- Start number 97 was manually annotated 5 times for cluster CZ4.

Info for manual annotations of cluster DC1:

- Start number 69 was manually annotated 1 time for cluster DC1.

Info for manual annotations of cluster DC2:

- Start number 97 was manually annotated 1 time for cluster DC2.

Info for manual annotations of cluster DD:

- Start number 91 was manually annotated 1 time for cluster DD.

Info for manual annotations of cluster DE1:

- Start number 52 was manually annotated 2 times for cluster DE1.
- Start number 92 was manually annotated 17 times for cluster DE1.

Info for manual annotations of cluster DL:

- Start number 101 was manually annotated 5 times for cluster DL.

Info for manual annotations of cluster DN4:

- Start number 77 was manually annotated 1 time for cluster DN4.

Info for manual annotations of cluster DQ:

- Start number 61 was manually annotated 1 time for cluster DQ.
- Start number 62 was manually annotated 1 time for cluster DQ.
- Start number 66 was manually annotated 4 times for cluster DQ.

Info for manual annotations of cluster DX:

- Start number 85 was manually annotated 3 times for cluster DX.
- Start number 97 was manually annotated 1 time for cluster DX.

Info for manual annotations of cluster DZ:

- Start number 92 was manually annotated 2 times for cluster DZ.

Info for manual annotations of cluster E:

- Start number 90 was manually annotated 3 times for cluster E.
- Start number 91 was manually annotated 17 times for cluster E.
- Start number 122 was manually annotated 1 time for cluster E.

Info for manual annotations of cluster EN:

- Start number 104 was manually annotated 4 times for cluster EN.
- Start number 118 was manually annotated 1 time for cluster EN.
- Start number 120 was manually annotated 1 time for cluster EN.

Info for manual annotations of cluster F1:

- Start number 43 was manually annotated 4 times for cluster F1.
- Start number 54 was manually annotated 3 times for cluster F1.
- Start number 86 was manually annotated 7 times for cluster F1.
- Start number 89 was manually annotated 2 times for cluster F1.
- Start number 99 was manually annotated 4 times for cluster F1.

Info for manual annotations of cluster GB:

- Start number 96 was manually annotated 1 time for cluster GB.
- Start number 99 was manually annotated 3 times for cluster GB.
- Start number 102 was manually annotated 1 time for cluster GB.
- Start number 109 was manually annotated 2 times for cluster GB.

Info for manual annotations of cluster I1:

- Start number 95 was manually annotated 2 times for cluster I1.

Info for manual annotations of cluster J:

- Start number 46 was manually annotated 1 time for cluster J.
- Start number 76 was manually annotated 1 time for cluster J.
- Start number 86 was manually annotated 2 times for cluster J.
- Start number 89 was manually annotated 1 time for cluster J.
- Start number 90 was manually annotated 1 time for cluster J.
- Start number 93 was manually annotated 14 times for cluster J.
- Start number 96 was manually annotated 9 times for cluster J.
- Start number 97 was manually annotated 11 times for cluster J.
- Start number 99 was manually annotated 1 time for cluster J.
- Start number 106 was manually annotated 1 time for cluster J.
- Start number 109 was manually annotated 2 times for cluster J.

Info for manual annotations of cluster L1:

- Start number 97 was manually annotated 5 times for cluster L1.

Info for manual annotations of cluster P1:

- Start number 92 was manually annotated 1 time for cluster P1.
- Start number 95 was manually annotated 4 times for cluster P1.

Info for manual annotations of cluster P3:

- Start number 100 was manually annotated 1 time for cluster P3.

**Gene Information:**

Gene: 244\_112 Start: 62827, Stop: 63327, Start Num: 91

Candidate Starts for 244\_112:

(64, 62773), (Start: 91 @62827 has 18 MA's), (Start: 122 @62881 has 1 MA's), (159, 62962), (160, 62965), (171, 62989), (194, 63022), (209, 63079), (252, 63241),

Gene: Adora\_55 Start: 40141, Stop: 40647, Start Num: 97

Candidate Starts for Adora\_55:

(27, 39916), (30, 39946), (Start: 97 @40141 has 23 MA's), (128, 40216), (133, 40228), (156, 40270), (202, 40357), (215, 40396),

Gene: Adriana\_61 Start: 53245, Stop: 52730, Start Num: 101

Candidate Starts for Adriana\_61:

(59, 53323), (81, 53269), (Start: 92 @53254 has 25 MA's), (Start: 101 @53245 has 11 MA's), (126, 53179), (147, 53134), (158, 53110), (175, 53074), (181, 53068), (199, 53035), (214, 52981), (217, 52978), (247, 52861), (250, 52840), (276, 52765),

Gene: Affeca\_34 Start: 32900, Stop: 32427, Start Num: 92

Candidate Starts for Affeca\_34:

(34, 33038), (Start: 52 @32984 has 2 MA's), (Start: 76 @32927 has 1 MA's), (Start: 92 @32900 has 25 MA's), (136, 32801), (167, 32759), (169, 32756), (199, 32720), (215, 32663), (224, 32639), (234, 32582),

Gene: Angelicage\_34 Start: 33318, Stop: 32845, Start Num: 92

Candidate Starts for Angelicage\_34:

(34, 33456), (Start: 52 @33402 has 2 MA's), (58, 33393), (Start: 76 @33345 has 1 MA's), (Start: 92 @33318 has 25 MA's), (136, 33219), (167, 33177), (169, 33174), (199, 33138), (215, 33081), (225, 33048), (234, 33000),

Gene: Ardmore\_42 Start: 34484, Stop: 35032, Start Num: 88

Candidate Starts for Ardmore\_42:

(Start: 86 @34481 has 9 MA's), (88, 34484), (132, 34574), (155, 34616), (188, 34676), (209, 34742), (227, 34784), (236, 34832),

Gene: Ariel\_147 Start: 75437, Stop: 76039, Start Num: 93

Candidate Starts for Ariel\_147:

(Start: 93 @75437 has 15 MA's), (137, 75542), (147, 75563), (149, 75566), (158, 75590), (159, 75593), (161, 75599), (194, 75659), (218, 75728), (223, 75746), (232, 75797), (242, 75833), (272, 75929), (298, 76025),

Gene: Attis\_64 Start: 43105, Stop: 43650, Start Num: 44

Candidate Starts for Attis\_64:

(Start: 44 @43105 has 3 MA's), (63, 43147), (75, 43168), (87, 43192), (Start: 111 @43231 has 4 MA's), (115, 43243), (127, 43273), (195, 43378), (236, 43516),

Gene: BAKA\_150 Start: 78761, Stop: 79363, Start Num: 93

Candidate Starts for BAKA\_150:

(Start: 61 @78692 has 1 MA's), (Start: 93 @78761 has 15 MA's), (137, 78866), (147, 78887), (149, 78890), (158, 78914), (159, 78917), (161, 78923), (207, 79025), (218, 79052), (223, 79070), (242, 79157), (298, 79349),

Gene: BaboJay\_110 Start: 64000, Stop: 64500, Start Num: 91

Candidate Starts for BaboJay\_110:

(64, 63946), (Start: 91 @64000 has 18 MA's), (Start: 122 @64054 has 1 MA's), (159, 64135), (160, 64138), (171, 64162), (194, 64195), (209, 64252), (252, 64414),

Gene: BaboJay\_36 Start: 33175, Stop: 32675, Start Num: 90

Candidate Starts for BaboJay\_36:

(Start: 90 @33175 has 4 MA's), (Start: 122 @33118 has 1 MA's), (130, 33082),

Gene: Bagrid\_151 Start: 79456, Stop: 80058, Start Num: 93



Candidate Starts for Bagrid\_151:

(Start: 61 @79387 has 1 MA's), (Start: 93 @79456 has 15 MA's), (137, 79561), (147, 79582), (149, 79585), (158, 79609), (159, 79612), (161, 79618), (207, 79720), (218, 79747), (223, 79765), (242, 79852), (298, 80044),

Gene: Bantam\_102 Start: 67594, Stop: 68172, Start Num: 101

Candidate Starts for Bantam\_102:

(19, 67276), (40, 67462), (Start: 101 @67594 has 11 MA's), (Start: 122 @67642 has 1 MA's), (126, 67660), (130, 67678), (151, 67711), (202, 67813), (219, 67864), (239, 67966), (280, 68092),

Gene: BarnCat\_105 Start: 54966, Stop: 54505, Start Num: 109

Candidate Starts for BarnCat\_105:

(Start: 109 @54966 has 4 MA's), (168, 54837), (225, 54714),

Gene: BarnCat\_61 Start: 35513, Stop: 34857, Start Num: 102

Candidate Starts for BarnCat\_61:

(Start: 102 @35513 has 2 MA's), (132, 35426), (173, 35345), (203, 35288), (227, 35210), (229, 35201), (234, 35165), (261, 35069), (284, 35006), (290, 34991), (294, 34970),

Gene: BarnCat\_84 Start: 47542, Stop: 47033, Start Num: 99

Candidate Starts for BarnCat\_84:

(Start: 99 @47542 has 11 MA's), (173, 47371), (177, 47365), (198, 47335), (213, 47281), (229, 47233),

Gene: BarnCat\_86 Start: 49536, Stop: 49024, Start Num: 96

Candidate Starts for BarnCat\_86:

(Start: 96 @49536 has 10 MA's), (243, 49179),

Gene: Beem\_151 Start: 80198, Stop: 80800, Start Num: 93

Candidate Starts for Beem\_151:

(Start: 93 @80198 has 15 MA's), (137, 80303), (147, 80324), (149, 80327), (158, 80351), (159, 80354), (161, 80360), (194, 80420), (218, 80489), (223, 80507), (232, 80558), (242, 80594), (272, 80690), (298, 80786),

Gene: Bernardo\_39 Start: 36994, Stop: 37440, Start Num: 105

Candidate Starts for Bernardo\_39:

(Start: 105 @36994 has 1 MA's), (158, 37090), (201, 37174), (202, 37177), (226, 37255), (271, 37423),

Gene: Bibwit\_35 Start: 32719, Stop: 32246, Start Num: 92

Candidate Starts for Bibwit\_35:

(34, 32857), (Start: 52 @32803 has 2 MA's), (58, 32794), (Start: 76 @32746 has 1 MA's), (Start: 92 @32719 has 25 MA's), (136, 32620), (167, 32578), (169, 32575), (199, 32539), (215, 32482), (225, 32449), (234, 32401),

Gene: BigBubba\_112 Start: 62473, Stop: 62973, Start Num: 91

Candidate Starts for BigBubba\_112:

(64, 62419), (Start: 91 @62473 has 18 MA's), (Start: 122 @62527 has 1 MA's), (159, 62608), (160, 62611), (171, 62635), (194, 62668), (209, 62725), (252, 62887),

Gene: BobBob\_33 Start: 31999, Stop: 31526, Start Num: 92

Candidate Starts for BobBob\_33:

(34, 32137), (Start: 52 @32083 has 2 MA's), (58, 32074), (Start: 76 @32026 has 1 MA's), (Start: 92 @31999 has 25 MA's), (136, 31900), (167, 31858), (169, 31855), (199, 31819), (215, 31762), (225, 31729), (234, 31681),

Gene: Bobby\_139 Start: 80254, Stop: 80853, Start Num: 96

Candidate Starts for Bobby\_139:

(Start: 96 @80254 has 10 MA's), (137, 80356), (147, 80377), (149, 80380), (178, 80443), (194, 80473), (199, 80482), (207, 80515), (223, 80560), (242, 80647), (258, 80707), (272, 80743), (298, 80839),

Gene: Bobi\_53 Start: 37484, Stop: 38035, Start Num: 86

Candidate Starts for Bobi\_53:

(Start: 86 @37484 has 9 MA's), (88, 37487), (132, 37577), (155, 37619), (188, 37679), (209, 37745), (227, 37787), (236, 37835),

Gene: Bogie\_47 Start: 33238, Stop: 33729, Start Num: 95

Candidate Starts for Bogie\_47:

(73, 33199), (74, 33202), (Start: 92 @33235 has 25 MA's), (Start: 95 @33238 has 7 MA's), (Start: 106 @33256 has 1 MA's), (110, 33265), (190, 33430), (197, 33439), (199, 33445), (202, 33457), (209, 33493), (229, 33544), (236, 33583),

Gene: Bombitas\_45 Start: 41655, Stop: 42164, Start Num: 109

Candidate Starts for Bombitas\_45:

(56, 41544), (82, 41613), (Start: 97 @41631 has 23 MA's), (Start: 109 @41655 has 4 MA's), (132, 41721), (160, 41775), (186, 41820), (209, 41907), (232, 41985), (237, 41997), (283, 42150),

Gene: Bradissa\_67 Start: 46915, Stop: 47334, Start Num: 111

Candidate Starts for Bradissa\_67:

(23, 46627), (Start: 44 @46789 has 3 MA's), (75, 46852), (79, 46867), (87, 46876), (Start: 111 @46915 has 4 MA's), (115, 46927), (127, 46957), (191, 47056), (195, 47062), (236, 47200),

Gene: Brandonk123\_37 Start: 33065, Stop: 32592, Start Num: 92

Candidate Starts for Brandonk123\_37:

(34, 33203), (Start: 52 @33149 has 2 MA's), (58, 33140), (Start: 76 @33092 has 1 MA's), (Start: 92 @33065 has 25 MA's), (136, 32966), (167, 32924), (169, 32921), (199, 32885), (215, 32828), (225, 32795), (234, 32747),

Gene: Brujita\_46 Start: 33137, Stop: 33628, Start Num: 95

Candidate Starts for Brujita\_46:

(49, 33044), (73, 33098), (74, 33101), (Start: 92 @33134 has 25 MA's), (Start: 95 @33137 has 7 MA's), (Start: 106 @33155 has 1 MA's), (110, 33164), (190, 33329), (197, 33338), (199, 33344), (202, 33356), (209, 33392), (229, 33443), (236, 33482),

Gene: Buckeye\_60 Start: 52975, Stop: 52460, Start Num: 101

Candidate Starts for Buckeye\_60:

(59, 53053), (81, 52999), (Start: 92 @52984 has 25 MA's), (Start: 101 @52975 has 11 MA's), (126, 52909), (147, 52864), (158, 52840), (175, 52804), (181, 52798), (199, 52765), (214, 52711), (217, 52708), (247, 52591), (250, 52570), (276, 52495),

Gene: Buttons\_27 Start: 21411, Stop: 21896, Start Num: 100

Candidate Starts for Buttons\_27:

(Start: 100 @21411 has 4 MA's), (Start: 122 @21459 has 1 MA's), (202, 21630), (203, 21633), (215, 21672),

Gene: C3PO\_45 Start: 42754, Stop: 42164, Start Num: 104

Candidate Starts for C3PO\_45:

(41, 42886), (42, 42883), (Start: 104 @42754 has 4 MA's), (121, 42706), (130, 42667), (138, 42643), (141, 42640), (212, 42496), (232, 42418), (241, 42385), (274, 42277), (299, 42175), (301, 42169),

Gene: Cafasso\_20 Start: 18713, Stop: 18225, Start Num: 92

Candidate Starts for Cafasso\_20:

(16, 19079), (36, 18863), (45, 18806), (53, 18794), (Start: 92 @18713 has 25 MA's), (129, 18629), (142, 18605), (169, 18569), (176, 18560), (202, 18521), (204, 18515), (233, 18401), (234, 18395), (236, 18392), (258, 18314),

Gene: Cassita\_88 Start: 48685, Stop: 48176, Start Num: 99

Candidate Starts for Cassita\_88:

(Start: 99 @48685 has 11 MA's), (177, 48508), (198, 48478), (213, 48424), (229, 48376),

Gene: Charming\_36 Start: 32566, Stop: 32093, Start Num: 92

Candidate Starts for Charming\_36:

(34, 32704), (Start: 52 @32650 has 2 MA's), (58, 32641), (Start: 76 @32593 has 1 MA's), (Start: 92 @32566 has 25 MA's), (136, 32467), (167, 32425), (169, 32422), (199, 32386), (215, 32329), (225, 32296), (234, 32248),

Gene: Chevrolet\_31 Start: 27455, Stop: 28054, Start Num: 43

Candidate Starts for Chevrolet\_31:

(Start: 43 @27455 has 4 MA's), (Start: 86 @27557 has 9 MA's), (202, 27779), (209, 27815), (254, 27980), (273, 28025),

Gene: Chidiebere\_96 Start: 69963, Stop: 70481, Start Num: 66

Candidate Starts for Chidiebere\_96:

(48, 69921), (57, 69936), (Start: 66 @69963 has 5 MA's), (128, 70086), (130, 70095), (165, 70119), (236, 70299),

Gene: ChisanaKitsune\_93 Start: 68907, Stop: 69425, Start Num: 66

Candidate Starts for ChisanaKitsune\_93:

(48, 68865), (57, 68880), (Start: 66 @68907 has 5 MA's), (128, 69030), (130, 69039), (165, 69063), (236, 69243),

Gene: Clown\_64 Start: 45007, Stop: 45525, Start Num: 97

Candidate Starts for Clown\_64:

(Start: 97 @45007 has 23 MA's), (Start: 109 @45031 has 4 MA's), (Start: 122 @45058 has 1 MA's), (132, 45097), (155, 45136), (199, 45214), (209, 45262), (227, 45304), (232, 45340), (236, 45352), (286, 45511),

Gene: Coco12\_30 Start: 26826, Stop: 26320, Start Num: 99

Candidate Starts for Coco12\_30:

(Start: 99 @26826 has 11 MA's), (Start: 106 @26811 has 1 MA's), (126, 26760), (128, 26751), (151, 26709), (156, 26694), (161, 26682), (162, 26679), (173, 26658), (202, 26619), (209, 26583), (236, 26493), (251, 26427), (264, 26397),

Gene: Coletti\_62 Start: 53240, Stop: 52725, Start Num: 101

Candidate Starts for Coletti\_62:

(59, 53318), (81, 53264), (Start: 92 @53249 has 25 MA's), (Start: 101 @53240 has 11 MA's), (126, 53174), (147, 53129), (158, 53105), (175, 53069), (181, 53063), (199, 53030), (214, 52976), (217,

52973), (247, 52856), (250, 52835), (276, 52760),

Gene: Constella\_158 Start: 86054, Stop: 86563, Start Num: 90

Candidate Starts for Constella\_158:

(Start: 89 @86051 has 3 MA's), (Start: 90 @86054 has 4 MA's), (110, 86087), (128, 86138), (147, 86174), (194, 86264), (199, 86273), (202, 86285), (203, 86288), (211, 86321), (224, 86351), (241, 86432), (269, 86525), (279, 86549),

Gene: Constella\_97 Start: 58172, Stop: 58714, Start Num: 97

Candidate Starts for Constella\_97:

(Start: 97 @58172 has 23 MA's), (Start: 106 @58190 has 1 MA's), (157, 58310), (162, 58325), (171, 58343), (197, 58382), (202, 58400), (204, 58406), (224, 58466), (245, 58559), (289, 58700),

Gene: Courthouse\_143 Start: 75295, Stop: 75897, Start Num: 93

Candidate Starts for Courthouse\_143:

(Start: 93 @75295 has 15 MA's), (137, 75400), (147, 75421), (149, 75424), (158, 75448), (159, 75451), (161, 75457), (194, 75517), (218, 75586), (223, 75604), (232, 75655), (242, 75691), (272, 75787), (298, 75883),

Gene: Cruella\_45 Start: 42754, Stop: 42164, Start Num: 104

Candidate Starts for Cruella\_45:

(41, 42886), (42, 42883), (Start: 104 @42754 has 4 MA's), (121, 42706), (130, 42667), (138, 42643), (141, 42640), (212, 42496), (232, 42418), (241, 42385), (274, 42277), (299, 42175), (301, 42169),

Gene: DalanDe\_1 Start: 1, Stop: 522, Start Num: 61

Candidate Starts for DalanDe\_1:

(Start: 61 @1 has 1 MA's), (Start: 66 @16 has 5 MA's), (Start: 103 @76 has 1 MA's), (108, 94), (112, 100), (143, 154), (166, 175), (202, 226), (218, 271), (225, 301), (229, 313), (238, 364), (257, 430), (263, 442),

Gene: Dallas\_113 Start: 64402, Stop: 64944, Start Num: 97

Candidate Starts for Dallas\_113:

(35, 64240), (39, 64264), (Start: 76 @64369 has 1 MA's), (Start: 97 @64402 has 23 MA's), (Start: 106 @64420 has 1 MA's), (128, 64477), (157, 64540), (162, 64555), (171, 64573), (202, 64630), (204, 64636), (224, 64696), (245, 64789),

Gene: Daredevil\_91 Start: 63069, Stop: 63638, Start Num: 101

Candidate Starts for Daredevil\_91:

(19, 62760), (28, 62871), (Start: 101 @63069 has 11 MA's), (151, 63186), (173, 63237), (202, 63291), (216, 63336), (250, 63480), (274, 63546),

Gene: Darwin\_76 Start: 54919, Stop: 54362, Start Num: 118

Candidate Starts for Darwin\_76:

(Start: 118 @54919 has 1 MA's), (153, 54829), (179, 54778), (212, 54700), (295, 54418), (302, 54370),

Gene: Darwin\_14 Start: 7286, Stop: 7858, Start Num: 120

Candidate Starts for Darwin\_14:

(Start: 120 @7286 has 1 MA's), (198, 7448), (203, 7466), (204, 7469), (277, 7727), (288, 7763), (301, 7832),

Gene: Darwin\_11 Start: 6015, Stop: 6593, Start Num: 104

Candidate Starts for Darwin\_11:

(Start: 104 @6015 has 4 MA's), (146, 6126), (150, 6132), (215, 6267), (221, 6282), (236, 6351), (241, 6372), (292, 6534), (300, 6579),

Gene: DatBoi\_98 Start: 66730, Stop: 67308, Start Num: 101

Candidate Starts for DatBoi\_98:

(Start: 101 @66730 has 11 MA's), (Start: 122 @66778 has 1 MA's), (130, 66814), (144, 66838), (151, 66847), (227, 67036), (280, 67228),

Gene: DmpstrDiver\_113 Start: 63822, Stop: 64364, Start Num: 97

Candidate Starts for DmpstrDiver\_113:

(35, 63660), (39, 63684), (Start: 76 @63789 has 1 MA's), (Start: 97 @63822 has 23 MA's), (Start: 106 @63840 has 1 MA's), (128, 63897), (157, 63960), (162, 63975), (171, 63993), (202, 64050), (204, 64056), (224, 64116), (245, 64209),

Gene: DonTron\_22 Start: 10785, Stop: 11264, Start Num: 71

Candidate Starts for DonTron\_22:

(71, 10785), (129, 10896), (185, 10980), (199, 10998), (202, 11010), (232, 11124),

Gene: Dori\_69 Start: 53193, Stop: 53732, Start Num: 100

Candidate Starts for Dori\_69:

(47, 53091), (65, 53133), (Start: 90 @53184 has 4 MA's), (Start: 100 @53193 has 4 MA's), (Start: 109 @53214 has 4 MA's), (143, 53301), (155, 53322), (200, 53409), (202, 53415), (213, 53454), (236, 53541), (256, 53619),

Gene: Dove\_135 Start: 75231, Stop: 75830, Start Num: 96

Candidate Starts for Dove\_135:

(Start: 96 @75231 has 10 MA's), (137, 75333), (147, 75354), (149, 75357), (178, 75420), (194, 75450), (199, 75459), (207, 75492), (223, 75537), (242, 75624), (258, 75684), (272, 75720), (298, 75816),

Gene: Duke13\_146 Start: 77046, Stop: 77648, Start Num: 93

Candidate Starts for Duke13\_146:

(Start: 61 @76977 has 1 MA's), (Start: 93 @77046 has 15 MA's), (137, 77151), (147, 77172), (149, 77175), (158, 77199), (159, 77202), (161, 77208), (207, 77310), (218, 77337), (223, 77355), (242, 77442), (298, 77634),

Gene: EnalisNailo\_66 Start: 46449, Stop: 46868, Start Num: 111

Candidate Starts for EnalisNailo\_66:

(23, 46161), (Start: 44 @46323 has 3 MA's), (75, 46386), (79, 46401), (87, 46410), (Start: 111 @46449 has 4 MA's), (115, 46461), (127, 46491), (191, 46590), (195, 46596), (236, 46734),

Gene: Enceladus\_63 Start: 44580, Stop: 45038, Start Num: 97

Candidate Starts for Enceladus\_63:

(Start: 97 @44580 has 23 MA's), (128, 44652), (183, 44742), (192, 44754), (202, 44775), (222, 44838), (229, 44865),

Gene: EricMillard\_105 Start: 63462, Stop: 64004, Start Num: 97

Candidate Starts for EricMillard\_105:

(35, 63300), (39, 63324), (Start: 76 @63429 has 1 MA's), (Start: 97 @63462 has 23 MA's), (Start: 106 @63480 has 1 MA's), (128, 63537), (157, 63600), (162, 63615), (171, 63633), (202, 63690), (204, 63696), (224, 63756), (245, 63849),

Gene: EricMillard\_142 Start: 78398, Stop: 79000, Start Num: 93

Candidate Starts for EricMillard\_142:

(Start: 61 @78329 has 1 MA's), (Start: 93 @78398 has 15 MA's), (137, 78503), (147, 78524), (149, 78527), (158, 78551), (159, 78554), (161, 78560), (207, 78662), (218, 78689), (223, 78707), (242, 78794), (298, 78986),

Gene: Eureka\_37 Start: 33608, Stop: 33108, Start Num: 90

Candidate Starts for Eureka\_37:

(Start: 90 @33608 has 4 MA's), (Start: 122 @33551 has 1 MA's), (130, 33515),

Gene: Filch\_113 Start: 63036, Stop: 63536, Start Num: 91

Candidate Starts for Filch\_113:

(64, 62982), (Start: 91 @63036 has 18 MA's), (Start: 122 @63090 has 1 MA's), (159, 63171), (160, 63174), (171, 63198), (194, 63231), (209, 63288), (252, 63450),

Gene: Finch\_82 Start: 71334, Stop: 71777, Start Num: 93

Candidate Starts for Finch\_82:

(55, 71253), (68, 71289), (Start: 93 @71334 has 15 MA's), (Start: 122 @71382 has 1 MA's), (201, 71505), (202, 71508), (220, 71559), (233, 71625), (241, 71655),

Gene: Finch\_186 Start: 111122, Stop: 111628, Start Num: 94

Candidate Starts for Finch\_186:

(Start: 94 @111122 has 1 MA's), (155, 111254), (194, 111326), (200, 111341), (203, 111350),

Gene: Fosterous\_34 Start: 32991, Stop: 32518, Start Num: 92

Candidate Starts for Fosterous\_34:

(34, 33129), (Start: 52 @33075 has 2 MA's), (58, 33066), (Start: 76 @33018 has 1 MA's), (Start: 92 @32991 has 25 MA's), (136, 32892), (167, 32850), (169, 32847), (199, 32811), (215, 32754), (225, 32721), (234, 32673),

Gene: Francesca\_39 Start: 21303, Stop: 21839, Start Num: 102

Candidate Starts for Francesca\_39:

(Start: 102 @21303 has 2 MA's), (201, 21498), (202, 21501), (232, 21618), (291, 21804), (297, 21822),

Gene: Frankie\_34 Start: 27904, Stop: 27416, Start Num: 99

Candidate Starts for Frankie\_34:

(Start: 99 @27904 has 11 MA's), (128, 27829), (151, 27787), (155, 27775), (162, 27757), (171, 27739), (196, 27712), (249, 27517), (264, 27478),

Gene: FugateOSU\_60 Start: 53224, Stop: 52700, Start Num: 92

Candidate Starts for FugateOSU\_60:

(59, 53293), (81, 53239), (Start: 92 @53224 has 25 MA's), (Start: 101 @53215 has 11 MA's), (126, 53149), (147, 53104), (158, 53080), (175, 53044), (181, 53038), (199, 53005), (214, 52951), (217, 52948), (247, 52831), (250, 52810), (276, 52735),

Gene: GAL1\_27 Start: 22156, Stop: 22695, Start Num: 86

Candidate Starts for GAL1\_27:

(Start: 86 @22156 has 9 MA's), (126, 22234), (155, 22300), (156, 22303), (177, 22348), (190, 22366), (194, 22372), (197, 22375), (201, 22390), (202, 22393), (203, 22396), (205, 22408), (233, 22510), (236, 22519),

Gene: GMA1\_47 Start: 30722, Stop: 31246, Start Num: 93

Candidate Starts for GMA1\_47:

(15, 30347), (26, 30500), (50, 30635), (60, 30653), (78, 30698), (82, 30707), (Start: 93 @30722 has 15 MA's), (Start: 122 @30779 has 1 MA's), (209, 30986), (229, 31037), (241, 31097), (255, 31154),

Gene: GMA1\_68 Start: 40382, Stop: 40945, Start Num: 70

Candidate Starts for GMA1\_68:

(18, 40088), (20, 40115), (25, 40187), (38, 40280), (70, 40382), (84, 40412), (Start: 122 @40481 has 1 MA's), (135, 40520), (182, 40598), (199, 40628), (205, 40655), (209, 40676), (227, 40718), (232, 40754), (236, 40766), (253, 40838),

Gene: GMA3\_25 Start: 35593, Stop: 36075, Start Num: 121

Candidate Starts for GMA3\_25:

(121, 35593), (139, 35656), (171, 35722), (187, 35743), (201, 35764), (204, 35773), (215, 35809), (281, 36034),

Gene: Galactic\_32 Start: 27751, Stop: 28350, Start Num: 43

Candidate Starts for Galactic\_32:

(Start: 43 @27751 has 4 MA's), (Start: 86 @27853 has 9 MA's), (202, 28075), (209, 28111), (254, 28276), (273, 28321),

Gene: Galadriel\_36 Start: 33480, Stop: 33007, Start Num: 92

Candidate Starts for Galadriel\_36:

(34, 33618), (Start: 52 @33564 has 2 MA's), (58, 33555), (Start: 76 @33507 has 1 MA's), (Start: 92 @33480 has 25 MA's), (136, 33381), (167, 33339), (169, 33336), (199, 33300), (215, 33243), (225, 33210), (234, 33162),

Gene: Globfish\_83 Start: 46529, Stop: 47017, Start Num: 90

Candidate Starts for Globfish\_83:

(78, 46508), (Start: 90 @46529 has 4 MA's), (Start: 122 @46586 has 1 MA's), (126, 46604), (148, 46646), (199, 46721), (282, 47006),

Gene: Goku\_37 Start: 33337, Stop: 32837, Start Num: 90

Candidate Starts for Goku\_37:

(Start: 90 @33337 has 4 MA's), (Start: 122 @33280 has 1 MA's), (130, 33244),

Gene: Goku\_110 Start: 63579, Stop: 64079, Start Num: 91

Candidate Starts for Goku\_110:

(64, 63525), (Start: 91 @63579 has 18 MA's), (Start: 122 @63633 has 1 MA's), (159, 63714), (160, 63717), (171, 63741), (194, 63774), (209, 63831), (252, 63993),

Gene: Goldilocks\_114 Start: 63260, Stop: 63760, Start Num: 91

Candidate Starts for Goldilocks\_114:

(64, 63206), (Start: 91 @63260 has 18 MA's), (Start: 122 @63314 has 1 MA's), (159, 63395), (160, 63398), (171, 63422), (194, 63455), (209, 63512), (252, 63674),

Gene: Gonephishing\_141 Start: 75522, Stop: 76124, Start Num: 93

Candidate Starts for Gonephishing\_141:

(Start: 61 @75453 has 1 MA's), (Start: 93 @75522 has 15 MA's), (137, 75627), (147, 75648), (149, 75651), (158, 75675), (159, 75678), (161, 75684), (207, 75786), (218, 75813), (223, 75831), (242, 75918), (298, 76110),

Gene: Gsput1\_40 Start: 30337, Stop: 30849, Start Num: 62

Candidate Starts for Gsput1\_40:

(21, 30127), (24, 30154), (29, 30202), (37, 30250), (40, 30277), (Start: 62 @30337 has 1 MA's), (Start: 66 @30346 has 5 MA's), (79, 30382), (119, 30451), (128, 30475), (174, 30523), (193, 30550), (205, 30580), (209, 30601), (213, 30604), (220, 30616), (270, 30802),

Gene: HUHilltop\_45 Start: 31495, Stop: 31986, Start Num: 95

Candidate Starts for HUHilltop\_45:

(73, 31456), (74, 31459), (Start: 92 @31492 has 25 MA's), (Start: 95 @31495 has 7 MA's), (Start: 106 @31513 has 1 MA's), (110, 31522), (190, 31687), (197, 31696), (199, 31702), (202, 31714), (209, 31750), (229, 31801), (236, 31840),

Gene: Hannaconda\_43 Start: 36122, Stop: 36664, Start Num: 86

Candidate Starts for Hannaconda\_43:

(Start: 46 @36035 has 1 MA's), (Start: 86 @36122 has 9 MA's), (Start: 122 @36185 has 1 MA's), (144, 36251), (156, 36275), (171, 36308), (194, 36341), (202, 36362), (203, 36365), (209, 36398), (232, 36476), (265, 36587), (283, 36635),

Gene: Hannaconda\_141 Start: 76044, Stop: 76646, Start Num: 93

Candidate Starts for Hannaconda\_141:

(Start: 93 @76044 has 15 MA's), (137, 76149), (147, 76170), (149, 76173), (158, 76197), (159, 76200), (161, 76206), (194, 76266), (218, 76335), (223, 76353), (232, 76404), (242, 76440), (272, 76536), (298, 76632),

Gene: Hlubikazi\_31 Start: 27761, Stop: 28381, Start Num: 54

Candidate Starts for Hlubikazi\_31:

(33, 27677), (Start: 43 @27734 has 4 MA's), (Start: 54 @27761 has 3 MA's), (Start: 86 @27836 has 9 MA's), (202, 28058), (209, 28094), (254, 28259), (273, 28304),

Gene: HokkenD\_142 Start: 79202, Stop: 79804, Start Num: 93

Candidate Starts for HokkenD\_142:

(Start: 61 @79133 has 1 MA's), (Start: 93 @79202 has 15 MA's), (137, 79307), (147, 79328), (149, 79331), (158, 79355), (159, 79358), (161, 79364), (207, 79466), (218, 79493), (223, 79511), (242, 79598), (298, 79790),

Gene: Holt\_116 Start: 63658, Stop: 64158, Start Num: 91

Candidate Starts for Holt\_116:

(64, 63604), (Start: 91 @63658 has 18 MA's), (Start: 122 @63712 has 1 MA's), (159, 63793), (160, 63796), (171, 63820), (194, 63853), (209, 63910), (252, 64072),

Gene: Hortense\_58 Start: 41496, Stop: 42002, Start Num: 97

Candidate Starts for Hortense\_58:

(27, 41271), (30, 41301), (Start: 97 @41496 has 23 MA's), (128, 41571), (133, 41583), (156, 41625), (202, 41712), (215, 41751),

Gene: Howe\_58 Start: 41496, Stop: 42002, Start Num: 97

Candidate Starts for Howe\_58:

(27, 41271), (30, 41301), (Start: 97 @41496 has 23 MA's), (128, 41571), (133, 41583), (156, 41625), (202, 41712), (215, 41751),

Gene: Hughesyang\_111 Start: 64353, Stop: 64895, Start Num: 97

Candidate Starts for Hughesyang\_111:

(35, 64191), (39, 64215), (Start: 76 @64320 has 1 MA's), (Start: 97 @64353 has 23 MA's), (Start: 106 @64371 has 1 MA's), (128, 64428), (157, 64491), (162, 64506), (171, 64524), (202, 64581), (204, 64587), (224, 64647), (245, 64740),



Gene: Hughesyang\_148 Start: 79867, Stop: 80466, Start Num: 96

Candidate Starts for Hughesyang\_148:

(Start: 96 @79867 has 10 MA's), (137, 79969), (147, 79990), (149, 79993), (178, 80056), (194, 80086), (199, 80095), (207, 80128), (223, 80173), (242, 80260), (258, 80320), (272, 80356), (298, 80452),

Gene: Icee\_112 Start: 62768, Stop: 63268, Start Num: 91

Candidate Starts for Icee\_112:

(64, 62714), (Start: 91 @62768 has 18 MA's), (Start: 122 @62822 has 1 MA's), (159, 62903), (160, 62906), (171, 62930), (194, 62963), (209, 63020), (252, 63182),

Gene: Island3\_46 Start: 33137, Stop: 33628, Start Num: 95

Candidate Starts for Island3\_46:

(49, 33044), (73, 33098), (74, 33101), (Start: 92 @33134 has 25 MA's), (Start: 95 @33137 has 7 MA's), (Start: 106 @33155 has 1 MA's), (110, 33164), (190, 33329), (197, 33338), (199, 33344), (202, 33356), (209, 33392), (229, 33443), (236, 33482),

Gene: JalFarm20\_33 Start: 27847, Stop: 27341, Start Num: 99

Candidate Starts for JalFarm20\_33:

(Start: 99 @27847 has 11 MA's), (Start: 106 @27832 has 1 MA's), (126, 27781), (128, 27772), (151, 27730), (156, 27715), (161, 27703), (162, 27700), (173, 27679), (202, 27640), (209, 27604), (236, 27514), (251, 27448), (264, 27418),

Gene: JeTaime\_109 Start: 62868, Stop: 63383, Start Num: 91

Candidate Starts for JeTaime\_109:

(64, 62814), (Start: 91 @62868 has 18 MA's), (Start: 122 @62922 has 1 MA's), (159, 63003), (160, 63006), (171, 63030), (194, 63063), (209, 63120), (252, 63282),

Gene: JoeDirt\_64 Start: 45013, Stop: 45471, Start Num: 97

Candidate Starts for JoeDirt\_64:

(Start: 97 @45013 has 23 MA's), (128, 45085), (183, 45175), (192, 45187), (202, 45208), (222, 45271), (229, 45298),

Gene: JonJames\_26 Start: 9049, Stop: 9558, Start Num: 91

Candidate Starts for JonJames\_26:

(Start: 91 @9049 has 18 MA's), (Start: 122 @9103 has 1 MA's), (140, 9160), (154, 9181), (155, 9184), (199, 9256), (202, 9268), (209, 9304), (233, 9385), (236, 9394), (259, 9472), (284, 9544),

Gene: Kabocha\_97 Start: 70776, Stop: 71294, Start Num: 66

Candidate Starts for Kabocha\_97:

(48, 70734), (57, 70749), (Start: 66 @70776 has 5 MA's), (128, 70899), (130, 70908), (165, 70932), (236, 71112),

Gene: Kalah2\_105 Start: 63688, Stop: 64230, Start Num: 97

Candidate Starts for Kalah2\_105:

(35, 63526), (39, 63550), (Start: 76 @63655 has 1 MA's), (Start: 97 @63688 has 23 MA's), (Start: 106 @63706 has 1 MA's), (128, 63763), (157, 63826), (162, 63841), (171, 63859), (202, 63916), (204, 63922), (224, 63982), (245, 64075),

Gene: Kalah2\_140 Start: 78988, Stop: 79587, Start Num: 96

Candidate Starts for Kalah2\_140:

(Start: 96 @78988 has 10 MA's), (137, 79090), (147, 79111), (149, 79114), (178, 79177), (194, 79207), (199, 79216), (207, 79249), (223, 79294), (242, 79381), (258, 79441), (272, 79477), (298, 79573),

Gene: KashFlow\_40 Start: 35743, Stop: 36285, Start Num: 86

Candidate Starts for KashFlow\_40:

(Start: 46 @35656 has 1 MA's), (Start: 86 @35743 has 9 MA's), (Start: 122 @35806 has 1 MA's), (144, 35872), (156, 35896), (171, 35929), (194, 35962), (202, 35983), (203, 35986), (209, 36019), (232, 36097), (265, 36208), (283, 36256),

Gene: KashFlow\_148 Start: 78305, Stop: 78904, Start Num: 99

Candidate Starts for KashFlow\_148:

(Start: 99 @78305 has 11 MA's), (132, 78395), (178, 78491), (200, 78536), (207, 78563), (223, 78608), (231, 78650), (232, 78659), (278, 78806), (282, 78821), (298, 78890),

Gene: Keitabear\_36 Start: 34510, Stop: 33947, Start Num: 52

Candidate Starts for Keitabear\_36:

(34, 34564), (Start: 52 @34510 has 2 MA's), (58, 34501), (Start: 76 @34453 has 1 MA's), (Start: 92 @34426 has 25 MA's), (152, 34306), (199, 34243), (202, 34231), (258, 34024),

Gene: Kimchi\_115 Start: 63385, Stop: 63885, Start Num: 91

Candidate Starts for Kimchi\_115:

(64, 63331), (Start: 91 @63385 has 18 MA's), (Start: 122 @63439 has 1 MA's), (159, 63520), (160, 63523), (171, 63547), (194, 63580), (209, 63637), (252, 63799),

Gene: KingMidas\_32 Start: 28828, Stop: 29370, Start Num: 86

Candidate Starts for KingMidas\_32:

(Start: 86 @28828 has 9 MA's), (139, 28942), (209, 29095), (232, 29173), (236, 29185),

Gene: KingTut\_52 Start: 48894, Stop: 48379, Start Num: 101

Candidate Starts for KingTut\_52:

(59, 48972), (81, 48918), (Start: 92 @48903 has 25 MA's), (Start: 101 @48894 has 11 MA's), (126, 48828), (147, 48783), (158, 48759), (175, 48723), (181, 48717), (199, 48684), (214, 48630), (217, 48627), (247, 48510), (250, 48489), (276, 48414),

Gene: Klein\_147 Start: 77536, Stop: 78138, Start Num: 93

Candidate Starts for Klein\_147:

(Start: 61 @77467 has 1 MA's), (Start: 93 @77536 has 15 MA's), (137, 77641), (147, 77662), (149, 77665), (158, 77689), (159, 77692), (161, 77698), (207, 77800), (218, 77827), (223, 77845), (242, 77932), (298, 78124),

Gene: Kuwabara\_68 Start: 41993, Stop: 42493, Start Num: 77

Candidate Starts for Kuwabara\_68:

(Start: 77 @41993 has 1 MA's), (152, 42122), (209, 42230), (244, 42350),

Gene: LeeroyJenkins\_114 Start: 56842, Stop: 56381, Start Num: 109

Candidate Starts for LeeroyJenkins\_114:

(Start: 109 @56842 has 4 MA's), (168, 56713), (225, 56590),

Gene: LeeroyJenkins\_94 Start: 49860, Stop: 49351, Start Num: 99

Candidate Starts for LeeroyJenkins\_94:

(Start: 99 @49860 has 11 MA's), (173, 49689), (177, 49683), (198, 49653), (213, 49599), (229, 49551),

Gene: LeiMonet\_62 Start: 52626, Stop: 52111, Start Num: 101

Candidate Starts for LeiMonet\_62:

(59, 52704), (81, 52650), (Start: 92 @52635 has 25 MA's), (Start: 101 @52626 has 11 MA's), (126, 52560), (147, 52515), (158, 52491), (175, 52455), (181, 52449), (199, 52416), (214, 52362), (217, 52359), (247, 52242), (250, 52221), (276, 52146),

Gene: Lennon\_36 Start: 34213, Stop: 33740, Start Num: 92

Candidate Starts for Lennon\_36:

(34, 34351), (Start: 52 @34297 has 2 MA's), (Start: 76 @34240 has 1 MA's), (Start: 92 @34213 has 25 MA's), (136, 34114), (167, 34072), (169, 34069), (199, 34033), (215, 33976), (224, 33952), (234, 33895),

Gene: Leozinho\_32 Start: 27392, Stop: 27934, Start Num: 86

Candidate Starts for Leozinho\_32:

(Start: 86 @27392 has 9 MA's), (139, 27506), (209, 27659), (232, 27737), (236, 27749),

Gene: Lilas\_67 Start: 47987, Stop: 48406, Start Num: 111

Candidate Starts for Lilas\_67:

(23, 47699), (Start: 44 @47861 has 3 MA's), (75, 47924), (79, 47939), (87, 47948), (Start: 111 @47987 has 4 MA's), (115, 47999), (127, 48029), (191, 48128), (195, 48134), (236, 48272),

Gene: LittleE\_112 Start: 62894, Stop: 63436, Start Num: 97

Candidate Starts for LittleE\_112:

(Start: 97 @62894 has 23 MA's), (Start: 106 @62912 has 1 MA's), (157, 63032), (162, 63047), (171, 63065), (202, 63122), (204, 63128), (224, 63188), (245, 63281), (289, 63422),

Gene: LittleE\_150 Start: 78544, Stop: 79146, Start Num: 93

Candidate Starts for LittleE\_150:

(Start: 93 @78544 has 15 MA's), (154, 78682), (158, 78694), (178, 78736), (197, 78769), (207, 78808), (213, 78829), (232, 78904), (240, 78934), (298, 79132),

Gene: Lopsy\_58 Start: 51828, Stop: 51313, Start Num: 101

Candidate Starts for Lopsy\_58:

(59, 51906), (81, 51852), (Start: 92 @51837 has 25 MA's), (Start: 101 @51828 has 11 MA's), (126, 51762), (147, 51717), (158, 51693), (175, 51657), (181, 51651), (199, 51618), (214, 51564), (217, 51561), (247, 51444), (250, 51423), (276, 51348),

Gene: LordFarquaad\_67 Start: 43212, Stop: 43631, Start Num: 111

Candidate Starts for LordFarquaad\_67:

(Start: 44 @43086 has 3 MA's), (63, 43128), (75, 43149), (87, 43173), (Start: 111 @43212 has 4 MA's), (115, 43224), (127, 43254), (195, 43359), (236, 43497),

Gene: LostAndPhound\_60 Start: 52723, Stop: 52199, Start Num: 92

Candidate Starts for LostAndPhound\_60:

(59, 52792), (81, 52738), (Start: 92 @52723 has 25 MA's), (Start: 101 @52714 has 11 MA's), (126, 52648), (147, 52603), (158, 52579), (175, 52543), (181, 52537), (199, 52504), (214, 52450), (217, 52447), (247, 52330), (250, 52309), (276, 52234),

Gene: Love\_39 Start: 33996, Stop: 33523, Start Num: 92

Candidate Starts for Love\_39:

(34, 34134), (Start: 52 @34080 has 2 MA's), (58, 34071), (Start: 76 @34023 has 1 MA's), (Start: 92 @33996 has 25 MA's), (136, 33897), (167, 33855), (169, 33852), (199, 33816), (215, 33759), (225,

33726), (234, 33678),

Gene: LunaBlu\_33 Start: 28027, Stop: 28524, Start Num: 86

Candidate Starts for LunaBlu\_33:

(Start: 43 @27925 has 4 MA's), (Start: 86 @28027 has 9 MA's), (202, 28249), (209, 28285), (254, 28450), (273, 28495),

Gene: Lysidious\_60 Start: 40309, Stop: 40836, Start Num: 99

Candidate Starts for Lysidious\_60:

(Start: 99 @40309 has 11 MA's), (Start: 109 @40330 has 4 MA's), (195, 40510),

Gene: Lysidious\_17 Start: 10274, Stop: 10777, Start Num: 95

Candidate Starts for Lysidious\_17:

(Start: 95 @10274 has 7 MA's), (132, 10364), (149, 10388), (201, 10493), (203, 10499), (209, 10532), (215, 10538), (241, 10643),

Gene: Mandlovu\_31 Start: 27703, Stop: 28323, Start Num: 54

Candidate Starts for Mandlovu\_31:

(33, 27619), (Start: 43 @27676 has 4 MA's), (Start: 54 @27703 has 3 MA's), (Start: 86 @27778 has 9 MA's), (202, 28000), (209, 28036), (254, 28201), (273, 28246),

Gene: Maravista\_65 Start: 42918, Stop: 43388, Start Num: 89

Candidate Starts for Maravista\_65:

(Start: 89 @42918 has 3 MA's), (152, 43035), (209, 43143), (244, 43263),

Gene: Marshmallow\_109 Start: 63582, Stop: 64082, Start Num: 91

Candidate Starts for Marshmallow\_109:

(Start: 91 @63582 has 18 MA's), (Start: 122 @63636 has 1 MA's), (159, 63717), (160, 63720), (171, 63744), (194, 63777), (209, 63834), (252, 63996),

Gene: Matalotodo\_59 Start: 52707, Stop: 52192, Start Num: 101

Candidate Starts for Matalotodo\_59:

(59, 52785), (81, 52731), (Start: 92 @52716 has 25 MA's), (Start: 101 @52707 has 11 MA's), (126, 52641), (147, 52596), (158, 52572), (175, 52536), (181, 52530), (199, 52497), (214, 52443), (217, 52440), (247, 52323), (250, 52302), (276, 52227),

Gene: McKinley\_38 Start: 34022, Stop: 33549, Start Num: 92

Candidate Starts for McKinley\_38:

(34, 34160), (Start: 52 @34106 has 2 MA's), (58, 34097), (Start: 76 @34049 has 1 MA's), (Start: 92 @34022 has 25 MA's), (136, 33923), (167, 33881), (169, 33878), (199, 33842), (215, 33785), (234, 33704),

Gene: Mellie\_57 Start: 38319, Stop: 38846, Start Num: 99

Candidate Starts for Mellie\_57:

(Start: 99 @38319 has 11 MA's), (Start: 109 @38340 has 4 MA's), (195, 38520), (272, 38784),

Gene: Minerva\_162 Start: 85665, Stop: 86177, Start Num: 89

Candidate Starts for Minerva\_162:

(Start: 89 @85665 has 3 MA's), (Start: 90 @85668 has 4 MA's), (110, 85701), (128, 85752), (147, 85788), (194, 85878), (199, 85887), (202, 85899), (203, 85902), (211, 85935), (224, 85965), (241, 86046), (269, 86139), (279, 86163),

Gene: Minerva\_148 Start: 78849, Stop: 79448, Start Num: 96

Candidate Starts for Minerva\_148:

(Start: 96 @78849 has 10 MA's), (137, 78951), (147, 78972), (149, 78975), (178, 79038), (194, 79068), (199, 79077), (207, 79110), (223, 79155), (242, 79242), (258, 79302), (272, 79338), (298, 79434),

Gene: MinionDave\_33 Start: 28083, Stop: 28682, Start Num: 43

Candidate Starts for MinionDave\_33:

(Start: 43 @28083 has 4 MA's), (Start: 86 @28185 has 9 MA's), (202, 28407), (209, 28443), (254, 28608), (273, 28653),

Gene: ModicumRichard\_20 Start: 18713, Stop: 18225, Start Num: 92

Candidate Starts for ModicumRichard\_20:

(5, 19316), (8, 19235), (10, 19211), (12, 19175), (13, 19145), (14, 19130), (22, 18977), (36, 18863), (45, 18806), (51, 18797), (53, 18794), (Start: 92 @18713 has 25 MA's), (129, 18629), (142, 18605), (176, 18560), (199, 18533), (202, 18521), (204, 18515), (234, 18395),

Gene: Mollymur\_102 Start: 68397, Stop: 68978, Start Num: 101

Candidate Starts for Mollymur\_102:

(19, 68076), (32, 68211), (Start: 101 @68397 has 11 MA's), (151, 68514), (161, 68541), (173, 68565), (208, 68646), (236, 68757), (274, 68886), (285, 68916), (286, 68922),

Gene: Morrissey\_46 Start: 35134, Stop: 34631, Start Num: 103

Candidate Starts for Morrissey\_46:

(4, 35755), (6, 35731), (7, 35701), (9, 35656), (11, 35611), (17, 35482), (37, 35293), (Start: 94 @35143 has 1 MA's), (Start: 103 @35134 has 1 MA's), (117, 35095), (Start: 122 @35086 has 1 MA's), (134, 35047), (184, 34954), (199, 34927), (201, 34918), (202, 34915), (203, 34912), (210, 34879),

Gene: Mova\_51 Start: 35948, Stop: 36499, Start Num: 86

Candidate Starts for Mova\_51:

(Start: 86 @35948 has 9 MA's), (88, 35951), (132, 36041), (155, 36083), (188, 36143), (209, 36209), (227, 36251), (236, 36299),

Gene: MulchSalad\_28 Start: 23891, Stop: 24409, Start Num: 83

Candidate Starts for MulchSalad\_28:

(83, 23891), (126, 23975), (168, 24071), (173, 24077), (202, 24119), (204, 24125), (209, 24155),

Gene: Mutaforma13\_54 Start: 38739, Stop: 39290, Start Num: 86

Candidate Starts for Mutaforma13\_54:

(Start: 86 @38739 has 9 MA's), (88, 38742), (132, 38832), (155, 38874), (188, 38934), (209, 39000), (227, 39042), (236, 39090),

Gene: Nimrod\_111 Start: 63730, Stop: 64230, Start Num: 91

Candidate Starts for Nimrod\_111:

(64, 63676), (Start: 91 @63730 has 18 MA's), (Start: 122 @63784 has 1 MA's), (159, 63865), (160, 63868), (171, 63892), (194, 63925), (209, 63982), (252, 64144),

Gene: Nordenberg\_30 Start: 32192, Stop: 31719, Start Num: 92

Candidate Starts for Nordenberg\_30:

(34, 32330), (Start: 52 @32276 has 2 MA's), (58, 32267), (Start: 76 @32219 has 1 MA's), (Start: 92 @32192 has 25 MA's), (136, 32093), (167, 32051), (169, 32048), (199, 32012), (215, 31955), (225, 31922), (234, 31874),

Gene: ObLaDi\_20 Start: 18692, Stop: 18204, Start Num: 92

Candidate Starts for ObLaDi\_20:

(1, 19712), (2, 19706), (3, 19688), (5, 19295), (8, 19214), (10, 19190), (12, 19154), (13, 19124), (14, 19109), (22, 18956), (36, 18842), (45, 18785), (51, 18776), (53, 18773), (Start: 92 @18692 has 25 MA's), (129, 18608), (142, 18584), (176, 18539), (199, 18512), (202, 18500), (204, 18494), (234, 18374),

Gene: Omega\_117 Start: 63909, Stop: 64451, Start Num: 97

Candidate Starts for Omega\_117:

(Start: 76 @63876 has 1 MA's), (Start: 97 @63909 has 23 MA's), (Start: 106 @63927 has 1 MA's), (157, 64047), (162, 64062), (171, 64080), (202, 64137), (204, 64143), (224, 64203), (245, 64296), (289, 64437),

Gene: Omega\_154 Start: 79628, Stop: 80230, Start Num: 93

Candidate Starts for Omega\_154:

(Start: 93 @79628 has 15 MA's), (154, 79766), (158, 79778), (178, 79820), (197, 79853), (207, 79892), (213, 79913), (232, 79988), (240, 80018), (298, 80216),

Gene: Omega\_51 Start: 42659, Stop: 43288, Start Num: 46

Candidate Starts for Omega\_51:

(Start: 46 @42659 has 1 MA's), (Start: 86 @42746 has 9 MA's), (Start: 122 @42809 has 1 MA's), (144, 42875), (156, 42899), (171, 42932), (194, 42965), (202, 42986), (203, 42989), (209, 43022), (232, 43100), (265, 43211), (283, 43259),

Gene: Optimus\_141 Start: 76720, Stop: 77322, Start Num: 93

Candidate Starts for Optimus\_141:

(Start: 61 @76651 has 1 MA's), (Start: 93 @76720 has 15 MA's), (137, 76825), (147, 76846), (149, 76849), (158, 76873), (159, 76876), (161, 76882), (207, 76984), (218, 77011), (223, 77029), (242, 77116), (298, 77308),

Gene: Orfeu\_58 Start: 52711, Stop: 52187, Start Num: 92

Candidate Starts for Orfeu\_58:

(59, 52780), (81, 52726), (Start: 92 @52711 has 25 MA's), (Start: 101 @52702 has 11 MA's), (126, 52636), (147, 52591), (158, 52567), (175, 52531), (181, 52525), (199, 52492), (214, 52438), (217, 52435), (247, 52318), (250, 52297), (276, 52222),

Gene: Paries\_38 Start: 33658, Stop: 33185, Start Num: 92

Candidate Starts for Paries\_38:

(31, 33820), (34, 33796), (Start: 52 @33742 has 2 MA's), (58, 33733), (Start: 76 @33685 has 1 MA's), (Start: 92 @33658 has 25 MA's), (136, 33559), (167, 33517), (169, 33514), (199, 33478), (215, 33421), (225, 33388), (234, 33340),

Gene: Peregrin\_232 Start: 114891, Stop: 115472, Start Num: 99

Candidate Starts for Peregrin\_232:

(Start: 99 @114891 has 11 MA's), (Start: 122 @114942 has 1 MA's), (131, 114978), (143, 115002), (155, 115023), (175, 115062), (229, 115197), (260, 115323), (262, 115329),

Gene: Peregrin\_178 Start: 94313, Stop: 94846, Start Num: 98

Candidate Starts for Peregrin\_178:

(Start: 98 @94313 has 1 MA's), (129, 94391), (179, 94499), (204, 94553), (230, 94640), (232, 94661), (267, 94781),

Gene: Phineas\_45 Start: 31827, Stop: 32321, Start Num: 92

Candidate Starts for Phineas\_45:

(73, 31791), (74, 31794), (Start: 92 @31827 has 25 MA's), (Start: 95 @31830 has 7 MA's), (Start: 106 @31848 has 1 MA's), (110, 31857), (190, 32022), (197, 32031), (199, 32037), (202, 32049), (209, 32085), (229, 32136), (236, 32175),

Gene: Phoebus\_113 Start: 65664, Stop: 66206, Start Num: 97

Candidate Starts for Phoebus\_113:

(35, 65502), (39, 65526), (Start: 76 @65631 has 1 MA's), (Start: 97 @65664 has 23 MA's), (Start: 106 @65682 has 1 MA's), (128, 65739), (157, 65802), (162, 65817), (171, 65835), (202, 65892), (204, 65898), (224, 65958), (245, 66051),

Gene: Phoebus\_149 Start: 81221, Stop: 81820, Start Num: 96

Candidate Starts for Phoebus\_149:

(Start: 96 @81221 has 10 MA's), (137, 81323), (147, 81344), (149, 81347), (178, 81410), (194, 81440), (199, 81449), (207, 81482), (223, 81527), (242, 81614), (258, 81674), (272, 81710), (298, 81806),

Gene: Pipefish\_29 Start: 27509, Stop: 27015, Start Num: 66

Candidate Starts for Pipefish\_29:

(Start: 66 @27509 has 5 MA's), (171, 27344), (199, 27311), (213, 27260),

Gene: Pippy\_62 Start: 40280, Stop: 40750, Start Num: 89

Candidate Starts for Pippy\_62:

(Start: 89 @40280 has 3 MA's), (152, 40397), (209, 40505), (244, 40625),

Gene: Placalicious\_60 Start: 53221, Stop: 52697, Start Num: 92

Candidate Starts for Placalicious\_60:

(59, 53290), (81, 53236), (Start: 92 @53221 has 25 MA's), (Start: 101 @53212 has 11 MA's), (126, 53146), (147, 53101), (158, 53077), (175, 53041), (181, 53035), (199, 53002), (214, 52948), (217, 52945), (247, 52828), (250, 52807), (276, 52732),

Gene: Podrick\_58 Start: 51964, Stop: 51449, Start Num: 101

Candidate Starts for Podrick\_58:

(59, 52042), (81, 51988), (Start: 92 @51973 has 25 MA's), (Start: 101 @51964 has 11 MA's), (126, 51898), (147, 51853), (158, 51829), (175, 51793), (181, 51787), (199, 51754), (214, 51700), (217, 51697), (247, 51580), (250, 51559), (276, 51484),

Gene: Porcelain\_108 Start: 60257, Stop: 60832, Start Num: 76

Candidate Starts for Porcelain\_108:

(Start: 76 @60257 has 1 MA's), (Start: 97 @60290 has 23 MA's), (Start: 106 @60308 has 1 MA's), (128, 60365), (157, 60428), (162, 60443), (171, 60461), (202, 60518), (204, 60524), (224, 60584), (245, 60677),

Gene: Porky\_109 Start: 62562, Stop: 63008, Start Num: 122

Candidate Starts for Porky\_109:

(64, 62454), (Start: 91 @62508 has 18 MA's), (Start: 122 @62562 has 1 MA's), (159, 62643), (160, 62646), (171, 62670), (194, 62703), (209, 62760), (252, 62922),

Gene: Pound\_50 Start: 43906, Stop: 44415, Start Num: 109

Candidate Starts for Pound\_50:

(56, 43795), (82, 43864), (Start: 97 @43882 has 23 MA's), (Start: 109 @43906 has 4 MA's), (132, 43972), (160, 44026), (186, 44071), (209, 44158), (232, 44236), (237, 44248), (283, 44401),

Gene: Pygmy\_47 Start: 33294, Stop: 33785, Start Num: 95

Candidate Starts for Pygmy\_47:

(73, 33255), (74, 33258), (Start: 92 @33291 has 25 MA's), (Start: 95 @33294 has 7 MA's), (Start: 106 @33312 has 1 MA's), (110, 33321), (190, 33486), (197, 33495), (199, 33501), (202, 33513), (209, 33549), (229, 33600), (236, 33639),

Gene: Ramsey\_33 Start: 27746, Stop: 28345, Start Num: 43

Candidate Starts for Ramsey\_33:

(Start: 43 @27746 has 4 MA's), (Start: 86 @27848 has 9 MA's), (202, 28070), (209, 28106), (254, 28271), (273, 28316),

Gene: RedWattleHog\_22 Start: 25760, Stop: 26308, Start Num: 97

Candidate Starts for RedWattleHog\_22:

(80, 25739), (Start: 97 @25760 has 23 MA's), (155, 25880), (227, 26048), (229, 26057), (233, 26087), (236, 26096), (275, 26222),

Gene: RedWattleHog\_85 Start: 77917, Stop: 78504, Start Num: 85

Candidate Starts for RedWattleHog\_85:

(Start: 85 @77917 has 3 MA's), (124, 77989), (139, 78037), (145, 78043), (164, 78091), (170, 78100), (172, 78103), (179, 78112), (198, 78142), (203, 78160), (210, 78193), (228, 78238), (235, 78280), (250, 78340), (296, 78484),

Gene: RedWattleHog\_100 Start: 85618, Stop: 86124, Start Num: 85

Candidate Starts for RedWattleHog\_100:

(75, 85600), (Start: 85 @85618 has 3 MA's), (Start: 122 @85687 has 1 MA's), (130, 85723), (132, 85726), (134, 85729), (155, 85768), (200, 85846), (202, 85852), (236, 85981), (254, 86056),

Gene: Rofo\_36 Start: 33056, Stop: 32583, Start Num: 92

Candidate Starts for Rofo\_36:

(34, 33194), (Start: 52 @33140 has 2 MA's), (58, 33131), (Start: 76 @33083 has 1 MA's), (Start: 92 @33056 has 25 MA's), (136, 32957), (167, 32915), (169, 32912), (199, 32876), (215, 32819), (225, 32786), (234, 32738),

Gene: Rose5\_65 Start: 45033, Stop: 45491, Start Num: 97

Candidate Starts for Rose5\_65:

(Start: 97 @45033 has 23 MA's), (128, 45105), (183, 45195), (192, 45207), (202, 45228), (222, 45291), (229, 45318),

Gene: Saguaro\_52 Start: 46118, Stop: 45648, Start Num: 100

Candidate Starts for Saguaro\_52:

(67, 46169), (Start: 100 @46118 has 4 MA's), (Start: 109 @46097 has 4 MA's), (Start: 122 @46070 has 1 MA's), (126, 46052), (128, 46043), (132, 46031), (155, 45992), (202, 45905), (232, 45791), (246, 45746),

Gene: Sassafras\_31 Start: 27690, Stop: 28187, Start Num: 86

Candidate Starts for Sassafras\_31:

(Start: 43 @27588 has 4 MA's), (Start: 86 @27690 has 9 MA's), (202, 27912), (209, 27948), (254, 28113), (273, 28158),

Gene: Schomber\_94 Start: 69164, Stop: 69682, Start Num: 66

Candidate Starts for Schomber\_94:

(48, 69122), (57, 69137), (Start: 66 @69164 has 5 MA's), (128, 69287), (130, 69296), (165, 69320), (236, 69500),



Gene: ScoobyDoobyDoo\_60 Start: 22027, Stop: 22503, Start Num: 72

Candidate Starts for ScoobyDoobyDoo\_60:

(37, 21928), (Start: 72 @22027 has 1 MA's), (201, 22225), (268, 22462),

Gene: ScoobyDoobyDoo\_184 Start: 103006, Stop: 103509, Start Num: 123

Candidate Starts for ScoobyDoobyDoo\_184:

(Start: 98 @102958 has 1 MA's), (107, 102973), (114, 102985), (116, 102991), (Start: 123 @103006 has 1 MA's), (172, 103123), (202, 103174), (206, 103189), (237, 103300), (246, 103333), (248, 103342), (250, 103357), (266, 103399), (287, 103462), (293, 103489),

Gene: Sedona\_36 Start: 34162, Stop: 33689, Start Num: 92

Candidate Starts for Sedona\_36:

(34, 34300), (Start: 52 @34246 has 2 MA's), (58, 34237), (Start: 76 @34189 has 1 MA's), (Start: 92 @34162 has 25 MA's), (136, 34063), (167, 34021), (169, 34018), (199, 33982), (215, 33925), (225, 33892), (234, 33844),

Gene: Shipwreck\_47 Start: 33269, Stop: 33760, Start Num: 95

Candidate Starts for Shipwreck\_47:

(73, 33230), (74, 33233), (Start: 92 @33266 has 25 MA's), (Start: 95 @33269 has 7 MA's), (Start: 106 @33287 has 1 MA's), (110, 33296), (190, 33461), (197, 33470), (199, 33476), (202, 33488), (209, 33524), (229, 33575), (236, 33614),

Gene: Shlim410\_56 Start: 41496, Stop: 42002, Start Num: 97

Candidate Starts for Shlim410\_56:

(27, 41271), (30, 41301), (Start: 97 @41496 has 23 MA's), (128, 41571), (133, 41583), (156, 41625), (202, 41712), (215, 41751),

Gene: Sitar\_36 Start: 34297, Stop: 33740, Start Num: 52

Candidate Starts for Sitar\_36:

(34, 34351), (Start: 52 @34297 has 2 MA's), (Start: 76 @34240 has 1 MA's), (Start: 92 @34213 has 25 MA's), (136, 34114), (167, 34072), (169, 34069), (199, 34033), (215, 33976), (224, 33952), (234, 33895),

Gene: SoilAssassin\_64 Start: 43104, Stop: 43649, Start Num: 44

Candidate Starts for SoilAssassin\_64:

(Start: 44 @43104 has 3 MA's), (63, 43146), (75, 43167), (87, 43191), (Start: 111 @43230 has 4 MA's), (115, 43242), (127, 43272), (195, 43377), (236, 43515),

Gene: SpeedDemon\_1040 Start: 70108, Stop: 70686, Start Num: 101

Candidate Starts for SpeedDemon\_1040:

(19, 69790), (40, 69976), (Start: 101 @70108 has 11 MA's), (Start: 122 @70156 has 1 MA's), (126, 70174), (130, 70192), (151, 70225), (202, 70327), (219, 70378), (239, 70480), (280, 70606),

Gene: Stank\_113 Start: 63457, Stop: 63957, Start Num: 91

Candidate Starts for Stank\_113:

(64, 63403), (Start: 91 @63457 has 18 MA's), (Start: 122 @63511 has 1 MA's), (159, 63592), (160, 63595), (171, 63619), (194, 63652), (209, 63709), (252, 63871),

Gene: Starcevich\_34 Start: 27605, Stop: 27099, Start Num: 99

Candidate Starts for Starcevich\_34:

(Start: 99 @27605 has 11 MA's), (Start: 106 @27590 has 1 MA's), (126, 27539), (128, 27530), (151, 27488), (156, 27473), (161, 27461), (162, 27458), (173, 27437), (202, 27398), (209, 27362), (236, 27272), (251, 27206), (264, 27176),

Gene: Stickynote\_47 Start: 43021, Stop: 42431, Start Num: 104

Candidate Starts for Stickynote\_47:

(41, 43153), (42, 43150), (Start: 104 @43021 has 4 MA's), (121, 42973), (130, 42934), (138, 42910), (141, 42907), (212, 42763), (232, 42685), (241, 42652), (274, 42544), (300, 42439),

Gene: Stormageddon\_82 Start: 77898, Stop: 78485, Start Num: 85

Candidate Starts for Stormageddon\_82:

(Start: 85 @77898 has 3 MA's), (124, 77970), (139, 78018), (145, 78024), (164, 78072), (170, 78081), (172, 78084), (179, 78093), (198, 78123), (203, 78141), (210, 78174), (228, 78219), (235, 78261), (250, 78321), (296, 78465),

Gene: Strokeseat\_31 Start: 27760, Stop: 28380, Start Num: 54

Candidate Starts for Strokeseat\_31:

(33, 27676), (Start: 43 @27733 has 4 MA's), (Start: 54 @27760 has 3 MA's), (Start: 86 @27835 has 9 MA's), (202, 28057), (209, 28093), (254, 28258), (273, 28303),

Gene: Superphikiman\_145 Start: 75577, Stop: 76179, Start Num: 93

Candidate Starts for Superphikiman\_145:

(Start: 93 @75577 has 15 MA's), (137, 75682), (147, 75703), (149, 75706), (158, 75730), (159, 75733), (161, 75739), (194, 75799), (218, 75868), (223, 75886), (232, 75937), (242, 75973), (272, 76069), (298, 76165),

Gene: TBrady12\_114 Start: 62894, Stop: 63394, Start Num: 91

Candidate Starts for TBrady12\_114:

(64, 62840), (Start: 91 @62894 has 18 MA's), (Start: 122 @62948 has 1 MA's), (159, 63029), (160, 63032), (171, 63056), (194, 63089), (209, 63146), (252, 63308),

Gene: Tangent\_36 Start: 32578, Stop: 32105, Start Num: 92

Candidate Starts for Tangent\_36:

(34, 32716), (Start: 52 @32662 has 2 MA's), (58, 32653), (Start: 76 @32605 has 1 MA's), (Start: 92 @32578 has 25 MA's), (136, 32479), (167, 32437), (169, 32434), (199, 32398), (215, 32341), (225, 32308), (234, 32260),

Gene: Teaspoon\_111 Start: 63442, Stop: 63942, Start Num: 91

Candidate Starts for Teaspoon\_111:

(64, 63388), (Start: 91 @63442 has 18 MA's), (Start: 122 @63496 has 1 MA's), (159, 63577), (160, 63580), (171, 63604), (194, 63637), (209, 63694), (252, 63856),

Gene: Thibault\_95 Start: 58448, Stop: 58990, Start Num: 97

Candidate Starts for Thibault\_95:

(Start: 97 @58448 has 23 MA's), (Start: 106 @58466 has 1 MA's), (157, 58586), (162, 58601), (171, 58619), (197, 58658), (202, 58676), (204, 58682), (224, 58742), (245, 58835), (289, 58976),

Gene: Thibault\_132 Start: 76186, Stop: 76788, Start Num: 93

Candidate Starts for Thibault\_132:

(Start: 93 @76186 has 15 MA's), (154, 76324), (158, 76336), (178, 76378), (200, 76423), (202, 76429), (213, 76471), (232, 76546), (240, 76576), (298, 76774),

Gene: ThreeRngTarjay\_109 Start: 64920, Stop: 65462, Start Num: 97

Candidate Starts for ThreeRngTarjay\_109:

(35, 64758), (39, 64782), (Start: 76 @64887 has 1 MA's), (Start: 97 @64920 has 23 MA's), (Start: 106 @64938 has 1 MA's), (128, 64995), (157, 65058), (162, 65073), (171, 65091), (202, 65148), (204,

65154), (224, 65214), (245, 65307),

Gene: ThreeRngTarjay\_144 Start: 79812, Stop: 80411, Start Num: 96

Candidate Starts for ThreeRngTarjay\_144:

(Start: 96 @79812 has 10 MA's), (137, 79914), (147, 79935), (149, 79938), (178, 80001), (194, 80031), (199, 80040), (207, 80073), (223, 80118), (242, 80205), (258, 80265), (272, 80301), (298, 80397),

Gene: Toni\_59 Start: 52612, Stop: 52088, Start Num: 92

Candidate Starts for Toni\_59:

(59, 52681), (81, 52627), (Start: 92 @52612 has 25 MA's), (Start: 101 @52603 has 11 MA's), (126, 52537), (147, 52492), (158, 52468), (175, 52432), (181, 52426), (199, 52393), (214, 52339), (217, 52336), (247, 52219), (250, 52198), (276, 52123),

Gene: Twinkle\_57 Start: 42555, Stop: 43061, Start Num: 97

Candidate Starts for Twinkle\_57:

(27, 42330), (30, 42360), (Start: 97 @42555 has 23 MA's), (128, 42630), (133, 42642), (156, 42684), (202, 42771), (215, 42810),

Gene: Twister6\_58 Start: 42736, Stop: 43260, Start Num: 69

Candidate Starts for Twister6\_58:

(Start: 69 @42736 has 1 MA's), (Start: 99 @42787 has 11 MA's), (108, 42805), (139, 42883), (199, 42964), (201, 42973), (238, 43114),

Gene: UBSmoodge\_128 Start: 91385, Stop: 91951, Start Num: 62

Candidate Starts for UBSmoodge\_128:

(Start: 62 @91385 has 1 MA's), (113, 91484), (125, 91508), (134, 91541), (154, 91571), (165, 91583), (189, 91616), (202, 91637), (203, 91640), (233, 91754), (236, 91763), (275, 91889),

Gene: UPIE\_65 Start: 44559, Stop: 45017, Start Num: 97

Candidate Starts for UPIE\_65:

(Start: 97 @44559 has 23 MA's), (128, 44631), (183, 44721), (192, 44733), (202, 44754), (222, 44817), (229, 44844),

Gene: Vivi2\_38 Start: 33736, Stop: 33263, Start Num: 92

Candidate Starts for Vivi2\_38:

(34, 33874), (Start: 52 @33820 has 2 MA's), (58, 33811), (Start: 76 @33763 has 1 MA's), (Start: 92 @33736 has 25 MA's), (136, 33637), (167, 33595), (169, 33592), (199, 33556), (215, 33499), (225, 33466), (234, 33418),

Gene: Wamburgexpress\_65 Start: 44589, Stop: 45047, Start Num: 97

Candidate Starts for Wamburgexpress\_65:

(Start: 97 @44589 has 23 MA's), (128, 44661), (183, 44751), (192, 44763), (202, 44784), (222, 44847), (229, 44874),

Gene: Wanda\_148 Start: 77329, Stop: 77928, Start Num: 96

Candidate Starts for Wanda\_148:

(Start: 96 @77329 has 10 MA's), (137, 77431), (147, 77452), (149, 77455), (178, 77518), (194, 77548), (199, 77557), (207, 77590), (223, 77635), (242, 77722), (258, 77782), (272, 77818), (298, 77914),

Gene: Wiggin\_113 Start: 62887, Stop: 63387, Start Num: 91

Candidate Starts for Wiggin\_113:

(Start: 91 @62887 has 18 MA's), (Start: 122 @62941 has 1 MA's), (159, 63022), (160, 63025), (171, 63049), (194, 63082), (209, 63139), (252, 63301),

Gene: WilliamBoone\_144 Start: 75606, Stop: 76268, Start Num: 44

Candidate Starts for WilliamBoone\_144:

(40, 75582), (Start: 44 @75606 has 3 MA's), (132, 75792), (163, 75861), (173, 75876), (199, 75918), (274, 76194), (293, 76260),

Gene: Xandras\_110 Start: 62710, Stop: 63210, Start Num: 91

Candidate Starts for Xandras\_110:

(64, 62656), (Start: 91 @62710 has 18 MA's), (Start: 122 @62764 has 1 MA's), (159, 62845), (160, 62848), (171, 62872), (194, 62905), (209, 62962), (252, 63124),

Gene: Xavia\_53 Start: 39307, Stop: 39837, Start Num: 100

Candidate Starts for Xavia\_53:

(Start: 100 @39307 has 4 MA's), (125, 39364), (126, 39373), (155, 39436), (156, 39439), (171, 39475), (173, 39478), (180, 39487), (181, 39490), (202, 39532), (229, 39619), (272, 39781),

Gene: Zelink\_108 Start: 64885, Stop: 65409, Start Num: 106

Candidate Starts for Zelink\_108:

(35, 64705), (39, 64729), (Start: 76 @64834 has 1 MA's), (Start: 97 @64867 has 23 MA's), (Start: 106 @64885 has 1 MA's), (128, 64942), (157, 65005), (162, 65020), (171, 65038), (202, 65095), (204, 65101), (224, 65161), (245, 65254),

Gene: Zelink\_143 Start: 80141, Stop: 80740, Start Num: 96

Candidate Starts for Zelink\_143:

(Start: 96 @80141 has 10 MA's), (137, 80243), (147, 80264), (149, 80267), (178, 80330), (194, 80360), (199, 80369), (207, 80402), (223, 80447), (242, 80534), (258, 80594), (272, 80630), (298, 80726),