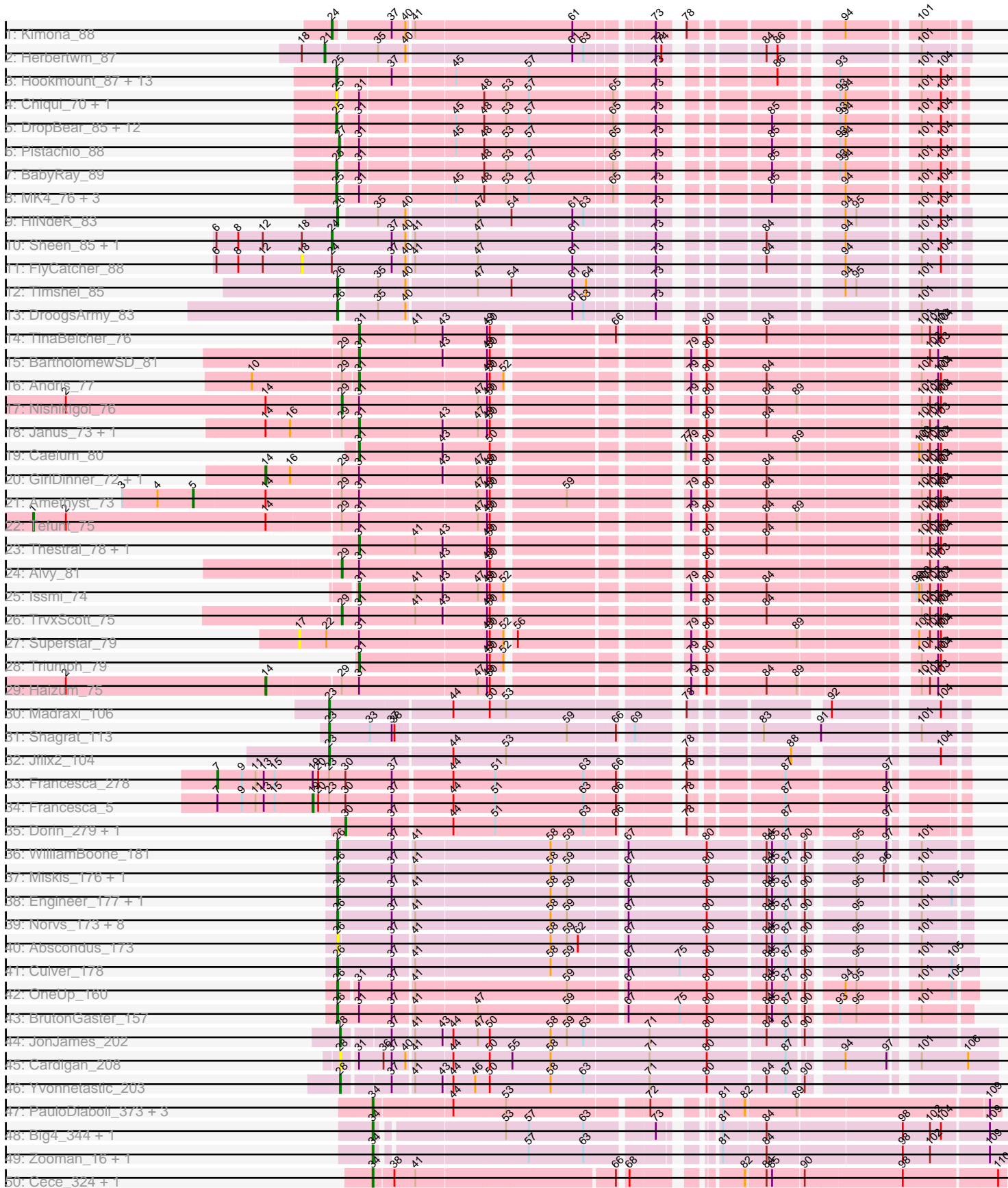
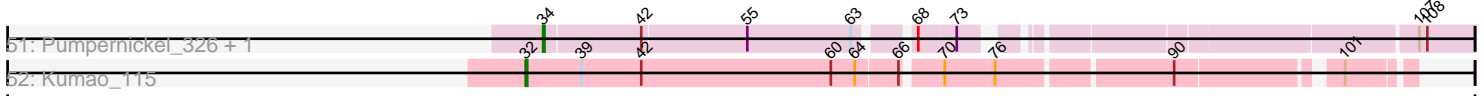


Pham 196420



Pham 196420



Below the tracks is a large table with 30 empty rows and a dashed vertical line on the right side.

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 196420 Report

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

Pham number 196420 has 103 members, 16 are drafts.

Phages represented in each track:

- Track 1 : Kimona\_88
- Track 2 : Herbertwm\_87
- Track 3 : Hookmount\_87, Veracruz\_84, ResDef\_85, Caviar\_76, Popcicle\_87, Todacoro\_87, Norbert\_83, Panamaxus\_83, Noella\_88, Pocahontas\_86, Margo\_87, Lambert1\_87, QuinnKiro\_86, Texage\_85
- Track 4 : Chiqui\_70, BabyJohn\_70
- Track 5 : DropBear\_85, HelDan\_87, Heathen\_87, SaturnRing\_89, Puppy\_89, TNguyen7\_89, BlueBird\_90, Scout\_87, Giroux\_86, Fred313\_85, Kachowdy\_85, Marchesa\_87, Bugatti\_89
- Track 6 : Pistachio\_88
- Track 7 : BabyRay\_89
- Track 8 : MK4\_76, Rockstar\_77, Isca\_85, Phantastic\_89
- Track 9 : HINdeR\_83
- Track 10 : Sheen\_85, Toro\_86
- Track 11 : FlyCatcher\_88
- Track 12 : Timshel\_85
- Track 13 : DroogsArmy\_83
- Track 14 : TinaBelcher\_76
- Track 15 : BartholomewSD\_81
- Track 16 : Andris\_77
- Track 17 : Nishikigoi\_76
- Track 18 : Janus\_73, Animus\_72
- Track 19 : Caelum\_80
- Track 20 : GirlDinner\_72, SqueakyClean\_73
- Track 21 : Amethyst\_73
- Track 22 : Tefunt\_75
- Track 23 : Thestral\_78, Bowden\_76
- Track 24 : Alvy\_81
- Track 25 : Issmi\_74
- Track 26 : TrvxScott\_75
- Track 27 : Superstar\_79
- Track 28 : Triumph\_79
- Track 29 : Haizum\_75
- Track 30 : Madraxi\_106
- Track 31 : Shagrat\_113
- Track 32 : Jflix2\_104
- Track 33 : Francesca\_278

- Track 34 : Francesca\_5
- Track 35 : Dorin\_279, Dorin\_6
- Track 36 : WilliamBoone\_181
- Track 37 : Miskis\_176, Bachita\_178
- Track 38 : Engineer\_177, Dusty\_169
- Track 39 : Norvs\_173, Aphelion\_174, Smoothie\_177, Cucurbita\_175, Lozinak\_176, ClubL\_176, Toniann\_176, PhinkBoden\_173, Geeche\_180
- Track 40 : Abscondus\_173
- Track 41 : Culver\_178
- Track 42 : OneUp\_160
- Track 43 : BrutonGaster\_157
- Track 44 : JonJames\_202
- Track 45 : Cardigan\_208
- Track 46 : Yvonnetastic\_203
- Track 47 : PauloDiaboli\_373, A3Wally\_18, A3Wally\_371, PauloDiaboli\_18
- Track 48 : Big4\_344, Big4\_18
- Track 49 : Zooman\_16, Zooman\_329
- Track 50 : Cece\_324, Cece\_22
- Track 51 : Pumpernickel\_326, Pumpernickel\_25
- Track 52 : Kumao\_115

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

The start number called the most often in the published annotations is 25, it was called in 26 of the 87 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- BabyJohn\_70, BabyRay\_89, BlueBird\_90, Bugatti\_89, Caviar\_76, Chiqui\_70, DropBear\_85, Fred313\_85, Giroux\_86, Heathen\_87, HelDan\_87, Hookmount\_87, Isca\_85, Kachowdy\_85, Lambert1\_87, MK4\_76, Marchesa\_87, Margo\_87, Noella\_88, Norbert\_83, Panamaxus\_83, Phantastic\_89, Pocahontas\_86, Popcicle\_87, Puppy\_89, QuinnKiro\_86, ResDef\_85, Rockstar\_77, SaturnRing\_89, Scout\_87, TNguyen7\_89, Texage\_85, Todacoro\_87, Veracruz\_84,

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

- 

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

- A3Wally\_18, A3Wally\_371, Abscondus\_173, Alvy\_81, Amethyst\_73, Andris\_77, Animus\_72, Aphelion\_174, Bachita\_178, BartholomewSD\_81, Big4\_18, Big4\_344, Bowden\_76, BrutonGaster\_157, Caelum\_80, Cardigan\_208, Cece\_22, Cece\_324, ClubL\_176, Cucurbita\_175, Culver\_178, Dorin\_279, Dorin\_6, DroogsArmy\_83, Dusty\_169, Engineer\_177, FlyCatcher\_88, Francesca\_278, Francesca\_5, Geeche\_180, GirlDinner\_72, HINdeR\_83, Haizum\_75, Herbertwm\_87, Issmi\_74, Janus\_73, Jflix2\_104, JonJames\_202, Kimona\_88, Kumao\_115, Lozinak\_176, Madraxi\_106, Miskis\_176, Nishikigoi\_76, Norvs\_173, OneUp\_160, PauloDiaboli\_18, PauloDiaboli\_373, PhinkBoden\_173, Pistachio\_88, Pumpernickel\_25, Pumpernickel\_326, Shagrat\_113, Sheen\_85, Smoothie\_177, SqueakyClean\_73, Superstar\_79, Tefunt\_75, Thestral\_78, Timshel\_85, TinaBelcher\_76, Toniann\_176, Toro\_86, Triumph\_79, TrvxScott\_75, WilliamBoone\_181, Yvonnetastic\_203,

Zooman\_16, Zooman\_329,

### Summary by start number:

#### Start 1:

- Found in 1 of 103 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 87
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Tefunt\_75 (BD2),

#### Start 5:

- Found in 1 of 103 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 87
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amethyst\_73 (BD2),

#### Start 7:

- Found in 2 of 103 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 87
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Francesca\_278 (CG),

#### Start 14:

- Found in 8 of 103 ( 7.8% ) of genes in pham
- Manual Annotations of this start: 3 of 87
- Called 37.5% of time when present
- Phage (with cluster) where this start called: GirlDinner\_72 (BD2), Haizum\_75 (BD2), SqueakyClean\_73 (BD2),

#### Start 17:

- Found in 1 of 103 ( 1.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Superstar\_79 (BD2),

#### Start 18:

- Found in 4 of 103 ( 3.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 25.0% of time when present
- Phage (with cluster) where this start called: FlyCatcher\_88 (A7),

#### Start 19:

- Found in 2 of 103 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 87
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Francesca\_5 (CG),

#### Start 21:

- Found in 1 of 103 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 87
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Herbertwm\_87 (A2),

Start 23:

- Found in 5 of 103 ( 4.9% ) of genes in pham
- Manual Annotations of this start: 3 of 87
- Called 60.0% of time when present
- Phage (with cluster) where this start called: JfliX2\_104 (CF), Madraxi\_106 (CF), Shagrat\_113 (CF),

Start 24:

- Found in 4 of 103 ( 3.9% ) of genes in pham
- Manual Annotations of this start: 2 of 87
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Kimona\_88 (A19), Sheen\_85 (A7), Toro\_86 (A7),

Start 25:

- Found in 34 of 103 ( 33.0% ) of genes in pham
- Manual Annotations of this start: 26 of 87
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BabyJohn\_70 (A3), BabyRay\_89 (A3), BlueBird\_90 (A3), Bugatti\_89 (A3), Caviar\_76 (A3), Chiqui\_70 (A3), DropBear\_85 (A3), Fred313\_85 (A3), Giroux\_86 (A3), Heathen\_87 (A3), HelDan\_87 (A3), Hookmount\_87 (A3), Isca\_85 (A3), Kachowdy\_85 (A3), Lambert1\_87 (A3), MK4\_76 (A3), Marchesa\_87 (A3), Margo\_87 (A3), Noella\_88 (A3), Norbert\_83 (A3), Panamaxus\_83 (A3), Phantastic\_89 (A3), Pocahontas\_86 (A3), Popcicle\_87 (A3), Puppy\_89 (A3), QuinnKiro\_86 (A3), ResDef\_85 (A3), Rockstar\_77 (A3), SaturnRing\_89 (A3), Scout\_87 (A3), TNguyen7\_89 (A3), Texage\_85 (A3), Todacoro\_87 (A3), Veracruz\_84 (A3),

Start 26:

- Found in 21 of 103 ( 20.4% ) of genes in pham
- Manual Annotations of this start: 17 of 87
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abscondus\_173 (CQ1), Aphelion\_174 (CQ1), Bachita\_178 (CQ1), BrutonGaster\_157 (CQ2), ClubL\_176 (CQ1), Cucurbita\_175 (CQ1), Culver\_178 (CQ1), DroogsArmy\_83 (A7), Dusty\_169 (CQ1), Engineer\_177 (CQ1), Geeche\_180 (CQ1), HINdeR\_83 (A7), Lozinak\_176 (CQ1), Miskis\_176 (CQ1), Norvs\_173 (CQ1), OneUp\_160 (CQ2), PhinkBoden\_173 (CQ1), Smoothie\_177 (CQ1), Timshel\_85 (A7), Toniann\_176 (CQ1), WilliamBoone\_181 (CQ1),

Start 27:

- Found in 1 of 103 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 87
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pistachio\_88 (A3),

Start 28:

- Found in 3 of 103 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 2 of 87
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cardigan\_208 (DD), JonJames\_202 (DD), Yvonnestic\_203 (DD),

Start 29:

- Found in 12 of 103 ( 11.7% ) of genes in pham
- Manual Annotations of this start: 3 of 87
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Alvy\_81 (BD2), Nishikigoi\_76 (BD2), TrvxScott\_75 (BD2),

Start 30:

- Found in 4 of 103 ( 3.9% ) of genes in pham
- Manual Annotations of this start: 2 of 87
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Dorin\_279 (CG), Dorin\_6 (CG),

Start 31:

- Found in 43 of 103 ( 41.7% ) of genes in pham
- Manual Annotations of this start: 10 of 87
- Called 23.3% of time when present
- Phage (with cluster) where this start called: Andris\_77 (BD2), Animus\_72 (BD2), BartholomewSD\_81 (BD2), Bowden\_76 (BD2), Caelum\_80 (BD2), Issmi\_74 (BD2), Janus\_73 (BD2), Thestral\_78 (BD2), TinaBelcher\_76 (BD2), Triumph\_79 (BD2),

Start 32:

- Found in 1 of 103 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 87
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kumao\_115 (singleton),

Start 34:

- Found in 12 of 103 ( 11.7% ) of genes in pham
- Manual Annotations of this start: 12 of 87
- Called 100.0% of time when present
- Phage (with cluster) where this start called: A3Wally\_18 (GD1), A3Wally\_371 (GD1), Big4\_18 (GD2), Big4\_344 (GD2), Cece\_22 (GD3), Cece\_324 (GD3), PauloDiaboli\_18 (GD1), PauloDiaboli\_373 (GD1), Pumpernickel\_25 (GD4), Pumpernickel\_326 (GD4), Zooman\_16 (GD2), Zooman\_329 (GD2),

**Summary by clusters:**

There are 15 clusters represented in this pham: GD1, GD2, GD3, GD4, A19, DD, CG, CF, singleton, A3, A2, A7, BD2, CQ2, CQ1,

Info for manual annotations of cluster A19:

- Start number 24 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A2:

- Start number 21 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster A3:

- Start number 25 was manually annotated 26 times for cluster A3.
- Start number 27 was manually annotated 1 time for cluster A3.

Info for manual annotations of cluster A7:

- Start number 24 was manually annotated 1 time for cluster A7.

- Start number 26 was manually annotated 3 times for cluster A7.

Info for manual annotations of cluster BD2:

- Start number 1 was manually annotated 1 time for cluster BD2.
- Start number 5 was manually annotated 1 time for cluster BD2.
- Start number 14 was manually annotated 3 times for cluster BD2.
- Start number 29 was manually annotated 3 times for cluster BD2.
- Start number 31 was manually annotated 10 times for cluster BD2.

Info for manual annotations of cluster CF:

- Start number 23 was manually annotated 3 times for cluster CF.

Info for manual annotations of cluster CG:

- Start number 7 was manually annotated 1 time for cluster CG.
- Start number 19 was manually annotated 1 time for cluster CG.
- Start number 30 was manually annotated 2 times for cluster CG.

Info for manual annotations of cluster CQ1:

- Start number 26 was manually annotated 12 times for cluster CQ1.

Info for manual annotations of cluster CQ2:

- Start number 26 was manually annotated 2 times for cluster CQ2.

Info for manual annotations of cluster DD:

- Start number 28 was manually annotated 2 times for cluster DD.

Info for manual annotations of cluster GD1:

- Start number 34 was manually annotated 4 times for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 34 was manually annotated 4 times for cluster GD2.

Info for manual annotations of cluster GD3:

- Start number 34 was manually annotated 2 times for cluster GD3.

Info for manual annotations of cluster GD4:

- Start number 34 was manually annotated 2 times for cluster GD4.

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

Gene: A3Wally\_18 Start: 6344, Stop: 6961, Start Num: 34

Candidate Starts for A3Wally\_18:

(Start: 34 @6344 has 12 MA's), (44, 6425), (53, 6482), (72, 6626), (81, 6674), (82, 6698), (89, 6752), (109, 6950),

Gene: A3Wally\_371 Start: 185565, Stop: 186182, Start Num: 34

Candidate Starts for A3Wally\_371:

(Start: 34 @185565 has 12 MA's), (44, 185646), (53, 185703), (72, 185847), (81, 185895), (82, 185919), (89, 185973), (109, 186171),

Gene: Abscondus\_173 Start: 87791, Stop: 87168, Start Num: 26



Candidate Starts for Abscondus\_173:

(Start: 26 @87791 has 17 MA's), (37, 87734), (41, 87713), (58, 87569), (59, 87551), (62, 87539), (67, 87494), (80, 87410), (84, 87350), (85, 87344), (87, 87329), (90, 87314), (95, 87272), (101, 87218),

Gene: Alvy\_81 Start: 49735, Stop: 49100, Start Num: 29

Candidate Starts for Alvy\_81:

(Start: 29 @49735 has 3 MA's), (Start: 31 @49717 has 10 MA's), (43, 49627), (49, 49582), (50, 49579), (80, 49390), (102, 49174), (103, 49165),

Gene: Amethyst\_73 Start: 46722, Stop: 45931, Start Num: 5

Candidate Starts for Amethyst\_73:

(3, 46800), (4, 46761), (Start: 5 @46722 has 1 MA's), (Start: 14 @46644 has 3 MA's), (Start: 29 @46566 has 3 MA's), (Start: 31 @46548 has 10 MA's), (47, 46422), (49, 46413), (50, 46410), (59, 46335), (79, 46230), (80, 46221), (84, 46161), (101, 46014), (102, 46005), (103, 45996), (104, 45993),

Gene: Andris\_77 Start: 47684, Stop: 47067, Start Num: 31

Candidate Starts for Andris\_77:

(10, 47792), (Start: 29 @47699 has 3 MA's), (Start: 31 @47684 has 10 MA's), (49, 47549), (50, 47546), (52, 47531), (79, 47366), (80, 47357), (84, 47297), (101, 47150), (103, 47132), (104, 47129),

Gene: Animus\_72 Start: 47796, Stop: 47179, Start Num: 31

Candidate Starts for Animus\_72:

(Start: 14 @47892 has 3 MA's), (16, 47865), (Start: 29 @47814 has 3 MA's), (Start: 31 @47796 has 10 MA's), (43, 47706), (47, 47670), (49, 47661), (50, 47658), (80, 47469), (84, 47409), (101, 47262), (102, 47253), (103, 47244),

Gene: Aphelion\_174 Start: 88689, Stop: 88066, Start Num: 26

Candidate Starts for Aphelion\_174:

(Start: 26 @88689 has 17 MA's), (37, 88632), (41, 88611), (58, 88467), (59, 88449), (67, 88392), (80, 88308), (84, 88248), (85, 88242), (87, 88227), (90, 88212), (95, 88170), (101, 88116),

Gene: BabyJohn\_70 Start: 45191, Stop: 44616, Start Num: 25

Candidate Starts for BabyJohn\_70:

(Start: 25 @45191 has 26 MA's), (Start: 31 @45173 has 10 MA's), (48, 45047), (53, 45023), (57, 44999), (65, 44912), (73, 44876), (93, 44729), (94, 44723), (101, 44657), (104, 44636),

Gene: BabyRay\_89 Start: 49017, Stop: 48442, Start Num: 25

Candidate Starts for BabyRay\_89:

(Start: 25 @49017 has 26 MA's), (Start: 31 @48999 has 10 MA's), (48, 48873), (53, 48849), (57, 48825), (65, 48738), (73, 48702), (85, 48609), (93, 48555), (94, 48549), (101, 48483), (104, 48462),

Gene: Bachita\_178 Start: 88765, Stop: 88142, Start Num: 26

Candidate Starts for Bachita\_178:

(Start: 26 @88765 has 17 MA's), (37, 88708), (41, 88687), (58, 88543), (59, 88525), (67, 88468), (80, 88384), (84, 88324), (85, 88318), (87, 88303), (90, 88288), (95, 88246), (96, 88216), (101, 88192),

Gene: BartholomewSD\_81 Start: 48836, Stop: 48219, Start Num: 31

Candidate Starts for BartholomewSD\_81:

(Start: 29 @48854 has 3 MA's), (Start: 31 @48836 has 10 MA's), (43, 48746), (49, 48701), (50, 48698), (79, 48518), (80, 48509), (102, 48293), (103, 48284),

Gene: Big4\_344 Start: 182798, Stop: 183415, Start Num: 34

Candidate Starts for Big4\_344:

(Start: 34 @182798 has 12 MA's), (53, 182924), (57, 182948), (63, 183008), (73, 183077), (81, 183116), (84, 183161), (98, 183305), (102, 183335), (104, 183347), (109, 183395),

Gene: Big4\_18 Start: 8104, Stop: 8721, Start Num: 34

Candidate Starts for Big4\_18:

(Start: 34 @8104 has 12 MA's), (53, 8230), (57, 8254), (63, 8314), (73, 8383), (81, 8422), (84, 8467), (98, 8611), (102, 8641), (104, 8653), (109, 8701),

Gene: BlueBird\_90 Start: 48809, Stop: 48234, Start Num: 25

Candidate Starts for BlueBird\_90:

(Start: 25 @48809 has 26 MA's), (Start: 31 @48791 has 10 MA's), (45, 48695), (48, 48665), (53, 48641), (57, 48617), (65, 48530), (73, 48494), (85, 48401), (93, 48347), (94, 48341), (101, 48275), (104, 48254),

Gene: Bowden\_76 Start: 49410, Stop: 48793, Start Num: 31

Candidate Starts for Bowden\_76:

(Start: 31 @49410 has 10 MA's), (41, 49350), (43, 49320), (49, 49275), (50, 49272), (80, 49083), (84, 49023), (101, 48876), (102, 48867), (103, 48858), (104, 48855),

Gene: BrutonGaster\_157 Start: 84932, Stop: 84306, Start Num: 26

Candidate Starts for BrutonGaster\_157:

(Start: 26 @84932 has 17 MA's), (Start: 31 @84908 has 10 MA's), (37, 84872), (41, 84851), (47, 84785), (59, 84689), (67, 84632), (75, 84578), (80, 84548), (84, 84488), (85, 84482), (87, 84467), (90, 84452), (93, 84428), (95, 84410), (101, 84356),

Gene: Bugatti\_89 Start: 48809, Stop: 48234, Start Num: 25

Candidate Starts for Bugatti\_89:

(Start: 25 @48809 has 26 MA's), (Start: 31 @48791 has 10 MA's), (45, 48695), (48, 48665), (53, 48641), (57, 48617), (65, 48530), (73, 48494), (85, 48401), (93, 48347), (94, 48341), (101, 48275), (104, 48254),

Gene: Caelum\_80 Start: 47718, Stop: 47101, Start Num: 31

Candidate Starts for Caelum\_80:

(Start: 31 @47718 has 10 MA's), (43, 47628), (50, 47580), (77, 47406), (79, 47400), (80, 47391), (89, 47298), (100, 47187), (101, 47184), (102, 47175), (103, 47166), (104, 47163),

Gene: Cardigan\_208 Start: 99151, Stop: 98492, Start Num: 28

Candidate Starts for Cardigan\_208:

(Start: 28 @99151 has 2 MA's), (Start: 31 @99136 has 10 MA's), (36, 99109), (37, 99100), (40, 99085), (41, 99079), (44, 99040), (50, 99001), (55, 98977), (58, 98935), (71, 98830), (80, 98767), (87, 98686), (94, 98641), (97, 98596), (101, 98575), (106, 98524),

Gene: Caviar\_76 Start: 45435, Stop: 44860, Start Num: 25

Candidate Starts for Caviar\_76:

(Start: 25 @45435 has 26 MA's), (37, 45384), (45, 45321), (57, 45243), (73, 45120), (86, 45021), (93, 44973), (101, 44901), (104, 44880),

Gene: Cece\_324 Start: 176346, Stop: 176969, Start Num: 34

Candidate Starts for Cece\_324:

(Start: 34 @176346 has 12 MA's), (38, 176367), (41, 176388), (66, 176598), (68, 176604), (82, 176697), (84, 176718), (85, 176724), (90, 176757), (98, 176862), (110, 176961),

Gene: Cece\_22 Start: 7912, Stop: 8535, Start Num: 34

Candidate Starts for Cece\_22:

(Start: 34 @7912 has 12 MA's), (38, 7933), (41, 7954), (66, 8164), (68, 8170), (82, 8263), (84, 8284), (85, 8290), (90, 8323), (98, 8428), (110, 8527),

Gene: Chiqui\_70 Start: 45200, Stop: 44625, Start Num: 25

Candidate Starts for Chiqui\_70:

(Start: 25 @45200 has 26 MA's), (Start: 31 @45182 has 10 MA's), (48, 45056), (53, 45032), (57, 45008), (65, 44921), (73, 44885), (93, 44738), (94, 44732), (101, 44666), (104, 44645),

Gene: ClubL\_176 Start: 88010, Stop: 87387, Start Num: 26

Candidate Starts for ClubL\_176:

(Start: 26 @88010 has 17 MA's), (37, 87953), (41, 87932), (58, 87788), (59, 87770), (67, 87713), (80, 87629), (84, 87569), (85, 87563), (87, 87548), (90, 87533), (95, 87491), (101, 87437),

Gene: Cucurbita\_175 Start: 89071, Stop: 88448, Start Num: 26

Candidate Starts for Cucurbita\_175:

(Start: 26 @89071 has 17 MA's), (37, 89014), (41, 88993), (58, 88849), (59, 88831), (67, 88774), (80, 88690), (84, 88630), (85, 88624), (87, 88609), (90, 88594), (95, 88552), (101, 88498),

Gene: Culver\_178 Start: 87604, Stop: 86975, Start Num: 26

Candidate Starts for Culver\_178:

(Start: 26 @87604 has 17 MA's), (37, 87547), (41, 87526), (58, 87382), (59, 87364), (67, 87307), (75, 87253), (80, 87223), (84, 87163), (85, 87157), (87, 87142), (90, 87127), (95, 87085), (101, 87031), (105, 86998),

Gene: Dorin\_279 Start: 135233, Stop: 135826, Start Num: 30

Candidate Starts for Dorin\_279:

(Start: 30 @135233 has 2 MA's), (37, 135284), (44, 135344), (51, 135389), (63, 135485), (66, 135518), (78, 135569), (87, 135656), (97, 135761),

Gene: Dorin\_6 Start: 2985, Stop: 3578, Start Num: 30

Candidate Starts for Dorin\_6:

(Start: 30 @2985 has 2 MA's), (37, 3036), (44, 3096), (51, 3141), (63, 3237), (66, 3270), (78, 3321), (87, 3408), (97, 3513),

Gene: DroogsArmy\_83 Start: 51878, Stop: 51303, Start Num: 26

Candidate Starts for DroogsArmy\_83:

(Start: 26 @51878 has 17 MA's), (35, 51842), (40, 51812), (61, 51638), (63, 51626), (73, 51566), (101, 51347),

Gene: DropBear\_85 Start: 48620, Stop: 48045, Start Num: 25

Candidate Starts for DropBear\_85:

(Start: 25 @48620 has 26 MA's), (Start: 31 @48602 has 10 MA's), (45, 48506), (48, 48476), (53, 48452), (57, 48428), (65, 48341), (73, 48305), (85, 48212), (93, 48158), (94, 48152), (101, 48086), (104, 48065),

Gene: Dusty\_169 Start: 87415, Stop: 86792, Start Num: 26

Candidate Starts for Dusty\_169:

(Start: 26 @87415 has 17 MA's), (37, 87358), (41, 87337), (58, 87193), (59, 87175), (67, 87118), (80, 87034), (84, 86974), (85, 86968), (87, 86953), (90, 86938), (95, 86896), (101, 86842), (105, 86809),

Gene: Engineer\_177 Start: 88766, Stop: 88143, Start Num: 26

Candidate Starts for Engineer\_177:

(Start: 26 @88766 has 17 MA's), (37, 88709), (41, 88688), (58, 88544), (59, 88526), (67, 88469), (80, 88385), (84, 88325), (85, 88319), (87, 88304), (90, 88289), (95, 88247), (101, 88193), (105, 88160),

Gene: FlyCatcher\_88 Start: 52479, Stop: 51859, Start Num: 18

Candidate Starts for FlyCatcher\_88:

(6, 52572), (8, 52548), (12, 52521), (18, 52479), (Start: 24 @52449 has 2 MA's), (37, 52383), (40, 52368), (41, 52362), (47, 52296), (61, 52194), (73, 52122), (84, 52035), (94, 51969), (101, 51903), (104, 51882),

Gene: Francesca\_278 Start: 135872, Stop: 136606, Start Num: 7

Candidate Starts for Francesca\_278:

(Start: 7 @135872 has 1 MA's), (9, 135899), (11, 135914), (13, 135923), (15, 135935), (Start: 19 @135977 has 1 MA's), (20, 135983), (Start: 23 @135995 has 3 MA's), (Start: 30 @136013 has 2 MA's), (37, 136064), (44, 136124), (51, 136169), (63, 136265), (66, 136298), (78, 136349), (87, 136436), (97, 136541),

Gene: Francesca\_5 Start: 3091, Stop: 3720, Start Num: 19

Candidate Starts for Francesca\_5:

(Start: 7 @2986 has 1 MA's), (9, 3013), (11, 3028), (13, 3037), (15, 3049), (Start: 19 @3091 has 1 MA's), (20, 3097), (Start: 23 @3109 has 3 MA's), (Start: 30 @3127 has 2 MA's), (37, 3178), (44, 3238), (51, 3283), (63, 3379), (66, 3412), (78, 3463), (87, 3550), (97, 3655),

Gene: Fred313\_85 Start: 48411, Stop: 47836, Start Num: 25

Candidate Starts for Fred313\_85:

(Start: 25 @48411 has 26 MA's), (Start: 31 @48393 has 10 MA's), (45, 48297), (48, 48267), (53, 48243), (57, 48219), (65, 48132), (73, 48096), (85, 48003), (93, 47949), (94, 47943), (101, 47877), (104, 47856),

Gene: Geeche\_180 Start: 89434, Stop: 88811, Start Num: 26

Candidate Starts for Geeche\_180:

(Start: 26 @89434 has 17 MA's), (37, 89377), (41, 89356), (58, 89212), (59, 89194), (67, 89137), (80, 89053), (84, 88993), (85, 88987), (87, 88972), (90, 88957), (95, 88915), (101, 88861),

Gene: GirlDinner\_72 Start: 47389, Stop: 46676, Start Num: 14

Candidate Starts for GirlDinner\_72:

(Start: 14 @47389 has 3 MA's), (16, 47362), (Start: 29 @47311 has 3 MA's), (Start: 31 @47293 has 10 MA's), (43, 47203), (47, 47167), (49, 47158), (50, 47155), (80, 46966), (84, 46906), (101, 46759), (102, 46750), (103, 46741), (104, 46738),

Gene: Giroux\_86 Start: 48808, Stop: 48233, Start Num: 25

Candidate Starts for Giroux\_86:

(Start: 25 @48808 has 26 MA's), (Start: 31 @48790 has 10 MA's), (45, 48694), (48, 48664), (53, 48640), (57, 48616), (65, 48529), (73, 48493), (85, 48400), (93, 48346), (94, 48340), (101, 48274), (104, 48253),

Gene: HINdeR\_83 Start: 51240, Stop: 50665, Start Num: 26

Candidate Starts for HINdeR\_83:

(Start: 26 @51240 has 17 MA's), (35, 51204), (40, 51174), (47, 51102), (54, 51066), (61, 51000), (63, 50988), (73, 50928), (94, 50775), (95, 50763), (101, 50709), (104, 50688),

Gene: Haizum\_75 Start: 47776, Stop: 47066, Start Num: 14

Candidate Starts for Haizum\_75:

(2, 47995), (Start: 14 @47776 has 3 MA's), (Start: 29 @47701 has 3 MA's), (Start: 31 @47683 has 10 MA's), (47, 47557), (49, 47548), (50, 47545), (79, 47365), (80, 47356), (84, 47296), (89, 47263), (101, 47149), (102, 47140), (103, 47131),

Gene: Heathen\_87 Start: 48499, Stop: 47924, Start Num: 25

Candidate Starts for Heathen\_87:

(Start: 25 @48499 has 26 MA's), (Start: 31 @48481 has 10 MA's), (45, 48385), (48, 48355), (53, 48331), (57, 48307), (65, 48220), (73, 48184), (85, 48091), (93, 48037), (94, 48031), (101, 47965), (104, 47944),

Gene: HelDan\_87 Start: 48722, Stop: 48147, Start Num: 25

Candidate Starts for HelDan\_87:

(Start: 25 @48722 has 26 MA's), (Start: 31 @48704 has 10 MA's), (45, 48608), (48, 48578), (53, 48554), (57, 48530), (65, 48443), (73, 48407), (85, 48314), (93, 48260), (94, 48254), (101, 48188), (104, 48167),

Gene: Herbertwm\_87 Start: 49870, Stop: 49277, Start Num: 21

Candidate Starts for Herbertwm\_87:

(18, 49894), (Start: 21 @49870 has 1 MA's), (35, 49816), (40, 49786), (61, 49612), (63, 49600), (73, 49540), (74, 49534), (84, 49453), (86, 49441), (101, 49321),

Gene: Hookmount\_87 Start: 48438, Stop: 47863, Start Num: 25

Candidate Starts for Hookmount\_87:

(Start: 25 @48438 has 26 MA's), (37, 48387), (45, 48324), (57, 48246), (73, 48123), (86, 48024), (93, 47976), (101, 47904), (104, 47883),

Gene: Isca\_85 Start: 48320, Stop: 47745, Start Num: 25

Candidate Starts for Isca\_85:

(Start: 25 @48320 has 26 MA's), (Start: 31 @48302 has 10 MA's), (45, 48206), (48, 48176), (53, 48152), (57, 48128), (65, 48041), (73, 48005), (85, 47912), (94, 47852), (101, 47786), (104, 47765),

Gene: Issmi\_74 Start: 47397, Stop: 46780, Start Num: 31

Candidate Starts for Issmi\_74:

(Start: 31 @47397 has 10 MA's), (41, 47337), (43, 47307), (47, 47271), (49, 47262), (50, 47259), (52, 47244), (79, 47079), (80, 47070), (84, 47010), (99, 46869), (100, 46866), (101, 46863), (102, 46854), (103, 46845), (104, 46842),

Gene: Janus\_73 Start: 47630, Stop: 47013, Start Num: 31

Candidate Starts for Janus\_73:

(Start: 14 @47726 has 3 MA's), (16, 47699), (Start: 29 @47648 has 3 MA's), (Start: 31 @47630 has 10 MA's), (43, 47540), (47, 47504), (49, 47495), (50, 47492), (80, 47303), (84, 47243), (101, 47096), (102, 47087), (103, 47078),

Gene: JfliX2\_104 Start: 60265, Stop: 59663, Start Num: 23

Candidate Starts for JfliX2\_104:

(Start: 23 @60265 has 3 MA's), (44, 60136), (53, 60079), (78, 59911), (88, 59818), (104, 59686),

Gene: JonJames\_202 Start: 99705, Stop: 99052, Start Num: 28

Candidate Starts for JonJames\_202:

(Start: 28 @99705 has 2 MA's), (37, 99657), (41, 99636), (43, 99606), (44, 99597), (47, 99570), (50, 99558), (58, 99492), (59, 99474), (63, 99456), (71, 99387), (80, 99324), (84, 99264), (87, 99243), (90, 99228),

Gene: Kachowdy\_85 Start: 48751, Stop: 48176, Start Num: 25

Candidate Starts for Kachowdy\_85:

(Start: 25 @48751 has 26 MA's), (Start: 31 @48733 has 10 MA's), (45, 48637), (48, 48607), (53, 48583), (57, 48559), (65, 48472), (73, 48436), (85, 48343), (93, 48289), (94, 48283), (101, 48217), (104, 48196),

Gene: Kimona\_88 Start: 48949, Stop: 48371, Start Num: 24

Candidate Starts for Kimona\_88:

(Start: 24 @48949 has 2 MA's), (37, 48895), (40, 48880), (41, 48874), (61, 48706), (73, 48634), (78, 48616), (94, 48481), (101, 48415),

Gene: Kumao\_115 Start: 68291, Stop: 67680, Start Num: 32

Candidate Starts for Kumao\_115:

(Start: 32 @68291 has 1 MA's), (39, 68249), (42, 68204), (60, 68063), (64, 68045), (66, 68015), (70, 67991), (76, 67955), (90, 67832), (101, 67724),

Gene: Lambert1\_87 Start: 48439, Stop: 47864, Start Num: 25

Candidate Starts for Lambert1\_87:

(Start: 25 @48439 has 26 MA's), (37, 48388), (45, 48325), (57, 48247), (73, 48124), (86, 48025), (93, 47977), (101, 47905), (104, 47884),

Gene: Lozinak\_176 Start: 88614, Stop: 87991, Start Num: 26

Candidate Starts for Lozinak\_176:

(Start: 26 @88614 has 17 MA's), (37, 88557), (41, 88536), (58, 88392), (59, 88374), (67, 88317), (80, 88233), (84, 88173), (85, 88167), (87, 88152), (90, 88137), (95, 88095), (101, 88041),

Gene: MK4\_76 Start: 44881, Stop: 44306, Start Num: 25

Candidate Starts for MK4\_76:

(Start: 25 @44881 has 26 MA's), (Start: 31 @44863 has 10 MA's), (45, 44767), (48, 44737), (53, 44713), (57, 44689), (65, 44602), (73, 44566), (85, 44473), (94, 44413), (101, 44347), (104, 44326),

Gene: Madraxi\_106 Start: 62326, Stop: 61724, Start Num: 23

Candidate Starts for Madraxi\_106:

(Start: 23 @62326 has 3 MA's), (44, 62197), (50, 62158), (53, 62140), (78, 61972), (92, 61849), (104, 61747),

Gene: Marchesa\_87 Start: 48613, Stop: 48038, Start Num: 25

Candidate Starts for Marchesa\_87:

(Start: 25 @48613 has 26 MA's), (Start: 31 @48595 has 10 MA's), (45, 48499), (48, 48469), (53, 48445), (57, 48421), (65, 48334), (73, 48298), (85, 48205), (93, 48151), (94, 48145), (101, 48079), (104, 48058),

Gene: Margo\_87 Start: 48464, Stop: 47889, Start Num: 25

Candidate Starts for Margo\_87:

(Start: 25 @48464 has 26 MA's), (37, 48413), (45, 48350), (57, 48272), (73, 48149), (86, 48050), (93, 48002), (101, 47930), (104, 47909),

Gene: Miskis\_176 Start: 87455, Stop: 86832, Start Num: 26

Candidate Starts for Miskis\_176:

(Start: 26 @87455 has 17 MA's), (37, 87398), (41, 87377), (58, 87233), (59, 87215), (67, 87158), (80, 87074), (84, 87014), (85, 87008), (87, 86993), (90, 86978), (95, 86936), (96, 86906), (101, 86882),

Gene: Nishikigoi\_76 Start: 47701, Stop: 47066, Start Num: 29

Candidate Starts for Nishikigoi\_76:

(2, 47995), (Start: 14 @47776 has 3 MA's), (Start: 29 @47701 has 3 MA's), (Start: 31 @47683 has 10 MA's), (47, 47557), (49, 47548), (50, 47545), (79, 47365), (80, 47356), (84, 47296), (89, 47263), (101, 47149), (102, 47140), (103, 47131), (104, 47128),

Gene: Noella\_88 Start: 48440, Stop: 47865, Start Num: 25

Candidate Starts for Noella\_88:

(Start: 25 @48440 has 26 MA's), (37, 48389), (45, 48326), (57, 48248), (73, 48125), (86, 48026), (93, 47978), (101, 47906), (104, 47885),

Gene: Norbert\_83 Start: 48437, Stop: 47862, Start Num: 25

Candidate Starts for Norbert\_83:

(Start: 25 @48437 has 26 MA's), (37, 48386), (45, 48323), (57, 48245), (73, 48122), (86, 48023), (93, 47975), (101, 47903), (104, 47882),

Gene: Norvs\_173 Start: 87790, Stop: 87167, Start Num: 26

Candidate Starts for Norvs\_173:

(Start: 26 @87790 has 17 MA's), (37, 87733), (41, 87712), (58, 87568), (59, 87550), (67, 87493), (80, 87409), (84, 87349), (85, 87343), (87, 87328), (90, 87313), (95, 87271), (101, 87217),

Gene: OneUp\_160 Start: 87682, Stop: 87056, Start Num: 26

Candidate Starts for OneUp\_160:

(Start: 26 @87682 has 17 MA's), (Start: 31 @87664 has 10 MA's), (37, 87628), (41, 87607), (59, 87445), (67, 87388), (80, 87304), (84, 87244), (85, 87238), (87, 87223), (90, 87208), (94, 87178), (95, 87166), (101, 87112), (105, 87079),

Gene: Panamaxus\_83 Start: 48439, Stop: 47864, Start Num: 25

Candidate Starts for Panamaxus\_83:

(Start: 25 @48439 has 26 MA's), (37, 48388), (45, 48325), (57, 48247), (73, 48124), (86, 48025), (93, 47977), (101, 47905), (104, 47884),

Gene: PauloDiaboli\_373 Start: 182813, Stop: 183430, Start Num: 34

Candidate Starts for PauloDiaboli\_373:

(Start: 34 @182813 has 12 MA's), (44, 182894), (53, 182951), (72, 183095), (81, 183143), (82, 183167), (89, 183221), (109, 183419),

Gene: PauloDiaboli\_18 Start: 6184, Stop: 6801, Start Num: 34

Candidate Starts for PauloDiaboli\_18:

(Start: 34 @6184 has 12 MA's), (44, 6265), (53, 6322), (72, 6466), (81, 6514), (82, 6538), (89, 6592), (109, 6790),

Gene: Phantastic\_89 Start: 48438, Stop: 47863, Start Num: 25

Candidate Starts for Phantastic\_89:

(Start: 25 @48438 has 26 MA's), (Start: 31 @48420 has 10 MA's), (45, 48324), (48, 48294), (53, 48270), (57, 48246), (65, 48159), (73, 48123), (85, 48030), (94, 47970), (101, 47904), (104, 47883),

Gene: PhinkBoden\_173 Start: 88188, Stop: 87565, Start Num: 26

Candidate Starts for PhinkBoden\_173:

(Start: 26 @88188 has 17 MA's), (37, 88131), (41, 88110), (58, 87966), (59, 87948), (67, 87891), (80, 87807), (84, 87747), (85, 87741), (87, 87726), (90, 87711), (95, 87669), (101, 87615),

Gene: Pistachio\_88 Start: 48356, Stop: 47781, Start Num: 27

Candidate Starts for Pistachio\_88:

(Start: 27 @48356 has 1 MA's), (Start: 31 @48338 has 10 MA's), (45, 48242), (48, 48212), (53, 48188), (57, 48164), (65, 48077), (73, 48041), (85, 47948), (93, 47894), (94, 47888), (101, 47822), (104, 47801),

Gene: Pocahontas\_86 Start: 48435, Stop: 47860, Start Num: 25

Candidate Starts for Pocahontas\_86:

(Start: 25 @48435 has 26 MA's), (37, 48384), (45, 48321), (57, 48243), (73, 48120), (86, 48021), (93, 47973), (101, 47901), (104, 47880),

Gene: Popcicle\_87 Start: 48435, Stop: 47860, Start Num: 25

Candidate Starts for Popcicle\_87:

(Start: 25 @48435 has 26 MA's), (37, 48384), (45, 48321), (57, 48243), (73, 48120), (86, 48021), (93, 47973), (101, 47901), (104, 47880),

Gene: Pumpernickel\_326 Start: 176211, Stop: 176831, Start Num: 34

Candidate Starts for Pumpernickel\_326:

(Start: 34 @176211 has 12 MA's), (42, 176280), (55, 176355), (63, 176433), (68, 176466), (73, 176493), (107, 176790), (108, 176796),

Gene: Pumpernickel\_25 Start: 10079, Stop: 10699, Start Num: 34

Candidate Starts for Pumpernickel\_25:

(Start: 34 @10079 has 12 MA's), (42, 10148), (55, 10223), (63, 10301), (68, 10334), (73, 10361), (107, 10658), (108, 10664),

Gene: Puppy\_89 Start: 48426, Stop: 47851, Start Num: 25

Candidate Starts for Puppy\_89:

(Start: 25 @48426 has 26 MA's), (Start: 31 @48408 has 10 MA's), (45, 48312), (48, 48282), (53, 48258), (57, 48234), (65, 48147), (73, 48111), (85, 48018), (93, 47964), (94, 47958), (101, 47892), (104, 47871),

Gene: QuinnKiro\_86 Start: 48438, Stop: 47863, Start Num: 25

Candidate Starts for QuinnKiro\_86:

(Start: 25 @48438 has 26 MA's), (37, 48387), (45, 48324), (57, 48246), (73, 48123), (86, 48024), (93, 47976), (101, 47904), (104, 47883),

Gene: ResDef\_85 Start: 48441, Stop: 47866, Start Num: 25

Candidate Starts for ResDef\_85:

(Start: 25 @48441 has 26 MA's), (37, 48390), (45, 48327), (57, 48249), (73, 48126), (86, 48027), (93, 47979), (101, 47907), (104, 47886),

Gene: Rockstar\_77 Start: 46128, Stop: 45553, Start Num: 25

Candidate Starts for Rockstar\_77:

(Start: 25 @46128 has 26 MA's), (Start: 31 @46110 has 10 MA's), (45, 46014), (48, 45984), (53, 45960), (57, 45936), (65, 45849), (73, 45813), (85, 45720), (94, 45660), (101, 45594), (104, 45573),

Gene: SaturnRing\_89 Start: 48809, Stop: 48234, Start Num: 25

Candidate Starts for SaturnRing\_89:

(Start: 25 @48809 has 26 MA's), (Start: 31 @48791 has 10 MA's), (45, 48695), (48, 48665), (53, 48641), (57, 48617), (65, 48530), (73, 48494), (85, 48401), (93, 48347), (94, 48341), (101, 48275), (104, 48254),

Gene: Scout\_87 Start: 47962, Stop: 47387, Start Num: 25

Candidate Starts for Scout\_87:



(Start: 25 @47962 has 26 MA's), (Start: 31 @47944 has 10 MA's), (45, 47848), (48, 47818), (53, 47794), (57, 47770), (65, 47683), (73, 47647), (85, 47554), (93, 47500), (94, 47494), (101, 47428), (104, 47407),

Gene: Shagrat\_113 Start: 60969, Stop: 60352, Start Num: 23

Candidate Starts for Shagrat\_113:

(Start: 23 @60969 has 3 MA's), (33, 60924), (37, 60900), (38, 60897), (59, 60717), (66, 60669), (69, 60657), (83, 60555), (91, 60492), (101, 60399),

Gene: Sheen\_85 Start: 51786, Stop: 51196, Start Num: 24

Candidate Starts for Sheen\_85:

(6, 51909), (8, 51885), (12, 51858), (18, 51816), (Start: 24 @51786 has 2 MA's), (37, 51720), (40, 51705), (41, 51699), (47, 51633), (61, 51531), (73, 51459), (84, 51372), (94, 51306), (101, 51240), (104, 51219),

Gene: Smoothie\_177 Start: 88486, Stop: 87863, Start Num: 26

Candidate Starts for Smoothie\_177:

(Start: 26 @88486 has 17 MA's), (37, 88429), (41, 88408), (58, 88264), (59, 88246), (67, 88189), (80, 88105), (84, 88045), (85, 88039), (87, 88024), (90, 88009), (95, 87967), (101, 87913),

Gene: SqueakyClean\_73 Start: 47904, Stop: 47191, Start Num: 14

Candidate Starts for SqueakyClean\_73:

(Start: 14 @47904 has 3 MA's), (16, 47877), (Start: 29 @47826 has 3 MA's), (Start: 31 @47808 has 10 MA's), (43, 47718), (47, 47682), (49, 47673), (50, 47670), (80, 47481), (84, 47421), (101, 47274), (102, 47265), (103, 47256), (104, 47253),

Gene: Superstar\_79 Start: 47292, Stop: 46609, Start Num: 17

Candidate Starts for Superstar\_79:

(17, 47292), (22, 47262), (Start: 31 @47226 has 10 MA's), (49, 47091), (50, 47088), (52, 47073), (56, 47067), (79, 46908), (80, 46899), (89, 46806), (100, 46695), (102, 46683), (103, 46674), (104, 46671),

Gene: TNguyen7\_89 Start: 48767, Stop: 48192, Start Num: 25

Candidate Starts for TNguyen7\_89:

(Start: 25 @48767 has 26 MA's), (Start: 31 @48749 has 10 MA's), (45, 48653), (48, 48623), (53, 48599), (57, 48575), (65, 48488), (73, 48452), (85, 48359), (93, 48305), (94, 48299), (101, 48233), (104, 48212),

Gene: Tefunt\_75 Start: 47945, Stop: 46980, Start Num: 1

Candidate Starts for Tefunt\_75:

(Start: 1 @47945 has 1 MA's), (2, 47909), (Start: 14 @47690 has 3 MA's), (Start: 29 @47615 has 3 MA's), (Start: 31 @47597 has 10 MA's), (47, 47471), (49, 47462), (50, 47459), (79, 47279), (80, 47270), (84, 47210), (89, 47177), (101, 47063), (102, 47054), (103, 47045), (104, 47042),

Gene: Texage\_85 Start: 48439, Stop: 47864, Start Num: 25

Candidate Starts for Texage\_85:

(Start: 25 @48439 has 26 MA's), (37, 48388), (45, 48325), (57, 48247), (73, 48124), (86, 48025), (93, 47977), (101, 47905), (104, 47884),

Gene: Thestral\_78 Start: 49437, Stop: 48820, Start Num: 31

Candidate Starts for Thestral\_78:

(Start: 31 @49437 has 10 MA's), (41, 49377), (43, 49347), (49, 49302), (50, 49299), (80, 49110), (84, 49050), (101, 48903), (102, 48894), (103, 48885), (104, 48882),

Gene: Timshel\_85 Start: 51894, Stop: 51319, Start Num: 26

Candidate Starts for Timshel\_85:

(Start: 26 @51894 has 17 MA's), (35, 51858), (40, 51828), (47, 51756), (54, 51720), (61, 51654), (64, 51639), (73, 51582), (94, 51429), (95, 51417), (101, 51363),

Gene: TinaBelcher\_76 Start: 49299, Stop: 48682, Start Num: 31

Candidate Starts for TinaBelcher\_76:

(Start: 31 @49299 has 10 MA's), (41, 49239), (43, 49209), (49, 49164), (50, 49161), (66, 49038), (80, 48972), (84, 48912), (101, 48765), (102, 48756), (103, 48747), (104, 48744),

Gene: Todacoro\_87 Start: 48438, Stop: 47863, Start Num: 25

Candidate Starts for Todacoro\_87:

(Start: 25 @48438 has 26 MA's), (37, 48387), (45, 48324), (57, 48246), (73, 48123), (86, 48024), (93, 47976), (101, 47904), (104, 47883),

Gene: Toniann\_176 Start: 87931, Stop: 87308, Start Num: 26

Candidate Starts for Toniann\_176:

(Start: 26 @87931 has 17 MA's), (37, 87874), (41, 87853), (58, 87709), (59, 87691), (67, 87634), (80, 87550), (84, 87490), (85, 87484), (87, 87469), (90, 87454), (95, 87412), (101, 87358),

Gene: Toro\_86 Start: 52449, Stop: 51859, Start Num: 24

Candidate Starts for Toro\_86:

(6, 52572), (8, 52548), (12, 52521), (18, 52479), (Start: 24 @52449 has 2 MA's), (37, 52383), (40, 52368), (41, 52362), (47, 52296), (61, 52194), (73, 52122), (84, 52035), (94, 51969), (101, 51903), (104, 51882),

Gene: Triumph\_79 Start: 48452, Stop: 47835, Start Num: 31

Candidate Starts for Triumph\_79:

(Start: 31 @48452 has 10 MA's), (49, 48317), (50, 48314), (52, 48299), (79, 48134), (80, 48125), (101, 47918), (103, 47900), (104, 47897),

Gene: TrvxScott\_75 Start: 49422, Stop: 48787, Start Num: 29

Candidate Starts for TrvxScott\_75:

(Start: 29 @49422 has 3 MA's), (Start: 31 @49404 has 10 MA's), (41, 49344), (43, 49314), (49, 49269), (50, 49266), (80, 49077), (84, 49017), (101, 48870), (102, 48861), (103, 48852), (104, 48849),

Gene: Veracruz\_84 Start: 48439, Stop: 47864, Start Num: 25

Candidate Starts for Veracruz\_84:

(Start: 25 @48439 has 26 MA's), (37, 48388), (45, 48325), (57, 48247), (73, 48124), (86, 48025), (93, 47977), (101, 47905), (104, 47884),

Gene: WilliamBoone\_181 Start: 87425, Stop: 86802, Start Num: 26

Candidate Starts for WilliamBoone\_181:

(Start: 26 @87425 has 17 MA's), (37, 87368), (41, 87347), (58, 87203), (59, 87185), (67, 87128), (80, 87044), (84, 86984), (85, 86978), (87, 86963), (90, 86948), (95, 86906), (97, 86873), (101, 86852),

Gene: Yvonnetastic\_203 Start: 96754, Stop: 96101, Start Num: 28

Candidate Starts for Yvonnetastic\_203:

(Start: 28 @96754 has 2 MA's), (37, 96706), (41, 96685), (43, 96655), (44, 96646), (46, 96622), (50, 96607), (58, 96541), (63, 96505), (71, 96436), (80, 96373), (84, 96313), (87, 96292), (90, 96277),

Gene: Zooman\_16 Start: 7485, Stop: 8102, Start Num: 34

Candidate Starts for Zooman\_16:

(Start: 34 @7485 has 12 MA's), (57, 7635), (63, 7695), (81, 7803), (84, 7848), (98, 7992), (102, 8022), (109, 8082),

Gene: Zooman\_329 Start: 183136, Stop: 183753, Start Num: 34

Candidate Starts for Zooman\_329:

(Start: 34 @183136 has 12 MA's), (57, 183286), (63, 183346), (81, 183454), (84, 183499), (98, 183643), (102, 183673), (109, 183733),