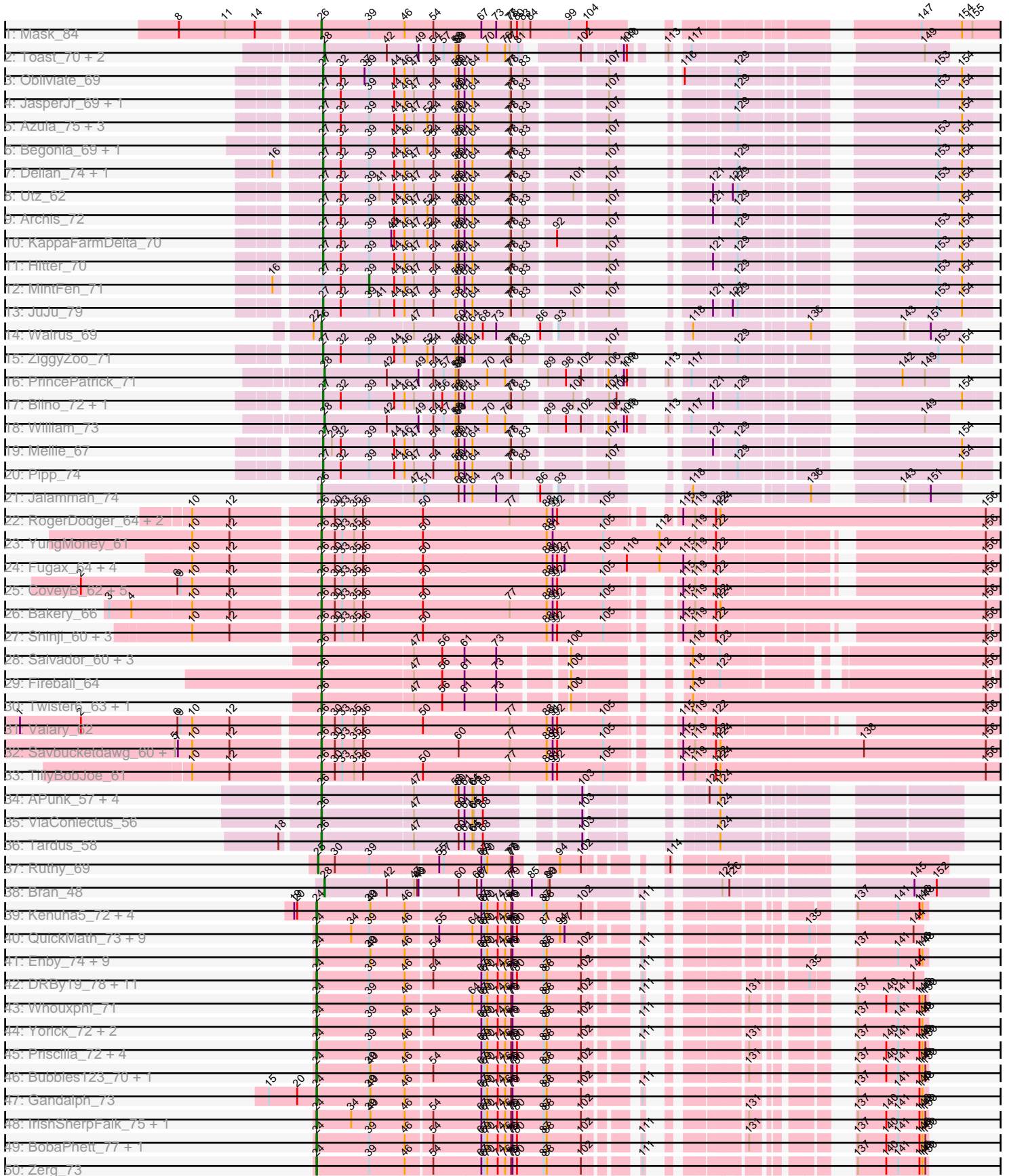
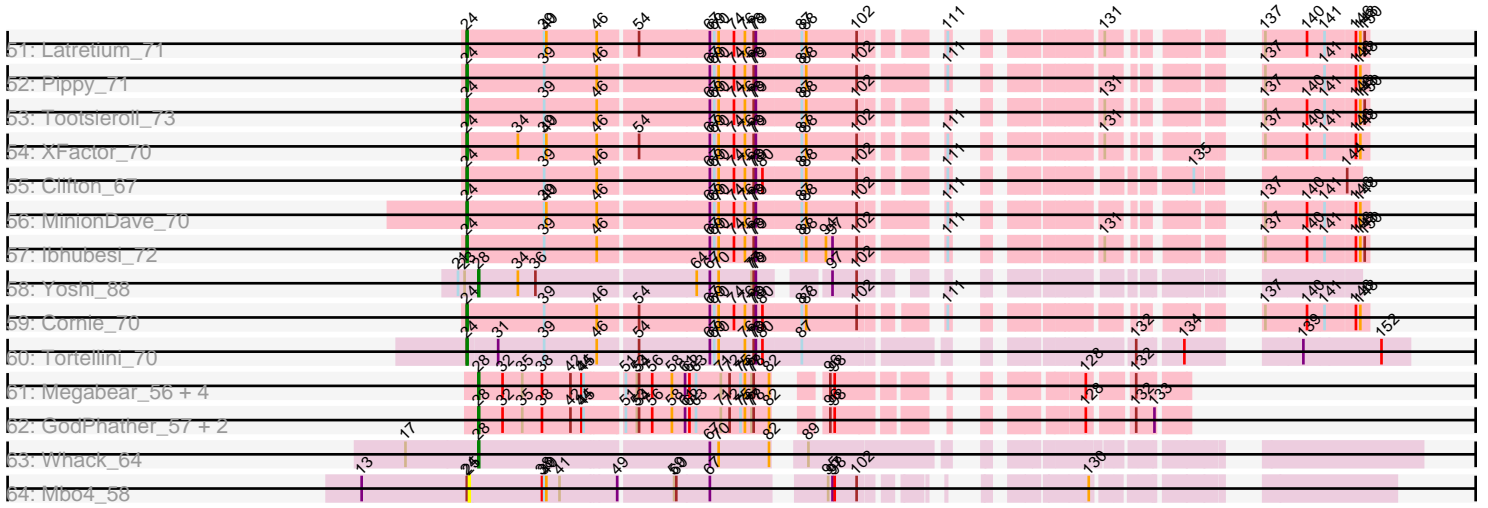


Pham 191125



Pham 191125



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 191125 Report

This analysis was run 11/02/24 on database version 579.

Pham number 191125 has 144 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Mask\_84
- Track 2 : Toast\_70, Fairfaxidum\_73, PCoral7\_70
- Track 3 : Obliviate\_69
- Track 4 : JasperJr\_69, Guacamole\_69
- Track 5 : Azula\_75, Blueberry\_74, MissRona\_75, Gambino\_77
- Track 6 : Begonia\_69, Malachai\_69
- Track 7 : Delian\_74, CaptainKirk2\_71
- Track 8 : Utz\_62
- Track 9 : Archis\_72
- Track 10 : KappaFarmDelta\_70
- Track 11 : Hitter\_70
- Track 12 : MintFen\_71
- Track 13 : JuJu\_79
- Track 14 : Walrus\_69
- Track 15 : ZiggyZoo\_71
- Track 16 : PrincePatrick\_71
- Track 17 : Blino\_72, CarolAnn\_71
- Track 18 : William\_73
- Track 19 : Mellie\_67
- Track 20 : Pipp\_74
- Track 21 : Jalammah\_74
- Track 22 : RogerDodger\_64, Danyall\_62, PullumCavea\_60
- Track 23 : YungMoney\_61
- Track 24 : Fugax\_64, Barb\_63, PinkCoffee\_63, ClamChowder\_63, KimmyK\_62
- Track 25 : CoveyB\_62, Wizard\_59, Arri\_62, VanDeWege\_63, Gezellig\_62, Halo3\_60
- Track 26 : Bakery\_66
- Track 27 : Shinji\_60, SmokingBunny\_61, Togo\_60, Mutzi\_60
- Track 28 : Salvador\_60, Evamon\_60, Phlop\_59, Nubi\_61
- Track 29 : Fireball\_64
- Track 30 : Twister6\_63, Portcullis\_63
- Track 31 : Valary\_62
- Track 32 : Savbucketdawg\_60, Jambalaya\_60
- Track 33 : TillyBobJoe\_61
- Track 34 : APunk\_57, Sampson\_56, Scioto\_57, Natkenzie\_56, Abblin\_56
- Track 35 : ViaConlectus\_56
- Track 36 : Tardus\_58

- Track 37 : Ruthy\_69
- Track 38 : Bran\_48
- Track 39 : Kenuha5\_72, DotProduct\_71, Totinger\_71, GigiOuiOui\_69, SuperGrey\_75
- Track 40 : QuickMath\_73, Soul22\_78, Kimberlium\_74, IbOuu\_72, MulchExplorer\_76, Blarby\_83, Zapner\_83, Veteran\_67, Firehouse51\_71, Jabbawokkie\_84
- Track 41 : Enby\_74, DirtMcgirt\_72, UncleRicky\_72, Llij\_69, Leozinho\_74, Martik\_76, Drago\_70, Maravista\_76, Lorde\_73, Phatniss\_70
- Track 42 : DRBy19\_78, Saal\_74, Lizziana\_79, GUmbie\_69, Spoonbill\_72, Philus\_77, James\_75, Jarcob\_74, Gorge\_76, OlympiaSaint\_74, Mattes\_76, Zizzle\_77
- Track 43 : Whouxphf\_71
- Track 44 : Yorick\_72, Burwell21\_71, Blexus\_71
- Track 45 : Priscilla\_72, SwagPiggett\_78, LastJedi\_66, Koella\_66, NormanBulbieJr\_71
- Track 46 : Bubbles123\_70, Byougenkin\_73
- Track 47 : Gandalph\_73
- Track 48 : IrishSherpFalk\_75, WillSterrel\_75
- Track 49 : BobaPhett\_77, Brocalys\_66
- Track 50 : Zerg\_73
- Track 51 : Latretium\_71
- Track 52 : Pippy\_71
- Track 53 : Tootsieroll\_73
- Track 54 : XFactor\_70
- Track 55 : Clifton\_67
- Track 56 : MinionDave\_70
- Track 57 : Ibhubesi\_72
- Track 58 : Yoshi\_88
- Track 59 : Cornie\_70
- Track 60 : Tortellini\_70
- Track 61 : Megabear\_56, Cepens\_56, D12\_55, Taptic\_56, PR\_56
- Track 62 : GodPhather\_57, Jeon\_56, Argie\_57
- Track 63 : Whack\_64
- Track 64 : Mbo4\_58

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

The start number called the most often in the published annotations is 24, it was called in 60 of the 134 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Blarby\_83, Blexus\_71, BobaPhett\_77, Brocalys\_66, Bubbles123\_70, Burwell21\_71, Byougenkin\_73, Clifton\_67, Cornie\_70, DRBy19\_78, DirtMcgirt\_72, DotProduct\_71, Drago\_70, Enby\_74, Firehouse51\_71, GUmbie\_69, Gandalph\_73, GigiOuiOui\_69, Gorge\_76, IbOuu\_72, Ibhubesi\_72, IrishSherpFalk\_75, Jabbawokkie\_84, James\_75, Jarcob\_74, Kenuha5\_72, Kimberlium\_74, Koella\_66, LastJedi\_66, Latretium\_71, Leozinho\_74, Lizziana\_79, Llij\_69, Lorde\_73, Maravista\_76, Martik\_76, Mattes\_76, MinionDave\_70, MulchExplorer\_76, NormanBulbieJr\_71, OlympiaSaint\_74, Phatniss\_70, Philus\_77, Pippy\_71, Priscilla\_72, QuickMath\_73, Saal\_74, Soul22\_78,

Spoonbill\_72, SuperGrey\_75, SwagPiggett\_78, Tootsieroll\_73, Tortellini\_70, Totinger\_71, UncleRicky\_72, Veteran\_67, Whouxphf\_71, WillSterrel\_75, XFactor\_70, Yorick\_72, Zapner\_83, Zerg\_73, Zizzle\_77,

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

- Mbo4\_58,

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

- APunk\_57, Abblin\_56, Archis\_72, Argie\_57, Arri\_62, Azula\_75, Bakery\_66, Barb\_63, Begonia\_69, Blino\_72, Blueberry\_74, Bran\_48, CaptainKirk2\_71, CarolAnn\_71, Cepens\_56, ClamChowder\_63, CoveyB\_62, D12\_55, Danyall\_62, Delian\_74, Evamon\_60, Fairfaxidum\_73, Fireball\_64, Fugax\_64, Gambino\_77, Gezellig\_62, GodPhather\_57, Guacamole\_69, Halo3\_60, Hitter\_70, Jalammah\_74, Jambalaya\_60, JasperJr\_69, Jeon\_56, JuJu\_79, KappaFarmDelta\_70, KimmyK\_62, Malachai\_69, Mask\_84, Megabear\_56, Mellie\_67, MintFen\_71, MissRona\_75, Mutzi\_60, Natkenzie\_56, Nubi\_61, Obliviate\_69, PCoral7\_70, PR\_56, Phlop\_59, PinkCoffee\_63, Pipp\_74, Portcullis\_63, PrincePatrick\_71, PullumCavea\_60, RogerDodger\_64, Ruthy\_69, Salvador\_60, Sampson\_56, Savbucketdawg\_60, Scioto\_57, Shinji\_60, SmokingBunny\_61, Taptic\_56, Tardus\_58, TillyBobJoe\_61, Toast\_70, Togo\_60, Twister6\_63, Utz\_62, Valary\_62, VanDeWege\_63, ViaConlectus\_56, Walrus\_69, Whack\_64, William\_73, Wizard\_59, Yoshi\_88, YungMoney\_61, ZiggyZoo\_71,

### Summary by start number:

Start 24:

- Found in 64 of 144 ( 44.4% ) of genes in pham
- Manual Annotations of this start: 60 of 134
- Called 98.4% of time when present
- Phage (with cluster) where this start called: Blarby\_83 (F), Blexus\_71 (F1), BobaPhett\_77 (F1), Brocalys\_66 (F1), Bubbles123\_70 (F1), Burwell21\_71 (F1), Byougenkin\_73 (F1), Clifton\_67 (F1), Cornie\_70 (F5), DRBy19\_78 (F1), DirtMcgirt\_72 (F1), DotProduct\_71 (F1), Drago\_70 (F1), Enby\_74 (F1), Firehouse51\_71 (F1), GUmbie\_69 (F1), Gandolph\_73 (F1), GigiOuiOui\_69 (F1), Gorge\_76 (F1), IbOuu\_72 (F1), Ibhubesi\_72 (F1), IrishSherpFalk\_75 (F1), Jabbawokkie\_84 (F2), James\_75 (F1), Jarcob\_74 (F1), Kenuha5\_72 (F1), Kimberlium\_74 (F1), Koella\_66 (F1), LastJedi\_66 (F1), Latretium\_71 (F1), Leozinho\_74 (F1), Lizziana\_79 (F1), Llij\_69 (F1), Lorde\_73 (F1), Maravista\_76 (F1), Martik\_76 (F1), Mattes\_76 (F1), MinionDave\_70 (F1), MulchExplorer\_76 (F1), NormanBulbieJr\_71 (F1), OlympiaSaint\_74 (F1), Phatniss\_70 (F1), Philus\_77 (F1), Pippy\_71 (F1), Priscilla\_72 (F1), QuickMath\_73 (F1), Saal\_74 (F1), Soul22\_78 (F2), Spoonbill\_72 (F1), SuperGrey\_75 (F1), SwagPiggett\_78 (F1), Tootsieroll\_73 (F1), Tortellini\_70 (P2), Totinger\_71 (F1), UncleRicky\_72 (F1), Veteran\_67 (F1), Whouxphf\_71 (F1), WillSterrel\_75 (F1), XFactor\_70 (F1), Yorick\_72 (F1), Zapner\_83 (F2), Zerg\_73 (F1), Zizzle\_77 (F1),

Start 25:

- Found in 2 of 144 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 134
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mbo4\_58 (singleton), Ruthy\_69 (DW),

Start 26:

- Found in 41 of 144 ( 28.5% ) of genes in pham
- Manual Annotations of this start: 35 of 134
- Called 100.0% of time when present
- Phage (with cluster) where this start called: APunk\_57 (DE4), Abblin\_56 (DE4), Arri\_62 (DC1), Bakery\_66 (DC1), Barb\_63 (DC1), ClamChowder\_63 (DC1), CoveyB\_62 (DC1), Danyall\_62 (DC1), Evamon\_60 (DC1), Fireball\_64 (DC1), Fugax\_64 (DC1), Gezellig\_62 (DC1), Halo3\_60 (DC1), Jalammah\_74 (CV), Jambalaya\_60 (DC1), KimmyK\_62 (DC1), Mask\_84 (AD), Mutzi\_60 (DC1), Natkenzie\_56 (DE4), Nubi\_61 (DC1), Phlop\_59 (DC1), PinkCoffee\_63 (DC1), Portcullis\_63 (DC1), PullumCavea\_60 (DC1), RogerDodger\_64 (DC1), Salvador\_60 (DC1), Sampson\_56 (DE4), Savbucketdawg\_60 (DC1), Scioto\_57 (DE4), Shinji\_60 (DC1), SmokingBunny\_61 (DC1), Tardus\_58 (DE4), TillyBobJoe\_61 (DC1), Togo\_60 (DC1), Twister6\_63 (DC1), Valary\_62 (DC1), VanDeWege\_63 (DC1), ViaConlectus\_56 (DE4), Walrus\_69 (CV), Wizard\_59 (DC1), YungMoney\_61 (DC1),

#### Start 27:

- Found in 22 of 144 ( 15.3% ) of genes in pham
- Manual Annotations of this start: 21 of 134
- Called 95.5% of time when present
- Phage (with cluster) where this start called: Archis\_72 (CV), Azula\_75 (CV), Begonia\_69 (CV), Blino\_72 (CV), Blueberry\_74 (CV), CaptainKirk2\_71 (CV), CarolAnn\_71 (CV), Delian\_74 (CV), Gambino\_77 (CV), Guacamole\_69 (CV), Hitter\_70 (CV), JasperJr\_69 (CV), JuJu\_79 (CV), KappaFarmDelta\_70 (CV), Malachai\_69 (CV), Mellie\_67 (CV), MissRona\_75 (CV), Oblivate\_69 (CV), Pipp\_74 (CV), Utz\_62 (CV), ZiggyZoo\_71 (CV),

#### Start 28:

- Found in 16 of 144 ( 11.1% ) of genes in pham
- Manual Annotations of this start: 16 of 134
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Argie\_57 (W), Bran\_48 (EP), Cepens\_56 (W), D12\_55 (W), Fairfaxidum\_73 (CV), GodPhather\_57 (W), Jeon\_56 (W), Megabear\_56 (W), PCoral7\_70 (CV), PR\_56 (W), PrincePatrick\_71 (CV), Taptic\_56 (W), Toast\_70 (CV), Whack\_64 (singleton), William\_73 (CV), Yoshi\_88 (F2),

#### Start 39:

- Found in 88 of 144 ( 61.1% ) of genes in pham
- Manual Annotations of this start: 1 of 134
- Called 1.1% of time when present
- Phage (with cluster) where this start called: MintFen\_71 (CV),

### Summary by clusters:

There are 13 clusters represented in this pham: P2, F1, F2, AD, F5, F, DE4, singleton, EP, W, DW, CV, DC1,

Info for manual annotations of cluster AD:

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

Info for manual annotations of cluster CV:

- Start number 26 was manually annotated 2 times for cluster CV.
- Start number 27 was manually annotated 21 times for cluster CV.

- Start number 28 was manually annotated 5 times for cluster CV.
- Start number 39 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster DC1:

- Start number 26 was manually annotated 28 times for cluster DC1.

Info for manual annotations of cluster DE4:

- Start number 26 was manually annotated 4 times for cluster DE4.

Info for manual annotations of cluster DW:

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

Info for manual annotations of cluster EP:

- Start number 28 was manually annotated 1 time for cluster EP.

Info for manual annotations of cluster F1:

- Start number 24 was manually annotated 55 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 24 was manually annotated 3 times for cluster F2.
- Start number 28 was manually annotated 1 time for cluster F2.

Info for manual annotations of cluster F5:

- Start number 24 was manually annotated 1 time for cluster F5.

Info for manual annotations of cluster P2:

- Start number 24 was manually annotated 1 time for cluster P2.

Info for manual annotations of cluster W:

- Start number 28 was manually annotated 8 times for cluster W.

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

Gene: APunk\_57 Start: 45213, Stop: 46196, Start Num: 26

Candidate Starts for APunk\_57:

(Start: 26 @45213 has 35 MA's), (47, 45384), (58, 45465), (60, 45471), (61, 45483), (64, 45498), (65, 45501), (68, 45519), (103, 45669), (120, 45792), (124, 45813),

Gene: Abblin\_56 Start: 45699, Stop: 46682, Start Num: 26

Candidate Starts for Abblin\_56:

(Start: 26 @45699 has 35 MA's), (47, 45870), (58, 45951), (60, 45957), (61, 45969), (64, 45984), (65, 45987), (68, 46005), (103, 46155), (120, 46278), (124, 46299),

Gene: Archis\_72 Start: 42871, Stop: 43959, Start Num: 27

Candidate Starts for Archis\_72:

(Start: 27 @42871 has 21 MA's), (32, 42904), (Start: 39 @42961 has 1 MA's), (44, 43012), (46, 43033), (47, 43051), (52, 43078), (54, 43090), (58, 43135), (60, 43141), (61, 43153), (64, 43168), (77, 43243), (78, 43246), (83, 43267), (107, 43411), (121, 43504), (129, 43546), (154, 43903),

Gene: Argie\_57 Start: 45566, Stop: 46306, Start Num: 28

Candidate Starts for Argie\_57:

(Start: 28 @45566 has 16 MA's), (32, 45596), (35, 45623), (38, 45650), (42, 45689), (44, 45704), (45, 45707), (51, 45752), (53, 45767), (54, 45770), (56, 45788), (58, 45815), (61, 45833), (62, 45839), (63, 45848), (71, 45881), (72, 45893), (75, 45908), (76, 45914), (77, 45923), (78, 45926), (82, 45947), (96, 45980), (98, 45986), (128, 46202), (132, 46247), (133, 46268),

Gene: Arri\_62 Start: 45658, Stop: 46908, Start Num: 26

Candidate Starts for Arri\_62:

(2, 45196), (6, 45388), (9, 45394), (10, 45418), (12, 45493), (Start: 26 @45658 has 35 MA's), (30, 45685), (33, 45700), (35, 45724), (36, 45742), (50, 45862), (88, 46111), (91, 46123), (92, 46132), (105, 46225), (115, 46312), (119, 46336), (122, 46372), (156, 46825),

Gene: Azula\_75 Start: 46763, Stop: 47851, Start Num: 27

Candidate Starts for Azula\_75:

(Start: 27 @46763 has 21 MA's), (32, 46796), (Start: 39 @46853 has 1 MA's), (44, 46904), (46, 46925), (47, 46943), (52, 46970), (54, 46982), (58, 47027), (60, 47033), (61, 47045), (64, 47060), (77, 47135), (78, 47138), (83, 47159), (107, 47303), (129, 47438), (154, 47795),

Gene: Bakery\_66 Start: 47819, Stop: 49147, Start Num: 26

Candidate Starts for Bakery\_66:

(3, 47420), (4, 47462), (10, 47579), (12, 47654), (Start: 26 @47819 has 35 MA's), (30, 47846), (33, 47861), (35, 47885), (36, 47903), (50, 48023), (77, 48197), (88, 48272), (91, 48284), (92, 48293), (105, 48386), (115, 48473), (119, 48497), (122, 48533), (124, 48542), (156, 49070),

Gene: Barb\_63 Start: 45475, Stop: 46785, Start Num: 26

Candidate Starts for Barb\_63:

(10, 45235), (12, 45310), (Start: 26 @45475 has 35 MA's), (30, 45502), (33, 45517), (35, 45541), (36, 45559), (50, 45679), (88, 45928), (91, 45940), (92, 45949), (97, 45964), (105, 46042), (110, 46090), (112, 46156), (115, 46204), (119, 46228), (122, 46264), (156, 46717),

Gene: Begonia\_69 Start: 45634, Stop: 46722, Start Num: 27

Candidate Starts for Begonia\_69:

(Start: 27 @45634 has 21 MA's), (32, 45667), (Start: 39 @45724 has 1 MA's), (44, 45775), (46, 45796), (52, 45841), (54, 45853), (58, 45898), (60, 45904), (61, 45916), (64, 45931), (77, 46006), (78, 46009), (83, 46030), (107, 46174), (153, 46621), (154, 46666),

Gene: Blarby\_83 Start: 45391, Stop: 46350, Start Num: 24

Candidate Starts for Blarby\_83:

(Start: 24 @45391 has 60 MA's), (34, 45460), (Start: 39 @45496 has 1 MA's), (46, 45565), (55, 45625), (64, 45691), (67, 45709), (69, 45715), (70, 45721), (74, 45742), (76, 45757), (78, 45769), (79, 45772), (80, 45781), (87, 45832), (94, 45865), (97, 45874), (135, 46195), (144, 46333),

Gene: Blexus\_71 Start: 46821, Stop: 47783, Start Num: 24

Candidate Starts for Blexus\_71:

(Start: 24 @46821 has 60 MA's), (Start: 39 @46926 has 1 MA's), (46, 46995), (54, 47043), (67, 47139), (69, 47145), (70, 47151), (74, 47172), (76, 47187), (78, 47199), (79, 47202), (87, 47262), (88, 47268), (102, 47337), (111, 47409), (137, 47649), (141, 47727), (146, 47766), (148, 47772),

Gene: Blino\_72 Start: 48361, Stop: 49449, Start Num: 27

Candidate Starts for Blino\_72:

(Start: 27 @48361 has 21 MA's), (32, 48394), (Start: 39 @48451 has 1 MA's), (44, 48502), (46, 48523), (47, 48541), (54, 48580), (56, 48598), (58, 48625), (60, 48631), (61, 48643), (64, 48658), (77, 48733), (78, 48736), (83, 48757), (101, 48841), (107, 48901), (108, 48916), (121, 48994), (129,



49036), (154, 49393),

Gene: Blueberry\_74 Start: 46763, Stop: 47851, Start Num: 27

Candidate Starts for Blueberry\_74:

(Start: 27 @46763 has 21 MA's), (32, 46796), (Start: 39 @46853 has 1 MA's), (44, 46904), (46, 46925), (47, 46943), (52, 46970), (54, 46982), (58, 47027), (60, 47033), (61, 47045), (64, 47060), (77, 47135), (78, 47138), (83, 47159), (107, 47303), (129, 47438), (154, 47795),

Gene: BobaPhett\_77 Start: 48939, Stop: 49901, Start Num: 24

Candidate Starts for BobaPhett\_77:

(Start: 24 @48939 has 60 MA's), (Start: 39 @49044 has 1 MA's), (46, 49113), (54, 49161), (67, 49257), (69, 49263), (70, 49269), (74, 49290), (76, 49305), (78, 49317), (79, 49320), (80, 49329), (87, 49380), (88, 49386), (102, 49455), (111, 49527), (131, 49653), (137, 49767), (140, 49824), (141, 49845), (146, 49884), (148, 49890), (150, 49896),

Gene: Bran\_48 Start: 34239, Stop: 35393, Start Num: 28

Candidate Starts for Bran\_48:

(Start: 28 @34239 has 16 MA's), (42, 34365), (47, 34416), (48, 34422), (49, 34425), (60, 34497), (66, 34533), (67, 34542), (77, 34599), (79, 34605), (85, 34644), (89, 34677), (90, 34680), (125, 34947), (126, 34959), (145, 35244), (152, 35289),

Gene: Brocalys\_66 Start: 44419, Stop: 45381, Start Num: 24

Candidate Starts for Brocalys\_66:

(Start: 24 @44419 has 60 MA's), (Start: 39 @44524 has 1 MA's), (46, 44593), (54, 44641), (67, 44737), (69, 44743), (70, 44749), (74, 44770), (76, 44785), (78, 44797), (79, 44800), (80, 44809), (87, 44860), (88, 44866), (102, 44935), (111, 45007), (131, 45133), (137, 45247), (140, 45304), (141, 45325), (146, 45364), (148, 45370), (150, 45376),

Gene: Bubbles123\_70 Start: 46448, Stop: 47410, Start Num: 24

Candidate Starts for Bubbles123\_70:

(Start: 24 @46448 has 60 MA's), (Start: 39 @46553 has 1 MA's), (40, 46556), (46, 46622), (54, 46670), (67, 46766), (69, 46772), (70, 46778), (74, 46799), (76, 46814), (78, 46826), (79, 46829), (80, 46838), (87, 46889), (88, 46895), (102, 46964), (131, 47162), (137, 47276), (140, 47333), (141, 47354), (146, 47393), (148, 47399), (150, 47405),

Gene: Burwell21\_71 Start: 46257, Stop: 47231, Start Num: 24

Candidate Starts for Burwell21\_71:

(Start: 24 @46257 has 60 MA's), (Start: 39 @46362 has 1 MA's), (46, 46431), (54, 46479), (67, 46575), (69, 46581), (70, 46587), (74, 46608), (76, 46623), (78, 46635), (79, 46638), (87, 46698), (88, 46704), (102, 46773), (111, 46857), (137, 47097), (141, 47175), (146, 47214), (148, 47220),

Gene: Byougenkin\_73 Start: 44317, Stop: 45279, Start Num: 24

Candidate Starts for Byougenkin\_73:

(Start: 24 @44317 has 60 MA's), (Start: 39 @44422 has 1 MA's), (40, 44425), (46, 44491), (54, 44539), (67, 44635), (69, 44641), (70, 44647), (74, 44668), (76, 44683), (78, 44695), (79, 44698), (80, 44707), (87, 44758), (88, 44764), (102, 44833), (131, 45031), (137, 45145), (140, 45202), (141, 45223), (146, 45262), (148, 45268), (150, 45274),

Gene: CaptainKirk2\_71 Start: 42346, Stop: 43434, Start Num: 27

Candidate Starts for CaptainKirk2\_71:

(16, 42277), (Start: 27 @42346 has 21 MA's), (32, 42379), (Start: 39 @42436 has 1 MA's), (44, 42487), (46, 42508), (47, 42526), (54, 42565), (58, 42610), (60, 42616), (61, 42628), (64, 42643), (77, 42718), (78, 42721), (83, 42742), (107, 42886), (129, 43021), (153, 43333), (154, 43378),

Gene: CarolAnn\_71 Start: 48360, Stop: 49448, Start Num: 27

Candidate Starts for CarolAnn\_71:

(Start: 27 @48360 has 21 MA's), (32, 48393), (Start: 39 @48450 has 1 MA's), (44, 48501), (46, 48522), (47, 48540), (54, 48579), (56, 48597), (58, 48624), (60, 48630), (61, 48642), (64, 48657), (77, 48732), (78, 48735), (83, 48756), (101, 48840), (107, 48900), (108, 48915), (121, 48993), (129, 49035), (154, 49392),

Gene: Cepens\_56 Start: 45281, Stop: 46021, Start Num: 28

Candidate Starts for Cepens\_56:

(Start: 28 @45281 has 16 MA's), (32, 45311), (35, 45338), (38, 45365), (42, 45404), (44, 45419), (45, 45422), (51, 45467), (53, 45482), (54, 45485), (56, 45503), (58, 45530), (61, 45548), (62, 45554), (63, 45563), (71, 45596), (72, 45608), (75, 45623), (76, 45629), (77, 45638), (78, 45641), (82, 45662), (96, 45695), (98, 45701), (128, 45917), (132, 45962),

Gene: ClamChowder\_63 Start: 45475, Stop: 46785, Start Num: 26

Candidate Starts for ClamChowder\_63:

(10, 45235), (12, 45310), (Start: 26 @45475 has 35 MA's), (30, 45502), (33, 45517), (35, 45541), (36, 45559), (50, 45679), (88, 45928), (91, 45940), (92, 45949), (97, 45964), (105, 46042), (110, 46090), (112, 46156), (115, 46204), (119, 46228), (122, 46264), (156, 46717),

Gene: Clifton\_67 Start: 44770, Stop: 45729, Start Num: 24

Candidate Starts for Clifton\_67:

(Start: 24 @44770 has 60 MA's), (Start: 39 @44875 has 1 MA's), (46, 44944), (67, 45088), (69, 45094), (70, 45100), (74, 45121), (76, 45136), (78, 45148), (79, 45151), (80, 45160), (87, 45211), (88, 45217), (102, 45286), (111, 45358), (135, 45574), (144, 45712),

Gene: Cornie\_70 Start: 45038, Stop: 46000, Start Num: 24

Candidate Starts for Cornie\_70:

(Start: 24 @45038 has 60 MA's), (Start: 39 @45143 has 1 MA's), (46, 45212), (54, 45260), (67, 45356), (69, 45362), (70, 45368), (74, 45389), (76, 45404), (78, 45416), (79, 45419), (80, 45428), (87, 45479), (88, 45485), (102, 45554), (111, 45626), (137, 45866), (140, 45923), (141, 45944), (146, 45983), (148, 45989),

Gene: CoveyB\_62 Start: 45373, Stop: 46623, Start Num: 26

Candidate Starts for CoveyB\_62:

(2, 44911), (6, 45103), (9, 45109), (10, 45133), (12, 45208), (Start: 26 @45373 has 35 MA's), (30, 45400), (33, 45415), (35, 45439), (36, 45457), (50, 45577), (88, 45826), (91, 45838), (92, 45847), (105, 45940), (115, 46027), (119, 46051), (122, 46087), (156, 46540),

Gene: D12\_55 Start: 45829, Stop: 46569, Start Num: 28

Candidate Starts for D12\_55:

(Start: 28 @45829 has 16 MA's), (32, 45859), (35, 45886), (38, 45913), (42, 45952), (44, 45967), (45, 45970), (51, 46015), (53, 46030), (54, 46033), (56, 46051), (58, 46078), (61, 46096), (62, 46102), (63, 46111), (71, 46144), (72, 46156), (75, 46171), (76, 46177), (77, 46186), (78, 46189), (82, 46210), (96, 46243), (98, 46249), (128, 46465), (132, 46510),

Gene: DRBy19\_78 Start: 48499, Stop: 49458, Start Num: 24

Candidate Starts for DRBy19\_78:

(Start: 24 @48499 has 60 MA's), (Start: 39 @48604 has 1 MA's), (46, 48673), (54, 48721), (67, 48817), (69, 48823), (70, 48829), (74, 48850), (76, 48865), (78, 48877), (79, 48880), (80, 48889), (87, 48940), (88, 48946), (102, 49015), (111, 49087), (135, 49303), (144, 49441),

Gene: Danyall\_62 Start: 45579, Stop: 46880, Start Num: 26

Candidate Starts for Danyall\_62:

(10, 45339), (12, 45414), (Start: 26 @45579 has 35 MA's), (30, 45606), (33, 45621), (35, 45645), (36, 45663), (50, 45783), (77, 45957), (88, 46032), (91, 46044), (92, 46053), (105, 46146), (115, 46233), (119, 46257), (122, 46293), (124, 46302), (156, 46830),

Gene: Delian\_74 Start: 42344, Stop: 43432, Start Num: 27

Candidate Starts for Delian\_74:

(16, 42275), (Start: 27 @42344 has 21 MA's), (32, 42377), (Start: 39 @42434 has 1 MA's), (44, 42485), (46, 42506), (47, 42524), (54, 42563), (58, 42608), (60, 42614), (61, 42626), (64, 42641), (77, 42716), (78, 42719), (83, 42740), (107, 42884), (129, 43019), (153, 43331), (154, 43376),

Gene: DirtMcgirt\_72 Start: 43696, Stop: 44670, Start Num: 24

Candidate Starts for DirtMcgirt\_72:

(Start: 24 @43696 has 60 MA's), (Start: 39 @43801 has 1 MA's), (40, 43804), (46, 43870), (54, 43918), (67, 44014), (69, 44020), (70, 44026), (74, 44047), (76, 44062), (78, 44074), (79, 44077), (87, 44137), (88, 44143), (102, 44212), (111, 44296), (137, 44536), (141, 44614), (146, 44653), (148, 44659),

Gene: DotProduct\_71 Start: 45337, Stop: 46311, Start Num: 24

Candidate Starts for DotProduct\_71:

(19, 45292), (20, 45298), (Start: 24 @45337 has 60 MA's), (Start: 39 @45442 has 1 MA's), (40, 45445), (46, 45511), (67, 45655), (69, 45661), (70, 45667), (74, 45688), (76, 45703), (78, 45715), (79, 45718), (87, 45778), (88, 45784), (102, 45853), (111, 45937), (137, 46177), (141, 46255), (146, 46294), (148, 46300),

Gene: Drago\_70 Start: 43699, Stop: 44673, Start Num: 24

Candidate Starts for Drago\_70:

(Start: 24 @43699 has 60 MA's), (Start: 39 @43804 has 1 MA's), (40, 43807), (46, 43873), (54, 43921), (67, 44017), (69, 44023), (70, 44029), (74, 44050), (76, 44065), (78, 44077), (79, 44080), (87, 44140), (88, 44146), (102, 44215), (111, 44299), (137, 44539), (141, 44617), (146, 44656), (148, 44662),

Gene: Enby\_74 Start: 43975, Stop: 44949, Start Num: 24

Candidate Starts for Enby\_74:

(Start: 24 @43975 has 60 MA's), (Start: 39 @44080 has 1 MA's), (40, 44083), (46, 44149), (54, 44197), (67, 44293), (69, 44299), (70, 44305), (74, 44326), (76, 44341), (78, 44353), (79, 44356), (87, 44416), (88, 44422), (102, 44491), (111, 44575), (137, 44815), (141, 44893), (146, 44932), (148, 44938),

Gene: Evamon\_60 Start: 45175, Stop: 46323, Start Num: 26

Candidate Starts for Evamon\_60:

(Start: 26 @45175 has 35 MA's), (47, 45346), (56, 45400), (61, 45445), (73, 45508), (100, 45619), (118, 45754), (123, 45799), (156, 46255),

Gene: Fairfaxidum\_73 Start: 44912, Stop: 45919, Start Num: 28

Candidate Starts for Fairfaxidum\_73:

(Start: 28 @44912 has 16 MA's), (42, 45038), (49, 45098), (54, 45119), (57, 45140), (58, 45164), (59, 45167), (60, 45170), (70, 45227), (76, 45263), (77, 45272), (81, 45290), (102, 45383), (109, 45443), (110, 45449), (113, 45479), (117, 45503), (149, 45872),

Gene: Fireball\_64 Start: 46050, Stop: 47180, Start Num: 26

Candidate Starts for Fireball\_64:

(Start: 26 @46050 has 35 MA's), (47, 46221), (56, 46275), (61, 46320), (73, 46383), (100, 46494), (118, 46629), (123, 46674), (156, 47130),

Gene: Firehouse51\_71 Start: 47592, Stop: 48557, Start Num: 24

Candidate Starts for Firehouse51\_71:

(Start: 24 @47592 has 60 MA's), (34, 47661), (Start: 39 @47697 has 1 MA's), (46, 47766), (55, 47826), (64, 47892), (67, 47910), (69, 47916), (70, 47922), (74, 47943), (76, 47958), (78, 47970), (79, 47973), (80, 47982), (87, 48033), (94, 48066), (97, 48075), (135, 48402), (144, 48540),

Gene: Fugax\_64 Start: 45467, Stop: 46777, Start Num: 26

Candidate Starts for Fugax\_64:

(10, 45227), (12, 45302), (Start: 26 @45467 has 35 MA's), (30, 45494), (33, 45509), (35, 45533), (36, 45551), (50, 45671), (88, 45920), (91, 45932), (92, 45941), (97, 45956), (105, 46034), (110, 46082), (112, 46148), (115, 46196), (119, 46220), (122, 46256), (156, 46709),

Gene: GUmbie\_69 Start: 45769, Stop: 46728, Start Num: 24

Candidate Starts for GUmbie\_69:

(Start: 24 @45769 has 60 MA's), (Start: 39 @45874 has 1 MA's), (46, 45943), (54, 45991), (67, 46087), (69, 46093), (70, 46099), (74, 46120), (76, 46135), (78, 46147), (79, 46150), (80, 46159), (87, 46210), (88, 46216), (102, 46285), (111, 46357), (135, 46573), (144, 46711),

Gene: Gambino\_77 Start: 46763, Stop: 47851, Start Num: 27

Candidate Starts for Gambino\_77:

(Start: 27 @46763 has 21 MA's), (32, 46796), (Start: 39 @46853 has 1 MA's), (44, 46904), (46, 46925), (47, 46943), (52, 46970), (54, 46982), (58, 47027), (60, 47033), (61, 47045), (64, 47060), (77, 47135), (78, 47138), (83, 47159), (107, 47303), (129, 47438), (154, 47795),

Gene: Gandalph\_73 Start: 43785, Stop: 44759, Start Num: 24

Candidate Starts for Gandalph\_73:

(15, 43689), (20, 43746), (Start: 24 @43785 has 60 MA's), (Start: 39 @43890 has 1 MA's), (40, 43893), (46, 43959), (67, 44103), (69, 44109), (70, 44115), (74, 44136), (76, 44151), (78, 44163), (79, 44166), (87, 44226), (88, 44232), (102, 44301), (111, 44385), (137, 44625), (141, 44703), (146, 44742), (148, 44748),

Gene: Gezellig\_62 Start: 45526, Stop: 46776, Start Num: 26

Candidate Starts for Gezellig\_62:

(2, 45064), (6, 45256), (9, 45262), (10, 45286), (12, 45361), (Start: 26 @45526 has 35 MA's), (30, 45553), (33, 45568), (35, 45592), (36, 45610), (50, 45730), (88, 45979), (91, 45991), (92, 46000), (105, 46093), (115, 46180), (119, 46204), (122, 46240), (156, 46693),

Gene: GigiOuiOui\_69 Start: 45428, Stop: 46402, Start Num: 24

Candidate Starts for GigiOuiOui\_69:

(19, 45383), (20, 45389), (Start: 24 @45428 has 60 MA's), (Start: 39 @45533 has 1 MA's), (40, 45536), (46, 45602), (67, 45746), (69, 45752), (70, 45758), (74, 45779), (76, 45794), (78, 45806), (79, 45809), (87, 45869), (88, 45875), (102, 45944), (111, 46028), (137, 46268), (141, 46346), (146, 46385), (148, 46391),

Gene: GodPhather\_57 Start: 46069, Stop: 46809, Start Num: 28

Candidate Starts for GodPhather\_57:

(Start: 28 @46069 has 16 MA's), (32, 46099), (35, 46126), (38, 46153), (42, 46192), (44, 46207), (45, 46210), (51, 46255), (53, 46270), (54, 46273), (56, 46291), (58, 46318), (61, 46336), (62, 46342), (63, 46351), (71, 46384), (72, 46396), (75, 46411), (76, 46417), (77, 46426), (78, 46429), (82, 46450), (96, 46483), (98, 46489), (128, 46705), (132, 46750), (133, 46771),

Gene: Gorge\_76 Start: 47709, Stop: 48668, Start Num: 24

Candidate Starts for Gorge\_76:

(Start: 24 @47709 has 60 MA's), (Start: 39 @47814 has 1 MA's), (46, 47883), (54, 47931), (67, 48027), (69, 48033), (70, 48039), (74, 48060), (76, 48075), (78, 48087), (79, 48090), (80, 48099), (87, 48150), (88, 48156), (102, 48225), (111, 48297), (135, 48513), (144, 48651),

Gene: Guacamole\_69 Start: 43764, Stop: 44852, Start Num: 27

Candidate Starts for Guacamole\_69:

(Start: 27 @43764 has 21 MA's), (32, 43797), (Start: 39 @43854 has 1 MA's), (44, 43905), (46, 43926), (47, 43944), (54, 43983), (58, 44028), (60, 44034), (61, 44046), (64, 44061), (77, 44136), (78, 44139), (83, 44160), (107, 44304), (129, 44439), (153, 44751), (154, 44796),

Gene: Halo3\_60 Start: 46111, Stop: 47361, Start Num: 26

Candidate Starts for Halo3\_60:

(2, 45649), (6, 45841), (9, 45847), (10, 45871), (12, 45946), (Start: 26 @46111 has 35 MA's), (30, 46138), (33, 46153), (35, 46177), (36, 46195), (50, 46315), (88, 46564), (91, 46576), (92, 46585), (105, 46678), (115, 46765), (119, 46789), (122, 46825), (156, 47278),

Gene: Hitter\_70 Start: 42307, Stop: 43395, Start Num: 27

Candidate Starts for Hitter\_70:

(Start: 27 @42307 has 21 MA's), (32, 42340), (Start: 39 @42397 has 1 MA's), (44, 42448), (46, 42469), (47, 42487), (54, 42526), (58, 42571), (60, 42577), (61, 42589), (64, 42604), (77, 42679), (78, 42682), (83, 42703), (107, 42847), (121, 42940), (129, 42982), (153, 43294), (154, 43339),

Gene: lbOuu\_72 Start: 44576, Stop: 45535, Start Num: 24

Candidate Starts for lbOuu\_72:

(Start: 24 @44576 has 60 MA's), (34, 44645), (Start: 39 @44681 has 1 MA's), (46, 44750), (55, 44810), (64, 44876), (67, 44894), (69, 44900), (70, 44906), (74, 44927), (76, 44942), (78, 44954), (79, 44957), (80, 44966), (87, 45017), (94, 45050), (97, 45059), (135, 45380), (144, 45518),

Gene: lbhubesi\_72 Start: 44099, Stop: 45073, Start Num: 24

Candidate Starts for lbhubesi\_72:

(Start: 24 @44099 has 60 MA's), (Start: 39 @44204 has 1 MA's), (46, 44273), (67, 44417), (69, 44423), (70, 44429), (74, 44450), (76, 44465), (78, 44477), (79, 44480), (87, 44540), (88, 44546), (94, 44573), (97, 44582), (102, 44615), (111, 44699), (131, 44825), (137, 44939), (140, 44996), (141, 45017), (146, 45056), (148, 45062), (150, 45068),

Gene: IrishSherpFalk\_75 Start: 47171, Stop: 48133, Start Num: 24

Candidate Starts for IrishSherpFalk\_75:

(Start: 24 @47171 has 60 MA's), (34, 47240), (Start: 39 @47276 has 1 MA's), (40, 47279), (46, 47345), (54, 47393), (67, 47489), (69, 47495), (70, 47501), (74, 47522), (76, 47537), (78, 47549), (79, 47552), (80, 47561), (87, 47612), (88, 47618), (102, 47687), (131, 47885), (137, 47999), (140, 48056), (141, 48077), (146, 48116), (148, 48122), (150, 48128),

Gene: Jabbawokkie\_84 Start: 45311, Stop: 46270, Start Num: 24

Candidate Starts for Jabbawokkie\_84:

(Start: 24 @45311 has 60 MA's), (34, 45380), (Start: 39 @45416 has 1 MA's), (46, 45485), (55, 45545), (64, 45611), (67, 45629), (69, 45635), (70, 45641), (74, 45662), (76, 45677), (78, 45689), (79, 45692), (80, 45701), (87, 45752), (94, 45785), (97, 45794), (135, 46115), (144, 46253),

Gene: Jalammah\_74 Start: 45851, Stop: 46816, Start Num: 26

Candidate Starts for Jalammah\_74:

(Start: 26 @45851 has 35 MA's), (47, 46022), (51, 46040), (60, 46109), (61, 46121), (64, 46136), (73, 46184), (86, 46235), (93, 46259), (118, 46391), (136, 46586), (143, 46715), (151, 46760),

Gene: Jambalaya\_60 Start: 45314, Stop: 46627, Start Num: 26

Candidate Starts for Jambalaya\_60:

(5, 45041), (7, 45047), (10, 45074), (12, 45149), (Start: 26 @45314 has 35 MA's), (30, 45341), (33, 45356), (35, 45380), (36, 45398), (60, 45590), (77, 45692), (88, 45767), (91, 45779), (92, 45788), (105, 45881), (115, 45968), (119, 45992), (122, 46028), (124, 46037), (138, 46322), (156, 46565),

Gene: James\_75 Start: 47834, Stop: 48793, Start Num: 24

Candidate Starts for James\_75:

(Start: 24 @47834 has 60 MA's), (Start: 39 @47939 has 1 MA's), (46, 48008), (54, 48056), (67, 48152), (69, 48158), (70, 48164), (74, 48185), (76, 48200), (78, 48212), (79, 48215), (80, 48224), (87, 48275), (88, 48281), (102, 48350), (111, 48422), (135, 48638), (144, 48776),

Gene: Jarcob\_74 Start: 47431, Stop: 48390, Start Num: 24

Candidate Starts for Jarcob\_74:

(Start: 24 @47431 has 60 MA's), (Start: 39 @47536 has 1 MA's), (46, 47605), (54, 47653), (67, 47749), (69, 47755), (70, 47761), (74, 47782), (76, 47797), (78, 47809), (79, 47812), (80, 47821), (87, 47872), (88, 47878), (102, 47947), (111, 48019), (135, 48235), (144, 48373),

Gene: JasperJr\_69 Start: 43764, Stop: 44852, Start Num: 27

Candidate Starts for JasperJr\_69:

(Start: 27 @43764 has 21 MA's), (32, 43797), (Start: 39 @43854 has 1 MA's), (44, 43905), (46, 43926), (47, 43944), (54, 43983), (58, 44028), (60, 44034), (61, 44046), (64, 44061), (77, 44136), (78, 44139), (83, 44160), (107, 44304), (129, 44439), (153, 44751), (154, 44796),

Gene: Jeon\_56 Start: 45811, Stop: 46551, Start Num: 28

Candidate Starts for Jeon\_56:

(Start: 28 @45811 has 16 MA's), (32, 45841), (35, 45868), (38, 45895), (42, 45934), (44, 45949), (45, 45952), (51, 45997), (53, 46012), (54, 46015), (56, 46033), (58, 46060), (61, 46078), (62, 46084), (63, 46093), (71, 46126), (72, 46138), (75, 46153), (76, 46159), (77, 46168), (78, 46171), (82, 46192), (96, 46225), (98, 46231), (128, 46447), (132, 46492), (133, 46513),

Gene: JuJu\_79 Start: 48506, Stop: 49594, Start Num: 27

Candidate Starts for JuJu\_79:

(Start: 27 @48506 has 21 MA's), (32, 48539), (Start: 39 @48596 has 1 MA's), (41, 48617), (44, 48647), (46, 48668), (47, 48686), (54, 48725), (58, 48770), (61, 48788), (64, 48803), (77, 48878), (78, 48881), (83, 48902), (101, 48986), (107, 49046), (121, 49139), (127, 49172), (129, 49181), (153, 49493), (154, 49538),

Gene: KappaFarmDelta\_70 Start: 43343, Stop: 44431, Start Num: 27

Candidate Starts for KappaFarmDelta\_70:

(Start: 27 @43343 has 21 MA's), (32, 43376), (Start: 39 @43433 has 1 MA's), (43, 43478), (44, 43484), (46, 43505), (47, 43523), (52, 43550), (54, 43562), (58, 43607), (60, 43613), (61, 43625), (64, 43640), (77, 43715), (78, 43718), (83, 43739), (92, 43790), (107, 43883), (129, 44018), (153, 44330), (154, 44375),

Gene: Kenuha5\_72 Start: 47146, Stop: 48120, Start Num: 24

Candidate Starts for Kenuha5\_72:

(19, 47101), (20, 47107), (Start: 24 @47146 has 60 MA's), (Start: 39 @47251 has 1 MA's), (40, 47254), (46, 47320), (67, 47464), (69, 47470), (70, 47476), (74, 47497), (76, 47512), (78, 47524), (79, 47527), (87, 47587), (88, 47593), (102, 47662), (111, 47746), (137, 47986), (141, 48064), (146,

48103), (148, 48109),

Gene: Kimberlium\_74 Start: 45482, Stop: 46441, Start Num: 24

Candidate Starts for Kimberlium\_74:

(Start: 24 @45482 has 60 MA's), (34, 45551), (Start: 39 @45587 has 1 MA's), (46, 45656), (55, 45716), (64, 45782), (67, 45800), (69, 45806), (70, 45812), (74, 45833), (76, 45848), (78, 45860), (79, 45863), (80, 45872), (87, 45923), (94, 45956), (97, 45965), (135, 46286), (144, 46424),

Gene: KimmyK\_62 Start: 45909, Stop: 47219, Start Num: 26

Candidate Starts for KimmyK\_62:

(10, 45669), (12, 45744), (Start: 26 @45909 has 35 MA's), (30, 45936), (33, 45951), (35, 45975), (36, 45993), (50, 46113), (88, 46362), (91, 46374), (92, 46383), (97, 46398), (105, 46476), (110, 46524), (112, 46590), (115, 46638), (119, 46662), (122, 46698), (156, 47151),

Gene: Koella\_66 Start: 42238, Stop: 43200, Start Num: 24

Candidate Starts for Koella\_66:

(Start: 24 @42238 has 60 MA's), (Start: 39 @42343 has 1 MA's), (46, 42412), (67, 42556), (69, 42562), (70, 42568), (74, 42589), (76, 42604), (78, 42616), (79, 42619), (80, 42628), (87, 42679), (88, 42685), (102, 42754), (111, 42826), (131, 42952), (137, 43066), (140, 43123), (141, 43144), (146, 43183), (148, 43189), (150, 43195),

Gene: LastJedi\_66 Start: 44813, Stop: 45775, Start Num: 24

Candidate Starts for LastJedi\_66:

(Start: 24 @44813 has 60 MA's), (Start: 39 @44918 has 1 MA's), (46, 44987), (67, 45131), (69, 45137), (70, 45143), (74, 45164), (76, 45179), (78, 45191), (79, 45194), (80, 45203), (87, 45254), (88, 45260), (102, 45329), (111, 45401), (131, 45527), (137, 45641), (140, 45698), (141, 45719), (146, 45758), (148, 45764), (150, 45770),

Gene: Latretium\_71 Start: 44253, Stop: 45215, Start Num: 24

Candidate Starts for Latretium\_71:

(Start: 24 @44253 has 60 MA's), (Start: 39 @44358 has 1 MA's), (40, 44361), (46, 44427), (54, 44475), (67, 44571), (69, 44577), (70, 44583), (74, 44604), (76, 44619), (78, 44631), (79, 44634), (87, 44694), (88, 44700), (102, 44769), (111, 44841), (131, 44967), (137, 45081), (140, 45138), (141, 45159), (146, 45198), (148, 45204), (150, 45210),

Gene: Leozinho\_74 Start: 44494, Stop: 45468, Start Num: 24

Candidate Starts for Leozinho\_74:

(Start: 24 @44494 has 60 MA's), (Start: 39 @44599 has 1 MA's), (40, 44602), (46, 44668), (54, 44716), (67, 44812), (69, 44818), (70, 44824), (74, 44845), (76, 44860), (78, 44872), (79, 44875), (87, 44935), (88, 44941), (102, 45010), (111, 45094), (137, 45334), (141, 45412), (146, 45451), (148, 45457),

Gene: Lizziana\_79 Start: 48157, Stop: 49116, Start Num: 24

Candidate Starts for Lizziana\_79:

(Start: 24 @48157 has 60 MA's), (Start: 39 @48262 has 1 MA's), (46, 48331), (54, 48379), (67, 48475), (69, 48481), (70, 48487), (74, 48508), (76, 48523), (78, 48535), (79, 48538), (80, 48547), (87, 48598), (88, 48604), (102, 48673), (111, 48745), (135, 48961), (144, 49099),

Gene: Llij\_69 Start: 43853, Stop: 44827, Start Num: 24

Candidate Starts for Llij\_69:

(Start: 24 @43853 has 60 MA's), (Start: 39 @43958 has 1 MA's), (40, 43961), (46, 44027), (54, 44075), (67, 44171), (69, 44177), (70, 44183), (74, 44204), (76, 44219), (78, 44231), (79, 44234), (87, 44294), (88, 44300), (102, 44369), (111, 44453), (137, 44693), (141, 44771), (146, 44810), (148,

44816),

Gene: Lorde\_73 Start: 43140, Stop: 44114, Start Num: 24

Candidate Starts for Lorde\_73:

(Start: 24 @43140 has 60 MA's), (Start: 39 @43245 has 1 MA's), (40, 43248), (46, 43314), (54, 43362), (67, 43458), (69, 43464), (70, 43470), (74, 43491), (76, 43506), (78, 43518), (79, 43521), (87, 43581), (88, 43587), (102, 43656), (111, 43740), (137, 43980), (141, 44058), (146, 44097), (148, 44103),

Gene: Malachai\_69 Start: 45634, Stop: 46722, Start Num: 27

Candidate Starts for Malachai\_69:

(Start: 27 @45634 has 21 MA's), (32, 45667), (Start: 39 @45724 has 1 MA's), (44, 45775), (46, 45796), (52, 45841), (54, 45853), (58, 45898), (60, 45904), (61, 45916), (64, 45931), (77, 46006), (78, 46009), (83, 46030), (107, 46174), (153, 46621), (154, 46666),

Gene: Maravista\_76 Start: 49173, Stop: 50147, Start Num: 24

Candidate Starts for Maravista\_76:

(Start: 24 @49173 has 60 MA's), (Start: 39 @49278 has 1 MA's), (40, 49281), (46, 49347), (54, 49395), (67, 49491), (69, 49497), (70, 49503), (74, 49524), (76, 49539), (78, 49551), (79, 49554), (87, 49614), (88, 49620), (102, 49689), (111, 49773), (137, 50013), (141, 50091), (146, 50130), (148, 50136),

Gene: Martik\_76 Start: 48654, Stop: 49628, Start Num: 24

Candidate Starts for Martik\_76:

(Start: 24 @48654 has 60 MA's), (Start: 39 @48759 has 1 MA's), (40, 48762), (46, 48828), (54, 48876), (67, 48972), (69, 48978), (70, 48984), (74, 49005), (76, 49020), (78, 49032), (79, 49035), (87, 49095), (88, 49101), (102, 49170), (111, 49254), (137, 49494), (141, 49572), (146, 49611), (148, 49617),

Gene: Mask\_84 Start: 59009, Stop: 60175, Start Num: 26

Candidate Starts for Mask\_84:

(8, 58742), (11, 58835), (14, 58895), (Start: 26 @59009 has 35 MA's), (Start: 39 @59102 has 1 MA's), (46, 59174), (54, 59231), (67, 59327), (73, 59357), (77, 59384), (78, 59387), (80, 59399), (83, 59408), (84, 59423), (99, 59498), (104, 59534), (147, 60017), (154, 60098), (155, 60119),

Gene: Mattes\_76 Start: 47834, Stop: 48793, Start Num: 24

Candidate Starts for Mattes\_76:

(Start: 24 @47834 has 60 MA's), (Start: 39 @47939 has 1 MA's), (46, 48008), (54, 48056), (67, 48152), (69, 48158), (70, 48164), (74, 48185), (76, 48200), (78, 48212), (79, 48215), (80, 48224), (87, 48275), (88, 48281), (102, 48350), (111, 48422), (135, 48638), (144, 48776),

Gene: Mbo4\_58 Start: 41491, Stop: 42477, Start Num: 25

Candidate Starts for Mbo4\_58:

(13, 41344), (Start: 24 @41488 has 60 MA's), (Start: 25 @41491 has 1 MA's), (38, 41590), (Start: 39 @41593 has 1 MA's), (40, 41596), (41, 41614), (49, 41689), (59, 41758), (60, 41761), (67, 41806), (95, 41935), (97, 41941), (98, 41944), (102, 41974), (130, 42151),

Gene: Megabear\_56 Start: 45202, Stop: 45942, Start Num: 28

Candidate Starts for Megabear\_56:

(Start: 28 @45202 has 16 MA's), (32, 45232), (35, 45259), (38, 45286), (42, 45325), (44, 45340), (45, 45343), (51, 45388), (53, 45403), (54, 45406), (56, 45424), (58, 45451), (61, 45469), (62, 45475), (63, 45484), (71, 45517), (72, 45529), (75, 45544), (76, 45550), (77, 45559), (78, 45562), (82, 45583), (96, 45616), (98, 45622), (128, 45838), (132, 45883),



Gene: Mellie\_67 Start: 42565, Stop: 43650, Start Num: 27

Candidate Starts for Mellie\_67:

(Start: 27 @42565 has 21 MA's), (29, 42580), (32, 42598), (Start: 39 @42655 has 1 MA's), (44, 42706), (46, 42727), (47, 42745), (54, 42784), (58, 42829), (60, 42835), (61, 42847), (64, 42862), (77, 42937), (78, 42940), (83, 42961), (107, 43105), (121, 43198), (129, 43240), (154, 43597),

Gene: MinionDave\_70 Start: 46095, Stop: 47069, Start Num: 24

Candidate Starts for MinionDave\_70:

(Start: 24 @46095 has 60 MA's), (Start: 39 @46200 has 1 MA's), (40, 46203), (46, 46269), (67, 46413), (69, 46419), (70, 46425), (74, 46446), (76, 46461), (78, 46473), (79, 46476), (87, 46536), (88, 46542), (102, 46611), (111, 46695), (137, 46935), (140, 46992), (141, 47013), (146, 47052), (148, 47058),

Gene: MintFen\_71 Start: 43050, Stop: 44048, Start Num: 39

Candidate Starts for MintFen\_71:

(16, 42891), (Start: 27 @42960 has 21 MA's), (32, 42993), (Start: 39 @43050 has 1 MA's), (44, 43101), (46, 43122), (47, 43140), (54, 43179), (58, 43224), (60, 43230), (61, 43242), (64, 43257), (77, 43332), (78, 43335), (83, 43356), (107, 43500), (129, 43635), (153, 43947), (154, 43992),

Gene: MissRona\_75 Start: 46764, Stop: 47852, Start Num: 27

Candidate Starts for MissRona\_75:

(Start: 27 @46764 has 21 MA's), (32, 46797), (Start: 39 @46854 has 1 MA's), (44, 46905), (46, 46926), (47, 46944), (52, 46971), (54, 46983), (58, 47028), (60, 47034), (61, 47046), (64, 47061), (77, 47136), (78, 47139), (83, 47160), (107, 47304), (129, 47439), (154, 47796),

Gene: MulchExplorer\_76 Start: 45481, Stop: 46440, Start Num: 24

Candidate Starts for MulchExplorer\_76:

(Start: 24 @45481 has 60 MA's), (34, 45550), (Start: 39 @45586 has 1 MA's), (46, 45655), (55, 45715), (64, 45781), (67, 45799), (69, 45805), (70, 45811), (74, 45832), (76, 45847), (78, 45859), (79, 45862), (80, 45871), (87, 45922), (94, 45955), (97, 45964), (135, 46285), (144, 46423),

Gene: Mutzi\_60 Start: 46826, Stop: 48058, Start Num: 26

Candidate Starts for Mutzi\_60:

(10, 46586), (12, 46661), (Start: 26 @46826 has 35 MA's), (30, 46853), (33, 46868), (35, 46892), (36, 46910), (50, 47030), (88, 47279), (91, 47291), (92, 47300), (105, 47393), (115, 47480), (119, 47504), (122, 47540), (156, 47993),

Gene: Natkenzie\_56 Start: 45699, Stop: 46682, Start Num: 26

Candidate Starts for Natkenzie\_56:

(Start: 26 @45699 has 35 MA's), (47, 45870), (58, 45951), (60, 45957), (61, 45969), (64, 45984), (65, 45987), (68, 46005), (103, 46155), (120, 46278), (124, 46299),

Gene: NormanBulbieJr\_71 Start: 46252, Stop: 47214, Start Num: 24

Candidate Starts for NormanBulbieJr\_71:

(Start: 24 @46252 has 60 MA's), (Start: 39 @46357 has 1 MA's), (46, 46426), (67, 46570), (69, 46576), (70, 46582), (74, 46603), (76, 46618), (78, 46630), (79, 46633), (80, 46642), (87, 46693), (88, 46699), (102, 46768), (111, 46840), (131, 46966), (137, 47080), (140, 47137), (141, 47158), (146, 47197), (148, 47203), (150, 47209),

Gene: Nubi\_61 Start: 45280, Stop: 46428, Start Num: 26

Candidate Starts for Nubi\_61:

(Start: 26 @45280 has 35 MA's), (47, 45451), (56, 45505), (61, 45550), (73, 45613), (100, 45724), (118, 45859), (123, 45904), (156, 46360),

Gene: Obliviate\_69 Start: 42872, Stop: 43960, Start Num: 27

Candidate Starts for Obliviate\_69:

(Start: 27 @42872 has 21 MA's), (32, 42905), (37, 42953), (Start: 39 @42962 has 1 MA's), (44, 43013), (46, 43034), (47, 43052), (54, 43091), (58, 43136), (60, 43142), (61, 43154), (64, 43169), (77, 43244), (78, 43247), (83, 43268), (107, 43412), (116, 43454), (129, 43547), (153, 43859), (154, 43904),

Gene: OlympiaSaint\_74 Start: 46776, Stop: 47735, Start Num: 24

Candidate Starts for OlympiaSaint\_74:

(Start: 24 @46776 has 60 MA's), (Start: 39 @46881 has 1 MA's), (46, 46950), (54, 46998), (67, 47094), (69, 47100), (70, 47106), (74, 47127), (76, 47142), (78, 47154), (79, 47157), (80, 47166), (87, 47217), (88, 47223), (102, 47292), (111, 47364), (135, 47580), (144, 47718),

Gene: PCoral7\_70 Start: 43685, Stop: 44692, Start Num: 28

Candidate Starts for PCoral7\_70:

(Start: 28 @43685 has 16 MA's), (42, 43811), (49, 43871), (54, 43892), (57, 43913), (58, 43937), (59, 43940), (60, 43943), (70, 44000), (76, 44036), (77, 44045), (81, 44063), (102, 44156), (109, 44216), (110, 44222), (113, 44252), (117, 44276), (149, 44645),

Gene: PR\_56 Start: 45806, Stop: 46546, Start Num: 28

Candidate Starts for PR\_56:

(Start: 28 @45806 has 16 MA's), (32, 45836), (35, 45863), (38, 45890), (42, 45929), (44, 45944), (45, 45947), (51, 45992), (53, 46007), (54, 46010), (56, 46028), (58, 46055), (61, 46073), (62, 46079), (63, 46088), (71, 46121), (72, 46133), (75, 46148), (76, 46154), (77, 46163), (78, 46166), (82, 46187), (96, 46220), (98, 46226), (128, 46442), (132, 46487),

Gene: Phatniss\_70 Start: 44948, Stop: 45922, Start Num: 24

Candidate Starts for Phatniss\_70:

(Start: 24 @44948 has 60 MA's), (Start: 39 @45053 has 1 MA's), (40, 45056), (46, 45122), (54, 45170), (67, 45266), (69, 45272), (70, 45278), (74, 45299), (76, 45314), (78, 45326), (79, 45329), (87, 45389), (88, 45395), (102, 45464), (111, 45548), (137, 45788), (141, 45866), (146, 45905), (148, 45911),

Gene: Philus\_77 Start: 48475, Stop: 49434, Start Num: 24

Candidate Starts for Philus\_77:

(Start: 24 @48475 has 60 MA's), (Start: 39 @48580 has 1 MA's), (46, 48649), (54, 48697), (67, 48793), (69, 48799), (70, 48805), (74, 48826), (76, 48841), (78, 48853), (79, 48856), (80, 48865), (87, 48916), (88, 48922), (102, 48991), (111, 49063), (135, 49279), (144, 49417),

Gene: Phlop\_59 Start: 45622, Stop: 46785, Start Num: 26

Candidate Starts for Phlop\_59:

(Start: 26 @45622 has 35 MA's), (47, 45793), (56, 45847), (61, 45892), (73, 45955), (100, 46066), (118, 46201), (123, 46246), (156, 46702),

Gene: PinkCoffee\_63 Start: 45481, Stop: 46791, Start Num: 26

Candidate Starts for PinkCoffee\_63:

(10, 45241), (12, 45316), (Start: 26 @45481 has 35 MA's), (30, 45508), (33, 45523), (35, 45547), (36, 45565), (50, 45685), (88, 45934), (91, 45946), (92, 45955), (97, 45970), (105, 46048), (110, 46096), (112, 46162), (115, 46210), (119, 46234), (122, 46270), (156, 46723),

Gene: Pipp\_74 Start: 44920, Stop: 46008, Start Num: 27

Candidate Starts for Pipp\_74:

(Start: 27 @44920 has 21 MA's), (32, 44953), (Start: 39 @45010 has 1 MA's), (44, 45061), (46, 45082), (47, 45100), (54, 45139), (58, 45184), (60, 45190), (61, 45202), (64, 45217), (77, 45292), (78, 45295), (83, 45316), (107, 45460), (129, 45595), (154, 45952),

Gene: Pippy\_71 Start: 45549, Stop: 46523, Start Num: 24

Candidate Starts for Pippy\_71:

(Start: 24 @45549 has 60 MA's), (Start: 39 @45654 has 1 MA's), (46, 45723), (67, 45867), (69, 45873), (70, 45879), (74, 45900), (76, 45915), (78, 45927), (79, 45930), (87, 45990), (88, 45996), (102, 46065), (111, 46149), (137, 46389), (141, 46467), (146, 46506), (148, 46512),

Gene: Portcullis\_63 Start: 45750, Stop: 46913, Start Num: 26

Candidate Starts for Portcullis\_63:

(Start: 26 @45750 has 35 MA's), (47, 45921), (56, 45975), (61, 46020), (73, 46083), (100, 46194), (118, 46329), (156, 46830),

Gene: PrincePatrick\_71 Start: 42744, Stop: 43751, Start Num: 28

Candidate Starts for PrincePatrick\_71:

(Start: 28 @42744 has 16 MA's), (42, 42870), (49, 42930), (54, 42951), (57, 42972), (58, 42996), (59, 42999), (60, 43002), (70, 43059), (76, 43095), (89, 43149), (98, 43185), (102, 43215), (106, 43251), (109, 43275), (110, 43281), (113, 43311), (117, 43335), (142, 43659), (149, 43704),

Gene: Priscilla\_72 Start: 46350, Stop: 47312, Start Num: 24

Candidate Starts for Priscilla\_72:

(Start: 24 @46350 has 60 MA's), (Start: 39 @46455 has 1 MA's), (46, 46524), (67, 46668), (69, 46674), (70, 46680), (74, 46701), (76, 46716), (78, 46728), (79, 46731), (80, 46740), (87, 46791), (88, 46797), (102, 46866), (111, 46938), (131, 47064), (137, 47178), (140, 47235), (141, 47256), (146, 47295), (148, 47301), (150, 47307),

Gene: PullumCavea\_60 Start: 45660, Stop: 46961, Start Num: 26

Candidate Starts for PullumCavea\_60:

(10, 45420), (12, 45495), (Start: 26 @45660 has 35 MA's), (30, 45687), (33, 45702), (35, 45726), (36, 45744), (50, 45864), (77, 46038), (88, 46113), (91, 46125), (92, 46134), (105, 46227), (115, 46314), (119, 46338), (122, 46374), (124, 46383), (156, 46911),

Gene: QuickMath\_73 Start: 45705, Stop: 46664, Start Num: 24

Candidate Starts for QuickMath\_73:

(Start: 24 @45705 has 60 MA's), (34, 45774), (Start: 39 @45810 has 1 MA's), (46, 45879), (55, 45939), (64, 46005), (67, 46023), (69, 46029), (70, 46035), (74, 46056), (76, 46071), (78, 46083), (79, 46086), (80, 46095), (87, 46146), (94, 46179), (97, 46188), (135, 46509), (144, 46647),

Gene: RogerDodger\_64 Start: 45782, Stop: 47083, Start Num: 26

Candidate Starts for RogerDodger\_64:

(10, 45542), (12, 45617), (Start: 26 @45782 has 35 MA's), (30, 45809), (33, 45824), (35, 45848), (36, 45866), (50, 45986), (77, 46160), (88, 46235), (91, 46247), (92, 46256), (105, 46349), (115, 46436), (119, 46460), (122, 46496), (124, 46505), (156, 47033),

Gene: Ruthy\_69 Start: 48108, Stop: 49112, Start Num: 25

Candidate Starts for Ruthy\_69:

(Start: 25 @48108 has 1 MA's), (30, 48141), (Start: 39 @48210 has 1 MA's), (55, 48339), (57, 48348), (67, 48423), (69, 48429), (70, 48435), (77, 48480), (78, 48483), (79, 48486), (94, 48549), (102, 48591), (114, 48678),

Gene: Saal\_74 Start: 47528, Stop: 48487, Start Num: 24

Candidate Starts for Saal\_74:

(Start: 24 @47528 has 60 MA's), (Start: 39 @47633 has 1 MA's), (46, 47702), (54, 47750), (67, 47846), (69, 47852), (70, 47858), (74, 47879), (76, 47894), (78, 47906), (79, 47909), (80, 47918), (87, 47969), (88, 47975), (102, 48044), (111, 48116), (135, 48332), (144, 48470),

Gene: Salvador\_60 Start: 45173, Stop: 46321, Start Num: 26

Candidate Starts for Salvador\_60:

(Start: 26 @45173 has 35 MA's), (47, 45344), (56, 45398), (61, 45443), (73, 45506), (100, 45617), (118, 45752), (123, 45797), (156, 46253),

Gene: Sampson\_56 Start: 45644, Stop: 46627, Start Num: 26

Candidate Starts for Sampson\_56:

(Start: 26 @45644 has 35 MA's), (47, 45815), (58, 45896), (60, 45902), (61, 45914), (64, 45929), (65, 45932), (68, 45950), (103, 46100), (120, 46223), (124, 46244),

Gene: Savbucketdawg\_60 Start: 45314, Stop: 46627, Start Num: 26

Candidate Starts for Savbucketdawg\_60:

(5, 45041), (7, 45047), (10, 45074), (12, 45149), (Start: 26 @45314 has 35 MA's), (30, 45341), (33, 45356), (35, 45380), (36, 45398), (60, 45590), (77, 45692), (88, 45767), (91, 45779), (92, 45788), (105, 45881), (115, 45968), (119, 45992), (122, 46028), (124, 46037), (138, 46322), (156, 46565),

Gene: Scioto\_57 Start: 45700, Stop: 46683, Start Num: 26

Candidate Starts for Scioto\_57:

(Start: 26 @45700 has 35 MA's), (47, 45871), (58, 45952), (60, 45958), (61, 45970), (64, 45985), (65, 45988), (68, 46006), (103, 46156), (120, 46279), (124, 46300),

Gene: Shinji\_60 Start: 45260, Stop: 46492, Start Num: 26

Candidate Starts for Shinji\_60:

(10, 45020), (12, 45095), (Start: 26 @45260 has 35 MA's), (30, 45287), (33, 45302), (35, 45326), (36, 45344), (50, 45464), (88, 45713), (91, 45725), (92, 45734), (105, 45827), (115, 45914), (119, 45938), (122, 45974), (156, 46427),

Gene: SmokingBunny\_61 Start: 45692, Stop: 46921, Start Num: 26

Candidate Starts for SmokingBunny\_61:

(10, 45452), (12, 45527), (Start: 26 @45692 has 35 MA's), (30, 45719), (33, 45734), (35, 45758), (36, 45776), (50, 45896), (88, 46145), (91, 46157), (92, 46166), (105, 46259), (115, 46346), (119, 46370), (122, 46406), (156, 46859),

Gene: Soul22\_78 Start: 45263, Stop: 46222, Start Num: 24

Candidate Starts for Soul22\_78:

(Start: 24 @45263 has 60 MA's), (34, 45332), (Start: 39 @45368 has 1 MA's), (46, 45437), (55, 45497), (64, 45563), (67, 45581), (69, 45587), (70, 45593), (74, 45614), (76, 45629), (78, 45641), (79, 45644), (80, 45653), (87, 45704), (94, 45737), (97, 45746), (135, 46067), (144, 46205),

Gene: Spoonbill\_72 Start: 44820, Stop: 45779, Start Num: 24

Candidate Starts for Spoonbill\_72:

(Start: 24 @44820 has 60 MA's), (Start: 39 @44925 has 1 MA's), (46, 44994), (54, 45042), (67, 45138), (69, 45144), (70, 45150), (74, 45171), (76, 45186), (78, 45198), (79, 45201), (80, 45210), (87, 45261), (88, 45267), (102, 45336), (111, 45408), (135, 45624), (144, 45762),

Gene: SuperGrey\_75 Start: 48629, Stop: 49603, Start Num: 24

Candidate Starts for SuperGrey\_75:

(19, 48584), (20, 48590), (Start: 24 @48629 has 60 MA's), (Start: 39 @48734 has 1 MA's), (40, 48737), (46, 48803), (67, 48947), (69, 48953), (70, 48959), (74, 48980), (76, 48995), (78, 49007), (79, 49010), (87, 49070), (88, 49076), (102, 49145), (111, 49229), (137, 49469), (141, 49547), (146, 49586), (148, 49592),

Gene: SwagPiggett\_78 Start: 48569, Stop: 49531, Start Num: 24

Candidate Starts for SwagPiggett\_78:

(Start: 24 @48569 has 60 MA's), (Start: 39 @48674 has 1 MA's), (46, 48743), (67, 48887), (69, 48893), (70, 48899), (74, 48920), (76, 48935), (78, 48947), (79, 48950), (80, 48959), (87, 49010), (88, 49016), (102, 49085), (111, 49157), (131, 49283), (137, 49397), (140, 49454), (141, 49475), (146, 49514), (148, 49520), (150, 49526),

Gene: Taptic\_56 Start: 45202, Stop: 45942, Start Num: 28

Candidate Starts for Taptic\_56:

(Start: 28 @45202 has 16 MA's), (32, 45232), (35, 45259), (38, 45286), (42, 45325), (44, 45340), (45, 45343), (51, 45388), (53, 45403), (54, 45406), (56, 45424), (58, 45451), (61, 45469), (62, 45475), (63, 45484), (71, 45517), (72, 45529), (75, 45544), (76, 45550), (77, 45559), (78, 45562), (82, 45583), (96, 45616), (98, 45622), (128, 45838), (132, 45883),

Gene: Tardus\_58 Start: 45401, Stop: 46384, Start Num: 26

Candidate Starts for Tardus\_58:

(18, 45329), (Start: 26 @45401 has 35 MA's), (47, 45572), (60, 45659), (61, 45671), (64, 45686), (65, 45689), (68, 45707), (103, 45857), (124, 46001),

Gene: TillyBobJoe\_61 Start: 45479, Stop: 46780, Start Num: 26

Candidate Starts for TillyBobJoe\_61:

(10, 45239), (12, 45314), (Start: 26 @45479 has 35 MA's), (30, 45506), (33, 45521), (35, 45545), (36, 45563), (50, 45683), (77, 45857), (88, 45932), (91, 45944), (92, 45953), (105, 46046), (115, 46133), (119, 46157), (122, 46193), (124, 46202), (156, 46730),

Gene: Toast\_70 Start: 43685, Stop: 44692, Start Num: 28

Candidate Starts for Toast\_70:

(Start: 28 @43685 has 16 MA's), (42, 43811), (49, 43871), (54, 43892), (57, 43913), (58, 43937), (59, 43940), (60, 43943), (70, 44000), (76, 44036), (77, 44045), (81, 44063), (102, 44156), (109, 44216), (110, 44222), (113, 44252), (117, 44276), (149, 44645),

Gene: Togo\_60 Start: 45692, Stop: 46921, Start Num: 26

Candidate Starts for Togo\_60:

(10, 45452), (12, 45527), (Start: 26 @45692 has 35 MA's), (30, 45719), (33, 45734), (35, 45758), (36, 45776), (50, 45896), (88, 46145), (91, 46157), (92, 46166), (105, 46259), (115, 46346), (119, 46370), (122, 46406), (156, 46859),

Gene: Tootsieroll\_73 Start: 47758, Stop: 48720, Start Num: 24

Candidate Starts for Tootsieroll\_73:

(Start: 24 @47758 has 60 MA's), (Start: 39 @47863 has 1 MA's), (46, 47932), (67, 48076), (69, 48082), (70, 48088), (74, 48109), (76, 48124), (78, 48136), (79, 48139), (87, 48199), (88, 48205), (102, 48274), (131, 48472), (137, 48586), (140, 48643), (141, 48664), (146, 48703), (148, 48709), (150, 48715),

Gene: Tortellini\_70 Start: 45649, Stop: 46725, Start Num: 24

Candidate Starts for Tortellini\_70:

(Start: 24 @45649 has 60 MA's), (31, 45688), (Start: 39 @45751 has 1 MA's), (46, 45820), (54, 45868), (67, 45964), (69, 45970), (70, 45976), (76, 46012), (78, 46024), (79, 46027), (80, 46036), (87, 46087), (132, 46426), (134, 46477), (139, 46585), (152, 46687),

Gene: Totinger\_71 Start: 44843, Stop: 45817, Start Num: 24

Candidate Starts for Totinger\_71:

(19, 44798), (20, 44804), (Start: 24 @44843 has 60 MA's), (Start: 39 @44948 has 1 MA's), (40, 44951), (46, 45017), (67, 45161), (69, 45167), (70, 45173), (74, 45194), (76, 45209), (78, 45221), (79, 45224), (87, 45284), (88, 45290), (102, 45359), (111, 45443), (137, 45683), (141, 45761), (146, 45800), (148, 45806),

Gene: Twister6\_63 Start: 45452, Stop: 46681, Start Num: 26

Candidate Starts for Twister6\_63:

(Start: 26 @45452 has 35 MA's), (47, 45623), (56, 45677), (61, 45722), (73, 45785), (100, 45896), (118, 46031), (156, 46604),

Gene: UncleRicky\_72 Start: 45196, Stop: 46170, Start Num: 24

Candidate Starts for UncleRicky\_72:

(Start: 24 @45196 has 60 MA's), (Start: 39 @45301 has 1 MA's), (40, 45304), (46, 45370), (54, 45418), (67, 45514), (69, 45520), (70, 45526), (74, 45547), (76, 45562), (78, 45574), (79, 45577), (87, 45637), (88, 45643), (102, 45712), (111, 45796), (137, 46036), (141, 46114), (146, 46153), (148, 46159),

Gene: Utz\_62 Start: 43338, Stop: 44426, Start Num: 27

Candidate Starts for Utz\_62:

(Start: 27 @43338 has 21 MA's), (32, 43371), (Start: 39 @43428 has 1 MA's), (41, 43449), (44, 43479), (46, 43500), (47, 43518), (54, 43557), (58, 43602), (60, 43608), (61, 43620), (64, 43635), (77, 43710), (78, 43713), (83, 43734), (101, 43818), (107, 43878), (121, 43971), (127, 44004), (129, 44013), (153, 44325), (154, 44370),

Gene: Valary\_62 Start: 46280, Stop: 47530, Start Num: 26

Candidate Starts for Valary\_62:

(1, 45695), (2, 45818), (6, 46010), (9, 46016), (10, 46040), (12, 46115), (Start: 26 @46280 has 35 MA's), (30, 46307), (33, 46322), (35, 46346), (36, 46364), (50, 46484), (77, 46658), (88, 46733), (91, 46745), (92, 46754), (105, 46847), (115, 46934), (119, 46958), (122, 46994), (156, 47447),

Gene: VanDeWege\_63 Start: 45620, Stop: 46870, Start Num: 26

Candidate Starts for VanDeWege\_63:

(2, 45158), (6, 45350), (9, 45356), (10, 45380), (12, 45455), (Start: 26 @45620 has 35 MA's), (30, 45647), (33, 45662), (35, 45686), (36, 45704), (50, 45824), (88, 46073), (91, 46085), (92, 46094), (105, 46187), (115, 46274), (119, 46298), (122, 46334), (156, 46787),

Gene: Veteran\_67 Start: 45615, Stop: 46574, Start Num: 24

Candidate Starts for Veteran\_67:

(Start: 24 @45615 has 60 MA's), (34, 45684), (Start: 39 @45720 has 1 MA's), (46, 45789), (55, 45849), (64, 45915), (67, 45933), (69, 45939), (70, 45945), (74, 45966), (76, 45981), (78, 45993), (79, 45996), (80, 46005), (87, 46056), (94, 46089), (97, 46098), (135, 46419), (144, 46557),

Gene: ViaConlectus\_56 Start: 44353, Stop: 45336, Start Num: 26

Candidate Starts for ViaConlectus\_56:

(Start: 26 @44353 has 35 MA's), (47, 44524), (60, 44611), (61, 44623), (64, 44638), (65, 44641), (68, 44659), (103, 44809), (124, 44953),

Gene: Walrus\_69 Start: 44050, Stop: 45015, Start Num: 26

Candidate Starts for Walrus\_69:

(22, 44035), (Start: 26 @44050 has 35 MA's), (47, 44221), (60, 44308), (61, 44320), (64, 44335), (68, 44356), (73, 44383), (86, 44434), (93, 44458), (118, 44590), (136, 44785), (143, 44914), (151, 44959),

Gene: Whack\_64 Start: 42261, Stop: 43319, Start Num: 28

Candidate Starts for Whack\_64:

(17, 42162), (Start: 28 @42261 has 16 MA's), (67, 42564), (70, 42576), (82, 42645), (89, 42666),

Gene: Whouxphf\_71 Start: 46328, Stop: 47290, Start Num: 24

Candidate Starts for Whouxphf\_71:

(Start: 24 @46328 has 60 MA's), (Start: 39 @46433 has 1 MA's), (46, 46502), (64, 46628), (67, 46646), (69, 46652), (70, 46658), (74, 46679), (76, 46694), (78, 46706), (79, 46709), (87, 46769), (88, 46775), (102, 46844), (111, 46916), (131, 47042), (137, 47156), (140, 47213), (141, 47234), (146, 47273), (148, 47279), (150, 47285),

Gene: WillSterrel\_75 Start: 47204, Stop: 48166, Start Num: 24

Candidate Starts for WillSterrel\_75:

(Start: 24 @47204 has 60 MA's), (34, 47273), (Start: 39 @47309 has 1 MA's), (40, 47312), (46, 47378), (54, 47426), (67, 47522), (69, 47528), (70, 47534), (74, 47555), (76, 47570), (78, 47582), (79, 47585), (80, 47594), (87, 47645), (88, 47651), (102, 47720), (131, 47918), (137, 48032), (140, 48089), (141, 48110), (146, 48149), (148, 48155), (150, 48161),

Gene: William\_73 Start: 45092, Stop: 46099, Start Num: 28

Candidate Starts for William\_73:

(Start: 28 @45092 has 16 MA's), (42, 45218), (49, 45278), (54, 45299), (57, 45320), (58, 45344), (59, 45347), (60, 45350), (70, 45407), (76, 45443), (89, 45497), (98, 45533), (102, 45563), (106, 45599), (109, 45623), (110, 45629), (113, 45659), (117, 45683), (149, 46052),

Gene: Wizard\_59 Start: 45526, Stop: 46776, Start Num: 26

Candidate Starts for Wizard\_59:

(2, 45064), (6, 45256), (9, 45262), (10, 45286), (12, 45361), (Start: 26 @45526 has 35 MA's), (30, 45553), (33, 45568), (35, 45592), (36, 45610), (50, 45730), (88, 45979), (91, 45991), (92, 46000), (105, 46093), (115, 46180), (119, 46204), (122, 46240), (156, 46693),

Gene: XFactor\_70 Start: 45621, Stop: 46583, Start Num: 24

Candidate Starts for XFactor\_70:

(Start: 24 @45621 has 60 MA's), (34, 45690), (Start: 39 @45726 has 1 MA's), (40, 45729), (46, 45795), (54, 45843), (67, 45939), (69, 45945), (70, 45951), (74, 45972), (76, 45987), (78, 45999), (79, 46002), (87, 46062), (88, 46068), (102, 46137), (111, 46209), (131, 46335), (137, 46449), (140, 46506), (141, 46527), (146, 46566), (148, 46572),

Gene: Yorick\_72 Start: 47729, Stop: 48703, Start Num: 24

Candidate Starts for Yorick\_72:

(Start: 24 @47729 has 60 MA's), (Start: 39 @47834 has 1 MA's), (46, 47903), (54, 47951), (67, 48047), (69, 48053), (70, 48059), (74, 48080), (76, 48095), (78, 48107), (79, 48110), (87, 48170), (88, 48176), (102, 48245), (111, 48329), (137, 48569), (141, 48647), (146, 48686), (148, 48692),

Gene: Yoshi\_88 Start: 47666, Stop: 48568, Start Num: 28

Candidate Starts for Yoshi\_88:

(21, 47639), (23, 47648), (Start: 28 @47666 has 16 MA's), (34, 47720), (36, 47744), (64, 47951), (67, 47969), (70, 47981), (77, 48026), (78, 48029), (79, 48032), (97, 48104), (102, 48137),

Gene: YungMoney\_61 Start: 47609, Stop: 48907, Start Num: 26

Candidate Starts for YungMoney\_61:

(10, 47369), (12, 47444), (Start: 26 @47609 has 35 MA's), (30, 47636), (33, 47651), (35, 47675), (36, 47693), (50, 47813), (88, 48062), (91, 48074), (105, 48176), (112, 48290), (119, 48362), (122, 48398), (156, 48851),

Gene: Zapner\_83 Start: 45405, Stop: 46364, Start Num: 24

Candidate Starts for Zapner\_83:

(Start: 24 @45405 has 60 MA's), (34, 45474), (Start: 39 @45510 has 1 MA's), (46, 45579), (55, 45639), (64, 45705), (67, 45723), (69, 45729), (70, 45735), (74, 45756), (76, 45771), (78, 45783), (79, 45786), (80, 45795), (87, 45846), (94, 45879), (97, 45888), (135, 46209), (144, 46347),

Gene: Zerg\_73 Start: 46466, Stop: 47428, Start Num: 24

Candidate Starts for Zerg\_73:

(Start: 24 @46466 has 60 MA's), (Start: 39 @46571 has 1 MA's), (46, 46640), (54, 46688), (67, 46784), (69, 46790), (70, 46796), (74, 46817), (76, 46832), (78, 46844), (79, 46847), (80, 46856), (87, 46907), (88, 46913), (102, 46982), (111, 47054), (137, 47294), (140, 47351), (141, 47372), (146, 47411), (148, 47417), (150, 47423),

Gene: ZiggyZoo\_71 Start: 45335, Stop: 46423, Start Num: 27

Candidate Starts for ZiggyZoo\_71:

(Start: 27 @45335 has 21 MA's), (32, 45368), (Start: 39 @45425 has 1 MA's), (44, 45476), (46, 45497), (52, 45542), (54, 45554), (58, 45599), (60, 45605), (61, 45617), (64, 45632), (77, 45707), (78, 45710), (83, 45731), (107, 45875), (129, 46010), (153, 46322), (154, 46367),

Gene: Zizzle\_77 Start: 47857, Stop: 48816, Start Num: 24

Candidate Starts for Zizzle\_77:

(Start: 24 @47857 has 60 MA's), (Start: 39 @47962 has 1 MA's), (46, 48031), (54, 48079), (67, 48175), (69, 48181), (70, 48187), (74, 48208), (76, 48223), (78, 48235), (79, 48238), (80, 48247), (87, 48298), (88, 48304), (102, 48373), (111, 48445), (135, 48661), (144, 48799),