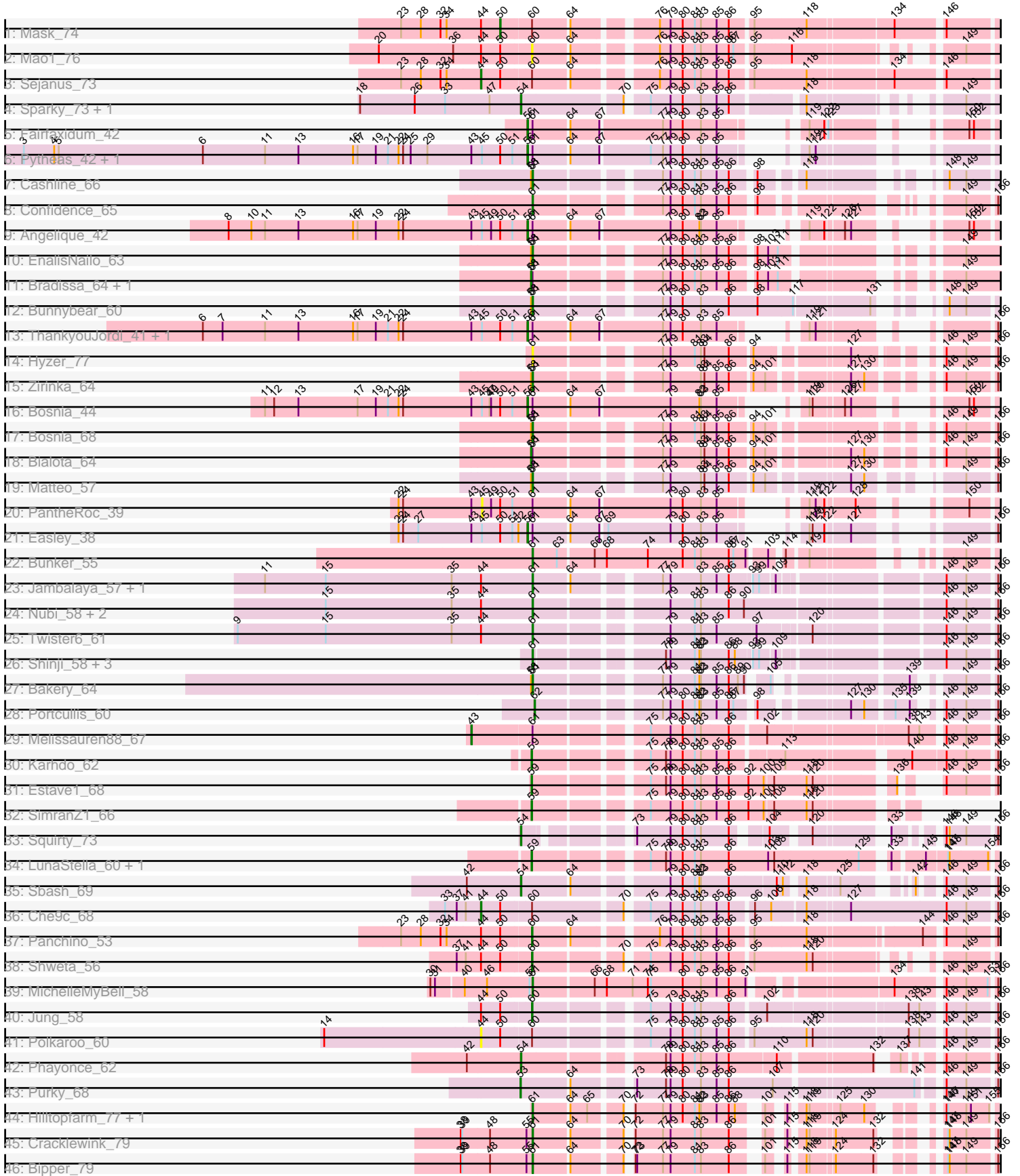


# Zoomed Pham 157887



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 157887 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157887 has 58 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Mask\_74
- Track 2 : Mao1\_76
- Track 3 : Sejanus\_73
- Track 4 : Sparky\_73, Farewell\_75
- Track 5 : Fairfaxidum\_42
- Track 6 : Pytheas\_42, Jablanski\_42
- Track 7 : Cashline\_66
- Track 8 : Confidence\_65
- Track 9 : Angelique\_42
- Track 10 : EnalisNailo\_63
- Track 11 : Bradissa\_64, Lilas\_64
- Track 12 : Bunnybear\_60
- Track 13 : ThankyouJordi\_41, WelcomeAyanna\_41
- Track 14 : Hyzer\_77
- Track 15 : Zirinka\_64
- Track 16 : Bosnia\_44
- Track 17 : Bosnia\_68
- Track 18 : Bialota\_64
- Track 19 : Matteo\_57
- Track 20 : PantheRoc\_39
- Track 21 : Easley\_38
- Track 22 : Bunker\_55
- Track 23 : Jambalaya\_57, Savbucketdawg\_57
- Track 24 : Nubi\_58, Salvador\_57, Evamon\_57
- Track 25 : Twister6\_61
- Track 26 : Shinji\_58, SmokingBunny\_59, Togo\_58, Mutzi\_58
- Track 27 : Bakery\_64
- Track 28 : Portcullis\_60
- Track 29 : Melissauren88\_67
- Track 30 : Karhdo\_62
- Track 31 : Estave1\_68
- Track 32 : SimranZ1\_66
- Track 33 : Squirty\_73
- Track 34 : LunaStella\_60, TChen\_66
- Track 35 : Sbash\_69
- Track 36 : Che9c\_68
- Track 37 : Panchino\_53

- Track 38 : Shweta\_56
- Track 39 : MichelleMyBell\_58
- Track 40 : Jung\_58
- Track 41 : Polkaroo\_60
- Track 42 : Phayonce\_62
- Track 43 : Purky\_68
- Track 44 : Hilltopfarm\_77, Typha\_76
- Track 45 : Cracklewink\_79
- Track 46 : Bipper\_79

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

The start number called the most often in the published annotations is 61, it was called in 23 of the 51 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Bakery\_64, Bipper\_79, Bosnia\_68, Bunker\_55, Bunnybear\_60, Cashline\_66, Confidence\_65, Cracklewink\_79, EnalisNailo\_63, Evamon\_57, Hilltopfarm\_77, Hyzer\_77, Jambalaya\_57, Matteo\_57, MichelleMyBell\_58, Mutzi\_58, Nubi\_58, Salvador\_57, Savbucketdawg\_57, Shinji\_58, SmokingBunny\_59, Togo\_58, Twister6\_61, Typha\_76, Zirinka\_64,

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

- Angelique\_42, Bialota\_64, Bosnia\_44, Bradissa\_64, Easley\_38, Fairfaxidum\_42, Jablanski\_42, Lilas\_64, Melissauren88\_67, PantheRoc\_39, Pytheas\_42, ThankyouJordi\_41, WelcomeAyanna\_41,

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

- Che9c\_68, Estave1\_68, Farewell\_75, Jung\_58, Karhdo\_62, LunaStella\_60, Mao1\_76, Mask\_74, Panchino\_53, Phayonce\_62, Polkaroo\_60, Portcullis\_60, Purky\_68, Sbash\_69, Sejanus\_73, Shweta\_56, SimranZ1\_66, Sparky\_73, Squirty\_73, TChen\_66,

**Summary by start number:**

Start 43:

- Found in 9 of 58 ( 15.5% ) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Melissauren88\_67 (F1),

Start 44:

- Found in 14 of 58 ( 24.1% ) of genes in pham
- Manual Annotations of this start: 2 of 51
- Called 21.4% of time when present
- Phage (with cluster) where this start called: Che9c\_68 (I2), Polkaroo\_60 (P1), Sejanus\_73 (AD),

Start 45:

- Found in 8 of 58 ( 13.8% ) of genes in pham

- No Manual Annotations of this start.
- Called 12.5% of time when present
- Phage (with cluster) where this start called: PantheRoc\_39 (CZ3),

Start 50:

- Found in 16 of 58 ( 27.6% ) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 6.2% of time when present
- Phage (with cluster) where this start called: Mask\_74 (AD),

Start 53:

- Found in 1 of 58 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Purky\_68 (P6),

Start 54:

- Found in 5 of 58 ( 8.6% ) of genes in pham
- Manual Annotations of this start: 4 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Farewell\_75 (AF), Phayonce\_62 (P5), Sbash\_69 (I2), Sparky\_73 (AF), Squirry\_73 (F3),

Start 56:

- Found in 8 of 58 ( 13.8% ) of genes in pham
- Manual Annotations of this start: 8 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Angelique\_42 (CY1), Bosnia\_44 (CZ1), Easley\_38 (CZ4), Fairfaxidum\_42 (CV), Jablanski\_42 (CY), Pytheas\_42 (CY), ThankyouJordi\_41 (CZ1), WelcomeAyanna\_41 (CZ1),

Start 58:

- Found in 10 of 58 ( 17.2% ) of genes in pham
- Manual Annotations of this start: 3 of 51
- Called 30.0% of time when present
- Phage (with cluster) where this start called: Bialota\_64 (CZ1), Bradissa\_64 (CY1), Lilas\_64 (CY1),

Start 59:

- Found in 5 of 58 ( 8.6% ) of genes in pham
- Manual Annotations of this start: 4 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Estave1\_68 (F1), Karhdo\_62 (F1), LunaStella\_60 (F4), SimranZ1\_66 (F1), TChen\_66 (F4),

Start 60:

- Found in 8 of 58 ( 13.8% ) of genes in pham
- Manual Annotations of this start: 3 of 51
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Jung\_58 (P1), Mao1\_76 (AD), Panchino\_53 (N), Shweta\_56 (N),

Start 61:

- Found in 38 of 58 ( 65.5% ) of genes in pham
- Manual Annotations of this start: 23 of 51
- Called 65.8% of time when present
- Phage (with cluster) where this start called: Bakery\_64 (DC1), Bipper\_79 (Y), Bosnia\_68 (CZ1), Bunker\_55 (DB), Bunnybear\_60 (CZ), Cashline\_66 (CY), Confidence\_65 (CY1), Cracklewink\_79 (Y), EnalisNailo\_63 (CY1), Evamon\_57 (DC1), Hilltopfarm\_77 (Y), Hyzer\_77 (CZ1), Jambalaya\_57 (DC1), Matteo\_57 (CZ2), MichelleMyBell\_58 (N), Mutzi\_58 (DC1), Nubi\_58 (DC1), Salvador\_57 (DC1), Savbucketdawg\_57 (DC1), Shinji\_58 (DC1), SmokingBunny\_59 (DC1), Togo\_58 (DC1), Twister6\_61 (DC1), Typha\_76 (Y), Zirinka\_64 (CZ1),

Start 62:

- Found in 1 of 58 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Portcullis\_60 (DC1),

### Summary by clusters:

There are 21 clusters represented in this pham: F1, CY1, CZ1, P6, AD, AF, CZ2, CZ3, I2, DB, CZ4, N, CZ, CY, P1, F3, Y, F4, CV, P5, DC1,

Info for manual annotations of cluster AD:

- Start number 44 was manually annotated 1 time for cluster AD.
- Start number 50 was manually annotated 1 time for cluster AD.

Info for manual annotations of cluster AF:

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

Info for manual annotations of cluster CV:

- Start number 56 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster CY:

- Start number 56 was manually annotated 2 times for cluster CY.
- Start number 61 was manually annotated 1 time for cluster CY.

Info for manual annotations of cluster CY1:

- Start number 56 was manually annotated 1 time for cluster CY1.
- Start number 58 was manually annotated 2 times for cluster CY1.
- Start number 61 was manually annotated 2 times for cluster CY1.

Info for manual annotations of cluster CZ:

- Start number 61 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 56 was manually annotated 3 times for cluster CZ1.
- Start number 58 was manually annotated 1 time for cluster CZ1.
- Start number 61 was manually annotated 2 times for cluster CZ1.

Info for manual annotations of cluster CZ2:

- Start number 61 was manually annotated 1 time for cluster CZ2.

Info for manual annotations of cluster CZ4:

- Start number 56 was manually annotated 1 time for cluster CZ4.

Info for manual annotations of cluster DB:

- Start number 61 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DC1:

- Start number 61 was manually annotated 10 times for cluster DC1.
- Start number 62 was manually annotated 1 time for cluster DC1.

Info for manual annotations of cluster F1:

- Start number 43 was manually annotated 1 time for cluster F1.
- Start number 59 was manually annotated 3 times for cluster F1.

Info for manual annotations of cluster F3:

- Start number 54 was manually annotated 1 time for cluster F3.

Info for manual annotations of cluster F4:

- Start number 59 was manually annotated 1 time for cluster F4.

Info for manual annotations of cluster I2:

- Start number 44 was manually annotated 1 time for cluster I2.
- Start number 54 was manually annotated 1 time for cluster I2.

Info for manual annotations of cluster N:

- Start number 60 was manually annotated 2 times for cluster N.
- Start number 61 was manually annotated 1 time for cluster N.

Info for manual annotations of cluster P1:

- Start number 60 was manually annotated 1 time for cluster P1.

Info for manual annotations of cluster P5:

- Start number 54 was manually annotated 1 time for cluster P5.

Info for manual annotations of cluster P6:

- Start number 53 was manually annotated 1 time for cluster P6.

Info for manual annotations of cluster Y:

- Start number 61 was manually annotated 4 times for cluster Y.

### **Gene Information:**

Gene: Angelique\_42 Start: 32816, Stop: 33574, Start Num: 56

Candidate Starts for Angelique\_42:

(8, 32225), (10, 32270), (11, 32297), (13, 32363), (16, 32471), (17, 32480), (19, 32516), (22, 32561), (24, 32570), (Start: 43 @32705 has 1 MA's), (45, 32726), (49, 32744), (Start: 50 @32762 has 1 MA's), (51, 32786), (Start: 56 @32816 has 8 MA's), (Start: 61 @32825 has 23 MA's), (64, 32891), (67, 32948), (79, 33080), (80, 33104), (82, 33137), (83, 33140), (85, 33170), (119, 33239), (122, 33266), (126, 33296), (127, 33308), (150, 33422), (152, 33431), (167, 33548),

Gene: Bakery\_64 Start: 46591, Stop: 47565, Start Num: 61

Candidate Starts for Bakery\_64:

(Start: 58 @46588 has 3 MA's), (Start: 61 @46591 has 23 MA's), (77, 46804), (79, 46819), (81, 46867), (82, 46876), (83, 46879), (85, 46909), (86, 46933), (89, 46951), (90, 46963), (105, 46987), (139, 47194), (149, 47260), (156, 47311),

Gene: Bialota\_64 Start: 45261, Stop: 46223, Start Num: 58

Candidate Starts for Bialota\_64:

(Start: 58 @45261 has 3 MA's), (Start: 61 @45264 has 23 MA's), (77, 45477), (79, 45492), (83, 45552), (84, 45558), (85, 45582), (86, 45606), (94, 45645), (101, 45666), (127, 45801), (130, 45825), (146, 45912), (149, 45951), (156, 46002), (157, 46011), (171, 46077), (188, 46134),

Gene: Bipper\_79 Start: 52013, Stop: 52936, Start Num: 61

Candidate Starts for Bipper\_79:

(38, 51872), (39, 51875), (48, 51929), (55, 52001), (Start: 61 @52013 has 23 MA's), (64, 52079), (70, 52169), (72, 52172), (73, 52175), (77, 52226), (79, 52241), (81, 52289), (83, 52301), (86, 52355), (101, 52394), (115, 52415), (118, 52436), (119, 52442), (124, 52484), (132, 52556), (147, 52616), (148, 52619), (149, 52652), (156, 52703), (171, 52781), (191, 52856), (199, 52925),

Gene: Bosnia\_44 Start: 35804, Stop: 36562, Start Num: 56

Candidate Starts for Bosnia\_44:

(11, 35285), (12, 35303), (13, 35351), (17, 35468), (19, 35504), (21, 35528), (22, 35549), (24, 35558), (Start: 43 @35693 has 1 MA's), (45, 35714), (47, 35729), (49, 35732), (Start: 50 @35750 has 1 MA's), (51, 35774), (Start: 56 @35804 has 8 MA's), (Start: 61 @35813 has 23 MA's), (64, 35879), (67, 35936), (79, 36068), (82, 36125), (83, 36128), (85, 36158), (119, 36227), (120, 36233), (126, 36284), (127, 36296), (150, 36410), (152, 36419), (167, 36536),

Gene: Bosnia\_68 Start: 47556, Stop: 48464, Start Num: 61

Candidate Starts for Bosnia\_68:

(Start: 58 @47553 has 3 MA's), (Start: 61 @47556 has 23 MA's), (77, 47769), (79, 47784), (81, 47832), (83, 47844), (84, 47850), (85, 47874), (86, 47898), (94, 47937), (101, 47958), (146, 48201), (149, 48240), (156, 48291), (157, 48300), (192, 48387), (195, 48417),

Gene: Bradissa\_64 Start: 45613, Stop: 46590, Start Num: 58

Candidate Starts for Bradissa\_64:

(Start: 58 @45613 has 3 MA's), (Start: 61 @45616 has 23 MA's), (77, 45829), (79, 45844), (80, 45868), (81, 45892), (83, 45904), (85, 45934), (86, 45958), (98, 45997), (103, 46018), (111, 46036), (149, 46279), (159, 46381), (164, 46393), (169, 46408), (182, 46459), (187, 46486), (191, 46510), (195, 46543),

Gene: Bunker\_55 Start: 40051, Stop: 41034, Start Num: 61

Candidate Starts for Bunker\_55:

(Start: 61 @40051 has 23 MA's), (63, 40099), (66, 40165), (68, 40189), (74, 40267), (80, 40336), (81, 40360), (83, 40372), (86, 40426), (87, 40435), (91, 40459), (103, 40492), (114, 40510), (119, 40546), (149, 40738), (173, 40873), (186, 40933), (191, 40954),

Gene: Bunnybear\_60 Start: 43979, Stop: 44938, Start Num: 61

Candidate Starts for Bunnybear\_60:

(Start: 58 @43976 has 3 MA's), (Start: 61 @43979 has 23 MA's), (77, 44192), (79, 44207), (80, 44231), (83, 44267), (86, 44321), (98, 44378), (117, 44447), (131, 44582), (148, 44633), (149, 44666), (171, 44792), (188, 44849),

Gene: Cashline\_66 Start: 46415, Stop: 47329, Start Num: 61

Candidate Starts for Cashline\_66:

(Start: 58 @46412 has 3 MA's), (Start: 61 @46415 has 23 MA's), (77, 46628), (79, 46643), (80, 46667), (81, 46691), (83, 46703), (85, 46733), (86, 46757), (98, 46796), (118, 46859), (148, 47024), (149, 47057), (171, 47183), (188, 47240),

Gene: Che9c\_68 Start: 47787, Stop: 48947, Start Num: 44

Candidate Starts for Che9c\_68:

(33, 47724), (37, 47745), (41, 47760), (Start: 44 @47787 has 2 MA's), (Start: 50 @47823 has 1 MA's), (Start: 60 @47880 has 3 MA's), (70, 48045), (75, 48078), (79, 48117), (80, 48141), (81, 48165), (83, 48177), (85, 48207), (86, 48231), (96, 48270), (106, 48300), (118, 48357), (127, 48435), (146, 48621), (149, 48660), (156, 48711), (160, 48753), (171, 48822), (181, 48846), (189, 48867), (197, 48936),

Gene: Confidence\_65 Start: 43164, Stop: 44039, Start Num: 61

Candidate Starts for Confidence\_65:

(Start: 61 @43164 has 23 MA's), (77, 43377), (79, 43392), (80, 43416), (81, 43440), (83, 43452), (85, 43482), (86, 43506), (98, 43545), (149, 43815), (156, 43866), (193, 43962),

Gene: Cracklewink\_79 Start: 51047, Stop: 51973, Start Num: 61

Candidate Starts for Cracklewink\_79:

(38, 50906), (39, 50909), (48, 50963), (55, 51035), (Start: 61 @51047 has 23 MA's), (64, 51113), (70, 51203), (72, 51206), (77, 51260), (79, 51275), (81, 51323), (83, 51335), (86, 51389), (101, 51428), (115, 51449), (118, 51470), (119, 51476), (124, 51518), (132, 51590), (147, 51650), (148, 51653), (149, 51686), (156, 51737), (171, 51818), (180, 51845), (189, 51887), (190, 51890), (191, 51893), (199, 51962),

Gene: Easley\_38 Start: 29182, Stop: 29937, Start Num: 56

Candidate Starts for Easley\_38:

(22, 28927), (24, 28936), (27, 28966), (Start: 43 @29071 has 1 MA's), (45, 29092), (Start: 50 @29128 has 1 MA's), (51, 29152), (52, 29164), (Start: 56 @29182 has 8 MA's), (Start: 61 @29191 has 23 MA's), (64, 29257), (67, 29314), (69, 29323), (79, 29446), (80, 29470), (83, 29506), (85, 29536), (119, 29605), (120, 29611), (122, 29632), (127, 29674), (156, 29833), (167, 29914),

Gene: EnalisNailo\_63 Start: 45150, Stop: 46124, Start Num: 61

Candidate Starts for EnalisNailo\_63:

(Start: 58 @45147 has 3 MA's), (Start: 61 @45150 has 23 MA's), (77, 45363), (79, 45378), (80, 45402), (81, 45426), (83, 45438), (85, 45468), (86, 45492), (98, 45531), (103, 45552), (111, 45570), (149, 45813), (159, 45915), (164, 45927), (169, 45942), (182, 45993), (187, 46020), (191, 46044), (195, 46077),

Gene: Estave1\_68 Start: 43517, Stop: 44377, Start Num: 59

Candidate Starts for Estave1\_68:

(Start: 59 @43517 has 4 MA's), (75, 43706), (78, 43736), (79, 43745), (80, 43769), (81, 43793), (83, 43805), (85, 43835), (86, 43859), (92, 43898), (100, 43925), (108, 43940), (118, 44003), (120, 44015), (136, 44144), (146, 44165), (149, 44204), (156, 44255),

Gene: Evamon\_57 Start: 43585, Stop: 44697, Start Num: 61

Candidate Starts for Evamon\_57:

(15, 43177), (35, 43426), (Start: 44 @43483 has 2 MA's), (Start: 61 @43585 has 23 MA's), (79, 43807), (81, 43855), (83, 43867), (86, 43921), (90, 43951), (146, 44308), (149, 44347), (156, 44398), (175, 44536), (191, 44617),

Gene: Fairfaxidum\_42 Start: 32933, Stop: 33688, Start Num: 56

Candidate Starts for Fairfaxidum\_42:



(Start: 56 @32933 has 8 MA's), (Start: 61 @32942 has 23 MA's), (64, 33008), (67, 33065), (77, 33182), (79, 33197), (80, 33221), (83, 33257), (85, 33287), (119, 33356), (122, 33383), (123, 33386), (150, 33539), (152, 33548), (167, 33665),

Gene: Farewell\_75 Start: 49357, Stop: 50385, Start Num: 54

Candidate Starts for Farewell\_75:

(18, 49045), (26, 49153), (33, 49210), (47, 49297), (Start: 54 @49357 has 4 MA's), (70, 49543), (75, 49576), (79, 49615), (80, 49639), (83, 49675), (85, 49705), (86, 49729), (118, 49849), (149, 50047), (163, 50146), (166, 50185), (167, 50188),

Gene: Hilltopfarm\_77 Start: 50683, Stop: 51594, Start Num: 61

Candidate Starts for Hilltopfarm\_77:

(Start: 61 @50683 has 23 MA's), (64, 50749), (65, 50782), (70, 50839), (72, 50842), (77, 50896), (79, 50911), (80, 50935), (81, 50959), (82, 50968), (83, 50971), (85, 51001), (86, 51025), (88, 51037), (101, 51064), (115, 51085), (118, 51106), (119, 51112), (125, 51163), (130, 51208), (146, 51280), (147, 51283), (149, 51319), (151, 51328), (155, 51364), (171, 51442), (180, 51469), (187, 51493), (189, 51511), (191, 51517), (196, 51565), (199, 51586),

Gene: Hyzer\_77 Start: 51291, Stop: 52247, Start Num: 61

Candidate Starts for Hyzer\_77:

(Start: 61 @51291 has 23 MA's), (77, 51504), (79, 51519), (81, 51567), (83, 51579), (84, 51585), (86, 51633), (94, 51672), (127, 51828), (146, 51936), (149, 51975), (156, 52026), (171, 52101), (188, 52158),

Gene: Jablanski\_42 Start: 33173, Stop: 33928, Start Num: 56

Candidate Starts for Jablanski\_42:

(1, 31784), (2, 31901), (3, 32177), (4, 32237), (5, 32246), (6, 32531), (11, 32654), (13, 32720), (16, 32828), (17, 32837), (19, 32873), (21, 32897), (22, 32918), (24, 32927), (25, 32942), (29, 32975), (Start: 43 @33062 has 1 MA's), (45, 33083), (Start: 50 @33119 has 1 MA's), (51, 33143), (Start: 56 @33173 has 8 MA's), (Start: 61 @33182 has 23 MA's), (64, 33248), (67, 33305), (75, 33398), (77, 33422), (79, 33437), (80, 33461), (83, 33497), (85, 33527), (119, 33596), (121, 33608), (167, 33905),

Gene: Jambalaya\_57 Start: 43481, Stop: 44557, Start Num: 61

Candidate Starts for Jambalaya\_57:

(11, 42953), (15, 43073), (35, 43322), (Start: 44 @43379 has 2 MA's), (Start: 61 @43481 has 23 MA's), (64, 43547), (77, 43694), (79, 43709), (83, 43769), (85, 43799), (86, 43823), (93, 43862), (99, 43874), (109, 43901), (146, 44177), (149, 44216), (156, 44267), (165, 44360), (173, 44402), (175, 44405), (183, 44429), (191, 44486),

Gene: Jung\_58 Start: 38220, Stop: 39305, Start Num: 60

Candidate Starts for Jung\_58:

(Start: 44 @38127 has 2 MA's), (Start: 50 @38163 has 1 MA's), (Start: 60 @38220 has 3 MA's), (75, 38409), (79, 38448), (80, 38472), (81, 38496), (83, 38508), (86, 38562), (102, 38625), (138, 38874), (143, 38895), (146, 38931), (149, 38970), (156, 39021), (163, 39069), (166, 39108), (167, 39111), (198, 39291),

Gene: Karhdo\_62 Start: 41895, Stop: 42809, Start Num: 59

Candidate Starts for Karhdo\_62:

(Start: 59 @41895 has 4 MA's), (75, 42084), (78, 42114), (79, 42123), (80, 42147), (81, 42171), (83, 42183), (85, 42213), (86, 42237), (113, 42324), (140, 42534), (146, 42597), (149, 42636), (156, 42687),

Gene: Lilas\_64 Start: 46685, Stop: 47662, Start Num: 58

Candidate Starts for Lilas\_64:

(Start: 58 @46685 has 3 MA's), (Start: 61 @46688 has 23 MA's), (77, 46901), (79, 46916), (80, 46940), (81, 46964), (83, 46976), (85, 47006), (86, 47030), (98, 47069), (103, 47090), (111, 47108), (149, 47351), (159, 47453), (164, 47465), (169, 47480), (182, 47531), (187, 47558), (191, 47582), (195, 47615),

Gene: LunaStella\_60 Start: 41657, Stop: 42571, Start Num: 59

Candidate Starts for LunaStella\_60:

(Start: 59 @41657 has 4 MA's), (75, 41846), (78, 41876), (79, 41885), (80, 41909), (81, 41933), (83, 41945), (86, 41999), (103, 42077), (108, 42089), (129, 42251), (133, 42290), (145, 42341), (147, 42380), (148, 42383), (154, 42458), (158, 42491), (164, 42560),

Gene: Mao1\_76 Start: 53504, Stop: 54538, Start Num: 60

Candidate Starts for Mao1\_76:

(20, 53216), (36, 53360), (Start: 44 @53411 has 2 MA's), (Start: 50 @53447 has 1 MA's), (Start: 60 @53504 has 3 MA's), (64, 53570), (76, 53705), (79, 53726), (80, 53750), (81, 53774), (83, 53786), (85, 53816), (86, 53840), (87, 53849), (95, 53879), (116, 53945), (149, 54170), (161, 54284), (162, 54293), (163, 54305), (167, 54347), (197, 54524),

Gene: Mask\_74 Start: 55334, Stop: 56491, Start Num: 50

Candidate Starts for Mask\_74:

(23, 55145), (28, 55184), (32, 55223), (34, 55235), (Start: 44 @55298 has 2 MA's), (Start: 50 @55334 has 1 MA's), (Start: 60 @55391 has 3 MA's), (64, 55457), (76, 55592), (79, 55613), (80, 55637), (81, 55661), (83, 55673), (85, 55703), (86, 55727), (95, 55766), (118, 55862), (134, 56018), (146, 56102), (165, 56285), (167, 56294), (177, 56336), (191, 56411), (197, 56480),

Gene: Matteo\_57 Start: 38326, Stop: 39264, Start Num: 61

Candidate Starts for Matteo\_57:

(Start: 58 @38323 has 3 MA's), (Start: 61 @38326 has 23 MA's), (77, 38539), (79, 38554), (83, 38614), (84, 38620), (85, 38644), (86, 38668), (94, 38707), (101, 38728), (127, 38863), (130, 38887), (149, 38992), (156, 39043), (157, 39052), (171, 39118), (188, 39175),

Gene: Melissauren88\_67 Start: 42455, Stop: 43651, Start Num: 43

Candidate Starts for Melissauren88\_67:

(Start: 43 @42455 has 1 MA's), (Start: 61 @42566 has 23 MA's), (75, 42755), (79, 42794), (80, 42818), (81, 42842), (83, 42854), (86, 42908), (102, 42971), (138, 43220), (143, 43241), (146, 43277), (149, 43316), (156, 43367), (163, 43415), (166, 43454), (167, 43457), (198, 43637),

Gene: MichelleMyBell\_58 Start: 36242, Stop: 37285, Start Num: 61

Candidate Starts for MichelleMyBell\_58:

(30, 36056), (31, 36065), (40, 36116), (46, 36155), (57, 36236), (Start: 61 @36242 has 23 MA's), (66, 36356), (68, 36380), (71, 36431), (74, 36458), (75, 36464), (80, 36527), (83, 36563), (85, 36593), (86, 36617), (91, 36650), (134, 36881), (146, 36965), (149, 37004), (153, 37046), (156, 37055), (185, 37169), (197, 37271),

Gene: Mutzi\_58 Start: 45499, Stop: 46572, Start Num: 61

Candidate Starts for Mutzi\_58:

(Start: 61 @45499 has 23 MA's), (78, 45706), (79, 45715), (81, 45763), (82, 45772), (83, 45775), (86, 45829), (88, 45841), (93, 45868), (99, 45880), (109, 45907), (146, 46183), (149, 46222), (156, 46273), (165, 46366), (173, 46408), (175, 46411), (179, 46426), (183, 46435), (191, 46492),

Gene: Nubi\_58 Start: 43690, Stop: 44802, Start Num: 61

Candidate Starts for Nubi\_58:

(15, 43282), (35, 43531), (Start: 44 @43588 has 2 MA's), (Start: 61 @43690 has 23 MA's), (79, 43912), (81, 43960), (83, 43972), (86, 44026), (90, 44056), (146, 44413), (149, 44452), (156, 44503), (175, 44641), (191, 44722),

Gene: Panchino\_53 Start: 37157, Stop: 38233, Start Num: 60

Candidate Starts for Panchino\_53:

(23, 36911), (28, 36950), (32, 36989), (34, 37001), (Start: 44 @37064 has 2 MA's), (Start: 50 @37100 has 1 MA's), (Start: 60 @37157 has 3 MA's), (64, 37223), (76, 37358), (79, 37379), (80, 37403), (81, 37427), (83, 37439), (85, 37469), (86, 37493), (95, 37532), (118, 37628), (144, 37829), (146, 37859), (149, 37898), (156, 37949), (163, 37997), (166, 38036), (167, 38039), (198, 38219),

Gene: PantheRoc\_39 Start: 31076, Stop: 31924, Start Num: 45

Candidate Starts for PantheRoc\_39:

(22, 30911), (24, 30920), (Start: 43 @31055 has 1 MA's), (45, 31076), (49, 31094), (Start: 50 @31112 has 1 MA's), (51, 31136), (Start: 61 @31175 has 23 MA's), (64, 31241), (67, 31298), (79, 31430), (80, 31454), (83, 31490), (85, 31520), (119, 31589), (121, 31601), (122, 31616), (128, 31667), (150, 31772), (167, 31898),

Gene: Phayonce\_62 Start: 41740, Stop: 42756, Start Num: 54

Candidate Starts for Phayonce\_62:

(42, 41635), (Start: 54 @41740 has 4 MA's), (78, 41974), (79, 41983), (80, 42007), (81, 42031), (83, 42043), (85, 42073), (86, 42097), (110, 42184), (132, 42343), (137, 42364), (146, 42412), (149, 42451), (156, 42502), (167, 42562), (174, 42595), (176, 42598), (179, 42613), (183, 42622),

Gene: Polkaroo\_60 Start: 39586, Stop: 40767, Start Num: 44

Candidate Starts for Polkaroo\_60:

(14, 39283), (Start: 44 @39586 has 2 MA's), (Start: 50 @39622 has 1 MA's), (Start: 60 @39679 has 3 MA's), (75, 39868), (79, 39907), (80, 39931), (81, 39955), (83, 39967), (85, 39997), (86, 40021), (95, 40060), (118, 40156), (120, 40168), (138, 40336), (143, 40357), (146, 40393), (149, 40432), (156, 40483), (163, 40531), (166, 40570), (167, 40573), (198, 40753),

Gene: Portcullis\_60 Start: 43893, Stop: 44867, Start Num: 62

Candidate Starts for Portcullis\_60:

(Start: 62 @43893 has 1 MA's), (77, 44100), (79, 44115), (80, 44139), (81, 44163), (82, 44172), (83, 44175), (85, 44205), (86, 44229), (87, 44238), (98, 44268), (127, 44409), (130, 44433), (135, 44481), (139, 44508), (146, 44535), (149, 44574), (156, 44625), (170, 44694), (191, 44784),

Gene: Purky\_68 Start: 43277, Stop: 44338, Start Num: 53

Candidate Starts for Purky\_68:

(Start: 53 @43277 has 1 MA's), (64, 43364), (73, 43454), (78, 43511), (79, 43520), (80, 43544), (83, 43580), (85, 43610), (86, 43634), (107, 43718), (141, 43970), (146, 44006), (149, 44045), (156, 44096), (168, 44156), (176, 44189), (190, 44255), (194, 44264), (197, 44324),

Gene: Pytheas\_42 Start: 33172, Stop: 33927, Start Num: 56

Candidate Starts for Pytheas\_42:

(1, 31783), (2, 31900), (3, 32176), (4, 32236), (5, 32245), (6, 32530), (11, 32653), (13, 32719), (16, 32827), (17, 32836), (19, 32872), (21, 32896), (22, 32917), (24, 32926), (25, 32941), (29, 32974), (Start: 43 @33061 has 1 MA's), (45, 33082), (Start: 50 @33118 has 1 MA's), (51, 33142), (Start: 56 @33172 has 8 MA's), (Start: 61 @33181 has 23 MA's), (64, 33247), (67, 33304), (75, 33397), (77, 33421), (79, 33436), (80, 33460), (83, 33496), (85, 33526), (119, 33595), (121, 33607), (167, 33904),

Gene: Salvador\_57 Start: 43583, Stop: 44695, Start Num: 61

Candidate Starts for Salvador\_57:

(15, 43175), (35, 43424), (Start: 44 @43481 has 2 MA's), (Start: 61 @43583 has 23 MA's), (79, 43805), (81, 43853), (83, 43865), (86, 43919), (90, 43949), (146, 44306), (149, 44345), (156, 44396), (175, 44534), (191, 44615),

Gene: Savbucketdawg\_57 Start: 43481, Stop: 44557, Start Num: 61

Candidate Starts for Savbucketdawg\_57:

(11, 42953), (15, 43073), (35, 43322), (Start: 44 @43379 has 2 MA's), (Start: 61 @43481 has 23 MA's), (64, 43547), (77, 43694), (79, 43709), (83, 43769), (85, 43799), (86, 43823), (93, 43862), (99, 43874), (109, 43901), (146, 44177), (149, 44216), (156, 44267), (165, 44360), (173, 44402), (175, 44405), (183, 44429), (191, 44486),

Gene: Sbash\_69 Start: 45812, Stop: 46789, Start Num: 54

Candidate Starts for Sbash\_69:

(42, 45707), (Start: 54 @45812 has 4 MA's), (64, 45899), (79, 46055), (80, 46079), (81, 46103), (82, 46112), (83, 46115), (86, 46169), (110, 46253), (112, 46262), (118, 46289), (125, 46346), (142, 46439), (146, 46466), (149, 46505), (156, 46556), (172, 46640), (178, 46655), (190, 46706), (197, 46775),

Gene: Sejanus\_73 Start: 53759, Stop: 54952, Start Num: 44

Candidate Starts for Sejanus\_73:

(23, 53606), (28, 53645), (32, 53684), (34, 53696), (Start: 44 @53759 has 2 MA's), (Start: 50 @53795 has 1 MA's), (Start: 60 @53852 has 3 MA's), (64, 53918), (76, 54053), (79, 54074), (80, 54098), (81, 54122), (83, 54134), (85, 54164), (86, 54188), (95, 54227), (118, 54323), (134, 54479), (146, 54563), (165, 54746), (167, 54755), (177, 54797), (191, 54872), (197, 54941),

Gene: Shinji\_58 Start: 43933, Stop: 45006, Start Num: 61

Candidate Starts for Shinji\_58:

(Start: 61 @43933 has 23 MA's), (78, 44140), (79, 44149), (81, 44197), (82, 44206), (83, 44209), (86, 44263), (88, 44275), (93, 44302), (99, 44314), (109, 44341), (146, 44617), (149, 44656), (156, 44707), (165, 44800), (173, 44842), (175, 44845), (179, 44860), (183, 44869), (191, 44926),

Gene: Shweta\_56 Start: 36930, Stop: 37940, Start Num: 60

Candidate Starts for Shweta\_56:

(37, 36795), (41, 36810), (Start: 44 @36837 has 2 MA's), (Start: 50 @36873 has 1 MA's), (Start: 60 @36930 has 3 MA's), (70, 37086), (75, 37119), (79, 37158), (80, 37182), (81, 37206), (83, 37218), (85, 37248), (86, 37272), (95, 37311), (118, 37407), (120, 37419), (149, 37605), (163, 37704), (166, 37743), (167, 37746), (198, 37926),

Gene: SimranZ1\_66 Start: 42610, Stop: 43263, Start Num: 59

Candidate Starts for SimranZ1\_66:

(Start: 59 @42610 has 4 MA's), (75, 42799), (79, 42838), (80, 42862), (81, 42886), (83, 42898), (85, 42928), (86, 42952), (92, 42991), (100, 43018), (108, 43033), (118, 43093), (120, 43105),

Gene: SmokingBunny\_59 Start: 44365, Stop: 45438, Start Num: 61

Candidate Starts for SmokingBunny\_59:

(Start: 61 @44365 has 23 MA's), (78, 44572), (79, 44581), (81, 44629), (82, 44638), (83, 44641), (86, 44695), (88, 44707), (93, 44734), (99, 44746), (109, 44773), (146, 45049), (149, 45088), (156, 45139), (165, 45232), (173, 45274), (175, 45277), (179, 45292), (183, 45301), (191, 45358),

Gene: Sparky\_73 Start: 50951, Stop: 51979, Start Num: 54

Candidate Starts for Sparky\_73:

(18, 50639), (26, 50747), (33, 50804), (47, 50891), (Start: 54 @50951 has 4 MA's), (70, 51137), (75, 51170), (79, 51209), (80, 51233), (83, 51269), (85, 51299), (86, 51323), (118, 51443), (149, 51641),

(163, 51740), (166, 51779), (167, 51782),

Gene: Squirty\_73 Start: 48317, Stop: 49249, Start Num: 54

Candidate Starts for Squirty\_73:

(Start: 54 @48317 has 4 MA's), (73, 48473), (79, 48539), (80, 48563), (81, 48587), (83, 48599), (86, 48653), (104, 48704), (120, 48764), (133, 48875), (146, 48938), (148, 48944), (149, 48977), (156, 49028), (181, 49124), (184, 49130), (190, 49166),

Gene: TChen\_66 Start: 43608, Stop: 44522, Start Num: 59

Candidate Starts for TChen\_66:

(Start: 59 @43608 has 4 MA's), (75, 43797), (78, 43827), (79, 43836), (80, 43860), (81, 43884), (83, 43896), (86, 43950), (103, 44028), (108, 44040), (129, 44202), (133, 44241), (145, 44292), (147, 44331), (148, 44334), (154, 44409), (158, 44442), (164, 44511),

Gene: ThankyouJordi\_41 Start: 33401, Stop: 34156, Start Num: 56

Candidate Starts for ThankyouJordi\_41:

(6, 32759), (7, 32798), (11, 32882), (13, 32948), (16, 33056), (17, 33065), (19, 33101), (21, 33125), (22, 33146), (24, 33155), (Start: 43 @33290 has 1 MA's), (45, 33311), (Start: 50 @33347 has 1 MA's), (51, 33371), (Start: 56 @33401 has 8 MA's), (Start: 61 @33410 has 23 MA's), (64, 33476), (67, 33533), (77, 33650), (79, 33665), (80, 33689), (83, 33725), (85, 33755), (119, 33824), (121, 33836), (156, 34052), (167, 34133),

Gene: Togo\_58 Start: 44365, Stop: 45438, Start Num: 61

Candidate Starts for Togo\_58:

(Start: 61 @44365 has 23 MA's), (78, 44572), (79, 44581), (81, 44629), (82, 44638), (83, 44641), (86, 44695), (88, 44707), (93, 44734), (99, 44746), (109, 44773), (146, 45049), (149, 45088), (156, 45139), (165, 45232), (173, 45274), (175, 45277), (179, 45292), (183, 45301), (191, 45358),

Gene: Twister6\_61 Start: 44083, Stop: 45177, Start Num: 61

Candidate Starts for Twister6\_61:

(9, 43501), (15, 43675), (35, 43924), (Start: 44 @43981 has 2 MA's), (Start: 61 @44083 has 23 MA's), (79, 44305), (81, 44353), (83, 44365), (85, 44395), (97, 44470), (120, 44560), (146, 44788), (149, 44827), (156, 44878), (165, 44971), (173, 45013), (175, 45016), (179, 45031), (183, 45040), (191, 45097),

Gene: Typha\_76 Start: 50977, Stop: 51888, Start Num: 61

Candidate Starts for Typha\_76:

(Start: 61 @50977 has 23 MA's), (64, 51043), (65, 51076), (70, 51133), (72, 51136), (77, 51190), (79, 51205), (80, 51229), (81, 51253), (82, 51262), (83, 51265), (85, 51295), (86, 51319), (88, 51331), (101, 51358), (115, 51379), (118, 51400), (119, 51406), (125, 51457), (130, 51502), (146, 51574), (147, 51577), (149, 51613), (151, 51622), (155, 51658), (171, 51736), (180, 51763), (187, 51787), (189, 51805), (191, 51811), (196, 51859), (199, 51880),

Gene: WelcomeAyanna\_41 Start: 33548, Stop: 34303, Start Num: 56

Candidate Starts for WelcomeAyanna\_41:

(6, 32906), (7, 32945), (11, 33029), (13, 33095), (16, 33203), (17, 33212), (19, 33248), (21, 33272), (22, 33293), (24, 33302), (Start: 43 @33437 has 1 MA's), (45, 33458), (Start: 50 @33494 has 1 MA's), (51, 33518), (Start: 56 @33548 has 8 MA's), (Start: 61 @33557 has 23 MA's), (64, 33623), (67, 33680), (77, 33797), (79, 33812), (80, 33836), (83, 33872), (85, 33902), (119, 33971), (121, 33983), (156, 34199), (167, 34280),

Gene: Zirinka\_64 Start: 45252, Stop: 46211, Start Num: 61

Candidate Starts for Zirinka\_64:

(Start: 58 @45249 has 3 MA's), (Start: 61 @45252 has 23 MA's), (77, 45465), (79, 45480), (83, 45540), (84, 45546), (85, 45570), (86, 45594), (94, 45633), (101, 45654), (127, 45789), (130, 45813), (146, 45900), (149, 45939), (156, 45990), (157, 45999), (171, 46065), (188, 46122),