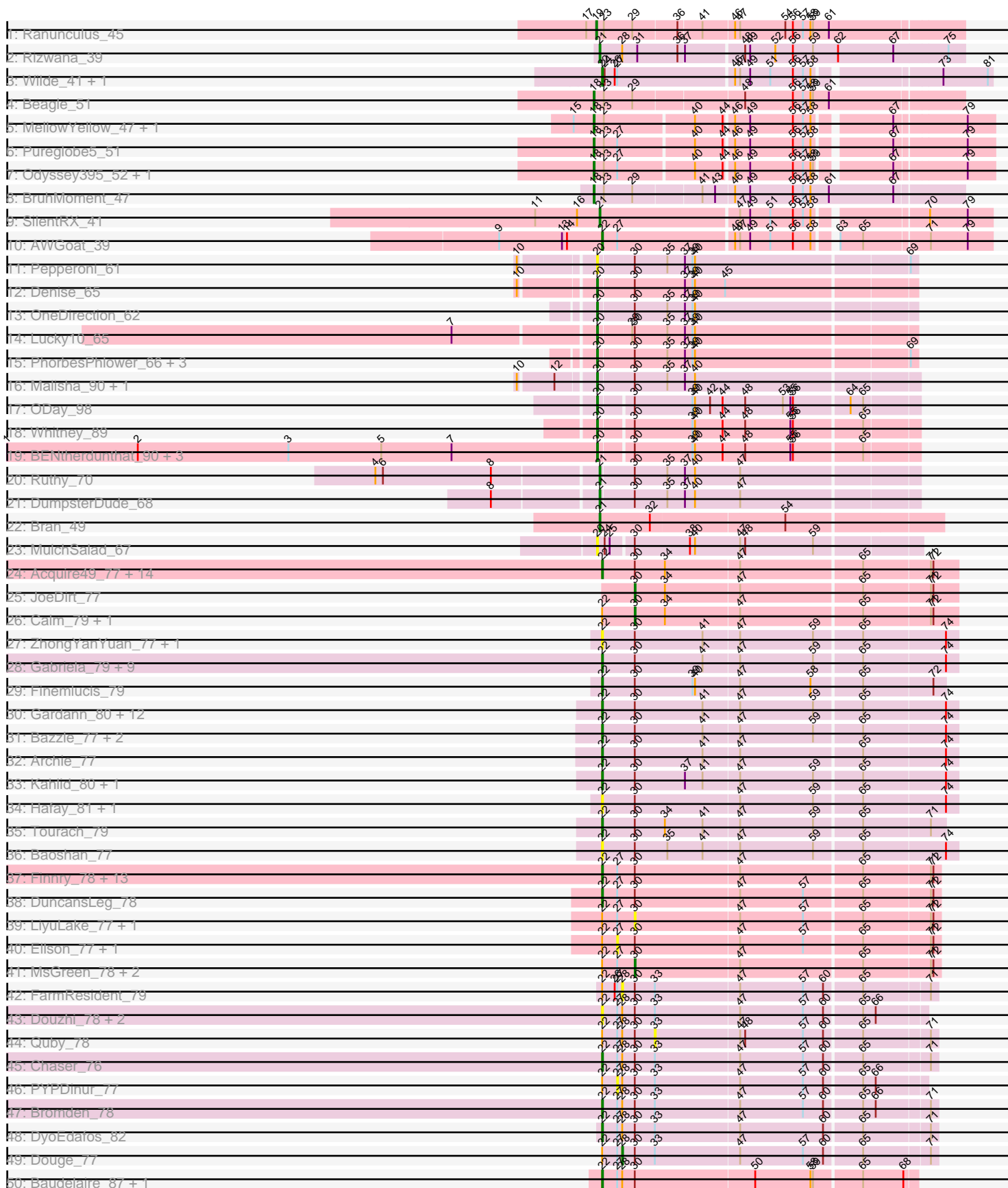


Pham 193845





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 193845 Report

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

Pham number 193845 has 123 members, 25 are drafts.

Phages represented in each track:

- Track 1 : Ranunculus\_45
- Track 2 : Rizwana\_39
- Track 3 : Wilde\_41, Tank\_41
- Track 4 : Beagle\_51
- Track 5 : MellowYellow\_47, NyleyClemson\_46
- Track 6 : Pureglobe5\_51
- Track 7 : Odyssey395\_52, Pointis\_49
- Track 8 : BruhMoment\_47
- Track 9 : SilentRX\_41
- Track 10 : AWGoat\_39
- Track 11 : Pepperoni\_61
- Track 12 : Denise\_65
- Track 13 : OneDirection\_62
- Track 14 : Lucky10\_65
- Track 15 : PhorbessPhlower\_66, Kuwabara\_86, Morkie\_68, Lton\_65
- Track 16 : Malisha\_90, Faith5x5\_63
- Track 17 : ODay\_98
- Track 18 : Whitney\_89
- Track 19 : BENtherdunthat\_90, Lutum\_91, Phabuloso\_97, Getalong\_93
- Track 20 : Ruthy\_70
- Track 21 : DumpsterDude\_68
- Track 22 : Bran\_49
- Track 23 : MulchSalad\_67
- Track 24 : Acquire49\_77, UPIE\_76, Enceladus\_74, Appletree2\_76, AvadaKedavra\_77, DirkDirk\_74, Tyson\_78, Rose5\_77, LeBron\_76, Halena\_75, MAckerman\_75, CicholasNage\_74, Wamburggrxpress\_77, Zaria\_78, Wyatt2\_78
- Track 25 : JoeDirt\_77
- Track 26 : Calm\_79, Silverleaf\_77
- Track 27 : ZhongYanYuan\_77, DHan\_83
- Track 28 : Gabriela\_79, BobsGarage\_80, Faith1\_80, DrSeegs\_80, BigCheese\_80, Winky\_80, Itos\_79, Miley16\_80, Netyap\_81, Breezona\_80
- Track 29 : Finemlucis\_79
- Track 30 : Gardann\_80, GuuelaD\_78, Zakai\_81, Nicholasp3\_80, LilDestine\_79, Loadrie\_79, Lewan\_81, Crossroads\_80, Rumpelstiltskin\_77, Sarshaun\_81, Soap141\_80, Vetrix\_79, MkaliMitinis3\_81
- Track 31 : Bazzle\_77, DanBing\_80, Wigglewiggle\_79
- Track 32 : Archie\_77

- Track 33 : Kahlid\_80, Wilder\_81
- Track 34 : Hafay\_81, Claus\_80
- Track 35 : Tourach\_79
- Track 36 : Baoshan\_77
- Track 37 : Finnry\_78, Moostard\_76, Clautastrophe\_76, Lolly9\_77, MiniMac\_82, Whirlwind\_79, Krypton555\_79, Nicholas\_76, Kingsolomon\_76, Lumos\_79, Samty\_77, MiniLon\_82, Jubie\_77, Snenia\_77
- Track 38 : DuncansLeg\_78
- Track 39 : LiyuLake\_77, KirDoubleO7\_76
- Track 40 : Ellson\_77, BourbonZero\_79
- Track 41 : MsGreen\_78, Bellis\_76, Jobypre\_79
- Track 42 : FarmResident\_79
- Track 43 : Douzhi\_78, BrainDrainer\_78, Sheng711\_79
- Track 44 : Quby\_78
- Track 45 : Chaser\_76
- Track 46 : PYPDinur\_77
- Track 47 : Bromden\_78
- Track 48 : DyoEdafos\_82
- Track 49 : Douge\_77
- Track 50 : Baudelaire\_87, Aegeus\_87
- Track 51 : GAL1\_69
- Track 52 : RomansRevenge\_36

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

The start number called the most often in the published annotations is 22, it was called in 66 of the 98 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AWGoat\_39, Acquire49\_77, Aegeus\_87, Appletree2\_76, Archie\_77, AvadaKedavra\_77, Baoshan\_77, Baudelaire\_87, Bazzle\_77, BigCheese\_80, BobsGarage\_80, BrainDrainer\_78, Breezona\_80, Bromden\_78, Chaser\_76, CicholasNage\_74, Claus\_80, Clautastrophe\_76, Crossroads\_80, DHan\_83, DanBing\_80, DirkDirk\_74, Douzhi\_78, DrSeegs\_80, DuncansLeg\_78, DyoEdafos\_82, Enceladus\_74, Faith1\_80, Finemlucis\_79, Finnry\_78, Gabriela\_79, Gardann\_80, GuuelaD\_78, Hafay\_81, Halena\_75, Itos\_79, Jubie\_77, Kahlid\_80, Kingsolomon\_76, Krypton555\_79, LeBron\_76, Lewan\_81, LilDestine\_79, Loadrie\_79, Lolly9\_77, Lumos\_79, MAckerman\_75, Miley16\_80, MiniLon\_82, MiniMac\_82, MkaliMitinis3\_81, Moostard\_76, Netyap\_81, Nicholas\_76, Nicholasp3\_80, Rose5\_77, Rumpelstiltskin\_77, Samty\_77, Sarshaun\_81, Sheng711\_79, Snenia\_77, Soap141\_80, Tank\_41, Tourach\_79, Tyson\_78, UPIE\_76, Vetrix\_79, Wamburgxpress\_77, Whirlwind\_79, Wigglewiggle\_79, Wilde\_41, Wilder\_81, Winky\_80, Wyatt2\_78, Zakai\_81, Zaria\_78, ZhongYanYuan\_77,

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

- Bellis\_76, BourbonZero\_79, Calm\_79, Douge\_77, Ellson\_77, FarmResident\_79, Jobypre\_79, KirDoubleO7\_76, LiyuLake\_77, MsGreen\_78, PYPDinur\_77, Quby\_78, Silverleaf\_77,

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

- BENtherdunthat\_90, Beagle\_51, Bran\_49, BruhMoment\_47, Denise\_65, DumpsterDude\_68, Faith5x5\_63, GAL1\_69, Getalong\_93, JoeDirt\_77, Kuwabara\_86, Lton\_65, Lucky10\_65, Lutum\_91, Malisha\_90, MellowYellow\_47, Morkie\_68, MulchSalad\_67, NyleyClemson\_46, ODay\_98, Odyssey395\_52, OneDirection\_62, Pepperoni\_61, Phabuloso\_97, PhorbesPhlower\_66, Pointis\_49, Pureglobe5\_51, Ranunculus\_45, Rizwana\_39, RomansRevenge\_36, Ruthy\_70, SilentRX\_41, Whitney\_89,

### Summary by start number:

#### Start 18:

- Found in 7 of 123 ( 5.7% ) of genes in pham
- Manual Annotations of this start: 6 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beagle\_51 (AP2), BruhMoment\_47 (AP3), MellowYellow\_47 (AP2), NyleyClemson\_46 (AP2), Odyssey395\_52 (AP2), Pointis\_49 (AP2), Pureglobe5\_51 (AP2),

#### Start 19:

- Found in 1 of 123 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ranunculus\_45 (AP),

#### Start 20:

- Found in 18 of 123 ( 14.6% ) of genes in pham
- Manual Annotations of this start: 15 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BENtherdunthat\_90 (DN1), Denise\_65 (CZ5), Faith5x5\_63 (CZ6), GAL1\_69 (singleton), Getalong\_93 (DN1), Kuwabara\_86 (DN4), Lton\_65 (CZ), Lucky10\_65 (DH), Lutum\_91 (DN1), Malisha\_90 (DN), Morkie\_68 (DH), MulchSalad\_67 (F), ODay\_98 (DN), OneDirection\_62 (CZ6), Pepperoni\_61 (CZ), Phabuloso\_97 (DN1), PhorbesPhlower\_66 (DH), Whitney\_89 (DN1),

#### Start 21:

- Found in 6 of 123 ( 4.9% ) of genes in pham
- Manual Annotations of this start: 5 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bran\_49 (EP), DumpsterDude\_68 (DW), Rizwana\_39 (AP1), RomansRevenge\_36 (singleton), Ruthy\_70 (DW), SilentRX\_41 (AP4),

#### Start 22:

- Found in 90 of 123 ( 73.2% ) of genes in pham
- Manual Annotations of this start: 66 of 98
- Called 85.6% of time when present
- Phage (with cluster) where this start called: AWGoat\_39 (AP4), Acquire49\_77 (L1), Aegeus\_87 (L5), Appletree2\_76 (L1), Archie\_77 (L2), AvadaKedavra\_77 (L1), Baoshan\_77 (L2), Baudelaire\_87 (L5), Bazzle\_77 (L2), BigCheese\_80 (L2), BobsGarage\_80 (L2), BrainDrainer\_78 (L4), Breezona\_80 (L2), Bromden\_78 (L4), Chaser\_76 (L4), CicholasNage\_74 (L1), Claus\_80 (L2), Clautastrophe\_76 (L3), Crossroads\_80 (L2), DHan\_83 (L2), DanBing\_80 (L2), DirkDirk\_74 (L1), Douzhi\_78

(L4), DrSeegs\_80 (L2), DuncansLeg\_78 (L3), DyoEdafos\_82 (L4), Enceladus\_74 (L1), Faith1\_80 (L2), Finemlucis\_79 (L2), Finnry\_78 (L3), Gabriela\_79 (L2), Gardann\_80 (L2), GuuelaD\_78 (L2), Hafay\_81 (L2), Halena\_75 (L1), Itos\_79 (L2), Jubie\_77 (L3), Kahlid\_80 (L2), Kingsolomon\_76 (L3), Krypton555\_79 (L3), LeBron\_76 (L1), Lewan\_81 (L2), LilDestine\_79 (L2), Loadrie\_79 (L2), Lolly9\_77 (L3), Lumos\_79 (L3), MAckerman\_75 (L1), Miley16\_80 (L2), MiniLon\_82 (L3), MiniMac\_82 (L3), MkaliMitinis3\_81 (L2), Moostard\_76 (L3), Netyap\_81 (L2), Nicholas\_76 (L3), Nicholasp3\_80 (L2), Rose5\_77 (L1), Rumpelstiltskin\_77 (L2), Samty\_77 (L3), Sarshaun\_81 (L2), Sheng711\_79 (L4), Snenia\_77 (L3), Soap141\_80 (L2), Tank\_41 (AP1), Tourach\_79 (L2), Tyson\_78 (L1), UPIE\_76 (L1), Vetrix\_79 (L2), Wamburgrxpress\_77 (L1), Whirlwind\_79 (L3), Wigglewiggles\_79 (L2), Wilde\_41 (AP1), Wilder\_81 (L2), Winky\_80 (L2), Wyatt2\_78 (L1), Zakai\_81 (L2), Zaria\_78 (L1), ZhongYanYuan\_77 (L2),

Start 27:

- Found in 40 of 123 ( 32.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 7.5% of time when present
- Phage (with cluster) where this start called: BourbonZero\_79 (L3), Ellson\_77 (L3), PYPDinur\_77 (L4),

Start 28:

- Found in 13 of 123 ( 10.6% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 15.4% of time when present
- Phage (with cluster) where this start called: Douge\_77 (L4), FarmResident\_79 (L4),

Start 30:

- Found in 108 of 123 ( 87.8% ) of genes in pham
- Manual Annotations of this start: 4 of 98
- Called 7.4% of time when present
- Phage (with cluster) where this start called: Bellis\_76 (L3), Calm\_79 (L1), Jobypre\_79 (L3), JoeDirt\_77 (L1), KirDoubleO7\_76 (L3), LiyuLake\_77 (L3), MsGreen\_78 (L3), Silverleaf\_77 (L1),

Start 33:

- Found in 10 of 123 ( 8.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Quby\_78 (L4),

### Summary by clusters:

There are 21 clusters represented in this pham: DN, singleton, DN1, DH, F, AP2, AP3, AP1, CZ6, AP4, CZ5, CZ, DN4, L4, L5, L2, L3, L1, AP, DW, EP,

Info for manual annotations of cluster AP:

- Start number 19 was manually annotated 1 time for cluster AP.

Info for manual annotations of cluster AP1:

- Start number 21 was manually annotated 1 time for cluster AP1.
- Start number 22 was manually annotated 2 times for cluster AP1.

Info for manual annotations of cluster AP2:

- Start number 18 was manually annotated 5 times for cluster AP2.

Info for manual annotations of cluster AP3:

- Start number 18 was manually annotated 1 time for cluster AP3.

Info for manual annotations of cluster AP4:

- Start number 21 was manually annotated 1 time for cluster AP4.
- Start number 22 was manually annotated 1 time for cluster AP4.

Info for manual annotations of cluster CZ:

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

Info for manual annotations of cluster CZ5:

- Start number 20 was manually annotated 1 time for cluster CZ5.

Info for manual annotations of cluster CZ6:

- Start number 20 was manually annotated 2 times for cluster CZ6.

Info for manual annotations of cluster DH:

- Start number 20 was manually annotated 3 times for cluster DH.

Info for manual annotations of cluster DN:

- Start number 20 was manually annotated 2 times for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 20 was manually annotated 5 times for cluster DN1.

Info for manual annotations of cluster DN4:

- Start number 20 was manually annotated 1 time for cluster DN4.

Info for manual annotations of cluster DW:

- Start number 21 was manually annotated 2 times for cluster DW.

Info for manual annotations of cluster EP:

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

Info for manual annotations of cluster L1:

- Start number 22 was manually annotated 15 times for cluster L1.
- Start number 30 was manually annotated 3 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 22 was manually annotated 28 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 22 was manually annotated 15 times for cluster L3.
- Start number 30 was manually annotated 1 time for cluster L3.

Info for manual annotations of cluster L4:

- Start number 22 was manually annotated 3 times for cluster L4.
- Start number 28 was manually annotated 1 time for cluster L4.

Info for manual annotations of cluster L5:

•Start number 22 was manually annotated 2 times for cluster L5.

**Gene Information:**

Gene: AWGoat\_39 Start: 35301, Stop: 34870, Start Num: 22

Candidate Starts for AWGoat\_39:

(9, 35424), (13, 35349), (14, 35343), (Start: 22 @35301 has 66 MA's), (27, 35283), (46, 35148), (47, 35142), (49, 35130), (51, 35106), (56, 35079), (58, 35058), (63, 35040), (65, 35013), (71, 34941), (79, 34899),

Gene: Acquire49\_77 Start: 51648, Stop: 52061, Start Num: 22

Candidate Starts for Acquire49\_77:

(Start: 22 @51648 has 66 MA's), (Start: 30 @51687 has 4 MA's), (34, 51723), (47, 51810), (65, 51951), (71, 52029), (72, 52032),

Gene: Aegeus\_87 Start: 54478, Stop: 54843, Start Num: 22

Candidate Starts for Aegeus\_87:

(Start: 22 @54478 has 66 MA's), (27, 54496), (Start: 28 @54502 has 1 MA's), (Start: 30 @54517 has 4 MA's), (50, 54658), (58, 54724), (59, 54727), (65, 54781), (68, 54829),

Gene: Appletree2\_76 Start: 51259, Stop: 51672, Start Num: 22

Candidate Starts for Appletree2\_76:

(Start: 22 @51259 has 66 MA's), (Start: 30 @51298 has 4 MA's), (34, 51334), (47, 51421), (65, 51562), (71, 51640), (72, 51643),

Gene: Archie\_77 Start: 53141, Stop: 53554, Start Num: 22

Candidate Starts for Archie\_77:

(Start: 22 @53141 has 66 MA's), (Start: 30 @53180 has 4 MA's), (41, 53261), (47, 53303), (65, 53444), (74, 53540),

Gene: AvadaKedavra\_77 Start: 51727, Stop: 52140, Start Num: 22

Candidate Starts for AvadaKedavra\_77:

(Start: 22 @51727 has 66 MA's), (Start: 30 @51766 has 4 MA's), (34, 51802), (47, 51889), (65, 52030), (71, 52108), (72, 52111),

Gene: BENtherdunthat\_90 Start: 49249, Stop: 49614, Start Num: 20

Candidate Starts for BENtherdunthat\_90:

(1, 48544), (2, 48700), (3, 48880), (5, 48991), (7, 49075), (Start: 20 @49249 has 15 MA's), (Start: 30 @49285 has 4 MA's), (39, 49354), (40, 49357), (44, 49390), (48, 49417), (55, 49471), (56, 49474), (65, 49552),

Gene: Baoshan\_77 Start: 53427, Stop: 53840, Start Num: 22

Candidate Starts for Baoshan\_77:

(Start: 22 @53427 has 66 MA's), (Start: 30 @53466 has 4 MA's), (35, 53505), (41, 53547), (47, 53589), (59, 53676), (65, 53730), (74, 53826),

Gene: Baudelaire\_87 Start: 54478, Stop: 54843, Start Num: 22

Candidate Starts for Baudelaire\_87:

(Start: 22 @54478 has 66 MA's), (27, 54496), (Start: 28 @54502 has 1 MA's), (Start: 30 @54517 has 4 MA's), (50, 54658), (58, 54724), (59, 54727), (65, 54781), (68, 54829),



Gene: Bazzle\_77 Start: 53330, Stop: 53743, Start Num: 22

Candidate Starts for Bazzle\_77:

(Start: 22 @53330 has 66 MA's), (Start: 30 @53369 has 4 MA's), (41, 53450), (47, 53492), (59, 53579), (65, 53633), (74, 53729),

Gene: Beagle\_51 Start: 38228, Stop: 37809, Start Num: 18

Candidate Starts for Beagle\_51:

(Start: 18 @38228 has 6 MA's), (23, 38216), (29, 38183), (48, 38057), (56, 38000), (57, 37988), (58, 37979), (59, 37976), (61, 37958),

Gene: Bellis\_76 Start: 53474, Stop: 53827, Start Num: 30

Candidate Starts for Bellis\_76:

(Start: 22 @53435 has 66 MA's), (27, 53453), (Start: 30 @53474 has 4 MA's), (47, 53597), (65, 53738), (71, 53816), (72, 53819),

Gene: BigCheese\_80 Start: 53557, Stop: 53970, Start Num: 22

Candidate Starts for BigCheese\_80:

(Start: 22 @53557 has 66 MA's), (Start: 30 @53596 has 4 MA's), (41, 53677), (47, 53719), (59, 53806), (65, 53860), (74, 53956),

Gene: BobsGarage\_80 Start: 53557, Stop: 53970, Start Num: 22

Candidate Starts for BobsGarage\_80:

(Start: 22 @53557 has 66 MA's), (Start: 30 @53596 has 4 MA's), (41, 53677), (47, 53719), (59, 53806), (65, 53860), (74, 53956),

Gene: BourbonZero\_79 Start: 53449, Stop: 53823, Start Num: 27

Candidate Starts for BourbonZero\_79:

(Start: 22 @53431 has 66 MA's), (27, 53449), (Start: 30 @53470 has 4 MA's), (47, 53593), (57, 53668), (65, 53734), (71, 53812), (72, 53815),

Gene: BrainDrainer\_78 Start: 52369, Stop: 52743, Start Num: 22

Candidate Starts for BrainDrainer\_78:

(Start: 22 @52369 has 66 MA's), (27, 52387), (Start: 28 @52393 has 1 MA's), (Start: 30 @52408 has 4 MA's), (33, 52432), (47, 52531), (57, 52606), (60, 52630), (65, 52672), (66, 52687),

Gene: Bran\_49 Start: 35390, Stop: 35785, Start Num: 21

Candidate Starts for Bran\_49:

(Start: 21 @35390 has 5 MA's), (32, 35450), (54, 35606),

Gene: Breezona\_80 Start: 53557, Stop: 53970, Start Num: 22

Candidate Starts for Breezona\_80:

(Start: 22 @53557 has 66 MA's), (Start: 30 @53596 has 4 MA's), (41, 53677), (47, 53719), (59, 53806), (65, 53860), (74, 53956),

Gene: Bromden\_78 Start: 53002, Stop: 53388, Start Num: 22

Candidate Starts for Bromden\_78:

(Start: 22 @53002 has 66 MA's), (27, 53020), (Start: 28 @53026 has 1 MA's), (Start: 30 @53041 has 4 MA's), (33, 53065), (47, 53164), (57, 53239), (60, 53263), (65, 53305), (66, 53320), (71, 53380),

Gene: BruhMoment\_47 Start: 39339, Stop: 38920, Start Num: 18

Candidate Starts for BruhMoment\_47:

(Start: 18 @39339 has 6 MA's), (23, 39327), (29, 39294), (41, 39216), (43, 39201), (46, 39180), (49, 39162), (56, 39111), (57, 39099), (58, 39090), (61, 39069), (67, 38994),

Gene: Calm\_79 Start: 52009, Stop: 52383, Start Num: 30

Candidate Starts for Calm\_79:

(Start: 22 @51970 has 66 MA's), (Start: 30 @52009 has 4 MA's), (34, 52045), (47, 52132), (65, 52273), (71, 52351), (72, 52354),

Gene: Chaser\_76 Start: 52001, Stop: 52387, Start Num: 22

Candidate Starts for Chaser\_76:

(Start: 22 @52001 has 66 MA's), (27, 52019), (Start: 28 @52025 has 1 MA's), (Start: 30 @52040 has 4 MA's), (33, 52064), (47, 52163), (57, 52238), (60, 52262), (65, 52304), (71, 52379),

Gene: CicholasNage\_74 Start: 51312, Stop: 51725, Start Num: 22

Candidate Starts for CicholasNage\_74:

(Start: 22 @51312 has 66 MA's), (Start: 30 @51351 has 4 MA's), (34, 51387), (47, 51474), (65, 51615), (71, 51693), (72, 51696),

Gene: Claus\_80 Start: 53492, Stop: 53905, Start Num: 22

Candidate Starts for Claus\_80:

(Start: 22 @53492 has 66 MA's), (Start: 30 @53531 has 4 MA's), (47, 53654), (59, 53741), (65, 53795), (74, 53891),

Gene: Clautastrophe\_76 Start: 53433, Stop: 53825, Start Num: 22

Candidate Starts for Clautastrophe\_76:

(Start: 22 @53433 has 66 MA's), (27, 53451), (Start: 30 @53472 has 4 MA's), (47, 53595), (65, 53736), (71, 53814), (72, 53817),

Gene: Crossroads\_80 Start: 53632, Stop: 54045, Start Num: 22

Candidate Starts for Crossroads\_80:

(Start: 22 @53632 has 66 MA's), (Start: 30 @53671 has 4 MA's), (41, 53752), (47, 53794), (59, 53881), (65, 53935), (74, 54031),

Gene: DHan\_83 Start: 53710, Stop: 54123, Start Num: 22

Candidate Starts for DHan\_83:

(Start: 22 @53710 has 66 MA's), (Start: 30 @53749 has 4 MA's), (41, 53830), (47, 53872), (59, 53959), (65, 54013), (74, 54109),

Gene: DanBing\_80 Start: 53362, Stop: 53775, Start Num: 22

Candidate Starts for DanBing\_80:

(Start: 22 @53362 has 66 MA's), (Start: 30 @53401 has 4 MA's), (41, 53482), (47, 53524), (59, 53611), (65, 53665), (74, 53761),

Gene: Denise\_65 Start: 39624, Stop: 39992, Start Num: 20

Candidate Starts for Denise\_65:

(10, 39543), (Start: 20 @39624 has 15 MA's), (Start: 30 @39666 has 4 MA's), (37, 39726), (39, 39735), (40, 39738), (45, 39774),

Gene: DirkDirk\_74 Start: 50839, Stop: 51252, Start Num: 22

Candidate Starts for DirkDirk\_74:

(Start: 22 @50839 has 66 MA's), (Start: 30 @50878 has 4 MA's), (34, 50914), (47, 51001), (65, 51142), (71, 51220), (72, 51223),

Gene: Douge\_77 Start: 51948, Stop: 52310, Start Num: 28  
Candidate Starts for Douge\_77:  
(Start: 22 @51924 has 66 MA's), (27, 51942), (Start: 28 @51948 has 1 MA's), (Start: 30 @51963 has 4 MA's), (33, 51987), (47, 52086), (57, 52161), (60, 52185), (65, 52227), (71, 52302),

Gene: Douzhi\_78 Start: 52186, Stop: 52560, Start Num: 22  
Candidate Starts for Douzhi\_78:  
(Start: 22 @52186 has 66 MA's), (27, 52204), (Start: 28 @52210 has 1 MA's), (Start: 30 @52225 has 4 MA's), (33, 52249), (47, 52348), (57, 52423), (60, 52447), (65, 52489), (66, 52504),

Gene: DrSeegs\_80 Start: 53557, Stop: 53970, Start Num: 22  
Candidate Starts for DrSeegs\_80:  
(Start: 22 @53557 has 66 MA's), (Start: 30 @53596 has 4 MA's), (41, 53677), (47, 53719), (59, 53806), (65, 53860), (74, 53956),

Gene: DumpsterDude\_68 Start: 50011, Stop: 50379, Start Num: 21  
Candidate Starts for DumpsterDude\_68:  
(8, 49891), (Start: 21 @50011 has 5 MA's), (Start: 30 @50050 has 4 MA's), (35, 50089), (37, 50110), (40, 50122), (47, 50176),

Gene: DuncansLeg\_78 Start: 53419, Stop: 53811, Start Num: 22  
Candidate Starts for DuncansLeg\_78:  
(Start: 22 @53419 has 66 MA's), (27, 53437), (Start: 30 @53458 has 4 MA's), (47, 53581), (57, 53656), (65, 53722), (71, 53800), (72, 53803),

Gene: DyoEdafos\_82 Start: 52834, Stop: 53220, Start Num: 22  
Candidate Starts for DyoEdafos\_82:  
(Start: 22 @52834 has 66 MA's), (27, 52852), (Start: 28 @52858 has 1 MA's), (Start: 30 @52873 has 4 MA's), (33, 52897), (47, 52996), (60, 53095), (65, 53137), (71, 53212),

Gene: Ellson\_77 Start: 53752, Stop: 54126, Start Num: 27  
Candidate Starts for Ellson\_77:  
(Start: 22 @53734 has 66 MA's), (27, 53752), (Start: 30 @53773 has 4 MA's), (47, 53896), (57, 53971), (65, 54037), (71, 54115), (72, 54118),

Gene: Enceladus\_74 Start: 51616, Stop: 52029, Start Num: 22  
Candidate Starts for Enceladus\_74:  
(Start: 22 @51616 has 66 MA's), (Start: 30 @51655 has 4 MA's), (34, 51691), (47, 51778), (65, 51919), (71, 51997), (72, 52000),

Gene: Faith1\_80 Start: 53557, Stop: 53970, Start Num: 22  
Candidate Starts for Faith1\_80:  
(Start: 22 @53557 has 66 MA's), (Start: 30 @53596 has 4 MA's), (41, 53677), (47, 53719), (59, 53806), (65, 53860), (74, 53956),

Gene: Faith5x5\_63 Start: 38073, Stop: 38444, Start Num: 20  
Candidate Starts for Faith5x5\_63:  
(10, 37992), (12, 38031), (Start: 20 @38073 has 15 MA's), (Start: 30 @38115 has 4 MA's), (35, 38154), (37, 38175), (40, 38187),

Gene: FarmResident\_79 Start: 51952, Stop: 52314, Start Num: 28  
Candidate Starts for FarmResident\_79:

(Start: 22 @51928 has 66 MA's), (26, 51943), (27, 51946), (Start: 28 @51952 has 1 MA's), (Start: 30 @51967 has 4 MA's), (33, 51991), (47, 52090), (57, 52165), (60, 52189), (65, 52231), (71, 52306),

Gene: Finemlucis\_79 Start: 54025, Stop: 54423, Start Num: 22

Candidate Starts for Finemlucis\_79:

(Start: 22 @54025 has 66 MA's), (Start: 30 @54064 has 4 MA's), (39, 54133), (40, 54136), (47, 54187), (58, 54271), (65, 54328), (72, 54409),

Gene: Finnry\_78 Start: 53684, Stop: 54076, Start Num: 22

Candidate Starts for Finnry\_78:

(Start: 22 @53684 has 66 MA's), (27, 53702), (Start: 30 @53723 has 4 MA's), (47, 53846), (65, 53987), (71, 54065), (72, 54068),

Gene: GAL1\_69 Start: 43840, Stop: 44205, Start Num: 20

Candidate Starts for GAL1\_69:

(Start: 20 @43840 has 15 MA's), (Start: 30 @43876 has 4 MA's), (39, 43945), (40, 43948), (48, 44008), (55, 44062), (56, 44065), (57, 44077), (65, 44143),

Gene: Gabriela\_79 Start: 52903, Stop: 53316, Start Num: 22

Candidate Starts for Gabriela\_79:

(Start: 22 @52903 has 66 MA's), (Start: 30 @52942 has 4 MA's), (41, 53023), (47, 53065), (59, 53152), (65, 53206), (74, 53302),

Gene: Gardann\_80 Start: 53392, Stop: 53805, Start Num: 22

Candidate Starts for Gardann\_80:

(Start: 22 @53392 has 66 MA's), (Start: 30 @53431 has 4 MA's), (41, 53512), (47, 53554), (59, 53641), (65, 53695), (74, 53791),

Gene: Getalong\_93 Start: 51704, Stop: 52069, Start Num: 20

Candidate Starts for Getalong\_93:

(1, 50999), (2, 51155), (3, 51335), (5, 51446), (7, 51530), (Start: 20 @51704 has 15 MA's), (Start: 30 @51740 has 4 MA's), (39, 51809), (40, 51812), (44, 51845), (48, 51872), (55, 51926), (56, 51929), (65, 52007),

Gene: GuuelaD\_78 Start: 53672, Stop: 54085, Start Num: 22

Candidate Starts for GuuelaD\_78:

(Start: 22 @53672 has 66 MA's), (Start: 30 @53711 has 4 MA's), (41, 53792), (47, 53834), (59, 53921), (65, 53975), (74, 54071),

Gene: Hafay\_81 Start: 53487, Stop: 53900, Start Num: 22

Candidate Starts for Hafay\_81:

(Start: 22 @53487 has 66 MA's), (Start: 30 @53526 has 4 MA's), (47, 53649), (59, 53736), (65, 53790), (74, 53886),

Gene: Halena\_75 Start: 50886, Stop: 51299, Start Num: 22

Candidate Starts for Halena\_75:

(Start: 22 @50886 has 66 MA's), (Start: 30 @50925 has 4 MA's), (34, 50961), (47, 51048), (65, 51189), (71, 51267), (72, 51270),

Gene: Itos\_79 Start: 52463, Stop: 52876, Start Num: 22

Candidate Starts for Itos\_79:

(Start: 22 @52463 has 66 MA's), (Start: 30 @52502 has 4 MA's), (41, 52583), (47, 52625), (59, 52712), (65, 52766), (74, 52862),

Gene: Jobypre\_79 Start: 53472, Stop: 53825, Start Num: 30

Candidate Starts for Jobypre\_79:

(Start: 22 @53433 has 66 MA's), (27, 53451), (Start: 30 @53472 has 4 MA's), (47, 53595), (65, 53736), (71, 53814), (72, 53817),

Gene: JoeDirt\_77 Start: 52253, Stop: 52627, Start Num: 30

Candidate Starts for JoeDirt\_77:

(Start: 30 @52253 has 4 MA's), (34, 52289), (47, 52376), (65, 52517), (71, 52595), (72, 52598),

Gene: Jubie\_77 Start: 53568, Stop: 53960, Start Num: 22

Candidate Starts for Jubie\_77:

(Start: 22 @53568 has 66 MA's), (27, 53586), (Start: 30 @53607 has 4 MA's), (47, 53730), (65, 53871), (71, 53949), (72, 53952),

Gene: Kahlid\_80 Start: 53563, Stop: 53976, Start Num: 22

Candidate Starts for Kahlid\_80:

(Start: 22 @53563 has 66 MA's), (Start: 30 @53602 has 4 MA's), (37, 53662), (41, 53683), (47, 53725), (59, 53812), (65, 53866), (74, 53962),

Gene: Kingsolomon\_76 Start: 53440, Stop: 53832, Start Num: 22

Candidate Starts for Kingsolomon\_76:

(Start: 22 @53440 has 66 MA's), (27, 53458), (Start: 30 @53479 has 4 MA's), (47, 53602), (65, 53743), (71, 53821), (72, 53824),

Gene: KirDoubleO7\_76 Start: 53460, Stop: 53813, Start Num: 30

Candidate Starts for KirDoubleO7\_76:

(Start: 22 @53421 has 66 MA's), (27, 53439), (Start: 30 @53460 has 4 MA's), (47, 53583), (57, 53658), (65, 53724), (71, 53802), (72, 53805),

Gene: Krypton555\_79 Start: 53667, Stop: 54059, Start Num: 22

Candidate Starts for Krypton555\_79:

(Start: 22 @53667 has 66 MA's), (27, 53685), (Start: 30 @53706 has 4 MA's), (47, 53829), (65, 53970), (71, 54048), (72, 54051),

Gene: Kuwabara\_86 Start: 51241, Stop: 51609, Start Num: 20

Candidate Starts for Kuwabara\_86:

(Start: 20 @51241 has 15 MA's), (Start: 30 @51283 has 4 MA's), (35, 51322), (37, 51343), (39, 51352), (40, 51355), (69, 51601),

Gene: LeBron\_76 Start: 50885, Stop: 51298, Start Num: 22

Candidate Starts for LeBron\_76:

(Start: 22 @50885 has 66 MA's), (Start: 30 @50924 has 4 MA's), (34, 50960), (47, 51047), (65, 51188), (71, 51266), (72, 51269),

Gene: Lewan\_81 Start: 53615, Stop: 54049, Start Num: 22

Candidate Starts for Lewan\_81:

(Start: 22 @53615 has 66 MA's), (Start: 30 @53654 has 4 MA's), (41, 53735), (47, 53777), (59, 53864), (65, 53918), (74, 54014),

Gene: LilDestine\_79 Start: 53467, Stop: 53880, Start Num: 22

Candidate Starts for LilDestine\_79:

(Start: 22 @53467 has 66 MA's), (Start: 30 @53506 has 4 MA's), (41, 53587), (47, 53629), (59, 53716), (65, 53770), (74, 53866),

Gene: LiyuLake\_77 Start: 53533, Stop: 53886, Start Num: 30

Candidate Starts for LiyuLake\_77:

(Start: 22 @53494 has 66 MA's), (27, 53512), (Start: 30 @53533 has 4 MA's), (47, 53656), (57, 53731), (65, 53797), (71, 53875), (72, 53878),

Gene: Loadrie\_79 Start: 53642, Stop: 54055, Start Num: 22

Candidate Starts for Loadrie\_79:

(Start: 22 @53642 has 66 MA's), (Start: 30 @53681 has 4 MA's), (41, 53762), (47, 53804), (59, 53891), (65, 53945), (74, 54041),

Gene: Lolly9\_77 Start: 53537, Stop: 53929, Start Num: 22

Candidate Starts for Lolly9\_77:

(Start: 22 @53537 has 66 MA's), (27, 53555), (Start: 30 @53576 has 4 MA's), (47, 53699), (65, 53840), (71, 53918), (72, 53921),

Gene: Lton\_65 Start: 38394, Stop: 38762, Start Num: 20

Candidate Starts for Lton\_65:

(Start: 20 @38394 has 15 MA's), (Start: 30 @38436 has 4 MA's), (35, 38475), (37, 38496), (39, 38505), (40, 38508), (69, 38754),

Gene: Lucky10\_65 Start: 40814, Stop: 41182, Start Num: 20

Candidate Starts for Lucky10\_65:

(7, 40652), (Start: 20 @40814 has 15 MA's), (29, 40853), (Start: 30 @40856 has 4 MA's), (35, 40895), (37, 40916), (39, 40925), (40, 40928),

Gene: Lumos\_79 Start: 53430, Stop: 53822, Start Num: 22

Candidate Starts for Lumos\_79:

(Start: 22 @53430 has 66 MA's), (27, 53448), (Start: 30 @53469 has 4 MA's), (47, 53592), (65, 53733), (71, 53811), (72, 53814),

Gene: Lutum\_91 Start: 49684, Stop: 50049, Start Num: 20

Candidate Starts for Lutum\_91:

(1, 48979), (2, 49135), (3, 49315), (5, 49426), (7, 49510), (Start: 20 @49684 has 15 MA's), (Start: 30 @49720 has 4 MA's), (39, 49789), (40, 49792), (44, 49825), (48, 49852), (55, 49906), (56, 49909), (65, 49987),

Gene: MAckerman\_75 Start: 50879, Stop: 51292, Start Num: 22

Candidate Starts for MAckerman\_75:

(Start: 22 @50879 has 66 MA's), (Start: 30 @50918 has 4 MA's), (34, 50954), (47, 51041), (65, 51182), (71, 51260), (72, 51263),

Gene: Malisha\_90 Start: 52796, Stop: 53167, Start Num: 20

Candidate Starts for Malisha\_90:

(10, 52715), (12, 52754), (Start: 20 @52796 has 15 MA's), (Start: 30 @52838 has 4 MA's), (35, 52877), (37, 52898), (40, 52910),

Gene: MellowYellow\_47 Start: 36986, Stop: 36549, Start Num: 18

Candidate Starts for MellowYellow\_47:

(15, 37010), (Start: 18 @36986 has 6 MA's), (23, 36974), (40, 36872), (44, 36839), (46, 36830), (49, 36812), (56, 36761), (57, 36749), (58, 36740), (67, 36659), (79, 36581),

Gene: Miley16\_80 Start: 53557, Stop: 53970, Start Num: 22

Candidate Starts for Miley16\_80:

(Start: 22 @53557 has 66 MA's), (Start: 30 @53596 has 4 MA's), (41, 53677), (47, 53719), (59, 53806), (65, 53860), (74, 53956),

Gene: MiniLon\_82 Start: 53538, Stop: 53930, Start Num: 22

Candidate Starts for MiniLon\_82:

(Start: 22 @53538 has 66 MA's), (27, 53556), (Start: 30 @53577 has 4 MA's), (47, 53700), (65, 53841), (71, 53919), (72, 53922),

Gene: MiniMac\_82 Start: 53533, Stop: 53925, Start Num: 22

Candidate Starts for MiniMac\_82:

(Start: 22 @53533 has 66 MA's), (27, 53551), (Start: 30 @53572 has 4 MA's), (47, 53695), (65, 53836), (71, 53914), (72, 53917),

Gene: MkaliMitinis3\_81 Start: 53626, Stop: 54039, Start Num: 22

Candidate Starts for MkaliMitinis3\_81:

(Start: 22 @53626 has 66 MA's), (Start: 30 @53665 has 4 MA's), (41, 53746), (47, 53788), (59, 53875), (65, 53929), (74, 54025),

Gene: Moostard\_76 Start: 53435, Stop: 53827, Start Num: 22

Candidate Starts for Moostard\_76:

(Start: 22 @53435 has 66 MA's), (27, 53453), (Start: 30 @53474 has 4 MA's), (47, 53597), (65, 53738), (71, 53816), (72, 53819),

Gene: Morkie\_68 Start: 39542, Stop: 39910, Start Num: 20

Candidate Starts for Morkie\_68:

(Start: 20 @39542 has 15 MA's), (Start: 30 @39584 has 4 MA's), (35, 39623), (37, 39644), (39, 39653), (40, 39656), (69, 39902),

Gene: MsGreen\_78 Start: 53471, Stop: 53824, Start Num: 30

Candidate Starts for MsGreen\_78:

(Start: 22 @53432 has 66 MA's), (27, 53450), (Start: 30 @53471 has 4 MA's), (47, 53594), (65, 53735), (71, 53813), (72, 53816),

Gene: MulchSalad\_67 Start: 40786, Stop: 41157, Start Num: 20

Candidate Starts for MulchSalad\_67:

(Start: 20 @40786 has 15 MA's), (24, 40795), (25, 40801), (Start: 30 @40825 has 4 MA's), (38, 40891), (40, 40897), (47, 40951), (48, 40957), (59, 41038),

Gene: Netyap\_81 Start: 53558, Stop: 53971, Start Num: 22

Candidate Starts for Netyap\_81:

(Start: 22 @53558 has 66 MA's), (Start: 30 @53597 has 4 MA's), (41, 53678), (47, 53720), (59, 53807), (65, 53861), (74, 53957),

Gene: Nicholas\_76 Start: 53440, Stop: 53832, Start Num: 22

Candidate Starts for Nicholas\_76:

(Start: 22 @53440 has 66 MA's), (27, 53458), (Start: 30 @53479 has 4 MA's), (47, 53602), (65, 53743), (71, 53821), (72, 53824),

Gene: Nicholasp3\_80 Start: 53392, Stop: 53805, Start Num: 22

Candidate Starts for Nicholasp3\_80:

(Start: 22 @53392 has 66 MA's), (Start: 30 @53431 has 4 MA's), (41, 53512), (47, 53554), (59, 53641), (65, 53695), (74, 53791),

Gene: NyleyClemson\_46 Start: 36601, Stop: 36164, Start Num: 18

Candidate Starts for NyleyClemson\_46:

(15, 36625), (Start: 18 @36601 has 6 MA's), (23, 36589), (40, 36487), (44, 36454), (46, 36445), (49, 36427), (56, 36376), (57, 36364), (58, 36355), (67, 36274), (79, 36196),

Gene: ODay\_98 Start: 52337, Stop: 52702, Start Num: 20

Candidate Starts for ODay\_98:

(Start: 20 @52337 has 15 MA's), (Start: 30 @52373 has 4 MA's), (39, 52442), (40, 52445), (42, 52463), (44, 52478), (48, 52505), (53, 52550), (55, 52559), (56, 52562), (64, 52625), (65, 52640),

Gene: Odyssey395\_52 Start: 38270, Stop: 37833, Start Num: 18

Candidate Starts for Odyssey395\_52:

(Start: 18 @38270 has 6 MA's), (23, 38258), (27, 38243), (40, 38156), (44, 38123), (46, 38114), (49, 38096), (56, 38045), (57, 38033), (58, 38024), (59, 38021), (67, 37943), (79, 37865),

Gene: OneDirection\_62 Start: 36956, Stop: 37324, Start Num: 20

Candidate Starts for OneDirection\_62:

(Start: 20 @36956 has 15 MA's), (Start: 30 @36998 has 4 MA's), (35, 37037), (37, 37058), (39, 37067), (40, 37070),

Gene: PYPDinur\_77 Start: 52639, Stop: 52995, Start Num: 27

Candidate Starts for PYPDinur\_77:

(Start: 22 @52621 has 66 MA's), (27, 52639), (Start: 28 @52645 has 1 MA's), (Start: 30 @52660 has 4 MA's), (33, 52684), (47, 52783), (57, 52858), (60, 52882), (65, 52924), (66, 52939),

Gene: Pepperoni\_61 Start: 38082, Stop: 38450, Start Num: 20

Candidate Starts for Pepperoni\_61:

(10, 38001), (Start: 20 @38082 has 15 MA's), (Start: 30 @38124 has 4 MA's), (35, 38163), (37, 38184), (39, 38193), (40, 38196), (69, 38442),

Gene: Phabuloso\_97 Start: 51176, Stop: 51541, Start Num: 20

Candidate Starts for Phabuloso\_97:

(1, 50471), (2, 50627), (3, 50807), (5, 50918), (7, 51002), (Start: 20 @51176 has 15 MA's), (Start: 30 @51212 has 4 MA's), (39, 51281), (40, 51284), (44, 51317), (48, 51344), (55, 51398), (56, 51401), (65, 51479),

Gene: PhorbesPhlower\_66 Start: 38937, Stop: 39305, Start Num: 20

Candidate Starts for PhorbesPhlower\_66:

(Start: 20 @38937 has 15 MA's), (Start: 30 @38979 has 4 MA's), (35, 39018), (37, 39039), (39, 39048), (40, 39051), (69, 39297),

Gene: Pointis\_49 Start: 38268, Stop: 37831, Start Num: 18

Candidate Starts for Pointis\_49:

(Start: 18 @38268 has 6 MA's), (23, 38256), (27, 38241), (40, 38154), (44, 38121), (46, 38112), (49, 38094), (56, 38043), (57, 38031), (58, 38022), (59, 38019), (67, 37941), (79, 37863),

Gene: Pureglobe5\_51 Start: 38451, Stop: 38014, Start Num: 18

Candidate Starts for Pureglobe5\_51:

(Start: 18 @38451 has 6 MA's), (23, 38439), (27, 38424), (40, 38337), (44, 38304), (46, 38295), (49, 38277), (56, 38226), (57, 38214), (58, 38205), (67, 38124), (79, 38046),



Gene: Quby\_78 Start: 52015, Stop: 52338, Start Num: 33

Candidate Starts for Quby\_78:

(Start: 22 @51952 has 66 MA's), (27, 51970), (Start: 28 @51976 has 1 MA's), (Start: 30 @51991 has 4 MA's), (33, 52015), (47, 52114), (48, 52120), (57, 52189), (60, 52213), (65, 52255), (71, 52330),

Gene: Ranunculus\_45 Start: 40272, Stop: 39856, Start Num: 19

Candidate Starts for Ranunculus\_45:

(17, 40284), (Start: 19 @40272 has 1 MA's), (23, 40263), (29, 40230), (36, 40179), (41, 40152), (46, 40116), (47, 40110), (54, 40056), (56, 40047), (57, 40035), (58, 40026), (59, 40023), (61, 40005),

Gene: Rizwana\_39 Start: 36865, Stop: 36446, Start Num: 21

Candidate Starts for Rizwana\_39:

(Start: 21 @36865 has 5 MA's), (Start: 28 @36841 has 1 MA's), (31, 36823), (36, 36775), (37, 36769), (48, 36703), (49, 36697), (52, 36667), (56, 36646), (59, 36622), (62, 36592), (67, 36526), (75, 36463),

Gene: RomansRevenge\_36 Start: 34253, Stop: 33783, Start Num: 21

Candidate Starts for RomansRevenge\_36:

(Start: 21 @34253 has 5 MA's), (42, 34124), (48, 34088), (56, 34031), (59, 34007), (76, 33851), (77, 33842), (78, 33839), (80, 33815),

Gene: Rose5\_77 Start: 52059, Stop: 52472, Start Num: 22

Candidate Starts for Rose5\_77:

(Start: 22 @52059 has 66 MA's), (Start: 30 @52098 has 4 MA's), (34, 52134), (47, 52221), (65, 52362), (71, 52440), (72, 52443),

Gene: Rumpelstiltskin\_77 Start: 53185, Stop: 53598, Start Num: 22

Candidate Starts for Rumpelstiltskin\_77:

(Start: 22 @53185 has 66 MA's), (Start: 30 @53224 has 4 MA's), (41, 53305), (47, 53347), (59, 53434), (65, 53488), (74, 53584),

Gene: Ruthy\_70 Start: 49109, Stop: 49477, Start Num: 21

Candidate Starts for Ruthy\_70:

(4, 48851), (6, 48860), (8, 48989), (Start: 21 @49109 has 5 MA's), (Start: 30 @49148 has 4 MA's), (35, 49187), (37, 49208), (40, 49220), (47, 49274),

Gene: Samty\_77 Start: 53428, Stop: 53820, Start Num: 22

Candidate Starts for Samty\_77:

(Start: 22 @53428 has 66 MA's), (27, 53446), (Start: 30 @53467 has 4 MA's), (47, 53590), (65, 53731), (71, 53809), (72, 53812),

Gene: Sarshaun\_81 Start: 53650, Stop: 54063, Start Num: 22

Candidate Starts for Sarshaun\_81:

(Start: 22 @53650 has 66 MA's), (Start: 30 @53689 has 4 MA's), (41, 53770), (47, 53812), (59, 53899), (65, 53953), (74, 54049),

Gene: Sheng711\_79 Start: 52255, Stop: 52629, Start Num: 22

Candidate Starts for Sheng711\_79:

(Start: 22 @52255 has 66 MA's), (27, 52273), (Start: 28 @52279 has 1 MA's), (Start: 30 @52294 has 4 MA's), (33, 52318), (47, 52417), (57, 52492), (60, 52516), (65, 52558), (66, 52573),

Gene: SilentRX\_41 Start: 36325, Stop: 35891, Start Num: 21

Candidate Starts for SilentRX\_41:

(11, 36400), (16, 36352), (Start: 21 @36325 has 5 MA's), (47, 36163), (49, 36151), (51, 36127), (56, 36100), (57, 36088), (58, 36079), (70, 35962), (79, 35920),

Gene: Silverleaf\_77 Start: 51554, Stop: 51928, Start Num: 30

Candidate Starts for Silverleaf\_77:

(Start: 22 @51515 has 66 MA's), (Start: 30 @51554 has 4 MA's), (34, 51590), (47, 51677), (65, 51818), (71, 51896), (72, 51899),

Gene: Snenia\_77 Start: 53434, Stop: 53826, Start Num: 22

Candidate Starts for Snenia\_77:

(Start: 22 @53434 has 66 MA's), (27, 53452), (Start: 30 @53473 has 4 MA's), (47, 53596), (65, 53737), (71, 53815), (72, 53818),

Gene: Soap141\_80 Start: 53650, Stop: 54063, Start Num: 22

Candidate Starts for Soap141\_80:

(Start: 22 @53650 has 66 MA's), (Start: 30 @53689 has 4 MA's), (41, 53770), (47, 53812), (59, 53899), (65, 53953), (74, 54049),

Gene: Tank\_41 Start: 36839, Stop: 36408, Start Num: 22

Candidate Starts for Tank\_41:

(Start: 22 @36839 has 66 MA's), (24, 36836), (26, 36824), (27, 36821), (46, 36686), (47, 36680), (49, 36668), (51, 36644), (56, 36617), (57, 36605), (58, 36596), (73, 36464), (81, 36413),

Gene: Tourach\_79 Start: 53675, Stop: 54073, Start Num: 22

Candidate Starts for Tourach\_79:

(Start: 22 @53675 has 66 MA's), (Start: 30 @53714 has 4 MA's), (34, 53750), (41, 53795), (47, 53837), (59, 53924), (65, 53978), (71, 54056),

Gene: Tyson\_78 Start: 51985, Stop: 52398, Start Num: 22

Candidate Starts for Tyson\_78:

(Start: 22 @51985 has 66 MA's), (Start: 30 @52024 has 4 MA's), (34, 52060), (47, 52147), (65, 52288), (71, 52366), (72, 52369),

Gene: UPIE\_76 Start: 51581, Stop: 51994, Start Num: 22

Candidate Starts for UPIE\_76:

(Start: 22 @51581 has 66 MA's), (Start: 30 @51620 has 4 MA's), (34, 51656), (47, 51743), (65, 51884), (71, 51962), (72, 51965),

Gene: Vetrix\_79 Start: 53474, Stop: 53887, Start Num: 22

Candidate Starts for Vetrix\_79:

(Start: 22 @53474 has 66 MA's), (Start: 30 @53513 has 4 MA's), (41, 53594), (47, 53636), (59, 53723), (65, 53777), (74, 53873),

Gene: Wamburgxpress\_77 Start: 52020, Stop: 52433, Start Num: 22

Candidate Starts for Wamburgxpress\_77:

(Start: 22 @52020 has 66 MA's), (Start: 30 @52059 has 4 MA's), (34, 52095), (47, 52182), (65, 52323), (71, 52401), (72, 52404),

Gene: Whirlwind\_79 Start: 53633, Stop: 54025, Start Num: 22

Candidate Starts for Whirlwind\_79:

(Start: 22 @53633 has 66 MA's), (27, 53651), (Start: 30 @53672 has 4 MA's), (47, 53795), (65, 53936), (71, 54014), (72, 54017),

Gene: Whitney\_89 Start: 51269, Stop: 51634, Start Num: 20

Candidate Starts for Whitney\_89:

(Start: 20 @51269 has 15 MA's), (Start: 30 @51305 has 4 MA's), (39, 51374), (40, 51377), (44, 51410), (48, 51437), (55, 51491), (56, 51494), (65, 51572),

Gene: Wigglewigggle\_79 Start: 53419, Stop: 53832, Start Num: 22

Candidate Starts for Wigglewigggle\_79:

(Start: 22 @53419 has 66 MA's), (Start: 30 @53458 has 4 MA's), (41, 53539), (47, 53581), (59, 53668), (65, 53722), (74, 53818),

Gene: Wilde\_41 Start: 36681, Stop: 36250, Start Num: 22

Candidate Starts for Wilde\_41:

(Start: 22 @36681 has 66 MA's), (24, 36678), (26, 36666), (27, 36663), (46, 36528), (47, 36522), (49, 36510), (51, 36486), (56, 36459), (57, 36447), (58, 36438), (73, 36306), (81, 36255),

Gene: Wilder\_81 Start: 53563, Stop: 53976, Start Num: 22

Candidate Starts for Wilder\_81:

(Start: 22 @53563 has 66 MA's), (Start: 30 @53602 has 4 MA's), (37, 53662), (41, 53683), (47, 53725), (59, 53812), (65, 53866), (74, 53962),

Gene: Winky\_80 Start: 53557, Stop: 53970, Start Num: 22

Candidate Starts for Winky\_80:

(Start: 22 @53557 has 66 MA's), (Start: 30 @53596 has 4 MA's), (41, 53677), (47, 53719), (59, 53806), (65, 53860), (74, 53956),

Gene: Wyatt2\_78 Start: 51983, Stop: 52396, Start Num: 22

Candidate Starts for Wyatt2\_78:

(Start: 22 @51983 has 66 MA's), (Start: 30 @52022 has 4 MA's), (34, 52058), (47, 52145), (65, 52286), (71, 52364), (72, 52367),

Gene: Zakai\_81 Start: 53883, Stop: 54296, Start Num: 22

Candidate Starts for Zakai\_81:

(Start: 22 @53883 has 66 MA's), (Start: 30 @53922 has 4 MA's), (41, 54003), (47, 54045), (59, 54132), (65, 54186), (74, 54282),

Gene: Zaria\_78 Start: 51435, Stop: 51848, Start Num: 22

Candidate Starts for Zaria\_78:

(Start: 22 @51435 has 66 MA's), (Start: 30 @51474 has 4 MA's), (34, 51510), (47, 51597), (65, 51738), (71, 51816), (72, 51819),

Gene: ZhongYanYuan\_77 Start: 53010, Stop: 53423, Start Num: 22

Candidate Starts for ZhongYanYuan\_77:

(Start: 22 @53010 has 66 MA's), (Start: 30 @53049 has 4 MA's), (41, 53130), (47, 53172), (59, 53259), (65, 53313), (74, 53409),