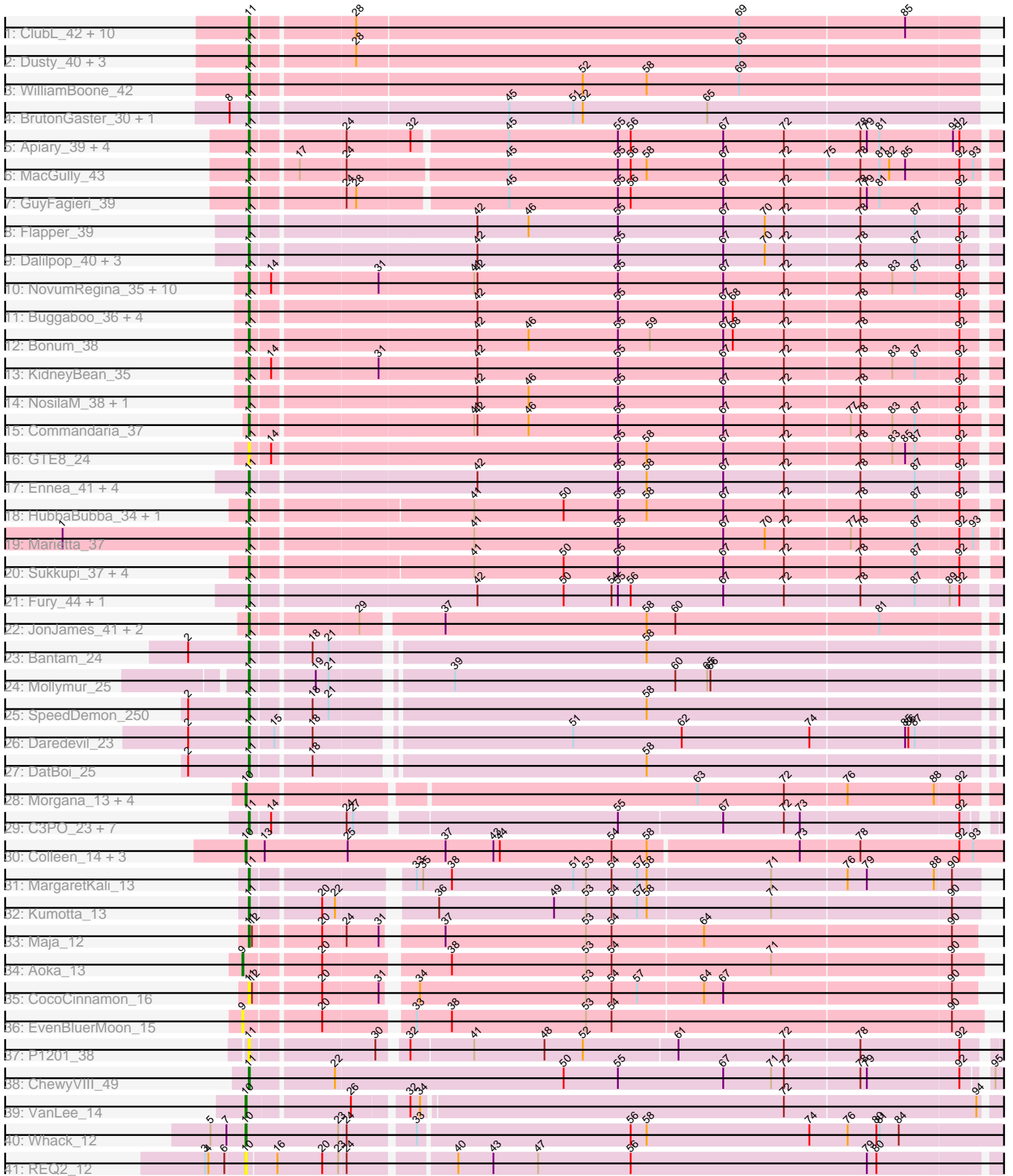


# Zoomed Pham 193883



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 193883 Report

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

Pham number 193883 has 103 members, 15 are drafts.

Phages represented in each track:

- Track 1 : ClubL\_42, Geeche\_41, Lozinak\_42, Engineer\_43, Toniann\_42, Bachita\_44, Norvs\_43, Smoothie\_43, Cucurbita\_44, Aphelion\_42, PhinkBoden\_42
- Track 2 : Dusty\_40, Miskis\_44, Abscondus\_41, Culver\_42
- Track 3 : WilliamBoone\_42
- Track 4 : BrutonGaster\_30, OneUp\_36
- Track 5 : Apiary\_39, Polyuyuki\_39, Maselop\_39, CoffeeBean\_39, Braxoaddie\_39
- Track 6 : MacGully\_43
- Track 7 : GuyFagieri\_39
- Track 8 : Flapper\_39
- Track 9 : Dalipop\_40, Turuncu\_39, GRU1\_25, GTE5\_26
- Track 10 : NovumRegina\_35, GrootJr\_37, Jifall16\_34, Foxboro\_36, NatB6\_35, Kurt\_35, Wheezy\_35, Tracker\_35, Arti\_35, Phomeo\_34, Emianna\_35
- Track 11 : Buggaboo\_36, StarStruck\_36, MerCougar\_36, Outis\_36, SuperSulley\_36
- Track 12 : Bonum\_38
- Track 13 : KidneyBean\_35
- Track 14 : NosilaM\_38, Kabluna\_38
- Track 15 : Commandaria\_37
- Track 16 : GTE8\_24
- Track 17 : Ennea\_41, Patio\_38, Lollipop1437\_40, Float294\_37, Skysand\_37
- Track 18 : HubbaBubba\_34, WhoseManz\_37
- Track 19 : Marietta\_37
- Track 20 : Sukkupi\_37, NadineRae\_35, BiPauneto\_38, Yndexa\_37, IDyn\_36
- Track 21 : Fury\_44, Pleakley\_44
- Track 22 : JonJames\_41, Cardigan\_41, Yvonnetastic\_39
- Track 23 : Bantam\_24
- Track 24 : Mollymur\_25
- Track 25 : SpeedDemon\_250
- Track 26 : Daredevil\_23
- Track 27 : DatBoi\_25
- Track 28 : Morgana\_13, ModicumRichard\_13, ObLaDi\_13, Cafasso\_13, Aleemily\_13
- Track 29 : C3PO\_23, Cruella\_23, Darwin\_26, PotatoChip\_23, Kimchi1738\_23, Stickynote\_25, Zion\_23, PeteyPab\_22
- Track 30 : Colleen\_14, Poushou\_14, TouchMeNot\_14, Arianna\_14
- Track 31 : MargaretKali\_13
- Track 32 : Kumotta\_13
- Track 33 : Maja\_12

- Track 34 : Aoka\_13
- Track 35 : CocoCinnamon\_16
- Track 36 : EvenBluerMoon\_15
- Track 37 : P1201\_38
- Track 38 : ChewyVIII\_49
- Track 39 : VanLee\_14
- Track 40 : Whack\_12
- Track 41 : REQ2\_12

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

The start number called the most often in the published annotations is 11, it was called in 77 of the 88 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abscondus\_41, Aphelion\_42, Apiary\_39, Arti\_35, Bachita\_44, Bantam\_24, BiPauneto\_38, Bonum\_38, Braxoaddie\_39, BrutonGaster\_30, Buggaboo\_36, C3PO\_23, Cardigan\_41, ChewyVIII\_49, ClubL\_42, CocoCinnamon\_16, CoffeeBean\_39, Commandaria\_37, Cruella\_23, Cucurbita\_44, Culver\_42, Dalilpop\_40, Daredevil\_23, Darwin\_26, DatBoi\_25, Dusty\_40, Emianna\_35, Engineer\_43, Ennea\_41, Flapper\_39, Float294\_37, Foxboro\_36, Fury\_44, GRU1\_25, GTE5\_26, GTE8\_24, Geeche\_41, GrootJr\_37, GuyFagieri\_39, HubbaBubba\_34, IDyn\_36, Jifall16\_34, JonJames\_41, Kabluna\_38, KidneyBean\_35, Kimchi1738\_23, Kumotta\_13, Kurt\_35, Lollipop1437\_40, Lozinak\_42, MacGully\_43, Maja\_12, MargaretKali\_13, Marietta\_37, Maselop\_39, MerCougar\_36, Miskis\_44, Mollymur\_25, NadineRae\_35, NatB6\_35, Norvs\_43, NosilaM\_38, NovumRegina\_35, OneUp\_36, Outis\_36, P1201\_38, Patio\_38, PeteyPab\_22, PhinkBoden\_42, Phomeo\_34, Pleakley\_44, Polyuyuki\_39, PotatoChip\_23, Skysand\_37, Smoothie\_43, SpeedDemon\_250, StarStruck\_36, Stickynote\_25, Sukkupi\_37, SuperSulley\_36, Toniann\_42, Tracker\_35, Turuncu\_39, Wheezy\_35, WhoseManz\_37, WilliamBoone\_42, Yndexa\_37, Yvonnestic\_39, Zion\_23,

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

- 

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

- Aleemily\_13, Aoka\_13, Arianna\_14, Cafasso\_13, Colleen\_14, EvenBluerMoon\_15, ModicumRichard\_13, Morgana\_13, ObLaDi\_13, Poushou\_14, REQ2\_12, TouchMeNot\_14, VanLee\_14, Whack\_12,

**Summary by start number:**

Start 9:

- Found in 2 of 103 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aoka\_13 (FO), EvenBluerMoon\_15 (FO),

Start 10:

- Found in 12 of 103 ( 11.7% ) of genes in pham
- Manual Annotations of this start: 10 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aleemily\_13 (DZ), Arianna\_14 (EO), Cafasso\_13 (DZ), Colleen\_14 (EO), ModicumRichard\_13 (DZ), Morgana\_13 (DZ), ObLaDi\_13 (DZ), Poushou\_14 (EO), REQ2\_12 (singleton), TouchMeNot\_14 (EO), VanLee\_14 (singleton), Whack\_12 (singleton),

Start 11:

- Found in 89 of 103 ( 86.4% ) of genes in pham
- Manual Annotations of this start: 77 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abscondus\_41 (CQ1), Aphelion\_42 (CQ1), Apiary\_39 (CR), Arti\_35 (CR2), Bachita\_44 (CQ1), Bantam\_24 (DL), BiPauneto\_38 (CR4), Bonum\_38 (CR2), Braxoaddie\_39 (CR), BrutonGaster\_30 (CQ2), Buggaboo\_36 (CR2), C3PO\_23 (EN), Cardigan\_41 (DD), ChewyVIII\_49 (singleton), ClubL\_42 (CQ1), CocoCinnamon\_16 (FO), CoffeeBean\_39 (CR), Commandaria\_37 (CR2), Cruella\_23 (EN), Cucurbita\_44 (CQ1), Culver\_42 (CQ1), Dalilpop\_40 (CR1), Daredevil\_23 (DL), Darwin\_26 (EN), DatBoi\_25 (DL), Dusty\_40 (CQ1), Emianna\_35 (CR2), Engineer\_43 (CQ1), Ennea\_41 (CR3), Flapper\_39 (CR1), Float294\_37 (CR3), Foxboro\_36 (CR2), Fury\_44 (CR5), GRU1\_25 (CR1), GTE5\_26 (CR1), GTE8\_24 (CR2), Geeche\_41 (CQ1), GrootJr\_37 (CR2), GuyFagieri\_39 (CR), HubbaBubba\_34 (CR4), IDyn\_36 (CR4), Jifall16\_34 (CR2), JonJames\_41 (DD), Kabluna\_38 (CR2), KidneyBean\_35 (CR2), Kimchi1738\_23 (EN), Kumotta\_13 (FB), Kurt\_35 (CR2), Lollipop1437\_40 (CR3), Lozinak\_42 (CQ1), MacGully\_43 (CR), Maja\_12 (FO), MargaretKali\_13 (FB), Marietta\_37 (CR4), Maselop\_39 (CR), MerCougar\_36 (CR2), Miskis\_44 (CQ1), Mollymur\_25 (DL), NadineRae\_35 (CR4), NatB6\_35 (CR2), Norvs\_43 (CQ1), NosilaM\_38 (CR2), NovumRegina\_35 (CR2), OneUp\_36 (CQ2), Outis\_36 (CR2), P1201\_38 (singleton), Patio\_38 (CR3), PeteyPab\_22 (EN), PhinkBoden\_42 (CQ1), Phomeo\_34 (CR2), Pleakley\_44 (CR5), Polyyuki\_39 (CR), PotatoChip\_23 (EN), Skysand\_37 (CR3), Smoothie\_43 (CQ1), SpeedDemon\_250 (DL), StarStruck\_36 (CR2), Stickynote\_25 (EN), Sukkupi\_37 (CR4), SuperSulley\_36 (CR2), Toniann\_42 (CQ1), Tracker\_35 (CR2), Turuncu\_39 (CR1), Wheezy\_35 (CR2), WhoseManz\_37 (CR4), WilliamBoone\_42 (CQ1), Yndexa\_37 (CR4), Yvonnestic\_39 (DD), Zion\_23 (EN),

### Summary by clusters:

There are 16 clusters represented in this pham: CR2, CR3, singleton, EN, CR4, CR5, DD, EO, FB, CR1, DZ, CR, CQ2, CQ1, DL, FO,

Info for manual annotations of cluster CQ1:

- Start number 11 was manually annotated 12 times for cluster CQ1.

Info for manual annotations of cluster CQ2:

- Start number 11 was manually annotated 2 times for cluster CQ2.

Info for manual annotations of cluster CR:

- Start number 11 was manually annotated 7 times for cluster CR.

Info for manual annotations of cluster CR1:

- Start number 11 was manually annotated 3 times for cluster CR1.

Info for manual annotations of cluster CR2:

- Start number 11 was manually annotated 20 times for cluster CR2.

Info for manual annotations of cluster CR3:

- Start number 11 was manually annotated 5 times for cluster CR3.

Info for manual annotations of cluster CR4:

- Start number 11 was manually annotated 7 times for cluster CR4.

Info for manual annotations of cluster CR5:

- Start number 11 was manually annotated 2 times for cluster CR5.

Info for manual annotations of cluster DD:

- Start number 11 was manually annotated 2 times for cluster DD.

Info for manual annotations of cluster DL:

- Start number 11 was manually annotated 5 times for cluster DL.

Info for manual annotations of cluster DZ:

- Start number 10 was manually annotated 4 times for cluster DZ.

Info for manual annotations of cluster EN:

- Start number 11 was manually annotated 8 times for cluster EN.

Info for manual annotations of cluster EO:

- Start number 10 was manually annotated 4 times for cluster EO.

Info for manual annotations of cluster FB:

- Start number 11 was manually annotated 2 times for cluster FB.

Info for manual annotations of cluster FO:

- Start number 9 was manually annotated 1 time for cluster FO.
- Start number 11 was manually annotated 1 time for cluster FO.

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

Gene: Abscondus\_41 Start: 17642, Stop: 18307, Start Num: 11

Candidate Starts for Abscondus\_41:

(Start: 11 @17642 has 77 MA's), (28, 17732), (69, 18089),

Gene: Aleemily\_13 Start: 8905, Stop: 9573, Start Num: 10

Candidate Starts for Aleemily\_13:

(Start: 10 @8905 has 10 MA's), (63, 9307), (72, 9388), (76, 9445), (88, 9526), (92, 9547),

Gene: Aoka\_13 Start: 9111, Stop: 9773, Start Num: 9

Candidate Starts for Aoka\_13:

(Start: 9 @9111 has 1 MA's), (20, 9177), (38, 9282), (53, 9408), (54, 9432), (71, 9579), (90, 9744),

Gene: Aphelion\_42 Start: 17911, Stop: 18576, Start Num: 11

Candidate Starts for Aphelion\_42:

(Start: 11 @17911 has 77 MA's), (28, 18001), (69, 18358), (85, 18511),

Gene: Apiary\_39 Start: 23228, Stop: 23896, Start Num: 11

Candidate Starts for Apiary\_39:

(Start: 11 @23228 has 77 MA's), (24, 23309), (32, 23366), (45, 23450), (55, 23552), (56, 23564), (67, 23651), (72, 23708), (78, 23777), (79, 23783), (81, 23795), (91, 23861), (92, 23867),

Gene: Arianna\_14 Start: 9758, Stop: 10702, Start Num: 10

Candidate Starts for Arianna\_14:

(Start: 10 @9758 has 10 MA's), (13, 9776), (25, 9854), (37, 9944), (43, 9989), (44, 9995), (54, 10100), (58, 10133), (73, 10271), (78, 10325), (92, 10418), (93, 10430), (99, 10580),

Gene: Arti\_35 Start: 21382, Stop: 22065, Start Num: 11

Candidate Starts for Arti\_35:

(Start: 11 @21382 has 77 MA's), (14, 21400), (31, 21493), (41, 21580), (42, 21583), (55, 21715), (67, 21814), (72, 21871), (78, 21940), (83, 21970), (87, 21991), (92, 22030),

Gene: Bachita\_44 Start: 18344, Stop: 19009, Start Num: 11

Candidate Starts for Bachita\_44:

(Start: 11 @18344 has 77 MA's), (28, 18434), (69, 18791), (85, 18944),

Gene: Bantam\_24 Start: 15333, Stop: 15989, Start Num: 11

Candidate Starts for Bantam\_24:

(2, 15276), (Start: 11 @15333 has 77 MA's), (18, 15384), (21, 15399), (58, 15678),

Gene: BiPauneto\_38 Start: 21225, Stop: 21905, Start Num: 11

Candidate Starts for BiPauneto\_38:

(Start: 11 @21225 has 77 MA's), (41, 21420), (50, 21504), (55, 21555), (67, 21654), (72, 21711), (78, 21780), (87, 21831), (92, 21870),

Gene: Bonum\_38 Start: 21700, Stop: 22383, Start Num: 11

Candidate Starts for Bonum\_38:

(Start: 11 @21700 has 77 MA's), (42, 21901), (46, 21949), (55, 22033), (59, 22063), (67, 22132), (68, 22141), (72, 22189), (78, 22258), (92, 22348),

Gene: Braxoaddie\_39 Start: 23217, Stop: 23885, Start Num: 11

Candidate Starts for Braxoaddie\_39:

(Start: 11 @23217 has 77 MA's), (24, 23298), (32, 23355), (45, 23439), (55, 23541), (56, 23553), (67, 23640), (72, 23697), (78, 23766), (79, 23772), (81, 23784), (91, 23850), (92, 23856),

Gene: BrutonGaster\_30 Start: 14524, Stop: 15189, Start Num: 11

Candidate Starts for BrutonGaster\_30:

(8, 14506), (Start: 11 @14524 has 77 MA's), (45, 14755), (51, 14815), (52, 14824), (65, 14941),

Gene: Buggaboo\_36 Start: 22185, Stop: 22868, Start Num: 11

Candidate Starts for Buggaboo\_36:

(Start: 11 @22185 has 77 MA's), (42, 22386), (55, 22518), (67, 22617), (68, 22626), (72, 22674), (78, 22743), (92, 22833),

Gene: C3PO\_23 Start: 15961, Stop: 16623, Start Num: 11

Candidate Starts for C3PO\_23:

(Start: 11 @15961 has 77 MA's), (14, 15979), (24, 16042), (27, 16048), (55, 16282), (67, 16378), (72, 16435), (73, 16450), (92, 16594),

Gene: Cafasso\_13 Start: 8905, Stop: 9573, Start Num: 10

Candidate Starts for Cafasso\_13:

(Start: 10 @8905 has 10 MA's), (63, 9307), (72, 9388), (76, 9445), (88, 9526), (92, 9547),

Gene: Cardigan\_41 Start: 19485, Stop: 20150, Start Num: 11

Candidate Starts for Cardigan\_41:

(Start: 11 @19485 has 77 MA's), (29, 19578), (37, 19647), (58, 19836), (60, 19863), (81, 20052),

Gene: ChewyVIII\_49 Start: 28800, Stop: 29486, Start Num: 11

Candidate Starts for ChewyVIII\_49:

(Start: 11 @28800 has 77 MA's), (22, 28875), (50, 29088), (55, 29139), (67, 29238), (71, 29283), (72, 29295), (78, 29364), (79, 29370), (92, 29454), (95, 29472),

Gene: ClubL\_42 Start: 17833, Stop: 18498, Start Num: 11

Candidate Starts for ClubL\_42:

(Start: 11 @17833 has 77 MA's), (28, 17923), (69, 18280), (85, 18433),

Gene: CocoCinnamon\_16 Start: 9346, Stop: 9993, Start Num: 11

Candidate Starts for CocoCinnamon\_16:

(Start: 11 @9346 has 77 MA's), (12, 9349), (20, 9406), (31, 9457), (34, 9478), (53, 9634), (54, 9658), (57, 9682), (64, 9742), (67, 9760), (90, 9970),

Gene: CoffeeBean\_39 Start: 23172, Stop: 23840, Start Num: 11

Candidate Starts for CoffeeBean\_39:

(Start: 11 @23172 has 77 MA's), (24, 23253), (32, 23310), (45, 23394), (55, 23496), (56, 23508), (67, 23595), (72, 23652), (78, 23721), (79, 23727), (81, 23739), (91, 23805), (92, 23811),

Gene: Colleen\_14 Start: 9758, Stop: 10702, Start Num: 10

Candidate Starts for Colleen\_14:

(Start: 10 @9758 has 10 MA's), (13, 9776), (25, 9854), (37, 9944), (43, 9989), (44, 9995), (54, 10100), (58, 10133), (73, 10271), (78, 10325), (92, 10418), (93, 10430), (99, 10580),

Gene: Commandaria\_37 Start: 22702, Stop: 23388, Start Num: 11

Candidate Starts for Commandaria\_37:

(Start: 11 @22702 has 77 MA's), (41, 22900), (42, 22903), (46, 22951), (55, 23035), (67, 23134), (72, 23191), (77, 23251), (78, 23260), (83, 23290), (87, 23311), (92, 23350),

Gene: Cruella\_23 Start: 15961, Stop: 16623, Start Num: 11

Candidate Starts for Cruella\_23:

(Start: 11 @15961 has 77 MA's), (14, 15979), (24, 16042), (27, 16048), (55, 16282), (67, 16378), (72, 16435), (73, 16450), (92, 16594),

Gene: Cucurbita\_44 Start: 19203, Stop: 19868, Start Num: 11

Candidate Starts for Cucurbita\_44:

(Start: 11 @19203 has 77 MA's), (28, 19293), (69, 19650), (85, 19803),

Gene: Culver\_42 Start: 17642, Stop: 18307, Start Num: 11

Candidate Starts for Culver\_42:

(Start: 11 @17642 has 77 MA's), (28, 17732), (69, 18089),

Gene: Dalilpop\_40 Start: 23693, Stop: 24376, Start Num: 11

Candidate Starts for Dalilpop\_40:

(Start: 11 @23693 has 77 MA's), (42, 23894), (55, 24026), (67, 24125), (70, 24164), (72, 24182), (78, 24251), (87, 24302), (92, 24341),

Gene: Daredevil\_23 Start: 13726, Stop: 14382, Start Num: 11  
Candidate Starts for Daredevil\_23:

(2, 13669), (Start: 11 @13726 has 77 MA's), (15, 13747), (18, 13777), (51, 14002), (62, 14104), (74, 14224), (85, 14311), (86, 14314), (87, 14320),

Gene: Darwin\_26 Start: 16706, Stop: 17368, Start Num: 11  
Candidate Starts for Darwin\_26:

(Start: 11 @16706 has 77 MA's), (14, 16724), (24, 16787), (27, 16793), (55, 17027), (67, 17123), (72, 17180), (73, 17195), (92, 17339),

Gene: DatBoi\_25 Start: 16122, Stop: 16778, Start Num: 11  
Candidate Starts for DatBoi\_25:

(2, 16065), (Start: 11 @16122 has 77 MA's), (18, 16173), (58, 16467),

Gene: Dusty\_40 Start: 17642, Stop: 18307, Start Num: 11  
Candidate Starts for Dusty\_40:

(Start: 11 @17642 has 77 MA's), (28, 17732), (69, 18089),

Gene: Emianna\_35 Start: 22419, Stop: 23102, Start Num: 11  
Candidate Starts for Emianna\_35:

(Start: 11 @22419 has 77 MA's), (14, 22437), (31, 22530), (41, 22617), (42, 22620), (55, 22752), (67, 22851), (72, 22908), (78, 22977), (83, 23007), (87, 23028), (92, 23067),

Gene: Engineer\_43 Start: 17859, Stop: 18524, Start Num: 11  
Candidate Starts for Engineer\_43:

(Start: 11 @17859 has 77 MA's), (28, 17949), (69, 18306), (85, 18459),

Gene: Ennea\_41 Start: 23023, Stop: 23706, Start Num: 11  
Candidate Starts for Ennea\_41:

(Start: 11 @23023 has 77 MA's), (42, 23224), (55, 23356), (58, 23383), (67, 23455), (72, 23512), (78, 23581), (87, 23632), (92, 23671),

Gene: EvenBluerMoon\_15 Start: 9146, Stop: 9808, Start Num: 9  
Candidate Starts for EvenBluerMoon\_15:

(Start: 9 @9146 has 1 MA's), (20, 9212), (33, 9284), (38, 9317), (53, 9443), (54, 9467), (90, 9779),

Gene: Flapper\_39 Start: 22775, Stop: 23458, Start Num: 11  
Candidate Starts for Flapper\_39:

(Start: 11 @22775 has 77 MA's), (42, 22976), (46, 23024), (55, 23108), (67, 23207), (70, 23246), (72, 23264), (78, 23333), (87, 23384), (92, 23423),

Gene: Float294\_37 Start: 22462, Stop: 23145, Start Num: 11  
Candidate Starts for Float294\_37:

(Start: 11 @22462 has 77 MA's), (42, 22663), (55, 22795), (58, 22822), (67, 22894), (72, 22951), (78, 23020), (87, 23071), (92, 23110),

Gene: Foxboro\_36 Start: 22925, Stop: 23608, Start Num: 11  
Candidate Starts for Foxboro\_36:

(Start: 11 @22925 has 77 MA's), (14, 22943), (31, 23036), (41, 23123), (42, 23126), (55, 23258), (67, 23357), (72, 23414), (78, 23483), (83, 23513), (87, 23534), (92, 23573),



Gene: Fury\_44 Start: 22072, Stop: 22755, Start Num: 11

Candidate Starts for Fury\_44:

(Start: 11 @22072 has 77 MA's), (42, 22273), (50, 22354), (54, 22399), (55, 22405), (56, 22417), (67, 22504), (72, 22561), (78, 22630), (87, 22681), (89, 22711), (92, 22720),

Gene: GRU1\_25 Start: 14660, Stop: 15343, Start Num: 11

Candidate Starts for GRU1\_25:

(Start: 11 @14660 has 77 MA's), (42, 14861), (55, 14993), (67, 15092), (70, 15131), (72, 15149), (78, 15218), (87, 15269), (92, 15308),

Gene: GTE5\_26 Start: 15663, Stop: 16346, Start Num: 11

Candidate Starts for GTE5\_26:

(Start: 11 @15663 has 77 MA's), (42, 15864), (55, 15996), (67, 16095), (70, 16134), (72, 16152), (78, 16221), (87, 16272), (92, 16311),

Gene: GTE8\_24 Start: 15678, Stop: 16361, Start Num: 11

Candidate Starts for GTE8\_24:

(Start: 11 @15678 has 77 MA's), (14, 15696), (55, 16011), (58, 16038), (67, 16110), (72, 16167), (78, 16236), (83, 16266), (85, 16278), (87, 16287), (92, 16326),

Gene: Geeche\_41 Start: 17733, Stop: 18398, Start Num: 11

Candidate Starts for Geeche\_41:

(Start: 11 @17733 has 77 MA's), (28, 17823), (69, 18180), (85, 18333),

Gene: GrootJr\_37 Start: 21777, Stop: 22460, Start Num: 11

Candidate Starts for GrootJr\_37:

(Start: 11 @21777 has 77 MA's), (14, 21795), (31, 21888), (41, 21975), (42, 21978), (55, 22110), (67, 22209), (72, 22266), (78, 22335), (83, 22365), (87, 22386), (92, 22425),

Gene: GuyFagieri\_39 Start: 23053, Stop: 23721, Start Num: 11

Candidate Starts for GuyFagieri\_39:

(Start: 11 @23053 has 77 MA's), (24, 23134), (28, 23143), (45, 23275), (55, 23377), (56, 23389), (67, 23476), (72, 23533), (78, 23602), (79, 23608), (81, 23620), (92, 23692),

Gene: HubbaBubba\_34 Start: 18243, Stop: 18923, Start Num: 11

Candidate Starts for HubbaBubba\_34:

(Start: 11 @18243 has 77 MA's), (41, 18438), (50, 18522), (55, 18573), (58, 18600), (67, 18672), (72, 18729), (78, 18798), (87, 18849), (92, 18888),

Gene: IDyn\_36 Start: 19639, Stop: 20319, Start Num: 11

Candidate Starts for IDyn\_36:

(Start: 11 @19639 has 77 MA's), (41, 19834), (50, 19918), (55, 19969), (67, 20068), (72, 20125), (78, 20194), (87, 20245), (92, 20284),

Gene: Jifall16\_34 Start: 22046, Stop: 22729, Start Num: 11

Candidate Starts for Jifall16\_34:

(Start: 11 @22046 has 77 MA's), (14, 22064), (31, 22157), (41, 22244), (42, 22247), (55, 22379), (67, 22478), (72, 22535), (78, 22604), (83, 22634), (87, 22655), (92, 22694),

Gene: JonJames\_41 Start: 21700, Stop: 22365, Start Num: 11

Candidate Starts for JonJames\_41:

(Start: 11 @21700 has 77 MA's), (29, 21793), (37, 21862), (58, 22051), (60, 22078), (81, 22267),

Gene: Kabluna\_38 Start: 21100, Stop: 21783, Start Num: 11

Candidate Starts for Kabluna\_38:

(Start: 11 @21100 has 77 MA's), (42, 21301), (46, 21349), (55, 21433), (67, 21532), (72, 21589), (78, 21658), (92, 21748),

Gene: KidneyBean\_35 Start: 22194, Stop: 22877, Start Num: 11

Candidate Starts for KidneyBean\_35:

(Start: 11 @22194 has 77 MA's), (14, 22212), (31, 22305), (42, 22395), (55, 22527), (67, 22626), (72, 22683), (78, 22752), (83, 22782), (87, 22803), (92, 22842),

Gene: Kimchi1738\_23 Start: 15559, Stop: 16221, Start Num: 11

Candidate Starts for Kimchi1738\_23:

(Start: 11 @15559 has 77 MA's), (14, 15577), (24, 15640), (27, 15646), (55, 15880), (67, 15976), (72, 16033), (73, 16048), (92, 16192),

Gene: Kumotta\_13 Start: 8849, Stop: 9499, Start Num: 11

Candidate Starts for Kumotta\_13:

(Start: 11 @8849 has 77 MA's), (20, 8909), (22, 8921), (36, 8999), (49, 9107), (53, 9137), (54, 9161), (57, 9185), (58, 9194), (71, 9308), (90, 9473),

Gene: Kurt\_35 Start: 22434, Stop: 23117, Start Num: 11

Candidate Starts for Kurt\_35:

(Start: 11 @22434 has 77 MA's), (14, 22452), (31, 22545), (41, 22632), (42, 22635), (55, 22767), (67, 22866), (72, 22923), (78, 22992), (83, 23022), (87, 23043), (92, 23082),

Gene: Lollipop1437\_40 Start: 23011, Stop: 23694, Start Num: 11

Candidate Starts for Lollipop1437\_40:

(Start: 11 @23011 has 77 MA's), (42, 23212), (55, 23344), (58, 23371), (67, 23443), (72, 23500), (78, 23569), (87, 23620), (92, 23659),

Gene: Lozinak\_42 Start: 17914, Stop: 18579, Start Num: 11

Candidate Starts for Lozinak\_42:

(Start: 11 @17914 has 77 MA's), (28, 18004), (69, 18361), (85, 18514),

Gene: MacGully\_43 Start: 23224, Stop: 23904, Start Num: 11

Candidate Starts for MacGully\_43:

(Start: 11 @23224 has 77 MA's), (17, 23263), (24, 23305), (45, 23449), (55, 23551), (56, 23563), (58, 23578), (67, 23650), (72, 23707), (75, 23746), (78, 23776), (81, 23794), (82, 23803), (85, 23818), (92, 23866), (93, 23878),

Gene: Maja\_12 Start: 8474, Stop: 9121, Start Num: 11

Candidate Starts for Maja\_12:

(Start: 11 @8474 has 77 MA's), (12, 8477), (20, 8534), (24, 8555), (31, 8585), (37, 8630), (53, 8762), (54, 8786), (64, 8870), (90, 9098),

Gene: MargaretKali\_13 Start: 8484, Stop: 9134, Start Num: 11

Candidate Starts for MargaretKali\_13:

(Start: 11 @8484 has 77 MA's), (33, 8613), (35, 8619), (38, 8646), (51, 8760), (53, 8772), (54, 8796), (57, 8820), (58, 8829), (71, 8943), (76, 9012), (79, 9030), (88, 9093), (90, 9108),

Gene: Marietta\_37 Start: 19554, Stop: 20234, Start Num: 11

Candidate Starts for Marietta\_37:

(1, 19380), (Start: 11 @19554 has 77 MA's), (41, 19752), (55, 19887), (67, 19986), (70, 20025), (72, 20043), (77, 20103), (78, 20112), (87, 20163), (92, 20202), (93, 20214),

Gene: Maselop\_39 Start: 23248, Stop: 23916, Start Num: 11

Candidate Starts for Maselop\_39:

(Start: 11 @23248 has 77 MA's), (24, 23329), (32, 23386), (45, 23470), (55, 23572), (56, 23584), (67, 23671), (72, 23728), (78, 23797), (79, 23803), (81, 23815), (91, 23881), (92, 23887),

Gene: MerCougar\_36 Start: 22307, Stop: 22990, Start Num: 11

Candidate Starts for MerCougar\_36:

(Start: 11 @22307 has 77 MA's), (42, 22508), (55, 22640), (67, 22739), (68, 22748), (72, 22796), (78, 22865), (92, 22955),

Gene: Miskis\_44 Start: 17677, Stop: 18342, Start Num: 11

Candidate Starts for Miskis\_44:

(Start: 11 @17677 has 77 MA's), (28, 17767), (69, 18124),

Gene: ModicumRichard\_13 Start: 8905, Stop: 9573, Start Num: 10

Candidate Starts for ModicumRichard\_13:

(Start: 10 @8905 has 10 MA's), (63, 9307), (72, 9388), (76, 9445), (88, 9526), (92, 9547),

Gene: Mollymur\_25 Start: 16148, Stop: 16804, Start Num: 11

Candidate Starts for Mollymur\_25:

(Start: 11 @16148 has 77 MA's), (19, 16202), (21, 16214), (39, 16313), (60, 16520), (65, 16550), (66, 16553),

Gene: Morgana\_13 Start: 8909, Stop: 9580, Start Num: 10

Candidate Starts for Morgana\_13:

(Start: 10 @8909 has 10 MA's), (63, 9311), (72, 9392), (76, 9449), (88, 9530), (92, 9551),

Gene: NadineRae\_35 Start: 18802, Stop: 19482, Start Num: 11

Candidate Starts for NadineRae\_35:

(Start: 11 @18802 has 77 MA's), (41, 18997), (50, 19081), (55, 19132), (67, 19231), (72, 19288), (78, 19357), (87, 19408), (92, 19447),

Gene: NatB6\_35 Start: 21443, Stop: 22126, Start Num: 11

Candidate Starts for NatB6\_35:

(Start: 11 @21443 has 77 MA's), (14, 21461), (31, 21554), (41, 21641), (42, 21644), (55, 21776), (67, 21875), (72, 21932), (78, 22001), (83, 22031), (87, 22052), (92, 22091),

Gene: Norvs\_43 Start: 17916, Stop: 18581, Start Num: 11

Candidate Starts for Norvs\_43:

(Start: 11 @17916 has 77 MA's), (28, 18006), (69, 18363), (85, 18516),

Gene: NosilaM\_38 Start: 21997, Stop: 22680, Start Num: 11

Candidate Starts for NosilaM\_38:

(Start: 11 @21997 has 77 MA's), (42, 22198), (46, 22246), (55, 22330), (67, 22429), (72, 22486), (78, 22555), (92, 22645),

Gene: NovumRegina\_35 Start: 21776, Stop: 22459, Start Num: 11

Candidate Starts for NovumRegina\_35:

(Start: 11 @21776 has 77 MA's), (14, 21794), (31, 21887), (41, 21974), (42, 21977), (55, 22109), (67, 22208), (72, 22265), (78, 22334), (83, 22364), (87, 22385), (92, 22424),

Gene: ObLaDi\_13 Start: 8905, Stop: 9573, Start Num: 10

Candidate Starts for ObLaDi\_13:

(Start: 10 @8905 has 10 MA's), (63, 9307), (72, 9388), (76, 9445), (88, 9526), (92, 9547),

Gene: OneUp\_36 Start: 15613, Stop: 16278, Start Num: 11

Candidate Starts for OneUp\_36:

(8, 15595), (Start: 11 @15613 has 77 MA's), (45, 15844), (51, 15904), (52, 15913), (65, 16030),

Gene: Outis\_36 Start: 22001, Stop: 22684, Start Num: 11

Candidate Starts for Outis\_36:

(Start: 11 @22001 has 77 MA's), (42, 22202), (55, 22334), (67, 22433), (68, 22442), (72, 22490), (78, 22559), (92, 22649),

Gene: P1201\_38 Start: 22813, Stop: 23490, Start Num: 11

Candidate Starts for P1201\_38:

(Start: 11 @22813 has 77 MA's), (30, 22921), (32, 22942), (41, 22999), (48, 23065), (52, 23101), (61, 23188), (72, 23287), (78, 23356), (92, 23446),

Gene: Patio\_38 Start: 22247, Stop: 22930, Start Num: 11

Candidate Starts for Patio\_38:

(Start: 11 @22247 has 77 MA's), (42, 22448), (55, 22580), (58, 22607), (67, 22679), (72, 22736), (78, 22805), (87, 22856), (92, 22895),

Gene: PeteyPab\_22 Start: 15926, Stop: 16588, Start Num: 11

Candidate Starts for PeteyPab\_22:

(Start: 11 @15926 has 77 MA's), (14, 15944), (24, 16007), (27, 16013), (55, 16247), (67, 16343), (72, 16400), (73, 16415), (92, 16559),

Gene: PhinkBoden\_42 Start: 18297, Stop: 18962, Start Num: 11

Candidate Starts for PhinkBoden\_42:

(Start: 11 @18297 has 77 MA's), (28, 18387), (69, 18744), (85, 18897),

Gene: Phomeo\_34 Start: 22069, Stop: 22752, Start Num: 11

Candidate Starts for Phomeo\_34:

(Start: 11 @22069 has 77 MA's), (14, 22087), (31, 22180), (41, 22267), (42, 22270), (55, 22402), (67, 22501), (72, 22558), (78, 22627), (83, 22657), (87, 22678), (92, 22717),

Gene: Pleakley\_44 Start: 22073, Stop: 22756, Start Num: 11

Candidate Starts for Pleakley\_44:

(Start: 11 @22073 has 77 MA's), (42, 22274), (50, 22355), (54, 22400), (55, 22406), (56, 22418), (67, 22505), (72, 22562), (78, 22631), (87, 22682), (89, 22712), (92, 22721),

Gene: Polyzuki\_39 Start: 23240, Stop: 23908, Start Num: 11

Candidate Starts for Polyzuki\_39:

(Start: 11 @23240 has 77 MA's), (24, 23321), (32, 23378), (45, 23462), (55, 23564), (56, 23576), (67, 23663), (72, 23720), (78, 23789), (79, 23795), (81, 23807), (91, 23873), (92, 23879),

Gene: PotatoChip\_23 Start: 15928, Stop: 16590, Start Num: 11

Candidate Starts for PotatoChip\_23:

(Start: 11 @15928 has 77 MA's), (14, 15946), (24, 16009), (27, 16015), (55, 16249), (67, 16345), (72, 16402), (73, 16417), (92, 16561),

Gene: Poushou\_14 Start: 9758, Stop: 10702, Start Num: 10

Candidate Starts for Poushou\_14:

(Start: 10 @9758 has 10 MA's), (13, 9776), (25, 9854), (37, 9944), (43, 9989), (44, 9995), (54, 10100), (58, 10133), (73, 10271), (78, 10325), (92, 10418), (93, 10430), (99, 10580),

Gene: REQ2\_12 Start: 7795, Stop: 8721, Start Num: 10

Candidate Starts for REQ2\_12:

(3, 7759), (4, 7762), (6, 7777), (Start: 10 @7795 has 10 MA's), (16, 7822), (20, 7864), (23, 7879), (24, 7885), (40, 7975), (43, 8008), (47, 8050), (56, 8137), (79, 8359), (80, 8368), (97, 8563), (100, 8656), (101, 8674),

Gene: Skysand\_37 Start: 22464, Stop: 23147, Start Num: 11

Candidate Starts for Skysand\_37:

(Start: 11 @22464 has 77 MA's), (42, 22665), (55, 22797), (58, 22824), (67, 22896), (72, 22953), (78, 23022), (87, 23073), (92, 23112),

Gene: Smoothie\_43 Start: 17914, Stop: 18579, Start Num: 11

Candidate Starts for Smoothie\_43:

(Start: 11 @17914 has 77 MA's), (28, 18004), (69, 18361), (85, 18514),

Gene: SpeedDemon\_250 Start: 15649, Stop: 16305, Start Num: 11

Candidate Starts for SpeedDemon\_250:

(2, 15592), (Start: 11 @15649 has 77 MA's), (18, 15700), (21, 15715), (58, 15994),

Gene: StarStruck\_36 Start: 22001, Stop: 22684, Start Num: 11

Candidate Starts for StarStruck\_36:

(Start: 11 @22001 has 77 MA's), (42, 22202), (55, 22334), (67, 22433), (68, 22442), (72, 22490), (78, 22559), (92, 22649),

Gene: Stickynote\_25 Start: 16738, Stop: 17400, Start Num: 11

Candidate Starts for Stickynote\_25:

(Start: 11 @16738 has 77 MA's), (14, 16756), (24, 16819), (27, 16825), (55, 17059), (67, 17155), (72, 17212), (73, 17227), (92, 17371),

Gene: Sukkupi\_37 Start: 21116, Stop: 21796, Start Num: 11

Candidate Starts for Sukkupi\_37:

(Start: 11 @21116 has 77 MA's), (41, 21311), (50, 21395), (55, 21446), (67, 21545), (72, 21602), (78, 21671), (87, 21722), (92, 21761),

Gene: SuperSulley\_36 Start: 22185, Stop: 22868, Start Num: 11

Candidate Starts for SuperSulley\_36:

(Start: 11 @22185 has 77 MA's), (42, 22386), (55, 22518), (67, 22617), (68, 22626), (72, 22674), (78, 22743), (92, 22833),

Gene: Toniann\_42 Start: 17859, Stop: 18524, Start Num: 11

Candidate Starts for Toniann\_42:

(Start: 11 @17859 has 77 MA's), (28, 17949), (69, 18306), (85, 18459),

Gene: TouchMeNot\_14 Start: 9758, Stop: 10702, Start Num: 10

Candidate Starts for TouchMeNot\_14:

(Start: 10 @9758 has 10 MA's), (13, 9776), (25, 9854), (37, 9944), (43, 9989), (44, 9995), (54, 10100), (58, 10133), (73, 10271), (78, 10325), (92, 10418), (93, 10430), (99, 10580),

Gene: Tracker\_35 Start: 21197, Stop: 21880, Start Num: 11

Candidate Starts for Tracker\_35:

(Start: 11 @21197 has 77 MA's), (14, 21215), (31, 21308), (41, 21395), (42, 21398), (55, 21530), (67, 21629), (72, 21686), (78, 21755), (83, 21785), (87, 21806), (92, 21845),

Gene: Turuncu\_39 Start: 22468, Stop: 23151, Start Num: 11

Candidate Starts for Turuncu\_39:

(Start: 11 @22468 has 77 MA's), (42, 22669), (55, 22801), (67, 22900), (70, 22939), (72, 22957), (78, 23026), (87, 23077), (92, 23116),

Gene: VanLee\_14 Start: 8706, Stop: 9605, Start Num: 10

Candidate Starts for VanLee\_14:

(Start: 10 @8706 has 10 MA's), (26, 8796), (32, 8841), (34, 8850), (72, 9183), (94, 9357), (98, 9480), (101, 9573),

Gene: Whack\_12 Start: 7754, Stop: 8692, Start Num: 10

Candidate Starts for Whack\_12:

(5, 7721), (7, 7736), (Start: 10 @7754 has 10 MA's), (23, 7841), (24, 7847), (33, 7904), (56, 8099), (58, 8114), (74, 8267), (76, 8303), (80, 8330), (81, 8333), (84, 8351), (96, 8495), (97, 8534),

Gene: Wheezy\_35 Start: 21402, Stop: 22085, Start Num: 11

Candidate Starts for Wheezy\_35:

(Start: 11 @21402 has 77 MA's), (14, 21420), (31, 21513), (41, 21600), (42, 21603), (55, 21735), (67, 21834), (72, 21891), (78, 21960), (83, 21990), (87, 22011), (92, 22050),

Gene: WhoseManz\_37 Start: 19168, Stop: 19848, Start Num: 11

Candidate Starts for WhoseManz\_37:

(Start: 11 @19168 has 77 MA's), (41, 19363), (50, 19447), (55, 19498), (58, 19525), (67, 19597), (72, 19654), (78, 19723), (87, 19774), (92, 19813),

Gene: WilliamBoone\_42 Start: 17223, Stop: 17888, Start Num: 11

Candidate Starts for WilliamBoone\_42:

(Start: 11 @17223 has 77 MA's), (52, 17523), (58, 17583), (69, 17670),

Gene: Yndexa\_37 Start: 21116, Stop: 21796, Start Num: 11

Candidate Starts for Yndexa\_37:

(Start: 11 @21116 has 77 MA's), (41, 21311), (50, 21395), (55, 21446), (67, 21545), (72, 21602), (78, 21671), (87, 21722), (92, 21761),

Gene: Yvonnetastic\_39 Start: 19249, Stop: 19914, Start Num: 11

Candidate Starts for Yvonnetastic\_39:

(Start: 11 @19249 has 77 MA's), (29, 19342), (37, 19411), (58, 19600), (60, 19627), (81, 19816),

Gene: Zion\_23 Start: 15926, Stop: 16588, Start Num: 11

Candidate Starts for Zion\_23:

(Start: 11 @15926 has 77 MA's), (14, 15944), (24, 16007), (27, 16013), (55, 16247), (67, 16343), (72, 16400), (73, 16415), (92, 16559),