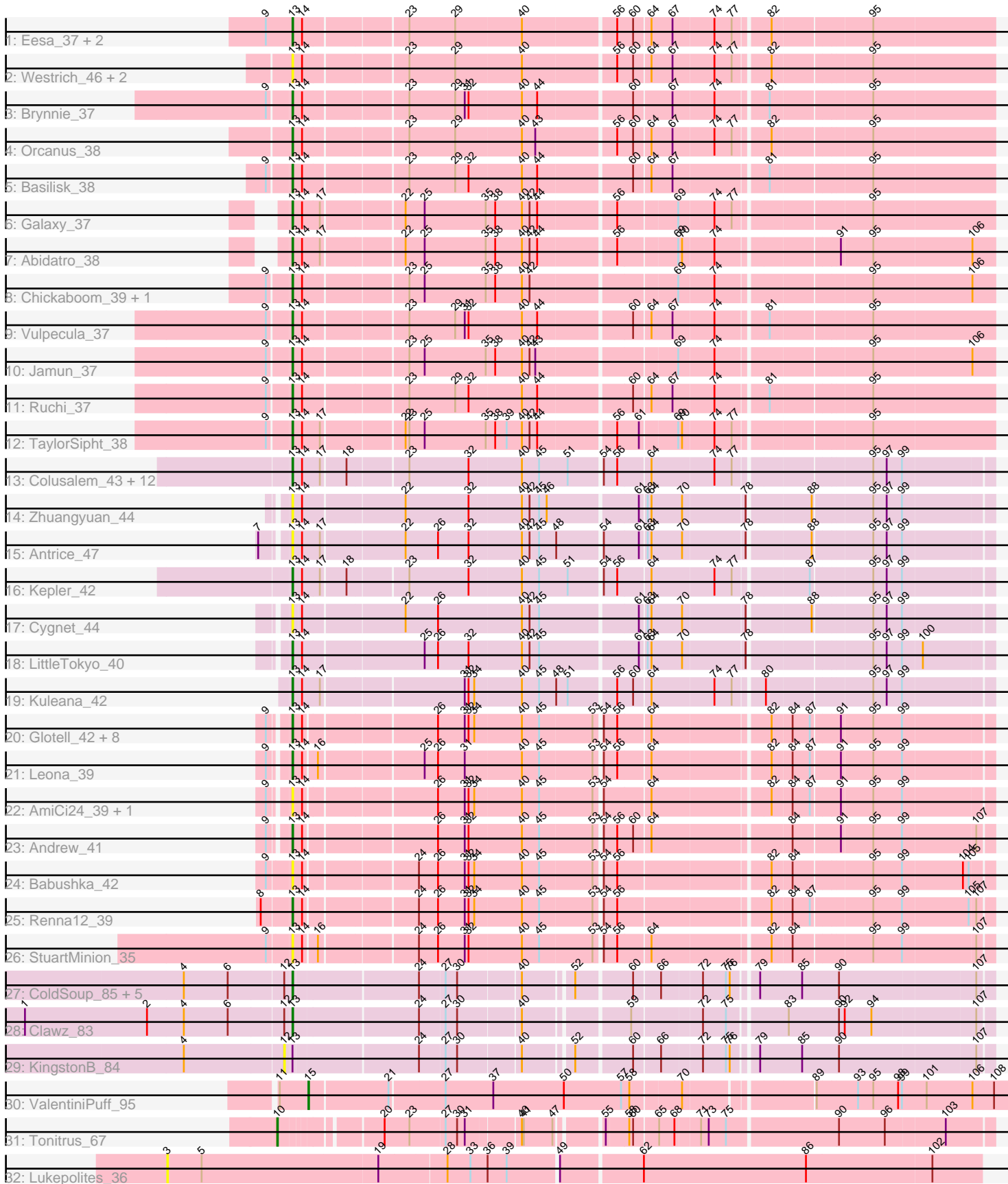


Pham 224580



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 224580 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224580 has 63 members, 28 are drafts.

Phages represented in each track:

- Track 1 : Eesa\_37, Toad24\_40, KendraB23\_48
- Track 2 : Westrich\_46, Gravel\_47, Pelletreau\_47
- Track 3 : Brynnie\_37
- Track 4 : Orcanus\_38
- Track 5 : Basilisk\_38
- Track 6 : Galaxy\_37
- Track 7 : Abidatro\_38
- Track 8 : Chickaboom\_39, WileyE\_43
- Track 9 : Vulpecula\_37
- Track 10 : Jamun\_37
- Track 11 : Ruchi\_37
- Track 12 : TaylorSipht\_38
- Track 13 : Colusalem\_43, Cote\_42, Jerole\_50, Daob\_42, Lunar\_42, OtsoOtso\_48, Bible12\_44, Bedetta\_45, Coral\_40, HannahPhantana\_41, Melons\_42, Amelia\_40, Polka\_40
- Track 14 : Zhuangyuan\_44
- Track 15 : Antrice\_47
- Track 16 : Kepler\_42
- Track 17 : Cygnet\_44
- Track 18 : LittleTokyo\_40
- Track 19 : Kuleana\_42
- Track 20 : Glotell\_42, Rattail\_40, Camara\_40, Juno112\_39, RedFox\_40, HamCheese\_39, PhluffyCoco\_40, KHumphrey\_40, Atlantica\_40
- Track 21 : Leona\_39
- Track 22 : AmiCi24\_39, DanHam62\_40
- Track 23 : Andrew\_41
- Track 24 : Babushka\_42
- Track 25 : Renna12\_39
- Track 26 : StuartMinion\_35
- Track 27 : ColdSoup\_85, DonTron\_82, Jollymon\_82, Amo99\_85, Sting\_81, Soos\_78
- Track 28 : Clawz\_83
- Track 29 : KingstonB\_84
- Track 30 : ValentiniPuff\_95
- Track 31 : Tonitrus\_67
- Track 32 : Lukepolites\_36

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

The start number called the most often in the published annotations is 13, it was called in 33 of the 35 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abidatro\_38, Amelia\_40, AmiCi24\_39, Amo99\_85, Andrew\_41, Antrice\_47, Atlantica\_40, Babushka\_42, Basilisk\_38, Bedetta\_45, Bibble12\_44, Brynnie\_37, Camara\_40, Chickaboom\_39, Clawz\_83, ColdSoup\_85, Colusalem\_43, Coral\_40, Cote\_42, Cygnet\_44, DanHam62\_40, Daob\_42, DonTron\_82, Eesa\_37, Galaxy\_37, Glotell\_42, Gravel\_47, HamCheese\_39, HannahPhantana\_41, Jamun\_37, Jerole\_50, Jollymon\_82, Juno112\_39, KHumphrey\_40, KendraB23\_48, Kepler\_42, Kuleana\_42, Leona\_39, LittleTokyo\_40, Lunar\_42, Melons\_42, Orcanus\_38, OtsoOtso\_48, Pelletreau\_47, PhluffyCoco\_40, Polka\_40, Rattail\_40, RedFox\_40, Renna12\_39, Ruchi\_37, Soos\_78, Sting\_81, StuartMinion\_35, TaylorSipht\_38, Toad24\_40, Vulpecula\_37, Westrich\_46, WileyE\_43, Zhuangyuan\_44,

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

- KingstonB\_84,

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

- Lukepolites\_36, Tonitrus\_67, ValentiniPuff\_95,

### **Summary by start number:**

Start 3:

- Found in 1 of 63 ( 1.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Lukepolites\_36 (singleton),

Start 10:

- Found in 1 of 63 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 35
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Tonitrus\_67 (singleton),

Start 12:

- Found in 8 of 63 ( 12.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 12.5% of time when present
- Phage (with cluster) where this start called: KingstonB\_84 (CP),

Start 13:

- Found in 60 of 63 ( 95.2% ) of genes in pham
- Manual Annotations of this start: 33 of 35
- Called 98.3% of time when present
- Phage (with cluster) where this start called: Abidatro\_38 (AS1), Amelia\_40 (AS2), AmiCi24\_39 (AS3), Amo99\_85 (CP), Andrew\_41 (AS3), Antrice\_47 (AS2), Atlantica\_40 (AS3), Babushka\_42 (AS3), Basilisk\_38 (AS1), Bedetta\_45 (AS2), Bibble12\_44 (AS2), Brynnie\_37 (AS1), Camara\_40 (AS3), Chickaboom\_39 (AS1), Clawz\_83 (CP), ColdSoup\_85 (CP), Colusalem\_43 (AS2), Coral\_40 (AS2), Cote\_42

(AS2), Cygnet\_44 (AS2), DanHam62\_40 (AS3), Daob\_42 (AS2), DonTron\_82 (CP), Eesa\_37 (AS1), Galaxy\_37 (AS1), Glotell\_42 (AS3), Gravel\_47 (AS1), HamCheese\_39 (AS3), HannahPhantana\_41 (AS2), Jamun\_37 (AS1), Jerole\_50 (AS2), Jollymon\_82 (CP), Juno112\_39 (AS3), KHumphrey\_40 (AS3), KendraB23\_48 (AS1), Kepler\_42 (AS2), Kuleana\_42 (AS2), Leona\_39 (AS3), LittleTokyo\_40 (AS2), Lunar\_42 (AS2), Melons\_42 (AS2), Orcanus\_38 (AS1), OtsoOtso\_48 (AS2), Pelletreau\_47 (AS1), PhluffyCoco\_40 (AS3), Polka\_40 (AS2), Rattail\_40 (AS3), RedFox\_40 (AS3), Renna12\_39 (AS3), Ruchi\_37 (AS1), Soos\_78 (CP), Sting\_81 (CP), StuartMinion\_35 (AS3), TaylorSipht\_38 (AS1), Toad24\_40 (AS1), Vulpecula\_37 (AS1), Westrich\_46 (AS1), WileyE\_43 (AS1), Zhuangyuan\_44 (AS2),

Start 15:

- Found in 1 of 63 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 35
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ValentiniPuff\_95 (singleton),

### **Summary by clusters:**

There are 5 clusters represented in this pham: AS3, AS2, AS1, CP, singleton,

Info for manual annotations of cluster AS1:

- Start number 13 was manually annotated 11 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 13 was manually annotated 11 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 13 was manually annotated 7 times for cluster AS3.

Info for manual annotations of cluster CP:

- Start number 13 was manually annotated 4 times for cluster CP.

### **Gene Information:**

Gene: Abidatro\_38 Start: 25301, Stop: 26326, Start Num: 13

Candidate Starts for Abidatro\_38:

(Start: 13 @25301 has 33 MA's), (14, 25316), (17, 25343), (22, 25460), (25, 25490), (35, 25586), (38, 25598), (40, 25640), (42, 25652), (44, 25664), (56, 25778), (69, 25865), (70, 25871), (74, 25919), (91, 26090), (95, 26138), (106, 26291),

Gene: Amelia\_40 Start: 25064, Stop: 26086, Start Num: 13

Candidate Starts for Amelia\_40:

(Start: 13 @25064 has 33 MA's), (14, 25079), (17, 25106), (18, 25142), (23, 25229), (32, 25322), (40, 25403), (45, 25430), (51, 25475), (54, 25523), (56, 25544), (64, 25592), (74, 25688), (77, 25715), (95, 25907), (97, 25928), (99, 25952),

Gene: AmiCi24\_39 Start: 24999, Stop: 26012, Start Num: 13

Candidate Starts for AmiCi24\_39:

(9, 24975), (Start: 13 @24999 has 33 MA's), (14, 25014), (26, 25203), (31, 25245), (32, 25251), (34, 25260), (40, 25332), (45, 25359), (53, 25440), (54, 25449), (64, 25518), (82, 25689), (84, 25719), (87,

25746), (91, 25785), (95, 25833), (99, 25878),

Gene: Amo99\_85 Start: 52756, Stop: 53769, Start Num: 13

Candidate Starts for Amo99\_85:

(4, 52594), (6, 52663), (12, 52747), (Start: 13 @52756 has 33 MA's), (24, 52942), (27, 52981), (30, 52999), (40, 53092), (52, 53161), (60, 53242), (66, 53281), (72, 53341), (75, 53377), (76, 53383), (79, 53416), (85, 53482), (90, 53539), (107, 53746),

Gene: Andrew\_41 Start: 24893, Stop: 25906, Start Num: 13

Candidate Starts for Andrew\_41:

(9, 24869), (Start: 13 @24893 has 33 MA's), (14, 24908), (26, 25097), (31, 25139), (32, 25145), (40, 25226), (45, 25253), (53, 25334), (54, 25343), (56, 25364), (60, 25388), (64, 25412), (84, 25613), (91, 25679), (95, 25727), (99, 25772), (107, 25883),

Gene: Antrice\_47 Start: 26254, Stop: 27282, Start Num: 13

Candidate Starts for Antrice\_47:

(7, 26218), (Start: 13 @26254 has 33 MA's), (14, 26269), (17, 26296), (22, 26419), (26, 26470), (32, 26518), (40, 26599), (42, 26611), (45, 26626), (48, 26653), (54, 26719), (61, 26773), (63, 26782), (64, 26788), (70, 26836), (78, 26929), (88, 27019), (95, 27103), (97, 27124), (99, 27148),

Gene: Atlantica\_40 Start: 25001, Stop: 26014, Start Num: 13

Candidate Starts for Atlantica\_40:

(9, 24977), (Start: 13 @25001 has 33 MA's), (14, 25016), (26, 25205), (31, 25247), (32, 25253), (34, 25262), (40, 25334), (45, 25361), (53, 25442), (54, 25451), (56, 25472), (64, 25520), (82, 25691), (84, 25721), (87, 25748), (91, 25787), (95, 25835), (99, 25880),

Gene: Babushka\_42 Start: 24932, Stop: 25945, Start Num: 13

Candidate Starts for Babushka\_42:

(9, 24899), (Start: 13 @24932 has 33 MA's), (14, 24947), (24, 25106), (26, 25136), (31, 25178), (32, 25184), (34, 25193), (40, 25265), (45, 25292), (53, 25373), (54, 25382), (56, 25403), (82, 25622), (84, 25652), (95, 25766), (99, 25811), (104, 25904), (105, 25913),

Gene: Basilisk\_38 Start: 25812, Stop: 26840, Start Num: 13

Candidate Starts for Basilisk\_38:

(9, 25779), (Start: 13 @25812 has 33 MA's), (14, 25827), (23, 25977), (29, 26049), (32, 26070), (40, 26151), (44, 26175), (60, 26313), (64, 26337), (67, 26370), (81, 26505), (95, 26652),

Gene: Bedetta\_45 Start: 25211, Stop: 26233, Start Num: 13

Candidate Starts for Bedetta\_45:

(Start: 13 @25211 has 33 MA's), (14, 25226), (17, 25253), (18, 25289), (23, 25376), (32, 25469), (40, 25550), (45, 25577), (51, 25622), (54, 25670), (56, 25691), (64, 25739), (74, 25835), (77, 25862), (95, 26054), (97, 26075), (99, 26099),

Gene: Bible12\_44 Start: 25059, Stop: 26081, Start Num: 13

Candidate Starts for Bible12\_44:

(Start: 13 @25059 has 33 MA's), (14, 25074), (17, 25101), (18, 25137), (23, 25224), (32, 25317), (40, 25398), (45, 25425), (51, 25470), (54, 25518), (56, 25539), (64, 25587), (74, 25683), (77, 25710), (95, 25902), (97, 25923), (99, 25947),

Gene: Brynnie\_37 Start: 25690, Stop: 26718, Start Num: 13

Candidate Starts for Brynnie\_37:

(9, 25657), (Start: 13 @25690 has 33 MA's), (14, 25705), (23, 25855), (29, 25927), (31, 25942), (32, 25948), (40, 26029), (44, 26053), (60, 26191), (67, 26248), (74, 26311), (81, 26383), (95, 26530),

Gene: Camara\_40 Start: 25003, Stop: 26016, Start Num: 13

Candidate Starts for Camara\_40:

(9, 24979), (Start: 13 @25003 has 33 MA's), (14, 25018), (26, 25207), (31, 25249), (32, 25255), (34, 25264), (40, 25336), (45, 25363), (53, 25444), (54, 25453), (56, 25474), (64, 25522), (82, 25693), (84, 25723), (87, 25750), (91, 25789), (95, 25837), (99, 25882),

Gene: Chickaboom\_39 Start: 25312, Stop: 26337, Start Num: 13

Candidate Starts for Chickaboom\_39:

(9, 25279), (Start: 13 @25312 has 33 MA's), (14, 25327), (23, 25477), (25, 25501), (35, 25597), (38, 25609), (40, 25651), (42, 25663), (69, 25876), (74, 25930), (95, 26149), (106, 26302),

Gene: Clawz\_83 Start: 52842, Stop: 53858, Start Num: 13

Candidate Starts for Clawz\_83:

(1, 52431), (2, 52623), (4, 52680), (6, 52749), (12, 52833), (Start: 13 @52842 has 33 MA's), (24, 53031), (27, 53070), (30, 53088), (40, 53181), (59, 53328), (72, 53430), (75, 53466), (83, 53550), (90, 53628), (92, 53637), (94, 53679), (107, 53835),

Gene: ColdSoup\_85 Start: 52837, Stop: 53850, Start Num: 13

Candidate Starts for ColdSoup\_85:

(4, 52675), (6, 52744), (12, 52828), (Start: 13 @52837 has 33 MA's), (24, 53023), (27, 53062), (30, 53080), (40, 53173), (52, 53242), (60, 53323), (66, 53362), (72, 53422), (75, 53458), (76, 53464), (79, 53497), (85, 53563), (90, 53620), (107, 53827),

Gene: Colusalem\_43 Start: 25041, Stop: 26063, Start Num: 13

Candidate Starts for Colusalem\_43:

(Start: 13 @25041 has 33 MA's), (14, 25056), (17, 25083), (18, 25119), (23, 25206), (32, 25299), (40, 25380), (45, 25407), (51, 25452), (54, 25500), (56, 25521), (64, 25569), (74, 25665), (77, 25692), (95, 25884), (97, 25905), (99, 25929),

Gene: Coral\_40 Start: 24912, Stop: 25934, Start Num: 13

Candidate Starts for Coral\_40:

(Start: 13 @24912 has 33 MA's), (14, 24927), (17, 24954), (18, 24990), (23, 25077), (32, 25170), (40, 25251), (45, 25278), (51, 25323), (54, 25371), (56, 25392), (64, 25440), (74, 25536), (77, 25563), (95, 25755), (97, 25776), (99, 25800),

Gene: Cote\_42 Start: 25389, Stop: 26411, Start Num: 13

Candidate Starts for Cote\_42:

(Start: 13 @25389 has 33 MA's), (14, 25404), (17, 25431), (18, 25467), (23, 25554), (32, 25647), (40, 25728), (45, 25755), (51, 25800), (54, 25848), (56, 25869), (64, 25917), (74, 26013), (77, 26040), (95, 26232), (97, 26253), (99, 26277),

Gene: Cygnet\_44 Start: 25852, Stop: 26877, Start Num: 13

Candidate Starts for Cygnet\_44:

(Start: 13 @25852 has 33 MA's), (14, 25864), (22, 26014), (26, 26065), (40, 26194), (42, 26206), (45, 26221), (61, 26368), (63, 26377), (64, 26383), (70, 26431), (78, 26524), (88, 26614), (95, 26698), (97, 26719), (99, 26743),

Gene: DanHam62\_40 Start: 25000, Stop: 26013, Start Num: 13

Candidate Starts for DanHam62\_40:

(9, 24976), (Start: 13 @25000 has 33 MA's), (14, 25015), (26, 25204), (31, 25246), (32, 25252), (34, 25261), (40, 25333), (45, 25360), (53, 25441), (54, 25450), (64, 25519), (82, 25690), (84, 25720), (87, 25747), (91, 25786), (95, 25834), (99, 25879),

Gene: Daob\_42 Start: 25397, Stop: 26419, Start Num: 13

Candidate Starts for Daob\_42:

(Start: 13 @25397 has 33 MA's), (14, 25412), (17, 25439), (18, 25475), (23, 25562), (32, 25655), (40, 25736), (45, 25763), (51, 25808), (54, 25856), (56, 25877), (64, 25925), (74, 26021), (77, 26048), (95, 26240), (97, 26261), (99, 26285),

Gene: DonTron\_82 Start: 52715, Stop: 53728, Start Num: 13

Candidate Starts for DonTron\_82:

(4, 52553), (6, 52622), (12, 52706), (Start: 13 @52715 has 33 MA's), (24, 52901), (27, 52940), (30, 52958), (40, 53051), (52, 53120), (60, 53201), (66, 53240), (72, 53300), (75, 53336), (76, 53342), (79, 53375), (85, 53441), (90, 53498), (107, 53705),

Gene: Eesa\_37 Start: 26191, Stop: 27219, Start Num: 13

Candidate Starts for Eesa\_37:

(9, 26149), (Start: 13 @26191 has 33 MA's), (14, 26206), (23, 26356), (29, 26428), (40, 26530), (56, 26668), (60, 26692), (64, 26716), (67, 26749), (74, 26812), (77, 26839), (82, 26887), (95, 27031),

Gene: Galaxy\_37 Start: 25067, Stop: 26092, Start Num: 13

Candidate Starts for Galaxy\_37:

(Start: 13 @25067 has 33 MA's), (14, 25082), (17, 25109), (22, 25226), (25, 25256), (35, 25352), (38, 25364), (40, 25406), (42, 25418), (44, 25430), (56, 25544), (69, 25631), (74, 25685), (77, 25712), (95, 25904),

Gene: Glotell\_42 Start: 25159, Stop: 26172, Start Num: 13

Candidate Starts for Glotell\_42:

(9, 25135), (Start: 13 @25159 has 33 MA's), (14, 25174), (26, 25363), (31, 25405), (32, 25411), (34, 25420), (40, 25492), (45, 25519), (53, 25600), (54, 25609), (56, 25630), (64, 25678), (82, 25849), (84, 25879), (87, 25906), (91, 25945), (95, 25993), (99, 26038),

Gene: Gravel\_47 Start: 26164, Stop: 27192, Start Num: 13

Candidate Starts for Gravel\_47:

(Start: 13 @26164 has 33 MA's), (14, 26179), (23, 26329), (29, 26401), (40, 26503), (56, 26641), (60, 26665), (64, 26689), (67, 26722), (74, 26785), (77, 26812), (82, 26860), (95, 27004),

Gene: HamCheese\_39 Start: 24987, Stop: 26000, Start Num: 13

Candidate Starts for HamCheese\_39:

(9, 24963), (Start: 13 @24987 has 33 MA's), (14, 25002), (26, 25191), (31, 25233), (32, 25239), (34, 25248), (40, 25320), (45, 25347), (53, 25428), (54, 25437), (56, 25458), (64, 25506), (82, 25677), (84, 25707), (87, 25734), (91, 25773), (95, 25821), (99, 25866),

Gene: HannahPhantana\_41 Start: 25059, Stop: 26081, Start Num: 13

Candidate Starts for HannahPhantana\_41:

(Start: 13 @25059 has 33 MA's), (14, 25074), (17, 25101), (18, 25137), (23, 25224), (32, 25317), (40, 25398), (45, 25425), (51, 25470), (54, 25518), (56, 25539), (64, 25587), (74, 25683), (77, 25710), (95, 25902), (97, 25923), (99, 25947),

Gene: Jamun\_37 Start: 25352, Stop: 26377, Start Num: 13

Candidate Starts for Jamun\_37:

(9, 25319), (Start: 13 @25352 has 33 MA's), (14, 25367), (23, 25517), (25, 25541), (35, 25637), (38, 25649), (40, 25691), (42, 25703), (43, 25712), (69, 25916), (74, 25970), (95, 26189), (106, 26342),

Gene: Jerole\_50 Start: 25183, Stop: 26205, Start Num: 13

Candidate Starts for Jerole\_50:

(Start: 13 @25183 has 33 MA's), (14, 25198), (17, 25225), (18, 25261), (23, 25348), (32, 25441), (40, 25522), (45, 25549), (51, 25594), (54, 25642), (56, 25663), (64, 25711), (74, 25807), (77, 25834), (95, 26026), (97, 26047), (99, 26071),

Gene: Jollymon\_82 Start: 52837, Stop: 53850, Start Num: 13

Candidate Starts for Jollymon\_82:

(4, 52675), (6, 52744), (12, 52828), (Start: 13 @52837 has 33 MA's), (24, 53023), (27, 53062), (30, 53080), (40, 53173), (52, 53242), (60, 53323), (66, 53362), (72, 53422), (75, 53458), (76, 53464), (79, 53497), (85, 53563), (90, 53620), (107, 53827),

Gene: Juno112\_39 Start: 25003, Stop: 26016, Start Num: 13

Candidate Starts for Juno112\_39:

(9, 24979), (Start: 13 @25003 has 33 MA's), (14, 25018), (26, 25207), (31, 25249), (32, 25255), (34, 25264), (40, 25336), (45, 25363), (53, 25444), (54, 25453), (56, 25474), (64, 25522), (82, 25693), (84, 25723), (87, 25750), (91, 25789), (95, 25837), (99, 25882),

Gene: KHumphrey\_40 Start: 25002, Stop: 26015, Start Num: 13

Candidate Starts for KHumphrey\_40:

(9, 24978), (Start: 13 @25002 has 33 MA's), (14, 25017), (26, 25206), (31, 25248), (32, 25254), (34, 25263), (40, 25335), (45, 25362), (53, 25443), (54, 25452), (56, 25473), (64, 25521), (82, 25692), (84, 25722), (87, 25749), (91, 25788), (95, 25836), (99, 25881),

Gene: KendraB23\_48 Start: 26357, Stop: 27385, Start Num: 13

Candidate Starts for KendraB23\_48:

(9, 26315), (Start: 13 @26357 has 33 MA's), (14, 26372), (23, 26522), (29, 26594), (40, 26696), (56, 26834), (60, 26858), (64, 26882), (67, 26915), (74, 26978), (77, 27005), (82, 27053), (95, 27197),

Gene: Kepler\_42 Start: 25807, Stop: 26829, Start Num: 13

Candidate Starts for Kepler\_42:

(Start: 13 @25807 has 33 MA's), (14, 25822), (17, 25849), (18, 25885), (23, 25972), (32, 26065), (40, 26146), (45, 26173), (51, 26218), (54, 26266), (56, 26287), (64, 26335), (74, 26431), (77, 26458), (87, 26563), (95, 26650), (97, 26671), (99, 26695),

Gene: KingstonB\_84 Start: 52239, Stop: 53261, Start Num: 12

Candidate Starts for KingstonB\_84:

(4, 52086), (12, 52239), (Start: 13 @52248 has 33 MA's), (24, 52434), (27, 52473), (30, 52491), (40, 52584), (52, 52653), (60, 52734), (66, 52773), (72, 52833), (75, 52869), (76, 52875), (79, 52908), (85, 52974), (90, 53031), (107, 53238),

Gene: Kuleana\_42 Start: 25383, Stop: 26405, Start Num: 13

Candidate Starts for Kuleana\_42:

(Start: 13 @25383 has 33 MA's), (14, 25398), (17, 25425), (31, 25635), (32, 25641), (34, 25650), (40, 25722), (45, 25749), (48, 25776), (51, 25794), (56, 25863), (60, 25887), (64, 25911), (74, 26007), (77, 26034), (80, 26073), (95, 26226), (97, 26247), (99, 26271),

Gene: Leona\_39 Start: 25074, Stop: 26087, Start Num: 13

Candidate Starts for Leona\_39:

(9, 25050), (Start: 13 @25074 has 33 MA's), (14, 25089), (16, 25107), (25, 25257), (26, 25278), (31, 25320), (40, 25407), (45, 25434), (53, 25515), (54, 25524), (56, 25545), (64, 25593), (82, 25764), (84, 25794), (87, 25821), (91, 25860), (95, 25908), (99, 25953),

Gene: LittleTokyo\_40 Start: 24933, Stop: 25961, Start Num: 13



Candidate Starts for LittleTokyo\_40:

(Start: 13 @24933 has 33 MA's), (14, 24948), (25, 25128), (26, 25149), (32, 25197), (40, 25278), (42, 25290), (45, 25305), (61, 25452), (63, 25461), (64, 25467), (70, 25515), (78, 25608), (95, 25782), (97, 25803), (99, 25827), (100, 25857),

Gene: Lukepolites\_36 Start: 28340, Stop: 29587, Start Num: 3

Candidate Starts for Lukepolites\_36:

(3, 28340), (5, 28394), (19, 28667), (28, 28769), (33, 28805), (36, 28832), (39, 28862), (49, 28937), (62, 29060), (86, 29315), (102, 29510),

Gene: Lunar\_42 Start: 25723, Stop: 26745, Start Num: 13

Candidate Starts for Lunar\_42:

(Start: 13 @25723 has 33 MA's), (14, 25738), (17, 25765), (18, 25801), (23, 25888), (32, 25981), (40, 26062), (45, 26089), (51, 26134), (54, 26182), (56, 26203), (64, 26251), (74, 26347), (77, 26374), (95, 26566), (97, 26587), (99, 26611),

Gene: Melons\_42 Start: 25537, Stop: 26559, Start Num: 13

Candidate Starts for Melons\_42:

(Start: 13 @25537 has 33 MA's), (14, 25552), (17, 25579), (18, 25615), (23, 25702), (32, 25795), (40, 25876), (45, 25903), (51, 25948), (54, 25996), (56, 26017), (64, 26065), (74, 26161), (77, 26188), (95, 26380), (97, 26401), (99, 26425),

Gene: Orcanus\_38 Start: 25714, Stop: 26742, Start Num: 13

Candidate Starts for Orcanus\_38:

(Start: 13 @25714 has 33 MA's), (14, 25729), (23, 25879), (29, 25951), (40, 26053), (43, 26074), (56, 26191), (60, 26215), (64, 26239), (67, 26272), (74, 26335), (77, 26362), (82, 26410), (95, 26554),

Gene: OtsoOtso\_48 Start: 24913, Stop: 25935, Start Num: 13

Candidate Starts for OtsoOtso\_48:

(Start: 13 @24913 has 33 MA's), (14, 24928), (17, 24955), (18, 24991), (23, 25078), (32, 25171), (40, 25252), (45, 25279), (51, 25324), (54, 25372), (56, 25393), (64, 25441), (74, 25537), (77, 25564), (95, 25756), (97, 25777), (99, 25801),

Gene: Pelletreau\_47 Start: 26164, Stop: 27192, Start Num: 13

Candidate Starts for Pelletreau\_47:

(Start: 13 @26164 has 33 MA's), (14, 26179), (23, 26329), (29, 26401), (40, 26503), (56, 26641), (60, 26665), (64, 26689), (67, 26722), (74, 26785), (77, 26812), (82, 26860), (95, 27004),

Gene: PhluffyCoco\_40 Start: 24999, Stop: 26012, Start Num: 13

Candidate Starts for PhluffyCoco\_40:

(9, 24975), (Start: 13 @24999 has 33 MA's), (14, 25014), (26, 25203), (31, 25245), (32, 25251), (34, 25260), (40, 25332), (45, 25359), (53, 25440), (54, 25449), (56, 25470), (64, 25518), (82, 25689), (84, 25719), (87, 25746), (91, 25785), (95, 25833), (99, 25878),

Gene: Polka\_40 Start: 24913, Stop: 25935, Start Num: 13

Candidate Starts for Polka\_40:

(Start: 13 @24913 has 33 MA's), (14, 24928), (17, 24955), (18, 24991), (23, 25078), (32, 25171), (40, 25252), (45, 25279), (51, 25324), (54, 25372), (56, 25393), (64, 25441), (74, 25537), (77, 25564), (95, 25756), (97, 25777), (99, 25801),

Gene: Rattail\_40 Start: 25085, Stop: 26098, Start Num: 13

Candidate Starts for Rattail\_40:

(9, 25061), (Start: 13 @25085 has 33 MA's), (14, 25100), (26, 25289), (31, 25331), (32, 25337), (34, 25346), (40, 25418), (45, 25445), (53, 25526), (54, 25535), (56, 25556), (64, 25604), (82, 25775), (84, 25805), (87, 25832), (91, 25871), (95, 25919), (99, 25964),

Gene: RedFox\_40 Start: 24998, Stop: 26011, Start Num: 13

Candidate Starts for RedFox\_40:

(9, 24974), (Start: 13 @24998 has 33 MA's), (14, 25013), (26, 25202), (31, 25244), (32, 25250), (34, 25259), (40, 25331), (45, 25358), (53, 25439), (54, 25448), (56, 25469), (64, 25517), (82, 25688), (84, 25718), (87, 25745), (91, 25784), (95, 25832), (99, 25877),

Gene: Renna12\_39 Start: 25056, Stop: 26069, Start Num: 13

Candidate Starts for Renna12\_39:

(8, 25014), (Start: 13 @25056 has 33 MA's), (14, 25071), (24, 25230), (26, 25260), (31, 25302), (32, 25308), (34, 25317), (40, 25389), (45, 25416), (53, 25497), (54, 25506), (56, 25527), (82, 25746), (84, 25776), (87, 25803), (95, 25890), (99, 25935), (105, 26037), (107, 26046),

Gene: Ruchi\_37 Start: 25758, Stop: 26786, Start Num: 13

Candidate Starts for Ruchi\_37:

(9, 25725), (Start: 13 @25758 has 33 MA's), (14, 25773), (23, 25923), (29, 25995), (32, 26016), (40, 26097), (44, 26121), (60, 26259), (64, 26283), (67, 26316), (74, 26379), (81, 26451), (95, 26598),

Gene: Soos\_78 Start: 52041, Stop: 53054, Start Num: 13

Candidate Starts for Soos\_78:

(4, 51879), (6, 51948), (12, 52032), (Start: 13 @52041 has 33 MA's), (24, 52227), (27, 52266), (30, 52284), (40, 52377), (52, 52446), (60, 52527), (66, 52566), (72, 52626), (75, 52662), (76, 52668), (79, 52701), (85, 52767), (90, 52824), (107, 53031),

Gene: Sting\_81 Start: 52480, Stop: 53493, Start Num: 13

Candidate Starts for Sting\_81:

(4, 52318), (6, 52387), (12, 52471), (Start: 13 @52480 has 33 MA's), (24, 52666), (27, 52705), (30, 52723), (40, 52816), (52, 52885), (60, 52966), (66, 53005), (72, 53065), (75, 53101), (76, 53107), (79, 53140), (85, 53206), (90, 53263), (107, 53470),

Gene: StuartMinion\_35 Start: 22066, Stop: 23079, Start Num: 13

Candidate Starts for StuartMinion\_35:

(9, 22033), (Start: 13 @22066 has 33 MA's), (14, 22081), (16, 22099), (24, 22240), (26, 22270), (31, 22312), (32, 22318), (40, 22399), (45, 22426), (53, 22507), (54, 22516), (56, 22537), (64, 22585), (82, 22756), (84, 22786), (95, 22900), (99, 22945), (107, 23056),

Gene: TaylorSipt\_38 Start: 25131, Stop: 26156, Start Num: 13

Candidate Starts for TaylorSipt\_38:

(9, 25098), (Start: 13 @25131 has 33 MA's), (14, 25146), (17, 25173), (22, 25290), (23, 25296), (25, 25320), (35, 25416), (38, 25428), (39, 25446), (40, 25470), (42, 25482), (44, 25494), (56, 25608), (61, 25641), (69, 25695), (70, 25701), (74, 25749), (77, 25776), (95, 25968),

Gene: Toad24\_40 Start: 26410, Stop: 27438, Start Num: 13

Candidate Starts for Toad24\_40:

(9, 26368), (Start: 13 @26410 has 33 MA's), (14, 26425), (23, 26575), (29, 26647), (40, 26749), (56, 26887), (60, 26911), (64, 26935), (67, 26968), (74, 27031), (77, 27058), (82, 27106), (95, 27250),

Gene: Tonitrus\_67 Start: 48810, Stop: 49829, Start Num: 10

Candidate Starts for Tonitrus\_67:

(Start: 10 @48810 has 1 MA's), (20, 48945), (23, 48984), (27, 49038), (30, 49056), (31, 49068), (40, 49146), (41, 49149), (47, 49194), (55, 49254), (58, 49287), (60, 49293), (65, 49329), (68, 49353), (71, 49389), (73, 49401), (75, 49428), (90, 49596), (96, 49668), (103, 49758),

Gene: ValentiniPuff\_95 Start: 54258, Stop: 55337, Start Num: 15

Candidate Starts for ValentiniPuff\_95:

(11, 54216), (Start: 15 @54258 has 1 MA's), (21, 54375), (27, 54453), (37, 54528), (50, 54639), (57, 54729), (58, 54741), (70, 54813), (89, 54993), (93, 55053), (95, 55077), (98, 55116), (99, 55122), (101, 55161), (106, 55233), (108, 55266),

Gene: Vulpecula\_37 Start: 25435, Stop: 26463, Start Num: 13

Candidate Starts for Vulpecula\_37:

(9, 25402), (Start: 13 @25435 has 33 MA's), (14, 25450), (23, 25600), (29, 25672), (31, 25687), (32, 25693), (40, 25774), (44, 25798), (60, 25936), (64, 25960), (67, 25993), (74, 26056), (81, 26128), (95, 26275),

Gene: Westrich\_46 Start: 26088, Stop: 27116, Start Num: 13

Candidate Starts for Westrich\_46:

(Start: 13 @26088 has 33 MA's), (14, 26103), (23, 26253), (29, 26325), (40, 26427), (56, 26565), (60, 26589), (64, 26613), (67, 26646), (74, 26709), (77, 26736), (82, 26784), (95, 26928),

Gene: WileyE\_43 Start: 25312, Stop: 26337, Start Num: 13

Candidate Starts for WileyE\_43:

(9, 25279), (Start: 13 @25312 has 33 MA's), (14, 25327), (23, 25477), (25, 25501), (35, 25597), (38, 25609), (40, 25651), (42, 25663), (69, 25876), (74, 25930), (95, 26149), (106, 26302),

Gene: Zhuangyuan\_44 Start: 25780, Stop: 26808, Start Num: 13

Candidate Starts for Zhuangyuan\_44:

(Start: 13 @25780 has 33 MA's), (14, 25795), (22, 25945), (32, 26044), (40, 26125), (42, 26137), (45, 26152), (46, 26164), (61, 26299), (63, 26308), (64, 26314), (70, 26362), (78, 26455), (88, 26545), (95, 26629), (97, 26650), (99, 26674),