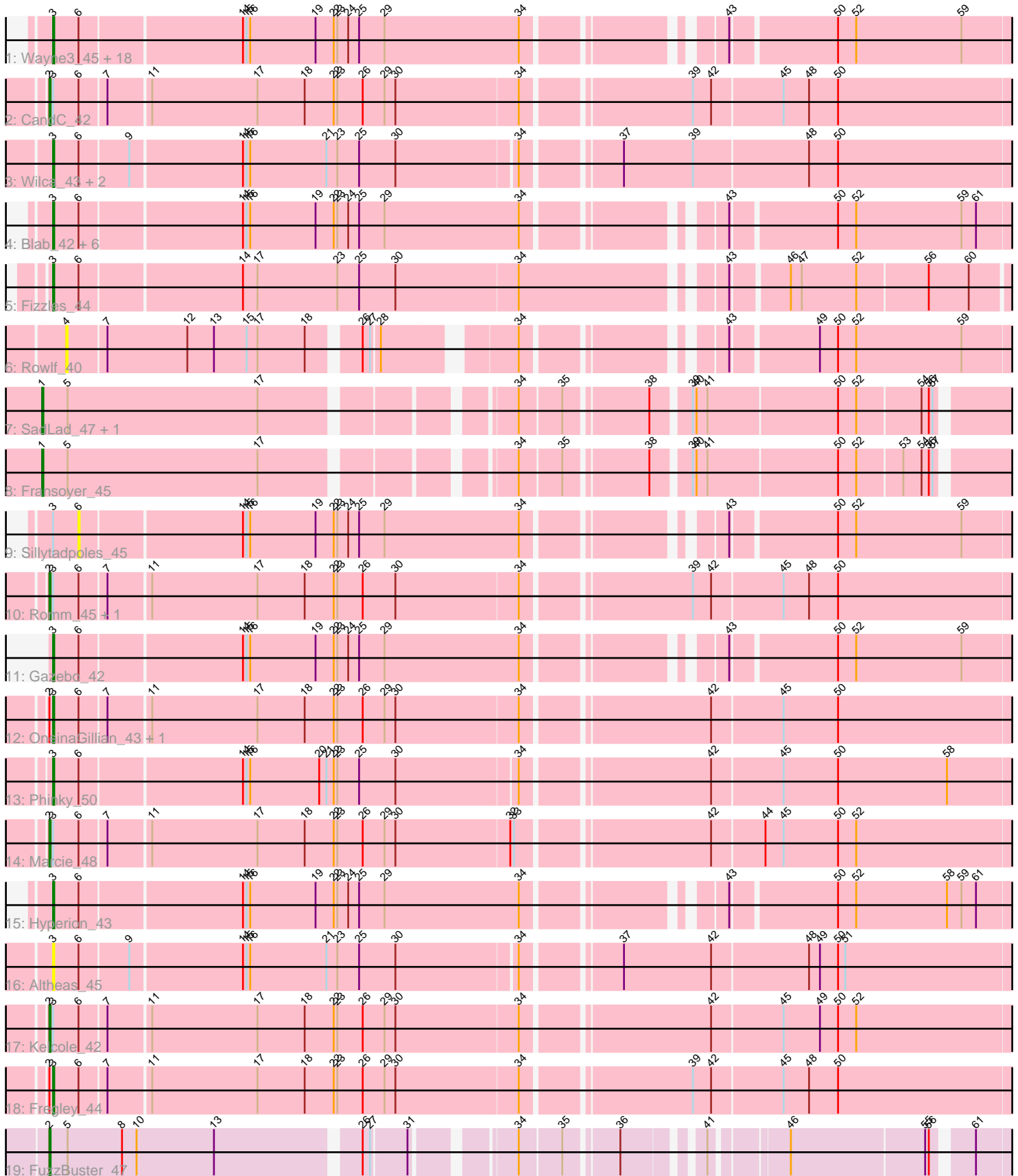


# Pham 2471



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 2471 Report

This analysis was run 04/28/24 on database version 559.

Pham number 2471 has 48 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Wayne3\_45, Casend\_45, Kyva\_46, StrawberryJamm\_46, Jehoshaphat\_46, Llemily\_44, Teehee\_45, Zhafia\_47, Grassboy\_45, Phabia\_44, Namago\_44, DonaldDuck\_44, Quammi\_42, AluminumJesus\_42, Viceroy\_42, Wheelie\_43, Rudy\_42, SallyK\_45, Lonelysoil\_43
- Track 2 : CandC\_42
- Track 3 : Wilca\_43, Pepe25\_42, BirdInFrench\_43
- Track 4 : Blab\_42, Judebell\_47, Nike\_44, BabyDotz\_43, Tissue\_44, Zagie\_43, Squash\_46
- Track 5 : Fizzles\_44
- Track 6 : Rowlf\_40
- Track 7 : SadLad\_47, RubyRalph\_45
- Track 8 : Fransoyer\_45
- Track 9 : Sillytadpoles\_45
- Track 10 : Romm\_45, RobinRose\_45
- Track 11 : Gazebo\_42
- Track 12 : OneinaGillian\_43, Tempo\_43
- Track 13 : Phinky\_50
- Track 14 : Marcie\_48
- Track 15 : Hyperion\_43
- Track 16 : Altheas\_45
- Track 17 : Kelcole\_42
- Track 18 : Fregley\_44
- Track 19 : FuzzBuster\_47

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

The start number called the most often in the published annotations is 3, it was called in 28 of the 36 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Altheas\_45, AluminumJesus\_42, BabyDotz\_43, BirdInFrench\_43, Blab\_42, Casend\_45, DonaldDuck\_44, Fizzles\_44, Fregley\_44, Gazebo\_42, Grassboy\_45, Hyperion\_43, Jehoshaphat\_46, Judebell\_47, Kyva\_46, Llemily\_44, Lonelysoil\_43, Namago\_44, Nike\_44, OneinaGillian\_43, Pepe25\_42, Phabia\_44, Phinky\_50,

Quammi\_42, Rudy\_42, SallyK\_45, Squash\_46, StrawberryJamm\_46, Teehee\_45, Tempo\_43, Tissue\_44, Viceroy\_42, Wayne3\_45, Wheelie\_43, Wilca\_43, Zagie\_43, Zhafia\_47,

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

- CandC\_42, Kelcole\_42, Marcie\_48, RobinRose\_45, Romm\_45, Sillytadpoles\_45,

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

- Fransoyer\_45, FuzzBuster\_47, Rowlf\_40, RubyRalph\_45, SadLad\_47,

### Summary by start number:

Start 1:

- Found in 3 of 48 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 3 of 36
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Fransoyer\_45 (EG), RubyRalph\_45 (EG), SadLad\_47 (EG),

Start 2:

- Found in 9 of 48 ( 18.8% ) of genes in pham
- Manual Annotations of this start: 5 of 36
- Called 66.7% of time when present
- Phage (with cluster) where this start called: CandC\_42 (EG), FuzzBuster\_47 (singleton), Kelcole\_42 (EG), Marcie\_48 (EG), RobinRose\_45 (EG), Romm\_45 (EG),

Start 3:

- Found in 43 of 48 ( 89.6% ) of genes in pham
- Manual Annotations of this start: 28 of 36
- Called 86.0% of time when present
- Phage (with cluster) where this start called: Altheas\_45 (EG), AluminumJesus\_42 (EG), BabyDotz\_43 (EG), BirdInFrench\_43 (EG), Blab\_42 (EG), Casend\_45 (EG), DonaldDuck\_44 (EG), Fizzles\_44 (EG), Fregley\_44 (EG), Gazebo\_42 (EG), Grassboy\_45 (EG), Hyperion\_43 (EG), Jehoshaphat\_46 (EG), Judebell\_47 (EG), Kyva\_46 (EG), Llemily\_44 (EG), Lonelysoil\_43 (EG), Namago\_44 (EG), Nike\_44 (EG), OneinaGillian\_43 (EG), Pepe25\_42 (EG), Phabia\_44 (EG), Phinky\_50 (EG), Quammi\_42 (EG), Rudy\_42 (EG), SallyK\_45 (EG), Squash\_46 (EG), StrawberryJamm\_46 (EG), Teehee\_45 (EG), Tempo\_43 (EG), Tissue\_44 (EG), Viceroy\_42 (EG), Wayne3\_45 (EG), Wheelie\_43 (EG), Wilca\_43 (EG), Zagie\_43 (EG), Zhafia\_47 (EG),

Start 4:

- Found in 1 of 48 ( 2.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rowlf\_40 (EG),

Start 6:

- Found in 43 of 48 ( 89.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.3% of time when present
- Phage (with cluster) where this start called: Sillytadpoles\_45 (EG),

## Summary by clusters:

There are 2 clusters represented in this pham: EG, singleton,

Info for manual annotations of cluster EG:

- Start number 1 was manually annotated 3 times for cluster EG.
- Start number 2 was manually annotated 4 times for cluster EG.
- Start number 3 was manually annotated 28 times for cluster EG.

## Gene Information:

Gene: Altheas\_45 Start: 33935, Stop: 34702, Start Num: 3

Candidate Starts for Altheas\_45:

(Start: 3 @33935 has 28 MA's), (6, 33956), (9, 33995), (14, 34085), (15, 34088), (16, 34091), (21, 34154), (23, 34163), (25, 34181), (30, 34211), (34, 34307), (37, 34379), (42, 34451), (48, 34529), (49, 34538), (50, 34553), (51, 34559),

Gene: AluminumJesus\_42 Start: 33546, Stop: 34283, Start Num: 3

Candidate Starts for AluminumJesus\_42:

(Start: 3 @33546 has 28 MA's), (6, 33567), (14, 33696), (15, 33699), (16, 33702), (19, 33756), (22, 33771), (23, 33774), (24, 33783), (25, 33792), (29, 33813), (34, 33924), (43, 34059), (50, 34140), (52, 34155), (59, 34242),

Gene: BabyDotz\_43 Start: 34334, Stop: 35071, Start Num: 3

Candidate Starts for BabyDotz\_43:

(Start: 3 @34334 has 28 MA's), (6, 34355), (14, 34484), (15, 34487), (16, 34490), (19, 34544), (22, 34559), (23, 34562), (24, 34571), (25, 34580), (29, 34601), (34, 34712), (43, 34847), (50, 34928), (52, 34943), (59, 35030), (61, 35042),

Gene: BirdInFrench\_43 Start: 32109, Stop: 32876, Start Num: 3

Candidate Starts for BirdInFrench\_43:

(Start: 3 @32109 has 28 MA's), (6, 32130), (9, 32169), (14, 32259), (15, 32262), (16, 32265), (21, 32328), (23, 32337), (25, 32355), (30, 32385), (34, 32481), (37, 32553), (39, 32610), (48, 32703), (50, 32727),

Gene: Blab\_42 Start: 33458, Stop: 34195, Start Num: 3

Candidate Starts for Blab\_42:

(Start: 3 @33458 has 28 MA's), (6, 33479), (14, 33608), (15, 33611), (16, 33614), (19, 33668), (22, 33683), (23, 33686), (24, 33695), (25, 33704), (29, 33725), (34, 33836), (43, 33971), (50, 34052), (52, 34067), (59, 34154), (61, 34166),

Gene: CandC\_42 Start: 32465, Stop: 33238, Start Num: 2

Candidate Starts for CandC\_42:

(Start: 2 @32465 has 5 MA's), (Start: 3 @32468 has 28 MA's), (6, 32489), (7, 32510), (11, 32543), (17, 32630), (18, 32669), (22, 32693), (23, 32696), (26, 32717), (29, 32735), (30, 32744), (34, 32843), (39, 32972), (42, 32987), (45, 33044), (48, 33065), (50, 33089),

Gene: Casend\_45 Start: 34095, Stop: 34832, Start Num: 3

Candidate Starts for Casend\_45:

(Start: 3 @34095 has 28 MA's), (6, 34116), (14, 34245), (15, 34248), (16, 34251), (19, 34305), (22, 34320), (23, 34323), (24, 34332), (25, 34341), (29, 34362), (34, 34473), (43, 34608), (50, 34689), (52,

34704), (59, 34791),

Gene: DonaldDuck\_44 Start: 33444, Stop: 34181, Start Num: 3

Candidate Starts for DonaldDuck\_44:

(Start: 3 @33444 has 28 MA's), (6, 33465), (14, 33594), (15, 33597), (16, 33600), (19, 33654), (22, 33669), (23, 33672), (24, 33681), (25, 33690), (29, 33711), (34, 33822), (43, 33957), (50, 34038), (52, 34053), (59, 34140),

Gene: Fizzles\_44 Start: 33043, Stop: 33789, Start Num: 3

Candidate Starts for Fizzles\_44:

(Start: 3 @33043 has 28 MA's), (6, 33064), (14, 33193), (17, 33205), (23, 33271), (25, 33289), (30, 33319), (34, 33418), (43, 33568), (46, 33610), (47, 33619), (52, 33664), (56, 33721), (60, 33754),

Gene: Fransoyer\_45 Start: 34744, Stop: 35475, Start Num: 1

Candidate Starts for Fransoyer\_45:

(Start: 1 @34744 has 3 MA's), (5, 34765), (17, 34921), (34, 35098), (35, 35131), (38, 35194), (39, 35221), (40, 35224), (41, 35233), (50, 35338), (52, 35353), (53, 35389), (54, 35404), (56, 35410), (57, 35413),

Gene: Fregley\_44 Start: 33041, Stop: 33811, Start Num: 3

Candidate Starts for Fregley\_44:

(Start: 2 @33038 has 5 MA's), (Start: 3 @33041 has 28 MA's), (6, 33062), (7, 33083), (11, 33116), (17, 33203), (18, 33242), (22, 33266), (23, 33269), (26, 33290), (29, 33308), (30, 33317), (34, 33416), (39, 33545), (42, 33560), (45, 33617), (48, 33638), (50, 33662),

Gene: FuzzBuster\_47 Start: 29557, Stop: 30258, Start Num: 2

Candidate Starts for FuzzBuster\_47:

(Start: 2 @29557 has 5 MA's), (5, 29572), (8, 29617), (10, 29629), (13, 29692), (26, 29803), (27, 29809), (31, 29836), (34, 29905), (35, 29938), (36, 29977), (41, 30031), (46, 30085), (55, 30193), (56, 30196), (61, 30223),

Gene: Gazebo\_42 Start: 34005, Stop: 34742, Start Num: 3

Candidate Starts for Gazebo\_42:

(Start: 3 @34005 has 28 MA's), (6, 34026), (14, 34155), (15, 34158), (16, 34161), (19, 34215), (22, 34230), (23, 34233), (24, 34242), (25, 34251), (29, 34272), (34, 34383), (43, 34518), (50, 34599), (52, 34614), (59, 34701),

Gene: Grassboy\_45 Start: 34057, Stop: 34794, Start Num: 3

Candidate Starts for Grassboy\_45:

(Start: 3 @34057 has 28 MA's), (6, 34078), (14, 34207), (15, 34210), (16, 34213), (19, 34267), (22, 34282), (23, 34285), (24, 34294), (25, 34303), (29, 34324), (34, 34435), (43, 34570), (50, 34651), (52, 34666), (59, 34753),

Gene: Hyperion\_43 Start: 33964, Stop: 34701, Start Num: 3

Candidate Starts for Hyperion\_43:

(Start: 3 @33964 has 28 MA's), (6, 33985), (14, 34114), (15, 34117), (16, 34120), (19, 34174), (22, 34189), (23, 34192), (24, 34201), (25, 34210), (29, 34231), (34, 34342), (43, 34477), (50, 34558), (52, 34573), (58, 34648), (59, 34660), (61, 34672),

Gene: Jehoshaphat\_46 Start: 34363, Stop: 35100, Start Num: 3

Candidate Starts for Jehoshaphat\_46:

(Start: 3 @34363 has 28 MA's), (6, 34384), (14, 34513), (15, 34516), (16, 34519), (19, 34573), (22, 34588), (23, 34591), (24, 34600), (25, 34609), (29, 34630), (34, 34741), (43, 34876), (50, 34957), (52,

34972), (59, 35059),

Gene: Judebell\_47 Start: 33860, Stop: 34597, Start Num: 3

Candidate Starts for Judebell\_47:

(Start: 3 @33860 has 28 MA's), (6, 33881), (14, 34010), (15, 34013), (16, 34016), (19, 34070), (22, 34085), (23, 34088), (24, 34097), (25, 34106), (29, 34127), (34, 34238), (43, 34373), (50, 34454), (52, 34469), (59, 34556), (61, 34568),

Gene: Kelcole\_42 Start: 32920, Stop: 33693, Start Num: 2

Candidate Starts for Kelcole\_42:

(Start: 2 @32920 has 5 MA's), (Start: 3 @32923 has 28 MA's), (6, 32944), (7, 32965), (11, 32998), (17, 33085), (18, 33124), (22, 33148), (23, 33151), (26, 33172), (29, 33190), (30, 33199), (34, 33298), (42, 33442), (45, 33499), (49, 33529), (50, 33544), (52, 33559),

Gene: Kyva\_46 Start: 34092, Stop: 34829, Start Num: 3

Candidate Starts for Kyva\_46:

(Start: 3 @34092 has 28 MA's), (6, 34113), (14, 34242), (15, 34245), (16, 34248), (19, 34302), (22, 34317), (23, 34320), (24, 34329), (25, 34338), (29, 34359), (34, 34470), (43, 34605), (50, 34686), (52, 34701), (59, 34788),

Gene: Llemily\_44 Start: 33139, Stop: 33876, Start Num: 3

Candidate Starts for Llemily\_44:

(Start: 3 @33139 has 28 MA's), (6, 33160), (14, 33289), (15, 33292), (16, 33295), (19, 33349), (22, 33364), (23, 33367), (24, 33376), (25, 33385), (29, 33406), (34, 33517), (43, 33652), (50, 33733), (52, 33748), (59, 33835),

Gene: Lonelysoil\_43 Start: 33381, Stop: 34118, Start Num: 3

Candidate Starts for Lonelysoil\_43:

(Start: 3 @33381 has 28 MA's), (6, 33402), (14, 33531), (15, 33534), (16, 33537), (19, 33591), (22, 33606), (23, 33609), (24, 33618), (25, 33627), (29, 33648), (34, 33759), (43, 33894), (50, 33975), (52, 33990), (59, 34077),

Gene: Marcie\_48 Start: 33571, Stop: 34341, Start Num: 2

Candidate Starts for Marcie\_48:

(Start: 2 @33571 has 5 MA's), (Start: 3 @33574 has 28 MA's), (6, 33595), (7, 33616), (11, 33649), (17, 33736), (18, 33775), (22, 33799), (23, 33802), (26, 33823), (29, 33841), (30, 33850), (32, 33943), (33, 33946), (42, 34093), (44, 34135), (45, 34150), (50, 34195), (52, 34210),

Gene: Namago\_44 Start: 33222, Stop: 33959, Start Num: 3

Candidate Starts for Namago\_44:

(Start: 3 @33222 has 28 MA's), (6, 33243), (14, 33372), (15, 33375), (16, 33378), (19, 33432), (22, 33447), (23, 33450), (24, 33459), (25, 33468), (29, 33489), (34, 33600), (43, 33735), (50, 33816), (52, 33831), (59, 33918),

Gene: Nike\_44 Start: 34177, Stop: 34914, Start Num: 3

Candidate Starts for Nike\_44:

(Start: 3 @34177 has 28 MA's), (6, 34198), (14, 34327), (15, 34330), (16, 34333), (19, 34387), (22, 34402), (23, 34405), (24, 34414), (25, 34423), (29, 34444), (34, 34555), (43, 34690), (50, 34771), (52, 34786), (59, 34873), (61, 34885),

Gene: OneinaGillian\_43 Start: 32574, Stop: 33344, Start Num: 3

Candidate Starts for OneinaGillian\_43:

(Start: 2 @32571 has 5 MA's), (Start: 3 @32574 has 28 MA's), (6, 32595), (7, 32616), (11, 32649), (17, 32736), (18, 32775), (22, 32799), (23, 32802), (26, 32823), (29, 32841), (30, 32850), (34, 32949), (42, 33093), (45, 33150), (50, 33195),

Gene: Pepe25\_42 Start: 32115, Stop: 32882, Start Num: 3

Candidate Starts for Pepe25\_42:

(Start: 3 @32115 has 28 MA's), (6, 32136), (9, 32175), (14, 32265), (15, 32268), (16, 32271), (21, 32334), (23, 32343), (25, 32361), (30, 32391), (34, 32487), (37, 32559), (39, 32616), (48, 32709), (50, 32733),

Gene: Phabia\_44 Start: 33554, Stop: 34291, Start Num: 3

Candidate Starts for Phabia\_44:

(Start: 3 @33554 has 28 MA's), (6, 33575), (14, 33704), (15, 33707), (16, 33710), (19, 33764), (22, 33779), (23, 33782), (24, 33791), (25, 33800), (29, 33821), (34, 33932), (43, 34067), (50, 34148), (52, 34163), (59, 34250),

Gene: Phinky\_50 Start: 35350, Stop: 36117, Start Num: 3

Candidate Starts for Phinky\_50:

(Start: 3 @35350 has 28 MA's), (6, 35371), (14, 35500), (15, 35503), (16, 35506), (20, 35563), (21, 35569), (22, 35575), (23, 35578), (25, 35596), (30, 35626), (34, 35722), (42, 35866), (45, 35923), (50, 35968), (58, 36058),

Gene: Quammi\_42 Start: 33254, Stop: 33991, Start Num: 3

Candidate Starts for Quammi\_42:

(Start: 3 @33254 has 28 MA's), (6, 33275), (14, 33404), (15, 33407), (16, 33410), (19, 33464), (22, 33479), (23, 33482), (24, 33491), (25, 33500), (29, 33521), (34, 33632), (43, 33767), (50, 33848), (52, 33863), (59, 33950),

Gene: RobinRose\_45 Start: 33074, Stop: 33847, Start Num: 2

Candidate Starts for RobinRose\_45:

(Start: 2 @33074 has 5 MA's), (Start: 3 @33077 has 28 MA's), (6, 33098), (7, 33119), (11, 33152), (17, 33239), (18, 33278), (22, 33302), (23, 33305), (26, 33326), (30, 33353), (34, 33452), (39, 33581), (42, 33596), (45, 33653), (48, 33674), (50, 33698),

Gene: Romm\_45 Start: 33074, Stop: 33847, Start Num: 2

Candidate Starts for Romm\_45:

(Start: 2 @33074 has 5 MA's), (Start: 3 @33077 has 28 MA's), (6, 33098), (7, 33119), (11, 33152), (17, 33239), (18, 33278), (22, 33302), (23, 33305), (26, 33326), (30, 33353), (34, 33452), (39, 33581), (42, 33596), (45, 33653), (48, 33674), (50, 33698),

Gene: Rowlf\_40 Start: 33275, Stop: 33964, Start Num: 4

Candidate Starts for Rowlf\_40:

(4, 33275), (7, 33305), (12, 33371), (13, 33392), (15, 33419), (17, 33428), (18, 33467), (26, 33503), (27, 33509), (28, 33515), (34, 33605), (43, 33740), (49, 33806), (50, 33821), (52, 33836), (59, 33923),

Gene: RubyRalph\_45 Start: 34672, Stop: 35403, Start Num: 1

Candidate Starts for RubyRalph\_45:

(Start: 1 @34672 has 3 MA's), (5, 34693), (17, 34849), (34, 35026), (35, 35059), (38, 35122), (39, 35149), (40, 35152), (41, 35161), (50, 35266), (52, 35281), (54, 35332), (56, 35338), (57, 35341),

Gene: Rudy\_42 Start: 33287, Stop: 34024, Start Num: 3

Candidate Starts for Rudy\_42:

(Start: 3 @33287 has 28 MA's), (6, 33308), (14, 33437), (15, 33440), (16, 33443), (19, 33497), (22, 33512), (23, 33515), (24, 33524), (25, 33533), (29, 33554), (34, 33665), (43, 33800), (50, 33881), (52, 33896), (59, 33983),

Gene: SadLad\_47 Start: 35615, Stop: 36346, Start Num: 1

Candidate Starts for SadLad\_47:

(Start: 1 @35615 has 3 MA's), (5, 35636), (17, 35792), (34, 35969), (35, 36002), (38, 36065), (39, 36092), (40, 36095), (41, 36104), (50, 36209), (52, 36224), (54, 36275), (56, 36281), (57, 36284),

Gene: SallyK\_45 Start: 34236, Stop: 34973, Start Num: 3

Candidate Starts for SallyK\_45:

(Start: 3 @34236 has 28 MA's), (6, 34257), (14, 34386), (15, 34389), (16, 34392), (19, 34446), (22, 34461), (23, 34464), (24, 34473), (25, 34482), (29, 34503), (34, 34614), (43, 34749), (50, 34830), (52, 34845), (59, 34932),

Gene: Sillytadpoles\_45 Start: 33148, Stop: 33864, Start Num: 6

Candidate Starts for Sillytadpoles\_45:

(Start: 3 @33127 has 28 MA's), (6, 33148), (14, 33277), (15, 33280), (16, 33283), (19, 33337), (22, 33352), (23, 33355), (24, 33364), (25, 33373), (29, 33394), (34, 33505), (43, 33640), (50, 33721), (52, 33736), (59, 33823),

Gene: Squash\_46 Start: 34188, Stop: 34925, Start Num: 3

Candidate Starts for Squash\_46:

(Start: 3 @34188 has 28 MA's), (6, 34209), (14, 34338), (15, 34341), (16, 34344), (19, 34398), (22, 34413), (23, 34416), (24, 34425), (25, 34434), (29, 34455), (34, 34566), (43, 34701), (50, 34782), (52, 34797), (59, 34884), (61, 34896),

Gene: StrawberryJamm\_46 Start: 33490, Stop: 34227, Start Num: 3

Candidate Starts for StrawberryJamm\_46:

(Start: 3 @33490 has 28 MA's), (6, 33511), (14, 33640), (15, 33643), (16, 33646), (19, 33700), (22, 33715), (23, 33718), (24, 33727), (25, 33736), (29, 33757), (34, 33868), (43, 34003), (50, 34084), (52, 34099), (59, 34186),

Gene: Teehee\_45 Start: 34360, Stop: 35097, Start Num: 3

Candidate Starts for Teehee\_45:

(Start: 3 @34360 has 28 MA's), (6, 34381), (14, 34510), (15, 34513), (16, 34516), (19, 34570), (22, 34585), (23, 34588), (24, 34597), (25, 34606), (29, 34627), (34, 34738), (43, 34873), (50, 34954), (52, 34969), (59, 35056),

Gene: Tempo\_43 Start: 32953, Stop: 33723, Start Num: 3

Candidate Starts for Tempo\_43:

(Start: 2 @32950 has 5 MA's), (Start: 3 @32953 has 28 MA's), (6, 32974), (7, 32995), (11, 33028), (17, 33115), (18, 33154), (22, 33178), (23, 33181), (26, 33202), (29, 33220), (30, 33229), (34, 33328), (42, 33472), (45, 33529), (50, 33574),

Gene: Tissue\_44 Start: 33865, Stop: 34602, Start Num: 3

Candidate Starts for Tissue\_44:

(Start: 3 @33865 has 28 MA's), (6, 33886), (14, 34015), (15, 34018), (16, 34021), (19, 34075), (22, 34090), (23, 34093), (24, 34102), (25, 34111), (29, 34132), (34, 34243), (43, 34378), (50, 34459), (52, 34474), (59, 34561), (61, 34573),

Gene: Viceroy\_42 Start: 33257, Stop: 33994, Start Num: 3

Candidate Starts for Viceroy\_42:



(Start: 3 @33257 has 28 MA's), (6, 33278), (14, 33407), (15, 33410), (16, 33413), (19, 33467), (22, 33482), (23, 33485), (24, 33494), (25, 33503), (29, 33524), (34, 33635), (43, 33770), (50, 33851), (52, 33866), (59, 33953),

Gene: Wayne3\_45 Start: 34123, Stop: 34860, Start Num: 3

Candidate Starts for Wayne3\_45:

(Start: 3 @34123 has 28 MA's), (6, 34144), (14, 34273), (15, 34276), (16, 34279), (19, 34333), (22, 34348), (23, 34351), (24, 34360), (25, 34369), (29, 34390), (34, 34501), (43, 34636), (50, 34717), (52, 34732), (59, 34819),

Gene: Wheelie\_43 Start: 33444, Stop: 34181, Start Num: 3

Candidate Starts for Wheelie\_43:

(Start: 3 @33444 has 28 MA's), (6, 33465), (14, 33594), (15, 33597), (16, 33600), (19, 33654), (22, 33669), (23, 33672), (24, 33681), (25, 33690), (29, 33711), (34, 33822), (43, 33957), (50, 34038), (52, 34053), (59, 34140),

Gene: Wilca\_43 Start: 32109, Stop: 32876, Start Num: 3

Candidate Starts for Wilca\_43:

(Start: 3 @32109 has 28 MA's), (6, 32130), (9, 32169), (14, 32259), (15, 32262), (16, 32265), (21, 32328), (23, 32337), (25, 32355), (30, 32385), (34, 32481), (37, 32553), (39, 32610), (48, 32703), (50, 32727),

Gene: Zagie\_43 Start: 33692, Stop: 34429, Start Num: 3

Candidate Starts for Zagie\_43:

(Start: 3 @33692 has 28 MA's), (6, 33713), (14, 33842), (15, 33845), (16, 33848), (19, 33902), (22, 33917), (23, 33920), (24, 33929), (25, 33938), (29, 33959), (34, 34070), (43, 34205), (50, 34286), (52, 34301), (59, 34388), (61, 34400),

Gene: Zhafia\_47 Start: 33924, Stop: 34661, Start Num: 3

Candidate Starts for Zhafia\_47:

(Start: 3 @33924 has 28 MA's), (6, 33945), (14, 34074), (15, 34077), (16, 34080), (19, 34134), (22, 34149), (23, 34152), (24, 34161), (25, 34170), (29, 34191), (34, 34302), (43, 34437), (50, 34518), (52, 34533), (59, 34620),