



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 311597 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311597 has 64 members, 11 are drafts.

Phages represented in each track:

- Track 1 : KingKamren\_37, EugeneKrabs\_38
- Track 2 : Zhengyi\_38
- Track 3 : Unphazed\_38, Birdfeeder\_36, SwissCheezer\_37, DumpQuist\_37
- Track 4 : YellowPanda\_40, JessellCookie\_39, TinyTimothy\_37
- Track 5 : Salvatore2000\_38, Sorvannah\_38, Wesak\_38
- Track 6 : Biozilla\_39, HitchHiker\_40
- Track 7 : BlueRugrat\_37, LesNorah\_38, Conditioner\_37, Corn21\_37
- Track 8 : Oatly\_39, PineapplePluto\_40, CrunchyBoi\_40
- Track 9 : TicTac\_39
- Track 10 : MiamiPanther\_39
- Track 11 : Stormbreaker\_38, LilyLou\_39, ArMaWen\_37
- Track 12 : Alex44\_38
- Track 13 : Dashyla\_37
- Track 14 : Phogo\_38
- Track 15 : Xitlalli\_36
- Track 16 : Pabst\_37
- Track 17 : TownLake\_36
- Track 18 : PhriedRice\_40, Pharky\_39, Fullmetal\_39, RicoCaldo\_39, Phedro\_39, StagePhright\_39, Phracted\_39
- Track 19 : Yafa\_40, ThirteenKH\_39
- Track 20 : JordanFarm\_41, Barroma\_38, Akoni\_39, Waterlily\_42, AloeVera\_40, Ashton\_40, SoilSleuth\_41, ShyRosie\_39, Truong\_39
- Track 21 : Astartes\_39
- Track 22 : Kosier\_38, Fede\_38
- Track 23 : Atraxi\_37
- Track 24 : Keough\_38, Mazun\_40
- Track 25 : Morrill\_37
- Track 26 : Moleficient\_39
- Track 27 : TrippleS\_38
- Track 28 : JimmyPG\_39
- Track 29 : Burro\_34
- Track 30 : ValentiniPuff\_75
- Track 31 : JrWilcox\_77

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

The start number called the most often in the published annotations is 29, it was called in 46 of the 53 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Akoni\_39, Alex44\_38, AloeVera\_40, ArMaWen\_37, Ashton\_40, Astartes\_39, Atraxi\_37, Barroma\_38, Biozilla\_39, Birdfeeder\_36, BlueRugrat\_37, Conditioner\_37, Corn21\_37, CrunchyBoi\_40, Dashyla\_37, DumpQuist\_37, EugeneKrabs\_38, Fede\_38, Fullmetal\_39, HitchHiker\_40, JimmyPG\_39, JordanFarm\_41, Keough\_38, KingKamren\_37, Kosier\_38, LesNorah\_38, LilyLou\_39, Mazun\_40, Moleficent\_39, Morrill\_37, Oatly\_39, Pabst\_37, Pharky\_39, Phedro\_39, Phogo\_38, Phracted\_39, PhriedRice\_40, PineapplePluto\_40, RicoCaldo\_39, ShyRosie\_39, SoilSleuth\_41, StagePhright\_39, Stormbreaker\_38, SwissCheezer\_37, TicTac\_39, TownLake\_36, TrippleS\_38, Truong\_39, Unphazed\_38, Waterlily\_42, Xitlalli\_36, Zhengyi\_38,

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

- Burro\_34, ThirteenKH\_39, Yafa\_40,

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

- JessellCookie\_39, JrWilcox\_77, MiamiPanther\_39, Salvatore2000\_38, Sorvannah\_38, TinyTimothy\_37, ValentiniPuff\_75, Wesak\_38, YellowPanda\_40,

### Summary by start number:

Start 27:

- Found in 4 of 64 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 1 of 53
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Burro\_34 (EM1),

Start 28:

- Found in 2 of 64 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 1 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JrWilcox\_77 (GL), ValentiniPuff\_75 (GL),

Start 29:

- Found in 55 of 64 ( 85.9% ) of genes in pham
- Manual Annotations of this start: 46 of 53
- Called 94.5% of time when present
- Phage (with cluster) where this start called: Akoni\_39 (EK2), Alex44\_38 (EK1), AloeVera\_40 (EK2), ArMaWen\_37 (EK1), Ashton\_40 (EK2), Astartes\_39 (EK2), Atraxi\_37 (EK2), Barroma\_38 (EK2), Biozilla\_39 (EK1), Birdfeeder\_36 (EK1), BlueRugrat\_37 (EK1), Conditioner\_37 (EK1), Corn21\_37 (EK1), CrunchyBoi\_40 (EK1), Dashyla\_37 (EK1), DumpQuist\_37 (EK1), EugeneKrabs\_38 (EK), Fede\_38 (EK2), Fullmetal\_39 (EK2), HitchHiker\_40 (EK1), JimmyPG\_39 (EK2), JordanFarm\_41 (EK2), Keough\_38 (EK2), KingKamren\_37 (EK), Kosier\_38 (EK2), LesNorah\_38 (EK1), LilyLou\_39 (EK1), Mazun\_40 (EK2), Moleficent\_39 (EK2), Morrill\_37 (EK2), Oatly\_39 (EK1), Pabst\_37 (EK1), Pharky\_39 (EK2), Phedro\_39 (EK2), Phogo\_38 (EK1), Phracted\_39 (EK2), PhriedRice\_40 (EK2), PineapplePluto\_40 (EK1), RicoCaldo\_39 (EK2), ShyRosie\_39 (EK2), SoilSleuth\_41 (EK2), StagePhright\_39 (EK2), Stormbreaker\_38 (EK1), SwissCheezer\_37 (EK1), TicTac\_39 (EK1), TownLake\_36 (EK1), TrippleS\_38 (EK2), Truong\_39 (EK2),

Unphazed\_38 (EK1), Waterlily\_42 (EK2), Xitlalli\_36 (EK1), Zhengyi\_38 (EK),

Start 30:

- Found in 7 of 64 ( 10.9% ) of genes in pham
- Manual Annotations of this start: 5 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JessellCookie\_39 (EK1), MiamiPanther\_39 (EK1), Salvatore2000\_38 (EK1), Sorvannah\_38 (EK1), TinyTimothy\_37 (EK1), Wesak\_38 (EK1), YellowPanda\_40 (EK1),

Start 33:

- Found in 17 of 64 ( 26.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 11.8% of time when present
- Phage (with cluster) where this start called: ThirteenKH\_39 (EK2), Yafa\_40 (EK2),

### **Summary by clusters:**

There are 5 clusters represented in this pham: EK, GL, EM1, EK2, EK1,

Info for manual annotations of cluster EK:

- Start number 29 was manually annotated 3 times for cluster EK.

Info for manual annotations of cluster EK1:

- Start number 29 was manually annotated 20 times for cluster EK1.
- Start number 30 was manually annotated 5 times for cluster EK1.

Info for manual annotations of cluster EK2:

- Start number 29 was manually annotated 23 times for cluster EK2.

Info for manual annotations of cluster EM1:

- Start number 27 was manually annotated 1 time for cluster EM1.

Info for manual annotations of cluster GL:

- Start number 28 was manually annotated 1 time for cluster GL.

### **Gene Information:**

Gene: Akoni\_39 Start: 40425, Stop: 41396, Start Num: 29

Candidate Starts for Akoni\_39:

(Start: 29 @40425 has 46 MA's), (48, 40686), (50, 40707), (60, 40851), (61, 40875), (65, 40911), (80, 41256), (81, 41319), (84, 41346),

Gene: Alex44\_38 Start: 38259, Stop: 39218, Start Num: 29

Candidate Starts for Alex44\_38:

(Start: 29 @38259 has 46 MA's), (43, 38508), (47, 38532), (49, 38538), (50, 38556), (56, 38661), (57, 38682), (59, 38691), (66, 38766), (84, 39168), (85, 39204),

Gene: AloeVera\_40 Start: 40639, Stop: 41610, Start Num: 29

Candidate Starts for AloeVera\_40:

(Start: 29 @40639 has 46 MA's), (48, 40900), (50, 40921), (60, 41065), (61, 41089), (65, 41125), (80, 41470), (81, 41533), (84, 41560),

Gene: ArMaWen\_37 Start: 37802, Stop: 38761, Start Num: 29

Candidate Starts for ArMaWen\_37:

(Start: 29 @37802 has 46 MA's), (37, 37976), (43, 38051), (47, 38075), (49, 38081), (57, 38225), (59, 38234), (66, 38309), (84, 38711), (85, 38747),

Gene: Ashton\_40 Start: 40638, Stop: 41609, Start Num: 29

Candidate Starts for Ashton\_40:

(Start: 29 @40638 has 46 MA's), (48, 40899), (50, 40920), (60, 41064), (61, 41088), (65, 41124), (80, 41469), (81, 41532), (84, 41559),

Gene: Astartes\_39 Start: 40190, Stop: 41137, Start Num: 29

Candidate Starts for Astartes\_39:

(6, 40025), (8, 40043), (13, 40085), (14, 40088), (16, 40097), (23, 40136), (Start: 29 @40190 has 46 MA's), (32, 40226), (33, 40238), (48, 40451), (50, 40472), (60, 40616), (66, 40682), (70, 40733), (76, 40877), (84, 41087),

Gene: Atraxi\_37 Start: 39982, Stop: 40929, Start Num: 29

Candidate Starts for Atraxi\_37:

(6, 39817), (8, 39835), (13, 39877), (14, 39880), (16, 39889), (23, 39928), (Start: 29 @39982 has 46 MA's), (33, 40030), (48, 40243), (50, 40264), (60, 40408), (66, 40474), (70, 40525), (76, 40669), (84, 40879),

Gene: Barroma\_38 Start: 40427, Stop: 41398, Start Num: 29

Candidate Starts for Barroma\_38:

(Start: 29 @40427 has 46 MA's), (48, 40688), (50, 40709), (60, 40853), (61, 40877), (65, 40913), (80, 41258), (81, 41321), (84, 41348),

Gene: Biozilla\_39 Start: 38289, Stop: 39149, Start Num: 29

Candidate Starts for Biozilla\_39:

(1, 37974), (3, 38043), (4, 38070), (5, 38115), (7, 38130), (10, 38148), (15, 38190), (17, 38196), (18, 38199), (21, 38229), (22, 38232), (24, 38238), (25, 38241), (26, 38256), (Start: 29 @38289 has 46 MA's), (31, 38322), (35, 38427), (36, 38445), (44, 38529), (52, 38595), (54, 38643), (57, 38697), (59, 38706),

Gene: Birdfeeder\_36 Start: 38015, Stop: 38974, Start Num: 29

Candidate Starts for Birdfeeder\_36:

(Start: 29 @38015 has 46 MA's), (37, 38189), (49, 38294), (57, 38438), (59, 38447), (66, 38522), (84, 38924), (85, 38960),

Gene: BlueRugrat\_37 Start: 38251, Stop: 39219, Start Num: 29

Candidate Starts for BlueRugrat\_37:

(Start: 29 @38251 has 46 MA's), (37, 38425), (43, 38500), (47, 38524), (49, 38530), (56, 38653), (57, 38674), (59, 38683), (70, 38815), (76, 38959), (84, 39169),

Gene: Burro\_34 Start: 40965, Stop: 41936, Start Num: 27

Candidate Starts for Burro\_34:

(Start: 27 @40965 has 1 MA's), (Start: 29 @40989 has 46 MA's), (40, 41193), (49, 41253), (50, 41271), (74, 41580), (75, 41676), (79, 41754), (84, 41886),

Gene: Conditioner\_37 Start: 38324, Stop: 39292, Start Num: 29

Candidate Starts for Conditioner\_37:

(Start: 29 @38324 has 46 MA's), (37, 38498), (43, 38573), (47, 38597), (49, 38603), (56, 38726), (57, 38747), (59, 38756), (70, 38888), (76, 39032), (84, 39242),

Gene: Corn21\_37 Start: 38329, Stop: 39297, Start Num: 29

Candidate Starts for Corn21\_37:

(Start: 29 @38329 has 46 MA's), (37, 38503), (43, 38578), (47, 38602), (49, 38608), (56, 38731), (57, 38752), (59, 38761), (70, 38893), (76, 39037), (84, 39247),

Gene: CrunchyBoi\_40 Start: 38144, Stop: 39004, Start Num: 29

Candidate Starts for CrunchyBoi\_40:

(1, 37829), (3, 37898), (4, 37925), (5, 37970), (7, 37985), (15, 38045), (17, 38051), (18, 38054), (21, 38084), (22, 38087), (24, 38093), (25, 38096), (26, 38111), (Start: 29 @38144 has 46 MA's), (31, 38177), (35, 38282), (36, 38300), (44, 38384), (52, 38450), (54, 38498), (57, 38552), (59, 38561),

Gene: Dashyla\_37 Start: 37933, Stop: 38892, Start Num: 29

Candidate Starts for Dashyla\_37:

(Start: 29 @37933 has 46 MA's), (34, 38080), (37, 38107), (43, 38182), (47, 38206), (49, 38212), (50, 38230), (56, 38335), (57, 38356), (59, 38365), (66, 38440), (84, 38842), (85, 38878),

Gene: DumpQuist\_37 Start: 37787, Stop: 38746, Start Num: 29

Candidate Starts for DumpQuist\_37:

(Start: 29 @37787 has 46 MA's), (37, 37961), (49, 38066), (57, 38210), (59, 38219), (66, 38294), (84, 38696), (85, 38732),

Gene: EugeneKrabs\_38 Start: 41581, Stop: 42549, Start Num: 29

Candidate Starts for EugeneKrabs\_38:

(Start: 29 @41581 has 46 MA's), (49, 41845), (60, 42007), (84, 42499),

Gene: Fede\_38 Start: 39191, Stop: 40159, Start Num: 29

Candidate Starts for Fede\_38:

(Start: 29 @39191 has 46 MA's), (49, 39455), (57, 39599), (60, 39617), (84, 40109),

Gene: Fullmetal\_39 Start: 40564, Stop: 41511, Start Num: 29

Candidate Starts for Fullmetal\_39:

(Start: 29 @40564 has 46 MA's), (33, 40612), (48, 40825), (50, 40846), (60, 40990), (66, 41056), (70, 41107), (76, 41251), (84, 41461),

Gene: HitchHiker\_40 Start: 38289, Stop: 39149, Start Num: 29

Candidate Starts for HitchHiker\_40:

(1, 37974), (3, 38043), (4, 38070), (5, 38115), (7, 38130), (10, 38148), (15, 38190), (17, 38196), (18, 38199), (21, 38229), (22, 38232), (24, 38238), (25, 38241), (26, 38256), (Start: 29 @38289 has 46 MA's), (31, 38322), (35, 38427), (36, 38445), (44, 38529), (52, 38595), (54, 38643), (57, 38697), (59, 38706),

Gene: JessellCookie\_39 Start: 39685, Stop: 40626, Start Num: 30

Candidate Starts for JessellCookie\_39:

(Start: 30 @39685 has 5 MA's), (38, 39829), (40, 39871), (47, 39925), (59, 40081), (83, 40573), (84, 40576),

Gene: JimmyPG\_39 Start: 40864, Stop: 41835, Start Num: 29

Candidate Starts for JimmyPG\_39:

(Start: 29 @40864 has 46 MA's), (33, 40912), (48, 41125), (50, 41146), (60, 41290), (65, 41350), (79, 41653), (80, 41695), (81, 41758), (84, 41785),

Gene: JordanFarm\_41 Start: 40639, Stop: 41610, Start Num: 29

Candidate Starts for JordanFarm\_41:

(Start: 29 @40639 has 46 MA's), (48, 40900), (50, 40921), (60, 41065), (61, 41089), (65, 41125), (80, 41470), (81, 41533), (84, 41560),

Gene: JrWilcox\_77 Start: 41624, Stop: 42604, Start Num: 28

Candidate Starts for JrWilcox\_77:

(Start: 28 @41624 has 1 MA's), (42, 41849), (50, 41900), (54, 41972), (58, 42032), (64, 42101), (73, 42215), (77, 42338), (78, 42407), (82, 42530), (83, 42542), (84, 42545),

Gene: Keough\_38 Start: 40297, Stop: 41268, Start Num: 29

Candidate Starts for Keough\_38:

(Start: 29 @40297 has 46 MA's), (33, 40345), (48, 40558), (50, 40579), (60, 40723), (61, 40747), (65, 40783), (80, 41128), (81, 41191), (84, 41218),

Gene: KingKamren\_37 Start: 41535, Stop: 42503, Start Num: 29

Candidate Starts for KingKamren\_37:

(Start: 29 @41535 has 46 MA's), (49, 41799), (60, 41961), (84, 42453),

Gene: Kosier\_38 Start: 39138, Stop: 40106, Start Num: 29

Candidate Starts for Kosier\_38:

(Start: 29 @39138 has 46 MA's), (49, 39402), (57, 39546), (60, 39564), (84, 40056),

Gene: LesNorah\_38 Start: 38648, Stop: 39616, Start Num: 29

Candidate Starts for LesNorah\_38:

(Start: 29 @38648 has 46 MA's), (37, 38822), (43, 38897), (47, 38921), (49, 38927), (56, 39050), (57, 39071), (59, 39080), (70, 39212), (76, 39356), (84, 39566),

Gene: LilyLou\_39 Start: 38251, Stop: 39210, Start Num: 29

Candidate Starts for LilyLou\_39:

(Start: 29 @38251 has 46 MA's), (37, 38425), (43, 38500), (47, 38524), (49, 38530), (57, 38674), (59, 38683), (66, 38758), (84, 39160), (85, 39196),

Gene: Mazun\_40 Start: 40886, Stop: 41857, Start Num: 29

Candidate Starts for Mazun\_40:

(Start: 29 @40886 has 46 MA's), (33, 40934), (48, 41147), (50, 41168), (60, 41312), (61, 41336), (65, 41372), (80, 41717), (81, 41780), (84, 41807),

Gene: MiamiPanther\_39 Start: 39685, Stop: 40626, Start Num: 30

Candidate Starts for MiamiPanther\_39:

(Start: 30 @39685 has 5 MA's), (38, 39829), (40, 39871), (45, 39910), (47, 39925), (59, 40081), (67, 40171), (83, 40573), (84, 40576),

Gene: Moleficient\_39 Start: 40571, Stop: 41518, Start Num: 29

Candidate Starts for Moleficient\_39:

(Start: 29 @40571 has 46 MA's), (33, 40619), (39, 40739), (48, 40832), (50, 40853), (60, 40997), (66, 41063), (70, 41114), (76, 41258), (84, 41468),

Gene: Morrill\_37 Start: 39963, Stop: 40910, Start Num: 29

Candidate Starts for Morrill\_37:

(13, 39858), (14, 39861), (16, 39870), (19, 39894), (20, 39897), (23, 39909), (Start: 27 @39939 has 1 MA's), (Start: 29 @39963 has 46 MA's), (33, 40011), (48, 40224), (50, 40245), (55, 40329), (60, 40389), (66, 40455), (70, 40506), (76, 40650), (84, 40860),

Gene: Oatly\_39 Start: 37849, Stop: 38709, Start Num: 29

Candidate Starts for Oatly\_39:

(1, 37534), (3, 37603), (4, 37630), (5, 37675), (7, 37690), (15, 37750), (17, 37756), (18, 37759), (21, 37789), (22, 37792), (24, 37798), (25, 37801), (26, 37816), (Start: 29 @37849 has 46 MA's), (31, 37882), (35, 37987), (36, 38005), (44, 38089), (52, 38155), (54, 38203), (57, 38257), (59, 38266),

Gene: Pabst\_37 Start: 37910, Stop: 38773, Start Num: 29

Candidate Starts for Pabst\_37:

(2, 37643), (3, 37670), (4, 37697), (11, 37784), (17, 37823), (18, 37826), (21, 37856), (25, 37868), (Start: 29 @37910 has 46 MA's), (43, 38144), (49, 38174), (54, 38264), (57, 38318), (59, 38327), (62, 38366), (69, 38432), (71, 38498),

Gene: Pharky\_39 Start: 40567, Stop: 41514, Start Num: 29

Candidate Starts for Pharky\_39:

(Start: 29 @40567 has 46 MA's), (33, 40615), (48, 40828), (50, 40849), (60, 40993), (66, 41059), (70, 41110), (76, 41254), (84, 41464),

Gene: Phedro\_39 Start: 40567, Stop: 41514, Start Num: 29

Candidate Starts for Phedro\_39:

(Start: 29 @40567 has 46 MA's), (33, 40615), (48, 40828), (50, 40849), (60, 40993), (66, 41059), (70, 41110), (76, 41254), (84, 41464),

Gene: Phogo\_38 Start: 38073, Stop: 39038, Start Num: 29

Candidate Starts for Phogo\_38:

(Start: 29 @38073 has 46 MA's), (37, 38247), (43, 38322), (47, 38346), (49, 38352), (50, 38370), (56, 38475), (57, 38496), (59, 38505), (66, 38586), (84, 38988), (85, 39024),

Gene: Phractured\_39 Start: 40567, Stop: 41514, Start Num: 29

Candidate Starts for Phractured\_39:

(Start: 29 @40567 has 46 MA's), (33, 40615), (48, 40828), (50, 40849), (60, 40993), (66, 41059), (70, 41110), (76, 41254), (84, 41464),

Gene: PhriedRice\_40 Start: 40671, Stop: 41618, Start Num: 29

Candidate Starts for PhriedRice\_40:

(Start: 29 @40671 has 46 MA's), (33, 40719), (48, 40932), (50, 40953), (60, 41097), (66, 41163), (70, 41214), (76, 41358), (84, 41568),

Gene: PineapplePluto\_40 Start: 38211, Stop: 39071, Start Num: 29

Candidate Starts for PineapplePluto\_40:

(1, 37896), (3, 37965), (4, 37992), (5, 38037), (7, 38052), (15, 38112), (17, 38118), (18, 38121), (21, 38151), (22, 38154), (24, 38160), (25, 38163), (26, 38178), (Start: 29 @38211 has 46 MA's), (31, 38244), (35, 38349), (36, 38367), (44, 38451), (52, 38517), (54, 38565), (57, 38619), (59, 38628),

Gene: RicoCaldo\_39 Start: 40649, Stop: 41596, Start Num: 29

Candidate Starts for RicoCaldo\_39:

(Start: 29 @40649 has 46 MA's), (33, 40697), (48, 40910), (50, 40931), (60, 41075), (66, 41141), (70, 41192), (76, 41336), (84, 41546),

Gene: Salvatore2000\_38 Start: 39685, Stop: 40626, Start Num: 30

Candidate Starts for Salvatore2000\_38:

(Start: 30 @39685 has 5 MA's), (38, 39829), (40, 39871), (47, 39925), (59, 40081), (66, 40147), (83, 40573), (84, 40576),

Gene: ShyRosie\_39 Start: 40647, Stop: 41618, Start Num: 29

Candidate Starts for ShyRosie\_39:

(Start: 29 @40647 has 46 MA's), (48, 40908), (50, 40929), (60, 41073), (61, 41097), (65, 41133), (80, 41478), (81, 41541), (84, 41568),

Gene: SoilSleuth\_41 Start: 40469, Stop: 41440, Start Num: 29

Candidate Starts for SoilSleuth\_41:

(Start: 29 @40469 has 46 MA's), (48, 40730), (50, 40751), (60, 40895), (61, 40919), (65, 40955), (80, 41300), (81, 41363), (84, 41390),

Gene: Sorvannah\_38 Start: 39685, Stop: 40626, Start Num: 30

Candidate Starts for Sorvannah\_38:

(Start: 30 @39685 has 5 MA's), (38, 39829), (40, 39871), (47, 39925), (59, 40081), (66, 40147), (83, 40573), (84, 40576),

Gene: StagePhright\_39 Start: 40567, Stop: 41514, Start Num: 29

Candidate Starts for StagePhright\_39:

(Start: 29 @40567 has 46 MA's), (33, 40615), (48, 40828), (50, 40849), (60, 40993), (66, 41059), (70, 41110), (76, 41254), (84, 41464),

Gene: Stormbreaker\_38 Start: 38167, Stop: 39126, Start Num: 29

Candidate Starts for Stormbreaker\_38:

(Start: 29 @38167 has 46 MA's), (37, 38341), (43, 38416), (47, 38440), (49, 38446), (57, 38590), (59, 38599), (66, 38674), (84, 39076), (85, 39112),

Gene: SwissCheezer\_37 Start: 37813, Stop: 38778, Start Num: 29

Candidate Starts for SwissCheezer\_37:

(Start: 29 @37813 has 46 MA's), (37, 37987), (49, 38092), (57, 38236), (59, 38245), (66, 38326), (84, 38728), (85, 38764),

Gene: ThirteenKH\_39 Start: 40021, Stop: 40920, Start Num: 33

Candidate Starts for ThirteenKH\_39:

(Start: 27 @39949 has 1 MA's), (Start: 29 @39973 has 46 MA's), (33, 40021), (48, 40234), (50, 40255), (60, 40399), (66, 40465), (70, 40516), (76, 40660), (84, 40870),

Gene: TicTac\_39 Start: 38210, Stop: 39070, Start Num: 29

Candidate Starts for TicTac\_39:

(1, 37895), (3, 37964), (4, 37991), (5, 38036), (7, 38051), (9, 38066), (15, 38111), (17, 38117), (18, 38120), (21, 38150), (22, 38153), (24, 38159), (25, 38162), (26, 38177), (Start: 29 @38210 has 46 MA's), (31, 38243), (35, 38348), (36, 38366), (44, 38450), (52, 38516), (54, 38564), (57, 38618), (59, 38627),

Gene: TinyTimothy\_37 Start: 39685, Stop: 40626, Start Num: 30

Candidate Starts for TinyTimothy\_37:

(Start: 30 @39685 has 5 MA's), (38, 39829), (40, 39871), (47, 39925), (59, 40081), (83, 40573), (84, 40576),

Gene: TownLake\_36 Start: 37938, Stop: 38906, Start Num: 29

Candidate Starts for TownLake\_36:

(Start: 29 @37938 has 46 MA's), (37, 38112), (43, 38187), (46, 38208), (47, 38211), (49, 38217), (56, 38340), (57, 38361), (59, 38370), (76, 38646), (84, 38856),

Gene: TrippleS\_38 Start: 40121, Stop: 41068, Start Num: 29

Candidate Starts for TrippleS\_38:

(6, 39956), (8, 39974), (12, 39992), (13, 40016), (14, 40019), (16, 40028), (23, 40067), (Start: 29 @40121 has 46 MA's), (33, 40169), (48, 40382), (50, 40403), (55, 40487), (60, 40547), (66, 40613), (70, 40664), (76, 40808), (84, 41018),

Gene: Truong\_39 Start: 40427, Stop: 41398, Start Num: 29

Candidate Starts for Truong\_39:

(Start: 29 @40427 has 46 MA's), (48, 40688), (50, 40709), (60, 40853), (61, 40877), (65, 40913), (80, 41258), (81, 41321), (84, 41348),

Gene: Unphazed\_38 Start: 38043, Stop: 39002, Start Num: 29

Candidate Starts for Unphazed\_38:

(Start: 29 @38043 has 46 MA's), (37, 38217), (49, 38322), (57, 38466), (59, 38475), (66, 38550), (84, 38952), (85, 38988),

Gene: ValentiniPuff\_75 Start: 42759, Stop: 43736, Start Num: 28

Candidate Starts for ValentiniPuff\_75:

(Start: 28 @42759 has 1 MA's), (51, 43047), (53, 43068), (54, 43107), (63, 43230), (64, 43239), (68, 43281), (72, 43347), (77, 43473), (78, 43542), (82, 43662), (83, 43674), (84, 43677),

Gene: Waterlily\_42 Start: 40681, Stop: 41652, Start Num: 29

Candidate Starts for Waterlily\_42:

(Start: 29 @40681 has 46 MA's), (48, 40942), (50, 40963), (60, 41107), (61, 41131), (65, 41167), (80, 41512), (81, 41575), (84, 41602),

Gene: Wesak\_38 Start: 39527, Stop: 40468, Start Num: 30

Candidate Starts for Wesak\_38:

(Start: 30 @39527 has 5 MA's), (38, 39671), (40, 39713), (47, 39767), (59, 39923), (66, 39989), (83, 40415), (84, 40418),

Gene: Xitlalli\_36 Start: 38035, Stop: 39003, Start Num: 29

Candidate Starts for Xitlalli\_36:

(Start: 29 @38035 has 46 MA's), (37, 38209), (43, 38284), (47, 38308), (49, 38314), (56, 38437), (57, 38458), (59, 38467), (76, 38743), (84, 38953),

Gene: Yafa\_40 Start: 39925, Stop: 40824, Start Num: 33

Candidate Starts for Yafa\_40:

(Start: 27 @39853 has 1 MA's), (Start: 29 @39877 has 46 MA's), (33, 39925), (48, 40138), (50, 40159), (60, 40303), (66, 40369), (70, 40420), (76, 40564), (84, 40774),

Gene: YellowPanda\_40 Start: 39408, Stop: 40349, Start Num: 30

Candidate Starts for YellowPanda\_40:

(Start: 30 @39408 has 5 MA's), (38, 39552), (40, 39594), (47, 39648), (59, 39804), (83, 40296), (84, 40299),

Gene: Zhengyi\_38 Start: 41630, Stop: 42598, Start Num: 29

Candidate Starts for Zhengyi\_38:

(Start: 29 @41630 has 46 MA's), (41, 41846), (49, 41894), (60, 42056), (84, 42548),