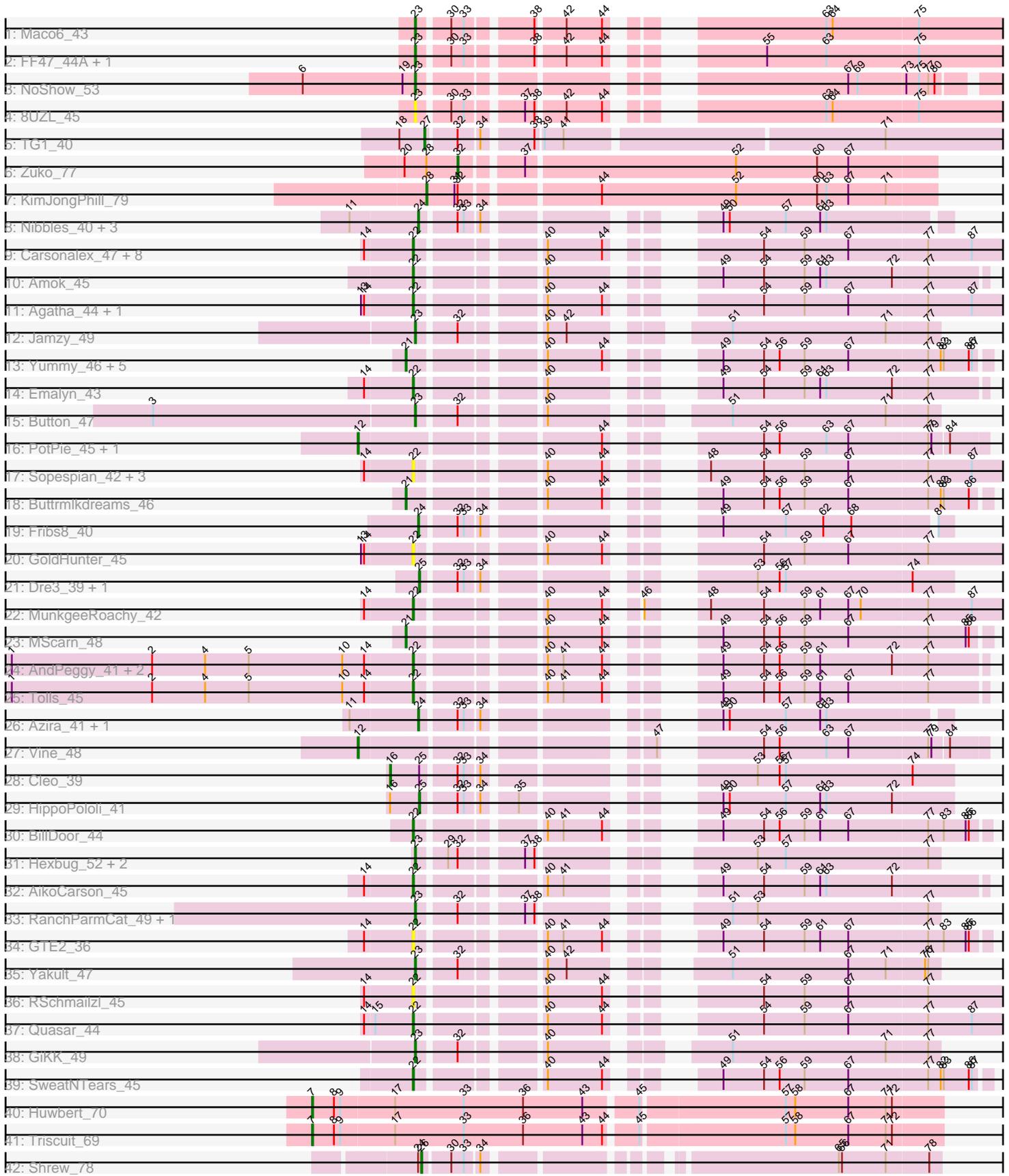


Pham 291125



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 291125 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291125 has 71 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Maco6_43
- Track 2 : FF47_44A, Muddy_45
- Track 3 : NoShow_53
- Track 4 : 8UZL_45
- Track 5 : TG1_40
- Track 6 : Zuko_77
- Track 7 : KimJongPhill_79
- Track 8 : Nibbles_40, Survivors_41, MaVan_41, Wolfwood_43
- Track 9 : Carsonalex_47, Axym_43, RADical_45, RedBaron_46, Burnsey_44, Nina_43, Socotra_45, Bubble_42, Typhonomachy_43
- Track 10 : Amok_45
- Track 11 : Agatha_44, Cozz_42
- Track 12 : Jamzy_49
- Track 13 : Yummy_46, Troje_46, Horseradish_46, Blondies_47, Biskit_46, SketchMex_44
- Track 14 : Emalyn_43
- Track 15 : Button_47
- Track 16 : PotPie_45, Yucky_48
- Track 17 : Sopespian_42, Elliott_44, PsychoKiller_43, Starburst_44
- Track 18 : Buttrmlkdreams_46
- Track 19 : Fribs8_40
- Track 20 : GoldHunter_45
- Track 21 : Dre3_39, Gibbous_39
- Track 22 : MunkgeeRoachy_42
- Track 23 : MScarn_48
- Track 24 : AndPeggy_41, SteamedHams_44, Yarn_41
- Track 25 : Tolls_45
- Track 26 : Azira_41, Zareef_41
- Track 27 : Vine_48
- Track 28 : Cleo_39
- Track 29 : HippoPololi_41
- Track 30 : BillDoor_44
- Track 31 : Hexbug_52, Orla_52, Nodigi_52
- Track 32 : AikoCarson_45
- Track 33 : RanchParmCat_49, Margaret_50
- Track 34 : GTE2_36
- Track 35 : Yakult_47

- Track 36 : RSchmailzl_45
- Track 37 : Quasar_44
- Track 38 : GiKK_49
- Track 39 : SweatNTears_45
- Track 40 : Huwbert_70
- Track 41 : Triscuit_69
- Track 42 : Shrew_78

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

The start number called the most often in the published annotations is 22, it was called in 18 of the 57 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agatha_44, AikoCarson_45, Amok_45, AndPeggy_41, Axym_43, BillDoor_44, Bubble_42, Burnsey_44, Carsonalex_47, Cozz_42, Elliott_44, Emalyn_43, GTE2_36, GoldHunter_45, MunkgeeRoachy_42, Nina_43, PsychoKiller_43, Quasar_44, RADical_45, RSchmailzl_45, RedBaron_46, Socotra_45, Sopespian_42, Starburst_44, SteamedHams_44, SweatNTears_45, Tolls_45, Typhonmacy_43, Yarn_41,

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

-

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

- 8UZL_45, Azira_41, Biskit_46, Blondies_47, Button_47, Buttrmlkdreams_46, Cleo_39, Dre3_39, FF47_44A, Fribs8_40, GiKK_49, Gibbous_39, Hexbug_52, HippoPololi_41, Horseradish_46, Huwbert_70, Jamzy_49, KimJongPhill_79, MScarn_48, MaVan_41, Maco6_43, Margaret_50, Muddy_45, Nibbles_40, NoShow_53, Nodigi_52, Orla_52, PotPie_45, RanchParmCat_49, Shrew_78, SketchMex_44, Survivors_41, TG1_40, Triscuit_69, Troje_46, Vine_48, Wolfwood_43, Yakult_47, Yucky_48, Yummy_46, Zareef_41, Zuko_77,

Summary by start number:

Start 7:

- Found in 2 of 71 (2.8%) of genes in pham
- Manual Annotations of this start: 2 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Huwbert_70 (GG), Triscuit_69 (GG),

Start 12:

- Found in 3 of 71 (4.2%) of genes in pham
- Manual Annotations of this start: 3 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PotPie_45 (CT), Vine_48 (CT), Yucky_48 (CT),

Start 16:

- Found in 2 of 71 (2.8%) of genes in pham

- Manual Annotations of this start: 1 of 57
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Cleo_39 (CT),

Start 21:

- Found in 8 of 71 (11.3%) of genes in pham
- Manual Annotations of this start: 8 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Biskit_46 (CT), Blondies_47 (CT), Buttrmlkdreams_46 (CT), Horseradish_46 (CT), MScarn_48 (CT), SketchMex_44 (CT), Troje_46 (CT), Yummy_46 (CT),

Start 22:

- Found in 29 of 71 (40.8%) of genes in pham
- Manual Annotations of this start: 18 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agatha_44 (CT), AikoCarson_45 (CT), Amok_45 (CT), AndPeggy_41 (CT), Axym_43 (CT), BillDoor_44 (CT), Bubble_42 (CT), Burnsey_44 (CT), Carsonalex_47 (CT), Cozz_42 (CT), Elliott_44 (CT), Emalyn_43 (CT), GTE2_36 (CT), GoldHunter_45 (CT), MunkgeeRoachy_42 (CT), Nina_43 (CT), PsychoKiller_43 (CT), Quasar_44 (CT), RADical_45 (CT), RSchmailz_45 (CT), RedBaron_46 (CT), Socotra_45 (CT), Sopespian_42 (CT), Starburst_44 (CT), SteamedHams_44 (CT), SweatNTears_45 (CT), Tolls_45 (CT), Typhonomachy_43 (CT), Yarn_41 (CT),

Start 23:

- Found in 14 of 71 (19.7%) of genes in pham
- Manual Annotations of this start: 12 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 8UZL_45 (AB), Button_47 (CT), FF47_44A (AB), GiKK_49 (CT), Hexbug_52 (CT), Jamzy_49 (CT), Maco6_43 (AB), Margaret_50 (CT), Muddy_45 (AB), NoShow_53 (AB), Nodigi_52 (CT), Orla_52 (CT), RanchParmCat_49 (CT), Yakult_47 (CT),

Start 24:

- Found in 8 of 71 (11.3%) of genes in pham
- Manual Annotations of this start: 6 of 57
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Azira_41 (CT), Fribs8_40 (CT), MaVan_41 (CT), Nibbles_40 (CT), Survivors_41 (CT), Wolfwood_43 (CT), Zareef_41 (CT),

Start 25:

- Found in 4 of 71 (5.6%) of genes in pham
- Manual Annotations of this start: 3 of 57
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Dre3_39 (CT), Gibbous_39 (CT), HippoPololi_41 (CT),

Start 26:

- Found in 1 of 71 (1.4%) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Shrew_78 (singleton),

Start 27:

- Found in 1 of 71 (1.4%) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TG1_40 (BB1),

Start 28:

- Found in 2 of 71 (2.8%) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 50.0% of time when present
- Phage (with cluster) where this start called: KimJongPhill_79 (BR),

Start 32:

- Found in 23 of 71 (32.4%) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 4.3% of time when present
- Phage (with cluster) where this start called: Zuko_77 (BR),

Summary by clusters:

There are 6 clusters represented in this pham: singleton, AB, GG, BR, BB1, CT,

Info for manual annotations of cluster AB:

- Start number 23 was manually annotated 3 times for cluster AB.

Info for manual annotations of cluster BB1:

- Start number 27 was manually annotated 1 time for cluster BB1.

Info for manual annotations of cluster BR:

- Start number 28 was manually annotated 1 time for cluster BR.
- Start number 32 was manually annotated 1 time for cluster BR.

Info for manual annotations of cluster CT:

- Start number 12 was manually annotated 3 times for cluster CT.
- Start number 16 was manually annotated 1 time for cluster CT.
- Start number 21 was manually annotated 8 times for cluster CT.
- Start number 22 was manually annotated 18 times for cluster CT.
- Start number 23 was manually annotated 9 times for cluster CT.
- Start number 24 was manually annotated 6 times for cluster CT.
- Start number 25 was manually annotated 3 times for cluster CT.

Info for manual annotations of cluster GG:

- Start number 7 was manually annotated 2 times for cluster GG.

Gene Information:

Gene: 8UZL_45 Start: 34790, Stop: 34248, Start Num: 23

Candidate Starts for 8UZL_45:

(Start: 23 @34790 has 12 MA's), (30, 34763), (33, 34751), (37, 34706), (38, 34697), (42, 34673), (44, 34640), (63, 34484), (64, 34478), (75, 34397),

Gene: Agatha_44 Start: 33075, Stop: 32551, Start Num: 22

Candidate Starts for Agatha_44:

(13, 33123), (14, 33120), (Start: 22 @33075 has 18 MA's), (40, 32976), (44, 32925), (54, 32829), (59, 32790), (67, 32748), (77, 32673), (87, 32631),

Gene: AikoCarson_45 Start: 33253, Stop: 32798, Start Num: 22

Candidate Starts for AikoCarson_45:

(14, 33298), (Start: 22 @33253 has 18 MA's), (40, 33154), (41, 33139), (49, 33046), (54, 33007), (59, 32968), (61, 32953), (63, 32947), (72, 32884),

Gene: Amok_45 Start: 33277, Stop: 32822, Start Num: 22

Candidate Starts for Amok_45:

(Start: 22 @33277 has 18 MA's), (40, 33178), (49, 33070), (54, 33031), (59, 32992), (61, 32977), (63, 32971), (72, 32908), (77, 32875),

Gene: AndPeggy_41 Start: 32608, Stop: 32153, Start Num: 22

Candidate Starts for AndPeggy_41:

(1, 32992), (2, 32857), (4, 32806), (5, 32764), (10, 32674), (14, 32653), (Start: 22 @32608 has 18 MA's), (40, 32509), (41, 32494), (44, 32458), (49, 32401), (54, 32362), (56, 32347), (59, 32323), (61, 32308), (72, 32239), (77, 32206),

Gene: Axym_43 Start: 32972, Stop: 32448, Start Num: 22

Candidate Starts for Axym_43:

(14, 33017), (Start: 22 @32972 has 18 MA's), (40, 32873), (44, 32822), (54, 32726), (59, 32687), (67, 32645), (77, 32570), (87, 32528),

Gene: Azira_41 Start: 32431, Stop: 32018, Start Num: 24

Candidate Starts for Azira_41:

(11, 32494), (Start: 24 @32431 has 6 MA's), (Start: 32 @32401 has 1 MA's), (33, 32395), (34, 32383), (49, 32227), (50, 32221), (57, 32167), (61, 32134), (63, 32128),

Gene: BillDoor_44 Start: 32280, Stop: 31822, Start Num: 22

Candidate Starts for BillDoor_44:

(Start: 22 @32280 has 18 MA's), (40, 32181), (41, 32166), (44, 32130), (49, 32073), (54, 32034), (56, 32019), (59, 31995), (61, 31980), (67, 31953), (77, 31878), (83, 31863), (85, 31842), (86, 31839),

Gene: Biskit_46 Start: 32979, Stop: 32512, Start Num: 21

Candidate Starts for Biskit_46:

(Start: 21 @32979 has 8 MA's), (40, 32871), (44, 32820), (49, 32763), (54, 32724), (56, 32709), (59, 32685), (67, 32643), (77, 32568), (82, 32556), (83, 32553), (86, 32529), (87, 32526),

Gene: Blondies_47 Start: 33296, Stop: 32829, Start Num: 21

Candidate Starts for Blondies_47:

(Start: 21 @33296 has 8 MA's), (40, 33188), (44, 33137), (49, 33080), (54, 33041), (56, 33026), (59, 33002), (67, 32960), (77, 32885), (82, 32873), (83, 32870), (86, 32846), (87, 32843),

Gene: Bubble_42 Start: 32662, Stop: 32138, Start Num: 22

Candidate Starts for Bubble_42:

(14, 32707), (Start: 22 @32662 has 18 MA's), (40, 32563), (44, 32512), (54, 32416), (59, 32377), (67, 32335), (77, 32260), (87, 32218),

Gene: Burnsey_44 Start: 33066, Stop: 32542, Start Num: 22

Candidate Starts for Burnsey_44:

(14, 33111), (Start: 22 @33066 has 18 MA's), (40, 32967), (44, 32916), (54, 32820), (59, 32781), (67, 32739), (77, 32664), (87, 32622),

Gene: Button_47 Start: 33224, Stop: 32799, Start Num: 23

Candidate Starts for Button_47:

(3, 33473), (Start: 23 @33224 has 12 MA's), (Start: 32 @33191 has 1 MA's), (40, 33125), (51, 32996), (71, 32849), (77, 32810),

Gene: Buttrmlkdreams_46 Start: 33426, Stop: 32959, Start Num: 21

Candidate Starts for Buttrmlkdreams_46:

(Start: 21 @33426 has 8 MA's), (40, 33318), (44, 33267), (49, 33210), (54, 33171), (56, 33156), (59, 33132), (67, 33090), (77, 33015), (82, 33003), (83, 33000), (86, 32976),

Gene: Carsonalex_47 Start: 33034, Stop: 32510, Start Num: 22

Candidate Starts for Carsonalex_47:

(14, 33079), (Start: 22 @33034 has 18 MA's), (40, 32935), (44, 32884), (54, 32788), (59, 32749), (67, 32707), (77, 32632), (87, 32590),

Gene: Cleo_39 Start: 32050, Stop: 31601, Start Num: 16

Candidate Starts for Cleo_39:

(Start: 16 @32050 has 1 MA's), (Start: 25 @32023 has 3 MA's), (Start: 32 @31993 has 1 MA's), (33, 31987), (34, 31975), (53, 31786), (56, 31765), (57, 31759), (74, 31639),

Gene: Cozz_42 Start: 32663, Stop: 32139, Start Num: 22

Candidate Starts for Cozz_42:

(13, 32711), (14, 32708), (Start: 22 @32663 has 18 MA's), (40, 32564), (44, 32513), (54, 32417), (59, 32378), (67, 32336), (77, 32261), (87, 32219),

Gene: Dre3_39 Start: 31766, Stop: 31344, Start Num: 25

Candidate Starts for Dre3_39:

(Start: 25 @31766 has 3 MA's), (Start: 32 @31736 has 1 MA's), (33, 31730), (34, 31718), (53, 31529), (56, 31508), (57, 31502), (74, 31382),

Gene: Elliott_44 Start: 32961, Stop: 32437, Start Num: 22

Candidate Starts for Elliott_44:

(14, 33006), (Start: 22 @32961 has 18 MA's), (40, 32862), (44, 32811), (48, 32766), (54, 32715), (59, 32676), (67, 32634), (77, 32559), (87, 32517),

Gene: Emalyn_43 Start: 32069, Stop: 31614, Start Num: 22

Candidate Starts for Emalyn_43:

(14, 32114), (Start: 22 @32069 has 18 MA's), (40, 31970), (49, 31862), (54, 31823), (59, 31784), (61, 31769), (63, 31763), (72, 31700), (77, 31667),

Gene: FF47_44A Start: 34701, Stop: 34159, Start Num: 23

Candidate Starts for FF47_44A:

(Start: 23 @34701 has 12 MA's), (30, 34674), (33, 34662), (38, 34608), (42, 34584), (44, 34551), (55, 34452), (63, 34395), (75, 34308),

Gene: Fribs8_40 Start: 32159, Stop: 31746, Start Num: 24

Candidate Starts for Fribs8_40:

(Start: 24 @32159 has 6 MA's), (Start: 32 @32129 has 1 MA's), (33, 32123), (34, 32111), (49, 31955), (57, 31895), (62, 31859), (68, 31832), (81, 31760),

Gene: GTE2_36 Start: 32665, Stop: 32207, Start Num: 22

Candidate Starts for GTE2_36:

(14, 32710), (Start: 22 @32665 has 18 MA's), (40, 32566), (41, 32551), (44, 32515), (49, 32458), (54, 32419), (59, 32380), (61, 32365), (67, 32338), (77, 32263), (83, 32248), (85, 32227), (86, 32224),

Gene: GiKK_49 Start: 33554, Stop: 33129, Start Num: 23

Candidate Starts for GiKK_49:

(Start: 23 @33554 has 12 MA's), (Start: 32 @33521 has 1 MA's), (40, 33455), (51, 33326), (71, 33179), (77, 33140),

Gene: Gibbous_39 Start: 31766, Stop: 31344, Start Num: 25

Candidate Starts for Gibbous_39:

(Start: 25 @31766 has 3 MA's), (Start: 32 @31736 has 1 MA's), (33, 31730), (34, 31718), (53, 31529), (56, 31508), (57, 31502), (74, 31382),

Gene: GoldHunter_45 Start: 33075, Stop: 32551, Start Num: 22

Candidate Starts for GoldHunter_45:

(13, 33123), (14, 33120), (Start: 22 @33075 has 18 MA's), (40, 32976), (44, 32925), (54, 32829), (59, 32790), (67, 32748), (77, 32673),

Gene: Hexbug_52 Start: 35640, Stop: 35221, Start Num: 23

Candidate Starts for Hexbug_52:

(Start: 23 @35640 has 12 MA's), (29, 35616), (Start: 32 @35607 has 1 MA's), (37, 35556), (38, 35547), (53, 35394), (57, 35367), (77, 35232),

Gene: HippoPololi_41 Start: 32178, Stop: 31756, Start Num: 25

Candidate Starts for HippoPololi_41:

(Start: 16 @32205 has 1 MA's), (Start: 25 @32178 has 3 MA's), (Start: 32 @32148 has 1 MA's), (33, 32142), (34, 32130), (35, 32103), (49, 31974), (50, 31968), (57, 31914), (61, 31881), (63, 31875), (72, 31812),

Gene: Horseradish_46 Start: 32912, Stop: 32445, Start Num: 21

Candidate Starts for Horseradish_46:

(Start: 21 @32912 has 8 MA's), (40, 32804), (44, 32753), (49, 32696), (54, 32657), (56, 32642), (59, 32618), (67, 32576), (77, 32501), (82, 32489), (83, 32486), (86, 32462), (87, 32459),

Gene: Huwbert_70 Start: 43330, Stop: 43914, Start Num: 7

Candidate Starts for Huwbert_70:

(Start: 7 @43330 has 2 MA's), (8, 43351), (9, 43357), (17, 43408), (33, 43474), (36, 43531), (43, 43588), (45, 43633), (57, 43765), (58, 43774), (67, 43825), (71, 43861), (72, 43867),

Gene: Jamzy_49 Start: 33537, Stop: 33112, Start Num: 23

Candidate Starts for Jamzy_49:

(Start: 23 @33537 has 12 MA's), (Start: 32 @33504 has 1 MA's), (40, 33438), (42, 33420), (51, 33309), (71, 33162), (77, 33123),

Gene: KimJongPhill_79 Start: 56740, Stop: 57207, Start Num: 28

Candidate Starts for KimJongPhill_79:

(Start: 28 @56740 has 1 MA's), (31, 56767), (Start: 32 @56770 has 1 MA's), (44, 56887), (52, 57016), (60, 57094), (63, 57103), (67, 57124), (71, 57160),

Gene: MScarn_48 Start: 33094, Stop: 32627, Start Num: 21

Candidate Starts for MScarn_48:

(Start: 21 @33094 has 8 MA's), (40, 32986), (44, 32935), (49, 32878), (54, 32839), (56, 32824), (59, 32800), (67, 32758), (77, 32683), (85, 32647), (86, 32644),

Gene: MaVan_41 Start: 32460, Stop: 32047, Start Num: 24

Candidate Starts for MaVan_41:

(11, 32523), (Start: 24 @32460 has 6 MA's), (Start: 32 @32430 has 1 MA's), (33, 32424), (34, 32412), (49, 32256), (50, 32250), (57, 32196), (61, 32163), (63, 32157),

Gene: Maco6_43 Start: 34041, Stop: 33499, Start Num: 23

Candidate Starts for Maco6_43:

(Start: 23 @34041 has 12 MA's), (30, 34014), (33, 34002), (38, 33948), (42, 33924), (44, 33891), (63, 33735), (64, 33729), (75, 33648),

Gene: Margaret_50 Start: 34280, Stop: 33861, Start Num: 23

Candidate Starts for Margaret_50:

(Start: 23 @34280 has 12 MA's), (Start: 32 @34247 has 1 MA's), (37, 34196), (38, 34187), (51, 34058), (53, 34034), (77, 33872),

Gene: Muddy_45 Start: 35273, Stop: 34731, Start Num: 23

Candidate Starts for Muddy_45:

(Start: 23 @35273 has 12 MA's), (30, 35246), (33, 35234), (38, 35180), (42, 35156), (44, 35123), (55, 35024), (63, 34967), (75, 34880),

Gene: MunkgeeRoachy_42 Start: 32424, Stop: 31900, Start Num: 22

Candidate Starts for MunkgeeRoachy_42:

(14, 32469), (Start: 22 @32424 has 18 MA's), (40, 32325), (44, 32274), (46, 32256), (48, 32229), (54, 32178), (59, 32139), (61, 32124), (67, 32097), (70, 32085), (77, 32022), (87, 31980),

Gene: Nibbles_40 Start: 32147, Stop: 31734, Start Num: 24

Candidate Starts for Nibbles_40:

(11, 32210), (Start: 24 @32147 has 6 MA's), (Start: 32 @32117 has 1 MA's), (33, 32111), (34, 32099), (49, 31943), (50, 31937), (57, 31883), (61, 31850), (63, 31844),

Gene: Nina_43 Start: 33199, Stop: 32675, Start Num: 22

Candidate Starts for Nina_43:

(14, 33244), (Start: 22 @33199 has 18 MA's), (40, 33100), (44, 33049), (54, 32953), (59, 32914), (67, 32872), (77, 32797), (87, 32755),

Gene: NoShow_53 Start: 38273, Stop: 37752, Start Num: 23

Candidate Starts for NoShow_53:

(6, 38381), (19, 38285), (Start: 23 @38273 has 12 MA's), (67, 37946), (69, 37937), (73, 37892), (75, 37880), (77, 37871), (80, 37865),

Gene: Nodigi_52 Start: 35691, Stop: 35272, Start Num: 23

Candidate Starts for Nodigi_52:

(Start: 23 @35691 has 12 MA's), (29, 35667), (Start: 32 @35658 has 1 MA's), (37, 35607), (38, 35598), (53, 35445), (57, 35418), (77, 35283),

Gene: Orla_52 Start: 35599, Stop: 35180, Start Num: 23

Candidate Starts for Orla_52:

(Start: 23 @35599 has 12 MA's), (29, 35575), (Start: 32 @35566 has 1 MA's), (37, 35515), (38, 35506), (53, 35353), (57, 35326), (77, 35191),

Gene: PotPie_45 Start: 35409, Stop: 34900, Start Num: 12

Candidate Starts for PotPie_45:

(Start: 12 @35409 has 3 MA's), (44, 35205), (54, 35109), (56, 35094), (63, 35049), (67, 35028), (77, 34953), (79, 34950), (84, 34935),

Gene: PsychoKiller_43 Start: 32962, Stop: 32438, Start Num: 22

Candidate Starts for PsychoKiller_43:

(14, 33007), (Start: 22 @32962 has 18 MA's), (40, 32863), (44, 32812), (48, 32767), (54, 32716), (59, 32677), (67, 32635), (77, 32560), (87, 32518),

Gene: Quasar_44 Start: 33624, Stop: 33100, Start Num: 22

Candidate Starts for Quasar_44:

(14, 33669), (15, 33660), (Start: 22 @33624 has 18 MA's), (40, 33525), (44, 33474), (54, 33378), (59, 33339), (67, 33297), (77, 33222), (87, 33180),

Gene: RADical_45 Start: 32956, Stop: 32432, Start Num: 22

Candidate Starts for RADical_45:

(14, 33001), (Start: 22 @32956 has 18 MA's), (40, 32857), (44, 32806), (54, 32710), (59, 32671), (67, 32629), (77, 32554), (87, 32512),

Gene: RSchmailzl_45 Start: 33112, Stop: 32588, Start Num: 22

Candidate Starts for RSchmailzl_45:

(14, 33157), (Start: 22 @33112 has 18 MA's), (40, 33013), (44, 32962), (54, 32866), (59, 32827), (67, 32785), (77, 32710),

Gene: RanchParmCat_49 Start: 34421, Stop: 34002, Start Num: 23

Candidate Starts for RanchParmCat_49:

(Start: 23 @34421 has 12 MA's), (Start: 32 @34388 has 1 MA's), (37, 34337), (38, 34328), (51, 34199), (53, 34175), (77, 34013),

Gene: RedBaron_46 Start: 33291, Stop: 32767, Start Num: 22

Candidate Starts for RedBaron_46:

(14, 33336), (Start: 22 @33291 has 18 MA's), (40, 33192), (44, 33141), (54, 33045), (59, 33006), (67, 32964), (77, 32889), (87, 32847),

Gene: Shrew_78 Start: 46074, Stop: 46502, Start Num: 26

Candidate Starts for Shrew_78:

(Start: 24 @46071 has 6 MA's), (Start: 26 @46074 has 1 MA's), (30, 46098), (33, 46110), (34, 46122), (65, 46407), (66, 46410), (71, 46452), (78, 46491),

Gene: SketchMex_44 Start: 32979, Stop: 32512, Start Num: 21

Candidate Starts for SketchMex_44:

(Start: 21 @32979 has 8 MA's), (40, 32871), (44, 32820), (49, 32763), (54, 32724), (56, 32709), (59, 32685), (67, 32643), (77, 32568), (82, 32556), (83, 32553), (86, 32529), (87, 32526),

Gene: Socotra_45 Start: 33074, Stop: 32550, Start Num: 22

Candidate Starts for Socotra_45:

(14, 33119), (Start: 22 @33074 has 18 MA's), (40, 32975), (44, 32924), (54, 32828), (59, 32789), (67, 32747), (77, 32672), (87, 32630),

Gene: Sopespian_42 Start: 32963, Stop: 32439, Start Num: 22

Candidate Starts for Sopespian_42:

(14, 33008), (Start: 22 @32963 has 18 MA's), (40, 32864), (44, 32813), (48, 32768), (54, 32717), (59, 32678), (67, 32636), (77, 32561), (87, 32519),

Gene: Starburst_44 Start: 32956, Stop: 32432, Start Num: 22

Candidate Starts for Starburst_44:

(14, 33001), (Start: 22 @32956 has 18 MA's), (40, 32857), (44, 32806), (48, 32761), (54, 32710), (59, 32671), (67, 32629), (77, 32554), (87, 32512),

Gene: SteamedHams_44 Start: 32460, Stop: 32005, Start Num: 22

Candidate Starts for SteamedHams_44:

(1, 32844), (2, 32709), (4, 32658), (5, 32616), (10, 32526), (14, 32505), (Start: 22 @32460 has 18 MA's), (40, 32361), (41, 32346), (44, 32310), (49, 32253), (54, 32214), (56, 32199), (59, 32175), (61, 32160), (72, 32091), (77, 32058),

Gene: Survivors_41 Start: 32356, Stop: 31943, Start Num: 24

Candidate Starts for Survivors_41:

(11, 32419), (Start: 24 @32356 has 6 MA's), (Start: 32 @32326 has 1 MA's), (33, 32320), (34, 32308), (49, 32152), (50, 32146), (57, 32092), (61, 32059), (63, 32053),

Gene: SweatNTears_45 Start: 32906, Stop: 32448, Start Num: 22

Candidate Starts for SweatNTears_45:

(Start: 22 @32906 has 18 MA's), (40, 32807), (44, 32756), (49, 32699), (54, 32660), (56, 32645), (59, 32621), (67, 32579), (77, 32504), (82, 32492), (83, 32489), (86, 32465), (87, 32462),

Gene: TG1_40 Start: 31978, Stop: 32517, Start Num: 27

Candidate Starts for TG1_40:

(18, 31954), (Start: 27 @31978 has 1 MA's), (Start: 32 @32005 has 1 MA's), (34, 32023), (38, 32065), (39, 32071), (41, 32089), (71, 32380),

Gene: Tolls_45 Start: 32853, Stop: 32398, Start Num: 22

Candidate Starts for Tolls_45:

(1, 33237), (2, 33102), (4, 33051), (5, 33009), (10, 32919), (14, 32898), (Start: 22 @32853 has 18 MA's), (40, 32754), (41, 32739), (44, 32703), (49, 32646), (54, 32607), (56, 32592), (59, 32568), (61, 32553), (67, 32526), (77, 32451),

Gene: Triscuit_69 Start: 43287, Stop: 43871, Start Num: 7

Candidate Starts for Triscuit_69:

(Start: 7 @43287 has 2 MA's), (8, 43308), (9, 43314), (17, 43365), (33, 43431), (36, 43488), (43, 43545), (44, 43563), (45, 43590), (57, 43722), (58, 43731), (67, 43782), (71, 43818), (72, 43824),

Gene: Troje_46 Start: 33317, Stop: 32850, Start Num: 21

Candidate Starts for Troje_46:

(Start: 21 @33317 has 8 MA's), (40, 33209), (44, 33158), (49, 33101), (54, 33062), (56, 33047), (59, 33023), (67, 32981), (77, 32906), (82, 32894), (83, 32891), (86, 32867), (87, 32864),

Gene: Typhonomachy_43 Start: 32785, Stop: 32261, Start Num: 22

Candidate Starts for Typhonomachy_43:

(14, 32830), (Start: 22 @32785 has 18 MA's), (40, 32686), (44, 32635), (54, 32539), (59, 32500), (67, 32458), (77, 32383), (87, 32341),

Gene: Vine_48 Start: 35175, Stop: 34666, Start Num: 12

Candidate Starts for Vine_48:

(Start: 12 @35175 has 3 MA's), (47, 34941), (54, 34875), (56, 34860), (63, 34815), (67, 34794), (77, 34719), (79, 34716), (84, 34701),

Gene: Wolfwood_43 Start: 32428, Stop: 32015, Start Num: 24

Candidate Starts for Wolfwood_43:

(11, 32491), (Start: 24 @32428 has 6 MA's), (Start: 32 @32398 has 1 MA's), (33, 32392), (34, 32380), (49, 32224), (50, 32218), (57, 32164), (61, 32131), (63, 32125),

Gene: Yakult_47 Start: 34354, Stop: 33935, Start Num: 23

Candidate Starts for Yakult_47:

(Start: 23 @34354 has 12 MA's), (Start: 32 @34321 has 1 MA's), (40, 34255), (42, 34237), (51, 34132), (67, 34021), (71, 33985), (76, 33949), (77, 33946),

Gene: Yarn_41 Start: 32613, Stop: 32158, Start Num: 22

Candidate Starts for Yarn_41:

(1, 32997), (2, 32862), (4, 32811), (5, 32769), (10, 32679), (14, 32658), (Start: 22 @32613 has 18 MA's), (40, 32514), (41, 32499), (44, 32463), (49, 32406), (54, 32367), (56, 32352), (59, 32328), (61, 32313), (72, 32244), (77, 32211),

Gene: Yucky_48 Start: 34967, Stop: 34458, Start Num: 12

Candidate Starts for Yucky_48:

(Start: 12 @34967 has 3 MA's), (44, 34763), (54, 34667), (56, 34652), (63, 34607), (67, 34586), (77, 34511), (79, 34508), (84, 34493),

Gene: Yummy_46 Start: 33026, Stop: 32559, Start Num: 21

Candidate Starts for Yummy_46:

(Start: 21 @33026 has 8 MA's), (40, 32918), (44, 32867), (49, 32810), (54, 32771), (56, 32756), (59, 32732), (67, 32690), (77, 32615), (82, 32603), (83, 32600), (86, 32576), (87, 32573),

Gene: Zareef_41 Start: 32450, Stop: 32037, Start Num: 24

Candidate Starts for Zareef_41:

(11, 32513), (Start: 24 @32450 has 6 MA's), (Start: 32 @32420 has 1 MA's), (33, 32414), (34, 32402), (49, 32246), (50, 32240), (57, 32186), (61, 32153), (63, 32147),

Gene: Zuko_77 Start: 57041, Stop: 57478, Start Num: 32

Candidate Starts for Zuko_77:

(20, 56990), (Start: 28 @57011 has 1 MA's), (Start: 32 @57041 has 1 MA's), (37, 57092), (52, 57287), (60, 57365), (67, 57395),