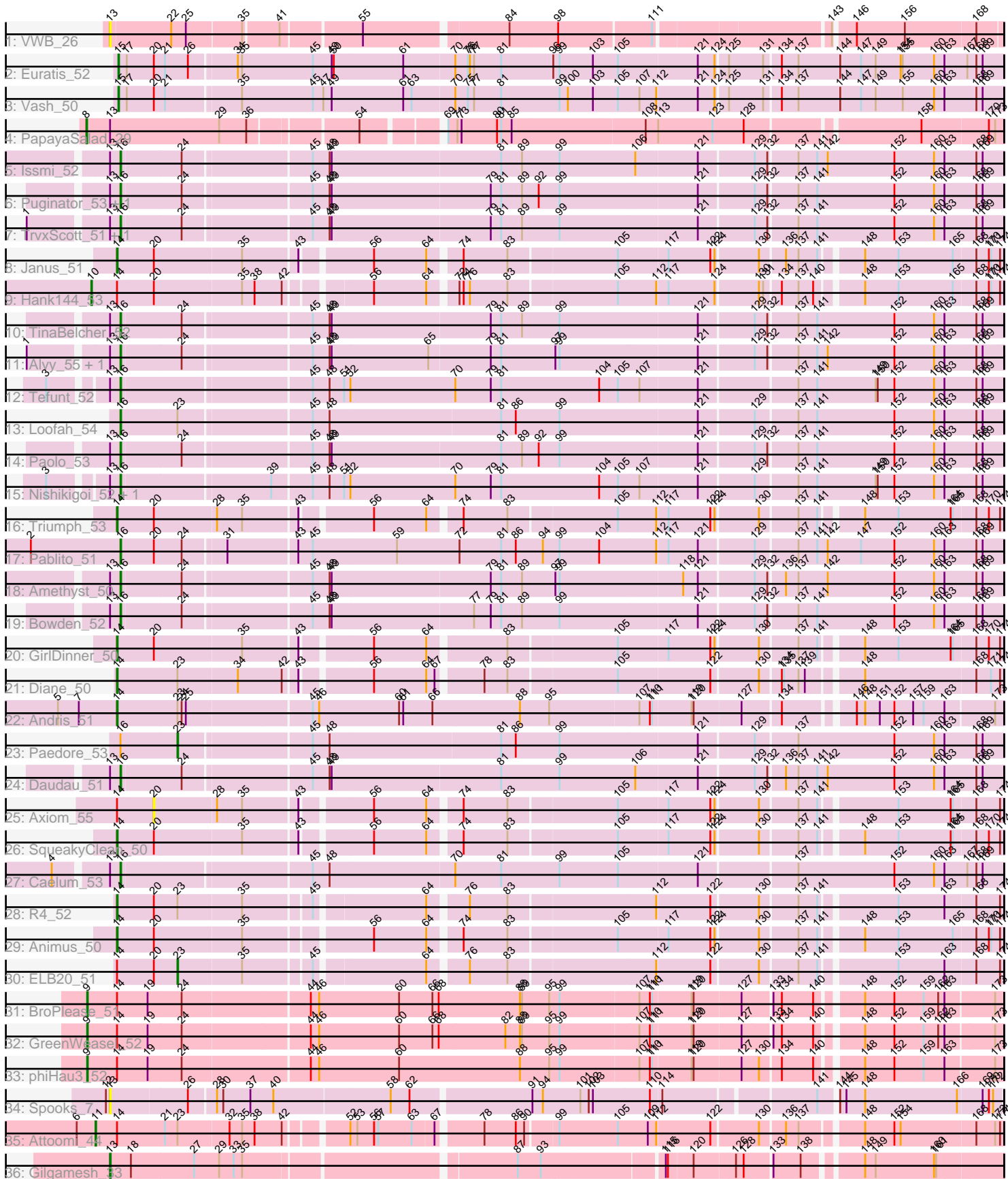


Pham 224720



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 224720 Report

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

Pham number 224720 has 40 members, 3 are drafts.

Phages represented in each track:

- Track 1 : VWB_26
- Track 2 : Euratis_52
- Track 3 : Vash_50
- Track 4 : PapayaSalad_29
- Track 5 : Issmi_52
- Track 6 : Puginator_53, Zainub_53
- Track 7 : TrvxScott_51, Thestral_54
- Track 8 : Janus_51
- Track 9 : Hank144_53
- Track 10 : TinaBelcher_52
- Track 11 : Alvy_55, BartholomewSD_55
- Track 12 : Tefunt_52
- Track 13 : Loofah_54
- Track 14 : Paolo_53
- Track 15 : Nishikigoi_52, Haizum_52
- Track 16 : Triumph_53
- Track 17 : Pablito_51
- Track 18 : Amethyst_50
- Track 19 : Bowden_52
- Track 20 : GirlDinner_50
- Track 21 : Diane_50
- Track 22 : Andris_51
- Track 23 : Paedore_53
- Track 24 : Daudau_51
- Track 25 : Axiom_55
- Track 26 : SqueakyClean_50
- Track 27 : Caelum_53
- Track 28 : R4_52
- Track 29 : Animus_50
- Track 30 : ELB20_51
- Track 31 : BroPlease_51
- Track 32 : GreenWeasel_52
- Track 33 : phiHau3_52
- Track 34 : Spooks_7
- Track 35 : Attoomi_44
- Track 36 : Gilgamesh_33

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

The start number called the most often in the published annotations is 16, it was called in 18 of the 37 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alvy_55, Amethyst_50, BartholomewSD_55, Bowden_52, Caelum_53, Daudau_51, Haizum_52, Issmi_52, Loofah_54, Nishikigoi_52, Pablito_51, Paolo_53, Puginator_53, Tefunt_52, Thestral_54, TinaBelcher_52, TrvxScott_51, Zainub_53,

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

- Paedore_53,

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

- Andris_51, Animus_50, Attoomi_44, Axiom_55, BroPlease_51, Diane_50, ELB20_51, Euratis_52, Gilgamesh_33, GirlDinner_50, GreenWeasel_52, Hank144_53, Janus_51, PapayaSalad_29, R4_52, Spooks_7, SqueakyClean_50, Triumph_53, VWB_26, Vash_50, phiHau3_52,

Summary by start number:

Start 8:

- Found in 1 of 40 (2.5%) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PapayaSalad_29 (BC3),

Start 9:

- Found in 3 of 40 (7.5%) of genes in pham
- Manual Annotations of this start: 3 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BroPlease_51 (BD4), GreenWeasel_52 (BD4), phiHau3_52 (BD4),

Start 10:

- Found in 1 of 40 (2.5%) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hank144_53 (BD2),

Start 11:

- Found in 1 of 40 (2.5%) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Attoomi_44 (singleton),

Start 13:

- Found in 20 of 40 (50.0%) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 15.0% of time when present

- Phage (with cluster) where this start called: Gilgamesh_33 (singleton), Spooks_7 (BT), VWB_26 (BA),

Start 14:

- Found in 15 of 40 (37.5%) of genes in pham
- Manual Annotations of this start: 8 of 37
- Called 53.3% of time when present
- Phage (with cluster) where this start called: Andris_51 (BD2), Animus_50 (BD2), Diane_50 (BD2), GirlDinner_50 (BD2), Janus_51 (BD2), R4_52 (BD2), SqueakyClean_50 (BD2), Triumph_53 (BD2),

Start 15:

- Found in 2 of 40 (5.0%) of genes in pham
- Manual Annotations of this start: 2 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Euratis_52 (BB1), Vash_50 (BB1),

Start 16:

- Found in 19 of 40 (47.5%) of genes in pham
- Manual Annotations of this start: 18 of 37
- Called 94.7% of time when present
- Phage (with cluster) where this start called: Alvy_55 (BD2), Amethyst_50 (BD2), BartholomewSD_55 (BD2), Bowden_52 (BD2), Caelum_53 (BD2), Daudau_51 (BD2), Haizum_52 (BD2), Issmi_52 (BD2), Loofah_54 (BD2), Nishikigoi_52 (BD2), Pablito_51 (BD2), Paolo_53 (BD2), Puginator_53 (BD2), Tefunt_52 (BD2), Thestral_54 (BD2), TinaBelcher_52 (BD2), TrvxScott_51 (BD2), Zainub_53 (BD2),

Start 20:

- Found in 12 of 40 (30.0%) of genes in pham
- No Manual Annotations of this start.
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Axiom_55 (BD2),

Start 23:

- Found in 7 of 40 (17.5%) of genes in pham
- Manual Annotations of this start: 2 of 37
- Called 28.6% of time when present
- Phage (with cluster) where this start called: ELB20_51 (BD2), Paedore_53 (BD2),

Summary by clusters:

There are 7 clusters represented in this pham: singleton, BA, BT, BD4, BD2, BB1, BC3,

Info for manual annotations of cluster BB1:

- Start number 15 was manually annotated 2 times for cluster BB1.

Info for manual annotations of cluster BC3:

- Start number 8 was manually annotated 1 time for cluster BC3.

Info for manual annotations of cluster BD2:

- Start number 10 was manually annotated 1 time for cluster BD2.

- Start number 14 was manually annotated 8 times for cluster BD2.
- Start number 16 was manually annotated 18 times for cluster BD2.
- Start number 23 was manually annotated 2 times for cluster BD2.

Info for manual annotations of cluster BD4:

- Start number 9 was manually annotated 3 times for cluster BD4.

Gene Information:

Gene: Alvy_55 Start: 38519, Stop: 37290, Start Num: 16

Candidate Starts for Alvy_55:

(1, 38639), (Start: 13 @38534 has 1 MA's), (Start: 16 @38519 has 18 MA's), (24, 38435), (45, 38261), (48, 38237), (49, 38234), (65, 38096), (79, 38009), (81, 37994), (97, 37916), (99, 37910), (121, 37715), (129, 37640), (132, 37622), (137, 37583), (141, 37556), (142, 37541), (152, 37445), (160, 37388), (163, 37373), (168, 37328), (169, 37319),

Gene: Amethyst_50 Start: 36749, Stop: 35520, Start Num: 16

Candidate Starts for Amethyst_50:

(Start: 13 @36764 has 1 MA's), (Start: 16 @36749 has 18 MA's), (24, 36665), (45, 36491), (48, 36467), (49, 36464), (79, 36239), (81, 36224), (89, 36194), (97, 36146), (99, 36140), (118, 35966), (121, 35945), (129, 35870), (132, 35852), (136, 35831), (137, 35813), (142, 35771), (152, 35675), (160, 35618), (163, 35603), (168, 35558), (169, 35549),

Gene: Andris_51 Start: 36706, Stop: 35495, Start Num: 14

Candidate Starts for Andris_51:

(5, 36790), (7, 36760), (Start: 14 @36706 has 8 MA's), (Start: 23 @36622 has 2 MA's), (24, 36616), (25, 36610), (45, 36439), (46, 36430), (60, 36316), (61, 36310), (66, 36268), (88, 36145), (95, 36103), (107, 35977), (110, 35962), (111, 35959), (119, 35905), (120, 35902), (127, 35836), (134, 35785), (146, 35698), (148, 35686), (151, 35665), (152, 35644), (157, 35617), (159, 35602), (163, 35572), (173, 35506),

Gene: Animus_50 Start: 36998, Stop: 35820, Start Num: 14

Candidate Starts for Animus_50:

(Start: 14 @36998 has 8 MA's), (20, 36947), (35, 36824), (56, 36659), (64, 36587), (74, 36548), (83, 36485), (105, 36335), (117, 36266), (122, 36206), (124, 36200), (130, 36143), (137, 36092), (141, 36065), (148, 36014), (153, 35966), (165, 35888), (168, 35858), (170, 35840), (171, 35837), (174, 35825),

Gene: Attoomi_44 Start: 33458, Stop: 34666, Start Num: 11

Candidate Starts for Attoomi_44:

(6, 33431), (Start: 11 @33458 has 1 MA's), (Start: 14 @33488 has 8 MA's), (21, 33554), (Start: 23 @33572 has 2 MA's), (32, 33644), (35, 33662), (38, 33680), (42, 33719), (52, 33794), (53, 33803), (56, 33827), (57, 33833), (63, 33881), (67, 33911), (78, 33968), (86, 34013), (90, 34025), (99, 34067), (105, 34151), (109, 34193), (112, 34205), (122, 34280), (130, 34343), (136, 34376), (137, 34394), (148, 34472), (152, 34514), (154, 34523), (168, 34628), (173, 34655), (174, 34661),

Gene: Axiom_55 Start: 36908, Stop: 35781, Start Num: 20

Candidate Starts for Axiom_55:

(Start: 14 @36959 has 8 MA's), (20, 36908), (28, 36821), (35, 36785), (43, 36710), (56, 36620), (64, 36548), (74, 36509), (83, 36446), (105, 36296), (117, 36227), (122, 36167), (124, 36161), (130,

36104), (137, 36053), (141, 36026), (153, 35927), (164, 35852), (165, 35849), (168, 35819), (174, 35786),

Gene: BartholomewSD_55 Start: 37638, Stop: 36409, Start Num: 16

Candidate Starts for BartholomewSD_55:

(1, 37758), (Start: 13 @37653 has 1 MA's), (Start: 16 @37638 has 18 MA's), (24, 37554), (45, 37380), (48, 37356), (49, 37353), (65, 37215), (79, 37128), (81, 37113), (97, 37035), (99, 37029), (121, 36834), (129, 36759), (132, 36741), (137, 36702), (141, 36675), (142, 36660), (152, 36564), (160, 36507), (163, 36492), (168, 36447), (169, 36438),

Gene: Bowden_52 Start: 38433, Stop: 37204, Start Num: 16

Candidate Starts for Bowden_52:

(Start: 13 @38448 has 1 MA's), (Start: 16 @38433 has 18 MA's), (24, 38349), (45, 38175), (48, 38151), (49, 38148), (77, 37947), (79, 37923), (81, 37908), (89, 37878), (99, 37824), (121, 37629), (129, 37554), (132, 37536), (137, 37497), (141, 37470), (152, 37359), (160, 37302), (163, 37287), (168, 37242), (169, 37233),

Gene: BroPlease_51 Start: 35752, Stop: 34499, Start Num: 9

Candidate Starts for BroPlease_51:

(Start: 9 @35752 has 3 MA's), (Start: 14 @35710 has 8 MA's), (19, 35668), (24, 35620), (44, 35446), (46, 35434), (60, 35320), (66, 35272), (68, 35263), (88, 35149), (89, 35146), (95, 35107), (99, 35092), (107, 34981), (110, 34966), (111, 34963), (119, 34909), (120, 34906), (127, 34840), (133, 34801), (134, 34789), (140, 34744), (148, 34690), (152, 34648), (159, 34606), (162, 34585), (163, 34576), (173, 34510),

Gene: Caelum_53 Start: 36961, Stop: 35732, Start Num: 16

Candidate Starts for Caelum_53:

(4, 37045), (Start: 13 @36976 has 1 MA's), (Start: 16 @36961 has 18 MA's), (45, 36703), (48, 36679), (70, 36502), (81, 36436), (99, 36352), (105, 36268), (121, 36157), (137, 36025), (152, 35887), (160, 35830), (163, 35815), (167, 35782), (168, 35770), (169, 35761),

Gene: Daudau_51 Start: 36911, Stop: 35682, Start Num: 16

Candidate Starts for Daudau_51:

(Start: 13 @36926 has 1 MA's), (Start: 16 @36911 has 18 MA's), (24, 36827), (45, 36653), (48, 36629), (49, 36626), (81, 36386), (99, 36302), (106, 36194), (121, 36107), (129, 36032), (132, 36014), (136, 35993), (137, 35975), (141, 35948), (142, 35933), (152, 35837), (160, 35780), (163, 35765), (168, 35720), (169, 35711),

Gene: Diane_50 Start: 36947, Stop: 35769, Start Num: 14

Candidate Starts for Diane_50:

(Start: 14 @36947 has 8 MA's), (Start: 23 @36863 has 2 MA's), (34, 36779), (42, 36716), (43, 36698), (56, 36608), (64, 36536), (67, 36524), (78, 36467), (83, 36434), (105, 36284), (122, 36155), (130, 36092), (134, 36065), (135, 36062), (137, 36041), (139, 36032), (148, 35963), (168, 35807), (171, 35786), (174, 35774),

Gene: ELB20_51 Start: 37357, Stop: 36266, Start Num: 23

Candidate Starts for ELB20_51:

(Start: 14 @37441 has 8 MA's), (20, 37390), (Start: 23 @37357 has 2 MA's), (35, 37267), (45, 37177), (64, 37033), (76, 36985), (83, 36931), (112, 36727), (122, 36652), (130, 36589), (137, 36538), (141, 36511), (153, 36412), (163, 36346), (168, 36304), (174, 36271),

Gene: Euratis_52 Start: 35732, Stop: 36973, Start Num: 15

Candidate Starts for Euratis_52:

(Start: 15 @35732 has 2 MA's), (17, 35744), (20, 35783), (21, 35798), (26, 35831), (34, 35894), (35, 35900), (45, 36002), (49, 36029), (50, 36032), (61, 36131), (70, 36203), (75, 36221), (76, 36224), (77, 36230), (81, 36269), (96, 36344), (99, 36353), (103, 36401), (105, 36437), (121, 36548), (124, 36572), (125, 36587), (131, 36635), (134, 36656), (137, 36680), (144, 36740), (147, 36770), (149, 36791), (154, 36827), (155, 36830), (160, 36875), (163, 36890), (167, 36923), (168, 36935), (169, 36944),

Gene: Gilgamesh_33 Start: 19721, Stop: 20911, Start Num: 13

Candidate Starts for Gilgamesh_33:

(Start: 13 @19721 has 1 MA's), (18, 19751), (27, 19841), (29, 19877), (33, 19898), (35, 19910), (87, 20270), (93, 20303), (115, 20468), (116, 20471), (120, 20504), (126, 20561), (128, 20570), (133, 20606), (138, 20645), (148, 20717), (149, 20732), (160, 20816), (161, 20819),

Gene: GirlDinner_50 Start: 36499, Stop: 35321, Start Num: 14

Candidate Starts for GirlDinner_50:

(Start: 14 @36499 has 8 MA's), (20, 36448), (35, 36325), (43, 36250), (56, 36160), (64, 36088), (83, 35986), (105, 35836), (117, 35767), (122, 35707), (124, 35701), (130, 35644), (137, 35593), (141, 35566), (148, 35515), (153, 35467), (164, 35392), (165, 35389), (168, 35359), (170, 35341), (174, 35326),

Gene: GreenWeasel_52 Start: 35757, Stop: 34504, Start Num: 9

Candidate Starts for GreenWeasel_52:

(Start: 9 @35757 has 3 MA's), (Start: 14 @35715 has 8 MA's), (19, 35673), (24, 35625), (44, 35451), (46, 35439), (60, 35325), (66, 35277), (68, 35268), (82, 35175), (88, 35154), (89, 35151), (95, 35112), (99, 35097), (107, 34986), (110, 34971), (111, 34968), (119, 34914), (120, 34911), (127, 34845), (133, 34806), (134, 34794), (140, 34749), (148, 34695), (152, 34653), (159, 34611), (162, 34590), (163, 34581), (173, 34515),

Gene: Haizum_52 Start: 37022, Stop: 35790, Start Num: 16

Candidate Starts for Haizum_52:

(3, 37109), (Start: 13 @37037 has 1 MA's), (Start: 16 @37022 has 18 MA's), (39, 36818), (45, 36764), (48, 36740), (51, 36719), (52, 36710), (70, 36560), (79, 36509), (81, 36494), (104, 36353), (105, 36326), (107, 36296), (121, 36215), (129, 36140), (137, 36083), (141, 36056), (149, 35972), (150, 35969), (152, 35945), (160, 35888), (163, 35873), (168, 35828), (169, 35819),

Gene: Hank144_53 Start: 37072, Stop: 35861, Start Num: 10

Candidate Starts for Hank144_53:

(Start: 10 @37072 has 1 MA's), (Start: 14 @37036 has 8 MA's), (20, 36985), (35, 36862), (38, 36844), (42, 36805), (56, 36700), (64, 36628), (72, 36595), (74, 36589), (76, 36580), (83, 36526), (105, 36376), (112, 36322), (117, 36307), (124, 36241), (130, 36184), (131, 36178), (134, 36157), (137, 36133), (140, 36112), (148, 36055), (153, 36007), (165, 35929), (168, 35899), (170, 35881), (171, 35878), (174, 35866),

Gene: Issmi_52 Start: 37451, Stop: 36222, Start Num: 16

Candidate Starts for Issmi_52:

(Start: 13 @37466 has 1 MA's), (Start: 16 @37451 has 18 MA's), (24, 37367), (45, 37193), (48, 37169), (49, 37166), (81, 36926), (89, 36896), (99, 36842), (106, 36734), (121, 36647), (129, 36572), (132, 36554), (137, 36515), (141, 36488), (142, 36473), (152, 36377), (160, 36320), (163, 36305), (168, 36260), (169, 36251),

Gene: Janus_51 Start: 36839, Stop: 35661, Start Num: 14

Candidate Starts for Janus_51:

(Start: 14 @36839 has 8 MA's), (20, 36788), (35, 36665), (43, 36590), (56, 36500), (64, 36428), (74, 36389), (83, 36326), (105, 36176), (117, 36107), (122, 36047), (124, 36041), (130, 35984), (136,

35951), (137, 35933), (141, 35906), (148, 35855), (153, 35807), (165, 35729), (168, 35699), (170, 35681), (171, 35678), (174, 35666),

Gene: Loofah_54 Start: 37605, Stop: 36373, Start Num: 16

Candidate Starts for Loofah_54:

(Start: 16 @37605 has 18 MA's), (Start: 23 @37524 has 2 MA's), (45, 37344), (48, 37320), (81, 37077), (86, 37056), (99, 36993), (121, 36798), (129, 36723), (137, 36666), (141, 36639), (152, 36528), (160, 36471), (163, 36456), (168, 36411), (169, 36402),

Gene: Nishikigoi_52 Start: 37022, Stop: 35790, Start Num: 16

Candidate Starts for Nishikigoi_52:

(3, 37109), (Start: 13 @37037 has 1 MA's), (Start: 16 @37022 has 18 MA's), (39, 36818), (45, 36764), (48, 36740), (51, 36719), (52, 36710), (70, 36560), (79, 36509), (81, 36494), (104, 36353), (105, 36326), (107, 36296), (121, 36215), (129, 36140), (137, 36083), (141, 36056), (149, 35972), (150, 35969), (152, 35945), (160, 35888), (163, 35873), (168, 35828), (169, 35819),

Gene: Pablito_51 Start: 36673, Stop: 35438, Start Num: 16

Candidate Starts for Pablito_51:

(2, 36802), (Start: 16 @36673 has 18 MA's), (20, 36625), (24, 36586), (31, 36529), (43, 36433), (45, 36412), (59, 36292), (72, 36202), (81, 36142), (86, 36121), (94, 36082), (99, 36058), (104, 36001), (112, 35920), (117, 35905), (121, 35863), (129, 35788), (137, 35731), (141, 35704), (142, 35689), (147, 35641), (152, 35593), (160, 35536), (163, 35521), (168, 35476), (169, 35467),

Gene: Paedore_53 Start: 37509, Stop: 36358, Start Num: 23

Candidate Starts for Paedore_53:

(Start: 16 @37590 has 18 MA's), (Start: 23 @37509 has 2 MA's), (45, 37329), (48, 37305), (81, 37062), (86, 37041), (99, 36978), (121, 36783), (129, 36708), (137, 36651), (152, 36513), (160, 36456), (163, 36441), (168, 36396), (169, 36387),

Gene: Paolo_53 Start: 37580, Stop: 36351, Start Num: 16

Candidate Starts for Paolo_53:

(Start: 13 @37595 has 1 MA's), (Start: 16 @37580 has 18 MA's), (24, 37496), (45, 37322), (48, 37298), (49, 37295), (81, 37055), (89, 37025), (92, 37001), (99, 36971), (121, 36776), (129, 36701), (132, 36683), (137, 36644), (141, 36617), (152, 36506), (160, 36449), (163, 36434), (168, 36389), (169, 36380),

Gene: PapayaSalad_29 Start: 20152, Stop: 21375, Start Num: 8

Candidate Starts for PapayaSalad_29:

(Start: 8 @20152 has 1 MA's), (Start: 13 @20185 has 1 MA's), (29, 20338), (36, 20374), (54, 20515), (69, 20614), (71, 20626), (73, 20632), (80, 20683), (81, 20689), (85, 20704), (108, 20890), (113, 20908), (123, 20986), (128, 21031), (158, 21262), (170, 21355), (173, 21364),

Gene: Puginator_53 Start: 37626, Stop: 36397, Start Num: 16

Candidate Starts for Puginator_53:

(Start: 13 @37641 has 1 MA's), (Start: 16 @37626 has 18 MA's), (24, 37542), (45, 37368), (48, 37344), (49, 37341), (79, 37116), (81, 37101), (89, 37071), (92, 37047), (99, 37017), (121, 36822), (129, 36747), (132, 36729), (137, 36690), (141, 36663), (152, 36552), (160, 36495), (163, 36480), (168, 36435), (169, 36426),

Gene: R4_52 Start: 37457, Stop: 36282, Start Num: 14

Candidate Starts for R4_52:

(Start: 14 @37457 has 8 MA's), (20, 37406), (Start: 23 @37373 has 2 MA's), (35, 37283), (45, 37193), (64, 37049), (76, 37001), (83, 36947), (112, 36743), (122, 36668), (130, 36605), (137, 36554), (141,

36527), (153, 36428), (163, 36362), (168, 36320), (174, 36287),

Gene: Spooks_7 Start: 5371, Stop: 4160, Start Num: 13

Candidate Starts for Spooks_7:

(12, 5377), (Start: 13 @5371 has 1 MA's), (26, 5263), (28, 5227), (30, 5218), (37, 5179), (40, 5146), (58, 4984), (62, 4957), (91, 4792), (94, 4777), (101, 4723), (102, 4711), (103, 4705), (110, 4624), (114, 4609), (141, 4408), (144, 4387), (145, 4378), (148, 4351), (166, 4219), (169, 4186), (170, 4177), (172, 4171),

Gene: SqueakyClean_50 Start: 36929, Stop: 35751, Start Num: 14

Candidate Starts for SqueakyClean_50:

(Start: 14 @36929 has 8 MA's), (20, 36878), (35, 36755), (43, 36680), (56, 36590), (64, 36518), (74, 36479), (83, 36416), (105, 36266), (117, 36197), (122, 36137), (124, 36131), (130, 36074), (137, 36023), (141, 35996), (148, 35945), (153, 35897), (164, 35822), (165, 35819), (168, 35789), (170, 35771), (174, 35756),

Gene: Tefunt_52 Start: 37024, Stop: 35792, Start Num: 16

Candidate Starts for Tefunt_52:

(3, 37111), (Start: 13 @37039 has 1 MA's), (Start: 16 @37024 has 18 MA's), (45, 36766), (48, 36742), (51, 36721), (52, 36712), (70, 36562), (79, 36511), (81, 36496), (104, 36355), (105, 36328), (107, 36298), (121, 36217), (137, 36085), (141, 36058), (149, 35974), (150, 35971), (152, 35947), (160, 35890), (163, 35875), (168, 35830), (169, 35821),

Gene: Thestral_54 Start: 38424, Stop: 37195, Start Num: 16

Candidate Starts for Thestral_54:

(1, 38544), (Start: 13 @38439 has 1 MA's), (Start: 16 @38424 has 18 MA's), (24, 38340), (45, 38166), (48, 38142), (49, 38139), (79, 37914), (81, 37899), (89, 37869), (99, 37815), (121, 37620), (129, 37545), (132, 37527), (137, 37488), (141, 37461), (152, 37350), (160, 37293), (163, 37278), (168, 37233), (169, 37224),

Gene: TinaBelcher_52 Start: 38372, Stop: 37143, Start Num: 16

Candidate Starts for TinaBelcher_52:

(Start: 13 @38387 has 1 MA's), (Start: 16 @38372 has 18 MA's), (24, 38288), (45, 38114), (48, 38090), (49, 38087), (79, 37862), (81, 37847), (89, 37817), (99, 37763), (121, 37568), (129, 37493), (132, 37475), (137, 37436), (141, 37409), (152, 37298), (160, 37241), (163, 37226), (168, 37181), (169, 37172),

Gene: Triumph_53 Start: 36977, Stop: 35799, Start Num: 14

Candidate Starts for Triumph_53:

(Start: 14 @36977 has 8 MA's), (20, 36926), (28, 36839), (35, 36803), (43, 36728), (56, 36638), (64, 36566), (74, 36527), (83, 36464), (105, 36314), (112, 36260), (117, 36245), (122, 36185), (124, 36179), (130, 36122), (137, 36071), (141, 36044), (148, 35993), (153, 35945), (164, 35870), (165, 35867), (168, 35837), (170, 35819), (174, 35804),

Gene: TrvxScott_51 Start: 38418, Stop: 37189, Start Num: 16

Candidate Starts for TrvxScott_51:

(1, 38538), (Start: 13 @38433 has 1 MA's), (Start: 16 @38418 has 18 MA's), (24, 38334), (45, 38160), (48, 38136), (49, 38133), (79, 37908), (81, 37893), (89, 37863), (99, 37809), (121, 37614), (129, 37539), (132, 37521), (137, 37482), (141, 37455), (152, 37344), (160, 37287), (163, 37272), (168, 37227), (169, 37218),

Gene: VWB_26 Start: 22434, Stop: 23615, Start Num: 13

Candidate Starts for VWB_26:

(Start: 13 @22434 has 1 MA's), (22, 22518), (25, 22539), (35, 22614), (41, 22662), (55, 22770), (84, 22962), (98, 23031), (111, 23157), (143, 23388), (146, 23412), (156, 23481), (168, 23580),

Gene: Vash_50 Start: 36353, Stop: 37594, Start Num: 15

Candidate Starts for Vash_50:

(Start: 15 @36353 has 2 MA's), (17, 36365), (20, 36404), (21, 36419), (35, 36521), (45, 36623), (47, 36638), (49, 36650), (61, 36752), (63, 36764), (70, 36824), (75, 36842), (77, 36851), (81, 36890), (99, 36974), (100, 36986), (103, 37022), (105, 37058), (107, 37088), (112, 37112), (121, 37169), (124, 37193), (125, 37208), (131, 37256), (134, 37277), (137, 37301), (144, 37361), (147, 37391), (149, 37412), (155, 37451), (160, 37496), (163, 37511), (168, 37556), (169, 37565),

Gene: Zainub_53 Start: 37555, Stop: 36326, Start Num: 16

Candidate Starts for Zainub_53:

(Start: 13 @37570 has 1 MA's), (Start: 16 @37555 has 18 MA's), (24, 37471), (45, 37297), (48, 37273), (49, 37270), (79, 37045), (81, 37030), (89, 37000), (92, 36976), (99, 36946), (121, 36751), (129, 36676), (132, 36658), (137, 36619), (141, 36592), (152, 36481), (160, 36424), (163, 36409), (168, 36364), (169, 36355),

Gene: phiHau3_52 Start: 35720, Stop: 34467, Start Num: 9

Candidate Starts for phiHau3_52:

(Start: 9 @35720 has 3 MA's), (Start: 14 @35678 has 8 MA's), (19, 35636), (24, 35588), (44, 35414), (46, 35402), (60, 35288), (88, 35117), (95, 35075), (99, 35060), (107, 34949), (110, 34934), (111, 34931), (119, 34877), (120, 34874), (127, 34808), (130, 34784), (134, 34757), (140, 34712), (148, 34658), (152, 34616), (159, 34574), (163, 34544), (173, 34478),