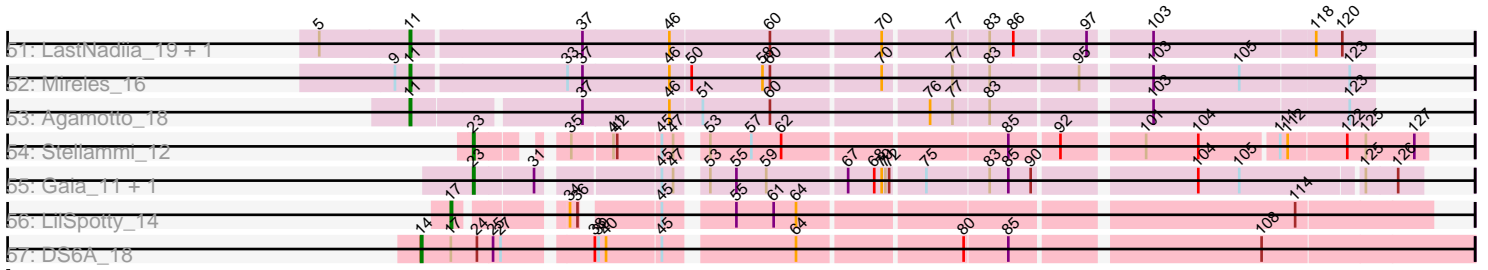


Pham 304911



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 304911 Report

This analysis was run 06/08/26 on database version 649.

Pham number 304911 has 89 members, 0 are drafts.

Phages represented in each track:

- Track 1 : Nodigi_17, Orla_17
- Track 2 : AikoCarson_14, Emalyn_14, Amok_14
- Track 3 : Agatha_15, Axym_15
- Track 4 : Cozz_15
- Track 5 : Yakult_16
- Track 6 : Wolfwood_17, Zareef_17, MaVan_17, Azira_17
- Track 7 : SteamedHams_17, Tolls_17, Yarn_14, AndPeggy_14
- Track 8 : Feastonyeet_14, BigChungus_14
- Track 9 : Mayweather_16, Pons_15
- Track 10 : GiKK_18, Button_16
- Track 11 : Bubble_15, Quasar_14
- Track 12 : Vine_16, KayGee_15, Elinal_16, Yucky_15
- Track 13 : SweatNTears_17
- Track 14 : Nina_16
- Track 15 : CherryonLim_16
- Track 16 : Hexbug_17
- Track 17 : Yummy_16, Horseradish_16
- Track 18 : SheckWes_14
- Track 19 : Jamzy_18
- Track 20 : Tarnish_15
- Track 21 : Biskit_16, Buttrmilkdreams_15, SketchMex_14, MScarn_17, Blondies_16
- Track 22 : RanchParmCat_18
- Track 23 : Survivors_17
- Track 24 : SummitAcademy_14
- Track 25 : Dre3_15, Gibbous_15
- Track 26 : MunkgeeRoachy_15
- Track 27 : Cleo_15
- Track 28 : MAnor_15
- Track 29 : HippoPololi_17
- Track 30 : Typhonomachy_15
- Track 31 : BillDoor_17
- Track 32 : Nibbles_17
- Track 33 : Troje_15
- Track 34 : RedBaron_17
- Track 35 : Lauer_14
- Track 36 : Margaret_18
- Track 37 : PotPie_15

- Track 38 : Burnsey_15
- Track 39 : Fribs8_16
- Track 40 : Lutum_16, Kenna_15, Leroy_16, BENtherdunthat_16, Horus_16, Asapag_16
- Track 41 : Periwinkle_16
- Track 42 : Getalong_16
- Track 43 : Holliday_15
- Track 44 : Phistory_16
- Track 45 : Squiddly_18
- Track 46 : TripleC_19
- Track 47 : AnnabelLee_16
- Track 48 : TMaxx_16
- Track 49 : Makima_17
- Track 50 : Roberts_16, Gerri43_16, ChipsNGuac_16
- Track 51 : LastNadiia_19, Audell_19
- Track 52 : Mireles_16
- Track 53 : Agamoto_18
- Track 54 : Stellammi_12
- Track 55 : Gaia_11, Nebkiss_12
- Track 56 : LilSpotty_14
- Track 57 : DS6A_18

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

The start number called the most often in the published annotations is 18, it was called in 41 of the 89 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agatha_15, AikoCarson_14, Amok_14, AndPeggy_14, Axym_15, BigChungus_14, BillDoor_17, Biskit_16, Blondies_16, Bubble_15, Burnsey_15, Buttrmikedreams_15, CherryonLim_16, Cozz_15, Elinal_16, Emalyn_14, Feastonyeet_14, Horseradish_16, KayGee_15, Lauer_14, MAnor_15, MScarn_17, Mayweather_16, MunkgeeRoachy_15, Nina_16, Pons_15, PotPie_15, Quasar_14, RedBaron_17, SheckWes_14, SketchMex_14, SteamedHams_17, SummitAcademy_14, SweatNTears_17, Tarnish_15, Tolls_17, Typhonomachy_15, Vine_16, Yarn_14, Yucky_15, Yummy_16,

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

- Troje_15,

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

- Agamoto_18, AnnabelLee_16, Asapag_16, Audell_19, Azira_17, BENtherdunthat_16, Button_16, ChipsNGuac_16, Cleo_15, DS6A_18, Dre3_15, Fribs8_16, Gaia_11, Gerri43_16, Getalong_16, GiKK_18, Gibbous_15, Hexbug_17, HippoPololi_17, Holliday_15, Horus_16, Jamzy_18, Kenna_15, LastNadiia_19, Leroy_16, LilSpotty_14, Lutum_16, MaVan_17, Makima_17, Margaret_18, Mireles_16, Nebkiss_12, Nibbles_17, Nodigi_17, Orla_17, Periwinkle_16, Phistory_16, RanchParmCat_18, Roberts_16, Squiddly_18, Stellammi_12, Survivors_17, TMaxx_16, TripleC_19, Wolfwood_17, Yakult_16, Zareef_17,

Summary by start number:

Start 10:

- Found in 7 of 89 (7.9%) of genes in pham
- Manual Annotations of this start: 1 of 89
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Troje_15 (CT),

Start 11:

- Found in 12 of 89 (13.5%) of genes in pham
- Manual Annotations of this start: 11 of 89
- Called 91.7% of time when present
- Phage (with cluster) where this start called: Agamoto_18 (FR), AnnabelLee_16 (FR), Audell_19 (FR), ChipsNGuac_16 (FR), Gerri43_16 (FR), LastNadiia_19 (FR), Makima_17 (FR), Mireles_16 (FR), Roberts_16 (FR), TMaxx_16 (FR), TripleC_19 (FR),

Start 12:

- Found in 1 of 89 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 89
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Margaret_18 (CT),

Start 14:

- Found in 1 of 89 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 89
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DS6A_18 (singleton),

Start 17:

- Found in 2 of 89 (2.2%) of genes in pham
- Manual Annotations of this start: 1 of 89
- Called 50.0% of time when present
- Phage (with cluster) where this start called: LilSpotty_14 (singleton),

Start 18:

- Found in 42 of 89 (47.2%) of genes in pham
- Manual Annotations of this start: 41 of 89
- Called 97.6% of time when present
- Phage (with cluster) where this start called: Agatha_15 (CT), AikoCarson_14 (CT), Amok_14 (CT), AndPeggy_14 (CT), Axym_15 (CT), BigChungus_14 (CT), BillDoor_17 (CT), Biskit_16 (CT), Blondies_16 (CT), Bubble_15 (CT), Burnsey_15 (CT), Buttrmlkdreams_15 (CT), CherryonLim_16 (CT), Cozz_15 (CT), Elinal_16 (CT), Emalyn_14 (CT), Feastonyeet_14 (CT), Horseradish_16 (CT), KayGee_15 (CT), Lauer_14 (CT), MAnor_15 (CT), MScarn_17 (CT), Mayweather_16 (CT), MunkgeeRoachy_15 (CT), Nina_16 (CT), Pons_15 (CT), PotPie_15 (CT), Quasar_14 (CT), RedBaron_17 (CT), SheckWes_14 (CT), SketchMex_14 (CT), SteamedHams_17 (CT), SummitAcademy_14 (CT), SweatNTears_17 (CT), Tarnish_15 (CT), Tolls_17 (CT), Typhonmarchy_15 (CT), Vine_16 (CT), Yarn_14 (CT), Yucky_15 (CT), Yummy_16 (CT),

Start 19:

- Found in 10 of 89 (11.2%) of genes in pham

- Manual Annotations of this start: 10 of 89
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Azira_17 (CT), Cleo_15 (CT), Dre3_15 (CT), Gibbous_15 (CT), HippoPololi_17 (CT), MaVan_17 (CT), Nibbles_17 (CT), Survivors_17 (CT), Wolfwood_17 (CT), Zareef_17 (CT),

Start 20:

- Found in 1 of 89 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 89
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Fribs8_16 (CT),

Start 21:

- Found in 2 of 89 (2.2%) of genes in pham
- Manual Annotations of this start: 1 of 89
- Called 50.0% of time when present
- Phage (with cluster) where this start called: RanchParmCat_18 (CT),

Start 22:

- Found in 7 of 89 (7.9%) of genes in pham
- Manual Annotations of this start: 7 of 89
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Button_16 (CT), GiKK_18 (CT), Hexbug_17 (CT), Jamzy_18 (CT), Nodigi_17 (CT), Orla_17 (CT), Yakult_16 (CT),

Start 23:

- Found in 14 of 89 (15.7%) of genes in pham
- Manual Annotations of this start: 14 of 89
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Asapag_16 (DN1), BENtherdunthat_16 (DN1), Gaia_11 (X), Getalong_16 (DN1), Holliday_15 (DN1), Horus_16 (DN1), Kenna_15 (DN1), Leroy_16 (DN1), Lutum_16 (DN1), Nebkiss_12 (X), Periwinkle_16 (DN1), Phistory_16 (DN1), Squiddly_18 (DN2), Stellammi_12 (UNK),

Summary by clusters:

There are 7 clusters represented in this pham: FR, singleton, DN1, DN2, X, UNK, CT,

Info for manual annotations of cluster CT:

- Start number 10 was manually annotated 1 time for cluster CT.
- Start number 12 was manually annotated 1 time for cluster CT.
- Start number 18 was manually annotated 41 times for cluster CT.
- Start number 19 was manually annotated 10 times for cluster CT.
- Start number 20 was manually annotated 1 time for cluster CT.
- Start number 21 was manually annotated 1 time for cluster CT.
- Start number 22 was manually annotated 7 times for cluster CT.

Info for manual annotations of cluster DN1:

- Start number 23 was manually annotated 10 times for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 23 was manually annotated 1 time for cluster DN2.

Info for manual annotations of cluster FR:

- Start number 11 was manually annotated 11 times for cluster FR.

Info for manual annotations of cluster UNK:

- Start number 23 was manually annotated 1 time for cluster UNK.

Info for manual annotations of cluster X:

- Start number 23 was manually annotated 2 times for cluster X.

Gene Information:

Gene: Agamotto_18 Start: 11890, Stop: 12611, Start Num: 11

Candidate Starts for Agamotto_18:

(Start: 11 @11890 has 11 MA's), (37, 12016), (46, 12085), (51, 12109), (60, 12163), (76, 12280), (77, 12298), (83, 12325), (103, 12439), (123, 12592),

Gene: Agatha_15 Start: 8885, Stop: 9639, Start Num: 18

Candidate Starts for Agatha_15:

(Start: 18 @8885 has 41 MA's), (32, 8969), (54, 9083), (55, 9089), (56, 9092), (60, 9116), (63, 9128), (85, 9299), (100, 9389), (102, 9395), (113, 9509), (117, 9524), (128, 9605), (130, 9629),

Gene: AikoCarson_14 Start: 8613, Stop: 9367, Start Num: 18

Candidate Starts for AikoCarson_14:

(Start: 18 @8613 has 41 MA's), (32, 8685), (56, 8808), (60, 8832), (63, 8844), (65, 8871), (85, 9015), (88, 9024), (92, 9051), (107, 9210), (117, 9252), (130, 9357),

Gene: Amok_14 Start: 8613, Stop: 9367, Start Num: 18

Candidate Starts for Amok_14:

(Start: 18 @8613 has 41 MA's), (32, 8685), (56, 8808), (60, 8832), (63, 8844), (65, 8871), (85, 9015), (88, 9024), (92, 9051), (107, 9210), (117, 9252), (130, 9357),

Gene: AndPeggy_14 Start: 8901, Stop: 9655, Start Num: 18

Candidate Starts for AndPeggy_14:

(Start: 18 @8901 has 41 MA's), (32, 8973), (35, 8979), (56, 9096), (60, 9120), (63, 9132), (65, 9159), (85, 9303), (88, 9312), (96, 9357), (107, 9498), (117, 9540), (130, 9645),

Gene: AnnabelLee_16 Start: 8830, Stop: 9566, Start Num: 11

Candidate Starts for AnnabelLee_16:

(Start: 11 @8830 has 11 MA's), (29, 8914), (43, 9007), (44, 9010), (46, 9037), (60, 9115), (70, 9199), (73, 9211), (77, 9250), (83, 9280), (105, 9463), (120, 9541), (123, 9547),

Gene: Asapag_16 Start: 8335, Stop: 9014, Start Num: 23

Candidate Starts for Asapag_16:

(16, 8314), (Start: 23 @8335 has 14 MA's), (52, 8500), (61, 8554), (62, 8560), (63, 8563), (65, 8590), (77, 8689), (83, 8716), (96, 8791), (100, 8827), (104, 8872), (109, 8926), (115, 8956), (119, 8974), (124, 8992),

Gene: Audell_19 Start: 12164, Stop: 12891, Start Num: 11

Candidate Starts for Audell_19:

(5, 12092), (Start: 11 @12164 has 11 MA's), (37, 12296), (46, 12365), (60, 12443), (70, 12527), (77, 12578), (83, 12605), (86, 12623), (97, 12677), (103, 12719), (118, 12845), (120, 12866),

Gene: Axym_15 Start: 8885, Stop: 9639, Start Num: 18

Candidate Starts for Axym_15:

(Start: 18 @8885 has 41 MA's), (32, 8969), (54, 9083), (55, 9089), (56, 9092), (60, 9116), (63, 9128), (85, 9299), (100, 9389), (102, 9395), (113, 9509), (117, 9524), (128, 9605), (130, 9629),

Gene: Azira_17 Start: 9884, Stop: 10629, Start Num: 19

Candidate Starts for Azira_17:

(15, 9875), (Start: 19 @9884 has 10 MA's), (26, 9914), (31, 9944), (56, 10079), (60, 10103), (63, 10115), (67, 10160), (81, 10253), (90, 10301), (91, 10307), (104, 10418), (106, 10463), (117, 10508), (129, 10598), (130, 10619),

Gene: BENtherdunthat_16 Start: 8335, Stop: 9014, Start Num: 23

Candidate Starts for BENtherdunthat_16:

(16, 8314), (Start: 23 @8335 has 14 MA's), (52, 8500), (61, 8554), (62, 8560), (63, 8563), (65, 8590), (77, 8689), (83, 8716), (96, 8791), (100, 8827), (104, 8872), (109, 8926), (115, 8956), (119, 8974), (124, 8992),

Gene: BigChungus_14 Start: 8662, Stop: 9410, Start Num: 18

Candidate Starts for BigChungus_14:

(Start: 18 @8662 has 41 MA's), (32, 8734), (52, 8830), (56, 8857), (60, 8881), (63, 8893), (66, 8926), (78, 9025), (95, 9115), (110, 9256), (113, 9274), (131, 9403),

Gene: BillDoor_17 Start: 8866, Stop: 9620, Start Num: 18

Candidate Starts for BillDoor_17:

(Start: 18 @8866 has 41 MA's), (32, 8938), (35, 8944), (56, 9061), (60, 9085), (63, 9097), (65, 9124), (85, 9268), (88, 9277), (96, 9322), (106, 9460), (107, 9463), (113, 9490), (117, 9505), (130, 9610),

Gene: Biskit_16 Start: 8872, Stop: 9626, Start Num: 18

Candidate Starts for Biskit_16:

(Start: 10 @8830 has 1 MA's), (Start: 18 @8872 has 41 MA's), (56, 9067), (60, 9091), (63, 9103), (65, 9130), (85, 9274), (88, 9283), (130, 9616),

Gene: Blondies_16 Start: 8858, Stop: 9612, Start Num: 18

Candidate Starts for Blondies_16:

(Start: 10 @8816 has 1 MA's), (Start: 18 @8858 has 41 MA's), (56, 9053), (60, 9077), (63, 9089), (65, 9116), (85, 9260), (88, 9269), (130, 9602),

Gene: Bubble_15 Start: 8885, Stop: 9639, Start Num: 18

Candidate Starts for Bubble_15:

(Start: 18 @8885 has 41 MA's), (32, 8969), (56, 9092), (60, 9116), (63, 9128), (85, 9299), (100, 9389), (102, 9395), (113, 9509), (117, 9524), (128, 9605), (130, 9629),

Gene: Burnsey_15 Start: 8886, Stop: 9640, Start Num: 18

Candidate Starts for Burnsey_15:

(Start: 18 @8886 has 41 MA's), (32, 8970), (41, 9006), (56, 9093), (60, 9117), (63, 9129), (85, 9300), (100, 9390), (102, 9396), (113, 9510), (117, 9525), (128, 9606), (130, 9630),

Gene: Button_16 Start: 8897, Stop: 9627, Start Num: 22

Candidate Starts for Button_16:

(13, 8864), (Start: 22 @8897 has 7 MA's), (27, 8927), (41, 9002), (56, 9089), (60, 9113), (63, 9125), (66, 9158), (69, 9194), (73, 9212), (78, 9254), (107, 9470), (121, 9536), (130, 9617),

Gene: Buttrmlkdreams_15 Start: 8857, Stop: 9611, Start Num: 18

Candidate Starts for Buttrmlkdreams_15:

(Start: 10 @8815 has 1 MA's), (Start: 18 @8857 has 41 MA's), (56, 9052), (60, 9076), (63, 9088), (65, 9115), (85, 9259), (88, 9268), (130, 9601),

Gene: CherryonLim_16 Start: 9392, Stop: 10140, Start Num: 18

Candidate Starts for CherryonLim_16:

(Start: 18 @9392 has 41 MA's), (32, 9464), (56, 9587), (60, 9611), (63, 9623), (68, 9689), (78, 9755), (93, 9833), (96, 9848), (113, 10004), (131, 10133),

Gene: ChipsNGuac_16 Start: 8830, Stop: 9566, Start Num: 11

Candidate Starts for ChipsNGuac_16:

(Start: 11 @8830 has 11 MA's), (29, 8914), (43, 9007), (44, 9010), (46, 9037), (60, 9115), (70, 9199), (73, 9211), (77, 9250), (83, 9280), (120, 9541), (123, 9547),

Gene: Cleo_15 Start: 9174, Stop: 9919, Start Num: 19

Candidate Starts for Cleo_15:

(15, 9165), (Start: 19 @9174 has 10 MA's), (32, 9246), (56, 9369), (60, 9393), (63, 9405), (65, 9432), (81, 9543), (91, 9597), (106, 9753), (113, 9783), (117, 9798), (129, 9888), (130, 9909),

Gene: Cozz_15 Start: 8886, Stop: 9640, Start Num: 18

Candidate Starts for Cozz_15:

(Start: 18 @8886 has 41 MA's), (32, 8970), (54, 9084), (55, 9090), (56, 9093), (60, 9117), (63, 9129), (85, 9300), (100, 9390), (113, 9510), (117, 9525), (128, 9606), (130, 9630),

Gene: DS6A_18 Start: 11578, Stop: 12356, Start Num: 14

Candidate Starts for DS6A_18:

(Start: 14 @11578 has 1 MA's), (Start: 17 @11602 has 1 MA's), (24, 11623), (25, 11635), (27, 11641), (38, 11704), (39, 11707), (40, 11713), (45, 11755), (64, 11848), (80, 11971), (85, 12004), (108, 12190),

Gene: Dre3_15 Start: 9121, Stop: 9866, Start Num: 19

Candidate Starts for Dre3_15:

(15, 9112), (Start: 19 @9121 has 10 MA's), (32, 9193), (56, 9316), (60, 9340), (63, 9352), (65, 9379), (67, 9397), (81, 9490), (91, 9544), (106, 9700), (113, 9730), (117, 9745), (129, 9835), (130, 9856),

Gene: Elinal_16 Start: 8643, Stop: 9391, Start Num: 18

Candidate Starts for Elinal_16:

(Start: 18 @8643 has 41 MA's), (32, 8715), (56, 8838), (60, 8862), (63, 8874), (69, 8943), (78, 9006), (95, 9096), (110, 9237), (113, 9255), (131, 9384),

Gene: Emalyn_14 Start: 8612, Stop: 9366, Start Num: 18

Candidate Starts for Emalyn_14:

(Start: 18 @8612 has 41 MA's), (32, 8684), (56, 8807), (60, 8831), (63, 8843), (65, 8870), (85, 9014), (88, 9023), (92, 9050), (107, 9209), (117, 9251), (130, 9356),

Gene: Feastonyeet_14 Start: 8662, Stop: 9410, Start Num: 18

Candidate Starts for Feastonyeet_14:

(Start: 18 @8662 has 41 MA's), (32, 8734), (52, 8830), (56, 8857), (60, 8881), (63, 8893), (66, 8926), (78, 9025), (95, 9115), (110, 9256), (113, 9274), (131, 9403),

Gene: Fribs8_16 Start: 9689, Stop: 10434, Start Num: 20

Candidate Starts for Fribs8_16:

(5, 9578), (7, 9581), (Start: 20 @9689 has 1 MA's), (32, 9761), (52, 9857), (56, 9884), (60, 9908), (63, 9920), (65, 9947), (81, 10058), (87, 10094), (91, 10112), (106, 10268), (113, 10298), (117, 10313), (130, 10424),

Gene: Gaia_11 Start: 8760, Stop: 9442, Start Num: 23

Candidate Starts for Gaia_11:

(Start: 23 @8760 has 14 MA's), (31, 8805), (45, 8889), (47, 8898), (53, 8913), (55, 8934), (59, 8958), (67, 9018), (68, 9039), (70, 9045), (71, 9048), (72, 9051), (75, 9075), (83, 9123), (85, 9138), (90, 9156), (104, 9273), (105, 9306), (125, 9399), (126, 9423),

Gene: Gerri43_16 Start: 8830, Stop: 9566, Start Num: 11

Candidate Starts for Gerri43_16:

(Start: 11 @8830 has 11 MA's), (29, 8914), (43, 9007), (44, 9010), (46, 9037), (60, 9115), (70, 9199), (73, 9211), (77, 9250), (83, 9280), (120, 9541), (123, 9547),

Gene: Getalong_16 Start: 8315, Stop: 8997, Start Num: 23

Candidate Starts for Getalong_16:

(Start: 23 @8315 has 14 MA's), (52, 8480), (61, 8534), (62, 8540), (63, 8543), (65, 8570), (77, 8672), (82, 8690), (83, 8699), (96, 8774), (100, 8810), (106, 8900), (107, 8903), (109, 8909), (115, 8939), (116, 8942), (119, 8957), (124, 8975),

Gene: GiKK_18 Start: 9200, Stop: 9930, Start Num: 22

Candidate Starts for GiKK_18:

(13, 9167), (Start: 22 @9200 has 7 MA's), (27, 9230), (41, 9305), (56, 9392), (60, 9416), (63, 9428), (66, 9461), (69, 9497), (73, 9515), (78, 9557), (107, 9773), (121, 9839), (130, 9920),

Gene: Gibbous_15 Start: 9121, Stop: 9866, Start Num: 19

Candidate Starts for Gibbous_15:

(15, 9112), (Start: 19 @9121 has 10 MA's), (32, 9193), (56, 9316), (60, 9340), (63, 9352), (65, 9379), (67, 9397), (81, 9490), (91, 9544), (106, 9700), (113, 9730), (117, 9745), (129, 9835), (130, 9856),

Gene: Hexbug_17 Start: 9883, Stop: 10613, Start Num: 22

Candidate Starts for Hexbug_17:

(Start: 22 @9883 has 7 MA's), (30, 9937), (31, 9940), (63, 10111), (66, 10144), (73, 10198), (78, 10240), (106, 10453), (121, 10522), (130, 10603),

Gene: HippoPololi_17 Start: 9778, Stop: 10523, Start Num: 19

Candidate Starts for HippoPololi_17:

(15, 9769), (Start: 19 @9778 has 10 MA's), (32, 9850), (52, 9946), (56, 9973), (60, 9997), (63, 10009), (65, 10036), (91, 10201), (104, 10312), (106, 10357), (113, 10387), (117, 10402), (129, 10492), (130, 10513),

Gene: Holliday_15 Start: 8319, Stop: 8998, Start Num: 23

Candidate Starts for Holliday_15:

(Start: 11 @8271 has 11 MA's), (Start: 23 @8319 has 14 MA's), (52, 8484), (61, 8538), (62, 8544), (63, 8547), (65, 8574), (77, 8673), (83, 8700), (90, 8733), (96, 8775), (100, 8811), (107, 8904), (109, 8910), (116, 8943), (119, 8958),

Gene: Horseradish_16 Start: 8771, Stop: 9525, Start Num: 18

Candidate Starts for Horseradish_16:

(Start: 18 @8771 has 41 MA's), (56, 8966), (60, 8990), (63, 9002), (65, 9029), (85, 9173), (88, 9182), (91, 9197), (130, 9515),

Gene: Horus_16 Start: 8335, Stop: 9014, Start Num: 23

Candidate Starts for Horus_16:

(16, 8314), (Start: 23 @8335 has 14 MA's), (52, 8500), (61, 8554), (62, 8560), (63, 8563), (65, 8590), (77, 8689), (83, 8716), (96, 8791), (100, 8827), (104, 8872), (109, 8926), (115, 8956), (119, 8974), (124, 8992),

Gene: Jamzy_18 Start: 9210, Stop: 9940, Start Num: 22

Candidate Starts for Jamzy_18:

(13, 9177), (Start: 22 @9210 has 7 MA's), (27, 9240), (41, 9315), (56, 9402), (60, 9426), (63, 9438), (66, 9471), (69, 9507), (73, 9525), (78, 9567), (107, 9783), (130, 9930),

Gene: KayGee_15 Start: 8643, Stop: 9391, Start Num: 18

Candidate Starts for KayGee_15:

(Start: 18 @8643 has 41 MA's), (32, 8715), (56, 8838), (60, 8862), (63, 8874), (69, 8943), (78, 9006), (95, 9096), (110, 9237), (113, 9255), (131, 9384),

Gene: Kenna_15 Start: 8335, Stop: 9014, Start Num: 23

Candidate Starts for Kenna_15:

(16, 8314), (Start: 23 @8335 has 14 MA's), (52, 8500), (61, 8554), (62, 8560), (63, 8563), (65, 8590), (77, 8689), (83, 8716), (96, 8791), (100, 8827), (104, 8872), (109, 8926), (115, 8956), (119, 8974), (124, 8992),

Gene: LastNadiia_19 Start: 11116, Stop: 11843, Start Num: 11

Candidate Starts for LastNadiia_19:

(5, 11044), (Start: 11 @11116 has 11 MA's), (37, 11248), (46, 11317), (60, 11395), (70, 11479), (77, 11530), (83, 11557), (86, 11575), (97, 11629), (103, 11671), (118, 11797), (120, 11818),

Gene: Lauer_14 Start: 8692, Stop: 9440, Start Num: 18

Candidate Starts for Lauer_14:

(Start: 18 @8692 has 41 MA's), (32, 8764), (56, 8887), (60, 8911), (63, 8923), (66, 8956), (69, 8992), (78, 9055), (95, 9145), (110, 9286), (113, 9304), (131, 9433),

Gene: Leroy_16 Start: 8336, Stop: 9015, Start Num: 23

Candidate Starts for Leroy_16:

(16, 8315), (Start: 23 @8336 has 14 MA's), (52, 8501), (61, 8555), (62, 8561), (63, 8564), (65, 8591), (77, 8690), (83, 8717), (96, 8792), (100, 8828), (104, 8873), (109, 8927), (115, 8957), (119, 8975), (124, 8993),

Gene: LilSpotty_14 Start: 8433, Stop: 9124, Start Num: 17

Candidate Starts for LilSpotty_14:

(Start: 17 @8433 has 1 MA's), (34, 8502), (36, 8508), (45, 8559), (55, 8604), (61, 8634), (64, 8652), (114, 9021),

Gene: Lutum_16 Start: 8335, Stop: 9014, Start Num: 23

Candidate Starts for Lutum_16:

(16, 8314), (Start: 23 @8335 has 14 MA's), (52, 8500), (61, 8554), (62, 8560), (63, 8563), (65, 8590), (77, 8689), (83, 8716), (96, 8791), (100, 8827), (104, 8872), (109, 8926), (115, 8956), (119, 8974), (124, 8992),

Gene: MAnor_15 Start: 8635, Stop: 9383, Start Num: 18

Candidate Starts for MAnor_15:

(Start: 18 @8635 has 41 MA's), (32, 8707), (56, 8830), (60, 8854), (63, 8866), (69, 8935), (78, 8998), (93, 9076), (96, 9091), (104, 9172), (113, 9247), (117, 9262), (129, 9349), (131, 9376),

Gene: MScarn_17 Start: 8857, Stop: 9611, Start Num: 18

Candidate Starts for MScarn_17:

(Start: 10 @8815 has 1 MA's), (Start: 18 @8857 has 41 MA's), (56, 9052), (60, 9076), (63, 9088), (65, 9115), (85, 9259), (88, 9268), (130, 9601),

Gene: MaVan_17 Start: 9884, Stop: 10629, Start Num: 19

Candidate Starts for MaVan_17:

(15, 9875), (Start: 19 @9884 has 10 MA's), (26, 9914), (31, 9944), (56, 10079), (60, 10103), (63, 10115), (67, 10160), (81, 10253), (90, 10301), (91, 10307), (104, 10418), (106, 10463), (117, 10508), (129, 10598), (130, 10619),

Gene: Makima_17 Start: 10199, Stop: 10926, Start Num: 11

Candidate Starts for Makima_17:

(6, 10130), (8, 10133), (9, 10187), (Start: 11 @10199 has 11 MA's), (37, 10331), (46, 10400), (60, 10478), (70, 10562), (77, 10613), (83, 10640), (86, 10658), (93, 10694), (97, 10712), (104, 10790), (118, 10880), (120, 10901),

Gene: Margaret_18 Start: 9558, Stop: 10321, Start Num: 12

Candidate Starts for Margaret_18:

(1, 9264), (2, 9306), (3, 9381), (4, 9432), (Start: 12 @9558 has 1 MA's), (15, 9582), (Start: 21 @9591 has 1 MA's), (27, 9621), (31, 9648), (47, 9744), (56, 9783), (62, 9816), (63, 9819), (66, 9852), (73, 9906), (78, 9948), (107, 10164), (121, 10230), (130, 10311),

Gene: Mayweather_16 Start: 9265, Stop: 10013, Start Num: 18

Candidate Starts for Mayweather_16:

(Start: 18 @9265 has 41 MA's), (32, 9337), (56, 9460), (60, 9484), (63, 9496), (69, 9565), (78, 9628), (93, 9706), (96, 9721), (104, 9802), (113, 9877), (131, 10006),

Gene: Mireles_16 Start: 8602, Stop: 9329, Start Num: 11

Candidate Starts for Mireles_16:

(9, 8590), (Start: 11 @8602 has 11 MA's), (33, 8722), (37, 8734), (46, 8803), (50, 8818), (58, 8875), (60, 8881), (70, 8965), (77, 9016), (83, 9043), (95, 9109), (103, 9157), (105, 9226), (123, 9310),

Gene: MunkgeeRoachy_15 Start: 8933, Stop: 9687, Start Num: 18

Candidate Starts for MunkgeeRoachy_15:

(Start: 18 @8933 has 41 MA's), (32, 9017), (55, 9137), (56, 9140), (60, 9164), (63, 9176), (85, 9347), (100, 9437), (113, 9557), (117, 9572), (128, 9653), (130, 9677),

Gene: Nebkiss_12 Start: 8761, Stop: 9443, Start Num: 23

Candidate Starts for Nebkiss_12:

(Start: 23 @8761 has 14 MA's), (31, 8806), (45, 8890), (47, 8899), (53, 8914), (55, 8935), (59, 8959), (67, 9019), (68, 9040), (70, 9046), (71, 9049), (72, 9052), (75, 9076), (83, 9124), (85, 9139), (90, 9157), (104, 9274), (105, 9307), (125, 9400), (126, 9424),

Gene: Nibbles_17 Start: 9884, Stop: 10629, Start Num: 19

Candidate Starts for Nibbles_17:

(15, 9875), (Start: 19 @9884 has 10 MA's), (26, 9914), (28, 9923), (31, 9944), (56, 10079), (60, 10103), (63, 10115), (67, 10160), (81, 10253), (90, 10301), (91, 10307), (104, 10418), (106, 10463), (117, 10508), (129, 10598), (130, 10619),

Gene: Nina_16 Start: 9918, Stop: 10672, Start Num: 18

Candidate Starts for Nina_16:

(Start: 18 @9918 has 41 MA's), (32, 10002), (55, 10122), (56, 10125), (60, 10149), (63, 10161), (85, 10332), (89, 10347), (100, 10422), (113, 10542), (117, 10557), (128, 10638), (130, 10662),

Gene: Nodigi_17 Start: 9874, Stop: 10604, Start Num: 22

Candidate Starts for Nodigi_17:

(Start: 22 @9874 has 7 MA's), (27, 9904), (56, 10066), (63, 10102), (66, 10135), (73, 10189), (78, 10231), (106, 10444), (121, 10513), (130, 10594),

Gene: Orla_17 Start: 9878, Stop: 10608, Start Num: 22

Candidate Starts for Orla_17:

(Start: 22 @9878 has 7 MA's), (27, 9908), (56, 10070), (63, 10106), (66, 10139), (73, 10193), (78, 10235), (106, 10448), (121, 10517), (130, 10598),

Gene: Periwinkle_16 Start: 8315, Stop: 8994, Start Num: 23

Candidate Starts for Periwinkle_16:

(Start: 23 @8315 has 14 MA's), (52, 8480), (61, 8534), (62, 8540), (63, 8543), (65, 8570), (77, 8669), (83, 8696), (96, 8771), (100, 8807), (104, 8852), (109, 8906), (115, 8936), (119, 8954), (124, 8972),

Gene: Phistory_16 Start: 8304, Stop: 8983, Start Num: 23

Candidate Starts for Phistory_16:

(Start: 23 @8304 has 14 MA's), (52, 8469), (61, 8523), (62, 8529), (63, 8532), (65, 8559), (77, 8658), (83, 8685), (96, 8760), (100, 8796), (104, 8841), (107, 8889), (109, 8895), (115, 8925), (116, 8928), (119, 8943),

Gene: Pons_15 Start: 8643, Stop: 9391, Start Num: 18

Candidate Starts for Pons_15:

(Start: 18 @8643 has 41 MA's), (32, 8715), (56, 8838), (60, 8862), (63, 8874), (69, 8943), (78, 9006), (93, 9084), (96, 9099), (104, 9180), (113, 9255), (131, 9384),

Gene: PotPie_15 Start: 9496, Stop: 10244, Start Num: 18

Candidate Starts for PotPie_15:

(Start: 18 @9496 has 41 MA's), (32, 9568), (56, 9691), (60, 9715), (63, 9727), (66, 9760), (78, 9859), (95, 9949), (110, 10090), (113, 10108), (131, 10237),

Gene: Quasar_14 Start: 9494, Stop: 10248, Start Num: 18

Candidate Starts for Quasar_14:

(Start: 18 @9494 has 41 MA's), (32, 9578), (56, 9701), (60, 9725), (63, 9737), (85, 9908), (100, 9998), (102, 10004), (113, 10118), (117, 10133), (128, 10214), (130, 10238),

Gene: RanchParmCat_18 Start: 9591, Stop: 10321, Start Num: 21

Candidate Starts for RanchParmCat_18:

(15, 9582), (Start: 21 @9591 has 1 MA's), (27, 9621), (31, 9648), (47, 9744), (56, 9783), (62, 9816), (63, 9819), (66, 9852), (73, 9906), (78, 9948), (107, 10164), (121, 10230), (130, 10311),

Gene: RedBaron_17 Start: 8929, Stop: 9683, Start Num: 18

Candidate Starts for RedBaron_17:

(Start: 18 @8929 has 41 MA's), (32, 9013), (35, 9019), (54, 9127), (55, 9133), (56, 9136), (60, 9160), (63, 9172), (85, 9343), (100, 9433), (113, 9553), (117, 9568), (128, 9649), (130, 9673),

Gene: Roberts_16 Start: 8830, Stop: 9566, Start Num: 11

Candidate Starts for Roberts_16:

(Start: 11 @8830 has 11 MA's), (29, 8914), (43, 9007), (44, 9010), (46, 9037), (60, 9115), (70, 9199), (73, 9211), (77, 9250), (83, 9280), (120, 9541), (123, 9547),

Gene: SheckWes_14 Start: 8631, Stop: 9379, Start Num: 18

Candidate Starts for SheckWes_14:

(Start: 18 @8631 has 41 MA's), (32, 8703), (56, 8826), (60, 8850), (63, 8862), (69, 8931), (78, 8994), (95, 9084), (104, 9168), (113, 9243), (131, 9372),

Gene: SketchMex_14 Start: 8872, Stop: 9626, Start Num: 18

Candidate Starts for SketchMex_14:

(Start: 10 @8830 has 1 MA's), (Start: 18 @8872 has 41 MA's), (56, 9067), (60, 9091), (63, 9103), (65, 9130), (85, 9274), (88, 9283), (130, 9616),

Gene: Squiddly_18 Start: 9737, Stop: 10419, Start Num: 23

Candidate Starts for Squiddly_18:

(Start: 23 @9737 has 14 MA's), (52, 9902), (61, 9956), (62, 9962), (63, 9965), (65, 9992), (77, 10094), (83, 10121), (96, 10196), (98, 10214), (102, 10238), (107, 10325), (109, 10331), (116, 10364), (119, 10379),

Gene: SteamedHams_17 Start: 8902, Stop: 9656, Start Num: 18

Candidate Starts for SteamedHams_17:

(Start: 18 @8902 has 41 MA's), (32, 8974), (35, 8980), (56, 9097), (60, 9121), (63, 9133), (65, 9160), (85, 9304), (88, 9313), (96, 9358), (107, 9499), (117, 9541), (130, 9646),

Gene: Stellammi_12 Start: 7669, Stop: 8342, Start Num: 23

Candidate Starts for Stellammi_12:

(Start: 23 @7669 has 14 MA's), (35, 7717), (41, 7747), (42, 7750), (45, 7783), (47, 7792), (53, 7807), (57, 7840), (62, 7864), (85, 8032), (92, 8068), (101, 8125), (104, 8167), (111, 8227), (112, 8233), (122, 8278), (125, 8293), (127, 8332),

Gene: SummitAcademy_14 Start: 8711, Stop: 9459, Start Num: 18

Candidate Starts for SummitAcademy_14:

(Start: 18 @8711 has 41 MA's), (32, 8783), (56, 8906), (60, 8930), (63, 8942), (66, 8975), (78, 9074), (110, 9305), (113, 9323), (131, 9452),

Gene: Survivors_17 Start: 9739, Stop: 10484, Start Num: 19

Candidate Starts for Survivors_17:

(15, 9730), (Start: 19 @9739 has 10 MA's), (31, 9799), (48, 9898), (56, 9934), (60, 9958), (63, 9970), (67, 10015), (81, 10108), (90, 10156), (91, 10162), (104, 10273), (106, 10318), (117, 10363), (129, 10453), (130, 10474),

Gene: SweatNTears_17 Start: 9383, Stop: 10137, Start Num: 18

Candidate Starts for SweatNTears_17:

(Start: 10 @9341 has 1 MA's), (Start: 18 @9383 has 41 MA's), (56, 9578), (60, 9602), (63, 9614), (65, 9641), (85, 9785), (88, 9794), (91, 9809), (130, 10127),

Gene: TMaxx_16 Start: 8696, Stop: 9420, Start Num: 11

Candidate Starts for TMaxx_16:

(9, 8684), (Start: 11 @8696 has 11 MA's), (43, 8864), (46, 8894), (49, 8906), (60, 8972), (70, 9056), (76, 9089), (77, 9107), (83, 9134), (84, 9143), (86, 9152), (93, 9188), (98, 9221), (99, 9233), (102, 9245), (103, 9248), (117, 9371), (123, 9401),

Gene: Tarnish_15 Start: 9010, Stop: 9758, Start Num: 18

Candidate Starts for Tarnish_15:

(Start: 18 @9010 has 41 MA's), (32, 9082), (56, 9205), (60, 9229), (63, 9241), (69, 9310), (78, 9373), (110, 9604), (113, 9622), (131, 9751),

Gene: Tolls_17 Start: 8905, Stop: 9659, Start Num: 18

Candidate Starts for Tolls_17:

(Start: 18 @8905 has 41 MA's), (32, 8977), (35, 8983), (56, 9100), (60, 9124), (63, 9136), (65, 9163), (85, 9307), (88, 9316), (96, 9361), (107, 9502), (117, 9544), (130, 9649),

Gene: TripleC_19 Start: 12205, Stop: 12926, Start Num: 11

Candidate Starts for TripleC_19:

(Start: 11 @12205 has 11 MA's), (37, 12331), (46, 12400), (60, 12478), (73, 12574), (77, 12613), (83, 12640), (84, 12649), (94, 12700), (98, 12727), (99, 12739), (123, 12907),

Gene: Troje_15 Start: 8815, Stop: 9611, Start Num: 10

Candidate Starts for Troje_15:

(Start: 10 @8815 has 1 MA's), (Start: 18 @8857 has 41 MA's), (56, 9052), (60, 9076), (63, 9088), (65, 9115), (85, 9259), (88, 9268), (130, 9601),

Gene: Typhonomachy_15 Start: 8885, Stop: 9639, Start Num: 18

Candidate Starts for Typhonomachy_15:

(Start: 18 @8885 has 41 MA's), (32, 8969), (55, 9089), (56, 9092), (60, 9116), (63, 9128), (85, 9299), (100, 9389), (102, 9395), (113, 9509), (117, 9524), (128, 9605), (130, 9629),

Gene: Vine_16 Start: 9640, Stop: 10388, Start Num: 18

Candidate Starts for Vine_16:

(Start: 18 @9640 has 41 MA's), (32, 9712), (56, 9835), (60, 9859), (63, 9871), (69, 9940), (78, 10003), (95, 10093), (110, 10234), (113, 10252), (131, 10381),

Gene: Wolfwood_17 Start: 9883, Stop: 10628, Start Num: 19

Candidate Starts for Wolfwood_17:

(15, 9874), (Start: 19 @9883 has 10 MA's), (26, 9913), (31, 9943), (56, 10078), (60, 10102), (63, 10114), (67, 10159), (81, 10252), (90, 10300), (91, 10306), (104, 10417), (106, 10462), (117, 10507), (129, 10597), (130, 10618),

Gene: Yakult_16 Start: 8776, Stop: 9506, Start Num: 22

Candidate Starts for Yakult_16:

(Start: 22 @8776 has 7 MA's), (26, 8803), (31, 8833), (32, 8845), (63, 9004), (66, 9037), (74, 9097), (79, 9136), (104, 9301), (106, 9346), (111, 9367), (113, 9376), (130, 9496),

Gene: Yarn_14 Start: 8895, Stop: 9649, Start Num: 18

Candidate Starts for Yarn_14:

(Start: 18 @8895 has 41 MA's), (32, 8967), (35, 8973), (56, 9090), (60, 9114), (63, 9126), (65, 9153), (85, 9297), (88, 9306), (96, 9351), (107, 9492), (117, 9534), (130, 9639),

Gene: Yucky_15 Start: 9500, Stop: 10248, Start Num: 18

Candidate Starts for Yucky_15:

(Start: 18 @9500 has 41 MA's), (32, 9572), (56, 9695), (60, 9719), (63, 9731), (69, 9800), (78, 9863), (95, 9953), (110, 10094), (113, 10112), (131, 10241),

Gene: Yummy_16 Start: 8771, Stop: 9525, Start Num: 18

Candidate Starts for Yummy_16:

(Start: 18 @8771 has 41 MA's), (56, 8966), (60, 8990), (63, 9002), (65, 9029), (85, 9173), (88, 9182), (91, 9197), (130, 9515),

Gene: Zareef_17 Start: 9885, Stop: 10630, Start Num: 19

Candidate Starts for Zareef_17:

(15, 9876), (Start: 19 @9885 has 10 MA's), (26, 9915), (31, 9945), (56, 10080), (60, 10104), (63, 10116), (67, 10161), (81, 10254), (90, 10302), (91, 10308), (104, 10419), (106, 10464), (117, 10509), (129, 10599), (130, 10620),