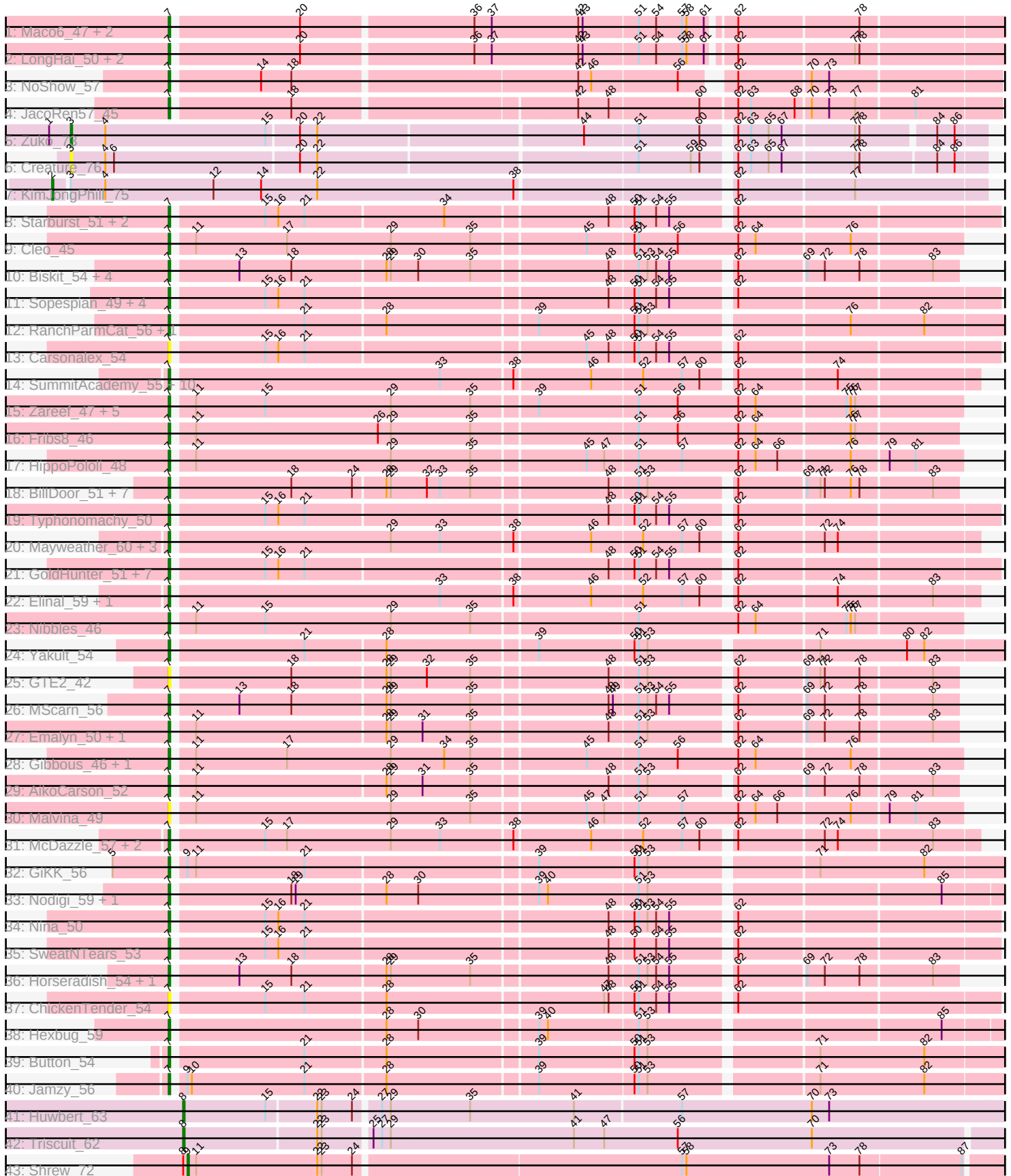


Pham 313339



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 313339 Report

This analysis was run 09/05/26 on database version 662.

Pham number 313339 has 97 members, 21 are drafts.

Phages represented in each track:

- Track 1 : Maco6_47, FF47_47, 8UZL_49
- Track 2 : LongHai_50, Muddy_49, Salvus_50
- Track 3 : NoShow_57
- Track 4 : JacoRen57_45
- Track 5 : Zuko_73
- Track 6 : Creature_76
- Track 7 : KimJongPhill_75
- Track 8 : Starburst_51, RADical_52, Axym_50
- Track 9 : Cleo_45
- Track 10 : Biskit_54, Troje_54, SketchMex_52, Blondies_55, Buttrmlkdreams_54
- Track 11 : Sopespian_49, RSchmailzl_52, Quasar_51, Elliott_51, PsychoKiller_50
- Track 12 : RanchParmCat_56, Margaret_57
- Track 13 : Carsonalex_54
- Track 14 : SummitAcademy_55, Yucky_58, Vine_58, Lauer_51, BigChungus_55, Bavalard_55, CocoaPuff_55, Feastonyeet_55, PotPie_55, Tarnish_56, Balloona_54
- Track 15 : Zareef_47, Survivors_47, MaVan_47, Azira_47, Wolfwood_47, Wallaby_49
- Track 16 : Fribs8_46
- Track 17 : HippoPololi_48
- Track 18 : BillDoor_51, Yarn_48, CanesSauce_50, CaramelLatte_50, AndPeggy_48, SteamedHams_52, ChocoMunchkin_50, Tolls_52
- Track 19 : Typhonomachy_50
- Track 20 : Mayweather_60, Pons_57, CherryonLim_56, MAnor_57
- Track 21 : GoldHunter_51, RedBaron_55, Socotra_52, Burnsey_51, Cozz_49, Agatha_51, Bubble_49, MunkgeeRoachy_49
- Track 22 : Elinal_59, KayGee_57
- Track 23 : Nibbles_46
- Track 24 : Yakult_54
- Track 25 : GTE2_42
- Track 26 : MScarn_56
- Track 27 : Emalyn_50, Amok_52
- Track 28 : Gibbous_46, Dre3_46
- Track 29 : AikoCarson_52
- Track 30 : Malvina_49
- Track 31 : McDazzle_57, ElJefes_57, SheckWes_59
- Track 32 : GiKK_56
- Track 33 : Nodigi_59, Orla_59

- Track 34 : Nina_50
- Track 35 : SweatNTears_53
- Track 36 : Horseradish_54, Yummy_54
- Track 37 : ChickenTender_54
- Track 38 : Hexbug_59
- Track 39 : Button_54
- Track 40 : Jamzy_56
- Track 41 : Huwbert_63
- Track 42 : Triscuit_62
- Track 43 : Shrew_72

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

The start number called the most often in the published annotations is 7, it was called in 71 of the 76 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 8UZL_49, Agatha_51, AikoCarson_52, Amok_52, AndPeggy_48, Axym_50, Azira_47, Balloona_54, Bavidard_55, BigChungus_55, BillDoor_51, Biskit_54, Blondies_55, Bubble_49, Burnsey_51, Button_54, Buttrmlkdreams_54, CanesSauce_50, CaramelLatte_50, Carsonalex_54, CherryonLim_56, ChickenTender_54, ChocoMunchkin_50, Cleo_45, CocoaPuff_55, Cozz_49, Dre3_46, ElJefes_57, Elinal_59, Elliott_51, Emalyn_50, FF47_47, Feastonyeet_55, Fribs8_46, GTE2_42, GiKK_56, Gibbous_46, GoldHunter_51, Hexbug_59, HippoPololi_48, Horseradish_54, JacoRen57_45, Jamzy_56, KayGee_57, Lauer_51, LongHai_50, MAnor_57, MScarn_56, MaVan_47, Maco6_47, Malvina_49, Margaret_57, Mayweather_60, McDazzle_57, Muddy_49, MunkgeeRoachy_49, Nibbles_46, Nina_50, NoShow_57, Nodigi_59, Orla_59, Pons_57, PotPie_55, PsychoKiller_50, Quasar_51, RADical_52, RSchmailzl_52, RanchParmCat_56, RedBaron_55, Salvus_50, SheckWes_59, SketchMex_52, Socotra_52, Sopespian_49, Starburst_51, SteamedHams_52, SummitAcademy_55, Survivors_47, SweatNTears_53, Tarnish_56, Tolls_52, Troje_54, Typhonomachy_50, Vine_58, Wallaby_49, Wolfwood_47, Yakult_54, Yarn_48, Yucky_58, Yummy_54, Zareef_47,

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

-

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

- Creature_76, Huwbert_63, KimJongPhill_75, Shrew_72, Triscuit_62, Zuko_73,

Summary by start number:

Start 2:

- Found in 1 of 97 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 76
- Called 100.0% of time when present
- Phage (with cluster) where this start called: KimJongPhill_75 (BR),

Start 3:

- Found in 3 of 97 (3.1%) of genes in pham

- Manual Annotations of this start: 1 of 76
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Creature_76 (BR), Zuko_73 (BR),

Start 7:

- Found in 91 of 97 (93.8%) of genes in pham
- Manual Annotations of this start: 71 of 76
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 8UZL_49 (AB), Agatha_51 (CT), AikoCarson_52 (CT), Amok_52 (CT), AndPeggy_48 (CT), Axym_50 (CT), Azira_47 (CT), Balloona_54 (CT), Bavidard_55 (CT), BigChungus_55 (CT), BillDoor_51 (CT), Biskit_54 (CT), Blondies_55 (CT), Bubble_49 (CT), Burnsey_51 (CT), Button_54 (CT), Buttrmlkdreams_54 (CT), CanesSauce_50 (CT), CaramelLatte_50 (CT), Carsonalex_54 (CT), CherryonLim_56 (CT), ChickenTender_54 (CT), ChocoMunchkin_50 (CT), Cleo_45 (CT), CocoaPuff_55 (CT), Cozz_49 (CT), Dre3_46 (CT), ElJefes_57 (CT), Elinal_59 (CT), Elliott_51 (CT), Emalyn_50 (CT), FF47_47 (AB), Feastonyet_55 (CT), Fribs8_46 (CT), GTE2_42 (CT), GiKK_56 (CT), Gibbous_46 (CT), GoldHunter_51 (CT), Hexbug_59 (CT), HippoPololi_48 (CT), Horseradish_54 (CT), JacoRen57_45 (AB), Jamzy_56 (CT), KayGee_57 (CT), Lauer_51 (CT), LongHai_50 (AB), MAnor_57 (CT), MScarn_56 (CT), MaVan_47 (CT), Maco6_47 (AB), Malvina_49 (CT), Margaret_57 (CT), Mayweather_60 (CT), McDazzle_57 (CT), Muddy_49 (AB), MunkgeeRoachy_49 (CT), Nibbles_46 (CT), Nina_50 (CT), NoShow_57 (AB), Nodigi_59 (CT), Orla_59 (CT), Pons_57 (CT), PotPie_55 (CT), PsychoKiller_50 (CT), Quasar_51 (CT), RADical_52 (CT), RSchmailzl_52 (CT), RanchParmCat_56 (CT), RedBaron_55 (CT), Salvus_50 (AB), SheckWes_59 (CT), SketchMex_52 (CT), Socotra_52 (CT), Sopespian_49 (CT), Starburst_51 (CT), SteamedHams_52 (CT), SummitAcademy_55 (CT), Survivors_47 (CT), SweatNTears_53 (CT), Tarnish_56 (CT), Tolls_52 (CT), Troje_54 (CT), Typhonomachy_50 (CT), Vine_58 (CT), Wallaby_49 (CT), Wolfwood_47 (CT), Yakult_54 (CT), Yarn_48 (CT), Yucky_58 (CT), Yummy_54 (CT), Zareef_47 (CT),

Start 8:

- Found in 3 of 97 (3.1%) of genes in pham
- Manual Annotations of this start: 2 of 76
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Huwbert_63 (GG), Triscuit_62 (GG),

Start 9:

- Found in 3 of 97 (3.1%) of genes in pham
- Manual Annotations of this start: 1 of 76
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Shrew_72 (singleton),

Summary by clusters:

There are 5 clusters represented in this pham: GG, singleton, AB, BR, CT,

Info for manual annotations of cluster AB:

- Start number 7 was manually annotated 4 times for cluster AB.

Info for manual annotations of cluster BR:

- Start number 2 was manually annotated 1 time for cluster BR.
- Start number 3 was manually annotated 1 time for cluster BR.

Info for manual annotations of cluster CT:

- Start number 7 was manually annotated 67 times for cluster CT.

Info for manual annotations of cluster GG:

- Start number 8 was manually annotated 2 times for cluster GG.

Gene Information:

Gene: 8UZL_49 Start: 37459, Stop: 36911, Start Num: 7

Candidate Starts for 8UZL_49:

(Start: 7 @37459 has 71 MA's), (20, 37375), (36, 37261), (37, 37249), (42, 37189), (43, 37186), (51, 37150), (54, 37138), (57, 37120), (58, 37117), (61, 37105), (62, 37090), (78, 37009),

Gene: Agatha_51 Start: 37044, Stop: 36505, Start Num: 7

Candidate Starts for Agatha_51:

(Start: 7 @37044 has 71 MA's), (15, 36984), (16, 36975), (21, 36957), (48, 36756), (50, 36741), (51, 36738), (54, 36726), (55, 36717), (62, 36678),

Gene: AikoCarson_52 Start: 37324, Stop: 36812, Start Num: 7

Candidate Starts for AikoCarson_52:

(Start: 7 @37324 has 71 MA's), (11, 37312), (28, 37183), (29, 37180), (31, 37159), (35, 37126), (48, 37036), (51, 37018), (53, 37012), (62, 36958), (69, 36913), (72, 36901), (78, 36877), (83, 36829),

Gene: Amok_52 Start: 37249, Stop: 36737, Start Num: 7

Candidate Starts for Amok_52:

(Start: 7 @37249 has 71 MA's), (11, 37237), (28, 37108), (29, 37105), (31, 37084), (35, 37051), (48, 36961), (51, 36943), (53, 36937), (62, 36883), (69, 36838), (72, 36826), (78, 36802), (83, 36754),

Gene: AndPeggy_48 Start: 36529, Stop: 36017, Start Num: 7

Candidate Starts for AndPeggy_48:

(Start: 7 @36529 has 71 MA's), (18, 36451), (24, 36409), (28, 36388), (29, 36385), (32, 36361), (33, 36352), (35, 36331), (48, 36241), (51, 36223), (53, 36217), (62, 36163), (69, 36118), (71, 36109), (72, 36106), (76, 36088), (78, 36082), (83, 36034),

Gene: Axym_50 Start: 36941, Stop: 36402, Start Num: 7

Candidate Starts for Axym_50:

(Start: 7 @36941 has 71 MA's), (15, 36881), (16, 36872), (21, 36854), (34, 36761), (48, 36653), (50, 36638), (51, 36635), (54, 36623), (55, 36614), (62, 36575),

Gene: Azira_47 Start: 36102, Stop: 35575, Start Num: 7

Candidate Starts for Azira_47:

(Start: 7 @36102 has 71 MA's), (11, 36090), (15, 36042), (29, 35955), (35, 35901), (39, 35859), (51, 35793), (56, 35766), (62, 35724), (64, 35712), (75, 35652), (76, 35649), (77, 35646),

Gene: Balloona_54 Start: 39262, Stop: 38735, Start Num: 7

Candidate Starts for Balloona_54:

(Start: 7 @39262 has 71 MA's), (33, 39082), (38, 39034), (46, 38983), (52, 38950), (57, 38923), (60, 38911), (62, 38893), (74, 38827),

Gene: Bavilard_55 Start: 38676, Stop: 38149, Start Num: 7

Candidate Starts for Bavilard_55:

(Start: 7 @38676 has 71 MA's), (33, 38496), (38, 38448), (46, 38397), (52, 38364), (57, 38337), (60, 38325), (62, 38307), (74, 38241),

Gene: BigChungus_55 Start: 38803, Stop: 38276, Start Num: 7

Candidate Starts for BigChungus_55:

(Start: 7 @38803 has 71 MA's), (33, 38623), (38, 38575), (46, 38524), (52, 38491), (57, 38464), (60, 38452), (62, 38434), (74, 38368),

Gene: BillDoor_51 Start: 36199, Stop: 35687, Start Num: 7

Candidate Starts for BillDoor_51:

(Start: 7 @36199 has 71 MA's), (18, 36121), (24, 36079), (28, 36058), (29, 36055), (32, 36031), (33, 36022), (35, 36001), (48, 35911), (51, 35893), (53, 35887), (62, 35833), (69, 35788), (71, 35779), (72, 35776), (76, 35758), (78, 35752), (83, 35704),

Gene: Biskit_54 Start: 37173, Stop: 36661, Start Num: 7

Candidate Starts for Biskit_54:

(Start: 7 @37173 has 71 MA's), (13, 37131), (18, 37095), (28, 37032), (29, 37029), (30, 37011), (35, 36975), (48, 36885), (51, 36867), (53, 36861), (54, 36855), (55, 36846), (62, 36807), (69, 36762), (72, 36750), (78, 36726), (83, 36678),

Gene: Blondies_55 Start: 37490, Stop: 36978, Start Num: 7

Candidate Starts for Blondies_55:

(Start: 7 @37490 has 71 MA's), (13, 37448), (18, 37412), (28, 37349), (29, 37346), (30, 37328), (35, 37292), (48, 37202), (51, 37184), (53, 37178), (54, 37172), (55, 37163), (62, 37124), (69, 37079), (72, 37067), (78, 37043), (83, 36995),

Gene: Bubble_49 Start: 36629, Stop: 36090, Start Num: 7

Candidate Starts for Bubble_49:

(Start: 7 @36629 has 71 MA's), (15, 36569), (16, 36560), (21, 36542), (48, 36341), (50, 36326), (51, 36323), (54, 36311), (55, 36302), (62, 36263),

Gene: Burnsey_51 Start: 37035, Stop: 36496, Start Num: 7

Candidate Starts for Burnsey_51:

(Start: 7 @37035 has 71 MA's), (15, 36975), (16, 36966), (21, 36948), (48, 36747), (50, 36732), (51, 36729), (54, 36717), (55, 36708), (62, 36669),

Gene: Button_54 Start: 37217, Stop: 36669, Start Num: 7

Candidate Starts for Button_54:

(Start: 7 @37217 has 71 MA's), (21, 37130), (28, 37076), (39, 36977), (50, 36914), (51, 36911), (53, 36905), (71, 36797), (82, 36725),

Gene: Buttrmlkdreams_54 Start: 37620, Stop: 37108, Start Num: 7

Candidate Starts for Buttrmlkdreams_54:

(Start: 7 @37620 has 71 MA's), (13, 37578), (18, 37542), (28, 37479), (29, 37476), (30, 37458), (35, 37422), (48, 37332), (51, 37314), (53, 37308), (54, 37302), (55, 37293), (62, 37254), (69, 37209), (72, 37197), (78, 37173), (83, 37125),

Gene: CanesSauce_50 Start: 36699, Stop: 36187, Start Num: 7

Candidate Starts for CanesSauce_50:

(Start: 7 @36699 has 71 MA's), (18, 36621), (24, 36579), (28, 36558), (29, 36555), (32, 36531), (33, 36522), (35, 36501), (48, 36411), (51, 36393), (53, 36387), (62, 36333), (69, 36288), (71, 36279), (72, 36276), (76, 36258), (78, 36252), (83, 36204),

Gene: CaramelLatte_50 Start: 36699, Stop: 36187, Start Num: 7

Candidate Starts for CaramelLatte_50:

(Start: 7 @36699 has 71 MA's), (18, 36621), (24, 36579), (28, 36558), (29, 36555), (32, 36531), (33, 36522), (35, 36501), (48, 36411), (51, 36393), (53, 36387), (62, 36333), (69, 36288), (71, 36279), (72, 36276), (76, 36258), (78, 36252), (83, 36204),

Gene: Carsonalex_54 Start: 37001, Stop: 36462, Start Num: 7

Candidate Starts for Carsonalex_54:

(Start: 7 @37001 has 71 MA's), (15, 36941), (16, 36932), (21, 36914), (45, 36728), (48, 36713), (50, 36698), (51, 36695), (54, 36683), (55, 36674), (62, 36635),

Gene: CherryonLim_56 Start: 40261, Stop: 39734, Start Num: 7

Candidate Starts for CherryonLim_56:

(Start: 7 @40261 has 71 MA's), (29, 40114), (33, 40081), (38, 40033), (46, 39982), (52, 39949), (57, 39922), (60, 39910), (62, 39892), (72, 39835), (74, 39826),

Gene: ChickenTender_54 Start: 36725, Stop: 36186, Start Num: 7

Candidate Starts for ChickenTender_54:

(Start: 7 @36725 has 71 MA's), (15, 36665), (21, 36638), (28, 36584), (47, 36440), (48, 36437), (50, 36422), (51, 36419), (54, 36407), (55, 36398), (62, 36359),

Gene: ChocoMunchkin_50 Start: 36699, Stop: 36187, Start Num: 7

Candidate Starts for ChocoMunchkin_50:

(Start: 7 @36699 has 71 MA's), (18, 36621), (24, 36579), (28, 36558), (29, 36555), (32, 36531), (33, 36522), (35, 36501), (48, 36411), (51, 36393), (53, 36387), (62, 36333), (69, 36288), (71, 36279), (72, 36276), (76, 36258), (78, 36252), (83, 36204),

Gene: Cleo_45 Start: 35846, Stop: 35319, Start Num: 7

Candidate Starts for Cleo_45:

(Start: 7 @35846 has 71 MA's), (11, 35834), (17, 35771), (29, 35699), (35, 35645), (45, 35570), (50, 35540), (51, 35537), (56, 35510), (62, 35468), (64, 35456), (76, 35393),

Gene: CocoaPuff_55 Start: 38808, Stop: 38281, Start Num: 7

Candidate Starts for CocoaPuff_55:

(Start: 7 @38808 has 71 MA's), (33, 38628), (38, 38580), (46, 38529), (52, 38496), (57, 38469), (60, 38457), (62, 38439), (74, 38373),

Gene: Cozz_49 Start: 36632, Stop: 36093, Start Num: 7

Candidate Starts for Cozz_49:

(Start: 7 @36632 has 71 MA's), (15, 36572), (16, 36563), (21, 36545), (48, 36344), (50, 36329), (51, 36326), (54, 36314), (55, 36305), (62, 36266),

Gene: Creature_76 Start: 53228, Stop: 53833, Start Num: 3

Candidate Starts for Creature_76:

(Start: 3 @53228 has 1 MA's), (4, 53252), (6, 53258), (20, 53384), (22, 53396), (51, 53609), (59, 53645), (60, 53651), (62, 53669), (63, 53678), (65, 53690), (67, 53699), (77, 53747), (78, 53750), (84, 53801), (86, 53813),

Gene: Dre3_46 Start: 35589, Stop: 35062, Start Num: 7

Candidate Starts for Dre3_46:

(Start: 7 @35589 has 71 MA's), (11, 35577), (17, 35514), (29, 35442), (34, 35406), (35, 35388), (45, 35313), (51, 35280), (56, 35253), (62, 35211), (64, 35199), (76, 35136),

Gene: ElJefes_57 Start: 39347, Stop: 38820, Start Num: 7

Candidate Starts for ElJefes_57:

(Start: 7 @39347 has 71 MA's), (15, 39287), (17, 39272), (29, 39200), (33, 39167), (38, 39119), (46, 39068), (52, 39035), (57, 39008), (60, 38996), (62, 38978), (72, 38921), (74, 38912), (83, 38849),

Gene: Elinal_59 Start: 39312, Stop: 38785, Start Num: 7

Candidate Starts for Elinal_59:

(Start: 7 @39312 has 71 MA's), (33, 39132), (38, 39084), (46, 39033), (52, 39000), (57, 38973), (60, 38961), (62, 38943), (74, 38877), (83, 38814),

Gene: Elliott_51 Start: 36928, Stop: 36389, Start Num: 7

Candidate Starts for Elliott_51:

(Start: 7 @36928 has 71 MA's), (15, 36868), (16, 36859), (21, 36841), (48, 36640), (50, 36625), (51, 36622), (54, 36610), (55, 36601), (62, 36562),

Gene: Emalyn_50 Start: 36041, Stop: 35529, Start Num: 7

Candidate Starts for Emalyn_50:

(Start: 7 @36041 has 71 MA's), (11, 36029), (28, 35900), (29, 35897), (31, 35876), (35, 35843), (48, 35753), (51, 35735), (53, 35729), (62, 35675), (69, 35630), (72, 35618), (78, 35594), (83, 35546),

Gene: FF47_47 Start: 37370, Stop: 36822, Start Num: 7

Candidate Starts for FF47_47:

(Start: 7 @37370 has 71 MA's), (20, 37286), (36, 37172), (37, 37160), (42, 37100), (43, 37097), (51, 37061), (54, 37049), (57, 37031), (58, 37028), (61, 37016), (62, 37001), (78, 36920),

Gene: Feastonyeet_55 Start: 38803, Stop: 38276, Start Num: 7

Candidate Starts for Feastonyeet_55:

(Start: 7 @38803 has 71 MA's), (33, 38623), (38, 38575), (46, 38524), (52, 38491), (57, 38464), (60, 38452), (62, 38434), (74, 38368),

Gene: Fribs8_46 Start: 35863, Stop: 35339, Start Num: 7

Candidate Starts for Fribs8_46:

(Start: 7 @35863 has 71 MA's), (11, 35851), (26, 35725), (29, 35716), (35, 35662), (51, 35554), (56, 35527), (62, 35485), (64, 35473), (76, 35410), (77, 35407),

Gene: GTE2_42 Start: 36638, Stop: 36126, Start Num: 7

Candidate Starts for GTE2_42:

(Start: 7 @36638 has 71 MA's), (18, 36560), (28, 36497), (29, 36494), (32, 36470), (35, 36440), (48, 36350), (51, 36332), (53, 36326), (62, 36272), (69, 36227), (71, 36218), (72, 36215), (78, 36191), (83, 36143),

Gene: GiKK_56 Start: 37541, Stop: 36993, Start Num: 7

Candidate Starts for GiKK_56:

(5, 37580), (Start: 7 @37541 has 71 MA's), (Start: 9 @37535 has 1 MA's), (11, 37529), (21, 37454), (39, 37301), (50, 37238), (51, 37235), (53, 37229), (71, 37121), (82, 37049),

Gene: Gibbous_46 Start: 35589, Stop: 35062, Start Num: 7

Candidate Starts for Gibbous_46:

(Start: 7 @35589 has 71 MA's), (11, 35577), (17, 35514), (29, 35442), (34, 35406), (35, 35388), (45, 35313), (51, 35280), (56, 35253), (62, 35211), (64, 35199), (76, 35136),

Gene: GoldHunter_51 Start: 37045, Stop: 36506, Start Num: 7

Candidate Starts for GoldHunter_51:

(Start: 7 @37045 has 71 MA's), (15, 36985), (16, 36976), (21, 36958), (48, 36757), (50, 36742), (51, 36739), (54, 36727), (55, 36718), (62, 36679),

Gene: Hexbug_59 Start: 39610, Stop: 39071, Start Num: 7

Candidate Starts for Hexbug_59:

(Start: 7 @39610 has 71 MA's), (28, 39469), (30, 39448), (39, 39370), (40, 39364), (51, 39304), (53, 39298), (85, 39109),

Gene: HippoPololi_48 Start: 36001, Stop: 35474, Start Num: 7

Candidate Starts for HippoPololi_48:

(Start: 7 @36001 has 71 MA's), (11, 35989), (29, 35854), (35, 35800), (45, 35725), (47, 35713), (51, 35692), (57, 35662), (62, 35623), (64, 35611), (66, 35596), (76, 35548), (79, 35524), (81, 35506),

Gene: Horseradish_54 Start: 37106, Stop: 36594, Start Num: 7

Candidate Starts for Horseradish_54:

(Start: 7 @37106 has 71 MA's), (13, 37064), (18, 37028), (28, 36965), (29, 36962), (35, 36908), (48, 36818), (51, 36800), (53, 36794), (54, 36788), (55, 36779), (62, 36740), (69, 36695), (72, 36683), (78, 36659), (83, 36611),

Gene: Huwbert_63 Start: 39014, Stop: 39568, Start Num: 8

Candidate Starts for Huwbert_63:

(Start: 8 @39014 has 2 MA's), (15, 39071), (22, 39104), (23, 39107), (24, 39128), (27, 39143), (29, 39149), (35, 39203), (41, 39275), (57, 39347), (70, 39437), (73, 39449),

Gene: JacoRen57_45 Start: 38204, Stop: 37662, Start Num: 7

Candidate Starts for JacoRen57_45:

(Start: 7 @38204 has 71 MA's), (18, 38126), (42, 37940), (48, 37919), (60, 37859), (62, 37835), (63, 37826), (68, 37796), (70, 37787), (73, 37775), (77, 37757), (81, 37718),

Gene: Jamzy_56 Start: 37521, Stop: 36973, Start Num: 7

Candidate Starts for Jamzy_56:

(Start: 7 @37521 has 71 MA's), (Start: 9 @37515 has 1 MA's), (10, 37512), (21, 37434), (28, 37380), (39, 37281), (50, 37218), (51, 37215), (53, 37209), (71, 37101), (82, 37029),

Gene: KayGee_57 Start: 39312, Stop: 38785, Start Num: 7

Candidate Starts for KayGee_57:

(Start: 7 @39312 has 71 MA's), (33, 39132), (38, 39084), (46, 39033), (52, 39000), (57, 38973), (60, 38961), (62, 38943), (74, 38877), (83, 38814),

Gene: KimJongPhill_75 Start: 53495, Stop: 54118, Start Num: 2

Candidate Starts for KimJongPhill_75:

(Start: 2 @53495 has 1 MA's), (Start: 3 @53504 has 1 MA's), (4, 53528), (12, 53603), (14, 53636), (22, 53675), (38, 53810), (62, 53951), (77, 54029),

Gene: Lauer_51 Start: 40195, Stop: 39668, Start Num: 7

Candidate Starts for Lauer_51:

(Start: 7 @40195 has 71 MA's), (33, 40015), (38, 39967), (46, 39916), (52, 39883), (57, 39856), (60, 39844), (62, 39826), (74, 39760),

Gene: LongHai_50 Start: 37771, Stop: 37223, Start Num: 7

Candidate Starts for LongHai_50:

(Start: 7 @37771 has 71 MA's), (20, 37687), (36, 37573), (37, 37561), (42, 37501), (43, 37498), (51, 37462), (54, 37450), (57, 37432), (58, 37429), (61, 37417), (62, 37402), (77, 37324), (78, 37321),

Gene: MAnor_57 Start: 39667, Stop: 39140, Start Num: 7

Candidate Starts for MAnor_57:

(Start: 7 @39667 has 71 MA's), (29, 39520), (33, 39487), (38, 39439), (46, 39388), (52, 39355), (57, 39328), (60, 39316), (62, 39298), (72, 39241), (74, 39232),

Gene: MScarn_56 Start: 37288, Stop: 36776, Start Num: 7

Candidate Starts for MScarn_56:

(Start: 7 @37288 has 71 MA's), (13, 37246), (18, 37210), (28, 37147), (29, 37144), (35, 37090), (48, 37000), (49, 36997), (51, 36982), (53, 36976), (54, 36970), (55, 36961), (62, 36922), (69, 36877), (72, 36865), (78, 36841), (83, 36793),

Gene: MaVan_47 Start: 36131, Stop: 35604, Start Num: 7

Candidate Starts for MaVan_47:

(Start: 7 @36131 has 71 MA's), (11, 36119), (15, 36071), (29, 35984), (35, 35930), (39, 35888), (51, 35822), (56, 35795), (62, 35753), (64, 35741), (75, 35681), (76, 35678), (77, 35675),

Gene: Maco6_47 Start: 36710, Stop: 36162, Start Num: 7

Candidate Starts for Maco6_47:

(Start: 7 @36710 has 71 MA's), (20, 36626), (36, 36512), (37, 36500), (42, 36440), (43, 36437), (51, 36401), (54, 36389), (57, 36371), (58, 36368), (61, 36356), (62, 36341), (78, 36260),

Gene: Malvina_49 Start: 36008, Stop: 35481, Start Num: 7

Candidate Starts for Malvina_49:

(Start: 7 @36008 has 71 MA's), (11, 35996), (29, 35861), (35, 35807), (45, 35732), (47, 35720), (51, 35699), (57, 35669), (62, 35630), (64, 35618), (66, 35603), (76, 35555), (79, 35531), (81, 35513),

Gene: Margaret_57 Start: 38273, Stop: 37725, Start Num: 7

Candidate Starts for Margaret_57:

(Start: 7 @38273 has 71 MA's), (21, 38186), (28, 38132), (39, 38033), (50, 37970), (51, 37967), (53, 37961), (76, 37832), (82, 37781),

Gene: Mayweather_60 Start: 40412, Stop: 39885, Start Num: 7

Candidate Starts for Mayweather_60:

(Start: 7 @40412 has 71 MA's), (29, 40265), (33, 40232), (38, 40184), (46, 40133), (52, 40100), (57, 40073), (60, 40061), (62, 40043), (72, 39986), (74, 39977),

Gene: McDazzle_57 Start: 39341, Stop: 38814, Start Num: 7

Candidate Starts for McDazzle_57:

(Start: 7 @39341 has 71 MA's), (15, 39281), (17, 39266), (29, 39194), (33, 39161), (38, 39113), (46, 39062), (52, 39029), (57, 39002), (60, 38990), (62, 38972), (72, 38915), (74, 38906), (83, 38843),

Gene: Muddy_49 Start: 37942, Stop: 37394, Start Num: 7

Candidate Starts for Muddy_49:

(Start: 7 @37942 has 71 MA's), (20, 37858), (36, 37744), (37, 37732), (42, 37672), (43, 37669), (51, 37633), (54, 37621), (57, 37603), (58, 37600), (61, 37588), (62, 37573), (77, 37495), (78, 37492),

Gene: MunkgeeRoachy_49 Start: 36391, Stop: 35852, Start Num: 7

Candidate Starts for MunkgeeRoachy_49:

(Start: 7 @36391 has 71 MA's), (15, 36331), (16, 36322), (21, 36304), (48, 36103), (50, 36088), (51, 36085), (54, 36073), (55, 36064), (62, 36025),

Gene: Nibbles_46 Start: 35827, Stop: 35300, Start Num: 7

Candidate Starts for Nibbles_46:

(Start: 7 @35827 has 71 MA's), (11, 35815), (15, 35767), (29, 35680), (35, 35626), (51, 35518), (62, 35449), (64, 35437), (75, 35377), (76, 35374), (77, 35371),

Gene: Nina_50 Start: 37211, Stop: 36672, Start Num: 7

Candidate Starts for Nina_50:

(Start: 7 @37211 has 71 MA's), (15, 37151), (16, 37142), (21, 37124), (48, 36923), (50, 36908), (51, 36905), (53, 36899), (54, 36893), (55, 36884), (62, 36845),

Gene: NoShow_57 Start: 40937, Stop: 40404, Start Num: 7

Candidate Starts for NoShow_57:

(Start: 7 @40937 has 71 MA's), (14, 40880), (18, 40859), (42, 40670), (46, 40661), (56, 40604), (62, 40577), (70, 40529), (73, 40517),

Gene: Nodigi_59 Start: 39640, Stop: 39101, Start Num: 7

Candidate Starts for Nodigi_59:

(Start: 7 @39640 has 71 MA's), (18, 39562), (19, 39559), (28, 39499), (30, 39478), (39, 39400), (40, 39394), (51, 39334), (53, 39328), (85, 39139),

Gene: Orla_59 Start: 39569, Stop: 39030, Start Num: 7

Candidate Starts for Orla_59:

(Start: 7 @39569 has 71 MA's), (18, 39491), (19, 39488), (28, 39428), (30, 39407), (39, 39329), (40, 39323), (51, 39263), (53, 39257), (85, 39068),

Gene: Pons_57 Start: 39299, Stop: 38772, Start Num: 7

Candidate Starts for Pons_57:

(Start: 7 @39299 has 71 MA's), (29, 39152), (33, 39119), (38, 39071), (46, 39020), (52, 38987), (57, 38960), (60, 38948), (62, 38930), (72, 38873), (74, 38864),

Gene: PotPie_55 Start: 39838, Stop: 39311, Start Num: 7

Candidate Starts for PotPie_55:

(Start: 7 @39838 has 71 MA's), (33, 39658), (38, 39610), (46, 39559), (52, 39526), (57, 39499), (60, 39487), (62, 39469), (74, 39403),

Gene: PsychoKiller_50 Start: 36929, Stop: 36390, Start Num: 7

Candidate Starts for PsychoKiller_50:

(Start: 7 @36929 has 71 MA's), (15, 36869), (16, 36860), (21, 36842), (48, 36641), (50, 36626), (51, 36623), (54, 36611), (55, 36602), (62, 36563),

Gene: Quasar_51 Start: 37636, Stop: 37097, Start Num: 7

Candidate Starts for Quasar_51:

(Start: 7 @37636 has 71 MA's), (15, 37576), (16, 37567), (21, 37549), (48, 37348), (50, 37333), (51, 37330), (54, 37318), (55, 37309), (62, 37270),

Gene: RADical_52 Start: 36923, Stop: 36384, Start Num: 7

Candidate Starts for RADical_52:

(Start: 7 @36923 has 71 MA's), (15, 36863), (16, 36854), (21, 36836), (34, 36743), (48, 36635), (50, 36620), (51, 36617), (54, 36605), (55, 36596), (62, 36557),

Gene: RSchmailzl_52 Start: 37079, Stop: 36540, Start Num: 7

Candidate Starts for RSchmailzl_52:

(Start: 7 @37079 has 71 MA's), (15, 37019), (16, 37010), (21, 36992), (48, 36791), (50, 36776), (51, 36773), (54, 36761), (55, 36752), (62, 36713),

Gene: RanchParmCat_56 Start: 38414, Stop: 37866, Start Num: 7

Candidate Starts for RanchParmCat_56:

(Start: 7 @38414 has 71 MA's), (21, 38327), (28, 38273), (39, 38174), (50, 38111), (51, 38108), (53, 38102), (76, 37973), (82, 37922),

Gene: RedBaron_55 Start: 37258, Stop: 36719, Start Num: 7

Candidate Starts for RedBaron_55:

(Start: 7 @37258 has 71 MA's), (15, 37198), (16, 37189), (21, 37171), (48, 36970), (50, 36955), (51, 36952), (54, 36940), (55, 36931), (62, 36892),

Gene: Salvus_50 Start: 37771, Stop: 37223, Start Num: 7

Candidate Starts for Salvus_50:

(Start: 7 @37771 has 71 MA's), (20, 37687), (36, 37573), (37, 37561), (42, 37501), (43, 37498), (51, 37462), (54, 37450), (57, 37432), (58, 37429), (61, 37417), (62, 37402), (77, 37324), (78, 37321),

Gene: SheckWes_59 Start: 38887, Stop: 38360, Start Num: 7

Candidate Starts for SheckWes_59:

(Start: 7 @38887 has 71 MA's), (15, 38827), (17, 38812), (29, 38740), (33, 38707), (38, 38659), (46, 38608), (52, 38575), (57, 38548), (60, 38536), (62, 38518), (72, 38461), (74, 38452), (83, 38389),

Gene: Shrew_72 Start: 42589, Stop: 43137, Start Num: 9

Candidate Starts for Shrew_72:

(Start: 8 @42586 has 2 MA's), (Start: 9 @42589 has 1 MA's), (11, 42595), (22, 42679), (23, 42682), (24, 42703), (57, 42922), (58, 42925), (73, 43024), (78, 43045), (87, 43114),

Gene: SketchMex_52 Start: 37173, Stop: 36661, Start Num: 7

Candidate Starts for SketchMex_52:

(Start: 7 @37173 has 71 MA's), (13, 37131), (18, 37095), (28, 37032), (29, 37029), (30, 37011), (35, 36975), (48, 36885), (51, 36867), (53, 36861), (54, 36855), (55, 36846), (62, 36807), (69, 36762), (72, 36750), (78, 36726), (83, 36678),

Gene: Socotra_52 Start: 37041, Stop: 36502, Start Num: 7

Candidate Starts for Socotra_52:

(Start: 7 @37041 has 71 MA's), (15, 36981), (16, 36972), (21, 36954), (48, 36753), (50, 36738), (51, 36735), (54, 36723), (55, 36714), (62, 36675),

Gene: Sopespian_49 Start: 36930, Stop: 36391, Start Num: 7

Candidate Starts for Sopespian_49:

(Start: 7 @36930 has 71 MA's), (15, 36870), (16, 36861), (21, 36843), (48, 36642), (50, 36627), (51, 36624), (54, 36612), (55, 36603), (62, 36564),

Gene: Starburst_51 Start: 36925, Stop: 36386, Start Num: 7

Candidate Starts for Starburst_51:

(Start: 7 @36925 has 71 MA's), (15, 36865), (16, 36856), (21, 36838), (34, 36745), (48, 36637), (50, 36622), (51, 36619), (54, 36607), (55, 36598), (62, 36559),

Gene: SteamedHams_52 Start: 36500, Stop: 35988, Start Num: 7

Candidate Starts for SteamedHams_52:

(Start: 7 @36500 has 71 MA's), (18, 36422), (24, 36380), (28, 36359), (29, 36356), (32, 36332), (33, 36323), (35, 36302), (48, 36212), (51, 36194), (53, 36188), (62, 36134), (69, 36089), (71, 36080), (72,

36077), (76, 36059), (78, 36053), (83, 36005),

Gene: SummitAcademy_55 Start: 38981, Stop: 38454, Start Num: 7

Candidate Starts for SummitAcademy_55:

(Start: 7 @38981 has 71 MA's), (33, 38801), (38, 38753), (46, 38702), (52, 38669), (57, 38642), (60, 38630), (62, 38612), (74, 38546),

Gene: Survivors_47 Start: 36027, Stop: 35500, Start Num: 7

Candidate Starts for Survivors_47:

(Start: 7 @36027 has 71 MA's), (11, 36015), (15, 35967), (29, 35880), (35, 35826), (39, 35784), (51, 35718), (56, 35691), (62, 35649), (64, 35637), (75, 35577), (76, 35574), (77, 35571),

Gene: SweatNTears_53 Start: 37172, Stop: 36633, Start Num: 7

Candidate Starts for SweatNTears_53:

(Start: 7 @37172 has 71 MA's), (15, 37112), (16, 37103), (21, 37085), (48, 36884), (50, 36869), (54, 36854), (55, 36845), (62, 36806),

Gene: Tarnish_56 Start: 39566, Stop: 39039, Start Num: 7

Candidate Starts for Tarnish_56:

(Start: 7 @39566 has 71 MA's), (33, 39386), (38, 39338), (46, 39287), (52, 39254), (57, 39227), (60, 39215), (62, 39197), (74, 39131),

Gene: Tolls_52 Start: 36771, Stop: 36259, Start Num: 7

Candidate Starts for Tolls_52:

(Start: 7 @36771 has 71 MA's), (18, 36693), (24, 36651), (28, 36630), (29, 36627), (32, 36603), (33, 36594), (35, 36573), (48, 36483), (51, 36465), (53, 36459), (62, 36405), (69, 36360), (71, 36351), (72, 36348), (76, 36330), (78, 36324), (83, 36276),

Gene: Triscuit_62 Start: 38941, Stop: 39492, Start Num: 8

Candidate Starts for Triscuit_62:

(Start: 8 @38941 has 2 MA's), (22, 39031), (23, 39034), (25, 39064), (27, 39070), (29, 39076), (41, 39202), (47, 39223), (56, 39274), (70, 39367),

Gene: Troje_54 Start: 37511, Stop: 36999, Start Num: 7

Candidate Starts for Troje_54:

(Start: 7 @37511 has 71 MA's), (13, 37469), (18, 37433), (28, 37370), (29, 37367), (30, 37349), (35, 37313), (48, 37223), (51, 37205), (53, 37199), (54, 37193), (55, 37184), (62, 37145), (69, 37100), (72, 37088), (78, 37064), (83, 37016),

Gene: Typhonomachy_50 Start: 36754, Stop: 36215, Start Num: 7

Candidate Starts for Typhonomachy_50:

(Start: 7 @36754 has 71 MA's), (15, 36694), (16, 36685), (21, 36667), (48, 36466), (50, 36451), (51, 36448), (54, 36436), (55, 36427), (62, 36388),

Gene: Vine_58 Start: 39604, Stop: 39077, Start Num: 7

Candidate Starts for Vine_58:

(Start: 7 @39604 has 71 MA's), (33, 39424), (38, 39376), (46, 39325), (52, 39292), (57, 39265), (60, 39253), (62, 39235), (74, 39169),

Gene: Wallaby_49 Start: 36125, Stop: 35598, Start Num: 7

Candidate Starts for Wallaby_49:

(Start: 7 @36125 has 71 MA's), (11, 36113), (15, 36065), (29, 35978), (35, 35924), (39, 35882), (51, 35816), (56, 35789), (62, 35747), (64, 35735), (75, 35675), (76, 35672), (77, 35669),

Gene: Wolfwood_47 Start: 36099, Stop: 35572, Start Num: 7

Candidate Starts for Wolfwood_47:

(Start: 7 @36099 has 71 MA's), (11, 36087), (15, 36039), (29, 35952), (35, 35898), (39, 35856), (51, 35790), (56, 35763), (62, 35721), (64, 35709), (75, 35649), (76, 35646), (77, 35643),

Gene: Yakult_54 Start: 38295, Stop: 37747, Start Num: 7

Candidate Starts for Yakult_54:

(Start: 7 @38295 has 71 MA's), (21, 38208), (28, 38154), (39, 38055), (50, 37992), (51, 37989), (53, 37983), (71, 37875), (80, 37815), (82, 37803),

Gene: Yarn_48 Start: 36534, Stop: 36022, Start Num: 7

Candidate Starts for Yarn_48:

(Start: 7 @36534 has 71 MA's), (18, 36456), (24, 36414), (28, 36393), (29, 36390), (32, 36366), (33, 36357), (35, 36336), (48, 36246), (51, 36228), (53, 36222), (62, 36168), (69, 36123), (71, 36114), (72, 36111), (76, 36093), (78, 36087), (83, 36039),

Gene: Yucky_58 Start: 39396, Stop: 38869, Start Num: 7

Candidate Starts for Yucky_58:

(Start: 7 @39396 has 71 MA's), (33, 39216), (38, 39168), (46, 39117), (52, 39084), (57, 39057), (60, 39045), (62, 39027), (74, 38961),

Gene: Yummy_54 Start: 37220, Stop: 36708, Start Num: 7

Candidate Starts for Yummy_54:

(Start: 7 @37220 has 71 MA's), (13, 37178), (18, 37142), (28, 37079), (29, 37076), (35, 37022), (48, 36932), (51, 36914), (53, 36908), (54, 36902), (55, 36893), (62, 36854), (69, 36809), (72, 36797), (78, 36773), (83, 36725),

Gene: Zareef_47 Start: 36121, Stop: 35594, Start Num: 7

Candidate Starts for Zareef_47:

(Start: 7 @36121 has 71 MA's), (11, 36109), (15, 36061), (29, 35974), (35, 35920), (39, 35878), (51, 35812), (56, 35785), (62, 35743), (64, 35731), (75, 35671), (76, 35668), (77, 35665),

Gene: Zuko_73 Start: 53554, Stop: 54156, Start Num: 3

Candidate Starts for Zuko_73:

(1, 53539), (Start: 3 @53554 has 1 MA's), (4, 53578), (15, 53689), (20, 53710), (22, 53722), (44, 53899), (51, 53935), (60, 53977), (62, 53995), (63, 54004), (65, 54016), (67, 54025), (77, 54073), (78, 54076), (84, 54124), (86, 54136),