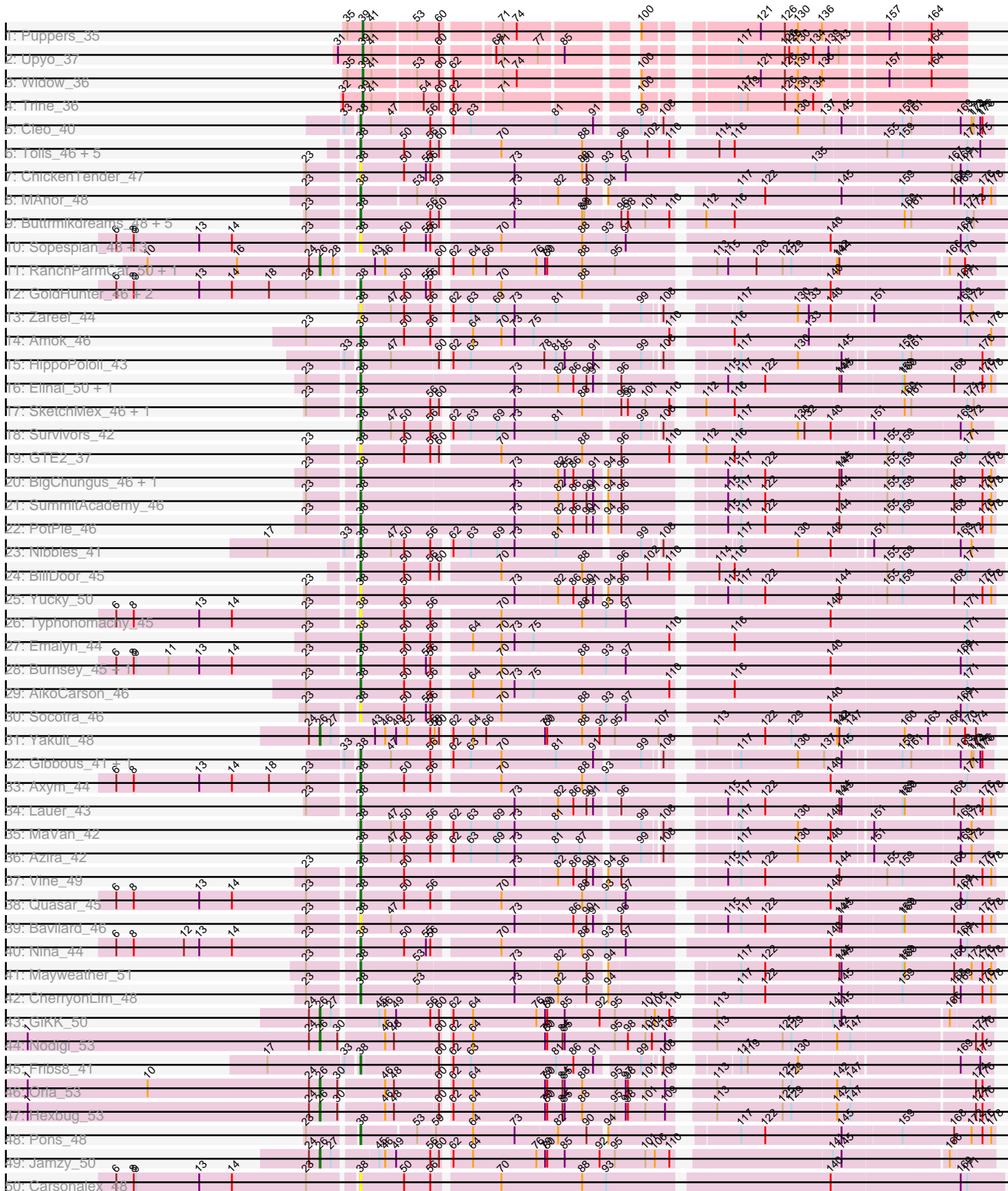
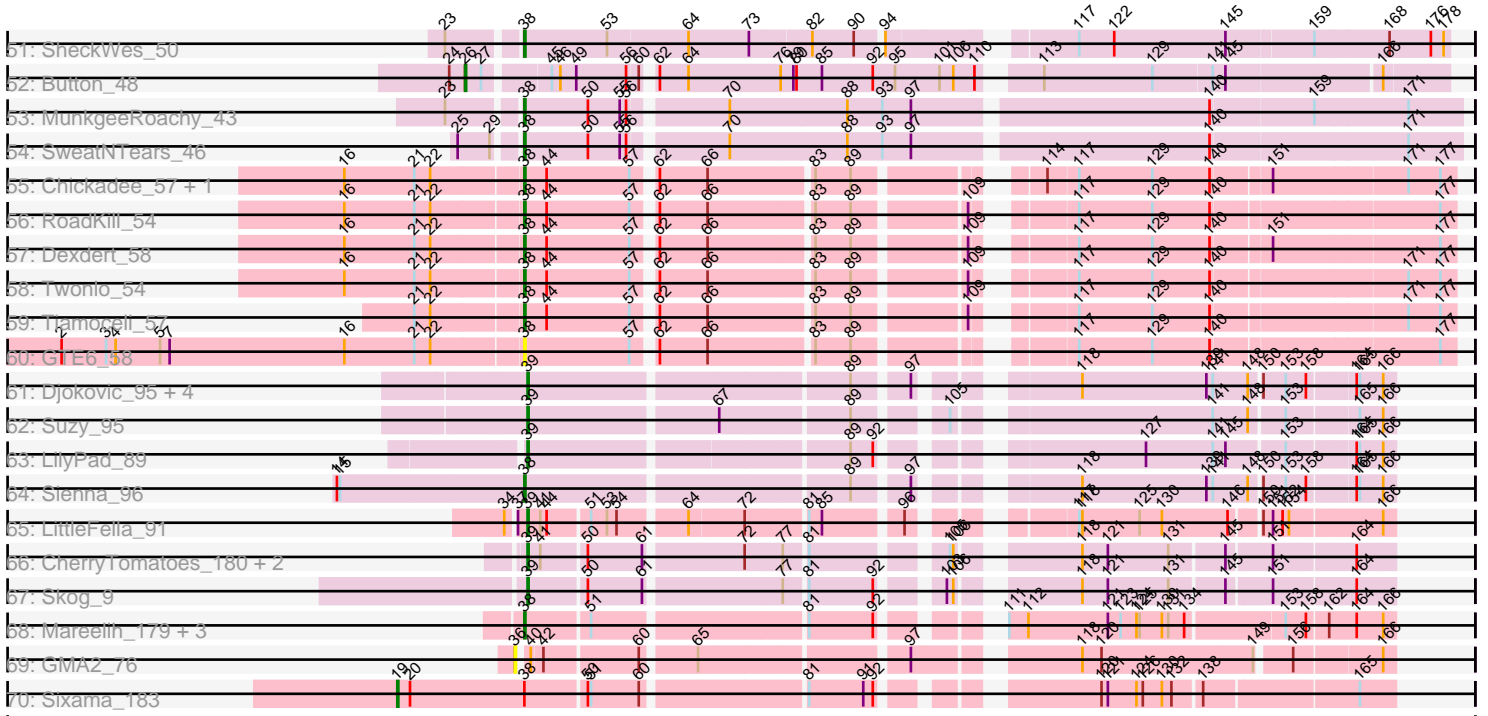


Pham 216032



Pham 216032



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 216032 Report

This analysis was run 02/22/25 on database version 588.

Pham number 216032 has 101 members, 19 are drafts.

Phages represented in each track:

- Track 1 : Puppies_35
- Track 2 : Upyo_37
- Track 3 : Widow_36
- Track 4 : Trine_36
- Track 5 : Cleo_40
- Track 6 : Tolls_46, ChocoMunchkin_44, Yarn_42, SteamedHams_45, CanesSauce_44, AndPeggy_42
- Track 7 : ChickenTender_47
- Track 8 : MAnor_48
- Track 9 : Buttrmilkdreams_48, Yummy_48, Troje_48, Horseradish_48, Blondies_48, MScarn_50
- Track 10 : Sopespian_43, Elliott_45, Starburst_45, PsychoKiller_44
- Track 11 : RanchParmCat_50, Margaret_51
- Track 12 : GoldHunter_46, Agatha_45, Cozz_43
- Track 13 : Zareef_44
- Track 14 : Amok_46
- Track 15 : HippoPololi_43
- Track 16 : Elinal_50, KayGee_48
- Track 17 : SketchMex_46, Biskit_48
- Track 18 : Survivors_42
- Track 19 : GTE2_37
- Track 20 : BigChungus_46, Feastonyeet_46
- Track 21 : SummitAcademy_46
- Track 22 : PotPie_46
- Track 23 : Nibbles_41
- Track 24 : BillDoor_45
- Track 25 : Yucky_50
- Track 26 : Typhonomachy_45
- Track 27 : Emalyn_44
- Track 28 : Burnsey_45, RedBaron_47
- Track 29 : AikoCarson_46
- Track 30 : Socotra_46
- Track 31 : Yakult_48
- Track 32 : Gibbous_41, Dre3_41
- Track 33 : Axym_44
- Track 34 : Lauer_43
- Track 35 : MaVan_42

- Track 36 : Azira_42
- Track 37 : Vine_49
- Track 38 : Quasar_45
- Track 39 : Bavidard_46
- Track 40 : Nina_44
- Track 41 : Mayweather_51
- Track 42 : CherryonLim_48
- Track 43 : GiKK_50
- Track 44 : Nodigi_53
- Track 45 : Fribs8_41
- Track 46 : Orla_53
- Track 47 : Hexbug_53
- Track 48 : Pons_48
- Track 49 : Jamzy_50
- Track 50 : Carsonalex_48
- Track 51 : SheckWes_50
- Track 52 : Button_48
- Track 53 : MunkgeeRoachy_43
- Track 54 : SweatNTears_46
- Track 55 : Chickadee_57, Kwekel_57
- Track 56 : RoadKill_54
- Track 57 : Dexdert_58
- Track 58 : Twonlo_54
- Track 59 : Tiamoceli_57
- Track 60 : GTE6_58
- Track 61 : Djokovic_95, Madi_94, Terapin_96, BiteSize_95, Beyoncage_95
- Track 62 : Suzy_95
- Track 63 : LilyPad_89
- Track 64 : Sienna_96
- Track 65 : LittleFella_91
- Track 66 : CherryTomatoes_180, Pupper_177, SCentae_176
- Track 67 : Skog_9
- Track 68 : Mareelih_179, Forza_182, BlueNGold_178, Boopy_181
- Track 69 : GMA2_76
- Track 70 : Sixama_183

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

The start number called the most often in the published annotations is 38, it was called in 56 of the 82 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Agatha_45, AikoCarson_46, Amok_46, AndPeggy_42, Axym_44, Azira_42, Bavidard_46, BigChungus_46, BillDoor_45, Biskit_48, Blondies_48, BlueNGold_178, Boopy_181, Burnsey_45, Buttrmldreams_48, CanesSauce_44, Carsonalex_48, CherryonLim_48, Chickadee_57, ChickenTender_47, ChocoMunchkin_44, Cleo_40, Cozz_43, Dexdert_58, Dre3_41, Elinal_50, Elliott_45, Emalyn_44, Feastonyeet_46, Forza_182, Fribs8_41, GTE2_37, GTE6_58, Gibbous_41, GoldHunter_46, HippoPololi_43, Horseradish_48, KayGee_48, Kwekel_57, Lauer_43, MAnor_48, MScarn_50, MaVan_42, Mareelih_179, Mayweather_51, MunkgeeRoachy_43,

Nibbles_41, Nina_44, Pons_48, PotPie_46, PsychoKiller_44, Quasar_45, RedBaron_47, RoadKill_54, SheckWes_50, Sienna_96, SketchMex_46, Socotra_46, Sopespian_43, Starburst_45, SteamedHams_45, SummitAcademy_46, Survivors_42, SweatNTears_46, Tiamoceli_57, Tolls_46, Troje_48, Twonlo_54, Typhonomachy_45, Vine_49, Yarn_42, Yucky_50, Yummy_48, Zareef_44,

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

- Sixama_183,

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

- Beyoncage_95, BiteSize_95, Button_48, CherryTomatoes_180, Djokovic_95, GMA2_76, GiKK_50, Hexbug_53, Jamzy_50, LilyPad_89, LittleFella_91, Madi_94, Margaret_51, Nodigi_53, Orla_53, Pupper_177, Puppies_35, RanchParmCat_50, SCentae_176, Skog_9, Suzy_95, Terapin_96, Trine_36, Upyo_37, Widow_36, Yakult_48,

Summary by start number:

Start 19:

- Found in 1 of 101 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 82
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sixama_183 (DS),

Start 26:

- Found in 9 of 101 (8.9%) of genes in pham
- Manual Annotations of this start: 9 of 82
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Button_48 (CT), GiKK_50 (CT), Hexbug_53 (CT), Jamzy_50 (CT), Margaret_51 (CT), Nodigi_53 (CT), Orla_53 (CT), RanchParmCat_50 (CT), Yakult_48 (CT),

Start 36:

- Found in 1 of 101 (1.0%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA2_76 (DS),

Start 38:

- Found in 75 of 101 (74.3%) of genes in pham
- Manual Annotations of this start: 56 of 82
- Called 98.7% of time when present
- Phage (with cluster) where this start called: Agatha_45 (CT), AikoCarson_46 (CT), Amok_46 (CT), AndPeggy_42 (CT), Axym_44 (CT), Azira_42 (CT), Bavilard_46 (CT), BigChungus_46 (CT), BillDoor_45 (CT), Biskit_48 (CT), Blondies_48 (CT), BlueNGold_178 (DS), Boopy_181 (DS), Burnsey_45 (CT), Buttrmlkdreams_48 (CT), CanesSauce_44 (CT), Carsonalex_48 (CT), CherryonLim_48 (CT), Chickadee_57 (DE3), ChickenTender_47 (CT), ChocoMunchkin_44 (CT), Cleo_40 (CT), Cozz_43 (CT), Dexdert_58 (DE3), Dre3_41 (CT), Elinal_50 (CT), Elliott_45 (CT), Emalyn_44 (CT), Feastonyeet_46 (CT), Forza_182 (DS), Fribs8_41 (CT), GTE2_37 (CT), GTE6_58 (DE3), Gibbous_41 (CT), GoldHunter_46 (CT), HippoPololi_43 (CT), Horseradish_48 (CT), KayGee_48 (CT), Kwekel_57 (DE3), Lauer_43 (CT), MAnor_48 (CT), MScarn_50 (CT), MaVan_42 (CT), Mareelih_179 (DS), Mayweather_51 (CT),

MunkgeeRoachy_43 (CT), Nibbles_41 (CT), Nina_44 (CT), Pons_48 (CT), PotPie_46 (CT), PsychoKiller_44 (CT), Quasar_45 (CT), RedBaron_47 (CT), RoadKill_54 (DE3), SheckWes_50 (CT), Sienna_96 (DG1), SketchMex_46 (CT), Socotra_46 (CT), Sopespian_43 (CT), Starburst_45 (CT), SteamedHams_45 (CT), SummitAcademy_46 (CT), Survivors_42 (CT), SweatNTears_46 (CT), Tiamoceli_57 (DE3), Tolls_46 (CT), Troje_48 (CT), Twonlo_54 (DE3), Typhonomachy_45 (CT), Vine_49 (CT), Yarn_42 (CT), Yucky_50 (CT), Yummy_48 (CT), Zareef_44 (CT),

Start 39:

- Found in 16 of 101 (15.8%) of genes in pham
- Manual Annotations of this start: 16 of 82
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beyoncage_95 (DG1), BiteSize_95 (DG1), CherryTomatoes_180 (DO), Djokovic_95 (DG1), LilyPad_89 (DG1), LittleFella_91 (DG2), Madi_94 (DG1), Pupper_177 (DO), Puppies_35 (CD), SCentae_176 (DO), Skog_9 (DO), Suzy_95 (DG1), Terapin_96 (DG1), Trine_36 (CD), Upyo_37 (CD), Widow_36 (CD),

Summary by clusters:

There are 7 clusters represented in this pham: DO, DE3, CD, DG2, DG1, DS, CT,

Info for manual annotations of cluster CD:

- Start number 39 was manually annotated 4 times for cluster CD.

Info for manual annotations of cluster CT:

- Start number 26 was manually annotated 9 times for cluster CT.
- Start number 38 was manually annotated 45 times for cluster CT.

Info for manual annotations of cluster DE3:

- Start number 38 was manually annotated 6 times for cluster DE3.

Info for manual annotations of cluster DG1:

- Start number 38 was manually annotated 1 time for cluster DG1.
- Start number 39 was manually annotated 7 times for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 39 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DO:

- Start number 39 was manually annotated 4 times for cluster DO.

Info for manual annotations of cluster DS:

- Start number 19 was manually annotated 1 time for cluster DS.
- Start number 38 was manually annotated 4 times for cluster DS.

Gene Information:

Gene: Agatha_45 Start: 33907, Stop: 33068, Start Num: 38

Candidate Starts for Agatha_45:

(6, 34228), (8, 34204), (9, 34201), (13, 34114), (14, 34069), (18, 34018), (23, 33967), (Start: 38 @33907 has 56 MA's), (50, 33847), (55, 33817), (56, 33811), (70, 33730), (88, 33622), (140, 33298), (169, 33127), (171, 33118),

Gene: AikoCarson_46 Start: 34085, Stop: 33246, Start Num: 38

Candidate Starts for AikoCarson_46:

(23, 34160), (Start: 38 @34085 has 56 MA's), (50, 34025), (56, 33989), (64, 33947), (70, 33908), (73, 33890), (75, 33866), (110, 33680), (116, 33608), (171, 33296),

Gene: Amok_46 Start: 34109, Stop: 33270, Start Num: 38

Candidate Starts for Amok_46:

(23, 34184), (Start: 38 @34109 has 56 MA's), (50, 34049), (56, 34013), (64, 33971), (70, 33932), (73, 33914), (75, 33890), (110, 33704), (116, 33632), (133, 33530), (171, 33320), (178, 33287),

Gene: AndPeggy_42 Start: 33440, Stop: 32601, Start Num: 38

Candidate Starts for AndPeggy_42:

(Start: 38 @33440 has 56 MA's), (50, 33380), (56, 33344), (60, 33335), (70, 33263), (88, 33155), (96, 33101), (102, 33065), (110, 33035), (114, 32984), (116, 32963), (155, 32759), (159, 32738), (171, 32651), (175, 32633),

Gene: Axym_44 Start: 33804, Stop: 32965, Start Num: 38

Candidate Starts for Axym_44:

(6, 34125), (8, 34101), (13, 34011), (14, 33966), (18, 33915), (23, 33864), (Start: 38 @33804 has 56 MA's), (50, 33744), (56, 33708), (70, 33627), (88, 33519), (93, 33486), (140, 33195), (171, 33015),

Gene: Azira_42 Start: 33186, Stop: 32428, Start Num: 38

Candidate Starts for Azira_42:

(Start: 38 @33186 has 56 MA's), (47, 33147), (50, 33129), (56, 33093), (62, 33078), (63, 33054), (69, 33018), (73, 32994), (81, 32940), (87, 32907), (99, 32835), (108, 32814), (117, 32754), (130, 32676), (140, 32631), (151, 32586), (169, 32472), (172, 32457),

Gene: Bavilard_46 Start: 34976, Stop: 34173, Start Num: 38

Candidate Starts for Bavilard_46:

(23, 35036), (Start: 38 @34976 has 56 MA's), (47, 34934), (73, 34769), (86, 34694), (90, 34676), (91, 34667), (96, 34640), (115, 34529), (117, 34511), (122, 34478), (144, 34376), (145, 34373), (159, 34295), (160, 34292), (168, 34226), (176, 34187), (178, 34178),

Gene: Beyoncage_95 Start: 65472, Stop: 66188, Start Num: 39

Candidate Starts for Beyoncage_95:

(Start: 39 @65472 has 16 MA's), (89, 65754), (97, 65799), (118, 65910), (139, 66027), (141, 66033), (148, 66066), (150, 66075), (153, 66096), (158, 66114), (164, 66153), (165, 66156), (166, 66177),

Gene: BigChungus_46 Start: 35108, Stop: 34305, Start Num: 38

Candidate Starts for BigChungus_46:

(23, 35168), (Start: 38 @35108 has 56 MA's), (73, 34901), (82, 34847), (85, 34838), (86, 34826), (91, 34799), (94, 34787), (96, 34772), (115, 34661), (117, 34643), (122, 34610), (144, 34508), (145, 34505), (155, 34448), (159, 34427), (168, 34358), (176, 34319), (178, 34310),

Gene: BillDoor_45 Start: 33112, Stop: 32273, Start Num: 38

Candidate Starts for BillDoor_45:

(Start: 38 @33112 has 56 MA's), (50, 33052), (56, 33016), (60, 33007), (70, 32935), (88, 32827), (96, 32773), (102, 32737), (110, 32707), (114, 32656), (116, 32635), (155, 32431), (159, 32410), (171, 32323),

Gene: Biskit_48 Start: 34069, Stop: 33221, Start Num: 38

Candidate Starts for Biskit_48:

(23, 34129), (Start: 38 @34069 has 56 MA's), (56, 33973), (60, 33964), (73, 33874), (88, 33784), (96, 33733), (98, 33724), (101, 33700), (110, 33667), (112, 33634), (116, 33595), (160, 33367), (161, 33358), (171, 33283), (173, 33274),

Gene: BiteSize_95 Start: 65558, Stop: 66274, Start Num: 39

Candidate Starts for BiteSize_95:

(Start: 39 @65558 has 16 MA's), (89, 65840), (97, 65885), (118, 65996), (139, 66113), (141, 66119), (148, 66152), (150, 66161), (153, 66182), (158, 66200), (164, 66239), (165, 66242), (166, 66263),

Gene: Blondies_48 Start: 34386, Stop: 33538, Start Num: 38

Candidate Starts for Blondies_48:

(23, 34446), (Start: 38 @34386 has 56 MA's), (56, 34290), (60, 34281), (73, 34191), (88, 34101), (89, 34098), (96, 34050), (98, 34041), (101, 34017), (110, 33984), (112, 33951), (116, 33912), (160, 33684), (161, 33675), (171, 33600), (173, 33591),

Gene: BlueNGold_178 Start: 105490, Stop: 104774, Start Num: 38

Candidate Starts for BlueNGold_178:

(Start: 38 @105490 has 56 MA's), (51, 105433), (81, 105250), (92, 105190), (111, 105121), (112, 105103), (121, 105028), (123, 105016), (124, 105001), (125, 104998), (130, 104977), (131, 104971), (134, 104956), (153, 104869), (158, 104851), (162, 104833), (164, 104809), (166, 104785),

Gene: Boopy_181 Start: 105501, Stop: 104785, Start Num: 38

Candidate Starts for Boopy_181:

(Start: 38 @105501 has 56 MA's), (51, 105444), (81, 105261), (92, 105201), (111, 105132), (112, 105114), (121, 105039), (123, 105027), (124, 105012), (125, 105009), (130, 104988), (131, 104982), (134, 104967), (153, 104880), (158, 104862), (162, 104844), (164, 104820), (166, 104796),

Gene: Burnsey_45 Start: 33898, Stop: 33059, Start Num: 38

Candidate Starts for Burnsey_45:

(6, 34219), (8, 34195), (9, 34192), (11, 34147), (13, 34105), (14, 34060), (23, 33958), (Start: 38 @33898 has 56 MA's), (50, 33838), (55, 33808), (56, 33802), (70, 33721), (88, 33613), (93, 33580), (97, 33553), (140, 33289), (169, 33118), (171, 33109),

Gene: Button_48 Start: 34069, Stop: 33221, Start Num: 26

Candidate Starts for Button_48:

(24, 34084), (Start: 26 @34069 has 9 MA's), (27, 34054), (45, 34000), (46, 33994), (49, 33979), (56, 33934), (60, 33925), (62, 33919), (64, 33892), (76, 33805), (79, 33793), (80, 33790), (85, 33766), (92, 33718), (95, 33697), (101, 33655), (106, 33643), (110, 33625), (113, 33586), (129, 33484), (141, 33430), (145, 33418), (166, 33280),

Gene: Buttrmilkdreams_48 Start: 34516, Stop: 33668, Start Num: 38

Candidate Starts for Buttrmilkdreams_48:

(23, 34576), (Start: 38 @34516 has 56 MA's), (56, 34420), (60, 34411), (73, 34321), (88, 34231), (89, 34228), (96, 34180), (98, 34171), (101, 34147), (110, 34114), (112, 34081), (116, 34042), (160, 33814), (161, 33805), (171, 33730), (173, 33721),

Gene: CanesSauce_44 Start: 33613, Stop: 32774, Start Num: 38

Candidate Starts for CanesSauce_44:

(Start: 38 @33613 has 56 MA's), (50, 33553), (56, 33517), (60, 33508), (70, 33436), (88, 33328), (96, 33274), (102, 33238), (110, 33208), (114, 33157), (116, 33136), (155, 32932), (159, 32911), (171,

32824), (175, 32806),

Gene: Carsonalex_48 Start: 33866, Stop: 33027, Start Num: 38

Candidate Starts for Carsonalex_48:

(6, 34187), (8, 34163), (9, 34160), (13, 34073), (14, 34028), (23, 33926), (Start: 38 @33866 has 56 MA's), (50, 33806), (56, 33770), (70, 33689), (88, 33581), (93, 33548), (140, 33257), (169, 33086), (171, 33077),

Gene: CherryTomatoes_180 Start: 130016, Stop: 130726, Start Num: 39

Candidate Starts for CherryTomatoes_180:

(Start: 39 @130016 has 16 MA's), (41, 130028), (50, 130067), (61, 130118), (72, 130202), (77, 130235), (81, 130253), (105, 130358), (106, 130361), (118, 130451), (121, 130475), (131, 130532), (145, 130580), (151, 130619), (164, 130691),

Gene: CherryonLim_48 Start: 36692, Stop: 35889, Start Num: 38

Candidate Starts for CherryonLim_48:

(23, 36752), (Start: 38 @36692 has 56 MA's), (53, 36614), (73, 36485), (82, 36431), (90, 36392), (94, 36371), (117, 36227), (122, 36194), (145, 36089), (159, 36011), (168, 35942), (169, 35933), (176, 35903), (178, 35894),

Gene: Chickadee_57 Start: 43696, Stop: 44475, Start Num: 38

Candidate Starts for Chickadee_57:

(16, 43534), (21, 43600), (22, 43615), (Start: 38 @43696 has 56 MA's), (44, 43717), (57, 43795), (62, 43810), (66, 43855), (83, 43945), (89, 43978), (114, 44110), (117, 44137), (129, 44206), (140, 44260), (151, 44308), (171, 44431), (177, 44461),

Gene: ChickenTender_47 Start: 33458, Stop: 32601, Start Num: 38

Candidate Starts for ChickenTender_47:

(23, 33518), (Start: 38 @33458 has 56 MA's), (50, 33398), (55, 33368), (56, 33362), (73, 33263), (88, 33173), (90, 33167), (93, 33140), (97, 33113), (135, 32852), (167, 32672), (169, 32660), (171, 32651),

Gene: ChocoMunchkin_44 Start: 33613, Stop: 32774, Start Num: 38

Candidate Starts for ChocoMunchkin_44:

(Start: 38 @33613 has 56 MA's), (50, 33553), (56, 33517), (60, 33508), (70, 33436), (88, 33328), (96, 33274), (102, 33238), (110, 33208), (114, 33157), (116, 33136), (155, 32932), (159, 32911), (171, 32824), (175, 32806),

Gene: Cleo_40 Start: 32906, Stop: 32142, Start Num: 38

Candidate Starts for Cleo_40:

(33, 32921), (Start: 38 @32906 has 56 MA's), (47, 32867), (56, 32813), (62, 32795), (63, 32771), (81, 32657), (91, 32606), (99, 32552), (108, 32531), (130, 32390), (137, 32354), (145, 32333), (159, 32261), (161, 32249), (169, 32186), (172, 32171), (173, 32168), (175, 32159), (176, 32156),

Gene: Cozz_43 Start: 33495, Stop: 32656, Start Num: 38

Candidate Starts for Cozz_43:

(6, 33816), (8, 33792), (9, 33789), (13, 33702), (14, 33657), (18, 33606), (23, 33555), (Start: 38 @33495 has 56 MA's), (50, 33435), (55, 33405), (56, 33399), (70, 33318), (88, 33210), (140, 32886), (169, 32715), (171, 32706),

Gene: Dxdert_58 Start: 44000, Stop: 44779, Start Num: 38

Candidate Starts for Dxdert_58:

(16, 43838), (21, 43904), (22, 43919), (Start: 38 @44000 has 56 MA's), (44, 44021), (57, 44099), (62, 44114), (66, 44159), (83, 44249), (89, 44282), (109, 44375), (117, 44441), (129, 44510), (140, 44564),

(151, 44612), (177, 44765),

Gene: Djokovic_95 Start: 65471, Stop: 66187, Start Num: 39

Candidate Starts for Djokovic_95:

(Start: 39 @65471 has 16 MA's), (89, 65753), (97, 65798), (118, 65909), (139, 66026), (141, 66032), (148, 66065), (150, 66074), (153, 66095), (158, 66113), (164, 66152), (165, 66155), (166, 66176),

Gene: Dre3_41 Start: 32649, Stop: 31885, Start Num: 38

Candidate Starts for Dre3_41:

(33, 32664), (Start: 38 @32649 has 56 MA's), (47, 32610), (56, 32556), (62, 32538), (63, 32514), (70, 32472), (81, 32400), (91, 32349), (99, 32295), (108, 32274), (117, 32211), (130, 32133), (137, 32097), (145, 32076), (159, 32004), (161, 31992), (169, 31929), (172, 31914), (173, 31911), (175, 31902), (176, 31899),

Gene: Elinal_50 Start: 35490, Stop: 34687, Start Num: 38

Candidate Starts for Elinal_50:

(23, 35550), (Start: 38 @35490 has 56 MA's), (73, 35283), (82, 35229), (86, 35208), (90, 35190), (91, 35181), (96, 35154), (115, 35043), (117, 35025), (122, 34992), (144, 34890), (145, 34887), (159, 34809), (160, 34806), (168, 34740), (176, 34701), (178, 34692),

Gene: Elliott_45 Start: 33793, Stop: 32954, Start Num: 38

Candidate Starts for Elliott_45:

(6, 34114), (8, 34090), (9, 34087), (13, 34000), (14, 33955), (23, 33853), (Start: 38 @33793 has 56 MA's), (50, 33733), (55, 33703), (56, 33697), (70, 33616), (88, 33508), (93, 33475), (97, 33448), (140, 33184), (169, 33013), (171, 33004),

Gene: Emalyn_44 Start: 32901, Stop: 32062, Start Num: 38

Candidate Starts for Emalyn_44:

(23, 32976), (Start: 38 @32901 has 56 MA's), (50, 32841), (56, 32805), (64, 32763), (70, 32724), (73, 32706), (75, 32682), (110, 32496), (116, 32424), (171, 32112),

Gene: Feastonyeet_46 Start: 35108, Stop: 34305, Start Num: 38

Candidate Starts for Feastonyeet_46:

(23, 35168), (Start: 38 @35108 has 56 MA's), (73, 34901), (82, 34847), (85, 34838), (86, 34826), (91, 34799), (94, 34787), (96, 34772), (115, 34661), (117, 34643), (122, 34610), (144, 34508), (145, 34505), (155, 34448), (159, 34427), (168, 34358), (176, 34319), (178, 34310),

Gene: Forza_182 Start: 105418, Stop: 104702, Start Num: 38

Candidate Starts for Forza_182:

(Start: 38 @105418 has 56 MA's), (51, 105361), (81, 105178), (92, 105118), (111, 105049), (112, 105031), (121, 104956), (123, 104944), (124, 104929), (125, 104926), (130, 104905), (131, 104899), (134, 104884), (153, 104797), (158, 104779), (162, 104761), (164, 104737), (166, 104713),

Gene: Fribs8_41 Start: 32917, Stop: 32156, Start Num: 38

Candidate Starts for Fribs8_41:

(17, 33031), (33, 32932), (Start: 38 @32917 has 56 MA's), (60, 32815), (62, 32809), (63, 32785), (81, 32671), (86, 32647), (91, 32620), (99, 32566), (108, 32545), (117, 32482), (119, 32473), (130, 32404), (169, 32200), (175, 32173),

Gene: GMA2_76 Start: 77386, Stop: 76664, Start Num: 36

Candidate Starts for GMA2_76:

(36, 77386), (40, 77380), (42, 77371), (60, 77287), (65, 77242), (97, 77065), (118, 76936), (120, 76918), (149, 76777), (156, 76750), (166, 76675),

Gene: GTE2_37 Start: 33497, Stop: 32658, Start Num: 38

Candidate Starts for GTE2_37:

(23, 33557), (Start: 38 @33497 has 56 MA's), (50, 33437), (56, 33401), (60, 33392), (70, 33320), (88, 33212), (96, 33158), (110, 33092), (112, 33059), (116, 33020), (155, 32816), (159, 32795), (171, 32708),

Gene: GTE6_58 Start: 44409, Stop: 45188, Start Num: 38

Candidate Starts for GTE6_58:

(2, 43980), (3, 44022), (4, 44031), (5, 44073), (7, 44082), (16, 44247), (21, 44313), (22, 44328), (Start: 38 @44409 has 56 MA's), (57, 44508), (62, 44523), (66, 44568), (83, 44658), (89, 44691), (117, 44850), (129, 44919), (140, 44973), (177, 45174),

Gene: GiKK_50 Start: 34402, Stop: 33551, Start Num: 26

Candidate Starts for GiKK_50:

(24, 34417), (Start: 26 @34402 has 9 MA's), (27, 34387), (45, 34330), (46, 34324), (49, 34309), (56, 34264), (60, 34255), (62, 34249), (64, 34222), (76, 34135), (79, 34123), (80, 34120), (85, 34096), (92, 34048), (95, 34027), (101, 33985), (106, 33973), (110, 33955), (113, 33916), (141, 33760), (145, 33748), (166, 33610),

Gene: Gibbous_41 Start: 32649, Stop: 31885, Start Num: 38

Candidate Starts for Gibbous_41:

(33, 32664), (Start: 38 @32649 has 56 MA's), (47, 32610), (56, 32556), (62, 32538), (63, 32514), (70, 32472), (81, 32400), (91, 32349), (99, 32295), (108, 32274), (117, 32211), (130, 32133), (137, 32097), (145, 32076), (159, 32004), (161, 31992), (169, 31929), (172, 31914), (173, 31911), (175, 31902), (176, 31899),

Gene: GoldHunter_46 Start: 33907, Stop: 33068, Start Num: 38

Candidate Starts for GoldHunter_46:

(6, 34228), (8, 34204), (9, 34201), (13, 34114), (14, 34069), (18, 34018), (23, 33967), (Start: 38 @33907 has 56 MA's), (50, 33847), (55, 33817), (56, 33811), (70, 33730), (88, 33622), (140, 33298), (169, 33127), (171, 33118),

Gene: Hexbug_53 Start: 36488, Stop: 35637, Start Num: 26

Candidate Starts for Hexbug_53:

(1, 36890), (24, 36503), (Start: 26 @36488 has 9 MA's), (30, 36464), (46, 36410), (48, 36398), (60, 36341), (62, 36335), (64, 36308), (79, 36209), (80, 36206), (84, 36185), (85, 36182), (88, 36158), (95, 36113), (97, 36098), (98, 36095), (101, 36071), (109, 36044), (113, 35999), (125, 35909), (129, 35897), (142, 35837), (147, 35819), (174, 35660), (176, 35651),

Gene: HippoPololi_43 Start: 33061, Stop: 32297, Start Num: 38

Candidate Starts for HippoPololi_43:

(33, 33076), (Start: 38 @33061 has 56 MA's), (47, 33019), (60, 32956), (62, 32950), (63, 32926), (78, 32827), (81, 32812), (85, 32800), (91, 32761), (99, 32707), (108, 32686), (117, 32623), (130, 32545), (145, 32488), (159, 32416), (161, 32404), (176, 32311),

Gene: Horseradish_48 Start: 34002, Stop: 33154, Start Num: 38

Candidate Starts for Horseradish_48:

(23, 34062), (Start: 38 @34002 has 56 MA's), (56, 33906), (60, 33897), (73, 33807), (88, 33717), (89, 33714), (96, 33666), (98, 33657), (101, 33633), (110, 33600), (112, 33567), (116, 33528), (160, 33300), (161, 33291), (171, 33216), (173, 33207),

Gene: Jamzy_50 Start: 34382, Stop: 33534, Start Num: 26

Candidate Starts for Jamzy_50:

(24, 34397), (Start: 26 @34382 has 9 MA's), (27, 34367), (45, 34313), (46, 34307), (49, 34292), (56, 34247), (60, 34238), (62, 34232), (64, 34205), (76, 34118), (79, 34106), (80, 34103), (85, 34079), (92, 34031), (95, 34010), (101, 33968), (106, 33956), (110, 33938), (141, 33743), (145, 33731), (166, 33593),

Gene: KayGee_48 Start: 35490, Stop: 34687, Start Num: 38

Candidate Starts for KayGee_48:

(23, 35550), (Start: 38 @35490 has 56 MA's), (73, 35283), (82, 35229), (86, 35208), (90, 35190), (91, 35181), (96, 35154), (115, 35043), (117, 35025), (122, 34992), (144, 34890), (145, 34887), (159, 34809), (160, 34806), (168, 34740), (176, 34701), (178, 34692),

Gene: Kwekel_57 Start: 43609, Stop: 44388, Start Num: 38

Candidate Starts for Kwekel_57:

(16, 43447), (21, 43513), (22, 43528), (Start: 38 @43609 has 56 MA's), (44, 43630), (57, 43708), (62, 43723), (66, 43768), (83, 43858), (89, 43891), (114, 44023), (117, 44050), (129, 44119), (140, 44173), (151, 44221), (171, 44344), (177, 44374),

Gene: Lauer_43 Start: 36512, Stop: 35706, Start Num: 38

Candidate Starts for Lauer_43:

(23, 36572), (Start: 38 @36512 has 56 MA's), (73, 36305), (82, 36251), (86, 36230), (90, 36212), (91, 36203), (96, 36176), (115, 36065), (117, 36047), (122, 36014), (144, 35912), (145, 35909), (159, 35831), (160, 35828), (168, 35762), (176, 35723), (178, 35711),

Gene: LilyPad_89 Start: 63022, Stop: 63735, Start Num: 39

Candidate Starts for LilyPad_89:

(Start: 39 @63022 has 16 MA's), (89, 63301), (92, 63322), (127, 63517), (141, 63580), (145, 63592), (153, 63643), (164, 63700), (165, 63703), (166, 63724),

Gene: LittleFella_91 Start: 63267, Stop: 63962, Start Num: 39

Candidate Starts for LittleFella_91:

(34, 63252), (37, 63258), (Start: 39 @63267 has 16 MA's), (41, 63279), (44, 63285), (51, 63321), (53, 63336), (54, 63345), (64, 63402), (72, 63450), (81, 63501), (85, 63513), (96, 63579), (117, 63687), (118, 63690), (125, 63744), (130, 63765), (146, 63825), (150, 63846), (151, 63855), (152, 63864), (154, 63870), (166, 63951),

Gene: MAnor_48 Start: 35832, Stop: 35035, Start Num: 38

Candidate Starts for MAnor_48:

(23, 35892), (Start: 38 @35832 has 56 MA's), (53, 35760), (59, 35739), (73, 35631), (82, 35577), (90, 35538), (94, 35517), (117, 35373), (122, 35340), (145, 35235), (159, 35157), (168, 35088), (169, 35079), (176, 35049), (178, 35040),

Gene: MScarn_50 Start: 34184, Stop: 33336, Start Num: 38

Candidate Starts for MScarn_50:

(23, 34244), (Start: 38 @34184 has 56 MA's), (56, 34088), (60, 34079), (73, 33989), (88, 33899), (89, 33896), (96, 33848), (98, 33839), (101, 33815), (110, 33782), (112, 33749), (116, 33710), (160, 33482), (161, 33473), (171, 33398), (173, 33389),

Gene: MaVan_42 Start: 33215, Stop: 32457, Start Num: 38

Candidate Starts for MaVan_42:

(Start: 38 @33215 has 56 MA's), (47, 33176), (50, 33158), (56, 33122), (62, 33107), (63, 33083), (69, 33047), (73, 33023), (81, 32969), (99, 32864), (108, 32843), (117, 32783), (130, 32705), (140, 32660), (151, 32615), (169, 32501), (172, 32486),

Gene: Madi_94 Start: 65302, Stop: 66018, Start Num: 39

Candidate Starts for Madi_94:

(Start: 39 @65302 has 16 MA's), (89, 65584), (97, 65629), (118, 65740), (139, 65857), (141, 65863), (148, 65896), (150, 65905), (153, 65926), (158, 65944), (164, 65983), (165, 65986), (166, 66007),

Gene: Mareelih_179 Start: 104936, Stop: 104220, Start Num: 38

Candidate Starts for Mareelih_179:

(Start: 38 @104936 has 56 MA's), (51, 104879), (81, 104696), (92, 104636), (111, 104567), (112, 104549), (121, 104474), (123, 104462), (124, 104447), (125, 104444), (130, 104423), (131, 104417), (134, 104402), (153, 104315), (158, 104297), (162, 104279), (164, 104255), (166, 104231),

Gene: Margaret_51 Start: 35131, Stop: 34277, Start Num: 26

Candidate Starts for Margaret_51:

(10, 35368), (16, 35245), (24, 35146), (Start: 26 @35131 has 9 MA's), (28, 35113), (43, 35065), (46, 35053), (60, 34984), (62, 34978), (64, 34951), (66, 34933), (76, 34864), (79, 34852), (80, 34849), (88, 34801), (95, 34756), (113, 34645), (115, 34630), (120, 34591), (125, 34555), (129, 34543), (142, 34483), (144, 34480), (166, 34339), (170, 34318),

Gene: Mayweather_51 Start: 36577, Stop: 35774, Start Num: 38

Candidate Starts for Mayweather_51:

(23, 36637), (Start: 38 @36577 has 56 MA's), (53, 36499), (73, 36370), (82, 36316), (90, 36277), (94, 36256), (117, 36112), (122, 36079), (144, 35977), (145, 35974), (159, 35896), (160, 35893), (168, 35827), (172, 35803), (176, 35788), (178, 35779),

Gene: MunkgeeRoachy_43 Start: 33256, Stop: 32417, Start Num: 38

Candidate Starts for MunkgeeRoachy_43:

(23, 33316), (Start: 38 @33256 has 56 MA's), (50, 33196), (55, 33166), (56, 33160), (70, 33079), (88, 32971), (93, 32938), (97, 32911), (140, 32647), (159, 32554), (171, 32467),

Gene: Nibbles_41 Start: 32902, Stop: 32144, Start Num: 38

Candidate Starts for Nibbles_41:

(17, 33016), (33, 32917), (Start: 38 @32902 has 56 MA's), (47, 32863), (50, 32845), (56, 32809), (62, 32794), (63, 32770), (69, 32734), (73, 32710), (81, 32656), (99, 32551), (108, 32530), (117, 32470), (130, 32392), (140, 32347), (151, 32302), (169, 32188), (172, 32173),

Gene: Nina_44 Start: 34031, Stop: 33192, Start Num: 38

Candidate Starts for Nina_44:

(6, 34352), (8, 34328), (12, 34259), (13, 34238), (14, 34193), (23, 34091), (Start: 38 @34031 has 56 MA's), (50, 33971), (55, 33941), (56, 33935), (70, 33854), (88, 33746), (93, 33713), (97, 33686), (140, 33422), (169, 33251), (171, 33242),

Gene: Nodigi_53 Start: 36539, Stop: 35688, Start Num: 26

Candidate Starts for Nodigi_53:

(1, 36941), (24, 36554), (Start: 26 @36539 has 9 MA's), (30, 36515), (46, 36461), (48, 36449), (60, 36392), (62, 36386), (64, 36359), (79, 36260), (80, 36257), (84, 36236), (85, 36233), (95, 36164), (98, 36146), (101, 36122), (104, 36113), (109, 36095), (113, 36050), (125, 35960), (129, 35948), (142, 35888), (147, 35870), (174, 35711), (176, 35702),

Gene: Orla_53 Start: 36447, Stop: 35596, Start Num: 26

Candidate Starts for Orla_53:

(1, 36849), (10, 36684), (24, 36462), (Start: 26 @36447 has 9 MA's), (30, 36423), (46, 36369), (48, 36357), (60, 36300), (62, 36294), (64, 36267), (79, 36168), (80, 36165), (84, 36144), (85, 36141), (88,

36117), (95, 36072), (97, 36057), (98, 36054), (101, 36030), (109, 36003), (113, 35958), (125, 35868), (129, 35856), (142, 35796), (147, 35778), (174, 35619), (176, 35610),

Gene: Pons_48 Start: 35462, Stop: 34665, Start Num: 38

Candidate Starts for Pons_48:

(23, 35522), (Start: 38 @35462 has 56 MA's), (53, 35390), (59, 35369), (64, 35318), (73, 35261), (82, 35207), (90, 35168), (94, 35147), (117, 35003), (122, 34970), (145, 34865), (159, 34787), (168, 34718), (172, 34694), (176, 34679), (178, 34670),

Gene: PotPie_46 Start: 36143, Stop: 35340, Start Num: 38

Candidate Starts for PotPie_46:

(23, 36203), (Start: 38 @36143 has 56 MA's), (73, 35936), (82, 35882), (86, 35861), (90, 35843), (91, 35834), (94, 35822), (96, 35807), (115, 35696), (117, 35678), (122, 35645), (144, 35543), (155, 35483), (159, 35462), (168, 35393), (176, 35354), (178, 35345),

Gene: PsychoKiller_44 Start: 33794, Stop: 32955, Start Num: 38

Candidate Starts for PsychoKiller_44:

(6, 34115), (8, 34091), (9, 34088), (13, 34001), (14, 33956), (23, 33854), (Start: 38 @33794 has 56 MA's), (50, 33734), (55, 33704), (56, 33698), (70, 33617), (88, 33509), (93, 33476), (97, 33449), (140, 33185), (169, 33014), (171, 33005),

Gene: Pupper_177 Start: 129600, Stop: 130310, Start Num: 39

Candidate Starts for Pupper_177:

(Start: 39 @129600 has 16 MA's), (41, 129612), (50, 129651), (61, 129702), (72, 129786), (77, 129819), (81, 129837), (105, 129942), (106, 129945), (118, 130035), (121, 130059), (131, 130116), (145, 130164), (151, 130203), (164, 130275),

Gene: Puppies_35 Start: 26921, Stop: 27625, Start Num: 39

Candidate Starts for Puppies_35:

(35, 26903), (Start: 39 @26921 has 16 MA's), (41, 26933), (53, 26987), (60, 27017), (71, 27086), (74, 27104), (100, 27239), (121, 27365), (126, 27398), (130, 27416), (136, 27449), (157, 27527), (164, 27578),

Gene: Quasar_45 Start: 34456, Stop: 33617, Start Num: 38

Candidate Starts for Quasar_45:

(6, 34777), (8, 34753), (13, 34663), (14, 34618), (23, 34516), (Start: 38 @34456 has 56 MA's), (50, 34396), (56, 34360), (70, 34279), (88, 34171), (93, 34138), (97, 34111), (140, 33847), (169, 33676), (171, 33667),

Gene: RanchParmCat_50 Start: 35272, Stop: 34418, Start Num: 26

Candidate Starts for RanchParmCat_50:

(10, 35509), (16, 35386), (24, 35287), (Start: 26 @35272 has 9 MA's), (28, 35254), (43, 35206), (46, 35194), (60, 35125), (62, 35119), (64, 35092), (66, 35074), (76, 35005), (79, 34993), (80, 34990), (88, 34942), (95, 34897), (113, 34786), (115, 34771), (120, 34732), (125, 34696), (129, 34684), (142, 34624), (144, 34621), (166, 34480), (170, 34459),

Gene: RedBaron_47 Start: 34123, Stop: 33284, Start Num: 38

Candidate Starts for RedBaron_47:

(6, 34444), (8, 34420), (9, 34417), (11, 34372), (13, 34330), (14, 34285), (23, 34183), (Start: 38 @34123 has 56 MA's), (50, 34063), (55, 34033), (56, 34027), (70, 33946), (88, 33838), (93, 33805), (97, 33778), (140, 33514), (169, 33343), (171, 33334),

Gene: RoadKill_54 Start: 43158, Stop: 43937, Start Num: 38

Candidate Starts for RoadKill_54:

(16, 42996), (21, 43062), (22, 43077), (Start: 38 @43158 has 56 MA's), (44, 43179), (57, 43257), (62, 43272), (66, 43317), (83, 43407), (89, 43440), (109, 43533), (117, 43599), (129, 43668), (140, 43722), (177, 43923),

Gene: SCentae_176 Start: 129792, Stop: 130502, Start Num: 39

Candidate Starts for SCentae_176:

(Start: 39 @129792 has 16 MA's), (41, 129804), (50, 129843), (61, 129894), (72, 129978), (77, 130011), (81, 130029), (105, 130134), (106, 130137), (118, 130227), (121, 130251), (131, 130308), (145, 130356), (151, 130395), (164, 130467),

Gene: SheckWes_50 Start: 35167, Stop: 34364, Start Num: 38

Candidate Starts for SheckWes_50:

(23, 35227), (Start: 38 @35167 has 56 MA's), (53, 35089), (64, 35017), (73, 34960), (82, 34906), (90, 34867), (94, 34846), (117, 34702), (122, 34669), (145, 34564), (159, 34486), (168, 34417), (176, 34378), (178, 34369),

Gene: Sienna_96 Start: 65667, Stop: 66386, Start Num: 38

Candidate Starts for Sienna_96:

(14, 65493), (15, 65496), (Start: 38 @65667 has 56 MA's), (89, 65952), (97, 65997), (118, 66108), (139, 66225), (141, 66231), (148, 66264), (150, 66273), (153, 66294), (158, 66312), (164, 66351), (165, 66354), (166, 66375),

Gene: Sixama_183 Start: 106329, Stop: 105496, Start Num: 19

Candidate Starts for Sixama_183:

(Start: 19 @106329 has 1 MA's), (20, 106317), (Start: 38 @106209 has 56 MA's), (50, 106155), (51, 106152), (60, 106107), (81, 105969), (91, 105918), (92, 105909), (120, 105753), (121, 105747), (124, 105720), (126, 105714), (130, 105696), (132, 105687), (138, 105663), (165, 105528),

Gene: SketchMex_46 Start: 34069, Stop: 33221, Start Num: 38

Candidate Starts for SketchMex_46:

(23, 34129), (Start: 38 @34069 has 56 MA's), (56, 33973), (60, 33964), (73, 33874), (88, 33784), (96, 33733), (98, 33724), (101, 33700), (110, 33667), (112, 33634), (116, 33595), (160, 33367), (161, 33358), (171, 33283), (173, 33274),

Gene: Skog_9 Start: 6153, Stop: 6860, Start Num: 39

Candidate Starts for Skog_9:

(Start: 39 @6153 has 16 MA's), (50, 6204), (61, 6255), (77, 6372), (81, 6390), (92, 6450), (103, 6492), (106, 6498), (118, 6585), (121, 6609), (131, 6666), (145, 6714), (151, 6753), (164, 6825),

Gene: Socotra_46 Start: 33906, Stop: 33067, Start Num: 38

Candidate Starts for Socotra_46:

(23, 33966), (Start: 38 @33906 has 56 MA's), (50, 33846), (55, 33816), (56, 33810), (70, 33729), (88, 33621), (93, 33588), (97, 33561), (140, 33297), (169, 33126), (171, 33117),

Gene: Sopespian_43 Start: 33795, Stop: 32956, Start Num: 38

Candidate Starts for Sopespian_43:

(6, 34116), (8, 34092), (9, 34089), (13, 34002), (14, 33957), (23, 33855), (Start: 38 @33795 has 56 MA's), (50, 33735), (55, 33705), (56, 33699), (70, 33618), (88, 33510), (93, 33477), (97, 33450), (140, 33186), (169, 33015), (171, 33006),

Gene: Starburst_45 Start: 33788, Stop: 32949, Start Num: 38

Candidate Starts for Starburst_45:

(6, 34109), (8, 34085), (9, 34082), (13, 33995), (14, 33950), (23, 33848), (Start: 38 @33788 has 56 MA's), (50, 33728), (55, 33698), (56, 33692), (70, 33611), (88, 33503), (93, 33470), (97, 33443), (140, 33179), (169, 33008), (171, 32999),

Gene: SteamedHams_45 Start: 33292, Stop: 32453, Start Num: 38

Candidate Starts for SteamedHams_45:

(Start: 38 @33292 has 56 MA's), (50, 33232), (56, 33196), (60, 33187), (70, 33115), (88, 33007), (96, 32953), (102, 32917), (110, 32887), (114, 32836), (116, 32815), (155, 32611), (159, 32590), (171, 32503), (175, 32485),

Gene: SummitAcademy_46 Start: 35232, Stop: 34429, Start Num: 38

Candidate Starts for SummitAcademy_46:

(23, 35292), (Start: 38 @35232 has 56 MA's), (73, 35025), (82, 34971), (86, 34950), (90, 34932), (91, 34923), (94, 34911), (96, 34896), (115, 34785), (117, 34767), (122, 34734), (144, 34632), (155, 34572), (159, 34551), (168, 34482), (176, 34443), (178, 34434),

Gene: Survivors_42 Start: 33111, Stop: 32353, Start Num: 38

Candidate Starts for Survivors_42:

(Start: 38 @33111 has 56 MA's), (47, 33072), (50, 33054), (56, 33018), (62, 33003), (63, 32979), (69, 32943), (73, 32919), (81, 32865), (99, 32760), (108, 32739), (117, 32679), (130, 32601), (132, 32592), (140, 32556), (151, 32511), (169, 32397), (172, 32382),

Gene: Suzy_95 Start: 65979, Stop: 66695, Start Num: 39

Candidate Starts for Suzy_95:

(Start: 39 @65979 has 16 MA's), (67, 66147), (89, 66261), (105, 66327), (141, 66540), (148, 66573), (153, 66603), (165, 66663), (166, 66684),

Gene: SweatNTears_46 Start: 33738, Stop: 32899, Start Num: 38

Candidate Starts for SweatNTears_46:

(25, 33786), (29, 33756), (Start: 38 @33738 has 56 MA's), (50, 33678), (55, 33648), (56, 33642), (70, 33561), (88, 33453), (93, 33420), (97, 33393), (140, 33129), (171, 32949),

Gene: Terapin_96 Start: 65473, Stop: 66189, Start Num: 39

Candidate Starts for Terapin_96:

(Start: 39 @65473 has 16 MA's), (89, 65755), (97, 65800), (118, 65911), (139, 66028), (141, 66034), (148, 66067), (150, 66076), (153, 66097), (158, 66115), (164, 66154), (165, 66157), (166, 66178),

Gene: Tiamoceli_57 Start: 44584, Stop: 45363, Start Num: 38

Candidate Starts for Tiamoceli_57:

(21, 44488), (22, 44503), (Start: 38 @44584 has 56 MA's), (44, 44605), (57, 44683), (62, 44698), (66, 44743), (83, 44833), (89, 44866), (109, 44959), (117, 45025), (129, 45094), (140, 45148), (171, 45319), (177, 45349),

Gene: Tolls_46 Start: 33685, Stop: 32846, Start Num: 38

Candidate Starts for Tolls_46:

(Start: 38 @33685 has 56 MA's), (50, 33625), (56, 33589), (60, 33580), (70, 33508), (88, 33400), (96, 33346), (102, 33310), (110, 33280), (114, 33229), (116, 33208), (155, 33004), (159, 32983), (171, 32896), (175, 32878),

Gene: Trine_36 Start: 27342, Stop: 28031, Start Num: 39

Candidate Starts for Trine_36:

(32, 27315), (Start: 39 @27342 has 16 MA's), (41, 27354), (54, 27417), (60, 27438), (62, 27447), (71, 27504), (100, 27657), (117, 27753), (119, 27762), (126, 27813), (130, 27831), (134, 27852),

Gene: Troje_48 Start: 34407, Stop: 33559, Start Num: 38

Candidate Starts for Troje_48:

(23, 34467), (Start: 38 @34407 has 56 MA's), (56, 34311), (60, 34302), (73, 34212), (88, 34122), (89, 34119), (96, 34071), (98, 34062), (101, 34038), (110, 34005), (112, 33972), (116, 33933), (160, 33705), (161, 33696), (171, 33621), (173, 33612),

Gene: Twonlo_54 Start: 43079, Stop: 43858, Start Num: 38

Candidate Starts for Twonlo_54:

(16, 42917), (21, 42983), (22, 42998), (Start: 38 @43079 has 56 MA's), (44, 43100), (57, 43178), (62, 43193), (66, 43238), (83, 43328), (89, 43361), (109, 43454), (117, 43520), (129, 43589), (140, 43643), (171, 43814), (177, 43844),

Gene: Typhonomachy_45 Start: 33617, Stop: 32778, Start Num: 38

Candidate Starts for Typhonomachy_45:

(6, 33938), (8, 33914), (13, 33824), (14, 33779), (23, 33677), (Start: 38 @33617 has 56 MA's), (50, 33557), (56, 33521), (70, 33440), (88, 33332), (93, 33299), (97, 33272), (140, 33008), (171, 32828),

Gene: Upyo_37 Start: 28484, Stop: 29182, Start Num: 39

Candidate Starts for Upyo_37:

(31, 28451), (Start: 39 @28484 has 16 MA's), (41, 28496), (60, 28580), (68, 28637), (71, 28646), (77, 28691), (85, 28721), (117, 28895), (126, 28955), (128, 28961), (130, 28973), (134, 28994), (139, 29015), (143, 29027), (164, 29135),

Gene: Vine_49 Start: 35909, Stop: 35106, Start Num: 38

Candidate Starts for Vine_49:

(23, 35969), (Start: 38 @35909 has 56 MA's), (50, 35849), (73, 35702), (82, 35648), (86, 35627), (90, 35609), (91, 35600), (94, 35588), (96, 35573), (115, 35462), (117, 35444), (122, 35411), (144, 35309), (155, 35249), (159, 35228), (168, 35159), (176, 35120), (178, 35111),

Gene: Widow_36 Start: 28002, Stop: 28706, Start Num: 39

Candidate Starts for Widow_36:

(35, 27984), (Start: 39 @28002 has 16 MA's), (41, 28014), (53, 28068), (60, 28098), (62, 28107), (71, 28167), (74, 28185), (100, 28320), (121, 28446), (126, 28479), (130, 28497), (136, 28530), (157, 28608), (164, 28659),

Gene: Yakult_48 Start: 35205, Stop: 34351, Start Num: 26

Candidate Starts for Yakult_48:

(24, 35220), (Start: 26 @35205 has 9 MA's), (27, 35190), (43, 35139), (46, 35127), (49, 35112), (52, 35097), (56, 35067), (58, 35064), (60, 35058), (62, 35052), (64, 35025), (66, 35007), (79, 34926), (80, 34923), (88, 34875), (92, 34851), (95, 34830), (107, 34770), (113, 34719), (122, 34653), (129, 34617), (142, 34557), (144, 34554), (147, 34539), (160, 34467), (163, 34437), (166, 34413), (170, 34392), (174, 34377),

Gene: Yarn_42 Start: 33445, Stop: 32606, Start Num: 38

Candidate Starts for Yarn_42:

(Start: 38 @33445 has 56 MA's), (50, 33385), (56, 33349), (60, 33340), (70, 33268), (88, 33160), (96, 33106), (102, 33070), (110, 33040), (114, 32989), (116, 32968), (155, 32764), (159, 32743), (171, 32656), (175, 32638),

Gene: Yucky_50 Start: 35701, Stop: 34898, Start Num: 38

Candidate Starts for Yucky_50:

(23, 35761), (Start: 38 @35701 has 56 MA's), (50, 35641), (73, 35494), (82, 35440), (86, 35419), (90, 35401), (91, 35392), (94, 35380), (96, 35365), (115, 35254), (117, 35236), (122, 35203), (144, 35101), (155, 35041), (159, 35020), (168, 34951), (176, 34912), (178, 34903),

Gene: Yummy_48 Start: 34116, Stop: 33268, Start Num: 38

Candidate Starts for Yummy_48:

(23, 34176), (Start: 38 @34116 has 56 MA's), (56, 34020), (60, 34011), (73, 33921), (88, 33831), (89, 33828), (96, 33780), (98, 33771), (101, 33747), (110, 33714), (112, 33681), (116, 33642), (160, 33414), (161, 33405), (171, 33330), (173, 33321),

Gene: Zareef_44 Start: 33205, Stop: 32447, Start Num: 38

Candidate Starts for Zareef_44:

(Start: 38 @33205 has 56 MA's), (47, 33166), (50, 33148), (56, 33112), (62, 33097), (63, 33073), (69, 33037), (73, 33013), (81, 32959), (99, 32854), (108, 32833), (117, 32773), (130, 32695), (133, 32680), (140, 32650), (151, 32605), (169, 32491), (172, 32476),