



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 223122 Report

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

Pham number 223122 has 65 members, 10 are drafts.

Phages represented in each track:

- Track 1 : JuJu_86
- Track 2 : CoveyB_77, Valary_77, Gezellig_76, KimmyK_76, Halo3_74, Wizard_73
- Track 3 : Egi03_76
- Track 4 : CherryCola_77
- Track 5 : Savbucketdawg_72
- Track 6 : TillyBobJoe_75
- Track 7 : StorminNorm_59, Saronaya_61, Gustavo_61
- Track 8 : Bibwit_61
- Track 9 : Lennon_62, Sitar_62
- Track 10 : Brandonk123_65
- Track 11 : Tangerine_60, Baumdotcom_57
- Track 12 : Flatwoods_59, Kroos_59
- Track 13 : Sanjuju_59, Fitzgerald_58
- Track 14 : Stultus_58
- Track 15 : Geodirt_61
- Track 16 : Paries_64
- Track 17 : Charming_63, Nordenberg_58
- Track 18 : Jabberwocky_59
- Track 19 : ChadMasterC_62
- Track 20 : Gaea_61
- Track 21 : Sedona_60
- Track 22 : BobBob_60
- Track 23 : Galadriel_61
- Track 24 : Angelicage_59, Affeca_59
- Track 25 : Tangent_62, Fosterous_63, Kamashten_60, Thing3_60, Rofo_60
- Track 26 : McKinley_63
- Track 27 : JKSyngboy_59, Baddon_59
- Track 28 : MoontowerMania_60
- Track 29 : Barsten_62, RiverRaider_61
- Track 30 : Love_64, Shivanishola_59
- Track 31 : Keitabear_61
- Track 32 : SchottB_58
- Track 33 : Vivi2_65
- Track 34 : FuegoCuervo_65
- Track 35 : Ailee_58
- Track 36 : Kewpiedoll_61
- Track 37 : Tycho_58

- Track 38 : Phinally_57, Leonard_57
- Track 39 : EMOore_56
- Track 40 : Phauci_50
- Track 41 : Inspectinfecti_58
- Track 42 : Ali17_55
- Track 43 : Hans_59
- Track 44 : MelBins_58

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

The start number called the most often in the published annotations is 9, it was called in 32 of the 55 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Affeca_59, Ailee_58, Angelicage_59, Barsten_62, Bibwit_61, BobBob_60, Brandonk123_65, ChadMasterC_62, Charming_63, Fitzgerald_58, Fosterous_63, FuegoCuervo_65, Galadriel_61, Geodirt_61, Jabberwocky_59, Kamashten_60, Keitabear_61, Kewpiedoll_61, Lennon_62, Love_64, McKinley_63, MoontowerMania_60, Nordenberg_58, Paries_64, RiverRaider_61, Rofo_60, Sanjuju_59, Sedona_60, Shivanishola_59, Sitar_62, Stultus_58, Tangent_62, Thing3_60, Vivi2_65,

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

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

- Ali17_55, Baddon_59, Baumdotcom_57, CherryCola_77, CoveyB_77, EMOore_56, Egi03_76, Flatwoods_59, Gaea_61, Gezellig_76, Gustavo_61, Halo3_74, Hans_59, Inspectinfecti_58, JKSyngboy_59, JuJu_86, KimmyK_76, Kroos_59, Leonard_57, MelBins_58, Phauci_50, Phinally_57, Saronaya_61, Savbucketdawg_72, SchottB_58, StorminNorm_59, Tangerine_60, TillyBobJoe_75, Tycho_58, Valary_77, Wizard_73,

Summary by start number:

Start 6:

- Found in 4 of 65 (6.2%) of genes in pham
- Manual Annotations of this start: 4 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ali17_55 (DE2), Hans_59 (DE2), MelBins_58 (DE2), Phauci_50 (DE2),

Start 9:

- Found in 34 of 65 (52.3%) of genes in pham
- Manual Annotations of this start: 32 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Affeca_59 (DE1), Ailee_58 (DE1), Angelicage_59 (DE1), Barsten_62 (DE1), Bibwit_61 (DE1), BobBob_60 (DE1), Brandonk123_65 (DE1), ChadMasterC_62 (DE1), Charming_63 (DE1), Fitzgerald_58 (DE1), Fosterous_63 (DE1), FuegoCuervo_65 (DE1), Galadriel_61 (DE1), Geodirt_61 (DE1), Jabberwocky_59 (DE1), Kamashten_60 (DE1), Keitabear_61 (DE1),

Kewpiedoll_61 (DE1), Lennon_62 (DE1), Love_64 (DE1), McKinley_63 (DE1), MoontowerMania_60 (DE1), Nordenberg_58 (DE1), Paries_64 (DE1), RiverRaider_61 (DE1), Rofo_60 (DE1), Sanjuju_59 (DE1), Sedona_60 (DE1), Shivanishola_59 (DE1), Sitar_62 (DE1), Stultus_58 (DE1), Tangent_62 (DE1), Thing3_60 (DE1), Vivi2_65 (DE1),

Start 12:

- Found in 4 of 65 (6.2%) of genes in pham
- Manual Annotations of this start: 4 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EMoore_56 (DE2), Inspectinfecti_58 (DE2), Leonard_57 (DE2), Phinally_57 (DE2),

Start 16:

- Found in 1 of 65 (1.5%) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JuJu_86 (CV),

Start 18:

- Found in 12 of 65 (18.5%) of genes in pham
- Manual Annotations of this start: 8 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Baddon_59 (DE1), Baumdotcom_57 (DE1), Flatwoods_59 (DE1), Gaea_61 (DE1), Gustavo_61 (DE1), JKSyngboy_59 (DE1), Kroos_59 (DE1), Saronaya_61 (DE1), SchottB_58 (DE1), StorminNorm_59 (DE1), Tangerine_60 (DE1), Tycho_58 (DE1),

Start 45:

- Found in 8 of 65 (12.3%) of genes in pham
- Manual Annotations of this start: 5 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CoveyB_77 (DC1), Egi03_76 (DC1), Gezellig_76 (DC1), Halo3_74 (DC1), KimmyK_76 (DC1), TillyBobJoe_75 (DC1), Valary_77 (DC1), Wizard_73 (DC1),

Start 46:

- Found in 1 of 65 (1.5%) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Savbucketdawg_72 (DC1),

Start 59:

- Found in 10 of 65 (15.4%) of genes in pham
- No Manual Annotations of this start.
- Called 10.0% of time when present
- Phage (with cluster) where this start called: CherryCola_77 (DC1),

Summary by clusters:

There are 4 clusters represented in this pham: DE1, DE2, CV, DC1,

Info for manual annotations of cluster CV:

- Start number 16 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster DC1:

- Start number 45 was manually annotated 5 times for cluster DC1.
- Start number 46 was manually annotated 1 time for cluster DC1.

Info for manual annotations of cluster DE1:

- Start number 9 was manually annotated 32 times for cluster DE1.
- Start number 18 was manually annotated 8 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 6 was manually annotated 4 times for cluster DE2.
- Start number 12 was manually annotated 4 times for cluster DE2.

Gene Information:

Gene: Affeca_59 Start: 48685, Stop: 49548, Start Num: 9

Candidate Starts for Affeca_59:

(Start: 9 @48685 has 32 MA's), (11, 48730), (22, 48763), (24, 48784), (30, 48886), (33, 49000), (36, 49057), (37, 49093), (55, 49174), (56, 49180), (62, 49231), (63, 49255), (70, 49294), (71, 49306), (72, 49315), (113, 49540),

Gene: Ailee_58 Start: 48107, Stop: 49438, Start Num: 9

Candidate Starts for Ailee_58:

(Start: 9 @48107 has 32 MA's), (11, 48152), (22, 48179), (24, 48200), (30, 48302), (33, 48416), (36, 48473), (37, 48509), (42, 48611), (43, 48689), (44, 48695), (50, 48761), (55, 48818), (62, 48875), (63, 48899), (70, 48938), (74, 49001), (80, 49094), (81, 49103), (82, 49115), (88, 49193), (102, 49358), (105, 49418),

Gene: Ali17_55 Start: 45697, Stop: 46656, Start Num: 6

Candidate Starts for Ali17_55:

(Start: 6 @45697 has 4 MA's), (13, 45841), (14, 45856), (15, 45859), (17, 45880), (19, 45934), (21, 45946), (23, 45964), (28, 45997), (30, 46060), (33, 46174), (36, 46234), (37, 46270), (60, 46318), (85, 46396), (89, 46441), (92, 46462), (97, 46531), (104, 46624), (105, 46642),

Gene: Angelicage_59 Start: 48758, Stop: 49621, Start Num: 9

Candidate Starts for Angelicage_59:

(Start: 9 @48758 has 32 MA's), (11, 48803), (22, 48836), (24, 48857), (30, 48959), (33, 49073), (36, 49130), (37, 49166), (55, 49247), (56, 49253), (62, 49304), (63, 49328), (70, 49367), (71, 49379), (72, 49388), (113, 49613),

Gene: Baddon_59 Start: 48114, Stop: 49244, Start Num: 18

Candidate Starts for Baddon_59:

(Start: 18 @48114 has 8 MA's), (25, 48180), (29, 48204), (30, 48273), (33, 48387), (36, 48444), (37, 48480), (42, 48582), (50, 48732), (57, 48783), (58, 48804), (62, 48828), (64, 48858), (66, 48873), (71, 48900), (72, 48909), (76, 49005), (82, 49065), (84, 49083), (88, 49137),

Gene: Barsten_62 Start: 48900, Stop: 49757, Start Num: 9

Candidate Starts for Barsten_62:

(Start: 9 @48900 has 32 MA's), (11, 48945), (22, 48972), (24, 48993), (30, 49095), (33, 49209), (34, 49221), (36, 49266), (37, 49302), (55, 49383), (56, 49389), (62, 49440), (63, 49464), (70, 49503), (71,

49515), (72, 49524), (113, 49749),

Gene: Baumdotcom_57 Start: 46701, Stop: 48035, Start Num: 18

Candidate Starts for Baumdotcom_57:

(Start: 18 @46701 has 8 MA's), (22, 46734), (24, 46755), (26, 46764), (30, 46857), (33, 46995), (36, 47052), (37, 47088), (42, 47190), (44, 47274), (50, 47340), (57, 47409), (62, 47454), (71, 47529), (72, 47538), (74, 47580), (75, 47625), (78, 47664), (80, 47673), (82, 47694), (84, 47712), (88, 47766), (112, 48012),

Gene: Bibwit_61 Start: 48153, Stop: 49274, Start Num: 9

Candidate Starts for Bibwit_61:

(Start: 9 @48153 has 32 MA's), (11, 48198), (22, 48225), (24, 48246), (30, 48348), (33, 48462), (36, 48519), (37, 48555), (55, 48636), (56, 48642), (62, 48693), (63, 48717), (70, 48756), (71, 48768), (72, 48777), (80, 48915), (82, 48936), (84, 48954), (93, 49068), (96, 49113), (113, 49266),

Gene: BobBob_60 Start: 47974, Stop: 49047, Start Num: 9

Candidate Starts for BobBob_60:

(Start: 9 @47974 has 32 MA's), (11, 48019), (22, 48046), (24, 48067), (30, 48169), (33, 48280), (34, 48292), (36, 48337), (37, 48373), (41, 48466), (50, 48514), (55, 48571), (62, 48628), (73, 48673), (80, 48700), (94, 48865), (113, 49039),

Gene: Brandonk123_65 Start: 48648, Stop: 49724, Start Num: 9

Candidate Starts for Brandonk123_65:

(Start: 9 @48648 has 32 MA's), (11, 48693), (22, 48720), (24, 48741), (30, 48843), (33, 48954), (36, 49017), (37, 49053), (41, 49143), (50, 49191), (62, 49305), (73, 49350), (80, 49377), (113, 49716),

Gene: ChadMasterC_62 Start: 50308, Stop: 51270, Start Num: 9

Candidate Starts for ChadMasterC_62:

(Start: 9 @50308 has 32 MA's), (11, 50353), (22, 50380), (24, 50401), (30, 50503), (33, 50617), (34, 50629), (36, 50674), (37, 50710), (55, 50791), (56, 50797), (62, 50848), (63, 50872), (70, 50911), (77, 51037), (79, 51061), (82, 51091), (95, 51259),

Gene: Charming_63 Start: 47762, Stop: 48985, Start Num: 9

Candidate Starts for Charming_63:

(Start: 9 @47762 has 32 MA's), (11, 47807), (22, 47834), (24, 47855), (30, 47957), (33, 48068), (36, 48125), (37, 48161), (41, 48254), (50, 48302), (55, 48359), (62, 48416), (70, 48479), (72, 48500), (74, 48542), (80, 48626), (82, 48647), (93, 48779), (96, 48824), (113, 48977),

Gene: CherryCola_77 Start: 51907, Stop: 52473, Start Num: 59

Candidate Starts for CherryCola_77:

(59, 51907), (61, 51916), (80, 52150), (83, 52174), (87, 52228), (90, 52276), (98, 52348), (99, 52360), (107, 52462),

Gene: CoveyB_77 Start: 51267, Stop: 51965, Start Num: 45

Candidate Starts for CoveyB_77:

(Start: 45 @51267 has 5 MA's), (59, 51399), (61, 51408), (80, 51642), (83, 51666), (87, 51720), (90, 51768), (98, 51840), (99, 51852), (107, 51954),

Gene: EMoore_56 Start: 47210, Stop: 48160, Start Num: 12

Candidate Starts for EMoore_56:

(5, 47051), (7, 47129), (8, 47144), (Start: 12 @47210 has 4 MA's), (21, 47300), (24, 47333), (28, 47351), (30, 47420), (33, 47522), (36, 47579), (37, 47615), (68, 47804), (89, 47969), (90, 47978), (92, 47990), (93, 48008), (105, 48146),

Gene: Egi03_76 Start: 50827, Stop: 51525, Start Num: 45

Candidate Starts for Egi03_76:

(Start: 45 @50827 has 5 MA's), (59, 50959), (61, 50968), (80, 51202), (83, 51226), (87, 51280), (90, 51328), (98, 51400), (99, 51412),

Gene: Fitzgerald_58 Start: 48818, Stop: 50050, Start Num: 9

Candidate Starts for Fitzgerald_58:

(Start: 9 @48818 has 32 MA's), (11, 48863), (22, 48890), (24, 48911), (30, 49013), (33, 49127), (34, 49139), (36, 49184), (37, 49220), (41, 49310), (50, 49358), (55, 49415), (56, 49421), (62, 49472), (65, 49502), (80, 49679), (82, 49700), (84, 49718), (94, 49868), (113, 50042),

Gene: Flatwoods_59 Start: 46541, Stop: 47608, Start Num: 18

Candidate Starts for Flatwoods_59:

(Start: 18 @46541 has 8 MA's), (27, 46613), (29, 46631), (30, 46706), (33, 46820), (34, 46832), (36, 46877), (38, 46943), (51, 46973), (62, 47018), (71, 47090), (72, 47099), (75, 47186), (78, 47225), (80, 47234), (82, 47255), (88, 47339), (112, 47585),

Gene: Fosterous_63 Start: 48909, Stop: 49979, Start Num: 9

Candidate Starts for Fosterous_63:

(Start: 9 @48909 has 32 MA's), (11, 48954), (22, 48981), (24, 49002), (30, 49104), (33, 49215), (34, 49227), (36, 49272), (37, 49308), (41, 49398), (50, 49446), (62, 49560), (73, 49605), (80, 49632), (113, 49971),

Gene: FuegoCuervo_65 Start: 48426, Stop: 49637, Start Num: 9

Candidate Starts for FuegoCuervo_65:

(Start: 9 @48426 has 32 MA's), (11, 48471), (22, 48498), (24, 48519), (30, 48621), (33, 48732), (36, 48789), (37, 48825), (41, 48915), (50, 48963), (55, 49020), (62, 49077), (70, 49140), (72, 49161), (80, 49299), (82, 49320), (91, 49431), (103, 49587), (107, 49620), (108, 49623), (109, 49626),

Gene: Gaea_61 Start: 47107, Stop: 48300, Start Num: 18

Candidate Starts for Gaea_61:

(Start: 18 @47107 has 8 MA's), (22, 47140), (24, 47161), (30, 47263), (33, 47377), (36, 47434), (37, 47470), (42, 47572), (44, 47656), (50, 47722), (57, 47794), (62, 47839), (71, 47914), (72, 47923), (82, 48070), (87, 48133), (90, 48181),

Gene: Galadriel_61 Start: 49042, Stop: 50259, Start Num: 9

Candidate Starts for Galadriel_61:

(Start: 9 @49042 has 32 MA's), (11, 49087), (22, 49114), (24, 49135), (30, 49237), (33, 49348), (34, 49360), (36, 49405), (37, 49441), (41, 49531), (50, 49579), (55, 49636), (62, 49693), (70, 49756), (72, 49777), (77, 49882), (80, 49915), (82, 49936), (94, 50077), (113, 50251),

Gene: Geodirt_61 Start: 49352, Stop: 50326, Start Num: 9

Candidate Starts for Geodirt_61:

(Start: 9 @49352 has 32 MA's), (11, 49397), (22, 49424), (24, 49445), (30, 49547), (33, 49661), (36, 49718), (37, 49754), (55, 49835), (56, 49841), (62, 49892), (63, 49916), (70, 49955), (71, 49967), (84, 50006), (93, 50120), (96, 50165), (113, 50318),

Gene: Gezellig_76 Start: 51020, Stop: 51718, Start Num: 45

Candidate Starts for Gezellig_76:

(Start: 45 @51020 has 5 MA's), (59, 51152), (61, 51161), (80, 51395), (83, 51419), (87, 51473), (90, 51521), (98, 51593), (99, 51605), (107, 51707),

Gene: Gustavo_61 Start: 47618, Stop: 48964, Start Num: 18

Candidate Starts for Gustavo_61:

(Start: 18 @47618 has 8 MA's), (27, 47690), (29, 47708), (30, 47783), (33, 47921), (36, 47978), (37, 48014), (42, 48116), (44, 48200), (50, 48266), (57, 48338), (62, 48383), (71, 48458), (72, 48467), (74, 48509), (75, 48554), (78, 48593), (80, 48602), (82, 48623), (84, 48641), (88, 48695), (112, 48941),

Gene: Halo3_74 Start: 51605, Stop: 52303, Start Num: 45

Candidate Starts for Halo3_74:

(Start: 45 @51605 has 5 MA's), (59, 51737), (61, 51746), (80, 51980), (83, 52004), (87, 52058), (90, 52106), (98, 52178), (99, 52190), (107, 52292),

Gene: Hans_59 Start: 46328, Stop: 47386, Start Num: 6

Candidate Starts for Hans_59:

(Start: 6 @46328 has 4 MA's), (13, 46472), (14, 46487), (15, 46490), (17, 46511), (19, 46565), (21, 46577), (23, 46595), (28, 46628), (30, 46691), (33, 46805), (36, 46865), (37, 46901), (60, 46949), (92, 47087), (93, 47105), (110, 47294), (111, 47297), (114, 47324), (115, 47354),

Gene: Inspectinfecti_58 Start: 46732, Stop: 47517, Start Num: 12

Candidate Starts for Inspectinfecti_58:

(Start: 12 @46732 has 4 MA's), (30, 46945), (33, 47056), (36, 47113), (92, 47323), (93, 47341), (97, 47392), (106, 47503),

Gene: JKSyngboy_59 Start: 48219, Stop: 49349, Start Num: 18

Candidate Starts for JKSyngboy_59:

(Start: 18 @48219 has 8 MA's), (25, 48285), (29, 48309), (30, 48378), (33, 48492), (36, 48549), (37, 48585), (42, 48687), (50, 48837), (57, 48888), (58, 48909), (62, 48933), (64, 48963), (66, 48978), (71, 49005), (72, 49014), (76, 49110), (82, 49170), (84, 49188), (88, 49242),

Gene: Jabberwocky_59 Start: 49193, Stop: 50284, Start Num: 9

Candidate Starts for Jabberwocky_59:

(Start: 9 @49193 has 32 MA's), (11, 49238), (22, 49265), (24, 49286), (30, 49388), (34, 49499), (35, 49520), (36, 49544), (37, 49580), (39, 49637), (47, 49694), (49, 49718), (52, 49757), (53, 49769), (54, 49778), (80, 49913), (82, 49934), (84, 49952), (94, 50102), (113, 50276),

Gene: JuJu_86 Start: 52100, Stop: 52939, Start Num: 16

Candidate Starts for JuJu_86:

(1, 51668), (2, 51776), (3, 51791), (4, 51827), (Start: 16 @52100 has 1 MA's), (19, 52166), (22, 52193), (30, 52313), (31, 52349), (33, 52433), (36, 52490), (37, 52526), (69, 52607), (70, 52613), (86, 52664), (92, 52727), (101, 52826), (107, 52928),

Gene: Kamashten_60 Start: 48087, Stop: 49157, Start Num: 9

Candidate Starts for Kamashten_60:

(Start: 9 @48087 has 32 MA's), (11, 48132), (22, 48159), (24, 48180), (30, 48282), (33, 48393), (34, 48405), (36, 48450), (37, 48486), (41, 48576), (50, 48624), (62, 48738), (73, 48783), (80, 48810), (113, 49149),

Gene: Keitabear_61 Start: 49762, Stop: 50880, Start Num: 9

Candidate Starts for Keitabear_61:

(Start: 9 @49762 has 32 MA's), (11, 49807), (22, 49834), (24, 49855), (30, 49957), (33, 50071), (36, 50128), (37, 50164), (55, 50245), (56, 50251), (62, 50302), (63, 50326), (70, 50365), (74, 50428), (80, 50521), (82, 50542), (93, 50674), (96, 50719), (113, 50872),

Gene: Kewpiedoll_61 Start: 49141, Stop: 50238, Start Num: 9

Candidate Starts for Kewpiedoll_61:

(Start: 9 @49141 has 32 MA's), (11, 49186), (22, 49351), (30, 49474), (33, 49585), (36, 49642), (37, 49678), (55, 49759), (56, 49765), (62, 49816), (63, 49840), (70, 49879), (71, 49891), (84, 49930), (93, 50032), (96, 50077), (113, 50230),

Gene: KimmyK_76 Start: 51467, Stop: 52165, Start Num: 45

Candidate Starts for KimmyK_76:

(Start: 45 @51467 has 5 MA's), (59, 51599), (61, 51608), (80, 51842), (83, 51866), (87, 51920), (90, 51968), (98, 52040), (99, 52052), (107, 52154),

Gene: Kroos_59 Start: 47638, Stop: 48705, Start Num: 18

Candidate Starts for Kroos_59:

(Start: 18 @47638 has 8 MA's), (27, 47710), (29, 47728), (30, 47803), (33, 47917), (34, 47929), (36, 47974), (38, 48040), (51, 48070), (62, 48115), (71, 48187), (72, 48196), (75, 48283), (78, 48322), (80, 48331), (82, 48352), (88, 48436), (112, 48682),

Gene: Lennon_62 Start: 50070, Stop: 51029, Start Num: 9

Candidate Starts for Lennon_62:

(Start: 9 @50070 has 32 MA's), (11, 50115), (22, 50142), (24, 50163), (30, 50265), (33, 50379), (34, 50391), (36, 50436), (37, 50472), (55, 50553), (56, 50559), (62, 50610), (63, 50634), (70, 50673), (71, 50685), (84, 50724), (96, 50868), (113, 51021),

Gene: Leonard_57 Start: 46698, Stop: 47588, Start Num: 12

Candidate Starts for Leonard_57:

(Start: 12 @46698 has 4 MA's), (19, 46776), (20, 46779), (21, 46788), (30, 46911), (33, 47022), (36, 47079), (92, 47289), (93, 47307), (110, 47496), (111, 47499), (114, 47526), (115, 47556),

Gene: Love_64 Start: 49089, Stop: 50165, Start Num: 9

Candidate Starts for Love_64:

(Start: 9 @49089 has 32 MA's), (11, 49134), (22, 49161), (24, 49182), (30, 49284), (31, 49320), (33, 49404), (34, 49416), (36, 49461), (37, 49497), (40, 49563), (68, 49764), (79, 49788), (80, 49797), (82, 49818), (94, 49983), (113, 50157),

Gene: McKinley_63 Start: 48890, Stop: 49840, Start Num: 9

Candidate Starts for McKinley_63:

(Start: 9 @48890 has 32 MA's), (11, 48935), (22, 48968), (24, 48989), (30, 49091), (34, 49202), (35, 49223), (36, 49247), (37, 49283), (55, 49364), (56, 49370), (62, 49421), (63, 49445), (70, 49484), (71, 49496), (84, 49535), (113, 49832),

Gene: MelBins_58 Start: 46810, Stop: 47757, Start Num: 6

Candidate Starts for MelBins_58:

(Start: 6 @46810 has 4 MA's), (10, 46894), (17, 46984), (21, 47050), (23, 47068), (28, 47101), (30, 47164), (33, 47278), (36, 47335), (37, 47371), (60, 47419), (85, 47497), (89, 47542), (92, 47563), (97, 47632), (104, 47725), (105, 47743),

Gene: MoontowerMania_60 Start: 49188, Stop: 50267, Start Num: 9

Candidate Starts for MoontowerMania_60:

(Start: 9 @49188 has 32 MA's), (11, 49233), (22, 49260), (24, 49281), (30, 49383), (32, 49449), (33, 49494), (34, 49506), (36, 49551), (37, 49587), (55, 49668), (56, 49674), (58, 49701), (62, 49725), (65, 49755), (82, 49944), (94, 50085), (113, 50259),

Gene: Nordenberg_58 Start: 47326, Stop: 48549, Start Num: 9

Candidate Starts for Nordenberg_58:

(Start: 9 @47326 has 32 MA's), (11, 47371), (22, 47398), (24, 47419), (30, 47521), (33, 47632), (36, 47689), (37, 47725), (41, 47818), (50, 47866), (55, 47923), (62, 47980), (70, 48043), (72, 48064), (74, 48106), (80, 48190), (82, 48211), (93, 48343), (96, 48388), (113, 48541),

Gene: Paries_64 Start: 49225, Stop: 50445, Start Num: 9

Candidate Starts for Paries_64:

(Start: 9 @49225 has 32 MA's), (11, 49270), (22, 49297), (24, 49318), (30, 49420), (33, 49534), (34, 49546), (36, 49591), (37, 49627), (41, 49717), (50, 49765), (55, 49822), (56, 49828), (62, 49879), (63, 49903), (70, 49942), (71, 49954), (77, 50068), (79, 50092), (80, 50101), (82, 50122), (94, 50263), (113, 50437),

Gene: Phauci_50 Start: 43331, Stop: 44437, Start Num: 6

Candidate Starts for Phauci_50:

(Start: 6 @43331 has 4 MA's), (13, 43475), (14, 43490), (15, 43493), (17, 43514), (19, 43568), (21, 43580), (23, 43598), (28, 43631), (30, 43694), (33, 43808), (36, 43868), (37, 43904), (67, 44060), (92, 44243), (93, 44261), (97, 44312), (105, 44423),

Gene: Phinally_57 Start: 46695, Stop: 47585, Start Num: 12

Candidate Starts for Phinally_57:

(Start: 12 @46695 has 4 MA's), (19, 46773), (20, 46776), (21, 46785), (30, 46908), (33, 47019), (36, 47076), (92, 47286), (93, 47304), (110, 47493), (111, 47496), (114, 47523), (115, 47553),

Gene: RiverRaider_61 Start: 46742, Stop: 47599, Start Num: 9

Candidate Starts for RiverRaider_61:

(Start: 9 @46742 has 32 MA's), (11, 46787), (22, 46814), (24, 46835), (30, 46937), (33, 47051), (34, 47063), (36, 47108), (37, 47144), (55, 47225), (56, 47231), (62, 47282), (63, 47306), (70, 47345), (71, 47357), (72, 47366), (113, 47591),

Gene: Rofo_60 Start: 48491, Stop: 49561, Start Num: 9

Candidate Starts for Rofo_60:

(Start: 9 @48491 has 32 MA's), (11, 48536), (22, 48563), (24, 48584), (30, 48686), (33, 48797), (34, 48809), (36, 48854), (37, 48890), (41, 48980), (50, 49028), (62, 49142), (73, 49187), (80, 49214), (113, 49553),

Gene: Sanjuju_59 Start: 48950, Stop: 50182, Start Num: 9

Candidate Starts for Sanjuju_59:

(Start: 9 @48950 has 32 MA's), (11, 48995), (22, 49022), (24, 49043), (30, 49145), (33, 49259), (34, 49271), (36, 49316), (37, 49352), (41, 49442), (50, 49490), (55, 49547), (56, 49553), (62, 49604), (65, 49634), (80, 49811), (82, 49832), (84, 49850), (94, 50000), (113, 50174),

Gene: Saronaya_61 Start: 47618, Stop: 48964, Start Num: 18

Candidate Starts for Saronaya_61:

(Start: 18 @47618 has 8 MA's), (27, 47690), (29, 47708), (30, 47783), (33, 47921), (36, 47978), (37, 48014), (42, 48116), (44, 48200), (50, 48266), (57, 48338), (62, 48383), (71, 48458), (72, 48467), (74, 48509), (75, 48554), (78, 48593), (80, 48602), (82, 48623), (84, 48641), (88, 48695), (112, 48941),

Gene: Savbucketdawg_72 Start: 50582, Stop: 51280, Start Num: 46

Candidate Starts for Savbucketdawg_72:

(Start: 46 @50582 has 1 MA's), (59, 50714), (61, 50723), (80, 50957), (83, 50981), (87, 51035), (90, 51083), (98, 51155), (99, 51167), (107, 51269),

Gene: SchottB_58 Start: 47810, Stop: 48874, Start Num: 18

Candidate Starts for SchottB_58:

(Start: 18 @47810 has 8 MA's), (25, 47876), (29, 47900), (30, 47969), (33, 48083), (36, 48140), (48, 48224), (62, 48284), (66, 48329), (71, 48356), (72, 48365), (80, 48500), (82, 48521), (88, 48605), (100, 48728), (112, 48851),

Gene: Sedona_60 Start: 49583, Stop: 50710, Start Num: 9

Candidate Starts for Sedona_60:

(Start: 9 @49583 has 32 MA's), (11, 49628), (22, 49661), (24, 49682), (30, 49784), (33, 49898), (34, 49910), (36, 49955), (37, 49991), (55, 50072), (56, 50078), (62, 50129), (70, 50192), (72, 50213), (74, 50255), (80, 50351), (82, 50372), (93, 50504), (96, 50549), (113, 50702),

Gene: Shivanishola_59 Start: 46800, Stop: 47876, Start Num: 9

Candidate Starts for Shivanishola_59:

(Start: 9 @46800 has 32 MA's), (11, 46845), (22, 46872), (24, 46893), (30, 46995), (31, 47031), (33, 47115), (34, 47127), (36, 47172), (37, 47208), (40, 47274), (68, 47475), (79, 47499), (80, 47508), (82, 47529), (94, 47694), (113, 47868),

Gene: Sitar_62 Start: 49779, Stop: 50738, Start Num: 9

Candidate Starts for Sitar_62:

(Start: 9 @49779 has 32 MA's), (11, 49824), (22, 49851), (24, 49872), (30, 49974), (33, 50088), (34, 50100), (36, 50145), (37, 50181), (55, 50262), (56, 50268), (62, 50319), (63, 50343), (70, 50382), (71, 50394), (84, 50433), (96, 50577), (113, 50730),

Gene: StorminNorm_59 Start: 47260, Stop: 48606, Start Num: 18

Candidate Starts for StorminNorm_59:

(Start: 18 @47260 has 8 MA's), (27, 47332), (29, 47350), (30, 47425), (33, 47563), (36, 47620), (37, 47656), (42, 47758), (44, 47842), (50, 47908), (57, 47980), (62, 48025), (71, 48100), (72, 48109), (74, 48151), (75, 48196), (78, 48235), (80, 48244), (82, 48265), (84, 48283), (88, 48337), (112, 48583),

Gene: Stultus_58 Start: 48041, Stop: 49000, Start Num: 9

Candidate Starts for Stultus_58:

(Start: 9 @48041 has 32 MA's), (11, 48086), (22, 48113), (24, 48134), (30, 48236), (33, 48350), (36, 48407), (37, 48443), (55, 48524), (56, 48530), (62, 48581), (63, 48605), (70, 48644), (71, 48656), (84, 48695), (96, 48839), (113, 48992),

Gene: Tangent_62 Start: 48196, Stop: 49266, Start Num: 9

Candidate Starts for Tangent_62:

(Start: 9 @48196 has 32 MA's), (11, 48241), (22, 48268), (24, 48289), (30, 48391), (33, 48502), (34, 48514), (36, 48559), (37, 48595), (41, 48685), (50, 48733), (62, 48847), (73, 48892), (80, 48919), (113, 49258),

Gene: Tangerine_60 Start: 47020, Stop: 48357, Start Num: 18

Candidate Starts for Tangerine_60:

(Start: 18 @47020 has 8 MA's), (22, 47053), (24, 47074), (26, 47083), (30, 47176), (33, 47314), (36, 47371), (37, 47407), (42, 47509), (44, 47593), (50, 47659), (57, 47731), (62, 47776), (71, 47851), (72, 47860), (74, 47902), (75, 47947), (78, 47986), (80, 47995), (82, 48016), (84, 48034), (88, 48088), (112, 48334),

Gene: Thing3_60 Start: 48087, Stop: 49157, Start Num: 9

Candidate Starts for Thing3_60:

(Start: 9 @48087 has 32 MA's), (11, 48132), (22, 48159), (24, 48180), (30, 48282), (33, 48393), (34, 48405), (36, 48450), (37, 48486), (41, 48576), (50, 48624), (62, 48738), (73, 48783), (80, 48810), (113, 49149),

Gene: TillyBobJoe_75 Start: 51196, Stop: 51894, Start Num: 45

Candidate Starts for TillyBobJoe_75:

(Start: 45 @51196 has 5 MA's), (59, 51328), (61, 51337), (80, 51571), (83, 51595), (87, 51649), (90, 51697), (98, 51769), (99, 51781),

Gene: Tycho_58 Start: 46784, Stop: 48127, Start Num: 18

Candidate Starts for Tycho_58:

(Start: 18 @46784 has 8 MA's), (22, 46817), (24, 46838), (26, 46847), (30, 46940), (33, 47078), (36, 47135), (37, 47171), (42, 47273), (44, 47357), (50, 47423), (57, 47492), (62, 47537), (71, 47609), (72, 47618), (75, 47705), (78, 47744), (80, 47753), (82, 47774), (88, 47858), (112, 48104),

Gene: Valary_77 Start: 51842, Stop: 52540, Start Num: 45

Candidate Starts for Valary_77:

(Start: 45 @51842 has 5 MA's), (59, 51974), (61, 51983), (80, 52217), (83, 52241), (87, 52295), (90, 52343), (98, 52415), (99, 52427), (107, 52529),

Gene: Vivi2_65 Start: 49251, Stop: 50327, Start Num: 9

Candidate Starts for Vivi2_65:

(Start: 9 @49251 has 32 MA's), (11, 49296), (22, 49323), (24, 49344), (30, 49446), (33, 49557), (34, 49569), (36, 49614), (37, 49650), (50, 49788), (55, 49845), (62, 49902), (70, 49965), (80, 50124), (82, 50145), (103, 50277), (108, 50313), (109, 50316),

Gene: Wizard_73 Start: 51020, Stop: 51718, Start Num: 45

Candidate Starts for Wizard_73:

(Start: 45 @51020 has 5 MA's), (59, 51152), (61, 51161), (80, 51395), (83, 51419), (87, 51473), (90, 51521), (98, 51593), (99, 51605), (107, 51707),