

[illegible]

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 323177 Report

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

Pham number 323177 has 78 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Ajin_35
- Track 2 : Kors_35, TinyMiny_35, RikSengupta_35, Sparcetus_35
- Track 3 : Bramble_35, LordBart_35
- Track 4 : KingKamren_33
- Track 5 : EugeneKrabs_34
- Track 6 : Zhengyi_34
- Track 7 : Birdfeeder_35
- Track 8 : Sorvannah_34, Salvatore2000_34
- Track 9 : YellowPanda_36
- Track 10 : Oatly_38, HitchHiker_39, Biozilla_38, PineapplePluto_39, CrunchyBoi_39
- Track 11 : MiamiPanther_35
- Track 12 : DumpQuist_36, SwissCheezer_36, Dashyla_36
- Track 13 : TinyTimothy_33
- Track 14 : Unphazed_37
- Track 15 : TicTac_38
- Track 16 : LesNorah_37
- Track 17 : BlueRugrat_36
- Track 18 : Stormbreaker_37
- Track 19 : Corn21_36
- Track 20 : JessellCookie_35
- Track 21 : Wesak_34
- Track 22 : Conditioner_36
- Track 23 : ArMaWen_36
- Track 24 : LilyLou_38, Phogo_37
- Track 25 : Alex44_37
- Track 26 : Xitlalli_35
- Track 27 : Pabst_36
- Track 28 : TownLake_35
- Track 29 : Ashton_37, Barroma_35, AloeVera_37, JordanFarm_38, Akoni_36, ShyRosie_36, Truong_36
- Track 30 : Pharky_36
- Track 31 : Yafa_36
- Track 32 : SoilSleuth_38, Waterlily_39
- Track 33 : Fullmetal_36, RicoCaldo_36, Mazun_37, StagePhright_36, Keough_35, Phedro_36, Moleficent_36, Phracted_36
- Track 34 : Atraxi_34
- Track 35 : PhriedRice_37

- Track 36 : TrippleS_35
- Track 37 : Morrill_34
- Track 38 : ThirteenKH_35
- Track 39 : Astartes_36
- Track 40 : JimmyPG_36
- Track 41 : Fede_36
- Track 42 : Kosier_36
- Track 43 : Arete_32
- Track 44 : DoTi_32
- Track 45 : Araxxi_32
- Track 46 : Gshelby23_30, Hannabella_32, Casino_31
- Track 47 : Burro_32
- Track 48 : Scruffy_32
- Track 49 : Kikiko_33
- Track 50 : MissAmericana_36

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

The start number called the most often in the published annotations is 2, it was called in 60 of the 68 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ajin_35, Akoni_36, Alex44_37, AloeVera_37, ArMaWen_36, Ashton_37, Astartes_36, Atraxi_34, Barroma_35, Biozilla_38, Birdfeeder_35, BlueRugrat_36, Bramble_35, Conditioner_36, Corn21_36, CrunchyBoi_39, Dashyla_36, DumpQuist_36, EugeneKrabs_34, Fede_36, Fullmetal_36, HitchHiker_39, JessellCookie_35, JimmyPG_36, JordanFarm_38, Keough_35, KingKamren_33, Kors_35, Kosier_36, LesNorah_37, LilyLou_38, LordBart_35, Mazun_37, MiamiPanther_35, Moleficent_36, Morrill_34, Oatly_38, Pabst_36, Pharky_36, Phedro_36, Phogo_37, Phracted_36, PhriedRice_37, PineapplePluto_39, RicoCaldo_36, RikSengupta_35, Salvatore2000_34, ShyRosie_36, SoilSleuth_38, Sorvannah_34, Sparcetus_35, StagePhright_36, Stormbreaker_37, SwissCheezer_36, ThirteenKH_35, TicTac_38, TinyMiny_35, TinyTimothy_33, TownLake_35, TrippleS_35, Truong_36, Unphazed_37, Waterlily_39, Wesak_34, Xitlalli_35, Yafa_36, YellowPanda_36, Zhengyi_34,

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:

- Araxxi_32, Arete_32, Burro_32, Casino_31, DoTi_32, Gshelby23_30, Hannabella_32, Kikiko_33, MissAmericana_36, Scruffy_32,

Summary by start number:

Start 2:

- Found in 68 of 78 (87.2%) of genes in pham
- Manual Annotations of this start: 60 of 68
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Ajin_35 (EF), Akoni_36 (EK2), Alex44_37 (EK1), AloeVera_37 (EK2), ArMaWen_36 (EK1), Ashton_37 (EK2), Astartes_36 (EK2), Atraxi_34 (EK2), Barroma_35 (EK2), Biozilla_38 (EK1), Birdfeeder_35 (EK1), BlueRugrat_36 (EK1), Bramble_35 (EF), Conditioner_36 (EK1), Corn21_36 (EK1), CrunchyBoi_39 (EK1), Dashyla_36 (EK1), DumpQuist_36 (EK1), EugeneKrabs_34 (EK), Fede_36 (EK2), Fullmetal_36 (EK2), HitchHiker_39 (EK1), JessellCookie_35 (EK1), JimmyPG_36 (EK2), JordanFarm_38 (EK2), Keough_35 (EK2), KingKamren_33 (EK), Kors_35 (EF), Kosier_36 (EK2), LesNorah_37 (EK1), LilyLou_38 (EK1), LordBart_35 (EF), Mazun_37 (EK2), MiamiPanther_35 (EK1), Moleficent_36 (EK2), Morrill_34 (EK2), Oatly_38 (EK1), Pabst_36 (EK1), Pharky_36 (EK2), Phedro_36 (EK2), Phogo_37 (EK1), Phracted_36 (EK2), PhriedRice_37 (EK2), PineapplePluto_39 (EK1), RicoCaldo_36 (EK2), RikSengupta_35 (EF), Salvatore2000_34 (EK1), ShyRosie_36 (EK2), SoilSleuth_38 (EK2), Sorvannah_34 (EK1), Sparcetis_35 (EF), StagePhright_36 (EK2), Stormbreaker_37 (EK1), SwissCheezer_36 (EK1), ThirteenKH_35 (EK2), TicTac_38 (EK1), TinyMiny_35 (EF), TinyTimothy_33 (EK1), TownLake_35 (EK1), TrippleS_35 (EK2), Truong_36 (EK2), Unphazed_37 (EK1), Waterlily_39 (EK2), Wesak_34 (EK1), Xitlalli_35 (EK1), Yafa_36 (EK2), YellowPanda_36 (EK1), Zhengyi_34 (EK),

Start 3:

- Found in 7 of 78 (9.0%) of genes in pham
- Manual Annotations of this start: 6 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Araxxi_32 (EM1), Arete_32 (EM1), Casino_31 (EM1), DoTi_32 (EM1), Gshelby23_30 (EM1), Hannabella_32 (EM1), Scruffy_32 (EM1),

Start 7:

- Found in 1 of 78 (1.3%) of genes in pham
- Manual Annotations of this start: 1 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Burro_32 (EM1),

Start 10:

- Found in 9 of 78 (11.5%) of genes in pham
- Manual Annotations of this start: 1 of 68
- Called 22.2% of time when present
- Phage (with cluster) where this start called: Kikiko_33 (EM2), MissAmericana_36 (EM2),

Summary by clusters:

There are 6 clusters represented in this pham: EK, EF, EM1, EM2, EK2, EK1,

Info for manual annotations of cluster EF:

- Start number 2 was manually annotated 7 times for cluster EF.

Info for manual annotations of cluster EK:

- Start number 2 was manually annotated 3 times for cluster EK.

Info for manual annotations of cluster EK1:

- Start number 2 was manually annotated 27 times for cluster EK1.

Info for manual annotations of cluster EK2:

- Start number 2 was manually annotated 23 times for cluster EK2.

Info for manual annotations of cluster EM1:

- Start number 3 was manually annotated 6 times for cluster EM1.
- Start number 7 was manually annotated 1 time for cluster EM1.

Info for manual annotations of cluster EM2:

- Start number 10 was manually annotated 1 time for cluster EM2.

Gene Information:

Gene: Ajin_35 Start: 21500, Stop: 23185, Start Num: 2

Candidate Starts for Ajin_35:

(Start: 2 @21500 has 60 MA's), (Start: 10 @21566 has 1 MA's), (21, 21683), (23, 21731), (24, 21764), (55, 22052), (75, 22247), (81, 22304), (100, 22472), (104, 22532), (111, 22595), (112, 22613), (125, 22742), (135, 22817), (136, 22823), (140, 22862), (144, 22901), (154, 23030), (162, 23105), (163, 23111),

Gene: Akoni_36 Start: 36388, Stop: 38151, Start Num: 2

Candidate Starts for Akoni_36:

(Start: 2 @36388 has 60 MA's), (11, 36457), (21, 36577), (46, 36916), (50, 36949), (52, 36958), (54, 36973), (56, 36982), (93, 37318), (105, 37465), (109, 37501), (111, 37519), (115, 37564), (119, 37627), (130, 37726), (135, 37759), (145, 37855), (150, 37897), (164, 38086),

Gene: Alex44_37 Start: 36459, Stop: 38234, Start Num: 2

Candidate Starts for Alex44_37:

(Start: 2 @36459 has 60 MA's), (6, 36507), (9, 36522), (21, 36666), (27, 36759), (28, 36804), (30, 36819), (33, 36831), (38, 36882), (52, 37041), (53, 37044), (69, 37188), (75, 37257), (86, 37344), (91, 37377), (98, 37470), (109, 37581), (110, 37593), (117, 37650), (129, 37791), (131, 37809), (136, 37845), (138, 37869), (147, 37962), (159, 38130), (166, 38178),

Gene: AloeVera_37 Start: 36602, Stop: 38365, Start Num: 2

Candidate Starts for AloeVera_37:

(Start: 2 @36602 has 60 MA's), (11, 36671), (21, 36791), (46, 37130), (50, 37163), (52, 37172), (54, 37187), (56, 37196), (93, 37532), (105, 37679), (109, 37715), (111, 37733), (115, 37778), (119, 37841), (130, 37940), (135, 37973), (145, 38069), (150, 38111), (164, 38300),

Gene: ArMaWen_36 Start: 36002, Stop: 37777, Start Num: 2

Candidate Starts for ArMaWen_36:

(Start: 2 @36002 has 60 MA's), (6, 36050), (9, 36065), (21, 36209), (27, 36302), (28, 36347), (30, 36362), (33, 36374), (38, 36425), (52, 36584), (69, 36731), (75, 36800), (86, 36887), (98, 37013), (109, 37124), (110, 37136), (117, 37193), (129, 37334), (131, 37352), (145, 37478), (147, 37505), (154, 37601), (159, 37673), (166, 37721),

Gene: Araxxi_32 Start: 38313, Stop: 40022, Start Num: 3

Candidate Starts for Araxxi_32:

(Start: 3 @38313 has 6 MA's), (4, 38322), (12, 38379), (15, 38415), (29, 38631), (31, 38643), (34, 38655), (36, 38673), (48, 38823), (63, 38943), (77, 39069), (87, 39159), (95, 39240), (108, 39375), (118, 39483), (123, 39537), (129, 39591), (133, 39618), (149, 39777), (150, 39780), (155, 39906), (162, 39951), (167, 39981), (168, 39984),

Gene: Arete_32 Start: 38017, Stop: 39756, Start Num: 3

Candidate Starts for Arete_32:

(Start: 3 @38017 has 6 MA's), (5, 38056), (12, 38083), (29, 38335), (31, 38347), (34, 38359), (45, 38491), (74, 38743), (85, 38863), (98, 39019), (106, 39100), (118, 39217), (123, 39271), (124, 39274), (133, 39352), (146, 39478), (149, 39511), (150, 39514), (158, 39661), (162, 39685), (164, 39700), (167, 39715), (169, 39739),

Gene: Ashton_37 Start: 36601, Stop: 38364, Start Num: 2

Candidate Starts for Ashton_37:

(Start: 2 @36601 has 60 MA's), (11, 36670), (21, 36790), (46, 37129), (50, 37162), (52, 37171), (54, 37186), (56, 37195), (93, 37531), (105, 37678), (109, 37714), (111, 37732), (115, 37777), (119, 37840), (130, 37939), (135, 37972), (145, 38068), (150, 38110), (164, 38299),

Gene: Astartes_36 Start: 36672, Stop: 38444, Start Num: 2

Candidate Starts for Astartes_36:

(Start: 2 @36672 has 60 MA's), (20, 36873), (21, 36879), (49, 37230), (52, 37254), (58, 37314), (59, 37317), (84, 37539), (92, 37602), (94, 37626), (105, 37758), (116, 37860), (130, 38019), (145, 38148), (155, 38316), (164, 38379), (166, 38388),

Gene: Atraxi_34 Start: 36464, Stop: 38236, Start Num: 2

Candidate Starts for Atraxi_34:

(Start: 2 @36464 has 60 MA's), (20, 36665), (21, 36671), (52, 37046), (58, 37106), (59, 37109), (71, 37202), (84, 37331), (94, 37418), (111, 37604), (116, 37652), (128, 37787), (130, 37811), (155, 38108), (164, 38171), (166, 38180),

Gene: Barroma_35 Start: 36390, Stop: 38153, Start Num: 2

Candidate Starts for Barroma_35:

(Start: 2 @36390 has 60 MA's), (11, 36459), (21, 36579), (46, 36918), (50, 36951), (52, 36960), (54, 36975), (56, 36984), (93, 37320), (105, 37467), (109, 37503), (111, 37521), (115, 37566), (119, 37629), (130, 37728), (135, 37761), (145, 37857), (150, 37899), (164, 38088),

Gene: Biozilla_38 Start: 36500, Stop: 38266, Start Num: 2

Candidate Starts for Biozilla_38:

(1, 36434), (Start: 2 @36500 has 60 MA's), (17, 36650), (22, 36749), (30, 36860), (35, 36881), (38, 36923), (52, 37085), (71, 37238), (99, 37514), (109, 37622), (119, 37748), (125, 37808), (134, 37865), (136, 37886), (143, 37964), (154, 38093), (164, 38201), (170, 38243),

Gene: Birdfeeder_35 Start: 36215, Stop: 37990, Start Num: 2

Candidate Starts for Birdfeeder_35:

(Start: 2 @36215 has 60 MA's), (6, 36263), (21, 36422), (27, 36515), (28, 36560), (30, 36575), (33, 36587), (38, 36638), (42, 36683), (46, 36755), (52, 36797), (69, 36944), (86, 37100), (91, 37133), (98, 37226), (109, 37337), (110, 37349), (117, 37406), (129, 37547), (131, 37565), (145, 37691), (147, 37718), (151, 37742), (154, 37814), (159, 37886), (166, 37934),

Gene: BlueRugrat_36 Start: 36451, Stop: 38226, Start Num: 2

Candidate Starts for BlueRugrat_36:

(Start: 2 @36451 has 60 MA's), (21, 36658), (27, 36751), (28, 36796), (30, 36811), (33, 36823), (38, 36874), (42, 36919), (46, 36991), (52, 37033), (61, 37108), (69, 37180), (86, 37336), (98, 37462), (110, 37585), (117, 37642), (129, 37783), (131, 37801), (145, 37927), (147, 37954), (154, 38050), (159, 38122), (166, 38170),

Gene: Bramble_35 Start: 21466, Stop: 23151, Start Num: 2

Candidate Starts for Bramble_35:

(Start: 2 @21466 has 60 MA's), (Start: 10 @21532 has 1 MA's), (21, 21649), (23, 21697), (24, 21730), (55, 22018), (75, 22213), (81, 22270), (100, 22438), (104, 22498), (112, 22579), (125, 22708), (135, 22783), (136, 22789), (140, 22828), (144, 22867), (154, 22996), (162, 23071), (163, 23077),

Gene: Burro_32 Start: 37650, Stop: 39254, Start Num: 7

Candidate Starts for Burro_32:

(Start: 7 @37650 has 1 MA's), (13, 37683), (47, 38058), (51, 38082), (69, 38232), (73, 38271), (82, 38361), (83, 38367), (103, 38568), (107, 38601), (140, 38916), (145, 38967), (164, 39198), (165, 39204), (171, 39246),

Gene: Casino_31 Start: 38028, Stop: 39737, Start Num: 3

Candidate Starts for Casino_31:

(Start: 3 @38028 has 6 MA's), (5, 38067), (12, 38094), (29, 38346), (31, 38358), (34, 38370), (48, 38538), (63, 38658), (77, 38784), (87, 38874), (95, 38955), (107, 39087), (110, 39123), (121, 39243), (123, 39252), (129, 39306), (133, 39333), (141, 39417), (147, 39480), (150, 39495), (156, 39627), (158, 39642), (164, 39681), (167, 39696),

Gene: Conditioner_36 Start: 36524, Stop: 38299, Start Num: 2

Candidate Starts for Conditioner_36:

(Start: 2 @36524 has 60 MA's), (6, 36572), (21, 36731), (27, 36824), (28, 36869), (30, 36884), (33, 36896), (38, 36947), (42, 36992), (46, 37064), (52, 37106), (69, 37253), (86, 37409), (91, 37442), (98, 37535), (110, 37658), (117, 37715), (129, 37856), (131, 37874), (145, 38000), (147, 38027), (154, 38123), (159, 38195), (166, 38243),

Gene: Corn21_36 Start: 36529, Stop: 38304, Start Num: 2

Candidate Starts for Corn21_36:

(Start: 2 @36529 has 60 MA's), (21, 36736), (30, 36889), (33, 36901), (38, 36952), (42, 36997), (46, 37069), (52, 37111), (61, 37186), (69, 37258), (86, 37414), (98, 37540), (110, 37663), (117, 37720), (129, 37861), (131, 37879), (145, 38005), (147, 38032), (151, 38056), (154, 38128), (159, 38200), (166, 38248),

Gene: CrunchyBoi_39 Start: 36355, Stop: 38121, Start Num: 2

Candidate Starts for CrunchyBoi_39:

(1, 36289), (Start: 2 @36355 has 60 MA's), (17, 36505), (22, 36604), (30, 36715), (35, 36736), (38, 36778), (52, 36940), (71, 37093), (99, 37369), (109, 37477), (119, 37603), (125, 37663), (134, 37720), (136, 37741), (143, 37819), (154, 37948), (164, 38056), (170, 38098),

Gene: Dashyla_36 Start: 36133, Stop: 37908, Start Num: 2

Candidate Starts for Dashyla_36:

(Start: 2 @36133 has 60 MA's), (6, 36181), (9, 36196), (21, 36340), (27, 36433), (28, 36478), (30, 36493), (33, 36505), (38, 36556), (46, 36673), (52, 36715), (69, 36862), (70, 36865), (75, 36931), (86, 37018), (98, 37144), (109, 37255), (110, 37267), (117, 37324), (129, 37465), (131, 37483), (145, 37609), (147, 37636), (154, 37732), (159, 37804), (166, 37852),

Gene: DoTi_32 Start: 38398, Stop: 40107, Start Num: 3

Candidate Starts for DoTi_32:

(Start: 3 @38398 has 6 MA's), (4, 38407), (12, 38464), (15, 38500), (29, 38716), (31, 38728), (34, 38740), (36, 38758), (48, 38908), (57, 38992), (87, 39244), (88, 39247), (95, 39325), (108, 39460), (118, 39568), (121, 39613), (129, 39676), (133, 39703), (141, 39787), (145, 39823), (149, 39862), (150, 39865), (155, 39991), (167, 40066),

Gene: DumpQuist_36 Start: 35987, Stop: 37762, Start Num: 2

Candidate Starts for DumpQuist_36:

(Start: 2 @35987 has 60 MA's), (6, 36035), (9, 36050), (21, 36194), (27, 36287), (28, 36332), (30, 36347), (33, 36359), (38, 36410), (46, 36527), (52, 36569), (69, 36716), (70, 36719), (75, 36785), (86, 36872), (98, 36998), (109, 37109), (110, 37121), (117, 37178), (129, 37319), (131, 37337), (145, 37463), (147, 37490), (154, 37586), (159, 37658), (166, 37706),

Gene: EugeneKrabs_34 Start: 36595, Stop: 38367, Start Num: 2

Candidate Starts for EugeneKrabs_34:

(Start: 2 @36595 has 60 MA's), (14, 36718), (38, 37018), (40, 37030), (44, 37096), (52, 37177), (68, 37315), (92, 37525), (109, 37717), (111, 37735), (145, 38071), (159, 38263),

Gene: Fede_36 Start: 35924, Stop: 37696, Start Num: 2

Candidate Starts for Fede_36:

(Start: 2 @35924 has 60 MA's), (21, 36131), (25, 36212), (26, 36215), (38, 36347), (49, 36482), (52, 36506), (65, 36617), (86, 36809), (93, 36863), (125, 37232), (126, 37238), (139, 37346), (145, 37400), (154, 37523),

Gene: Fullmetal_36 Start: 36532, Stop: 38292, Start Num: 2

Candidate Starts for Fullmetal_36:

(Start: 2 @36532 has 60 MA's), (21, 36721), (43, 36991), (52, 37102), (61, 37177), (94, 37474), (109, 37642), (111, 37660), (114, 37696), (143, 37984), (145, 37996),

Gene: Gshelby23_30 Start: 37963, Stop: 39672, Start Num: 3

Candidate Starts for Gshelby23_30:

(Start: 3 @37963 has 6 MA's), (5, 38002), (12, 38029), (29, 38281), (31, 38293), (34, 38305), (48, 38473), (63, 38593), (77, 38719), (87, 38809), (95, 38890), (107, 39022), (110, 39058), (121, 39178), (123, 39187), (129, 39241), (133, 39268), (141, 39352), (147, 39415), (150, 39430), (156, 39562), (158, 39577), (164, 39616), (167, 39631),

Gene: Hannabella_32 Start: 38004, Stop: 39713, Start Num: 3

Candidate Starts for Hannabella_32:

(Start: 3 @38004 has 6 MA's), (5, 38043), (12, 38070), (29, 38322), (31, 38334), (34, 38346), (48, 38514), (63, 38634), (77, 38760), (87, 38850), (95, 38931), (107, 39063), (110, 39099), (121, 39219), (123, 39228), (129, 39282), (133, 39309), (141, 39393), (147, 39456), (150, 39471), (156, 39603), (158, 39618), (164, 39657), (167, 39672),

Gene: HitchHiker_39 Start: 36500, Stop: 38266, Start Num: 2

Candidate Starts for HitchHiker_39:

(1, 36434), (Start: 2 @36500 has 60 MA's), (17, 36650), (22, 36749), (30, 36860), (35, 36881), (38, 36923), (52, 37085), (71, 37238), (99, 37514), (109, 37622), (119, 37748), (125, 37808), (134, 37865), (136, 37886), (143, 37964), (154, 38093), (164, 38201), (170, 38243),

Gene: JessellCookie_35 Start: 35526, Stop: 37295, Start Num: 2

Candidate Starts for JessellCookie_35:

(Start: 2 @35526 has 60 MA's), (21, 35715), (30, 35880), (34, 35895), (44, 36021), (52, 36102), (60, 36168), (61, 36177), (67, 36237), (70, 36252), (80, 36360), (89, 36426), (113, 36693), (119, 36768), (142, 36966), (172, 37281),

Gene: JimmyPG_36 Start: 36809, Stop: 38581, Start Num: 2

Candidate Starts for JimmyPG_36:

(Start: 2 @36809 has 60 MA's), (8, 36869), (21, 37016), (37, 37226), (38, 37232), (46, 37349), (52, 37391), (59, 37454), (71, 37547), (98, 37820), (111, 37949), (114, 37985), (115, 37994), (130, 38156), (132, 38162), (136, 38195), (145, 38285),

Gene: JordanFarm_38 Start: 36602, Stop: 38365, Start Num: 2

Candidate Starts for JordanFarm_38:

(Start: 2 @36602 has 60 MA's), (11, 36671), (21, 36791), (46, 37130), (50, 37163), (52, 37172), (54, 37187), (56, 37196), (93, 37532), (105, 37679), (109, 37715), (111, 37733), (115, 37778), (119, 37841), (130, 37940), (135, 37973), (145, 38069), (150, 38111), (164, 38300),

Gene: Keough_35 Start: 36265, Stop: 38025, Start Num: 2

Candidate Starts for Keough_35:

(Start: 2 @36265 has 60 MA's), (21, 36454), (43, 36724), (52, 36835), (61, 36910), (94, 37207), (109, 37375), (111, 37393), (114, 37429), (143, 37717), (145, 37729),

Gene: Kikiko_33 Start: 36913, Stop: 38559, Start Num: 10

Candidate Starts for Kikiko_33:

(Start: 10 @36913 has 1 MA's), (19, 37021), (44, 37312), (64, 37483), (72, 37540), (78, 37606), (79, 37612), (90, 37711), (95, 37774), (108, 37906), (120, 38059), (121, 38065), (129, 38128), (133, 38155), (136, 38185), (140, 38224), (152, 38329), (153, 38356), (157, 38455), (158, 38464), (160, 38482), (164, 38503), (168, 38521),

Gene: KingKamren_33 Start: 36556, Stop: 38328, Start Num: 2

Candidate Starts for KingKamren_33:

(Start: 2 @36556 has 60 MA's), (16, 36697), (18, 36745), (38, 36979), (44, 37057), (52, 37138), (54, 37153), (66, 37252), (69, 37285), (71, 37294), (131, 37906), (148, 38062), (159, 38224), (164, 38263),

Gene: Kors_35 Start: 21546, Stop: 23231, Start Num: 2

Candidate Starts for Kors_35:

(Start: 2 @21546 has 60 MA's), (Start: 10 @21612 has 1 MA's), (21, 21729), (23, 21777), (24, 21810), (55, 22098), (75, 22293), (81, 22350), (97, 22479), (100, 22518), (104, 22578), (112, 22659), (125, 22788), (135, 22863), (136, 22869), (140, 22908), (144, 22947), (154, 23076), (162, 23151), (163, 23157),

Gene: Kosier_36 Start: 35871, Stop: 37643, Start Num: 2

Candidate Starts for Kosier_36:

(Start: 2 @35871 has 60 MA's), (21, 36078), (25, 36159), (38, 36294), (49, 36429), (52, 36453), (55, 36474), (59, 36516), (65, 36564), (86, 36756), (93, 36810), (122, 37143), (125, 37179), (126, 37185), (139, 37293), (145, 37347), (154, 37470),

Gene: LesNorah_37 Start: 36848, Stop: 38623, Start Num: 2

Candidate Starts for LesNorah_37:

(Start: 2 @36848 has 60 MA's), (21, 37055), (27, 37148), (28, 37193), (30, 37208), (33, 37220), (38, 37271), (42, 37316), (46, 37388), (52, 37430), (61, 37505), (69, 37577), (86, 37733), (98, 37859), (110, 37982), (117, 38039), (131, 38198), (145, 38324), (147, 38351), (154, 38447), (159, 38519), (166, 38567),

Gene: LilyLou_38 Start: 36451, Stop: 38226, Start Num: 2

Candidate Starts for LilyLou_38:

(Start: 2 @36451 has 60 MA's), (6, 36499), (9, 36514), (21, 36658), (27, 36751), (28, 36796), (30, 36811), (33, 36823), (38, 36874), (46, 36991), (52, 37033), (53, 37036), (69, 37180), (70, 37183), (75, 37249), (86, 37336), (91, 37369), (98, 37462), (109, 37573), (110, 37585), (117, 37642), (129, 37783), (131, 37801), (145, 37927), (147, 37954), (154, 38050), (159, 38122), (166, 38170),

Gene: LordBart_35 Start: 21462, Stop: 23147, Start Num: 2

Candidate Starts for LordBart_35:

(Start: 2 @21462 has 60 MA's), (Start: 10 @21528 has 1 MA's), (21, 21645), (23, 21693), (24, 21726), (55, 22014), (75, 22209), (81, 22266), (100, 22434), (104, 22494), (112, 22575), (125, 22704), (135, 22779), (136, 22785), (140, 22824), (144, 22863), (154, 22992), (162, 23067), (163, 23073),

Gene: Mazun_37 Start: 36854, Stop: 38614, Start Num: 2

Candidate Starts for Mazun_37:

(Start: 2 @36854 has 60 MA's), (21, 37043), (43, 37313), (52, 37424), (61, 37499), (94, 37796), (109, 37964), (111, 37982), (114, 38018), (143, 38306), (145, 38318),

Gene: MiamiPanther_35 Start: 35526, Stop: 37295, Start Num: 2

Candidate Starts for MiamiPanther_35:

(Start: 2 @35526 has 60 MA's), (21, 35715), (29, 35871), (30, 35880), (34, 35895), (44, 36021), (52, 36102), (60, 36168), (61, 36177), (67, 36237), (70, 36252), (80, 36360), (89, 36426), (113, 36693), (119, 36768), (142, 36966), (172, 37281),

Gene: MissAmericana_36 Start: 37402, Stop: 39051, Start Num: 10

Candidate Starts for MissAmericana_36:

(Start: 10 @37402 has 1 MA's), (19, 37510), (44, 37801), (72, 38029), (76, 38086), (93, 38239), (95, 38266), (96, 38275), (108, 38398), (120, 38551), (121, 38557), (136, 38677), (140, 38716), (145, 38767), (160, 38974), (161, 38980), (163, 38986),

Gene: Moleficent_36 Start: 36539, Stop: 38299, Start Num: 2

Candidate Starts for Moleficent_36:

(Start: 2 @36539 has 60 MA's), (21, 36728), (43, 36998), (52, 37109), (61, 37184), (94, 37481), (109, 37649), (111, 37667), (114, 37703), (143, 37991), (145, 38003),

Gene: Morrill_34 Start: 36445, Stop: 38217, Start Num: 2

Candidate Starts for Morrill_34:

(Start: 2 @36445 has 60 MA's), (20, 36646), (21, 36652), (52, 37027), (58, 37087), (59, 37090), (94, 37399), (105, 37531), (116, 37633), (130, 37792), (145, 37921), (155, 38089), (164, 38152), (166, 38161),

Gene: Oatly_38 Start: 36060, Stop: 37826, Start Num: 2

Candidate Starts for Oatly_38:

(1, 35994), (Start: 2 @36060 has 60 MA's), (17, 36210), (22, 36309), (30, 36420), (35, 36441), (38, 36483), (52, 36645), (71, 36798), (99, 37074), (109, 37182), (119, 37308), (125, 37368), (134, 37425), (136, 37446), (143, 37524), (154, 37653), (164, 37761), (170, 37803),

Gene: Pabst_36 Start: 36130, Stop: 37893, Start Num: 2

Candidate Starts for Pabst_36:

(Start: 2 @36130 has 60 MA's), (8, 36190), (20, 36331), (26, 36421), (30, 36490), (32, 36499), (35, 36511), (38, 36553), (52, 36712), (62, 36787), (71, 36865), (101, 37171), (113, 37300), (119, 37375), (129, 37459), (136, 37513), (137, 37525), (147, 37630), (154, 37720), (164, 37828), (168, 37846),

Gene: Pharky_36 Start: 36535, Stop: 38295, Start Num: 2

Candidate Starts for Pharky_36:

(Start: 2 @36535 has 60 MA's), (21, 36724), (43, 36994), (52, 37105), (61, 37180), (94, 37477), (109, 37645), (111, 37663), (114, 37699), (145, 37999),

Gene: Phedro_36 Start: 36535, Stop: 38295, Start Num: 2

Candidate Starts for Phedro_36:

(Start: 2 @36535 has 60 MA's), (21, 36724), (43, 36994), (52, 37105), (61, 37180), (94, 37477), (109, 37645), (111, 37663), (114, 37699), (143, 37987), (145, 37999),

Gene: Phogo_37 Start: 36273, Stop: 38048, Start Num: 2

Candidate Starts for Phogo_37:

(Start: 2 @36273 has 60 MA's), (6, 36321), (9, 36336), (21, 36480), (27, 36573), (28, 36618), (30, 36633), (33, 36645), (38, 36696), (46, 36813), (52, 36855), (53, 36858), (69, 37002), (70, 37005), (75, 37071), (86, 37158), (91, 37191), (98, 37284), (109, 37395), (110, 37407), (117, 37464), (129, 37605), (131, 37623), (145, 37749), (147, 37776), (154, 37872), (159, 37944), (166, 37992),

Gene: Phracted_36 Start: 36535, Stop: 38295, Start Num: 2

Candidate Starts for Phracted_36:

(Start: 2 @36535 has 60 MA's), (21, 36724), (43, 36994), (52, 37105), (61, 37180), (94, 37477), (109, 37645), (111, 37663), (114, 37699), (143, 37987), (145, 37999),

Gene: PhriedRice_37 Start: 36639, Stop: 38399, Start Num: 2

Candidate Starts for PhriedRice_37:

(Start: 2 @36639 has 60 MA's), (21, 36828), (43, 37098), (52, 37209), (61, 37284), (94, 37581), (109, 37749), (111, 37767), (114, 37803), (143, 38091),

Gene: PineapplePluto_39 Start: 36422, Stop: 38188, Start Num: 2

Candidate Starts for PineapplePluto_39:

(1, 36356), (Start: 2 @36422 has 60 MA's), (17, 36572), (22, 36671), (30, 36782), (35, 36803), (38, 36845), (52, 37007), (71, 37160), (99, 37436), (109, 37544), (119, 37670), (125, 37730), (134, 37787), (136, 37808), (143, 37886), (154, 38015), (164, 38123), (170, 38165),

Gene: RicoCaldo_36 Start: 36617, Stop: 38377, Start Num: 2

Candidate Starts for RicoCaldo_36:

(Start: 2 @36617 has 60 MA's), (21, 36806), (43, 37076), (52, 37187), (61, 37262), (94, 37559), (109, 37727), (111, 37745), (114, 37781), (143, 38069), (145, 38081),

Gene: RikSengupta_35 Start: 21583, Stop: 23268, Start Num: 2

Candidate Starts for RikSengupta_35:

(Start: 2 @21583 has 60 MA's), (Start: 10 @21649 has 1 MA's), (21, 21766), (23, 21814), (24, 21847), (55, 22135), (75, 22330), (81, 22387), (97, 22516), (100, 22555), (104, 22615), (112, 22696), (125, 22825), (135, 22900), (136, 22906), (140, 22945), (144, 22984), (154, 23113), (162, 23188), (163, 23194),

Gene: Salvatore2000_34 Start: 35526, Stop: 37295, Start Num: 2

Candidate Starts for Salvatore2000_34:

(Start: 2 @35526 has 60 MA's), (21, 35715), (30, 35880), (34, 35895), (44, 36021), (52, 36102), (60, 36168), (61, 36177), (67, 36237), (70, 36252), (80, 36360), (89, 36426), (102, 36573), (105, 36606), (113, 36693), (119, 36768), (142, 36966), (172, 37281),

Gene: Scruffy_32 Start: 38250, Stop: 39989, Start Num: 3

Candidate Starts for Scruffy_32:

(Start: 3 @38250 has 6 MA's), (5, 38289), (29, 38568), (31, 38580), (34, 38592), (39, 38640), (45, 38724), (74, 38976), (85, 39096), (98, 39252), (106, 39333), (118, 39450), (123, 39504), (124, 39507), (133, 39585), (146, 39711), (149, 39744), (150, 39747), (158, 39894), (162, 39918), (164, 39933), (167, 39948), (169, 39972),

Gene: ShyRosie_36 Start: 36610, Stop: 38373, Start Num: 2

Candidate Starts for ShyRosie_36:

(Start: 2 @36610 has 60 MA's), (11, 36679), (21, 36799), (46, 37138), (50, 37171), (52, 37180), (54, 37195), (56, 37204), (93, 37540), (105, 37687), (109, 37723), (111, 37741), (115, 37786), (119,

37849), (130, 37948), (135, 37981), (145, 38077), (150, 38119), (164, 38308),

Gene: SoilSleuth_38 Start: 36432, Stop: 38195, Start Num: 2

Candidate Starts for SoilSleuth_38:

(Start: 2 @36432 has 60 MA's), (11, 36501), (21, 36621), (46, 36960), (50, 36993), (52, 37002), (54, 37017), (56, 37026), (91, 37341), (93, 37362), (105, 37509), (109, 37545), (111, 37563), (115, 37608), (119, 37671), (130, 37770), (135, 37803), (145, 37899), (150, 37941), (164, 38130),

Gene: Sorvannah_34 Start: 35526, Stop: 37295, Start Num: 2

Candidate Starts for Sorvannah_34:

(Start: 2 @35526 has 60 MA's), (21, 35715), (30, 35880), (34, 35895), (44, 36021), (52, 36102), (60, 36168), (61, 36177), (67, 36237), (70, 36252), (80, 36360), (89, 36426), (102, 36573), (105, 36606), (113, 36693), (119, 36768), (142, 36966), (172, 37281),

Gene: Sparcetus_35 Start: 21462, Stop: 23147, Start Num: 2

Candidate Starts for Sparcetus_35:

(Start: 2 @21462 has 60 MA's), (Start: 10 @21528 has 1 MA's), (21, 21645), (23, 21693), (24, 21726), (55, 22014), (75, 22209), (81, 22266), (97, 22395), (100, 22434), (104, 22494), (112, 22575), (125, 22704), (135, 22779), (136, 22785), (140, 22824), (144, 22863), (154, 22992), (162, 23067), (163, 23073),

Gene: StagePhright_36 Start: 36535, Stop: 38295, Start Num: 2

Candidate Starts for StagePhright_36:

(Start: 2 @36535 has 60 MA's), (21, 36724), (43, 36994), (52, 37105), (61, 37180), (94, 37477), (109, 37645), (111, 37663), (114, 37699), (143, 37987), (145, 37999),

Gene: Stormbreaker_37 Start: 36367, Stop: 38142, Start Num: 2

Candidate Starts for Stormbreaker_37:

(Start: 2 @36367 has 60 MA's), (6, 36415), (9, 36430), (21, 36574), (27, 36667), (28, 36712), (30, 36727), (33, 36739), (38, 36790), (46, 36907), (52, 36949), (69, 37096), (70, 37099), (75, 37165), (86, 37252), (91, 37285), (98, 37378), (109, 37489), (110, 37501), (117, 37558), (127, 37684), (129, 37699), (131, 37717), (145, 37843), (147, 37870), (154, 37966), (159, 38038), (166, 38086),

Gene: SwissCheezer_36 Start: 36013, Stop: 37788, Start Num: 2

Candidate Starts for SwissCheezer_36:

(Start: 2 @36013 has 60 MA's), (6, 36061), (9, 36076), (21, 36220), (27, 36313), (28, 36358), (30, 36373), (33, 36385), (38, 36436), (46, 36553), (52, 36595), (69, 36742), (70, 36745), (75, 36811), (86, 36898), (98, 37024), (109, 37135), (110, 37147), (117, 37204), (129, 37345), (131, 37363), (145, 37489), (147, 37516), (154, 37612), (159, 37684), (166, 37732),

Gene: ThirteenKH_35 Start: 36455, Stop: 38227, Start Num: 2

Candidate Starts for ThirteenKH_35:

(Start: 2 @36455 has 60 MA's), (20, 36656), (21, 36662), (52, 37037), (58, 37097), (59, 37100), (94, 37409), (105, 37541), (111, 37595), (130, 37802), (145, 37931), (155, 38099), (164, 38162), (166, 38171),

Gene: TicTac_38 Start: 36421, Stop: 38187, Start Num: 2

Candidate Starts for TicTac_38:

(Start: 2 @36421 has 60 MA's), (17, 36571), (22, 36670), (30, 36781), (35, 36802), (38, 36844), (42, 36889), (52, 37006), (71, 37159), (99, 37435), (109, 37543), (119, 37669), (125, 37729), (134, 37786), (136, 37807), (143, 37885), (164, 38122), (170, 38164),

Gene: TinyMiny_35 Start: 21481, Stop: 23166, Start Num: 2

Candidate Starts for TinyMiny_35:

(Start: 2 @21481 has 60 MA's), (Start: 10 @21547 has 1 MA's), (21, 21664), (23, 21712), (24, 21745), (55, 22033), (75, 22228), (81, 22285), (97, 22414), (100, 22453), (104, 22513), (112, 22594), (125, 22723), (135, 22798), (136, 22804), (140, 22843), (144, 22882), (154, 23011), (162, 23086), (163, 23092),

Gene: TinyTimothy_33 Start: 35526, Stop: 37295, Start Num: 2

Candidate Starts for TinyTimothy_33:

(Start: 2 @35526 has 60 MA's), (21, 35715), (30, 35880), (34, 35895), (44, 36021), (52, 36102), (60, 36168), (61, 36177), (67, 36237), (70, 36252), (80, 36360), (89, 36426), (105, 36606), (113, 36693), (119, 36768), (142, 36966), (154, 37119), (172, 37281),

Gene: TownLake_35 Start: 36138, Stop: 37913, Start Num: 2

Candidate Starts for TownLake_35:

(Start: 2 @36138 has 60 MA's), (6, 36186), (21, 36345), (27, 36438), (28, 36483), (30, 36498), (33, 36510), (38, 36561), (42, 36606), (46, 36678), (52, 36720), (86, 37023), (91, 37056), (98, 37149), (105, 37224), (110, 37272), (117, 37329), (129, 37470), (131, 37488), (136, 37524), (145, 37614), (147, 37641), (151, 37665), (154, 37737), (159, 37809), (166, 37857),

Gene: TrippleS_35 Start: 36603, Stop: 38375, Start Num: 2

Candidate Starts for TrippleS_35:

(Start: 2 @36603 has 60 MA's), (20, 36804), (21, 36810), (52, 37185), (58, 37245), (59, 37248), (94, 37557), (111, 37743), (116, 37791), (130, 37950), (145, 38079), (155, 38247), (164, 38310), (166, 38319),

Gene: Truong_36 Start: 36390, Stop: 38153, Start Num: 2

Candidate Starts for Truong_36:

(Start: 2 @36390 has 60 MA's), (11, 36459), (21, 36579), (46, 36918), (50, 36951), (52, 36960), (54, 36975), (56, 36984), (93, 37320), (105, 37467), (109, 37503), (111, 37521), (115, 37566), (119, 37629), (130, 37728), (135, 37761), (145, 37857), (150, 37899), (164, 38088),

Gene: Unphazed_37 Start: 36243, Stop: 38018, Start Num: 2

Candidate Starts for Unphazed_37:

(Start: 2 @36243 has 60 MA's), (6, 36291), (21, 36450), (27, 36543), (28, 36588), (30, 36603), (33, 36615), (38, 36666), (42, 36711), (46, 36783), (52, 36825), (69, 36972), (86, 37128), (91, 37161), (98, 37254), (110, 37377), (117, 37434), (129, 37575), (131, 37593), (145, 37719), (147, 37746), (151, 37770), (154, 37842), (159, 37914), (166, 37962),

Gene: Waterlily_39 Start: 36644, Stop: 38407, Start Num: 2

Candidate Starts for Waterlily_39:

(Start: 2 @36644 has 60 MA's), (11, 36713), (21, 36833), (46, 37172), (50, 37205), (52, 37214), (54, 37229), (56, 37238), (91, 37553), (93, 37574), (105, 37721), (109, 37757), (111, 37775), (115, 37820), (119, 37883), (130, 37982), (135, 38015), (145, 38111), (150, 38153), (164, 38342),

Gene: Wesak_34 Start: 35368, Stop: 37137, Start Num: 2

Candidate Starts for Wesak_34:

(Start: 2 @35368 has 60 MA's), (21, 35557), (30, 35722), (34, 35737), (44, 35863), (52, 35944), (60, 36010), (61, 36019), (67, 36079), (70, 36094), (80, 36202), (89, 36268), (102, 36415), (105, 36448), (113, 36535), (119, 36610), (142, 36808), (154, 36961), (172, 37123),

Gene: Xitlalli_35 Start: 36235, Stop: 38010, Start Num: 2

Candidate Starts for Xitlalli_35:

(Start: 2 @36235 has 60 MA's), (21, 36442), (27, 36535), (28, 36580), (30, 36595), (33, 36607), (38, 36658), (42, 36703), (46, 36775), (52, 36817), (61, 36892), (69, 36964), (86, 37120), (98, 37246), (106, 37327), (110, 37369), (117, 37426), (129, 37567), (131, 37585), (145, 37711), (147, 37738), (154, 37834), (159, 37906), (166, 37954),

Gene: Yafa_36 Start: 36359, Stop: 38131, Start Num: 2

Candidate Starts for Yafa_36:

(Start: 2 @36359 has 60 MA's), (20, 36560), (21, 36566), (52, 36941), (58, 37001), (59, 37004), (94, 37313), (105, 37445), (111, 37499), (130, 37706), (145, 37835), (155, 38003), (164, 38066),

Gene: YellowPanda_36 Start: 35249, Stop: 37018, Start Num: 2

Candidate Starts for YellowPanda_36:

(Start: 2 @35249 has 60 MA's), (21, 35438), (29, 35594), (30, 35603), (34, 35618), (44, 35744), (52, 35825), (60, 35891), (61, 35900), (67, 35960), (70, 35975), (80, 36083), (89, 36149), (105, 36329), (113, 36416), (119, 36491), (142, 36689), (154, 36842), (172, 37004),

Gene: Zhengyi_34 Start: 36644, Stop: 38416, Start Num: 2

Candidate Starts for Zhengyi_34:

(Start: 2 @36644 has 60 MA's), (14, 36767), (38, 37067), (40, 37079), (41, 37103), (44, 37145), (52, 37226), (68, 37364), (92, 37574), (109, 37766), (111, 37784), (145, 38120), (159, 38312), (164, 38351),