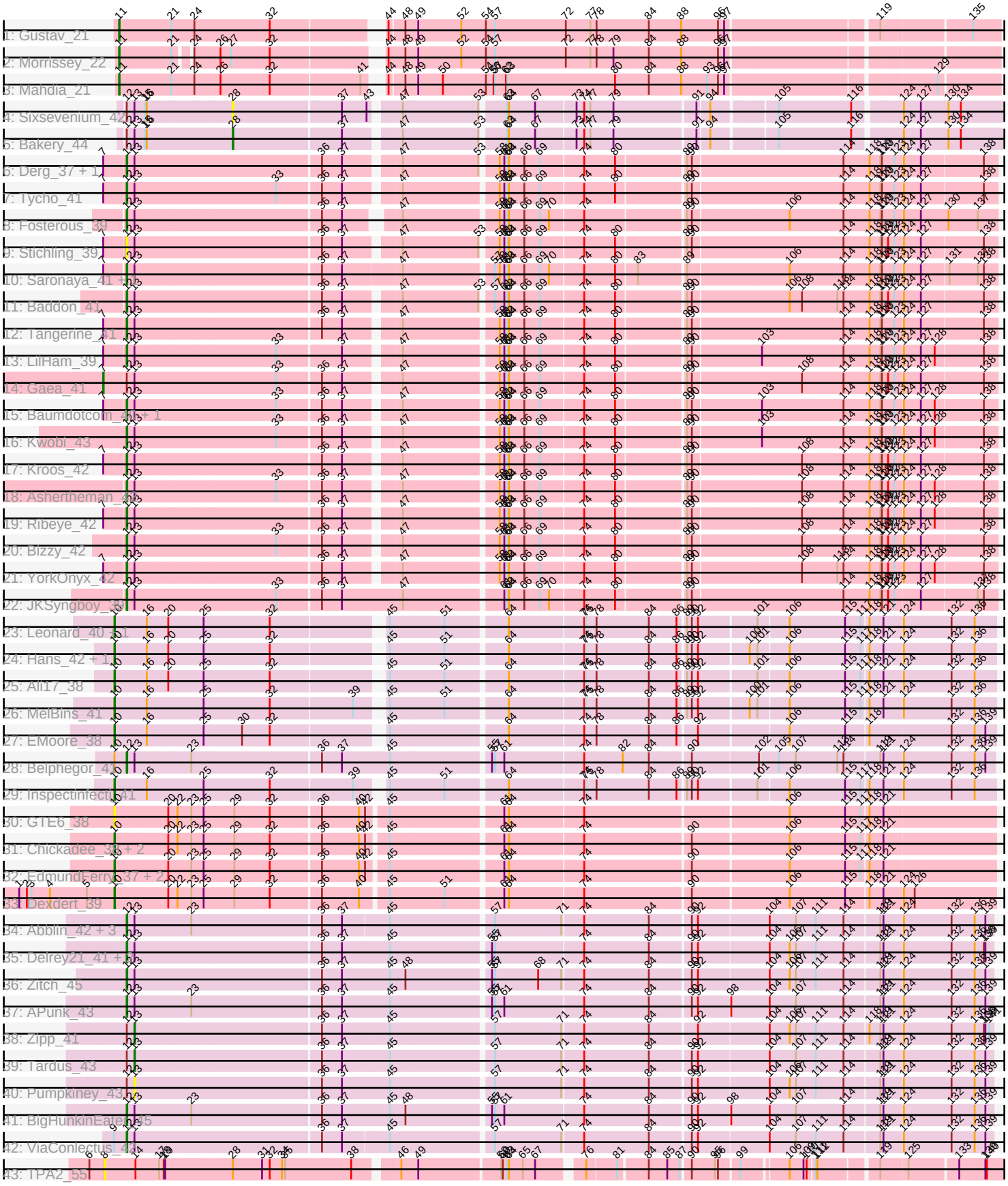
Pham 344049


1: Gustav_21
2: Morrissey_22
3: Mahdia_21
4: Sixsevenium_42
5: Bakery_44
6: Derg_37 + 1
7: Tycho_41
8: Fosterous_39
9: Stichling_39
10: Saronaya_41 + 1
11: Baddon_41
12: Tangerine_41
13: LilHam_39
14: Gaea_41
15: Baumdotcom_40 + 1
16: Kwobi_43
17: Kroos_42
18: Ashertheman_42
19: Ribeye_42
20: Bizzy_42
21: YorkOnyx_42
22: JKSyngboy_39
23: Leonard_40 + 1
24: Hans_42 + 1
25: Ali17_38
26: MelBins_41
27: EMoore_38
28: Belphegor_41
29: Inspectinfectus_41
30: GTE6_38
31: Chickadee_38 + 2
32: EdmundFerry6_37 + 2
33: Dexdert_39
34: Abblin_42 + 3
35: Delrey21_41 + 1
36: Zitch_45
37: APunk_43
38: Zipp_41
39: Tardus_43
40: Pumpkiney_43
41: BigHunkinEater_45
42: ViaConlectus_44
43: TPA2_55

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 344049 Report

This analysis was run 11/14/26 on database version 672.

Pham number 344049 has 57 members, 5 are drafts.

Phages represented in each track:
- Track 1 : Gustav_21
- Track 2 : Morrissey_22
- Track 3 : Mahdia_21
- Track 4 : Sixsevenium_42
- Track 5 : Bakery_44
- Track 6 : Derg_37, Flatwoods_42
- Track 7 : Tycho_41
- Track 8 : Fosterous_39
- Track 9 : Stichling_39
- Track 10 : Saronaya_41, Gustavo_41
- Track 11 : Baddon_41
- Track 12 : Tangerine_41
- Track 13 : LilHam_39
- Track 14 : Gaea_41
- Track 15 : Baumdotcom_40, SchottB_40
- Track 16 : Kwobi_43
- Track 17 : Kroos_42
- Track 18 : Ashertheman_42
- Track 19 : Ribeye_42
- Track 20 : Bizzy_42
- Track 21 : YorkOnyx_42
- Track 22 : JKSyngboy_39
- Track 23 : Leonard_40, Phinally_40
- Track 24 : Hans_42, Phauci_33
- Track 25 : Ali17_38
- Track 26 : MelBins_41
- Track 27 : EMoore_38
- Track 28 : Belphegor_41
- Track 29 : Inspectinfecti_41
- Track 30 : GTE6_38
- Track 31 : Chickadee_38, Kwekel_38, Tiamoceli_39
- Track 32 : EdmundFerry_37, RoadKill_36, Twonlo_36
- Track 33 : Dexdert_39
- Track 34 : Abblin_42, Sampson_42, Natkenzie_42, Scioto_43
- Track 35 : Delrey21_41, Verity_41, DoctorFroggo_41
- Track 36 : Zitch_45
- Track 37 : APunk_43

• Track 38 : Zipp_41
• Track 39 : Tardus_43
• Track 40 : Pumpkiney_43
• Track 41 : BigHunkinEater_45
• Track 42 : ViaConlectus_42
• Track 43 : TPA2_55

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

The start number called the most often in the published annotations is 12, it was called in 30 of the 52 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• APunk_43, Abblin_42, Ashertheman_42, Baddon_41, Baumdotcom_40, Belphegor_41, BigHunkinEater_45, Bizzy_42, Delrey21_41, Derg_37, DoctorFroggo_41, Flatwoods_42, Fosterous_39, Gustavo_41, JKSyngboy_39, Kroos_42, Kwobi_43, LilHam_39, Natkenzie_42, Ribeye_42, Sampson_42, Saronaya_41, SchottB_40, Scioto_43, Stichling_39, Tangerine_41, Tycho_41, Verity_41, ViaConlectus_42, YorkOnyx_42, Zitch_45,

Genes that have the "Most Annotated" start but do not call it:
• Bakery_44, Gaea_41, Pumpkiney_43, Sixsevenium_42, Tardus_43, Zipp_41,

Genes that do not have the "Most Annotated" start:
• Ali17_38, Chickadee_38, Dexdert_39, EMoore_38, EdmundFerry_37, GTE6_38, Gustav_21, Hans_42, Inspectinfecti_41, Kwekel_38, Leonard_40, Mahdia_21, MelBins_41, Morrissey_22, Phauci_33, Phinally_40, RoadKill_36, TPA2_55, Tiamoceli_39, Twonlo_36,

Summary by start number:

Start 7:
• Found in 14 of 57 (24.6%) of genes in pham
• Manual Annotations of this start: 1 of 52
• Called 7.1% of time when present
• Phage (with cluster) where this start called: Gaea_41 (DE1),

Start 8:
• Found in 1 of 57 (1.8%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: TPA2_55 (singleton),

Start 10:
• Found in 17 of 57 (29.8%) of genes in pham
• Manual Annotations of this start: 15 of 52
• Called 94.1% of time when present
• Phage (with cluster) where this start called: Ali17_38 (DE2), Chickadee_38 (DE3), Dexdert_39 (DE3), EMoore_38 (DE2), EdmundFerry_37 (DE3), GTE6_38 (DE3), Hans_42 (DE2), Inspectinfecti_41 (DE2), Kwekel_38 (DE3), Leonard_40 (DE2),

MelBins_41 (DE2), Phauci_33 (DE2), Phinally_40 (DE2), RoadKill_36 (DE3), Tiamoceli_39 (DE3), Twonlo_36 (DE3),

Start 11:
• Found in 3 of 57 (5.3%) of genes in pham
• Manual Annotations of this start: 3 of 52
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Gustav_21 (CD), Mahdia_21 (CD), Morrissey_22 (CD),

Start 12:
• Found in 37 of 57 (64.9%) of genes in pham
• Manual Annotations of this start: 30 of 52
• Called 83.8% of time when present
• Phage (with cluster) where this start called: APunk_43 (DE4), Abblin_42 (DE4), Ashertheman_42 (DE1), Baddon_41 (DE1), Baumdotcom_40 (DE1), Belphegor_41 (DE2), BigHunkinEater_45 (DE4), Bizzy_42 (DE1), Delrey21_41 (DE4), Derg_37 (DE1), DoctorFroggo_41 (DE4), Flatwoods_42 (DE1), Fosterous_39 (DE1), Gustavo_41 (DE1), JKSyngboy_39 (DE1), Kroos_42 (DE1), Kwobi_43 (DE1), LilHam_39 (DE1), Natkenzie_42 (DE4), Ribeye_42 (DE1), Sampson_42 (DE4), Saronaya_41 (DE1), SchottB_40 (DE1), Scioto_43 (DE4), Stichling_39 (DE1), Tangerine_41 (DE1), Tycho_41 (DE1), Verity_41 (DE4), ViaConlectus_42 (DE4), YorkOnyx_42 (DE1), Zitch_45 (DE4),

Start 13:
• Found in 37 of 57 (64.9%) of genes in pham
• Manual Annotations of this start: 2 of 52
• Called 8.1% of time when present
• Phage (with cluster) where this start called: Pumpkiney_43 (DE4), Tardus_43 (DE4), Zipp_41 (DE4),

Start 28:
• Found in 3 of 57 (5.3%) of genes in pham
• Manual Annotations of this start: 1 of 52
• Called 66.7% of time when present
• Phage (with cluster) where this start called: Bakery_44 (DC1), Sixsevenium_42 (DC1),

Summary by clusters:

There are 7 clusters represented in this pham: singleton, DE1, DE2, DE3, DE4, CD, DC1,

Info for manual annotations of cluster CD:
•Start number 11 was manually annotated 3 times for cluster CD.

Info for manual annotations of cluster DC1:
•Start number 28 was manually annotated 1 time for cluster DC1.

Info for manual annotations of cluster DE1:
•Start number 7 was manually annotated 1 time for cluster DE1.
•Start number 12 was manually annotated 18 times for cluster DE1.

Info for manual annotations of cluster DE2:
•Start number 10 was manually annotated 8 times for cluster DE2.
•Start number 12 was manually annotated 1 time for cluster DE2.

Info for manual annotations of cluster DE3:
•Start number 10 was manually annotated 7 times for cluster DE3.

Info for manual annotations of cluster DE4:
•Start number 12 was manually annotated 11 times for cluster DE4.
•Start number 13 was manually annotated 2 times for cluster DE4.

Gene Information:

Gene: APunk_43 Start: 37152, Stop: 38765, Start Num: 12
Candidate Starts for APunk_43:
(Start: 12 @37152 has 30 MA's), (Start: 13 @37167 has 2 MA's), (23, 37275), (36, 37518), (37, 37557), (45, 37644), (55, 37827), (57, 37833), (61, 37851), (74, 38001), (84, 38127), (90, 38202), (92, 38214), (98, 38268), (104, 38343), (107, 38394), (114, 38484), (119, 38550), (121, 38556), (124, 38592), (132, 38685), (136, 38730), (139, 38751),

Gene: Abblin_42 Start: 37695, Stop: 39302, Start Num: 12
Candidate Starts for Abblin_42:
(Start: 12 @37695 has 30 MA's), (Start: 13 @37710 has 2 MA's), (23, 37818), (36, 38061), (37, 38100), (45, 38181), (57, 38370), (71, 38499), (74, 38538), (84, 38664), (90, 38739), (92, 38751), (104, 38880), (107, 38931), (111, 38970), (114, 39021), (119, 39087), (121, 39093), (124, 39129), (132, 39222), (136, 39267), (139, 39288),

Gene: Ali17_38 Start: 35417, Stop: 37030, Start Num: 10
Candidate Starts for Ali17_38:
(Start: 10 @35417 has 15 MA's), (16, 35477), (20, 35519), (25, 35588), (32, 35714), (45, 35909), (51, 36014), (64, 36125), (74, 36266), (75, 36269), (78, 36290), (84, 36392), (86, 36446), (89, 36458), (90, 36467), (92, 36479), (101, 36584), (106, 36641), (115, 36749), (117, 36779), (118, 36791), (121, 36818), (124, 36854), (132, 36947), (136, 36992),

Gene: Ashertheman_42 Start: 36687, Stop: 38270, Start Num: 12
Candidate Starts for Ashertheman_42:
(Start: 12 @36687 has 30 MA's), (Start: 13 @36702 has 2 MA's), (33, 36972), (36, 37053), (37, 37092), (47, 37176), (58, 37347), (61, 37356), (63, 37362), (64, 37365), (66, 37395), (69, 37425), (74, 37506), (80, 37566), (89, 37692), (90, 37701), (108, 37905), (114, 37983), (118, 38031), (119, 38052), (120, 38055), (122, 38067), (123, 38079), (124, 38094), (127, 38127), (128, 38154), (138, 38244),

Gene: Baddon_41 Start: 37222, Stop: 38805, Start Num: 12
Candidate Starts for Baddon_41:
(Start: 12 @37222 has 30 MA's), (Start: 13 @37237 has 2 MA's), (36, 37588), (37, 37627), (47, 37711), (53, 37855), (57, 37873), (61, 37891), (63, 37897), (64, 37900), (66, 37930), (69, 37960), (74, 38041), (80, 38101), (89, 38227), (90, 38236), (106, 38416), (108, 38440), (113, 38506), (114, 38518), (118, 38566), (119, 38587), (120, 38590), (122, 38602), (123, 38614), (124, 38629), (127, 38662), (138, 38779),

Gene: Bakery_44 Start: 34687, Stop: 36054, Start Num: 28
Candidate Starts for Bakery_44:

(Start: 12 @34486 has 30 MA's), (Start: 13 @34501 has 2 MA's), (15, 34522), (16, 34525), (Start: 28 @34687 has 1 MA's), (37, 34891), (47, 34975), (53, 35119), (63, 35161), (64, 35164), (67, 35215), (73, 35290), (74, 35305), (77, 35317), (79, 35362), (91, 35515), (94, 35536), (105, 35647), (116, 35785), (124, 35869), (127, 35902), (130, 35953), (134, 35974),

Gene: Baumdotcom_40 Start: 36074, Stop: 37657, Start Num: 12
Candidate Starts for Baumdotcom_40:
(Start: 7 @36035 has 1 MA's), (Start: 12 @36074 has 30 MA's), (Start: 13 @36089 has 2 MA's), (33, 36359), (36, 36440), (37, 36479), (47, 36563), (58, 36734), (61, 36743), (63, 36749), (64, 36752), (66, 36782), (69, 36812), (74, 36893), (80, 36953), (89, 37079), (90, 37088), (103, 37214), (114, 37370), (118, 37418), (119, 37439), (120, 37442), (123, 37466), (124, 37481), (127, 37514), (128, 37541), (138, 37631),

Gene: Belphegor_41 Start: 37453, Stop: 39072, Start Num: 12
Candidate Starts for Belphegor_41:
(Start: 10 @37432 has 15 MA's), (Start: 12 @37453 has 30 MA's), (Start: 13 @37468 has 2 MA's), (23, 37576), (36, 37819), (37, 37858), (45, 37948), (55, 38131), (57, 38137), (61, 38155), (74, 38305), (82, 38380), (84, 38431), (90, 38506), (102, 38626), (105, 38665), (107, 38698), (113, 38776), (114, 38788), (119, 38854), (121, 38860), (124, 38896), (132, 38989), (136, 39034), (139, 39055),

Gene: BigHunkinEater_45 Start: 36933, Stop: 38546, Start Num: 12
Candidate Starts for BigHunkinEater_45:
(Start: 12 @36933 has 30 MA's), (Start: 13 @36948 has 2 MA's), (23, 37056), (36, 37299), (37, 37338), (45, 37425), (48, 37455), (55, 37608), (57, 37614), (61, 37632), (74, 37782), (84, 37908), (90, 37983), (92, 37995), (98, 38049), (104, 38124), (107, 38175), (114, 38265), (119, 38331), (121, 38337), (124, 38373), (132, 38466), (136, 38511), (139, 38532),

Gene: Bizzy_42 Start: 36382, Stop: 37965, Start Num: 12
Candidate Starts for Bizzy_42:
(Start: 12 @36382 has 30 MA's), (Start: 13 @36397 has 2 MA's), (33, 36667), (36, 36748), (37, 36787), (47, 36871), (58, 37042), (61, 37051), (63, 37057), (64, 37060), (66, 37090), (69, 37120), (74, 37201), (80, 37261), (89, 37387), (90, 37396), (108, 37600), (114, 37678), (118, 37726), (119, 37747), (120, 37750), (122, 37762), (123, 37774), (124, 37789), (127, 37822), (138, 37939),

Gene: Chickadee_38 Start: 33890, Stop: 35524, Start Num: 10
Candidate Starts for Chickadee_38:
(Start: 10 @33890 has 15 MA's), (20, 33992), (22, 34010), (23, 34037), (25, 34061), (29, 34121), (32, 34187), (36, 34280), (40, 34349), (42, 34361), (45, 34397), (61, 34604), (64, 34613), (74, 34754), (90, 34955), (106, 35135), (115, 35243), (117, 35273), (118, 35285), (121, 35312),

Gene: Delrey21_41 Start: 37882, Stop: 39492, Start Num: 12
Candidate Starts for Delrey21_41:
(Start: 12 @37882 has 30 MA's), (Start: 13 @37897 has 2 MA's), (36, 38248), (37, 38287), (45, 38371), (55, 38554), (57, 38560), (74, 38728), (84, 38854), (90, 38929), (92, 38941), (104, 39070), (106, 39109), (107, 39121), (111, 39160), (114, 39211), (119, 39277), (121, 39283), (124, 39319), (132, 39412), (136, 39457), (138, 39475), (139, 39478),

Gene: Derg_37 Start: 35972, Stop: 37555, Start Num: 12
Candidate Starts for Derg_37:
(Start: 7 @35933 has 1 MA's), (Start: 12 @35972 has 30 MA's), (Start: 13 @35987 has 2 MA's), (36, 36338), (37, 36377), (47, 36461), (53, 36605), (58, 36632), (61, 36641), (63, 36647), (64, 36650), (66, 36680), (69, 36710), (74, 36791), (80, 36851), (89, 36977), (90, 36986), (114, 37268), (118, 37316), (119, 37337), (120, 37340), (123, 37364), (124, 37379), (127, 37412), (138, 37529),

Gene: Dexdert_39 Start: 34152, Stop: 35783, Start Num: 10
Candidate Starts for Dexdert_39:
(1, 33966), (2, 33981), (3, 33990), (4, 34026), (5, 34098), (Start: 10 @34152 has 15 MA's), (20, 34254), (22, 34272), (23, 34299), (25, 34323), (29, 34383), (32, 34449), (36, 34542), (40, 34611), (45, 34659), (51, 34764), (61, 34866), (64, 34875), (74, 35016), (90, 35217), (106, 35397), (115, 35505), (118, 35547), (121, 35574), (124, 35610), (126, 35631),

Gene: DoctorFroggo_41 Start: 37882, Stop: 39492, Start Num: 12
Candidate Starts for DoctorFroggo_41:
(Start: 12 @37882 has 30 MA's), (Start: 13 @37897 has 2 MA's), (36, 38248), (37, 38287), (45, 38371), (55, 38554), (57, 38560), (74, 38728), (84, 38854), (90, 38929), (92, 38941), (104, 39070), (106, 39109), (107, 39121), (111, 39160), (114, 39211), (119, 39277), (121, 39283), (124, 39319), (132, 39412), (136, 39457), (138, 39475), (139, 39478),

Gene: EMoore_38 Start: 36591, Stop: 38207, Start Num: 10
Candidate Starts for EMoore_38:
(Start: 10 @36591 has 15 MA's), (16, 36651), (25, 36762), (30, 36837), (32, 36888), (45, 37083), (64, 37299), (74, 37440), (78, 37464), (84, 37566), (86, 37620), (92, 37653), (106, 37815), (115, 37923), (118, 37965), (132, 38121), (136, 38166), (139, 38187),

Gene: EdmundFerry_37 Start: 33919, Stop: 35553, Start Num: 10
Candidate Starts for EdmundFerry_37:
(Start: 10 @33919 has 15 MA's), (20, 34021), (23, 34066), (25, 34090), (29, 34150), (32, 34216), (36, 34309), (40, 34378), (42, 34390), (45, 34426), (61, 34633), (64, 34642), (74, 34783), (90, 34984), (106, 35164), (115, 35272), (117, 35302), (118, 35314), (121, 35341),

Gene: Flatwoods_42 Start: 36324, Stop: 37907, Start Num: 12
Candidate Starts for Flatwoods_42:
(Start: 7 @36285 has 1 MA's), (Start: 12 @36324 has 30 MA's), (Start: 13 @36339 has 2 MA's), (36, 36690), (37, 36729), (47, 36813), (53, 36957), (58, 36984), (61, 36993), (63, 36999), (64, 37002), (66, 37032), (69, 37062), (74, 37143), (80, 37203), (89, 37329), (90, 37338), (114, 37620), (118, 37668), (119, 37689), (120, 37692), (123, 37716), (124, 37731), (127, 37764), (138, 37881),

Gene: Fosterous_39 Start: 36067, Stop: 37644, Start Num: 12
Candidate Starts for Fosterous_39:
(Start: 12 @36067 has 30 MA's), (Start: 13 @36082 has 2 MA's), (36, 36433), (37, 36472), (47, 36547), (58, 36718), (61, 36727), (63, 36733), (64, 36736), (66, 36766), (69, 36796), (70, 36814), (74, 36877), (89, 37063), (90, 37072), (106, 37252), (114, 37354), (118, 37405), (119, 37426), (120, 37429), (123, 37453), (124, 37468), (127, 37501), (130, 37552), (137, 37606),

Gene: GTE6_38 Start: 34411, Stop: 36045, Start Num: 10
Candidate Starts for GTE6_38:
(Start: 10 @34411 has 15 MA's), (20, 34513), (22, 34531), (23, 34558), (25, 34582), (29, 34642), (32, 34708), (36, 34801), (40, 34870), (42, 34882), (45, 34918), (61, 35125), (64, 35134), (74, 35275), (106, 35656), (115, 35764), (117, 35794), (118, 35806), (121, 35833),

Gene: Gaea_41 Start: 35931, Stop: 37553, Start Num: 7
Candidate Starts for Gaea_41:
(Start: 7 @35931 has 1 MA's), (Start: 12 @35970 has 30 MA's), (Start: 13 @35985 has 2 MA's), (33, 36255), (36, 36336), (37, 36375), (47, 36459), (58, 36630), (61, 36639), (63, 36645), (64, 36648), (66, 36678), (69, 36708), (74, 36789), (80, 36849), (89, 36975), (90, 36984), (108, 37188), (114, 37266), (118, 37314), (119, 37335), (120, 37338), (122, 37350), (123, 37362), (124, 37377), (127, 37410),

(138, 37527),

Gene: Gustav_21 Start: 17436, Stop: 19031, Start Num: 11
Candidate Starts for Gustav_21:
(Start: 11 @17436 has 3 MA's), (21, 17535), (24, 17580), (32, 17724), (44, 17907), (48, 17934), (49, 17958), (52, 18039), (54, 18087), (57, 18105), (72, 18243), (77, 18291), (78, 18303), (84, 18402), (88, 18465), (96, 18531), (97, 18543), (119, 18819), (135, 18981),

Gene: Gustavo_41 Start: 36119, Stop: 37723, Start Num: 12
Candidate Starts for Gustavo_41:
(Start: 7 @36083 has 1 MA's), (Start: 12 @36119 has 30 MA's), (Start: 13 @36134 has 2 MA's), (36, 36485), (37, 36524), (47, 36626), (57, 36788), (58, 36797), (61, 36806), (63, 36812), (64, 36815), (66, 36845), (69, 36875), (70, 36893), (74, 36956), (80, 37016), (83, 37055), (89, 37142), (106, 37331), (114, 37433), (118, 37484), (119, 37505), (120, 37508), (123, 37532), (124, 37547), (127, 37580), (131, 37631), (137, 37685), (138, 37697),

Gene: Hans_42 Start: 36057, Stop: 37670, Start Num: 10
Candidate Starts for Hans_42:
(Start: 10 @36057 has 15 MA's), (16, 36117), (20, 36159), (25, 36228), (32, 36354), (45, 36549), (51, 36654), (64, 36765), (74, 36906), (75, 36909), (78, 36930), (84, 37032), (86, 37086), (89, 37098), (90, 37107), (92, 37119), (100, 37209), (101, 37224), (106, 37281), (115, 37389), (117, 37419), (118, 37431), (121, 37458), (124, 37494), (132, 37587), (136, 37632),

Gene: Inspectinfecti_41 Start: 36503, Stop: 38116, Start Num: 10
Candidate Starts for Inspectinfecti_41:
(Start: 10 @36503 has 15 MA's), (16, 36563), (25, 36674), (32, 36800), (39, 36953), (45, 36995), (51, 37100), (64, 37211), (74, 37352), (75, 37355), (78, 37376), (84, 37478), (86, 37532), (89, 37544), (90, 37553), (92, 37565), (101, 37670), (106, 37727), (115, 37835), (117, 37865), (118, 37877), (121, 37904), (124, 37940), (132, 38033), (136, 38078),

Gene: JKSyngboy_39 Start: 36715, Stop: 38322, Start Num: 12
Candidate Starts for JKSyngboy_39:
(Start: 12 @36715 has 30 MA's), (Start: 13 @36730 has 2 MA's), (33, 37000), (36, 37081), (37, 37120), (47, 37228), (61, 37408), (63, 37414), (64, 37417), (66, 37447), (69, 37477), (70, 37495), (74, 37558), (80, 37618), (89, 37744), (90, 37753), (114, 38035), (118, 38083), (119, 38104), (120, 38107), (122, 38119), (123, 38131), (127, 38179), (137, 38284), (138, 38296),

Gene: Kroos_42 Start: 36880, Stop: 38463, Start Num: 12
Candidate Starts for Kroos_42:
(Start: 7 @36841 has 1 MA's), (Start: 12 @36880 has 30 MA's), (Start: 13 @36895 has 2 MA's), (36, 37246), (37, 37285), (47, 37369), (58, 37540), (61, 37549), (63, 37555), (64, 37558), (66, 37588), (69, 37618), (74, 37699), (80, 37759), (89, 37885), (90, 37894), (108, 38098), (114, 38176), (118, 38224), (119, 38245), (120, 38248), (122, 38260), (123, 38272), (124, 38287), (127, 38320), (138, 38437),

Gene: Kwekel_38 Start: 33851, Stop: 35485, Start Num: 10
Candidate Starts for Kwekel_38:
(Start: 10 @33851 has 15 MA's), (20, 33953), (22, 33971), (23, 33998), (25, 34022), (29, 34082), (32, 34148), (36, 34241), (40, 34310), (42, 34322), (45, 34358), (61, 34565), (64, 34574), (74, 34715), (90, 34916), (106, 35096), (115, 35204), (117, 35234), (118, 35246), (121, 35273),

Gene: Kwobi_43 Start: 36866, Stop: 38449, Start Num: 12
Candidate Starts for Kwobi_43:

(Start: 12 @36866 has 30 MA's), (Start: 13 @36881 has 2 MA's), (33, 37151), (36, 37232), (37, 37271), (47, 37355), (58, 37526), (61, 37535), (63, 37541), (64, 37544), (66, 37574), (69, 37604), (74, 37685), (80, 37745), (89, 37871), (90, 37880), (103, 38006), (114, 38162), (118, 38210), (119, 38231), (120, 38234), (123, 38258), (124, 38273), (127, 38306), (128, 38333), (138, 38423),

Gene: Leonard_40 Start: 36143, Stop: 37756, Start Num: 10
Candidate Starts for Leonard_40:
(Start: 10 @36143 has 15 MA's), (16, 36203), (20, 36245), (25, 36314), (32, 36440), (45, 36635), (51, 36740), (64, 36851), (74, 36992), (75, 36995), (78, 37016), (84, 37118), (86, 37172), (89, 37184), (90, 37193), (92, 37205), (101, 37310), (106, 37367), (115, 37475), (117, 37505), (118, 37517), (121, 37544), (124, 37580), (132, 37673), (136, 37718),

Gene: LilHam_39 Start: 35467, Stop: 37050, Start Num: 12
Candidate Starts for LilHam_39:
(Start: 7 @35428 has 1 MA's), (Start: 12 @35467 has 30 MA's), (Start: 13 @35482 has 2 MA's), (33, 35752), (37, 35872), (47, 35956), (58, 36127), (61, 36136), (63, 36142), (64, 36145), (66, 36175), (69, 36205), (74, 36286), (80, 36346), (89, 36472), (90, 36481), (103, 36607), (114, 36763), (118, 36811), (119, 36832), (120, 36835), (123, 36859), (124, 36874), (127, 36907), (128, 36934), (138, 37024),

Gene: Mahdia_21 Start: 17103, Stop: 18704, Start Num: 11
Candidate Starts for Mahdia_21:
(Start: 11 @17103 has 3 MA's), (21, 17202), (24, 17247), (26, 17298), (32, 17391), (41, 17559), (44, 17577), (48, 17604), (49, 17628), (50, 17676), (54, 17757), (56, 17772), (57, 17775), (62, 17796), (63, 17799), (80, 18009), (84, 18072), (88, 18135), (93, 18183), (96, 18201), (97, 18213), (129, 18591),

Gene: MelBins_41 Start: 36289, Stop: 37902, Start Num: 10
Candidate Starts for MelBins_41:
(Start: 10 @36289 has 15 MA's), (16, 36349), (25, 36460), (32, 36586), (39, 36739), (45, 36781), (51, 36886), (64, 36997), (74, 37138), (75, 37141), (78, 37162), (84, 37264), (86, 37318), (89, 37330), (90, 37339), (92, 37351), (100, 37441), (101, 37456), (106, 37513), (115, 37621), (117, 37651), (118, 37663), (121, 37690), (124, 37726), (132, 37819), (136, 37864),

Gene: Morrissey_22 Start: 18327, Stop: 19910, Start Num: 11
Candidate Starts for Morrissey_22:
(Start: 11 @18327 has 3 MA's), (21, 18426), (24, 18450), (26, 18501), (27, 18522), (32, 18594), (44, 18780), (48, 18813), (49, 18837), (52, 18918), (54, 18966), (57, 18984), (72, 19122), (77, 19170), (78, 19182), (79, 19215), (84, 19281), (88, 19344), (96, 19410), (97, 19422),

Gene: Natkenzie_42 Start: 37695, Stop: 39302, Start Num: 12
Candidate Starts for Natkenzie_42:
(Start: 12 @37695 has 30 MA's), (Start: 13 @37710 has 2 MA's), (23, 37818), (36, 38061), (37, 38100), (45, 38181), (57, 38370), (71, 38499), (74, 38538), (84, 38664), (90, 38739), (92, 38751), (104, 38880), (107, 38931), (111, 38970), (114, 39021), (119, 39087), (121, 39093), (124, 39129), (132, 39222), (136, 39267), (139, 39288),

Gene: Phauci_33 Start: 32992, Stop: 34605, Start Num: 10
Candidate Starts for Phauci_33:
(Start: 10 @32992 has 15 MA's), (16, 33052), (20, 33094), (25, 33163), (32, 33289), (45, 33484), (51, 33589), (64, 33700), (74, 33841), (75, 33844), (78, 33865), (84, 33967), (86, 34021), (89, 34033), (90, 34042), (92, 34054), (100, 34144), (101, 34159), (106, 34216), (115, 34324), (117, 34354), (118, 34366), (121, 34393), (124, 34429), (132, 34522), (136, 34567),

Gene: Phinally_40 Start: 36140, Stop: 37753, Start Num: 10

Candidate Starts for Phinally_40:
(Start: 10 @36140 has 15 MA's), (16, 36200), (20, 36242), (25, 36311), (32, 36437), (45, 36632), (51, 36737), (64, 36848), (74, 36989), (75, 36992), (78, 37013), (84, 37115), (86, 37169), (89, 37181), (90, 37190), (92, 37202), (101, 37307), (106, 37364), (115, 37472), (117, 37502), (118, 37514), (121, 37541), (124, 37577), (132, 37670), (136, 37715),

Gene: Pumpkiney_43 Start: 35025, Stop: 36620, Start Num: 13
Candidate Starts for Pumpkiney_43:
(Start: 12 @35010 has 30 MA's), (Start: 13 @35025 has 2 MA's), (36, 35376), (37, 35415), (45, 35499), (57, 35688), (71, 35817), (74, 35856), (84, 35982), (90, 36057), (92, 36069), (104, 36198), (106, 36237), (107, 36249), (111, 36288), (114, 36339), (119, 36405), (121, 36411), (124, 36447), (132, 36540), (136, 36585), (139, 36606),

Gene: Ribeye_42 Start: 37298, Stop: 38881, Start Num: 12
Candidate Starts for Ribeye_42:
(Start: 7 @37259 has 1 MA's), (Start: 12 @37298 has 30 MA's), (Start: 13 @37313 has 2 MA's), (36, 37664), (37, 37703), (47, 37787), (58, 37958), (61, 37967), (63, 37973), (64, 37976), (66, 38006), (69, 38036), (74, 38117), (80, 38177), (89, 38303), (90, 38312), (108, 38516), (114, 38594), (118, 38642), (119, 38663), (120, 38666), (122, 38678), (123, 38690), (124, 38705), (127, 38738), (128, 38765), (138, 38855),

Gene: RoadKill_36 Start: 33414, Stop: 35048, Start Num: 10
Candidate Starts for RoadKill_36:
(Start: 10 @33414 has 15 MA's), (20, 33516), (23, 33561), (25, 33585), (29, 33645), (32, 33711), (36, 33804), (40, 33873), (42, 33885), (45, 33921), (61, 34128), (64, 34137), (74, 34278), (90, 34479), (106, 34659), (115, 34767), (117, 34797), (118, 34809), (121, 34836),

Gene: Sampson_42 Start: 37640, Stop: 39247, Start Num: 12
Candidate Starts for Sampson_42:
(Start: 12 @37640 has 30 MA's), (Start: 13 @37655 has 2 MA's), (23, 37763), (36, 38006), (37, 38045), (45, 38126), (57, 38315), (71, 38444), (74, 38483), (84, 38609), (90, 38684), (92, 38696), (104, 38825), (107, 38876), (111, 38915), (114, 38966), (119, 39032), (121, 39038), (124, 39074), (132, 39167), (136, 39212), (139, 39233),

Gene: Saronaya_41 Start: 36119, Stop: 37723, Start Num: 12
Candidate Starts for Saronaya_41:
(Start: 7 @36083 has 1 MA's), (Start: 12 @36119 has 30 MA's), (Start: 13 @36134 has 2 MA's), (36, 36485), (37, 36524), (47, 36626), (57, 36788), (58, 36797), (61, 36806), (63, 36812), (64, 36815), (66, 36845), (69, 36875), (70, 36893), (74, 36956), (80, 37016), (83, 37055), (89, 37142), (106, 37331), (114, 37433), (118, 37484), (119, 37505), (120, 37508), (123, 37532), (124, 37547), (127, 37580), (131, 37631), (137, 37685), (138, 37697),

Gene: SchottB_40 Start: 37140, Stop: 38723, Start Num: 12
Candidate Starts for SchottB_40:
(Start: 7 @37101 has 1 MA's), (Start: 12 @37140 has 30 MA's), (Start: 13 @37155 has 2 MA's), (33, 37425), (36, 37506), (37, 37545), (47, 37629), (58, 37800), (61, 37809), (63, 37815), (64, 37818), (66, 37848), (69, 37878), (74, 37959), (80, 38019), (89, 38145), (90, 38154), (103, 38280), (114, 38436), (118, 38484), (119, 38505), (120, 38508), (123, 38532), (124, 38547), (127, 38580), (128, 38607), (138, 38697),

Gene: Scioto_43 Start: 37696, Stop: 39303, Start Num: 12
Candidate Starts for Scioto_43:

(Start: 12 @37696 has 30 MA's), (Start: 13 @37711 has 2 MA's), (23, 37819), (36, 38062), (37, 38101), (45, 38182), (57, 38371), (71, 38500), (74, 38539), (84, 38665), (90, 38740), (92, 38752), (104, 38881), (107, 38932), (111, 38971), (114, 39022), (119, 39088), (121, 39094), (124, 39130), (132, 39223), (136, 39268), (139, 39289),

Gene: Sixsevenium_42 Start: 33916, Stop: 35283, Start Num: 28
Candidate Starts for Sixsevenium_42:
(Start: 12 @33715 has 30 MA's), (Start: 13 @33730 has 2 MA's), (15, 33751), (16, 33754), (Start: 28 @33916 has 1 MA's), (37, 34120), (43, 34162), (47, 34204), (53, 34348), (63, 34390), (64, 34393), (67, 34444), (73, 34519), (74, 34534), (77, 34546), (79, 34591), (91, 34744), (94, 34765), (105, 34876), (116, 35014), (124, 35098), (127, 35131), (130, 35182), (134, 35203),

Gene: Stichling_39 Start: 35662, Stop: 37245, Start Num: 12
Candidate Starts for Stichling_39:
(Start: 7 @35623 has 1 MA's), (Start: 12 @35662 has 30 MA's), (Start: 13 @35677 has 2 MA's), (36, 36028), (37, 36067), (47, 36151), (53, 36295), (58, 36322), (61, 36331), (63, 36337), (64, 36340), (66, 36370), (69, 36400), (74, 36481), (80, 36541), (89, 36667), (90, 36676), (114, 36958), (118, 37006), (119, 37027), (120, 37030), (122, 37042), (123, 37054), (124, 37069), (127, 37102), (138, 37219),

Gene: TPA2_55 Start: 41077, Stop: 42684, Start Num: 8
Candidate Starts for TPA2_55:
(6, 41047), (8, 41077), (14, 41137), (17, 41182), (18, 41191), (19, 41194), (Start: 28 @41320 has 1 MA's), (31, 41377), (32, 41389), (34, 41413), (35, 41419), (38, 41548), (46, 41620), (49, 41653), (59, 41803), (60, 41806), (63, 41815), (64, 41818), (65, 41845), (67, 41869), (76, 41944), (81, 41998), (84, 42049), (85, 42085), (87, 42109), (90, 42124), (95, 42169), (96, 42175), (99, 42211), (106, 42289), (109, 42316), (110, 42322), (111, 42334), (112, 42337), (119, 42442), (125, 42490), (133, 42580), (139, 42631), (140, 42634),

Gene: Tangerine_41 Start: 36012, Stop: 37595, Start Num: 12
Candidate Starts for Tangerine_41:
(Start: 7 @35973 has 1 MA's), (Start: 12 @36012 has 30 MA's), (Start: 13 @36027 has 2 MA's), (36, 36378), (37, 36417), (47, 36501), (58, 36672), (61, 36681), (63, 36687), (64, 36690), (66, 36720), (69, 36750), (74, 36831), (80, 36891), (89, 37017), (90, 37026), (114, 37308), (118, 37356), (119, 37377), (120, 37380), (123, 37404), (124, 37419), (127, 37452), (138, 37569),

Gene: Tardus_43 Start: 37065, Stop: 38660, Start Num: 13
Candidate Starts for Tardus_43:
(Start: 12 @37050 has 30 MA's), (Start: 13 @37065 has 2 MA's), (36, 37416), (37, 37455), (45, 37539), (57, 37728), (71, 37857), (74, 37896), (84, 38022), (90, 38097), (92, 38109), (104, 38238), (107, 38289), (111, 38328), (114, 38379), (119, 38445), (121, 38451), (124, 38487), (132, 38580), (136, 38625), (139, 38646),

Gene: Tiamoceli_39 Start: 34747, Stop: 36381, Start Num: 10
Candidate Starts for Tiamoceli_39:
(Start: 10 @34747 has 15 MA's), (20, 34849), (22, 34867), (23, 34894), (25, 34918), (29, 34978), (32, 35044), (36, 35137), (40, 35206), (42, 35218), (45, 35254), (61, 35461), (64, 35470), (74, 35611), (90, 35812), (106, 35992), (115, 36100), (117, 36130), (118, 36142), (121, 36169),

Gene: Twonlo_36 Start: 33365, Stop: 34999, Start Num: 10
Candidate Starts for Twonlo_36:
(Start: 10 @33365 has 15 MA's), (20, 33467), (23, 33512), (25, 33536), (29, 33596), (32, 33662), (36, 33755), (40, 33824), (42, 33836), (45, 33872), (61, 34079), (64, 34088), (74, 34229), (90, 34430), (106, 34610), (115, 34718), (117, 34748), (118, 34760), (121, 34787),

Gene: Tycho_41 Start: 36099, Stop: 37682, Start Num: 12
Candidate Starts for Tycho_41:
(Start: 7 @36060 has 1 MA's), (Start: 12 @36099 has 30 MA's), (Start: 13 @36114 has 2 MA's), (33, 36384), (36, 36465), (37, 36504), (47, 36588), (58, 36759), (61, 36768), (63, 36774), (64, 36777), (66, 36807), (69, 36837), (74, 36918), (80, 36978), (89, 37104), (90, 37113), (114, 37395), (118, 37443), (119, 37464), (120, 37467), (123, 37491), (124, 37506), (127, 37539), (138, 37656),

Gene: Verity_41 Start: 37882, Stop: 39492, Start Num: 12
Candidate Starts for Verity_41:
(Start: 12 @37882 has 30 MA's), (Start: 13 @37897 has 2 MA's), (36, 38248), (37, 38287), (45, 38371), (55, 38554), (57, 38560), (74, 38728), (84, 38854), (90, 38929), (92, 38941), (104, 39070), (106, 39109), (107, 39121), (111, 39160), (114, 39211), (119, 39277), (121, 39283), (124, 39319), (132, 39412), (136, 39457), (138, 39475), (139, 39478),

Gene: ViaConlectus_42 Start: 36330, Stop: 37937, Start Num: 12
Candidate Starts for ViaConlectus_42:
(9, 36312), (Start: 12 @36330 has 30 MA's), (Start: 13 @36345 has 2 MA's), (36, 36696), (37, 36735), (45, 36816), (57, 37005), (71, 37134), (74, 37173), (84, 37299), (90, 37374), (92, 37386), (104, 37515), (107, 37566), (111, 37605), (114, 37656), (119, 37722), (121, 37728), (124, 37764), (132, 37857), (136, 37902), (139, 37923),

Gene: YorkOnyx_42 Start: 36358, Stop: 37941, Start Num: 12
Candidate Starts for YorkOnyx_42:
(Start: 7 @36319 has 1 MA's), (Start: 12 @36358 has 30 MA's), (Start: 13 @36373 has 2 MA's), (36, 36724), (37, 36763), (47, 36847), (58, 37018), (61, 37027), (63, 37033), (64, 37036), (66, 37066), (69, 37096), (74, 37177), (80, 37237), (89, 37363), (90, 37372), (108, 37576), (113, 37642), (114, 37654), (118, 37702), (119, 37723), (120, 37726), (122, 37738), (123, 37750), (124, 37765), (127, 37798), (128, 37825), (138, 37915),

Gene: Zipp_41 Start: 37800, Stop: 39395, Start Num: 13
Candidate Starts for Zipp_41:
(Start: 12 @37785 has 30 MA's), (Start: 13 @37800 has 2 MA's), (36, 38151), (37, 38190), (45, 38274), (57, 38463), (71, 38592), (74, 38631), (84, 38757), (92, 38844), (104, 38973), (106, 39012), (107, 39024), (111, 39063), (114, 39114), (118, 39159), (119, 39180), (121, 39186), (124, 39222), (132, 39315), (136, 39360), (138, 39378), (139, 39381), (141, 39387),

Gene: Zitch_45 Start: 36483, Stop: 38093, Start Num: 12
Candidate Starts for Zitch_45:
(Start: 12 @36483 has 30 MA's), (Start: 13 @36498 has 2 MA's), (36, 36849), (37, 36888), (45, 36972), (48, 37002), (55, 37155), (57, 37161), (68, 37245), (71, 37290), (74, 37329), (84, 37455), (90, 37530), (92, 37542), (104, 37671), (106, 37710), (107, 37722), (111, 37761), (114, 37812), (119, 37878), (121, 37884), (124, 37920), (132, 38013), (136, 38058), (139, 38079),