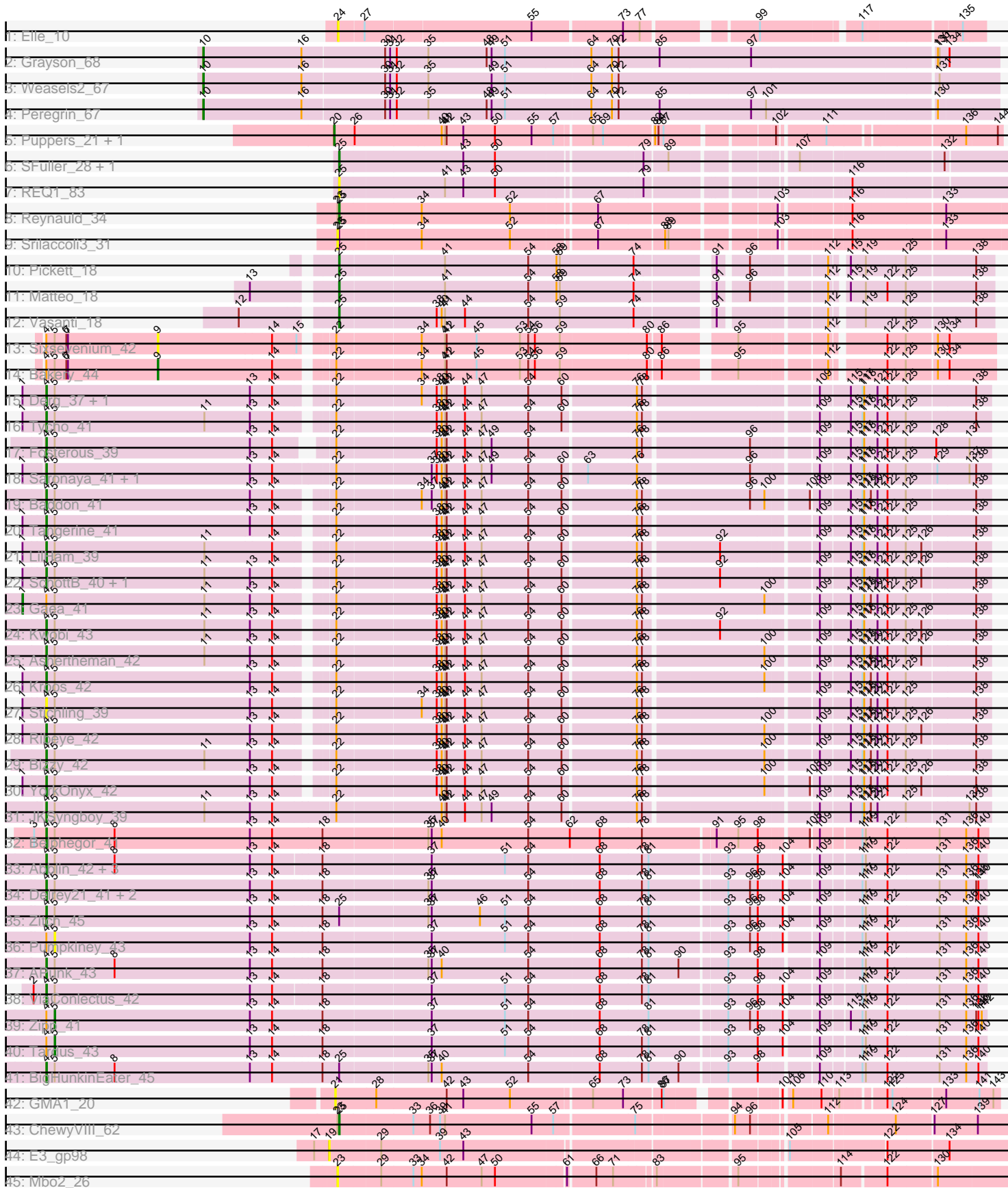


Pham 305051



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 305051 Report

This analysis was run 06/08/26 on database version 649.

Pham number 305051 has 55 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Elle_10
- Track 2 : Grayson_68
- Track 3 : Weasels2_67
- Track 4 : Peregrin_67
- Track 5 : Puppies_21, Widow_21
- Track 6 : SFuller_28, Jflix2_26
- Track 7 : REQ1_83
- Track 8 : Reynauld_34
- Track 9 : Srilaccoli3_31
- Track 10 : Pickett_18
- Track 11 : Matteo_18
- Track 12 : Vasanti_18
- Track 13 : Sixsevenium_42
- Track 14 : Bakery_44
- Track 15 : Derg_37, Flatwoods_42
- Track 16 : Tycho_41
- Track 17 : Fosterous_39
- Track 18 : Saronaya_41, Gustavo_41
- Track 19 : Baddon_41
- Track 20 : Tangerine_41
- Track 21 : LilHam_39
- Track 22 : SchottB_40, Baumdotcom_40
- Track 23 : Gaea_41
- Track 24 : Kwobi_43
- Track 25 : Ashertheman_42
- Track 26 : Kroos_42
- Track 27 : Stichling_39
- Track 28 : Ribeye_42
- Track 29 : Bizzy_42
- Track 30 : YorkOnyx_42
- Track 31 : JKSyngboy_39
- Track 32 : Belphegor_41
- Track 33 : Abblin_42, Natkenzie_42, Sampson_42, Scioto_43
- Track 34 : Delrey21_41, Verity_41, DoctorFroggo_41
- Track 35 : Zitch_45
- Track 36 : Pumpkiney_43
- Track 37 : APunk_43

- Track 38 : ViaConlectus_42
- Track 39 : Zipp_41
- Track 40 : Tardus_43
- Track 41 : BigHunkinEater_45
- Track 42 : GMA1_20
- Track 43 : ChewyVIII_62
- Track 44 : E3_gp98
- Track 45 : Mbo2_26

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

The start number called the most often in the published annotations is 4, it was called in 30 of the 45 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:

- ChewyVIII_62, E3_gp98, Elle_10, GMA1_20, Grayson_68, Jflix2_26, Matteo_18, Mbo2_26, Peregrin_67, Pickett_18, Puppies_21, REQ1_83, Reynauld_34, SFuller_28, Srilaccoli3_31, Vasanti_18, Weasels2_67, Widow_21,

Summary by start number:

Start 1:

- Found in 14 of 55 (25.5%) of genes in pham
- Manual Annotations of this start: 1 of 45
- Called 7.1% of time when present
- Phage (with cluster) where this start called: Gaea_41 (DE1),

Start 4:

- Found in 37 of 55 (67.3%) of genes in pham
- Manual Annotations of this start: 30 of 45
- 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 5:

- Found in 37 of 55 (67.3%) of genes in pham
- Manual Annotations of this start: 2 of 45
- Called 8.1% of time when present
- Phage (with cluster) where this start called: Pumpkiney_43 (DE4), Tardus_43 (DE4), Zipp_41 (DE4),

Start 9:

- Found in 2 of 55 (3.6%) of genes in pham
- Manual Annotations of this start: 1 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bakery_44 (DC1), Sixsevenium_42 (DC1),

Start 10:

- Found in 3 of 55 (5.5%) of genes in pham
- Manual Annotations of this start: 3 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Grayson_68 (CB), Peregrin_67 (CB), Weasels2_67 (CB),

Start 19:

- Found in 1 of 55 (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: E3_gp98 (singleton),

Start 20:

- Found in 2 of 55 (3.6%) of genes in pham
- Manual Annotations of this start: 2 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Puppies_21 (CD), Widow_21 (CD),

Start 21:

- Found in 1 of 55 (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: GMA1_20 (singleton),

Start 23:

- Found in 4 of 55 (7.3%) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Mbo2_26 (singleton), Srilaccoli3_31 (CH),

Start 24:

- Found in 1 of 55 (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: Elle_10 (A15),

Start 25:

- Found in 11 of 55 (20.0%) of genes in pham
- Manual Annotations of this start: 6 of 45
- Called 72.7% of time when present
- Phage (with cluster) where this start called: ChewyVIII_62 (singleton), JfliX2_26 (CF), Matteo_18 (CZ2), Pickett_18 (CZ2), REQ1_83 (CF), Reynauld_34 (CH), SFuller_28 (CF), Vasanti_18 (CZ2),

Summary by clusters:

There are 11 clusters represented in this pham: A15, singleton, CH, CZ2, DE1, DE2, DE4, CF, CD, CB, DC1,

Info for manual annotations of cluster CB:

- Start number 10 was manually annotated 3 times for cluster CB.

Info for manual annotations of cluster CD:

- Start number 20 was manually annotated 2 times for cluster CD.

Info for manual annotations of cluster CF:

- Start number 25 was manually annotated 1 time for cluster CF.

Info for manual annotations of cluster CH:

- Start number 25 was manually annotated 1 time for cluster CH.

Info for manual annotations of cluster CZ2:

- Start number 25 was manually annotated 3 times for cluster CZ2.

Info for manual annotations of cluster DC1:

- Start number 9 was manually annotated 1 time for cluster DC1.

Info for manual annotations of cluster DE1:

- Start number 1 was manually annotated 1 time for cluster DE1.
- Start number 4 was manually annotated 18 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 4 was manually annotated 1 time for cluster DE2.

Info for manual annotations of cluster DE4:

- Start number 4 was manually annotated 11 times for cluster DE4.
- Start number 5 was manually annotated 2 times for cluster DE4.

Gene Information:

Gene: APunk_43 Start: 37152, Stop: 38765, Start Num: 4

Candidate Starts for APunk_43:

(Start: 4 @37152 has 30 MA's), (Start: 5 @37167 has 2 MA's), (8, 37275), (13, 37518), (14, 37557), (18, 37644), (35, 37827), (37, 37833), (40, 37851), (54, 38001), (68, 38127), (78, 38202), (81, 38214), (90, 38268), (93, 38343), (98, 38394), (109, 38484), (117, 38550), (119, 38556), (122, 38592), (131,

38685), (136, 38730), (140, 38751),

Gene: Abblin_42 Start: 37695, Stop: 39302, Start Num: 4

Candidate Starts for Abblin_42:

(Start: 4 @37695 has 30 MA's), (Start: 5 @37710 has 2 MA's), (8, 37818), (13, 38061), (14, 38100), (18, 38181), (37, 38370), (51, 38499), (54, 38538), (68, 38664), (78, 38739), (81, 38751), (93, 38880), (98, 38931), (104, 38970), (109, 39021), (117, 39087), (119, 39093), (122, 39129), (131, 39222), (136, 39267), (140, 39288),

Gene: Ashertheman_42 Start: 36687, Stop: 38270, Start Num: 4

Candidate Starts for Ashertheman_42:

(Start: 4 @36687 has 30 MA's), (Start: 5 @36702 has 2 MA's), (11, 36972), (13, 37053), (14, 37092), (22, 37176), (38, 37347), (40, 37356), (41, 37362), (42, 37365), (44, 37395), (47, 37425), (54, 37506), (60, 37566), (76, 37692), (78, 37701), (100, 37905), (109, 37983), (115, 38031), (117, 38052), (118, 38055), (120, 38067), (121, 38079), (122, 38094), (125, 38127), (126, 38154), (138, 38244),

Gene: Baddon_41 Start: 37222, Stop: 38805, Start Num: 4

Candidate Starts for Baddon_41:

(Start: 4 @37222 has 30 MA's), (Start: 5 @37237 has 2 MA's), (13, 37588), (14, 37627), (22, 37711), (34, 37855), (37, 37873), (40, 37891), (41, 37897), (42, 37900), (44, 37930), (47, 37960), (54, 38041), (60, 38101), (76, 38227), (78, 38236), (96, 38416), (100, 38440), (108, 38506), (109, 38518), (115, 38566), (117, 38587), (118, 38590), (120, 38602), (121, 38614), (122, 38629), (125, 38662), (138, 38779),

Gene: Bakery_44 Start: 34687, Stop: 36054, Start Num: 9

Candidate Starts for Bakery_44:

(Start: 4 @34486 has 30 MA's), (Start: 5 @34501 has 2 MA's), (6, 34522), (7, 34525), (Start: 9 @34687 has 1 MA's), (14, 34891), (22, 34975), (34, 35119), (41, 35161), (42, 35164), (45, 35215), (53, 35290), (54, 35305), (56, 35317), (59, 35362), (80, 35515), (86, 35536), (95, 35647), (112, 35785), (122, 35869), (125, 35902), (130, 35953), (134, 35974),

Gene: Baumdotcom_40 Start: 36074, Stop: 37657, Start Num: 4

Candidate Starts for Baumdotcom_40:

(Start: 1 @36035 has 1 MA's), (Start: 4 @36074 has 30 MA's), (Start: 5 @36089 has 2 MA's), (11, 36359), (13, 36440), (14, 36479), (22, 36563), (38, 36734), (40, 36743), (41, 36749), (42, 36752), (44, 36782), (47, 36812), (54, 36893), (60, 36953), (76, 37079), (78, 37088), (92, 37214), (109, 37370), (115, 37418), (117, 37439), (118, 37442), (121, 37466), (122, 37481), (125, 37514), (126, 37541), (138, 37631),

Gene: Belphegor_41 Start: 37453, Stop: 39072, Start Num: 4

Candidate Starts for Belphegor_41:

(3, 37432), (Start: 4 @37453 has 30 MA's), (Start: 5 @37468 has 2 MA's), (8, 37576), (13, 37819), (14, 37858), (18, 37948), (35, 38131), (37, 38137), (40, 38155), (54, 38305), (62, 38380), (68, 38431), (78, 38506), (91, 38626), (95, 38665), (98, 38698), (108, 38776), (109, 38788), (117, 38854), (119, 38860), (122, 38896), (131, 38989), (136, 39034), (140, 39055),

Gene: BigHunkinEater_45 Start: 36933, Stop: 38546, Start Num: 4

Candidate Starts for BigHunkinEater_45:

(Start: 4 @36933 has 30 MA's), (Start: 5 @36948 has 2 MA's), (8, 37056), (13, 37299), (14, 37338), (18, 37425), (Start: 25 @37455 has 6 MA's), (35, 37608), (37, 37614), (40, 37632), (54, 37782), (68, 37908), (78, 37983), (81, 37995), (90, 38049), (93, 38124), (98, 38175), (109, 38265), (117, 38331), (119, 38337), (122, 38373), (131, 38466), (136, 38511), (140, 38532),

Gene: Bizzy_42 Start: 36382, Stop: 37965, Start Num: 4

Candidate Starts for Bizzy_42:

(Start: 4 @36382 has 30 MA's), (Start: 5 @36397 has 2 MA's), (11, 36667), (13, 36748), (14, 36787), (22, 36871), (38, 37042), (40, 37051), (41, 37057), (42, 37060), (44, 37090), (47, 37120), (54, 37201), (60, 37261), (76, 37387), (78, 37396), (100, 37600), (109, 37678), (115, 37726), (117, 37747), (118, 37750), (120, 37762), (121, 37774), (122, 37789), (125, 37822), (138, 37939),

Gene: ChewyVIII_62 Start: 43758, Stop: 44864, Start Num: 25

Candidate Starts for ChewyVIII_62:

(23, 43755), (Start: 25 @43758 has 6 MA's), (33, 43887), (36, 43917), (39, 43935), (41, 43944), (55, 44094), (57, 44133), (75, 44271), (94, 44424), (96, 44448), (112, 44559), (124, 44670), (127, 44733), (139, 44805),

Gene: Delrey21_41 Start: 37882, Stop: 39492, Start Num: 4

Candidate Starts for Delrey21_41:

(Start: 4 @37882 has 30 MA's), (Start: 5 @37897 has 2 MA's), (13, 38248), (14, 38287), (18, 38371), (35, 38554), (37, 38560), (54, 38728), (68, 38854), (78, 38929), (81, 38941), (93, 39070), (96, 39109), (98, 39121), (104, 39160), (109, 39211), (117, 39277), (119, 39283), (122, 39319), (131, 39412), (136, 39457), (138, 39475), (140, 39478),

Gene: Derg_37 Start: 35972, Stop: 37555, Start Num: 4

Candidate Starts for Derg_37:

(Start: 1 @35933 has 1 MA's), (Start: 4 @35972 has 30 MA's), (Start: 5 @35987 has 2 MA's), (13, 36338), (14, 36377), (22, 36461), (34, 36605), (38, 36632), (40, 36641), (41, 36647), (42, 36650), (44, 36680), (47, 36710), (54, 36791), (60, 36851), (76, 36977), (78, 36986), (109, 37268), (115, 37316), (117, 37337), (118, 37340), (121, 37364), (122, 37379), (125, 37412), (138, 37529),

Gene: DoctorFroggo_41 Start: 37882, Stop: 39492, Start Num: 4

Candidate Starts for DoctorFroggo_41:

(Start: 4 @37882 has 30 MA's), (Start: 5 @37897 has 2 MA's), (13, 38248), (14, 38287), (18, 38371), (35, 38554), (37, 38560), (54, 38728), (68, 38854), (78, 38929), (81, 38941), (93, 39070), (96, 39109), (98, 39121), (104, 39160), (109, 39211), (117, 39277), (119, 39283), (122, 39319), (131, 39412), (136, 39457), (138, 39475), (140, 39478),

Gene: E3_gp98 Start: 56068, Stop: 57180, Start Num: 19

Candidate Starts for E3_gp98:

(17, 56041), (19, 56068), (29, 56158), (39, 56263), (43, 56302), (105, 56809), (122, 56965), (134, 57070),

Gene: Elle_10 Start: 5109, Stop: 6143, Start Num: 24

Candidate Starts for Elle_10:

(24, 5109), (27, 5151), (55, 5439), (73, 5589), (77, 5619), (99, 5790), (117, 5952), (135, 6105),

Gene: Flatwoods_42 Start: 36324, Stop: 37907, Start Num: 4

Candidate Starts for Flatwoods_42:

(Start: 1 @36285 has 1 MA's), (Start: 4 @36324 has 30 MA's), (Start: 5 @36339 has 2 MA's), (13, 36690), (14, 36729), (22, 36813), (34, 36957), (38, 36984), (40, 36993), (41, 36999), (42, 37002), (44, 37032), (47, 37062), (54, 37143), (60, 37203), (76, 37329), (78, 37338), (109, 37620), (115, 37668), (117, 37689), (118, 37692), (121, 37716), (122, 37731), (125, 37764), (138, 37881),

Gene: Fosterous_39 Start: 36067, Stop: 37644, Start Num: 4

Candidate Starts for Fosterous_39:

(Start: 4 @36067 has 30 MA's), (Start: 5 @36082 has 2 MA's), (13, 36433), (14, 36472), (22, 36547), (38, 36718), (40, 36727), (41, 36733), (42, 36736), (44, 36766), (47, 36796), (49, 36814), (54, 36877), (76, 37063), (78, 37072), (96, 37252), (109, 37354), (115, 37405), (117, 37426), (118, 37429), (121, 37453), (122, 37468), (125, 37501), (128, 37552), (137, 37606),

Gene: GMA1_20 Start: 17561, Stop: 18616, Start Num: 21

Candidate Starts for GMA1_20:

(21, 17561), (28, 17633), (42, 17759), (43, 17786), (52, 17870), (65, 18005), (73, 18059), (86, 18122), (87, 18125), (104, 18287), (106, 18296), (110, 18344), (113, 18371), (122, 18434), (123, 18443), (133, 18533), (141, 18584), (143, 18605),

Gene: Gaea_41 Start: 35931, Stop: 37553, Start Num: 1

Candidate Starts for Gaea_41:

(Start: 1 @35931 has 1 MA's), (Start: 4 @35970 has 30 MA's), (Start: 5 @35985 has 2 MA's), (11, 36255), (13, 36336), (14, 36375), (22, 36459), (38, 36630), (40, 36639), (41, 36645), (42, 36648), (44, 36678), (47, 36708), (54, 36789), (60, 36849), (76, 36975), (78, 36984), (100, 37188), (109, 37266), (115, 37314), (117, 37335), (118, 37338), (120, 37350), (121, 37362), (122, 37377), (125, 37410), (138, 37527),

Gene: Grayson_68 Start: 28644, Stop: 30044, Start Num: 10

Candidate Starts for Grayson_68:

(Start: 10 @28644 has 3 MA's), (16, 28821), (30, 28965), (31, 28974), (32, 28986), (35, 29043), (48, 29148), (49, 29157), (51, 29181), (64, 29331), (70, 29367), (72, 29379), (85, 29451), (97, 29613), (130, 29934), (131, 29937), (134, 29955),

Gene: Gustavo_41 Start: 36119, Stop: 37723, Start Num: 4

Candidate Starts for Gustavo_41:

(Start: 1 @36083 has 1 MA's), (Start: 4 @36119 has 30 MA's), (Start: 5 @36134 has 2 MA's), (13, 36485), (14, 36524), (22, 36626), (37, 36788), (38, 36797), (40, 36806), (41, 36812), (42, 36815), (44, 36845), (47, 36875), (49, 36893), (54, 36956), (60, 37016), (63, 37055), (76, 37142), (96, 37331), (109, 37433), (115, 37484), (117, 37505), (118, 37508), (121, 37532), (122, 37547), (125, 37580), (129, 37631), (137, 37685), (138, 37697),

Gene: JKSyngboy_39 Start: 36715, Stop: 38322, Start Num: 4

Candidate Starts for JKSyngboy_39:

(Start: 4 @36715 has 30 MA's), (Start: 5 @36730 has 2 MA's), (11, 37000), (13, 37081), (14, 37120), (22, 37228), (40, 37408), (41, 37414), (42, 37417), (44, 37447), (47, 37477), (49, 37495), (54, 37558), (60, 37618), (76, 37744), (78, 37753), (109, 38035), (115, 38083), (117, 38104), (118, 38107), (120, 38119), (121, 38131), (125, 38179), (137, 38284), (138, 38296),

Gene: Jflix2_26 Start: 25867, Stop: 26955, Start Num: 25

Candidate Starts for Jflix2_26:

(Start: 25 @25867 has 6 MA's), (43, 26083), (50, 26140), (79, 26383), (89, 26422), (107, 26608), (132, 26845),

Gene: Kroos_42 Start: 36880, Stop: 38463, Start Num: 4

Candidate Starts for Kroos_42:

(Start: 1 @36841 has 1 MA's), (Start: 4 @36880 has 30 MA's), (Start: 5 @36895 has 2 MA's), (13, 37246), (14, 37285), (22, 37369), (38, 37540), (40, 37549), (41, 37555), (42, 37558), (44, 37588), (47, 37618), (54, 37699), (60, 37759), (76, 37885), (78, 37894), (100, 38098), (109, 38176), (115, 38224), (117, 38245), (118, 38248), (120, 38260), (121, 38272), (122, 38287), (125, 38320), (138, 38437),

Gene: Kwobi_43 Start: 36866, Stop: 38449, Start Num: 4

Candidate Starts for Kwobi_43:

(Start: 4 @36866 has 30 MA's), (Start: 5 @36881 has 2 MA's), (11, 37151), (13, 37232), (14, 37271), (22, 37355), (38, 37526), (40, 37535), (41, 37541), (42, 37544), (44, 37574), (47, 37604), (54, 37685), (60, 37745), (76, 37871), (78, 37880), (92, 38006), (109, 38162), (115, 38210), (117, 38231), (118, 38234), (121, 38258), (122, 38273), (125, 38306), (126, 38333), (138, 38423),

Gene: LilHam_39 Start: 35467, Stop: 37050, Start Num: 4

Candidate Starts for LilHam_39:

(Start: 1 @35428 has 1 MA's), (Start: 4 @35467 has 30 MA's), (Start: 5 @35482 has 2 MA's), (11, 35752), (14, 35872), (22, 35956), (38, 36127), (40, 36136), (41, 36142), (42, 36145), (44, 36175), (47, 36205), (54, 36286), (60, 36346), (76, 36472), (78, 36481), (92, 36607), (109, 36763), (115, 36811), (117, 36832), (118, 36835), (121, 36859), (122, 36874), (125, 36907), (126, 36934), (138, 37024),

Gene: Matteo_18 Start: 16486, Stop: 17544, Start Num: 25

Candidate Starts for Matteo_18:

(13, 16354), (Start: 25 @16486 has 6 MA's), (41, 16669), (54, 16813), (58, 16864), (59, 16870), (74, 17002), (91, 17119), (96, 17164), (112, 17281), (115, 17299), (119, 17326), (122, 17362), (125, 17395), (138, 17512),

Gene: Mbo2_26 Start: 27781, Stop: 28878, Start Num: 23

Candidate Starts for Mbo2_26:

(23, 27781), (29, 27856), (33, 27913), (34, 27928), (42, 27973), (47, 28033), (50, 28057), (61, 28174), (66, 28219), (71, 28249), (83, 28315), (95, 28444), (114, 28597), (122, 28666), (130, 28750),

Gene: Natkenzie_42 Start: 37695, Stop: 39302, Start Num: 4

Candidate Starts for Natkenzie_42:

(Start: 4 @37695 has 30 MA's), (Start: 5 @37710 has 2 MA's), (8, 37818), (13, 38061), (14, 38100), (18, 38181), (37, 38370), (51, 38499), (54, 38538), (68, 38664), (78, 38739), (81, 38751), (93, 38880), (98, 38931), (104, 38970), (109, 39021), (117, 39087), (119, 39093), (122, 39129), (131, 39222), (136, 39267), (140, 39288),

Gene: Peregrin_67 Start: 28158, Stop: 29555, Start Num: 10

Candidate Starts for Peregrin_67:

(Start: 10 @28158 has 3 MA's), (16, 28335), (30, 28479), (31, 28488), (32, 28500), (35, 28557), (48, 28662), (49, 28671), (51, 28695), (64, 28845), (70, 28881), (72, 28893), (85, 28965), (97, 29127), (101, 29154), (130, 29448),

Gene: Pickett_18 Start: 16479, Stop: 17537, Start Num: 25

Candidate Starts for Pickett_18:

(Start: 25 @16479 has 6 MA's), (41, 16662), (54, 16806), (58, 16857), (59, 16863), (74, 16995), (91, 17112), (96, 17157), (112, 17274), (115, 17292), (119, 17319), (125, 17388), (138, 17505),

Gene: Pumpkiney_43 Start: 35025, Stop: 36620, Start Num: 5

Candidate Starts for Pumpkiney_43:

(Start: 4 @35010 has 30 MA's), (Start: 5 @35025 has 2 MA's), (13, 35376), (14, 35415), (18, 35499), (37, 35688), (51, 35817), (54, 35856), (68, 35982), (78, 36057), (81, 36069), (93, 36198), (96, 36237), (98, 36249), (104, 36288), (109, 36339), (117, 36405), (119, 36411), (122, 36447), (131, 36540), (136, 36585), (140, 36606),

Gene: Puppies_21 Start: 17502, Stop: 18587, Start Num: 20

Candidate Starts for Puppies_21:

(Start: 20 @17502 has 2 MA's), (26, 17538), (40, 17691), (41, 17697), (42, 17700), (43, 17727), (50, 17784), (55, 17847), (57, 17883), (65, 17943), (69, 17961), (82, 18048), (84, 18054), (87, 18063), (102,

18234), (111, 18309), (136, 18525), (144, 18579),

Gene: REQ1_83 Start: 49534, Stop: 50622, Start Num: 25

Candidate Starts for REQ1_83:

(Start: 25 @49534 has 6 MA's), (41, 49720), (43, 49750), (50, 49807), (79, 50050), (116, 50356),

Gene: Reynauld_34 Start: 35895, Stop: 36983, Start Num: 25

Candidate Starts for Reynauld_34:

(23, 35892), (Start: 25 @35895 has 6 MA's), (34, 36039), (52, 36195), (67, 36333), (103, 36615), (116, 36723), (133, 36879),

Gene: Ribeye_42 Start: 37298, Stop: 38881, Start Num: 4

Candidate Starts for Ribeye_42:

(Start: 1 @37259 has 1 MA's), (Start: 4 @37298 has 30 MA's), (Start: 5 @37313 has 2 MA's), (13, 37664), (14, 37703), (22, 37787), (38, 37958), (40, 37967), (41, 37973), (42, 37976), (44, 38006), (47, 38036), (54, 38117), (60, 38177), (76, 38303), (78, 38312), (100, 38516), (109, 38594), (115, 38642), (117, 38663), (118, 38666), (120, 38678), (121, 38690), (122, 38705), (125, 38738), (126, 38765), (138, 38855),

Gene: SFuller_28 Start: 26460, Stop: 27548, Start Num: 25

Candidate Starts for SFuller_28:

(Start: 25 @26460 has 6 MA's), (43, 26676), (50, 26733), (79, 26976), (89, 27015), (107, 27201), (132, 27438),

Gene: Sampson_42 Start: 37640, Stop: 39247, Start Num: 4

Candidate Starts for Sampson_42:

(Start: 4 @37640 has 30 MA's), (Start: 5 @37655 has 2 MA's), (8, 37763), (13, 38006), (14, 38045), (18, 38126), (37, 38315), (51, 38444), (54, 38483), (68, 38609), (78, 38684), (81, 38696), (93, 38825), (98, 38876), (104, 38915), (109, 38966), (117, 39032), (119, 39038), (122, 39074), (131, 39167), (136, 39212), (140, 39233),

Gene: Saronaya_41 Start: 36119, Stop: 37723, Start Num: 4

Candidate Starts for Saronaya_41:

(Start: 1 @36083 has 1 MA's), (Start: 4 @36119 has 30 MA's), (Start: 5 @36134 has 2 MA's), (13, 36485), (14, 36524), (22, 36626), (37, 36788), (38, 36797), (40, 36806), (41, 36812), (42, 36815), (44, 36845), (47, 36875), (49, 36893), (54, 36956), (60, 37016), (63, 37055), (76, 37142), (96, 37331), (109, 37433), (115, 37484), (117, 37505), (118, 37508), (121, 37532), (122, 37547), (125, 37580), (129, 37631), (137, 37685), (138, 37697),

Gene: SchottB_40 Start: 37140, Stop: 38723, Start Num: 4

Candidate Starts for SchottB_40:

(Start: 1 @37101 has 1 MA's), (Start: 4 @37140 has 30 MA's), (Start: 5 @37155 has 2 MA's), (11, 37425), (13, 37506), (14, 37545), (22, 37629), (38, 37800), (40, 37809), (41, 37815), (42, 37818), (44, 37848), (47, 37878), (54, 37959), (60, 38019), (76, 38145), (78, 38154), (92, 38280), (109, 38436), (115, 38484), (117, 38505), (118, 38508), (121, 38532), (122, 38547), (125, 38580), (126, 38607), (138, 38697),

Gene: Scioto_43 Start: 37696, Stop: 39303, Start Num: 4

Candidate Starts for Scioto_43:

(Start: 4 @37696 has 30 MA's), (Start: 5 @37711 has 2 MA's), (8, 37819), (13, 38062), (14, 38101), (18, 38182), (37, 38371), (51, 38500), (54, 38539), (68, 38665), (78, 38740), (81, 38752), (93, 38881), (98, 38932), (104, 38971), (109, 39022), (117, 39088), (119, 39094), (122, 39130), (131, 39223), (136, 39268), (140, 39289),

Gene: Sixsevenium_42 Start: 33916, Stop: 35283, Start Num: 9

Candidate Starts for Sixsevenium_42:

(Start: 4 @33715 has 30 MA's), (Start: 5 @33730 has 2 MA's), (6, 33751), (7, 33754), (Start: 9 @33916 has 1 MA's), (14, 34120), (15, 34162), (22, 34204), (34, 34348), (41, 34390), (42, 34393), (45, 34444), (53, 34519), (54, 34534), (56, 34546), (59, 34591), (80, 34744), (86, 34765), (95, 34876), (112, 35014), (122, 35098), (125, 35131), (130, 35182), (134, 35203),

Gene: Srilaccoli3_31 Start: 34816, Stop: 35907, Start Num: 23

Candidate Starts for Srilaccoli3_31:

(23, 34816), (Start: 25 @34819 has 6 MA's), (34, 34963), (52, 35119), (67, 35257), (88, 35368), (89, 35374), (103, 35539), (116, 35647), (133, 35803),

Gene: Stichling_39 Start: 35662, Stop: 37245, Start Num: 4

Candidate Starts for Stichling_39:

(Start: 1 @35623 has 1 MA's), (Start: 4 @35662 has 30 MA's), (Start: 5 @35677 has 2 MA's), (13, 36028), (14, 36067), (22, 36151), (34, 36295), (38, 36322), (40, 36331), (41, 36337), (42, 36340), (44, 36370), (47, 36400), (54, 36481), (60, 36541), (76, 36667), (78, 36676), (109, 36958), (115, 37006), (117, 37027), (118, 37030), (120, 37042), (121, 37054), (122, 37069), (125, 37102), (138, 37219),

Gene: Tangerine_41 Start: 36012, Stop: 37595, Start Num: 4

Candidate Starts for Tangerine_41:

(Start: 1 @35973 has 1 MA's), (Start: 4 @36012 has 30 MA's), (Start: 5 @36027 has 2 MA's), (13, 36378), (14, 36417), (22, 36501), (38, 36672), (40, 36681), (41, 36687), (42, 36690), (44, 36720), (47, 36750), (54, 36831), (60, 36891), (76, 37017), (78, 37026), (109, 37308), (115, 37356), (117, 37377), (118, 37380), (121, 37404), (122, 37419), (125, 37452), (138, 37569),

Gene: Tardus_43 Start: 37065, Stop: 38660, Start Num: 5

Candidate Starts for Tardus_43:

(Start: 4 @37050 has 30 MA's), (Start: 5 @37065 has 2 MA's), (13, 37416), (14, 37455), (18, 37539), (37, 37728), (51, 37857), (54, 37896), (68, 38022), (78, 38097), (81, 38109), (93, 38238), (98, 38289), (104, 38328), (109, 38379), (117, 38445), (119, 38451), (122, 38487), (131, 38580), (136, 38625), (140, 38646),

Gene: Tycho_41 Start: 36099, Stop: 37682, Start Num: 4

Candidate Starts for Tycho_41:

(Start: 1 @36060 has 1 MA's), (Start: 4 @36099 has 30 MA's), (Start: 5 @36114 has 2 MA's), (11, 36384), (13, 36465), (14, 36504), (22, 36588), (38, 36759), (40, 36768), (41, 36774), (42, 36777), (44, 36807), (47, 36837), (54, 36918), (60, 36978), (76, 37104), (78, 37113), (109, 37395), (115, 37443), (117, 37464), (118, 37467), (121, 37491), (122, 37506), (125, 37539), (138, 37656),

Gene: Vasanti_18 Start: 16494, Stop: 17552, Start Num: 25

Candidate Starts for Vasanti_18:

(12, 16344), (Start: 25 @16494 has 6 MA's), (38, 16662), (40, 16671), (41, 16677), (44, 16710), (54, 16821), (59, 16878), (74, 17010), (91, 17127), (112, 17289), (119, 17334), (125, 17403), (138, 17520),

Gene: Verity_41 Start: 37882, Stop: 39492, Start Num: 4

Candidate Starts for Verity_41:

(Start: 4 @37882 has 30 MA's), (Start: 5 @37897 has 2 MA's), (13, 38248), (14, 38287), (18, 38371), (35, 38554), (37, 38560), (54, 38728), (68, 38854), (78, 38929), (81, 38941), (93, 39070), (96, 39109), (98, 39121), (104, 39160), (109, 39211), (117, 39277), (119, 39283), (122, 39319), (131, 39412), (136, 39457), (138, 39475), (140, 39478),

Gene: ViaConlectus_42 Start: 36330, Stop: 37937, Start Num: 4

Candidate Starts for ViaConlectus_42:

(2, 36312), (Start: 4 @36330 has 30 MA's), (Start: 5 @36345 has 2 MA's), (13, 36696), (14, 36735), (18, 36816), (37, 37005), (51, 37134), (54, 37173), (68, 37299), (78, 37374), (81, 37386), (93, 37515), (98, 37566), (104, 37605), (109, 37656), (117, 37722), (119, 37728), (122, 37764), (131, 37857), (136, 37902), (140, 37923),

Gene: Weasels2_67 Start: 28157, Stop: 29557, Start Num: 10

Candidate Starts for Weasels2_67:

(Start: 10 @28157 has 3 MA's), (16, 28334), (30, 28478), (31, 28487), (32, 28499), (35, 28556), (49, 28670), (51, 28694), (64, 28844), (70, 28880), (72, 28892), (131, 29450),

Gene: Widow_21 Start: 17493, Stop: 18578, Start Num: 20

Candidate Starts for Widow_21:

(Start: 20 @17493 has 2 MA's), (26, 17529), (40, 17682), (41, 17688), (42, 17691), (43, 17718), (50, 17775), (55, 17838), (57, 17874), (65, 17934), (69, 17952), (82, 18039), (84, 18045), (87, 18054), (102, 18225), (111, 18300), (136, 18516), (144, 18570),

Gene: YorkOnyx_42 Start: 36358, Stop: 37941, Start Num: 4

Candidate Starts for YorkOnyx_42:

(Start: 1 @36319 has 1 MA's), (Start: 4 @36358 has 30 MA's), (Start: 5 @36373 has 2 MA's), (13, 36724), (14, 36763), (22, 36847), (38, 37018), (40, 37027), (41, 37033), (42, 37036), (44, 37066), (47, 37096), (54, 37177), (60, 37237), (76, 37363), (78, 37372), (100, 37576), (108, 37642), (109, 37654), (115, 37702), (117, 37723), (118, 37726), (120, 37738), (121, 37750), (122, 37765), (125, 37798), (126, 37825), (138, 37915),

Gene: Zipp_41 Start: 37800, Stop: 39395, Start Num: 5

Candidate Starts for Zipp_41:

(Start: 4 @37785 has 30 MA's), (Start: 5 @37800 has 2 MA's), (13, 38151), (14, 38190), (18, 38274), (37, 38463), (51, 38592), (54, 38631), (68, 38757), (81, 38844), (93, 38973), (96, 39012), (98, 39024), (104, 39063), (109, 39114), (115, 39159), (117, 39180), (119, 39186), (122, 39222), (131, 39315), (136, 39360), (138, 39378), (140, 39381), (142, 39387),

Gene: Zitch_45 Start: 36483, Stop: 38093, Start Num: 4

Candidate Starts for Zitch_45:

(Start: 4 @36483 has 30 MA's), (Start: 5 @36498 has 2 MA's), (13, 36849), (14, 36888), (18, 36972), (Start: 25 @37002 has 6 MA's), (35, 37155), (37, 37161), (46, 37245), (51, 37290), (54, 37329), (68, 37455), (78, 37530), (81, 37542), (93, 37671), (96, 37710), (98, 37722), (104, 37761), (109, 37812), (117, 37878), (119, 37884), (122, 37920), (131, 38013), (136, 38058), (140, 38079),