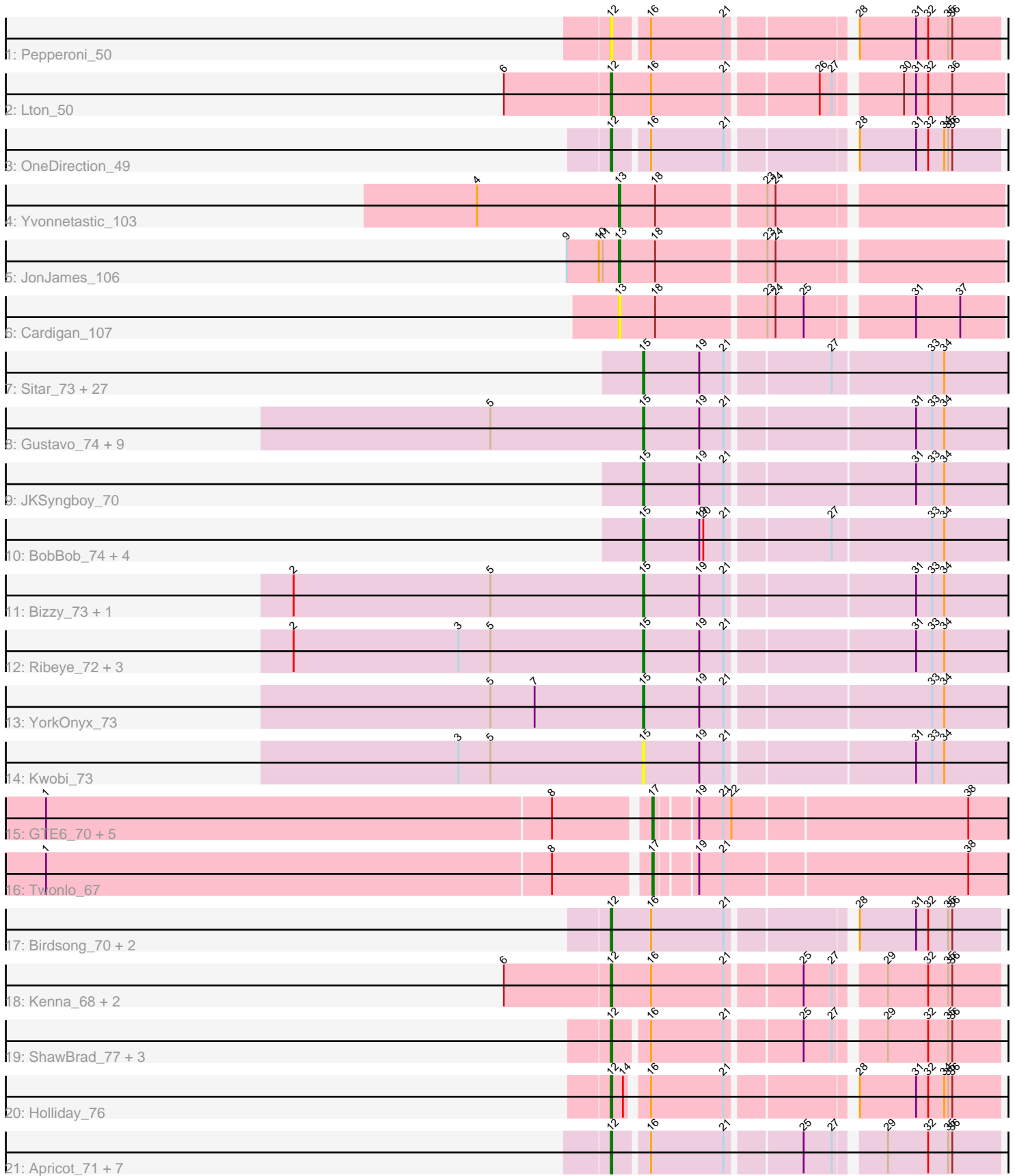


Pham 217848



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 217848 Report

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

Pham number 217848 has 84 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Pepperoni_50
- Track 2 : Lton_50
- Track 3 : OneDirection_49
- Track 4 : Yvonnetastic_103
- Track 5 : JonJames_106
- Track 6 : Cardigan_107
- Track 7 : Sitar_73, Barsten_74, Kamashten_72, Nordenberg_72, Keitabear_72, FuegoCuervo_76, Sanjuju_72, Thing3_72, MoontowerMania_73, Brandonk123_78, Shivanishola_74, Affeca_74, McKinley_75, Fosterous_76, Lennon_73, Angelicage_72, Ailee_71, Kewpiedoll_72, Love_78, Paries_75, Fitzgerald_72, ChadMasterC_73, Sedona_72, Jabberwocky_72, Stultus_69, Galadriel_74, Bibwit_72, Geodirt_72
- Track 8 : Gustavo_74, StorminNorm_73, Ashertheman_72, Baumdotcom_70, Saronaya_74, SchottB_70, Baddon_70, LilHam_66, Gaea_73, Kroos_72
- Track 9 : JKSyngboy_70
- Track 10 : BobBob_74, Charming_77, Vivi2_78, Rofo_74, Tangent_76
- Track 11 : Bizzy_73, Tangerine_73
- Track 12 : Ribeye_72, Flatwoods_72, Tycho_71, Derg_66
- Track 13 : YorkOnyx_73
- Track 14 : Kwobi_73
- Track 15 : GTE6_70, EdmundFerry_67, Tiamoceli_68, Chickadee_69, Kwekel_69, RoadKill_66
- Track 16 : Twonlo_67
- Track 17 : Birdsong_70, Frickyeah_77, Asapag_71
- Track 18 : Kenna_68, Getalong_74, Lutum_74
- Track 19 : ShawBrad_77, Budski_77, Lucky10_52, Whitney_72
- Track 20 : Holliday_76
- Track 21 : Apricot_71, BENtherdunthat_75, Periwinkle_81, Crater_71, Leroy_71, Phistory_70, Kamaru_68, Morkie_54

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

The start number called the most often in the published annotations is 15, it was called in 44 of the 71 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Affeca_74, Ailee_71, Angelicage_72, Ashertheman_72, Baddon_70, Barsten_74, Baumdotcom_70, Bibwit_72, Bizzy_73, BobBob_74, Brandonk123_78, ChadMasterC_73, Charming_77, Derg_66, Fitzgerald_72, Flatwoods_72, Fosterous_76, FuegoCuervo_76, Gaea_73, Galadriel_74, Geodirt_72, Gustavo_74, JKSyngboy_70, Jabberwocky_72, Kamashten_72, Keitabear_72, Kewpiedoll_72, Kroos_72, Kwobi_73, Lennon_73, LilHam_66, Love_78, McKinley_75, MoontowerMania_73, Nordenberg_72, Paries_75, Ribeye_72, Rofo_74, Sanjuju_72, Saronaya_74, SchottB_70, Sedona_72, Shivanishola_74, Sitar_73, StorminNorm_73, Stultus_69, Tangent_76, Tangerine_73, Thing3_72, Tycho_71, Vivi2_78, YorkOnyx_73,

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

-

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

- Apricot_71, Asapag_71, BENtherdunthat_75, Birdsong_70, Budski_77, Cardigan_107, Chickadee_69, Crater_71, EdmundFerry_67, Frickyeah_77, GTE6_70, Getalong_74, Holliday_76, JonJames_106, Kamaru_68, Kenna_68, Kwekel_69, Leroy_71, Lton_50, Lucky10_52, Lutum_74, Morkie_54, OneDirection_49, Pepperoni_50, Periwinkle_81, Phistory_70, RoadKill_66, ShawBrad_77, Tiamoceli_68, Twonlo_67, Whitney_72, Yvonnetastic_103,

Summary by start number:

Start 12:

- Found in 22 of 84 (26.2%) of genes in pham
- Manual Annotations of this start: 19 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Apricot_71 (DN3), Asapag_71 (DN1), BENtherdunthat_75 (DN1), Birdsong_70 (DN), Budski_77 (DN), Crater_71 (DN3), Frickyeah_77 (DN1), Getalong_74 (DN1), Holliday_76 (DN1), Kamaru_68 (DN1), Kenna_68 (DN1), Leroy_71 (DN1), Lton_50 (CZ), Lucky10_52 (DH), Lutum_74 (DN1), Morkie_54 (DH), OneDirection_49 (CZ6), Pepperoni_50 (CZ), Periwinkle_81 (DN1), Phistory_70 (DN1), ShawBrad_77 (DN1), Whitney_72 (DN1),

Start 13:

- Found in 3 of 84 (3.6%) of genes in pham
- Manual Annotations of this start: 2 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cardigan_107 (DD), JonJames_106 (DD), Yvonnetastic_103 (DD),

Start 15:

- Found in 52 of 84 (61.9%) of genes in pham
- Manual Annotations of this start: 44 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Affeca_74 (DE1), Ailee_71 (DE1), Angelicage_72 (DE1), Ashertheman_72 (DE1), Baddon_70 (DE1), Barsten_74 (DE1), Baumdotcom_70 (DE1), Bibwit_72 (DE1), Bizzy_73 (DE1), BobBob_74 (DE1), Brandonk123_78 (DE1), ChadMasterC_73 (DE1), Charming_77 (DE1), Derg_66 (DE1), Fitzgerald_72 (DE1), Flatwoods_72 (DE1), Fosterous_76 (DE1),

FuegoCuervo_76 (DE1), Gaea_73 (DE1), Galadriel_74 (DE1), Geodirt_72 (DE1), Gustavo_74 (DE1), JKSyngboy_70 (DE1), Jabberwocky_72 (DE1), Kamashten_72 (DE1), Keitabear_72 (DE1), Kewpiedoll_72 (DE1), Kroos_72 (DE1), Kwobi_73 (DE1), Lennon_73 (DE1), LilHam_66 (DE1), Love_78 (DE1), McKinley_75 (DE1), MoontowerMania_73 (DE1), Nordenberg_72 (DE1), Paries_75 (DE1), Ribeye_72 (DE1), Rofo_74 (DE1), Sanjuju_72 (DE1), Saronaya_74 (DE1), SchottB_70 (DE1), Sedona_72 (DE1), Shivanishola_74 (DE1), Sitar_73 (DE1), StorminNorm_73 (DE1), Stultus_69 (DE1), Tangent_76 (DE1), Tangerine_73 (DE1), Thing3_72 (DE1), Tycho_71 (DE1), Vivi2_78 (DE1), YorkOnyx_73 (DE1),

Start 17:

- Found in 7 of 84 (8.3%) of genes in pham
- Manual Annotations of this start: 6 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chickadee_69 (DE3), EdmundFerry_67 (DE3), GTE6_70 (DE3), Kwekel_69 (DE3), RoadKill_66 (DE3), Tiamoceli_68 (DE3), Twonlo_67 (DE3),

Summary by clusters:

There are 9 clusters represented in this pham: DN, DH, DE1, DD, DE3, CZ6, CZ, DN1, DN3,

Info for manual annotations of cluster CZ:

- Start number 12 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ6:

- Start number 12 was manually annotated 1 time for cluster CZ6.

Info for manual annotations of cluster DD:

- Start number 13 was manually annotated 2 times for cluster DD.

Info for manual annotations of cluster DE1:

- Start number 15 was manually annotated 44 times for cluster DE1.

Info for manual annotations of cluster DE3:

- Start number 17 was manually annotated 6 times for cluster DE3.

Info for manual annotations of cluster DH:

- Start number 12 was manually annotated 2 times for cluster DH.

Info for manual annotations of cluster DN:

- Start number 12 was manually annotated 2 times for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 12 was manually annotated 11 times for cluster DN1.

Info for manual annotations of cluster DN3:

- Start number 12 was manually annotated 2 times for cluster DN3.

Gene Information:

Gene: Affeca_74 Start: 55215, Stop: 55478, Start Num: 15
Candidate Starts for Affeca_74:
(Start: 15 @55215 has 44 MA's), (19, 55257), (21, 55275), (27, 55347), (33, 55419), (34, 55428),

Gene: Ailee_71 Start: 54203, Stop: 54466, Start Num: 15
Candidate Starts for Ailee_71:
(Start: 15 @54203 has 44 MA's), (19, 54245), (21, 54263), (27, 54335), (33, 54407), (34, 54416),

Gene: Angelicage_72 Start: 55142, Stop: 55405, Start Num: 15
Candidate Starts for Angelicage_72:
(Start: 15 @55142 has 44 MA's), (19, 55184), (21, 55202), (27, 55274), (33, 55346), (34, 55355),

Gene: Apricot_71 Start: 42366, Stop: 42629, Start Num: 12
Candidate Starts for Apricot_71:
(Start: 12 @42366 has 19 MA's), (16, 42390), (21, 42444), (25, 42495), (27, 42516), (29, 42546), (32, 42576), (35, 42591), (36, 42594),

Gene: Asapag_71 Start: 42662, Stop: 42931, Start Num: 12
Candidate Starts for Asapag_71:
(Start: 12 @42662 has 19 MA's), (16, 42692), (21, 42746), (28, 42827), (31, 42869), (32, 42878), (35, 42893), (36, 42896),

Gene: Ashertheman_72 Start: 53356, Stop: 53622, Start Num: 15
Candidate Starts for Ashertheman_72:
(5, 53242), (Start: 15 @53356 has 44 MA's), (19, 53398), (21, 53416), (31, 53548), (33, 53560), (34, 53569),

Gene: BENtherdunthat_75 Start: 43714, Stop: 43977, Start Num: 12
Candidate Starts for BENtherdunthat_75:
(Start: 12 @43714 has 19 MA's), (16, 43738), (21, 43792), (25, 43843), (27, 43864), (29, 43894), (32, 43924), (35, 43939), (36, 43942),

Gene: Baddon_70 Start: 54008, Stop: 54274, Start Num: 15
Candidate Starts for Baddon_70:
(5, 53894), (Start: 15 @54008 has 44 MA's), (19, 54050), (21, 54068), (31, 54200), (33, 54212), (34, 54221),

Gene: Barsten_74 Start: 54975, Stop: 55238, Start Num: 15
Candidate Starts for Barsten_74:
(Start: 15 @54975 has 44 MA's), (19, 55017), (21, 55035), (27, 55107), (33, 55179), (34, 55188),

Gene: Baumdotcom_70 Start: 53327, Stop: 53593, Start Num: 15
Candidate Starts for Baumdotcom_70:
(5, 53213), (Start: 15 @53327 has 44 MA's), (19, 53369), (21, 53387), (31, 53519), (33, 53531), (34, 53540),

Gene: Bibwit_72 Start: 53844, Stop: 54107, Start Num: 15
Candidate Starts for Bibwit_72:
(Start: 15 @53844 has 44 MA's), (19, 53886), (21, 53904), (27, 53976), (33, 54048), (34, 54057),

Gene: Birdsong_70 Start: 42398, Stop: 42667, Start Num: 12
Candidate Starts for Birdsong_70:

(Start: 12 @42398 has 19 MA's), (16, 42428), (21, 42482), (28, 42563), (31, 42605), (32, 42614), (35, 42629), (36, 42632),

Gene: Bizzy_73 Start: 53240, Stop: 53506, Start Num: 15

Candidate Starts for Bizzy_73:

(2, 52979), (5, 53126), (Start: 15 @53240 has 44 MA's), (19, 53282), (21, 53300), (31, 53432), (33, 53444), (34, 53453),

Gene: BobBob_74 Start: 54378, Stop: 54641, Start Num: 15

Candidate Starts for BobBob_74:

(Start: 15 @54378 has 44 MA's), (19, 54420), (20, 54423), (21, 54438), (27, 54510), (33, 54582), (34, 54591),

Gene: Brandonk123_78 Start: 54847, Stop: 55110, Start Num: 15

Candidate Starts for Brandonk123_78:

(Start: 15 @54847 has 44 MA's), (19, 54889), (21, 54907), (27, 54979), (33, 55051), (34, 55060),

Gene: Budski_77 Start: 44519, Stop: 44788, Start Num: 12

Candidate Starts for Budski_77:

(Start: 12 @44519 has 19 MA's), (16, 44549), (21, 44603), (25, 44654), (27, 44675), (29, 44705), (32, 44735), (35, 44750), (36, 44753),

Gene: Cardigan_107 Start: 62658, Stop: 62927, Start Num: 13

Candidate Starts for Cardigan_107:

(Start: 13 @62658 has 2 MA's), (18, 62685), (23, 62763), (24, 62769), (25, 62790), (31, 62862), (37, 62895),

Gene: ChadMasterC_73 Start: 56203, Stop: 56466, Start Num: 15

Candidate Starts for ChadMasterC_73:

(Start: 15 @56203 has 44 MA's), (19, 56245), (21, 56263), (27, 56335), (33, 56407), (34, 56416),

Gene: Charming_77 Start: 54129, Stop: 54392, Start Num: 15

Candidate Starts for Charming_77:

(Start: 15 @54129 has 44 MA's), (19, 54171), (20, 54174), (21, 54189), (27, 54261), (33, 54333), (34, 54342),

Gene: Chickadee_69 Start: 49954, Stop: 50208, Start Num: 17

Candidate Starts for Chickadee_69:

(1, 49513), (8, 49888), (Start: 17 @49954 has 6 MA's), (19, 49981), (21, 49999), (22, 50005), (38, 50176),

Gene: Crater_71 Start: 42761, Stop: 43024, Start Num: 12

Candidate Starts for Crater_71:

(Start: 12 @42761 has 19 MA's), (16, 42785), (21, 42839), (25, 42890), (27, 42911), (29, 42941), (32, 42971), (35, 42986), (36, 42989),

Gene: Derg_66 Start: 52040, Stop: 52306, Start Num: 15

Candidate Starts for Derg_66:

(2, 51779), (3, 51902), (5, 51926), (Start: 15 @52040 has 44 MA's), (19, 52082), (21, 52100), (31, 52232), (33, 52244), (34, 52253),

Gene: EdmundFerry_67 Start: 49502, Stop: 49756, Start Num: 17

Candidate Starts for EdmundFerry_67:

(1, 49061), (8, 49436), (Start: 17 @49502 has 6 MA's), (19, 49529), (21, 49547), (22, 49553), (38, 49724),

Gene: Fitzgerald_72 Start: 54990, Stop: 55253, Start Num: 15

Candidate Starts for Fitzgerald_72:

(Start: 15 @54990 has 44 MA's), (19, 55032), (21, 55050), (27, 55122), (33, 55194), (34, 55203),

Gene: Flatwoods_72 Start: 52549, Stop: 52815, Start Num: 15

Candidate Starts for Flatwoods_72:

(2, 52288), (3, 52411), (5, 52435), (Start: 15 @52549 has 44 MA's), (19, 52591), (21, 52609), (31, 52741), (33, 52753), (34, 52762),

Gene: Fosterous_76 Start: 55123, Stop: 55386, Start Num: 15

Candidate Starts for Fosterous_76:

(Start: 15 @55123 has 44 MA's), (19, 55165), (21, 55183), (27, 55255), (33, 55327), (34, 55336),

Gene: Frickyeah_77 Start: 43797, Stop: 44066, Start Num: 12

Candidate Starts for Frickyeah_77:

(Start: 12 @43797 has 19 MA's), (16, 43827), (21, 43881), (28, 43962), (31, 44004), (32, 44013), (35, 44028), (36, 44031),

Gene: FuegoCuervo_76 Start: 54577, Stop: 54840, Start Num: 15

Candidate Starts for FuegoCuervo_76:

(Start: 15 @54577 has 44 MA's), (19, 54619), (21, 54637), (27, 54709), (33, 54781), (34, 54790),

Gene: GTE6_70 Start: 50747, Stop: 51001, Start Num: 17

Candidate Starts for GTE6_70:

(1, 50306), (8, 50681), (Start: 17 @50747 has 6 MA's), (19, 50774), (21, 50792), (22, 50798), (38, 50969),

Gene: Gaea_73 Start: 53136, Stop: 53402, Start Num: 15

Candidate Starts for Gaea_73:

(5, 53022), (Start: 15 @53136 has 44 MA's), (19, 53178), (21, 53196), (31, 53328), (33, 53340), (34, 53349),

Gene: Galadriel_74 Start: 55083, Stop: 55346, Start Num: 15

Candidate Starts for Galadriel_74:

(Start: 15 @55083 has 44 MA's), (19, 55125), (21, 55143), (27, 55215), (33, 55287), (34, 55296),

Gene: Geodirt_72 Start: 55452, Stop: 55715, Start Num: 15

Candidate Starts for Geodirt_72:

(Start: 15 @55452 has 44 MA's), (19, 55494), (21, 55512), (27, 55584), (33, 55656), (34, 55665),

Gene: Getalong_74 Start: 44955, Stop: 45224, Start Num: 12

Candidate Starts for Getalong_74:

(6, 44877), (Start: 12 @44955 has 19 MA's), (16, 44985), (21, 45039), (25, 45090), (27, 45111), (29, 45141), (32, 45171), (35, 45186), (36, 45189),

Gene: Gustavo_74 Start: 54121, Stop: 54387, Start Num: 15

Candidate Starts for Gustavo_74:

(5, 54007), (Start: 15 @54121 has 44 MA's), (19, 54163), (21, 54181), (31, 54313), (33, 54325), (34, 54334),

Gene: Holliday_76 Start: 46772, Stop: 47032, Start Num: 12

Candidate Starts for Holliday_76:

(Start: 12 @46772 has 19 MA's), (14, 46781), (16, 46793), (21, 46847), (28, 46928), (31, 46970), (32, 46979), (34, 46991), (35, 46994), (36, 46997),

Gene: JKSyngboy_70 Start: 54029, Stop: 54295, Start Num: 15

Candidate Starts for JKSyngboy_70:

(Start: 15 @54029 has 44 MA's), (19, 54071), (21, 54089), (31, 54221), (33, 54233), (34, 54242),

Gene: Jabberwocky_72 Start: 55216, Stop: 55479, Start Num: 15

Candidate Starts for Jabberwocky_72:

(Start: 15 @55216 has 44 MA's), (19, 55258), (21, 55276), (27, 55348), (33, 55420), (34, 55429),

Gene: JonJames_106 Start: 63189, Stop: 63458, Start Num: 13

Candidate Starts for JonJames_106:

(9, 63150), (10, 63174), (11, 63177), (Start: 13 @63189 has 2 MA's), (18, 63216), (23, 63294), (24, 63300),

Gene: Kamaru_68 Start: 42281, Stop: 42544, Start Num: 12

Candidate Starts for Kamaru_68:

(Start: 12 @42281 has 19 MA's), (16, 42305), (21, 42359), (25, 42410), (27, 42431), (29, 42461), (32, 42491), (35, 42506), (36, 42509),

Gene: Kamashten_72 Start: 54209, Stop: 54472, Start Num: 15

Candidate Starts for Kamashten_72:

(Start: 15 @54209 has 44 MA's), (19, 54251), (21, 54269), (27, 54341), (33, 54413), (34, 54422),

Gene: Keitabear_72 Start: 55765, Stop: 56028, Start Num: 15

Candidate Starts for Keitabear_72:

(Start: 15 @55765 has 44 MA's), (19, 55807), (21, 55825), (27, 55897), (33, 55969), (34, 55978),

Gene: Kenna_68 Start: 42395, Stop: 42664, Start Num: 12

Candidate Starts for Kenna_68:

(6, 42317), (Start: 12 @42395 has 19 MA's), (16, 42425), (21, 42479), (25, 42530), (27, 42551), (29, 42581), (32, 42611), (35, 42626), (36, 42629),

Gene: Kewpiedoll_72 Start: 55139, Stop: 55402, Start Num: 15

Candidate Starts for Kewpiedoll_72:

(Start: 15 @55139 has 44 MA's), (19, 55181), (21, 55199), (27, 55271), (33, 55343), (34, 55352),

Gene: Kroos_72 Start: 53675, Stop: 53941, Start Num: 15

Candidate Starts for Kroos_72:

(5, 53561), (Start: 15 @53675 has 44 MA's), (19, 53717), (21, 53735), (31, 53867), (33, 53879), (34, 53888),

Gene: Kwekel_69 Start: 49867, Stop: 50121, Start Num: 17

Candidate Starts for Kwekel_69:

(1, 49426), (8, 49801), (Start: 17 @49867 has 6 MA's), (19, 49894), (21, 49912), (22, 49918), (38, 50089),

Gene: Kwobi_73 Start: 53940, Stop: 54206, Start Num: 15

Candidate Starts for Kwobi_73:

(3, 53802), (5, 53826), (Start: 15 @53940 has 44 MA's), (19, 53982), (21, 54000), (31, 54132), (33, 54144), (34, 54153),

Gene: Lennon_73 Start: 55866, Stop: 56129, Start Num: 15

Candidate Starts for Lennon_73:

(Start: 15 @55866 has 44 MA's), (19, 55908), (21, 55926), (27, 55998), (33, 56070), (34, 56079),

Gene: Leroy_71 Start: 42697, Stop: 42960, Start Num: 12

Candidate Starts for Leroy_71:

(Start: 12 @42697 has 19 MA's), (16, 42721), (21, 42775), (25, 42826), (27, 42847), (29, 42877), (32, 42907), (35, 42922), (36, 42925),

Gene: LilHam_66 Start: 51022, Stop: 51288, Start Num: 15

Candidate Starts for LilHam_66:

(5, 50908), (Start: 15 @51022 has 44 MA's), (19, 51064), (21, 51082), (31, 51214), (33, 51226), (34, 51235),

Gene: Love_78 Start: 55608, Stop: 55871, Start Num: 15

Candidate Starts for Love_78:

(Start: 15 @55608 has 44 MA's), (19, 55650), (21, 55668), (27, 55740), (33, 55812), (34, 55821),

Gene: Lton_50 Start: 32177, Stop: 32449, Start Num: 12

Candidate Starts for Lton_50:

(6, 32099), (Start: 12 @32177 has 19 MA's), (16, 32207), (21, 32261), (26, 32324), (27, 32333), (30, 32375), (31, 32384), (32, 32393), (36, 32411),

Gene: Lucky10_52 Start: 35182, Stop: 35445, Start Num: 12

Candidate Starts for Lucky10_52:

(Start: 12 @35182 has 19 MA's), (16, 35206), (21, 35260), (25, 35311), (27, 35332), (29, 35362), (32, 35392), (35, 35407), (36, 35410),

Gene: Lutum_74 Start: 43558, Stop: 43827, Start Num: 12

Candidate Starts for Lutum_74:

(6, 43480), (Start: 12 @43558 has 19 MA's), (16, 43588), (21, 43642), (25, 43693), (27, 43714), (29, 43744), (32, 43774), (35, 43789), (36, 43792),

Gene: McKinley_75 Start: 54726, Stop: 54989, Start Num: 15

Candidate Starts for McKinley_75:

(Start: 15 @54726 has 44 MA's), (19, 54768), (21, 54786), (27, 54858), (33, 54930), (34, 54939),

Gene: MoontowerMania_73 Start: 55562, Stop: 55825, Start Num: 15

Candidate Starts for MoontowerMania_73:

(Start: 15 @55562 has 44 MA's), (19, 55604), (21, 55622), (27, 55694), (33, 55766), (34, 55775),

Gene: Morkie_54 Start: 34409, Stop: 34672, Start Num: 12

Candidate Starts for Morkie_54:

(Start: 12 @34409 has 19 MA's), (16, 34433), (21, 34487), (25, 34538), (27, 34559), (29, 34589), (32, 34619), (35, 34634), (36, 34637),

Gene: Nordenberg_72 Start: 53789, Stop: 54052, Start Num: 15

Candidate Starts for Nordenberg_72:

(Start: 15 @53789 has 44 MA's), (19, 53831), (21, 53849), (27, 53921), (33, 53993), (34, 54002),

Gene: OneDirection_49 Start: 32104, Stop: 32367, Start Num: 12

Candidate Starts for OneDirection_49:

(Start: 12 @32104 has 19 MA's), (16, 32128), (21, 32182), (28, 32263), (31, 32305), (32, 32314), (34, 32326), (35, 32329), (36, 32332),

Gene: Paries_75 Start: 55227, Stop: 55490, Start Num: 15

Candidate Starts for Paries_75:

(Start: 15 @55227 has 44 MA's), (19, 55269), (21, 55287), (27, 55359), (33, 55431), (34, 55440),

Gene: Pepperoni_50 Start: 33565, Stop: 33828, Start Num: 12

Candidate Starts for Pepperoni_50:

(Start: 12 @33565 has 19 MA's), (16, 33589), (21, 33643), (28, 33724), (31, 33766), (32, 33775), (35, 33790), (36, 33793),

Gene: Periwinkle_81 Start: 45861, Stop: 46124, Start Num: 12

Candidate Starts for Periwinkle_81:

(Start: 12 @45861 has 19 MA's), (16, 45885), (21, 45939), (25, 45990), (27, 46011), (29, 46041), (32, 46071), (35, 46086), (36, 46089),

Gene: Phistory_70 Start: 41926, Stop: 42189, Start Num: 12

Candidate Starts for Phistory_70:

(Start: 12 @41926 has 19 MA's), (16, 41950), (21, 42004), (25, 42055), (27, 42076), (29, 42106), (32, 42136), (35, 42151), (36, 42154),

Gene: Ribeye_72 Start: 53279, Stop: 53545, Start Num: 15

Candidate Starts for Ribeye_72:

(2, 53018), (3, 53141), (5, 53165), (Start: 15 @53279 has 44 MA's), (19, 53321), (21, 53339), (31, 53471), (33, 53483), (34, 53492),

Gene: RoadKill_66 Start: 49372, Stop: 49626, Start Num: 17

Candidate Starts for RoadKill_66:

(1, 48931), (8, 49306), (Start: 17 @49372 has 6 MA's), (19, 49399), (21, 49417), (22, 49423), (38, 49594),

Gene: Rofo_74 Start: 54705, Stop: 54968, Start Num: 15

Candidate Starts for Rofo_74:

(Start: 15 @54705 has 44 MA's), (19, 54747), (20, 54750), (21, 54765), (27, 54837), (33, 54909), (34, 54918),

Gene: Sanjuju_72 Start: 55080, Stop: 55343, Start Num: 15

Candidate Starts for Sanjuju_72:

(Start: 15 @55080 has 44 MA's), (19, 55122), (21, 55140), (27, 55212), (33, 55284), (34, 55293),

Gene: Saronaya_74 Start: 54121, Stop: 54387, Start Num: 15

Candidate Starts for Saronaya_74:

(5, 54007), (Start: 15 @54121 has 44 MA's), (19, 54163), (21, 54181), (31, 54313), (33, 54325), (34, 54334),

Gene: SchottB_70 Start: 53742, Stop: 54008, Start Num: 15

Candidate Starts for SchottB_70:

(5, 53628), (Start: 15 @53742 has 44 MA's), (19, 53784), (21, 53802), (31, 53934), (33, 53946), (34, 53955),

Gene: Sedona_72 Start: 55650, Stop: 55913, Start Num: 15
Candidate Starts for Sedona_72:
(Start: 15 @55650 has 44 MA's), (19, 55692), (21, 55710), (27, 55782), (33, 55854), (34, 55863),

Gene: ShawBrad_77 Start: 43319, Stop: 43582, Start Num: 12
Candidate Starts for ShawBrad_77:
(Start: 12 @43319 has 19 MA's), (16, 43343), (21, 43397), (25, 43448), (27, 43469), (29, 43499), (32, 43529), (35, 43544), (36, 43547),

Gene: Shivanishola_74 Start: 53430, Stop: 53693, Start Num: 15
Candidate Starts for Shivanishola_74:
(Start: 15 @53430 has 44 MA's), (19, 53472), (21, 53490), (27, 53562), (33, 53634), (34, 53643),

Gene: Sitar_73 Start: 55624, Stop: 55887, Start Num: 15
Candidate Starts for Sitar_73:
(Start: 15 @55624 has 44 MA's), (19, 55666), (21, 55684), (27, 55756), (33, 55828), (34, 55837),

Gene: StorminNorm_73 Start: 53909, Stop: 54175, Start Num: 15
Candidate Starts for StorminNorm_73:
(5, 53795), (Start: 15 @53909 has 44 MA's), (19, 53951), (21, 53969), (31, 54101), (33, 54113), (34, 54122),

Gene: Stultus_69 Start: 53871, Stop: 54134, Start Num: 15
Candidate Starts for Stultus_69:
(Start: 15 @53871 has 44 MA's), (19, 53913), (21, 53931), (27, 54003), (33, 54075), (34, 54084),

Gene: Tangent_76 Start: 54410, Stop: 54673, Start Num: 15
Candidate Starts for Tangent_76:
(Start: 15 @54410 has 44 MA's), (19, 54452), (20, 54455), (21, 54470), (27, 54542), (33, 54614), (34, 54623),

Gene: Tangerine_73 Start: 53415, Stop: 53681, Start Num: 15
Candidate Starts for Tangerine_73:
(2, 53154), (5, 53301), (Start: 15 @53415 has 44 MA's), (19, 53457), (21, 53475), (31, 53607), (33, 53619), (34, 53628),

Gene: Thing3_72 Start: 54209, Stop: 54472, Start Num: 15
Candidate Starts for Thing3_72:
(Start: 15 @54209 has 44 MA's), (19, 54251), (21, 54269), (27, 54341), (33, 54413), (34, 54422),

Gene: Tiamoceli_68 Start: 50834, Stop: 51088, Start Num: 17
Candidate Starts for Tiamoceli_68:
(1, 50393), (8, 50768), (Start: 17 @50834 has 6 MA's), (19, 50861), (21, 50879), (22, 50885), (38, 51056),

Gene: Twonlo_67 Start: 49926, Stop: 50180, Start Num: 17
Candidate Starts for Twonlo_67:
(1, 49485), (8, 49860), (Start: 17 @49926 has 6 MA's), (19, 49953), (21, 49971), (38, 50148),

Gene: Tycho_71 Start: 53228, Stop: 53494, Start Num: 15
Candidate Starts for Tycho_71:
(2, 52967), (3, 53090), (5, 53114), (Start: 15 @53228 has 44 MA's), (19, 53270), (21, 53288), (31, 53420), (33, 53432), (34, 53441),

Gene: Vivi2_78 Start: 55466, Stop: 55729, Start Num: 15

Candidate Starts for Vivi2_78:

(Start: 15 @55466 has 44 MA's), (19, 55508), (20, 55511), (21, 55526), (27, 55598), (33, 55670), (34, 55679),

Gene: Whitney_72 Start: 44432, Stop: 44701, Start Num: 12

Candidate Starts for Whitney_72:

(Start: 12 @44432 has 19 MA's), (16, 44462), (21, 44516), (25, 44567), (27, 44588), (29, 44618), (32, 44648), (35, 44663), (36, 44666),

Gene: YorkOnyx_73 Start: 53429, Stop: 53695, Start Num: 15

Candidate Starts for YorkOnyx_73:

(5, 53315), (7, 53348), (Start: 15 @53429 has 44 MA's), (19, 53471), (21, 53489), (33, 53633), (34, 53642),

Gene: Yvonnetastic_103 Start: 60354, Stop: 60623, Start Num: 13

Candidate Starts for Yvonnetastic_103:

(4, 60249), (Start: 13 @60354 has 2 MA's), (18, 60381), (23, 60459), (24, 60465),