

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 282156 Report

This analysis was run 02/23/26 on database version 636.

Pham number 282156 has 85 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Gaea_83, Ashertheman_82, StorminNorm_83, YorkOnyx_82
- Track 2 : Nordenberg_82
- Track 3 : Thing3_83, Galadriel_83, Kamashten_83, McCrothy_81
- Track 4 : Ribeye_82, Flatwoods_83, Derg_75, Tycho_82, Tangerine_83, Gustavo_84, Kwobi_85, Saronaya_84
- Track 5 : Charming_85, Tangent_85, Lennon_82, BobBob_84, Fosterous_84, Rofo_82, Vivi2_86
- Track 6 : MoontowerMania_83
- Track 7 : Ailee_81
- Track 8 : Baumdotcom_81, SchottB_81
- Track 9 : Stultus_77, Sedona_80, Bibwit_80, Keitabear_80
- Track 10 : Jabberwocky_81, Angelicage_81, Sitar_82
- Track 11 : Paries_86
- Track 12 : LilHam_76, JKSyngboy_79
- Track 13 : RiverRaider_85
- Track 14 : Baddon_81
- Track 15 : Kroos_83
- Track 16 : FuegoCuervo_87
- Track 17 : Fitzgerald_80
- Track 18 : Love_89
- Track 19 : Brandonk123_86
- Track 20 : Affeca_84
- Track 21 : Kewpiedoll_83
- Track 22 : Shivanishola_84
- Track 23 : Bizzy_83
- Track 24 : ChadMasterC_82
- Track 25 : Barsten_85
- Track 26 : Sanjuju_80
- Track 27 : McKinley_85
- Track 28 : Geodirt_82
- Track 29 : Ali17_80, Inspectinfecti_84, Hans_84, Phauci_75
- Track 30 : Belphegor_79
- Track 31 : MelBins_85
- Track 32 : EMoore_78
- Track 33 : Leonard_83, Phinally_83
- Track 34 : RoadKill_81, Chickadee_84, Twonlo_81, EdmundFerry_82, Kwekel_84
- Track 35 : Dxdert_79, Tiamoceli_77

- Track 36 : GTE6_84
- Track 37 : BigHunkinEater_85
- Track 38 : Abblin_85, Sampson_87, Scioto_85, Natkenzie_85
- Track 39 : Tardus_87
- Track 40 : Zipp_85, DoctorFroggo_85, Delrey21_85
- Track 41 : Pumpkiney_85
- Track 42 : APunk_85, Zitch_87
- Track 43 : ViaConlectus_84
- Track 44 : Lilbeanie_83

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

The start number called the most often in the published annotations is 35, it was called in 35 of the 77 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Affeca_84, Ailee_81, Angelicage_81, Baddon_81, Barsten_85, Baumdotcom_81, Bibwit_80, BobBob_84, Brandonk123_86, ChadMasterC_82, Charming_85, Fitzgerald_80, Fosterous_84, FuegoCuervo_87, Galadriel_83, Geodirt_82, Jabberwocky_81, Kamashten_83, Keitabear_80, Kewpiedoll_83, Lennon_82, Love_89, McCrothy_81, MoontowerMania_83, Nordenberg_82, Paries_86, RiverRaider_85, Rofo_82, Sanjuju_80, SchottB_81, Sedona_80, Sitar_82, Stultus_77, Tangent_85, Thing3_83, Vivi2_86,

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:

- APunk_85, Abblin_85, Ali17_80, Ashertheman_82, Belphegor_79, BigHunkinEater_85, Bizzy_83, Chickadee_84, Delrey21_85, Derg_75, Dxdert_79, DoctorFroggo_85, EMoore_78, EdmundFerry_82, Flatwoods_83, GTE6_84, Gaea_83, Gustavo_84, Hans_84, Inspectinfecti_84, JKSyngboy_79, Kroos_83, Kwekel_84, Kwobi_85, Leonard_83, LilHam_76, Lilbeanie_83, McKinley_85, MelBins_85, Natkenzie_85, Phauci_75, Phinally_83, Pumpkiney_85, Ribeye_82, RoadKill_81, Sampson_87, Saronaya_84, Scioto_85, Shivanishola_84, StorminNorm_83, Tangerine_83, Tardus_87, Tiamoceli_77, Twonlo_81, Tycho_82, ViaConlectus_84, YorkOnyx_82, Zipp_85, Zitch_87,

Summary by start number:

Start 29:

- Found in 8 of 85 (9.4%) of genes in pham
- Manual Annotations of this start: 7 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chickadee_84 (DE3), Dxdert_79 (DE3), EdmundFerry_82 (DE3), GTE6_84 (DE3), Kwekel_84 (DE3), RoadKill_81 (DE3), Tiamoceli_77 (DE3), Twonlo_81 (DE3),

Start 31:

- Found in 1 of 85 (1.2%) of genes in pham

- Manual Annotations of this start: 1 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: McKinley_85 (DE1),

Start 32:

- Found in 1 of 85 (1.2%) of genes in pham
- Manual Annotations of this start: 1 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Shivanishola_84 (DE1),

Start 33:

- Found in 23 of 85 (27.1%) of genes in pham
- Manual Annotations of this start: 18 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: APunk_85 (DE4), Abblin_85 (DE4), Ali17_80 (DE2), Belphegor_79 (DE2), BigHunkinEater_85 (DE4), Delrey21_85 (DE4), DoctorFroggo_85 (DE4), EMoore_78 (DE2), Hans_84 (DE2), Inspectinfecti_84 (DE2), Leonard_83 (DE2), Lilbeanie_83 (DE5), MelBins_85 (DE2), Natkenzie_85 (DE4), Phauci_75 (DE2), Phinally_83 (DE2), Pumpkiney_85 (DE4), Sampson_87 (DE4), Scioto_85 (DE4), Tardus_87 (DE4), ViaConlectus_84 (DE4), Zipp_85 (DE4), Zitch_87 (DE4),

Start 34:

- Found in 16 of 85 (18.8%) of genes in pham
- Manual Annotations of this start: 15 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ashertheman_82 (DE1), Bizzy_83 (DE1), Derg_75 (DE1), Flatwoods_83 (DE1), Gaea_83 (DE1), Gustavo_84 (DE1), JKSyngboy_79 (DE1), Kroos_83 (DE1), Kwobi_85 (DE1), LilHam_76 (DE1), Ribeye_82 (DE1), Saronaya_84 (DE1), StorminNorm_83 (DE1), Tangerine_83 (DE1), Tycho_82 (DE1), YorkOnyx_82 (DE1),

Start 35:

- Found in 36 of 85 (42.4%) of genes in pham
- Manual Annotations of this start: 35 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Affeca_84 (DE1), Ailee_81 (DE1), Angelicage_81 (DE1), Baddon_81 (DE1), Barsten_85 (DE1), Baumdotcom_81 (DE1), Bibwit_80 (DE1), BobBob_84 (DE1), Brandonk123_86 (DE1), ChadMasterC_82 (DE1), Charming_85 (DE1), Fitzgerald_80 (DE1), Fosterous_84 (DE1), FuegoCuervo_87 (DE1), Galadriel_83 (DE1), Geodirt_82 (DE1), Jabberwocky_81 (DE1), Kamashten_83 (DE1), Keitabear_80 (DE1), Kewpiedoll_83 (DE1), Lennon_82 (DE1), Love_89 (DE1), McCrothy_81 (DE1), MoontowerMania_83 (DE1), Nordenberg_82 (DE1), Paries_86 (DE1), RiverRaider_85 (DE1), Rofo_82 (DE1), Sanjuju_80 (DE1), SchottB_81 (DE1), Sedona_80 (DE1), Sitar_82 (DE1), Stultus_77 (DE1), Tangent_85 (DE1), Thing3_83 (DE1), Vivi2_86 (DE1),

Summary by clusters:

There are 5 clusters represented in this pham: DE1, DE2, DE3, DE4, DE5,

Info for manual annotations of cluster DE1:

- Start number 31 was manually annotated 1 time for cluster DE1.

- Start number 32 was manually annotated 1 time for cluster DE1.
- Start number 34 was manually annotated 15 times for cluster DE1.
- Start number 35 was manually annotated 35 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 33 was manually annotated 9 times for cluster DE2.

Info for manual annotations of cluster DE3:

- Start number 29 was manually annotated 7 times for cluster DE3.

Info for manual annotations of cluster DE4:

- Start number 33 was manually annotated 8 times for cluster DE4.

Info for manual annotations of cluster DE5:

- Start number 33 was manually annotated 1 time for cluster DE5.

Gene Information:

Gene: APunk_85 Start: 57620, Stop: 58039, Start Num: 33

Candidate Starts for APunk_85:

(4, 57260), (8, 57296), (10, 57326), (13, 57365), (15, 57446), (17, 57458), (20, 57473), (21, 57500), (22, 57503), (Start: 33 @57620 has 18 MA's), (39, 57659), (44, 57713), (46, 57722), (53, 57812), (55, 57824), (61, 57875), (67, 57944),

Gene: Abblin_85 Start: 57778, Stop: 58197, Start Num: 33

Candidate Starts for Abblin_85:

(4, 57418), (8, 57454), (10, 57484), (13, 57523), (17, 57616), (20, 57631), (21, 57658), (22, 57661), (Start: 33 @57778 has 18 MA's), (39, 57817), (44, 57871), (46, 57880), (53, 57970), (55, 57982), (61, 58033), (64, 58069), (67, 58102),

Gene: Affeca_84 Start: 57553, Stop: 57939, Start Num: 35

Candidate Starts for Affeca_84:

(Start: 35 @57553 has 35 MA's), (43, 57634), (50, 57679), (58, 57760), (60, 57793), (63, 57823),

Gene: Ailee_81 Start: 56885, Stop: 57271, Start Num: 35

Candidate Starts for Ailee_81:

(1, 56492), (7, 56543), (27, 56849), (Start: 35 @56885 has 35 MA's), (44, 56969), (46, 56978), (50, 57008), (58, 57089), (60, 57122), (63, 57152),

Gene: Ali17_80 Start: 56155, Stop: 56547, Start Num: 33

Candidate Starts for Ali17_80:

(16, 55984), (25, 56071), (Start: 33 @56155 has 18 MA's), (42, 56236), (43, 56245), (44, 56248), (46, 56257), (60, 56401), (63, 56431), (65, 56449), (68, 56479),

Gene: Angelicage_81 Start: 57521, Stop: 57907, Start Num: 35

Candidate Starts for Angelicage_81:

(Start: 35 @57521 has 35 MA's), (38, 57536), (43, 57602), (50, 57647), (58, 57728), (60, 57761), (63, 57791),

Gene: Ashertheman_82 Start: 55847, Stop: 56230, Start Num: 34

Candidate Starts for Ashertheman_82:

(Start: 34 @55847 has 15 MA's), (40, 55889), (44, 55934), (47, 55949), (53, 56030), (60, 56087), (63, 56117),

Gene: Baddon_81 Start: 56800, Stop: 57186, Start Num: 35

Candidate Starts for Baddon_81:

(27, 56758), (Start: 35 @56800 has 35 MA's), (44, 56884), (58, 57004), (60, 57037), (63, 57067),

Gene: Barsten_85 Start: 57789, Stop: 58172, Start Num: 35

Candidate Starts for Barsten_85:

(27, 57753), (Start: 35 @57789 has 35 MA's), (44, 57873), (50, 57912), (56, 57981), (58, 57993), (60, 58026), (63, 58056),

Gene: Baumdotcom_81 Start: 56261, Stop: 56641, Start Num: 35

Candidate Starts for Baumdotcom_81:

(27, 56225), (Start: 35 @56261 has 35 MA's), (36, 56267), (40, 56300), (44, 56345), (50, 56384), (53, 56441), (60, 56498), (63, 56528),

Gene: Belphegor_79 Start: 57814, Stop: 58212, Start Num: 33

Candidate Starts for Belphegor_79:

(16, 57643), (25, 57730), (Start: 33 @57814 has 18 MA's), (43, 57910), (44, 57913), (54, 58012), (57, 58027), (59, 58063), (60, 58066), (63, 58096), (66, 58129),

Gene: Bibwit_80 Start: 55982, Stop: 56368, Start Num: 35

Candidate Starts for Bibwit_80:

(26, 55916), (30, 55964), (Start: 35 @55982 has 35 MA's), (43, 56063), (50, 56108), (58, 56189), (60, 56222), (63, 56252),

Gene: BigHunkinEater_85 Start: 57248, Stop: 57667, Start Num: 33

Candidate Starts for BigHunkinEater_85:

(Start: 33 @57248 has 18 MA's), (39, 57287), (44, 57341), (46, 57350), (53, 57440), (55, 57452), (61, 57503), (64, 57539), (67, 57572),

Gene: Bizzy_83 Start: 55879, Stop: 56262, Start Num: 34

Candidate Starts for Bizzy_83:

(12, 55615), (14, 55669), (19, 55735), (23, 55768), (24, 55777), (Start: 34 @55879 has 15 MA's), (40, 55921), (44, 55966), (53, 56062), (60, 56119), (63, 56149),

Gene: BobBob_84 Start: 56821, Stop: 57207, Start Num: 35

Candidate Starts for BobBob_84:

(18, 56650), (28, 56782), (Start: 35 @56821 has 35 MA's), (43, 56902), (50, 56947), (58, 57028), (60, 57061), (63, 57091),

Gene: Brandonk123_86 Start: 56989, Stop: 57372, Start Num: 35

Candidate Starts for Brandonk123_86:

(27, 56947), (Start: 35 @56989 has 35 MA's), (44, 57073), (50, 57112), (60, 57226),

Gene: ChadMasterC_82 Start: 58240, Stop: 58629, Start Num: 35

Candidate Starts for ChadMasterC_82:

(26, 58174), (30, 58222), (Start: 35 @58240 has 35 MA's), (43, 58321), (50, 58366), (58, 58447), (60, 58480), (63, 58510),

Gene: Charming_85 Start: 56280, Stop: 56666, Start Num: 35

Candidate Starts for Charming_85:

(18, 56109), (28, 56241), (Start: 35 @56280 has 35 MA's), (43, 56361), (50, 56406), (58, 56487), (60, 56520), (63, 56550),

Gene: Chickadee_84 Start: 54799, Stop: 55209, Start Num: 29

Candidate Starts for Chickadee_84:

(Start: 29 @54799 has 7 MA's), (41, 54880), (44, 54904), (46, 54913), (48, 54928), (49, 54931), (51, 54967), (55, 55009), (60, 55057),

Gene: Delrey21_85 Start: 59189, Stop: 59608, Start Num: 33

Candidate Starts for Delrey21_85:

(6, 58844), (11, 58901), (15, 59015), (17, 59027), (20, 59042), (21, 59069), (22, 59072), (Start: 33 @59189 has 18 MA's), (39, 59228), (44, 59282), (45, 59285), (55, 59393), (64, 59480), (67, 59513),

Gene: Derg_75 Start: 54501, Stop: 54884, Start Num: 34

Candidate Starts for Derg_75:

(Start: 34 @54501 has 15 MA's), (40, 54543), (44, 54588), (53, 54684), (60, 54741), (63, 54771),

Gene: Dextert_79 Start: 53308, Stop: 53718, Start Num: 29

Candidate Starts for Dextert_79:

(Start: 29 @53308 has 7 MA's), (41, 53389), (43, 53410), (44, 53413), (46, 53422), (48, 53437), (49, 53440), (51, 53476), (55, 53518), (60, 53566),

Gene: DoctorFroggo_85 Start: 59189, Stop: 59608, Start Num: 33

Candidate Starts for DoctorFroggo_85:

(6, 58844), (11, 58901), (15, 59015), (17, 59027), (20, 59042), (21, 59069), (22, 59072), (Start: 33 @59189 has 18 MA's), (39, 59228), (44, 59282), (45, 59285), (55, 59393), (64, 59480), (67, 59513),

Gene: EMoore_78 Start: 56711, Stop: 57103, Start Num: 33

Candidate Starts for EMoore_78:

(16, 56540), (Start: 33 @56711 has 18 MA's), (43, 56801), (44, 56804), (53, 56900), (59, 56954), (60, 56957), (62, 56981), (63, 56987), (68, 57035),

Gene: EdmundFerry_82 Start: 54342, Stop: 54752, Start Num: 29

Candidate Starts for EdmundFerry_82:

(Start: 29 @54342 has 7 MA's), (41, 54423), (44, 54447), (46, 54456), (48, 54471), (49, 54474), (51, 54510), (55, 54552), (60, 54600),

Gene: Fitzgerald_80 Start: 57132, Stop: 57518, Start Num: 35

Candidate Starts for Fitzgerald_80:

(26, 57066), (30, 57114), (Start: 35 @57132 has 35 MA's), (43, 57213), (50, 57258), (58, 57339), (60, 57372), (63, 57402),

Gene: Flatwoods_83 Start: 55414, Stop: 55797, Start Num: 34

Candidate Starts for Flatwoods_83:

(Start: 34 @55414 has 15 MA's), (40, 55456), (44, 55501), (53, 55597), (60, 55654), (63, 55684),

Gene: Fosterous_84 Start: 57273, Stop: 57659, Start Num: 35

Candidate Starts for Fosterous_84:

(18, 57102), (28, 57234), (Start: 35 @57273 has 35 MA's), (43, 57354), (50, 57399), (58, 57480), (60, 57513), (63, 57543),

Gene: FuegoCuervo_87 Start: 57325, Stop: 57708, Start Num: 35

Candidate Starts for FuegoCuervo_87:

(5, 56974), (16, 57154), (27, 57289), (Start: 35 @57325 has 35 MA's), (44, 57409), (46, 57418), (50, 57448), (58, 57529), (60, 57562), (63, 57592),

Gene: GTE6_84 Start: 55485, Stop: 55895, Start Num: 29

Candidate Starts for GTE6_84:

(Start: 29 @55485 has 7 MA's), (41, 55566), (43, 55587), (44, 55590), (46, 55599), (48, 55614), (49, 55617), (51, 55653), (60, 55743),

Gene: Gaea_83 Start: 55765, Stop: 56148, Start Num: 34

Candidate Starts for Gaea_83:

(Start: 34 @55765 has 15 MA's), (40, 55807), (44, 55852), (47, 55867), (53, 55948), (60, 56005), (63, 56035),

Gene: Galadriel_83 Start: 57492, Stop: 57875, Start Num: 35

Candidate Starts for Galadriel_83:

(27, 57450), (Start: 35 @57492 has 35 MA's), (44, 57576), (47, 57591), (52, 57660), (60, 57729),

Gene: Geodirt_82 Start: 57783, Stop: 58169, Start Num: 35

Candidate Starts for Geodirt_82:

(27, 57747), (Start: 35 @57783 has 35 MA's), (43, 57864), (58, 57990), (60, 58023),

Gene: Gustavo_84 Start: 56597, Stop: 56980, Start Num: 34

Candidate Starts for Gustavo_84:

(Start: 34 @56597 has 15 MA's), (40, 56639), (44, 56684), (53, 56780), (60, 56837), (63, 56867),

Gene: Hans_84 Start: 57079, Stop: 57471, Start Num: 33

Candidate Starts for Hans_84:

(16, 56908), (25, 56995), (Start: 33 @57079 has 18 MA's), (42, 57160), (43, 57169), (44, 57172), (46, 57181), (60, 57325), (63, 57355), (65, 57373), (68, 57403),

Gene: Inspectinfecti_84 Start: 57059, Stop: 57451, Start Num: 33

Candidate Starts for Inspectinfecti_84:

(16, 56888), (25, 56975), (Start: 33 @57059 has 18 MA's), (42, 57140), (43, 57149), (44, 57152), (46, 57161), (60, 57305), (63, 57335), (65, 57353), (68, 57383),

Gene: JKSyngboy_79 Start: 56278, Stop: 56664, Start Num: 34

Candidate Starts for JKSyngboy_79:

(Start: 34 @56278 has 15 MA's), (37, 56293), (40, 56323), (44, 56368), (47, 56383), (53, 56464), (60, 56521), (63, 56551),

Gene: Jabberwocky_81 Start: 57593, Stop: 57979, Start Num: 35

Candidate Starts for Jabberwocky_81:

(Start: 35 @57593 has 35 MA's), (38, 57608), (43, 57674), (50, 57719), (58, 57800), (60, 57833), (63, 57863),

Gene: Kamashten_83 Start: 57386, Stop: 57769, Start Num: 35

Candidate Starts for Kamashten_83:

(27, 57344), (Start: 35 @57386 has 35 MA's), (44, 57470), (47, 57485), (52, 57554), (60, 57623),

Gene: Keitabear_80 Start: 57903, Stop: 58289, Start Num: 35

Candidate Starts for Keitabear_80:

(26, 57837), (30, 57885), (Start: 35 @57903 has 35 MA's), (43, 57984), (50, 58029), (58, 58110), (60, 58143), (63, 58173),

Gene: Kewpiedoll_83 Start: 57771, Stop: 58154, Start Num: 35

Candidate Starts for Kewpiedoll_83:

(27, 57735), (Start: 35 @57771 has 35 MA's), (44, 57855), (47, 57870), (60, 58008), (63, 58038),

Gene: Kroos_83 Start: 56540, Stop: 56923, Start Num: 34

Candidate Starts for Kroos_83:

(Start: 34 @56540 has 15 MA's), (40, 56582), (44, 56627), (47, 56642), (53, 56723), (60, 56780), (63, 56810),

Gene: Kwekel_84 Start: 54712, Stop: 55122, Start Num: 29

Candidate Starts for Kwekel_84:

(Start: 29 @54712 has 7 MA's), (41, 54793), (44, 54817), (46, 54826), (48, 54841), (49, 54844), (51, 54880), (55, 54922), (60, 54970),

Gene: Kwobi_85 Start: 57049, Stop: 57432, Start Num: 34

Candidate Starts for Kwobi_85:

(Start: 34 @57049 has 15 MA's), (40, 57091), (44, 57136), (53, 57232), (60, 57289), (63, 57319),

Gene: Lennon_82 Start: 58333, Stop: 58719, Start Num: 35

Candidate Starts for Lennon_82:

(18, 58162), (28, 58294), (Start: 35 @58333 has 35 MA's), (43, 58414), (50, 58459), (58, 58540), (60, 58573), (63, 58603),

Gene: Leonard_83 Start: 57122, Stop: 57514, Start Num: 33

Candidate Starts for Leonard_83:

(16, 56951), (25, 57038), (Start: 33 @57122 has 18 MA's), (42, 57203), (43, 57212), (44, 57215), (60, 57368), (63, 57398), (65, 57416), (68, 57446),

Gene: LilHam_76 Start: 53895, Stop: 54281, Start Num: 34

Candidate Starts for LilHam_76:

(Start: 34 @53895 has 15 MA's), (37, 53910), (40, 53940), (44, 53985), (47, 54000), (53, 54081), (60, 54138), (63, 54168),

Gene: Lilbeanie_83 Start: 52031, Stop: 52420, Start Num: 33

Candidate Starts for Lilbeanie_83:

(Start: 33 @52031 has 18 MA's), (60, 52268), (69, 52364), (70, 52373), (71, 52376), (72, 52409),

Gene: Love_89 Start: 58411, Stop: 58797, Start Num: 35

Candidate Starts for Love_89:

(16, 58240), (27, 58375), (Start: 35 @58411 has 35 MA's), (44, 58495), (60, 58648), (63, 58678),

Gene: McCrothy_81 Start: 58116, Stop: 58499, Start Num: 35

Candidate Starts for McCrothy_81:

(27, 58074), (Start: 35 @58116 has 35 MA's), (44, 58200), (47, 58215), (52, 58284), (60, 58353),

Gene: McKinley_85 Start: 57124, Stop: 57510, Start Num: 31

Candidate Starts for McKinley_85:

(26, 57070), (Start: 31 @57124 has 1 MA's), (43, 57205), (50, 57250), (58, 57331), (60, 57364), (63, 57394),

Gene: MelBins_85 Start: 57514, Stop: 57906, Start Num: 33

Candidate Starts for MelBins_85:

(16, 57343), (25, 57430), (Start: 33 @57514 has 18 MA's), (42, 57595), (43, 57604), (44, 57607), (46, 57616), (60, 57760), (63, 57790), (65, 57808), (67, 57829),

Gene: MoontowerMania_83 Start: 58245, Stop: 58628, Start Num: 35

Candidate Starts for MoontowerMania_83:

(3, 57876), (5, 57885), (27, 58203), (Start: 35 @58245 has 35 MA's), (47, 58344), (60, 58482), (63, 58512),

Gene: Natkenzie_85 Start: 57778, Stop: 58197, Start Num: 33

Candidate Starts for Natkenzie_85:

(4, 57418), (8, 57454), (10, 57484), (13, 57523), (17, 57616), (20, 57631), (21, 57658), (22, 57661), (Start: 33 @57778 has 18 MA's), (39, 57817), (44, 57871), (46, 57880), (53, 57970), (55, 57982), (61, 58033), (64, 58069), (67, 58102),

Gene: Nordenberg_82 Start: 56127, Stop: 56516, Start Num: 35

Candidate Starts for Nordenberg_82:

(28, 56088), (Start: 35 @56127 has 35 MA's), (43, 56208), (50, 56253), (58, 56334), (60, 56367), (63, 56397),

Gene: Paries_86 Start: 58415, Stop: 58801, Start Num: 35

Candidate Starts for Paries_86:

(28, 58376), (Start: 35 @58415 has 35 MA's), (43, 58496), (58, 58622), (60, 58655), (63, 58685),

Gene: Phauci_75 Start: 54156, Stop: 54548, Start Num: 33

Candidate Starts for Phauci_75:

(16, 53985), (25, 54072), (Start: 33 @54156 has 18 MA's), (42, 54237), (43, 54246), (44, 54249), (46, 54258), (60, 54402), (63, 54432), (65, 54450), (68, 54480),

Gene: Phinally_83 Start: 57119, Stop: 57511, Start Num: 33

Candidate Starts for Phinally_83:

(16, 56948), (25, 57035), (Start: 33 @57119 has 18 MA's), (42, 57200), (43, 57209), (44, 57212), (60, 57365), (63, 57395), (65, 57413), (68, 57443),

Gene: Pumpkiney_85 Start: 56367, Stop: 56786, Start Num: 33

Candidate Starts for Pumpkiney_85:

(4, 56016), (8, 56052), (10, 56082), (13, 56121), (15, 56202), (17, 56214), (20, 56229), (21, 56247), (22, 56250), (Start: 33 @56367 has 18 MA's), (39, 56406), (44, 56460), (46, 56469), (53, 56559), (55, 56571), (61, 56622), (64, 56658),

Gene: Ribeye_82 Start: 55740, Stop: 56123, Start Num: 34

Candidate Starts for Ribeye_82:

(Start: 34 @55740 has 15 MA's), (40, 55782), (44, 55827), (53, 55923), (60, 55980), (63, 56010),

Gene: RiverRaider_85 Start: 55471, Stop: 55857, Start Num: 35

Candidate Starts for RiverRaider_85:

(2, 55078), (9, 55144), (18, 55300), (28, 55432), (Start: 35 @55471 has 35 MA's), (44, 55555), (60, 55714), (63, 55744),

Gene: RoadKill_81 Start: 54241, Stop: 54651, Start Num: 29

Candidate Starts for RoadKill_81:

(Start: 29 @54241 has 7 MA's), (41, 54322), (44, 54346), (46, 54355), (48, 54370), (49, 54373), (51, 54409), (55, 54451), (60, 54499),

Gene: Rofo_82 Start: 56856, Stop: 57242, Start Num: 35

Candidate Starts for Rofo_82:

(18, 56685), (28, 56817), (Start: 35 @56856 has 35 MA's), (43, 56937), (50, 56982), (58, 57063), (60, 57096), (63, 57126),

Gene: Sampson_87 Start: 57929, Stop: 58348, Start Num: 33

Candidate Starts for Sampson_87:

(4, 57569), (8, 57605), (10, 57635), (13, 57674), (17, 57767), (20, 57782), (21, 57809), (22, 57812), (Start: 33 @57929 has 18 MA's), (39, 57968), (44, 58022), (46, 58031), (53, 58121), (55, 58133), (61, 58184), (64, 58220), (67, 58253),

Gene: Sanjuju_80 Start: 57218, Stop: 57604, Start Num: 35

Candidate Starts for Sanjuju_80:

(26, 57152), (30, 57200), (Start: 35 @57218 has 35 MA's), (38, 57233), (43, 57299), (50, 57344), (58, 57425), (60, 57458), (63, 57488),

Gene: Saronaya_84 Start: 56597, Stop: 56980, Start Num: 34

Candidate Starts for Saronaya_84:

(Start: 34 @56597 has 15 MA's), (40, 56639), (44, 56684), (53, 56780), (60, 56837), (63, 56867),

Gene: SchottB_81 Start: 56675, Stop: 57055, Start Num: 35

Candidate Starts for SchottB_81:

(27, 56639), (Start: 35 @56675 has 35 MA's), (36, 56681), (40, 56714), (44, 56759), (50, 56798), (53, 56855), (60, 56912), (63, 56942),

Gene: Scioto_85 Start: 57779, Stop: 58198, Start Num: 33

Candidate Starts for Scioto_85:

(4, 57419), (8, 57455), (10, 57485), (13, 57524), (17, 57617), (20, 57632), (21, 57659), (22, 57662), (Start: 33 @57779 has 18 MA's), (39, 57818), (44, 57872), (46, 57881), (53, 57971), (55, 57983), (61, 58034), (64, 58070), (67, 58103),

Gene: Sedona_80 Start: 57715, Stop: 58101, Start Num: 35

Candidate Starts for Sedona_80:

(26, 57649), (30, 57697), (Start: 35 @57715 has 35 MA's), (43, 57796), (50, 57841), (58, 57922), (60, 57955), (63, 57985),

Gene: Shivanishola_84 Start: 55879, Stop: 56265, Start Num: 32

Candidate Starts for Shivanishola_84:

(Start: 32 @55879 has 1 MA's), (38, 55894), (43, 55960), (50, 56005), (58, 56086), (60, 56119), (63, 56149),

Gene: Sitar_82 Start: 58001, Stop: 58390, Start Num: 35

Candidate Starts for Sitar_82:

(Start: 35 @58001 has 35 MA's), (38, 58016), (43, 58082), (50, 58127), (58, 58208), (60, 58241), (63, 58271),

Gene: StorminNorm_83 Start: 56541, Stop: 56924, Start Num: 34

Candidate Starts for StorminNorm_83:

(Start: 34 @56541 has 15 MA's), (40, 56583), (44, 56628), (47, 56643), (53, 56724), (60, 56781), (63, 56811),

Gene: Stultus_77 Start: 56009, Stop: 56395, Start Num: 35

Candidate Starts for Stultus_77:

(26, 55943), (30, 55991), (Start: 35 @56009 has 35 MA's), (43, 56090), (50, 56135), (58, 56216), (60, 56249), (63, 56279),

Gene: Tangent_85 Start: 56561, Stop: 56947, Start Num: 35

Candidate Starts for Tangent_85:

(18, 56390), (28, 56522), (Start: 35 @56561 has 35 MA's), (43, 56642), (50, 56687), (58, 56768), (60, 56801), (63, 56831),

Gene: Tangerine_83 Start: 55873, Stop: 56256, Start Num: 34

Candidate Starts for Tangerine_83:

(Start: 34 @55873 has 15 MA's), (40, 55915), (44, 55960), (53, 56056), (60, 56113), (63, 56143),

Gene: Tardus_87 Start: 58271, Stop: 58690, Start Num: 33

Candidate Starts for Tardus_87:

(15, 58097), (17, 58109), (20, 58124), (21, 58151), (22, 58154), (Start: 33 @58271 has 18 MA's), (39, 58310), (44, 58364), (46, 58373), (55, 58475), (61, 58526), (64, 58562),

Gene: Thing3_83 Start: 57386, Stop: 57769, Start Num: 35

Candidate Starts for Thing3_83:

(27, 57344), (Start: 35 @57386 has 35 MA's), (44, 57470), (47, 57485), (52, 57554), (60, 57623),

Gene: Tiamoceli_77 Start: 54131, Stop: 54541, Start Num: 29

Candidate Starts for Tiamoceli_77:

(Start: 29 @54131 has 7 MA's), (41, 54212), (43, 54233), (44, 54236), (46, 54245), (48, 54260), (49, 54263), (51, 54299), (55, 54341), (60, 54389),

Gene: Twonlo_81 Start: 54832, Stop: 55242, Start Num: 29

Candidate Starts for Twonlo_81:

(Start: 29 @54832 has 7 MA's), (41, 54913), (44, 54937), (46, 54946), (48, 54961), (49, 54964), (51, 55000), (55, 55042), (60, 55090),

Gene: Tycho_82 Start: 56075, Stop: 56458, Start Num: 34

Candidate Starts for Tycho_82:

(Start: 34 @56075 has 15 MA's), (40, 56117), (44, 56162), (53, 56258), (60, 56315), (63, 56345),

Gene: ViaConlectus_84 Start: 56617, Stop: 57036, Start Num: 33

Candidate Starts for ViaConlectus_84:

(Start: 33 @56617 has 18 MA's), (39, 56656), (44, 56710), (46, 56719), (53, 56809), (55, 56821), (64, 56908), (67, 56941),

Gene: Vivi2_86 Start: 57617, Stop: 58003, Start Num: 35

Candidate Starts for Vivi2_86:

(18, 57446), (28, 57578), (Start: 35 @57617 has 35 MA's), (43, 57698), (50, 57743), (58, 57824), (60, 57857), (63, 57887),

Gene: YorkOnyx_82 Start: 55988, Stop: 56368, Start Num: 34

Candidate Starts for YorkOnyx_82:

(Start: 34 @55988 has 15 MA's), (40, 56027), (44, 56072), (47, 56087), (53, 56168), (60, 56225), (63, 56255),

Gene: Zipp_85 Start: 58932, Stop: 59351, Start Num: 33

Candidate Starts for Zipp_85:

(6, 58587), (11, 58644), (15, 58758), (17, 58770), (20, 58785), (21, 58812), (22, 58815), (Start: 33 @58932 has 18 MA's), (39, 58971), (44, 59025), (45, 59028), (55, 59136), (64, 59223), (67, 59256),

Gene: Zitch_87 Start: 57244, Stop: 57663, Start Num: 33

Candidate Starts for Zitch_87:

(4, 56884), (8, 56920), (10, 56950), (13, 56989), (15, 57070), (17, 57082), (20, 57097), (21, 57124), (22, 57127), (Start: 33 @57244 has 18 MA's), (39, 57283), (44, 57337), (46, 57346), (53, 57436), (55, 57448), (61, 57499), (67, 57568),