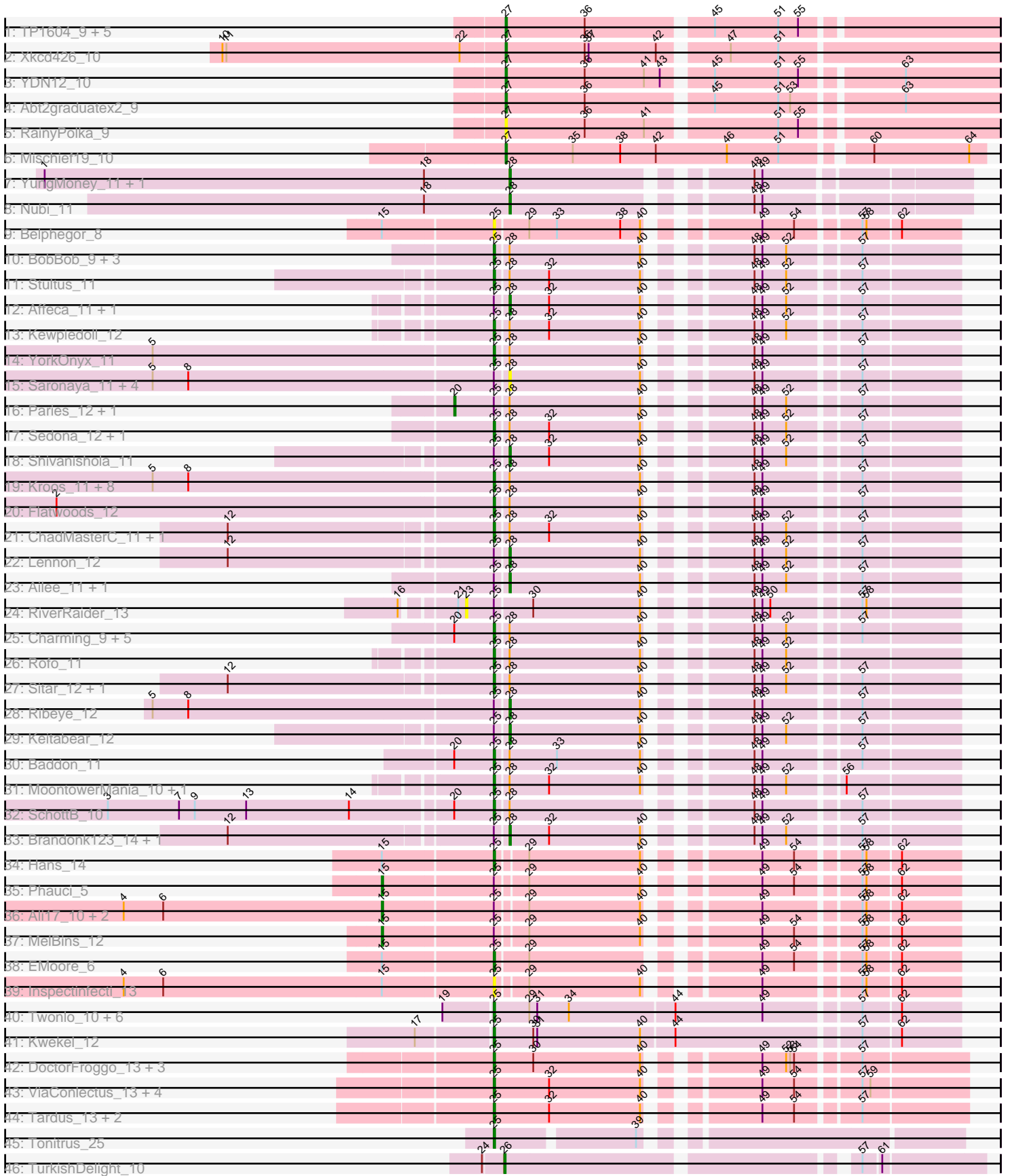


Pham 171358



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 171358 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171358 has 97 members, 16 are drafts.

Phages represented in each track:

- Track 1 : TP1604_9, Asis_9, Salete_9, BabyGotBac_9, Maih_9, BayC_9
- Track 2 : Xkcd426_10
- Track 3 : YDN12_10
- Track 4 : Abt2graduatex2_9
- Track 5 : RainyPolka_9
- Track 6 : Mischief19_10
- Track 7 : YungMoney_11, Halo3_12
- Track 8 : Nubi_11
- Track 9 : Belphegor_8
- Track 10 : BobBob_9, Sanjuju_10, Angelicage_11, Jabberwocky_10
- Track 11 : Stultus_11
- Track 12 : Affeca_11, McKinley_12
- Track 13 : Kewpiedoll_12
- Track 14 : YorkOnyx_11
- Track 15 : Saronaya_11, Tycho_11, Kwobi_11, Gustavo_11, Derg_9
- Track 16 : Paries_12, Tangent_9
- Track 17 : Sedona_12, Bibwit_11
- Track 18 : Shivanishola_11
- Track 19 : Kroos_11, Tangerine_11, StorminNorm_11, Gaea_11, Ashertheman_11, Baumdotcom_11, LilHam_9, Bizzy_12, JKSyngboy_10
- Track 20 : Flatwoods_12
- Track 21 : ChadMasterC_11, Barsten_12
- Track 22 : Lennon_12
- Track 23 : Ailee_11, Fitzgerald_10
- Track 24 : RiverRaider_13
- Track 25 : Charming_9, Fosterous_9, Galadriel_13, Kamashten_12, Thing3_12, Nordenberg_6
- Track 26 : Rofo_11
- Track 27 : Sitar_12, Vivi2_10
- Track 28 : Ribeye_12
- Track 29 : Keitabear_12
- Track 30 : Baddon_11
- Track 31 : MoontowerMania_10, Love_13
- Track 32 : SchottB_10
- Track 33 : Brandonk123_14, Geodirt_11
- Track 34 : Hans_14
- Track 35 : Phauci_5

- Track 36 : Ali17_10, Phinally_12, Leonard_12
- Track 37 : MelBins_12
- Track 38 : EMOore_6
- Track 39 : Inspectinfecti_13
- Track 40 : Twonlo_10, Tiamoceli_13, GTE6_13, RoadKill_10, Chickadee_12, EdmundFerry_11, Dxdert_13
- Track 41 : Kwekel_12
- Track 42 : DoctorFroggo_13, Verity_13, Zipp_13, Delrey21_13
- Track 43 : ViaConlectus_13, Abblin_13, Natkenzie_13, Sampson_13, Scioto_13
- Track 44 : Tardus_13, APunk_14, Zitch_14
- Track 45 : Tonitrus_25
- Track 46 : TurkishDelight_10

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

The start number called the most often in the published annotations is 25, it was called in 50 of the 81 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- APunk_14, Abblin_13, Angelicage_11, Ashertheman_11, Baddon_11, Barsten_12, Baumdotcom_11, Belphegor_8, Bibwit_11, Bizzy_12, BobBob_9, ChadMasterC_11, Charming_9, Chickadee_12, Delrey21_13, Dxdert_13, DoctorFroggo_13, EMOore_6, EdmundFerry_11, Flatwoods_12, Fosterous_9, GTE6_13, Gaea_11, Galadriel_13, Hans_14, Inspectinfecti_13, JKSyngboy_10, Jabberwocky_10, Kamashten_12, Kewpiedoll_12, Kroos_11, Kwekel_12, LilHam_9, Love_13, MoontowerMania_10, Natkenzie_13, Nordenberg_6, RoadKill_10, Rofo_11, Sampson_13, Sanjuju_10, SchottB_10, Scioto_13, Sedona_12, Sitar_12, StorminNorm_11, Stultus_11, Tangerine_11, Tardus_13, Thing3_12, Tiamoceli_13, Tonitrus_25, Twonlo_10, Verity_13, ViaConlectus_13, Vivi2_10, YorkOnyx_11, Zipp_13, Zitch_14,

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

- Affeca_11, Ailee_11, Ali17_10, Brandonk123_14, Derg_9, Fitzgerald_10, Geodirt_11, Gustavo_11, Keitabear_12, Kwobi_11, Lennon_12, Leonard_12, McKinley_12, MelBins_12, Paries_12, Phauci_5, Phinally_12, Ribeye_12, RiverRaider_13, Saronaya_11, Shivanishola_11, Tangent_9, Tycho_11,

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

- Abt2graduatex2_9, Asis_9, BabyGotBac_9, BayC_9, Halo3_12, Maih_9, Mischief19_10, Nubi_11, RainyPolka_9, Salete_9, TP1604_9, TurkishDelight_10, Xkcd426_10, YDN12_10, YungMoney_11,

Summary by start number:

Start 15:

- Found in 9 of 97 (9.3%) of genes in pham
- Manual Annotations of this start: 5 of 81
- Called 55.6% of time when present
- Phage (with cluster) where this start called: Ali17_10 (DE2), Leonard_12 (DE2), MelBins_12 (DE2), Phauci_5 (DE2), Phinally_12 (DE2),

Start 20:

- Found in 10 of 97 (10.3%) of genes in pham
- Manual Annotations of this start: 2 of 81
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Paries_12 (DE1), Tangent_9 (DE1),

Start 23:

- Found in 1 of 97 (1.0%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: RiverRaider_13 (DE1),

Start 25:

- Found in 82 of 97 (84.5%) of genes in pham
- Manual Annotations of this start: 50 of 81
- Called 72.0% of time when present
- Phage (with cluster) where this start called: APunk_14 (DE4), Abblin_13 (DE4), Angelicage_11 (DE1), Ashertheman_11 (DE1), Baddon_11 (DE1), Barsten_12 (DE1), Baumdotcom_11 (DE1), Belphegor_8 (DE), Bibwit_11 (DE1), Bizzy_12 (DE1), BobBob_9 (DE1), ChadMasterC_11 (DE1), Charming_9 (DE1), Chickadee_12 (DE3), Delrey21_13 (DE4), Dextert_13 (DE3), DoctorFroggo_13 (DE4), EMOore_6 (DE2), EdmundFerry_11 (DE3), Flatwoods_12 (DE1), Fosterous_9 (DE1), GTE6_13 (DE3), Gaea_11 (DE1), Galadriel_13 (DE1), Hans_14 (DE2), Inspectinfecti_13 (DE2), JKSyngboy_10 (DE1), Jabberwocky_10 (DE1), Kamashten_12 (DE1), Kewpiedoll_12 (DE1), Kroos_11 (DE1), Kwekel_12 (DE3), LilHam_9 (DE1), Love_13 (DE1), MoontowerMania_10 (DE1), Natkenzie_13 (DE4), Nordenberg_6 (DE1), RoadKill_10 (DE3), Rofo_11 (DE1), Sampson_13 (DE4), Sanjuju_10 (DE1), SchottB_10 (DE1), Scioto_13 (DE4), Sedona_12 (DE1), Sitar_12 (DE1), StorminNorm_11 (DE1), Stultus_11 (DE1), Tangerine_11 (DE1), Tardus_13 (DE4), Thing3_12 (DE1), Tiamoceli_13 (DE3), Tonitrus_25 (singleton), Twonlo_10 (DE3), Verity_13 (DE4), ViaConlectus_13 (DE4), Vivi2_10 (DE1), YorkOnyx_11 (DE1), Zipp_13 (DE4), Zitch_14 (DE4),

Start 26:

- Found in 1 of 97 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 81
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TurkishDelight_10 (singleton),

Start 27:

- Found in 11 of 97 (11.3%) of genes in pham
- Manual Annotations of this start: 10 of 81
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abt2graduatex2_9 (BG), Asis_9 (BG), BabyGotBac_9 (BG), BayC_9 (BG), Maih_9 (BG), Mischief19_10 (BG), RainyPolka_9 (BG), Salete_9 (BG), TP1604_9 (BG), Xkcd426_10 (BG), YDN12_10 (BG),

Start 28:

- Found in 54 of 97 (55.7%) of genes in pham
- Manual Annotations of this start: 13 of 81
- Called 33.3% of time when present

- Phage (with cluster) where this start called: Affeca_11 (DE1), Ailee_11 (DE1), Brandonk123_14 (DE1), Derg_9 (DE1), Fitzgerald_10 (DE1), Geodirt_11 (DE1), Gustavo_11 (DE1), Halo3_12 (DC1), Keitabear_12 (DE1), Kwobi_11 (DE1), Lennon_12 (DE1), McKinley_12 (DE1), Nubi_11 (DC1), Ribeye_12 (DE1), Saronaya_11 (DE1), Shivanishola_11 (DE1), Tycho_11 (DE1), YungMoney_11 (DC1),

Summary by clusters:

There are 8 clusters represented in this pham: singleton, BG, DE1, DE2, DE3, DE4, DE, DC1,

Info for manual annotations of cluster BG:

- Start number 27 was manually annotated 10 times for cluster BG.

Info for manual annotations of cluster DC1:

- Start number 28 was manually annotated 3 times for cluster DC1.

Info for manual annotations of cluster DE1:

- Start number 20 was manually annotated 2 times for cluster DE1.
- Start number 25 was manually annotated 31 times for cluster DE1.
- Start number 28 was manually annotated 10 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 15 was manually annotated 5 times for cluster DE2.
- Start number 25 was manually annotated 2 times for cluster DE2.

Info for manual annotations of cluster DE3:

- Start number 25 was manually annotated 7 times for cluster DE3.

Info for manual annotations of cluster DE4:

- Start number 25 was manually annotated 9 times for cluster DE4.

Gene Information:

Gene: APunk_14 Start: 7109, Stop: 7426, Start Num: 25

Candidate Starts for APunk_14:

(Start: 25 @7109 has 50 MA's), (32, 7151), (40, 7220), (49, 7283), (54, 7307), (57, 7349),

Gene: Abblin_13 Start: 6625, Stop: 6942, Start Num: 25

Candidate Starts for Abblin_13:

(Start: 25 @6625 has 50 MA's), (32, 6667), (40, 6736), (49, 6799), (54, 6823), (57, 6865), (59, 6871),

Gene: Abt2graduatex2_9 Start: 7673, Stop: 8023, Start Num: 27

Candidate Starts for Abt2graduatex2_9:

(Start: 27 @7673 has 10 MA's), (36, 7733), (45, 7820), (51, 7868), (53, 7877), (63, 7952),

Gene: Affeca_11 Start: 6351, Stop: 6650, Start Num: 28

Candidate Starts for Affeca_11:

(Start: 25 @6342 has 50 MA's), (Start: 28 @6351 has 13 MA's), (32, 6381), (40, 6450), (48, 6507), (49, 6513), (52, 6531), (57, 6579),

Gene: Ailee_11 Start: 7213, Stop: 7512, Start Num: 28

Candidate Starts for Ailee_11:

(Start: 25 @7204 has 50 MA's), (Start: 28 @7213 has 13 MA's), (40, 7312), (48, 7369), (49, 7375), (52, 7393), (57, 7441),

Gene: Ali17_10 Start: 6021, Stop: 6407, Start Num: 15

Candidate Starts for Ali17_10:

(4, 5826), (6, 5856), (Start: 15 @6021 has 5 MA's), (Start: 25 @6102 has 50 MA's), (29, 6123), (40, 6207), (49, 6270), (57, 6336), (58, 6339), (62, 6363),

Gene: Angelicage_11 Start: 6771, Stop: 7079, Start Num: 25

Candidate Starts for Angelicage_11:

(Start: 25 @6771 has 50 MA's), (Start: 28 @6780 has 13 MA's), (40, 6879), (48, 6936), (49, 6942), (52, 6960), (57, 7008),

Gene: Ashertheman_11 Start: 5950, Stop: 6258, Start Num: 25

Candidate Starts for Ashertheman_11:

(5, 5698), (8, 5725), (Start: 25 @5950 has 50 MA's), (Start: 28 @5959 has 13 MA's), (40, 6058), (48, 6115), (49, 6121), (57, 6187),

Gene: Asis_9 Start: 7730, Stop: 8080, Start Num: 27

Candidate Starts for Asis_9:

(Start: 27 @7730 has 10 MA's), (36, 7790), (45, 7877), (51, 7925), (55, 7940),

Gene: BabyGotBac_9 Start: 7730, Stop: 8080, Start Num: 27

Candidate Starts for BabyGotBac_9:

(Start: 27 @7730 has 10 MA's), (36, 7790), (45, 7877), (51, 7925), (55, 7940),

Gene: Baddon_11 Start: 6660, Stop: 6968, Start Num: 25

Candidate Starts for Baddon_11:

(Start: 20 @6630 has 2 MA's), (Start: 25 @6660 has 50 MA's), (Start: 28 @6669 has 13 MA's), (33, 6705), (40, 6768), (48, 6825), (49, 6831), (57, 6897),

Gene: Barsten_12 Start: 6156, Stop: 6464, Start Num: 25

Candidate Starts for Barsten_12:

(12, 5964), (Start: 25 @6156 has 50 MA's), (Start: 28 @6165 has 13 MA's), (32, 6195), (40, 6264), (48, 6321), (49, 6327), (52, 6345), (57, 6393),

Gene: Baumdotcom_11 Start: 5973, Stop: 6281, Start Num: 25

Candidate Starts for Baumdotcom_11:

(5, 5721), (8, 5748), (Start: 25 @5973 has 50 MA's), (Start: 28 @5982 has 13 MA's), (40, 6081), (48, 6138), (49, 6144), (57, 6210),

Gene: BayC_9 Start: 7730, Stop: 8080, Start Num: 27

Candidate Starts for BayC_9:

(Start: 27 @7730 has 10 MA's), (36, 7790), (45, 7877), (51, 7925), (55, 7940),

Gene: Belphegor_8 Start: 3927, Stop: 4235, Start Num: 25

Candidate Starts for Belphegor_8:

(Start: 15 @3846 has 5 MA's), (Start: 25 @3927 has 50 MA's), (29, 3951), (33, 3972), (38, 4020), (40, 4035), (49, 4098), (54, 4122), (57, 4164), (58, 4167), (62, 4191),

Gene: Bibwit_11 Start: 7027, Stop: 7335, Start Num: 25

Candidate Starts for Bibwit_11:

(Start: 25 @7027 has 50 MA's), (Start: 28 @7036 has 13 MA's), (32, 7066), (40, 7135), (48, 7192), (49, 7198), (52, 7216), (57, 7264),

Gene: Bizzy_12 Start: 6147, Stop: 6455, Start Num: 25

Candidate Starts for Bizzy_12:

(5, 5895), (8, 5922), (Start: 25 @6147 has 50 MA's), (Start: 28 @6156 has 13 MA's), (40, 6255), (48, 6312), (49, 6318), (57, 6384),

Gene: BobBob_9 Start: 5693, Stop: 6001, Start Num: 25

Candidate Starts for BobBob_9:

(Start: 25 @5693 has 50 MA's), (Start: 28 @5702 has 13 MA's), (40, 5801), (48, 5858), (49, 5864), (52, 5882), (57, 5930),

Gene: Brandonk123_14 Start: 6849, Stop: 7148, Start Num: 28

Candidate Starts for Brandonk123_14:

(12, 6648), (Start: 25 @6840 has 50 MA's), (Start: 28 @6849 has 13 MA's), (32, 6879), (40, 6948), (48, 7005), (49, 7011), (52, 7029), (57, 7077),

Gene: ChadMasterC_11 Start: 6428, Stop: 6736, Start Num: 25

Candidate Starts for ChadMasterC_11:

(12, 6236), (Start: 25 @6428 has 50 MA's), (Start: 28 @6437 has 13 MA's), (32, 6467), (40, 6536), (48, 6593), (49, 6599), (52, 6617), (57, 6665),

Gene: Charming_9 Start: 5695, Stop: 6003, Start Num: 25

Candidate Starts for Charming_9:

(Start: 20 @5665 has 2 MA's), (Start: 25 @5695 has 50 MA's), (Start: 28 @5704 has 13 MA's), (40, 5803), (48, 5860), (49, 5866), (52, 5884), (57, 5932),

Gene: Chickadee_12 Start: 5433, Stop: 5771, Start Num: 25

Candidate Starts for Chickadee_12:

(19, 5397), (Start: 25 @5433 has 50 MA's), (29, 5460), (31, 5466), (34, 5490), (44, 5568), (49, 5634), (57, 5700), (62, 5727),

Gene: Delrey21_13 Start: 6898, Stop: 7215, Start Num: 25

Candidate Starts for Delrey21_13:

(Start: 25 @6898 has 50 MA's), (30, 6928), (40, 7009), (49, 7072), (52, 7090), (53, 7093), (54, 7096), (57, 7138),

Gene: Derg_9 Start: 5286, Stop: 5585, Start Num: 28

Candidate Starts for Derg_9:

(5, 5025), (8, 5052), (Start: 25 @5277 has 50 MA's), (Start: 28 @5286 has 13 MA's), (40, 5385), (48, 5442), (49, 5448), (57, 5514),

Gene: Dxdert_13 Start: 5891, Stop: 6229, Start Num: 25

Candidate Starts for Dxdert_13:

(19, 5855), (Start: 25 @5891 has 50 MA's), (29, 5918), (31, 5924), (34, 5948), (44, 6026), (49, 6092), (57, 6158), (62, 6185),

Gene: DoctorFroggo_13 Start: 6898, Stop: 7215, Start Num: 25
Candidate Starts for DoctorFroggo_13:
(Start: 25 @6898 has 50 MA's), (30, 6928), (40, 7009), (49, 7072), (52, 7090), (53, 7093), (54, 7096),
(57, 7138),

Gene: EMoore_6 Start: 4085, Stop: 4393, Start Num: 25
Candidate Starts for EMoore_6:
(Start: 15 @4004 has 5 MA's), (Start: 25 @4085 has 50 MA's), (29, 4109), (49, 4256), (54, 4280), (57,
4322), (58, 4325), (62, 4349),

Gene: EdmundFerry_11 Start: 5448, Stop: 5786, Start Num: 25
Candidate Starts for EdmundFerry_11:
(19, 5412), (Start: 25 @5448 has 50 MA's), (29, 5475), (31, 5481), (34, 5505), (44, 5583), (49, 5649),
(57, 5715), (62, 5742),

Gene: Fitzgerald_10 Start: 6630, Stop: 6929, Start Num: 28
Candidate Starts for Fitzgerald_10:
(Start: 25 @6621 has 50 MA's), (Start: 28 @6630 has 13 MA's), (40, 6729), (48, 6786), (49, 6792),
(52, 6810), (57, 6858),

Gene: Flatwoods_12 Start: 6151, Stop: 6459, Start Num: 25
Candidate Starts for Flatwoods_12:
(2, 5824), (Start: 25 @6151 has 50 MA's), (Start: 28 @6160 has 13 MA's), (40, 6259), (48, 6316), (49,
6322), (57, 6388),

Gene: Fosterous_9 Start: 5693, Stop: 6001, Start Num: 25
Candidate Starts for Fosterous_9:
(Start: 20 @5663 has 2 MA's), (Start: 25 @5693 has 50 MA's), (Start: 28 @5702 has 13 MA's), (40,
5801), (48, 5858), (49, 5864), (52, 5882), (57, 5930),

Gene: GTE6_13 Start: 5949, Stop: 6287, Start Num: 25
Candidate Starts for GTE6_13:
(19, 5913), (Start: 25 @5949 has 50 MA's), (29, 5976), (31, 5982), (34, 6006), (44, 6084), (49, 6150),
(57, 6216), (62, 6243),

Gene: Gaea_11 Start: 5953, Stop: 6261, Start Num: 25
Candidate Starts for Gaea_11:
(5, 5701), (8, 5728), (Start: 25 @5953 has 50 MA's), (Start: 28 @5962 has 13 MA's), (40, 6061), (48,
6118), (49, 6124), (57, 6190),

Gene: Galadriel_13 Start: 6461, Stop: 6769, Start Num: 25
Candidate Starts for Galadriel_13:
(Start: 20 @6431 has 2 MA's), (Start: 25 @6461 has 50 MA's), (Start: 28 @6470 has 13 MA's), (40,
6569), (48, 6626), (49, 6632), (52, 6650), (57, 6698),

Gene: Geodirt_11 Start: 6477, Stop: 6776, Start Num: 28
Candidate Starts for Geodirt_11:
(12, 6276), (Start: 25 @6468 has 50 MA's), (Start: 28 @6477 has 13 MA's), (32, 6507), (40, 6576),
(48, 6633), (49, 6639), (52, 6657), (57, 6705),

Gene: Gustavo_11 Start: 5959, Stop: 6258, Start Num: 28
Candidate Starts for Gustavo_11:

(5, 5698), (8, 5725), (Start: 25 @5950 has 50 MA's), (Start: 28 @5959 has 13 MA's), (40, 6058), (48, 6115), (49, 6121), (57, 6187),

Gene: Halo3_12 Start: 5583, Stop: 5888, Start Num: 28

Candidate Starts for Halo3_12:

(1, 5232), (18, 5520), (Start: 28 @5583 has 13 MA's), (48, 5739), (49, 5745),

Gene: Hans_14 Start: 6642, Stop: 6947, Start Num: 25

Candidate Starts for Hans_14:

(Start: 15 @6561 has 5 MA's), (Start: 25 @6642 has 50 MA's), (29, 6663), (40, 6747), (49, 6810), (54, 6834), (57, 6876), (58, 6879), (62, 6903),

Gene: Inspectinfecti_13 Start: 7159, Stop: 7464, Start Num: 25

Candidate Starts for Inspectinfecti_13:

(4, 6883), (6, 6913), (Start: 15 @7078 has 5 MA's), (Start: 25 @7159 has 50 MA's), (29, 7180), (40, 7264), (49, 7327), (57, 7393), (58, 7396), (62, 7420),

Gene: JKSyngboy_10 Start: 6461, Stop: 6769, Start Num: 25

Candidate Starts for JKSyngboy_10:

(5, 6209), (8, 6236), (Start: 25 @6461 has 50 MA's), (Start: 28 @6470 has 13 MA's), (40, 6569), (48, 6626), (49, 6632), (57, 6698),

Gene: Jabberwocky_10 Start: 6623, Stop: 6931, Start Num: 25

Candidate Starts for Jabberwocky_10:

(Start: 25 @6623 has 50 MA's), (Start: 28 @6632 has 13 MA's), (40, 6731), (48, 6788), (49, 6794), (52, 6812), (57, 6860),

Gene: Kamashten_12 Start: 6782, Stop: 7090, Start Num: 25

Candidate Starts for Kamashten_12:

(Start: 20 @6752 has 2 MA's), (Start: 25 @6782 has 50 MA's), (Start: 28 @6791 has 13 MA's), (40, 6890), (48, 6947), (49, 6953), (52, 6971), (57, 7019),

Gene: Keitabear_12 Start: 7843, Stop: 8142, Start Num: 28

Candidate Starts for Keitabear_12:

(Start: 25 @7834 has 50 MA's), (Start: 28 @7843 has 13 MA's), (40, 7942), (48, 7999), (49, 8005), (52, 8023), (57, 8071),

Gene: Kewpiedoll_12 Start: 6184, Stop: 6492, Start Num: 25

Candidate Starts for Kewpiedoll_12:

(Start: 25 @6184 has 50 MA's), (Start: 28 @6193 has 13 MA's), (32, 6223), (40, 6292), (48, 6349), (49, 6355), (52, 6373), (57, 6421),

Gene: Kroos_11 Start: 6114, Stop: 6422, Start Num: 25

Candidate Starts for Kroos_11:

(5, 5862), (8, 5889), (Start: 25 @6114 has 50 MA's), (Start: 28 @6123 has 13 MA's), (40, 6222), (48, 6279), (49, 6285), (57, 6351),

Gene: Kwekel_12 Start: 5442, Stop: 5780, Start Num: 25

Candidate Starts for Kwekel_12:

(17, 5388), (Start: 25 @5442 has 50 MA's), (30, 5472), (31, 5475), (40, 5553), (44, 5577), (57, 5709), (62, 5736),

Gene: Kwobi_11 Start: 5962, Stop: 6261, Start Num: 28

Candidate Starts for Kwobi_11:

(5, 5701), (8, 5728), (Start: 25 @5953 has 50 MA's), (Start: 28 @5962 has 13 MA's), (40, 6061), (48, 6118), (49, 6124), (57, 6190),

Gene: Lennon_12 Start: 7052, Stop: 7351, Start Num: 28

Candidate Starts for Lennon_12:

(12, 6851), (Start: 25 @7043 has 50 MA's), (Start: 28 @7052 has 13 MA's), (40, 7151), (48, 7208), (49, 7214), (52, 7232), (57, 7280),

Gene: Leonard_12 Start: 6673, Stop: 7059, Start Num: 15

Candidate Starts for Leonard_12:

(4, 6478), (6, 6508), (Start: 15 @6673 has 5 MA's), (Start: 25 @6754 has 50 MA's), (29, 6775), (40, 6859), (49, 6922), (57, 6988), (58, 6991), (62, 7015),

Gene: LilHam_9 Start: 5269, Stop: 5577, Start Num: 25

Candidate Starts for LilHam_9:

(5, 5017), (8, 5044), (Start: 25 @5269 has 50 MA's), (Start: 28 @5278 has 13 MA's), (40, 5377), (48, 5434), (49, 5440), (57, 5506),

Gene: Love_13 Start: 6772, Stop: 7080, Start Num: 25

Candidate Starts for Love_13:

(Start: 25 @6772 has 50 MA's), (Start: 28 @6781 has 13 MA's), (32, 6811), (40, 6880), (48, 6937), (49, 6943), (52, 6961), (56, 6997),

Gene: Maih_9 Start: 7729, Stop: 8079, Start Num: 27

Candidate Starts for Maih_9:

(Start: 27 @7729 has 10 MA's), (36, 7789), (45, 7876), (51, 7924), (55, 7939),

Gene: McKinley_12 Start: 7140, Stop: 7439, Start Num: 28

Candidate Starts for McKinley_12:

(Start: 25 @7131 has 50 MA's), (Start: 28 @7140 has 13 MA's), (32, 7170), (40, 7239), (48, 7296), (49, 7302), (52, 7320), (57, 7368),

Gene: MelBins_12 Start: 6449, Stop: 6835, Start Num: 15

Candidate Starts for MelBins_12:

(Start: 15 @6449 has 5 MA's), (Start: 25 @6530 has 50 MA's), (29, 6551), (40, 6635), (49, 6698), (54, 6722), (57, 6764), (58, 6767), (62, 6791),

Gene: Mischief19_10 Start: 9272, Stop: 9619, Start Num: 27

Candidate Starts for Mischief19_10:

(Start: 27 @9272 has 10 MA's), (35, 9323), (38, 9359), (42, 9386), (46, 9440), (51, 9479), (60, 9536), (64, 9608),

Gene: MoontowerMania_10 Start: 6171, Stop: 6479, Start Num: 25

Candidate Starts for MoontowerMania_10:

(Start: 25 @6171 has 50 MA's), (Start: 28 @6180 has 13 MA's), (32, 6210), (40, 6279), (48, 6336), (49, 6342), (52, 6360), (56, 6396),

Gene: Natkenzie_13 Start: 6625, Stop: 6942, Start Num: 25

Candidate Starts for Natkenzie_13:

(Start: 25 @6625 has 50 MA's), (32, 6667), (40, 6736), (49, 6799), (54, 6823), (57, 6865), (59, 6871),

Gene: Nordenberg_6 Start: 4315, Stop: 4623, Start Num: 25

Candidate Starts for Nordenberg_6:

(Start: 20 @4285 has 2 MA's), (Start: 25 @4315 has 50 MA's), (Start: 28 @4324 has 13 MA's), (40, 4423), (48, 4480), (49, 4486), (52, 4504), (57, 4552),

Gene: Nubi_11 Start: 5144, Stop: 5449, Start Num: 28

Candidate Starts for Nubi_11:

(18, 5081), (Start: 28 @5144 has 13 MA's), (48, 5300), (49, 5306),

Gene: Paries_12 Start: 6433, Stop: 6771, Start Num: 20

Candidate Starts for Paries_12:

(Start: 20 @6433 has 2 MA's), (Start: 25 @6463 has 50 MA's), (Start: 28 @6472 has 13 MA's), (40, 6571), (48, 6628), (49, 6634), (52, 6652), (57, 6700),

Gene: Phauci_5 Start: 3202, Stop: 3588, Start Num: 15

Candidate Starts for Phauci_5:

(Start: 15 @3202 has 5 MA's), (Start: 25 @3283 has 50 MA's), (29, 3304), (40, 3388), (49, 3451), (54, 3475), (57, 3517), (58, 3520), (62, 3544),

Gene: Phinally_12 Start: 6670, Stop: 7056, Start Num: 15

Candidate Starts for Phinally_12:

(4, 6475), (6, 6505), (Start: 15 @6670 has 5 MA's), (Start: 25 @6751 has 50 MA's), (29, 6772), (40, 6856), (49, 6919), (57, 6985), (58, 6988), (62, 7012),

Gene: RainyPolka_9 Start: 7682, Stop: 8032, Start Num: 27

Candidate Starts for RainyPolka_9:

(Start: 27 @7682 has 10 MA's), (36, 7742), (41, 7787), (51, 7877), (55, 7892),

Gene: Ribeye_12 Start: 6157, Stop: 6456, Start Num: 28

Candidate Starts for Ribeye_12:

(5, 5896), (8, 5923), (Start: 25 @6148 has 50 MA's), (Start: 28 @6157 has 13 MA's), (40, 6256), (48, 6313), (49, 6319), (57, 6385),

Gene: RiverRaider_13 Start: 5683, Stop: 6012, Start Num: 23

Candidate Starts for RiverRaider_13:

(16, 5644), (21, 5677), (23, 5683), (Start: 25 @5704 has 50 MA's), (30, 5731), (40, 5812), (48, 5869), (49, 5875), (50, 5881), (57, 5941), (58, 5944),

Gene: RoadKill_10 Start: 4904, Stop: 5242, Start Num: 25

Candidate Starts for RoadKill_10:

(19, 4868), (Start: 25 @4904 has 50 MA's), (29, 4931), (31, 4937), (34, 4961), (44, 5039), (49, 5105), (57, 5171), (62, 5198),

Gene: Rofo_11 Start: 6703, Stop: 7011, Start Num: 25

Candidate Starts for Rofo_11:

(Start: 25 @6703 has 50 MA's), (Start: 28 @6712 has 13 MA's), (40, 6811), (48, 6868), (49, 6874), (52, 6892),

Gene: Salete_9 Start: 7730, Stop: 8080, Start Num: 27

Candidate Starts for Salete_9:

(Start: 27 @7730 has 10 MA's), (36, 7790), (45, 7877), (51, 7925), (55, 7940),

Gene: Sampson_13 Start: 6570, Stop: 6887, Start Num: 25

Candidate Starts for Sampson_13:

(Start: 25 @6570 has 50 MA's), (32, 6612), (40, 6681), (49, 6744), (54, 6768), (57, 6810), (59, 6816),

Gene: Sanjuju_10 Start: 6661, Stop: 6969, Start Num: 25

Candidate Starts for Sanjuju_10:

(Start: 25 @6661 has 50 MA's), (Start: 28 @6670 has 13 MA's), (40, 6769), (48, 6826), (49, 6832), (52, 6850), (57, 6898),

Gene: Saronaya_11 Start: 5959, Stop: 6258, Start Num: 28

Candidate Starts for Saronaya_11:

(5, 5698), (8, 5725), (Start: 25 @5950 has 50 MA's), (Start: 28 @5959 has 13 MA's), (40, 6058), (48, 6115), (49, 6121), (57, 6187),

Gene: SchottB_10 Start: 6126, Stop: 6434, Start Num: 25

Candidate Starts for SchottB_10:

(3, 5841), (7, 5895), (9, 5907), (13, 5946), (14, 6024), (Start: 20 @6096 has 2 MA's), (Start: 25 @6126 has 50 MA's), (Start: 28 @6135 has 13 MA's), (48, 6291), (49, 6297), (57, 6363),

Gene: Scioto_13 Start: 6625, Stop: 6942, Start Num: 25

Candidate Starts for Scioto_13:

(Start: 25 @6625 has 50 MA's), (32, 6667), (40, 6736), (49, 6799), (54, 6823), (57, 6865), (59, 6871),

Gene: Sedona_12 Start: 7669, Stop: 7977, Start Num: 25

Candidate Starts for Sedona_12:

(Start: 25 @7669 has 50 MA's), (Start: 28 @7678 has 13 MA's), (32, 7708), (40, 7777), (48, 7834), (49, 7840), (52, 7858), (57, 7906),

Gene: Shivanishola_11 Start: 6886, Stop: 7185, Start Num: 28

Candidate Starts for Shivanishola_11:

(Start: 25 @6877 has 50 MA's), (Start: 28 @6886 has 13 MA's), (32, 6916), (40, 6985), (48, 7042), (49, 7048), (52, 7066), (57, 7114),

Gene: Sitar_12 Start: 7043, Stop: 7351, Start Num: 25

Candidate Starts for Sitar_12:

(12, 6851), (Start: 25 @7043 has 50 MA's), (Start: 28 @7052 has 13 MA's), (40, 7151), (48, 7208), (49, 7214), (52, 7232), (57, 7280),

Gene: StorminNorm_11 Start: 5953, Stop: 6261, Start Num: 25

Candidate Starts for StorminNorm_11:

(5, 5701), (8, 5728), (Start: 25 @5953 has 50 MA's), (Start: 28 @5962 has 13 MA's), (40, 6061), (48, 6118), (49, 6124), (57, 6190),

Gene: Stultus_11 Start: 6867, Stop: 7175, Start Num: 25

Candidate Starts for Stultus_11:

(Start: 25 @6867 has 50 MA's), (Start: 28 @6876 has 13 MA's), (32, 6906), (40, 6975), (48, 7032), (49, 7038), (52, 7056), (57, 7104),

Gene: TP1604_9 Start: 7730, Stop: 8080, Start Num: 27

Candidate Starts for TP1604_9:

(Start: 27 @7730 has 10 MA's), (36, 7790), (45, 7877), (51, 7925), (55, 7940),

Gene: Tangent_9 Start: 5665, Stop: 6003, Start Num: 20

Candidate Starts for Tangent_9:

(Start: 20 @5665 has 2 MA's), (Start: 25 @5695 has 50 MA's), (Start: 28 @5704 has 13 MA's), (40, 5803), (48, 5860), (49, 5866), (52, 5884), (57, 5932),

Gene: Tangerine_11 Start: 5962, Stop: 6270, Start Num: 25

Candidate Starts for Tangerine_11:

(5, 5710), (8, 5737), (Start: 25 @5962 has 50 MA's), (Start: 28 @5971 has 13 MA's), (40, 6070), (48, 6127), (49, 6133), (57, 6199),

Gene: Tardus_13 Start: 5665, Stop: 5982, Start Num: 25

Candidate Starts for Tardus_13:

(Start: 25 @5665 has 50 MA's), (32, 5707), (40, 5776), (49, 5839), (54, 5863), (57, 5905),

Gene: Thing3_12 Start: 6782, Stop: 7090, Start Num: 25

Candidate Starts for Thing3_12:

(Start: 20 @6752 has 2 MA's), (Start: 25 @6782 has 50 MA's), (Start: 28 @6791 has 13 MA's), (40, 6890), (48, 6947), (49, 6953), (52, 6971), (57, 7019),

Gene: Tiamoceli_13 Start: 6287, Stop: 6625, Start Num: 25

Candidate Starts for Tiamoceli_13:

(19, 6251), (Start: 25 @6287 has 50 MA's), (29, 6314), (31, 6320), (34, 6344), (44, 6422), (49, 6488), (57, 6554), (62, 6581),

Gene: Tonitrus_25 Start: 14059, Stop: 14370, Start Num: 25

Candidate Starts for Tonitrus_25:

(Start: 25 @14059 has 50 MA's), (39, 14158),

Gene: TurkishDelight_10 Start: 6065, Stop: 6391, Start Num: 26

Candidate Starts for TurkishDelight_10:

(24, 6050), (Start: 26 @6065 has 1 MA's), (57, 6305), (61, 6317),

Gene: Twonlo_10 Start: 4904, Stop: 5242, Start Num: 25

Candidate Starts for Twonlo_10:

(19, 4868), (Start: 25 @4904 has 50 MA's), (29, 4931), (31, 4937), (34, 4961), (44, 5039), (49, 5105), (57, 5171), (62, 5198),

Gene: Tycho_11 Start: 5971, Stop: 6270, Start Num: 28

Candidate Starts for Tycho_11:

(5, 5710), (8, 5737), (Start: 25 @5962 has 50 MA's), (Start: 28 @5971 has 13 MA's), (40, 6070), (48, 6127), (49, 6133), (57, 6199),

Gene: Verity_13 Start: 6898, Stop: 7215, Start Num: 25

Candidate Starts for Verity_13:

(Start: 25 @6898 has 50 MA's), (30, 6928), (40, 7009), (49, 7072), (52, 7090), (53, 7093), (54, 7096), (57, 7138),

Gene: ViaConlectus_13 Start: 6625, Stop: 6942, Start Num: 25

Candidate Starts for ViaConlectus_13:

(Start: 25 @6625 has 50 MA's), (32, 6667), (40, 6736), (49, 6799), (54, 6823), (57, 6865), (59, 6871),

Gene: Vivi2_10 Start: 5856, Stop: 6164, Start Num: 25

Candidate Starts for Vivi2_10:

(12, 5664), (Start: 25 @5856 has 50 MA's), (Start: 28 @5865 has 13 MA's), (40, 5964), (48, 6021), (49, 6027), (52, 6045), (57, 6093),

Gene: Xkcd426_10 Start: 8759, Stop: 9115, Start Num: 27

Candidate Starts for Xkcd426_10:

(10, 8549), (11, 8552), (22, 8729), (Start: 27 @8759 has 10 MA's), (36, 8819), (37, 8822), (42, 8873), (47, 8918), (51, 8954),

Gene: YDN12_10 Start: 7676, Stop: 8026, Start Num: 27

Candidate Starts for YDN12_10:

(Start: 27 @7676 has 10 MA's), (36, 7736), (41, 7781), (43, 7793), (45, 7823), (51, 7871), (55, 7886), (63, 7955),

Gene: YorkOnyx_11 Start: 5911, Stop: 6219, Start Num: 25

Candidate Starts for YorkOnyx_11:

(5, 5659), (Start: 25 @5911 has 50 MA's), (Start: 28 @5920 has 13 MA's), (40, 6019), (48, 6076), (49, 6082), (57, 6148),

Gene: YungMoney_11 Start: 6205, Stop: 6510, Start Num: 28

Candidate Starts for YungMoney_11:

(1, 5854), (18, 6142), (Start: 28 @6205 has 13 MA's), (48, 6361), (49, 6367),

Gene: Zipp_13 Start: 7043, Stop: 7360, Start Num: 25

Candidate Starts for Zipp_13:

(Start: 25 @7043 has 50 MA's), (30, 7073), (40, 7154), (49, 7217), (52, 7235), (53, 7238), (54, 7241), (57, 7283),

Gene: Zitch_14 Start: 6362, Stop: 6679, Start Num: 25

Candidate Starts for Zitch_14:

(Start: 25 @6362 has 50 MA's), (32, 6404), (40, 6473), (49, 6536), (54, 6560), (57, 6602),