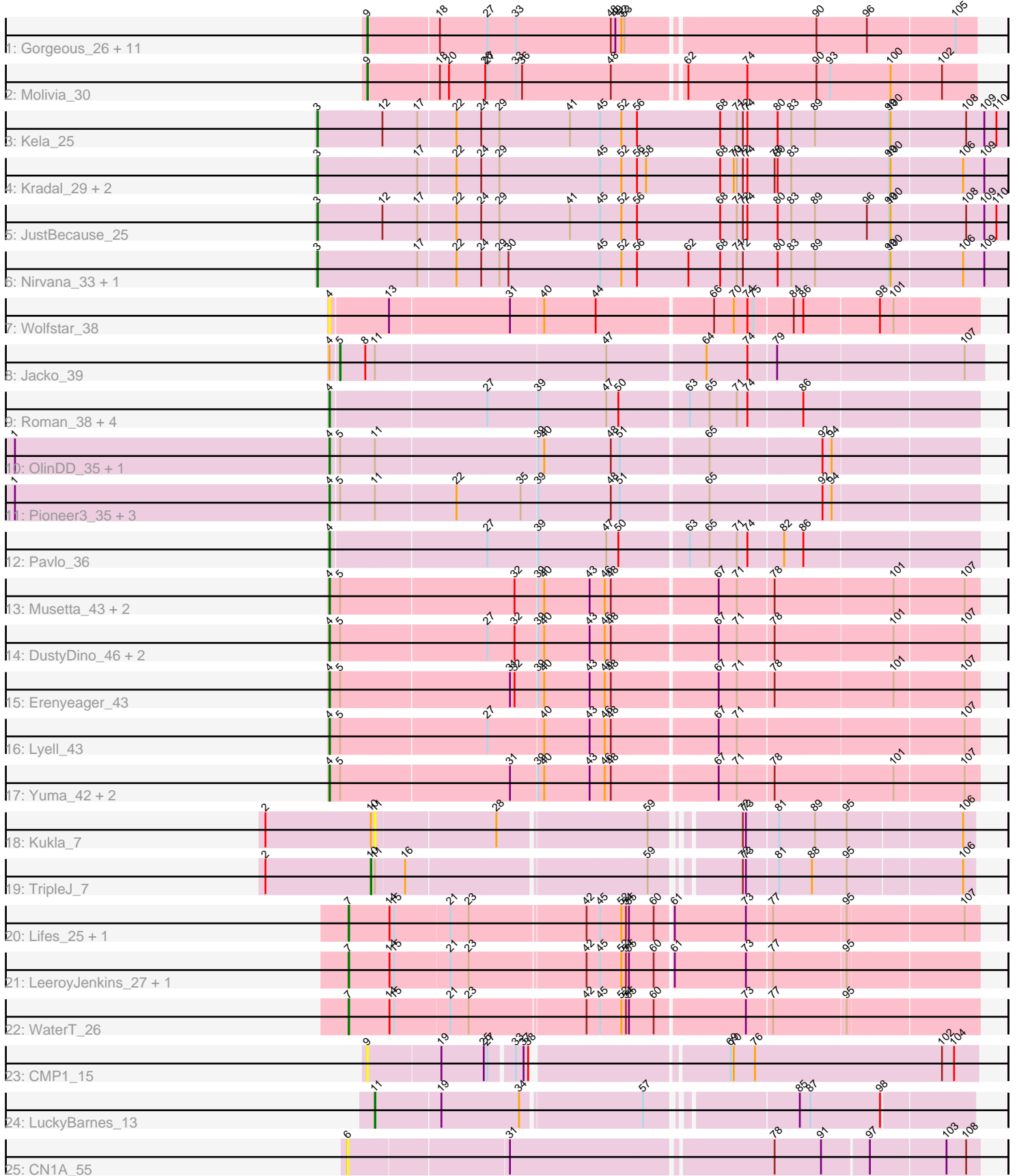


Pham 171500



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 171500 Report

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

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 171500 has 55 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Gorgeous_26, Heylee_25, Thunderclap_26, Ichor_25, Anansi_26, SorJuana_26, Yeezus_25, Jaek_25, Amavida_25, Amigo_26, Boersma_27, Rings_25
- Track 2 : Molivia_30
- Track 3 : Kela_25
- Track 4 : Kradal_29, EhyElimayoE_29, Satis_29
- Track 5 : JustBecause_25
- Track 6 : Nirvana_33, Frankenweenie_34
- Track 7 : Wolfstar_38
- Track 8 : Jacko_39
- Track 9 : Roman_38, Hubbs_38, Lupine_36, PhillyPhilly_37, DejaVu_39
- Track 10 : OlinDD_35, Hortus1_35
- Track 11 : Pioneer3_35, Platte_35, Tandem_35, Alleb_36
- Track 12 : Pavlo_36
- Track 13 : Musetta_43, Welcome_44, StevieWelch_43
- Track 14 : DustyDino_46, RunningBrook_45, ASegato_42
- Track 15 : Erenyeager_43
- Track 16 : Lyell_43
- Track 17 : Yuma_42, Necrophoxinus_45, Fork_39
- Track 18 : Kukla_7
- Track 19 : TripleJ_7
- Track 20 : Lifes_25, BarnCat_24
- Track 21 : LeeroyJenkins_27, Cassita_27
- Track 22 : WaterT_26
- Track 23 : CMP1_15
- Track 24 : LuckyBarnes_13
- Track 25 : CN1A_55

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 21 of the 45 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ASegato_42, Alleb_36, DejaVu_39, DustyDino_46, Erenyeager_43, Fork_39, Hortus1_35, Hubbs_38, Lupine_36, Lyell_43, Musetta_43, Necrophoxinus_45, OlinDD_35, Pavlo_36, PhillyPhilly_37, Pioneer3_35, Platte_35, Roman_38, RunningBrook_45, StevieWelch_43, Tandem_35, Welcome_44, Wolfstar_38, Yuma_42,

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

- Jacko_39,

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

- Amavida_25, Amigo_26, Anansi_26, BarnCat_24, Boersma_27, CMP1_15, CN1A_55, Cassita_27, EhyElimayoE_29, Frankenweenie_34, Gorgeous_26, Heylee_25, Ichor_25, Jaek_25, JustBecause_25, Kela_25, Kradal_29, Kukla_7, LeeroyJenkins_27, Lifes_25, LuckyBarnes_13, Molivia_30, Nirvana_33, Rings_25, Satis_29, SorJuana_26, Thunderclap_26, TripleJ_7, WaterT_26, Yeezus_25,

Summary by start number:

Start 3:

- Found in 7 of 55 (12.7%) of genes in pham
- Manual Annotations of this start: 6 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EhyElimayoE_29 (BM), Frankenweenie_34 (BM), JustBecause_25 (BM), Kela_25 (BM), Kradal_29 (BM), Nirvana_33 (BM), Satis_29 (BM),

Start 4:

- Found in 25 of 55 (45.5%) of genes in pham
- Manual Annotations of this start: 21 of 45
- Called 96.0% of time when present
- Phage (with cluster) where this start called: ASegato_42 (ED2), Alleb_36 (ED1), DejaVu_39 (ED1), DustyDino_46 (ED2), Erenyeager_43 (ED2), Fork_39 (ED2), Hortus1_35 (ED1), Hubbs_38 (ED1), Lupine_36 (ED1), Lyell_43 (ED2), Musetta_43 (ED2), Necrophoxinus_45 (ED2), OlinDD_35 (ED1), Pavlo_36 (ED1), PhillyPhilly_37 (ED1), Pioneer3_35 (ED1), Platte_35 (ED1), Roman_38 (ED1), RunningBrook_45 (ED2), StevieWelch_43 (ED2), Tandem_35 (ED1), Welcome_44 (ED2), Wolfstar_38 (ED), Yuma_42 (ED2),

Start 5:

- Found in 18 of 55 (32.7%) of genes in pham
- Manual Annotations of this start: 1 of 45
- Called 5.6% of time when present
- Phage (with cluster) where this start called: Jacko_39 (ED1),

Start 6:

- 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: CN1A_55 (singleton),

Start 7:

- Found in 5 of 55 (9.1%) of genes in pham
- Manual Annotations of this start: 4 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BarnCat_24 (GB), Cassita_27 (GB), LeeroyJenkins_27 (GB), Lifes_25 (GB), WaterT_26 (GB),

Start 9:

- Found in 14 of 55 (25.5%) of genes in pham
- Manual Annotations of this start: 11 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amavida_25 (AQ), Amigo_26 (AQ), Anansi_26 (AQ), Boersma_27 (AQ), CMP1_15 (singleton), Gorgeous_26 (AQ), Heylee_25 (AQ), Ichor_25 (AQ), Jaek_25 (AQ), Molivia_30 (AQ), Rings_25 (AQ), SorJuana_26 (AQ), Thunderclap_26 (AQ), Yeezus_25 (AQ),

Start 10:

- Found in 2 of 55 (3.6%) of genes in pham
- Manual Annotations of this start: 1 of 45
- Called 50.0% of time when present
- Phage (with cluster) where this start called: TripleJ_7 (FJ),

Start 11:

- Found in 10 of 55 (18.2%) of genes in pham
- Manual Annotations of this start: 1 of 45
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Kukla_7 (FJ), LuckyBarnes_13 (singleton),

Summary by clusters:

There are 8 clusters represented in this pham: ED2, singleton, BM, AQ, ED1, GB, ED, FJ,

Info for manual annotations of cluster AQ:

- Start number 9 was manually annotated 11 times for cluster AQ.

Info for manual annotations of cluster BM:

- Start number 3 was manually annotated 6 times for cluster BM.

Info for manual annotations of cluster ED1:

- Start number 4 was manually annotated 12 times for cluster ED1.
- Start number 5 was manually annotated 1 time for cluster ED1.

Info for manual annotations of cluster ED2:

- Start number 4 was manually annotated 9 times for cluster ED2.

Info for manual annotations of cluster FJ:

- Start number 10 was manually annotated 1 time for cluster FJ.

Info for manual annotations of cluster GB:

- Start number 7 was manually annotated 4 times for cluster GB.

Gene Information:

Gene: ASegato_42 Start: 17649, Stop: 18851, Start Num: 4

Candidate Starts for ASegato_42:

(Start: 4 @17649 has 21 MA's), (Start: 5 @17670 has 1 MA's), (27, 17949), (32, 18003), (39, 18042), (40, 18054), (43, 18144), (46, 18171), (48, 18183), (67, 18375), (71, 18408), (78, 18477), (101, 18699), (107, 18822),

Gene: Alleb_36 Start: 16180, Stop: 17376, Start Num: 4

Candidate Starts for Alleb_36:

(1, 15556), (Start: 4 @16180 has 21 MA's), (Start: 5 @16195 has 1 MA's), (Start: 11 @16261 has 1 MA's), (22, 16414), (35, 16540), (39, 16567), (48, 16708), (51, 16726), (65, 16882), (92, 17089), (94, 17107),

Gene: Amavida_25 Start: 13431, Stop: 14549, Start Num: 9

Candidate Starts for Amavida_25:

(Start: 9 @13431 has 11 MA's), (18, 13563), (27, 13656), (33, 13707), (48, 13887), (49, 13896), (52, 13908), (53, 13914), (90, 14253), (96, 14352), (105, 14508),

Gene: Amigo_26 Start: 13305, Stop: 14423, Start Num: 9

Candidate Starts for Amigo_26:

(Start: 9 @13305 has 11 MA's), (18, 13437), (27, 13530), (33, 13581), (48, 13761), (49, 13770), (52, 13782), (53, 13788), (90, 14127), (96, 14226), (105, 14382),

Gene: Anansi_26 Start: 13314, Stop: 14432, Start Num: 9

Candidate Starts for Anansi_26:

(Start: 9 @13314 has 11 MA's), (18, 13446), (27, 13539), (33, 13590), (48, 13770), (49, 13779), (52, 13791), (53, 13797), (90, 14136), (96, 14235), (105, 14391),

Gene: BarnCat_24 Start: 11005, Stop: 12165, Start Num: 7

Candidate Starts for BarnCat_24:

(Start: 7 @11005 has 4 MA's), (14, 11080), (15, 11089), (21, 11194), (23, 11230), (42, 11449), (45, 11473), (52, 11515), (54, 11524), (55, 11530), (60, 11575), (61, 11605), (73, 11740), (77, 11788), (95, 11923), (107, 12139),

Gene: Boersma_27 Start: 13305, Stop: 14423, Start Num: 9

Candidate Starts for Boersma_27:

(Start: 9 @13305 has 11 MA's), (18, 13437), (27, 13530), (33, 13581), (48, 13761), (49, 13770), (52, 13782), (53, 13788), (90, 14127), (96, 14226), (105, 14382),

Gene: CMP1_15 Start: 11818, Stop: 12942, Start Num: 9

Candidate Starts for CMP1_15:

(Start: 9 @11818 has 11 MA's), (19, 11953), (25, 12037), (27, 12043), (33, 12088), (37, 12103), (38, 12112), (69, 12463), (70, 12469), (76, 12511), (102, 12871), (104, 12895),

Gene: CN1A_55 Start: 44148, Stop: 43006, Start Num: 6

Candidate Starts for CN1A_55:

(6, 44148), (31, 43854), (78, 43374), (91, 43287), (97, 43203), (103, 43071), (108, 43032),

Gene: Cassita_27 Start: 11566, Stop: 12726, Start Num: 7

Candidate Starts for Cassita_27:

(Start: 7 @11566 has 4 MA's), (14, 11641), (15, 11650), (21, 11755), (23, 11791), (42, 12010), (45, 12034), (52, 12076), (54, 12085), (55, 12091), (60, 12136), (61, 12166), (73, 12301), (77, 12349), (95, 12484),

Gene: DejaVu_39 Start: 16957, Stop: 18153, Start Num: 4

Candidate Starts for DejaVu_39:

(Start: 4 @16957 has 21 MA's), (27, 17251), (39, 17344), (47, 17476), (50, 17500), (63, 17623), (65, 17659), (71, 17710), (74, 17731), (86, 17830),

Gene: DustyDino_46 Start: 18588, Stop: 19790, Start Num: 4

Candidate Starts for DustyDino_46:

(Start: 4 @18588 has 21 MA's), (Start: 5 @18609 has 1 MA's), (27, 18888), (32, 18942), (39, 18981), (40, 18993), (43, 19083), (46, 19110), (48, 19122), (67, 19314), (71, 19347), (78, 19416), (101, 19638), (107, 19761),

Gene: EhyElimayoE_29 Start: 16910, Stop: 18223, Start Num: 3

Candidate Starts for EhyElimayoE_29:

(Start: 3 @16910 has 6 MA's), (17, 17099), (22, 17171), (24, 17219), (29, 17255), (45, 17447), (52, 17489), (56, 17519), (58, 17534), (68, 17678), (70, 17702), (71, 17708), (72, 17720), (74, 17729), (78, 17783), (80, 17789), (83, 17816), (99, 18005), (100, 18008), (106, 18134), (109, 18176),

Gene: Erenyeager_43 Start: 17983, Stop: 19185, Start Num: 4

Candidate Starts for Erenyeager_43:

(Start: 4 @17983 has 21 MA's), (Start: 5 @18004 has 1 MA's), (31, 18328), (32, 18337), (39, 18376), (40, 18388), (43, 18478), (46, 18505), (48, 18517), (67, 18709), (71, 18742), (78, 18811), (101, 19033), (107, 19156),

Gene: Fork_39 Start: 17298, Stop: 18500, Start Num: 4

Candidate Starts for Fork_39:

(Start: 4 @17298 has 21 MA's), (Start: 5 @17319 has 1 MA's), (31, 17643), (39, 17691), (40, 17703), (43, 17793), (46, 17820), (48, 17832), (67, 18024), (71, 18057), (78, 18126), (101, 18348), (107, 18471),

Gene: Frankenweenie_34 Start: 18797, Stop: 20110, Start Num: 3

Candidate Starts for Frankenweenie_34:

(Start: 3 @18797 has 6 MA's), (17, 18986), (22, 19058), (24, 19106), (29, 19142), (30, 19160), (45, 19334), (52, 19376), (56, 19406), (62, 19505), (68, 19565), (71, 19595), (72, 19607), (80, 19676), (83, 19703), (89, 19748), (99, 19892), (100, 19895), (106, 20021), (109, 20063),

Gene: Gorgeous_26 Start: 13314, Stop: 14432, Start Num: 9

Candidate Starts for Gorgeous_26:

(Start: 9 @13314 has 11 MA's), (18, 13446), (27, 13539), (33, 13590), (48, 13770), (49, 13779), (52, 13791), (53, 13797), (90, 14136), (96, 14235), (105, 14391),

Gene: Heylee_25 Start: 13431, Stop: 14549, Start Num: 9

Candidate Starts for Heylee_25:

(Start: 9 @13431 has 11 MA's), (18, 13563), (27, 13656), (33, 13707), (48, 13887), (49, 13896), (52, 13908), (53, 13914), (90, 14253), (96, 14352), (105, 14508),

Gene: Hortus1_35 Start: 16194, Stop: 17390, Start Num: 4

Candidate Starts for Hortus1_35:

(1, 15570), (Start: 4 @16194 has 21 MA's), (Start: 5 @16209 has 1 MA's), (Start: 11 @16275 has 1 MA's), (39, 16581), (40, 16593), (48, 16722), (51, 16740), (65, 16896), (92, 17103), (94, 17121),

Gene: Hubbs_38 Start: 17169, Stop: 18365, Start Num: 4

Candidate Starts for Hubbs_38:

(Start: 4 @17169 has 21 MA's), (27, 17463), (39, 17556), (47, 17688), (50, 17712), (63, 17835), (65, 17871), (71, 17922), (74, 17943), (86, 18042),

Gene: Ichor_25 Start: 13305, Stop: 14423, Start Num: 9

Candidate Starts for Ichor_25:

(Start: 9 @13305 has 11 MA's), (18, 13437), (27, 13530), (33, 13581), (48, 13761), (49, 13770), (52, 13782), (53, 13788), (90, 14127), (96, 14226), (105, 14382),

Gene: Jacko_39 Start: 16674, Stop: 17861, Start Num: 5

Candidate Starts for Jacko_39:

(Start: 4 @16659 has 21 MA's), (Start: 5 @16674 has 1 MA's), (8, 16722), (Start: 11 @16740 has 1 MA's), (47, 17178), (64, 17355), (74, 17433), (79, 17481), (107, 17823),

Gene: Jaek_25 Start: 13305, Stop: 14423, Start Num: 9

Candidate Starts for Jaek_25:

(Start: 9 @13305 has 11 MA's), (18, 13437), (27, 13530), (33, 13581), (48, 13761), (49, 13770), (52, 13782), (53, 13788), (90, 14127), (96, 14226), (105, 14382),

Gene: JustBecause_25 Start: 15649, Stop: 16962, Start Num: 3

Candidate Starts for JustBecause_25:

(Start: 3 @15649 has 6 MA's), (12, 15775), (17, 15838), (22, 15910), (24, 15958), (29, 15994), (41, 16129), (45, 16186), (52, 16228), (56, 16258), (68, 16417), (71, 16447), (72, 16459), (74, 16468), (80, 16528), (83, 16555), (89, 16600), (96, 16702), (99, 16744), (100, 16747), (108, 16879), (109, 16915), (110, 16939),

Gene: Kela_25 Start: 15640, Stop: 16953, Start Num: 3

Candidate Starts for Kela_25:

(Start: 3 @15640 has 6 MA's), (12, 15766), (17, 15829), (22, 15901), (24, 15949), (29, 15985), (41, 16120), (45, 16177), (52, 16219), (56, 16249), (68, 16408), (71, 16438), (72, 16450), (74, 16459), (80, 16519), (83, 16546), (89, 16591), (99, 16735), (100, 16738), (108, 16870), (109, 16906), (110, 16930),

Gene: Kradal_29 Start: 16910, Stop: 18223, Start Num: 3

Candidate Starts for Kradal_29:

(Start: 3 @16910 has 6 MA's), (17, 17099), (22, 17171), (24, 17219), (29, 17255), (45, 17447), (52, 17489), (56, 17519), (58, 17534), (68, 17678), (70, 17702), (71, 17708), (72, 17720), (74, 17729), (78, 17783), (80, 17789), (83, 17816), (99, 18005), (100, 18008), (106, 18134), (109, 18176),

Gene: Kukla_7 Start: 5627, Stop: 6694, Start Num: 11

Candidate Starts for Kukla_7:

(2, 5414), (Start: 10 @5621 has 1 MA's), (Start: 11 @5627 has 1 MA's), (28, 5849), (59, 6122), (72, 6266), (73, 6272), (81, 6332), (89, 6401), (95, 6464), (106, 6671),

Gene: LeeroyJenkins_27 Start: 11484, Stop: 12644, Start Num: 7

Candidate Starts for LeeroyJenkins_27:

(Start: 7 @11484 has 4 MA's), (14, 11559), (15, 11568), (21, 11673), (23, 11709), (42, 11928), (45, 11952), (52, 11994), (54, 12003), (55, 12009), (60, 12054), (61, 12084), (73, 12219), (77, 12267), (95, 12402),

Gene: Lifes_25 Start: 11036, Stop: 12196, Start Num: 7

Candidate Starts for Lifes_25:

(Start: 7 @11036 has 4 MA's), (14, 11111), (15, 11120), (21, 11225), (23, 11261), (42, 11480), (45, 11504), (52, 11546), (54, 11555), (55, 11561), (60, 11606), (61, 11636), (73, 11771), (77, 11819), (95, 11954), (107, 12170),

Gene: LuckyBarnes_13 Start: 8441, Stop: 9514, Start Num: 11

Candidate Starts for LuckyBarnes_13:

(Start: 11 @8441 has 1 MA's), (19, 8564), (34, 8717), (57, 8936), (85, 9194), (87, 9215), (98, 9350),

Gene: Lupine_36 Start: 16370, Stop: 17566, Start Num: 4

Candidate Starts for Lupine_36:

(Start: 4 @16370 has 21 MA's), (27, 16664), (39, 16757), (47, 16889), (50, 16913), (63, 17036), (65, 17072), (71, 17123), (74, 17144), (86, 17243),

Gene: Lyell_43 Start: 17906, Stop: 19108, Start Num: 4

Candidate Starts for Lyell_43:

(Start: 4 @17906 has 21 MA's), (Start: 5 @17927 has 1 MA's), (27, 18206), (40, 18311), (43, 18401), (46, 18428), (48, 18440), (67, 18632), (71, 18665), (107, 19079),

Gene: Molivia_30 Start: 13594, Stop: 14709, Start Num: 9

Candidate Starts for Molivia_30:

(Start: 9 @13594 has 11 MA's), (18, 13726), (20, 13744), (26, 13816), (27, 13819), (33, 13870), (36, 13882), (48, 14050), (62, 14176), (74, 14284), (90, 14416), (93, 14443), (100, 14560), (102, 14644),

Gene: Musetta_43 Start: 18017, Stop: 19219, Start Num: 4

Candidate Starts for Musetta_43:

(Start: 4 @18017 has 21 MA's), (Start: 5 @18038 has 1 MA's), (32, 18371), (39, 18410), (40, 18422), (43, 18512), (46, 18539), (48, 18551), (67, 18743), (71, 18776), (78, 18845), (101, 19067), (107, 19190),

Gene: Necrophoxinus_45 Start: 18596, Stop: 19798, Start Num: 4

Candidate Starts for Necrophoxinus_45:

(Start: 4 @18596 has 21 MA's), (Start: 5 @18617 has 1 MA's), (31, 18941), (39, 18989), (40, 19001), (43, 19091), (46, 19118), (48, 19130), (67, 19322), (71, 19355), (78, 19424), (101, 19646), (107, 19769),

Gene: Nirvana_33 Start: 18994, Stop: 20307, Start Num: 3

Candidate Starts for Nirvana_33:

(Start: 3 @18994 has 6 MA's), (17, 19183), (22, 19255), (24, 19303), (29, 19339), (30, 19357), (45, 19531), (52, 19573), (56, 19603), (62, 19702), (68, 19762), (71, 19792), (72, 19804), (80, 19873), (83, 19900), (89, 19945), (99, 20089), (100, 20092), (106, 20218), (109, 20260),

Gene: OlinDD_35 Start: 16193, Stop: 17389, Start Num: 4

Candidate Starts for OlinDD_35:

(1, 15569), (Start: 4 @16193 has 21 MA's), (Start: 5 @16208 has 1 MA's), (Start: 11 @16274 has 1 MA's), (39, 16580), (40, 16592), (48, 16721), (51, 16739), (65, 16895), (92, 17102), (94, 17120),

Gene: Pavlo_36 Start: 16645, Stop: 17844, Start Num: 4

Candidate Starts for Pavlo_36:

(Start: 4 @16645 has 21 MA's), (27, 16939), (39, 17032), (47, 17164), (50, 17188), (63, 17311), (65, 17347), (71, 17398), (74, 17419), (82, 17485), (86, 17521),

Gene: PhillyPhilly_37 Start: 16550, Stop: 17746, Start Num: 4

Candidate Starts for PhillyPhilly_37:

(Start: 4 @16550 has 21 MA's), (27, 16844), (39, 16937), (47, 17069), (50, 17093), (63, 17216), (65, 17252), (71, 17303), (74, 17324), (86, 17423),

Gene: Pioneer3_35 Start: 16177, Stop: 17373, Start Num: 4

Candidate Starts for Pioneer3_35:

(1, 15553), (Start: 4 @16177 has 21 MA's), (Start: 5 @16192 has 1 MA's), (Start: 11 @16258 has 1 MA's), (22, 16411), (35, 16537), (39, 16564), (48, 16705), (51, 16723), (65, 16879), (92, 17086), (94, 17104),

Gene: Platte_35 Start: 15962, Stop: 17158, Start Num: 4

Candidate Starts for Platte_35:

(1, 15338), (Start: 4 @15962 has 21 MA's), (Start: 5 @15977 has 1 MA's), (Start: 11 @16043 has 1 MA's), (22, 16196), (35, 16322), (39, 16349), (48, 16490), (51, 16508), (65, 16664), (92, 16871), (94, 16889),

Gene: Rings_25 Start: 13436, Stop: 14554, Start Num: 9

Candidate Starts for Rings_25:

(Start: 9 @13436 has 11 MA's), (18, 13568), (27, 13661), (33, 13712), (48, 13892), (49, 13901), (52, 13913), (53, 13919), (90, 14258), (96, 14357), (105, 14513),

Gene: Roman_38 Start: 17016, Stop: 18212, Start Num: 4

Candidate Starts for Roman_38:

(Start: 4 @17016 has 21 MA's), (27, 17310), (39, 17403), (47, 17535), (50, 17559), (63, 17682), (65, 17718), (71, 17769), (74, 17790), (86, 17889),

Gene: RunningBrook_45 Start: 18588, Stop: 19790, Start Num: 4

Candidate Starts for RunningBrook_45:

(Start: 4 @18588 has 21 MA's), (Start: 5 @18609 has 1 MA's), (27, 18888), (32, 18942), (39, 18981), (40, 18993), (43, 19083), (46, 19110), (48, 19122), (67, 19314), (71, 19347), (78, 19416), (101, 19638), (107, 19761),

Gene: Satis_29 Start: 16906, Stop: 18219, Start Num: 3

Candidate Starts for Satis_29:

(Start: 3 @16906 has 6 MA's), (17, 17095), (22, 17167), (24, 17215), (29, 17251), (45, 17443), (52, 17485), (56, 17515), (58, 17530), (68, 17674), (70, 17698), (71, 17704), (72, 17716), (74, 17725), (78, 17779), (80, 17785), (83, 17812), (99, 18001), (100, 18004), (106, 18130), (109, 18172),

Gene: SorJuana_26 Start: 13314, Stop: 14432, Start Num: 9

Candidate Starts for SorJuana_26:

(Start: 9 @13314 has 11 MA's), (18, 13446), (27, 13539), (33, 13590), (48, 13770), (49, 13779), (52, 13791), (53, 13797), (90, 14136), (96, 14235), (105, 14391),

Gene: StevieWelch_43 Start: 17988, Stop: 19190, Start Num: 4

Candidate Starts for StevieWelch_43:

(Start: 4 @17988 has 21 MA's), (Start: 5 @18009 has 1 MA's), (32, 18342), (39, 18381), (40, 18393), (43, 18483), (46, 18510), (48, 18522), (67, 18714), (71, 18747), (78, 18816), (101, 19038), (107, 19161),

Gene: Tandem_35 Start: 16116, Stop: 17312, Start Num: 4

Candidate Starts for Tandem_35:

(1, 15492), (Start: 4 @16116 has 21 MA's), (Start: 5 @16131 has 1 MA's), (Start: 11 @16197 has 1 MA's), (22, 16350), (35, 16476), (39, 16503), (48, 16644), (51, 16662), (65, 16818), (92, 17025), (94, 17043),

Gene: Thunderclap_26 Start: 13334, Stop: 14452, Start Num: 9

Candidate Starts for Thunderclap_26:

(Start: 9 @13334 has 11 MA's), (18, 13466), (27, 13559), (33, 13610), (48, 13790), (49, 13799), (52, 13811), (53, 13817), (90, 14156), (96, 14255), (105, 14411),

Gene: TripleJ_7 Start: 5910, Stop: 6983, Start Num: 10

Candidate Starts for TripleJ_7:

(2, 5703), (Start: 10 @5910 has 1 MA's), (Start: 11 @5916 has 1 MA's), (16, 5970), (59, 6411), (72, 6555), (73, 6561), (81, 6621), (88, 6684), (95, 6753), (106, 6960),

Gene: WaterT_26 Start: 11310, Stop: 12470, Start Num: 7

Candidate Starts for WaterT_26:

(Start: 7 @11310 has 4 MA's), (14, 11385), (15, 11394), (21, 11499), (23, 11535), (42, 11754), (45, 11778), (52, 11820), (54, 11829), (55, 11835), (60, 11880), (73, 12045), (77, 12093), (95, 12228),

Gene: Welcome_44 Start: 18005, Stop: 19207, Start Num: 4

Candidate Starts for Welcome_44:

(Start: 4 @18005 has 21 MA's), (Start: 5 @18026 has 1 MA's), (32, 18359), (39, 18398), (40, 18410), (43, 18500), (46, 18527), (48, 18539), (67, 18731), (71, 18764), (78, 18833), (101, 19055), (107, 19178),

Gene: Wolfstar_38 Start: 16952, Stop: 18148, Start Num: 4

Candidate Starts for Wolfstar_38:

(Start: 4 @16952 has 21 MA's), (13, 17060), (31, 17291), (40, 17351), (44, 17453), (66, 17663), (70, 17699), (74, 17726), (75, 17738), (84, 17810), (86, 17828), (98, 17972), (101, 17999),

Gene: Yeezus_25 Start: 13304, Stop: 14422, Start Num: 9

Candidate Starts for Yeezus_25:

(Start: 9 @13304 has 11 MA's), (18, 13436), (27, 13529), (33, 13580), (48, 13760), (49, 13769), (52, 13781), (53, 13787), (90, 14126), (96, 14225), (105, 14381),

Gene: Yuma_42 Start: 17916, Stop: 19118, Start Num: 4

Candidate Starts for Yuma_42:

(Start: 4 @17916 has 21 MA's), (Start: 5 @17937 has 1 MA's), (31, 18261), (39, 18309), (40, 18321), (43, 18411), (46, 18438), (48, 18450), (67, 18642), (71, 18675), (78, 18744), (101, 18966), (107, 19089),