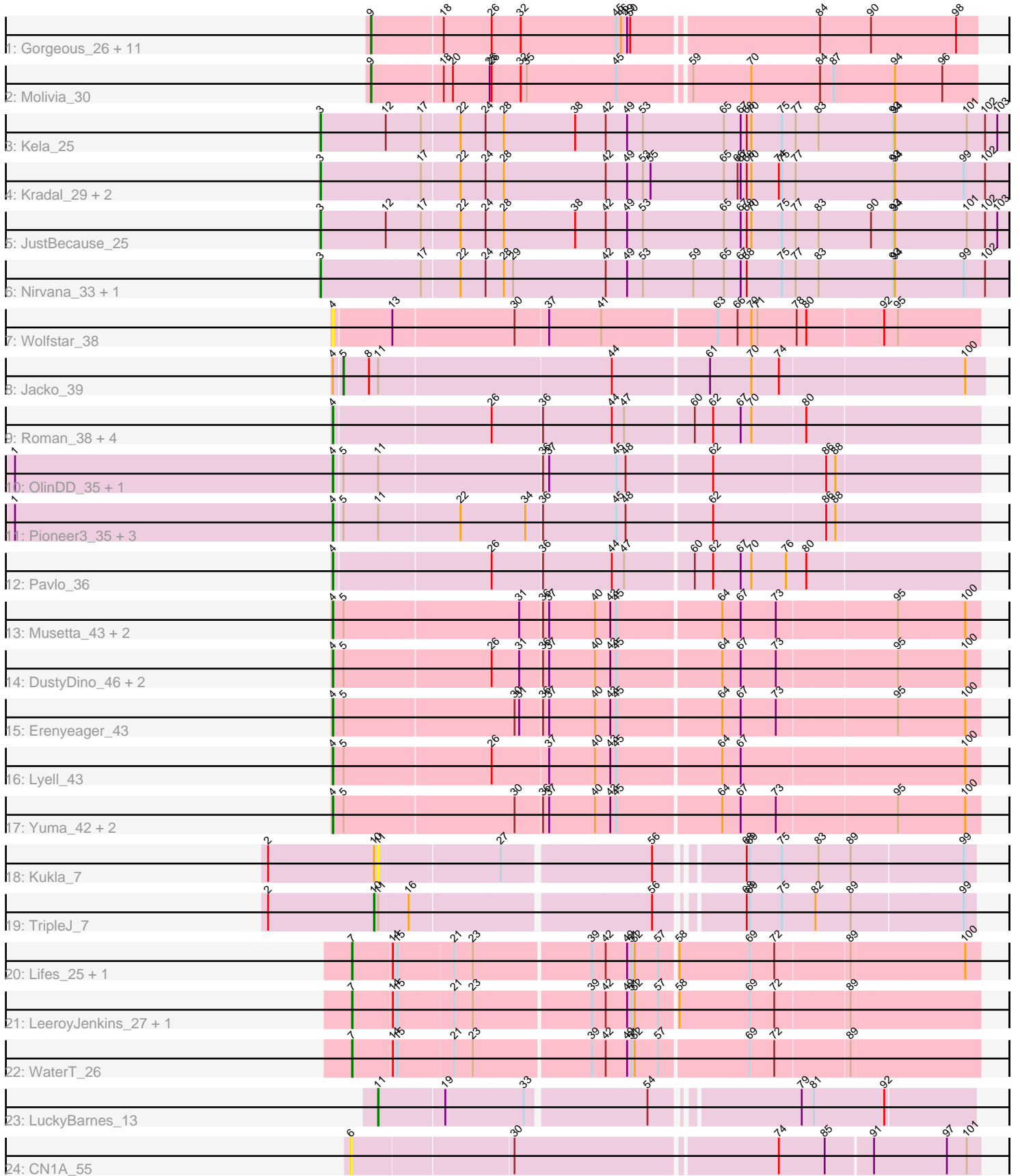


# Pham 163025



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 163025 Report

This analysis was run 04/28/24 on database version 559.

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 163025 has 54 members, 9 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 : LuckyBarnes\_13
- Track 24 : 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, 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 54 ( 13.0% ) 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 54 ( 46.3% ) 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 54 ( 33.3% ) 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 54 ( 1.9% ) 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 54 ( 9.3% ) 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 13 of 54 ( 24.1% ) 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), 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 54 ( 3.7% ) 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 54 ( 18.5% ) 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), (26, 17949), (31, 18003), (36, 18042), (37, 18054), (40, 18144), (43, 18171), (45, 18183), (64, 18375), (67, 18408), (73, 18477), (95, 18699), (100, 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), (34, 16540), (36, 16567), (45, 16708), (48, 16726), (62, 16882), (86, 17089), (88, 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), (26, 13656), (32, 13707), (45, 13887), (46, 13896), (49, 13908), (50, 13914), (84, 14253), (90, 14352), (98, 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), (26, 13530), (32, 13581), (45, 13761), (46, 13770), (49, 13782), (50, 13788), (84, 14127), (90, 14226), (98, 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), (26, 13539), (32, 13590), (45, 13770), (46, 13779), (49, 13791), (50, 13797), (84, 14136), (90, 14235), (98, 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), (39, 11449), (42, 11473), (49, 11515), (51, 11524), (52, 11530), (57, 11575), (58, 11605), (69, 11740), (72, 11788), (89, 11923), (100, 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), (26, 13530), (32, 13581), (45, 13761), (46, 13770), (49, 13782), (50, 13788), (84, 14127), (90, 14226), (98, 14382),

Gene: CN1A\_55 Start: 44148, Stop: 43006, Start Num: 6

Candidate Starts for CN1A\_55:

(6, 44148), (30, 43854), (74, 43374), (85, 43287), (91, 43203), (97, 43071), (101, 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), (39, 12010), (42, 12034), (49, 12076), (51, 12085), (52, 12091), (57, 12136), (58, 12166), (69, 12301), (72, 12349), (89, 12484),

Gene: DejaVu\_39 Start: 16957, Stop: 18153, Start Num: 4

Candidate Starts for DejaVu\_39:

(Start: 4 @16957 has 21 MA's), (26, 17251), (36, 17344), (44, 17476), (47, 17500), (60, 17623), (62, 17659), (67, 17710), (70, 17731), (80, 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), (26, 18888), (31, 18942), (36, 18981), (37, 18993), (40, 19083), (43, 19110), (45, 19122), (64, 19314), (67, 19347), (73, 19416), (95, 19638), (100, 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), (28, 17255), (42, 17447), (49, 17489), (53, 17519), (55, 17534), (65, 17678), (66, 17702), (67, 17708), (68, 17720), (70, 17729), (74, 17783), (75, 17789), (77, 17816), (93, 18005), (94, 18008), (99, 18134), (102, 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), (30, 18328), (31, 18337), (36, 18376), (37, 18388), (40, 18478), (43, 18505), (45, 18517), (64, 18709), (67, 18742), (73, 18811), (95, 19033), (100, 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), (30, 17643), (36, 17691), (37, 17703), (40, 17793), (43, 17820), (45, 17832), (64, 18024), (67, 18057), (73, 18126), (95, 18348), (100, 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), (28, 19142), (29, 19160), (42, 19334), (49, 19376), (53, 19406), (59, 19505), (65, 19565), (67, 19595), (68, 19607), (75, 19676), (77, 19703), (83, 19748), (93, 19892), (94, 19895), (99, 20021), (102, 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), (26, 13539), (32, 13590), (45, 13770), (46, 13779), (49, 13791), (50, 13797), (84, 14136), (90, 14235), (98, 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), (26, 13656), (32, 13707), (45, 13887), (46, 13896), (49, 13908), (50, 13914), (84, 14253), (90, 14352), (98, 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), (36, 16581), (37, 16593), (45, 16722), (48, 16740), (62, 16896), (86, 17103), (88, 17121),

Gene: Hubbs\_38 Start: 17169, Stop: 18365, Start Num: 4

Candidate Starts for Hubbs\_38:

(Start: 4 @17169 has 21 MA's), (26, 17463), (36, 17556), (44, 17688), (47, 17712), (60, 17835), (62, 17871), (67, 17922), (70, 17943), (80, 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), (26, 13530), (32, 13581), (45, 13761), (46, 13770), (49, 13782), (50, 13788), (84, 14127), (90, 14226), (98, 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), (44, 17178), (61, 17355), (70, 17433), (74, 17481), (100, 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), (26, 13530), (32, 13581), (45, 13761), (46, 13770), (49, 13782), (50, 13788), (84, 14127), (90, 14226), (98, 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), (28, 15994), (38, 16129), (42, 16186), (49, 16228), (53, 16258), (65, 16417), (67, 16447), (68, 16459), (70, 16468), (75, 16528), (77, 16555), (83, 16600), (90, 16702), (93, 16744), (94, 16747), (101, 16879), (102, 16915), (103, 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), (28, 15985), (38, 16120), (42, 16177), (49, 16219), (53, 16249), (65, 16408), (67, 16438), (68, 16450), (70, 16459), (75, 16519), (77, 16546), (83, 16591), (93, 16735), (94, 16738), (101, 16870), (102, 16906), (103, 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), (28, 17255), (42, 17447), (49, 17489), (53, 17519), (55, 17534), (65, 17678), (66, 17702), (67, 17708), (68, 17720), (70, 17729), (74, 17783), (75, 17789), (77, 17816), (93, 18005), (94, 18008), (99, 18134), (102, 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), (27, 5849), (56, 6122), (68, 6266), (69, 6272), (75, 6332), (83, 6401), (89, 6464), (99, 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), (39, 11928), (42, 11952), (49, 11994), (51, 12003), (52, 12009), (57, 12054), (58, 12084), (69, 12219), (72, 12267), (89, 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), (39, 11480), (42, 11504), (49, 11546), (51, 11555), (52, 11561), (57, 11606), (58, 11636), (69, 11771), (72, 11819), (89, 11954), (100, 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), (33, 8717), (54, 8936), (79, 9194), (81, 9215), (92, 9350),

Gene: Lupine\_36 Start: 16370, Stop: 17566, Start Num: 4

Candidate Starts for Lupine\_36:

(Start: 4 @16370 has 21 MA's), (26, 16664), (36, 16757), (44, 16889), (47, 16913), (60, 17036), (62, 17072), (67, 17123), (70, 17144), (80, 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), (26, 18206), (37, 18311), (40, 18401), (43, 18428), (45, 18440), (64, 18632), (67, 18665), (100, 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), (25, 13816), (26, 13819), (32, 13870), (35, 13882), (45, 14050), (59, 14176), (70, 14284), (84, 14416), (87, 14443), (94, 14560), (96, 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), (31, 18371), (36, 18410), (37, 18422), (40, 18512), (43, 18539), (45, 18551), (64, 18743), (67, 18776), (73, 18845), (95, 19067), (100, 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), (30, 18941), (36, 18989), (37, 19001), (40, 19091), (43, 19118), (45, 19130), (64, 19322), (67, 19355), (73, 19424), (95, 19646), (100, 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), (28, 19339), (29, 19357), (42, 19531), (49, 19573), (53, 19603), (59, 19702), (65, 19762), (67, 19792), (68, 19804), (75, 19873), (77, 19900), (83, 19945), (93, 20089), (94, 20092), (99, 20218), (102, 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), (36, 16580), (37, 16592), (45, 16721), (48, 16739), (62, 16895), (86, 17102), (88, 17120),

Gene: Pavlo\_36 Start: 16645, Stop: 17844, Start Num: 4

Candidate Starts for Pavlo\_36:

(Start: 4 @16645 has 21 MA's), (26, 16939), (36, 17032), (44, 17164), (47, 17188), (60, 17311), (62, 17347), (67, 17398), (70, 17419), (76, 17485), (80, 17521),

Gene: PhillyPhilly\_37 Start: 16550, Stop: 17746, Start Num: 4

Candidate Starts for PhillyPhilly\_37:

(Start: 4 @16550 has 21 MA's), (26, 16844), (36, 16937), (44, 17069), (47, 17093), (60, 17216), (62, 17252), (67, 17303), (70, 17324), (80, 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), (34, 16537), (36, 16564), (45, 16705), (48, 16723), (62, 16879), (86, 17086), (88, 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), (34, 16322), (36, 16349), (45, 16490), (48, 16508), (62, 16664), (86, 16871), (88, 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), (26, 13661), (32, 13712), (45, 13892), (46, 13901), (49, 13913), (50, 13919), (84, 14258), (90, 14357), (98, 14513),

Gene: Roman\_38 Start: 17016, Stop: 18212, Start Num: 4

Candidate Starts for Roman\_38:

(Start: 4 @17016 has 21 MA's), (26, 17310), (36, 17403), (44, 17535), (47, 17559), (60, 17682), (62, 17718), (67, 17769), (70, 17790), (80, 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), (26, 18888), (31, 18942), (36, 18981), (37, 18993), (40, 19083), (43, 19110), (45, 19122), (64, 19314), (67, 19347), (73, 19416), (95, 19638), (100, 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), (28, 17251), (42, 17443), (49, 17485), (53, 17515), (55, 17530), (65, 17674), (66, 17698), (67, 17704), (68, 17716), (70, 17725), (74, 17779), (75, 17785), (77, 17812), (93, 18001), (94, 18004), (99, 18130), (102, 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), (26, 13539), (32, 13590), (45, 13770), (46, 13779), (49, 13791), (50, 13797), (84, 14136), (90, 14235), (98, 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), (31, 18342), (36, 18381), (37, 18393), (40, 18483), (43, 18510), (45, 18522), (64, 18714), (67, 18747), (73, 18816), (95, 19038), (100, 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), (34, 16476), (36, 16503), (45, 16644), (48, 16662), (62, 16818), (86, 17025), (88, 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), (26, 13559), (32, 13610), (45, 13790), (46, 13799), (49, 13811), (50, 13817), (84, 14156), (90, 14255), (98, 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), (56, 6411), (68, 6555), (69, 6561), (75, 6621), (82, 6684), (89, 6753), (99, 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), (39, 11754), (42, 11778), (49, 11820), (51, 11829), (52, 11835), (57, 11880), (69, 12045), (72, 12093), (89, 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), (31, 18359), (36, 18398), (37, 18410), (40, 18500), (43, 18527), (45, 18539), (64, 18731), (67, 18764), (73, 18833), (95, 19055), (100, 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), (30, 17291), (37, 17351), (41, 17453), (63, 17663), (66, 17699), (70, 17726), (71, 17738), (78, 17810), (80, 17828), (92, 17972), (95, 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), (26, 13529), (32, 13580), (45, 13760), (46, 13769), (49, 13781), (50, 13787), (84, 14126), (90, 14225), (98, 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), (30, 18261), (36, 18309), (37, 18321), (40, 18411), (43, 18438), (45, 18450), (64, 18642), (67, 18675), (73, 18744), (95, 18966), (100, 19089),