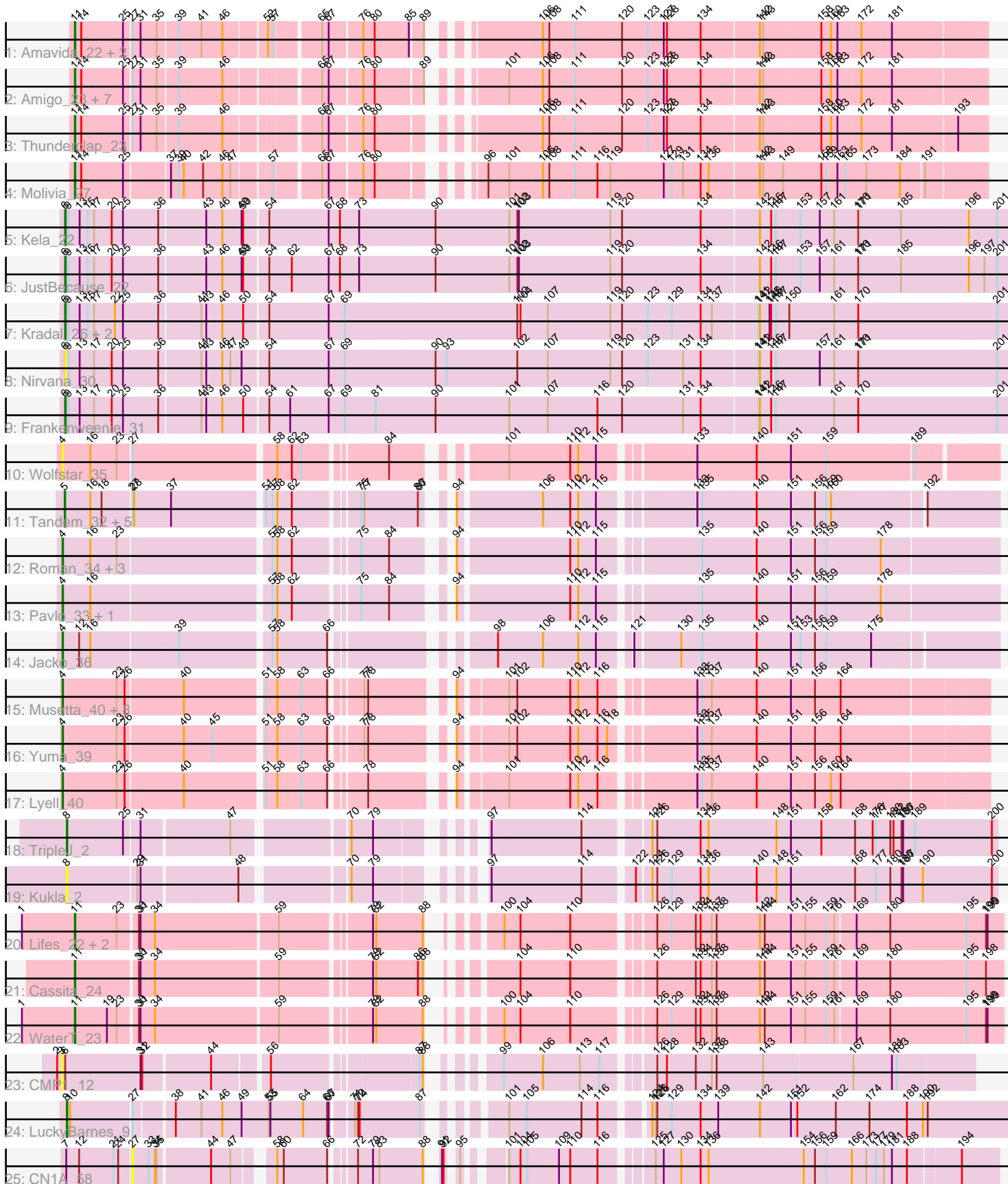


Pham 163643



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 163643 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 163643 has 55 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Amavida_22, Rings_22, Heylee_22
- Track 2 : Amigo_23, Boersma_24, Gorgeous_23, Jaek_22, Anansi_23, Ichor_22, Yeezus_22, SorJuana_23
- Track 3 : Thunderclap_23
- Track 4 : Molivia_27
- Track 5 : Kela_22
- Track 6 : JustBecause_22
- Track 7 : Kradal_26, EhyElimayoE_26, Satis_26
- Track 8 : Nirvana_30
- Track 9 : Frankenweenie_31
- Track 10 : Wolfstar_35
- Track 11 : Tandem_32, Platte_32, Hortus1_32, Alleb_33, OlinDD_32, Pioneer3_32
- Track 12 : Roman_34, Hubbs_34, Lupine_33, PhillyPhilly_34
- Track 13 : Pavlo_33, DejaVu_35
- Track 14 : Jacko_36
- Track 15 : Musetta_40, StevieWelch_40, DustyDino_43, RunningBrook_42, Necrophoxinus_42, Erenyeager_40, Fork_36, Welcome_41, ASegato_39
- Track 16 : Yuma_39
- Track 17 : Lyell_40
- Track 18 : TripleJ_2
- Track 19 : Kukla_2
- Track 20 : Lifes_22, LeeroyJenkins_24, BarnCat_21
- Track 21 : Cassita_24
- Track 22 : WaterT_23
- Track 23 : CMP1_12
- Track 24 : LuckyBarnes_9
- Track 25 : CN1A_58

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

Genes that call this "Most Annotated" start:

- ASegato_39, DejaVu_35, DustyDino_43, Erenyeager_40, Fork_36, Hubbs_34, Jacko_36, Lupine_33, Lyell_40, Musetta_40, Necrophoxinus_42, Pavlo_33, PhillyPhilly_34, Roman_34, RunningBrook_42, StevieWelch_40, Welcome_41, Wolfstar_35, Yuma_39,

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

-

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

- Alleb_33, Amavida_22, Amigo_23, Anansi_23, BarnCat_21, Boersma_24, CMP1_12, CN1A_58, Cassita_24, EhyElimayoE_26, Frankenweenie_31, Gorgeous_23, Heylee_22, Hortus1_32, Ichor_22, Jaek_22, JustBecause_22, Kela_22, Kradal_26, Kukla_2, LeeroyJenkins_24, Lifes_22, LuckyBarnes_9, Molivia_27, Nirvana_30, OlinDD_32, Pioneer3_32, Platte_32, Rings_22, Satis_26, SorJuana_23, Tandem_32, Thunderclap_23, TripleJ_2, WaterT_23, Yeezus_22,

Summary by start number:

Start 3:

- 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: CMP1_12 (singleton),

Start 4:

- Found in 19 of 55 (34.5%) of genes in pham
- Manual Annotations of this start: 16 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ASegato_39 (ED2), DejaVu_35 (ED1), DustyDino_43 (ED2), Erenyeager_40 (ED2), Fork_36 (ED2), Hubbs_34 (ED1), Jacko_36 (ED1), Lupine_33 (ED1), Lyell_40 (ED2), Musetta_40 (ED2), Necrophoxinus_42 (ED2), Pavlo_33 (ED1), PhillyPhilly_34 (ED1), Roman_34 (ED1), RunningBrook_42 (ED2), StevieWelch_40 (ED2), Welcome_41 (ED2), Wolfstar_35 (ED), Yuma_39 (ED2),

Start 5:

- Found in 6 of 55 (10.9%) 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: Alleb_33 (ED1), Hortus1_32 (ED1), OlinDD_32 (ED1), Pioneer3_32 (ED1), Platte_32 (ED1), Tandem_32 (ED1),

Start 6:

- Found in 8 of 55 (14.5%) of genes in pham
- Manual Annotations of this start: 6 of 45
- Called 87.5% of time when present
- Phage (with cluster) where this start called: EhyElimayoE_26 (BM), Frankenweenie_31 (BM), JustBecause_22 (BM), Kela_22 (BM), Kradal_26 (BM), Nirvana_30 (BM), Satis_26 (BM),

Start 8:

- Found in 3 of 55 (5.5%) of genes in pham
- Manual Annotations of this start: 2 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kukla_2 (FJ), LuckyBarnes_9 (singleton), TripleJ_2 (FJ),

Start 11:

- Found in 18 of 55 (32.7%) of genes in pham
- Manual Annotations of this start: 15 of 45
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amavida_22 (AQ), Amigo_23 (AQ), Anansi_23 (AQ), BarnCat_21 (GB), Boersma_24 (AQ), Cassita_24 (GB), Gorgeous_23 (AQ), Heylee_22 (AQ), Ichor_22 (AQ), Jaek_22 (AQ), LeeroyJenkins_24 (GB), Lifes_22 (GB), Molivia_27 (AQ), Rings_22 (AQ), SorJuana_23 (AQ), Thunderclap_23 (AQ), WaterT_23 (GB), Yeezus_22 (AQ),

Start 27:

- Found in 21 of 55 (38.2%) of genes in pham
- No Manual Annotations of this start.
- Called 4.8% of time when present
- Phage (with cluster) where this start called: CN1A_58 (singleton),

Summary by clusters:

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

Info for manual annotations of cluster AQ:

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

Info for manual annotations of cluster BM:

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

Info for manual annotations of cluster ED1:

- Start number 4 was manually annotated 7 times for cluster ED1.
- Start number 5 was manually annotated 6 times 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 8 was manually annotated 1 time for cluster FJ.

Info for manual annotations of cluster GB:

- Start number 11 was manually annotated 4 times for cluster GB.

Gene Information:

Gene: ASegato_39 Start: 14663, Stop: 16192, Start Num: 4

Candidate Starts for ASegato_39:

(Start: 4 @14663 has 16 MA's), (23, 14756), (26, 14771), (40, 14873), (51, 15011), (58, 15032), (63, 15077), (66, 15125), (77, 15170), (78, 15176), (94, 15296), (101, 15371), (102, 15386), (110, 15485), (112, 15500), (116, 15536), (133, 15686), (135, 15695), (137, 15713), (140, 15794), (151, 15854), (156, 15893), (164, 15941),

Gene: Alleb_33 Start: 13165, Stop: 14715, Start Num: 5

Candidate Starts for Alleb_33:

(Start: 5 @13165 has 6 MA's), (16, 13210), (18, 13231), (27, 13282), (28, 13285), (37, 13351), (51, 13513), (57, 13525), (58, 13534), (62, 13561), (75, 13666), (77, 13672), (86, 13771), (87, 13774), (94, 13795), (106, 13939), (110, 13990), (112, 14005), (115, 14038), (133, 14191), (135, 14200), (140, 14299), (151, 14359), (156, 14398), (159, 14419), (160, 14428), (192, 14590),

Gene: Amavida_22 Start: 10314, Stop: 11843, Start Num: 11

Candidate Starts for Amavida_22:

(Start: 11 @10314 has 15 MA's), (14, 10326), (25, 10401), (27, 10413), (31, 10428), (35, 10458), (39, 10491), (41, 10530), (46, 10569), (52, 10635), (57, 10644), (65, 10719), (67, 10731), (76, 10785), (80, 10806), (85, 10869), (89, 10890), (106, 11043), (108, 11055), (111, 11103), (120, 11190), (123, 11238), (127, 11268), (128, 11274), (134, 11337), (142, 11442), (143, 11448), (158, 11547), (160, 11565), (163, 11577), (172, 11622), (181, 11679),

Gene: Amigo_23 Start: 10188, Stop: 11717, Start Num: 11

Candidate Starts for Amigo_23:

(Start: 11 @10188 has 15 MA's), (14, 10200), (25, 10275), (27, 10287), (31, 10302), (35, 10332), (39, 10365), (46, 10443), (65, 10593), (67, 10605), (76, 10659), (80, 10680), (89, 10764), (101, 10854), (106, 10917), (108, 10929), (111, 10977), (120, 11064), (123, 11112), (127, 11142), (128, 11148), (134, 11211), (142, 11316), (143, 11322), (158, 11421), (160, 11439), (163, 11451), (172, 11496), (181, 11553),

Gene: Anansi_23 Start: 10197, Stop: 11726, Start Num: 11

Candidate Starts for Anansi_23:

(Start: 11 @10197 has 15 MA's), (14, 10209), (25, 10284), (27, 10296), (31, 10311), (35, 10341), (39, 10374), (46, 10452), (65, 10602), (67, 10614), (76, 10668), (80, 10689), (89, 10773), (101, 10863), (106, 10926), (108, 10938), (111, 10986), (120, 11073), (123, 11121), (127, 11151), (128, 11157), (134, 11220), (142, 11325), (143, 11331), (158, 11430), (160, 11448), (163, 11460), (172, 11505), (181, 11562),

Gene: BarnCat_21 Start: 8100, Stop: 9647, Start Num: 11

Candidate Starts for BarnCat_21:

(1, 8001), (Start: 11 @8100 has 15 MA's), (23, 8178), (30, 8211), (31, 8214), (34, 8241), (59, 8460), (79, 8607), (82, 8613), (88, 8697), (100, 8760), (104, 8790), (110, 8883), (126, 9015), (129, 9042), (132, 9087), (134, 9096), (137, 9117), (138, 9126), (142, 9207), (144, 9216), (151, 9261), (155, 9285), (159, 9324), (161, 9339), (169, 9375), (180, 9438), (195, 9579), (198, 9615), (199, 9618),

Gene: Boersma_24 Start: 10188, Stop: 11717, Start Num: 11

Candidate Starts for Boersma_24:

(Start: 11 @10188 has 15 MA's), (14, 10200), (25, 10275), (27, 10287), (31, 10302), (35, 10332), (39, 10365), (46, 10443), (65, 10593), (67, 10605), (76, 10659), (80, 10680), (89, 10764), (101, 10854), (106, 10917), (108, 10929), (111, 10977), (120, 11064), (123, 11112), (127, 11142), (128, 11148), (134, 11211), (142, 11316), (143, 11322), (158, 11421), (160, 11439), (163, 11451), (172, 11496), (181, 11553),

Gene: CMP1_12 Start: 8832, Stop: 10340, Start Num: 3

Candidate Starts for CMP1_12:

(2, 8823), (3, 8832), (Start: 6 @8838 has 6 MA's), (31, 8979), (32, 8982), (44, 9099), (56, 9192), (87, 9435), (88, 9441), (99, 9510), (106, 9582), (113, 9651), (117, 9687), (126, 9765), (128, 9783), (132, 9837), (137, 9867), (138, 9876), (143, 9963), (167, 10125), (181, 10194), (183, 10203),

Gene: CN1A_58 Start: 46863, Stop: 45484, Start Num: 27

Candidate Starts for CN1A_58:

(7, 46977), (12, 46956), (21, 46893), (24, 46884), (27, 46863), (33, 46833), (34, 46821), (35, 46818), (44, 46731), (47, 46695), (58, 46641), (60, 46629), (66, 46548), (72, 46515), (79, 46491), (83, 46479), (88, 46398), (91, 46392), (92, 46389), (95, 46377), (101, 46329), (104, 46308), (105, 46296), (109, 46236), (110, 46215), (116, 46164), (125, 46086), (127, 46074), (130, 46041), (134, 46008), (136, 45993), (154, 45822), (156, 45801), (159, 45780), (166, 45732), (173, 45705), (177, 45687), (179, 45672), (181, 45660), (188, 45636), (194, 45546),

Gene: Cassita_24 Start: 8661, Stop: 10208, Start Num: 11

Candidate Starts for Cassita_24:

(Start: 11 @8661 has 15 MA's), (30, 8772), (31, 8775), (34, 8802), (59, 9021), (79, 9168), (82, 9174), (86, 9249), (88, 9258), (104, 9351), (110, 9444), (126, 9576), (132, 9648), (134, 9657), (137, 9678), (138, 9687), (142, 9768), (144, 9777), (151, 9822), (155, 9846), (159, 9885), (161, 9900), (169, 9936), (180, 9999), (195, 10140), (198, 10176),

Gene: DejaVu_35 Start: 13501, Stop: 15063, Start Num: 4

Candidate Starts for DejaVu_35:

(Start: 4 @13501 has 16 MA's), (16, 13549), (57, 13864), (58, 13873), (62, 13900), (75, 14005), (84, 14056), (94, 14134), (110, 14329), (112, 14344), (115, 14377), (135, 14539), (140, 14638), (151, 14698), (156, 14737), (159, 14758), (178, 14860),

Gene: DustyDino_43 Start: 15611, Stop: 17131, Start Num: 4

Candidate Starts for DustyDino_43:

(Start: 4 @15611 has 16 MA's), (23, 15704), (26, 15719), (40, 15821), (51, 15959), (58, 15980), (63, 16025), (66, 16073), (77, 16118), (78, 16124), (94, 16244), (101, 16319), (102, 16334), (110, 16433), (112, 16448), (116, 16484), (133, 16634), (135, 16643), (137, 16661), (140, 16742), (151, 16802), (156, 16841), (164, 16889),

Gene: EhyElimayoE_26 Start: 13508, Stop: 15238, Start Num: 6

Candidate Starts for EhyElimayoE_26:

(Start: 6 @13508 has 6 MA's), (9, 13514), (13, 13535), (15, 13550), (17, 13562), (22, 13601), (25, 13616), (36, 13682), (41, 13754), (43, 13763), (46, 13793), (50, 13832), (54, 13874), (67, 13985), (69, 14015), (102, 14336), (104, 14342), (107, 14393), (119, 14510), (120, 14531), (123, 14579), (129, 14624), (134, 14675), (137, 14696), (141, 14777), (142, 14780), (145, 14798), (146, 14801), (147, 14810), (150, 14831), (161, 14909), (170, 14954), (201, 15203),

Gene: Erenyeager_40 Start: 15006, Stop: 16526, Start Num: 4

Candidate Starts for Erenyeager_40:

(Start: 4 @15006 has 16 MA's), (23, 15099), (26, 15114), (40, 15216), (51, 15354), (58, 15375), (63, 15420), (66, 15468), (77, 15513), (78, 15519), (94, 15639), (101, 15714), (102, 15729), (110, 15828), (112, 15843), (116, 15879), (133, 16029), (135, 16038), (137, 16056), (140, 16137), (151, 16197), (156, 16236), (164, 16284),

Gene: Fork_36 Start: 14321, Stop: 15841, Start Num: 4

Candidate Starts for Fork_36:

(Start: 4 @14321 has 16 MA's), (23, 14414), (26, 14429), (40, 14531), (51, 14669), (58, 14690), (63, 14735), (66, 14783), (77, 14828), (78, 14834), (94, 14954), (101, 15029), (102, 15044), (110, 15143), (112, 15158), (116, 15194), (133, 15344), (135, 15353), (137, 15371), (140, 15452), (151, 15512), (156, 15551), (164, 15599),

Gene: Frankenweenie_31 Start: 15404, Stop: 17143, Start Num: 6

Candidate Starts for Frankenweenie_31:

(Start: 6 @15404 has 6 MA's), (9, 15410), (13, 15431), (17, 15458), (20, 15491), (25, 15512), (36, 15578), (41, 15650), (43, 15659), (46, 15689), (50, 15728), (54, 15770), (61, 15809), (67, 15881), (69, 15911), (81, 15968), (90, 16079), (101, 16217), (107, 16289), (116, 16382), (120, 16427), (131, 16538), (134, 16571), (141, 16673), (142, 16676), (146, 16697), (147, 16706), (161, 16805), (170, 16850), (201, 17099),

Gene: Gorgeous_23 Start: 10197, Stop: 11726, Start Num: 11

Candidate Starts for Gorgeous_23:

(Start: 11 @10197 has 15 MA's), (14, 10209), (25, 10284), (27, 10296), (31, 10311), (35, 10341), (39, 10374), (46, 10452), (65, 10602), (67, 10614), (76, 10668), (80, 10689), (89, 10773), (101, 10863), (106, 10926), (108, 10938), (111, 10986), (120, 11073), (123, 11121), (127, 11151), (128, 11157), (134, 11220), (142, 11325), (143, 11331), (158, 11430), (160, 11448), (163, 11460), (172, 11505), (181, 11562),

Gene: Heylee_22 Start: 10314, Stop: 11843, Start Num: 11

Candidate Starts for Heylee_22:

(Start: 11 @10314 has 15 MA's), (14, 10326), (25, 10401), (27, 10413), (31, 10428), (35, 10458), (39, 10491), (41, 10530), (46, 10569), (52, 10635), (57, 10644), (65, 10719), (67, 10731), (76, 10785), (80, 10806), (85, 10869), (89, 10890), (106, 11043), (108, 11055), (111, 11103), (120, 11190), (123, 11238), (127, 11268), (128, 11274), (134, 11337), (142, 11442), (143, 11448), (158, 11547), (160, 11565), (163, 11577), (172, 11622), (181, 11679),

Gene: Hortus1_32 Start: 13179, Stop: 14729, Start Num: 5

Candidate Starts for Hortus1_32:

(Start: 5 @13179 has 6 MA's), (16, 13224), (18, 13245), (27, 13296), (28, 13299), (37, 13365), (51, 13527), (57, 13539), (58, 13548), (62, 13575), (75, 13680), (77, 13686), (86, 13785), (87, 13788), (94, 13809), (106, 13953), (110, 14004), (112, 14019), (115, 14052), (133, 14205), (135, 14214), (140, 14313), (151, 14373), (156, 14412), (159, 14433), (160, 14442), (192, 14604),

Gene: Hubbs_34 Start: 13713, Stop: 15275, Start Num: 4

Candidate Starts for Hubbs_34:

(Start: 4 @13713 has 16 MA's), (16, 13761), (23, 13809), (57, 14076), (58, 14085), (62, 14112), (75, 14217), (84, 14268), (94, 14346), (110, 14541), (112, 14556), (115, 14589), (135, 14751), (140, 14850), (151, 14910), (156, 14949), (159, 14970), (178, 15072),

Gene: Ichor_22 Start: 10188, Stop: 11717, Start Num: 11

Candidate Starts for Ichor_22:

(Start: 11 @10188 has 15 MA's), (14, 10200), (25, 10275), (27, 10287), (31, 10302), (35, 10332), (39, 10365), (46, 10443), (65, 10593), (67, 10605), (76, 10659), (80, 10680), (89, 10764), (101, 10854), (106, 10917), (108, 10929), (111, 10977), (120, 11064), (123, 11112), (127, 11142), (128, 11148), (134, 11211), (142, 11316), (143, 11322), (158, 11421), (160, 11439), (163, 11451), (172, 11496), (181, 11553),

Gene: Jacko_36 Start: 13698, Stop: 15251, Start Num: 4

Candidate Starts for Jacko_36:

(Start: 4 @13698 has 16 MA's), (12, 13722), (16, 13743), (39, 13899), (57, 14058), (58, 14067), (66, 14160), (98, 14391), (106, 14475), (112, 14541), (115, 14574), (121, 14622), (130, 14700), (135, 14736), (140, 14835), (151, 14895), (153, 14907), (156, 14934), (159, 14955), (175, 15039),

Gene: Jaek_22 Start: 10188, Stop: 11717, Start Num: 11

Candidate Starts for Jaek_22:

(Start: 11 @10188 has 15 MA's), (14, 10200), (25, 10275), (27, 10287), (31, 10302), (35, 10332), (39, 10365), (46, 10443), (65, 10593), (67, 10605), (76, 10659), (80, 10680), (89, 10764), (101, 10854), (106, 10917), (108, 10929), (111, 10977), (120, 11064), (123, 11112), (127, 11142), (128, 11148), (134, 11211), (142, 11316), (143, 11322), (158, 11421), (160, 11439), (163, 11451), (172, 11496), (181, 11553),

Gene: JustBecause_22 Start: 12250, Stop: 13989, Start Num: 6

Candidate Starts for JustBecause_22:

(Start: 6 @12250 has 6 MA's), (9, 12256), (13, 12277), (15, 12292), (17, 12304), (20, 12337), (25, 12358), (36, 12424), (43, 12505), (46, 12535), (49, 12571), (50, 12574), (54, 12616), (62, 12658), (67, 12727), (68, 12748), (73, 12784), (90, 12925), (101, 13063), (102, 13078), (103, 13081), (119, 13252), (120, 13273), (134, 13417), (142, 13522), (146, 13543), (147, 13552), (153, 13588), (157, 13624), (161, 13651), (170, 13696), (171, 13699), (185, 13771), (196, 13894), (197, 13921), (201, 13945),

Gene: Kela_22 Start: 12241, Stop: 13980, Start Num: 6

Candidate Starts for Kela_22:

(Start: 6 @12241 has 6 MA's), (9, 12247), (13, 12268), (15, 12283), (17, 12295), (20, 12328), (25, 12349), (36, 12415), (43, 12496), (46, 12526), (49, 12562), (50, 12565), (54, 12607), (67, 12718), (68, 12739), (73, 12775), (90, 12916), (101, 13054), (102, 13069), (103, 13072), (119, 13243), (120, 13264), (134, 13408), (142, 13513), (146, 13534), (147, 13543), (153, 13579), (157, 13615), (161, 13642), (170, 13687), (171, 13690), (185, 13762), (196, 13885), (201, 13936),

Gene: Kradal_26 Start: 13508, Stop: 15238, Start Num: 6

Candidate Starts for Kradal_26:

(Start: 6 @13508 has 6 MA's), (9, 13514), (13, 13535), (15, 13550), (17, 13562), (22, 13601), (25, 13616), (36, 13682), (41, 13754), (43, 13763), (46, 13793), (50, 13832), (54, 13874), (67, 13985), (69, 14015), (102, 14336), (104, 14342), (107, 14393), (119, 14510), (120, 14531), (123, 14579), (129, 14624), (134, 14675), (137, 14696), (141, 14777), (142, 14780), (145, 14798), (146, 14801), (147, 14810), (150, 14831), (161, 14909), (170, 14954), (201, 15203),

Gene: Kukla_2 Start: 1515, Stop: 3053, Start Num: 8

Candidate Starts for Kukla_2:

(Start: 8 @1515 has 2 MA's), (29, 1638), (31, 1644), (48, 1812), (70, 1986), (79, 2025), (97, 2151), (114, 2316), (122, 2400), (124, 2424), (126, 2433), (129, 2460), (134, 2514), (136, 2529), (140, 2616), (148, 2652), (151, 2679), (168, 2796), (177, 2835), (180, 2862), (186, 2883), (187, 2886), (190, 2919), (200, 3045),

Gene: LeeroyJenkins_24 Start: 8579, Stop: 10126, Start Num: 11

Candidate Starts for LeeroyJenkins_24:

(1, 8480), (Start: 11 @8579 has 15 MA's), (23, 8657), (30, 8690), (31, 8693), (34, 8720), (59, 8939), (79, 9086), (82, 9092), (88, 9176), (100, 9239), (104, 9269), (110, 9362), (126, 9494), (129, 9521), (132, 9566), (134, 9575), (137, 9596), (138, 9605), (142, 9686), (144, 9695), (151, 9740), (155, 9764), (159, 9803), (161, 9818), (169, 9854), (180, 9917), (195, 10058), (198, 10094), (199, 10097),

Gene: Lifes_22 Start: 8131, Stop: 9678, Start Num: 11

Candidate Starts for Lifes_22:

(1, 8032), (Start: 11 @8131 has 15 MA's), (23, 8209), (30, 8242), (31, 8245), (34, 8272), (59, 8491), (79, 8638), (82, 8644), (88, 8728), (100, 8791), (104, 8821), (110, 8914), (126, 9046), (129, 9073), (132, 9118), (134, 9127), (137, 9148), (138, 9157), (142, 9238), (144, 9247), (151, 9292), (155, 9316), (159, 9355), (161, 9370), (169, 9406), (180, 9469), (195, 9610), (198, 9646), (199, 9649),

Gene: LuckyBarnes_9 Start: 4254, Stop: 5828, Start Num: 8

Candidate Starts for LuckyBarnes_9:

(Start: 8 @4254 has 2 MA's), (10, 4260), (27, 4368), (38, 4431), (41, 4476), (46, 4515), (49, 4551), (53, 4602), (55, 4605), (64, 4665), (66, 4710), (67, 4713), (71, 4746), (72, 4752), (74, 4755), (87, 4866), (101, 4950), (105, 4983), (114, 5079), (116, 5109), (124, 5178), (125, 5184), (126, 5187), (129, 5214), (134, 5268), (139, 5301), (142, 5376), (151, 5433), (152, 5445), (162, 5514), (174, 5577), (188, 5643), (190, 5670), (192, 5679),

Gene: Lupine_33 Start: 13385, Stop: 14947, Start Num: 4

Candidate Starts for Lupine_33:

(Start: 4 @13385 has 16 MA's), (16, 13433), (23, 13481), (57, 13748), (58, 13757), (62, 13784), (75, 13889), (84, 13940), (94, 14018), (110, 14213), (112, 14228), (115, 14261), (135, 14423), (140, 14522), (151, 14582), (156, 14621), (159, 14642), (178, 14744),

Gene: Lyell_40 Start: 14924, Stop: 16453, Start Num: 4

Candidate Starts for Lyell_40:

(Start: 4 @14924 has 16 MA's), (23, 15017), (26, 15032), (40, 15134), (51, 15272), (58, 15293), (63, 15338), (66, 15386), (78, 15437), (94, 15557), (101, 15632), (110, 15746), (112, 15761), (116, 15797), (133, 15947), (135, 15956), (137, 15974), (140, 16055), (151, 16115), (156, 16154), (160, 16184), (164, 16202),

Gene: Molivia_27 Start: 10483, Stop: 12003, Start Num: 11

Candidate Starts for Molivia_27:

(Start: 11 @10483 has 15 MA's), (14, 10495), (25, 10570), (37, 10645), (39, 10660), (40, 10669), (42, 10702), (46, 10738), (47, 10753), (57, 10813), (65, 10888), (67, 10900), (76, 10954), (80, 10975), (96, 11107), (101, 11146), (106, 11209), (108, 11221), (111, 11269), (116, 11311), (119, 11335), (127, 11434), (129, 11449), (131, 11470), (134, 11503), (136, 11518), (142, 11608), (143, 11614), (149, 11650), (158, 11713), (159, 11722), (163, 11743), (165, 11758), (173, 11797), (184, 11860), (191, 11899),

Gene: Musetta_40 Start: 15031, Stop: 16560, Start Num: 4

Candidate Starts for Musetta_40:

(Start: 4 @15031 has 16 MA's), (23, 15124), (26, 15139), (40, 15241), (51, 15379), (58, 15400), (63, 15445), (66, 15493), (77, 15538), (78, 15544), (94, 15664), (101, 15739), (102, 15754), (110, 15853), (112, 15868), (116, 15904), (133, 16054), (135, 16063), (137, 16081), (140, 16162), (151, 16222), (156, 16261), (164, 16309),

Gene: Necrophoxinus_42 Start: 15619, Stop: 17139, Start Num: 4

Candidate Starts for Necrophoxinus_42:

(Start: 4 @15619 has 16 MA's), (23, 15712), (26, 15727), (40, 15829), (51, 15967), (58, 15988), (63, 16033), (66, 16081), (77, 16126), (78, 16132), (94, 16252), (101, 16327), (102, 16342), (110, 16441), (112, 16456), (116, 16492), (133, 16642), (135, 16651), (137, 16669), (140, 16750), (151, 16810), (156, 16849), (164, 16897),

Gene: Nirvana_30 Start: 15604, Stop: 17343, Start Num: 6

Candidate Starts for Nirvana_30:

(Start: 6 @15604 has 6 MA's), (9, 15610), (13, 15631), (17, 15658), (20, 15691), (25, 15712), (36, 15778), (41, 15850), (43, 15859), (46, 15889), (47, 15904), (49, 15925), (54, 15970), (67, 16081), (69,

16111), (90, 16279), (93, 16300), (102, 16432), (107, 16489), (119, 16606), (120, 16627), (123, 16675), (131, 16738), (134, 16771), (141, 16873), (142, 16876), (146, 16897), (147, 16906), (157, 16978), (161, 17005), (170, 17050), (171, 17053), (201, 17299),

Gene: OlinDD_32 Start: 13178, Stop: 14728, Start Num: 5

Candidate Starts for OlinDD_32:

(Start: 5 @13178 has 6 MA's), (16, 13223), (18, 13244), (27, 13295), (28, 13298), (37, 13364), (51, 13526), (57, 13538), (58, 13547), (62, 13574), (75, 13679), (77, 13685), (86, 13784), (87, 13787), (94, 13808), (106, 13952), (110, 14003), (112, 14018), (115, 14051), (133, 14204), (135, 14213), (140, 14312), (151, 14372), (156, 14411), (159, 14432), (160, 14441), (192, 14603),

Gene: Pavlo_33 Start: 13660, Stop: 15222, Start Num: 4

Candidate Starts for Pavlo_33:

(Start: 4 @13660 has 16 MA's), (16, 13708), (57, 14023), (58, 14032), (62, 14059), (75, 14164), (84, 14215), (94, 14293), (110, 14488), (112, 14503), (115, 14536), (135, 14698), (140, 14797), (151, 14857), (156, 14896), (159, 14917), (178, 15019),

Gene: PhillyPhilly_34 Start: 13565, Stop: 15127, Start Num: 4

Candidate Starts for PhillyPhilly_34:

(Start: 4 @13565 has 16 MA's), (16, 13613), (23, 13661), (57, 13928), (58, 13937), (62, 13964), (75, 14069), (84, 14120), (94, 14198), (110, 14393), (112, 14408), (115, 14441), (135, 14603), (140, 14702), (151, 14762), (156, 14801), (159, 14822), (178, 14924),

Gene: Pioneer3_32 Start: 13162, Stop: 14712, Start Num: 5

Candidate Starts for Pioneer3_32:

(Start: 5 @13162 has 6 MA's), (16, 13207), (18, 13228), (27, 13279), (28, 13282), (37, 13348), (51, 13510), (57, 13522), (58, 13531), (62, 13558), (75, 13663), (77, 13669), (86, 13768), (87, 13771), (94, 13792), (106, 13936), (110, 13987), (112, 14002), (115, 14035), (133, 14188), (135, 14197), (140, 14296), (151, 14356), (156, 14395), (159, 14416), (160, 14425), (192, 14587),

Gene: Platte_32 Start: 12947, Stop: 14497, Start Num: 5

Candidate Starts for Platte_32:

(Start: 5 @12947 has 6 MA's), (16, 12992), (18, 13013), (27, 13064), (28, 13067), (37, 13133), (51, 13295), (57, 13307), (58, 13316), (62, 13343), (75, 13448), (77, 13454), (86, 13553), (87, 13556), (94, 13577), (106, 13721), (110, 13772), (112, 13787), (115, 13820), (133, 13973), (135, 13982), (140, 14081), (151, 14141), (156, 14180), (159, 14201), (160, 14210), (192, 14372),

Gene: Rings_22 Start: 10319, Stop: 11848, Start Num: 11

Candidate Starts for Rings_22:

(Start: 11 @10319 has 15 MA's), (14, 10331), (25, 10406), (27, 10418), (31, 10433), (35, 10463), (39, 10496), (41, 10535), (46, 10574), (52, 10640), (57, 10649), (65, 10724), (67, 10736), (76, 10790), (80, 10811), (85, 10874), (89, 10895), (106, 11048), (108, 11060), (111, 11108), (120, 11195), (123, 11243), (127, 11273), (128, 11279), (134, 11342), (142, 11447), (143, 11453), (158, 11552), (160, 11570), (163, 11582), (172, 11627), (181, 11684),

Gene: Roman_34 Start: 13560, Stop: 15122, Start Num: 4

Candidate Starts for Roman_34:

(Start: 4 @13560 has 16 MA's), (16, 13608), (23, 13656), (57, 13923), (58, 13932), (62, 13959), (75, 14064), (84, 14115), (94, 14193), (110, 14388), (112, 14403), (115, 14436), (135, 14598), (140, 14697), (151, 14757), (156, 14796), (159, 14817), (178, 14919),

Gene: RunningBrook_42 Start: 15611, Stop: 17131, Start Num: 4

Candidate Starts for RunningBrook_42:

(Start: 4 @15611 has 16 MA's), (23, 15704), (26, 15719), (40, 15821), (51, 15959), (58, 15980), (63, 16025), (66, 16073), (77, 16118), (78, 16124), (94, 16244), (101, 16319), (102, 16334), (110, 16433), (112, 16448), (116, 16484), (133, 16634), (135, 16643), (137, 16661), (140, 16742), (151, 16802), (156, 16841), (164, 16889),

Gene: Satis_26 Start: 13504, Stop: 15234, Start Num: 6

Candidate Starts for Satis_26:

(Start: 6 @13504 has 6 MA's), (9, 13510), (13, 13531), (15, 13546), (17, 13558), (22, 13597), (25, 13612), (36, 13678), (41, 13750), (43, 13759), (46, 13789), (50, 13828), (54, 13870), (67, 13981), (69, 14011), (102, 14332), (104, 14338), (107, 14389), (119, 14506), (120, 14527), (123, 14575), (129, 14620), (134, 14671), (137, 14692), (141, 14773), (142, 14776), (145, 14794), (146, 14797), (147, 14806), (150, 14827), (161, 14905), (170, 14950), (201, 15199),

Gene: SorJuana_23 Start: 10197, Stop: 11726, Start Num: 11

Candidate Starts for SorJuana_23:

(Start: 11 @10197 has 15 MA's), (14, 10209), (25, 10284), (27, 10296), (31, 10311), (35, 10341), (39, 10374), (46, 10452), (65, 10602), (67, 10614), (76, 10668), (80, 10689), (89, 10773), (101, 10863), (106, 10926), (108, 10938), (111, 10986), (120, 11073), (123, 11121), (127, 11151), (128, 11157), (134, 11220), (142, 11325), (143, 11331), (158, 11430), (160, 11448), (163, 11460), (172, 11505), (181, 11562),

Gene: StevieWelch_40 Start: 15011, Stop: 16531, Start Num: 4

Candidate Starts for StevieWelch_40:

(Start: 4 @15011 has 16 MA's), (23, 15104), (26, 15119), (40, 15221), (51, 15359), (58, 15380), (63, 15425), (66, 15473), (77, 15518), (78, 15524), (94, 15644), (101, 15719), (102, 15734), (110, 15833), (112, 15848), (116, 15884), (133, 16034), (135, 16043), (137, 16061), (140, 16142), (151, 16202), (156, 16241), (164, 16289),

Gene: Tandem_32 Start: 13101, Stop: 14651, Start Num: 5

Candidate Starts for Tandem_32:

(Start: 5 @13101 has 6 MA's), (16, 13146), (18, 13167), (27, 13218), (28, 13221), (37, 13287), (51, 13449), (57, 13461), (58, 13470), (62, 13497), (75, 13602), (77, 13608), (86, 13707), (87, 13710), (94, 13731), (106, 13875), (110, 13926), (112, 13941), (115, 13974), (133, 14127), (135, 14136), (140, 14235), (151, 14295), (156, 14334), (159, 14355), (160, 14364), (192, 14526),

Gene: Thunderclap_23 Start: 10218, Stop: 11747, Start Num: 11

Candidate Starts for Thunderclap_23:

(Start: 11 @10218 has 15 MA's), (14, 10230), (25, 10305), (27, 10317), (31, 10332), (35, 10362), (39, 10395), (46, 10473), (65, 10623), (67, 10635), (76, 10689), (80, 10710), (106, 10947), (108, 10959), (111, 11007), (120, 11094), (123, 11142), (127, 11172), (128, 11178), (134, 11241), (142, 11346), (143, 11352), (158, 11451), (160, 11469), (163, 11481), (172, 11526), (181, 11583), (193, 11697),

Gene: TripleJ_2 Start: 1517, Stop: 3055, Start Num: 8

Candidate Starts for TripleJ_2:

(Start: 8 @1517 has 2 MA's), (25, 1619), (31, 1646), (47, 1799), (70, 1988), (79, 2027), (97, 2153), (114, 2318), (124, 2426), (126, 2435), (134, 2516), (136, 2531), (148, 2654), (151, 2681), (158, 2735), (168, 2798), (176, 2831), (177, 2837), (180, 2864), (182, 2870), (186, 2885), (187, 2888), (189, 2906), (200, 3047),

Gene: WaterT_23 Start: 8405, Stop: 9952, Start Num: 11

Candidate Starts for WaterT_23:

(1, 8306), (Start: 11 @8405 has 15 MA's), (19, 8465), (23, 8483), (30, 8516), (31, 8519), (34, 8546), (59, 8765), (79, 8912), (82, 8918), (88, 9002), (100, 9065), (104, 9095), (110, 9188), (126, 9320), (129,

9347), (132, 9392), (134, 9401), (137, 9422), (138, 9431), (142, 9512), (144, 9521), (151, 9566), (155, 9590), (159, 9629), (161, 9644), (169, 9680), (180, 9743), (195, 9884), (198, 9920), (199, 9923),

Gene: Welcome_41 Start: 15028, Stop: 16548, Start Num: 4

Candidate Starts for Welcome_41:

(Start: 4 @15028 has 16 MA's), (23, 15121), (26, 15136), (40, 15238), (51, 15376), (58, 15397), (63, 15442), (66, 15490), (77, 15535), (78, 15541), (94, 15661), (101, 15736), (102, 15751), (110, 15850), (112, 15865), (116, 15901), (133, 16051), (135, 16060), (137, 16078), (140, 16159), (151, 16219), (156, 16258), (164, 16306),

Gene: Wolfstar_35 Start: 13966, Stop: 15513, Start Num: 4

Candidate Starts for Wolfstar_35:

(Start: 4 @13966 has 16 MA's), (16, 14014), (23, 14062), (27, 14086), (58, 14335), (62, 14362), (63, 14380), (84, 14518), (101, 14677), (110, 14791), (112, 14806), (115, 14839), (133, 14992), (140, 15100), (151, 15160), (159, 15220), (189, 15376),

Gene: Yeezus_22 Start: 10187, Stop: 11716, Start Num: 11

Candidate Starts for Yeezus_22:

(Start: 11 @10187 has 15 MA's), (14, 10199), (25, 10274), (27, 10286), (31, 10301), (35, 10331), (39, 10364), (46, 10442), (65, 10592), (67, 10604), (76, 10658), (80, 10679), (89, 10763), (101, 10853), (106, 10916), (108, 10928), (111, 10976), (120, 11063), (123, 11111), (127, 11141), (128, 11147), (134, 11210), (142, 11315), (143, 11321), (158, 11420), (160, 11438), (163, 11450), (172, 11495), (181, 11552),

Gene: Yuma_39 Start: 14930, Stop: 16459, Start Num: 4

Candidate Starts for Yuma_39:

(Start: 4 @14930 has 16 MA's), (23, 15023), (26, 15038), (40, 15140), (45, 15194), (51, 15278), (58, 15299), (63, 15344), (66, 15392), (77, 15437), (78, 15443), (94, 15563), (101, 15638), (102, 15653), (110, 15752), (112, 15767), (116, 15803), (118, 15821), (133, 15953), (135, 15962), (137, 15980), (140, 16061), (151, 16121), (156, 16160), (164, 16208),