

Pham 196556

1: Heylee_25	23	31	41	51	65	78	88	96	100	109	112	132	136	145	149	153	162	178	187	192	201	214						
2: Amigo_23	23	31	41	51	65	88	96	100				124	132	136	145	149	153	162	178	187	192	201	214	227				
3: Thunderclap_23	23	31	41	51	58	78	88	96	100			119	124	132	136	141	144	153	159	164	178	178	188	194	203	219	225	
4: Molivia_27	21	41	46	53	58	71	80	86		104		124	136	144	145			162	172	177	182	186	190	198	218	230	234	
5: Kela_22	21	41	46	53	58	71	80	86		104		124	136	144	145			162	172	177	182	186	190	198	218	230	234	
6: JustBecause_22	21	41	46	53	58	71	81					125	131	144	145	149	156	162	165	172	177	179	190	199		234		
7: Krabal_26 + 3	21	41	46	52	58	71	81			104	107	125	131	144	145	149	159	162		172	177	186	190	198		234		
8: Nirvana_30	21	41	46	53	58	71	81	89		104		124	131	141	145		159	162		172	177	180	190	199		234		
9: Frankenweenie_31	24	34	35			75	80	82		103		124	131	137	140			161		170	180	188			221			
10: Wolfstar_35	26	34	35	41		69	75	80	88	112	117	130	137	140				163		170	180	185	188			224		
11: Tandem_32 + 5	24	30				75	80		96	103	117	130	137	140				163		170	180	185	188		208			
12: Roman_34 + 3	24	30				75	80		96	103	117	130	137	140				163		170	180	185	188		208			
13: Pavlo_33 + 4	24	30	49			75	80	89			121	130	137	140	146		158	163		170	180	182	185	188	205			
14: Jacko_36	34	51			69	75	82	89	98	117	124	135	137	141			163	165		170	180	185	193					
15: Musetta_40 + 8	34	51	59		69	75	82	89	98	117	124	135	137	143			163	165		170	180	185	193					
16: Yuma_39	34	51			69	75	82	89	98	117	124	135	137	141			163	165		170	180	185	193					
17: Lyell_40	33	38		64				92	99		120		139		162		164		170	177	180	187	197	204	210	219	221	233
18: TripleJ_36	33	38		67				92	99		120		139	147	162	166	164		170	177	180	187	197	204	210	219	223	233
19: Kukla_20	30	34	44		76			98	101	113	123	127	135		152	156	160	166	174	174	180	184	188	198	210	219	229	232
20: Lifes_22 + 2	30	34	44		76			98	101	113	123	127	135		152	156	160	166	174	174	180	184	188	198	210	219	229	231
21: Cassita_24	30	34	44		76			98	101	113	123	127	135		152	156	160	166	174	174	180	184	188	198	210	219	229	232
22: WaterT_23	33	38	43		60	64	68	71	81	101	106	116	126	129	145	148	156	168	172	177	179	188	202	216	226	228		
23: Commonplace_33	33	38	43		60	64	68	71	81	101	106	116	126	129	145	148	156	168	172	177	179	188	202	216	226	228		
24: Nonagon_34	33	38	43		62	73			112	119	122	128	130	138	142		152	164	160	166	173		196	216	226	228		
25: CMP1_32	35	48	56	63	68	72	83	89	91	98	112	124	128	139	141		162	167	172	177	181	191	204	219	224			
26: LuckyBarnes_9	35	41	57	64	79	89	91	98	102	112	124	128	134	135	141		152	164	160	166	173	181	188	195	203	219	227	
27: CN1A_58	35	41	61		98	101	108			120	124	128	133	142		152	164	160	166	173	175	189	208	220	222	233		
28: Yappy_57	35	41	61		98	101	108			120	124	128	133	142		152	164	160	166	173	175	189	208	220	222	233		

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 196556 Report

This analysis was run 12/09/24 on database version 580.

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 196556 has 59 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Heylee_25, Rings_22, Amavida_25
- Track 2 : Amigo_23, Boersma_24, Anansi_23, Gorgeous_23, Jaek_22, 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, Quantum_25, EhyElimayoE_26, Satis_26
- Track 8 : Nirvana_30
- Track 9 : Frankenweenie_31
- Track 10 : Wolfstar_35
- Track 11 : Tandem_32, Pioneer3_32, Platte_32, Hortus1_32, Alleb_33, OlinDD_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, Necrophoxinus_42, Erenyeager_40, Fork_36, Welcome_41, RunningBrook_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_20
- Track 21 : Cassita_24
- Track 22 : WaterT_23
- Track 23 : Commonplace_35
- Track 24 : Nonagon_34
- Track 25 : CMP1_12
- Track 26 : LuckyBarnes_9
- Track 27 : CN1A_58
- Track 28 : Yappy_57

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

The start number called the most often in the published annotations is 12, it was called in 18 of the 52 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_41, 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_25, Amigo_23, Anansi_23, BarnCat_20, Boersma_24, CMP1_12, CN1A_58, Cassita_24, Commonplace_35, EhyElimayoE_26, Frankenweenie_31, Gorgeous_23, Heylee_25, Hortus1_32, Ichor_22, Jaek_22, JustBecause_22, Kela_22, Kradal_26, Kukla_2, LeeroyJenkins_24, Lifes_22, LuckyBarnes_9, Molivia_27, Nirvana_30, Nonagon_34, OlinDD_32, Pioneer3_32, Platte_32, Quantum_25, Rings_22, Satis_26, SorJuana_23, Tandem_32, Thunderclap_23, TripleJ_2, WaterT_23, Yappy_57, Yeezus_22,

Summary by start number:

Start 1:

- Found in 8 of 59 (13.6%) of genes in pham
- Manual Annotations of this start: 7 of 52
- Called 100.0% 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), Quantum_25 (BM), Satis_26 (BM),

Start 7:

- Found in 1 of 59 (1.7%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yappy_57 (singleton),

Start 10:

- Found in 2 of 59 (3.4%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Commonplace_35 (JD), Nonagon_34 (JD),

Start 12:

- Found in 19 of 59 (32.2%) of genes in pham
- Manual Annotations of this start: 18 of 52
- 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_41 (ED2), StevieWelch_40 (ED2), Welcome_41 (ED2), Wolfstar_35 (ED), Yuma_39 (ED2),

Start 14:

- Found in 6 of 59 (10.2%) of genes in pham
- Manual Annotations of this start: 6 of 52
- 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 16:

- Found in 11 of 59 (18.6%) of genes in pham
- Manual Annotations of this start: 3 of 52
- Called 27.3% of time when present
- Phage (with cluster) where this start called: Kukla_2 (FJ), LuckyBarnes_9 (singleton), TripleJ_2 (FJ),

Start 17:

- Found in 1 of 59 (1.7%) 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 20:

- Found in 5 of 59 (8.5%) of genes in pham
- Manual Annotations of this start: 5 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BarnCat_20 (GB), Cassita_24 (GB), LeeroyJenkins_24 (GB), Lifes_22 (GB), WaterT_23 (GB),

Start 22:

- Found in 13 of 59 (22.0%) of genes in pham
- Manual Annotations of this start: 13 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amavida_25 (AQ), Amigo_23 (AQ), Anansi_23 (AQ), Boersma_24 (AQ), Gorgeous_23 (AQ), Heylee_25 (AQ), Ichor_22 (AQ), Jaek_22 (AQ), Molivia_27 (AQ), Rings_22 (AQ), SorJuana_23 (AQ), Thunderclap_23 (AQ), Yeezus_22 (AQ),

Start 35:

- Found in 11 of 59 (18.6%) of genes in pham
- No Manual Annotations of this start.
- Called 9.1% of time when present
- Phage (with cluster) where this start called: CN1A_58 (singleton),

Summary by clusters:

There are 9 clusters represented in this pham: AQ, singleton, BM, ED2, ED1, GB, ED, JD, FJ,

Info for manual annotations of cluster AQ:

- Start number 22 was manually annotated 13 times for cluster AQ.

Info for manual annotations of cluster BM:

- Start number 1 was manually annotated 7 times for cluster BM.

Info for manual annotations of cluster ED:

- Start number 12 was manually annotated 1 time for cluster ED.

Info for manual annotations of cluster ED1:

- Start number 12 was manually annotated 7 times for cluster ED1.
- Start number 14 was manually annotated 6 times for cluster ED1.

Info for manual annotations of cluster ED2:

- Start number 12 was manually annotated 10 times for cluster ED2.

Info for manual annotations of cluster FJ:

- Start number 16 was manually annotated 2 times for cluster FJ.

Info for manual annotations of cluster GB:

- Start number 20 was manually annotated 5 times for cluster GB.

Gene Information:

Gene: ASegato_39 Start: 14663, Stop: 16192, Start Num: 12

Candidate Starts for ASegato_39:

(Start: 12 @14663 has 18 MA's), (30, 14756), (34, 14771), (51, 14873), (69, 15011), (75, 15032), (82, 15077), (89, 15125), (97, 15170), (98, 15176), (117, 15296), (124, 15371), (125, 15386), (135, 15485), (137, 15500), (141, 15536), (161, 15686), (163, 15695), (165, 15713), (170, 15794), (180, 15854), (185, 15893), (193, 15941),

Gene: Alleb_33 Start: 13165, Stop: 14715, Start Num: 14

Candidate Starts for Alleb_33:

(Start: 14 @13165 has 6 MA's), (24, 13210), (26, 13231), (35, 13282), (36, 13285), (47, 13351), (69, 13513), (74, 13525), (75, 13534), (80, 13561), (96, 13666), (97, 13672), (111, 13771), (112, 13774), (117, 13795), (130, 13939), (135, 13990), (137, 14005), (140, 14038), (161, 14191), (163, 14200), (170, 14299), (180, 14359), (185, 14398), (188, 14419), (189, 14428), (224, 14590),

Gene: Amavida_25 Start: 10314, Stop: 11843, Start Num: 22

Candidate Starts for Amavida_25:

(Start: 22 @10314 has 13 MA's), (23, 10326), (37, 10401), (40, 10413), (42, 10428), (47, 10458), (54, 10491), (57, 10530), (65, 10569), (75, 10635), (78, 10644), (88, 10719), (90, 10731), (96, 10785), (100, 10806), (109, 10869), (112, 10890), (130, 11043), (132, 11055), (136, 11103), (145, 11190), (149, 11238), (153, 11268), (154, 11274), (162, 11337), (172, 11442), (173, 11448), (187, 11547), (189, 11565), (192, 11577), (201, 11622), (214, 11679),

Gene: Amigo_23 Start: 10188, Stop: 11717, Start Num: 22

Candidate Starts for Amigo_23:

(Start: 22 @10188 has 13 MA's), (23, 10200), (37, 10275), (40, 10287), (42, 10302), (47, 10332), (54, 10365), (65, 10443), (88, 10593), (90, 10605), (96, 10659), (100, 10680), (112, 10764), (124, 10854), (130, 10917), (132, 10929), (136, 10977), (145, 11064), (149, 11112), (153, 11142), (154, 11148),

(162, 11211), (172, 11316), (173, 11322), (187, 11421), (189, 11439), (192, 11451), (201, 11496), (214, 11553),

Gene: Anansi_23 Start: 10197, Stop: 11726, Start Num: 22

Candidate Starts for Anansi_23:

(Start: 22 @10197 has 13 MA's), (23, 10209), (37, 10284), (40, 10296), (42, 10311), (47, 10341), (54, 10374), (65, 10452), (88, 10602), (90, 10614), (96, 10668), (100, 10689), (112, 10773), (124, 10863), (130, 10926), (132, 10938), (136, 10986), (145, 11073), (149, 11121), (153, 11151), (154, 11157), (162, 11220), (172, 11325), (173, 11331), (187, 11430), (189, 11448), (192, 11460), (201, 11505), (214, 11562),

Gene: BarnCat_20 Start: 8100, Stop: 9647, Start Num: 20

Candidate Starts for BarnCat_20:

(3, 8001), (Start: 20 @8100 has 5 MA's), (30, 8178), (38, 8211), (39, 8214), (44, 8241), (76, 8460), (99, 8607), (101, 8613), (113, 8697), (123, 8760), (127, 8790), (135, 8883), (152, 9015), (156, 9042), (160, 9087), (162, 9096), (165, 9117), (166, 9126), (172, 9207), (174, 9216), (180, 9261), (184, 9285), (188, 9324), (190, 9339), (198, 9375), (210, 9438), (229, 9579), (231, 9615), (232, 9618),

Gene: Boersma_24 Start: 10188, Stop: 11717, Start Num: 22

Candidate Starts for Boersma_24:

(Start: 22 @10188 has 13 MA's), (23, 10200), (37, 10275), (40, 10287), (42, 10302), (47, 10332), (54, 10365), (65, 10443), (88, 10593), (90, 10605), (96, 10659), (100, 10680), (112, 10764), (124, 10854), (130, 10917), (132, 10929), (136, 10977), (145, 11064), (149, 11112), (153, 11142), (154, 11148), (162, 11211), (172, 11316), (173, 11322), (187, 11421), (189, 11439), (192, 11451), (201, 11496), (214, 11553),

Gene: CMP1_12 Start: 8832, Stop: 10340, Start Num: 17

Candidate Starts for CMP1_12:

(13, 8823), (17, 8832), (19, 8838), (42, 8979), (43, 8982), (62, 9099), (73, 9192), (110, 9435), (112, 9441), (122, 9510), (130, 9582), (138, 9651), (142, 9687), (152, 9765), (154, 9783), (160, 9837), (165, 9867), (166, 9876), (173, 9963), (196, 10125), (211, 10194), (213, 10203),

Gene: CN1A_58 Start: 46863, Stop: 45484, Start Num: 35

Candidate Starts for CN1A_58:

(15, 46977), (21, 46956), (29, 46893), (31, 46884), (35, 46863), (41, 46833), (44, 46821), (45, 46818), (57, 46731), (64, 46695), (75, 46641), (79, 46629), (89, 46548), (94, 46515), (99, 46491), (102, 46479), (113, 46398), (114, 46392), (115, 46389), (118, 46377), (124, 46329), (127, 46308), (128, 46296), (134, 46236), (135, 46215), (141, 46164), (151, 46086), (153, 46074), (158, 46041), (162, 46008), (164, 45993), (183, 45822), (185, 45801), (188, 45780), (195, 45732), (203, 45705), (207, 45687), (209, 45672), (211, 45660), (219, 45636), (227, 45546),

Gene: Cassita_24 Start: 8661, Stop: 10208, Start Num: 20

Candidate Starts for Cassita_24:

(Start: 20 @8661 has 5 MA's), (38, 8772), (39, 8775), (44, 8802), (76, 9021), (99, 9168), (101, 9174), (111, 9249), (113, 9258), (127, 9351), (135, 9444), (152, 9576), (160, 9648), (162, 9657), (165, 9678), (166, 9687), (172, 9768), (174, 9777), (180, 9822), (184, 9846), (188, 9885), (190, 9900), (198, 9936), (210, 9999), (229, 10140), (231, 10176),

Gene: Commonplace_35 Start: 15291, Stop: 16868, Start Num: 10

Candidate Starts for Commonplace_35:

(8, 15285), (10, 15291), (27, 15375), (34, 15417), (35, 15426), (43, 15465), (60, 15570), (64, 15603), (68, 15624), (71, 15660), (84, 15729), (85, 15732), (87, 15741), (106, 15900), (116, 15951), (126, 16041), (129, 16065), (145, 16233), (148, 16275), (154, 16317), (156, 16326), (168, 16416), (172,

16470), (177, 16500), (179, 16521), (188, 16587), (202, 16659), (216, 16722), (226, 16803), (228, 16833),

Gene: DejaVu_35 Start: 13501, Stop: 15063, Start Num: 12

Candidate Starts for DejaVu_35:

(Start: 12 @13501 has 18 MA's), (24, 13549), (74, 13864), (75, 13873), (80, 13900), (96, 14005), (103, 14056), (117, 14134), (135, 14329), (137, 14344), (140, 14377), (163, 14539), (170, 14638), (180, 14698), (185, 14737), (188, 14758), (208, 14860),

Gene: DustyDino_43 Start: 15611, Stop: 17131, Start Num: 12

Candidate Starts for DustyDino_43:

(Start: 12 @15611 has 18 MA's), (30, 15704), (34, 15719), (51, 15821), (69, 15959), (75, 15980), (82, 16025), (89, 16073), (97, 16118), (98, 16124), (117, 16244), (124, 16319), (125, 16334), (135, 16433), (137, 16448), (141, 16484), (161, 16634), (163, 16643), (165, 16661), (170, 16742), (180, 16802), (185, 16841), (193, 16889),

Gene: EhyElimayoE_26 Start: 13508, Stop: 15238, Start Num: 1

Candidate Starts for EhyElimayoE_26:

(Start: 1 @13508 has 7 MA's), (2, 13514), (4, 13535), (5, 13550), (6, 13562), (11, 13601), (Start: 16 @13616 has 3 MA's), (27, 13682), (40, 13754), (41, 13763), (46, 13793), (53, 13832), (58, 13874), (77, 13985), (81, 14015), (125, 14336), (127, 14342), (131, 14393), (144, 14510), (145, 14531), (149, 14579), (156, 14624), (162, 14675), (165, 14696), (171, 14777), (172, 14780), (175, 14798), (176, 14801), (177, 14810), (179, 14831), (190, 14909), (199, 14954), (234, 15203),

Gene: Erenyeager_40 Start: 15006, Stop: 16526, Start Num: 12

Candidate Starts for Erenyeager_40:

(Start: 12 @15006 has 18 MA's), (30, 15099), (34, 15114), (51, 15216), (69, 15354), (75, 15375), (82, 15420), (89, 15468), (97, 15513), (98, 15519), (117, 15639), (124, 15714), (125, 15729), (135, 15828), (137, 15843), (141, 15879), (161, 16029), (163, 16038), (165, 16056), (170, 16137), (180, 16197), (185, 16236), (193, 16284),

Gene: Fork_36 Start: 14321, Stop: 15841, Start Num: 12

Candidate Starts for Fork_36:

(Start: 12 @14321 has 18 MA's), (30, 14414), (34, 14429), (51, 14531), (69, 14669), (75, 14690), (82, 14735), (89, 14783), (97, 14828), (98, 14834), (117, 14954), (124, 15029), (125, 15044), (135, 15143), (137, 15158), (141, 15194), (161, 15344), (163, 15353), (165, 15371), (170, 15452), (180, 15512), (185, 15551), (193, 15599),

Gene: Frankenweenie_31 Start: 15404, Stop: 17143, Start Num: 1

Candidate Starts for Frankenweenie_31:

(Start: 1 @15404 has 7 MA's), (2, 15410), (4, 15431), (6, 15458), (9, 15491), (Start: 16 @15512 has 3 MA's), (27, 15578), (40, 15650), (41, 15659), (46, 15689), (53, 15728), (58, 15770), (65, 15809), (77, 15881), (81, 15911), (89, 15968), (104, 16079), (124, 16217), (131, 16289), (141, 16382), (145, 16427), (159, 16538), (162, 16571), (171, 16673), (172, 16676), (176, 16697), (177, 16706), (190, 16805), (199, 16850), (234, 17099),

Gene: Gorgeous_23 Start: 10197, Stop: 11726, Start Num: 22

Candidate Starts for Gorgeous_23:

(Start: 22 @10197 has 13 MA's), (23, 10209), (37, 10284), (40, 10296), (42, 10311), (47, 10341), (54, 10374), (65, 10452), (88, 10602), (90, 10614), (96, 10668), (100, 10689), (112, 10773), (124, 10863), (130, 10926), (132, 10938), (136, 10986), (145, 11073), (149, 11121), (153, 11151), (154, 11157), (162, 11220), (172, 11325), (173, 11331), (187, 11430), (189, 11448), (192, 11460), (201, 11505), (214, 11562),

Gene: Heylee_25 Start: 10314, Stop: 11843, Start Num: 22

Candidate Starts for Heylee_25:

(Start: 22 @10314 has 13 MA's), (23, 10326), (37, 10401), (40, 10413), (42, 10428), (47, 10458), (54, 10491), (57, 10530), (65, 10569), (75, 10635), (78, 10644), (88, 10719), (90, 10731), (96, 10785), (100, 10806), (109, 10869), (112, 10890), (130, 11043), (132, 11055), (136, 11103), (145, 11190), (149, 11238), (153, 11268), (154, 11274), (162, 11337), (172, 11442), (173, 11448), (187, 11547), (189, 11565), (192, 11577), (201, 11622), (214, 11679),

Gene: Hortus1_32 Start: 13179, Stop: 14729, Start Num: 14

Candidate Starts for Hortus1_32:

(Start: 14 @13179 has 6 MA's), (24, 13224), (26, 13245), (35, 13296), (36, 13299), (47, 13365), (69, 13527), (74, 13539), (75, 13548), (80, 13575), (96, 13680), (97, 13686), (111, 13785), (112, 13788), (117, 13809), (130, 13953), (135, 14004), (137, 14019), (140, 14052), (161, 14205), (163, 14214), (170, 14313), (180, 14373), (185, 14412), (188, 14433), (189, 14442), (224, 14604),

Gene: Hubbs_34 Start: 13713, Stop: 15275, Start Num: 12

Candidate Starts for Hubbs_34:

(Start: 12 @13713 has 18 MA's), (24, 13761), (30, 13809), (74, 14076), (75, 14085), (80, 14112), (96, 14217), (103, 14268), (117, 14346), (135, 14541), (137, 14556), (140, 14589), (163, 14751), (170, 14850), (180, 14910), (185, 14949), (188, 14970), (208, 15072),

Gene: Ichor_22 Start: 10188, Stop: 11717, Start Num: 22

Candidate Starts for Ichor_22:

(Start: 22 @10188 has 13 MA's), (23, 10200), (37, 10275), (40, 10287), (42, 10302), (47, 10332), (54, 10365), (65, 10443), (88, 10593), (90, 10605), (96, 10659), (100, 10680), (112, 10764), (124, 10854), (130, 10917), (132, 10929), (136, 10977), (145, 11064), (149, 11112), (153, 11142), (154, 11148), (162, 11211), (172, 11316), (173, 11322), (187, 11421), (189, 11439), (192, 11451), (201, 11496), (214, 11553),

Gene: Jacko_36 Start: 13698, Stop: 15251, Start Num: 12

Candidate Starts for Jacko_36:

(Start: 12 @13698 has 18 MA's), (21, 13722), (24, 13743), (49, 13899), (74, 14058), (75, 14067), (89, 14160), (121, 14391), (130, 14475), (137, 14541), (140, 14574), (146, 14622), (158, 14700), (163, 14736), (170, 14835), (180, 14895), (182, 14907), (185, 14934), (188, 14955), (205, 15039),

Gene: Jaek_22 Start: 10188, Stop: 11717, Start Num: 22

Candidate Starts for Jaek_22:

(Start: 22 @10188 has 13 MA's), (23, 10200), (37, 10275), (40, 10287), (42, 10302), (47, 10332), (54, 10365), (65, 10443), (88, 10593), (90, 10605), (96, 10659), (100, 10680), (112, 10764), (124, 10854), (130, 10917), (132, 10929), (136, 10977), (145, 11064), (149, 11112), (153, 11142), (154, 11148), (162, 11211), (172, 11316), (173, 11322), (187, 11421), (189, 11439), (192, 11451), (201, 11496), (214, 11553),

Gene: JustBecause_22 Start: 12250, Stop: 13989, Start Num: 1

Candidate Starts for JustBecause_22:

(Start: 1 @12250 has 7 MA's), (2, 12256), (4, 12277), (5, 12292), (6, 12304), (9, 12337), (Start: 16 @12358 has 3 MA's), (27, 12424), (41, 12505), (46, 12535), (52, 12571), (53, 12574), (58, 12616), (66, 12658), (77, 12727), (80, 12748), (86, 12784), (104, 12925), (124, 13063), (125, 13078), (126, 13081), (144, 13252), (145, 13273), (162, 13417), (172, 13522), (176, 13543), (177, 13552), (182, 13588), (186, 13624), (190, 13651), (199, 13696), (200, 13699), (218, 13771), (230, 13894), (231, 13921), (234, 13945),

Gene: Kela_22 Start: 12241, Stop: 13980, Start Num: 1

Candidate Starts for Kela_22:

(Start: 1 @12241 has 7 MA's), (2, 12247), (4, 12268), (5, 12283), (6, 12295), (9, 12328), (Start: 16 @12349 has 3 MA's), (27, 12415), (41, 12496), (46, 12526), (52, 12562), (53, 12565), (58, 12607), (77, 12718), (80, 12739), (86, 12775), (104, 12916), (124, 13054), (125, 13069), (126, 13072), (144, 13243), (145, 13264), (162, 13408), (172, 13513), (176, 13534), (177, 13543), (182, 13579), (186, 13615), (190, 13642), (199, 13687), (200, 13690), (218, 13762), (230, 13885), (234, 13936),

Gene: Kradal_26 Start: 13508, Stop: 15238, Start Num: 1

Candidate Starts for Kradal_26:

(Start: 1 @13508 has 7 MA's), (2, 13514), (4, 13535), (5, 13550), (6, 13562), (11, 13601), (Start: 16 @13616 has 3 MA's), (27, 13682), (40, 13754), (41, 13763), (46, 13793), (53, 13832), (58, 13874), (77, 13985), (81, 14015), (125, 14336), (127, 14342), (131, 14393), (144, 14510), (145, 14531), (149, 14579), (156, 14624), (162, 14675), (165, 14696), (171, 14777), (172, 14780), (175, 14798), (176, 14801), (177, 14810), (179, 14831), (190, 14909), (199, 14954), (234, 15203),

Gene: Kukla_2 Start: 1515, Stop: 3053, Start Num: 16

Candidate Starts for Kukla_2:

(Start: 16 @1515 has 3 MA's), (37, 1638), (39, 1644), (67, 1812), (92, 1986), (99, 2025), (120, 2151), (139, 2316), (147, 2400), (150, 2424), (152, 2433), (156, 2460), (162, 2514), (164, 2529), (170, 2616), (177, 2652), (180, 2679), (197, 2796), (207, 2835), (210, 2862), (215, 2883), (217, 2886), (223, 2919), (233, 3045),

Gene: LeeroyJenkins_24 Start: 8579, Stop: 10126, Start Num: 20

Candidate Starts for LeeroyJenkins_24:

(3, 8480), (Start: 20 @8579 has 5 MA's), (30, 8657), (38, 8690), (39, 8693), (44, 8720), (76, 8939), (99, 9086), (101, 9092), (113, 9176), (123, 9239), (127, 9269), (135, 9362), (152, 9494), (156, 9521), (160, 9566), (162, 9575), (165, 9596), (166, 9605), (172, 9686), (174, 9695), (180, 9740), (184, 9764), (188, 9803), (190, 9818), (198, 9854), (210, 9917), (229, 10058), (231, 10094), (232, 10097),

Gene: Lifes_22 Start: 8131, Stop: 9678, Start Num: 20

Candidate Starts for Lifes_22:

(3, 8032), (Start: 20 @8131 has 5 MA's), (30, 8209), (38, 8242), (39, 8245), (44, 8272), (76, 8491), (99, 8638), (101, 8644), (113, 8728), (123, 8791), (127, 8821), (135, 8914), (152, 9046), (156, 9073), (160, 9118), (162, 9127), (165, 9148), (166, 9157), (172, 9238), (174, 9247), (180, 9292), (184, 9316), (188, 9355), (190, 9370), (198, 9406), (210, 9469), (229, 9610), (231, 9646), (232, 9649),

Gene: LuckyBarnes_9 Start: 4254, Stop: 5828, Start Num: 16

Candidate Starts for LuckyBarnes_9:

(Start: 16 @4254 has 3 MA's), (18, 4260), (35, 4368), (48, 4431), (56, 4476), (63, 4515), (68, 4551), (70, 4602), (72, 4605), (83, 4665), (89, 4710), (91, 4713), (93, 4746), (94, 4752), (95, 4755), (112, 4866), (124, 4950), (128, 4983), (139, 5079), (141, 5109), (150, 5178), (151, 5184), (152, 5187), (156, 5214), (162, 5268), (167, 5301), (172, 5376), (180, 5433), (181, 5445), (191, 5514), (204, 5577), (219, 5643), (223, 5670), (224, 5679),

Gene: Lupine_33 Start: 13385, Stop: 14947, Start Num: 12

Candidate Starts for Lupine_33:

(Start: 12 @13385 has 18 MA's), (24, 13433), (30, 13481), (74, 13748), (75, 13757), (80, 13784), (96, 13889), (103, 13940), (117, 14018), (135, 14213), (137, 14228), (140, 14261), (163, 14423), (170, 14522), (180, 14582), (185, 14621), (188, 14642), (208, 14744),

Gene: Lyell_40 Start: 14924, Stop: 16453, Start Num: 12

Candidate Starts for Lyell_40:

(Start: 12 @14924 has 18 MA's), (30, 15017), (34, 15032), (51, 15134), (69, 15272), (75, 15293), (82, 15338), (89, 15386), (98, 15437), (117, 15557), (124, 15632), (135, 15746), (137, 15761), (141, 15797), (161, 15947), (163, 15956), (165, 15974), (170, 16055), (180, 16115), (185, 16154), (189, 16184), (193, 16202),

Gene: Molivia_27 Start: 10483, Stop: 12003, Start Num: 22

Candidate Starts for Molivia_27:

(Start: 22 @10483 has 13 MA's), (23, 10495), (37, 10570), (50, 10645), (54, 10660), (55, 10669), (59, 10702), (65, 10738), (68, 10753), (78, 10813), (88, 10888), (90, 10900), (96, 10954), (100, 10975), (119, 11107), (124, 11146), (130, 11209), (132, 11221), (136, 11269), (141, 11311), (144, 11335), (153, 11434), (156, 11449), (159, 11470), (162, 11503), (164, 11518), (172, 11608), (173, 11614), (178, 11650), (187, 11713), (188, 11722), (192, 11743), (194, 11758), (203, 11797), (219, 11860), (225, 11899),

Gene: Musetta_40 Start: 15031, Stop: 16560, Start Num: 12

Candidate Starts for Musetta_40:

(Start: 12 @15031 has 18 MA's), (30, 15124), (34, 15139), (51, 15241), (69, 15379), (75, 15400), (82, 15445), (89, 15493), (97, 15538), (98, 15544), (117, 15664), (124, 15739), (125, 15754), (135, 15853), (137, 15868), (141, 15904), (161, 16054), (163, 16063), (165, 16081), (170, 16162), (180, 16222), (185, 16261), (193, 16309),

Gene: Necrophoxinus_42 Start: 15619, Stop: 17139, Start Num: 12

Candidate Starts for Necrophoxinus_42:

(Start: 12 @15619 has 18 MA's), (30, 15712), (34, 15727), (51, 15829), (69, 15967), (75, 15988), (82, 16033), (89, 16081), (97, 16126), (98, 16132), (117, 16252), (124, 16327), (125, 16342), (135, 16441), (137, 16456), (141, 16492), (161, 16642), (163, 16651), (165, 16669), (170, 16750), (180, 16810), (185, 16849), (193, 16897),

Gene: Nirvana_30 Start: 15604, Stop: 17343, Start Num: 1

Candidate Starts for Nirvana_30:

(Start: 1 @15604 has 7 MA's), (2, 15610), (4, 15631), (6, 15658), (9, 15691), (Start: 16 @15712 has 3 MA's), (27, 15778), (40, 15850), (41, 15859), (46, 15889), (48, 15904), (52, 15925), (58, 15970), (77, 16081), (81, 16111), (104, 16279), (107, 16300), (125, 16432), (131, 16489), (144, 16606), (145, 16627), (149, 16675), (159, 16738), (162, 16771), (171, 16873), (172, 16876), (176, 16897), (177, 16906), (186, 16978), (190, 17005), (199, 17050), (200, 17053), (234, 17299),

Gene: Nonagon_34 Start: 14950, Stop: 16527, Start Num: 10

Candidate Starts for Nonagon_34:

(8, 14944), (10, 14950), (34, 15076), (35, 15085), (43, 15124), (60, 15229), (64, 15262), (68, 15283), (71, 15319), (84, 15388), (85, 15391), (87, 15400), (101, 15508), (105, 15550), (106, 15559), (116, 15610), (126, 15700), (129, 15724), (145, 15892), (148, 15934), (154, 15976), (156, 15985), (168, 16075), (172, 16129), (177, 16159), (179, 16180), (188, 16246), (202, 16318), (216, 16381), (226, 16462), (228, 16492),

Gene: OlinDD_32 Start: 13178, Stop: 14728, Start Num: 14

Candidate Starts for OlinDD_32:

(Start: 14 @13178 has 6 MA's), (24, 13223), (26, 13244), (35, 13295), (36, 13298), (47, 13364), (69, 13526), (74, 13538), (75, 13547), (80, 13574), (96, 13679), (97, 13685), (111, 13784), (112, 13787), (117, 13808), (130, 13952), (135, 14003), (137, 14018), (140, 14051), (161, 14204), (163, 14213), (170, 14312), (180, 14372), (185, 14411), (188, 14432), (189, 14441), (224, 14603),

Gene: Pavlo_33 Start: 13660, Stop: 15222, Start Num: 12

Candidate Starts for Pavlo_33:

(Start: 12 @13660 has 18 MA's), (24, 13708), (74, 14023), (75, 14032), (80, 14059), (96, 14164), (103, 14215), (117, 14293), (135, 14488), (137, 14503), (140, 14536), (163, 14698), (170, 14797), (180, 14857), (185, 14896), (188, 14917), (208, 15019),

Gene: PhillyPhilly_34 Start: 13565, Stop: 15127, Start Num: 12

Candidate Starts for PhillyPhilly_34:

(Start: 12 @13565 has 18 MA's), (24, 13613), (30, 13661), (74, 13928), (75, 13937), (80, 13964), (96, 14069), (103, 14120), (117, 14198), (135, 14393), (137, 14408), (140, 14441), (163, 14603), (170, 14702), (180, 14762), (185, 14801), (188, 14822), (208, 14924),

Gene: Pioneer3_32 Start: 13162, Stop: 14712, Start Num: 14

Candidate Starts for Pioneer3_32:

(Start: 14 @13162 has 6 MA's), (24, 13207), (26, 13228), (35, 13279), (36, 13282), (47, 13348), (69, 13510), (74, 13522), (75, 13531), (80, 13558), (96, 13663), (97, 13669), (111, 13768), (112, 13771), (117, 13792), (130, 13936), (135, 13987), (137, 14002), (140, 14035), (161, 14188), (163, 14197), (170, 14296), (180, 14356), (185, 14395), (188, 14416), (189, 14425), (224, 14587),

Gene: Platte_32 Start: 12947, Stop: 14497, Start Num: 14

Candidate Starts for Platte_32:

(Start: 14 @12947 has 6 MA's), (24, 12992), (26, 13013), (35, 13064), (36, 13067), (47, 13133), (69, 13295), (74, 13307), (75, 13316), (80, 13343), (96, 13448), (97, 13454), (111, 13553), (112, 13556), (117, 13577), (130, 13721), (135, 13772), (137, 13787), (140, 13820), (161, 13973), (163, 13982), (170, 14081), (180, 14141), (185, 14180), (188, 14201), (189, 14210), (224, 14372),

Gene: Quantum_25 Start: 13508, Stop: 15238, Start Num: 1

Candidate Starts for Quantum_25:

(Start: 1 @13508 has 7 MA's), (2, 13514), (4, 13535), (5, 13550), (6, 13562), (11, 13601), (Start: 16 @13616 has 3 MA's), (27, 13682), (40, 13754), (41, 13763), (46, 13793), (53, 13832), (58, 13874), (77, 13985), (81, 14015), (125, 14336), (127, 14342), (131, 14393), (144, 14510), (145, 14531), (149, 14579), (156, 14624), (162, 14675), (165, 14696), (171, 14777), (172, 14780), (175, 14798), (176, 14801), (177, 14810), (179, 14831), (190, 14909), (199, 14954), (234, 15203),

Gene: Rings_22 Start: 10319, Stop: 11848, Start Num: 22

Candidate Starts for Rings_22:

(Start: 22 @10319 has 13 MA's), (23, 10331), (37, 10406), (40, 10418), (42, 10433), (47, 10463), (54, 10496), (57, 10535), (65, 10574), (75, 10640), (78, 10649), (88, 10724), (90, 10736), (96, 10790), (100, 10811), (109, 10874), (112, 10895), (130, 11048), (132, 11060), (136, 11108), (145, 11195), (149, 11243), (153, 11273), (154, 11279), (162, 11342), (172, 11447), (173, 11453), (187, 11552), (189, 11570), (192, 11582), (201, 11627), (214, 11684),

Gene: Roman_34 Start: 13560, Stop: 15122, Start Num: 12

Candidate Starts for Roman_34:

(Start: 12 @13560 has 18 MA's), (24, 13608), (30, 13656), (74, 13923), (75, 13932), (80, 13959), (96, 14064), (103, 14115), (117, 14193), (135, 14388), (137, 14403), (140, 14436), (163, 14598), (170, 14697), (180, 14757), (185, 14796), (188, 14817), (208, 14919),

Gene: RunningBrook_41 Start: 15611, Stop: 17131, Start Num: 12

Candidate Starts for RunningBrook_41:

(Start: 12 @15611 has 18 MA's), (30, 15704), (34, 15719), (51, 15821), (69, 15959), (75, 15980), (82, 16025), (89, 16073), (97, 16118), (98, 16124), (117, 16244), (124, 16319), (125, 16334), (135, 16433), (137, 16448), (141, 16484), (161, 16634), (163, 16643), (165, 16661), (170, 16742), (180, 16802), (185, 16841), (193, 16889),

Gene: Satis_26 Start: 13504, Stop: 15234, Start Num: 1

Candidate Starts for Satis_26:

(Start: 1 @13504 has 7 MA's), (2, 13510), (4, 13531), (5, 13546), (6, 13558), (11, 13597), (Start: 16 @13612 has 3 MA's), (27, 13678), (40, 13750), (41, 13759), (46, 13789), (53, 13828), (58, 13870), (77, 13981), (81, 14011), (125, 14332), (127, 14338), (131, 14389), (144, 14506), (145, 14527), (149, 14575), (156, 14620), (162, 14671), (165, 14692), (171, 14773), (172, 14776), (175, 14794), (176, 14797), (177, 14806), (179, 14827), (190, 14905), (199, 14950), (234, 15199),

Gene: SorJuana_23 Start: 10197, Stop: 11726, Start Num: 22

Candidate Starts for SorJuana_23:

(Start: 22 @10197 has 13 MA's), (23, 10209), (37, 10284), (40, 10296), (42, 10311), (47, 10341), (54, 10374), (65, 10452), (88, 10602), (90, 10614), (96, 10668), (100, 10689), (112, 10773), (124, 10863), (130, 10926), (132, 10938), (136, 10986), (145, 11073), (149, 11121), (153, 11151), (154, 11157), (162, 11220), (172, 11325), (173, 11331), (187, 11430), (189, 11448), (192, 11460), (201, 11505), (214, 11562),

Gene: StevieWelch_40 Start: 15011, Stop: 16531, Start Num: 12

Candidate Starts for StevieWelch_40:

(Start: 12 @15011 has 18 MA's), (30, 15104), (34, 15119), (51, 15221), (69, 15359), (75, 15380), (82, 15425), (89, 15473), (97, 15518), (98, 15524), (117, 15644), (124, 15719), (125, 15734), (135, 15833), (137, 15848), (141, 15884), (161, 16034), (163, 16043), (165, 16061), (170, 16142), (180, 16202), (185, 16241), (193, 16289),

Gene: Tandem_32 Start: 13101, Stop: 14651, Start Num: 14

Candidate Starts for Tandem_32:

(Start: 14 @13101 has 6 MA's), (24, 13146), (26, 13167), (35, 13218), (36, 13221), (47, 13287), (69, 13449), (74, 13461), (75, 13470), (80, 13497), (96, 13602), (97, 13608), (111, 13707), (112, 13710), (117, 13731), (130, 13875), (135, 13926), (137, 13941), (140, 13974), (161, 14127), (163, 14136), (170, 14235), (180, 14295), (185, 14334), (188, 14355), (189, 14364), (224, 14526),

Gene: Thunderclap_23 Start: 10218, Stop: 11747, Start Num: 22

Candidate Starts for Thunderclap_23:

(Start: 22 @10218 has 13 MA's), (23, 10230), (37, 10305), (40, 10317), (42, 10332), (47, 10362), (54, 10395), (65, 10473), (88, 10623), (90, 10635), (96, 10689), (100, 10710), (130, 10947), (132, 10959), (136, 11007), (145, 11094), (149, 11142), (153, 11172), (154, 11178), (162, 11241), (172, 11346), (173, 11352), (187, 11451), (189, 11469), (192, 11481), (201, 11526), (214, 11583), (227, 11697),

Gene: TripleJ_2 Start: 1517, Stop: 3055, Start Num: 16

Candidate Starts for TripleJ_2:

(Start: 16 @1517 has 3 MA's), (33, 1619), (39, 1646), (64, 1799), (92, 1988), (99, 2027), (120, 2153), (139, 2318), (150, 2426), (152, 2435), (162, 2516), (164, 2531), (177, 2654), (180, 2681), (187, 2735), (197, 2798), (206, 2831), (207, 2837), (210, 2864), (212, 2870), (215, 2885), (217, 2888), (221, 2906), (233, 3047),

Gene: WaterT_23 Start: 8405, Stop: 9952, Start Num: 20

Candidate Starts for WaterT_23:

(3, 8306), (Start: 20 @8405 has 5 MA's), (28, 8465), (30, 8483), (38, 8516), (39, 8519), (44, 8546), (76, 8765), (99, 8912), (101, 8918), (113, 9002), (123, 9065), (127, 9095), (135, 9188), (152, 9320), (156, 9347), (160, 9392), (162, 9401), (165, 9422), (166, 9431), (172, 9512), (174, 9521), (180, 9566), (184, 9590), (188, 9629), (190, 9644), (198, 9680), (210, 9743), (229, 9884), (231, 9920), (232, 9923),

Gene: Welcome_41 Start: 15028, Stop: 16548, Start Num: 12

Candidate Starts for Welcome_41:

(Start: 12 @15028 has 18 MA's), (30, 15121), (34, 15136), (51, 15238), (69, 15376), (75, 15397), (82, 15442), (89, 15490), (97, 15535), (98, 15541), (117, 15661), (124, 15736), (125, 15751), (135, 15850), (137, 15865), (141, 15901), (161, 16051), (163, 16060), (165, 16078), (170, 16159), (180, 16219), (185, 16258), (193, 16306),

Gene: Wolfstar_35 Start: 13966, Stop: 15513, Start Num: 12

Candidate Starts for Wolfstar_35:

(Start: 12 @13966 has 18 MA's), (24, 14014), (30, 14062), (35, 14086), (75, 14335), (80, 14362), (82, 14380), (103, 14518), (124, 14677), (135, 14791), (137, 14806), (140, 14839), (161, 14992), (170, 15100), (180, 15160), (188, 15220), (221, 15376),

Gene: Yappy_57 Start: 16169, Stop: 17779, Start Num: 7

Candidate Starts for Yappy_57:

(7, 16169), (25, 16256), (30, 16289), (32, 16295), (41, 16343), (61, 16463), (93, 16673), (96, 16685), (101, 16709), (108, 16766), (120, 16844), (124, 16868), (126, 16886), (127, 16889), (128, 16901), (132, 16943), (133, 16952), (141, 17033), (142, 17036), (152, 17144), (154, 17162), (155, 17168), (156, 17171), (157, 17180), (159, 17192), (160, 17216), (162, 17225), (169, 17309), (175, 17336), (196, 17480), (199, 17489), (208, 17531), (220, 17585), (222, 17597), (233, 17726),

Gene: Yeezus_22 Start: 10187, Stop: 11716, Start Num: 22

Candidate Starts for Yeezus_22:

(Start: 22 @10187 has 13 MA's), (23, 10199), (37, 10274), (40, 10286), (42, 10301), (47, 10331), (54, 10364), (65, 10442), (88, 10592), (90, 10604), (96, 10658), (100, 10679), (112, 10763), (124, 10853), (130, 10916), (132, 10928), (136, 10976), (145, 11063), (149, 11111), (153, 11141), (154, 11147), (162, 11210), (172, 11315), (173, 11321), (187, 11420), (189, 11438), (192, 11450), (201, 11495), (214, 11552),

Gene: Yuma_39 Start: 14930, Stop: 16459, Start Num: 12

Candidate Starts for Yuma_39:

(Start: 12 @14930 has 18 MA's), (30, 15023), (34, 15038), (51, 15140), (59, 15194), (69, 15278), (75, 15299), (82, 15344), (89, 15392), (97, 15437), (98, 15443), (117, 15563), (124, 15638), (125, 15653), (135, 15752), (137, 15767), (141, 15803), (143, 15821), (161, 15953), (163, 15962), (165, 15980), (170, 16061), (180, 16121), (185, 16160), (193, 16208),