Pham 347478


1: SorJuana_33 + 11
2: SorJuana_32 + 11
3: Molivia_36
4: Molivia_37
5: Sashimi_16
6: EvePickles_15 + 1
7: Faja_15
8: JustBecause_51
9: Kela_52
10: Frankenweenie_64 + 1
11: EffyElimayoE_57 + 4
12: Wolfstar_48
13: Uterion_50
14: Roman_47
15: Hubbs_47 + 2
16: Lupine_45 + 2
17: OlinDD_44 + 5
18: Jacko_46
19: PhillyPhilly_46
20: StevieWelch_52 + 6
21: Musetta_52 + 6
22: Lyell_52 + 1
23: Shroomer_56
24: Mistmere_45
25: TripleJ_13
26: PetriParty_12
27: DreamEater_12
28: GUPitcher_13
29: PorkBelly_12
30: Pitbull_13
31: Hum25_13
32: WaterT_38 + 4
33: Nonagon_44
34: Commonplace_45
35: CN1A_45
36: Yappy_64
37: CMP1_27
38: LuckyBarnes_19

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 347478 Report

This analysis was run 11/14/26 on database version 672.

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 347478 has 92 members, 9 are drafts.

Phages represented in each track:
• Track 1 : SorJuana_33, Heylee_36, Yeezus_32, Boersma_34, Gorgeous_33, Amavida_36, Ichor_32, Anansi_33, Thunderclap_33, Jaek_32, Amigo_33, Rings_32
• Track 2 : SorJuana_32, Heylee_35, Yeezus_31, Boersma_33, Gorgeous_32, Ichor_31, Amavida_35, Thunderclap_32, Jaek_31, Amigo_32, Anansi_32, Rings_31
• Track 3 : Molivia_36
• Track 4 : Molivia_37
• Track 5 : Sashimi_16
• Track 6 : EvePickles_15, Kukla_13
• Track 7 : Faja_15
• Track 8 : JustBecause_51
• Track 9 : Kela_52
• Track 10 : Frankenweenie_64, Nirvana_61
• Track 11 : EhyElimayoE_57, Sarkar_57, Quantum_56, Kradal_57, Satis_57
• Track 12 : Wolfstar_48
• Track 13 : Uterion_50
• Track 14 : Roman_47
• Track 15 : Hubbs_47, Pavlo_46, Solimine_47
• Track 16 : Lupine_45, DejaVu_48, Saradis_47
• Track 17 : OlinDD_44, Alleb_45, Pioneer3_44, Tandem_44, Platte_44, Hortus1_44
• Track 18 : Jacko_46
• Track 19 : PhillyPhilly_46
• Track 20 : StevieWelch_52, Fork_48, Casablancas_53, Erenyeager_52, Yuma_51, Deschain_53, ASegato_51
• Track 21 : Musetta_52, HollowPurple_53, Welcome_53, SteakFry_54, Issa7_51, RunningBrook_53, DustyDino_55
• Track 22 : Lyell_52, Necrophoxinus_54
• Track 23 : Shroomer_56
• Track 24 : Mistmere_45
• Track 25 : TripleJ_13
• Track 26 : PetriParty_12
• Track 27 : DreamEater_12
• Track 28 : GUPitcher_13
• Track 29 : PorkBelly_12

• Track 30 : Pitbull_13
• Track 31 : Hum25_13
• Track 32 : WaterT_38, Lifes_35, LeeroyJenkins_39, BarnCat_33, Cassita_39
• Track 33 : Nonagon_44
• Track 34 : Commonplace_45
• Track 35 : CN1A_45
• Track 36 : Yappy_64
• Track 37 : CMP1_27
• Track 38 : LuckyBarnes_19

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

The start number called the most often in the published annotations is 8, it was called in 30 of the 83 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• ASegato_51, Alleb_45, Casablancas_53, DejaVu_48, Deschain_53, DustyDino_55, Erenyeager_52, Fork_48, HollowPurple_53, Hortus1_44, Hubbs_47, Issa7_51, Jacko_46, Lupine_45, Lyell_52, Mistmere_45, Musetta_52, Necrophoxinus_54, OlinDD_44, Pavlo_46, PhillyPhilly_46, Pioneer3_44, Platte_44, Roman_47, RunningBrook_53, Saradis_47, Shroomer_56, Solimine_47, SteakFry_54, StevieWelch_52, Tandem_44, Uterion_50, Welcome_53, Wolfstar_48, Yuma_51,

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

Genes that do not have the "Most Annotated" start:
• Amavida_35, Amavida_36, Amigo_32, Amigo_33, Anansi_32, Anansi_33, BarnCat_33, Boersma_33, Boersma_34, CMP1_27, CN1A_45, Cassita_39, Commonplace_45, DreamEater_12, EhyElimayoE_57, EvePickles_15, Faja_15, Frankenweenie_64, GUPitcher_13, Gorgeous_32, Gorgeous_33, Heylee_35, Heylee_36, Hum25_13, Ichor_31, Ichor_32, Jaek_31, Jaek_32, JustBecause_51, Kela_52, Kradal_57, Kukla_13, LeeroyJenkins_39, Lifes_35, LuckyBarnes_19, Molivia_36, Molivia_37, Nirvana_61, Nonagon_44, PetriParty_12, Pitbull_13, PorkBelly_12, Quantum_56, Rings_31, Rings_32, Sarkar_57, Sashimi_16, Satis_57, SorJuana_32, SorJuana_33, Thunderclap_32, Thunderclap_33, TripleJ_13, WaterT_38, Yappy_64, Yeezus_31, Yeezus_32,

Summary by start number:

Start 2:
• Found in 6 of 92 (6.5%) of genes in pham
• Manual Annotations of this start: 5 of 83
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BarnCat_33 (GB), CMP1_27 (singleton), Cassita_39 (GB), LeeroyJenkins_39 (GB), Lifes_35 (GB), WaterT_38 (GB),

Start 5:
• Found in 9 of 92 (9.8%) of genes in pham
• Manual Annotations of this start: 9 of 83

• Called 100.0% of time when present
• Phage (with cluster) where this start called: EhyElimayoE_57 (BM), Frankenweenie_64 (BM), JustBecause_51 (BM), Kela_52 (BM), Kradal_57 (BM), Nirvana_61 (BM), Quantum_56 (BM), Sarkar_57 (BM), Satis_57 (BM),

Start 8:
• Found in 35 of 92 (38.0%) of genes in pham
• Manual Annotations of this start: 30 of 83
• Called 100.0% of time when present
• Phage (with cluster) where this start called: ASegato_51 (ED2), Alleb_45 (ED1), Casablancas_53 (ED2), DejaVu_48 (ED1), Deschain_53 (ED2), DustyDino_55 (ED2), Erenyeager_52 (ED2), Fork_48 (ED2), HollowPurple_53 (ED2), Hortus1_44 (ED1), Hubbs_47 (ED1), Issa7_51 (ED2), Jacko_46 (ED1), Lupine_45 (ED1), Lyell_52 (ED2), Mistmere_45 (ED3), Musetta_52 (ED2), Necrophoxinus_54 (ED2), OlinDD_44 (ED1), Pavlo_46 (ED1), PhillyPhilly_46 (ED1), Pioneer3_44 (ED1), Platte_44 (ED1), Roman_47 (ED1), RunningBrook_53 (ED2), Saradis_47 (ED1), Shroomer_56 (ED2), Solimine_47 (ED1), SteakFry_54 (ED2), StevieWelch_52 (ED2), Tandem_44 (ED1), Uterion_50 (ED1), Welcome_53 (ED2), Wolfstar_48 (ED), Yuma_51 (ED2),

Start 9:
• Found in 2 of 92 (2.2%) of genes in pham
• Manual Annotations of this start: 2 of 83
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Commonplace_45 (JD), Nonagon_44 (JD),

Start 10:
• Found in 7 of 92 (7.6%) of genes in pham
• Manual Annotations of this start: 6 of 83
• Called 100.0% of time when present
• Phage (with cluster) where this start called: EvePickles_15 (AY), Faja_15 (AY), GUPitcher_13 (FJ), Kukla_13 (FJ), PetriParty_12 (FJ), Sashimi_16 (AY), TripleJ_13 (FJ),

Start 11:
• Found in 1 of 92 (1.1%) 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_45 (singleton),

Start 12:
• Found in 2 of 92 (2.2%) of genes in pham
• Manual Annotations of this start: 1 of 83
• Called 100.0% of time when present
• Phage (with cluster) where this start called: DreamEater_12 (FJ), PorkBelly_12 (FJ),

Start 13:
• Found in 32 of 92 (34.8%) of genes in pham
• Manual Annotations of this start: 30 of 83
• Called 93.8% of time when present
• Phage (with cluster) where this start called: Amavida_35 (AQ), Amavida_36 (AQ), Amigo_32 (AQ), Amigo_33 (AQ), Anansi_32 (AQ), Anansi_33 (AQ), Boersma_33 (AQ), Boersma_34 (AQ), Gorgeous_32 (AQ), Gorgeous_33 (AQ), Heylee_35 (AQ),

Heylee_36 (AQ), Hum25_13 (FQ1), Ichor_31 (AQ), Ichor_32 (AQ), Jaek_31 (AQ), Jaek_32 (AQ), LuckyBarnes_19 (singleton), Molivia_36 (AQ), Molivia_37 (AQ), Pitbull_13 (FQ1), Rings_31 (AQ), Rings_32 (AQ), SorJuana_32 (AQ), SorJuana_33 (AQ), Thunderclap_32 (AQ), Thunderclap_33 (AQ), Yappy_64 (singleton), Yeezus_31 (AQ), Yeezus_32 (AQ),

Summary by clusters:

There are 12 clusters represented in this pham: ED2, singleton, BM, AQ, ED3, ED1, AY, GB, ED, JD, FJ, FQ1,

Info for manual annotations of cluster AQ:
•Start number 13 was manually annotated 26 times for cluster AQ.

Info for manual annotations of cluster AY:
•Start number 10 was manually annotated 3 times for cluster AY.

Info for manual annotations of cluster BM:
•Start number 5 was manually annotated 9 times for cluster BM.

Info for manual annotations of cluster ED:
•Start number 8 was manually annotated 1 time for cluster ED.

Info for manual annotations of cluster ED1:
•Start number 8 was manually annotated 14 times for cluster ED1.

Info for manual annotations of cluster ED2:
•Start number 8 was manually annotated 15 times for cluster ED2.

Info for manual annotations of cluster FJ:
•Start number 10 was manually annotated 3 times for cluster FJ.
•Start number 12 was manually annotated 1 time for cluster FJ.

Info for manual annotations of cluster FQ1:
•Start number 13 was manually annotated 2 times for cluster FQ1.

Info for manual annotations of cluster GB:
•Start number 2 was manually annotated 5 times for cluster GB.

Info for manual annotations of cluster JD:
•Start number 9 was manually annotated 2 times for cluster JD.

Gene Information:

Gene: ASegato_51 Start: 23981, Stop: 24541, Start Num: 8
Candidate Starts for ASegato_51:
(Start: 8 @23981 has 30 MA's), (52, 24314), (56, 24341), (64, 24404), (67, 24422), (68, 24425), (88, 24524),

Gene: Alleb_45 Start: 23042, Stop: 23599, Start Num: 8

Candidate Starts for Alleb_45:
(Start: 8 @23042 has 30 MA's), (46, 23345), (55, 23396), (67, 23480), (77, 23543), (84, 23570),

Gene: Amavida_35 Start: 16804, Stop: 17304, Start Num: 13
Candidate Starts for Amavida_35:
(Start: 13 @16804 has 30 MA's), (15, 16813), (16, 16816), (19, 16843), (25, 16888), (45, 17068), (81, 17260), (85, 17275), (90, 17293), (91, 17296),

Gene: Amavida_36 Start: 17306, Stop: 17800, Start Num: 13
Candidate Starts for Amavida_36:
(Start: 13 @17306 has 30 MA's), (15, 17315), (16, 17318), (23, 17372), (42, 17555), (65, 17678), (74, 17717), (76, 17738), (85, 17774),

Gene: Amigo_33 Start: 17180, Stop: 17674, Start Num: 13
Candidate Starts for Amigo_33:
(Start: 13 @17180 has 30 MA's), (15, 17189), (16, 17192), (23, 17246), (42, 17429), (65, 17552), (74, 17591), (76, 17612), (85, 17648),

Gene: Amigo_32 Start: 16678, Stop: 17178, Start Num: 13
Candidate Starts for Amigo_32:
(Start: 13 @16678 has 30 MA's), (15, 16687), (16, 16690), (19, 16717), (25, 16762), (45, 16942), (81, 17134), (85, 17149), (90, 17167), (91, 17170),

Gene: Anansi_33 Start: 17189, Stop: 17683, Start Num: 13
Candidate Starts for Anansi_33:
(Start: 13 @17189 has 30 MA's), (15, 17198), (16, 17201), (23, 17255), (42, 17438), (65, 17561), (74, 17600), (76, 17621), (85, 17657),

Gene: Anansi_32 Start: 16687, Stop: 17187, Start Num: 13
Candidate Starts for Anansi_32:
(Start: 13 @16687 has 30 MA's), (15, 16696), (16, 16699), (19, 16726), (25, 16771), (45, 16951), (81, 17143), (85, 17158), (90, 17176), (91, 17179),

Gene: BarnCat_33 Start: 17290, Stop: 17856, Start Num: 2
Candidate Starts for BarnCat_33:
(Start: 2 @17290 has 5 MA's), (34, 17551), (54, 17665), (59, 17701), (67, 17737), (75, 17788),

Gene: Boersma_34 Start: 17180, Stop: 17674, Start Num: 13
Candidate Starts for Boersma_34:
(Start: 13 @17180 has 30 MA's), (15, 17189), (16, 17192), (23, 17246), (42, 17429), (65, 17552), (74, 17591), (76, 17612), (85, 17648),

Gene: Boersma_33 Start: 16678, Stop: 17178, Start Num: 13
Candidate Starts for Boersma_33:
(Start: 13 @16678 has 30 MA's), (15, 16687), (16, 16690), (19, 16717), (25, 16762), (45, 16942), (81, 17134), (85, 17149), (90, 17167), (91, 17170),

Gene: CMP1_27 Start: 22546, Stop: 23133, Start Num: 2
Candidate Starts for CMP1_27:
(Start: 2 @22546 has 5 MA's), (4, 22585), (22, 22678), (31, 22765), (33, 22777), (38, 22852), (64, 22996), (65, 23008), (72, 23041), (74, 23047),

Gene: CN1A_45 Start: 33391, Stop: 32879, Start Num: 11

Candidate Starts for CN1A_45:
(11, 33391), (26, 33286), (32, 33238), (41, 33136), (48, 33097), (57, 33043), (63, 33016), (69, 32986), (87, 32893),

Gene: Casablancas_53 Start: 24069, Stop: 24629, Start Num: 8
Candidate Starts for Casablancas_53:
(Start: 8 @24069 has 30 MA's), (52, 24402), (56, 24429), (64, 24492), (67, 24510), (68, 24513), (88, 24612),

Gene: Cassita_39 Start: 19666, Stop: 20232, Start Num: 2
Candidate Starts for Cassita_39:
(Start: 2 @19666 has 5 MA's), (34, 19927), (54, 20041), (59, 20077), (67, 20113), (75, 20164),

Gene: Commonplace_45 Start: 24824, Stop: 25351, Start Num: 9
Candidate Starts for Commonplace_45:
(Start: 9 @24824 has 2 MA's), (Start: 13 @24836 has 30 MA's), (16, 24848), (18, 24869), (19, 24875), (65, 25211), (78, 25289),

Gene: DejaVu_48 Start: 23251, Stop: 23808, Start Num: 8
Candidate Starts for DejaVu_48:
(Start: 8 @23251 has 30 MA's), (24, 23347), (36, 23479), (55, 23605), (64, 23671), (67, 23689), (72, 23716), (77, 23752), (84, 23779),

Gene: Deschain_53 Start: 24733, Stop: 25293, Start Num: 8
Candidate Starts for Deschain_53:
(Start: 8 @24733 has 30 MA's), (52, 25066), (56, 25093), (64, 25156), (67, 25174), (68, 25177), (88, 25276),

Gene: DreamEater_12 Start: 8967, Stop: 9488, Start Num: 12
Candidate Starts for DreamEater_12:
(Start: 12 @8967 has 1 MA's), (16, 8982), (26, 9069), (40, 9210), (46, 9249), (54, 9291), (66, 9366), (82, 9447),

Gene: DustyDino_55 Start: 24925, Stop: 25485, Start Num: 8
Candidate Starts for DustyDino_55:
(Start: 8 @24925 has 30 MA's), (52, 25258), (56, 25285), (57, 25294), (64, 25348), (67, 25366), (68, 25369), (88, 25468),

Gene: EhyElimayoE_57 Start: 31705, Stop: 32271, Start Num: 5
Candidate Starts for EhyElimayoE_57:
(1, 31579), (Start: 5 @31705 has 9 MA's), (14, 31750), (36, 31942), (49, 32035), (50, 32038), (60, 32101), (65, 32134), (89, 32245),

Gene: Erenyeager_52 Start: 24319, Stop: 24879, Start Num: 8
Candidate Starts for Erenyeager_52:
(Start: 8 @24319 has 30 MA's), (52, 24652), (56, 24679), (64, 24742), (67, 24760), (68, 24763), (88, 24862),

Gene: EvePickles_15 Start: 9172, Stop: 9693, Start Num: 10
Candidate Starts for EvePickles_15:
(Start: 10 @9172 has 6 MA's), (16, 9193), (40, 9412), (54, 9493), (66, 9568), (82, 9649), (85, 9661),

Gene: Faja_15 Start: 9116, Stop: 9637, Start Num: 10

Candidate Starts for Faja_15:
(Start: 10 @9116 has 6 MA's), (16, 9137), (40, 9356), (66, 9512), (79, 9584), (82, 9593), (85, 9605),

Gene: Fork_48 Start: 23634, Stop: 24194, Start Num: 8
Candidate Starts for Fork_48:
(Start: 8 @23634 has 30 MA's), (52, 23967), (56, 23994), (64, 24057), (67, 24075), (68, 24078), (88, 24177),

Gene: Frankenweenie_64 Start: 34296, Stop: 34862, Start Num: 5
Candidate Starts for Frankenweenie_64:
(Start: 5 @34296 has 9 MA's), (6, 34305), (36, 34533), (49, 34626), (50, 34629), (63, 34710), (80, 34803), (89, 34836),

Gene: GUPitcher_13 Start: 8607, Stop: 9128, Start Num: 10
Candidate Starts for GUPitcher_13:
(Start: 10 @8607 has 6 MA's), (16, 8628), (40, 8847), (54, 8928), (66, 9003), (73, 9033), (82, 9084), (85, 9096),

Gene: Gorgeous_32 Start: 16687, Stop: 17187, Start Num: 13
Candidate Starts for Gorgeous_32:
(Start: 13 @16687 has 30 MA's), (15, 16696), (16, 16699), (19, 16726), (25, 16771), (45, 16951), (81, 17143), (85, 17158), (90, 17176), (91, 17179),

Gene: Gorgeous_33 Start: 17189, Stop: 17683, Start Num: 13
Candidate Starts for Gorgeous_33:
(Start: 13 @17189 has 30 MA's), (15, 17198), (16, 17201), (23, 17255), (42, 17438), (65, 17561), (74, 17600), (76, 17621), (85, 17657),

Gene: Heylee_35 Start: 16804, Stop: 17304, Start Num: 13
Candidate Starts for Heylee_35:
(Start: 13 @16804 has 30 MA's), (15, 16813), (16, 16816), (19, 16843), (25, 16888), (45, 17068), (81, 17260), (85, 17275), (90, 17293), (91, 17296),

Gene: Heylee_36 Start: 17306, Stop: 17800, Start Num: 13
Candidate Starts for Heylee_36:
(Start: 13 @17306 has 30 MA's), (15, 17315), (16, 17318), (23, 17372), (42, 17555), (65, 17678), (74, 17717), (76, 17738), (85, 17774),

Gene: HollowPurple_53 Start: 24188, Stop: 24748, Start Num: 8
Candidate Starts for HollowPurple_53:
(Start: 8 @24188 has 30 MA's), (52, 24521), (56, 24548), (57, 24557), (64, 24611), (67, 24629), (68, 24632), (88, 24731),

Gene: Hortus1_44 Start: 23032, Stop: 23589, Start Num: 8
Candidate Starts for Hortus1_44:
(Start: 8 @23032 has 30 MA's), (46, 23335), (55, 23386), (67, 23470), (77, 23533), (84, 23560),

Gene: Hubbs_47 Start: 23463, Stop: 24020, Start Num: 8
Candidate Starts for Hubbs_47:
(Start: 8 @23463 has 30 MA's), (24, 23559), (36, 23691), (46, 23766), (55, 23817), (64, 23883), (67, 23901), (72, 23928), (77, 23964), (84, 23991),

Gene: Hum25_13 Start: 7904, Stop: 8419, Start Num: 13

Candidate Starts for Hum25_13:
(Start: 13 @7904 has 30 MA's), (29, 8024), (30, 8027), (51, 8207), (58, 8249),

Gene: Ichor_31 Start: 16678, Stop: 17178, Start Num: 13
Candidate Starts for Ichor_31:
(Start: 13 @16678 has 30 MA's), (15, 16687), (16, 16690), (19, 16717), (25, 16762), (45, 16942), (81, 17134), (85, 17149), (90, 17167), (91, 17170),

Gene: Ichor_32 Start: 17180, Stop: 17674, Start Num: 13
Candidate Starts for Ichor_32:
(Start: 13 @17180 has 30 MA's), (15, 17189), (16, 17192), (23, 17246), (42, 17429), (65, 17552), (74, 17591), (76, 17612), (85, 17648),

Gene: Issa7_51 Start: 23636, Stop: 24196, Start Num: 8
Candidate Starts for Issa7_51:
(Start: 8 @23636 has 30 MA's), (52, 23969), (56, 23996), (57, 24005), (64, 24059), (67, 24077), (68, 24080), (88, 24179),

Gene: Jacko_46 Start: 21227, Stop: 21784, Start Num: 8
Candidate Starts for Jacko_46:
(Start: 8 @21227 has 30 MA's), (17, 21269), (24, 21323), (32, 21398), (35, 21449), (46, 21530), (55, 21581), (64, 21647), (67, 21665), (72, 21692), (77, 21728), (84, 21755), (88, 21767),

Gene: Jaek_31 Start: 16678, Stop: 17178, Start Num: 13
Candidate Starts for Jaek_31:
(Start: 13 @16678 has 30 MA's), (15, 16687), (16, 16690), (19, 16717), (25, 16762), (45, 16942), (81, 17134), (85, 17149), (90, 17167), (91, 17170),

Gene: Jaek_32 Start: 17180, Stop: 17674, Start Num: 13
Candidate Starts for Jaek_32:
(Start: 13 @17180 has 30 MA's), (15, 17189), (16, 17192), (23, 17246), (42, 17429), (65, 17552), (74, 17591), (76, 17612), (85, 17648),

Gene: JustBecause_51 Start: 28928, Stop: 29494, Start Num: 5
Candidate Starts for JustBecause_51:
(3, 28904), (Start: 5 @28928 has 9 MA's), (20, 29012), (36, 29165), (49, 29258), (50, 29261), (65, 29357), (89, 29468), (91, 29474),

Gene: Kela_52 Start: 28793, Stop: 29359, Start Num: 5
Candidate Starts for Kela_52:
(3, 28769), (Start: 5 @28793 has 9 MA's), (20, 28877), (36, 29030), (49, 29123), (50, 29126), (65, 29222), (89, 29333), (91, 29339),

Gene: Kradal_57 Start: 31705, Stop: 32271, Start Num: 5
Candidate Starts for Kradal_57:
(1, 31579), (Start: 5 @31705 has 9 MA's), (14, 31750), (36, 31942), (49, 32035), (50, 32038), (60, 32101), (65, 32134), (89, 32245),

Gene: Kukla_13 Start: 8634, Stop: 9155, Start Num: 10
Candidate Starts for Kukla_13:
(Start: 10 @8634 has 6 MA's), (16, 8655), (40, 8874), (54, 8955), (66, 9030), (82, 9111), (85, 9123),

Gene: LeeroyJenkins_39 Start: 19597, Stop: 20163, Start Num: 2

Candidate Starts for LeeroyJenkins_39:
(Start: 2 @19597 has 5 MA's), (34, 19858), (54, 19972), (59, 20008), (67, 20044), (75, 20095),

Gene: Lifes_35 Start: 17321, Stop: 17887, Start Num: 2
Candidate Starts for Lifes_35:
(Start: 2 @17321 has 5 MA's), (34, 17582), (54, 17696), (59, 17732), (67, 17768), (75, 17819),

Gene: LuckyBarnes_19 Start: 11489, Stop: 12013, Start Num: 13
Candidate Starts for LuckyBarnes_19:
(Start: 13 @11489 has 30 MA's), (39, 11714), (56, 11825), (74, 11918), (83, 11969), (86, 11984),

Gene: Lupine_45 Start: 22665, Stop: 23222, Start Num: 8
Candidate Starts for Lupine_45:
(Start: 8 @22665 has 30 MA's), (24, 22761), (36, 22893), (55, 23019), (64, 23085), (67, 23103), (72, 23130), (77, 23166), (84, 23193),

Gene: Lyell_52 Start: 24238, Stop: 24798, Start Num: 8
Candidate Starts for Lyell_52:
(Start: 8 @24238 has 30 MA's), (52, 24571), (56, 24598), (64, 24661), (67, 24679), (68, 24682), (88, 24781),

Gene: Mistmere_45 Start: 22106, Stop: 22669, Start Num: 8
Candidate Starts for Mistmere_45:
(Start: 8 @22106 has 30 MA's), (52, 22442), (64, 22532), (67, 22550), (68, 22553), (88, 22652),

Gene: Molivia_36 Start: 16925, Stop: 17425, Start Num: 13
Candidate Starts for Molivia_36:
(Start: 13 @16925 has 30 MA's), (15, 16934), (16, 16937), (74, 17339), (81, 17381), (85, 17396), (90, 17414), (91, 17417),

Gene: Molivia_37 Start: 17428, Stop: 17925, Start Num: 13
Candidate Starts for Molivia_37:
(Start: 13 @17428 has 30 MA's), (15, 17437), (16, 17440), (23, 17494), (44, 17686), (47, 17701), (62, 17779),

Gene: Musetta_52 Start: 24352, Stop: 24912, Start Num: 8
Candidate Starts for Musetta_52:
(Start: 8 @24352 has 30 MA's), (52, 24685), (56, 24712), (57, 24721), (64, 24775), (67, 24793), (68, 24796), (88, 24895),

Gene: Necrophoxinus_54 Start: 24933, Stop: 25493, Start Num: 8
Candidate Starts for Necrophoxinus_54:
(Start: 8 @24933 has 30 MA's), (52, 25266), (56, 25293), (64, 25356), (67, 25374), (68, 25377), (88, 25476),

Gene: Nirvana_61 Start: 33669, Stop: 34235, Start Num: 5
Candidate Starts for Nirvana_61:
(Start: 5 @33669 has 9 MA's), (6, 33678), (36, 33906), (49, 33999), (50, 34002), (63, 34083), (80, 34176), (89, 34209),

Gene: Nonagon_44 Start: 24524, Stop: 25051, Start Num: 9
Candidate Starts for Nonagon_44:

(Start: 9 @24524 has 2 MA's), (Start: 13 @24536 has 30 MA's), (16, 24548), (18, 24569), (19, 24575), (24, 24614), (65, 24911), (78, 24989),

Gene: OlinDD_44 Start: 23031, Stop: 23588, Start Num: 8
Candidate Starts for OlinDD_44:
(Start: 8 @23031 has 30 MA's), (46, 23334), (55, 23385), (67, 23469), (77, 23532), (84, 23559),

Gene: Pavlo_46 Start: 23310, Stop: 23867, Start Num: 8
Candidate Starts for Pavlo_46:
(Start: 8 @23310 has 30 MA's), (24, 23406), (36, 23538), (46, 23613), (55, 23664), (64, 23730), (67, 23748), (72, 23775), (77, 23811), (84, 23838),

Gene: PetriParty_12 Start: 8914, Stop: 9435, Start Num: 10
Candidate Starts for PetriParty_12:
(Start: 10 @8914 has 6 MA's), (16, 8935), (40, 9154), (43, 9181), (54, 9235), (66, 9310), (73, 9340), (82, 9391), (85, 9403),

Gene: PhillyPhilly_46 Start: 22844, Stop: 23401, Start Num: 8
Candidate Starts for PhillyPhilly_46:
(7, 22841), (Start: 8 @22844 has 30 MA's), (24, 22940), (36, 23072), (46, 23147), (55, 23198), (64, 23264), (67, 23282), (72, 23309), (77, 23345), (84, 23372),

Gene: Pioneer3_44 Start: 23039, Stop: 23596, Start Num: 8
Candidate Starts for Pioneer3_44:
(Start: 8 @23039 has 30 MA's), (46, 23342), (55, 23393), (67, 23477), (77, 23540), (84, 23567),

Gene: Pitbull_13 Start: 7534, Stop: 8049, Start Num: 13
Candidate Starts for Pitbull_13:
(Start: 13 @7534 has 30 MA's), (29, 7654), (51, 7837), (58, 7879),

Gene: Platte_44 Start: 22824, Stop: 23381, Start Num: 8
Candidate Starts for Platte_44:
(Start: 8 @22824 has 30 MA's), (46, 23127), (55, 23178), (67, 23262), (77, 23325), (84, 23352),

Gene: PorkBelly_12 Start: 8601, Stop: 9119, Start Num: 12
Candidate Starts for PorkBelly_12:
(Start: 12 @8601 has 1 MA's), (24, 8682), (28, 8724), (32, 8748), (37, 8811), (40, 8841), (53, 8919), (54, 8922), (61, 8967), (69, 9006), (70, 9009), (74, 9030),

Gene: Quantum_56 Start: 31705, Stop: 32271, Start Num: 5
Candidate Starts for Quantum_56:
(1, 31579), (Start: 5 @31705 has 9 MA's), (14, 31750), (36, 31942), (49, 32035), (50, 32038), (60, 32101), (65, 32134), (89, 32245),

Gene: Rings_32 Start: 17311, Stop: 17805, Start Num: 13
Candidate Starts for Rings_32:
(Start: 13 @17311 has 30 MA's), (15, 17320), (16, 17323), (23, 17377), (42, 17560), (65, 17683), (74, 17722), (76, 17743), (85, 17779),

Gene: Rings_31 Start: 16809, Stop: 17309, Start Num: 13
Candidate Starts for Rings_31:
(Start: 13 @16809 has 30 MA's), (15, 16818), (16, 16821), (19, 16848), (25, 16893), (45, 17073), (81, 17265), (85, 17280), (90, 17298), (91, 17301),

Gene: Roman_47 Start: 23311, Stop: 23868, Start Num: 8
Candidate Starts for Roman_47:
(Start: 8 @23311 has 30 MA's), (24, 23407), (36, 23539), (55, 23665), (64, 23731), (67, 23749), (68, 23752), (72, 23776), (77, 23812), (84, 23839),

Gene: RunningBrook_53 Start: 24925, Stop: 25485, Start Num: 8
Candidate Starts for RunningBrook_53:
(Start: 8 @24925 has 30 MA's), (52, 25258), (56, 25285), (57, 25294), (64, 25348), (67, 25366), (68, 25369), (88, 25468),

Gene: Saradis_47 Start: 22903, Stop: 23460, Start Num: 8
Candidate Starts for Saradis_47:
(Start: 8 @22903 has 30 MA's), (24, 22999), (36, 23131), (55, 23257), (64, 23323), (67, 23341), (72, 23368), (77, 23404), (84, 23431),

Gene: Sarkar_57 Start: 31705, Stop: 32271, Start Num: 5
Candidate Starts for Sarkar_57:
(1, 31579), (Start: 5 @31705 has 9 MA's), (14, 31750), (36, 31942), (49, 32035), (50, 32038), (60, 32101), (65, 32134), (89, 32245),

Gene: Sashimi_16 Start: 9234, Stop: 9755, Start Num: 10
Candidate Starts for Sashimi_16:
(Start: 10 @9234 has 6 MA's), (16, 9255), (40, 9474), (54, 9555), (66, 9630), (79, 9702), (82, 9711), (85, 9723),

Gene: Satis_57 Start: 31701, Stop: 32267, Start Num: 5
Candidate Starts for Satis_57:
(1, 31575), (Start: 5 @31701 has 9 MA's), (14, 31746), (36, 31938), (49, 32031), (50, 32034), (60, 32097), (65, 32130), (89, 32241),

Gene: Shroomer_56 Start: 24465, Stop: 25028, Start Num: 8
Candidate Starts for Shroomer_56:
(Start: 8 @24465 has 30 MA's), (52, 24801), (56, 24828), (64, 24891), (67, 24909), (68, 24912), (88, 25011),

Gene: Solimine_47 Start: 23317, Stop: 23874, Start Num: 8
Candidate Starts for Solimine_47:
(Start: 8 @23317 has 30 MA's), (24, 23413), (36, 23545), (46, 23620), (55, 23671), (64, 23737), (67, 23755), (72, 23782), (77, 23818), (84, 23845),

Gene: SorJuana_33 Start: 17189, Stop: 17683, Start Num: 13
Candidate Starts for SorJuana_33:
(Start: 13 @17189 has 30 MA's), (15, 17198), (16, 17201), (23, 17255), (42, 17438), (65, 17561), (74, 17600), (76, 17621), (85, 17657),

Gene: SorJuana_32 Start: 16687, Stop: 17187, Start Num: 13
Candidate Starts for SorJuana_32:
(Start: 13 @16687 has 30 MA's), (15, 16696), (16, 16699), (19, 16726), (25, 16771), (45, 16951), (81, 17143), (85, 17158), (90, 17176), (91, 17179),

Gene: SteakFry_54 Start: 24188, Stop: 24748, Start Num: 8
Candidate Starts for SteakFry_54:

(Start: 8 @24188 has 30 MA's), (52, 24521), (56, 24548), (57, 24557), (64, 24611), (67, 24629), (68, 24632), (88, 24731),

Gene: StevieWelch_52 Start: 24320, Stop: 24880, Start Num: 8
Candidate Starts for StevieWelch_52:
(Start: 8 @24320 has 30 MA's), (52, 24653), (56, 24680), (64, 24743), (67, 24761), (68, 24764), (88, 24863),

Gene: Tandem_44 Start: 22978, Stop: 23535, Start Num: 8
Candidate Starts for Tandem_44:
(Start: 8 @22978 has 30 MA's), (46, 23281), (55, 23332), (67, 23416), (77, 23479), (84, 23506),

Gene: Thunderclap_32 Start: 16707, Stop: 17207, Start Num: 13
Candidate Starts for Thunderclap_32:
(Start: 13 @16707 has 30 MA's), (15, 16716), (16, 16719), (19, 16746), (25, 16791), (45, 16971), (81, 17163), (85, 17178), (90, 17196), (91, 17199),

Gene: Thunderclap_33 Start: 17209, Stop: 17703, Start Num: 13
Candidate Starts for Thunderclap_33:
(Start: 13 @17209 has 30 MA's), (15, 17218), (16, 17221), (23, 17275), (42, 17458), (65, 17581), (74, 17620), (76, 17641), (85, 17677),

Gene: TripleJ_13 Start: 8929, Stop: 9450, Start Num: 10
Candidate Starts for TripleJ_13:
(Start: 10 @8929 has 6 MA's), (16, 8950), (40, 9169), (43, 9196), (54, 9250), (66, 9325), (82, 9406), (85, 9418),

Gene: Uterion_50 Start: 23412, Stop: 23969, Start Num: 8
Candidate Starts for Uterion_50:
(Start: 8 @23412 has 30 MA's), (24, 23508), (36, 23640), (46, 23715), (55, 23766), (64, 23832), (67, 23850), (68, 23853), (72, 23877), (77, 23913), (84, 23940),

Gene: WaterT_38 Start: 19410, Stop: 19976, Start Num: 2
Candidate Starts for WaterT_38:
(Start: 2 @19410 has 5 MA's), (34, 19671), (54, 19785), (59, 19821), (67, 19857), (75, 19908),

Gene: Welcome_53 Start: 24337, Stop: 24897, Start Num: 8
Candidate Starts for Welcome_53:
(Start: 8 @24337 has 30 MA's), (52, 24670), (56, 24697), (57, 24706), (64, 24760), (67, 24778), (68, 24781), (88, 24880),

Gene: Wolfstar_48 Start: 23218, Stop: 23775, Start Num: 8
Candidate Starts for Wolfstar_48:
(Start: 8 @23218 has 30 MA's), (21, 23281), (24, 23314), (55, 23572), (56, 23575), (57, 23584), (67, 23656), (68, 23659), (72, 23683), (77, 23719), (84, 23746), (88, 23758),

Gene: Yappy_64 Start: 22654, Stop: 23166, Start Num: 13
Candidate Starts for Yappy_64:
(Start: 13 @22654 has 30 MA's), (15, 22663), (27, 22759), (71, 23059), (78, 23104),

Gene: Yeezus_31 Start: 16677, Stop: 17177, Start Num: 13
Candidate Starts for Yeezus_31:

(Start: 13 @16677 has 30 MA's), (15, 16686), (16, 16689), (19, 16716), (25, 16761), (45, 16941), (81, 17133), (85, 17148), (90, 17166), (91, 17169),

Gene: Yeezus_32 Start: 17179, Stop: 17673, Start Num: 13
Candidate Starts for Yeezus_32:
(Start: 13 @17179 has 30 MA's), (15, 17188), (16, 17191), (23, 17245), (42, 17428), (65, 17551), (74, 17590), (76, 17611), (85, 17647),

Gene: Yuma_51 Start: 24252, Stop: 24812, Start Num: 8
Candidate Starts for Yuma_51:
(Start: 8 @24252 has 30 MA's), (52, 24585), (56, 24612), (64, 24675), (67, 24693), (68, 24696), (88, 24795),