Life-cycle of a JGI Microbial Finishing Project - LANL

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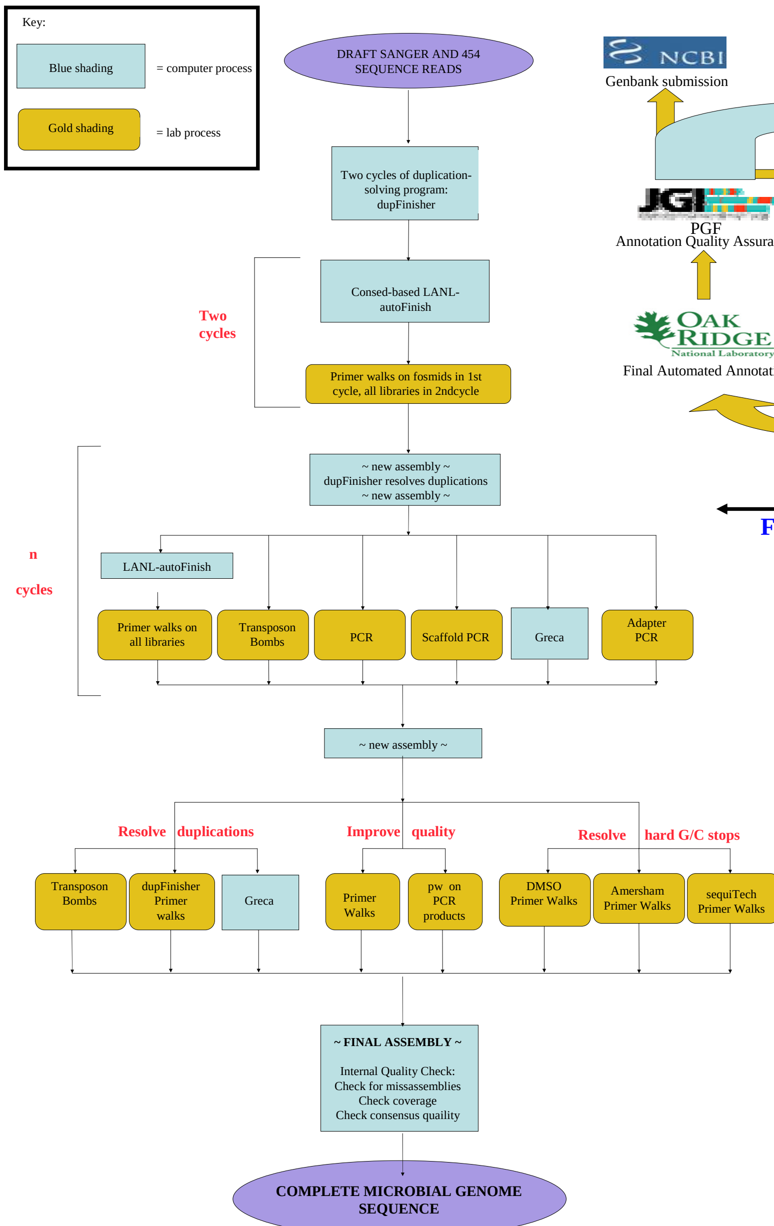
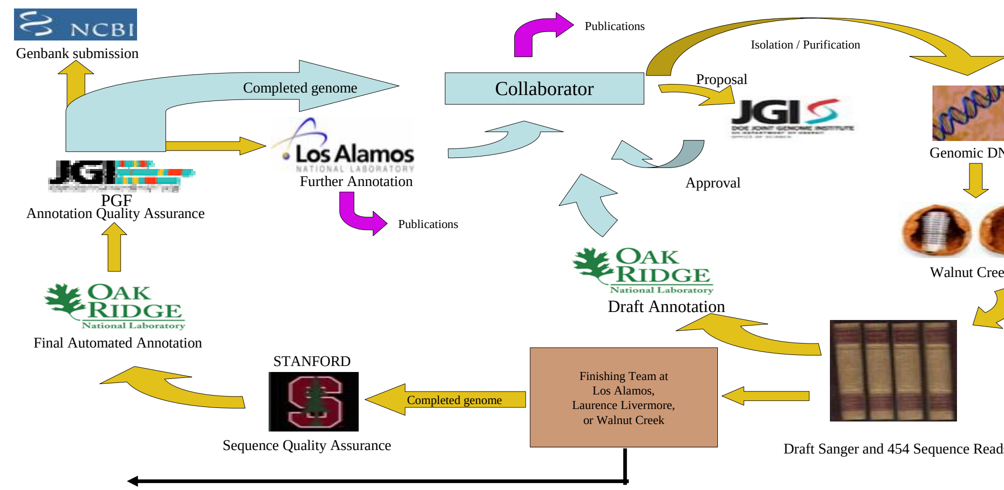
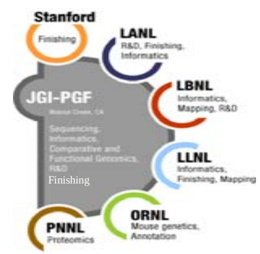
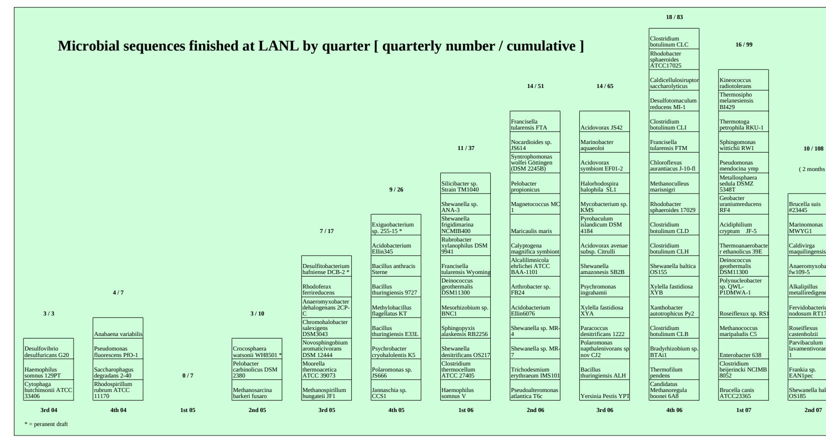






Finishing process utilized at LANL

The Joint Genome Institute (JGI) provides a network of services for the finishing of whole genome sequences for microbes. The customer for these services is a collaborator who submits a proposal and genomic DNA to the JGI for sequencing. JGI-Walnut Creek prepares Sanger and 454 Libraries creating a draft shotgun sequence of the genome. The draft sequence is annotated at JGIOak Ridge and assigned for finishing at one of three JGI finishing teams: Walnut Creek, Laurence Livermore National Laboratory or Los Alamos National Laboratory (LANL). Each finishing team approaches the finishing process utilizing a variety of strategies. JGI-LANL uses computer programs (greca and dupFinisher) lab techniques (transposon bombs) to resolve duplications within the genome. Primer walks on Sanger libraries and PCR products are utilized to improve coverage and quality of reads, while specialized chemistries are used to resolve hard G/C stops. To date, over 100 complete genomes have been sequenced at JGI-LANL. When a genome sequence is completed, a quality validation step is conducted at Stanford University. Then JGI-Oak Ridge annotates the finished genome. JGI-Walnut Creek verifies the annotation and provides the collaborator with the complete sequence with annotation. After a period of time when the collaborator has exclusive access to the annotated genome, it is made public through Genbank and is available to the public at NCBI. The collaborator and/or JGI staff then write publications based on the data generated through this process, thus completing the "life-cycle" from genomic DNA to published research.



LANL-JGI Finished Genomes from A to Z

1	STN	Bacillus anthracis Sterne	WFO
2	BT97	Bacillus thuringiensis 9727	WFO
3	ALH	Bacillus thuringiensis ALH	WFO
4	ZK	Bacillus thuringiensis E33L	WFO
5	HSO	Haemophilus somnus 129PT	2662200
6	DDE	Desulfovibrio desulfuricans G20	2662206
7	RRU	Rhodospirillum rubrum ATCC 11170	2662195
8	MDE	Saccharophagus degradans 2-40	2662192
9	PFL	Pseudomonas fluorescens PfO-1	2351488
10	AVA	Anabaena variabilis	3436094
11	MBA	Methanosarcina barkeri fusaro	2351479
12	CWA	Crocosphaera watsonii WH8501	3436096
13	DHA	Desulfitobacterium hafniense DCB-2	2351519
14	EXI	Exiguobacterium sp. 255-15	2662203
15	MHU	Methanospirillum hungateii JF1	3634479
16	PCA	Pelobacter carbinolicus DSM 2380	3436109
17	MTH	Moorella thermoacetica ATCC 39073	3436494
18	JAN	Jannaschia sp. CCS1	3634500
19	SAR	Novosphingobium aromaticivorans DSM 12444	2351474
20	CSA	Chromohalobacter salexigens DSM3043	3634505
21	ADE	Anaeromyxobacter dehalogenans 2CP-C	3634483
22	BPR	Polaromonas sp. JS666	3634502
23	PSC	Psychrobacter cryohalolentis K5	3635662
24	RFE	Rhodoferax ferrireducens	3635488
25	MFL	Methylobacillus flagellatus KT	3436091
26	HSM	Haemophilus somnus V	WFO
27	CTH	Clostridium thermocellum ATCC 27405	2351472
28	AEL	Acidobacterium Ellin345	4000157
29	SDE	Shewanella denitrificans OS217	3634607
30	SAL	Sphingopyxis alaskensis RB2256	3634495
31	ATU	Mesorhizobium sp. BNC1	2662197
32	CHU	Cytophaga hutchinsonii ATCC 33406	2351473
33	DGE	Deinococcus geothermalis DSM11300	3634504
34	FTW	Francisella tularensis Wyoming	4000097
35	PAT	Pseudoalteromonas atlantica T6c	4000130
36	TER	Trichodesmium erythraeum IMS101	2662189

37	RXY	Rubrobacter xylanophilus DSM 9941	3436081
38	SFR	Shewanella frigidimarina NCMIB400	3634606
39	SAN	Shewanella sp. ANA-3	4000368
40	ROS	Silicibacter sp. strain (ex Roseobacter) TM1040	3634501
41	SMR	Shewanella sp. MR-7	4000370
42	SHW	Shewanella sp. MR-4	4000369
43	ACI	Acidobacterium Ellin6076	3634513
44	ART	Arthrobacter sp. FB24	3634492
45	GAM	Alcalilimnicola ehrlichei ATCC BAA-1101	4000239
46	CSY	Calyptogena magnifica symbiont	4000245
47	MMA	Maricaulis maris	4001624
48	MAG	Magnetococcus MC-1	2351493
49	PPR	Pelobacter propionicus	3436113
50	SWO	Syntrophomonas wolfei G□ttingen (DSM 2245B)	3634478
51	NOC	Nocardioides sp. JS614	3634503
52	FTA	Francisella tularensis FTA	4000939
53	YPT	Yersinia Pestis YPT	4001066
54	PNA	Polaromonas napthalenivorans sp. nov CJ2	4000361
55	PDE	Paracoccus denitrificans 1222	3634481
56	XYA	Xylella fastidiosa XYA	4002191
57	PIN	Psychromonas ingrahamii	4000833
58	SAM	Shewanella amazonesis SB2B	3634604
59	AAV	Acidovorax avenae subsp. Citrulli	4001427
60	PIS	Pyrobaculum islandicum DSM 4184	4002681
61	MKM	Mycobacterium sp. KMS	4000379
62	HHA	Halorhodospira halophilaŹ SL1	4000187
63	AEF	Acidovorax symbiont EF01-2	4001428
64	MAQ	Marinobacter aquaeoloi	3640420
65	AJS	Acidovorax JS42	4001426
66	CME	Candidatus Methanoregula boonei 6A8	4002915
67	TPE	Thermofilum pendens	4001423
68	BBT	Bradyrhizobium sp. BTAi1	4000390
69	CLC	Clostridium botulinum	4001301
70	XAU	Xanthobacter autotrophicus Py2	4000362
71	XYB	Xylella fastidiosa XYB	4002280
72	SBA	Shewanella baltica OS155	3634605

73	CLD	Clostridium botulinum	4001603
74	CLI	Clostridium botulinum	4001015
75	RSH	Rhodobacter sphaeroides 17029	4000715
76	MMR	Methanoculleus marisnigri	4001178
77	CAU	Chloroflexus aurantiacus J-10-fl	4000861
78	FTM	Francisella tularensis FTM	40022381
79	CLB	Clostridium botulinum	4001122
80	DRE	Desulfotomaculum reducens MI-1	4000266
81	CSC	Caldicellulosiruptor saccharolyticusŹ	4000186
82	RSP	Rhodobacter sphaeroides ATCC17025	4000699
83	CLH	Clostridium botulinum	4001158
84	BRA	Brucella canis ATCC23365	4003319
85	CBE	Clostridium beijerincki NCIMB 8052	3634512
86	ENT	Enterobacter 638	4002721
87	MMC	Methanococcus maripaludis C5	4003073
88	RRS	Roseiflexux sp. RS1	4000376
89	PQL	Polynucleobacter sp. QWL-P1DMWA-1	4001734
90	*TEH*	Thermoanaerobacter ethanolicus 39E	3635487
91	ACR	Acidiphilium cryptum JF-5	4000181
92	GUR	Geobacter uraniumreducens RF4	4000183
93	MSE	Metallosphaera sedula DSMZ 5348T	4003005
94	PME	Pseudomonas mendocina ymp	4002766
95	SWI	Sphingomonas wittichii RW1	4002524
96	TPT	Thermotoga petrophila RKU-1	4002277
97	TML	Thermosipho melanesiensis BI429	4002279
98	KRA	Kineococcus radiotolerans	3436090
99	AME	Alkalipillus metalliredigenes	3634496
100	AFW	Anaeromyxobacter fw109-5	4002939
101	CMA	Caldivirga maquilingensis	4002919
102	MMW	Marinomonas MWYG1	4002558
103	SBO	Shewanella baltica OS185	4003208
104	BRE	Brucella suis #23445	4003939
105	FEA	Frankia sp. EAN1pec	3634642
106	PLA	Parvibaculum lavamentivorans DS-1	4003071
107	RCS	Roseiflexus castenholzii	4000375
108	FNO	Fervidobacterium nodosum RT17-B1	4002340

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