



Draft Genome Sequences of 171 *Listeria monocytogenes* Isolates from Food-Related Listeriosis Outbreaks in California from 2007 to 2017

 Cindy H. Wu,^{a*} Jenny Ng,^a David Kiang^a

^aFood and Drug Laboratory Branch, California Department of Public Health, Richmond, California, USA

ABSTRACT This publication reports the availability of draft genome sequences of 171 *Listeria monocytogenes* strains isolated from various food-related sources from California between 2007 and 2017. All isolates contain at least two antimicrobial resistance genes.

*L*isteria monocytogenes is a Gram-positive bacterium found in various food sources and is the etiologic agent of listeriosis. In 2014, there were 675 cases of listeriosis reported in the United States and 23% resulted in death (1). Symptoms of listeriosis include fever, muscle aches, nausea, and diarrhea. Severe cases could lead to premature delivery or stillbirth in pregnant women and bacteremia and meningitis in the immunocompromised. Attenuated strains of *L. monocytogenes* have been used as cancer vaccine vectors (2–4).

A total of 171 *L. monocytogenes* strains, isolated from foods and food-related environmental swabs between 2007 and 2017, were sequenced. The strains were isolated as described in the Bacteriological Analytical Manual (BAM) (5) with modifications. For solids, semisolids, or liquids, 25 g of the sample was added to 225 ml of buffered *Listeria* enrichment broth (BLEB) containing pyruvate and incubated at 30°C for 4 hours. Subsequently, selective reagents were aseptically added to concentrations of 10 mg/liter acriflavine, 40 mg/liter cycloheximide, and 50 mg/liter sodium nalidixic acid. Sample incubation continued at 30°C for 40 to 48 hours. Samples were screened using real-time PCR (6), and potentially positive samples were streaked onto RAPID'Lmono agar (Bio-Rad) and CHROMagar *Listeria* (CHROMagar). Colonies with typical characteristics were streaked onto Trypticase soy agar with 0.6% yeast extract (TSA-YE) and incubated at 30°C for 24 to 48 hours. Isolates were confirmed by real-time PCR (6), motility test, beta-lysin disk test, catalase test, and Vitek (bioMérieux) analysis.

A single colony grown on brain heart infusion (BHI) agar was inoculated into 5 ml of BHI broth, without antibiotics, and incubated at 37°C with shaking at 200 rpm for 16 to 18 hours. Genomic DNA was extracted from the liquid culture using the DNeasy blood and tissue kit (Qiagen) and quantified using a Qubit fluorometer (ThermoFisher Scientific). DNA libraries were prepared using the Nextera XT DNA library preparation kit version 2 (Illumina), and whole-genome sequencing was performed on an Illumina MiSeq system using the MiSeq reagent kit version 2 (2 × 250-bp paired-end reads). Default parameters were used for all software unless otherwise specified. FastQC version 0.11.5 (<http://www.bioinformatics.babraham.ac.uk/projects/fastqc/>) was used for quality control by examining the per-base-sequence quality, per-sequence quality scores, and sequence length distributions. SPAdes version 3.8.2 (7) was used for *de novo* assembly of the raw sequences, and contigs with less than 200 bp were removed. The assembled contigs were deposited into NCBI GenBank and annotated through the

Citation Wu CH, Ng J, Kiang D. 2020. Draft genome sequences of 171 *Listeria monocytogenes* isolates from food-related listeriosis outbreaks in California from 2007 to 2017. *Microbiol Resour Announc* 9:e01382-19. <https://doi.org/10.1128/MRA.01382-19>.

Editor David Rasko, University of Maryland School of Medicine

This is a work of the U.S. Government and is not subject to copyright protection in the United States. Foreign copyrights may apply.

Address correspondence to Cindy H. Wu, cindy.wu@cdph.ca.gov, or David Kiang, david.kiang@cdph.ca.gov.

* Present address: Cindy H. Wu, Genetic Disease Laboratory Branch, California Department of Public Health, Richmond, California, USA.

Received 19 December 2019

Accepted 21 August 2020

Published 17 September 2020

TABLE 1 List of *Listeria monocytogenes* strains sequenced in this study

GenBank accession no.	SRA accession no.	Sample name	Estimated genome size (bp)	GC content (%)	Total no. of reads	Genome coverage (fold)	No. of contigs	N_{50} (bp)	Total no. of genes ^a	Antimicrobial resistance genotypes ^b	Isolation source
NYQY000000000	SRR5666392	CDPHFDLB-F07F-672	2,838,285	37.9	2,412,924	55	20	434,456	3,018	<i>fosX, lin</i>	Onions
NYQX000000000	SRR5666381	CDPHFDLB-F09M01162	2,931,178	37.8	1,171,380	35	17	637,977	3,163	<i>fosX, lin</i>	Chicken salad sandwich
NYQW000000000	SRR5666391	CDPHFDLB-F09M01164	2,938,266	37.8	1,207,844	35	18	637,977	3,161	<i>fosX, lin</i>	Chicken salad sandwich
NYQV000000000	SRR5666383	CDPHFDLB-F09M01172	2,899,878	37.9	1,104,456	34	13	560,951	3,013	<i>fosX, lin</i>	Turkey cheese sandwich
NYQU000000000	SRR5666390	CDPHFDLB-F10M00415a	2,987,803	37.8	878,056	28	22	435,148	3,175	<i>fosX, lin</i>	Tofu
NYSV000000000	SRR5666385	CDPHFDLB-F10M00415b	2,987,375	37.8	1,142,624	33	22	435,148	3,173	<i>fosX, lin</i>	Tofu
NYQT000000000	SRR5666382	CDPHFDLB-F10M00444a	2,903,564	37.9	1,329,508	38	18	581,348	3,122	<i>fosX, lin</i>	Burrito
NYQV000000000	SRR5666389	CDPHFDLB-F10M00444b	2,879,406	37.8	1,323,810	38	22	435,148	3,176	<i>fosX, lin</i>	Burrito
NYQR000000000	SRR3131140	CDPHFDLB-F11M00452	2,391,665	38.0	1,519,826	50	23	502,427	2,902	<i>fosX, lin</i>	Environmental swab
NYSH000000000	SRR3131133	CDPHFDLB-F12M00816	2,560,850	37.9	3,242,820	70	37	160,005	3,114	<i>fosX, lin</i>	Environmental swab
NYQV000000000	SRR3131134	CDPHFDLB-F12M00817	2,802,446	37.9	3,359,908	46	19	511,221	3,016	<i>fosX, lin</i>	Environmental swab
NYQP000000000	SRR3309443	CDPHFDLB-F12M00821	2,529,630	37.9	5,160,586	106	19	511,221	3,016	<i>fosX, lin</i>	Environmental swab
NYQV000000000	SRR3131135	CDPHFDLB-F12M00823	2,374,952	37.9	2,281,430	66	23	291,526	3,113	<i>fosX, lin</i>	Environmental swab
NYQN000000000	SRR3131136	CDPHFDLB-F12M00826	2,113,953	37.9	2,933,926	51	24	434,832	3,115	<i>fosX, lin</i>	Environmental swab
NYQM000000000	SRR3131137	CDPHFDLB-F12M00827	2,155,752	37.9	4,419,384	83	22	511,221	3,112	<i>fosX, lin</i>	Environmental swab
NYQL000000000	SRR3131138	CDPHFDLB-F12M00828	2,486,405	37.9	3,243,252	67	23	511,221	3,114	<i>fosX, lin</i>	Environmental swab
NYQK000000000	SRR3131139	CDPHFDLB-F12M00829	2,824,478	38.0	2,173,802	47	56	228,901	3,144	<i>fosX, lin</i>	Environmental swab
NYQJ000000000	SRR3131141	CDPHFDLB-F12M00831	2,481,097	37.9	3,042,194	66	20	511,221	3,108	<i>fosX, lin</i>	Environmental swab
NYQI000000000	SRR2724148	CDPHFDLB-F12M00833	2,812,551	38.0	2,144,202	36	39	473,485	3,034	<i>fosX, lin</i>	Environmental swab
NYSG000000000	SRR2724149	CDPHFDLB-F12M00834	2,812,551	37.9	2,481,316	38	27	321,504	3,116	<i>fosX, lin</i>	Environmental swab
NYQH000000000	SRR2910646	CDPHFDLB-F12M00835	2,575,678	37.9	2,412,816	38	21	469,899	3,112	<i>fosX, lin</i>	Environmental swab
NYQG000000000	SRR2910647	CDPHFDLB-F12M00836	2,671,583	37.9	1,779,152	30	37	217,762	3,036	<i>fosX, lin</i>	Environmental swab
NYQF000000000	SRR2910648	CDPHFDLB-F12M00837	2,592,512	37.9	2,066,372	33	38	511,944	3,038	<i>fosX, lin</i>	Environmental swab
NYQE000000000	SRR2910649	CDPHFDLB-F12M00838	2,438,719	37.9	2,255,836	37	24	292,404	3,113	<i>fosX, lin</i>	Environmental swab
NYQD000000000	SRR2910650	CDPHFDLB-F12M00839	2,670,595	37.9	2,624,464	44	23	511,221	3,115	<i>fosX, lin</i>	Environmental swab
NYSF000000000	SRR2910651	CDPHFDLB-F12M00846	2,741,167	38.0	2,305,740	38	100	217,762	3,195	<i>fosX, lin</i>	Environmental swab
NYSE000000000	SRR3143809	CDPHFDLB-F12M00869a	2,342,764	37.9	2,497,854	39	53	116,735	3,109	<i>fosX, lin</i>	Environmental swab
NYQB000000000	SRR3143810	CDPHFDLB-F12M00922	2,567,159	37.9	1,162,682	41	27	362,921	3,111	<i>fosX, lin</i>	Onion waste
NYQA000000000	SRR3113299	CDPHFDLB-F12M00923	2,821,790	37.9	3,141,634	90	24	511,221	3,117	<i>fosX, lin</i>	Onion waste
NYSD000000000	SRR3113129	CDPHFDLB-F12M00925	2,844,447	37.9	3,086,862	55	19	511,221	3,017	<i>fosX, lin</i>	Onion waste
NYSC000000000	SRR2148959	CDPHFDLB-F13M00450a	2,545,381	37.9	1,412,768	36	75	70,979	3,047	<i>fosX, lin</i>	Environmental swab
NYSB000000000	SRR2148976	CDPHFDLB-F13M00450c	2,497,313	38.0	766,148	27	121	48,379	3,045	<i>fosX, lin</i>	Environmental swab
NYSA000000000	SRR2163253	CDPHFDLB-F13M00450d	2,597,954	37.9	1,240,264	73	62	100,826	3,061	<i>fosX, lin</i>	Environmental swab
NYRZ000000000	SRR2533614	CDPHFDLB-F14M00526a	2,487,289	37.9	1,705,886	56	38	359,200	3,061	<i>fosX, lin</i>	Environmental swab
NYSP000000000	SRR2482355	CDPHFDLB-F14M00526b	2,630,873	37.8	2,090,608	69	70	195,813	3,286	<i>fosX, lin</i>	Environmental swab
NYVZ000000000	SRR2533615	CDPHFDLB-F14M00804b	2,381,747	37.8	1,356,878	43	84	81,398	3,246	<i>fosX, lin</i>	Environmental swab
NYRY000000000	SRR2533616	CDPHFDLB-F14M00804c	2,629,972	37.7	2,308,508	73	54	249,566	3,295	<i>fosX, lin</i>	Environmental swab
NYVY000000000	SRR2482354	CDPHFDLB-F14M00526a	2,502,089	37.9	2,751,352	69	18	729,315	3,108	<i>fosX, lin</i>	Environmental swab
NYPX000000000	SRR2482374	CDPHFDLB-F14M00526b	2,702,362	37.9	2,121,580	56	15	729,201	3,105	<i>fosX, lin</i>	Environmental swab
NYPV000000000	SRR2482355	CDPHFDLB-F14M01297.C1	2,248,748	37.9	1,530,602	55	23	303,494	2,961	<i>fosX, lin</i>	Nectarines
NYPV000000000	SRR2482356	CDPHFDLB-F14M01297.C3	2,404,839	37.9	2,425,866	65	17	309,901	2,965	<i>fosX, lin</i>	Nectarines
NYPU000000000	SRR2482357	CDPHFDLB-F14M01574.16-1	2,668,170	37.8	1,642,094	56	21	438,630	3,127	<i>fosX, lin</i>	Environmental swab
NYPT000000000	SRR2482358	CDPHFDLB-F14M01574.16-2	2,501,012	37.8	1,742,284	59	19	536,610	3,129	<i>fosX, lin</i>	Environmental swab
NYPS000000000	SRR2482359	CDPHFDLB-F14M01574.16-3	2,607,247	37.8	1,061,132	37	63	352,520	3,171	<i>fosX, lin</i>	Environmental swab
NYPR000000000	SRR2482360	CDPHFDLB-F14M01574.16-4	2,439,942	37.8	1,932,332	62	17	546,012	3,127	<i>fosX, lin</i>	Environmental swab
NYPQ000000000	SRR2482361	CDPHFDLB-F14M01604.46-1	2,457,396	37.8	2,074,814	66	40	508,250	3,152	<i>fosX, lin</i>	Environmental swab
NYPP000000000	SRR2482371	CDPHFDLB-F14M01604.46-2	2,567,840	37.8	5,198,446	111	47	476,844	3,159	<i>fosX, lin</i>	Environmental swab

(Continued on next page)

TABLE 1 (Continued)

GenBank accession no.	SRP accession no.	Sample name	Estimated genome size (bp)	GC content (%)	Total no. of reads	Genome coverage (fold)	No. of contigs	N_{50} (bp)	Total no. of genes ^a	Antimicrobial resistance genotypes ^b	Isolation source
NYPO000000000	SRR2482372	CDPHFDLB-F14M0161254-1	2,467,087	37.8	1,856,872	63	47	482,078	3,202	<i>fosX, lin</i>	Environmental swab
NYPN000000000	SRR2482373	CDPHFDLB-F14M0161254-2	1,862,185	37.8	1,402,132	47	55	226,202	3,268	<i>fosX, lin</i>	Environmental swab
NYRX000000000	SRR2533617	CDPHFDLB-F14M0161254-3	2,412,958	37.9	1,432,934	45	84	95,898	3,195	<i>fosX, lin</i>	Environmental swab
NYPM000000000	SRR2533618	CDPHFDLB-F14M0161254-4	2,630,508	37.8	1,676,036	55	62	181,470	3,186	<i>fosX, lin</i>	Environmental swab
NYPL000000000	SRR2533619	CDPHFDLB-F14M0161860-1	2,353,669	37.8	2,327,122	80	36	476,844	3,099	<i>fosX, lin</i>	Environmental swab
NYRW000000000	SRR2533620	CDPHFDLB-F14M0161860-2	2,093,299	37.9	1,406,566	43	123	48,341	3,141	<i>fosX, lin</i>	Environmental swab
NYRV000000000	SRR2533621	CDPHFDLB-F14M0162466-1	2,506,467	37.9	1,381,308	48	76	77,142	3,079	<i>fosX, lin</i>	Environmental swab
NYRU000000000	SRR2533628	CDPHFDLB-F14M0162466-2	2,160,671	38.1	904,870	30	136	35,238	3,141	<i>fosX, lin</i>	Environmental swab
NYRT000000000	SRR2533622	CDPHFDLB-F14M0162668-2	2,263,387	37.9	2,211,410	75	22	406,132	3,089	<i>fosX, lin</i>	Environmental swab
NYPJ000000000	SRR2533623	CDPHFDLB-F14M0162668-3	2,708,259	38.0	1,384,912	48	44	165,401	3,080	<i>fosX, lin</i>	Environmental swab
NYPI000000000	SRR2724068	CDPHFDLB-F14M0163274-1	2,926,797	37.9	1,638,470	29	82	508,956	3,201	<i>fosX, lin</i>	Environmental swab
NYRS000000000	SRR2724069	CDPHFDLB-F14M0163274-2	2,797,546	37.8	2,600,326	48	33	508,250	3,093	<i>fosX, lin</i>	Environmental swab
NYPH000000000	SRR2724070	CDPHFDLB-F14M0163375-1	2,913,126	37.8	3,088,484	55	39	508,250	3,150	<i>fosX, lin</i>	Environmental swab
NYPF000000000	SRR2724072	CDPHFDLB-F14M0163577-1	2,716,824	37.8	1,993,128	31	52	476,841	3,204	<i>fosX, lin</i>	Environmental swab
NYPE000000000	SRR2724073	CDPHFDLB-F14M0163577-2	2,665,766	37.8	2,911,128	47	49	259,940	3,151	<i>fosX, lin</i>	Environmental swab
NYPD000000000	SRR2724074	CDPHFDLB-F14M0163577-3	2,764,455	37.8	3,344,610	61	46	260,811	3,149	<i>fosX, lin</i>	Environmental swab
NYPC000000000	SRR2724075	CDPHFDLB-F14M0163577-4	2,712,584	37.8	3,128,316	60	43	476,841	3,202	<i>fosX, lin</i>	Environmental swab
NYPB000000000	SRR2724076	CDPHFDLB-F14M0173586-1	2,536,431	37.9	3,885,658	73	20	400,809	2,966	<i>fosX, lin</i>	Environmental swab
NYR000000000	SRR2724145	CDPHFDLB-F14M0173586-2	2,568,736	37.9	2,633,982	52	20	353,199	2,965	<i>fosX, lin</i>	Environmental swab
NYPA000000000	SRR2724146	CDPHFDLB-F14M0177086-3	2,707,250	37.9	3,211,388	65	20	255,333	2,965	<i>fosX, lin</i>	Environmental swab
NYRQ000000000	SRR2724147	CDPHFDLB-F14M0177086-4	2,515,057	37.9	2,264,226	44	23	255,333	2,967	<i>fosX, lin</i>	Environmental swab
POHU000000000	SRR6425039	CDPHFDLB-F15M00075-1	2,928,516	37.8	1,178,072	31	37	353,695	3,188	<i>fosX, lin</i>	Environmental swab
NYRP000000000	SRR2148960	CDPHFDLB-F15M01605-12B	2,316,727	37.9	1,629,558	35	103	67,679	3,095	<i>fosX, lin</i>	Environmental swab
NYR000000000	SRR2148951	CDPHFDLB-F15M01624-32A	2,241,646	37.9	1,841,154	58	71	69,727	3,038	<i>fosX, lin</i>	Environmental swab
NYRN000000000	SRR2148961	CDPHFDLB-F15M01653-61B	2,390,339	38.0	780,380	27	161	35,913	2,954	<i>fosA, fosX, lin, tet(M)</i>	Environmental swab
NYRM000000000	SRR2148969	CDPHFDLB-F15M01690-1	2,147,446	38.0	991,516	29	200	32,231	3,110	<i>fosA, fosX, lin, tet(M)</i>	Raw salmon
NYRL000000000	SRR2148970	CDPHFDLB-F15M017172-1	2,472,460	37.9	1,606,486	52	95	61,130	3,138	<i>fosA, fosX, lin</i>	Raw salmon
NYOZ000000000	SRR2533624	CDPHFDLB-F15M02278-2b	2,256,541	37.8	3,295,26	87	19	545,214	3,105	<i>fosX, lin</i>	Environmental swab
NYOX000000000	SRR2533625	CDPHFDLB-F15M02279-3b	2,040,358	37.8	1,577,710	55	23	411,869	3,109	<i>fosX, lin</i>	Environmental swab
PQHT000000000	SRR6425036	CDPHFDLB-F15M02284-8b	2,462,668	37.8	2,196,184	75	16	546,012	3,111	<i>fosX, lin</i>	Environmental swab
PQHS000000000	SRR6425034	CDPHFDLB-F15M02276	2,854,352	37.8	1,295,360	31	17	545,54	3,120	<i>fosX, lin</i>	Environmental swab
PQHR000000000	SRR6425041	CDPHFDLB-F15M02276	2,871,732	37.8	1,724,844	39	20	528,672	3,129	<i>bcrB, bcrC, fosX, lin</i>	Environmental swab
PQHQ000000000	SRR6425042	CDPHFDLB-F15M02276	2,491,738	37.9	3,012,598	46	17	400,811	2,965	<i>fosX, lin</i>	Environmental swab
NYOW000000000	SRR2724066	CDPHFDLB-F15M03122-1	2,907,814	37.8	1,609,112	40	17	400,811	2,964	<i>fosX, lin</i>	Environmental swab
NYOV000000000	SRR2724067	CDPHFDLB-F15M03122-2	2,632,405	37.9	2,062,246	39	17	436,139	3,116	<i>fosX, lin</i>	Environmental swab
NYOU000000000	SRR3113284	CDPHFDLB-F15M03674-2a	2,873,518	37.8	3,642,830	75	59	76,393	3,079	<i>fosX, lin</i>	Environmental swab
NYOT000000000	SRR3113296	CDPHFDLB-F15M03678-6b	2,294,206	37.8	2,510,196	79	37	432,779	3,096	<i>fosX, lin</i>	Environmental swab
NYOS000000000	SRR3113297	CDPHFDLB-F15M03680-8a	2,525,970	37.8	2,607,978	85	43	427,543	3,105	<i>fosX, lin</i>	Environmental swab
NYOR000000000	SRR3113285	CDPHFDLB-F15M03681-2a	2,843,017	37.8	3,631,380	97	42	436,139	3,116	<i>fosX, lin</i>	Environmental swab
NYRK000000000	SRR3113286	CDPHFDLB-F15M03685-13a	2,281,492	37.9	1,008,890	35	91	436,139	3,116	<i>fosX, lin</i>	Environmental swab
NYOQ000000000	SRR3113287	CDPHFDLB-F15M03686-14a	2,090,609	37.8	1,838,374	61	36	432,609	3,098	<i>fosX, lin</i>	Environmental swab
NYRJ000000000	SRR3113298	CDPHFDLB-F15M03691-19a	1,885,781	37.8	3,068,868	91	46	141,539	3,084	<i>fosX, lin</i>	Environmental swab
NYOP000000000	SRR3113288	CDPHFDLB-F15M03698-26a	2,327,743	37.8	1,843,592	62	25	330,002	2,982	<i>fosX, lin</i>	Environmental swab
NYRI000000000	SRR3113289	CDPHFDLB-F15M03699-27a	2,531,994	37.9	1,057,872	37	83	83,151	2,983	<i>fosX, lin</i>	Environmental swab
NYRH000000000	SRR3113290	CDPHFDLB-F15M03700-28a	2,521,964	37.8	1,689,550	56	45	207,537	2,994	<i>fosX, lin</i>	Environmental swab
NYOO000000000	SRR3113291	CDPHFDLB-F15M03701-29a	2,084,966	37.8	3,096,966	97	20	541,149	2,977	<i>fosX, lin</i>	Environmental swab

(Continued on next page)

TABLE 1 (Continued)

GenBank accession no.	SRP accession no.	Sample name	Estimated genome size (bp)	GC content (%)	Total no. of reads	Genome coverage (fold)	No. of contigs	N_{50} (bp)	Total no. of genes ^a	Antimicrobial resistance genotypes ^b	Isolation source
NYON00000000	SRR3113292	CDPHFDLB-F15M03704-32a	2,469,847	37.9	1,718,214	59	53	243,136	3,094	<i>fosX, lin</i>	Environmental swab
NYRG00000000	SRR3113293	CDPHFDLB-F15M03706-34a	2,126,573	38.0	977,516	30	155	34,234	2,957	<i>fosX, lin</i>	Environmental swab
NYOM00000000	SRR3113294	CDPHFDLB-F15M03710-38a	1,965,404	37.8	3,416,554	107	18	456,300	2,977	<i>fosX, lin</i>	Environmental swab
NYOL00000000	SRR3113295	CDPHFDLB-F15M03711-39a	2,517,843	37.8	2,926,038	90	23	541,945	2,988	<i>fosX, lin</i>	Environmental swab
NYOK00000000	SRR3143801	CDPHFDLB-F15M03850-P014B1	2,643,675	37.8	3,233,310	74	17	437,442	3,151	<i>fosX, lin</i>	Mushrooms
NYOJ00000000	SRR3143802	CDPHFDLB-F15M03850-P014B2	2,457,228	37.8	2,064,168	71	16	437,442	3,149	<i>fosX, lin</i>	Mushrooms
NYOJ00000000	SRR3143803	CDPHFDLB-F15M04137-P015P1	2,606,534	37.8	2,299,194	71	17	437,508	3,148	<i>fosX, lin</i>	Mushrooms
NYOH00000000	SRR3143804	CDPHFDLB-F15M04137-P015P2	2,684,225	37.8	2,314,808	76	17	437,508	3,149	<i>fosX, lin</i>	Mushrooms
NYRF00000000	SRR3101600	CDPHFDLB-F15M04169-E005	2,625,724	37.9	1,223,806	31	76	68,069	3,151	<i>fosX, lin</i>	Environmental swab
NYRE00000000	SRR3101608	CDPHFDLB-F15M04169-E005-2	2,241,218	37.9	963,478	32	70	97,715	3,167	<i>fosX, lin</i>	Environmental swab
NYRD00000000	SRR3101601	CDPHFDLB-F15M04174-E010	2,210,047	37.9	2,167,702	46	71	66,099	2,945	<i>fosX, lin</i>	Environmental swab
NYRC00000000	SRR3101609	CDPHFDLB-F15M04174-E010-2	2,344,627	38.0	873,156	28	107	56,669	2,934	<i>fosX, lin</i>	Environmental swab
NYOG00000000	SRR3101602	CDPHFDLB-F15M04188-E024	2,488,076	37.9	1,217,930	38	70	74,906	3,022	<i>fosX, lin</i>	Environmental swab
NYRB00000000	SRR3101610	CDPHFDLB-F15M04188-E024-2	2,434,912	38.0	721,266	24	126	38,045	2,991	<i>fosX, lin</i>	Environmental swab
NYOF00000000	SRR5047483	CDPHFDLB-F15M04191-E027	2,996,396	37.8	554,754	60	31	368,155	3,226	<i>fosX, lin</i>	Environmental swab
NYOE00000000	SRR5047485	CDPHFDLB-F15M04191-E027-2	2,832,713	37.9	797,146	58	78	368,155	3,276	<i>fosX, lin</i>	Environmental swab
NYOD00000000	SRR3101604	CDPHFDLB-F15M04208-E044	2,355,581	37.9	1,676,582	42	71	66,254	3,145	<i>fosX, lin</i>	Environmental swab
NYOZ00000000	SRR3101613	CDPHFDLB-F15M04208-E044-2	2,635,926	37.9	1,384,452	45	43	248,831	3,163	<i>fosX, lin</i>	Environmental swab
NYOB00000000	SRR3101605	CDPHFDLB-F15M04238-E074	2,033,023	37.9	1,608,936	37	45	111,041	2,937	<i>fosX, lin</i>	Environmental swab
NYOA00000000	SRR3101614	CDPHFDLB-F15M04238-E074-2	2,446,141	38.0	1,289,706	44	41	164,286	2,942	<i>fosX, lin</i>	Environmental swab
NYRA00000000	SRR3101606	CDPHFDLB-F15M04239-E075	2,046,871	38.0	1,898,044	44	93	67,061	2,943	<i>fosX, lin</i>	Environmental swab
NYNZ00000000	SRR3101615	CDPHFDLB-F15M04239-E075-2	2,351,033	38.0	1,034,762	34	85	71,341	2,945	<i>fosX, lin</i>	Environmental swab
NYOZ00000000	SRR3101607	CDPHFDLB-F15M04262-E098	2,029,810	38.1	1,370,446	41	133	38,407	2,917	<i>fosX, lin</i>	Environmental swab
NYNY00000000	SRR3101616	CDPHFDLB-F15M04262-E098-2	1,712,017	38.1	1,066,544	36	101	47,050	2,890	<i>fosX, lin</i>	Environmental swab
NYNX00000000	SRR3143805	CDPHFDLB-F15M04239-E021A	2,548,949	37.8	2,756,150	87	17	437,442	3,151	<i>fosX, lin</i>	Environmental swab
NYNW00000000	SRR3143806	CDPHFDLB-F15M04239-E075-2	2,762,160	37.8	2,065,454	70	17	437,442	3,150	<i>fosX, lin</i>	Environmental swab
NYNV00000000	SRR3143807	CDPHFDLB-F1601030-027-E110B1	2,277,848	37.9	1,947,502	68	16	442,255	3,016	<i>fosX, lin</i>	Casing
NYNU00000000	SRR3143808	CDPHFDLB-F1601030-027-E110B2	2,520,124	37.9	2,262,468	79	22	263,843	3,016	<i>fosX, lin</i>	Casing
NYNT00000000	SRR3410223	CDPHFDLB-F1601052-016	2,763,221	37.8	1,077,236	41	29	479,619	3,104	<i>fosX, lin</i>	Environmental swab
NYNR00000000	SRR3407806	CDPHFDLB-F1601052-021	2,716,065	37.8	1,038,656	38	21	528,599	3,297	<i>fosX, lin</i>	Environmental swab
NYNR00000000	SRR3407806	CDPHFDLB-F1601052-022	2,768,196	37.8	1,276,566	83	15	541,819	2,981	<i>fosX, lin</i>	Environmental swab
NYNQ00000000	SRR3407804	CDPHFDLB-F1601052-032	2,785,026	37.8	2,159,626	83	15	541,819	2,981	<i>fosX, lin</i>	Environmental swab
NYNP00000000	SRR3407803	CDPHFDLB-F1601052-033	2,752,694	37.8	2,150,992	83	15	541,819	2,981	<i>fosX, lin</i>	Environmental swab
NYNO00000000	SRR3407802	CDPHFDLB-F1601052-034	2,787,666	37.8	960,738	37	16	541,421	2,931	<i>fosX, lin</i>	Environmental swab
NYNN00000000	SRR3407801	CDPHFDLB-F1601052-035	2,477,572	37.8	2,800,652	103	16	545,884	3,012	<i>fosX, lin</i>	Environmental swab
NYNP00000000	SRR3407800	CDPHFDLB-F1601052-069	2,391,239	37.8	3,605,914	130	24	475,392	3,076	<i>fosX, lin</i>	Frozen vegetables
NYNL00000000	SRR3407799	CDPHFDLB-F1605001-001-1A3	2,912,517	37.8	1,271,224	36	17	545,397	2,958	<i>fosX, lin</i>	Frozen vegetables
NYNH00000000	SRR3606923	CDPHFDLB-F1605001-002-1B1	2,650,705	37.9	876,702	33	28	425,267	2,960	<i>fosX, lin</i>	Frozen vegetables
NYNG00000000	SRR3606924	CDPHFDLB-F1605001-002-1B4	2,744,169	37.8	673,392	25	18	496,167	3,027	<i>fosX, lin</i>	Frozen vegetables
NYNF00000000	SRR3606925	CDPHFDLB-F1605001-003-2A1	2,797,455	37.8	721,422	27	14	1,516,336	3,028	<i>fosX, lin</i>	Frozen vegetables
NYNE00000000	SRR3606926	CDPHFDLB-F1605001-003-2A3	2,661,603	37.8	896,504	34	20	432,482	3,031	<i>fosX, lin</i>	Frozen vegetables
NYND00000000	SRR3606927	CDPHFDLB-F1605001-004-2B1	2,561,030	37.8	1,289,066	46	11	1,515,607	3,024	<i>fosX, lin</i>	Frozen vegetables
NYNC00000000	SRR3606928	CDPHFDLB-F1605001-004-2B2	2,726,234	37.9	886,118	34	23	545,769	2,964	<i>fosX, lin</i>	Frozen vegetables

(Continued on next page)

TABLE 1 (Continued)

GenBank accession no.	SRA accession no.	Sample name	Estimated genome size (bp)	GC content (%)	Total no. of reads	Genome coverage (fold)	No. of contigs	N_{50} (bp)	Total no. of genes ^a	Antimicrobial resistance genotypes ^b	Isolation source
NYNB000000000	SRR3606929	CDPHFDLB-F1605001-005-2C1	2,709,017	37.8	1,019,756	36	14	581,822	3,025	<i>fosX, lin</i>	Frozen vegetables
NYNA000000000	SRR3606930	CDPHFDLB-F1605001-005-2C2	2,540,561	37.8	1,834,788	64	12	581,822	3,024	<i>fosX, lin</i>	Frozen vegetables
NYMZ000000000	SRR3948512	CDPHFDLB-F1605034-061-1	2,740,674	37.9	989,200	38	12	1,489,538	3,006	<i>fosX, lin</i>	Environmental swab
NYNY000000000	SRR3948513	CDPHFDLB-F1605034-061-2	2,555,715	37.9	961,970	37	24	439,269	3,005	<i>fosX, lin</i>	Environmental swab
NYMX000000000	SRR5047487	CDPHFDLB-F1610030-049A	2,834,722	37.9	1,205,938	45	21	437,442	3,156	<i>fosX, lin</i>	Environmental swab
NYMW000000000	SRR5047481	CDPHFDLB-F1610030-049B	2,824,341	37.9	1,653,396	62	59	419,271	3,196	<i>fosX, lin</i>	Environmental swab
NYMV000000000	SRR5666388	CDPHFDLB-F1702031-086	2,783,956	37.8	1,481,524	42	40	285,485	3,150	<i>fosX, lin</i>	Environmental swab
PQH000000000	SRR6367391	CDPHFDLB-F1704007-002	2,052,141	37.9	2,089,438	33	112	299,947	3,322	<i>bcrB, bcrC, fosX, lin</i>	Environmental swab
PQHN000000000	SRR6367394	CDPHFDLB-F1704007-008	2,458,205	37.8	2,509,740	80	31	480,705	3,223	<i>bcrB, bcrC, fosX, lin</i>	Environmental swab
PQHM000000000	SRR6369101	CDPHFDLB-FM17-00087	2,869,040	37.9	1,657,750	52	32	519,458	3,107	<i>fosX, lin</i>	Environmental swab
PQHL000000000	SRR6369100	CDPHFDLB-FM17-00088	2,558,183	37.9	1,671,218	56	23	513,398	3,118	<i>bcrB, bcrC, fosX, lin</i>	Environmental swab
PQHK000000000	SRR6369104	CDPHFDLB-FM17-00090	1,993,228	37.9	2,256,280	72	15	364,332	3,039	<i>fosX, lin</i>	Environmental swab
PQHQ000000000	SRR6369107	CDPHFDLB-FM17-00091	2,084,793	37.9	1,597,574	50	23	478,793	3,082	<i>fosX, lin</i>	Environmental swab
PQHI000000000	SRR6368628	CDPHFDLB-FM17-00092	2,344,827	37.8	2,134,582	75	51	259,981	3,210	<i>fosX, lin</i>	Environmental swab
PQHH000000000	SRR6368621	CDPHFDLB-FM17-00100	2,509,251	37.9	2,134,686	71	23	478,796	3,174	<i>bcrB, bcrC, fosX, lin</i>	Environmental swab
PQHC000000000	SRR6369108	CDPHFDLB-FM17-00110	2,402,221	37.8	2,662,808	93	33	508,250	3,104	<i>bcrB, bcrC, fosX, lin</i>	Environmental swab
PQHF000000000	SRR6369102	CDPHFDLB-FM17-00114	2,618,953	37.9	1,323,382	50	13	521,712	3,038	<i>fosX, lin</i>	Environmental swab
PQHE000000000	SRR6369105	CDPHFDLB-FM17-00115	2,152,539	37.9	1,680,510	56	16	346,961	3,036	<i>fosX, lin</i>	Environmental swab
PQHD000000000	SRR6369103	CDPHFDLB-FM17-00118	2,566,669	37.8	1,457,098	52	52	282,984	3,233	<i>fosX, lin</i>	Environmental swab
PQHC000000000	SRR6369097	CDPHFDLB-FM17-00120	2,567,383	37.8	1,653,280	58	52	282,982	3,236	<i>fosX, lin</i>	Environmental swab
PQHB000000000	SRR6369099	CDPHFDLB-FM17-00121	2,574,327	37.8	1,927,382	70	22	517,902	3,124	<i>bcrB, bcrC, fosX, lin</i>	Environmental swab
PQHA000000000	SRR6425463	CDPHFDLB-FM17-00123	2,964,701	37.8	1,215,572	28	19	517,859	3,123	<i>bcrB, bcrC, fosX, lin</i>	Environmental swab
PQZG000000000	SRR6425473	CDPHFDLB-FM17-00125	2,871,050	37.9	1,868,244	38	16	517,776	3,088	<i>fosX, lin</i>	Environmental swab
PQGY000000000	SRR6425598	CDPHFDLB-FM17-00126	2,887,392	37.9	1,076,638	29	18	355,675	3,046	<i>fosX, lin</i>	Environmental swab
PQGX000000000	SRR6425582	CDPHFDLB-FM17-00136	2,940,641	37.9	1,537,420	39	17	517,904	3,116	<i>bcrB, bcrC, fosX, lin</i>	Environmental swab
PQGW000000000	SRR6425581	CDPHFDLB-FM17-00137	2,962,165	37.8	1,264,836	27	63	481,060	3,208	<i>bcrB, bcrC, fosX, lin</i>	Environmental swab
PQGV000000000	SRR6425603	CDPHFDLB-FM17-00149	2,887,274	37.9	1,414,758	38	14	518,313	3,090	<i>fosX, lin</i>	Environmental swab
PQGU000000000	SRR6425597	CDPHFDLB-FM17-00158	3,032,302	37.8	1,594,320	32	48	508,250	3,215	<i>fosX, lin</i>	Environmental swab
PQGT000000000	SRR6425600	CDPHFDLB-FM17-00159	3,008,320	37.8	1,245,706	31	50	508,250	3,219	<i>fosX, lin</i>	Environmental swab
PQGS000000000	SRR6425602	CDPHFDLB-FM17-00161	2,908,822	37.8	1,781,982	36	19	404,359	3,140	<i>bcrB, bcrC, fosX, lin</i>	Environmental swab

^aTotal no. of genes obtained from NCBI PGAP analyses.^bAntimicrobial resistance genotypes obtained from NCBI pathogen detection browser.

Prokaryotic Genome Annotation Pipeline (PGAP) version 4.2 (https://www.ncbi.nlm.nih.gov/genome/annotation_prok).

Based on PGAP annotation results, the total numbers of genes found in the *L. monocytogenes* isolates range from 2,890 to 3,322. Table 1 includes detailed information for each of the isolates.

NCBI Pathogen Detection analysis (<https://www.ncbi.nlm.nih.gov/pathogens>) indicates that all 171 isolates contain the antimicrobial resistance genes *fosX* (fosfomycin resistance) and *lin* (lincomycin resistance), 24 (14.0%) contain *bcrB* and *bcrC* (bacitracin resistance) genes, 2 (1.1%) contain *fexA* genes (florfenicol/chloramphenicol resistance), and 2 (1.1%) contain *tet* genes (tetracycline resistance).

Data availability. All accession numbers and assemblies are available in GenBank. Please see accession numbers listed in Table 1.

ACKNOWLEDGMENTS

We thank the former and current staff of the California Department of Public Health Food and Drug Laboratory Branch for isolation of the strains.

Support for sequencing reagents came from the US Food and Drug Administration GenomeTrakr project.

REFERENCES

1. Centers for Disease Control and Prevention. 2014. National enteric disease surveillance: Listeria annual summary. US Department of Health and Human Services, Centers for Disease Control and Prevention, Atlanta, GA.
2. Gunn GR, Zubair A, Peters C, Pan Z-K, Wu T-C, Paterson Y. 2001. Two *Listeria monocytogenes* vaccine vectors that express different molecular forms of human papilloma virus-16 (HPV-16) E7 induce qualitatively different T cell immunity that correlates with their ability to induce regression of established tumors immortalized by HPV-16. *J Immunol* 167:6471–6479. <https://doi.org/10.4049/jimmunol.167.11.6471>.
3. Yang Y, Hou J, Lin Z, Zhuo H, Chen D, Zhang X, Chen Y, Sun B. 2014. Attenuated *Listeria monocytogenes* as a cancer vaccine vector for the delivery of CD24, a biomarker for hepatic cancer stem cells. *Cell Mol Immunol* 11:184–196. <https://doi.org/10.1038/cmi.2013.64>.
4. Starks H, Bruhn KW, Shen H, Barry RA, Dubensky TW, Brockstedt D, Hinrichs DF, Higgins DE, Miller JF, Giedlin M, Bouwer HGA. 2004. *Listeria monocytogenes* as a vaccine vector: virulence attenuation or existing antivector immunity does not diminish therapeutic efficacy. *J Immunol* 173:420–427. <https://doi.org/10.4049/jimmunol.173.1.420>.
5. Hitchins AD, Jinneman K, Chen Y. 2004. BAM chapter 10: detection of *Listeria monocytogenes* in foods and environmental samples, and enumeration of *Listeria monocytogenes* in foods. US Food and Drug Administration, Washington, DC. <https://www.fda.gov/food/laboratory-methods-food/bam-chapter-10-detection-listeria-monocytogenes-foods-and-environmental-samples-and-enumeration>.
6. Rodríguez-Lázaro D, Hernández M, Pla M. 2004. Simultaneous quantitative detection of *Listeria* spp. and *Listeria monocytogenes* using a duplex real-time PCR-based assay. *FEMS Microbiol Lett* 233:257–267. <https://doi.org/10.1111/j.1574-6968.2004.tb09490.x>.
7. Nurk S, Bankevich A, Antipov D, Gurevich A, Korobeynikov A, Lapidus A, Prjibelsky A, Pyshkin A, Sirotkin A, Sirotkin Y, Stepanauskas R, McLean J, Lasken R, Clingenpeel SR, Woyke T, Tesler G, Alekseyev MA, Pevzner PA. 2013. Assembling genomes and mini-metagenomes from highly chimeric reads. In: Deng M, Jiang R, Sun F, Zhang X (ed), Research in computational molecular biology. RECOMB 2013. Lecture notes in computer science, vol 7821. Springer, Berlin, Germany. https://doi.org/10.1007/978-3-642-37195-0_13.