

Genes and variants	Accession Number	NCBI Refseq	Length (bp)	Protein RefSeq	accession	Protein length	Mutations (aa)	mcr location	Species	Host	Country	Authors	PMID	Notes
mcr-1	KP347127	NG_050417.1	1626	WP_049589868.1	541			Incl2	<i>Escherichia coli</i>	Pig	China	Liu Y, 2016	26603172	
mcr-1.2	KX236309	NG_051170.1	1626	WP_065274078.1	541	Q3L		IncX4	<i>Klebsiella pneumoniae</i>	Human	Italy	Di Pilato V, 2016	27401575	
mcr-1.3	KU934208	NG_052861.1	1626	WP_077064885.1	541	I38V		Incl2	<i>Escherichia coli</i>	Chicken	China	Yang Y, 2016	28242671	
mcr-1.4	KY041856	NG_052664.1	1626	WP_076611062.1	541	D440N		IncX4	<i>Escherichia coli</i>	Unknown - sev	China	Zhao F, 2016	29118748	
mcr-1.5	KY283125	NG_052663.1	1626	WP_076611061.1	541	H452Y		nd	<i>Escherichia coli</i>	Human	Argentina	Estabrook M, 2016	Unpublished	
mcr-1.6	KY352406	NG_052893.1	1626	WP_077248208.1	541	R536H		IncP	<i>Salmonella</i> Typhimurium	Human	China	Lu X, 2016	28264851	
mcr-1.7	KY488488	NG_054678.1	1626	WP_085562392.1	541	A215T		IncX4	<i>Escherichia coli</i>	Unknown - sev	China	Zhao F, 2017	29118748	
mcr-1.8	KY683842	NG_054697.1	1626	WP_085562407.1	541	Q3R		nd	<i>Escherichia coli</i>	Poultry	Brunei	Abdul Momin HF, 2017	Unpublished	
mcr-1.9	KY964067.1	NG_055582.1	1626	WP_099982800.1	541	V413A		IncX4	<i>Escherichia coli</i>	Pig	Portugal	Manageiro V, 2017	30923516	
mcr-1.10	MF176238.1	NG_055583.1	1626	WP_096807442.1	541	M2V/R11C/A235/M15		IncX4	<i>Moraxella sp</i>	Pig	United Kingdom	AbuOun M, 2017	29091227	
mcr-1.11	KY853650.2	NG_055784.2	1629	WP_099982815.1	542	V7_W8insV		Incl2	<i>Escherichia coli</i>	Human	Peru	Deshpande L, 2018	30917984	
mcr-1.12	LC337668.1	NG_056412.1	1626	WP_104009850.1	541	Q3H		nd	<i>Escherichia coli</i>	Pig	Japan	Nishino Y, 2017	Unpublished	
mcr-1.13	MG384739	NG_057466.1	1626	WP_109545056.1	541	M155I		nd	<i>Escherichia coli</i>	Turkey	Germany	Hammerl JA, 2018	Unpublished	
mcr-1.13 (NOT the sam)	None	None	1626		541	M2V/S14G		chromosome	<i>Designated as mcr-1.xx in Rebelo</i>	Turkey, Pig	Italy	Alba P, 2018	29951045	Not on fasta file
mcr-1.14	KX443408.2	NG_057460.1	1626	WP_109545052.1	541	nd		nd	<i>Klebsiella pneumoniae</i>	Chicken	China	Yang Y, 2020	Unpublished	
mcr-1.15	MG763897.1	NG_061610.1	1623	WP_116786830.1	540	nd		nd	<i>Klebsiella pneumoniae</i>	Chicken	China	Xiang R, 2018	Unpublished	
mcr-1.16	MK568462.1	NG_064787.1	1626	WP_136512110.1	541	nd		nd	<i>Escherichia coli</i>	Chicken	China	Zhu Y, 2019	Unpublished	
mcr-1.17	MK658463.1	NG_064788.1	1626	WP_136512111.1	541	nd		nd	<i>Escherichia coli</i>	Cow	China	Zhu Y, 2019	Unpublished	
mcr-1.18	PGLM01000025.1	NG_064789.1	1626	WP_106743337.1	541	nd		nd	<i>Escherichia coli</i>	Chicken	China	Wu C, 2018	Unpublished	
mcr-1.19	MK490674.1	NG_065449.1	1626	WP_129336087.1	541	nd		IncHI2	<i>Salmonella</i> Typhimurium	Egg	China	Hu Y, 2019	Unpublished	
mcr-1.20	LS398440.1	NG_065450.1	1626	WP_140423329.1	541	nd		nd	<i>Escherichia coli</i>	Pig	United Kingdom	APHA, 2018	Unpublished	previously mcr-1.14, including in original GenBank entry
mcr-1.21	MK965883.1	NG_065451.1	1626	WP_140423330.1	541	nd		nd	<i>Escherichia coli</i>	Human	China	Li C, 2019	Unpublished	
mcr-1.22	MN017134.1	NG_065944.1	1626	WP_148044477.1	541	nd		nd	<i>Escherichia coli</i>	Chicken	Nigeria	Caretto E, 2019	Unpublished	
mcr-1.23	MN873697.1	NG_067235.1	1626	WP_160164897.1	541	nd		nd	<i>Salmonella</i>	Poultry	Bangladesh	Uddin MB, 2020	Preprint https://doi.org/10.1101/2020.03.27.01294E	
mcr-1.24	MN879257.1	NG_067236.1	1626	WP_160164898.1	541	nd		nd	<i>Escherichia coli</i>	Poultry	Bangladesh	Uddin MB, 2020	Preprint https://doi.org/10.1101/2020.03.27.01294E	
mcr-1.25	MN879259.1	NG_067237.1	1626	WP_160164899.1	541	nd		nd	<i>Escherichia coli</i>	Poultry	Bangladesh	Uddin MB, 2020	Preprint https://doi.org/10.1101/2020.03.27.01294E	
mcr-1.26	JAAGSA01000042.1	NG_068217.1	1626	WP_034169413.1	541	nd		nd	<i>Escherichia coli</i>	Human	Germany	Neumann B, 2020	Unpublished	
mcr-1.27	JAAGSB01000042.1	NG_068218.1	1626	NEU89143.1	541	nd		nd	<i>Escherichia coli</i>	Human	Germany	Neumann B, 2020	Unpublished	
mcr-1.28	MT770924.1	NG_070762.1	1626	WP_181464119.1	541	nd		nd	<i>Escherichia coli</i>	Unknown	China	Ruan Z, 2020	Unpublished	
mcr-1.29	MT731964.1	NG_070763.1	1626	WP_188331884.1	541	nd		nd	Uncultured	Unknown - em	China	LV D, 2020	Unpublished	
mcr-1.30	MT731965.1	NG_070764.1	1626	WP_188331885.1	541	nd		nd	Uncultured	Swine	China	LV D, 2020	Unpublished	
mcr-1.31	MW940640.1	NG_074755.1	1626	WP_213994614.1	541	nd		nd	<i>Escherichia coli</i>	Human	Italy	Bolzoni L, 2021	Unpublished	
mcr-1.32	MF084991.1	NG_074756.1	1626	WP_213994615.1	541	nd		nd	<i>Escherichia coli</i>	Human	Spain	Falgenhauer L, 2017	Unpublished	
mcr-2.1	LTS98652	NG_051171.1	1617	WP_065419574.1	538	H4Q/V57L/V140F/G32		IncX4	<i>Escherichia coli</i>	Pig, Calf	Belgium	Xavier BB, 2016	27416987	
mcr-2.2	MUYU01000015.1	NG_055496.1	1617	WP_078254299.1	538	H4Q/V57L/V140F/G32		nd	<i>Moraxella plurinimalium</i>	Pig	Spain	Salva-Serra F, 2017	Unpublished	
mcr-2.2 (same as above)	MF176239.1	NG_055496.1	1617	---	---	---		nd	<i>Moraxella plurinimalium</i>	Pig	Spain	AbuOun M, 2017	29091227	
mcr-2.3	NQC002000001.1	NG_065452.1	1617	TNK10460.1	538	nd		nd	<i>Escherichia coli</i>	Swine	Thailand	Fouts D, 2019	Unpublished	
mcr-2.4	MT757845.1	NG_070765.1	1617	WP_188331886.1	538	nd		nd	Uncultured	Swine	China	LV D, 2020	Unpublished	
mcr-2.5	MT757842.1	NG_070766.1	1617	WP_188331887.1	538	nd		nd	Uncultured	Swine	China	LV D, 2020	Unpublished	
mcr-2.6	MT757844.1	NG_070767.1	1617	WP_188331888.1	538	nd		nd	Uncultured	Swine	China	LV D, 2020	Unpublished	
mcr-2.7	MT757843.1	NG_070768.1	1617	WP_188331889.1	538	nd		nd	Uncultured	Swine	China	LV D, 2020	Unpublished	
mcr-2.8	MZ520325.1	NG_076679.1	1617	WP_219860731.1	538	nd		nd	<i>Escherichia coli</i>	Swine	Belgium	Ewers C, 2021	Unpublished	
mcr-3.1	KY924928	NG_055505.1	1626	WP_039026394.1	541			IncHI2	<i>Escherichia coli</i>	Pig	China	Yin W, 2017	28655818	
mcr-3.2	NP2H01000177.1	NG_055523.1	1626	OYE10189.1	541	T488I		nd	<i>Shigella sonnei</i>	Human	Thailand	Fouts D, 2017	Unpublished	
mcr-3.2 (same as above)	NMWW01000143.1	NG_055523.1	1626	---	---	---		nd	<i>Escherichia coli</i>	Cattle	Spain	Hernandez M, 2017	28797328	
mcr-3.3	MF495680.1	NG_055783.1	1623	ASU10319.1	540	V122G/R297L/I313V/E		nd	<i>Aeromonas veronii</i>	Chicken	China	Ling Z, 2017	Unpublished	
mcr-3.4	FLXA01000011.1	NG_055492.1	1626	WP_065804663.1	541	G373V		nd	<i>Klebsiella pneumoniae</i>	Human	Thailand	Pathogen Informatics, Wellco	Unpublished	
mcr-3.5	MF489760.1	NG_055782.1	1626	WP_089613755.1	541	M23V/A457E/T488I		nd	<i>Escherichia coli</i>	Human	China	Liu L, 2017	Unpublished	
mcr-3.5 (same as above)	MF463699.1	NG_055782.1	1626	---	---	---		nd	<i>Escherichia coli</i>	Human	China	Liu L, 2017	Unpublished	
mcr-3.6	MF598076.1	NG_055660.1	1623	WP_042649074.1	540	M13I/D41Y/I71V/S117		nd	<i>Aeromonas allsaccharophila</i>	Fish	Germany	Eichhorn I, 2017	29394397	
mcr-3.7	MF598077.1	NG_055661.1	1626	WP_099156047.1	541	M13I/V61A/I71V/V12		nd	<i>Aeromonas media</i>	Turkey	Germany	Eichhorn I, 2017	29394397	
mcr-3.8	MF598079.1	NG_055662.1	1623	WP_099156048.1	540	M13I/V122G/R297L/I3		nd	<i>Aeromonas hydrophila</i>	Fish	Germany	Eichhorn I, 2017	29394397	
mcr-3.8 (same as above)	MF598078.1	NG_055662.1	1623	---	---	---		nd	<i>Aeromonas jandei</i>	Fish	Germany	Eichhorn I, 2017	29394397	
mcr-3.9	MF598080.1	NG_055663.1	1626	WP_099156049.1	541	M13I/I71V/V122G/E1		nd	<i>Aeromonas hydrophila</i>	Fish	Germany	Eichhorn I, 2017	29394397	
mcr-3.10	MG214531.1	NG_055799.1	1626	WP_099982820.1	541	V122G/R297L/I313V/E		Incl2	<i>Aeromonas caviae</i>	Duck	China	Wang X, 2017	29203482	
mcr-3.10 (same as above)	MG214533.1	NG_055799.1	1626	---	---	---		Incl2	<i>Escherichia coli</i>	Duck	China	Wang X, 2017	29203482	
mcr-3.10 (same as above)	MG214532.1	NG_055799.1	1626	---	---	---		Incl2	<i>Proteus mirabilis</i>	Duck	China	Wang X, 2017	29203482	
mcr-3.11	MG489958.1	NG_056184.1	1626	WP_102607465.1	541	G373V/Q468T		nd	<i>Escherichia coli</i>	Unknown	China	Xiang R, 2017	Unpublished	
mcr-3.12	MG564491.1	NG_057484.1	1626	WP_109545070.1	541	nd		IncA/C2	<i>Escherichia coli</i>	Pig	Brazil	Kieffer N, 2018	29712655	
mcr-3.13	MH332763.1	NG_060514.1	1623	WP_111273842.1	540	nd		chromossome?	<i>Aeromonas caviae</i>	Human	China	Shen Y, 2018	29967026	
mcr-3.14	MH332764.1	NG_060515.1	1623	WP_111273843.1	540	nd		chromossome?	<i>Aeromonas bivalvium</i>	Unknown - aq	China	Shen Y, 2018	29967026	
mcr-3.15	MH332765.1	NG_060516.1	1623	WP_111273844.1	540	nd		chromossome?	<i>Aeromonas media</i>	Chicken	China	Shen Y, 2018	29967026	
mcr-3.16	MH332766.1	NG_060517.1	1623	WP_111273845.1	540	nd		chromossome?	<i>Aeromonas salmonicida</i>	Chicken	China	Shen Y, 2018	29967026	
mcr-3.17	MH332767.1	NG_060518.1	1623	WP_111273846.1	540	nd		chromossome?	<i>Aeromonas allsaccharophila</i>	Chicken	China	Shen Y, 2018	29967026	
mcr-3.18	MH332768.1	NG_060519.1	1623	WP_111273847.1	540	nd		chromossome?	<i>Aeromonas caviae</i>	Unknown - aq	China	Shen Y, 2018	29967026	
mcr-3.19	NEFW01000046.1	NG_055497.1	1626	WP_087879616.1	541	M23V		nd	<i>Citrobacter freundii</i>	Pig	China	Li XP, 2017	28433744	
mcr-3.20	FLW001000034.1	NG_055493.1	1626	WP_055801616.1	541	D295E		nd	<i>Klebsiella pneumoniae</i>	Human	Thailand	Pathogen Informatics, Wellco	Unpublished	
mcr-3.21	MH371140.1	NG_065453.1	1626	WP_094312656.1	541	nd		Incl1	<i>Klebsiella pneumoniae</i>	Stool	France	Hadjadj L, 2019	31849875	
mcr-3.22	NQC02000005.1	NG_060581.2	1626	WP_094308975.1	541	nd		nd	<i>Klebsiella pneumoniae</i>	Swine	Thailand	Fouts D, 2017	Unpublished	
mcr-3.23	NQC201000032.1	NG_060583.1	1626	WP_094313523.1	541	nd		nd	<i>Klebsiella pneumoniae</i>	Human	Thailand	Fouts D, 2017	Unpublished	
mcr-3.24	NQC801000188.1	NG_060580.1	1626	WP_094321595.1	541	nd		nd	<i>Shigella sonnei</i>	Human	Thailand	Fouts D, 2017	Unpublished	
mcr-3.25	PPT01000085.1	NG_060585.1	1623	WP_103252528.1	540	nd		nd	<i>Aeromonas veronii</i>	Human	China	Sun Q, 2018	29774212</	

mcr-3.33	MT791039.1	NG_070771.1	1623	WP_188331892.1	540	nd	nd	<i>Aeromonas jandaei</i>	Unknown - rivt	South Africa	Snyman Y, 2020	Unpublished
mcr-3.34	MT791040.1	NG_070772.1	1623	WP_188331893.1	540	nd	nd	<i>Aeromonas jandaei</i>	Unknown - rivt	South Africa	Snyman Y, 2020	Unpublished
mcr-3.35	MT809044.1	NG_070773.1	1623	WP_188331894.1	540	nd	nd	<i>Aeromonas jandaei</i>	Unknown - rivt	South Africa	Snyman Y, 2020	Unpublished
mcr-3.36	MT809045.1	NG_070774.1	1623	WP_188331895.1	540	nd	nd	<i>Aeromonas jandaei</i>	Unknown - rivt	South Africa	Snyman Y, 2020	Unpublished
mcr-3.37	MT809047.1	NG_070775.1	1623	WP_188331896.1	540	nd	nd	<i>Aeromonas veronii</i>	Unknown - rivt	South Africa	Snyman Y, 2020	Unpublished
mcr-3.38	MT787344.1	NG_070776.1	1623	WP_039039919.1	540	nd	nd	<i>Aeromonas caviae</i>	Human	Japan	Yu L, 2020	Unpublished
mcr-3.39	MT872721.1	NG_070777.1	1626	WP_1145000971.1	541	nd	nd	<i>Escherichia coli</i>	Swine	Thailand	Leangapichart T, 2020	Unpublished
mcr-3.40	MT872722.1	NG_070778.1	1626	WP_188331897.1	541	nd	nd	<i>Klebsiella pneumoniae</i>	Human	Thailand	Leangapichart T, 2020	Unpublished
mcr-3.41	JACGLO10000001.1	NG_071230.1	1623	WP_181497495.1	540	nd	nd	<i>Aeromonas veronii</i>	Human	Thailand	Hatrongjit R, 2020	Unpublished
mcr-4.1	MF543359	NG_055659.1	1626	WP_099156046.1	541	ColE	ColE	<i>Salmonella Typhimurium</i>	Pig	Italy	Carattoli A, 2017	28797329
mcr-4.2	MG459157	NG_057471.1	1626	WP_109545058.1	541	Q331R	nd	<i>Escherichia coli</i>	Pig	Germany	Hammerl JA, 2018	Unpublished
mcr-4.2 (same as above)	MG822663	--	--	--	--	--	nd	<i>Escherichia coli</i>	Pig	Spain	Garcia et al. 2018	29635007
mcr-4.2 (same as above)	MG581979	--	--	1626 (miss)	--	--	nd	<i>Salmonella Typhimurium</i>	Human	Italy	Carretto E, 2018	29338810
mcr-4.3	MG026621.1	NG_057461.1	1626	WP_011638903.1	541	V179G/V236F	nd	<i>Enterobacter cloacae</i>	Human	Singapore	Teo JWP, 2018	29237785
mcr-4.4	MG822665.1	NG_057465.1	1626	WP_109545055.1	541	Q331R/P110L	nd	<i>Escherichia coli</i>	Pig	Spain	Garcia et al. 2018	29635007
mcr-4.5	MG822664.1	NG_057464.1	1626	WP_109545054.1	541	Q331R/H205N	nd	<i>Escherichia coli</i>	Pig	Spain	Garcia et al. 2018	29635007
mcr-4.6	MH423812 / ERS180197	NG_061608.1	1626	WP_116786828.1	541	V236F	nd	<i>Salmonella Kedougou</i>	Pig	Spain	Rebello AR, 2018	29439754
mcr-5.1	KY807921	NG_055658.1	1644	WP_053821788.1	547	ColE	ColE	<i>Salmonella Paratyphi B</i>	Chicken	Germany	Borowiak M, 2017	28962028
mcr-5.2	MG384740	NG_057467.1	1641	WP_109545057.1	546	E234del	ColE?	<i>Enterobacteriaceae</i>	Pig	Germany	Hammerl JA, 2018	29444245
mcr-5.3	MG886287.1	NG_061405.1	1644	WP_114699278.1	547	nd	nd	<i>Escherichia coli</i>	Horse	Brazil	Fernandes M, 2018	Unpublished
mcr-5.4	MK965519.1	NG_065945.1	1644	QCT85452.1	547	nd	nd	Unknown	Hospital metagenome		Fleres G, 2019	31504580
mcr-6.1	MF176240.1	NG_055781.1	1617	WP_099982813.1	538			<i>Moraxella sp.</i>	Pig	United Kingdom	AbuOun M, 2018	29091227
mcr-7.1	MG267386.1	NG_056413.1	1620	WP_104009851.1	539		IncHI2	<i>Klebsiella pneumoniae</i>	Chicken	China	Yang Y, 2018	29912417
mcr-8	MG736312.1	NG_061399.1	1698	WP_114699275.1	565		IncFII	<i>Klebsiella pneumoniae</i>	Pig	China	Wang X, 2018	29970891
mcr-8.2	MH638291.1	NG_061627.1	1698	WP_072310976.1	565	nd	nd	<i>Klebsiella pneumoniae</i>	Unknown	China	Xiang R, 2018	Unpublished
mcr-8.2 (same as above)	MH921191.1	--	--	--	--	--	nd	<i>Klebsiella pneumoniae</i>	Human urine	China	Qin S, 2018	Unpublished
mcr-8.2 (same as above)	MH703569.1	--	--	--	--	--	nd	<i>Klebsiella pneumoniae</i>	Human sputum	China	Yao Z, 2018	Unpublished
mcr-8.3	MH598530.1	NG_066547.1	1698	WP_150823497.1	565	nd	IncFII	<i>Klebsiella pneumoniae</i>	Stool	France	Hadjadj L, 2019	31849875
mcr-8.4	MH791448.1	NG_074757.1	1698	WP_118860654.1	565	nd	nd	<i>Raoultella ornithinolytica</i>	Chicken	China	Wang X, 2018	Unpublished
mcr-8.5	MN836537.1	None	1698	QKV49902.1	565	A51V/A232S/F488I/Y5	IncFII(K)	<i>Klebsiella pneumoniae</i>	Chicken	China	Sun S, 2020	32401163
mcr-9.1	MK791138.1	NG_064792.1	1620	WP_001572373.1	539		IncHI2	<i>Salmonella Typhimurium</i>	Human	USA	Carroll LM, 2019	31064835
mcr-9 (same as above)	MK070339.1	--	--	--	--	--	IncHI2	<i>Escherichia coli</i>	Human	France	Kieffer N, 2019	31209009
mcr-9 (same as above)	MH829594.1:224605-221	--	--	--	--	--	IncHI2	<i>Enterobacter cloacae</i>	Swine feces	China	Zhu Y, 2020	30879063
mcr-9.2	MN164032.1	None	1623	QDM39449.1	540	nd	nd	<i>Enterobacter hormaechei</i>	Human	China	Feng Y, 2019	Unpublished
mcr-9.3	MT505326.1	None	1620	QKF95689.1	539	nd	nd	<i>Klebsiella pneumoniae</i>	Human	Portugal	Manageiro V, 2020	Unpublished
mcr-10.1	MN179494.1	NG_066767.1	1620	WP_023332837.1	539		IncFIA	<i>Enterobacter roggenkampii</i>	Human	China	Wei L, 2020	32116151
mcr-10.2	JAGFWV010000009.1	NG_076640.1	1620	WP_208557566.1	539	nd	nd	<i>Enterobacter kobei</i>	Human	China	Quan J, 2021	Unpublished
mcr-10.3	JAGFWV010000051.1	NG_076639.1	1620	WP_208584627.1	539	nd	nd	<i>Enterobacter kobei</i>	Human	China	Quan J, 2021	Unpublished
mcr-10.4	JAGFWU010000059.1	NG_076638.1	1620	WP_208595319.1	539	nd	nd	<i>Enterobacter ludwigii</i>	Human	China	Quan J, 2021	Unpublished

Updated 13-10-2021

Legend:

nd: Not determined

Grey: repeated sequence