

Table S2. Overview of the 47 *E. coli* strains used for comparison of PHR and KHR and further characterization

Strain	Phylogenetic group	Sequence type	Antibiotic resistance gene	antibiotic (co-) resistance
Af23 [#]	A	10	<i>mcr-1</i> , <i>bla</i> _{TEM-1}	AMX, CIP, CS, SXT, TET
K12 ^{*#}		10		
CHD28		90	<i>bla</i> _{CTX-M-15} , <i>bla</i> _{OXA-1}	AMP, CTX, GEN
CHD1 [#]		93	<i>bla</i> _{TEM-1B} , <i>bla</i> _{CTX-M-1}	AMP, CTX
CDF8		167	<i>mcr-1</i> , <i>bla</i> _{CTX-M}	AMP, AMX, CIP, CS, CTX, KAN, NAL
Af49 [#]		226	<i>mcr-1</i> , <i>bla</i> _{CTX-M-55} , <i>fosA3</i> , <i>tetR</i>	AMX, CHL, CIP, CS, CTX, FOS, SXT, TET
CHD25 [*]	ABD	453	<i>bla</i> _{TEM-1B}	AMP
CHD15	AxB1	162	<i>bla</i> _{TEM-1B}	AMP
CHD29 [*]		399		
S115 [#]	B1	23	<i>mcr-1</i> , <i>bla</i> _{VIM-1} , <i>bla</i> _{CMY-2} , <i>floR</i>	CIP, CHL, CS, IPM, SXT, IPM,
Af45 [#]		101	<i>mcr-1</i>	CS, SXT, TET
CDF6 [#]		446	<i>mcr-1</i> , <i>bla</i> _{CTX-M-55} , <i>fosA3</i> , <i>tetR</i>	AMX, CIP, CS, CTX, SXT, TET
CHD18 [*]	B2	12		
ATCC 25922 ^{*#}		73		
CHD3 ^{*#}		73		
CHD27 ^{*#}		73	<i>bla</i> _{TEM-1B}	AMP
83972 ^{*#}		73		
UTI89 ^{*#}		95		
CHD10		126		
CHD14 [*]		127		
CHD2 [#]		131	<i>bla</i> _{TEM-1B}	AMP
CHD5 ^{*#}		131		
CHD16 [#]		131	<i>bla</i> _{TEM-1B} , <i>bla</i> _{CTX-M-15}	AMP, CTX, GEN
CHD94 ^{*#}		131		
CDF2 ^{*#}		131	<i>mcr-1</i> , <i>bla</i> _{TEM-1} , <i>bla</i> _{TEM-52}	AMX, CS, CTX, GEN, NAL, SXT TET
H75 ^{*#}		131	<i>bla</i> _{CTX-M-15}	AMP, CTX,
CHD13 [*]		135		
CHD6 [*]		141		
CHD8		5640	<i>bla</i> _{TEM-1B}	AMP
CHD17 [#]	D	38	<i>bla</i> _{CTX-M-15} , <i>bla</i> _{OXA-1}	AMP, CTX, GEN
CHD11 [#]		69		
CHD22 [#]		69		
CHD23 [#]		69		
CHD9		405	<i>bla</i> _{TEM-1B} , <i>bla</i> _{CTX-M-14}	AMP, CTX
Af31 ^{*#}		624	<i>mcr-1</i> , <i>florR</i>	AMX, CHL, CIP, CS, SXT, TET
Af48 [#]		624	<i>mcr-1</i> , <i>bla</i> _{CMY-2}	AMX, CEF, CIP, CS, KAN, SXT, TET
CHD20	D/F	648	<i>bla</i> _{CTX-M-15}	AMP, CTX
CHD21	F	117		
Af24	unknown	1007	<i>mcr-1</i> , <i>bla</i> _{TEM-1}	AMX, CHL, CIP, CS, SXT, TET
CHD4 [*]		1064		
NRZ14408 [*]		1851	<i>mcr-1</i> , <i>bla</i> _{KPC}	CIP, CS, IMP
CHD7 [*]		2020	<i>bla</i> _{TEM-1B}	AMP
CDF1		3077	<i>mcr-1</i> , <i>bla</i> _{TEM-1}	AMX, CIP, CS, GEN, SXT, TET

IR3		not known	<i>bla_{NDM-1}</i>	AMP, CIP, CTX, IMP
MI-4*		not known	<i>nalR</i>	NAL
1949820		not known	<i>gyrA</i> S83N, <i>gyrA</i> D87N, <i>parC</i> S80I	CIP
523*		not known	<i>nalR</i>	NAL

- strains used for breeding,* - strains used for efficiency determination of bred phages compared to ancestors, AMP – Ampicillin, AMX – Amoxicillin, CIP – ciprofloxacin, CHL, Chloramphenicol, CS – Colistin, CTX – Cefotaxim, FOS – Fosfomycin, GEN – Gentamicin, IMP – Imipenem, KAN – Kanamycin, NAL – Nalidixin acid, SXT – Trimethoprim-sulphamethoxazole, TET - tetracycline