

Supplementary information

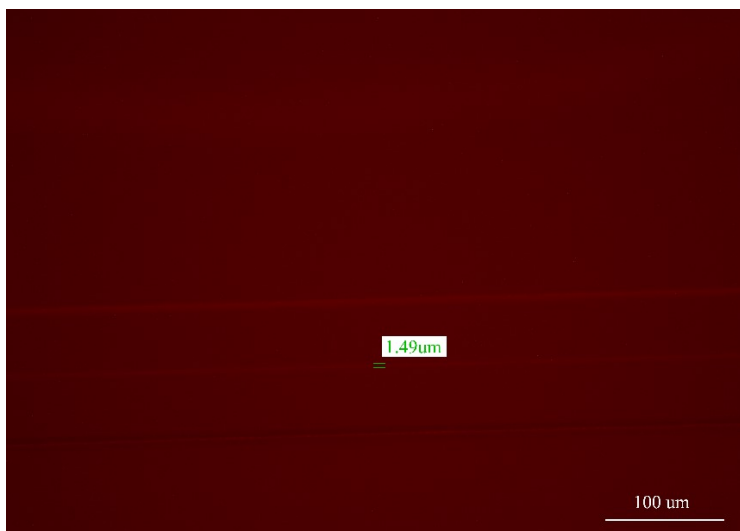


Figure S1. Microscopic view of focusing result of sheath flow microfluidic chip.

	<i>MRSA</i>	<i>MSSA</i>
<i>MRSA</i>	2244	448
<i>MSSA</i>	480	2212

Figure S2. ResistNet's confusion matrix on the test set.

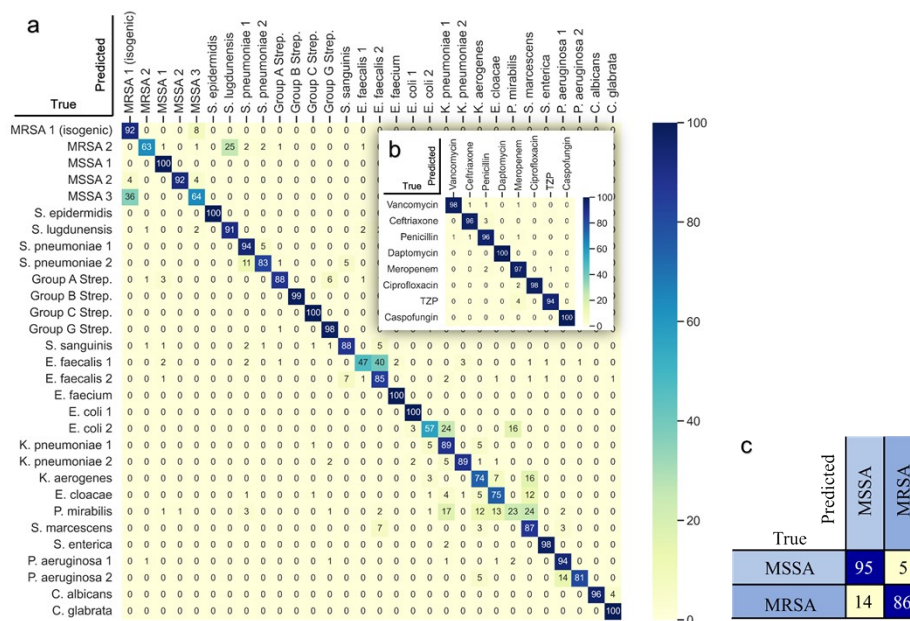


Figure S3. Confusion matrix of test results using SERB-CNN on the reference dataset (a) Prediction results for 20 strains (b) Corresponding empirical treatment prediction results (c) MRSA/MSSA resistance prediction results.

	<i>MRSA</i>	<i>MSSA</i>
<i>MRSA</i>	2113	76
<i>MSSA</i>	57	1914

Figure S4. BiFusionPathoNet results confusion matrix.

Table S1. Details of the 20 strains used to construct the fine-tuning and testing dataset

Species	Figure label	Isolate code	Source
Staphylococcus aureus	MRSA 1	ATCC43300	QC
Staphylococcus aureus	MRSA 2	13-12	Sputum
Staphylococcus aureus	MRSA 3	13-57	Sputum
Staphylococcus aureus	MRSA 4	13-87	Sputum
Staphylococcus aureus	MRSA 5	14-20	Sputum
Staphylococcus aureus	MRSA 6	3022	Blood
Staphylococcus aureus	MRSA 7	3036	Hydroperitoneum
Staphylococcus aureus	MRSA 8	3064	Blood
Staphylococcus aureus	MRSA 9	3116	Exudate
Staphylococcus aureus	MRSA 10	3253	Blood
Staphylococcus aureus	MSSA 1	ATCC6538	QC
Staphylococcus aureus	MSSA 2	10-49	Sputum
Staphylococcus aureus	MSSA 3	10-98	Sputum
Staphylococcus aureus	MSSA 4	3027	Sputum
Staphylococcus aureus	MSSA 5	3028	Exudate
Staphylococcus aureus	MSSA 6	3032	Emphysema
Staphylococcus aureus	MSSA 7	3060	Emphysema
Staphylococcus aureus	MSSA 8	3072	Secretion
Staphylococcus aureus	MSSA 9	3141	Sputum
Staphylococcus aureus	MSSA 10	3169	Secretion