

## Electronic Supplementary Information

### **Enhanced Antibacterial activity of a Novel Silver-based Metal Organic Framework Towards Multidrug-resistant *Klebsiella pneumonia***

Payam B. Hassan,<sup>a</sup> Sameera Sh. Mohammed Ameen<sup>b</sup>, Lana Mohammed<sup>c</sup>, Sirwan M. Muhammed Ameen,<sup>a</sup> and Khalid M. Omer<sup>d\*</sup>

<sup>a</sup> Department of Biology, College of Science, University of Sulaimani, Sulaymaniyah, 46002, Kurdistan region, Iraq.

<sup>b</sup> Department of Chemistry, College of Science, University of Zakho, Zakho, Kurdistan region - Iraq

<sup>c</sup> Department of Medical Laboratory, College of Health and Medical Technology, Sulaimani Polytechnic University, Sulaymaniyah, Iraq.

<sup>d</sup> Department of Chemistry, College of Science, University of Sulaimani, Qliasan St. 46002, Sulaymaniyah, Kurdistan region, Iraq.

Corresponding author: [khalid.omer@univsul.edu.iq](mailto:khalid.omer@univsul.edu.iq)

## Chemicals

All materials and solvents were of analytical grades and used without purification. AgNO<sub>3</sub> (99%), triethylamine (TEA), methanol, and terephthalic acid (TP, 98.9%; Sigma-Aldrich (Germany)). Thiobarbituric acid (TBA; Canvax, Spain)

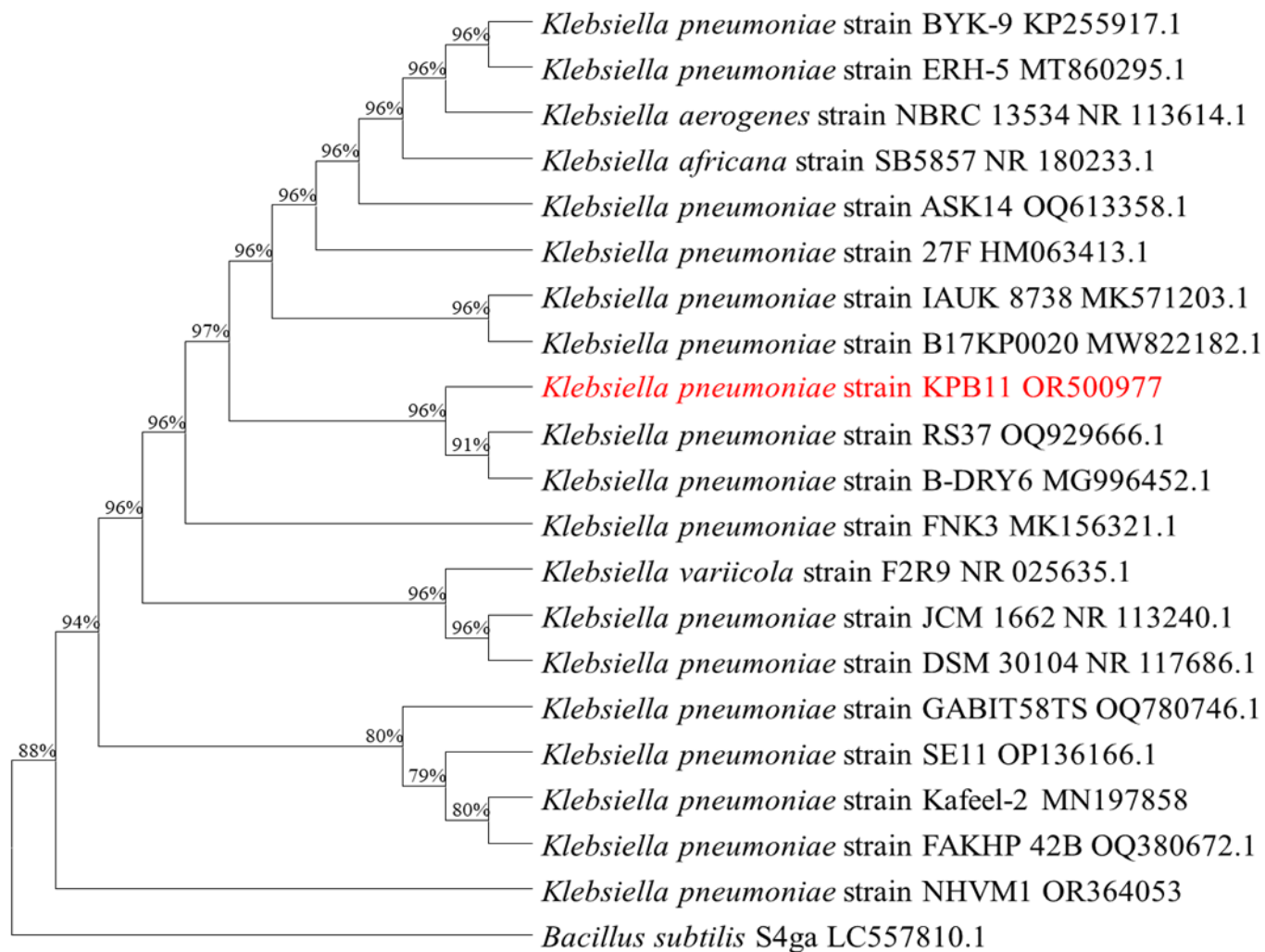
## Instrumentations and characterizations

The following instruments were used for characterization and analysis of Ag-MOFs: field emission scanning electron microscopy (FESEM) and energy dispersive spectrum (EDS) (MIRA III, TESCAN, Czech), transmission electron microscopy (TEM) (TEC9G20, FEI, USA) at 200 KV, powder X-ray diffraction (PW1730, Netherland), Fourier transform infrared spectra (FT-IR) (IRAFFinity-1, Shimadzu). Powder X-ray diffractometer (PXRD) using D8-advanced diffractometer (Philips, PW1730, Netherlands).

**Table S1.** Antibiotic susceptibility test of *K. pneumoniae* KPB11 by VITEK2 system and Kirby-Bauer disk diffusion method.

<b>Antimicrobial</b>	<b>MIC</b>	<b>Interpretation</b>	<b>Antimicrobial</b>	<b>MIC</b>	<b>Interpretation</b>
Amoxicillin/Clavulanic Acid	>= 32	R	Imipenem	>= 16	R
Piperacillin/Tazobactam	>= 128	R	Meropenem	>= 16	R
Cefazolin	>= 64	R	Amikacin	32	I
Cefuroxime	>= 64	R	Gentamicin	8	I
Cefuroxime Axetil	>= 64	R	Ciprofloxacin	>= 4	R
Ceftazidime	>= 64	R	Fosfomycin		
Ceftriaxone	>= 64	R	Nitrofurantoin	128	R
Cefepime	>= 32	R	Trimethoprim/ Sulfamethoxazole	>= 320	R
Ertapenem	>= 8	R			

<b>Antimicrobials</b>	<b>Zone size</b>	<b>interpretation</b>	<b>Antimicrobials</b>	<b>Zone size</b>	<b>interpretation</b>
Cefixime	0	R	Tetracycline	0	R
Cefdinir	0	R	Tigecycline	20	S
Cefpodoxime –clavulanate	0	R	Fosfomycin	0	R
Cefpodoxime	0	R	Azithromycin	0	R
Colistin	17	S	Clarithromycin	0	R
Streptomycin	19	S			
Moxifloxacin	0	R			
Levofloxacin	0	R			
Doxycycline	0	R			



**Figure S1.** Phylogenetic tree of *K. pneumoniae* KPB11 based on partial 16S rRNA gene sequencing.