

Supplementary materials for the manuscript entitled  
“Effect of humidity on antibacterial activity of copper and its alloy surfaces”  
which is authored by Akiko Yamamoto and Yuki Ito.

Eight pages with following figures and tables:

Figure S1; Schematic explanation of the antibacterial test procedure using WST-1 including data analysis for the estimation of initial number of survived bacterial cells.

Figure S2; Additional antibacterial test results of C7060, C7150 and MONEL 400 by the film method.

Figure S3; Additional antibacterial test results of MONEL 400 and antibacterial stainless steel under controlled humidity (90% RH).

Table S1; The results of the statistical analysis of the antibacterial assay under controlled humidity for C1020 with *Escherichia coli* by parallelism test of 2 regression lines (data in Fig. 2).

Table S2; The results of the statistical analysis of the antibacterial assay under controlled humidity of 60%RH with *Escherichia coli* by parallelism test of 2 regression lines (data in Fig. 3a).

Table S3; The results of the statistical analysis of the antibacterial assay under controlled humidity of 35%RH with *Escherichia coli* by parallelism test of 2 regression lines (data in Fig. 3b).

Table S4; The results of the statistical analysis of the antibacterial assay under controlled humidity of 60%RH with *Staphylococcus aureus* by parallelism test of 2 regression lines (data in Fig. 4a).

Table S5. The results of the statistical analysis of the antibacterial assay under controlled humidity of 35%RH with *Staphylococcus aureus* by parallelism test of 2 regression lines (data in Fig. 4b).

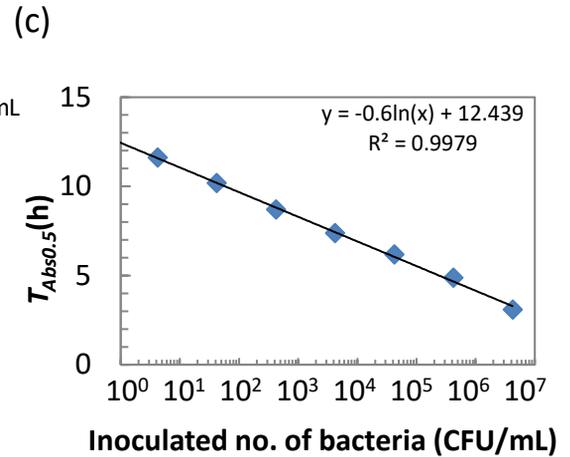
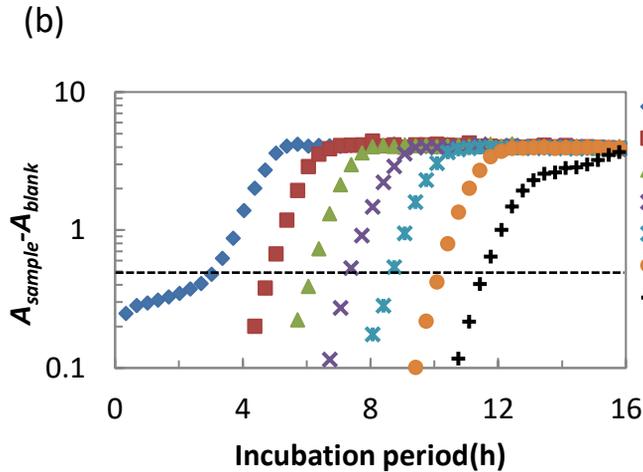
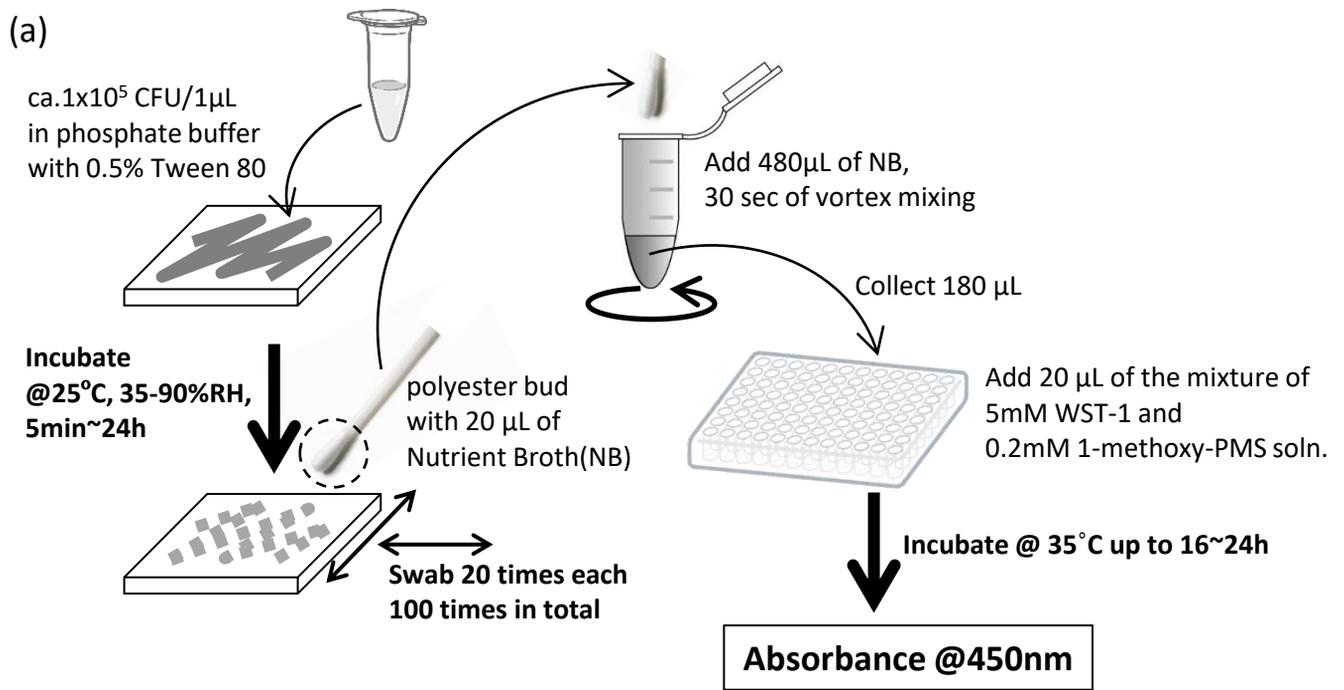


Fig.S1 Schematic explanation of (a) procedure of antibacterial activity evaluation using WST-1, (b) absorbance change obtained by periodical measurement, and (c) calibration curve plotting the time to reach the absorbance 0.5 and the inoculated number of bacteria.

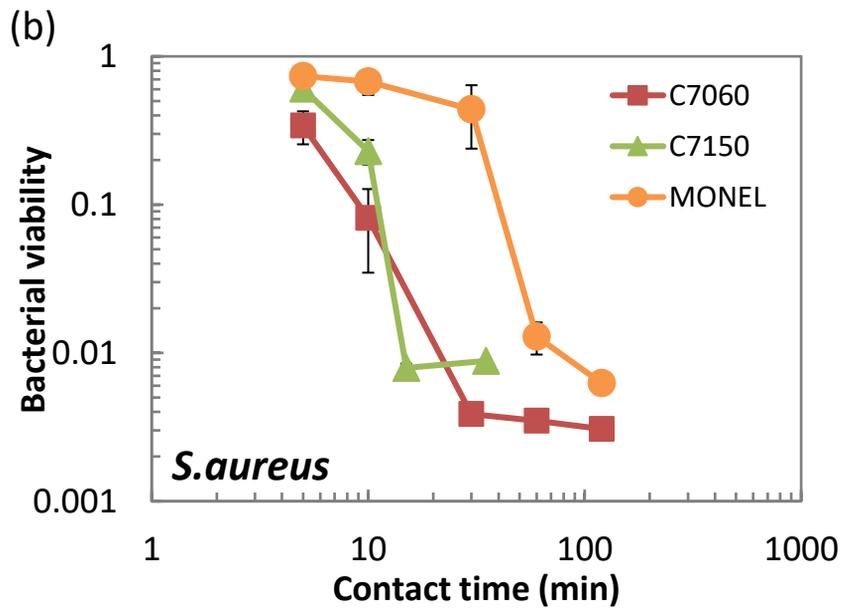
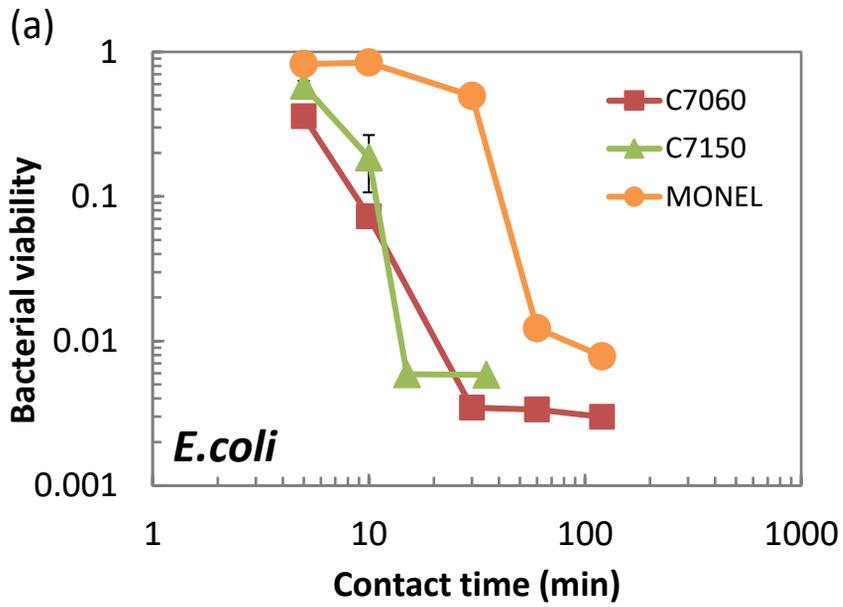


Fig.S2 The results of antibacterial assay by the film method for C7060, C7150, and MONEL against *Escherichia coli* (a) and *Staphylococcus aureus* (b), mean  $\pm$  sd.

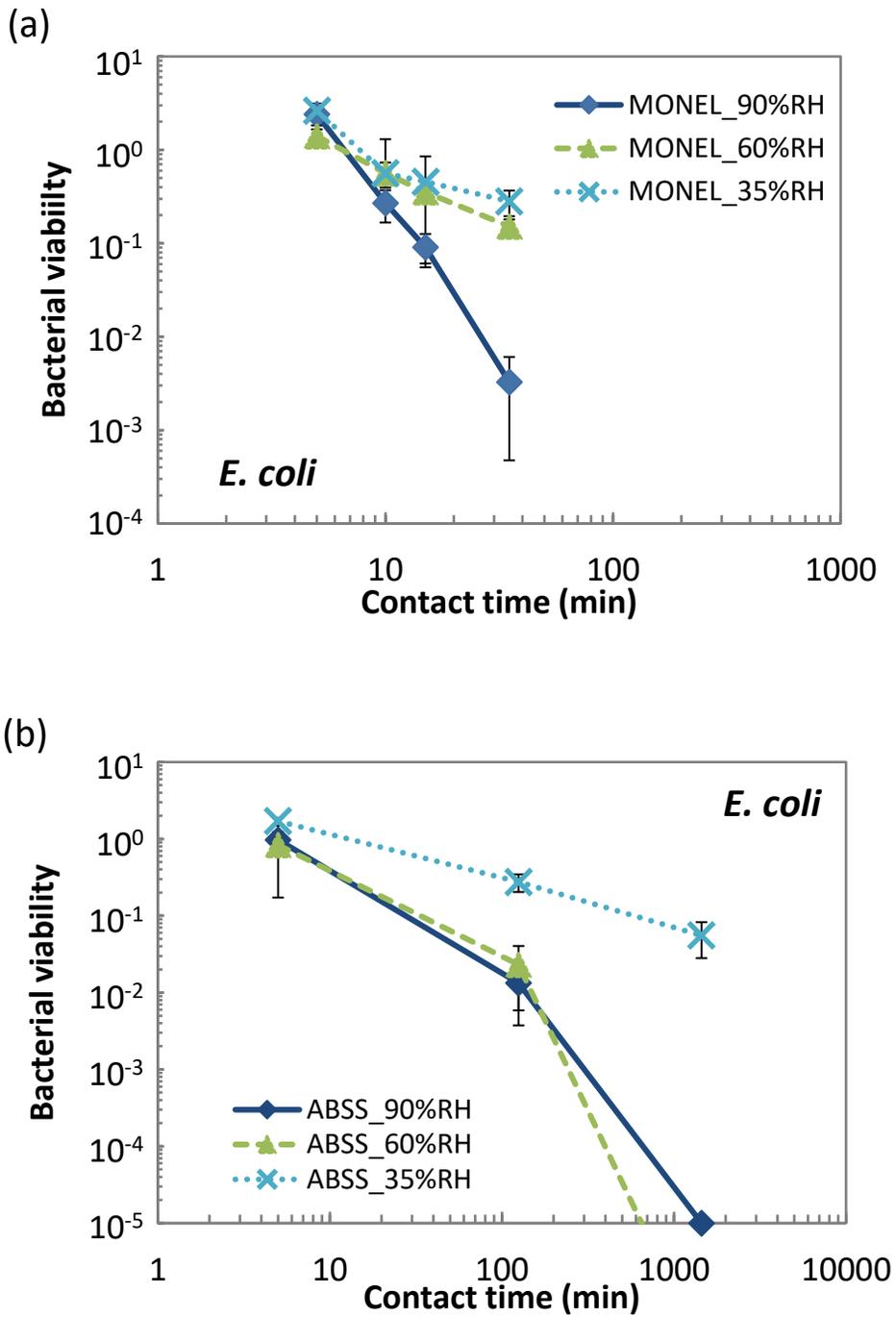


Fig.S3 The results of the antibacterial assay under controlled humidity for MONEL (a) and antibacterial stainless steel (b) against *Escherichia coli*. N=2, mean  $\pm$  sd.

Table S1. The results of the statistical analysis of the antibacterial assay under controlled humidity for C1020 with *Escherichia coli* by parallelism test of 2 regression lines (data in Fig. 2).

	<b>75%RH</b>	<b>60%RH</b>	<b>50%RH</b>	<b>35%RH</b>
<b>90%RH</b>	Not Sig.	p<0.01, slope	p<0.001, slope	p<0.001, slope
<b>75%RH</b>	—	p<0.001, slope	p<0.001, slope	p<0.001, slope
<b>60%RH</b>	—	—	p<0.001, slope	p<0.001, slope
<b>50%RH</b>	—	—	—	p<0.001, intercept

“Slope” indicates the null hypothesis of the equality in the slopes of two regression lines.

“Intercept” indicates the null hypothesis of the equality in the intercepts of two regression lines, which have the equal slope.

Table S2. The results of the statistical analysis of the antibacterial assay under controlled humidity of 60%RH with *Escherichia coli* by parallelism test of 2 regression lines (data in Fig. 3a).

	<b>C7060</b>	<b>C7150</b>	<b>MONEL</b>	<b>ABSS</b>
<b>C1020</b>	p<0.01, intercept	p<0.05, slope	p<0.001, slope	p<0.001, slope
<b>C7060</b>	—	p<0.001, intercept	p<0.001, slope	p<0.001, slope
<b>C7150</b>	—	—	p<0.001, slope	p<0.01, slope
<b>MONEL</b>	—	—	—	p<0.01, slope

“Slope” indicates the null hypothesis of the equality in the slopes of two regression lines.

“Intercept” indicates the null hypothesis of the equality in the intercepts of two regression lines, which have the equal slope.

Table S3. The results of the statistical analysis of the antibacterial assay under controlled humidity of 35%RH with *Escherichia coli* by parallelism test of 2 regression lines (data in Fig. 3b).

	<b>C7060</b>	<b>C7150</b>	<b>MONEL</b>	<b>ABSS</b>
<b>C1020</b>	p<0.001, intercept	p<0.05, intercept	p<0.001, intercept	p<0.01, slope
<b>C7060</b>	—	p<0.001, intercept	p<0.001, intercept	p<0.05, slope
<b>C7150</b>	—	—	p<0.05, slope	p<0.001, slope
<b>MONEL</b>	—	—	—	p<0.05, slope

“Slope” indicates the null hypothesis of the equality in the slopes of two regression lines.

“Intercept” indicates the null hypothesis of the equality in the intercepts of two regression lines, which have the equal slope.

Table S4. The results of the statistical analysis of the antibacterial assay under controlled humidity of 60%RH with *Staphylococcus aureus* by parallelism test of 2 regression lines (data in Fig. 4a).

	<b>C7060</b>	<b>C7150</b>	<b>MONEL</b>	<b>ABSS</b>
<b>C1020</b>	p<0.01, slope	p<0.001, slope	p<0.001, slope	p<0.01, intercept
<b>C7060</b>	—	p<0.001, slope	p<0.001, slope	p<0.001, slope
<b>C7150</b>	—	—	p<0.001, slope	p<0.001, slope
<b>MONEL</b>	—	—	—	p<0.001, slope

“Slope” indicates the null hypothesis of the equality in the slopes of two regression lines.  
 “Intercept” indicates the null hypothesis of the equality in the intercepts of two regression lines, which have the equal slope.

Table S5. The results of the statistical analysis of the antibacterial assay under controlled humidity of 35%RH with *Staphylococcus aureus* by parallelism test of 2 regression lines (data in Fig. 4b).

	<b>C7060</b>	<b>C7150</b>	<b>MONEL</b>	<b>ABSS</b>
<b>C1020</b>	p<0.001, intercept	p<0.001, intercept	p<0.001, intercept	p<0.01, intercept
<b>C7060</b>	—	Not Sig.	p<0.001, intercept	p<0.001, intercept
<b>C7150</b>	—	—	p<0.05, slope	p<0.01, slope
<b>MONEL</b>	—	—	—	p<0.05, intercept

“Slope” indicates the null hypothesis of the equality in the slopes of two regression lines.  
 “Intercept” indicates the null hypothesis of the equality in the intercepts of two regression lines, which have the equal slope.