

Supplementary Information

Formation of CuO nano-flowered surfaces *via* submerged photo-synthesis of crystallites and their antimicrobial activity

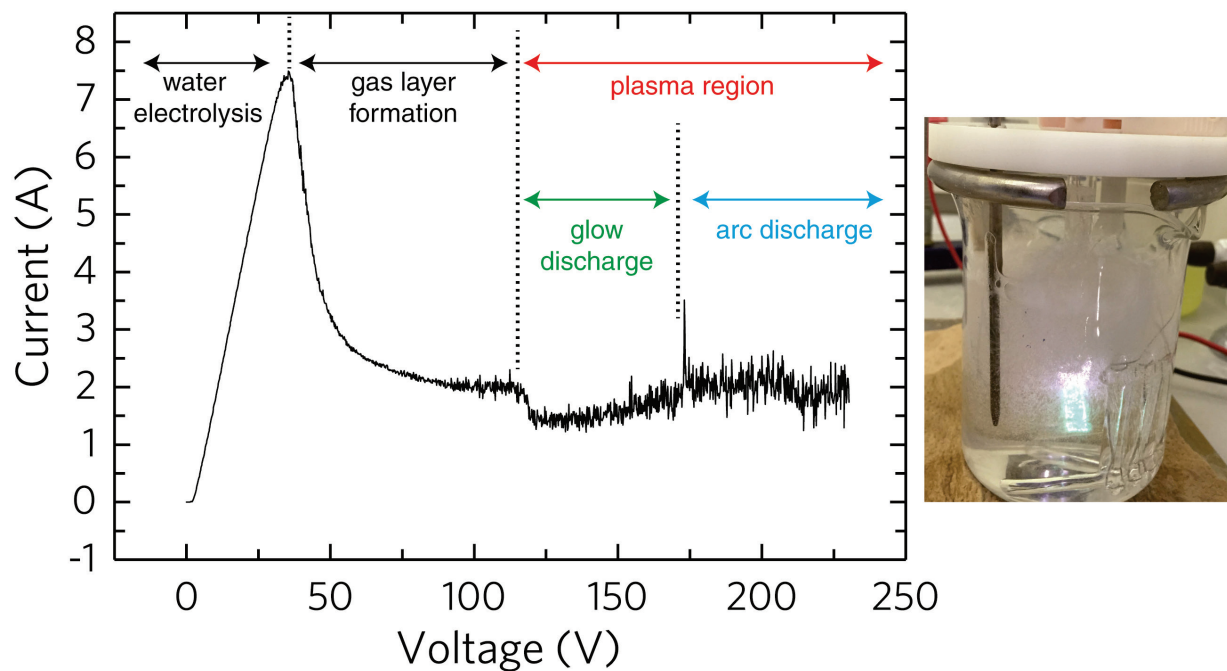
Fumika Nishino¹, Melbert Jeem¹, Lihua Zhang², Kazumasa Okamoto², Satoshi Okabe²,

Seichi Watanabe^{2*}

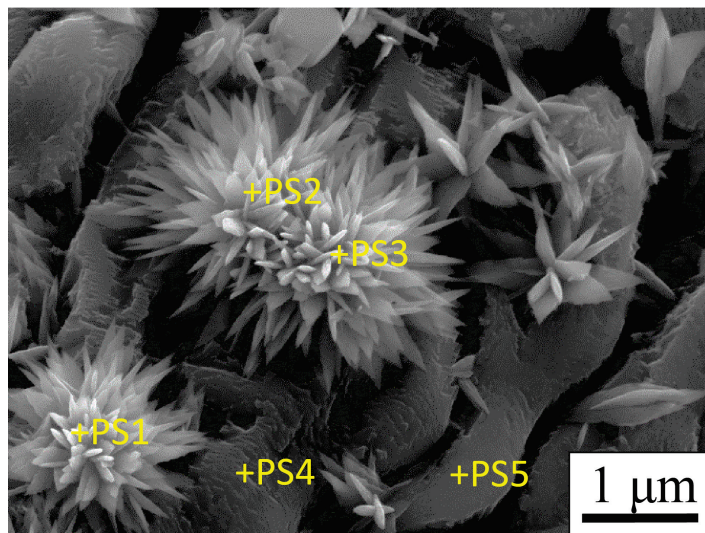
*1. Graduate School of Engineering, Hokkaido University, N13, W8, Kita-ku, Sapporo,
Hokkaido, 060-8628, Japan.*

*2. Faculty of Engineering, Hokkaido University, N13, W8, Kita-ku, Sapporo, Hokkaido,
060-8628, Japan.*

*sw004@eng.hokudai.ac.jp



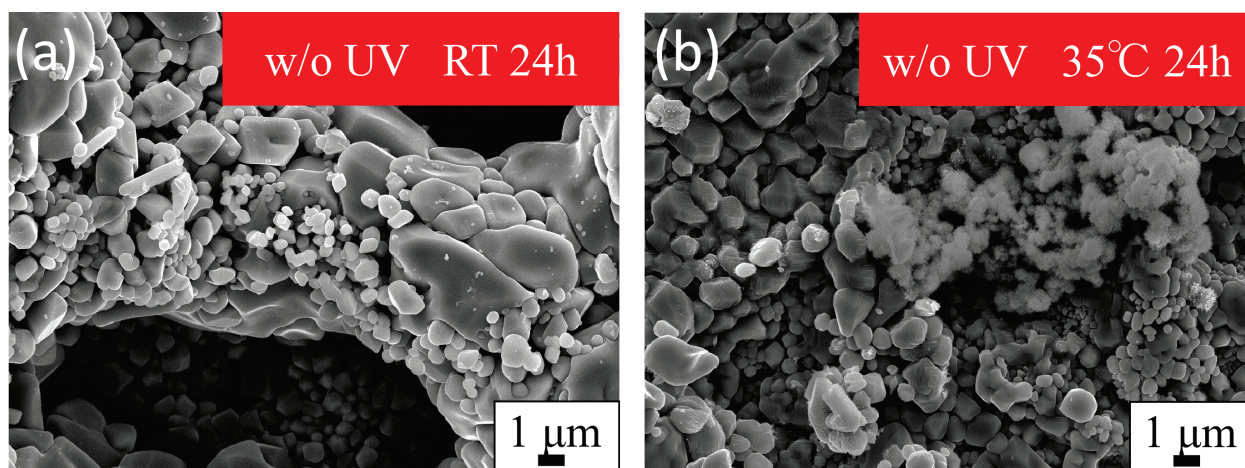
Supplementary Figure S1. Typical current-voltage relation curve during plasma treatment of Cu plate. On the far right is a photograph taken during glow discharge state of Cu.



Supplementary Figure S2. The plan-view FE-SEM image of SPSC-24h sample and PS1-PS5 are the EDS point analysis position.

	Cu (mol %)	O (mol %)
PS 1	50.2	49.8
PS 2	45.7	54.3
PS 3	49.3	50.7
PS 4	74.3	25.7
PS 5	71.3	28.7

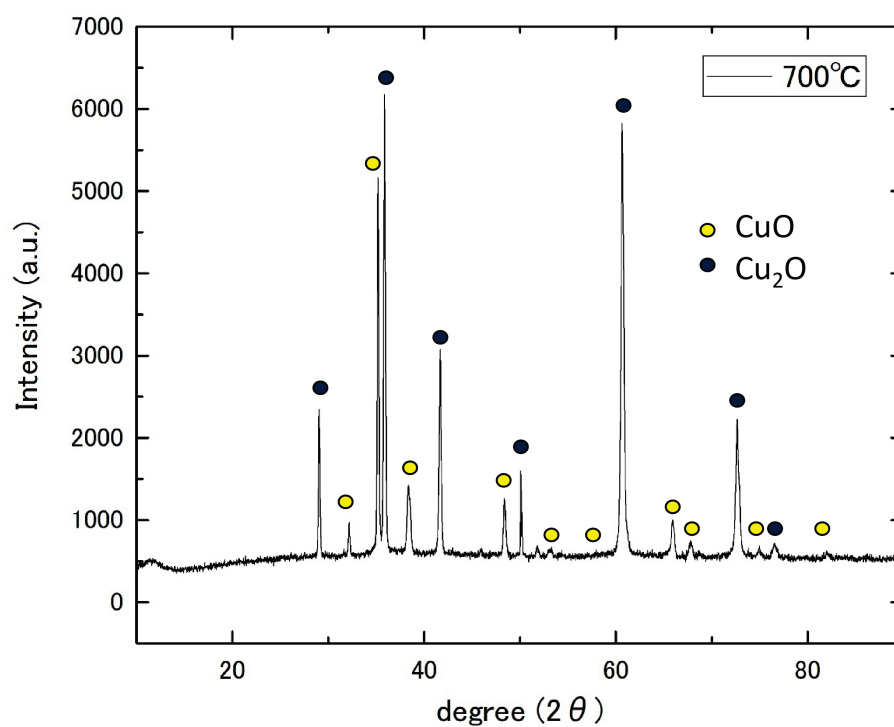
Supplementary Table S1. The EDS points analysis result for point PS1-PS5 in Figure S2.



Supplementary Figure S3. Thermal effect on CuO nanostructure formation without UV irradiation for 24 hours in water. FE-SEM images (a) at room temperature (b) at 35 °C. No nanoflower formation was observed in both cases.

Sample	Before UV (mg)	After UV (mg)	Weight change (mg)	Weight change (%)
Plasma-treated	985.487	985.848	0.361	0.037
Without plasma (raw)	1558.610	1559.011	0.401	0.026

Supplementary Table S2. Typical weight change of Cu samples after UV irradiation.



Supplementary Figure S4. XRD patterns of the sample after been annealed at 700 °C.