*Supplementary Information*

*Original Article*

**Biocompatibility and antibacterial properties of TiCu(Ag) thin films produced by physical vapor deposition magnetron sputtering**

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**Running title:** Biocompatibility and antibacterial properties of TiCu(Ag) thin films

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**Table S1.** Measured Binding Energies (BE), full widths at half maximum (FWHM) and calculated atomic ratios for the investigated samples; the fifth column (n2/n1) shows the atomic ratios between the first and the second component, in increasing BE order, for Cu2p3/2 and Ag3d5/2 core level signals; the sixth column between the atomic ratio (nX/nTi) between silver or copper and titanium (for copper and silver, the sum of both components is considered).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Sample*** | ***Signal*** | ***Assignment*** | ***BE (eV)*** | ***FWHM (eV)*** | ***Atomic ratios*** |
|  |  |  | ***±0.2*** | ***±0.2*** | ***n2/n1*** | ***nX/nTi*** |
| TiCu | Ti2p3/2 | TiO2 | 485.7 | 1.6 |  | 1 |
|  | Cu2p3/2 | Cu | 932.7 | 2.2 | 1 | 0.58 |
|  |  | CuO | 934.9 |  | 0.87 |
| TiCu | Ti2p3/2 | TiO2 | 485.7 | 1.6 |  | 1 |
| (F) | Cu2p3/2 | Cu | 932.8 | 2.5 | 1 | 0.67 |
|  |  | CuO | 935.3 |  | 0.41 |  |
| TiCu-10%Ag | Ti2p3/2 | TiO2 | 485.7 | 1.5 |  | 1 |
|  | Cu2p3/2 | Cu | 932.9 | 2.1 | 1 | 3.7 |
|  |  | CuO | 935.1 |  | 1.1 |  |
|  | Ag3d5/2 | Ag | 368.3 | 1.3 | 1 | 0.37 |
|  |  | Ag2O | 369.7 | 1.3 | 0.11 |  |
| TiCu-10%Ag | Ti2p3/2 | TiO2 | 485.7 | 1.6 |  | 1 |
| (F) | Cu2p3/2 | Cu | 933.2 | 2.4 | 1 | 3.3 |
|  |  | CuO | 935.2 | 2.4 | 2.2 |  |
|  | Ag3d5/2 | Ag | 368.5 | 1.3 | 1 | 0.41 |
|  |  | Ag2O | 369.9 | 1.3 | 0.08 |  |
| TiCu-20%Ag | Ti2p3/2 | TiO2 | 485.7 | 2.1 |  | 1 |
|  | Cu2p3/2 | Cu | 933.5 | 2.7 | 1 | 5.3 |
|  |  | CuO | 935.2 | 2.7 | 1.04 |  |
|  | Ag3d5/2 | Ag | 368.3 | 1.2 | 1 | 0.77 |
|  |  | Ag2O | 369.7 | 1.2 | 0.15 |  |
| TiCu-20%Ag | Ti2p3/2 | TiO2 | 485.7 | 1.7 |  | 1 |
| (F) | Cu2p3/2 | Cu | 933.1 | 2.1 | 1 |  |
|  |  | CuO | 935.2 | 2.1 | 1.24 | 7.8 |
|  | Ag3d5/2 | Ag | 368.5 | 1.2 | 1 | 0.72 |
|  |  | Ag2O | 369.9 | 1.2 | 0.09 |  |
| TiCu-30%Ag | Ti2p3/2 | TiO2 | 485.7 | 1.9 |  | 1 |
|  | Cu2p3/2 | Cu | 932.5 | 2.6 | 1 |  |
|  |  | CuO | 934.7 | 2.6 | 6.3 | 3.4 |
|  | Ag3d5/2 | Ag | 368.2 | 1.2 | 1 | 0.63 |
|  |  | Ag2O | 369.6 | 1.2 | 0.13 |  |
| TiCu-30%Ag | Ti2p3/2 | TiO2 | 485.7 | 1.6 |  | 1 |
| (F) | Cu2p3/2 | Cu | 933.6 | 2.3 | 1 | 11 |
|  |  | CuO | 935.6 | 2.3 | 0.7 |  |
|  | Ag3d5/2 | Ag | 368.6 | 1.3 | 1 | 2.1 |
|  |  | Ag2O | 369.9 | 1.3 | 0.14 |  |

**Table S2.** XPS results after human MRC5 fibroblasts detachment with trypsin.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Sample*** | ***Signal*** | ***Assignment*** | ***BE (eV)******±0.2*** | ***FWHM (eV)******±0.2*** | ***Atomic ratios*** |
| TiCu | C1s | C-CC-N;C-OC=OCOOH | 285.0286.6288.4290.1 | 1.9 | 10.330.260.04 |
| N1s | C=NC-NN+ | 398.5400.1402.8 | 2.3 | 17.50.3 |
| O1s | TiO2C=OC-OH2O | 530.1531.8532.8534.5 | 1.8 | 11.41.40.18 |
| Ti2p | TiO2 | 458.4 | 1.9 |  |
| Cu2p | CuCuO | 932.8935.7 | 2.5 | 10.12 |
| TiCu-10% Ag | C1s | C-CC-N; C-OC=OCOOH | 285.0286.4288.1289.0 | 1.9 | 10.40.260.07 |
| N1s | C=NC-NN+ | 398.8400.1402.5 | 2.1 | 13.70.22 |
| O1s | TiO2C=OC-OH2O | 530.1531.7533.0535.2 | 2.0 | 11.10.550.12 |
| Ag3d | AgAg2O | 368.1369.5 | 1.6 | 10.14 |
| Ti2p | TiO2 | 458.5 | 1.7 | 1 |
| Cu2p | CuCuO | 933.8935.8 | 2.5 | 10.17 |
| TiCu-20% Ag | C1s | C-CC-N;C-OC=OCOOH | 285.0286.5288.2289.7 | 1.9 | 10.490.330.09 |
|  | N1s | C=NC-NN+ | 399.0400.4402.3 | 2.2 | 11.80.2 |
|  | O1s | TiO2C=OC-OH2O | 530.1532.0533.5535.7 | 2.1 | 12.00.710.14 |
|  | Ag3d | AgAg2O | 368.3369.9 | 1.5 | 10.13 |
|  | Ti2p | TiO2 | 458.5 | 1.7 |  |
|  | Cu2p | CuCuO | 932.7935.6 | 2.4 | 8.41 |
| TiCu-30% Ag | C1s | C-CC-N; C-OC=OCOOH | 285.0286.8288.4290.1 | 1.9 | 10.420.020.06 |
| N1s | C=NC-NN+ | 399.0400.5402.1 | 1.7 | 10.330.14 |
| O1s | TiO2C=OC-OH2O | 530.1532.5534.6536.9 | 2.3 | 12.35.61 |
| Ag3d | AgAg2O | 368.5370.2 | 1.7 | 10.25 |
| Ti2p | TiO2 | 458.4 | 1.7 |  |
| Cu2p | CuCuO | 932.9935.5 | 2.3 | 10.085 |